



McGill Bird Observatory
Ten-Year Report:
2005 – 2014

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Cover photo:

Yellow-rumped Warbler banded at McGill Bird Observatory (photo by Marcel Gahbauer)

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1.1 Executive Summary

McGill Bird Observatory (MBO) was established as a pilot migration monitoring project in 2004 at McGill University's Stoneycroft Wildlife Area in Ste-Anne-de-Bellevue, Quebec. Following a successful trial in fall 2004, plans were made over winter to commit to standardized migration monitoring during both spring and fall, starting in 2005. MBO's primary objective is to collect data that can be used to contribute to the understanding of bird movements and population trends, in collaboration with the Canadian Migration Monitoring Network. MBO also delivers a variety of educational programs, ranging from training in field techniques to public presentations and development of identification resources. This report summarizes results from the first ten years of standardized operation at MBO, from winter 2005 (beginning November 2004) through fall 2014 (end of October).

Winter at MBO is defined as October 31 to March 27. The winter program does not have a fixed protocol, and results are highly variable in relation to weather and volunteer availability. Between 35 and 63 species have been observed annually, with a cumulative total of 93. No banding occurred in winter 2008; over the other nine years 2815 birds of 32 species were banded, with the annual total ranging from 32 to 800 individuals of 6 to 19 species. Several species are banded at MBO overwhelmingly during winter, including Mourning Dove, House Finch, and Common Redpoll.

The Spring Migration Monitoring Program (SMMP) covers the ten-week period from March 28 to June 5. Between 133 and 148 species have been observed annually, with a cumulative total of 191. Over ten years, 8410 birds of 97 species have been banded in spring, with the annual total ranging from 627 to 1356 individuals of 59 to 69 species. In descending order, the top species banded in spring overall are Red-winged Blackbird, Cedar Waxwing, Ruby-crowned Kinglet, Tennessee Warbler, and American Goldfinch. Both species richness and abundance tend to peak just past mid-May.

Summer at MBO is defined as the eight-week period from June 6 to July 31. From 2005 to 2008, summer operations were opportunistic and did not follow a fixed protocol; beginning in 2009 the internationally recognized Monitoring Avian Productivity and Survivorship (MAPS) program was adopted as the basis for summer activities. Between 50 and 78 species have been observed annually, with a cumulative total of 100. Over ten years, 1012 birds of 45 species have been banded, including 153 through nest monitoring efforts.

The Fall Migration Monitoring Program (FMMP) covers the thirteen-week period from August 1 to October 30. Between 134 and 151 species have been observed annually, with a cumulative total of 193. Over ten years, 38697 birds of 103 species have been banded in fall, with the annual total ranging between 2792 and 6808. In descending order, the top species banded in fall overall are Yellow-rumped Warbler, White-throated Sparrow, Ruby-crowned Kinglet, American Robin, and Song Sparrow. Species richness usually fluctuates slightly from early August to early mid-October before tapering off to the end of the season, whereas abundance builds to a peak from late September to mid-October and then drops off sharply again.

Owl migration has been actively monitored at MBO during eight fall seasons. Over this period, 1008 Northern Saw-whet Owls have been banded, along with 17 individuals of 4 other owl species. Another 36 foreign-banded owls have been recovered, while 33 of the owls banded at MBO have subsequently been recaptured elsewhere. This success rate is much higher than for other species, which to date have collectively yielded only 51 foreign recoveries of birds banded at MBO, and 9 captures of individuals banded elsewhere.

Appendices to this report provide detailed statistics on the SMMP and FMMP, as well as the seasonal distribution of the 210 species observed and 51959 individuals of 120 species banded at MBO during the 2005-2014 period, plus an overview of weather conditions, and listings of all foreign recoveries and volunteers at MBO.

Much of the research at MBO is oriented toward long-term monitoring of spring and fall migration trends, but species-specific research in collaboration with McGill University students and faculty are pursued, as are broader partnerships with researchers across Canada and beyond. Education is largely a by-product of core research activities, but efforts are made to make the most of opportunities provided. Banding activities allow for training of students and other volunteers in research and bird-handling techniques. All results of MBO programs are publicly available on the MBO website (www.oommbo.org), and considerable effort has been invested in developing a photo-based resource to assist with advanced identification challenges, now housed at Environment Canada's *Piranga* website. Results of MBO research are also shared through research seminars and public presentations, including visits to schools.

The first ten years of research at MBO have already yielded a number of noteworthy results, most of them apparent through preliminary analysis of spring and fall migration monitoring data. For example, Tree Swallows (and most other swallows) have declined steadily over the past decade, but other species have shown steady increases, including Northern Waterthrush and Northern Cardinal. Tennessee and Cape May Warblers have also increased in recent years, presumably reflecting a response to the growing spruce budworm population in central Quebec. Some species are showing a predictable two-year cycle to their numbers on migration (e.g., Blue Jay), while others have had unexpectedly large but unpredictable movements (e.g., Black-capped Chickadee, Cedar Waxwing, Yellow-rumped Warbler). Meanwhile other species have shown a substantial shift in timing over just ten years (e.g., American Redstart and Magnolia Warbler).

For the next five years, 2015-2019, the primary goals for MBO are to maintain consistent operation of existing research programs and to continue building organizational capacity for a stable future in terms of both personnel and funding. Specifically, a broader base of stable funding needs to be cultivated, and ongoing effort is required to train and retain a sufficient number of banders-in-charge to allow for stable and consistent operation of all programs. The data summaries presented in this report should be seen as the starting point for much deeper exploration of the MBO database. Already from ten years of migration monitoring data it is apparent that there are opportunities to investigate changes in seasonal and inter-annual patterns of occurrence, and the data collected from repeats and returns are likely to yield interesting insights upon further analysis. Greater focus now needs to be put on analysis and publication, including greater collaboration with McGill University faculty and students as well as with partner stations in the Canadian Migration Monitoring Network. Both students and MBO researchers will be strongly encouraged to present results of their work at ornithological conferences and publish them in peer-reviewed journals. New initiatives complementary to MBO's core activities will also be pursued, such as participation in the Motus wildlife tracking system, which would allow for insights into the movements of migrants in the area around Montreal, including discovery of key habitat corridors. Concurrently, MBO's education efforts should continue to be expanded, including further banding workshops, development of a bilingual public education program focusing on owls, and ongoing growth of online resources, including the bilingual MBO website and further expansion of advanced bird identification reference material on *Piranga*.



*White-throated Sparrow (left) and Magnolia Warbler (right),
two of the most common migrants at MBO (Photos by Simon Duval)*

1.2 Sommaire exécutif

En 2004, l'Observatoire d'Oiseaux de McGill (OOM) est né sous la forme d'un projet pilote de suivi de la migration sur le site Stoneycroft Wildlife Area de l'Université McGill à Sainte-Anne-de-Bellevue, Québec. Suite à de bons résultats à l'automne 2004, des plans furent mis en place durant l'hiver pour assurer un suivi standardisé de la migration au printemps et à l'automne à partir de 2005. L'objectif principal de l'OOM est d'amasser des données pouvant contribuer à mieux connaître les déplacements et les tendances de populations des oiseaux en collaboration avec le Réseau Canadien de Surveillance des Migrations. L'OOM possède aussi un volet éducatif qui comprend de la formation spécifique sur le terrain, des présentations publiques et le développement de ressources d'identification. Ce rapport résume les résultats des dix premières années de suivi standardisé à l'OOM, de l'hiver 2005 (débutant en novembre 2004) jusqu'à l'automne 2014 (fin octobre).

L'hiver à l'OOM couvre la période du 31 octobre au 27 mars. Le programme d'hiver ne possède pas de protocole fixe, ce qui fait que les résultats varient en fonction de la météo et de la disponibilité des bénévoles. Entre 35 et 63 espèces ont été observées annuellement, avec un cumulatif total de 93. Aucun baguage n'a été effectué à l'hiver 2008, alors que durant les neuf autres années 2815 oiseaux de 32 espèces ont été bagués, avec un total annuel allant de 32 à 800 individus de 6 à 19 espèces. Certaines espèces, tel que la Tourterelle triste, le Roselin familier et le Sizerin flammé, sont baguées à l'OOM majoritairement durant l'hiver.

Le programme de suivi de la migration printanière couvre la période de dix semaines allant du 28 mars au 5 juin. Entre 133 et 148 espèces ont été observées annuellement, avec un cumulatif de 191. Durant les dix années, 8410 oiseaux de 97 espèces ont été bagués au printemps, avec un total annuel allant de 627 à 1356 individus de 59 à 69 espèces. En ordre décroissant, les cinq espèces les plus baguées sont le Carouge à épaulettes, le Jaseur d'Amérique, le Roitelet à couronne rubis, la Paruline obscure et le Chardonneret jaune. La diversité et l'abondance des espèces ont tendance à atteindre leur apogée tout juste après la mi-mai.

L'été à l'OOM couvre la période de huit semaines allant du 6 juin au 31 juillet. De 2005 à 2008, les activités furent opportunistes et sans protocole fixe. En 2009, le programme international MAPS (Monitoring Avian Productivity and Survivorship) fût adopté comme base des activités d'été. Entre 50 et 78 espèces ont été observées annuellement, avec un cumulatif de 100. Durant les dix années, 1012 oiseaux de 45 espèces ont été bagués, incluant 153 individus à travers le suivi des nids.

Le suivi de la migration automnale couvre la période de treize semaines allant du 1er août au 30 octobre. Entre 134 et 151 espèces ont été observées annuellement, avec un cumulatif de 193. Durant les dix années, 38697 oiseaux de 103 espèces ont été bagués à l'automne, avec un total annuel allant de 2792 à 6808. En ordre décroissant, les cinq espèces les plus baguées sont la Paruline à croupion jaune, le Bruant à gorge blanche, le Roitelet à couronne rubis, le Merle d'Amérique et le Bruant chanteur. La diversité des espèces fluctue légèrement du début août jusqu'à la mi-octobre avant de diminuer graduellement jusqu'à la fin de la saison. L'abondance de son côté augmente jusqu'à son apogée de la fin septembre à la mi-octobre avant de diminuer nettement encore jusqu'à la fin de la saison.

Le suivi de la migration de la Petite Nyctale fût effectué durant huit saisons automnales. Durant cette période, 1008 Petites Nyctales ont été baguées ainsi que 17 individus de quatre autres espèces de strigidés. De plus, 36 Petites Nyctales ayant été baguées ailleurs ont été recapturées et 33 Petites Nyctales baguées à l'OOM furent recapturées par d'autres observatoires. Ce taux de recapture est nettement plus élevé que chez les autres espèces. Seulement 51 oiseaux bagués à l'OOM ont été retrouvés ailleurs et neuf individus provenant d'autres observatoires ont été capturés.

Les annexes de ce rapport contiennent des statistiques détaillées sur le programme de suivi de la migration printanière et automnale ainsi que sur la distribution saisonnière des 210 espèces observées et des 51959 individus de 120 espèces bagués à l'OOM durant la période de 2005 à 2014. Les annexes contiennent aussi un aperçu des conditions météorologiques, un sommaire des recaptures extérieures et la liste des bénévoles.

La recherche à l'OOM est orientée autour du suivi, à long terme, des tendances pour la migration printanière et automnale, mais des projets de recherche sur des espèces précises sont aussi entrepris en collaboration avec des étudiants et des départements de l'Université McGill, en plus de partenariat de plus grande envergure avec des chercheurs à travers le Canada et plus. Le volet éducatif s'articule principalement autour des activités de recherche, mais des efforts sont faits pour utiliser chaque opportunité qui se présente pour éduquer. Les activités de baguage permettent d'offrir de la formation aux étudiants et bénévoles sur des sujets comme la recherche aviaire et les techniques de manipulations des oiseaux. Tous les résultats des programmes de l'OOM sont disponibles sur notre site internet (www.oommbo.org). De plus, des efforts considérables ont été investis dans le développement d'une photothèque pour aider à l'identification avancée. Cette ressource est maintenant hébergée par le site internet Piranga d'Environnement Canada. Les résultats des recherches de l'OOM sont aussi partagés lors de colloques ou de conférences publiques incluant des visites dans des écoles.

Les dix premières années de recherche à l'OOM ont déjà mis en lumière quelques résultats intéressants suite à l'analyse préliminaire des données de suivi de la migration printanière et automnale. Par exemple, l'Hirondelle bicolor (et la plupart des autres hirondelles) est en déclin constant durant la dernière décennie, mais d'autres espèces démontrent une augmentation, tels que la Paruline des ruisseaux et le Cardinal rouge. La Paruline obscure et la Paruline tigrée sont aussi en augmentation depuis quelques années, possiblement en réponse à une nouvelle épidémie de la tordeuse du bourgeon de l'épinette dans le centre du Québec. Quelques espèces démontrent un cycle biennal prévisible dans leurs nombres en migration (ex. : Geai bleu) alors que d'autres ont eu de très forts mouvements imprévisibles (ex. : Mésange à tête noire, Jaseur d'Amérique, Paruline à croupion jaune). D'autres espèces quant à elles démontrent un changement significatif dans la phénologie de leur migration sur une période de seulement dix ans (ex. : Paruline flamboyante et Paruline à tête cendrée).

Durant les cinq prochaines années, 2015-2019, les principaux objectifs pour l'OOM sont de maintenir l'opération constante des programmes de recherche existants et de continuer d'accroître la capacité de l'organisme pour assurer un futur stable autant au niveau du personnel que du financement. Plus précisément, une plus grande base de financement stable doit être développée et des efforts constants doivent être mis dans la formation et la rétention d'un nombre suffisant de bagueurs-en-charge pour assurer l'opération stable et constante de tous les programmes de recherche. Les sommaires des données présentées dans ce rapport doivent être vus comme un point de départ pour l'exploration beaucoup plus poussée de la base de données de l'OOM. En analysant les premières dix années de données de suivi de la migration, il est apparent que des opportunités sont disponibles pour explorer des changements dans les patrons d'occurrence saisonniers et interannuels et les données des recaptures, autant les répétitions que les retours, pourraient produire des résultats intéressants après analyse. Le focus doit maintenant être tourné vers l'analyse et la publication, incluant une plus grande collaboration avec les facultés et les étudiants de l'Université McGill ainsi qu'avec nos partenaires dans le Réseau Canadien de Surveillance des Migrations. Autant les étudiants que les chercheurs de l'OOM seront fortement encouragés à présenter les résultats de leurs travaux à des conférences ornithologiques et publier leurs résultats dans des journaux scientifiques. Dans le futur, de nouvelles initiatives complémentaires aux travaux de l'OOM seront aussi entrepris, comme une participation dans le système de suivi de la faune MOTUS, qui nous permettrait de mieux comprendre les mouvements des oiseaux migrants dans la région de Montréal, incluant la découverte de corridors d'habitats clés. Parallèlement, les efforts éducatifs de l'OOM doivent continuer à prendre de l'expansion, incluant d'autres ateliers de baguage, le développement d'un programme éducatif public sur les hiboux ainsi que le développement continu de ressources en ligne comme notre site internet bilingue ainsi que l'ajout de matériel d'identification avancé sur *Piranga*.

2 Introduction

This report summarizes the first ten full years of operation of McGill Bird Observatory (MBO). Established in 2004, MBO is located in Ste-Anne-de-Bellevue, Quebec, adjacent to the Morgan Arboretum, in the 22 hectare Stoneycroft Wildlife Area (Figure 2-1). Designated as a McGill University research site, access to the property is restricted to researchers and authorized visitors. Comprising a mix of mature deciduous forest, remnants of an apple orchard, sumac and hawthorn stands, and wetlands, the site supports a wide diversity of flora and fauna (Bardo et al. 2003).

2.1 History

MBO was established in May 2004 as a pilot project to explore the potential for migration monitoring at McGill University's Stoneycroft Pond wildlife area. In part, the idea was motivated by the results of banding demonstrations held in September and October for McGill's ornithology class. Between 1995 and 2003, 247 birds comprising 34 species were banded, generally using fewer than half a dozen nets for just a couple of days each fall. Additionally, several graduate students in the Natural Resource Sciences program at McGill had taken part in Northern Saw-whet Owl banding at Innis Point Bird Observatory in Ottawa, and wanted to try setting up a monitoring site closer to home. In spring 2004, three of these students (Shawn Craik, Marcel Gahbauer, and Marie-Anne Hudson) developed the organizational framework for MBO, including its adoption as a project of the Migration Research Foundation, and development of an operational protocol consistent with the standards of the Canadian Migration Monitoring Network.

Only one brief attempt at banding was made in May 2004 while testing out a potential net lane adjacent to Stoneycroft Pond. Efforts were instead concentrated on surveying the site for the best locations to target for other nets, and preparing for a more extensive fall season. Most significantly, this involved extensive restorations to an old cabin on the property which had been used as a base for mammal research in the 1970s and early 1980s. It had been abandoned for nearly 20 years and was in rough condition inside, but still structurally sound, and through the efforts of an enthusiastic team of volunteers was transformed into the MBO banding station.

Beginning in late August 2004, one or more observers walked a standard route around the property at least twice per week, the precursor of what would become the MBO census trail. This provided further guidance as to where concentrations of birds occurred regularly, and influenced the placement of the ten mist nets used for the fall 2004 pilot season. Beginning in mid-September and continuing until the end of October, banding took place on average four mornings per week. By the end of the season, 715 birds of 47 species had been banded in just 1158 net hours, and 101 species had been observed. These numbers greatly exceeded expectations, and as a result, plans were initiated to operate a full migration monitoring program beginning in 2005. MBO's first official year of operation is considered to have begun in November 2004, following the completion of the fall pilot season.

2.2 Objectives

The principal objective for MBO is research, in particular contributing to the understanding of bird movements and population trends through the consistent operation of standardized migration monitoring programs. As the only member of the Canadian Migration Monitoring Network between Innis Point Bird Observatory (175 km to the west) and l'Observatoire d'Oiseaux de Tadoussac (450 km to the northeast) and the only banding station in Quebec to operate full spring and fall seasons, MBO fills in an important geographic gap for monitoring Canada's boreal bird populations. Operating the spring and fall migration monitoring programs, as well as a MAPS (Monitoring Avian Productivity and Survivorship) site in summer also provides other opportunities to pursue research on a more local or species-specific scale.

Secondary objectives at MBO include training and education. Many of the volunteers at MBO are McGill students, most of them in wildlife biology or environmental biology programs. Helping out at MBO provides them an opportunity to gain practical experience in their chosen field of study, complementing classroom learning. Those who are particularly interested have an opportunity to pursue more advanced training, up to

and including qualifying for banding subpermits to pursue their own research. These opportunities are also equally available to all other volunteers. In a broader sense, education also extends to sharing MBO techniques and results with the public. This has been done through presentations to naturalists' clubs, visits to elementary schools, displays at community events, banding demonstrations, and perhaps most significantly, regular updates to a detailed website that serves as an archive of all MBO activities.

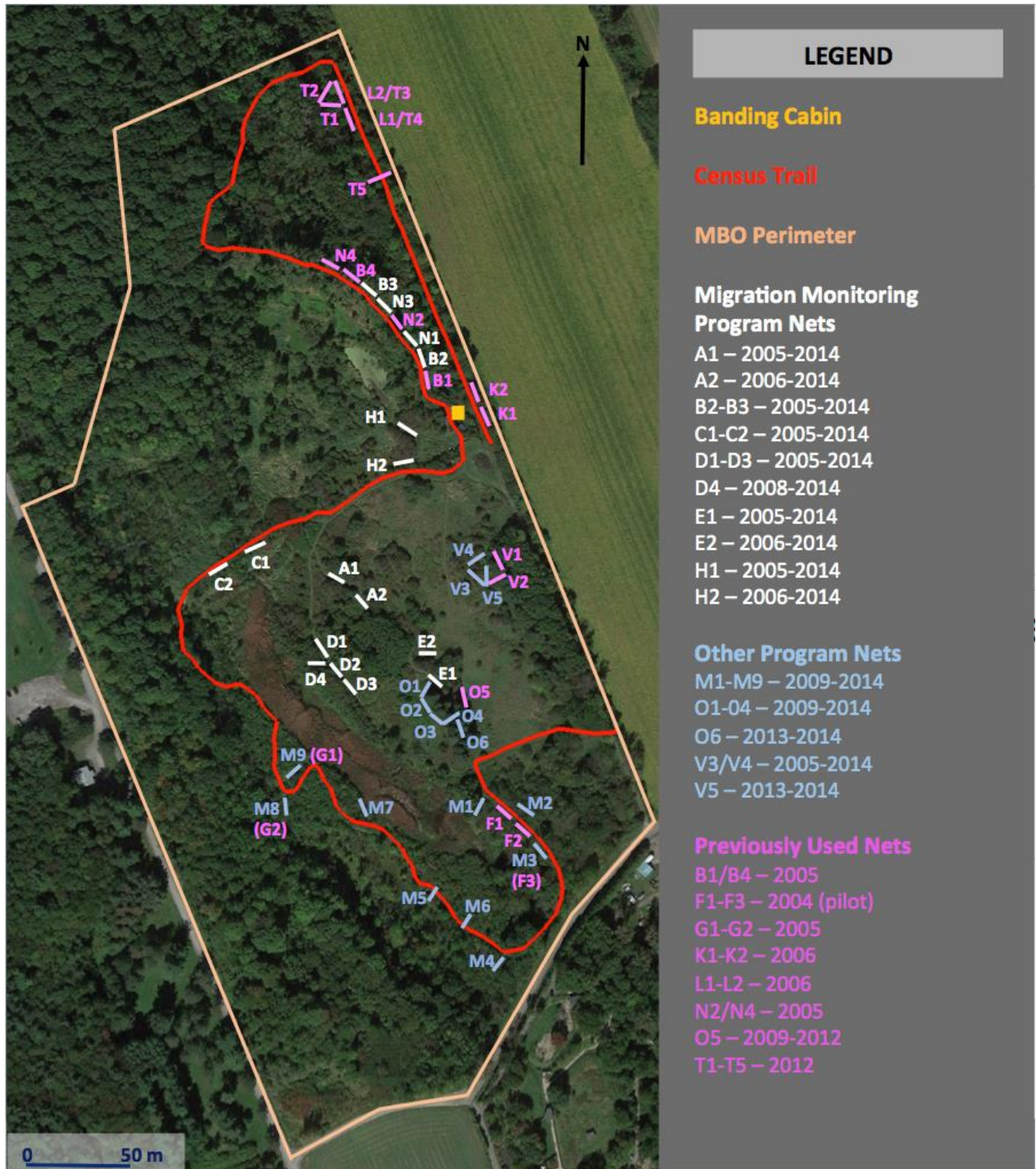


Figure 2.1: Map of McGill Bird Observatory

3 Management and operations

3.1 Management

MBO is administrated by the Migration Research Foundation (MRF), but in practice a core of local volunteers is responsible for managing MBO according to guidelines established by MRF in partnership with the founders of MBO. Since 2013, funding has permitted for a full-time paid coordinator to oversee program coordination and execution, fundraising, and public outreach efforts.

3.1.1 Board of Directors

The MRF Board of Directors is ultimately responsible for the management of MBO, including funding, operations, and policies. Until 2006, the board comprised a President, Treasurer, and Project Director; since then a fourth position of MBO Director has been added, recognizing that MBO has become MRF's largest undertaking, and demands a greater amount of attention. All board members serve as volunteers.

3.1.2 Funding

Expenses at MBO are primarily related to equipment for operating the banding program, providing a modest daily stipend for the banders-in-charge, and covering the costs associated with publication of research. The MRF Board, with the assistance of other volunteers, is responsible for raising sufficient funds annually to at a minimum maintain the standardized operation of MBO's core migration monitoring programs, but preferably to cover all ongoing programs, allow for continued funding of the coordinator position, and provide support for new initiatives. Primary sources of funding are the Great Canadian (formerly Baillie) Birdathon; grants from Environment Canada, Bird Protection Quebec, and TD Friends of the Environment Foundation; corporate sponsorships; and donations from individuals (see section 8.1 for further details).

3.2 Personnel

There are many roles at MBO, both at an organizational level and on a daily basis on site. All perform critically important roles to the effective operation of MBO programs.

3.2.1 Roles and duties

The Executive Director is a member of the MRF board, and has a broad range of administrative responsibilities. With respect to MBO specifically, the Executive Director is responsible for providing guidance regarding objectives and operations, and overseeing financial matters in conjunction with the MRF Treasurer.

The MBO Director is also a member of the MRF board, but is primarily focused on matters related to the operation of MBO. Among the MBO Director's key responsibilities are planning to ensure adequate funding and staffing, overseeing program execution, and seeking opportunities for growth.

The MBO Site Coordinator is responsible for overseeing day-to-day operations at MBO, including research, data management, site maintenance, publicity, education, and outreach.

The banders-in-charge (BICs) all hold federal banding permits, and are responsible for all activities occurring at MBO, following the general guidance of the MBO Director and the MRF board (members of which commonly also serve as BICs). Typically the BICs coordinate all volunteers on site and undertake or supervise the banding of all birds; until the Site Coordinator role was established, they were also responsible for data entry at the end of the day. Some BICs are more specialized, and take on the role only for owl banding.

Banders-in-training (BITs) are volunteers who have already acquired experience with the basics of banding at MBO or elsewhere, and are eager to gain the experience required to qualify for a banding permit. They typically commit to participating at least twice per week during migration and under the direct supervision of the BIC, they are given opportunities to practice all the tasks that a bander needs to master.

To date there have been five interns at MBO. Four were present for the Spring Migration Monitoring Program, and for the first time in 2014 one was present for the full duration of the Fall Migration Monitoring Program. Interns follow a loose curriculum that is adjusted by the BICs depending on the background and aptitudes of the intern, but which generally progresses from practice with identification and an introduction to research methods, to hands-on practice with extraction and banding.

Extractors are responsible for the safe and efficient removal of birds from nets. While all BICs are experienced extractors, they may get busy with other responsibilities, therefore an effort is made to ensure there are always at least one or two other extractors on site each day.

Net assistants are volunteers who do not have the experience required to extract birds, but may be closely observing extractors at work or even practicing extraction under their supervision. Their primary role is to assist the extractors by carrying bird bags, scouting out any priorities in the nets, and assisting with lowering and raising nets as required.

Scribes help inside the banding station by recording data for the bander, under his/her direct supervision. This role is well-suited to beginners, but is also a great opportunity for BITs to practice ageing and sexing of birds in collaboration with the BIC.

Maintenance assistants perform a vital role with keeping the trails at MBO in good condition and helping manage habitat to minimize changes from year to year. Many of these volunteers do not otherwise participate in MBO programs, but their contributions are every bit as important.

Censusers are experienced birders who are confident with identifying species by sound as well as by sight. They are responsible for walking the one-hour census trail beginning an hour after dawn, and counting all birds observed. The census serves as an important complement to the data collected through banding.

Last but not least, all participants at MBO are expected to fill the role of observers, keeping track of all birds observed on site and reporting these during the compilation of the daily totals.

3.2.2 Key personnel

While all roles described in section 3.2.1 are important, there are some which involve a greater degree of responsibility and commitment. Table 3.1 summarizes the personnel filling these roles since MBO's inception.

Table 3.1: Key personnel at MBO, 2004-2014

	2004	2005	2006	2007	2008	2009
Executive Director	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer
MBO Director	n/a	n/a	n/a	Marie-Anne Hudson	Marie-Anne Hudson	Marie-Anne Hudson
BICs	Marcel Gahbauer	Barbara Frei Marcel Gahbauer Marie-Anne Hudson	Barbara Frei Marcel Gahbauer Marie-Anne Hudson Seabrooke Leckie	Barbara Frei Marcel Gahbauer Marie-Anne Hudson	Barbara Frei Marcel Gahbauer Marie-Anne Hudson James Junda	Simon Duval Barbara Frei Marcel Gahbauer Gay Gruner Marie-Anne Hudson
Saw-whet Owl banders	Joanna Coleman Marcel Gahbauer	Shawn Craik Marcel Gahbauer	n/a	Shawn Craik Marcel Gahbauer	n/a	Simon Duval Marcel Gahbauer Kristen Keyes
Intern	n/a	n/a	n/a	n/a	Simon Duval	Benoit Duthu
Seasonal reports	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer Marie-Anne Hudson	Barbara Frei Marcel Gahbauer Marie-Anne Hudson	Barbara Frei Marie-Anne Hudson	Marcel Gahbauer Marie-Anne Hudson

	2010	2011	2012	2013	2014
Executive Director	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer
MBO Director	Gay Gruner	Gay Gruner	Gay Gruner	Gay Gruner	Barbara Frei
BICs	Simon Duval Gay Gruner Barbara Frei Marie-Anne Hudson Lance Laviolette	Simon Duval Gay Gruner Barbara Frei Lance Laviolette	Simon Duval Gay Gruner Barbara Frei Lance Laviolette	Simon Duval Gay Gruner Barbara Frei Lisa Keelty Lance Laviolette	Simon Duval Gay Gruner Barbara Frei Lisa Keelty Lance Laviolette
Saw-whet Owl banders	Kristen Keyes Simon Duval	Bob Barnhurst Simon Duval	Bob Barnhurst Simon Duval	Nicolas Bernier Simon Duval	Nicolas Bernier
Interns	n/a	Matthew von Bornhoft	n/a	n/a	Luke Currin (spring) Ana Morales (fall)
Seasonal/annual reports	Marcel Gahbauer Marie-Anne Hudson Gay Gruner	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer	Marcel Gahbauer Simon Duval David Davey

3.2.3 Volunteers

Except for the BICs, who are provided a modest stipend as compensation for their expertise and extra responsibilities, and the site coordinator (starting in 2014), all other roles at MBO are performed on a volunteer basis. In total, 614 volunteers contributed 39,400 hours at MBO during just spring and fall migration monitoring programs over the first ten years (see Appendix G for a full list of names). Table 3.2 below summarizes the effort across migration monitoring seasons; many additional hours have been contributed in summer and winter.

Table 3.2: Volunteer effort at MBO during migration monitoring programs, 2005-2014

	2005		2006		2007		2008		2009	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
# volunteers	31	78	54	73	40	73	61	86	69	73
# volunteer hours	1040	2160	1500	2180	1200	2400	1620	2700	1400	2200
	2010		2011		2012		2013		2014	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
# volunteers	51	127	78	108	82	109	64	85	58	72
# volunteer hours	1420	2880	1500	2700	1900	2300	1450	2750	1430	2670

3.3 Operations

For the most part, the operation of MBO is intended to be consistent from year to year, regardless of the personnel involved; this is achieved through adherence to fixed protocols and attempting to maintain a relatively constant state of vegetative succession.

3.3.1 Protocols

The spring and fall seasons have since 2004 been operated according to the *McGill Bird Observatory Field Protocol for Migration Monitoring Program* (Gahbauer and Hudson 2014 and previous versions), adapted from the protocol in use at Innis Point Bird Observatory, and consistent with approaches recommended by the Canadian Migration Monitoring Network. This document covers protocols for seasonal guidelines, daily operations, data conventions, volunteer management, and more.

Starting in 2009, the summer program was operated according to the MAPS protocol (DeSante et al. 2010), to be consistent with all other MAPS sites in North America. In previous years, summer operations were informal, with census taking place periodically along the usual route, and banding occurring opportunistically. Similarly, no formal protocol has been used for winter, with activities taking place when weather is suitable and volunteers are available.

At a higher level, all activities are guided by the *McGill Bird Observatory Operations Manual* (Gahbauer and Hudson 2007). This document provides guidance to the MBO Director and Banders-in-charge with respect to organizational structure, data management, safety, finances, equipment, and communications, to ensure

consistency is maintained even if there is turnover in personnel. Activities are reviewed annually by the McGill University Animal Care Committee, and approved under AUP #5446.

3.3.2 Data conventions

As noted above, data conventions and other approaches are explained in detail in the *McGill Bird Observatory Field Protocol for Migration Monitoring Program* (Gahbauer and Hudson 2014 and previous versions). For the purpose of this report, some key definitions are provided here:

- Repeat – refers to an individual that has been recaptured within 90 days of banding or previous recapture
- Return – refers to an individual that has been recaptured >90 days after banding or previous recapture
- Daily estimated total – refers to the estimate generated at the end of each day of the total number of individuals of each species believed to be present, taking into account numbers banded or recaptured, counted on census, and incidentally observed. For seasonal and species summaries (Section 5.3, Appendix C, Appendix D, and Appendix H), unidentified species are excluded, and species groups are merged (i.e., Alder Flycatcher and Willow Flycatcher are reported as Traill’s Flycatcher, and Greater and Lesser Snow Goose are reported simply as Snow Goose). In daily species counts (e.g., Figures 4.1-4.3 and 4.5-4.7) and seasonal summaries (Tables 4.1-4.6, 5.3, and Appendices A and B), ‘superspecies’ (e.g., Traill’s Flycatcher) are counted only if none of the component species (e.g., Willow and Alder Flycatcher) have also been recorded.
- Full coverage (full net coverage) – refers to days with a number of net hours $\geq (\# \text{ regular nets} - 1) * 5$. Full coverage can therefore be achieved even if one net is temporarily unavailable (e.g., due to flooding or repair), but not on mornings when operation of all nets has been reduced by >20 minutes due to rain or other limitations.

Data from all MBO programs are now maintained in a central database that was developed over the course of 2013 and 2014 to compile the various separate records used previously. Through development of this database, all records were reviewed, and some errors previously reported in seasonal/annual reports and in the five-year report (Gahbauer 2010) were corrected. Thus while there are some minor discrepancies between this report and previously published results, the current version is in all cases considered correct.

3.3.3 Site management

Site management includes taking care of the banding cabin, equipment, nest boxes, and trails, as well as attempting to maintain habitat at a relatively stable state of succession so as not to compromise the value of data for population monitoring. Guidelines for site management are provided in the *Operations Manual* and the MBO Director and Banders-in-charge are responsible for adhering to them. In practice, several aspects of site management are quite labour-intensive, especially trail maintenance and limiting encroachment of invasive vegetation in the ponds, and substantial volunteer involvement is required.



Volunteers distributing gravel on the MBO trail network (Photo by Simon Duval)

4 Research

Research is the primary objective of MBO, and as such is the focal point of all field programs. This section summarizes each of the five main seasonal programs at MBO, as well as other research and publications.

4.1 Winter Population Monitoring Program (WPMP)

Winter at MBO covers the 21-week period between the end of fall migration and the beginning of spring migration, i.e. October 31 to March 27. Although relatively few species overwinter regularly at MBO, several of them are uncommon to absent in other seasons, thus winter provides the best opportunity to monitor them.

4.1.1 Objectives and protocol

As in other seasons, a key objective of the winter program is to collect data on bird populations that can be assessed over time. However, MBO can experience extended periods of severe winter weather, and conditions vary considerably from one winter to the next, therefore it is impossible to maintain a strict protocol with respect to temporal sampling. Nonetheless, scheduling site visits as weather permits has produced some interesting data, and the winter program also has educational value for volunteers who have become interested during the fall, but may have been overwhelmed by the diversity of species and volume of birds. The standard census trail is walked in winter when possible (sometimes by snowshoe), but effort is primarily focused on banding, which is generally limited to a maximum of three hours at a time, and rarely occurs more than twice per week except near the beginning and end of the season when temperatures tend to be milder. Nets are set up adjacent to feeders that are stocked throughout the winter with sunflower, nyjer, and millet, as well as corn and peanuts in some years. In general, banding follows the MBO migration monitoring protocols, but net checks are much more frequent due to the colder temperatures.

4.1.2 Results

Winter results from 2005 to 2014 are summarized in Table 4.1 (note that winter is defined as starting in the preceding year, e.g., winter 2005 refers to October 31, 2004 through March 27, 2005). Because of differences in weather conditions and bander availability over the years, effort and results are quite variable. Extent of banding effort has varied considerably among winters, from none in 2008 to over 300 net hours in 2010 and 2012; to a large degree, effort is related to weather, with the least amount of banding in the winters of 2008, 2009, and 2014, including the snowiest (2008) and coldest (2014) years. Regardless of conditions, observations were made each winter, with at least 35 species observed per season. The cumulative list of birds observed during winter is 93 species, but this includes a number of late fall or early spring migrants. Several species are banded in particularly high numbers in winter, including Mourning Dove, House Finch, American Goldfinch, and in some winters Common Redpoll.



Winter landscape at MBO (Photo by Simon Duval)

Table 4.1: Winter summary statistics, 2005-2014

	2005	2006	2007	2008	2009
# individuals (species) banded	256 (14)	316 (19)	103 (11)	n/a	32 (6)
# individuals (species) return	12 (4)	27 (5)	7 (3)	n/a	5 (4)
# individuals (species) repeat	102 (8)	185 (7)	32 (7)	n/a	1 (1)
# species observed	35	50	49	40	51
# net hours	117.5	163.5	103.0	n/a	24.0
# birds banded / 100 net hours	217.9	193.3	100.0	n/a	133.3
# days operating	14	64	45	24	37
# days banding	13	18	11	0	3

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	317 (18)	449 (19)	380 (18)	800 (19)	162 (13)	313 (15)	2815 (32)
# individuals (species) return	17 (5)	36 (4)	47 (8)	54 (11)	17 (5)	25 (5)	222 (15)
# individuals (species) repeat	136 (11)	75 (8)	158 (9)	212 (14)	64 (6)	107 (8)	965 (19)
# species observed	58	52	63	44	35	48	93
# net hours	328.0	132.0	315.7	197.4	47.5	158.7	1428.6
# birds banded / 100 net hours	96.6	340.2	120.4	405.3	341.1	216.5	197.0
# days operating	63	37	25	48	29	38.6	386
# days banding	16	10	17	17	6	11.1	111

The winter season is heavily dominated by a few species, with the top five accounting for 82% of all individuals banded: American Goldfinch (805; 29%), Common Redpoll (455; 16%), Dark-eyed Junco (454; 16%), House Finch (373; 13%), and Black-capped Chickadee (230; 8%). In terms of observations, Canada Goose has accounted for 39% of individuals recorded, largely due to giant flocks lingering from late fall in some years. The three next most abundant winter species are American Crow (9% of observations), European Starling (8%) and Black-capped Chickadee (6%); another five species each account for 3% to 4% of winter sightings: American Robin, Dark-eyed Junco, Red-winged Blackbird, Common Redpoll, and American Goldfinch.

Winter 2005 had below average snowfall in all months, although rainfall was well above average in November and December. Temperatures were below average each month except February. There were fewer days of operation than in any subsequent winter, but that is largely due to no observations being recorded on days when the feeders were filled but no banding was undertaken. The number of species and individuals banded were just below the ten-year means. American Goldfinch accounted for 44% of individuals banded, while House Finch and Black-capped Chickadee rounded out the top three for the season.

Winter 2006 was the rainiest ever at MBO, and also somewhat warmer than average. There were more days of operation and banding than in any other winter, but the number of birds banded and species observed were only slightly above average for the season. American Goldfinch was again the most frequently banded species, comprising 35% of the winter total; Dark-eyed Junco and Black-capped Chickadee were also in the top three for the season.

Winter 2007 had relatively average weather throughout the season, aside from being the only winter with zero snowfall in November and zero rainfall in February. However, effort was somewhat lower due to reduced bander availability, and even when banding did take place, the rate of capture was well below average. Dark-eyed Junco, House Finch, and American Goldfinch each accounted for 20% of birds banded this winter.

Winter 2008 was by far the snowiest in MBO's history, with 362 cm of snow, 129 cm (55%) more snowfall than the next nearest year. Correspondingly, temperatures were somewhat below average throughout the season, and rainfall was near a record low. Due to the deep snow, no banding took place and frequency of observations was also reduced; not surprisingly the number of species observed was well below average.

Winter 2009 also had far more snowfall than average over the first three months of the season, but then less than half as much as usual in February and March. Rainfall through the season was overall close to average, although it was the only winter with none in January. Temperatures were overall a bit below average, including a record cold January. Taking into consideration all of the weather limitations, banding efforts were minimal. Common Redpoll accounted for two-thirds of individuals banded; no more than 3 individuals were banded of any other species.

Winter 2010 was fairly average with respect to both snowfall and rainfall, but daily high temperatures were on average nearly 2°C above the ten-year mean. This allowed for the highest number of days of operation and banding since 2006, and more net hours than in any other winter, in part because the milder temperatures allowed for extended sessions on some days. The number of species observed was higher than in any previous winter. American Goldfinch returned to being the most frequently banded bird of the season, with 25% of the total, followed by Black-capped Chickadee and Dark-eyed Junco.

Winter 2011 was back to having higher than average levels of precipitation, most notably with more than three times the average amount of rainfall in March, as well as a near record amount of rain in November and the second highest amount of snowfall in February. Temperatures were slightly below average throughout the season. Given the conditions, effort was somewhat lower again, but despite that more birds were banded than in any previous winter, thanks to a particularly productive November. For the first time, more Dark-eyed Juncos were banded in winter than any other species, accounting for one-third of the total; American Goldfinch and House Finches rounded out the top three.

Winter 2012 was by far the warmest, with mean monthly temperatures ranging from 1.7 to 6.0°C above the ten-year means, and record high mean temperatures for December, February, and March. Not surprisingly, snowfall was lower than in any other winter, while rainfall was somewhat above average, although mostly in December. While the weather was largely pleasant, it also reduced the dependence of birds on feeders, and as a result effort was somewhat scaled back for most of the winter. However, number of species and individuals banded were still above average overall, and more species were observed than in any other winter, largely due to very early spring arrivals during the sustained warm spell mid-month. Dark-eyed Junco was the most frequently banded species for a second straight winter (24% of all individuals), but with only 3 more banded than American Goldfinch; House Finch again ranked third.

Winter 2013 had less rainfall than any other year including a record low amount in November, but snowfall was well above average in December, February, and March. Temperatures were fairly close to average throughout the winter. Effort was a bit above average this winter, but results were exceptional, with nearly twice as many birds banded as in the next best year, and the highest capture rate of any winter. Common Redpoll dominated with 340 individuals banded (43% of the total), even though both American Goldfinch (228 individuals) and House Finch (95) set new winter records. After using a square of nets (V1-V4) in all previous winters, the layout was adjusted to a triangle (V3-V5) this winter, more concentrated around the feeders.

Winter 2014 was noteworthy for being by far the coldest on record at MBO, with monthly mean high temperatures from 1.9 to 4.6°C below the ten-year means, and at record low levels in November, December, and March; it was the only year with a mean high temperature in March below freezing. Before the cold fully set in, there was a record amount of rainfall in November. Snowfall over the season was close to average. Observation and banding effort were considerably curtailed due to the severe weather, but when banding was possible, capture rates were well above average. The number of species observed tied the record low of winter 2005, in large part because the prolonged cold largely prevented spring migrants from starting to arrive before the end of winter. American Goldfinch was back on top this winter with 43% of birds banded, followed by House Finch and Dark-eyed Junco.

4.2 Spring Migration Monitoring Program (SMMP)

The Spring Migration Monitoring Program has been operated at MBO annually since 2005. It covers the ten-week period from March 28 to June 5; the start date represents the average arrival of early migrants, while the end date reflects the average departure of the latest migrants.

4.2.1 Objectives and protocol

The SMMP is designed as a standardized study to be used as the basis for long-term trend analysis of bird populations. It is operated according to the MBO migration monitoring protocol (Gahbauer and Hudson 2014), which was developed to be compatible with the aims and methods of the Canadian Migration Monitoring Network. The program involves a standardized census daily throughout the season, supplemented by banding and additional observations during the core of the season, which since 2007 has been defined as April 18 to June 1. In 2005 and 2006, banding started on April 5, but few birds were caught until after mid-April, and cold weather often limited net hours, causing the start of banding to be delayed until week 4 in subsequent years. By early June, migrants become a small minority of the birds captured, so to avoid excessive capture of local breeders, banding has ended at June 1 since 2007, with census on the remaining four days of the season, to document the passage of late migrants. The 2005 season also differed by starting one week later than in other years, and due to staffing limitations, banding took place on average every second day.

4.2.2 Results

SMMP results from 2005 to 2014 are summarized in Table 4.2, with additional detail provided in Appendix A. Despite the evolution of the protocol over the first three years, the results have been relatively consistent across all years, with the number of species observed always between 133 and 148, the number of species banded between 59 and 69, and the number of individuals banded between 627 and 991, aside from an exceptional total of 1356 in 2014. The number of birds banded per 100 net hours ranged between 26 and 37 in most years, but was unusually low (20) in 2010, and particularly high in 2005 (41) and 2014 (45). The number of returns has shown an increasing trend, reflecting the ever greater proportion of local residents that have been banded in previous years. In total, 191 of the 210 species observed at MBO and 97 of the 120 species banded have at least one spring record.

Table 4.2: SMMP summary statistics, 2005-2014

	2005	2006	2007	2008	2009
# individuals (species) banded	650 (62)	754 (63)	695 (61)	826 (64)	815 (66)
# individuals (species) return	20 (6)	70 (17)	82 (21)	90 (16)	99 (22)
# individuals (species) repeat	211 (21)	144 (23)	103 (20)	194 (25)	246 (29)
# species observed	133	148	134	139	146
# net hours	1575.6	2912.1	2460.0	2912.2	2956.5
# birds banded / 100 net hours	41.3	25.9	28.3	28.4	27.6
# days operating	59	69	70	70	69
# days banding	28	57	35	41	42
# days with full net coverage	17	28	26	28	30

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	627 (59)	906 (64)	991 (66)	790 (68)	1356 (69)	841 (64)	8410 (97)
# individuals (species) return	112 (24)	63 (17)	103 (17)	105 (23)	127 (25)	87 (19)	871 (41)
# individuals (species) repeat	160 (25)	129 (25)	298 (30)	225 (32)	295 (34)	200 (26)	2005 (52)
# species observed	138	140	143	145	141	141	191
# net hours	3115.4	2436.0	2818.0	2923.8	3004.6	2711.4	27114.2
# birds banded / 100 net hours	20.1	37.2	35.2	27.0	45.1	31.6	31.0
# days operating	70	70	70	70	68	68.5	685
# days banding	42	38	41	43	43	41	410
# days with full net coverage	36	27	31	30	29	28.2	282

Over the full spring season, Red-winged Blackbird has been the most consistently common species banded, appearing among the top three every year except 2014, when it ranked fifth. The only other two species among the top ten banded each spring are Ruby-crowned Kinglet and Yellow-rumped Warbler; Yellow Warbler and White-throated Sparrow have each only missed it once out of ten years. Red-winged Blackbird has been the top species banded in six springs (2006-2008, 2010, 2012-2013), while four other species have each had the lead in one spring (American Goldfinch in 2005, Tennessee Warbler in 2009, Yellow-rumped Warbler in 2011, and Cedar Waxwing in 2014). Combined, the aforementioned 8 species account for almost exactly half of the birds in spring and have higher cumulative totals than any others: 978 Red-winged Blackbirds, 574 Cedar Waxwings, 538 Ruby-crowned Kinglets, 473 Tennessee Warblers, 464 American Goldfinches, 420 Yellow-rumped Warblers, 407 White-throated Sparrows, and 348 Yellow Warblers. Among observations, Canada Goose had the highest daily every spring, and in five years was followed by Snow Goose in second place; in the other five years it was Red-winged Blackbird. Species in the top ten annually are Canada Goose (average 162 individuals observed daily), Red-winged Blackbird (43), Ring-billed Gull (24), and American Crow (18).

The 2005 SMMP was a pilot season, largely consistent with the protocol used in subsequent years, but with somewhat less complete coverage, and a bit of experimentation with dates and net locations. The season was initially defined as 60 days, and only April 23 was skipped due to poor weather. Census was done on all but three of the 59 days of operation, when high volume of birds in the nets precluded any volunteers from being available, while banding took place on 28 of the 59 days of operation. Thirteen mist nets were used throughout the season. Weather was somewhat erratic in spring 2005, with much higher amounts of rainfall in weeks 1 and 5 than any other years, but much lower than average rainfall amounts in six of the eight other weeks; in terms of temperature, the beginning and end of the season were both warmer than usual, but most of May was colder than normal. The peak day of banding this spring was May 16, with 57 birds of 23 species banded; diversity of birds observed on site peaked later, with 64 species on May 27. This was the only spring season in which American Goldfinch topped the list of birds banded, with 111 individuals, almost twice as many as in any other spring. The non-random selection of suitable banding days this spring accounts for the considerably above average capture rate.

In 2006, the spring season was expanded to 70 days, with the first 8 days and final 2 days of the season reserved for observations and census only. Banding took place on all but three of the remaining 60 days, but weather was often poor, with more rain than in any other spring, and resulted in some limitation of banding effort on all but 28 days. The frequency of poor conditions early in the season contributed strongly to the decision to extend the initial census only period from 8 to 21 days in subsequent years. Fifteen nets were used this spring, including four (K1, K2, L1, L2) along the back lane on a trial basis that yielded poor results and were not used again, while net H1 could not be used due to flooding. The peak day for banding this spring was May 21, with only 37 birds banded. Species diversity peaked on the same date, with 76 species observed, tied with May 20, 2014 for the highest daily total at MBO in any season. Red-winged Blackbird was the most frequently banded species by far, with 169 individuals, far ahead of Common Grackle in second place with 59, and Ruby-crowned Kinglet with 58.

Beginning in 2007, the spring season remained 70 days long, but the first 21 days and final 4 days of the season were reserved for census only, with banding scheduled for the core 45 days in between. The switch was particularly timely, as the 62 cm of snow that fell during weeks 2 and 3 of the season were more than the total for all other spring seasons combined. However, rainfall was the lowest of any spring. After record low temperatures accompanying the snow in weeks 2 and 3, the rest of the season fluctuated both above and below average. Effort was somewhat lower this spring due to four days lost to rain and unavailability of a bander on six days in late April, the only such gap in either spring or fall after 2005. This spring, 15 nets were used (A1, A2; B2, N1, N3, B3; C1, C2; D1, D2, D3; E1, E2; H1, H2). The busiest day of banding this spring on May 10, with 45 individuals banded. The ten most abundant species accounted for 60% of individuals banded this spring, with Red-winged Blackbird again atop the list by a large margin with 155 individuals, compared to Ruby-crowned

Kinglet in second place with 52. The peak of diversity was earlier than in previous years, with 65 species observed on May 18.

The 2008 season followed the standard schedule established in 2007. Coverage was somewhat better, with only four banding days lost entirely to rain, and weather limiting efforts on another 13 days although overall it was a second consecutive drier than average spring. Effort expanded to using 16 nets, with the addition of D4; this same array (A1, A2; B2, N1, N3, B3; C1, C2; D1, D2, D3, D4; E1, E2; H1, H2) has continued to be used in all subsequent years. The number of individuals banded (826) was higher than any previous year, perhaps partly reflecting expanded coverage, but perhaps also influenced by persistent northwest winds in May that could have slowed down the progress of some migrants – this is the only year to date with below average mean temperatures for all three final weeks of the season. The delay in migration was seen in the banding peak of 57 individuals not occurring until May 26, and the peak of diversity (71 species) occurring surprisingly late on May 30. Again this year the top ten species banded accounted for 63% of all individuals, and Red-winged Blackbird remained in first place for a third year in a row with 114 individuals, but this time not that far ahead of Ruby-crowned Kinglet with 92.

In 2009, weather was again generally favourable, with slightly below average rainfall, and relatively normal temperatures, aside from a record warm week 5. Coverage was similar to 2008, with one fewer day lost entirely to rain, and 30 days of full coverage, a new high for spring. The highlight was an unprecedented abundance of Tennessee Warblers. Beginning in the third-last week of the season, 82 individuals were banded, nearly three times as many as had been banded in all four previous spring seasons combined. After being the top species banded in spring for the previous three years, Red-winged Blackbirds were unusually scarce, with 50 individuals placing them third, behind Ruby-crowned Kinglet with 73. A new single-day record for spring was set on May 20, with 67 birds banded; the peak of diversity occurred two days earlier on May 18, with 75 species observed. The ten most abundant species accounted for 58% of individuals banded this spring, and this year included seven warbler species, more than in any other year.

Spring 2010 was fairly average with respect to precipitation, but more notable for being the warmest spring on record at MBO. Mean daily high temperatures were more than 1°C above the ten-year mean in half of the weeks, including record levels in weeks 2 and 9, with the latter being the warmest ever for spring at 28.9°C. Although not the driest spring, rain interfered with operations less than usual, and both net hours and coverage ended up at higher levels than any other year. Unfortunately, migration was weak this year, and despite the high level of effort, fewer birds were banded than in any other spring, and the number of species observed was lower than in any year except 2005 and 2007. Red-winged Blackbird returned to being the top species banded this spring, followed by Cedar Waxwing and American Goldfinch; overall the top ten species banded comprised 61% of individuals this spring. The busiest day of banding was May 15 with 34 individuals; diversity peaked on May 18 with 65 species observed.

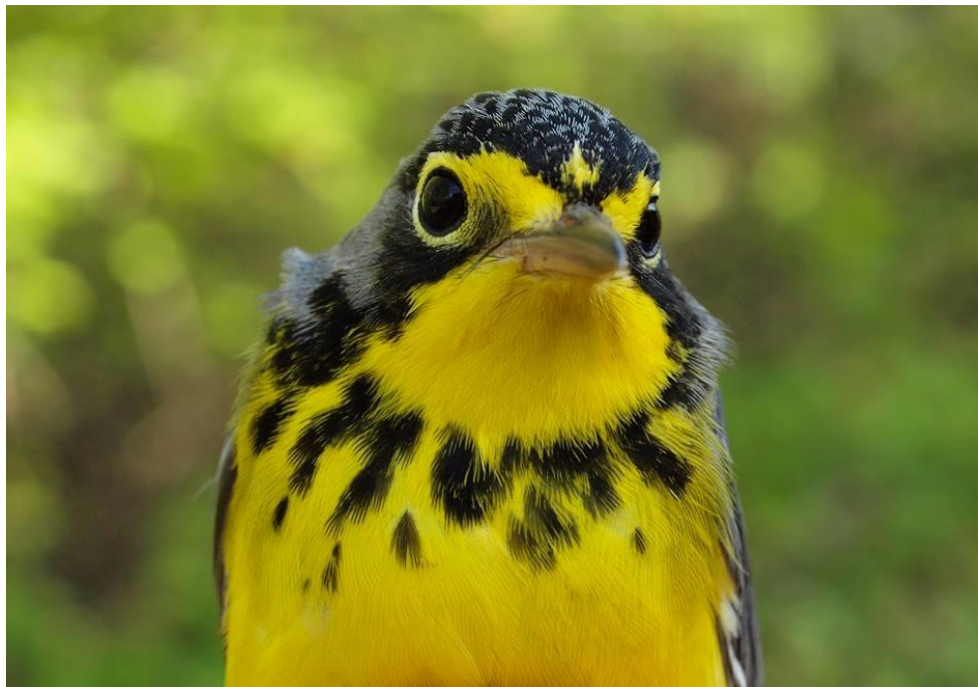
Spring 2011 contrasted sharply with 2010, as it was at the opposite temperature extreme, the coldest spring on record at MBO; both weeks 4 and 6 had record low mean daily high temperatures. Precipitation was also particularly heavy, with small amounts of snow for each of the first four weeks, and record high levels of rainfall in three weeks (3, 6, and 7). As such, only 2005 had significantly lower net hours and coverage. Despite that, more birds were banded than in any previous spring. For only the second time, Red-winged Blackbird was pushed down to the third-most banded species of spring, behind Yellow-rumped Warbler and Tennessee Warbler. The top ten species banded this spring accounted for 62% of individuals banded. The busiest day of banding was May 22 with 102 individuals, the highest to date in spring; diversity peaked on May 21 with 69 species observed.

Spring 2012 had the warmest week 3 and 8 on record, and coldest week 5, but otherwise weather was close to average. Correspondingly, both net hours and coverage were slightly above average. For a second year in a row, a new high was set for number of birds banded, this time falling just short of 1000. Red-winged Blackbird again

returned to being the top species banded for the season, with the highest number since 2007. With new record counts for the season, Tennessee Warbler and Cedar Waxwing were second and third among birds banded this spring. This spring the top ten species banded accounted for 60% of individuals. The banding peak this spring was 62 individuals on May 17, while the highest diversity was 70 species on May 12.

Spring 2013 had below average rainfall in all but two weeks, but the 66 mm of rain that fell in week 9 was more than triple the average for that period. The 13 cm of snow in week 3 was also the second highest in a single week in any spring. Four weeks were warmer than usual, including an exceptional week 6 with a mean daily high temperature 8.6°C above the ten-year mean, a greater difference between observed and mean than in any other period of the year. However, the mean daily high temperature in week 9 was 4.3°C colder than the ten-year mean, and the overall temperature for spring was just barely above average. Effort was comparable to 2012, but the number of birds banded was down by 20% compared to the previous year. On the other hand, more species were banded than in any previous spring, and the number of species observed was also well above average. Again Red-winged Blackbird was the most commonly banded species, followed this spring by Magnolia and Tennessee Warblers; only 57% of individuals banded were among the top ten for the season. The peak of banding was on May 22 with 94 individuals, while diversity was highest on May 17 and May 19 with 63 species observed.

Spring 2014 was another relatively rainy season, with rainfall above average in five of ten weeks, including a record amount in week 2. The first six weeks of the season were mostly colder than average, most notably week 1; conversely week 7 was warmer than in any other spring. Effort was slightly above average, but the results this spring were exceptional, with over 37% more birds banded than in any previous year, and a record high capture rate. The result was driven in part by a major influx of Cedar Waxwings, with more of them banded than any species in any other spring; rounding out the top three were record numbers of Tennessee and Magnolia Warblers. The top ten species this spring were a strong factor in the overall total, accounting for 62% of all individuals banded. The busiest day of banding was April 25 with 145 individuals, the highest ever in spring; diversity peaked on May 20 with 76 species observed.



*Canada Warbler, the most frequently banded species at risk at MBO in both spring and fall
(Photo by Simon Duval)*

Figure 4.1 summarizes the results of the daily census throughout spring. The mean count of species begins around 15 species per day in late March and increases steadily to a peak just below 40 for nearly two weeks in mid-May before dropping off to the low 30s at the end of May.

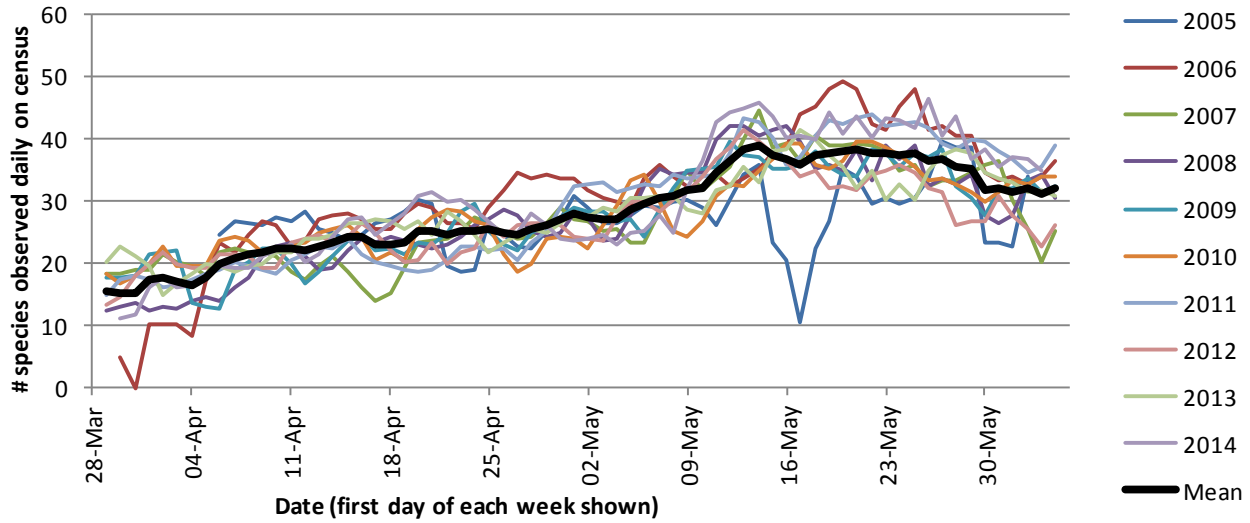


Figure 4.1: Running three-day mean of the daily species count on census throughout spring.

Figure 4.2 shows that the daily estimated total largely mirrors the pattern shown by census, but the counts are higher, especially during the peak of the season. Counts typically begin just under 20 species in late March and increase fairly steadily until a spike in mid-April. To some degree this may reflect a real overlap between the early migrants that start to taper off in late April, and the arrival of later migrants that begin to arrive as May approaches, but it likely is also an artefact of banding beginning around that date in most years, resulting in more thorough daily coverage of the site. The count remains in the mid-high 30s until early May, when it starts to steadily climb again, reaching a peak just below 60 in the third week of May. After that, numbers taper to around 50 by end of May, and then drop off sharply over the first few days of June. In individual years, three-day means have hovered in the 60s in mid-late May.

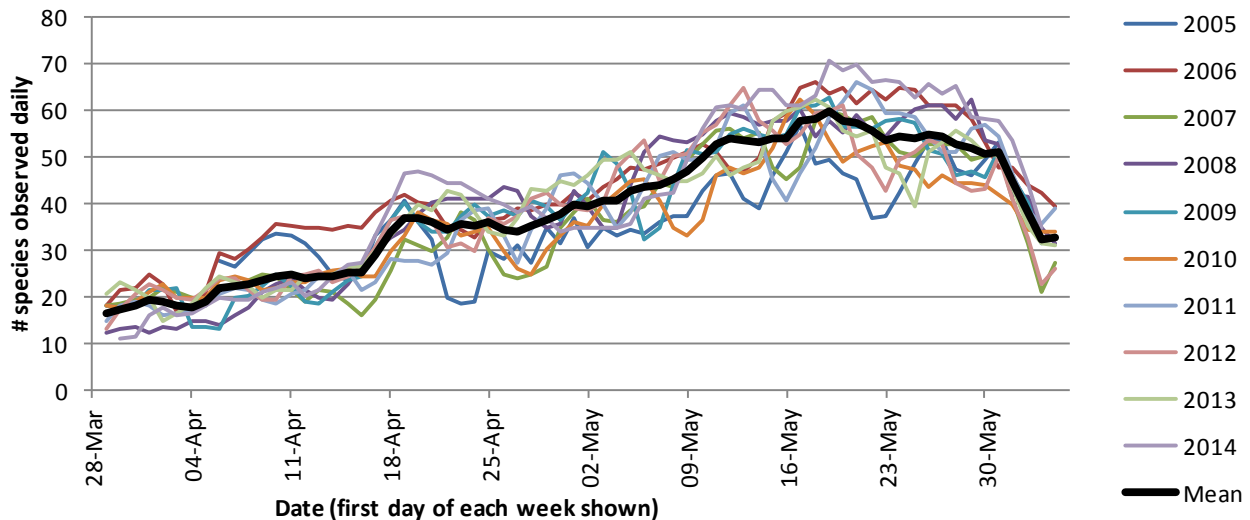


Figure 4.2: Running three-day mean of the number of species observed daily throughout spring.

Figure 4.3 summarizes the number of species banded daily throughout spring. Data were collected prior to April 18 only in the first two years, and the mean count was below 10 species throughout this period. The mean remains between 5 and 7 species until early May, when it begins steadily increasing to a peak of 13 in the third week of May, after which it declines again quite rapidly. There is considerable variability in data from year to year, especially in mid-late May.

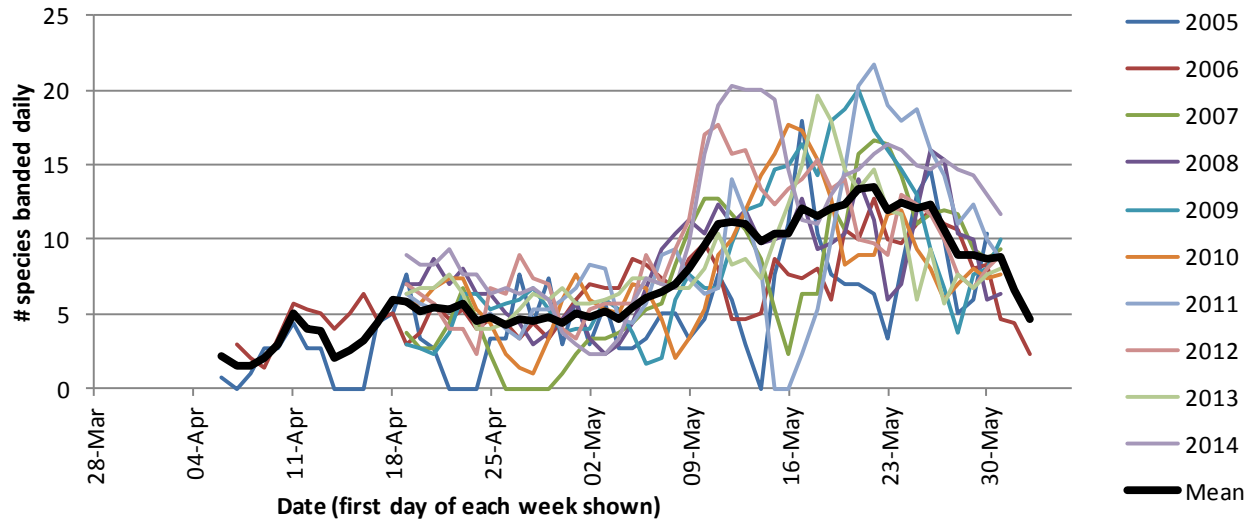


Figure 4.3: Running three-day mean of the number of species banded daily throughout spring.

Figure 4.4 summarizes the number of individuals banded daily throughout spring. Data were collected prior to April 18 only in the first two years, and the mean count was below 15 individuals throughout this period, which strongly influenced the decision to delay the start of banding until the fourth week of the season. Although there is considerable variability from year to year, numbers on average remain below 15 per day until an increase begins late in the first week of May, culminating in a peak of over 30 per day from roughly May 19 to May 24; after that there is a steep and steady decline to the end of the season. As with the number of species banded, there is considerable variation among years, and it is even more widespread throughout the season for number of individuals banded.

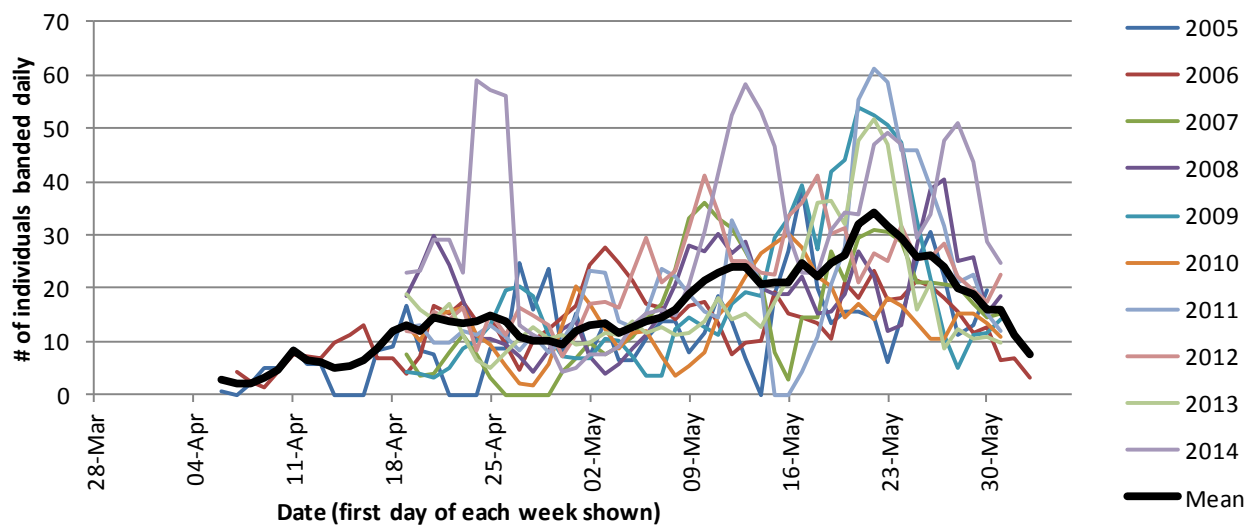


Figure 4.4: Running three-day mean of the number of individuals banded daily throughout spring.

4.3 Monitoring Avian Productivity and Survivorship (MAPS)

At MBO, there is an 8-week period between spring and fall migration monitoring seasons, spanning from June 6 through July 31. From 2005 through 2008, informal monitoring of the breeding bird population was conducted to some extent during this period. Beginning in 2009, this was standardized, by starting up a MAPS site as the focal point for summer monitoring.

4.3.1 Objectives and protocol

Originally, the aims of summer monitoring were simply to document the use of MBO by breeding birds to better understand how they contribute to migration monitoring numbers, and to opportunistically band juveniles to increase the potential for documenting returns (or dispersal) in subsequent years. In an effort to standardize the summer program, a MAPS station was established in 2009 as a pilot project, mostly on the opposite side of Stoneycroft Pond from the migration monitoring nets. It is operated according to guidelines provided by the Institute for Bird Populations (DeSante et al. 2010), which coordinates a network of over 500 monitoring stations across North America, all following the same protocol.

4.3.2 Results

Summer results from 2005 to 2014 are summarized in Tables 4.3 and 4.4. The lack of a standardized protocol from 2005 to 2008 is reflected in the variability of results. In particular, banding efforts and results have been much higher since implementation of the MAPS protocol in 2009, as it requires seven banding sessions over the course of the season. Conversely, the number of species observed was highest in the first few years, which had far more days of observation, although banding effort was limited. Banding at nests (primarily targeting juveniles in nest boxes, but also including a few other nests and adults), as reported in Table 4.4, has mostly been opportunistic, and variability in results reflects effort more than numbers nesting on site. Note also that Table 4.4 includes all birds banded at nests, even though a few of these have been in late spring or early fall, but were not part of the standardized Migration Monitoring Programs.

Table 4.3: Summer summary statistics, 2005-2014

	2005	2006	2007	2008	2009
# individuals (species) banded	22 (8)	27 (11)	5 (3)	n/a	105 (25)
# individuals (species) return	0 (0)	2 (1)	0 (0)	n/a	12 (7)
# individuals (species) repeat	3 (3)	2 (2)	0 (0)	n/a	29 (9)
# species observed	78	66	65	57	51
# net hours	34.0	78.4	2.8	n/a	378.0
# birds banded / 100 net hours	64.7	34.4	178.6	n/a	27.8
# days operating	33	22	13	10	7
# days banding	3	4	1	0	7

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	125 (25)	111 (21)	184 (31)	137 (30)	143 (33)	95 (21)	859 (45)
# individuals (species) return	9 (5)	9 (6)	10 (5)	17 (10)	13 (9)	8 (5)	72 (17)
# individuals (species) repeat	23 (11)	17 (7)	26 (8)	34 (9)	44 (13)	20 (7)	178 (18)
# species observed	50	60	55	56	59	60	100
# net hours	378.0	378.0	378.0	378.0	392.0	266.4	2397.2
# birds banded / 100 net hours	33.1	29.4	48.7	36.2	36.5	54.4	35.8
# days operating	9	7	8	7	7	12.3	123
# days banding	7	7	7	7	7	5	50

Table 4.4: Nest banding summary statistics, 2005-2014

	2005	2006	2007	2008	2009
# individuals (species) banded	2 (2)	11 (2)	44 (3)	21 (2)	52 (2)

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	0 (0)	4 (1)	15 (2)	4 (1)	0 (0)	15 (2)	153 (6)

Far fewer birds have been banded in summer than in any other season, but there is considerable diversity, with 45 species banded to date, out of 100 observed. The top four species banded in summer account for 42% of all individuals banded: Song Sparrow (127; 13%), Yellow Warbler (109; 11%), Tree Swallow (99; 10%), and American Robin (89; 9%). Another three species each comprise 5% of birds banded in summer: Red-winged Blackbird (54), Gray Catbird (51), and Black-capped Chickadee (50). In terms of observations, Red-winged Blackbird is by far the most dominant species in summer, comprising 13% of all sightings; the next most abundant are American Goldfinch (8%) and Song Sparrow (7%).

Summer 2005 was the rainiest from 2005 to 2014 at MBO, with well above average rainfall in both June and July. It was also unusually warm, with the highest mean June temperatures of any year. There was more observer effort in summer 2005 than any other year, due to contributions of a graduate student working on site regularly throughout the season; this resulted in by far the highest count of species for the season. However, banding was limited to just three days and yielded only modest results. Four species each accounted for 17% of the birds banded: Veery, Yellow Warbler, Song Sparrow, and Rose-breasted Grosbeak. Red-winged Blackbird, Song Sparrow, and Yellow Warbler were by far the most frequently observed species.

Summer 2006 was again unusually wet, including the rainiest July in MBO's history. Temperatures were slightly below seasonal in June, and a bit above average in July. The number of days of observation dropped by one-third from 2005 but remained well above the ten-year mean, as did the count of species observed. Again banding effort was quite limited; Song Sparrow (10) and Tree Swallow (9) accounted for half of the birds banded. Red-winged Blackbird and American Goldfinch were the most frequently observed species, followed by Song Sparrow and Cliff Swallow.

Summer 2007 was unusually dry, largely due to a record low amount of rainfall in June. June was also warmer than usual, but July was the second coolest in MBO's ten years of operation. Observation effort declined again but the number of species observed remained above average. There was only one partial morning of banding at the nets, with Song Sparrow dominating, but this was the busiest year for banding of nestlings, most of which were Tree Swallows. Red-winged Blackbirds were more numerous than any other summer, with more than twice as many observed as each of American Goldfinch and Tree Swallow.

Weather in summer 2008 was quite similar to the previous year, with a dry June and slightly above average rainfall in July, and with June slightly warmer than average and July a bit cooler. The number of days of observation and count of species recorded both declined for the third year in a row, and for the first and only time there was no banding in summer except for nestlings (again mostly Tree Swallows). Red-winged Blackbird numbers dropped sharply from their high in 2007, but remained higher than any other species; the next three most abundant birds this summer were American Crow, European Starling, and American Goldfinch.

Summer 2009 was notable for being the coldest ever at MBO, with an overall mean daily high temperature 2°C below the ten-year mean, and a record low mean for July. However, rainfall was close to average. This was the first year of operation for the MAPS program, which has continued ever since with a consistent 7 days of banding each summer. With effort this summer limited to the MAPS days, the number of species observed dropped to the lowest to date. However, more species and individuals were banded than in any previous summer, including a record volume from the nestbox program. Overall, Red-winged Blackbird (18%) and Tree Swallow (15%) topped the list of species banded, followed by American Robin (8%). The spike in Red-winged Blackbirds compared to other years was a direct function of an undergraduate student working on the species that summer, with banding as part of her research program. With effort focused more on banding than observation this summer, most species were tallied in relatively low numbers. Red-winged Blackbird was still the most numerous, followed by Tree Swallow and Yellow Warbler.

Summer 2010 was the first time since 2005 that there was more rain in June than July, and overall there was roughly 10% more than average. It was the second-coolest June between 2005 and 2014, but warmer than usual in July. The number of species observed dropped to a new low for summer, even though there were two days of observation in addition to the MAPS banding sessions. The number of individuals banded through MAPS was higher than during the inaugural year, but this was one of only two summers without any banding of nestlings. Song Sparrow was banded more than any other species (20; 16%), while Black-capped Chickadee (14; 11%) and American Robin (13; 10%) rounded out the top three. For the first time, Red-winged Blackbird was not the most frequently observed species over the course of summer; it dropped to fourth place behind Song Sparrow, Cedar Waxwing, and Black-capped Chickadee.

Summer 2011 featured both the hottest and driest July in MBO's history, though June weather conditions were close to average. The number of species observed was the highest during the six years of the MAPS program, but the count of species banded was the lowest for that period, and the number of birds captured as repeats and returns were both also below the average for the MAPS program. Song Sparrow was again banded in the highest numbers (18; 16%), followed by American Robin (14; 12%) and Red-eyed Vireo (12; 10%). Red-winged Blackbird returned to being the most abundant species observed, followed by a second-place tie between Black-capped Chickadee and Cedar Waxwing.

Summer 2012 was overall the warmest ever at MBO, although neither June nor July set a new monthly high. It was also the driest summer at MBO, with June rainfall just above the record low set in 2007, and July levels also below average. The number of species observed was average for the MAPS years, but more birds were banded this summer than any other, and the number of species banded was also higher than in any previous year. This was largely influenced by an unusually early influx of migrant Yellow Warblers in late July, accounting for 31% of birds banded this summer, and 56% of all Yellow Warblers banded in summer over ten years. However, the top three was rounded out with new record highs for Song Sparrow (26; 13%) and American Robin (18; 9%). Yellow Warbler also dominated the overall observations this summer by a wide margin over Red-winged Blackbird and Black-capped Chickadee.

Summer 2013 was both wetter and cooler than average, most notably the lowest mean daily high temperature for June in MBO's ten years of operation. However, aside from the Yellow Warbler migration of 2012 not repeating, overall results were quite similar to last year. Song Sparrow set another new record high with 29 individuals banded (21%), followed by Gray Catbird (14; 10%) and American Robin (11; 8%). Red-winged Blackbird again returned to being the most frequently observed species of the summer, although there were barely more than Cedar Waxwings, at their highest level in summer since 2006; both were more than twice as numerous as Common Grackle in third place for the season.

Summer 2014 began with the rainiest June on record, but rainfall tapered off to below average levels in July; overall temperatures were slightly below average. More species were banded this summer than any other year, even though it was only the second time that no nestbox banding took place. The number of species observed was also above average for the MAPS years, and the number of individuals banded the second highest among all MAPS summers. The top three species banded this summer were all in record numbers: American Robin (20; 14%), Gray Catbird (18; 13%), and American Goldfinch (13; 9%). Red-winged Blackbird was again the dominant species observed, with American Robin and Common Grackle rounding out the top three for the summer.



*Wood Thrush, a species at risk with summer numbers at MBO increasing over time
(Photo by Simon Duval)*

4.4 Fall Migration Monitoring Program (FMMP)

The Fall Migration Monitoring Program has been operated at MBO annually since 2004, but the first year was a pilot season involving considerable experimentation and limited coverage. The program covers the thirteen-week period from August 1 to October 30; the start date represents the average arrival of early migrants, while the end date reflects the typical end of the migration period for most of the late migrants.

4.4.1 Objectives and protocol

Like the spring program, FMMP follows the MBO migration monitoring protocol (Gahbauer and Hudson 2014), with the intention of generating data that can be used for long-term trend analysis. The dates of the fall season have remained unchanged over the years, but in 2005 banding during August was limited to roughly every other day, while since 2006 banding has taken place daily throughout the season, weather permitting. In some years, banding continued into early November following the same protocol, to explore whether late migrants were being missed; results suggest that migration has been getting later for some species, and extending the season to 14 weeks beginning in 2015 is warranted. Also as in spring, banding data are supplemented by a daily census and incidental observations to generate the daily estimated totals for all species.

4.4.2 Results

FMMP results from 2005 to 2014 are summarized in Table 4.5, with additional detail provided in Appendix B. The number of species observed during the fall season has ranged from a low of 134 in 2006 to a high of 151 in 2005, but in most years is close to the ten-year mean of 144. The number of species banded has been even more stable, ranging only from 74 to 78, except for an exceptional total of 86 in 2012. Overall, 193 of the 210 species observed at MBO and 107 of the 120 species banded have at least one fall record (including the owling program). The rate of birds banded per 100 net hours was particularly high in 2005, 2006, 2008, and 2010, but has been in the 51-60 range in five years out of ten. 2008 and 2010 also had by far the greatest number of birds banded, both due to exceptional counts of Yellow-rumped Warbler.

Table 4.5: FMMP summary statistics, 2005-2014

	2005	2006	2007	2008	2009
# individuals (species) banded	3226 (78)	3280 (76)	2877 (77)	5100 (77)	3391 (75)
# individuals (species) return	43 (13)	31 (9)	46 (12)	32 (14)	43 (18)
# individuals (species) repeat	480 (42)	413 (38)	561 (43)	933 (48)	605 (39)
# species observed	151	134	144	141	144
# net hours	3808.1	4423.1	5422.9	5607.1	5837.4
# birds banded / 100 net hours	84.7	74.2	53.1	91.0	58.1
# days operating	88	91	91	91	91
# days banding	66	84	86	85	87
# days with full net coverage	30	27	51	45	53

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	6808 (74)	2792 (78)	4064 (86)	3341 (77)	3818 (77)	3870 (78)	38697 (103)
# individuals (species) return	44 (20)	40 (15)	87 (24)	53 (18)	61 (20)	48 (16)	480 (35)
# individuals (species) repeat	876 (44)	604 (45)	1089 (52)	759 (46)	848 (49)	717 (45)	7168 (71)
# species observed	140	146	148	147	150	144	193
# net hours	6041.5	6393.1	6788.3	6489.3	6422.7	5723.4	57233.5
# birds banded / 100 net hours	112.7	43.7	59.9	51.5	59.4	68.8	67.6
# days operating	91	91	91	91	91	90.7	907
# days banding	87	85	91	87	88	84.6	846
# days with full net coverage	59	69	71	69	64	53.8	538

Over the full fall season, four species have taken top spot for the most individuals banded in a year: White-throated Sparrow in 2005, 2009, 2012, and 2014; Yellow-rumped Warbler in 2006, 2008 and 2010; Ruby-crowned Kinglet in 2007 and 2013; and Magnolia Warbler in 2011. Aside from Yellow-rumped Warbler, these species have been in the top ten every year; the only other species among the top ten in every year are American Robin and Song Sparrow. The six aforementioned species also have the highest cumulative totals for fall, with 5616 Yellow-rumped Warblers, 3424 White-throated Sparrows, 3119 Ruby-crowned Kinglets, 2268 American Robins, 2245 Song Sparrows, and 2068 Magnolia Warblers over ten years. Among observations, Canada Goose had the highest daily average each fall except 2006, when migrant flocks were unusually scarce and American Crow took top spot instead. Species that have been in the top ten annually are Canada Goose (average 241 individuals observed daily), American Robin (87), Red-winged Blackbird (81), and American Crow (69).

Station effort and capacity increased steadily over the first six years of the Fall Migration Monitoring Program, but have been largely stable since 2010. The number of days banding has been fairly consistent between 84 and 91 since 2006, with variability driven only by the number of rain days that prevented safe operation of the nets. The number of days with full coverage is also influenced considerably by weather, since closing nets for part of the morning due to rain or wind results in only partial coverage. However, over the first several years there were fewer experienced extractors, and thus for the sake of bird safety, some nets had to be closed on busy days, as reflected in the net hour totals for the season. Hours of observation by experienced birders also increased over time, having some influence on the consistency of incidental observations, but this has largely stabilized since around 2010-2011 and is expected to remain consistent into the future.

2005 marked the first full year of FMMP, and based on the previous year's pilot season, the plan was to conduct census daily from the beginning of August, but to only begin daily banding at the start of the fifth week, on August 29. However, due to the high number of birds detected right from the start of the season, an effort was made to achieve at least partial banding coverage during the first four weeks as well. In all, full coverage was achieved on 66 days, fewer than in any subsequent year. Fourteen mist nets were used for most of the season (A1; B1, B2, B3, B4; C1, C2; D1, D2, D3; E1; G1, G2; H1); the two F nets that had been used in spring 2005 were omitted due to low capture rates and distance from the banding cabin. Temperatures were above average in the first half of August and from mid-September to early October; the mean daily highs for weeks 2, 7, and 10 were higher than in any other year. However, the final three weeks of fall were all much cooler than usual, on average more than 2°C below the ten-year mean. Fall 2005 was the wettest on record for MBO, with total rainfall almost 50% above the ten-year mean, and four weeks (5, 6, 10, and 11) with record high amounts of rain; three weeks had over 70 mm of rain, out of just 7 such weeks throughout all of fall from 2005 to 2014. The daily banding total exceeded 100 individuals on 6 days, with the highest count of 132 occurring on October 2. The 28 species banded on five dates (August 15, September 15, 18, 21, and 22) marked a high that would stand for three years. The season total of 151 species observed remains the highest for any season at MBO, and includes a peak of 62 species on September 11 and 18, the highest of any fall day until 2013. In terms of banding, sparrows were dominant, taking three of the top six places among species banded (as in 2005, 2009, and 2012). Hatch-year birds accounted for 79% of the total.

In 2006, as in all subsequent years, there was banding throughout the season, aside from weather restrictions. However, days defined as having full coverage remained relatively few given that the volunteer base was still developing, and observer effort was often relatively limited compared to later years. It was again an unusually wet season, with August the fourth rainiest in the past 65 years, and October the third rainiest over the same period; this reduced full coverage to 72 of 91 days. It was also the coolest fall season over the ten year period, with the lowest mean daily high temperatures for the period in 5 of 13 weeks (2, 4, 5, 6, and 8), and temperatures at least 1°C below the ten-year mean in four other weeks. Fifteen primary nets were used this fall, with several changes from 2005: G1 and G2 were retired due to distance from the banding cabin; A2, E2, and H2 were added to existing productive locations within the core net area; and N1 and N3 replaced B1 and B4 due to assessment of relative capture rates among the 8 B/N nets. In addition, there was experimentation for part of the season

with nets K1/K2 and L1/L2, but these had limited success and were discontinued. Over 100 individuals were banded on four days this fall, with a peak of 157 on September 30. The total number of species observed in fall 2006 was only 134, substantially lower than in 2005, and the lowest of any fall season; diversity peaked at 57 on two dates. Yellow-rumped Warbler vaulted into top spot among species banded with 522 individuals, more than triple the previous year's total, but there were also more Ruby-crowned Kinglets banded than in any other fall. Although Song Sparrow numbers increased, sparrows overall were less dominant than in 2005, and this was one of just three years (also 2011 and 2013) with only two sparrows among the top ten banded for fall. Hatch-year birds accounted for 84% of all individuals banded this fall.

In contrast to 2006, the fall of 2007 was the warmest over the ten-year period, with record high temperatures in weeks 8 and 12, and weekly mean high temperatures more than 1°C above average in five other weeks. Fall 2007 also was very different from the two previous years in that it was the first of three in a row with rainfall well below the long-term average. This allowed for more extensive coverage, but also caused the ponds on site to largely dry up, reducing the attractiveness of the habitat to wetland birds. All the same, the total number of species observed rebounded to 144, but the highest single day count was again 57. There were only three days with over 100 birds banded, with a relatively late peak of 138 on October 10. The number of Yellow-rumped Warblers banded plummeted to 68, just over 10% of the 2006 total, and warblers in general were scarce, with just two species squeaking into the bottom of the list of top ten species banded, fewer than in any other fall. However, sparrows were more prominent again, with four species in the top ten, and American Goldfinch in seventh place marked the only appearance by a finch in the top ten in fall in any year. Nets used were the same core group of 15 as in fall 2006, with the only change being that the only remaining 18 m long nets at A1 and D1 were permanently switched to 12 m long nets. Hatch-year birds represented 78% of the total banded this fall.

Weather was again favourable in 2008, with rainfall more than 25% below the ten-year mean overall, and in 8 of 13 weeks. While the first two weeks of the season were much cooler than usual, temperatures largely oscillated around ten-year means for the rest of fall. Sixteen nets were used this fall, including the addition of D4 to the previous core set of 15 nets; this array has been used consistently in all years since. The defining element of this season was the remarkable influx of Yellow-rumped Warblers, with 1732 individuals banded, more than triple the previous high count for any species in fall. However, many other species were also unusually abundant, with 29 species setting new fall records, including 12 other warblers. The daily banding total exceeded 100 birds on 14 occasions, including five 200+ bird dates between September 29 and October 5, peaking at 240 on October 2. Totals could have been even higher, but on several days nets had to be shut down temporarily to control volume as there had been no reason to anticipate needing so many qualified extractors on site. Meanwhile, a couple of weeks before the peak in migrant abundance, a new single-day record for diversity was set with 30 species banded on September 7. However, the daily estimated total peaked at 54 on September 10, the lowest for any fall season to date. For the first time, warblers accounted for half the species among the ten most frequently banded during the season. Hatch-year birds were 84% of the total banded this fall.

In 2009 there was more rain than usual in weeks 8 and 10, affecting effort in a couple of the core weeks of the season. It was also an unusually cold fall, most notably with record low temperatures for four weeks in a row (9-12). Coverage this fall was the highest to date, due to a combination of decent weather for much of the season, increased volunteer capacity, and fewer days with a large number of birds triggering reduced operations. As occurred in 2007 following the peak of Yellow-rumped Warblers in 2006, there was a dramatic decline in the number banded, from 1732 in 2008 to 106 in 2009. This alone nearly accounts for the difference in season totals between the two years. The number of days with over 100 individuals banded dropped back down to 6, peaking at 166 birds on October 8. This year the biggest surprise was the abundance of Hermit Thrushes, with 86 individuals banded (all of them hatch-year birds), more than double the total from any previous fall season. As in 2007, warblers were relatively scarce, with only three species barely cracking the 100-birds banded mark. In contrast, sparrows took all three top places for the first and only time, with White-throated Sparrow (428) outnumbering Dark-eyed Junco (361) and Song Sparrow (322). Species diversity peaked unusually early, on August 21, at 56 species. Again this fall, 84% of birds banded were hatch-year individuals.

Fall 2010 was overall a bit cooler than normal, with six weeks at least 1°C below the ten-year mean, but contrasting with this was the mean daily high of 29.8°C in week 5, the highest at MBO for any week between 2005 and 2014, and almost 5°C above the mean for that period. Rainfall was 80% higher than the previous two years, including two of the five rainiest weeks in MBO's history, in weeks 1 and 9. Despite losing some effort to rain at the peak of the season, the number of days and hours banding reached new record highs, and fall 2010 shattered previous records with 6808 birds banded, strongly driven by record numbers of Yellow-rumped Warbler (2359), Dark-eyed Junco (509), Black-capped Chickadee (440), and American Robin (394). There were an unprecedented 24 days with 100 or more individuals banded, including 7 days with more than 200, peaking at 315 on September 25, which remains the single-day record for MBO. Species diversity peaked on October 3, at 55 species. The percentage of hatch-year birds banded this fall was particularly high, at 89%.

Temperatures in 2011 fluctuated around normal levels, but it was the second wettest fall on record, with record high rainfall levels from weeks 2 through 4, and again in week 7. Again though effort reached new highs in terms of both net hours and days with full coverage, reflecting the growth in number of experienced volunteers, which allowed full operations except when constrained by weather; this has largely remained true across subsequent years. However, banding results were incredibly meager, with the total of 2792 banded nearly 60% fewer birds than in the previous fall. There was only one day with more than 100 individuals banded, 112 on August 26. Banding totals were at or near record lows for five of the six species that have dominated the fall program overall; among them, only Magnolia Warbler was present in slightly above-average numbers. This was the only fall in which six warbler species were among the top ten banded. Species diversity peaked on September 18, at 62 species. Hatch-year birds again accounted for 90% of all individuals banded this fall.

2012 was nearly as warm as 2007, with record high mean weekly temperatures in weeks 1, 4, and 13, and temperatures more than 1°C above the ten-year mean in another four weeks. After two unusually wet years, rainfall dropped off sharply to below average levels, with August particularly dry, and there were more days with full coverage than in any other fall. White-throated Sparrow, Ruby-crowned Kinglet, and Yellow-rumped Warbler all rebounded significantly from last year's low counts, driving the 2012 banding total to above average levels, aided also by another Black-capped Chickadee migration and an influx of Swainson's Thrushes that more than quadrupled the previous fall record for the species. There were 5 days with more than 100 individuals banded, including one day with over 200 (a peak of 241 birds on October 4). Species diversity peaked at 60 on three dates: August 14, August 25, and September 24. Hatch-year birds dropped to 80% of individuals banded this fall.

2013 was the driest fall season yet, especially the final five weeks of the season, during which rainfall overall was only 41% of the ten-year mean. For most of that period temperatures were also well above average, including record highs in weeks 9 and 11, but the first half of the season was largely cooler than usual. It was largely an average year with respect to birds banded, although the count of Cape May Warblers more than doubled the previous high, and there were modest new records for a number of other species including Magnolia Warbler, Tennessee Warbler, and Golden-crowned Kinglet. Although Song and White-throated Sparrow numbers were close to average, many other sparrows were scarcer than usual, and this was one of just three fall seasons with only two sparrow species among the top ten banded. There were two days with more than 100 individuals banded, peaking at 150 birds on October 3. Species diversity peaked on September 25, at 65 species, the highest ever count in fall. Hatch-year birds were 82% of the total banded this fall.

2014 was another dry fall, edging out 2013 for the record by 1 mm; there were only two weeks throughout the season with more than 25 mm of rain, compared to eight with 15 mm or less. Temperatures were at a record low in week 7, but three of the final five weeks of fall had above average highs. The overall count of birds banded was close to the ten-year mean. There were four days with more than 100 individuals banded, peaking at 121 birds on September 29. Species diversity peaked at 62 species on August 19 and September 27. The top ten species banded this fall included three sparrows and four warblers, but the only species on that list with a record count was Red-eyed Vireo. Hatch-year birds accounted for 79% of all individuals banded this fall.

Figure 4.5 summarizes the results of the daily census throughout fall. Variability is high for most of the season, and the overall mean remains between 23 and 28 species from the beginning of the season until almost mid-October, after which it drops slightly to between 19 and 22 for the remainder of the season.

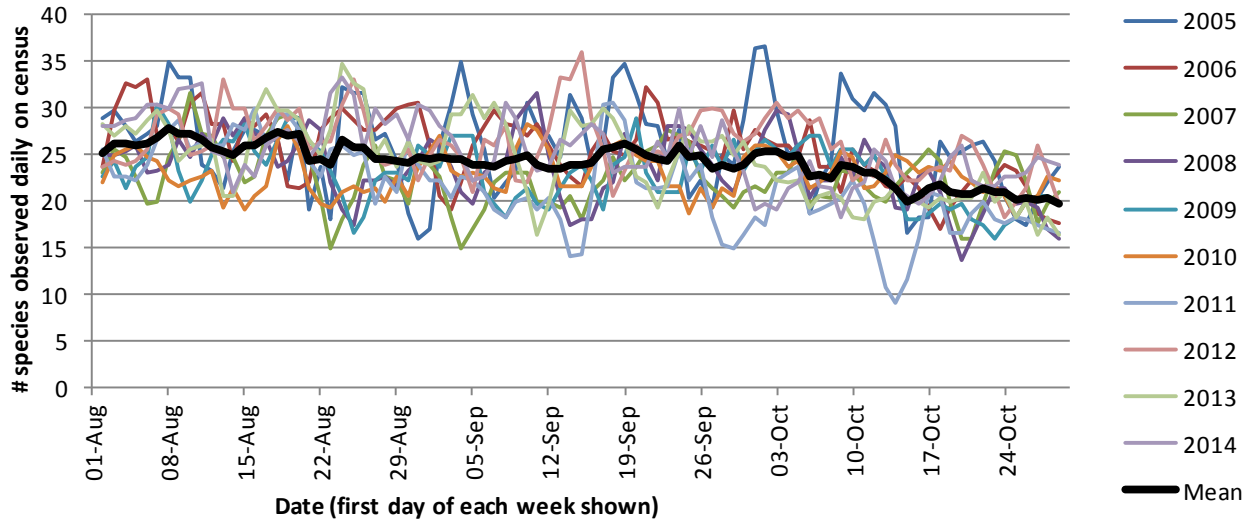


Figure 4.5: Running three-day mean of the daily species count on census throughout fall.

Figure 4.6 summarizes the daily estimated total of species throughout fall. The overall pattern is similar to that shown by census, but the counts are higher, there is somewhat less variability, and the drop in numbers begins earlier in October. From early August to early October, the mean daily count of species fluctuates in the low 40s, with two peaks over 45 in mid- and late September. Starting late in the first week of October, the count declines rapidly to a mean of around 30 over the final two weeks of the season. The actual peak of diversity has varied widely, from as early as August 14 in 2012 to as late as October 3 in 2010. On several occasions, the three-day running mean of daily estimated totals remained above 50 species, but has never yet quite reached 60 species.

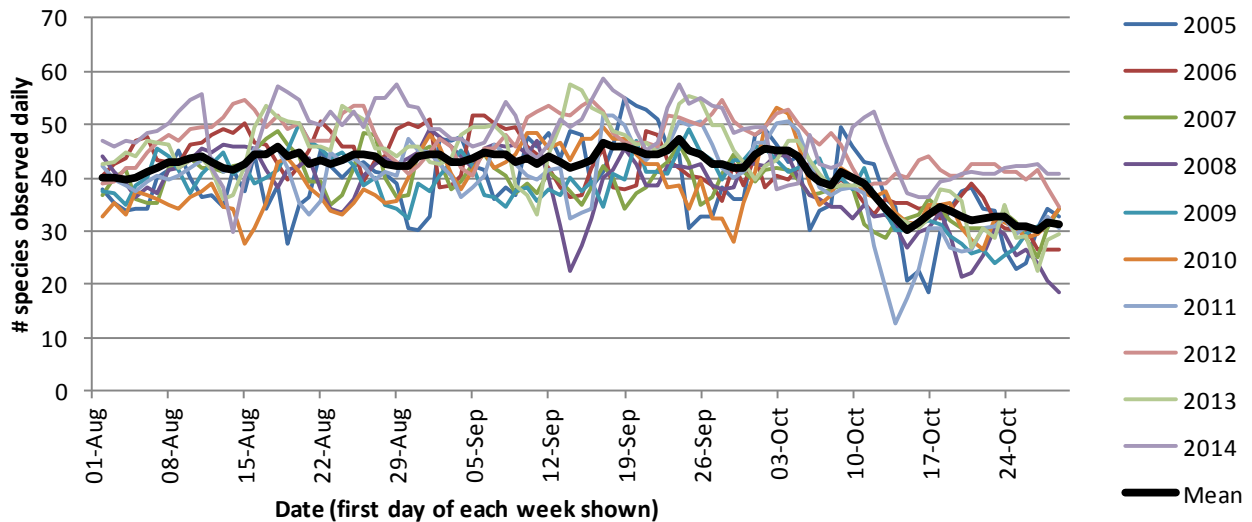


Figure 4.6: Running three-day mean of the number of species observed daily throughout fall.

Figure 4.7 summarizes the number of species banded daily throughout fall. There is considerable variability from year to year, especially in August and September. The average count ranges from 11 to 14 species throughout August and early September, then peaks between 13 and 17 until early October, after which it drops off sharply, declining to below 10 species by the final week of October. The peak of diversity varies among years, but overall is in mid-September.

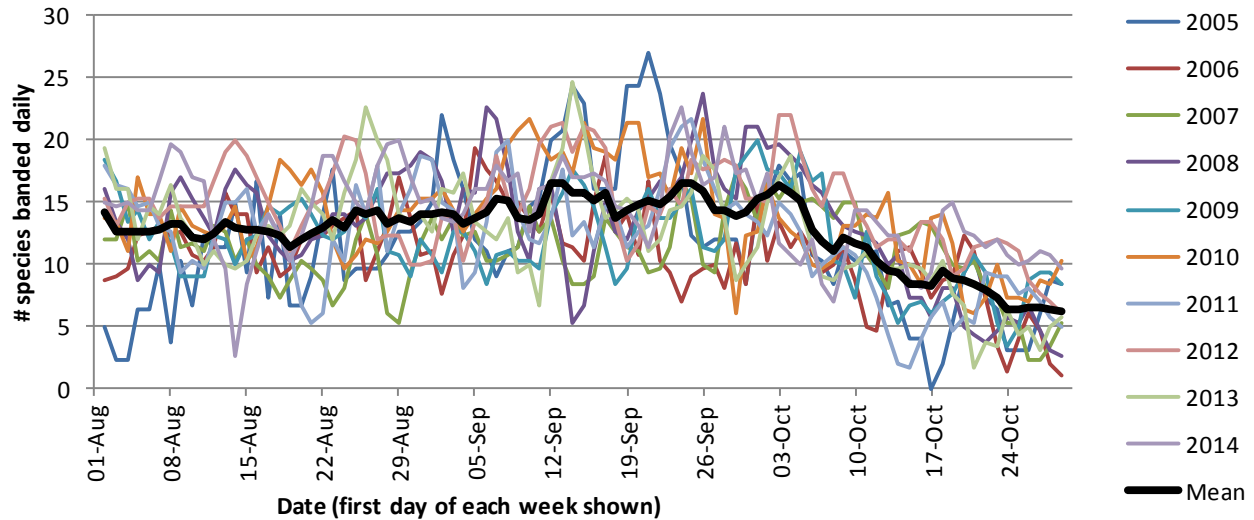


Figure 4.7: Running three-day mean of the number of species banded daily throughout fall.

Figure 4.8 summarizes the number of individuals banded daily throughout fall. There is a distinct peak from late September to almost mid-October, highlighted especially by the 2008 and 2010 lines, which are far greater than any other year due largely to the unprecedented number of Yellow-rumped Warblers banded during those two years. Generally the mean number of individuals banded daily remains between 20 and 35 for most of the first half of the season, then begins to increase around mid-September. The busiest days are in the first week of October, with a mean peaking at just over 100 individuals banded daily. After the peak of migration subsides around mid-October, numbers return to around 30 to 45 individuals per day on average, though there is more variability than early in the season.

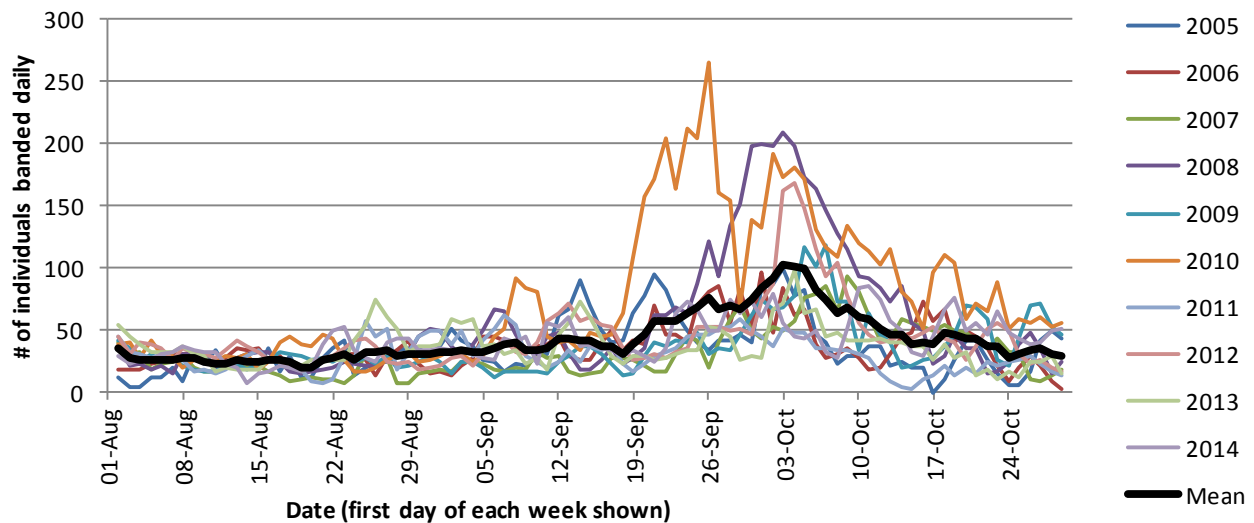


Figure 4.8: Running three-day mean of the number of individuals banded daily throughout fall.

4.5 Northern Saw-whet Owl Migration Monitoring Program

Monitoring the fall migration of Northern Saw-whet Owls was the original inspiration behind establishing MBO, but during the initial pilot season in 2004 results were disappointing, whereas passerine numbers exceeded expectations. The owl program therefore became a secondary priority, and was skipped in 2006 and 2008 when resources were too limited to operate both studies effectively. However, it has been undertaken annually since 2009, and has received nightly coverage (weather permitting) over a standard six-week period (September 26 – November 6) since 2010, with additional effort outside those dates in some years.

4.5.1 Objectives and protocol

The primary objective of this program is to contribute to knowledge of the population dynamics and movements of the Northern Saw-whet Owl. Due to the large number of saw-whet banders in eastern North America, most of them members of Project OwlNet (www.projectowl.net), the recovery rate for these owls is much higher than for any passerines, and therefore even non-standardized programs can make significant contributions. Although basic principles have been followed consistently since the start of owling at MBO (i.e., beginning 30 minutes after sunset, using an audiolure as per Whalen and Watts (1999), checking nets every 30-45 minutes, avoiding operation in rain or high winds, and collecting standard data on all owls), it was not until 2010 that effort was standardized to nightly operation (weather permitting) over the six-week period from September 26 to November 6. In contrast, owling over the first five years was considerably constrained by limitations on volunteer availability, while in 2011 and 2012 there was experimentation with extended dates and hours. There has also been change in net locations over time, from the ridge along the back ponds (2005 and 2007) to a dedicated array of owl nets in and around the spruce/fir stand in the middle of the meadow (2009 to present).

4.5.2 Results

Owl program results from 2005 to 2014 are summarized in Table 4.6. The number of owls banded per fall has ranged from 15 to 259, but much of this variability is driven by differences in effort; the rate of owls banded per 100 net hours has only varied from 4.9 to 11.4. In most years only one or two species have been banded, but in 2012 all five owl species banded to date occurred in one season. Even considering effort, results were below average at the old site used in 2005 and 2007. While the number of owls banded was highest in 2011 and 2012, this was largely due to record levels of effort; the capture rate was actually higher in 2013 and 2014.

Unlike all other species banded at MBO, Northern Saw-whet Owls have a fairly high recapture rate. Of the 1015 individuals banded at MBO between 2005 and 2014 (including 7 as part of the FMMP), 33 (3%) have been subsequently reported from elsewhere; similarly 38 owls banded at other sites have been captured at MBO (including 2 in the 2004 pilot season, not included in Table 4-6). Details are provided in Appendix F.

Table 4.6: Owl banding summary statistics, 2005-2014

	2005	2006	2007	2008	2009		
# individuals (species) banded	17 (1)	n/a	15 (1)	n/a	78 (2)		
# individuals (species) repeat	0 (0)	n/a	0 (0)	n/a	6 (1)		
# individuals (species) foreign	0 (0)	n/a	0 (0)	n/a	2 (1)		
# net hours	230.6	n/a	308.3	n/a	698.0		
# birds banded / 100 net hours	7.4	n/a	4.9	n/a	11.2		
# nights banding	8	0	11	0	28		

	2010	2011	2012	2013	2014	Average	Total
# individuals (species) banded	125 (2)	197 (1)	259 (5)	176 (3)	158 (2)	128 (2.1)	1025 (5)
# individuals (species) repeat	3 (1)	7 (1)	19 (2)	21 (1)	29 (2)	11 (1.0)	85 (2)
# individuals (species) foreign	2 (1)	9 (1)	2 (1)	17 (1)	4 (1)	4 (0.8)	36 (1)
# net hours	1290.9	2588.5	4652.4	1818.6	1382.5	1621.2	12969.8
# birds banded / 100 net hours	9.7	7.6	5.6	9.7	11.4	8.4	7.9
# nights banding	35	44	51	31	32	24	240

Owl banding in 2005 occurred on 8 nights between September 24 and October 29, using 8 nets (B1-B4 and N1-N4) connected end-to-end on the ridge along the back ponds. The audiolure was placed between nets B2 and N1, i.e., one-quarter of the way along the array, and nets were typically opened for 3.5 to 4 hours per night. Only 17 Northern Saw-whet Owls were banded, with a peak of 6 on October 20. 53% of owls banded were hatch-year individuals.

Owl banding was skipped in 2006 due to lack of availability of a qualified bander-in-charge.

In 2007, effort expanded to 11 nights but shifted somewhat later, from September 30 to November 9. The nets and audiolure were placed as in 2005, and were on average operated for close to 3.5 hours per night. Results were the poorest of any year, with just 15 Northern Saw-whet Owls banded, and a capture rate of only 4.9 per 100 net hours. The peak of 4 owls was on October 7. As in 2005, 53% of owls banded were hatch-year individuals.

Owl banding was again omitted in 2008, in part due to the limited value demonstrated by the trial seasons in 2005 and 2007 (as well as a previous pilot effort in 2004 that yielded similar numbers).

A decision was made to resume owl banding in fall 2009, but to try a different location within MBO in an attempt to improve capture rates. Five new nets (O1-O5) were installed around and through the mixed spruce-fir grove on the south side of the meadow; combined with existing songbird nets E1 and E2, these formed a roughly circular array around the audiolure, placed near the south end of E1; this set of nets continued to be used in all subsequent years. Effort was also expanded this fall, with 28 nights of coverage between September 24 and November 17, and nets operated for 4-5 hours on most nights. The capture rate nearly doubled the average rate at the old location, and the total of 78 owls banded (including 2 Eastern Screech-Owls) was more than in all previous years combined, including the 2004 pilot season. The difference in sites was highlighted by the peak of 17 owls banded on October 13 – as many in one night as in any complete previous season. 76% of owls banded were hatch-year individuals.

2010 marked the first year in which an effort was made to operate nightly over a six-week period corresponding to the final five weeks of the Fall Migration Monitoring Program, plus an additional week beyond (i.e., September 26 to November 6); this core period has been maintained ever since, though from 2010 through 2012 additional dates beyond November 6 were also included. In 2010, owling extended from September 25 to November 14, and nightly effort was stretched out to an average of 5 to 5.5 hours. After using standard songbird mist nets (30 mm mesh) for owling in all previous years, the five core owl nets (O1-O5) were switched to 60 mm mesh this fall, which is better suited for capturing small owls; these nets were maintained in all future years. Although hourly capture rate dropped slightly from 2009, another new record was set for number of owls banded at 125, again including 2 Eastern Screech-Owls. The peak of 18 owls banded was on October 11. 73% of owls banded were hatch-year individuals.

Effort doubled in 2011, although only 9 extra nights were added to the schedule. This reflected an attempt to explore late night migration, with an average of over 8 hours per night. It was also another long banding season, extending from September 26 to November 15. Again a new record high was set for the number of owls banded, at 197, but the hourly capture rate was lower than in the previous two years, and only Northern Saw-whet Owls were banded this fall. The number of foreign banded birds captured this fall (9) was more than double the previous four years of owling combined. A new single-night record of 30 owls banded was set on October 22. The frequency of hatch-year owls banded dropped to 48%, the lowest to date.

Owling effort peaked in 2012, with a record 51 nights of operation from September 26 to November 22, again averaging over 8 hours nightly. An additional four nets (T1-T4) were operated this fall at the northeast corner of MBO, with an audiolure targeting Boreal Owls. In early November, 4 Boreal Owls were banded; also banded this fall at MBO for the first time were Barred Owl (1) and Long-eared Owl (2), plus there were record numbers of

Eastern Screech-Owl (3) and Northern Saw-whet Owl (249). However, the number of foreign recaptures dropped back down to just 2 this fall, and the number of owls banded per 100 net hours was actually the second lowest in the history of the owling program; this was likely influenced considerably by the low capture rate at the four new nets. For the second year in a row, 30 owls were banded on the busiest night of the season, which this fall was on October 16. The record number of Northern Saw-whet Owls was driven by a very productive breeding season, with hatch-year individuals accounting for 80% of individuals banded, more than any other year.

In 2013, effort was scaled back to a core 6-week season running from September 26 to November 6, and focus returned to just the basic set of 7 O and E nets surrounding the Northern Saw-whet Owl audiolure (although net O5 on the exterior of the spruce-fir grove was replaced with O6 among the trees). Nightly effort remained around 8 hours on average, and capture rate rebounded, although the number of owls banded was lower than in the previous two years that had greater effort. As usual, almost all birds banded were Northern Saw-whet Owls, but one Long-eared Owl and one Eastern Screech-Owl were also banded. However, this season was most noteworthy for the record number of foreign recaptures – the 17 individuals this fall account for almost half of all individuals across 8 years of operation. The peak night of the season was October 8, with 20 owls banded. The percentage of hatch-year owls dropped to 20%, by far the lowest in any of the years of owling at MBO.

Owling in 2014 covered the same dates as in 2013, September 26 to November 6, and mean nightly effort remained around 8 hours. However, there was again some experimentation with nets. On half of the nights the standard array of 7 nets (O and E) was used at MBO; on alternating nights, a new set of 4 nets (Z1-Z4) was used within the adjacent Morgan Arboretum. The intent was to explore whether there was potential for banding in the Arboretum, to more easily facilitate future education programs focused on the owls. While overall capture rates were quite similar between the two sites, the number of owls banded at the Arboretum was considerably lower due to the smaller number of nets, and given the more limited potential for expansion there, it was concluded that maintaining operations at the standard owl nets at MBO in future years would be best. Overall capture rate was higher than in previous year, but perhaps in part a function of reduced net hours due to the use of the alternate site. The number of repeat captures was also higher than in any other year, but foreign recaptures dropped considerably from the record high in 2013. The busiest nights of 2014 were October 10 and 11, with 15 owls banded each night. The frequency of hatch-year owls rebounded to 78% of individuals banded.



The five owl species banded at MBO, in order of decreasing size from left to right: Barred, Long-eared, Boreal, Eastern Screech, and Northern Saw-whet Owls. (Photos by Nicolas Bernier and Simon Duval)

4.6 Special projects

The standard research programs at MBO provide an opportunity to collect data for a variety of supplemental research questions, ranging from local and species-specific to international collaborations.

4.6.1 Collaborative research

As a member of the Canadian Migration Monitoring Network, MBO has the opportunity to participate in research projects of a national scope. The most significant collaborative venture to date has been a stable isotope study involving feather samples collected from MBO and other member stations across Canada, in an effort to identify how the source populations for fall migrants compare throughout the network. MBO contributed more than 300 samples from over 60 species; the analysis and reporting is being conducted by Environment Canada and Bird Studies Canada, and was just published in 2015. MBO has also collaborated on an international study aiming to document the movement of bird-borne ticks.

4.6.2 Student projects

Many fourth-year wildlife students at McGill University prepare a research-based report as part of their curriculum, and since 2005 several have chosen to do so using data from MBO. These projects generally involve hands-on participation by the student, with supervision and guidance from the banders-in-charge. Topics explored have included:

- Assessment of flank colour on American Redstarts (Christine Barrie and Meaghan McDermott) – flank colour on HY individuals differs significantly between males and females, with females generally having buff to yellow markings, compared to males that mostly have orange-yellow flanks, though a small percentage have yellow similar to that of females.
- Temporal correlations among fall migrants and influence of observer effort on abundance estimates (Kristen Keyes and Demetrios Kolibiris) – a review of five common fall migrants at MBO (Ruby-crowned Kinglet, Nashville Warbler, American Redstart, Magnolia Warbler, and White-throated Sparrow) from 2006-2008 found that daily estimate totals were correlated with observer effort, and that the early season neotropical migrants (American Redstart and Magnolia Warbler) varied less in timing than the other later season migrants, which seemed to shift migration more in response to weather conditions.
- Influence of weather on the efficiency and accuracy of passerine migration banding studies (Katleen Robert) – a review of fall weather and bird data from 2005-2007 showed that average temperature of the previous night was the strongest predictor of bird abundance the following morning, with a drop in temperature compared to previous nights resulting in an increase in migration.
- Net avoidance in passerine birds (Michael Mayerhofer) – observation of three nets at MBO from blinds revealed that sparrows had lower evasion rates in sun than in shade, while the reverse was the case for orioles; overall swallows were most successful at avoiding nets, while warblers had the lowest success.
- Refining techniques for ageing and sexing Black-capped Chickadees (Limoilou-Amélie Renaud) – study of the roof lining of chickadees found that in over 70% of hatch-year/second-year individuals it was plain white, while in over 70% of older individuals there was a dark chevron on a white background. However, there were sufficient exceptions to the pattern to preclude it from being reliable for ageing. Similarly, discriminant function analysis using wing length, weight, and tail length successfully classified 79% of individuals to the correct sex, but is not reliable enough alone, and further study is required.
- Using plumage characteristics to sex hatch-year Magnolia Warblers (analysis underway, with preliminary results indicating that flank streaking, colour of uppertail coverts, and size of white spots on the rectrices can all be used to separate males and females, although there are some unidentifiable intermediates).
- Using plumage characteristics to sex hatch-year House Finches (analysis underway, with preliminary results indicating that by November, some males do not yet have any red plumage, although the extent is quite variable among individuals).

4.7 Publications

MBO has published a number of internal reports, specifically 7 Fall Migration Monitoring Program reports (2004-2010), 6 Spring Migration Monitoring Program reports (2005-2010), 4 Annual Program Reports (2011-2014), and a Five-Year Report summarizing 2005 through 2009; all of these are listed below and are available at <http://www.oommbo.org/results/reports/>.

- Frei, B. and M-A. Hudson. 2008. McGill Bird Observatory Fall Migration Monitoring Program 2008 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.
- Gahbauer, M.A. 2004. McGill Bird Observatory Fall Migration Monitoring Program 2004 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 10 pp.
- Gahbauer, M.A. 2005. McGill Bird Observatory Fall Migration Monitoring Program 2005 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.
- Gahbauer, M.A. 2005. McGill Bird Observatory Spring Migration Monitoring Program 2005 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 10 pp.
- Gahbauer, M.A. 2010. McGill Bird Observatory Five-Year Report #1: 2005-2009. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 146 pp.
- Gahbauer, M.A. 2011. McGill Bird Observatory Annual Program Report 2011. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 71 pp.
- Gahbauer, M.A. 2012. McGill Bird Observatory Annual Program Report 2012. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 75 pp.
- Gahbauer, M.A. 2013. McGill Bird Observatory Annual Program Report 2013. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 75 pp.
- Gahbauer, M.A., S. Duval, and D Davey. 2015. McGill Bird Observatory Annual Program Report 2014. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 77 pp.
- Gahbauer, M.A. and G. Gruner. 2011. McGill Bird Observatory Fall Migration Monitoring Program 2010 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 44 pp.
- Gahbauer, M.A. and M-A. Hudson. 2006. McGill Bird Observatory Spring Migration Monitoring Program 2006 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.
- Gahbauer, M.A. and M-A. Hudson. 2009. McGill Bird Observatory Fall Migration Monitoring Program 2009 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.
- Gahbauer, M.A. and M-A. Hudson. 2010. McGill Bird Observatory Spring Migration Monitoring Program 2010 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 37 pp.
- Hudson, M-A. 2008. McGill Bird Observatory Spring Migration Monitoring Program 2008 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 45 pp.
- Hudson, M-A. and B. Frei. 2007. McGill Bird Observatory Spring Migration Monitoring Program 2007 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 44 pp.
- Hudson, M-A. and M.A. Gahbauer. 2006. McGill Bird Observatory Fall Migration Monitoring Program 2006 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.
- Hudson, M-A. and M.A. Gahbauer. 2007. McGill Bird Observatory Fall Migration Monitoring Program 2007 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 42 pp.

Hudson, M-A. and M.A. Gahbauer. 2009. McGill Bird Observatory Spring Migration Monitoring Program 2009 Report. Migration Research Foundation, Ste-Anne-de-Bellevue QC. 43 pp.

In addition, MBO research has been featured in a number of peer-reviewed publications, arising from collaboration with the Canadian Migration Monitoring Network, researchers studying the movement of bird-borne ticks, and moult studies. Articles published to date are listed below:

Confer, J.L., L.L. Kanda, and I. Li. 2014. Northern Saw-whet Owl: regional patterns for fall migration and demographics revealed by banding data. *Wilson Journal of Ornithology* 126: 305-320.

Crewe, T.L., J.D. McCracken, P.D. Taylor, D. Lepage, and A.E. Heagy. 2008. The Canadian Migration Monitoring Network-Réseau canadien de surveillance des migrations: Ten-year Report on Monitoring Landbird Population Change. CMMN-RCSM Scientific Technical Report #1. Bird Studies Canada, Port Rowan ON. 69 pp.

Flinn, T., J. Hudon, and D. Derbyshire. 2007. When Baltimore Orioles stop being orange. *Birding* 39: 62-68.

Hobson, K.A., S.L. Van Wilgenburg, E.H. Dunn, D.J.T. Hussell, P.D. Taylor, and D.M. Collister. 2015. Predicting origins of passerines migrating through Canadian migration monitoring stations using stable-hydrogen isotope analyses of feathers: a new tool for bird conservation. *Avian Conservation and Ecology* 10(1): 3.

Hudon, J., D. Derbyshire, S. Leckie, and T. Flinn. 2013. Diet-induced plumage erythrism in Baltimore Orioles as a result of the spread of introduced shrubs. *Wilson Journal of Ornithology* 125: 88-96.

Hudson, M-A., M. Gahbauer, S. Leckie, and B. Frei. 2008. Unusually extensive preformative molt in hatching-year Song Sparrows. *North American Bird Bander* 33: 1-6.

Mackenzie, S.A. and M.A. Gahbauer. 2014. Guidelines for prioritizing bird safety during high capture events. *North American Bird Bander* 39: 61-65.

Ogden, N.H., L.R. Lindsay, K. Hanincova, I.K. Barker, M. Bigras-Poulin, D.F. Charron, A. Heagy, C.M. Francis, C.J. O'Callaghan, I. Schwartz, and R.A. Thompson. 2008. Role of migratory birds in introduction and range expansion of *Ixodes scapularis* ticks and of *Borrelia burgdorferi* and *Anaplasma phagocytophilum* in Canada. *Applied and Environmental Microbiology* 74: 1780-1790.

Scott, J.D., J.F. Anderson, and L.A. Durden. 2012. Widespread dispersal of *Borrelia burgdorferi*-infected ticks collected from songbirds across Canada. *Journal of Parasitology* 98: 49-59.

Scott, J.D. and L.A. Durden. 2015. New records of the Lyme disease bacterium in ticks collected from songbirds in central and eastern Canada. *International Journal of Acarology* 41: 241-249.

Wolfe, J., and P. Pyle. 2011. First evidence for eccentric prealternate molt in the Indigo Bunting: possible implications for adaptive molt strategies. *Western Birds* 42: 257-262.



Unusually red plumage on a hatch-year Baltimore Oriole, August 2006 (Photo by Seabrooke Leckie)

5 Birds of MBO

This section provides summaries of the occurrence of birds at MBO; more detailed weekly/monthly records are compiled by species in Appendix D.

5.1 Species observed at MBO

Over the ten years covered in this report (November 2004 - October 2014), 210 bird species were observed at MBO, 119 (57%) of them annually. 120 of these species were banded, 71 (59%) of them at least once each year. During this ten-year period, 51959 individuals were banded, 2815 (5.4%) of them in winter, 8410 (16.2%) in spring, 1012 (1.9%) in summer, and 39722 (76.5%) in fall. Summaries are presented below by taxonomic group.

5.1.1 Waterfowl (geese, swans, and ducks)

Observed: 24 species, 8 of them annually and 5 on just one occasion.

Banded: 1 species (Wood Duck); 3 individuals banded, all in summer

Seasonal occurrence: Generally seen at MBO from early spring through late fall, with some Canada Geese lingering well into December, and even throughout winter in warm years.

Nesting: 3 species (Canada Goose, Wood Duck, Mallard)

Notes: Canada Goose is by far the most abundant of all birds observed at MBO, always ranking as the top species in spring (with a mean daily count for the season ranging from 77 to 401), and also in fall in every year but 2006 (with a mean daily count ranging from 91 to 396). In several years, Snow Goose has been the second most numerous species in spring, but it is relatively scarce in fall. Mallard and Wood Duck are by far the most numerous other waterfowl observed at MBO. Of the 24 species observed, 11 have only been seen flying overhead (Greater White-fronted Goose, Snow Goose, Ross's Goose, Brant, Cackling Goose, Tundra Swan, Greater Scaup, White-winged Scoter, Common Goldeneye, Common Merganser, and Red-breasted Merganser).

5.1.2 Herons, rails, and cranes

Observed: 9 species, 4 of them annually

Banded: None

Seasonal occurrence: Late March to October (and twice into December) for Great Blue Heron, but for most other species records are concentrated between May and September.

Nesting: Green Heron, Virginia Rail, and Sora have bred, but none of them annually.

Notes: All species are observed in relatively small numbers. Sandhill Crane has only been observed flying over MBO, but all others have been seen perching or wading on site.

5.1.3 Shorebirds

Observed: 11 species observed, 3 of them annually and 3 on just one occasion

Banded: 2 species (American Woodcock and Solitary Sandpiper); 4 individuals banded

Seasonal occurrence: Observations range from April to October.

Nesting: Breeding evidence is limited to American Woodcock in 2014

Notes: Only Killdeer and Solitary Sandpiper are seen regularly, though Spotted Sandpiper also occurs annually. The three species observed just once were all seen flying overhead: Black-bellied Plover, Semipalmated Plover, and Dunlin.

5.1.4 Gulls and terns

Observed: 7 species observed, 3 of them annually, and 2 on just one occasion

Banded: None

Seasonal occurrence: Mostly from early spring to late fall, although occasionally seen in winter.

Nesting: None

Notes: All sightings have been of individuals flying overhead, except for occasional Ring-billed Gulls and Herring Gulls on the ground in the farm field adjacent to MBO, especially after it has been ploughed in fall.

5.1.5 Other waterbirds (loons, grebes, cormorants, gannet)

Observed: 4 species observed, 2 of them annually and 1 on just one occasion

Banded: None

Seasonal occurrence: Observations range from April to October.

Nesting: Pied-billed Grebe nested on Stoneycroft Pond in 2005 but has not been seen in summer since then.

Notes: Aside from Pied-billed Grebe, all other species have only been observed flying over MBO.

5.1.6 Diurnal raptors

Observed: 15 species observed, 13 of them annually

Banded: 6 species banded, but 4 of them just once each; 84 individuals banded (0.1% and 0.2% of birds banded in spring and fall, respectively).

Seasonal occurrence: Raptors occur at MBO throughout the year, but diversity and abundance peak toward the middle of spring, and even more notably toward the middle of fall.

Nesting: Only Turkey Vulture is known to have nested on site (although unsuccessfully), but Sharp-shinned, Cooper's, Red-shouldered, and Red-tailed Hawks are regular from spring through fall and all have likely bred within or immediately adjacent to MBO.

Notes: Of the 15 species observed, 5 have only been seen flying overhead (Osprey, Bald Eagle, Northern Harrier, Rough-legged Hawk, and Golden Eagle).

5.1.7 Owls

Observed: 7 species observed, none of them annually

Banded: 5 species banded, all in fall; Northern Saw-whet Owl accounts for 98% of owls banded (1015 of 1032).

Seasonal occurrence: Eastern Screech, Great Horned, and Barred Owls are resident in the area; others are migrants or (in the case of Great Gray Owl) occasional winter visitors.

Nesting: The resident species noted above likely nest adjacent to MBO in the Morgan Arboretum.

Notes: Targeted nocturnal owl banding in eight of ten years (see Section 4.5) has been responsible for the majority of owl records, although all species except Barred, Long-eared, and Boreal Owl have also been observed during daylight hours.

5.1.8 Woodpeckers

Observed: 6 species observed, 5 of them annually

Banded: 6 species banded, 4 of them annually; 351 individuals banded (0.6%, 1.0%, 3.2%, and 0.6% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Downy, Hairy, and Pileated Woodpeckers are present throughout the year, though generally observed less frequently in winter. Yellow-bellied Sapsucker and Northern (Yellow-shafted) Flicker are migrants, usually present from April through October. Red-bellied Woodpecker has recently expanded into the area and appears to be a year-round resident in the adjacent Morgan Arboretum, although observed less regularly at MBO.

Nesting: All six species have bred at or immediately adjacent to MBO.

Notes: Downy Woodpecker is consistently the most common woodpecker at MBO, and it accounts for 58% of woodpeckers banded at MBO.

5.1.9 Other non-passerines

Observed: 9 species observed, 6 of them annually.

Banded: 3 species banded, none of them annually; 58 individuals banded (1.6%, 0.04%, 0.1%, and 0.02% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Rock Pigeon and Mourning Dove are observed throughout the year, Ruffed Grouse is likely present in the adjacent Morgan Arboretum year-round but has only been seen at MBO in late fall and winter, and the other species (Yellow-billed Cuckoo, Black-billed Cuckoo, Common Nighthawk, Chimney Swift, Ruby-throated Hummingbird, and Belted Kingfisher) have been observed only between April and October.

Nesting: Breeding has not been confirmed for any species, but Mourning Dove and Ruby-throated Hummingbird are regularly present through summer, and there is also potential for Black-billed Cuckoo to nest.

Notes: Mourning Dove accounts for 81% of individuals banded in this category, while Black-billed Cuckoo (17%) and Yellow-billed Cuckoo (2%) comprise the remainder. Although observed regularly, Rock Pigeon has only ever been seen flying over MBO.

5.1.10 Flycatchers

Observed: 9 species observed, 7 of them annually

Banded: 9 species banded, 5 of them annually and Olive-sided Flycatcher just once; 854 individuals banded (3.4%, 3.7%, and 1.4% of birds banded in spring, summer, and fall, respectively).

Seasonal occurrence: Most species are observed only from May to September, while Eastern Phoebe records commonly extend from April to October. Most of the flycatchers are late spring and early fall migrants.

Nesting: 6 species have nested at MBO: Eastern Phoebe, Great Crested Flycatcher and Eastern Kingbird nest at MBO in most years, joined sometimes by Eastern Wood-Pewee, Least Flycatcher, and Alder Flycatcher.

Notes: Most flycatchers occur at MBO in relatively small numbers, and migrants move through quickly, with few records of stopovers.

5.1.11 Vireos

Observed: 4 species observed, all of them annually

Banded: 4 species banded, all of them annually; 1255 individuals banded (1.0%, 6.2%, and 2.9% of birds banded in spring, summer, and fall, respectively).

Seasonal occurrence: Observations extend from April to October. All except Warbling Vireo are disproportionately more abundant in fall than spring.

Nesting: Warbling Vireo and Red-eyed Vireo regularly breed at MBO, and there is one record of a very young Blue-headed Vireo indicative of a successful nest at or immediately adjacent to MBO.

Notes: Red-eyed Vireo is the most numerous vireo species at MBO, accounting for 67% of vireos banded, followed by Blue-headed Vireo with 18%.

5.1.12 Corvids

Observed: 4 species observed, 3 of them annually and the other just once

Banded: 1 species banded, annually; 352 individuals banded (0.6%, 0.2%, 0.3%, and 0.8% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: American Crow, Common Raven, and Blue Jay are all resident throughout the year, though migrant Blue Jays pass through in spring and fall, and American Crow numbers fluctuate seasonally, with large flocks being particularly evident in fall, when daily mean counts for the season range from 41 to 112.

Nesting: Blue Jay is known to nest at MBO, while American Crow and Common Raven both breed nearby.

Notes: Blue Jay and American Crow are among the most common and regularly observed birds at MBO.

5.1.13 Swallows

Observed: 6 species observed, 4 of them annually

Banded: 3 species banded, 1 of them annually; 195 individuals banded (1.1% and 9.8% of birds banded in spring and summer, respectively).

Seasonal occurrence: Swallow records at MBO range from mid-April to early September.

Nesting: The Cliff Swallows observed at MBO are primarily associated with a breeding colony at the nearby McGill radar station, while Tree Swallows breed each year in the nest boxes maintained at MBO, although their numbers have steadily declined.

Notes: All of the swallow species regularly occurring in eastern North America have been seen at MBO, with only Purple Martin and Bank Swallow missed in some years. Tree and Cliff Swallows are the only species to regularly occur in large numbers. The banding of Tree Swallow nestlings accounted for a large proportion of summer banding records in early years.

5.1.14 Chickadees, nuthatches, creeper, kinglets, and gnatcatcher

Observed: 9 species, 6 of which have occurred annually, and 1 just once (Boreal Chickadee)

Banded: 6 species banded, 4 of them annually; 6204 individuals banded (8.4%, 7.7%, 5.1%, and 13.6% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Black-capped Chickadee and both White-breasted and Red-breasted Nuthatch are year-round residents; the other species are primarily migrants, although Brown Creeper occurs semi-regularly in winter, and Golden-crowned Kinglet occasionally does as well.

Nesting: Black-capped Chickadee and White-breasted Nuthatch breed at MBO annually, and Red-breasted Nuthatch has in at least some years. Rare observations of juvenile Brown Creepers and Golden-crowned Kinglets in early fall suggest that they may also nest within or adjacent to MBO in some years

Notes: Ruby-crowned Kinglet and Black-capped Chickadee are the third and ninth most frequently banded species at MBO. Peak migration of most species coincides in October.

5.1.15 Wrens

Observed: 5 species observed, 2 of them annually

Banded: 4 species banded, 2 of them annually; 285 individuals banded (0.5%, 2.6%, and 0.6% of birds banded in spring, summer, and fall, respectively).

Seasonal occurrence: Records extend from April to October, with a few Winter Wren observations in winter. House Wren and Winter Wren are both disproportionately more abundant in fall than spring.

Nesting: House Wren breeds annually in the Tree Swallow boxes maintained at MBO; Sedge Wren and Carolina Wren have also been present in summer, but appear to not have bred successfully, although there were two territorial male Sedge Wrens in 2008.

Notes: House Wren is by far the most common of the wrens, accounting for 79% of wrens banded and 88% of wrens observed overall.

5.1.16 Thrushes and mimids

Observed: 12 species observed, 9 of them annually, and 1 just once (Townsend's Solitaire)

Banded: 10 species banded, 7 of them annually; 4581 individuals banded (0.5%, 4.7%, 17.9%, and 10.3% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Most records are from late March to November, though winter records are regular for American Robin.

Nesting: 4 species regularly breed at MBO: Veery, American Robin, Gray Catbird, and Brown Thrasher; Wood Thrush has also started breeding on site in recent years.

Notes: American Robin is the most abundant species of this group, with 2548 individuals banded, ranking sixth among all species, and accounting for 56% of thrushes and mimids.

5.1.17 Warblers

Observed: 27 species observed, 23 of them annually

Banded: 26 species banded (all species observed except Connecticut Warbler), 21 of them annually; 18165 individuals banded (33.9%, 16.2%, and 39.1% of birds banded in spring, summer, and fall, respectively).

Seasonal occurrence: All warblers at MBO are migrants, with observations limited to between mid-April and late October, except for rare Yellow-rumped Warbler records in early November.

Nesting: 3 species breed at MBO annually (Ovenbird, Common Yellowthroat, Yellow Warbler), while another 6 species (Black-and-white Warbler, American Redstart, Blackburnian Warbler, Chestnut-sided Warbler, Black-throated Blue Warbler, and Black-throated Green Warbler) have nested in at least some years, and Pine Warbler nests annually in the Morgan Arboretum, immediately adjacent to MBO.

Notes: Yellow-rumped Warbler is by a wide margin the most frequently banded species at MBO, although 29% of all individuals were banded during fall 2008, and another 39% during fall 2010. Magnolia Warbler is ranked seventh among birds banded, while another five warblers are in the top 17 overall (in decreasing order, Tennessee Warbler, American Redstart, Nashville Warbler, Common Yellowthroat, and Yellow Warbler).

5.1.18 Sparrows

Observed: 14 species observed, 10 of them annually

Banded: 12 species banded, 9 of them annually; 11630 individuals banded (24.5%, 15.9%, 16.0%, and 24.4% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Sparrows are present throughout the year, but almost all species are limited to certain seasons. Only White-throated Sparrow occurs year-round, although relatively uncommon in both spring and winter. American Tree Sparrow and Dark-eyed Junco are the only other sparrows to regularly overwinter.

Nesting: Song, Swamp, and White-throated Sparrows breed at MBO annually, and Chipping Sparrow breeds occasionally.

Notes: Three sparrows are among the five most frequently banded birds at MBO: White-throated Sparrow (second), Slate-colored Junco (fourth), and Song Sparrow (fifth).

5.1.19 Finches

Observed: 14 species observed, 9 of them annually

Banded: 12 species banded, 6 of them annually. 3935 individuals banded (61.5%, 7.1%, 6.1%, and 4.0% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: As a group, finches are present year-round, but only Northern Cardinal, House Finch, and American Goldfinch routinely occur in all seasons (formerly also House Sparrow), and few are present in summer.

Nesting: Northern Cardinal, Rose-breasted Grosbeak, Indigo Bunting, and American Goldfinch nest at MBO annually. House Sparrow nested at MBO from 2005 to 2007, while Purple Finch and Pine Siskin have both done so at least once. Scarlet Tanager is suspected to have nested at or adjacent to MBO, but has not been confirmed.

Notes: American Goldfinch is the most common of the finches at MBO, accounting for 48% of individuals banded. Finches are particularly numerous and diverse in winter, comprising the majority (62%) of all birds banded at MBO in that season.

5.1.20 Blackbirds

Observed: 7 species observed, 6 of them annually.

Banded: 6 species banded, 4 of them annually; 2025 individuals banded (2.0%, 16.4%, 9.8%, and 1.3% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Primarily present from late winter or early spring to late fall or early winter, although there are a few records of Rusty Blackbird and Red-winged Blackbird in mid-winter. Some species, such as Bobolink and Baltimore Oriole, are present only from mid-spring to early fall.

Nesting: Red-winged Blackbird is likely the most numerous breeding bird at MBO; other species that breed on site annually are Common Grackle, Brown-headed Cowbird, and Baltimore Oriole.

Notes: Red-winged Blackbird is consistently among the top four species observed in spring, with a daily mean count ranging from 25 to 62; in every year except 2005 it was also among the top four species overall in fall, with a daily mean count from 55 to 116. Red-winged Blackbird also is the twelfth most frequently banded bird at MBO. While Red-winged Blackbird, Rusty Blackbird, Brown-headed Cowbird, and Common Grackle are all more frequently banded in spring than fall, they form large mixed-species flocks in the second half of fall.

5.1.21 Other passerines

Observed: 7 species observed, 4 of them annually.

Banded: 4 species banded, 2 of them annually; 946 individuals banded (0.2%, 6.9%, 3.1%, and 0.8% of birds banded in winter, spring, summer, and fall, respectively).

Seasonal occurrence: Only European Starling is seen throughout the year; others are either winter visitors (Northern Shrike and Bohemian Waxwing), early spring / late fall migrants (Horned Lark and American Pipit), or a spring through fall resident and migrant (Cedar Waxwing).

Nesting: Only Cedar Waxwing has been confirmed breeding at MBO, although European Starling is present in summer and has at a minimum nested nearby.

Notes: This group comprises Northern Shrike, Horned Lark, European Starling, American Pipit, Bohemian and Cedar Waxwings, and Snow Bunting. Cedar Waxwing accounts for 97% of birds banded in this group.

5.2 Species not yet observed at MBO

At the time of the MBO Five-year Report (Gahbauer 2010), 199 species had been observed at MBO, and predictions were made for the next 20 species based on patterns of occurrence in southern Quebec or eastern Ontario. In the five years since, 6 of those predicted species have been observed: Great Egret (22 April 2010), Red-bellied Woodpecker (4 August 2010), Common Tern (10 August 2010), Tundra Swan (19 September 2011), Tufted Titmouse (3 June 2012), and Boreal Owl (5 November 2012). The other 14 species have not yet been observed (Black Vulture, Swainson's Hawk, Bonaparte's Gull, Red-headed Woodpecker, American Three-toed Woodpecker, Black-backed Woodpecker, Short-eared Owl, Snowy Owl, Yellow-throated Vireo, Prairie Warbler, Lapland Longspur, Louisiana Waterthrush, Orchard Oriole, and Red Crossbill). However, 5 entirely unexpected species were also added to the MBO list between 2010 and 2014: Common Goldeneye (1 October 2011), Fish Crow (20 April 2012), Black-bellied Plover (26 May 2012), Ross's Goose (12 May 2013), and Greater White-fronted Goose (21 September 2013).

Three of the originally predicted species are no longer considered likely to occur. Short-eared Owl remains in decline throughout eastern North America, and sightings around Montreal have become scarce; happening to see one migrate past seems particularly unlikely as they tend to be more active in the evening when observers are rarely present. Similarly, Red-headed Woodpecker has become increasingly rare in Quebec as its range has constricted to the south, and the odds of a vagrant occurring at MBO have become increasingly slim. Finally, although Prairie Warblers breed only 200 km west of MBO on the Frontenac Axis in Ontario, they are notoriously difficult to see on migration, and therefore the chances of one occurring off-track at MBO are low.

The other 11 originally predicted species are listed in taxonomic order below (*), along with an expanded list of another 14 species that are considered to have a fair potential to occur based on what has been observed at MBO to date and consideration of regional occurrence records from the Quebec Breeding Bird Atlas (<http://www.atlas-oiseaux.qc.ca/donneesqc/cartes.jsp?lang=en>), the annotated list of species from Oiseaux du Quebec (<http://www.oiseauxqc.org/listeannotee.jsp>), and the cumulative eBird checklist for Montreal ([http://ebird.org/ebird/canada/GuideMe?step=saveChoices&getLocations=counties&parentState=CA-QC-MR&continue.x=78&continue.y=16&continue=Continue](http://ebird.org/ebird/canada/GuideMe?step=saveChoices&getLocations=counties&parentState=CA-QC&bMonth=01&bYear=1900&eMonth=12&eYear=2015&reportType=location&counties=CA-QC-MR&continue.x=78&continue.y=16&continue=Continue)). Note that the list excludes Wild Turkey and White-eyed Vireo, which were planned for inclusion among the updated predictions, but were observed at MBO in 2015 between the end of the ten-year period covered in this report and its publication.

REDH: Redhead / Fuligule à tête rouge (*Aythya americana*)

Although still a rare species in Quebec, with breeding evidence documented in just 19 10x10 km squares during the recent (2010-2014) Quebec Breeding Bird Atlas, the population is expanding, with 11 of those locations newly occupied compared to the first atlas period 20 years earlier. The nearest confirmed breeding location is at Ste-Timothée, less than 15 km south of MBO. Although unlikely to land at MBO, a flyover sighting is certainly possible, especially in fall.

BLSC: Black Scoter / Macreuse à bec jaune (*Melanitta americana*)

Black Scoters are seen regularly in the Montreal area from mid-October to mid-November, especially along Rivière des Prairies and Rivière des Mille-Iles, just northeast of MBO. While there is no habitat for scoters at MBO, a flyover sighting is possible, and Black Scoter is readily recognizable from below.

BUFF: Bufflehead / Petit Garrot (*Bucephala albeola*)

A common early spring and late fall migrant through the Montreal area; Common Goldeneye has already been observed flying over MBO, and there is no reason that Bufflehead should not be expected as well.

LEBI: Least Bittern / Petit Blongios (*Ixobrychus exilis*)

Least Bittern is a threatened species in Canada, but with a relatively strong population in and around Montreal, including a breeding site at Île Bizard, less than 10 km northeast of MBO. Given the proximity of this and other nearby breeding sites, as well as available suitable habitat at MBO, an eventual observation seems likely.

***BLVU: Black Vulture / Urubu noir (*Coragyps atratus*)**

A southern species gradually expanding its breeding range northward, with increasingly frequent sightings in southern Quebec in recent years, including at the Montreal West Island Hawkwatch near MBO.

***SWHA: Swainson's Hawk / Buse de Swainson (*Buteo swainsoni*)**

A western species of which a few individuals drift east each year during fall migration, being spotted from Ontario to the east coast, including the Montreal West Island Hawkwatch in 2010, 2013, and 2014.

***BOGU: Bonaparte's Gull / Mouette de Bonaparte (*Chroicocephalus philadelphia*)**

A fairly common boreal breeder that migrates through the Montreal area each spring and fall, and is expected to pass over MBO at some point.

GLGU: Glaucous Gull / Goéland bourgmestre (*Larus hyperboreus*)

An uncommon wintering species in the Montreal area, which is expected to eventually be seen flying over MBO, as Iceland Gull has in the past.

EUCD: Eurasian Collared-Dove / Tourterelle turque (*Streptopelia decaocto*)

A rapidly expanding species, first recorded in 2004 and with the frequency of observations continuing to increase over time. Although there are no records to date for the island of Montreal, the northward expansion of Eurasian Collared-Dove is expected to continue, and will likely reach MBO eventually.

***SNOW: Snowy Owl / Harfang des neiges (*Bubo scandiacus*)**

A regular winter visitor in the Montreal area, with a number of sightings within a few kilometres of MBO in recent years. Most likely to be seen flying over MBO or in the adjacent field.

NHOW: Northern Hawk Owl / Chouette épervière (*Surnia ulula*)

An occasional winter visitor to the Montreal area, with multiple records from Île Perrot just southwest of MBO, and Laval to the northeast.

RUHU: Rufous Hummingbird / Colibri roux (*Selasphorus rufus*)

A western species that is being seen with increasing frequency in fall across eastern North America, including several sightings in southern Quebec in recent years.

***ATTW: American Three-toed Woodpecker / Pic à dos rayé (*Picoides dorsalis*)**

An irregular winter visitor to the Montreal area, that may be increasing regionally in response to tree die-offs caused by the Emerald Ash Borer. There have been previous sightings at the Morgan Arboretum, as well as at nearby Cap-Saint-Jacques.

***BBWO: Black-backed Woodpecker / Pic à dos noir (*Picoides arcticus*)**

Like American Three-toed Woodpecker, an irregular winter visitor from the boreal forest that has been increasing regionally in recent years, and was seen at the Morgan Arboretum as recently as 2012.

***YTVI: Yellow-throated Vireo / Viréo à gorge jaune (*Vireo flavifrons*)**

A rare species in and around Montreal, though it breeds in good numbers in parts of eastern Ontario and is also a regular breeder in scattered parts of southern Quebec; occasional observations in spring at other Montreal area migration hotspots such as Summit Park and Parc National d'Oka suggest that it could occur at MBO.

CASW: Cave Swallow / Hirondelle à front brun (*Petrochelidon fulva*)

Since 1999, there have been periodic fall irruptions of Cave Swallows that reached Quebec, the most recent occurring in 2012. Although to date there is only one record in the Montreal area, there is good potential for a future sighting, given the observer effort at MBO throughout the mid-late fall period when Cave Swallow irruptions occur.

VATH: Varied Thrush / Grive à collier (*Ixoreus naevius*)

A western species that is increasingly frequent as a winter vagrant in the east, including at least half a dozen records in the greater Montreal area over the past decade. As a frugivore, it is likely to be attracted to the many buckthorns, hawthorns, and apples at MBO, much like another western vagrant (Townsend's Solitaire) that appeared at MBO in late 2009.

***LALO: Lapland Longspur / Plectrophane lapon (*Calcarius lapponicus*)**

A regular but uncommon winter visitor around the outskirts of Montreal; most likely to be seen in the company of Snow Buntings, and would probably favour the field adjacent to MBO.

WEWA: Worm-eating Warbler / Paruline vermivore (*Helmitheros vermivorum*)

A southern species that has been observed in southern Quebec in 6 of the past 10 years, including two sightings in the Montreal area.

***LOWA: Louisiana Waterthrush / Paruline hochequeue (*Parkesia motacilla*)**

A southern species with a range that barely reaches southern Quebec and eastern Ontario, but recent records in Gatineau Park and good numbers in the Frontenac area northeast of Kingston provide a potential source of migrants to pass through MBO without being too far off course, and two sightings in Montreal since 2011 indicate they have been close.

HOWA: Hooded Warbler / Paruline à capuchon (*Setophaga citrina*)

A southern species that has been showing up in southern Quebec with increasing frequency in recent years, including two sightings in the Montreal area in the past five years.

YTWA: Yellow-throated Warbler / Paruline à gorge jaune (*Setophaga dominica*)

Another southern warbler that is being seen with increasing frequency in southern Quebec, with at least one observation annually since 2003, including several in the Montreal area.

***OROR: Orchard Oriole / Oriole des vergers (*Icterus spurius*)**

A southern species with only scattered records in the Montreal area, but one of these is of a nesting pair near the entrance to the Ecomuseum (in 2002); had MBO been operational at the time, it is possible one or more of the birds from that location would have been counted at MBO.

YHBL: Yellow-headed Blackbird / Carouge à tête jaune (*Xanthocephalus xanthocephalus*)

A western species that has been seen on multiple occasions along the south shore of the St. Lawrence River just south of MBO, and would find suitable habitat at Stoneycroft Pond.

***RECR: Red Crossbill / Bec-croisé des sapins (*Loxia curvirostra*)**

A highly nomadic finch that visits feeders on occasion and has been observed at the Morgan Arboretum; chances are good of eventually spotting one at MBO during a winter when relatively large numbers occur in southern Quebec.

Of course, as was the case over the past five years, we expect the occasional surprise in the form of a species we have not predicted to occur. There is a particularly good chance this will be a species of western flycatcher, as several have been reported in the Montreal area in late fall. In fact, there is a chance that one has already been seen at MBO, but without being confirmed (see the Great Crested Flycatcher account in Appendix D).

5.3 Seasonal patterns

During spring and fall migration, both weather conditions and bird communities undergo significant changes throughout the season. The brief accounts below summarize typical observations on a weekly basis throughout these two seasons, and on a monthly basis during summer and winter, when conditions change less rapidly.

Dominant species observed and banded are listed for each period, including only those which have occurred in the top 10 for that period in at least 60% of years that the program was operational (see Appendix B). They are listed in descending order of occurrence, with the mean number of individuals observed per day or the mean number banded per week (or per month in summer/winter) in parentheses. Note that for summer, birds banded through the nest monitoring program (primarily juveniles) are excluded from these summaries because effort has been highly variable across years and is not meaningful for comparison. Similarly, the weekly summaries for fall are based entirely on data from the Fall Migration Monitoring Program, and do not include results from the owl banding program.

Species peaks for spring and fall are based on the patterns of observation shown in Appendix D, and although the timing of peaks has varied over time for some species, the summaries presented in this section are based strictly on the overall averages from 2005 through 2014. Clear and consistent peaks are not apparent for all species, especially those that occur infrequently. As such, the number of species peaking per week in spring and fall is coarsely divided into 'common' and 'uncommon' species, where 'common' is defined as those species that were observed in at least 7 of the 10 years and that have a mean total count of at least 15 individuals per spring or 20 individuals per fall. There are 108 uncommon and 83 common species in spring, while in fall there are 100 uncommon and 93 common species. Uncommon species are flagged (*) in the list of species peaking.

Weather data are based on archived records from Environment Canada for Montreal, compiled in Appendix E.

Winter Month 1 (October 31 - November 30)

Species observed: 77 (low 27, mean 37, high 48)

Dominant species observed: Canada Goose (157), American Crow (40), American Robin (27), American Goldfinch (15), Black-capped Chickadee (14), Dark-eyed Junco (14), Mallard (14), House Finch (9)

Birds banded: 1550 individuals (low 41, mean 194, high 378); 25 species (low 8, mean 13, high 18)

Dominant species banded: American Goldfinch (68.5), Dark-eyed Junco (43.6), House Finch (39.4), Black-capped Chickadee (10.0), American Tree Sparrow (8.6), Northern Cardinal (4.4), Mourning Dove (3.6), White-throated Sparrow (3.5)

Weather: Mean low temperature -4 to +1 (mean -1); mean high temperature 5 to 10 (mean 7). Total rainfall 13 to 104 mm (mean 66, weekly mean 16); total snowfall 0 to 29 cm (mean 9, weekly mean 2).

Notes: The first month of winter is always the warmest, and mean temperatures largely remain above freezing. Rainfall is also on average greater than in any other winter month, but correspondingly there is relatively little snow yet, though there has been at least some snowfall in every year except 2007. Canada Goose, American Crow, and American Robin are the dominant species observed, carrying over from the large flocks observed at the end of fall, although the goose and robin are in greatly reduced numbers already, and some other species still near their peak in week 13 drop off considerably in November (e.g., European Starling, Red-winged Blackbird). Within the winter season, diversity is highest in November, with a mean species count nearly 60% higher than the three mid-winter months. Many of these species are late-lingering fall migrants that occasionally trickle over into the first week or two of November in small numbers. 55% of birds banded at MBO in winter have been in November, in large part because of a greater concentration of banding effort compared to other months, which in turn is related to the warmer temperatures that place less of a limitation on banding activities. Finches dominate November banding, with American Goldfinch and House Finch accounting for 56% of birds banded during the month.

Winter Month 2 (December 1 - 31)

Species observed: 52 (low 13, mean 23, high 32)

Dominant species observed: Canada Goose (164), European Starling (24), American Crow (21), Black-capped Chickadee (13), Dark-eyed Junco (10), American Goldfinch (8), House Finch (7), Mourning Dove (7), Northern Cardinal (4)

Birds banded: 353 individuals (low 9, mean 50, high 155); 15 species (low 5, mean 7, high 8)

Dominant species banded: American Goldfinch (22.7), House Finch (7.0), Dark-eyed Junco (5.4), American Tree Sparrow (3.6), Black-capped Chickadee (3.4)

Weather: Mean low temperature -12 to -5 (mean -9); mean high temperature -5 to +2 (mean -2). Total rainfall 6 to 96 mm (mean 52, weekly mean 13); total snowfall 20 to 113 cm (mean 67, weekly mean 16).

Notes: December is significantly colder than November, with mean daily high temperatures below freezing every year except 2006 and 2011. Total rainfall is on average only around 20% less than in November, but it has also been the snowiest month of winter every year except 2006, 2010, and 2011 – and in 2006 and 2011 that was due to warmer temperatures, which translated into the two Decembers with the highest volume of rainfall. Canada Goose remains by far the most abundant species on average, thanks primarily to some enormous flocks, ranging from 383 to 2540 during the unusually mild weather of December 2006, and large numbers again in both 2009 and 2010 (though no Canada Geese were observed at all in December 2008 or 2011). Diversity is much lower than in November, with an average of 23 species observed annually. The combination of cold weather and frequent snow usually limits banding opportunities in December, and the mean numbers banded are consequently much lower than in November. American Goldfinch remains by far the most commonly banded species, but House Finches are no longer as prominent by December.

Winter Month 3 (January 1 - 31)

Species observed: 44 (low 13, mean 22, high 29)

Dominant species observed: European Starling (27), Black-capped Chickadee (13), Dark-eyed Junco (11), Mourning Dove (7), American Crow (6), House Finch (6), American Goldfinch (4), Blue Jay (3)

Birds banded: 113 individuals (low 14, mean 38, high 82); 12 species (low 4, mean 7, high 12)

Dominant species banded: Black-capped Chickadee (8.0), American Goldfinch (8.0), Dark-eyed Junco (6.3), American Tree Sparrow (1.3)

Weather: Mean low temperature -17 to -8 (mean -12); mean high temperature -9 to -1 (mean -4). Total rainfall 0 to 92 mm (mean 34, weekly mean 8); total snowfall 16 to 72 cm (mean 45, weekly mean 11).

Notes: January is on average the coldest month at MBO, with mean daily lows and highs both one degree less than in February; the mean daily high has been below freezing every year. Both rainfall and snowfall are on average one-third lower than in December. By January, the last of the waterfowl and other late fall migrants are finally gone, and the species observed are generally those associated with the feeders at MBO (e.g., Black-capped Chickadee, Dark-eyed Junco), or others such as European Starling and (in some years) Bohemian Waxwing that feed on the abundant buckthorn and hawthorn fruit. Mean and total cumulative diversity drop to their lowest levels of winter (and of the year) in January. Although scarce in early winter, Common Redpolls and Bohemian Waxwings often start to arrive in January, in the years that they are present. Banding opportunities continue to be scarce due to weather limitations, with Black-capped Chickadee and American Goldfinch the most common species overall when banding has been possible. More Common Redpolls (26) have been banded in January than any other species, but they were all in 2006, and therefore are not considered a dominant species for the period because there is not a regular pattern to their occurrence. Fewer individuals and species have been banded in January than any other month.

Winter Month 4 (February 1 - 28)

Species observed: 45 (low 17, mean 22, high 27)

Dominant species observed: European Starling (12), Black-capped Chickadee (11), Bohemian Waxwing (10), Dark-eyed Junco (7), American Crow (6), Mourning Dove (5), American Goldfinch (4), Blue Jay (3)

Birds banded: 198 individuals (low 4, mean 33, high 97); 16 species (low 2, mean 6, high 10)

Dominant species banded: Black-capped Chickadee (6.7), Dark-eyed Junco (3.0), American Goldfinch (2.0), American Tree Sparrow (1.5)

Weather: Mean low temperature -15 to -8 (mean -11); mean high temperature -7 to -1 (mean -3). Total rainfall 0 to 51 mm (mean 15, weekly mean 4); total snowfall 23 to 88 cm (mean 47, weekly mean 12).

Notes: On average, temperatures in February start to warm up slightly, although in four years out of ten the mean daily high was actually colder than in January. Rainfall tends to be much scarcer than in any other month, but snowfall is on average nearly the same as in January. The mean diversity for February matches the season low of 22 also recorded in January, and the maximum count of 27 is the lowest for winter, but the cumulative list is one species longer. Bohemian Waxwing and Common Redpoll numbers tend to increase in February in the years that they are present, but many other winter residents remain stable or decline somewhat. Banding totals in February are generally low; 45% of all birds banded during the month over the ten-year period were Common Redpolls in February 2013. Redpolls, however, are irruptive; the only regularly banded species in February are Black-capped Chickadee, American Tree Sparrow, Dark-eyed Junco, and American Goldfinch.

Winter Month 5 (March 1 - 27)

Species observed: 70 (low 23, mean 32, high 45)

Dominant species observed: Canada Goose (109), American Crow (15), European Starling (11), Black-capped Chickadee (11), Red-winged Blackbird (10), Dark-eyed Junco (6), American Tree Sparrow (5)

Birds banded: 601 individuals (low 27, mean 75, high 271); 20 species (low 6, mean 8, high 13)

Dominant species banded: Common Redpoll (39.1), American Tree Sparrow (8.6), Black-capped Chickadee (7.8), American Goldfinch (7.8), Dark-eyed Junco (3.8)

Weather: Mean low temperature -12 to -2 (mean -6); mean high temperature -2 to +8 (mean +2). Total rainfall 1 to 83 mm (mean 25, weekly mean 7); total snowfall 3 to 75 cm (mean 32, weekly mean 8).

Notes: Mean daily low and high temperatures in March are roughly 5 degrees warmer than in February, and the mean daily high was above freezing in every year except 2014. With the warmer temperatures, mean snowfall amounts drop by one-third from February, but rainfall increases by two-thirds. Diversity rebounds considerably in response to the change in weather, with the count usually including a number of early spring migrants, especially in years such as 2012 with an unusually extended period of very mild weather in mid-March. Canada Goose returns to the top of the list of most observed species thanks to some early flocks, while passerine migrants such as American Robin, Song Sparrow, and Red-winged Blackbird trickle in with much smaller numbers and usually do not register among the top species until MBO's spring season begins. Overall, March banding has been dominated by Common Redpolls, with the 313 individuals banded this month (mean 39 per year of banding) accounting for 11.1% of birds of all species banded throughout winter. However, Common Redpolls have only been banded in five years due to their irruptive nature; among more regularly occurring species, American Tree Sparrow, Black-capped Chickadee, and American Goldfinch are banded most frequently.



Common Redpoll (left) and American Tree Sparrow (right) are two of the most commonly banded species at MBO in winter (Photos by Simon Duval)

Spring Week 1 (March 28 - April 3)

Species observed: 64 (low 24, mean 34, high 39)

Dominant species observed: Canada Goose (379), Red-winged Blackbird (33), American Crow (17), Ring-billed Gull (12), Black-capped Chickadee (11), American Robin (9), Blue Jay (6)

Species peaking this week: 9 (2 common and 7 uncommon) - Canada Goose, American Wigeon*, American Black Duck*, Ruffed Grouse*, Great Black-backed Gull*, Tufted Titmouse*, Bohemian Waxwing*, American Tree Sparrow, Common Redpoll*

Birds banded: 0 individuals

Weather: Mean low temperature -5 to +3 (mean -1); mean high temperature 4 to 14 (mean 9). Total rainfall 1 to 45 mm (mean 16); total snowfall 0 to 3 cm (mean 1).

Notes: This was designated as the first week of spring at MBO because it commonly coincides with the return of large numbers of Canada Geese and Red-winged Blackbirds, as well as smaller numbers of other migrants ranging from Wood Duck to Song Sparrow. However, overnight temperatures still average just below freezing, even though daily highs are on average more than 6 degrees warmer than in the rest of March. Although snowfall during this week has been rare, there is often still snow on the ground, and that in combination with the cold morning temperatures has prevented any banding during this period. Only four common species peak in abundance during this week, with three of them (Bohemian Waxwing, American Tree Sparrow, and Common Redpoll) being overwintering species that are beginning to leave MBO around this time.

Spring Week 2 (April 4 - 10)

Species observed: 77 (low 33, mean 40, high 51)

Dominant species observed: Canada Goose (256), Red-winged Blackbird (38), Snow Goose (26), Ring-billed Gull (18), American Crow (15), American Robin (12), Black-capped Chickadee (11), Song Sparrow (10)

Species peaking this week: 7 (1 common and 6 uncommon) - Ring-necked Duck*, Hooded Merganser*, Northern Goshawk*, Iceland Gull*, Northern Shrike*, Horned Lark*, European Starling

Birds banded: 34 individuals (low 17, mean 17, high 17); 13 species (low 7, mean 8, high 10)

Dominant species banded: Song Sparrow (3.5), American Goldfinch (2.5), American Robin (2.0), American Tree Sparrow (2.0), Black-capped Chickadee (1.5), Dark-eyed Junco (1.5), Golden-crowned Kinglet (1.0)

Weather: Mean low temperature -3 to +6 (mean 0); mean high temperature 3 to 14 (mean 9). Total rainfall 3 to 51 mm (mean 20); total snowfall 0 to 11 cm (mean 3).

Notes: Weather in week 2 is remarkably similar to week 1; if anything sometimes it is more wintry. The mean daily high temperature is marginally higher in week 2 (by 0.3 degrees), but in four years it has been colder than in week 1, by as much as 7 degrees in 2006 and 2007. Similarly, snowfall in week 2 has been greater than in week 1 in six of ten years; rainfall is on average also somewhat greater. While banding was attempted during this week for the first two years, the weather limitations were sufficiently frequent to negate the value of operating the nets during this period. The only common species peaking in week 2 is European Starling.

Spring Week 3 (April 11 - 17)

Species observed: 77 (low 36, mean 44, high 54)

Dominant species observed: Canada Goose (205), Red-winged Blackbird (40), Ring-billed Gull (17), American Crow (15), American Robin (15), Song Sparrow (14), Black-capped Chickadee (9)

Species peaking this week: 2 (both uncommon) - Northern Shoveler*, Evening Grosbeak*

Birds banded: 85 individuals (low 17, mean 42, high 68); 20 species (low 8, mean 14, high 19)

Dominant species banded: Dark-eyed Junco (10.5), American Robin (4.0), Cedar Waxwing (4.0), Song Sparrow (4.0), Golden-crowned Kinglet (2.5), Fox Sparrow (2.5), Ruby-crowned Kinglet (2.0), American Tree Sparrow (2.0), Red-winged Blackbird (2.0), Eastern Phoebe (1.5), American Goldfinch (1.5)

Weather: Mean low temperature -1 to +5 (mean +1); mean high temperature 5 to 18 (mean 12). Total rainfall 1 to 45 mm (mean 16); total snowfall 0 to 3 cm (mean 1).

Notes: Temperatures typically spike notably in week 3, with daily highs on average 3 degrees warmer than in week 2. However, the two snowiest weeks of spring have occurred during this period, in 2007 and 2013, and

there have been smaller amounts of snow in three other years. Given the relative frequency of snow and overnight temperatures on average still barely above freezing, banding during week 3 was also abandoned after the first two years. Numbers of many common early migrants continue to build during week 3, but only two uncommon species peak during this week.

Spring Week 4 (April 18 - 24)

Species observed: 104 (low 59, mean 64, high 69)

Dominant species observed: Canada Goose (289), Red-winged Blackbird (53), Ring-billed Gull (28), American Crow (24), American Robin (24), Song Sparrow (18), Black-capped Chickadee (14)

Species peaking this week: 42 (21 common and 21 uncommon) - Greater White-fronted Goose*, Snow Goose, Wood Duck, Mallard, Northern Pintail, American Green-winged Teal, Common Merganser*, Red-breasted Merganser*, American Bittern*, Black-crowned Night-Heron*, Turkey Vulture, Northern Harrier*, Cooper's Hawk*, Broad-winged Hawk*, Red-tailed Hawk, Rough-legged Hawk*, American Kestrel*, Sandhill Crane*, Killdeer, Wilson's Snipe*, Herring Gull*, Mourning Dove, Belted Kingfisher*, Downy Woodpecker, Hairy Woodpecker, Eastern Phoebe, American Crow, Fish Crow*, Black-capped Chickadee, White-breasted Nuthatch, Brown Creeper*, Winter Wren*, Golden-crowned Kinglet, American Robin, Field Sparrow*, Vesper Sparrow*, Fox Sparrow, Song Sparrow, Dark-eyed Junco, Northern Cardinal, House Finch*, Pine Siskin*

Birds banded: 934 individuals (low 39, mean 93, high 169); 37 species (low 13, mean 17, high 20)

Dominant species banded: Ruby-crowned Kinglet (15.6), Fox Sparrow (12.1), Red-winged Blackbird (9.1), Song Sparrow (7.8), Dark-eyed Junco (6.8), White-throated Sparrow (5.2), Swamp Sparrow (3.6), American Goldfinch (3.3)

Weather: Mean low temperature 1 to 6 (mean 3); mean high temperature 9 to 22 (mean 15). Total rainfall 1 to 63 mm (mean 23); total snowfall 0 to 3 cm (mean 0).

Notes: Week 4 of spring is the first week of the year during which no years had a mean low temperature below freezing, and the mean daily high is another 3 degrees warmer than in week 3. There has only once been snowfall in week 4, in 2011. The results show a tremendous influx of birds in week 4, and this in part reflects the advance of the season and sharp increase in temperature. However, to some degree it is also a function of the banding program beginning in week 4 (since 2007), and the extra observer effort associated with that, compared to the one-hour census that takes place daily during the first three weeks. Correspondingly, more species peak in week 4 than any other week of spring. Among the common species peaking, a few (most notably Golden-crowned Kinglet, Fox Sparrow, and Dark-eyed Junco) are early season migrants that are likely somewhat under-detected in previous weeks and may in reality have a somewhat earlier peak. Banding counts often are quite modest to start the season; overall Ruby-crowned Kinglet is banded considerably more than any other species. Results are fairly variable from year to year, depending on weather conditions.

Spring Week 5 (April 25 - May 1)

Species observed: 114 (low 55, mean 64, high 75)

Dominant species observed: Canada Goose (168), Red-winged Blackbird (54), American Crow (22), American Robin (14), Ring-billed Gull (14), Song Sparrow (14), White-throated Sparrow (14), Black-capped Chickadee (12), Tree Swallow (11)

Species peaking this week: 9 (4 common and 5 uncommon) - American Woodcock*, Great Horned Owl*, Yellow-shafted Flicker, Hermit Thrush*, American Pipit*, Cedar Waxwing, White-throated Sparrow, Eastern Meadowlark*, Rusty Blackbird

Birds banded: 804 individuals (low 13, mean 80, high 197); 41 species (low 3, mean 14, high 18)

Dominant species banded: Red-winged Blackbird (13.5), Ruby-crowned Kinglet (10.3), White-throated Sparrow (9.4), Swamp Sparrow (4.3), American Robin (3.6), Song Sparrow (2.9)

Weather: Mean low temperature 1 to 7 (mean 4); mean high temperature 10 to 22 (mean 15). Total rainfall 1 to 71 mm (mean 25); total snowfall 0 to 1 cm (mean 0).

Notes: The mean high temperature is the same for weeks 4 and 5, but the mean low temperature is 1.2 degrees warmer in week 5. However, both are highly variable, and can have quite an influence on migration. For

example, in 2007 a cold snap in week 5 reduced the mean daily high temperature by 6 degrees compared to week 4, and this effectively stalled migration, resulting in a lower capture rate for the week than in any other year. The latest ever snow at MBO was a small amount in week 5 of 2012. Two of the five highest weekly rainfall totals for all of spring have occurred in week 5, but overall, average rainfall by week throughout spring varies relatively little (from 16 to 26 mm) and does not show a clear pattern over the course of the season. The number of species peaking in week 5 is less than one-quarter the count in week 4, which as previously noted may have a total somewhat inflated by the contrast in effort between it and the preceding three weeks of census only. Canada Goose and Red-winged Blackbird have been the first and second most abundant species in week 5 every year except 2014, when Cedar Waxwing bumped them both down. For the first five years, one of Ruby-crowned Kinglet, White-throated Sparrow, or Red-winged Blackbird dominated the nets in week 5 by a wide margin over other species; since then the week 5 banding totals have been quite low overall, except for an enormous influx of Cedar Waxwings in 2014. Others that have been banded in good numbers in some years include American Robin, Song Sparrow, and Dark-eyed Junco; again the results are fairly variable from year to year depending on weather. The first warblers of the season are sometimes banded in week 5, most often Yellow-rumped Warblers, but occasionally also Northern Waterthrush, Nashville Warbler, Common Yellowthroat, and Yellow Warbler.

Spring Week 6 (May 2 - 8)

Species observed: 142 (low 60, mean 78, high 89)

Dominant species observed: Canada Goose (277), Red-winged Blackbird (52), Ring-billed Gull (23), American Crow (22), Tree Swallow (15), Song Sparrow (13), Black-capped Chickadee (12), American Goldfinch (12)

Species peaking this week: 21 (11 common and 10 uncommon) - Cackling Goose*, Blue-winged Teal*, Common Loon, Osprey*, Sharp-shinned Hawk*, Red-shouldered Hawk, Common Gallinule*, Greater Yellowlegs*, Black Tern*, Barred Owl*, Yellow-bellied Sapsucker, Pileated Woodpecker, Blue Jay, Common Raven, Ruby-crowned Kinglet, Yellow Palm Warbler*, Savannah Sparrow, Swamp Sparrow, Brown-headed Cowbird, Purple Finch, House Sparrow*

Birds banded: 954 individuals (low 52, mean 95, high 148); 50 species (low 12, mean 19, high 23)

Dominant species banded: Red-winged Blackbird (23.5), Ruby-crowned Kinglet (17.0), White-throated Sparrow (14.9), Common Grackle (4.8), American Goldfinch (4.7), Swamp Sparrow (2.9)

Weather: Mean low temperature 5 to 11 (mean 7); mean high temperature 14 to 26 (mean 17). Total rainfall 0 to 40 mm (mean 17); no snowfall.

Notes: Mean temperatures jump upwards again in week 6, with a mean increase of 2.3 degrees in both daily lows and highs. Even in the coldest years, the mean low temperature for the week was barely below 5 degrees, and these warmer conditions favour the arrival of many more spring migrants. The top three species banded overall are the same as in week 5, all in greater numbers, though the mean daily count of Ruby-crowned Kinglets observed is similar to week 5 and that of White-throated Sparrows is actually lower. The first wave of neotropical migrants usually arrives in week 6, typically including Yellow Warbler and Rose-breasted Grosbeak, and often also Eastern Kingbird and Baltimore Oriole.

Spring Week 7 (May 9 - 15)

Species observed: 149 (low 68, mean 89, high 98)

Dominant species observed: Red-winged Blackbird (56), Canada Goose (56), Ring-billed Gull (46), American Crow (19), Cliff Swallow (16), Tree Swallow (15), American Goldfinch (13), Yellow-rumped Warbler (13), Common Grackle (13), Yellow Warbler (12)

Species peaking this week: 26 (13 common and 13 uncommon) - Ross's Goose*, Bald Eagle*, Golden Eagle*, Merlin*, Virginia Rail*, Solitary Sandpiper, Lesser Yellowlegs*, Least Sandpiper*, Ring-billed Gull, Rock Pigeon, Tree Swallow, Northern Rough-winged Swallow*, Cliff Swallow, Northern Mockingbird*, Blue-winged Warbler*, Nashville Warbler, Western Palm Warbler*, Pine Warbler*, Yellow-rumped Warbler, Black-throated Green Warbler, Chipping Sparrow, Lincoln's Sparrow*, (Eastern) White-crowned Sparrow, Red-winged Blackbird, Common Grackle, American Goldfinch

Birds banded: 1512 individuals (low 55, mean 151, high 305); 68 species (low 18, mean 31, high 43)

Dominant species banded: Red-winged Blackbird (24.5), Yellow-rumped Warbler (19.6), White-throated Sparrow (9.1), Yellow Warbler (9.0), American Goldfinch (9.0), Ruby-crowned Kinglet (8.7), Common Grackle (5.4), Baltimore Oriole (4.7)

Weather: Mean low temperature 4 to 12 (mean 8); mean high temperature 14 to 23 (mean 19). Total rainfall 5 to 43 mm (mean 17); no snowfall.

Notes: Temperatures continue to increase in week 7, with a mean daily high of at least 17 degrees in every year except 2010. Diversity spikes upward in week 7, with a mean count of 89 species, an increase of 11 over week 6. This largely reflects the arrival of more neotropical migrants, although many of them do not peak in numbers for another week or two. After being the most abundant species observed since the beginning of spring, Canada Goose numbers start to drop off, falling out of the top spot for the week in five of ten years (although generally remaining more numerous in recent years compared to earlier ones). Swallows often begin swarming over Stoneycroft Pond in large numbers in week 7. This tends to be the peak week for both observing and banding Red-winged Blackbirds, after which some move on and others begin to settle down for nesting. Yellow Warbler is the earliest of the neotropical migrants to be banded in good numbers, with a mean of 9 this week, in addition to usually at least a couple of returns of residents banded in previous years. Dominant mid-season migrants such as Ruby-crowned Kinglet and White-throated Sparrow start to taper off. For the first time in spring, there are routinely multiple warbler species among the top ten banded, although this number has increased over time (five species annually since 2012; a mean of just under three annually from 2005 to 2011).

Spring Week 8 (May 16 - 22)

Species observed: 148 (low 86, mean 96, high 107)

Dominant species observed: Red-winged Blackbird (43), Ring-billed Gull (35), American Crow (19), Yellow Warbler (15), Tree Swallow (14), American Goldfinch (12), Common Grackle (10), Baltimore Oriole (10)

Species peaking this week: 28 (12 common and 16 uncommon) - Atlantic Brant*, Greater Scaup*, White-winged Scoter*, Double-crested Cormorant, Peregrine Falcon*, Chimney Swift*, Least Flycatcher, Eastern Kingbird, Blue-headed Vireo*, Purple Martin*, Barn Swallow, Wood Thrush*, Northern Waterthrush, Golden-winged Warbler*, Black-and-white Warbler, Orange-crowned Warbler*, Cape May Warbler*, Northern Parula*, Magnolia Warbler, Bay-breasted Warbler*, Blackburnian Warbler*, Yellow Warbler, Black-throated Blue Warbler, Clay-colored Sparrow*, Scarlet Tanager*, Rose-breasted Grosbeak, Bobolink, Baltimore Oriole

Birds banded: 1886 individuals (low 123, mean 189, high 300); 74 species (low 28, mean 37, high 44)

Dominant species banded: Tennessee Warbler (19.2), Yellow Warbler (16.8), Magnolia Warbler (16.7), Red-winged Blackbird (14.8), Yellow-rumped Warbler (13.5), American Goldfinch (12.2), Common Yellowthroat (10.5), Northern Waterthrush (9.1), Gray Catbird (5.9)

Weather: Mean low temperature 4 to 11 (mean 8); mean high temperature 13 to 24 (mean 19). Total rainfall 0 to 85 mm (mean 26); no snowfall.

Notes: On average, temperatures in week 8 are virtually the same as in week 7, although they have been warmer in recent years (2005-2008 were the four coldest years during week 8, while 2012-2014 are three of the four years with a mean daily high more than one degree above the ten-year mean for the period). This is also the first week of the year during which no sub-freezing temperatures have been recorded. Week 8 is generally the peak of spring migration, with a mean of 96 species observed and peak count of 107 species both well above any other week in any season. Also, more birds have been banded in week 8 than any other in spring (1886, 22.4% of the season total), and the mean of 37 species banded during the week is at least 5 more than in any other week of the season. Tennessee Warbler takes over as the most commonly banded species overall, though it topped the weekly list only in 2009 and 2012, reflecting high inter-annual variability at the peak of migration. It is followed by Yellow Warbler and Magnolia Warbler. An additional three warblers (Northern Waterthrush, Common Yellowthroat, and Yellow-rumped Warbler) are among the eight most dominant species banded in week 8, and on average there are six warbler species among the top ten banded during week 8 each year. Almost half of the warbler species observed at MBO in spring peak in week 8. Sparrows have largely moved through by this point, aside from the resident populations of Song and Swamp Sparrow; the only species to appear among the top ten banded in more than two years is White-crowned Sparrow, in five years.

Spring Week 9 (May 23 - 29)

Species observed: 142 (low 79, mean 91, high 100)

Dominant species observed: Red-winged Blackbird (34), Ring-billed Gull (32), American Crow (18), Cedar Waxwing (16), Cliff Swallow (14), Yellow Warbler (14), Tree Swallow (14), American Goldfinch (12)

Species peaking this week: 35 (17 common and 18 uncommon) – Gadwall*, Pied-billed Grebe*, Great Blue Heron, Green Heron, Sora*, Black-bellied Plover*, Semipalmated Plover*, Spotted Sandpiper*, Black-billed Cuckoo*, Ruby-throated Hummingbird, Olive-sided Flycatcher*, Yellow-bellied Flycatcher*, Traill's Flycatcher, Great Crested Flycatcher, Warbling Vireo, Philadelphia Vireo*, Bank Swallow*, Red-breasted Nuthatch*, Marsh Wren*, Veery, Gray-cheeked Thrush*, Bicknell's Thrush*, Swainson's Thrush*, Gray Catbird, Brown Thrasher, Ovenbird, Tennessee Warbler, Mourning Warbler*, Common Yellowthroat, American Redstart, Chestnut-sided Warbler, Blackpoll Warbler, Canada Warbler*, Wilson's Warbler, Indigo Bunting

Birds banded: 1733 individuals (low 98, mean 173, high 318); 65 species (low 26, mean 32, high 40)

Dominant species banded: Cedar Waxwing (15.4), Blackpoll Warbler (14.5), Wilson's Warbler (10.7), American Goldfinch (10.7), Magnolia Warbler (10.5), Red-winged Blackbird (9.1), Traill's Flycatcher (8.4), Northern Waterthrush (7.9), Common Yellowthroat (7.3)

Weather: Mean low temperature 8 to 16 (mean 11); mean high temperature 17 to 29 (mean 21). Total rainfall 0 to 66 mm (mean 21); no snowfall.

Notes: Week 9 represents the last major jump in temperatures during spring, with the mean daily low and high both 2.7 degrees higher than in week 8; in six of ten years the mean daily low has been above 10 degrees. In some years there are already early heat waves in week 9, reaching as high as 31 degrees. Species diversity tends to drop slightly in week 9, but remains the second highest of the year thanks to the arrival of several late migrants, which on average increase the season total by 6.9 species. Most of the species peaking this week are neotropical migrants, including four thrushes and another eight warblers. There is considerable turnover in dominant species banded compared to week 8, with two late-season migrants (Blackpoll and Wilson's Warblers) among the top five for week 9 overall, along with Tennessee Warbler topping the list again, plus Cedar Waxwing and American Goldfinch. For the second week in a row, on average six of the ten top species banded in week 9 are warblers.

Spring Week 10 (May 30 - June 5)

Species observed: 133 (low 58, mean 75, high 83)

Dominant species observed: Red-winged Blackbird (30), Cedar Waxwing (16), American Crow (13), Ring-billed Gull (13), Yellow Warbler (11), Tree Swallow (10), American Goldfinch (9), Song Sparrow (8), Cliff Swallow (7)

Species peaking this week: 12 (2 common and 10 uncommon) - Great Egret*, Common Tern*, Yellow-billed Cuckoo*, Red-bellied Woodpecker*, Eastern Wood-Pewee*, Red-eyed Vireo, House Wren, Sedge Wren*, Carolina Wren*, Blue-gray Gnatcatcher*, Eastern Bluebird*, Eastern Towhee*

Birds banded: 468 individuals (low 28, mean 47, high 74); 46 species (low 15, mean 19, high 26)

Dominant species banded: Cedar Waxwing (10.2), Blackpoll Warbler (4.3), Traill's Flycatcher (3.4), Red-winged Blackbird (2.9), Wilson's Warbler (2.5)

Weather: Mean low temperature 7 to 14 (mean 13); mean high temperature 18 to 26 (mean 22). Total rainfall 0 to 52 mm (mean 26); no snowfall.

Notes: By the final week of spring, weather conditions are often more summer-like, but they are subject to somewhat more variability from year to year than the rest of June. Despite this, it would be premature to call spring migration over at the end of May, since there are several late migrants that typically linger into early June, most notably the two common migrants peaking this week (Red-eyed Vireo and House Wren), as well as other late migrants still moving through in good numbers, such as Yellow-bellied Flycatcher, Traill's Flycatcher, and four non-breeding warblers (Tennessee, Magnolia, Blackpoll, and Wilson's). However, since 2007, the banding period has been cut off after June 1, since data from the first two years showed that later captures were dominated by local breeders, and daily census observations from subsequent years reaffirm the shift in species abundance over the course of the week. While relatively few birds are banded as a result of the scaled-back effort during week 10, Cedar Waxwing has been particularly common during this period, accounting for 22% of

all birds banded. The only other species among the top ten banded in week 10 in almost all years is Traill's Flycatcher; others such as Blackpoll Warbler, Wilson's Warbler, Red-winged Blackbird and Common Grackle have been among the top three in two or more years, but not banded at all in several others.



Baltimore Oriole (left) and Wood Duck (right) are among the colourful species common at MBO in spring (Photos by Barbara Frei and Simon Duval)

Summer Month 1 (June 6 - 30)

Species observed: 90 (low 33, mean 50, high 64)

Dominant species observed: Red-winged Blackbird (21), American Goldfinch (8), Tree Swallow (8), Yellow Warbler (8), Cedar Waxwing (7), Song Sparrow (7), American Crow (6), Ring-billed Gull (4), Common Grackle (4), Black-capped Chickadee (4)

Birds banded: 131 individuals (low 15, mean 22, high 29); 22 species (low 8, mean 10, high 14)

Dominant species banded: Red-winged Blackbird (3.5), Song Sparrow (2.2), Yellow Warbler (1.5)

Weather: Mean low temperature 14 to 16 (mean 15); mean high temperature 22 to 26 (mean 25). Total rainfall 41 to 145 mm (mean 89, weekly mean 25); no snowfall.

Notes: Temperatures in June are consistently warm, with a mean daily high ranging among years from 22 to 26; rainfall continues around similar levels to spring, with an average of 25 mm per week. Red-winged Blackbird is by far the dominant species at MBO in June, although there are many other regular residents at a lower level of abundance. However, mean diversity drops by one-third compared to the week 10 of spring, reinforcing the value of classifying the first several days of June as part of spring. Even so, some of the records for the first month of summer are late-lingering spring migrants. June banding is generally limited to the first three sessions of MAPS (mostly adults) and some opportunistic banding of nestlings, and numbers are low overall. Red-winged Blackbird and Song Sparrow are the only species routinely banded in June.

Summer Month 2 (July 1 - 31)

Species observed: 91 (low 35, mean 50, high 67)

Dominant species observed: Red-winged Blackbird (12), Song Sparrow (10), American Goldfinch (10), American Robin (8), Black-capped Chickadee (6), Yellow Warbler (5), Cedar Waxwing (5), Common Grackle (5)

Birds banded: 728 individuals (low 5, mean 81, high 164); 45 species (low 3, mean 19, high 30)

Dominant species banded: Song Sparrow (12.7), Yellow Warbler (11.1), American Robin (9.2), Gray Catbird (5.3), Red-eyed Vireo (4.1), Rose-breasted Grosbeak (3.0), Downy Woodpecker (2.8)

Weather: Mean low temperature 16 to 18 (mean 17); mean high temperature 24 to 28 (mean 27). Total rainfall 59 to 135 mm (mean 103, weekly mean 23); no snowfall.

Notes: Weather conditions in July are overall very similar to June, with temperatures on average just 2 degrees warmer, and mean weekly rainfall just 2 mm less. Mean, maximum, and cumulative total species counts for July are also very similar to June. Again these primarily represent local breeders, but also include some migrants, in this case early fall arrivals (most notably some flycatchers and warblers). Banding is mostly through the final

four sessions of MAPS, which are increasingly dominated by juveniles. Overall numbers banded are higher than in June; Song Sparrow and Yellow Warbler are most consistently numerous, while American Robin counts have been increasing in recent years.



Yellow Warbler (left) and Eastern Phoebe (right) are regular breeders at MBO (Photos by Marcel Gahbauer and Lisa Keelty)

Fall Week 1 (August 1 - 7)

Species observed: 125 (low 65, mean 73, high 84)

Dominant species observed: Red-winged Blackbird (29), Song Sparrow (20), American Robin (18), Cedar Waxwing (18), Black-capped Chickadee (16), American Goldfinch (16), Common Grackle (14), American Crow (13), Yellow Warbler (8)

Species peaking this week: 19 (10 common and 9 uncommon) - Hooded Merganser*, Pied-billed Grebe*, Great Blue Heron, Green Heron, Black-crowned Night-Heron*, Virginia Rail*, Spotted Sandpiper*, Black Tern*, Red-bellied Woodpecker*, Eastern Kingbird, Cliff Swallow*, House Wren, Veery, Wood Thrush*, Yellow Warbler, Song Sparrow, Swamp Sparrow, Rose-breasted Grosbeak, Indigo Bunting

Birds banded: 2138 individuals (low 69, mean 214, high 300); 60 species (low 22, mean 34, high 42), but note that banding coverage was limited to 3 days in 2005; the next lowest total for week 1 was 152 in 2006.

Dominant species banded: Song Sparrow (39.6), Yellow Warbler (24.3), American Redstart (13.6), Cedar Waxwing (12.5), Gray Catbird (9.2), Rose-breasted Grosbeak (9.2), Black-capped Chickadee (8.8), Common Yellowthroat (8.1)

Weather: Mean low temperature 15 to 19 (mean 17); mean high temperature 24 to 29 (mean 27). Total rainfall 8 to 82 mm (mean 36); no snowfall.

Notes: In terms of weather, there is no indication that the first week of August classifies as fall, given that mean daily high temperatures match those for July, and the second highest weekly mean temperature recorded at MBO was in this week in 2012. Rainfall is on average higher than in any other week of fall, but largely due to heavy downpours in 2006 and 2010, with those two weeks being among the seven rainiest weeks throughout fall across all years. Despite the warm temperatures, migration is underway for several species in the first week of August, with 10 common species peaking already, although three (Song Sparrow, Swamp Sparrow, and Indigo Bunting) remain frequent for much of fall. Most of the other species in that group are local breeding species that are early to depart. The resident population of Red-winged Blackbirds remains dominant with respect to observations, followed by a number of other common breeders. The mean number of species observed jumps by nearly 50% from July, reflecting the influx of early fall migrants. Song Sparrow and Yellow Warbler dominate the banding counts by a large margin over Black-capped Chickadee; other species such as Cedar Waxwing, Rose-breasted Grosbeak and Baltimore Oriole can be numerous too, but vary more from year to year.

Fall Week 2 (August 8 - 14)

Species observed: 122 (low 68, mean 75, high 84)

Dominant species observed: American Crow (18), Song Sparrow (18), Common Grackle (17), American Goldfinch (17), Black-capped Chickadee (17), Cedar Waxwing (16), American Robin (14)

Species peaking this week: 9 (2 common and 7 uncommon) – American Bittern*, Lesser Yellowlegs*, American Woodcock*, Caspian Tern*, Belted Kingfisher*, Eastern Wood-Pewee*, Traill's Flycatcher, Great Crested Flycatcher, Golden-winged Warbler*

Birds banded: 1783 individuals (low 142, mean 178, high 243); 67 species (low 28, mean 35, high 42)

Dominant species banded: Song Sparrow (31.4), American Redstart (20.0), Yellow Warbler (10.3), Traill's Flycatcher (7.2), Rose-breasted Grosbeak (7.1), Red-eyed Vireo (6.6), Common Yellowthroat (6.6), Cedar Waxwing (5.5)

Weather: Mean low temperature 12 to 19 (mean 16); mean high temperature 23 to 28 (mean 26). Total rainfall 1 to 68 mm (mean 23); no snowfall.

Notes: Temperatures in week 2 are only slightly lower than in week 1, and rainfall is somewhat less, with less than 10 mm in four of ten years. Species counts are nearly identical to week 1, reflecting relatively minor changes in the composition of resident and migrant birds present. In most years the number of birds banded drops off compared to the previous week, partly a function of having banded many local juveniles in week 1. Song Sparrow and American Redstart are consistently the most numerous species banded in week 2, followed by Traill's Flycatcher and Red-eyed Vireo; some other species (e.g., Yellow Warbler, Baltimore Oriole) have had high counts in week 2 in some years. Only two common species peak in week 2, both of them flycatchers.

Fall Week 3 (August 15 - 21)

Species observed: 129 (low 72, mean 81, high 94)

Dominant species observed: Common Grackle (31), American Crow (25), American Goldfinch (18), Cedar Waxwing (17), Black-capped Chickadee (17), Song Sparrow (15), American Robin (14), Blue Jay (8)

Species peaking this week: 22 (10 common and 12 uncommon) - Double-crested Cormorant*, Great Egret*, Common Gallinule*, Killdeer*, Wilson's Snipe*, Common Tern*, Chimney Swift, Ruby-throated Hummingbird, Purple Martin, Tree Swallow, Northern Rough-winged Swallow*, Bank Swallow*, Sedge Wren*, Blue-gray Gnatcatcher*, Black-and-white Warbler, Mourning Warbler*, American Redstart, Chestnut-sided Warbler, Pine Warbler*, Canada Warbler, Bobolink, Baltimore Oriole

Birds banded: 1571 individuals (low 91, mean 157, high 250); 59 species (low 25, mean 34, high 41)

Dominant species banded: Song Sparrow (22.2), American Redstart (19.4), Magnolia Warbler (10.1), Common Yellowthroat (9.2), Ovenbird (5.7)

Weather: Mean low temperature 11 to 19 (mean 15); mean high temperature 22 to 29 (mean 25). Total rainfall 0 to 53 mm (mean 20); no snowfall.

Notes: Temperatures again cool only slightly compared to the previous week, while rainfall remains largely unchanged overall. There is often a lull in migration in mid-August, with capture rates typically at their lowest point for fall. Although the number of common species peaking in week 3 is far greater than in week 2, most of them are only barely above the threshold separating common and uncommon species, and therefore overall numbers are relatively modest. Overall this is the fall peak for swallows. Either American Redstart or Song Sparrow has topped the list of birds banded during this week each year except 2012 when Common Yellowthroat outnumbered both of them. Others regularly banded in week 3 include a mix of lingering early fall migrants such as Yellow Warbler, Rose-breasted Grosbeak, and Baltimore Oriole, and the vanguard of somewhat later species such as Nashville Warbler, Magnolia Warbler, and Common Yellowthroat.

Fall Week 4 (August 22 - 28)

Species observed: 119 (low 71, mean 80, high 87)

Dominant species observed: Common Grackle (35), American Crow (28), American Goldfinch (19), Cedar Waxwing (19), Black-capped Chickadee (18), American Robin (12), Song Sparrow (12), Blue Jay (11), Magnolia Warbler (8)

Species peaking this week: 9 (7 common and 2 uncommon) - Least Sandpiper*, Least Flycatcher, Red-eyed Vireo, Barn Swallow, White-breasted Nuthatch, Cedar Waxwing, Ovenbird, Northern Waterthrush, Blue-winged Warbler*

Birds banded: 2168 individuals (low 128, mean 217, high 330); 63 species (low 30, mean 36, high 43)

Dominant species banded: Magnolia Warbler (34.9), Tennessee Warbler (20.9), American Redstart (18.2), Song Sparrow (15.2), Common Yellowthroat (11.4), Nashville Warbler (8.1), Ovenbird (7.6)

Weather: Mean low temperature 12 to 18 (mean 15); mean high temperature 21 to 28 (mean 25). Total rainfall 1 to 68 mm (mean 19); no snowfall.

Notes: On average, weather conditions in week 4 are virtually identical to week 3. Migration typically remains fairly slow, but often starts to pick up the pace slightly and is reflected in a shift in dominant species banded. Magnolia Warbler takes over as the top species by a wide margin over Tennessee Warbler, while American Redstart and Song Sparrow remain numerous as well, but at somewhat lower levels than previously. In general, warblers dominate the banding results for week 4, with an average of more than 7 out of the top 10 species each year. Although seven common species peak this week, most of them are routinely present over more than half of the fall season, and numbers observed during week 4 are only modestly higher than in other weeks.

Fall Week 5 (August 29 - September 4)

Species observed: 127 (low 76, mean 82, high 93)

Dominant species observed: Common Grackle (76), American Crow (42), American Goldfinch (22), Black-capped Chickadee (20), Cedar Waxwing (18), Canada Goose (18), Blue Jay (12), American Robin (12), Magnolia Warbler (9)

Species peaking this week: 8 (2 common and 6 uncommon) - Solitary Sandpiper*, Common Nighthawk*, Olive-sided Flycatcher*, Yellow-bellied Flycatcher, Tennessee Warbler, Connecticut Warbler*, Bay-breasted Warbler*, Blackburnian Warbler*

Birds banded: 2210 individuals (low 131, mean 221, high 311); 64 species (low 34, mean 37, high 44)

Dominant species banded: Magnolia Warbler (41.2), Tennessee Warbler (22.9), American Redstart (16.9), Common Yellowthroat (12.7), Red-eyed Vireo (12.1), Song Sparrow (9.9), Wilson's Warbler (8.2), Northern Waterthrush (7.7)

Weather: Mean low temperature 12 to 20 (mean 15); mean high temperature 21 to 30 (mean 25). Total rainfall 1 to 75 mm (mean 20); no snowfall.

Notes: For a third week in a row, mean weather conditions are virtually the same, and migration also continues in a relatively consistent manner, although the species count continues to inch upward. Magnolia Warbler, American Redstart, and Common Yellowthroat are the most commonly banded species. This is the only week of fall during which a species (Magnolia Warbler) has been among the top two banded every year; almost twice as many Magnolia Warblers have been banded in week 5 as any other species. Banding is again dominated by warblers, with an average of seven species among the top ten every year; the only other species among the top ten in more than half of years are Red-eyed Vireo and Song Sparrow. In four years the top four species banded were all warblers, including a mix of the overall top species for the week, plus Northern Waterthrush, Tennessee Warbler, Blackpoll Warbler, and Wilson's Warbler in various years. Only two common species peak this week, tying it with week 2 of fall for the fewest of the first half of the season.

Fall Week 6 (September 5 - 11)

Species observed: 135 (low 75, mean 83, high 88)

Dominant species observed: Common Grackle (95), American Crow (60), Canada Goose (24), American Goldfinch (23), Black-capped Chickadee (21), Cedar Waxwing (17), Blue Jay (15), Magnolia Warbler (10), Song Sparrow (9)

Species peaking this week: 9 (7 common and 2 uncommon) - Northern Gannet*, Sora*, Warbling Vireo, Common Yellowthroat, Magnolia Warbler, Blackpoll Warbler, Western Palm Warbler, Wilson's Warbler, American Goldfinch

Birds banded: 2469 individuals (low 109, mean 247, high 416); 63 species (low 33, mean 37, high 42)

Dominant species banded: Magnolia Warbler (45.0), Nashville Warbler (15.5), Tennessee Warbler (15.3), Common Yellowthroat (13.0), American Redstart (12.5), American Goldfinch (12.0), White-throated Sparrow (11.8), Red-eyed Vireo (11.7), Wilson's Warbler (11.3), Song Sparrow (10.0)

Weather: Mean low temperature 10 to 13 (mean 12); mean high temperature 20 to 25 (mean 22). Total rainfall 0 to 29 mm (mean 15); no snowfall.

Notes: After three weeks of largely stable temperatures on average, week 6 marks a distinct shift in conditions, with mean temperatures dropping by roughly 3 degrees; it is also among the driest weeks of fall. The cooler temperatures are often associated with at least one cold front, and the arrival of some of the mid-season migrants. Overall, the list of species observed in this week across all years is considerably greater than in any other week of fall, although the mean count is fairly stable between 80 and 83 from week 3 through to week 8. Magnolia Warbler remains far more abundant than all other species banded, comprising 18% of all individuals banded in week 6 over the years. Otherwise the results vary considerably among years; for example, Song Sparrow and White-throated Sparrow were both among the top ten annually from 2005 to 2009 but only twice each between 2010 and 2014, while Tennessee Warbler was among the top five annually since 2011, but only once previously in 2008. While Common Grackle has recorded the two highest mean daily counts for week 6 (425 in 2005 and 319 in 2012), it has not even been among the top ten in three other years. This is the peak week of fall for five warblers, as well as Warbling Vireo and American Goldfinch.

Fall Week 7 (September 12 - 18)

Species observed: 130 (low 72, mean 82, high 91)

Dominant species observed: American Crow (84), Common Grackle (72), Canada Goose (57), Blue Jay (25), American Goldfinch (21), White-throated Sparrow (20), Black-capped Chickadee (19), Cedar Waxwing (16)

Species peaking this week: 15 (7 common and 8 uncommon) – Osprey*, Northern Goshawk*, Red-shouldered Hawk, Broad-winged Hawk, American Kestrel*, Eastern Screech-Owl*, Philadelphia Vireo*, Swainson's Thrush, Gray Catbird, Brown Thrasher, Nashville Warbler, Cape May Warbler*, Northern Parula*, Yellow Palm Warbler*, Black-throated Green Warbler

Birds banded: 2769 individuals (low 135, mean 277, high 426); 70 species (low 34, mean 41, high 49)

Dominant species banded: Magnolia Warbler (43.8), White-throated Sparrow (26.4), Nashville Warbler (18.6), Tennessee Warbler (13.4), Song Sparrow (12.9), American Goldfinch (12.1), Red-eyed Vireo (11.9), Common Yellowthroat (10.1)

Weather: Mean low temperature 6 to 17 (mean 10); mean high temperature 15 to 24 (mean 20). Total rainfall 4 to 39 mm (mean 24); no snowfall.

Notes: Mean temperatures drop another 2 degrees in week 7, and along with that change often comes a bit more rainfall than in most previous weeks. Although the number of species observed remains close to the peak of week 6, composition of migrants begins to shift, with warbler diversity starting to decline and more mid-late season migrants such as Ruby-crowned Kinglet, Swainson's Thrush, Yellow-rumped Warbler, and White-throated Sparrow beginning to build. In fact, White-throated Sparrow is already the second-most banded species in week 7, behind only Magnolia Warbler. However, there are also on average still six warbler species among the top ten species banded in week 7. Overall numbers observed and banded tend to start increasing around this point in the season, reflecting the influx of mid-season species, many of which are among the most numerous of fall migrants. The number of species peaking also continues to rise.

Fall Week 8 (September 19 - 25)

Species observed: 128 (low 74, mean 82, high 90)

Dominant species observed: Canada Goose (352), American Crow (95), White-throated Sparrow (39), Blue Jay (36), Red-winged Blackbird (33), American Robin (24), Black-capped Chickadee (19)

Species peaking this week: 13 (6 common and 7 uncommon) - Greater White-fronted Goose*, Tundra Swan*, Yellow-bellied Sapsucker*, Downy Woodpecker, Yellow-shafted Flicker, Pileated Woodpecker, Eastern Phoebe, Gray-cheeked Thrush*, Black-throated Blue Warbler, Clay-colored Sparrow*, Field Sparrow*, Lincoln's Sparrow, Scarlet Tanager*

Birds banded: 3925 individuals (low 205, mean 392, high 1279); 63 species (low 32, mean 38, high 48)

Dominant species banded: Yellow-rumped Warbler (133.1), White-throated Sparrow (52.1), Ruby-crowned Kinglet (21.7), Magnolia Warbler (19.0), Nashville Warbler (17.7), Song Sparrow (14.8), Golden-crowned Kinglet (8.2)

Weather: Mean low temperature 7 to 14 (mean 10); mean high temperature 18 to 26 (mean 20). Total rainfall 0 to 24 mm (mean 12); no snowfall.

Notes: Average temperatures in week 8 are nearly identical to week 7, but it is typically the driest week of the season, with the lowest maximum and mean rainfall. White-throated Sparrow has been the most banded bird in week 8 in six years, and Yellow-rumped Warbler in another three; only in 2011 were both of them relatively scarce, and Magnolia Warblers continued as the top species for another week. Otherwise though this usually represents the last week that Magnolia Warblers are common, along with other early-mid season warblers such as Tennessee and Nashville. Overall this is a transitional week, with the number of warbler species among the top ten banded dropping to 3-5 most years, and the number of sparrows usually rising to 2-3. Among the six common species peaking this week are three of the woodpeckers.

Fall Week 9 (September 26 - October 2)

Species observed: 124 (low 68, mean 77, high 89)

Dominant species observed: Canada Goose (733), American Crow (89), Red-winged Blackbird (71), Yellow-rumped Warbler (70), White-throated Sparrow (60), Common Grackle (51), American Robin (43), Blue Jay (37), Ruby-crowned Kinglet (26)

Species peaking this week: 19 (10 common and 9 uncommon) - Canada Goose, Northern Pintail*, Common Goldeneye*, Turkey Vulture, Bald Eagle*, Northern Harrier*, Sharp-shinned Hawk, Cooper's Hawk, Merlin, Great Horned Owl*, Northern Saw-whet Owl*, Blue-headed Vireo, Blue Jay, Marsh Wren*, Bicknell's Thrush*, Yellow-rumped Warbler, Savannah Sparrow*, Rusty Blackbird, Brown-headed Cowbird

Birds banded: 5296 individuals (low 263, mean 530, high 1112); 66 species (low 31, mean 37, high 46)

Dominant species banded: Yellow-rumped Warbler (195.8), White-throated Sparrow (80.5), Ruby-crowned Kinglet (71.9), Song Sparrow (21.3), Nashville Warbler (14.9), Golden-crowned Kinglet (12.7)

Weather: Mean low temperature 7 to 12 (mean 10); mean high temperature 14 to 22 (mean 19). Total rainfall 0 to 91 mm (mean 30); no snowfall.

Notes: Although daily low temperatures remain relatively stable for a third straight week, daily mean highs drop by 1.6 degrees compared to week 8. It is also among the wettest weeks of fall, although largely influenced by the rainiest week in MBO's history in 2010. Diversity is starting to taper off by this point, although week 9 is the start of the period with the largest number of individual birds observed and banded. Every year, Canada Goose has been the most abundant species observed during week 9, usually by a large margin. Identical to week 8, White-throated Sparrow was the most banded bird in 2005, 2007, 2009, 2012, 2013, and 2014, with Yellow-rumped Warbler taking that place in 2006, 2008, and 2010; the only difference is that Ruby-crowned Kinglet topped the list in 2011 instead of Magnolia Warbler in week 8. Ruby-crowned Kinglet has been the second or third most banded species in all other years; together these top three species comprise 66% of birds banded in week 9 across all years. This is the second week of fall with 10 common species peaking; among them are four raptors, as well as other abundant species such as Canada Goose and Yellow-rumped Warbler.

Fall Week 10 (October 3 - 9)

Species observed: 123 (low 63, mean 74, high 83)

Dominant species observed: Canada Goose (665), Red-winged Blackbird (116), American Robin (108), Common Grackle (107), American Crow (89), White-throated Sparrow (72), Yellow-rumped Warbler (70), European Starling (54), Ruby-crowned Kinglet (44)

Species peaking this week: 22 (12 common and 10 uncommon) - Common Merganser*, Red-breasted Merganser*, Common Loon*, Peregrine Falcon*, Greater Yellowlegs*, Dunlin*, Great Black-backed Gull*, Black-billed Cuckoo*, Black-capped Chickadee, Red-breasted Nuthatch, Brown Creeper*, Winter Wren, Golden-crowned Kinglet, Ruby-crowned Kinglet, American Pipit, Orange-crowned Warbler*, Chipping Sparrow, White-throated Sparrow, (Eastern) White-crowned Sparrow, Common Grackle, Purple Finch, Pine Siskin

Birds banded: 5792 individuals (low 275, mean 579, high 1113); 63 species (low 23, mean 32, high 39)

Dominant species banded: Yellow-rumped Warbler (171.2), Ruby-crowned Kinglet (115.0), White-throated Sparrow (79.7), Dark-eyed Junco (37.2), (Eastern) White-crowned Sparrow (19.7), American Robin (19.1), Song Sparrow (19.0), Hermit Thrush (16.2), Golden-crowned Kinglet (16.0)

Weather: Mean low temperature 4 to 11 (mean 8); mean high temperature 14 to 21 (mean 17). Total rainfall 3 to 71 mm (mean 27); no snowfall.

Notes: Mean daily low and high temperatures drop another 2 degrees in week 10 and rainfall remains above average for fall, reflecting the passage of the aftermath of tropical storms in some years. While another 12 common species peak in week 10, most of these are only slightly less numerous in week 9, and overall migration over these two weeks is often remarkably similar. On the whole, numbers tend to be somewhat higher in week 10, and the total count of individuals banded during this week (5792) is higher than in any other. Again this number is primarily driven by the top three species of the week, Yellow-rumped Warbler, Ruby-crowned Kinglet, and White-throated Sparrow, which account for 63% of the cumulative total. As in week 9, this trio has dominated the top three each year, with just three exceptions – Black-capped Chickadee in place of Yellow-rumped Warbler in 2005, American Robin in place of Yellow-rumped Warbler in 2007, and Dark-eyed Junco in place of White-throated Sparrow in 2010. Canada Goose usually continues to dominate the skies, but large flocks of American Robins and mixed blackbirds are generally building too.

Fall Week 11 (October 10 - 16)

Species observed: 107 (low 52, mean 62, high 75)

Dominant species observed: Canada Goose (316), American Robin (271), Red-winged Blackbird (199), American Crow (93), Common Grackle (76), European Starling (52), White-throated Sparrow (47), Dark-eyed Junco (29), Ruby-crowned Kinglet (25), Black-capped Chickadee (21)

Species peaking this week: 6 (1 common and 5 uncommon) - American Green-winged Teal*, Ruffed Grouse*, Yellow-billed Cuckoo*, Hermit Thrush, Northern Mockingbird*, Eastern Towhee*

Birds banded: 3378 individuals (low 104, mean 338, high 635); 52 species (low 19, mean 24, high 28)

Dominant species banded: Ruby-crowned Kinglet (56.4), American Robin (46.6), Dark-eyed Junco (43.3), Yellow-rumped Warbler (41.7), White-throated Sparrow (41.1), Black-capped Chickadee (22.5), Hermit Thrush (22.3), Song Sparrow (12.4), Golden-crowned Kinglet (9.9)

Weather: Mean low temperature 1 to 10 (mean 6); mean high temperature 8 to 19 (mean 14). Total rainfall 4 to 81 mm (mean 28); no snowfall.

Notes: Mean daily low and high temperatures drop another 2 degrees this week, and mean rainfall levels remain comparable, as they do throughout October. This week usually marks the most drastic drop in species diversity during fall, with on average 12 species fewer than in the previous week. While Ruby-crowned Kinglet, Yellow-rumped Warbler, and White-throated Sparrow all remain among the top five species banded in week 11, all are usually in much lower numbers than during their peak of weeks 9 and 10, whereas American Robin and Dark-eyed Junco numbers on average have increased to comparable levels. While Canada Goose remains the most abundant species observed overall, flock size tends to be somewhat lower than in previous weeks, and in four years has been outnumbered by American Robin. Corresponding to the overall drop in numbers, there are fewer species peaking this week than any other in fall, with Hermit Thrush the only one among them that is considered common.

Fall Week 12 (October 17 - 23)

Species observed: 105 (low 49, mean 57, high 69)

Dominant species observed: Canada Goose (450), American Robin (303), Red-winged Blackbird (248), American Crow (125), European Starling (93), Common Grackle (62), Dark-eyed Junco (37), White-throated Sparrow (25), Black-capped Chickadee (23)

Species peaking this week: 12 (6 common and 6 uncommon) - Wood Duck, Barred Owl*, Common Raven, Horned Lark*, Boreal Chickadee*, Carolina Wren*, Eastern Bluebird, American Robin, European Starling, Dark-eyed Junco, Eastern Meadowlark*, White-winged Crossbill*

Birds banded: 3006 individuals (low 139, mean 301, high 605); 44 species (low 13, mean 20, high 28)

Dominant species banded: American Robin (80.2), Dark-eyed Junco (54.6), Ruby-crowned Kinglet (33.3), Black-capped Chickadee (30.8), White-throated Sparrow (24.2), Song Sparrow (11.2), American Tree Sparrow (10.8), Golden-crowned Kinglet (9.8), Hermit Thrush (9.5), Fox Sparrow (8.3)

Weather: Mean low temperature 0 to 9 (mean 4); mean high temperature 9 to 20 (mean 12). Total rainfall 6 to 86 mm (mean 31); total snowfall 0 to 1 cm (mean 0).

Notes: Again mean daily low and high temperatures drop by around 2 degrees compared to the previous week, and there are usually at least one or two nights that drop below freezing. In most years this is enough to cause most of the remaining mid-fall migrants to move on, leaving lower overall numbers for week 12, largely dominated by late-season migrants and overwintering species. Large flocks of Canada Geese, American Robins, and blackbirds (especially Red-winged Blackbird) remain present, but number of species and individuals banded drops sharply. American Robin and Dark-eyed Junco are by far the most commonly banded species in week 12. Overall, sparrows are dominant by this point in the season, accounting for four or five out of the top ten species banded annually, usually accompanied by one or both kinglet species, Black-capped Chickadee, and Hermit Thrush, along with American Robin. The late fall migrants are moving in good numbers by this point, as reflected in a rebound in the number of species peaking this week.

Fall Week 13 (October 24 - 30)

Species observed: 99 (low 46, mean 56, high 70)

Dominant species observed: Canada Goose (512), Red-winged Blackbird (307), American Robin (296), American Crow (142), European Starling (89), Dark-eyed Junco (35), Mallard (31), Common Grackle (30), Black-capped Chickadee (23)

Species peaking this week: 30 (14 common and 16 uncommon) - Snow Goose, Cackling Goose*, American Black Duck*, Mallard, Blue-winged Teal*, Northern Shoveler*, Unidentified Scaup sp.*, Red-tailed Hawk, Rough-legged Hawk*, Golden Eagle*, Ring-billed Gull, Herring Gull*, Rock Pigeon, Mourning Dove, Long-eared Owl*, Hairy Woodpecker, Northern Shrike*, American Crow, Townsend's Solitaire*, Bohemian Waxwing*, Snow Bunting*, American Tree Sparrow, Fox Sparrow, Northern Cardinal, Red-winged Blackbird, Pine Grosbeak*, House Finch, Common Redpoll*, Evening Grosbeak*, House Sparrow

Birds banded: 2192 individuals (low 94, mean 219, high 406); 41 species (low 11, mean 17, high 21)

Dominant species banded: American Robin (61.4), Dark-eyed Junco (53.1), American Tree Sparrow (27.4), Black-capped Chickadee (21.9), White-throated Sparrow (11.4), Fox Sparrow (9.8), Ruby-crowned Kinglet (6.9), Golden-crowned Kinglet (5.0), Song Sparrow (4.6)

Weather: Mean low temperature -1 to 8 (mean 3); mean high temperature 6 to 16 (mean 10). Total rainfall 3 to 62 mm (mean 24); total snowfall 0 to 3 cm (mean 1).

Notes: As is the case throughout October, mean temperatures drop another two degrees in the final week of the season, and at least some mornings below freezing are typical. This is the only week of fall that has had snowfall in more than one year (just twice though). However, species diversity differs only marginally from week 12, partly due to the arrival of late fall migrants such as Rough-legged Hawk, Northern Shrike, and winter finches, offsetting the departure of lingering mid-season migrants. Canada Goose, American Crow, American Robin, and Red-winged Blackbird remain the most abundant species observed by a large margin. American Robin remains the species banded the most, but just by a small margin over Dark-eyed Junco, with all others far scarcer. Overall, banding results generally taper off quite a bit (27%), although in some years numbers are actually higher than in week 12. During the first five years of operation, non-standardized operations in early November showed a sharp decline in bird numbers, warranting the conclusions of the fall season at week 13. In more recent years, increasingly many species have been peaking in week 13 and carrying on into November in good numbers, and overall there are more species peaking (both common and uncommon) in week 13 than any other. This suggests that migration is not yet quite over, and an additional week of monitoring may be warranted to consistently document the passage of late-fall migrants such as American Tree Sparrow, Fox Sparrow, and Dark-eyed Junco.

6 Education

Education has been a priority at MBO since its inception. This is achieved through on-site training in field techniques, including the McGill University ornithology class and specialized workshops, as well as sharing information through the MBO website and presentations to the public, including school groups.

6.1 On-site training

At the core of MBO's education program is on-site training of volunteers. To effectively operate a standardized long-term migration monitoring program requires substantial volunteer involvement, and to maintain consistency in data over time it is important that training be provided. All volunteers are expected to be familiar with the MBO migration monitoring protocol, and generally receive training with respect to mist net operation and data collection during their first few visits. The most specialized roles are extraction and banding, and the consistent safe operation of MBO is dependent on enough volunteers with these skills being available to allow full coverage of the schedule. As such, an effort is made to provide advanced training to those volunteers who display an interest and aptitude for these roles.

6.2 McGill Ornithology class

From 1995 until 2003, the McGill University ornithology class had been visiting the Stoneycroft Wildlife Area (now MBO) on average twice each fall for banding demonstrations by professors Dr. David Bird and Dr. Rodger Titman. With the inception of MBO in the fall of 2004, leadership of the demonstrations was turned over to the MBO banders-in-charge. Since 2005, participation in MBO activities by students has been integrated into the ornithology curriculum, with all students visiting the site during field labs for the course, and many signing up for additional volunteer shifts to gain field experience that complements their classroom learning. Over half of the volunteers at MBO from 2005 to 2014 were McGill students, some of whom volunteered for years after graduation. Several have also undertaken research projects based on data collected at MBO (see Section 4.6.2).

6.3 Workshops

Five multi-day workshops led by Marcel Gahbauer have been held at MBO to provide specialized training in ageing and sexing birds. Each workshop has spanned 2-3 days, and included both classroom and field components except for the two winter sessions which were indoor only. In the classroom setting, diagrams and photos have been used to illustrate lessons and quiz the participants, and sometimes specimens from the Bird Banding Office have been used for practice. Dates and themes of the presentations to date were:

- December 2006 – Understanding molt and learning how to effectively use the Identification Guide to North American Birds
- August 2007 – Ageing birds by molt patterns in fall
- September 2008 – Knowing the common birds well and being prepared for rarities
- May 2010 – Ageing and sexing of spring migrants (four days, co-leader Peter Pyle)
- February 2013 – Knowing what to look for – ageing common species and recognizing rarities



6.4 Other lectures and presentations

Whereas the MBO workshops are quite technical and advanced, there is also an interest in the community for briefer presentations on migration monitoring and banding research. Between 2005 and 2014, Simon Duval, Barbara Frei, Marcel Gahbauer, Gay Gruner, and Marie-Anne Hudson gave over 40 talks on various aspects of MBO research to local and national birding groups including Bird Protection Quebec, the Zoological Society of Montreal, the Congrès des Ornithologues Amateurs du Québec, and the Canadian Migration Monitoring Network. In addition, many volunteers have helped with staffing displays at public events such as the Bird Protection Quebec Bird Fair, and Ste-Anne-de-Bellevue's Ecology Day. In recent years, local naturalist societies have also scheduled group visits to MBO for presentations during the owl banding program.

6.5 Website

The MBO website has traditionally been a subset of the Migration Research Foundation's website (www.migrationresearch.org), but as of 2015 the content has been updated and moved to www.oommbo.org, a fully bilingual site. Much of the MBO website is dynamic, with program reports being added to the banding log section weekly during migration and monthly in summer and winter, and annual reports posted in the results section each winter. The weekly reports typically contain tables summarizing weekly and cumulative totals of birds banded and observed, and the ten species most banded and observed in the greatest numbers; photos illustrating some of the highlights of the week; and a variety of text describing the results, weather, site maintenance, and any other noteworthy news, including recoveries of banded birds. The annual reports provide a comprehensive overview of seasonal summaries, species occurrences, and some high-level comparisons with previous years. Other parts of the website, including a site checklist, information for volunteers, a history of MBO, and tips for extractors are updated less frequently, but provide important background information.

The most frequently visited part of the MBO website over the years was the photo ID library (www.migrationresearch.org/mbo/id/index.html). Started as a visual aid to banders at MBO, to complement the text in Pyle (1997), it quickly grew a wider following and gained international recognition from the American Birding Association and through being referenced as a valuable resource in various online identification forums. The ID library grew to over 60 species, with the number of examples provided for each also expanding over time. In 2015, the content was transferred to Environment Canada's Piranga website (www.natureinstruct.org/piranga), aimed at providing a resource to identifying, ageing, and sexing birds of the western hemisphere. As before, each species has its own page on the website, beginning with a set of tips on ageing and sexing, followed by a table of thumbnail photos comparing age and sex classes for both spring and fall, each linked to larger photos allowing for more detailed examination of features. Additional benefits of Piranga include:

- The option for side-by-side comparison of any two birds in the database, allowing for users to directly contrast different ages, sexes, or even species
- The option (for most photos) to view full-size images to examine details more closely
- Classification of images as "reference" (best available photos, ideally showing typical features), "supplementary" (additional verified photos, often showing atypical features), and "contributed" (photos submitted by visitors to the site, which have not necessarily been screened for quality or accuracy of classification)
- A comment field allowing for feedback on any images in the database
- Full bilingual content (English/French) for all species curated by MBO (60 as of 2015)

As with the original version of the MBO photo ID library, degree of coverage varies among species to some extent, depending on the availability of photos to illustrate each age/sex class, although the majority of accounts have at least one example for each. Among the species with the best coverage are Magnolia Warbler, Dark-eyed Junco, and American Goldfinch. Efforts are ongoing to expand and improve Piranga, both through adding more species, and updating the selection of photos in existing accounts.

6.6 School visits

MBO banders-in-charge have given several presentations to school classes in Montreal at the request of teachers. These typically involve discussions of migration, basic avian biology, the tools and methods used for banding, and habitat and conservation issues relevant to bird populations. As a hands-on component for the students, a mist net is brought into the classroom, and students can practice extracting plush toy birds from the net and banding them with plastic rings.

7 Future plans (2015-2019)

MBO has completed its first ten years, during which the value of consistent long-term monitoring at this location has been established. The primary goals for the next five years are to maintain operation of existing programs, take advantage of opportunities to expand on research and education, and build capacity to support the long-term persistence of MBO.

7.1 Management

For much of the first five years, MBO was largely dependent on three or fewer banders-in-charge, who were also largely responsible for managing operations. Although MBO was successful during this period, it required substantial time commitments from those volunteers, and was not sustainable. Fortunately, from 2010 to 2014 the leadership base grew, as did the number of banders-in-charge available to participate on a regular basis. One of the goals set in the MBO five-year report (Gahbauer 2010) was hiring a full-time coordinator for MBO to serve as the primary bander, lead an expanded education program, supervise researchers and other volunteers, and contribute to ongoing fundraising efforts. This was achieved in 2013 and has made a significant difference in improving overall capacity. All the same, MBO remains somewhat vulnerable should any of the current team members become unavailable, so training of additional banders-in-charge remains a priority, to ensure continued ability to undertake full coverage of all programs.

In addition to maintaining a core of key personnel, it remains important to secure more consistent funding for MBO. For the first eight years, MBO operated with a modest annual budget of under \$20,000 but always managed to cover all expenses. The budget has since increased, with the hiring of a full-time site coordinator, which was enabled through large grants and generous donations in 2013 and 2014. However, most sources of funding provide support one year at a time, and some are non-renewable. To ensure that programs can continue to be operated consistently, MBO's proven track record over the past decade needs to be translated into long-term partnerships and sponsorships that will provide greater financial stability. Additionally, having ten years of standardized migration monitoring data provides a strong basis for developing larger research projects (see 7.2 below), and efforts should be made over the next five years to seek more research grants.

7.2 Research

The top priority for research remains to maintain consistent operation of all seasonal monitoring programs; if funding should become limiting, the most important is fall migration, followed by spring migration, MAPS, owl migration, and winter monitoring. While all programs generate valuable data, winter monitoring is least standardized due to variability in weather from year to year and, unlike for other seasons, missing one or more years would not constitute a significant gap in data.

The summaries presented in this ten-year report provide only a rather high-level overview of the data collected during this period. Much more exploration of this database can and should be done. Among the topics meriting further analysis are:

- Summarizing in greater detail the patterns of occurrence of common migrants at MBO, comparing earliest, latest, and peak dates over the years and evaluating whether there are any temporal or weather-related trends for any species, or any differences in timing by age or sex.
- Reviewing the over 10000 repeats recorded to date, to explore aspects of stopover ecology (such as duration of stay and changes in fat and mass) and assess whether differences across years can be related to weather patterns and can be used to refine estimates of species counts.
- Reviewing the over 1600 returns recorded to date, with an emphasis on identifying the patterns of occurrence of resident species and compiling a list of returns that are not breeding on site.
- Examining recapture data to separate resident and migrant populations of species such as Black-capped Chickadee, Gray Catbird, and Song Sparrow, and refine daily estimated totals by modeling probable and known stopovers

In addition to making more use of the current MBO database, there are opportunities to collect additional data through the existing research programs, in support of various research questions. We now have good knowledge of what species occur at MBO commonly, and for many of these birds there are aspects of morphometrics, timing/sequence of molt, or ageing/sexing techniques that remain poorly understood. Small projects have already been undertaken for Black-capped Chickadee, American Redstart, Magnolia Warbler, House Finch, and American Goldfinch (see Section 4.6), and many additional promising candidates exist.

Whether for new projects or those involving analysis of existing data, the hope is that such research will increasingly be undertaken by undergraduate or graduate students from McGill University. While MBO banders are eager to provide guidance and assist with data collection, their priority is generally the operation of standard monitoring programs, therefore having specific research under the leadership of students and their academic supervisors will improve the ability for such projects to be completed in a timely, thorough, and rigorous manner. Closely related to this, another objective for the next five years is to increase the scientific output of MBO, especially in peer-reviewed journals and at ornithological conferences. During the first ten years of MBO, both data and time were limiting factors, but now that a solid database has been established, research opportunities have been identified, and the potential for student involvement has been demonstrated, output should increase significantly over the next five years. Efforts should also be made to capitalize on MBO's location and membership in the Canadian Migration Monitoring Network, to further engage in collaborative research and to lead regional components of national or international initiatives such as the Motus wildlife tracking system, which at a local scale would yield data on habitat use and direction of movement of migrants banded at MBO.

7.3 Education

The priorities for education over the next five years are to continue on-site training of students and other volunteers, regular dissemination of results via the MBO website, and presentations to naturalist clubs and other interested community groups. Workshops should continue to be offered periodically, both to make previous course material available to newer volunteers, and to focus on additional topics of interest, including focused sessions aimed at a subset of the species commonly encountered at MBO. Plans are underway for at least one bander-in-charge to become a certified trainer under the North American Banding Council, which will open the opportunity to host future certification sessions at MBO. A new bilingual education program will be launched in fall 2015 to complement the Northern Saw-whet Owl research program, providing visitors with an introduction to owl biology and bird banding, along with an opportunity to see owls being banded. To date, a few schools have been visited upon request, and this program could be greatly expanded. This should involve development of a standard classroom presentation, perhaps with a few variations for different age levels, targeted specifically at relevant aspects of the curriculum for each grade. Across all aspects of education, a goal over the next five years will be to continuing expanding the potential to offer bilingual content.



*Two of the species that have been the subject of focused research at MBO:
American Redstart (left) and Black-capped Chickadee (right)
(Photos by Simon Duval)*

8 Acknowledgements

MBO was started in 2004 as a pilot project by a few graduate students, but over the course of ten years has become established as an important member of the Canadian Migration Monitoring Network, has developed an international following through its website, and has positively influenced many students and community members through training and outreach efforts. These achievements would not have been possible without the sustained effort of dedicated leaders and a large group of volunteers always willing to assist whenever help was required. In particular, the long-term banders-in-charge (Simon Duval, Barbara Frei, Marcel Gahbauer, Gay Gruner, and Marie-Anne Hudson) have all contributed countless hours off-site over the years to developing protocols, managing data, fundraising, and communications, all of which have been essential to building a strong framework for long-term monitoring at MBO. Also deserving of special recognition are David Davey for developing and maintaining the MBO database, Richard Gregson and Geneviève Gélinas for designing and managing the updated MBO website, and Malcolm Johnson for many years as site caretaker managing the facilities, mowing net lanes, and much more. However, a project of this scope demands a much larger team to be active, and the long list of volunteers in Appendix G demonstrates how many people have played a role in MBO's success, with special thanks to those who have contributed for multiple years.

8.1 Funders and supporters

Despite MBO relying heavily on volunteers, there are some costs that require fundraising on an annual basis. MBO has been fortunate to receive financial support from corporate sponsors, grants, individual donations, and volunteer fundraising initiatives, and is deeply grateful to all of the following for their contributions:

The **Great Canadian Birdathon** (formerly Baillie Birdathon), coordinated by Bird Studies Canada, is a major source of funding for many members of the Canadian Migration Monitoring Network, including MBO. Each year, between one and four teams of birders have raised between \$4,000 and \$11,000 for MBO through the Birdathon, and in most years this funding has been critical to ensuring that all programs were able to take place in full. Participants in alphabetical order (* indicating those who have been involved in the Birdathon at least five years) supporting MBO between 2005 and 2014 were: Lise Amarasekera, Jean Bacon, Lina Bardo, Christine Barrie, Jean Beaudreault, Michel Beaupré, Nicolas Bernier, David Bird, Sue Bishop, Eric Boodman, Martin Bowman, Christine Burt, Sophie Cauchon, Céline Charette, Joel Coutu, Averill Craig*, Steven Dedesko, Jean Demers, Samuel Denault, Joy Ding, Christina Donehower, Catherine Doucet, Manon Dubé, Pierre-Alexandre Dumas, Simon Duval*, Bob Edwards, David Fishman, Linda Fishman, Nicki Fleming, Sarah Fraser, Barbara Frei*, Louise Gagné, Marcel Gahbauer*, Alain Goulet, Jean Gregson, Richard Gregson, Gay Gruner*, Peter Gruner*, Alison Hackney, Frédéric Hareau, Jeff Harrison, Marie-Anne Hudson*, Stacey Jarema, James Junda, Marie-Melissa Kalamaras, Kristen Keyes, Pamela Lagrange, Marie-Pier Laplante, Lance Laviolette, Helen Leroux, Dylan Letchuk, Morgan Letchuk, Penny Letchuk, Jessy Loranger, Barbara MacDuff*, Francine Marcoux, Sarah Marteinson, Mike Mayerhofer, Betsy McFarlane*, Sandy McNeil, Anthi Mimidakis, George Mony, Chris Murphy*, Jeremy Pauzé, André Pelletier, Oliver Rind, Steve Rosenstein, Catherine Russell, Ahmad Shaw, Clémence Soulard, Rodger Titman, and Bruno Tremblay. The James L. Baillie Memorial Fund, also derived from Birdathon proceeds and managed by Bird Studies Canada, provided financial support for the 2006 Spring Migration Monitoring Program.



Bird Protection Quebec (BPQ) offered grants from their Support and Education Funds annually from 2005 to 2007, has contributed to the operation of the Fall Migration Monitoring Program annually since 2010, has covered the costs of seeds for the winter monitoring program since 2012, and also funded MBO's winter finch study (see details under the House Finch account in Appendix D). In addition, BPQ has been supportive of MBO through encouraging its members to participate in MBO activities, and inviting MBO banders to give presentations to BPQ.



Environment Canada has provided financial support for the spring and fall migration monitoring programs annually since 2008.

Canada Steamship Lines was MBO's first corporate sponsor, and is gratefully acknowledged for having provided a generous donation annually for each of MBO's first ten years of operation.



Canada Steamship Lines

The **John Hackney Foundation for the Noosphere** has made a generous annual donation in support of migration monitoring at MBO annually since 2012.

The 2013 *Call for the Wild* contest by **Jamieson Vitamins** was MBO's biggest fundraising effort to date, and was instrumental in enabling the hiring of a full-time site coordinator. Thanks also to the countless MBO supporters who influenced the outcome by voting for MBO daily throughout the contest.



A generous bequest from the estate of **Ian Dalton** in 2014 was another major contribution toward MBO's financial stability, and MBO is very grateful for this thoughtful gift.

A grant from the **Mountain Equipment Co-op Environment Fund** covered the 2006 Fall Migration Monitoring Program, while a grant from the **TD Friends of the Environment Foundation** funded equipment and other costs for migration monitoring in 2009. TD FEF also provided environment grants to cover the purchase and installation of a solar panel in 2013 and replacing mist nets and other equipment in 2014.



In-kind donations from several other companies have made valuable contributions to MBO's operations. These include contributions of bird feeders and seed from **Wildlifery** (2005-2006) and **Centre de conservation de la faune ailée** (2009-2011), the donation of roofing materials for the cabin from **EMCO Building Products** (2005), and a half-price discount from **Sun-Mar** for MBO's composting toilet (2008), donation of building materials for the cabin from **Home Depot** (2012), donation of three windows for the cabin from **PF Expert** (2012).



MBO has also received donations from **United Way/Centraide** Ottawa and Montreal (2011-2013), **Club de golf Royal Montreal** (2011), and **La compagnie du Cimetière de Montréal** (2012).

We would also to thank the **Canadian Migration Monitoring Network**, **Bird Studies Canada**, the **Ecomuseum**, and the **Avian Science and Conservation Centre** for their advice, on-site contributions, and logistical support. Last but certainly not least, we thank the many individuals who have made generous cash or in-kind donations in support of MBO. All donations to MBO (through The Migration Research Foundation Inc.) are eligible for charitable tax receipts; see <http://www.migrationresearch.org/supporters/howtohelp.html> for details.

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Note: See Section 4.7 for a listing of all MBO seasonal and annual reports, as well as a list of publications including data generated through MBO research programs.



Pileated Woodpecker (Photo by Simon Duval)

Appendix A: Spring Migration Monitoring Program Overview

Statistics compiled for the Spring Migration Monitoring Program, 2005-2014. Numbers in the first row of each cell are for the week, while those in the second row are the cumulative season total to date. See section 5.3 for the dates corresponding to S1 to S10, and further details on the characteristics of each week of the spring season. For each period, the lowest result among ten years is shown in blue, and the highest in red.

	Year	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	FINAL
# individual birds (species) banded	2005	n/a	17 (7) 17 (7)	17 (8) 34 (10)	50 (15) 84 (19)	97 (18) 181 (25)	82 (18) 263 (30)	55 (18) 318 (40)	164 (39) 482 (56)	109 (30) 591 (59)	59 (26) 650 (62)	650 (62)
	2006	n/a	17 (10) 17 (10)	68 (19) 85 (22)	77 (15) 162 (26)	78 (13) 240 (29)	148 (23) 388 (33)	88 (23) 476 (39)	123 (28) 599 (52)	127 (30) 726 (62)	28 (16) 754 (63)	754 (63)
	2007	n/a	n/a	n/a	56 (13) 56 (13)	13 (3) 69 (14)	85 (12) 154 (20)	197 (35) 351 (41)	131 (36) 482 (52)	167 (37) 649 (58)	46 (18) 695 (61)	695 (61)
	2008	n/a	n/a	n/a	141 (18) 141 (18)	68 (11) 209 (21)	67 (22) 276 (34)	177 (32) 453 (45)	147 (34) 600 (55)	171 (31) 771 (63)	55 (15) 826 (64)	826 (64)
	2009	n/a	n/a	n/a	39 (20) 39 (20)	92 (18) 131 (27)	52 (16) 183 (30)	115 (27) 298 (44)	300 (44) 598 (62)	175 (30) 773 (66)	42 (24) 815 (66)	815 (66)
	2010	n/a	n/a	n/a	98 (15) 98 (15)	55 (14) 153 (18)	74 (18) 227 (26)	124 (31) 351 (40)	146 (36) 497 (52)	98 (26) 595 (58)	32 (17) 627 (59)	627 (59)
	2011	n/a	n/a	n/a	89 (20) 89 (20)	66 (17) 155 (25)	140 (23) 295 (33)	129 (30) 424 (46)	198 (37) 622 (55)	248 (36) 870 (64)	36 (17) 906 (64)	906 (64)
	2012	n/a	n/a	n/a	102 (19) 102 (19)	72 (16) 174 (24)	140 (22) 314 (33)	220 (40) 534 (53)	202 (33) 736 (60)	188 (30) 924 (64)	67 (20) 991 (66)	991 (66)
	2013	n/a	n/a	n/a	113 (15) 113 (15)	66 (13) 179 (18)	82 (22) 261 (31)	102 (28) 363 (43)	266 (40) 629 (60)	132 (28) 761 (68)	29 (19) 790 (68)	790 (68)
	2014	n/a	n/a	n/a	169 (20) 169 (20)	197 (17) 366 (25)	84 (17) 450 (29)	305 (43) 755 (56)	209 (41) 964 (65)	318 (40) 1282 (69)	74 (19) 1356 (69)	1356 (69)
# individual birds (species) return	2005	n/a	2 (1) 2 (1)	0 (0) 7 (3)	5 (3) 7 (3)	3 (3) 10 (5)	4 (1) 14 (5)	1 (1) 15 (5)	2 (1) 17 (5)	3 (3) 20 (6)	0 (0) 20 (6)	20 (6)
	2006	n/a	6 (2) 6 (2)	8 (3) 14 (4)	6 (5) 20 (6)	7 (6) 27 (7)	6 (5) 33 (9)	7 (5) 40 (11)	14 (6) 54 (14)	14 (9) 68 (17)	2 (2) 70 (17)	70 (17)
	2007	n/a	n/a	n/a	13 (6) 13 (6)	2 (2) 15 (7)	12 (5) 27 (9)	18 (9) 45 (14)	20 (11) 65 (18)	14 (6) 79 (21)	3 (1) 82 (21)	82 (21)
	2008	n/a	n/a	n/a	21 (6) 21 (6)	13 (5) 34 (7)	16 (7) 50 (10)	13 (11) 63 (14)	17 (8) 80 (15)	8 (4) 88 (16)	2 (2) 90 (16)	90 (16)
	2009	n/a	n/a	n/a	13 (4) 13 (4)	9 (7) 22 (8)	9 (5) 31 (10)	25 (10) 56 (16)	29 (15) 85 (21)	14 (8) 99 (22)	0 (0) 99 (22)	99 (22)
	2010	n/a	n/a	n/a	16 (8) 16 (8)	9 (6) 25 (11)	11 (8) 36 (15)	29 (10) 65 (19)	29 (12) 94 (23)	15 (8) 109 (23)	3 (3) 112 (24)	112 (24)
	2011	n/a	n/a	n/a	13 (6) 13 (6)	9 (6) 22 (10)	4 (4) 26 (12)	8 (5) 34 (16)	15 (7) 49 (17)	10 (6) 59 (17)	4 (3) 63 (17)	63 (17)
	2012	n/a	n/a	n/a	21 (6) 21 (6)	11 (4) 32 (7)	17 (8) 49 (11)	28 (8) 77 (13)	12 (6) 89 (14)	10 (8) 99 (17)	4 (3) 103 (17)	103 (17)
	2013	n/a	n/a	n/a	24 (9) 24 (9)	9 (7) 33 (12)	8 (5) 41 (15)	13 (7) 54 (16)	36 (11) 90 (23)	11 (6) 101 (23)	4 (4) 105 (23)	105 (23)
	2014	n/a	n/a	n/a	31 (9) 31 (9)	12 (4) 43 (9)	9 (6) 52 (11)	33 (10) 85 (18)	19 (11) 104 (21)	19 (10) 123 (23)	4 (4) 127 (25)	127 (25)
# individual birds (species) repeat	2005	n/a	1 (1) 1 (1)	5 (2) 6 (2)	9 (3) 15 (3)	12 (6) 27 (6)	22 (8) 49 (9)	12 (7) 61 (11)	57 (12) 118 (17)	56 (11) 174 (19)	37 (13) 211 (21)	211 (21)
	2006	n/a	7 (3) 7 (3)	8 (4) 15 (5)	6 (3) 21 (6)	17 (6) 38 (10)	12 (10) 50 (13)	23 (9) 73 (16)	25 (10) 98 (20)	39 (14) 137 (23)	7 (6) 144 (23)	144 (23)
	2007	n/a	n/a	n/a	13 (4) 13 (4)	3 (3) 16 (6)	12 (4) 28 (8)	16 (8) 44 (12)	20 (8) 64 (15)	32 (11) 96 (19)	7 (5) 103 (20)	103 (20)
	2008	n/a	n/a	n/a	20 (6) 20 (6)	27 (9) 47 (11)	12 (8) 59 (14)	25 (12) 84 (18)	61 (17) 145 (23)	39 (14) 184 (25)	10 (8) 194 (25)	194 (25)
	2009	n/a	n/a	n/a	8 (3) 8 (3)	14 (5) 22 (6)	12 (5) 34 (7)	45 (13) 79 (15)	83 (18) 162 (24)	68 (20) 230 (29)	16 (9) 246 (29)	246 (29)
	2010	n/a	n/a	n/a	19 (7) 19 (7)	16 (5) 35 (9)	13 (4) 48 (10)	23 (10) 71 (17)	45 (15) 116 (23)	35 (13) 151 (25)	9 (5) 160 (25)	160 (25)
	2011	n/a	n/a	n/a	7 (5) 7 (5)	12 (7) 19 (8)	15 (7) 34 (13)	11 (6) 45 (16)	26 (12) 71 (20)	52 (14) 123 (25)	6 (5) 129 (25)	129 (25)
	2012	n/a	n/a	n/a	24 (6) 24 (6)	37 (8) 61 (10)	27 (9) 88 (13)	64 (17) 152 (23)	64 (18) 216 (27)	60 (15) 276 (29)	22 (11) 298 (30)	298 (30)
	2013	n/a	n/a	n/a	36 (11) 36 (11)	21 (9) 57 (13)	17 (9) 74 (15)	21 (10) 95 (18)	54 (16) 149 (27)	55 (18) 204 (31)	21 (10) 225 (32)	225 (32)
	2014	n/a	n/a	n/a	22 (9) 22 (9)	28 (9) 50 (11)	22 (7) 72 (12)	51 (18) 123 (22)	75 (18) 198 (29)	73 (19) 271 (33)	24 (8) 295 (34)	295 (34)

	Year	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	FINAL
# species observed	2005	n/a	51 51	42 56	59 65	59 76	60 84	68 102	86 121	85 129	72 133	133
	2006	39 39	50 55	54 63	60 72	63 81	78 99	85 118	104 137	99 148	74 148	148
	2007	35 35	38 44	36 48	66 70	58 78	78 97	91 116	98 132	91 134	79 134	134
	2008	24 24	36 38	44 48	69 71	70 80	82 102	91 118	90 129	100 137	83 139	139
	2009	38 38	33 45	40 52	64 72	72 90	89 112	95 128	96 138	89 144	75 146	146
	2010	37 37	39 46	46 54	65 72	55 78	80 105	85 118	93 131	81 137	58 138	138
	2011	32 32	37 42	38 50	59 67	75 86	77 102	94 123	98 134	93 139	79 140	140
	2012	35 35	41 46	45 55	64 74	64 83	87 107	96 129	94 135	79 141	70 143	143
	2013	35 35	42 47	47 59	66 73	67 87	78 102	87 122	94 136	93 144	76 145	145
	2014	30 30	37 41	44 53	68 71	57 73	70 84	98 124	107 134	98 140	81 141	141
# net hours	2005	n/a	115.3 115.3	61.3 176.6	97.0 273.6	214.1 487.7	281.6 769.3	112.7 882.0	274.7 1156.7	281.7 1438.4	137.2 1575.6	1575.6
	2006	n/a	169.0 169.0	313.9 482.9	353.0 835.9	386.9 1222.8	463.9 1686.7	295.4 1982.1	236.3 2218.4	483.8 2702.2	209.9 2912.1	2912.1
	2007	n/a	n/a	n/a	413.5 413.5	75.0 488.5	510.0 998.5	454.5 1453.0	300.5 1753.5	533.0 2286.5	173.5 2460.0	2460.0
	2008	n/a	n/a	n/a	510.0 510.0	436.7 946.7	436.0 1382.7	508.0 1890.7	454.0 2344.7	446.0 2790.7	121.5 2912.2	2912.2
	2009	n/a	n/a	n/a	398.0 398.0	464.0 862.0	352.5 1214.5	525.0 1739.5	554.5 2294.0	464.0 2758.0	198.5 2956.5	2956.5
	2010	n/a	n/a	n/a	554.4 554.4	400.0 954.4	421.0 1375.4	480.0 1855.4	544.0 2399.4	560.0 2959.4	156.0 3115.4	3115.4
	2011	n/a	n/a	n/a	327.5 327.5	376.0 703.5	407.5 1111.0	400.0 1511.0	279.0 1790.0	406.0 2196.0	240.0 2436.0	2436.0
	2012	n/a	n/a	n/a	346.0 346.0	389.0 735.0	408.0 1143.0	467.0 1610.0	480.0 2090.0	492.0 2582.0	236.0 2818.0	2818.0
	2013	n/a	n/a	n/a	511.0 511.0	399.0 910.0	560.0 1470.0	407.0 1877.0	482.0 2359.0	324.8 2683.8	240.0 2923.8	2923.8
	2014	n/a	n/a	n/a	502.5 502.5	356.7 859.2	378.7 1237.9	523.7 1761.6	499.0 2260.6	528.0 2788.6	216.0 3004.6	3004.6
# birds banded / 100 net hours	2005	n/a	14.7 14.7	27.7 19.3	51.5 30.7	45.3 37.1	29.1 34.2	48.8 36.1	59.7 41.7	38.7 41.1	43.0 41.3	41.3
	2006	n/a	10.1 10.1	21.7 17.6	21.8 19.4	20.2 19.6	31.9 23.0	29.8 24.0	52.1 27.0	26.3 26.9	13.3 25.9	25.9
	2007	n/a	n/a	n/a	13.5 13.5	17.3 14.1	16.7 15.4	43.3 24.2	43.6 27.5	31.3 28.4	26.5 28.3	28.3
	2008	n/a	n/a	n/a	27.6 27.6	15.6 22.1	15.4 20.0	34.8 24.0	32.4 25.6	38.3 27.6	45.3 28.4	28.4
	2009	n/a	n/a	n/a	9.8 9.8	19.8 15.2	14.8 15.1	21.9 17.1	54.1 26.1	37.7 28.0	21.2 27.6	27.6
	2010	n/a	n/a	n/a	17.7 17.7	13.8 16.0	17.6 16.5	25.8 18.9	26.8 20.7	17.5 20.1	20.5 20.1	20.1
	2011	n/a	n/a	n/a	27.2 27.2	17.6 22.0	34.4 26.6	32.2 28.1	71.0 34.7	61.1 39.6	15.0 37.2	37.2
	2012	n/a	n/a	n/a	29.5 29.5	18.5 23.7	34.3 27.5	47.1 33.2	42.1 35.2	38.2 35.8	28.4 35.2	35.2
	2013	n/a	n/a	n/a	22.1 22.1	16.5 19.7	14.6 17.8	25.1 19.3	55.2 26.7	40.6 28.4	12.1 27.0	27.0
	2014	n/a	n/a	n/a	33.6 33.6	55.2 42.6	22.2 36.4	58.2 42.9	41.9 42.6	60.2 46.0	34.3 45.1	45.1

Appendix B: Fall Migration Monitoring Program Overview

Statistics compiled for the Fall Migration Monitoring Program, 2005-2014. Numbers in the first row of each cell are for the week, while those in the second row are the cumulative season total to date. See section 5.3 for the dates corresponding to F1 to F13, and further details on the characteristics of each week of the fall season. For each period, the lowest result among ten years is shown in blue, and the highest in red.

	Year	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	FINAL	
# individual birds (species) banded	2005	69 (22) 69 (22)	158 (28) 227 (32)	141 (39) 368 (43)	196 (35) 564 (49)	283 (41) 847 (53)	181 (34) 1028(59)	426 (49) 1454(64)	480 (48) 1934(68)	380 (36) 2314(69)	375 (37) 2689(70)	185 (24) 2874(73)	157 (17) 3031(75)	195 (21) 3226(78)	3226 (78)	
	2006	152 (30) 152 (30)	225 (40) 377 (46)	162 (31) 539 (48)	200 (34) 739 (54)	146 (37) 885 (58)	279 (39) 1164(59)	266 (41) 1430(65)	332 (32) 1762(67)	545 (35) 2307(70)	305 (23) 2612(72)	241 (22) 2853(74)	333 (19) 3186(76)	94 (11) 3280(76)	3280 (76)	
	2007	210 (29) 210 (29)	142 (32) 352 (36)	91 (25) 443 (41)	128 (30) 571 (47)	131 (36) 702 (56)	162 (36) 864 (60)	135 (34) 999 (66)	210 (38) 1209(71)	311 (33) 1520(71)	486 (34) 2006(74)	430 (28) 2436(75)	289 (19) 2725(77)	152 (17) 2877(77)	2877 (77)	
	2008	187 (32) 187 (32)	182 (42) 369 (45)	155 (33) 524 (48)	166 (36) 690 (52)	271 (44) 961 (59)	345 (42) 1306(62)	203 (36) 1509(66)	393 (34) 1902(67)	1112(46) 3014(71)	1113(39) 4127(74)	531 (26) 4658(77)	218 (13) 4876(77)	224 (13) 5100(77)	5100 (77)	
	2009	228 (39) 228 (39)	148 (33) 376 (47)	184 (33) 560 (50)	196 (33) 756 (54)	159 (34) 915 (56)	109 (33) 1024(59)	185 (38) 1209(64)	252 (34) 1461(69)	372 (43) 1833(69)	591 (36) 2424(71)	257 (22) 2681(72)	359 (20) 3040(73)	351 (19) 3391(75)	3391 (75)	
	2010	250 (37) 250 (37)	192 (34) 442 (42)	250 (38) 692 (48)	177 (34) 869 (53)	197 (34) 1066(57)	416 (38) 1482(58)	297 (42) 1779(64)	1279(40) 3058(67)	1085(36) 4143(68)	1019(24) 5162(70)	635 (28) 5797(72)	605 (23) 6402(74)	406 (19) 6808(74)	6808 (74)	
	2011	257 (35) 257 (35)	142 (35) 399 (42)	136 (33) 535 (45)	240 (38) 775 (53)	311 (36) 1086(56)	257 (37) 1343(57)	217 (37) 1560(60)	241 (40) 1801(65)	327 (31) 2128(70)	275 (29) 2403(74)	104 (19) 2507(75)	139 (18) 2646(76)	146 (17) 2792(78)	2792 (78)	
	2012	281 (34) 281 (34)	243 (39) 524 (44)	161 (41) 685 (52)	239 (43) 924 (56)	166 (36) 1090(59)	263 (40) 1353(64)	404 (49) 1757(71)	210 (35) 1967(73)	447 (42) 2414(77)	850 (36) 3264(79)	316 (26) 3580(81)	331 (28) 3911(82)	153 (20) 4064(86)	4064 (86)	
	2013	300 (41) 300 (41)	160 (34) 460 (45)	170 (34) 630 (48)	330 (39) 960 (53)	309 (39) 1269(59)	234 (33) 1503(61)	312 (40) 1815(64)	205 (37) 2020(68)	263 (35) 2283(69)	483 (30) 2766(71)	271 (22) 3037(75)	170 (21) 3207(76)	134 (17) 3341(77)	3341 (77)	
	2014	204 (42) 204 (42)	191 (39) 395 (48)	121 (32) 516 (49)	296 (38) 812 (54)	237 (37) 1049(56)	223 (40) 1272(61)	324 (41) 1596(65)	323 (39) 1919(69)	454 (37) 2373(70)	295 (30) 2668(73)	408 (25) 3076(73)	405 (27) 3481(75)	337 (20) 3818(77)	3818 (77)	
	# individual birds (species) return	2005	0 (0) 0 (0)	3 (2) 3 (2)	3 (3) 6 (4)	3 (3) 9 (5)	7 (5) 16 (9)	4 (3) 20 (9)	3 (2) 23 (9)	6 (3) 29 (10)	6 (4) 35 (11)	5 (3) 40 (11)	1 (1) 41 (11)	0 (0) 41 (11)	2 (2) 43 (13)	43 (13)
		2006	6 (5) 6 (5)	6 (4) 12 (6)	1 (1) 13 (6)	2 (2) 15 (8)	1 (1) 16 (8)	3 (2) 19 (8)	2 (2) 21 (8)	0 (0) 21 (8)	2 (1) 23 (8)	1 (1) 24 (8)	2 (1) 26 (8)	2 (2) 28 (9)	3 (2) 31 (9)	31 (9)
		2007	10 (6) 10 (6)	6 (4) 16 (7)	6 (2) 22 (7)	5 (5) 27 (10)	3 (2) 30 (11)	7 (5) 37 (11)	2 (2) 39 (11)	3 (3) 42 (12)	0 (0) 42 (12)	1 (1) 43 (12)	1 (1) 44 (12)	1 (1) 45 (12)	1 (1) 46 (12)	46 (12)
		2008	11 (7) 11 (7)	0 (0) 11 (7)	1 (1) 12 (8)	1 (1) 13 (8)	2 (2) 15 (10)	3 (3) 18 (11)	3 (3) 21 (11)	3 (3) 24 (14)	0 (0) 24 (14)	1 (1) 25 (14)	5 (2) 30 (14)	0 (0) 30 (14)	2 (1) 32 (14)	32 (14)
2009		6 (6) 6 (6)	3 (3) 9 (8)	3 (3) 12 (10)	3 (3) 15 (11)	7 (6) 22 (15)	4 (4) 26 (16)	1 (1) 27 (16)	4 (2) 31 (16)	2 (1) 33 (16)	2 (2) 35 (16)	1 (1) 36 (16)	5 (3) 41 (18)	2 (2) 43 (18)	43 (18)	
2010		6 (5) 6 (5)	2 (2) 8 (7)	3 (3) 11 (9)	4 (3) 15 (10)	3 (3) 18 (12)	3 (3) 21 (14)	6 (3) 27 (15)	3 (2) 30 (15)	2 (2) 32 (16)	4 (3) 36 (18)	1 (1) 37 (18)	2 (1) 39 (18)	5 (3) 44 (20)	44 (20)	
2011		5 (2) 5 (2)	1 (1) 6 (3)	5 (5) 11 (7)	2 (2) 13 (9)	2 (2) 15 (11)	1 (1) 16 (12)	1 (1) 17 (12)	2 (2) 19 (12)	8 (4) 27 (14)	5 (2) 32 (14)	2 (2) 34 (14)	3 (2) 37 (14)	3 (1) 40 (15)	40 (15)	
2012		13 (10) 13 (10)	7 (4) 20 (12)	9 (7) 29 (16)	2 (2) 31 (17)	10 (8) 41 (19)	2 (2) 43 (19)	15 (7) 58 (20)	2 (2) 60 (20)	6 (3) 66 (20)	3 (1) 69 (20)	6 (4) 75 (21)	3 (3) 78 (22)	9 (6) 87 (24)	87 (24)	
2013		7 (5) 7 (5)	8 (5) 15 (8)	4 (4) 19 (10)	2 (2) 21 (11)	5 (5) 26 (15)	2 (2) 28 (15)	6 (4) 34 (16)	4 (2) 38 (16)	5 (4) 43 (17)	0 (0) 43 (17)	3 (3) 46 (18)	4 (3) 50 (18)	3 (2) 53 (18)	53 (18)	
2014		13 (9) 13 (9)	3 (2) 16 (9)	6 (6) 22 (11)	8 (6) 30 (14)	3 (3) 33 (15)	2 (2) 35 (16)	6 (4) 41 (17)	5 (4) 46 (17)	5 (4) 51 (17)	2 (1) 53 (17)	2 (2) 55 (18)	3 (2) 58 (18)	3 (3) 61 (20)	61 (20)	
# individual birds (species) repeat		2005	4 (4) 4 (4)	23 (11) 27 (13)	24 (12) 51 (15)	19 (12) 70 (18)	47 (15) 117 (22)	38 (14) 155 (25)	58 (19) 213 (29)	82 (18) 295 (32)	52 (12) 347 (34)	53 (17) 400 (38)	24 (10) 424 (38)	11 (7) 435 (40)	45 (9) 480 (42)	480 (42)
		2006	22 (10) 22 (10)	31 (11) 53 (15)	33 (12) 86 (19)	25 (10) 111 (23)	19 (8) 130 (24)	35 (14) 165 (26)	54 (18) 219 (30)	28 (12) 247 (32)	48 (10) 295 (33)	26 (10) 321 (34)	49 (10) 370 (37)	35 (9) 405 (37)	8 (3) 413 (38)	413 (38)
		2007	31 (12) 31 (12)	50 (16) 81 (18)	40 (16) 121 (24)	24 (10) 145 (25)	33 (15) 178 (27)	47 (14) 225 (28)	41 (15) 266 (30)	36 (13) 302 (32)	72 (17) 374 (37)	68 (13) 442 (41)	55 (12) 497 (41)	42 (12) 539 (43)	22 (8) 561 (43)	561 (43)
		2008	42 (17) 42 (17)	47 (14) 89 (20)	50 (19) 139 (26)	36 (12) 175 (28)	53 (19) 228 (32)	76 (16) 304 (35)	64 (18) 368 (37)	69 (14) 437 (38)	137 (13) 574 (39)	152 (17) 726 (42)	122 (15) 848 (46)	52 (14) 900 (47)	33 (8) 933 (48)	933 (48)
	2009	29 (11) 29 (11)	35 (16) 64 (19)	38 (16) 102 (23)	39 (17) 141 (25)	37 (11) 178 (25)	29 (11) 207 (26)	29 (10) 236 (28)	49 (12) 285 (28)	93 (13) 378 (33)	66 (10) 444 (34)	38 (8) 482 (35)	50 (9) 532 (37)	73 (9) 605 (39)	605 (39)	
	2010	35 (16) 35 (16)	38 (17) 73 (21)	28 (14) 101 (23)	38 (18) 139 (25)	35 (15) 174 (27)	43 (15) 217 (29)	59 (22) 276 (31)	80 (10) 356 (34)	171 (9) 527 (36)	103 (12) 630 (39)	100 (11) 730 (40)	75 (13) 805 (42)	71 (10) 876 (44)	876 (44)	
	2011	50 (17) 50 (17)	43 (17) 93 (23)	32 (15) 125 (25)	42 (15) 167 (26)	39 (12) 206 (26)	45 (17) 251 (29)	52 (16) 303 (32)	44 (11) 347 (32)	67 (14) 414 (39)	61 (12) 475 (40)	36 (12) 511 (43)	55 (12) 566 (43)	38 (11) 604 (45)	604 (45)	
	2012	50 (13) 50 (13)	74 (22) 124 (25)	61 (18) 185 (27)	74 (21) 259 (31)	52 (17) 311 (33)	65 (16) 376 (34)	89 (19) 465 (35)	65 (13) 530 (38)	118 (23) 648 (46)	152 (17) 800 (50)	148 (16) 948 (51)	83 (15) 1031(52)	58 (9) 1089(52)	1089 (52)	
	2013	67 (16) 67 (16)	63 (22) 130 (25)	48 (17) 178 (28)	80 (21) 258 (31)	61 (15) 319 (32)	54 (15) 373 (35)	72 (24) 445 (37)	63 (18) 508 (37)	69 (20) 577 (40)	79 (16) 656 (42)	48 (9) 704 (43)	25 (7) 729 (45)	30 (7) 759 (46)	759 (46)	
	2014	43 (19) 43 (19)	48 (19) 91 (28)	44 (21) 135 (32)	61 (17) 196 (34)	50 (15) 246 (36)	69 (19) 315 (36)	99 (20) 414 (40)	48 (16) 462 (40)	76 (17) 538 (45)	64 (14) 602 (45)	99 (14) 701 (47)	75 (14) 776 (49)	72 (13) 848 (49)	848 (49)	

	Year	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	FINAL
# species observed	2005	74 74	71 88	75 95	76 102	82 110	88 120	89 124	90 128	75 131	83 135	67 140	59 146	55 151	151
	2006	75 75	84 91	78 95	82 101	87 106	86 114	74 120	77 123	70 126	63 131	60 134	55 134	50 134	134
	2007	65 65	72 84	82 98	81 106	83 112	84 116	75 123	81 131	74 133	74 135	55 135	53 137	58 144	144
	2008	71 71	71 85	77 96	74 103	82 110	83 113	76 117	76 121	73 126	73 131	61 136	57 141	46 141	141
	2009	71 71	73 86	82 98	78 106	76 111	75 115	72 121	82 128	78 128	70 131	65 133	51 136	52 144	144
	2010	71 71	68 83	72 92	71 95	78 102	85 106	87 117	74 120	68 125	80 134	63 135	52 137	57 140	140
	2011	67 67	75 81	77 87	78 97	86 107	77 112	84 121	86 124	81 132	81 136	52 140	49 141	53 146	146
	2012	74 74	84 91	85 101	84 109	77 112	85 119	84 125	87 132	89 136	77 138	59 139	69 142	66 148	148
	2013	84 84	74 95	94 107	86 114	81 116	82 122	91 130	88 136	81 141	70 142	67 143	60 144	53 147	147
	2014	78 78	81 91	88 105	87 110	93 115	85 120	90 124	83 128	84 133	73 135	75 143	64 145	70 150	150
# net hours	2005	74.5 74.5	132.3 206.8	152.8 359.6	245.6 605.2	435.0 1040.2	481.5 1521.7	444.0 1965.7	436.4 2402.1	397.7 2799.8	368.5 3168.3	168.4 3336.7	190.3 3527.0	281.1 3808.1	3808.1
	2006	420.0 420.0	426.5 846.5	390.9 1237.4	412.9 1650.3	343.8 1994.1	498.2 2492.3	377.9 2870.2	175.4 3045.6	208.9 3254.5	333.3 3587.8	310.4 3898.2	318.3 4216.5	206.6 4423.1	4423.1
	2007	370.0 370.0	462.0 832.0	493.4 1325.4	414.7 1740.1	490.5 2230.6	434.5 2665.1	417.5 3082.6	489.5 3572.1	369.7 3941.8	398.9 4340.7	348.5 4689.2	370.7 5059.9	363.0 5422.9	5422.9
	2008	386.5 386.5	459.2 845.7	520.0 1365.7	540.0 1905.7	553.0 2458.7	433.0 2891.7	358.0 3249.7	536.5 3786.2	377.5 4163.7	377.5 4541.2	373.0 4914.2	402.2 5316.4	290.7 5607.1	5607.1
	2009	499.7 499.7	466.0 965.7	544.0 1509.7	533.0 2042.7	476.3 2519.0	554.0 3073.0	504.0 3577.0	532.0 4109.0	459.0 4568.0	359.5 4927.5	225.5 5153.0	307.0 5460.0	377.4 5837.4	5837.4
	2010	468.0 468.0	558.0 1026.0	508.5 1534.5	524.0 2058.5	556.0 2614.5	456.5 3071.0	532.0 3603.0	425.0 4028.0	274.5 4302.5	380.0 4682.5	430.0 5112.5	438.0 5550.5	491.0 6041.5	6041.5
	2011	557.5 557.5	560.0 1117.5	480.0 1597.5	426.0 2023.5	531.6 2555.1	480.0 3035.1	472.0 3507.1	516.0 4023.1	505.0 4528.1	534.0 5062.1	307.0 5369.1	466.0 5835.1	558.0 6393.1	6393.1
	2012	560.0 560.0	552.0 1112.0	540.0 1652.0	560.0 2212.0	504.8 2716.8	547.0 3263.8	544.0 3807.8	514.0 4321.8	552.0 4873.8	477.5 5351.3	479.0 5830.3	454.0 6284.3	504.0 6788.3	6788.3
	2013	560.0 560.0	490.0 1050.0	560.0 1610.0	539.5 2149.5	526.0 2675.5	480.0 3155.5	469.5 3625.0	541.6 4166.6	546.0 4712.6	505.0 5217.6	497.5 5715.1	343.0 6058.1	431.2 6489.3	6489.3
	2014	548.0 548.0	471.0 1019.0	444.0 1463.0	560.0 2023.0	560.0 2583.0	479.0 3062.0	560.0 3622.0	516.0 4138.0	541.0 4679.0	328.2 5007.2	466.0 5473.2	461.5 5934.7	488.0 6422.7	6422.7
# birds banded / 100 net hours	2005	92.6 92.6	119.4 109.8	92.3 102.3	79.8 93.2	65.1 81.4	37.6 67.6	95.9 74.0	110.0 80.5	95.5 82.6	101.8 84.9	109.9 86.1	82.5 85.9	69.4 84.7	84.7
	2006	36.2 36.2	52.8 44.5	41.4 43.6	48.4 44.8	42.5 44.4	56.0 46.7	70.4 49.8	189.3 57.9	260.9 70.9	91.5 72.8	77.6 73.2	104.6 75.6	45.5 74.2	74.2
	2007	56.8 56.8	30.7 42.3	18.4 33.4	30.9 32.8	26.7 31.5	37.3 32.4	32.3 32.4	42.9 33.8	84.1 38.6	121.8 46.2	123.4 51.9	78.0 53.9	41.9 53.1	53.1
	2008	48.4 48.4	39.6 43.6	29.8 38.4	30.7 36.2	49.0 39.1	79.7 45.2	56.7 46.4	73.3 50.2	294.6 72.4	294.8 90.9	142.4 94.8	54.2 91.7	77.1 91.0	91.0
	2009	45.6 45.6	31.8 38.9	33.8 37.1	36.8 37.0	33.4 36.3	19.7 33.3	36.7 33.8	47.4 35.6	81.0 40.1	164.4 49.2	114.0 52.0	116.9 55.7	93.0 58.1	58.1
	2010	53.4 53.4	34.4 43.1	49.2 45.1	33.8 42.2	35.4 40.8	91.1 48.3	55.8 49.4	300.9 75.9	395.3 96.3	268.2 110.2	147.7 113.4	138.1 115.3	82.7 112.7	112.7
	2011	46.1 46.1	25.4 35.7	28.3 33.5	56.3 38.3	58.5 42.5	53.5 44.2	46.0 44.5	46.7 44.8	64.8 47.0	51.5 47.5	33.9 46.7	29.8 45.3	26.2 43.7	43.7
	2012	50.2 50.2	44.0 47.1	29.8 41.5	42.7 41.8	32.9 40.1	48.1 41.5	74.3 46.1	40.9 45.5	81.0 49.5	178.0 61.0	66.0 61.4	72.9 62.2	30.4 59.9	59.9
	2013	53.6 53.6	32.7 43.8	30.4 39.1	61.2 44.7	58.7 47.4	48.8 47.6	66.5 50.1	37.9 48.5	48.2 48.4	95.6 53.0	54.5 53.1	49.6 52.9	31.1 51.5	51.5
	2014	37.2 37.2	40.6 38.8	27.3 35.3	52.9 40.1	42.3 40.6	46.6 41.5	57.9 44.1	62.6 46.4	83.9 50.7	89.9 53.3	87.6 56.2	87.8 58.7	69.1 59.4	59.4

Appendix C: Weekly Species Charts for Spring and Fall Migration

This section summarizes the most frequently observed and banded species on a weekly basis throughout the spring and fall migration seasons. Numbers banded represent weekly (or seasonal) totals, with tied species listed in taxonomic sequence. Observations are presented as mean daily counts, rounded to the nearest whole number. Species are listed in decreasing order of abundance, with tied species sequenced first by numbers prior to rounding, and secondarily by taxonomic sequence. Last-place ties which increase the list beyond ten species are included only if 4 or more individuals per species were banded. Species are colour-coded in the tables to highlight seasonal patterns of occurrence of different groups; the table below serves as a legend.

Species group	Species included
Waterfowl	Geese and ducks
Other waterbirds	Cormorants, gulls, and terns
Woodpeckers	Woodpeckers, including flicker
Other non-passerines	Hawks, hummingbirds, doves, cuckoos, owls
Flycatchers	Flycatchers, including phoebe, pewee, and kingbird
Swallows	Swallows, including martin
Vireos	Vireos
Corvids	Crow, raven, jay
Chickadees etc.	Chickadees, nuthatches, creeper, kinglets, wrens
Thrushes etc.	Thrushes, mimids, waxwings
Warblers	Warblers
Sparrows	Sparrows
Finches	Finches, including cardinal, grosbeak, bunting
Blackbirds	Blackbirds, including oriole, starling

Banding, Spring Week 1 (March 28 - April 3): No banding during this period in any year

Observations, Spring Week 1 (March 28 - April 3):

2005	2006	2007	2008	2009
No observations during this period	Canada Goose (715)	Canada Goose (1099)	Red-wing. Blackbird (24)	Canada Goose (293)
	Red-wing. Blackbird (25)	Red-wing. Blackbird (47)	Cedar Waxwing (17)	Snow Goose (186)
	American Crow (24)	American Crow (17)	American Crow (14)	Bohemian Waxwing (55)
	Ring-billed Gull (17)	Ring-billed Gull (17)	Bohemian Waxwing (14)	Ring-billed Gull (26)
	Black-cap. Chickadee (13)	Mallard (13)	Black-cap. Chickadee (10)	Red-wing. Blackbird (25)
	Dark-eyed Junco (12)	American Robin (13)	Dark-eyed Junco (4)	American Crow (20)
	American Robin (9)	Blue Jay (10)	American Robin (4)	American Robin (15)
	Am. Tree Sparrow (7)	Song Sparrow (7)	Canada Goose (3)	Black-cap. Chickadee (10)
	Song Sparrow (7)	Black-cap. Chickadee (6)	Northern Cardinal (3)	Song Sparrow (10)
	Mallard (6)	European Starling (5)	Blue Jay (3)	Wood Duck (9)

2010	2011	2012	2013	2014
Canada Goose (179)	Snow Goose (501)	Canada Goose (298)	Canada Goose (297)	Canada Goose (26)
Red-wing. Blackbird (44)	Canada Goose (454)	Red-wing. Blackbird (42)	Red-wing. Blackbird (37)	Red-wing. Blackbird (16)
Snow Goose (31)	Red-wing. Blackbird (31)	American Crow (16)	Common Redpoll (23)	American Crow (10)
American Crow (25)	Bohemian Waxwing (27)	Black-cap. Chickadee (15)	Black-cap. Chickadee (11)	Black-cap. Chickadee (9)
American Robin (13)	American Crow (16)	American Robin (13)	Ring-billed Gull (7)	Blue Jay (7)
Black-cap. Chickadee (12)	Ring-billed Gull (15)	Ring-billed Gull (13)	Snow Goose (7)	European Starling (6)
Wood Duck (8)	Black-cap. Chickadee (13)	Mallard (12)	American Crow (7)	Dark-eyed Junco (5)
Song Sparrow (7)	Dark-eyed Junco (13)	Song Sparrow (11)	Northern Cardinal (6)	American Robin (5)
Am. Tree Sparrow (7)	Cedar Waxwing (11)	Wood Duck (9)	Blue Jay (5)	Cedar Waxwing (5)
Ring-billed Gull (5)	Common Redpoll (11)	Blue Jay (8)	European Starling (5)	Northern Cardinal (4)

Banding, Spring Week 2 (April 4 - 10):

2005	2006	2007	2008	2009
Song Sparrow (5)	Dark-eyed Junco (3)	No banding during this period	No banding during this period	No banding during this period
American Goldfinch (5)	Black-cap. Chickadee (2)			
American Robin (2)	Golden-cr. Kinglet (2)			
Am. Tree Sparrow (2)	American Robin (2)			
Eastern Phoebe (1)	Am. Tree Sparrow (2)			
Black-cap. Chickadee (1)	Song Sparrow (2)			
Swamp Sparrow (1)	Pileated Woodpecker (1)			
	Brown Creeper (1)			
	Fox Sparrow (1)			
	House Sparrow (1)			

2010	2011	2012	2013	2014
No banding during this period	No banding during this period	No banding during this period	No banding during this period	No banding during this period

Observations, Spring Week 2 (April 4 - 10):

2005	2006	2007	2008	2009
Canada Goose (241)	Canada Goose (854)	Canada Goose (178)	Canada Goose (174)	Canada Goose (112)
Snow Goose (53)	Ring-billed Gull (69)	Red-wing. Blackbird (44)	Red-wing. Blackbird (42)	Red-wing. Blackbird (40)
Bohemian Waxwing (35)	Snow Goose (62)	American Crow (22)	Snow Goose (20)	Ring-billed Gull (22)
Red-wing. Blackbird (28)	Red-wing. Blackbird (38)	Ring-billed Gull (13)	American Crow (13)	American Robin (18)
Cedar Waxwing (18)	American Robin (21)	American Robin (10)	American Robin (10)	American Crow (17)
American Crow (17)	Song Sparrow (20)	Song Sparrow (9)	Song Sparrow (7)	Bohemian Waxwing (14)
Song Sparrow (14)	Dark-eyed Junco (20)	Black-cap. Chickadee (9)	Black-cap. Chickadee (6)	Song Sparrow (13)
Black-cap. Chickadee (13)	American Crow (18)	Wood Duck (8)	Ring-billed Gull (6)	Black-cap. Chickadee (9)
American Robin (10)	Black-cap. Chickadee (16)	Mallard (8)	Blue Jay (5)	Snow Goose (7)
Common Grackle (8)	Blue Jay (10)	Blue Jay (7)	European Starling (4)	European Starling (7)

2010	2011	2012	2013	2014
Canada Goose (61)	Canada Goose (510)	Canada Goose (162)	Canada Goose (236)	Canada Goose (90)
Red-wing. Blackbird (35)	Snow Goose (36)	Red-wing. Blackbird (29)	Snow Goose (84)	Red-wing. Blackbird (41)
American Crow (21)	Bohemian Waxwing (31)	Ring-billed Gull (20)	Red-wing. Blackbird (58)	Cedar Waxwing (35)
Cedar Waxwing (15)	Red-wing. Blackbird (29)	Song Sparrow (13)	Ring-billed Gull (14)	Black-cap. Chickadee (10)
Black-cap. Chickadee (13)	Ring-billed Gull (29)	American Crow (12)	Black-cap. Chickadee (14)	American Robin (9)
Song Sparrow (12)	Cedar Waxwing (18)	American Robin (12)	European Starling (14)	American Crow (8)
American Robin (11)	Wood Duck (13)	Black-cap. Chickadee (11)	Mallard (11)	Song Sparrow (6)
Wood Duck (8)	American Robin (12)	Wood Duck (9)	Dark-eyed Junco (9)	Dark-eyed Junco (6)
Ring-billed Gull (4)	American Crow (12)	Dark-eyed Junco (8)	Am. Tree Sparrow (9)	Ring-billed Gull (5)
European Starling (4)	Black-cap. Chickadee (11)	Mallard (7)	American Robin (8)	Northern Cardinal (5)

Banding, Spring Week 3 (April 11 - 17):

2005	2006	2007	2008	2009
Cedar Waxwing (7)	Dark-eyed Junco (20)	No banding during this period	No banding during this period	No banding during this period
Song Sparrow (3)	American Robin (6)			
American Robin (2)	Golden-cr. Kinglet (5)			
Black-cap. Chickadee (1)	Fox Sparrow (5)			
Swamp Sparrow (1)	Song Sparrow (5)			
Dark-eyed Junco (1)	Ruby-cr. Kinglet (4)			
Northern Cardinal (1)	Am. Tree Sparrow (4)			
American Goldfinch (1)	Red-wing. Blackbird (4)			
	Eastern Phoebe (3)			

2010	2011	2012	2013	2014
No banding during this period	No banding during this period	No banding during this period	No banding during this period	No banding during this period

Observations, Spring Week 3 (April 11 - 17):

2005	2006	2007	2008	2009
Canada Goose (66)	Canada Goose (751)	Canada Goose (198)	Canada Goose (440)	Snow Goose (96)
Cedar Waxwing (36)	Ring-billed Gull (78)	Red-wing. Blackbird (31)	Snow Goose (162)	Canada Goose (88)
Red-wing. Blackbird (21)	Red-wing. Blackbird (57)	Snow Goose (28)	Red-wing. Blackbird (40)	Red-wing. Blackbird (30)
Song Sparrow (17)	American Crow (28)	American Crow (20)	Ring-billed Gull (19)	American Robin (17)
American Robin (16)	American Robin (23)	American Robin (13)	American Robin (16)	American Crow (16)
American Crow (11)	Dark-eyed Junco (23)	Blue Jay (9)	American Crow (14)	Song Sparrow (11)
Black-cap. Chickadee (6)	Song Sparrow (21)	Black-cap. Chickadee (9)	Song Sparrow (13)	Ring-billed Gull (10)
American Goldfinch (6)	Mallard (12)	Mallard (8)	Mallard (8)	Black-cap. Chickadee (9)
Tree Swallow (5)	Brown-head. Cowbird (11)	Ring-billed Gull (8)	Black-cap. Chickadee (8)	Cedar Waxwing (8)
Ring-billed Gull (5)	House Sparrow (10)	Song Sparrow (6)	Dark-eyed Junco (5)	Wood Duck (6)
Brown-head. Cowbird (5)				

2010	2011	2012	2013	2014
Red-wing. Blackbird (34)	Canada Goose (52)	Canada Goose (101)	Canada Goose (101)	Canada Goose (246)
American Crow (18)	Red-wing. Blackbird (43)	Red-wing. Blackbird (42)	Red-wing. Blackbird (46)	Red-wing. Blackbird (56)
Canada Goose (11)	Dark-eyed Junco (18)	Cedar Waxwing (19)	Song Sparrow (13)	Cedar Waxwing (26)
Song Sparrow (11)	American Crow (16)	American Crow (19)	Black-cap. Chickadee (11)	American Robin (25)
Cedar Waxwing (9)	American Robin (12)	Mallard (19)	Ring-billed Gull (9)	Song Sparrow (15)
Wood Duck (8)	Song Sparrow (11)	Song Sparrow (16)	American Robin (8)	Snow Goose (14)
Black-cap. Chickadee (7)	Bohemian Waxwing (11)	American Robin (14)	American Crow (8)	Ring-billed Gull (13)
American Robin (6)	Black-cap. Chickadee (10)	Wood Duck (12)	Wood Duck (6)	Dark-eyed Junco (9)
Tree Swallow (5)	Wood Duck (10)	Black-cap. Chickadee (12)	Mallard (6)	Black-cap. Chickadee (8)
American Goldfinch (5)	Ring-billed Gull (9)	Ring-billed Gull (11)	Dark-eyed Junco (6)	Blue Jay (6)

Banding, Spring Week 4 (April 18 - 24):

2005	2006	2007	2008	2009
Cedar Waxwing (14)	Red-wing. Blackbird (18)	Red-wing. Blackbird (12)	Ruby-cr. Kinglet (56)	Dark-eyed Junco (8)
Song Sparrow (7)	Ruby-cr. Kinglet (15)	Song Sparrow (9)	Fox Sparrow (23)	Ruby-cr. Kinglet (5)
Ruby-cr. Kinglet (6)	Dark-eyed Junco (9)	American Robin (8)	Dark-eyed Junco (9)	Northern Cardinal (3)
Fox Sparrow (4)	Song Sparrow (7)	Ruby-cr. Kinglet (6)	Red-wing. Blackbird (9)	Brown Creeper (2)
Swamp Sparrow (4)	White-thr. Sparrow (6)	American Goldfinch (4)	Song Sparrow (8)	Golden-cr. Kinglet (2)
American Goldfinch (4)	American Goldfinch (4)	Downy Woodpecker (3)	White-thr. Sparrow (8)	Cedar Waxwing (2)
White-thr. Sparrow (2)	Downy Woodpecker (3)	Eastern Phoebe (3)	American Goldfinch (8)	White-thr. Sparrow (2)
Red-wing. Blackbird (2)	American Robin (3)	Black-cap. Chickadee (3)	Swamp Sparrow (7)	Red-wing. Blackbird (2)
	Fox Sparrow (3)			American Goldfinch (2)
	Swamp Sparrow (3)			

2010	2011	2012	2013	2014
Cedar Waxwing (23)	Dark-eyed Junco (24)	Red-wing. Blackbird (21)	Fox Sparrow (32)	Cedar Waxwing (33)
Fox Sparrow (16)	American Robin (14)	Ruby-cr. Kinglet (20)	Black-cap. Chickadee (14)	Ruby-cr. Kinglet (28)
Song Sparrow (14)	Fox Sparrow (12)	White-thr. Sparrow (18)	Ruby-cr. Kinglet (13)	Fox Sparrow (28)
Red-wing. Blackbird (12)	Am. Tree Sparrow (6)	Song Sparrow (10)	Song Sparrow (9)	American Robin (21)
Ruby-cr. Kinglet (6)	Cedar Waxwing (5)	Swamp Sparrow (7)	Dark-eyed Junco (9)	Golden-cr. Kinglet (13)
Dark-eyed Junco (6)	Black-cap. Chickadee (4)	American Goldfinch (5)	Red-wing. Blackbird (8)	Song Sparrow (10)
Swamp Sparrow (5)	Song Sparrow (3)	American Robin (4)	Eastern Phoebe (5)	White-thr. Sparrow (6)
American Goldfinch (4)	White-thr. Sparrow (3)	Purple Finch (3)	Am. Tree Sparrow (5)	Black-cap. Chickadee (5)
Tree Swallow (3)	Red-wing. Blackbird (3)		Swamp Sparrow (5)	Am. Tree Sparrow (5)
			White-thr. Sparrow (5)	Red-wing. Blackbird (4)

Observations, Spring Week 4 (April 18 - 24):

2005	2006	2007	2008	2009
Canada Goose (92)	Canada Goose (899)	Snow Goose (791)	Canada Goose (561)	Snow Goose (156)
Cedar Waxwing (32)	Ring-billed Gull (51)	Canada Goose (322)	Snow Goose (139)	Canada Goose (151)
Red-wing. Blackbird (24)	Red-wing. Blackbird (46)	Red-wing. Blackbird (73)	Ring-billed Gull (71)	Red-wing. Blackbird (44)
American Crow (23)	American Crow (35)	American Crow (33)	Red-wing. Blackbird (57)	American Crow (26)
Song Sparrow (17)	Dark-eyed Junco (24)	Ring-billed Gull (32)	Common Grackle (38)	Ring-billed Gull (19)
Tree Swallow (13)	American Robin (22)	American Robin (26)	Ruby-cr. Kinglet (28)	American Robin (18)
American Robin (10)	Mallard (19)	Song Sparrow (24)	Song Sparrow (20)	Song Sparrow (17)
Black-cap. Chickadee (8)	Song Sparrow (19)	American Goldfinch (15)	American Crow (19)	Dark-eyed Junco (15)
American Goldfinch (7)	Tree Swallow (16)	Mallard (14)	American Robin (15)	Black-cap. Chickadee (11)
Ring-billed Gull (6)	Brown-head. Cowbird (13)	Black-cap. Chickadee (14)	Fox Sparrow (14)	Wood Duck (10)

2010	2011	2012	2013	2014
Canada Goose (48)	Canada Goose (147)	Canada Goose (158)	Canada Goose (110)	Canada Goose (372)
Red-wing. Blackbird (48)	Red-wing. Blackbird (59)	American Robin (57)	Red-wing. Blackbird (57)	Cedar Waxwing (69)
Cedar Waxwing (34)	Bohemian Waxwing (42)	Red-wing. Blackbird (55)	Song Sparrow (26)	Red-wing. Blackbird (62)
American Crow (27)	Dark-eyed Junco (30)	American Crow (34)	Fox Sparrow (20)	American Robin (43)
Black-cap. Chickadee (14)	Cedar Waxwing (24)	White-thr. Sparrow (23)	Black-cap. Chickadee (17)	Ring-billed Gull (39)
Tree Swallow (13)	American Crow (23)	Black-cap. Chickadee (20)	Ring-billed Gull (16)	Snow Goose (24)
Wood Duck (12)	Black-cap. Chickadee (22)	Wood Duck (14)	American Crow (13)	Song Sparrow (19)
American Robin (12)	Snow Goose (21)	Song Sparrow (14)	American Robin (12)	Black-cap. Chickadee (13)
Song Sparrow (11)	Ring-billed Gull (20)	Ring-billed Gull (13)	Wood Duck (12)	Fox Sparrow (13)
Fox Sparrow (8)	American Robin (19)	Mallard (12)	Ruby-cr. Kinglet (11)	Common Grackle (12)
		Ruby-cr. Kinglet (12)		

Banding, Spring Week 5 (April 25 - May 1):

2005	2006	2007	2008	2009
Red-wing. Blackbird (24)	Red-wing. Blackbird (35)	Red-wing. Blackbird (11)	White-thr. Sparrow (27)	Ruby-cr. Kinglet (53)
White-thr. Sparrow (16)	Dark-eyed Junco (14)	Brown Thrasher (1)	Red-wing. Blackbird (11)	White-thr. Sparrow (7)
American Goldfinch (12)	Common Grackle (9)	American Goldfinch (1)	Ruby-cr. Kinglet (6)	Song Sparrow (6)
Ruby-cr. Kinglet (8)	White-thr. Sparrow (4)		Swamp Sparrow (6)	Swamp Sparrow (6)
Song Sparrow (7)	Ruby-cr. Kinglet (3)		Tree Swallow (5)	Red-wing. Blackbird (3)
Cedar Waxwing (5)	House Sparrow (3)		American Goldfinch (5)	American Robin (2)
Swamp Sparrow (4)	American Robin (2)		Yellow-bel. Sapsucker (2)	Northern Waterthrush (2)
	Swamp Sparrow (2)		Yellow-rumped Warbler (2)	Yellow Warbler (2)
	American Goldfinch (2)		Song Sparrow (2)	Rusty Blackbird (2)

2010	2011	2012	2013	2014
Red-wing. Blackbird (15)	Dark-eyed Junco (10)	American Robin (13)	White-thr. Sparrow (12)	Cedar Waxwing (147)
Ruby-cr. Kinglet (8)	Am. Tree Sparrow (9)	Red-wing. Blackbird (12)	Red-wing. Blackbird (12)	American Robin (8)
Cedar Waxwing (6)	White-thr. Sparrow (8)	White-thr. Sparrow (11)	Ruby-cr. Kinglet (10)	Fox Sparrow (6)
Swamp Sparrow (5)	Red-wing. Blackbird (8)	Swamp Sparrow (7)	Fox Sparrow (10)	Song Sparrow (6)
American Goldfinch (5)	Ruby-cr. Kinglet (6)	Common Grackle (5)	Swamp Sparrow (10)	White-thr. Sparrow (6)
Tree Swallow (3)	American Robin (6)	Ruby-cr. Kinglet (4)	Eastern Phoebe (2)	Ruby-cr. Kinglet (5)
White-thr. Sparrow (3)	Yellow-rumped Warbler (4)	Fox Sparrow (4)	Song Sparrow (2)	Red-wing. Blackbird (4)
American Robin (2)	Fox Sparrow (4)	Song Sparrow (4)	Dark-eyed Junco (2)	Brown Creeper (3)
Dark-eyed Junco (2)	Brown-head. Cowbird (3)	Black-cap. Chickadee (3)	Purple Finch (2)	
Common Grackle (2)				

Observations, Spring Week 5 (April 25 - May 1):

2005	2006	2007	2008	2009
Canada Goose (102)	Canada Goose (541)	Canada Goose (109)	Canada Goose (203)	Canada Goose (201)
Red-wing. Blackbird (30)	Red-wing. Blackbird (79)	Red-wing. Blackbird (65)	Red-wing. Blackbird (49)	Red-wing. Blackbird (43)
White-thr. Sparrow (20)	American Crow (37)	American Crow (25)	American Crow (24)	Snow Goose (29)
Cedar Waxwing (19)	Ring-billed Gull (35)	Tree Swallow (16)	Ring-billed Gull (22)	American Robin (20)
American Robin (15)	Dark-eyed Junco (25)	Song Sparrow (15)	White-thr. Sparrow (20)	American Crow (19)
Song Sparrow (13)	Mallard (20)	American Goldfinch (13)	Tree Swallow (12)	Ring-billed Gull (19)
Black-cap. Chickadee (12)	Common Grackle (19)	Ruby-cr. Kinglet (12)	Song Sparrow (11)	Ruby-cr. Kinglet (17)
American Crow (11)	Northern Pintail (17)	American Robin (11)	American Goldfinch (11)	Tree Swallow (14)
Tree Swallow (10)	Tree Swallow (17)	Black-cap. Chickadee (8)	Ruby-cr. Kinglet (11)	Song Sparrow (13)
American Goldfinch (10)	Song Sparrow (15)	White-thr. Sparrow (8)	Black-cap. Chickadee (9)	Black-cap. Chickadee (9)

2010	2011	2012	2013	2014
Canada Goose (79)	Canada Goose (96)	Red-wing. Blackbird (86)	Canada Goose (183)	Cedar Waxwing (154)
Red-wing. Blackbird (38)	Red-wing. Blackbird (45)	Canada Goose (69)	Red-wing. Blackbird (49)	Canada Goose (101)
American Crow (25)	Dark-eyed Junco (26)	American Crow (26)	Song Sparrow (16)	Red-wing. Blackbird (51)
Cedar Waxwing (24)	American Crow (25)	White-thr. Sparrow (21)	White-thr. Sparrow (15)	American Robin (24)
Tree Swallow (12)	White-thr. Sparrow (16)	American Robin (21)	Black-cap. Chickadee (13)	Ring-billed Gull (22)
Black-cap. Chickadee (10)	Black-cap. Chickadee (16)	Black-cap. Chickadee (18)	American Crow (11)	Snow Goose (21)
Song Sparrow (10)	American Robin (13)	Song Sparrow (18)	Wood Duck (10)	Song Sparrow (15)
American Goldfinch (10)	Tree Swallow (13)	Ruby-cr. Kinglet (13)	Ruby-cr. Kinglet (10)	American Crow (14)
Wood Duck (9)	Song Sparrow (11)	Snow Goose (13)	Ring-billed Gull (10)	Black-cap. Chickadee (13)
American Robin (9)	Bohemian Waxwing (10)	Ring-billed Gull (12)	Fox Sparrow (10)	White-thr. Sparrow (12)

Banding, Spring Week 6 (May 2 - 8):

2005	2006	2007	2008	2009
Red-wing. Blackbird (21)	Red-wing. Blackbird (42)	Ruby-cr. Kinglet (31)	White-thr. Sparrow (13)	White-thr. Sparrow (16)
American Goldfinch (16)	Ruby-cr. Kinglet (32)	Red-wing. Blackbird (27)	Red-wing. Blackbird (13)	Ruby-cr. Kinglet (7)
Cedar Waxwing (15)	Common Grackle (24)	White-thr. Sparrow (7)	Ruby-cr. Kinglet (10)	Red-wing. Blackbird (5)
White-thr. Sparrow (5)	White-thr. Sparrow (18)	American Goldfinch (6)	American Goldfinch (5)	Tree Swallow (4)
Swamp Sparrow (4)	Blue Jay (3)	Common Grackle (5)	Tree Swallow (3)	American Goldfinch (4)
Tree Swallow (3)	American Robin (3)	Downy Woodpecker (2)	White-cr. Sparrow (3)	Purple Finch (3)
Common Grackle (3)	White-cr. Sparrow (3)	Savannah Sparrow (2)	Common Yellowthroat (2)	American Robin (2)
	Brown-head. Cowbird (3)		Yellow Warbler (2)	Song Sparrow (2)
	American Goldfinch (3)		Lincoln's Sparrow (2)	Brown-head. Cowbird (2)
			Swamp Sparrow (2)	

2010	2011	2012	2013	2014
Red-wing. Blackbird (19)	Ruby-cr. Kinglet (30)	Red-wing. Blackbird (49)	Red-wing. Blackbird (25)	Red-wing. Blackbird (19)
Ruby-cr. Kinglet (14)	White-thr. Sparrow (30)	White-thr. Sparrow (24)	Ruby-cr. Kinglet (12)	White-thr. Sparrow (16)
White-thr. Sparrow (10)	Yellow-rumped Warbler (26)	Ruby-cr. Kinglet (20)	White-thr. Sparrow (10)	Ruby-cr. Kinglet (14)
White-cr. Sparrow (4)	Red-wing. Blackbird (15)	Common Grackle (8)	Swamp Sparrow (7)	Cedar Waxwing (12)
Tree Swallow (3)	Swamp Sparrow (7)	American Goldfinch (8)	Song Sparrow (5)	American Robin (6)
Cedar Waxwing (3)	American Robin (6)	Tree Swallow (4)	House Wren (3)	Song Sparrow (3)
Yellow-rumped Warbler (3)	Cedar Waxwing (3)	Nashville Warbler (3)	Nashville Warbler (2)	Northern Waterthrush (2)
Common Grackle (3)	Common Yellowthroat (3)	Yellow Warbler (3)	Chipping Sparrow (2)	Am. Tree Sparrow (2)
		Swamp Sparrow (3)	Northern Cardinal (2)	Swamp Sparrow (2)
			Common Grackle (2)	

Observations, Spring Week 6 (May 2 - 8):

2005	2006	2007	2008	2009
Canada Goose (219)	Snow Goose (582)	Canada Goose (431)	Canada Goose (459)	Canada Goose (292)
Cedar Waxwing (44)	Canada Goose (251)	Red-wing. Blackbird (97)	Snow Goose (150)	Red-wing. Blackbird (36)
Red-wing. Blackbird (29)	Ring-billed Gull (97)	Snow Goose (57)	Red-wing. Blackbird (39)	American Crow (18)
Tree Swallow (19)	Red-wing. Blackbird (41)	American Crow (28)	Cliff Swallow (22)	Tree Swallow (15)
Song Sparrow (18)	Common Grackle (35)	Tree Swallow (27)	American Crow (21)	American Goldfinch (10)
American Goldfinch (13)	American Crow (27)	Ring-billed Gull (24)	Tree Swallow (15)	Black-cap. Chickadee (9)
Ring-billed Gull (10)	American Goldfinch (18)	Cliff Swallow (21)	Ring-billed Gull (14)	Common Grackle (9)
Black-cap. Chickadee (10)	White-thr. Sparrow (17)	Ruby-cr. Kinglet (18)	Song Sparrow (12)	Song Sparrow (8)
American Crow (8)	Ruby-cr. Kinglet (16)	Song Sparrow (17)	White-thr. Sparrow (11)	American Robin (7)
American Robin (7)	Tree Swallow (15)	American Goldfinch (15)	Black-cap. Chickadee (10)	Ring-billed Gull (6)
				Northern Cardinal (6)

2010	2011	2012	2013	2014
Canada Goose (328)	Canada Goose (143)	Canada Goose (195)	Canada Goose (262)	Canada Goose (188)
Red-wing. Blackbird (42)	Red-wing. Blackbird (54)	Red-wing. Blackbird (71)	Red-wing. Blackbird (60)	Red-wing. Blackbird (54)
Cliff Swallow (23)	Cedar Waxwing (28)	American Crow (54)	Ring-billed Gull (26)	Cedar Waxwing (54)
Cedar Waxwing (18)	Ruby-cr. Kinglet (27)	Black-cap. Chickadee (17)	American Crow (22)	Ring-billed Gull (20)
American Crow (17)	White-thr. Sparrow (26)	White-thr. Sparrow (16)	Blue Jay (19)	Song Sparrow (18)
American Goldfinch (16)	American Crow (20)	Common Grackle (16)	Black-cap. Chickadee (15)	American Robin (18)
Tree Swallow (15)	Yellow-rumped Warbler (18)	Ring-billed Gull (15)	Song Sparrow (15)	Black-cap. Chickadee (13)
Ring-billed Gull (13)	Black-cap. Chickadee (17)	Tree Swallow (14)	White-thr. Sparrow (12)	White-thr. Sparrow (13)
Black-cap. Chickadee (13)	American Robin (14)	Ruby-cr. Kinglet (14)	American Goldfinch (11)	Tree Swallow (11)
Blue Jay (11)	Dark-eyed Junco (13)	Mallard (12)	Common Grackle (10)	Ruby-cr. Kinglet (11)

Banding, Spring Week 7 (May 9 - 15):

2005	2006	2007	2008	2009
Yellow Warbler (10)	Red-wing. Blackbird (25)	Red-wing. Blackbird (65)	Red-wing. Blackbird (33)	Red-wing. Blackbird (21)
Red-wing. Blackbird (9)	Common Grackle (14)	Yellow-rumped Warbler (19)	White-thr. Sparrow (29)	Common Grackle (12)
American Goldfinch (7)	American Goldfinch (8)	American Goldfinch (18)	Yellow-rumped Warbler (24)	Yellow Warbler (8)
White-thr. Sparrow (6)	White-thr. Sparrow (7)	Yellow Warbler (16)	Ruby-cr. Kinglet (20)	American Goldfinch (8)
Rose-breast. Grosbeak (3)	Yellow-rumped Warbler (5)	Ruby-cr. Kinglet (10)	White-cr. Sparrow (15)	Ruby-cr. Kinglet (7)
Common Grackle (3)	Yellow Warbler (3)	Baltimore Oriole (8)	American Goldfinch (6)	White-thr. Sparrow (7)
Baltimore Oriole (3)	Baltimore Oriole (3)	Nashville Warbler (5)	Brown-head. Cowbird (5)	Baltimore Oriole (7)
Least Flycatcher (2)		Magnolia Warbler (5)	Baltimore Oriole (5)	Nashville Warbler (6)
Ruby-cr. Kinglet (2)		White-thr. Sparrow (5)	Common Yellowthroat (4)	Common Yellowthroat (5)
Gray Catbird (2)		Black-cap. Chickadee (4)		Yellow-rumped Warbler (5)
		Lincoln's Sparrow (4)		White-cr. Sparrow (5)
		Common Grackle (4)		

2010	2011	2012	2013	2014
Yellow-rumped Warbler (19)	Red-wing. Blackbird (23)	Yellow-rumped Warbler (41)	Red-wing. Blackbird (24)	Yellow-rumped Warbler (45)
White-cr. Sparrow (11)	Yellow-rumped Warbler (22)	Red-wing. Blackbird (19)	Yellow-rumped Warbler (15)	American Goldfinch (26)
American Goldfinch (10)	Cedar Waxwing (9)	Tennessee Warbler (16)	Yellow Warbler (10)	Ruby-cr. Kinglet (24)
Red-wing. Blackbird (9)	Common Yellowthroat (9)	Yellow Warbler (13)	White-thr. Sparrow (9)	Magnolia Warbler (19)
Yellow Warbler (7)	Yellow Warbler (7)	Ruby-cr. Kinglet (10)	Nashville Warbler (6)	Red-wing. Blackbird (17)
White-thr. Sparrow (7)	White-thr. Sparrow (7)	Nashville Warbler (10)	Common Yellowthroat (5)	Northern Waterthrush (16)
Ruby-cr. Kinglet (6)	White-cr. Sparrow (7)	Magnolia Warbler (8)	Northern Waterthrush (4)	Common Yellowthroat (16)
American Robin (6)	Magnolia Warbler (6)	White-cr. Sparrow (8)	Chipping Sparrow (4)	Yellow Warbler (15)
Common Grackle (5)	Ruby-cr. Kinglet (5)	Warbling Vireo (6)	Common Grackle (4)	Least Flycatcher (14)
Gray Catbird (4)	Lincoln's Sparrow (5)	Gray Catbird (6)		Baltimore Oriole (11)
Nashville Warbler (4)		Northern Waterthrush (6)		
Swamp Sparrow (4)		Lincoln's Sparrow (6)		
		Baltimore Oriole (6)		

Observations, Spring Week 7 (May 9 - 15):

2005	2006	2007	2008	2009
Ring-billed Gull (39)	Ring-billed Gull (99)	Red-wing. Blackbird (125)	Red-wing. Blackbird (72)	Canada Goose (37)
Red-wing. Blackbird (28)	Red-wing. Blackbird (50)	Tree Swallow (28)	Canada Goose (39)	Cliff Swallow (35)
Tree Swallow (19)	Cliff Swallow (37)	Ring-billed Gull (24)	Cliff Swallow (30)	Red-wing. Blackbird (33)
American Crow (18)	Mallard (30)	American Goldfinch (20)	Ring-billed Gull (21)	Ring-billed Gull (18)
Song Sparrow (12)	Common Grackle (28)	American Crow (19)	American Crow (21)	Tree Swallow (17)
Canada Goose (11)	American Crow (28)	Yellow Warbler (18)	White-thr. Sparrow (18)	Common Grackle (14)
American Goldfinch (11)	Tree Swallow (25)	Cliff Swallow (13)	Yellow-rumped Warbler (16)	American Crow (11)
Common Grackle (9)	American Goldfinch (21)	Common Grackle (13)	American Goldfinch (15)	Song Sparrow (10)
White-thr. Sparrow (8)	Song Sparrow (13)	Canada Goose (13)	Tree Swallow (15)	American Goldfinch (9)
Black-cap. Chickadee (6)	Yellow Warbler (12)	Song Sparrow (13)	Song Sparrow (12)	Yellow Warbler (9)
Yellow Warbler (6)				

2010	2011	2012	2013	2014
Canada Goose (46)	Canada Goose (120)	Canada Goose (128)	Ring-billed Gull (81)	Canada Goose (96)
Red-wing. Blackbird (43)	Red-wing. Blackbird (47)	Red-wing. Blackbird (58)	Canada Goose (58)	Ring-billed Gull (84)
Ring-billed Gull (31)	Yellow-rumped Warbler (29)	Ring-billed Gull (43)	Red-wing. Blackbird (56)	Red-wing. Blackbird (51)
Cedar Waxwing (23)	Ring-billed Gull (22)	American Crow (30)	American Crow (24)	Yellow-rumped Warbler (20)
Cliff Swallow (19)	American Crow (17)	Yellow Warbler (21)	Yellow Warbler (14)	Cedar Waxwing (18)
American Crow (18)	White-thr. Sparrow (14)	Baltimore Oriole (18)	Yellow-rumped Warbler (12)	Song Sparrow (16)
Tree Swallow (15)	Cedar Waxwing (10)	Common Grackle (17)	Song Sparrow (11)	American Goldfinch (14)
American Goldfinch (14)	Tree Swallow (9)	Yellow-rumped Warbler (16)	Black-cap. Chickadee (11)	Black-cap. Chickadee (11)
Yellow-rumped Warbler (13)	Black-cap. Chickadee (9)	Snow Goose (14)	Common Grackle (11)	Yellow Warbler (11)
Yellow Warbler (12)	American Goldfinch (8)	Black-cap. Chickadee (14)	White-thr. Sparrow (9)	Cliff Swallow (11)

Banding, Spring Week 8 (May 16 - 22):

2005	2006	2007	2008	2009
American Goldfinch (34)	Red-wing. Blackbird (20)	Red-wing. Blackbird (22)	Yellow Warbler (24)	Tennessee Warbler (36)
Yellow Warbler (27)	Yellow-rumped Warbler (13)	Tennessee Warbler (12)	Red-wing. Blackbird (20)	Yellow Warbler (29)
Common Yellowthroat (11)	Common Yellowthroat (11)	American Goldfinch (11)	Yellow-rumped Warbler (11)	Magnolia Warbler (26)
Red-wing. Blackbird (11)	Magnolia Warbler (10)	Nashville Warbler (8)	White-cr. Sparrow (10)	Yellow-rumped Warbler (26)
Rose-breast. Grosbeak (9)	Gray Catbird (7)	Yellow-rumped Warbler (6)	American Goldfinch (9)	White-cr. Sparrow (20)
Yellow-rumped Warbler (8)	Common Grackle (6)	Ruby-cr. Kinglet (5)	Common Yellowthroat (8)	Common Yellowthroat (17)
Common Grackle (6)	Baltimore Oriole (6)	Gray Catbird (5)	Magnolia Warbler (7)	Red-wing. Blackbird (16)
Least Flycatcher (5)	Yellow Warbler (5)	Yellow Warbler (5)	Baltimore Oriole (7)	Northern Waterthrush (15)
Ruby-cr. Kinglet (4)	White-cr. Sparrow (5)	Warbling Vireo (4)	Gray Catbird (6)	Wilson's Warbler (15)
Cedar Waxwing (4)	Lincoln's Sparrow (4)	Common Yellowthroat (4)	Rose-breast. Grosbeak (5)	American Goldfinch (13)
	White-thr. Sparrow (4)	Magnolia Warbler (4)		
	Rose-breast. Grosbeak (4)	Common Grackle (4)		

2010	2011	2012	2013	2014
Red-wing. Blackbird (18)	Yellow-rumped Warbler (48)	Tennessee Warbler (48)	Magnolia Warbler (51)	Magnolia Warbler (39)
Yellow Warbler (12)	Tennessee Warbler (23)	Magnolia Warbler (18)	Tennessee Warbler (38)	Tennessee Warbler (25)
American Goldfinch (12)	Red-wing. Blackbird (13)	Yellow Warbler (17)	Yellow Warbler (25)	Yellow Warbler (16)
Cedar Waxwing (9)	Common Yellowthroat (10)	American Goldfinch (17)	Northern Waterthrush (23)	Northern Waterthrush (15)
Northern Waterthrush (8)	Northern Waterthrush (8)	Northern Waterthrush (15)	White-cr. Sparrow (14)	American Goldfinch (15)
Common Yellowthroat (8)	Magnolia Warbler (8)	Common Yellowthroat (15)	Red-wing. Blackbird (11)	Common Yellowthroat (12)
Yellow-rumped Warbler (8)	Yellow Warbler (8)	Cedar Waxwing (9)	Gray Catbird (10)	Yellow-rumped Warbler (8)
Tennessee Warbler (6)	Blackpoll Warbler (8)	Red-wing. Blackbird (9)	Common Yellowthroat (9)	Red-wing. Blackbird (8)
White-cr. Sparrow (6)	American Redstart (7)	Gray Catbird (7)	Least Flycatcher (8)	Wilson's Warbler (7)
Gray Catbird (5)	Baltimore Oriole (7)	American Redstart (5)	Nashville Warbler (5)	Gray Catbird (6)
Wilson's Warbler (5)		Common Grackle (5)	Yellow-rumped Warbler (5)	Baltimore Oriole (6)
Song Sparrow (5)			Canada Warbler (5)	
Baltimore Oriole (5)			Lincoln's Sparrow (5)	

Observations, Spring Week 8 (May 16 - 22):

2005	2006	2007	2008	2009
Ring-billed Gull (48)	Red-wing. Blackbird (36)	Red-wing. Blackbird (57)	Red-wing. Blackbird (54)	Ring-billed Gull (79)
Tree Swallow (21)	American Crow (31)	Greater Scaup (25)	Yellow Warbler (17)	Red-wing. Blackbird (36)
Red-wing. Blackbird (21)	Ring-billed Gull (23)	Tree Swallow (22)	Cliff Swallow (16)	Cliff Swallow (22)
Yellow Warbler (17)	Mallard (19)	American Crow (22)	American Crow (16)	American Crow (15)
American Goldfinch (13)	American Goldfinch (15)	American Goldfinch (16)	Tree Swallow (13)	Yellow Warbler (14)
Song Sparrow (12)	Yellow Warbler (15)	Yellow Warbler (16)	Ring-billed Gull (12)	Tree Swallow (14)
Common Grackle (10)	Common Grackle (14)	Wood Duck (13)	American Goldfinch (12)	Tennessee Warbler (13)
American Crow (9)	Tree Swallow (13)	Ring-billed Gull (11)	Baltimore Oriole (10)	Common Grackle (10)
Canada Goose (6)	Canada Goose (11)	Canada Goose (9)	Song Sparrow (9)	American Goldfinch (10)
Baltimore Oriole (6)	Yellow-rumped Warbler (11)	Black-cap. Chickadee (9)	Common Grackle (9)	Canada Goose (10)
		Song Sparrow (9)		

2010	2011	2012	2013	2014
Ring-billed Gull (44)	Red-wing. Blackbird (48)	Red-wing. Blackbird (41)	Ring-billed Gull (53)	Ring-billed Gull (55)
Red-wing. Blackbird (41)	Yellow-rumped Warbler (26)	American Crow (25)	Red-wing. Blackbird (51)	Red-wing. Blackbird (44)
Cliff Swallow (38)	American Crow (15)	Cedar Waxwing (20)	American Crow (27)	Yellow Warbler (15)
Tree Swallow (18)	Ring-billed Gull (14)	Tennessee Warbler (18)	Yellow Warbler (20)	Song Sparrow (13)
American Goldfinch (14)	Cedar Waxwing (13)	Yellow Warbler (16)	Cliff Swallow (15)	Tennessee Warbler (13)
American Crow (13)	Yellow Warbler (12)	American Goldfinch (13)	Baltimore Oriole (15)	Baltimore Oriole (12)
Yellow Warbler (13)	Baltimore Oriole (11)	Common Grackle (11)	Common Grackle (14)	Common Yellowthroat (12)
Cedar Waxwing (13)	Canada Goose (10)	Tree Swallow (10)	Black-cap. Chickadee (12)	American Goldfinch (11)
Canada Goose (8)	Tree Swallow (9)	Baltimore Oriole (10)	Canada Goose (11)	American Crow (11)
Common Grackle (8)	American Goldfinch (9)	Ring-billed Gull (9)	American Goldfinch (10)	Magnolia Warbler (10)

Banding, Spring Week 9 (May 23 - 29):

2005	2006	2007	2008	2009
American Goldfinch (20)	Red-wing. Blackbird (21)	Blackpoll Warbler (34)	Red-wing. Blackbird (21)	Tennessee Warbler (44)
Yellow-rumped Warbler (11)	Common Yellowthroat (13)	Red-wing. Blackbird (12)	Wilson's Warbler (19)	Blackpoll Warbler (25)
Common Yellowthroat (9)	Yellow Warbler (13)	Cedar Waxwing (10)	Blackpoll Warbler (17)	American Goldfinch (18)
Yellow Warbler (9)	Wilson's Warbler (12)	Northern Waterthrush (9)	Cedar Waxwing (11)	Magnolia Warbler (12)
American Robin (6)	Magnolia Warbler (11)	Gray Catbird (8)	Magnolia Warbler (11)	Cedar Waxwing (10)
Baltimore Oriole (6)	American Goldfinch (9)	American Goldfinch (8)	Common Yellowthroat (10)	Wilson's Warbler (9)
Red-wing. Blackbird (5)	Cedar Waxwing (8)	Yellow Warbler (7)	Yellow Warbler (9)	Traill's Flycatcher (8)
American Redstart (4)	Northern Waterthrush (4)	Yellow-rumped Warbler (7)	Yellow-rumped Warbler (9)	Northern Waterthrush (7)
Common Grackle (4)	Common Grackle (4)	Wilson's Warbler (7)	Northern Waterthrush (8)	Yellow-rumped Warbler (6)
		Baltimore Oriole (7)	American Goldfinch (8)	Common Yellowthroat (4)
				Common Grackle (4)

2010	2011	2012	2013	2014
Cedar Waxwing (23)	Tennessee Warbler (46)	Cedar Waxwing (38)	Northern Waterthrush (14)	Tennessee Warbler (100)
American Goldfinch (13)	Blackpoll Warbler (31)	Tennessee Warbler (30)	Magnolia Warbler (14)	Traill's Flycatcher (25)
Red-wing. Blackbird (8)	Cedar Waxwing (24)	Wilson's Warbler (16)	Blackpoll Warbler (14)	Cedar Waxwing (24)
Baltimore Oriole (6)	Traill's Flycatcher (17)	American Goldfinch (14)	Tennessee Warbler (11)	Wilson's Warbler (24)
Traill's Flycatcher (5)	Northern Waterthrush (15)	Magnolia Warbler (13)	Traill's Flycatcher (10)	Magnolia Warbler (21)
Gray Catbird (4)	Yellow Warbler (13)	American Redstart (12)	Wilson's Warbler (9)	Northern Waterthrush (13)
Common Yellowthroat (4)	Magnolia Warbler (12)	Traill's Flycatcher (11)	Common Yellowthroat (7)	Red-wing. Blackbird (11)
Yellow Warbler (4)	Wilson's Warbler (8)	Blackpoll Warbler (9)	Gray Catbird (6)	Common Yellowthroat (10)
Blackpoll Warbler (4)	Common Yellowthroat (7)	Gray Catbird (6)	Cedar Waxwing (6)	Blackpoll Warbler (9)
Song Sparrow (4)	Canada Warbler (7)	Northern Waterthrush (6)	Yellow Warbler (6)	Common Grackle (9)
	American Goldfinch (7)			

Observations, Spring Week 9 (May 23 - 29):

2005	2006	2007	2008	2009
Ring-billed Gull (33)	Ring-billed Gull (43)	Red-wing. Blackbird (49)	Red-wing. Blackbird (41)	Ring-billed Gull (41)
Red-wing. Blackbird (23)	Red-wing. Blackbird (38)	Tree Swallow (22)	Cliff Swallow (32)	Red-wing. Blackbird (28)
Tree Swallow (18)	Canada Goose (32)	American Crow (21)	Ring-billed Gull (18)	Cliff Swallow (21)
Yellow Warbler (15)	Mallard (26)	Wood Duck (17)	Yellow Warbler (17)	American Crow (19)
American Goldfinch (13)	American Crow (23)	Yellow Warbler (15)	Tree Swallow (14)	American Goldfinch (13)
Song Sparrow (12)	American Goldfinch (21)	Cliff Swallow (13)	American Crow (14)	Tree Swallow (13)
American Crow (11)	Yellow Warbler (21)	American Goldfinch (13)	Canada Goose (13)	Yellow Warbler (12)
Cedar Waxwing (8)	Cedar Waxwing (15)	Canada Goose (11)	American Goldfinch (10)	Cedar Waxwing (11)
Common Yellowthroat (8)	Tree Swallow (14)	Common Grackle (9)	Cedar Waxwing (9)	Blackpoll Warbler (11)
Baltimore Oriole (8)	Song Sparrow (11)	Cedar Waxwing (9)	Common Grackle (8)	Common Grackle (9)
		Blackpoll Warbler (9)		
		Baltimore Oriole (9)		

2010	2011	2012	2013	2014
Cliff Swallow (33)	Red-wing. Blackbird (39)	Red-wing. Blackbird (32)	Red-wing. Blackbird (34)	Ring-billed Gull (129)
Red-wing. Blackbird (23)	Cedar Waxwing (25)	Cedar Waxwing (23)	American Crow (18)	Red-wing. Blackbird (34)
Cedar Waxwing (16)	Tree Swallow (20)	American Crow (18)	Yellow Warbler (13)	Cedar Waxwing (34)
American Crow (15)	Ring-billed Gull (17)	Yellow Warbler (12)	Tennessee Warbler (8)	American Crow (29)
Tree Swallow (14)	Cliff Swallow (16)	American Goldfinch (11)	Common Yellowthroat (8)	Tennessee Warbler (28)
American Goldfinch (12)	Blackpoll Warbler (15)	Tennessee Warbler (10)	Song Sparrow (8)	Yellow Warbler (13)
Ring-billed Gull (11)	American Crow (15)	Tree Swallow (9)	Baltimore Oriole (8)	Song Sparrow (12)
Yellow Warbler (9)	Yellow Warbler (15)	Ring-billed Gull (9)	Cliff Swallow (7)	American Goldfinch (11)
Mallard (8)	Tennessee Warbler (14)	Baltimore Oriole (8)	Blackpoll Warbler (7)	Common Grackle (11)
Baltimore Oriole (8)	American Goldfinch (11)	Common Grackle (8)	American Goldfinch (6)	Common Yellowthroat (10)

Banding, Spring Week 10 (May 30 - June 5):

2005	2006	2007	2008	2009
Cedar Waxwing (14)	Cedar Waxwing (6)	Blackpoll Warbler (10)	Cedar Waxwing (17)	Blackpoll Warbler (7)
American Goldfinch (12)	Red-wing. Blackbird (4)	Cedar Waxwing (7)	Blackpoll Warbler (7)	Traill's Flycatcher (4)
Common Grackle (4)	Traill's Flycatcher (2)	Red-wing. Blackbird (6)	Red-wing. Blackbird (7)	Wilson's Warbler (4)
Traill's Flycatcher (3)	Black-cap. Chickadee (2)	Common Yellowthroat (3)	Traill's Flycatcher (6)	Red-eyed Vireo (2)
Gray Catbird (2)	Blackpoll Warbler (2)	Magnolia Warbler (3)	Wilson's Warbler (4)	Cedar Waxwing (2)
Wilson's Warbler (2)	White-thr. Sparrow (2)	American Goldfinch (3)	Tennessee Warbler (3)	Tennessee Warbler (2)
Chipping Sparrow (2)		Traill's Flycatcher (2)	American Robin (2)	Common Yellowthroat (2)
Baltimore Oriole (2)		Northern Waterthrush (2)	Common Grackle (2)	Magnolia Warbler (2)
				American Goldfinch (2)

2010	2011	2012	2013	2014
Cedar Waxwing (8)	Cedar Waxwing (7)	Cedar Waxwing (29)	Traill's Flycatcher (4)	Tennessee Warbler (16)
Red-wing. Blackbird (4)	Blackpoll Warbler (5)	Blackpoll Warbler (7)	Wilson's Warbler (4)	Cedar Waxwing (11)
Yellow Warbler (3)	Northern Waterthrush (3)	Traill's Flycatcher (4)	Gray Catbird (2)	Common Grackle (10)
Tree Swallow (2)	Common Grackle (3)	Wilson's Warbler (4)	Song Sparrow (2)	Traill's Flycatcher (7)
Magnolia Warbler (2)	Traill's Flycatcher (2)	Red-wing. Blackbird (4)	Indigo Bunting (2)	American Goldfinch (7)
Baltimore Oriole (2)	Gray Catbird (2)	Least Flycatcher (2)	Baltimore Oriole (2)	Magnolia Warbler (3)
	Yellow Warbler (2)	Gray Catbird (2)		Wilson's Warbler (3)
	Wilson's Warbler (2)	Yellow Warbler (2)		
	Red-wing. Blackbird (2)	Chest.-sided Warbler (2)		

Observations, Spring Week 10 (May 30 - June 5):

2005	2006	2007	2008	2009
Red-wing. Blackbird (25)	Red-wing. Blackbird (26)	Red-wing. Blackbird (35)	Red-wing. Blackbird (36)	Red-wing. Blackbird (28)
Yellow Warbler (19)	Mallard (16)	American Crow (20)	American Crow (14)	Ring-billed Gull (14)
Ring-billed Gull (19)	Canada Goose (15)	Tree Swallow (16)	American Goldfinch (12)	American Crow (13)
Tree Swallow (17)	Yellow Warbler (15)	American Goldfinch (10)	Tree Swallow (12)	Tree Swallow (9)
American Crow (16)	Cedar Waxwing (13)	Cedar Waxwing (9)	Cedar Waxwing (11)	Yellow Warbler (9)
American Goldfinch (16)	American Goldfinch (13)	Yellow Warbler (9)	Yellow Warbler (10)	Cliff Swallow (8)
Song Sparrow (13)	Tree Swallow (10)	Common Yellowthroat (6)	Ring-billed Gull (9)	Cedar Waxwing (7)
Cedar Waxwing (12)	Song Sparrow (10)	Cliff Swallow (6)	Cliff Swallow (9)	Song Sparrow (7)
Common Grackle (8)	Ring-billed Gull (10)	Song Sparrow (6)	Song Sparrow (9)	American Goldfinch (6)
Baltimore Oriole (8)	American Crow (9)	Wood Duck (5)	European Starling (8)	Black-cap. Chickadee (5)

2010	2011	2012	2013	2014
Red-wing. Blackbird (22)	Canada Goose (36)	Red-wing. Blackbird (32)	Red-wing. Blackbird (32)	Ring-billed Gull (39)
Cedar Waxwing (13)	Red-wing. Blackbird (32)	Cedar Waxwing (17)	Cedar Waxwing (19)	Red-wing. Blackbird (29)
Tree Swallow (10)	Cedar Waxwing (26)	American Crow (15)	Yellow Warbler (13)	Cedar Waxwing (28)
Ring-billed Gull (9)	Ring-billed Gull (25)	Tree Swallow (8)	Cliff Swallow (12)	Song Sparrow (11)
American Crow (8)	American Crow (19)	Yellow Warbler (8)	American Crow (9)	Yellow Warbler (10)
Yellow Warbler (7)	Yellow Warbler (10)	Song Sparrow (8)	Blue Jay (9)	American Crow (10)
Song Sparrow (7)	Common Grackle (9)	Canada Goose (8)	Song Sparrow (8)	Cliff Swallow (10)
Baltimore Oriole (7)	Cliff Swallow (8)	Black-cap. Chickadee (8)	Baltimore Oriole (7)	Tennessee Warbler (9)
American Goldfinch (7)	Tree Swallow (7)	American Goldfinch (7)	Common Yellowthroat (7)	Common Grackle (8)
Cliff Swallow (5)	Common Yellowthroat (7)	House Wren (6)	Common Grackle (6)	American Goldfinch (8)
	Baltimore Oriole (7)		American Goldfinch (6)	

Bandings, Spring Season (March 28 - June 5):

2005	2006	2007	2008	2009
American Goldfinch (111)	Red-wing. Blackbird (169)	Red-wing. Blackbird (155)	Red-wing. Blackbird (114)	Tennessee Warbler (82)
Red-wing. Blackbird (73)	Common Grackle (59)	Ruby-cr. Kinglet (52)	Ruby-cr. Kinglet (92)	Ruby-cr. Kinglet (73)
Cedar Waxwing (59)	Ruby-cr. Kinglet (58)	American Goldfinch (51)	White-thr. Sparrow (79)	Red-wing. Blackbird (50)
Yellow Warbler (47)	Dark-eyed Junco (48)	Blackpoll Warbler (47)	Yellow-rumped Warbler (47)	American Goldfinch (47)
Song Sparrow (30)	White-thr. Sparrow (42)	Yellow-rumped Warbler (32)	American Goldfinch (41)	Yellow Warbler (43)
White-thr. Sparrow (29)	American Goldfinch (32)	Yellow Warbler (29)	Yellow Warbler (36)	Magnolia Warbler (41)
Yellow-rumped Warbler (25)	Common Yellowthroat (25)	Common Grackle (18)	White-cr. Sparrow (30)	Blackpoll Warbler (39)
Common Yellowthroat (22)	Magnolia Warbler (22)	Baltimore Oriole (18)	Cedar Waxwing (29)	Yellow-rumped Warbler (37)
Ruby-cr. Kinglet (20)	Yellow-rumped Warbler (22)	Cedar Waxwing (17)	Common Yellowthroat (25)	White-thr. Sparrow (34)
Common Grackle (20)	Yellow Warbler (21)	Magnolia Warbler (17)	Blackpoll Warbler (24)	Common Yellowthroat (28)
			Wilson's Warbler (24)	Wilson's Warbler (28)

2010	2011	2012	2013	2014
Red-wing. Blackbird (85)	Yellow-rumped Warbler (102)	Red-wing. Blackbird (116)	Red-wing. Blackbird (83)	Cedar Waxwing (232)
Cedar Waxwing (72)	Tennessee Warbler (71)	Tennessee Warbler (94)	Magnolia Warbler (66)	Tennessee Warbler (142)
American Goldfinch (45)	Red-wing. Blackbird (70)	Cedar Waxwing (77)	Tennessee Warbler (49)	Magnolia Warbler (82)
Ruby-cr. Kinglet (36)	White-thr. Sparrow (51)	White-thr. Sparrow (57)	Northern Waterthrush (43)	Ruby-cr. Kinglet (71)
Yellow-rumped Warbler (30)	Cedar Waxwing (50)	Ruby-cr. Kinglet (54)	Yellow Warbler (43)	Red-wing. Blackbird (63)
Song Sparrow (27)	Blackpoll Warbler (45)	American Goldfinch (51)	Fox Sparrow (42)	American Goldfinch (60)
Yellow Warbler (26)	Ruby-cr. Kinglet (43)	Yellow-rumped Warbler (46)	White-thr. Sparrow (40)	Yellow-rumped Warbler (56)
White-thr. Sparrow (22)	Dark-eyed Junco (36)	Magnolia Warbler (39)	Ruby-cr. Kinglet (39)	Northern Waterthrush (48)
White-cr. Sparrow (21)	American Robin (30)	Yellow Warbler (37)	Swamp Sparrow (26)	American Robin (44)
American Robin (17)	Common Yellowthroat (30)	Northern Waterthrush (28)	Common Yellowthroat (23)	Common Yellowthroat (40)
Common Yellowthroat (17)	Yellow Warbler (30)		Yellow-rumped Warbler (23)	White-thr. Sparrow (40)

Observations, Spring Season (March 28 - June 5):

2005	2006	2007	2008	2009
Canada Goose (83)	Canada Goose (401)	Canada Goose (237)	Canada Goose (190)	Canada Goose (119)
Red-wing. Blackbird (25)	Snow Goose (64)	Snow Goose (88)	Snow Goose (47)	Snow Goose (48)
Cedar Waxwing (20)	Ring-billed Gull (52)	Red-wing. Blackbird (62)	Red-wing. Blackbird (46)	Red-wing. Blackbird (34)
Ring-billed Gull (20)	Red-wing. Blackbird (44)	American Crow (23)	Ring-billed Gull (19)	Ring-billed Gull (25)
Song Sparrow (14)	American Crow (26)	Ring-billed Gull (15)	American Crow (17)	American Crow (17)
Tree Swallow (14)	Mallard (17)	Tree Swallow (14)	Cliff Swallow (11)	American Robin (11)
American Crow (14)	Song Sparrow (14)	Song Sparrow (11)	Song Sparrow (10)	Song Sparrow (10)
American Goldfinch (11)	Common Grackle (13)	American Goldfinch (11)	Tree Swallow (10)	Cliff Swallow (10)
American Robin (8)	American Robin (13)	American Robin (10)	Common Grackle (8)	Tree Swallow (9)
Black-cap. Chickadee (8)	American Goldfinch (12)	Black-cap. Chickadee (9)	American Goldfinch (8)	Black-cap. Chickadee (8)

2010	2011	2012	2013	2014
Canada Goose (77)	Canada Goose (157)	Canada Goose (112)	Canada Goose (126)	Canada Goose (116)
Red-wing. Blackbird (37)	Snow Goose (56)	Red-wing. Blackbird (49)	Red-wing. Blackbird (48)	Red-wing. Blackbird (44)
American Crow (19)	Red-wing. Blackbird (43)	American Crow (25)	Ring-billed Gull (23)	Cedar Waxwing (44)
Cedar Waxwing (17)	American Crow (18)	Ring-billed Gull (15)	American Crow (15)	Ring-billed Gull (42)
Ring-billed Gull (13)	Cedar Waxwing (17)	American Robin (14)	Black-cap. Chickadee (12)	American Robin (15)
Cliff Swallow (12)	Ring-billed Gull (16)	Black-cap. Chickadee (13)	Song Sparrow (11)	Song Sparrow (13)
Tree Swallow (11)	Bohemian Waxwing (12)	Song Sparrow (11)	Snow Goose (10)	American Crow (11)
Black-cap. Chickadee (10)	Black-cap. Chickadee (12)	Mallard (10)	Blue Jay (7)	Black-cap. Chickadee (10)
American Goldfinch (9)	Dark-eyed Junco (11)	Cedar Waxwing (10)	American Robin (7)	American Goldfinch (7)
Song Sparrow (9)	American Robin (10)	Wood Duck (10)	Common Grackle (7)	Snow Goose (6)

Banding, Fall Week 1 (August 1 - 7):

2005	2006	2007	2008	2009
Song Sparrow (17)	Song Sparrow (34)	Song Sparrow (57)	Yellow Warbler (24)	Yellow Warbler (25)
Black-cap. Chickadee (9)	Yellow Warbler (23)	Yellow Warbler (27)	Song Sparrow (21)	Song Sparrow (25)
Yellow Warbler (6)	Baltimore Oriole (14)	Baltimore Oriole (17)	Baltimore Oriole (16)	Rose-breast. Grosbeak (16)
American Robin (4)	Gray Catbird (8)	Rose-breast. Grosbeak (14)	Rose-breast. Grosbeak (15)	American Redstart (15)
Gray Catbird (4)	Rose-breast. Grosbeak (8)	House Wren (11)	Gray Catbird (12)	House Wren (13)
Swamp Sparrow (4)	Black-cap. Chickadee (6)	Swamp Sparrow (10)	Traill's Flycatcher (10)	Cedar Waxwing (12)
Tennessee Warbler (3)	Downy Woodpecker (5)	American Redstart (9)	Black-cap. Chickadee (9)	American Robin (11)
White-thr. Sparrow (3)	Traill's Flycatcher (5)	Black-cap. Chickadee (7)	Tennessee Warbler (9)	White-thr. Sparrow (11)
	Tennessee Warbler (5)	Nashville Warbler (7)	White-thr. Sparrow (8)	Red-eyed Vireo (10)
	House Wren (4)	Cedar Waxwing (6)	Common Yellowthroat (7)	Gray Catbird (10)
	American Robin (4)	Common Yellowthroat (6)		
	Cedar Waxwing (4)			
	Ovenbird (4)			
	Swamp Sparrow (4)			
	White-thr. Sparrow (4)			

2010	2011	2012	2013	2014
Song Sparrow (34)	Yellow Warbler (52)	Song Sparrow (56)	Song Sparrow (95)	American Redstart (29)
Yellow Warbler (29)	Song Sparrow (31)	Yellow Warbler (31)	Cedar Waxwing (56)	Song Sparrow (26)
American Redstart (22)	American Redstart (20)	Common Yellowthroat (28)	Yellow Warbler (19)	Gray Catbird (18)
American Robin (17)	Cedar Waxwing (14)	American Redstart (23)	Gray Catbird (13)	Red-eyed Vireo (16)
Cedar Waxwing (15)	Nashville Warbler (12)	Red-eyed Vireo (13)	American Redstart (10)	Black-cap. Chickadee (11)
Black-cap. Chickadee (13)	Black-cap. Chickadee (10)	Cedar Waxwing (13)	Red-eyed Vireo (9)	American Robin (8)
Rose-breast. Grosbeak (13)	American Robin (9)	White-thr. Sparrow (11)	Black-cap. Chickadee (8)	Northern Waterthrush (7)
Red-eyed Vireo (12)	Common Yellowthroat (9)	Black-cap. Chickadee (10)	Common Yellowthroat (8)	Tennessee Warbler (7)
Common Yellowthroat (11)	Tennessee Warbler (8)	Gray Catbird (10)	Rose-breast. Grosbeak (8)	Yellow Warbler (7)
Tennessee Warbler (10)	Blk-thr. Blue Warbler (8)	Baltimore Oriole (8)	Downy Woodpecker (6)	Rose-breast. Grosbeak (7)
	Baltimore Oriole (8)		American Robin (6)	
			Swamp Sparrow (6)	

Observations, Fall Week 1 (August 1 - 7):

2005	2006	2007	2008	2009
Song Sparrow (21)	Red-wing. Blackbird (120)	Red-wing. Blackbird (71)	American Goldfinch (17)	Common Grackle (42)
Black-cap. Chickadee (18)	Song Sparrow (35)	Song Sparrow (25)	American Robin (16)	Black-cap. Chickadee (14)
American Goldfinch (15)	American Goldfinch (20)	American Goldfinch (23)	Red-wing. Blackbird (15)	American Robin (14)
Red-wing. Blackbird (10)	Cedar Waxwing (18)	Common Grackle (19)	Song Sparrow (14)	Cedar Waxwing (13)
American Robin (10)	Black-cap. Chickadee (15)	Black-cap. Chickadee (16)	American Crow (13)	Song Sparrow (12)
Yellow Warbler (8)	American Robin (13)	Cedar Waxwing (14)	Black-cap. Chickadee (11)	American Goldfinch (12)
Cedar Waxwing (6)	Common Grackle (13)	American Crow (13)	Common Grackle (9)	House Wren (8)
American Crow (5)	American Crow (12)	American Robin (11)	Cedar Waxwing (9)	Yellow Warbler (7)
Blue Jay (4)	Yellow Warbler (10)	Yellow Warbler (8)	Gray Catbird (7)	Red-wing. Blackbird (6)
Common Grackle (4)	European Starling (10)	Baltimore Oriole (8)	Blue Jay (7)	Gray Catbird (6)

2010	2011	2012	2013	2014
Cedar Waxwing (25)	Red-wing. Blackbird (27)	American Crow (21)	Cedar Waxwing (37)	American Robin (27)
American Robin (22)	Cedar Waxwing (24)	American Goldfinch (21)	Song Sparrow (37)	Black-cap. Chickadee (20)
Black-cap. Chickadee (19)	Yellow Warbler (18)	Cedar Waxwing (20)	American Robin (29)	American Goldfinch (16)
Song Sparrow (16)	Black-cap. Chickadee (18)	American Robin (18)	American Crow (21)	Song Sparrow (16)
Common Grackle (13)	American Robin (17)	Black-cap. Chickadee (16)	American Goldfinch (18)	Common Grackle (13)
American Crow (12)	Song Sparrow (14)	Song Sparrow (13)	Black-cap. Chickadee (16)	Blue Jay (12)
American Goldfinch (9)	Common Grackle (14)	Red-wing. Blackbird (13)	Blue Jay (10)	Cedar Waxwing (11)
Red-wing. Blackbird (9)	American Goldfinch (13)	Yellow Warbler (11)	Common Grackle (9)	American Crow (11)
Indigo Bunting (8)	American Crow (12)	Common Yellowthroat (10)	Gray Catbird (7)	Red-wing. Blackbird (9)
Yellow Warbler (7)	Common Yellowthroat (8)	Common Grackle (7)	Red-wing. Blackbird (7)	American Redstart (8)

Banding, Fall Week 2 (August 8 - 14):

2005	2006	2007	2008	2009
Yellow Warbler (19)	Song Sparrow (78)	Song Sparrow (20)	American Redstart (21)	Song Sparrow (32)
Nashville Warbler (18)	Baltimore Oriole (25)	American Redstart (15)	Baltimore Oriole (14)	Yellow Warbler (18)
Song Sparrow (17)	Rose-breast. Grosbeak (17)	Traill's Flycatcher (10)	Traill's Flycatcher (13)	Gray Catbird (11)
American Redstart (13)	Yellow Warbler (14)	Downy Woodpecker (9)	Red-eyed Vireo (12)	White-thr. Sparrow (11)
Indigo Bunting (13)	Cedar Waxwing (6)	Yellow Warbler (9)	Song Sparrow (12)	American Redstart (10)
Rose-breast. Grosbeak (11)	Ovenbird (6)	Red-eyed Vireo (8)	Canada Warbler (10)	Traill's Flycatcher (8)
Red-eyed Vireo (7)	American Redstart (6)	Black-cap. Chickadee (7)	Rose-breast. Grosbeak (8)	Common Yellowthroat (5)
Tennessee Warbler (7)	Canada Warbler (6)	Gray Catbird (7)	Black-cap. Chickadee (7)	Rose-breast. Grosbeak (5)
Gray Catbird (6)	Traill's Flycatcher (4)	Cedar Waxwing (5)	Ovenbird (7)	Red-eyed Vireo (4)
Swamp Sparrow (6)	Northern Waterthrush (4)	Nashville Warbler (5)	Yellow-bel. Flycatcher (6)	House Wren (4)
White-thr. Sparrow (6)	Chest.-sided Warbler (4)	Common Yellowthroat (5)	American Robin (6)	Chest.-sided Warbler (4)
Baltimore Oriole (6)	Indigo Bunting (4)			

2010	2011	2012	2013	2014
Song Sparrow (49)	American Redstart (22)	American Redstart (39)	Song Sparrow (33)	American Redstart (38)
Common Yellowthroat (14)	Song Sparrow (16)	Song Sparrow (37)	American Redstart (22)	Song Sparrow (20)
American Redstart (14)	Yellow Warbler (15)	Traill's Flycatcher (15)	Cedar Waxwing (10)	Gray Catbird (15)
Yellow Warbler (10)	Common Yellowthroat (10)	Baltimore Oriole (11)	Black-cap. Chickadee (9)	American Robin (8)
Red-eyed Vireo (9)	Cedar Waxwing (7)	Cedar Waxwing (10)	Common Yellowthroat (9)	Red-eyed Vireo (6)
Indigo Bunting (8)	Ovenbird (6)	Common Yellowthroat (10)	Ovenbird (8)	Black-cap. Chickadee (6)
Cedar Waxwing (7)	Tennessee Warbler (6)	Red-eyed Vireo (9)	Traill's Flycatcher (7)	Cedar Waxwing (6)
Tennessee Warbler (6)	Traill's Flycatcher (5)	Swainson's Thrush (9)	Red-eyed Vireo (7)	Tennessee Warbler (6)
Downy Woodpecker (5)	Baltimore Oriole (5)	Yellow Warbler (9)	Rose-breast. Grosbeak (7)	Common Yellowthroat (6)
Traill's Flycatcher (5)	Red-eyed Vireo (4)	Gray Catbird (8)	Canada Warbler (5)	White-thr. Sparrow (6)
Black-cap. Chickadee (5)	Black-cap. Chickadee (4)			Rose-breast. Grosbeak (6)
Veery (5)	Rose-breast. Grosbeak (4)			
Ovenbird (5)				

Observations, Fall Week 2 (August 8 - 14):

2005	2006	2007	2008	2009
American Crow (27)	Song Sparrow (47)	American Crow (26)	Common Grackle (23)	Common Grackle (18)
Red-wing. Blackbird (26)	Red-wing. Blackbird (35)	American Goldfinch (23)	American Crow (17)	American Crow (17)
Black-cap. Chickadee (18)	American Goldfinch (22)	Cedar Waxwing (18)	Black-cap. Chickadee (15)	Black-cap. Chickadee (16)
American Goldfinch (15)	American Crow (22)	Song Sparrow (18)	American Goldfinch (15)	American Goldfinch (13)
Song Sparrow (13)	American Robin (18)	American Robin (15)	Cedar Waxwing (14)	Song Sparrow (13)
American Robin (10)	Cedar Waxwing (17)	Black-cap. Chickadee (15)	Blue Jay (12)	Cedar Waxwing (11)
Blue Jay (7)	Baltimore Oriole (16)	Common Grackle (14)	American Robin (11)	Canada Goose (9)
Yellow Warbler (6)	Black-cap. Chickadee (16)	Red-wing. Blackbird (11)	Song Sparrow (9)	American Robin (9)
Nashville Warbler (6)	Blue Jay (11)	Ring-billed Gull (7)	Canada Goose (7)	House Wren (8)
Ruby-th. Hummingbird (5)	Common Grackle (10)	Gray Catbird (6)	Gray Catbird (6)	Gray Catbird (8)

2010	2011	2012	2013	2014
American Crow (20)	Red-wing. Blackbird (31)	Common Grackle (69)	Cedar Waxwing (30)	American Robin (22)
Black-cap. Chickadee (18)	Cedar Waxwing (24)	American Goldfinch (24)	Song Sparrow (22)	Cedar Waxwing (16)
Song Sparrow (13)	Black-cap. Chickadee (18)	Cedar Waxwing (22)	Black-cap. Chickadee (20)	Common Grackle (16)
American Goldfinch (12)	American Crow (17)	Song Sparrow (18)	American Goldfinch (18)	American Goldfinch (16)
Cedar Waxwing (10)	American Robin (16)	Black-cap. Chickadee (17)	American Robin (14)	Black-cap. Chickadee (14)
Common Grackle (8)	Song Sparrow (13)	American Crow (16)	American Crow (13)	Blue Jay (11)
American Robin (8)	American Goldfinch (12)	American Robin (15)	Blue Jay (7)	American Redstart (10)
Gray Catbird (6)	Yellow Warbler (10)	Canada Goose (12)	American Redstart (7)	Song Sparrow (10)
Northern Cardinal (6)	Common Grackle (9)	European Starling (10)	Northern Cardinal (7)	Red-eyed Vireo (8)
Indigo Bunting (6)	Common Yellowthroat (7)	Baltimore Oriole (7)	Gray Catbird (5)	Red-wing. Blackbird (7)

Banding, Fall Week 3 (August 15 - 21):

2005	2006	2007	2008	2009
Song Sparrow (23)	Song Sparrow (49)	American Redstart (12)	American Redstart (22)	Song Sparrow (37)
American Redstart (7)	Baltimore Oriole (18)	Song Sparrow (9)	Magnolia Warbler (12)	American Redstart (20)
Magnolia Warbler (7)	Magnolia Warbler (12)	Common Yellowthroat (8)	Song Sparrow (11)	Blk-and-white Warbler (10)
Yellow Warbler (7)	Ovenbird (8)	Rose-breast. Grosbeak (8)	Chest.-sided Warbler (10)	Common Yellowthroat (10)
Baltimore Oriole (7)	Nashville Warbler (7)	Yellow Warbler (6)	Common Yellowthroat (9)	Red-eyed Vireo (9)
Canada Warbler (6)	American Redstart (6)	Red-eyed Vireo (5)	Canada Warbler (9)	Gray Catbird (9)
Rose-breast. Grosbeak (6)	Common Yellowthroat (5)	Mourning Warbler (5)	Baltimore Oriole (9)	Traill's Flycatcher (8)
Traill's Flycatcher (5)	Traill's Flycatcher (4)	Black-cap. Chickadee (4)	Ovenbird (7)	Yellow Warbler (7)
Black-cap. Chickadee (5)	House Wren (4)	House Wren (4)	Yellow Warbler (7)	Rose-breast. Grosbeak (7)
Nashville Warbler (5)	Gray Catbird (4)	Swainson's Thrush (4)	Nashville Warbler (6)	American Goldfinch (7)
	Yellow Warbler (4)	Nashville Warbler (4)		
	Canada Warbler (4)			

2010	2011	2012	2013	2014
American Redstart (41)	American Redstart (25)	Common Yellowthroat (21)	American Redstart (29)	American Redstart (13)
Magnolia Warbler (37)	Song Sparrow (22)	American Redstart (19)	Song Sparrow (22)	Tennessee Warbler (9)
Song Sparrow (27)	Common Yellowthroat (10)	Song Sparrow (14)	Baltimore Oriole (10)	Magnolia Warbler (9)
Canada Warbler (16)	Traill's Flycatcher (7)	Magnolia Warbler (12)	Tennessee Warbler (8)	Ovenbird (8)
Chest.-sided Warbler (13)	Cedar Waxwing (6)	Red-eyed Vireo (8)	Common Yellowthroat (8)	Song Sparrow (8)
Blk-and-white Warbler (12)	Ovenbird (6)	Northern Waterthrush (6)	Cedar Waxwing (7)	American Robin (7)
Common Yellowthroat (12)	Yellow-bel. Flycatcher (5)	Mourning Warbler (6)	Canada Warbler (7)	Gray Catbird (7)
Indigo Bunting (12)	Tennessee Warbler (5)	Swainson's Thrush (5)	Traill's Flycatcher (6)	Red-eyed Vireo (6)
Tennessee Warbler (11)	Yellow Warbler (5)	Tennessee Warbler (5)	Yellow Warbler (6)	Northern Waterthrush (6)
Ovenbird (8)	Black-cap. Chickadee (4)	Black-cap. Chickadee (4)	Rose-breast. Grosbeak (6)	Common Yellowthroat (6)
	Blk-and-white Warbler (4)	Veery (4)		
	Nashville Warbler (4)	Gray Catbird (4)		
	Magnolia Warbler (4)	Ovenbird (4)		

Observations, Fall Week 3 (August 15 - 21):

2005	2006	2007	2008	2009
American Crow (42)	Song Sparrow (41)	American Crow (54)	American Crow (20)	Black-cap. Chickadee (17)
Black-cap. Chickadee (15)	American Crow (27)	American Goldfinch (24)	Common Grackle (19)	Cedar Waxwing (16)
Song Sparrow (14)	American Goldfinch (18)	Black-cap. Chickadee (17)	Black-cap. Chickadee (16)	American Goldfinch (16)
American Goldfinch (13)	Bobolink (15)	Tree Swallow (11)	American Goldfinch (15)	Red-wing. Blackbird (12)
Common Grackle (11)	Cedar Waxwing (15)	Common Grackle (10)	American Robin (13)	Song Sparrow (12)
American Robin (9)	American Robin (13)	Song Sparrow (10)	Cedar Waxwing (12)	American Crow (11)
Red-wing. Blackbird (8)	Black-cap. Chickadee (11)	American Robin (9)	Blue Jay (8)	American Robin (8)
Blue Jay (6)	Baltimore Oriole (11)	Gray Catbird (8)	Song Sparrow (7)	House Wren (8)
Gray Catbird (5)	Blue Jay (10)	Cedar Waxwing (8)	Ruby-th. Hummingbird (6)	Common Grackle (7)
Baltimore Oriole (4)	Common Grackle (10)	Ring-billed Gull (7)	Common Yellowthroat (6)	Ring-billed Gull (6)
				Gray Catbird (6)

2010	2011	2012	2013	2014
American Crow (24)	Cedar Waxwing (29)	Common Grackle (186)	Cedar Waxwing (41)	Common Grackle (36)
Common Grackle (24)	Black-cap. Chickadee (28)	Canada Goose (46)	American Goldfinch (31)	American Robin (28)
Black-cap. Chickadee (18)	Song Sparrow (17)	Cedar Waxwing (26)	Black-cap. Chickadee (21)	American Goldfinch (19)
American Goldfinch (13)	American Crow (17)	American Goldfinch (22)	Song Sparrow (19)	American Crow (17)
Cedar Waxwing (12)	American Robin (13)	American Robin (21)	American Crow (18)	Tree Swallow (17)
American Redstart (11)	American Goldfinch (12)	American Crow (17)	American Robin (15)	Cedar Waxwing (15)
Song Sparrow (10)	American Redstart (11)	Black-cap. Chickadee (17)	Canada Goose (15)	Red-wing. Blackbird (14)
Blue Jay (7)	Common Yellowthroat (10)	Song Sparrow (13)	Blue Jay (10)	Black-cap. Chickadee (13)
American Robin (7)	Red-eyed Vireo (6)	Blue Jay (10)	American Redstart (9)	Blue Jay (11)
Magnolia Warbler (7)	Ruby-th. Hummingbird (6)	Baltimore Oriole (8)	Ruby-th. Hummingbird (8)	Broad-winged Hawk (11)
			Baltimore Oriole (8)	

Banding, Fall Week 4 (August 22 - 28):

2005	2006	2007	2008	2009
Magnolia Warbler (48)	Magnolia Warbler (39)	Magnolia Warbler (24)	Magnolia Warbler (19)	Song Sparrow (30)
Nashville Warbler (16)	Song Sparrow (27)	American Redstart (14)	American Redstart (17)	American Redstart (18)
Song Sparrow (13)	Northern Waterthrush (20)	Red-eyed Vireo (11)	Common Yellowthroat (14)	Common Yellowthroat (16)
Baltimore Oriole (13)	American Redstart (12)	Song Sparrow (9)	Nashville Warbler (11)	Red-eyed Vireo (14)
Common Yellowthroat (8)	Ovenbird (10)	Wilson's Warbler (8)	Song Sparrow (8)	Black-cap. Chickadee (11)
Tennessee Warbler (7)	Tennessee Warbler (10)	Least Flycatcher (6)	Tennessee Warbler (6)	Magnolia Warbler (11)
Gray Catbird (6)	Nashville Warbler (9)	House Wren (5)	Mourning Warbler (6)	Ovenbird (8)
Ovenbird (6)	Wilson's Warbler (9)	Northern Waterthrush (5)	Wilson's Warbler (6)	Blk-and-white Warbler (8)
Blk-and-white Warbler (6)	Common Yellowthroat (7)	Nashville Warbler (5)	Veery (5)	Yellow-bel. Flycatcher (7)
American Redstart (6)	American Goldfinch (7)	Trail's Flycatcher (4)	Ovenbird (5)	Cedar Waxwing (7)
Chest.-sided Warbler (6)		Common Yellowthroat (4)	Blk-thr. Blue Warbler (5)	
Rose-breast. Grosbeak (6)		Blk-thr. Blue Warbler (4)	Baltimore Oriole (5)	
		Canada Warbler (4)		

2010	2011	2012	2013	2014
Magnolia Warbler (44)	Magnolia Warbler (43)	Magnolia Warbler (36)	Tennessee Warbler (74)	Tennessee Warbler (56)
American Redstart (22)	American Redstart (31)	American Redstart (28)	Magnolia Warbler (45)	Magnolia Warbler (40)
Red-eyed Vireo (14)	Tennessee Warbler (23)	Tennessee Warbler (21)	Common Yellowthroat (19)	Northern Waterthrush (18)
Tennessee Warbler (10)	Chest.-sided Warbler (15)	Song Sparrow (16)	American Redstart (19)	Common Yellowthroat (16)
Song Sparrow (10)	Ovenbird (12)	Common Yellowthroat (15)	Northern Waterthrush (17)	Yellow-bel. Flycatcher (15)
Ovenbird (7)	Common Yellowthroat (11)	Rose-breast. Grosbeak (15)	Song Sparrow (17)	American Redstart (15)
Northern Waterthrush (7)	Nashville Warbler (10)	Red-eyed Vireo (9)	Yellow-rumped Warbler (13)	Nashville Warbler (13)
Chest.-sided Warbler (5)	Song Sparrow (9)	Ovenbird (9)	American Goldfinch (12)	Song Sparrow (13)
Wilson's Warbler (5)	Indigo Bunting (9)	Indigo Bunting (9)	Ovenbird (10)	Red-eyed Vireo (11)
Black-cap. Chickadee (4)	Black-cap. Chickadee (6)	Black-cap. Chickadee (6)	Cape May Warbler (10)	Least Flycatcher (10)
Gray Catbird (4)	Blk-thr. Blue Warbler (6)	Gray Catbird (6)	Baltimore Oriole (10)	
Common Yellowthroat (4)				
Canada Warbler (4)				
Indigo Bunting (4)				

Observations, Fall Week 4 (August 22 - 28):

2005	2006	2007	2008	2009
Common Grackle (82)	Common Grackle (49)	American Crow (85)	Common Grackle (28)	American Crow (22)
Black-cap. Chickadee (18)	American Crow (41)	American Goldfinch (23)	American Crow (26)	Black-cap. Chickadee (20)
American Crow (18)	Song Sparrow (33)	Black-cap. Chickadee (17)	Blue Jay (15)	Cedar Waxwing (20)
Magnolia Warbler (13)	American Goldfinch (22)	Cedar Waxwing (13)	Black-cap. Chickadee (15)	American Goldfinch (16)
Blue Jay (12)	Cedar Waxwing (19)	Song Sparrow (10)	American Robin (11)	Song Sparrow (11)
Song Sparrow (9)	Red-wing. Blackbird (17)	Common Grackle (9)	American Goldfinch (10)	Gray Catbird (8)
American Goldfinch (8)	Blue Jay (13)	Blue Jay (7)	Song Sparrow (8)	American Robin (8)
American Robin (7)	Black-cap. Chickadee (12)	House Wren (6)	Cedar Waxwing (7)	Red-wing. Blackbird (7)
Baltimore Oriole (6)	Bobolink (12)	Red-eyed Vireo (5)	Common Yellowthroat (6)	American Redstart (7)
Gray Catbird (5)	Magnolia Warbler (10)	American Redstart (5)	Gray Catbird (5)	Common Grackle (7)

2010	2011	2012	2013	2014
American Crow (27)	Cedar Waxwing (25)	Common Grackle (115)	Cedar Waxwing (40)	American Robin (30)
Black-cap. Chickadee (23)	Red-wing. Blackbird (19)	Canada Goose (73)	American Goldfinch (39)	American Goldfinch (25)
Common Grackle (20)	Black-cap. Chickadee (17)	Cedar Waxwing (31)	Black-cap. Chickadee (24)	American Crow (22)
American Goldfinch (14)	American Crow (17)	American Goldfinch (20)	American Robin (14)	Cedar Waxwing (21)
Magnolia Warbler (10)	Common Grackle (16)	Black-cap. Chickadee (18)	American Crow (14)	Black-cap. Chickadee (19)
American Robin (9)	American Goldfinch (14)	Blue Jay (15)	Tennessee Warbler (14)	Common Grackle (14)
Blue Jay (8)	American Robin (14)	American Robin (15)	Blue Jay (12)	Tennessee Warbler (14)
Canada Goose (7)	American Redstart (10)	Song Sparrow (14)	Song Sparrow (11)	Blue Jay (12)
American Redstart (6)	Blue Jay (8)	American Crow (11)	Common Grackle (10)	Red-eyed Vireo (9)
Gray Catbird (6)	Magnolia Warbler (8)	Red-wing. Blackbird (8)	Magnolia Warbler (9)	Magnolia Warbler (9)
Cedar Waxwing (6)				
Song Sparrow (6)				

Banding, Fall Week 5 (August 29 - September 4):

2005	2006	2007	2008	2009
Magnolia Warbler (53)	Magnolia Warbler (21)	Magnolia Warbler (19)	Magnolia Warbler (62)	Magnolia Warbler (31)
Nashville Warbler (28)	Song Sparrow (16)	American Redstart (14)	Wilson's Warbler (22)	American Redstart (26)
Red-eyed Vireo (27)	Common Yellowthroat (12)	Red-eyed Vireo (13)	Common Yellowthroat (19)	Song Sparrow (10)
American Redstart (26)	American Redstart (10)	Wilson's Warbler (9)	Blackpoll Warbler (16)	Common Yellowthroat (8)
Song Sparrow (24)	Red-eyed Vireo (8)	Common Yellowthroat (7)	American Redstart (15)	Blk-thr. Blue Warbler (8)
Common Yellowthroat (13)	Northern Waterthrush (8)	House Wren (6)	Red-eyed Vireo (14)	Yellow-bel. Flycatcher (6)
Black-cap. Chickadee (9)	Tennessee Warbler (7)	Song Sparrow (6)	Ovenbird (12)	Black-cap. Chickadee (6)
Wilson's Warbler (9)	Nashville Warbler (7)	Blk-thr. Blue Warbler (5)	Nashville Warbler (10)	Wilson's Warbler (5)
Indigo Bunting (8)	Wilson's Warbler (6)	Northern Waterthrush (4)	Northern Waterthrush (8)	Indigo Bunting (5)
Ovenbird (7)	Rose-breast. Grosbeak (5)	Blackpoll Warbler (4)	Yellow-bel. Flycatcher (7)	House Wren (4)
			Song Sparrow (7)	Gray Catbird (4)
				Cedar Waxwing (4)
				Northern Waterthrush (4)
				Canada Warbler (4)

2010	2011	2012	2013	2014
Magnolia Warbler (23)	Magnolia Warbler (79)	Magnolia Warbler (31)	Tennessee Warbler (87)	Tennessee Warbler (47)
Northern Waterthrush (17)	Tennessee Warbler (52)	Common Yellowthroat (11)	Magnolia Warbler (53)	Magnolia Warbler (40)
Tennessee Warbler (17)	American Redstart (26)	Red-eyed Vireo (10)	American Redstart (24)	Red-eyed Vireo (23)
Common Yellowthroat (17)	Nashville Warbler (22)	American Redstart (10)	Common Yellowthroat (20)	Common Yellowthroat (12)
Song Sparrow (16)	Northern Waterthrush (15)	White-thr. Sparrow (10)	Red-eyed Vireo (13)	Ovenbird (10)
Blk-thr. Blue Warbler (10)	Wilson's Warbler (15)	Purple Finch (9)	Cape May Warbler (12)	American Redstart (10)
Blk-and-white Warbler (8)	Yellow-bel. Flycatcher (8)	Northern Waterthrush (8)	American Goldfinch (9)	Blackpoll Warbler (8)
American Redstart (8)	Common Yellowthroat (8)	Tennessee Warbler (8)	Song Sparrow (8)	American Goldfinch (8)
Indigo Bunting (8)	Ovenbird (7)	Chipping Sparrow (8)	Indigo Bunting (7)	Yellow-bel. Flycatcher (7)
Red-eyed Vireo (7)	Chest.-sided Warbler (7)	Swainson's Thrush (7)	Ovenbird (6)	Veery (7)
	Indigo Bunting (7)		Nashville Warbler (6)	Gray Catbird (7)

Observations, Fall Week 5 (August 29 - September 4):

2005	2006	2007	2008	2009
Common Grackle (137)	Common Grackle (205)	American Crow (132)	Common Grackle (60)	Canada Goose (24)
American Crow (27)	American Crow (71)	American Goldfinch (20)	Canada Goose (53)	Black-cap. Chickadee (22)
Black-cap. Chickadee (21)	Song Sparrow (23)	Black-cap. Chickadee (17)	American Crow (33)	American Crow (18)
American Goldfinch (12)	American Goldfinch (19)	Cedar Waxwing (12)	Black-cap. Chickadee (20)	Cedar Waxwing (16)
Blue Jay (12)	Black-cap. Chickadee (17)	Common Grackle (10)	Magnolia Warbler (14)	American Goldfinch (12)
Magnolia Warbler (12)	Blue Jay (16)	American Robin (6)	Blue Jay (13)	Common Grackle (12)
European Starling (11)	Bobolink (9)	Blue Jay (6)	American Goldfinch (12)	American Redstart (8)
Cedar Waxwing (11)	Cedar Waxwing (8)	Song Sparrow (6)	Cedar Waxwing (10)	Blue Jay (8)
Song Sparrow (9)	White-thr. Sparrow (8)	Red-eyed Vireo (5)	Common Yellowthroat (8)	Gray Catbird (7)
Nashville Warbler (7)	Magnolia Warbler (8)	Gray Catbird (5)	American Robin (8)	Magnolia Warbler (7)

2010	2011	2012	2013	2014
Common Grackle (184)	Canada Goose (36)	Common Grackle (130)	American Goldfinch (48)	American Robin (46)
American Goldfinch (29)	Cedar Waxwing (32)	Canada Goose (28)	Cedar Waxwing (33)	American Crow (43)
Black-cap. Chickadee (27)	American Crow (23)	Black-cap. Chickadee (19)	American Crow (29)	American Goldfinch (30)
American Crow (21)	Black-cap. Chickadee (23)	American Goldfinch (19)	Tennessee Warbler (25)	Cedar Waxwing (23)
Cedar Waxwing (19)	Magnolia Warbler (17)	American Crow (18)	Black-cap. Chickadee (16)	Blue Jay (20)
Blue Jay (13)	American Goldfinch (15)	Blue Jay (17)	American Robin (12)	Black-cap. Chickadee (19)
American Robin (12)	Tennessee Warbler (10)	Cedar Waxwing (13)	Blue Jay (12)	Canada Goose (11)
Canada Goose (10)	American Redstart (10)	Ring-billed Gull (10)	Magnolia Warbler (11)	Magnolia Warbler (11)
Song Sparrow (9)	American Robin (8)	White-thr. Sparrow (10)	Common Yellowthroat (9)	Tennessee Warbler (10)
Rock Pigeon (7)	Nashville Warbler (6)	American Robin (10)	Song Sparrow (7)	Red-eyed Vireo (10)
Common Yellowthroat (7)				

Banding, Fall Week 6 (September 5 - 11):

2005	2006	2007	2008	2009
Nashville Warbler (20)	Magnolia Warbler (39)	White-thr. Sparrow (21)	Magnolia Warbler (109)	White-thr. Sparrow (18)
Magnolia Warbler (20)	Common Grackle (33)	American Goldfinch (20)	Nashville Warbler (22)	Magnolia Warbler (10)
Common Yellowthroat (19)	Common Yellowthroat (27)	Wilson's Warbler (17)	Wilson's Warbler (20)	Song Sparrow (10)
White-thr. Sparrow (18)	Song Sparrow (21)	Red-eyed Vireo (16)	Tennessee Warbler (16)	American Redstart (7)
Song Sparrow (13)	Nashville Warbler (18)	American Redstart (10)	Common Yellowthroat (16)	Common Yellowthroat (6)
Yellow Palm Warbler (9)	White-thr. Sparrow (13)	Common Yellowthroat (9)	Red-eyed Vireo (14)	Indigo Bunting (6)
Gray Catbird (8)	Ovenbird (9)	Song Sparrow (7)	White-thr. Sparrow (13)	Red-eyed Vireo (5)
Ovenbird (6)	Tennessee Warbler (9)	Gray Catbird (5)	American Redstart (11)	Blk-thr. Blue Warbler (5)
American Redstart (6)	Wilson's Warbler (9)	Nashville Warbler (5)	Blackpoll Warbler (11)	Black-cap. Chickadee (4)
Blk-thr. Green Warbler (6)	Gray Catbird (8)	Magnolia Warbler (5)	Blk-thr. Green Warbler (11)	
American Goldfinch (6)	American Redstart (8)		Song Sparrow (11)	
	Blackpoll Warbler (8)		American Goldfinch (11)	
	Yellow-rumped Warbler (8)			

2010	2011	2012	2013	2014
Magnolia Warbler (74)	Magnolia Warbler (52)	Magnolia Warbler (44)	Magnolia Warbler (70)	American Goldfinch (44)
Nashville Warbler (47)	Tennessee Warbler (37)	Swainson's Thrush (24)	Tennessee Warbler (36)	Magnolia Warbler (27)
West. Palm Warbler (37)	Nashville Warbler (22)	Blackpoll Warbler (21)	American Redstart (18)	Red-eyed Vireo (26)
American Redstart (32)	Wilson's Warbler (18)	Tennessee Warbler (20)	American Goldfinch (13)	Tennessee Warbler (12)
Common Yellowthroat (24)	Red-eyed Vireo (11)	Wilson's Warbler (14)	Wilson's Warbler (11)	Gray Catbird (11)
Red-eyed Vireo (20)	American Redstart (10)	Song Sparrow (14)	Common Yellowthroat (10)	American Redstart (11)
Tennessee Warbler (20)	White-thr. Sparrow (9)	American Goldfinch (13)	Indigo Bunting (8)	White-thr. Sparrow (10)
Wilson's Warbler (18)	Indigo Bunting (9)	American Redstart (12)	Blackpoll Warbler (7)	Northern Waterthrush (8)
Northern Waterthrush (17)	Blackpoll Warbler (8)	Gray Catbird (11)	Red-eyed Vireo (6)	Black-cap. Chickadee (7)
Blackpoll Warbler (14)	Cedar Waxwing (7)	Nashville Warbler (11)	Cedar Waxwing (5)	Ovenbird (6)
	Common Yellowthroat (7)		Ovenbird (5)	Common Yellowthroat (6)
			Rose-breast. Grosbeak (5)	Song Sparrow (6)

Observations, Fall Week 6 (September 5 - 11):

2005	2006	2007	2008	2009
Common Grackle (425)	American Crow (179)	American Crow (74)	American Crow (83)	Canada Goose (43)
American Crow (63)	Common Grackle (111)	American Goldfinch (25)	Common Grackle (42)	American Crow (31)
Black-cap. Chickadee (26)	Blue Jay (22)	Cedar Waxwing (20)	Cedar Waxwing (33)	Cedar Waxwing (25)
American Goldfinch (19)	Black-cap. Chickadee (22)	Black-cap. Chickadee (15)	Canada Goose (29)	Black-cap. Chickadee (23)
White-thr. Sparrow (17)	American Goldfinch (21)	Canada Goose (14)	Magnolia Warbler (23)	Common Grackle (21)
Blue Jay (16)	Song Sparrow (20)	Blue Jay (14)	Black-cap. Chickadee (21)	American Goldfinch (16)
Song Sparrow (10)	Cedar Waxwing (14)	White-thr. Sparrow (11)	American Robin (20)	Blue Jay (13)
Nashville Warbler (10)	Magnolia Warbler (11)	Common Grackle (10)	American Goldfinch (16)	American Robin (13)
Canada Goose (9)	White-thr. Sparrow (10)	Song Sparrow (8)	Blue Jay (13)	White-thr. Sparrow (10)
Common Yellowthroat (8)	Common Yellowthroat (9)	European Starling (7)	Common Yellowthroat (8)	Song Sparrow (10)

2010	2011	2012	2013	2014
American Crow (39)	Canada Goose (65)	Common Grackle (319)	American Crow (49)	American Goldfinch (34)
Black-cap. Chickadee (21)	Broad-winged Hawk (44)	Canada Goose (46)	American Goldfinch (35)	American Robin (27)
Blue Jay (18)	American Crow (33)	American Goldfinch (30)	Cedar Waxwing (20)	American Crow (24)
Cedar Waxwing (13)	Black-cap. Chickadee (26)	American Crow (22)	Black-cap. Chickadee (18)	Black-cap. Chickadee (18)
Magnolia Warbler (13)	American Goldfinch (20)	Black-cap. Chickadee (18)	Red-wing. Blackbird (15)	Cedar Waxwing (16)
American Goldfinch (12)	Cedar Waxwing (17)	Blue Jay (16)	Magnolia Warbler (15)	Canada Goose (16)
American Robin (11)	Magnolia Warbler (14)	White-thr. Sparrow (14)	Blue Jay (14)	Blue Jay (14)
West. Palm Warbler (10)	Tennessee Warbler (12)	Magnolia Warbler (11)	European Starling (12)	Red-eyed Vireo (9)
White-thr. Sparrow (10)	Blue Jay (9)	Song Sparrow (8)	Canada Goose (11)	Gray Catbird (8)
Common Grackle (9)	Song Sparrow (8)	Gray Catbird (8)	Tennessee Warbler (11)	Magnolia Warbler (8)

Banding, Fall Week 7 (September 12 - 18):

2005	2006	2007	2008	2009
White-thr. Sparrow (44)	Yellow-rumped Warbler (49)	White-thr. Sparrow (32)	Magnolia Warbler (36)	Song Sparrow (34)
American Goldfinch (40)	Nashville Warbler (23)	Magnolia Warbler (14)	White-thr. Sparrow (20)	White-thr. Sparrow (31)
Nashville Warbler (38)	Tennessee Warbler (20)	Gray Catbird (10)	Nashville Warbler (19)	Magnolia Warbler (12)
Magnolia Warbler (37)	Ruby-cr. Kinglet (19)	Song Sparrow (9)	Tennessee Warbler (18)	Nashville Warbler (10)
Red-eyed Vireo (35)	Magnolia Warbler (18)	Nashville Warbler (8)	Song Sparrow (10)	Indigo Bunting (10)
Yellow Palm Warbler (31)	White-thr. Sparrow (18)	Blk-thr. Blue Warbler (5)	Blue Jay (9)	Common Yellowthroat (7)
Song Sparrow (23)	Song Sparrow (16)	Wilson's Warbler (5)	Common Yellowthroat (9)	Blackpoll Warbler (7)
Common Yellowthroat (14)	Common Yellowthroat (15)	Black-cap. Chickadee (4)	Ruby-cr. Kinglet (8)	Swamp Sparrow (7)
Yellow-rumped Warbler (14)	American Goldfinch (14)	Common Yellowthroat (4)	American Redstart (8)	Black-cap. Chickadee (5)
Swainson's Thrush (13)	Red-eyed Vireo (10)	Chipping Sparrow (4)	Red-eyed Vireo (7)	Gray Catbird (5)
Tennessee Warbler (13)		American Goldfinch (4)	Blackpoll Warbler (7)	Tennessee Warbler (5)
			American Goldfinch (7)	Lincoln's Sparrow (5)

2010	2011	2012	2013	2014
Magnolia Warbler (46)	Magnolia Warbler (38)	Swainson's Thrush (66)	Magnolia Warbler (84)	Magnolia Warbler (94)
Yellow-rumped Warbler (27)	Tennessee Warbler (28)	Magnolia Warbler (59)	Tennessee Warbler (17)	Nashville Warbler (26)
White-thr. Sparrow (25)	Nashville Warbler (19)	White-thr. Sparrow (53)	White-thr. Sparrow (15)	Red-eyed Vireo (23)
Nashville Warbler (22)	Blackpoll Warbler (15)	Common Yellowthroat (18)	Cape May Warbler (14)	Tennessee Warbler (14)
American Goldfinch (17)	White-thr. Sparrow (13)	Blk-thr. Green Warbler (15)	American Goldfinch (14)	Gray Catbird (13)
Red-eyed Vireo (15)	American Redstart (12)	Nashville Warbler (13)	Red-eyed Vireo (13)	American Redstart (13)
Tennessee Warbler (11)	Common Yellowthroat (10)	Song Sparrow (13)	Swainson's Thrush (12)	White-thr. Sparrow (13)
Swainson's Thrush (9)	Indigo Bunting (10)	Gray Catbird (12)	American Redstart (12)	Wilson's Warbler (12)
Black-cap. Chickadee (8)	Gray Catbird (8)	Blackpoll Warbler (12)	Nashville Warbler (8)	American Goldfinch (11)
Common Yellowthroat (8)	Wilson's Warbler (8)	American Goldfinch (12)	Golden-cr. Kinglet (7)	Common Yellowthroat (10)
American Redstart (8)			Blk-thr. Blue Warbler (7)	
Blk-thr. Blue Warbler (8)			Song Sparrow (7)	

Observations, Fall Week 7 (September 12 - 18):

2005	2006	2007	2008	2009
Common Grackle (366)	American Crow (244)	American Crow (139)	American Crow (86)	Canada Goose (81)
American Crow (45)	Common Grackle (66)	White-thr. Sparrow (32)	Canada Goose (42)	European Starling (25)
White-thr. Sparrow (29)	American Goldfinch (33)	Blue Jay (27)	Cedar Waxwing (29)	American Robin (25)
Black-cap. Chickadee (25)	Blue Jay (23)	American Goldfinch (19)	Red-wing. Blackbird (24)	Cedar Waxwing (24)
American Goldfinch (23)	Black-cap. Chickadee (21)	Black-cap. Chickadee (15)	Common Grackle (19)	American Crow (21)
Canada Goose (22)	Song Sparrow (18)	Canada Goose (14)	Black-cap. Chickadee (17)	White-thr. Sparrow (19)
Blue Jay (10)	Yellow-rumped Warbler (17)	Common Grackle (14)	Blue Jay (14)	Black-cap. Chickadee (19)
Nashville Warbler (9)	American Robin (16)	Cedar Waxwing (12)	American Goldfinch (13)	American Goldfinch (18)
Cedar Waxwing (9)	White-thr. Sparrow (14)	Song Sparrow (8)	Magnolia Warbler (9)	Blue Jay (17)
Red-eyed Vireo (8)	Ruby-cr. Kinglet (14)	Broad-winged Hawk (7)	White-thr. Sparrow (8)	Red-wing. Blackbird (15)

2010	2011	2012	2013	2014
American Crow (85)	Canada Goose (122)	Blue Jay (54)	Common Grackle (80)	European Starling (175)
Canada Goose (46)	American Crow (53)	Canada Goose (46)	American Crow (76)	Canada Goose (137)
Common Grackle (32)	Blue Jay (24)	White-thr. Sparrow (42)	European Starling (75)	Common Grackle (108)
Blue Jay (32)	Black-cap. Chickadee (20)	American Goldfinch (26)	Canada Goose (53)	American Crow (75)
Black-cap. Chickadee (26)	Cedar Waxwing (13)	Common Grackle (21)	Red-wing. Blackbird (33)	Ring-billed Gull (63)
American Goldfinch (19)	Magnolia Warbler (13)	American Crow (21)	American Goldfinch (26)	Broad-winged Hawk (50)
White-thr. Sparrow (17)	White-thr. Sparrow (11)	Black-cap. Chickadee (20)	Cedar Waxwing (20)	Red-wing. Blackbird (31)
European Starling (11)	Red-wing. Blackbird (8)	Swainson's Thrush (16)	Blue Jay (19)	Blue Jay (29)
American Robin (11)	Tennessee Warbler (8)	American Robin (16)	Magnolia Warbler (18)	American Robin (25)
Cedar Waxwing (10)	American Goldfinch (8)	Magnolia Warbler (12)	Black-cap. Chickadee (15)	American Goldfinch (23)

Banding, Fall Week 8 (September 19 - 25):

2005	2006	2007	2008	2009
White-thr. Sparrow (86)	Yellow-rumped Warbler (169)	White-thr. Sparrow (60)	Yellow-rumped Warbler (170)	White-thr. Sparrow (62)
Yellow-rumped Warbler (76)	Ruby-cr. Kinglet (42)	American Goldfinch (17)	White-thr. Sparrow (50)	Song Sparrow (28)
Ruby-cr. Kinglet (46)	Magnolia Warbler (16)	West. Palm Warbler (16)	Ruby-cr. Kinglet (24)	Magnolia Warbler (25)
Red-eyed Vireo (33)	Nashville Warbler (15)	Ruby-cr. Kinglet (13)	Nashville Warbler (20)	Common Yellowthroat (13)
Song Sparrow (27)	White-thr. Sparrow (14)	Song Sparrow (11)	Tennessee Warbler (16)	Gray Catbird (10)
Magnolia Warbler (22)	Blk-thr. Green Warbler (11)	Nashville Warbler (10)	Song Sparrow (13)	Nashville Warbler (10)
Nashville Warbler (19)	Song Sparrow (10)	Black-cap. Chickadee (7)	Magnolia Warbler (10)	Blk-thr. Blue Warbler (10)
Golden-cr. Kinglet (12)	Common Yellowthroat (6)	Swamp Sparrow (7)	Golden-cr. Kinglet (8)	Indigo Bunting (10)
Chipping Sparrow (12)	Lincoln's Sparrow (5)	Gray Catbird (6)	Common Yellowthroat (8)	Tennessee Warbler (7)
Swainson's Thrush (10)	Red-eyed Vireo (4)	Cedar Waxwing (6)	Blue Jay (7)	American Goldfinch (7)
	Golden-cr. Kinglet (4)			
	Scarlet Tanager (4)			

2010	2011	2012	2013	2014
Yell.-rumped Warbler (881)	Magnolia Warbler (28)	White-thr. Sparrow (60)	White-thr. Sparrow (23)	White-thr. Sparrow (66)
White-thr. Sparrow (85)	Tennessee Warbler (23)	Blue Jay (24)	Magnolia Warbler (19)	Magnolia Warbler (42)
Nashville Warbler (53)	Ruby-cr. Kinglet (18)	Swainson's Thrush (20)	Song Sparrow (19)	Ruby-cr. Kinglet (21)
Ruby-cr. Kinglet (20)	Nashville Warbler (18)	Ruby-cr. Kinglet (15)	Tennessee Warbler (18)	Blue Jay (17)
Tennessee Warbler (20)	White-thr. Sparrow (15)	Gray-cheeked Thrush (10)	Golden-cr. Kinglet (14)	Swainson's Thrush (16)
Blue Jay (18)	Common Yellowthroat (13)	Song Sparrow (9)	Red-eyed Vireo (12)	Nashville Warbler (15)
Black-cap. Chickadee (17)	Blackpoll Warbler (12)	Nashville Warbler (8)	Ruby-cr. Kinglet (12)	Golden-cr. Kinglet (14)
Magnolia Warbler (17)	Chipping Sparrow (11)	Magnolia Warbler (7)	American Redstart (11)	Blk-thr. Blue Warbler (12)
Song Sparrow (16)	Yellow-rumped Warbler (10)	Black-cap. Chickadee (6)	Nashville Warbler (9)	Yellow-rumped Warbler (12)
Dark-eyed Junco (16)	Song Sparrow (10)	Brown Creeper (5)	Gray Catbird (6)	Red-eyed Vireo (10)
		Golden-cr. Kinglet (5)	Blk-thr. Blue Warbler (6)	

Observations, Fall Week 8 (September 19 - 25):

2005	2006	2007	2008	2009
Canada Goose (365)	American Crow (244)	American Crow (138)	Canada Goose (448)	Canada Goose (1166)
Common Grackle (334)	Canada Goose (156)	Canada Goose (133)	American Crow (144)	American Crow (81)
American Crow (57)	Common Grackle (84)	Common Grackle (49)	Yellow-rumped Warbler (46)	Cedar Waxwing (51)
White-thr. Sparrow (54)	Yellow-rumped Warbler (76)	White-thr. Sparrow (41)	Red-wing. Blackbird (36)	Common Grackle (50)
Blue Jay (26)	American Robin (32)	American Robin (28)	White-thr. Sparrow (29)	White-thr. Sparrow (37)
Yellow-rumped Warbler (22)	Ruby-cr. Kinglet (30)	Cedar Waxwing (21)	Blue Jay (23)	American Robin (37)
Black-cap. Chickadee (21)	Rusty Blackbird (30)	Black-cap. Chickadee (19)	Cedar Waxwing (22)	Blue Jay (26)
American Goldfinch (20)	Blue Jay (24)	Blue Jay (18)	American Robin (17)	Red-wing. Blackbird (21)
Red-wing. Blackbird (19)	Red-wing. Blackbird (20)	American Goldfinch (18)	Black-cap. Chickadee (16)	American Goldfinch (21)
American Robin (18)	White-thr. Sparrow (18)	Red-wing. Blackbird (15)	American Goldfinch (14)	Black-cap. Chickadee (16)
Song Sparrow (18)				

2010	2011	2012	2013	2014
Yellow-rumped Warbler (239)	Canada Goose (147)	Canada Goose (93)	Canada Goose (283)	Canada Goose (601)
Canada Goose (126)	Ring-billed Gull (44)	Blue Jay (75)	American Crow (72)	Common Grackle (198)
American Crow (97)	American Crow (44)	White-thr. Sparrow (64)	Red-wing. Blackbird (71)	European Starling (124)
Blue Jay (77)	Blue Jay (24)	Red-wing. Blackbird (50)	White-thr. Sparrow (28)	White-thr. Sparrow (57)
White-thr. Sparrow (51)	Red-wing. Blackbird (20)	American Robin (38)	Blue Jay (25)	Red-wing. Blackbird (44)
Red-wing. Blackbird (33)	Cedar Waxwing (18)	American Crow (31)	Black-cap. Chickadee (22)	Blue Jay (40)
European Starling (31)	Black-cap. Chickadee (17)	Black-cap. Chickadee (20)	American Goldfinch (19)	American Crow (39)
Black-cap. Chickadee (26)	American Robin (16)	American Goldfinch (19)	Song Sparrow (19)	American Robin (30)
American Robin (16)	European Starling (16)	Cedar Waxwing (9)	American Robin (13)	Black-cap. Chickadee (16)
American Goldfinch (14)	White-thr. Sparrow (15)	Ring-billed Gull (8)	European Starling (13)	Ring-billed Gull (12)

Banding, Fall Week 9 (September 26 - October 2):

2005	2006	2007	2008	2009
White-thr. Sparrow (104)	Yellow-rumped Warbler (241)	White-thr. Sparrow (96)	Yellow-rumped Warbler (688)	White-thr. Sparrow (100)
Ruby-cr. Kinglet (89)	Ruby-cr. Kinglet (114)	Ruby-cr. Kinglet (45)	Ruby-cr. Kinglet (111)	Song Sparrow (50)
Black-cap. Chickadee (38)	White-thr. Sparrow (57)	White-cr. Sparrow (22)	White-thr. Sparrow (74)	Ruby-cr. Kinglet (45)
Yellow-rumped Warbler (21)	White-cr. Sparrow (27)	Black-cap. Chickadee (16)	Nashville Warbler (36)	Blue-headed Vireo (21)
Song Sparrow (18)	Golden-cr. Kinglet (17)	Song Sparrow (15)	Song Sparrow (24)	Yellow-rumped Warbler (21)
Dark-eyed Junco (17)	Song Sparrow (13)	American Goldfinch (15)	Blue-headed Vireo (18)	White-cr. Sparrow (14)
Golden-cr. Kinglet (11)	Nashville Warbler (10)	Swamp Sparrow (13)	American Goldfinch (12)	Nashville Warbler (13)
Nashville Warbler (10)	Gray Catbird (8)	Yellow-rumped Warbler (12)	Tennessee Warbler (11)	Magnolia Warbler (11)
Blk-thr. Blue Warbler (10)	Magnolia Warbler (8)	Blue-headed Vireo (8)	Magnolia Warbler (11)	Hermit Thrush (8)
White-cr. Sparrow (6)	Cedar Waxwing (6)	American Robin (6)	Dark-eyed Junco (10)	Blk-thr. Blue Warbler (8)
		West. Palm Warbler (6)		Swamp Sparrow (8)
		Dark-eyed Junco (6)		

2010	2011	2012	2013	2014
Yellow-rumped Warbler (750)	Ruby-cr. Kinglet (67)	White-thr. Sparrow (112)	White-thr. Sparrow (55)	White-thr. Sparrow (88)
Ruby-cr. Kinglet (82)	White-thr. Sparrow (49)	Yellow-rumped Warbler (84)	Ruby-cr. Kinglet (54)	Yellow-rumped Warbler (84)
White-thr. Sparrow (70)	Yellow-rumped Warbler (33)	Ruby-cr. Kinglet (67)	Yellow-rumped Warbler (24)	Ruby-cr. Kinglet (45)
Nashville Warbler (26)	Song Sparrow (30)	Swainson's Thrush (21)	Song Sparrow (21)	Golden-cr. Kinglet (32)
Black-cap. Chickadee (15)	Tennessee Warbler (22)	Song Sparrow (19)	Dark-eyed Junco (10)	Blue Jay (23)
American Goldfinch (14)	Nashville Warbler (22)	Golden-cr. Kinglet (14)	Golden-cr. Kinglet (9)	Dark-eyed Junco (23)
Magnolia Warbler (11)	Golden-cr. Kinglet (20)	Nashville Warbler (11)	Nashville Warbler (8)	Magnolia Warbler (20)
Golden-cr. Kinglet (10)	Chipping Sparrow (12)	Black-cap. Chickadee (10)	American Goldfinch (8)	Song Sparrow (14)
Common Grackle (10)	Blue Jay (7)	Blue Jay (9)	Swamp Sparrow (7)	Nashville Warbler (12)
Blue Jay (9)	Gray Catbird (7)	White-cr. Sparrow (9)	Red-eyed Vireo (6)	American Goldfinch (12)
Tennessee Warbler (9)				
Song Sparrow (9)				

Observations, Fall Week 9 (September 26 - October 2):

2005	2006	2007	2008	2009
Canada Goose (494)	Canada Goose (251)	Canada Goose (433)	Canada Goose (310)	Canada Goose (758)
Common Grackle (150)	American Crow (126)	American Crow (106)	American Crow (206)	Common Grackle (80)
White-thr. Sparrow (88)	Yellow-rumped Warbler (76)	Red-wing. Blackbird (75)	Yellow-rumped Warbler (155)	American Robin (68)
American Crow (74)	Ruby-cr. Kinglet (42)	White-thr. Sparrow (60)	American Robin (34)	White-thr. Sparrow (68)
Blue Jay (34)	White-thr. Sparrow (32)	Common Grackle (56)	Ruby-cr. Kinglet (33)	American Crow (47)
Black-cap. Chickadee (29)	American Robin (31)	American Robin (42)	Red-wing. Blackbird (32)	European Starling (35)
Ruby-cr. Kinglet (28)	Blue Jay (19)	Blue Jay (28)	White-thr. Sparrow (27)	Blue Jay (27)
American Robin (28)	White-cr. Sparrow (18)	Black-cap. Chickadee (22)	Common Grackle (27)	Song Sparrow (26)
Red-wing. Blackbird (21)	Black-cap. Chickadee (16)	Ruby-cr. Kinglet (15)	Blue Jay (18)	Cedar Waxwing (24)
American Goldfinch (18)	Song Sparrow (15)	American Goldfinch (15)	Cedar Waxwing (17)	Black-cap. Chickadee (21)

2010	2011	2012	2013	2014
Canada Goose (1147)	Canada Goose (2361)	Canada Goose (407)	Canada Goose (612)	Canada Goose (518)
Yellow-rumped Warbler (303)	Red-wing. Blackbird (101)	Red-wing. Blackbird (278)	American Crow (66)	European Starling (74)
White-thr. Sparrow (103)	American Crow (94)	European Starling (222)	White-thr. Sparrow (37)	Red-wing. Blackbird (68)
Blue Jay (94)	American Robin (41)	Common Grackle (110)	American Robin (29)	White-thr. Sparrow (62)
Red-wing. Blackbird (91)	Blue Jay (40)	White-thr. Sparrow (104)	Ruby-cr. Kinglet (26)	Common Grackle (60)
American Crow (87)	Black-cap. Chickadee (28)	American Robin (93)	Ring-billed Gull (26)	American Crow (48)
Ruby-cr. Kinglet (40)	White-thr. Sparrow (26)	Blue Jay (65)	Blue Jay (20)	American Robin (37)
Black-cap. Chickadee (28)	Snow Goose (25)	Yellow-rumped Warbler (48)	Black-cap. Chickadee (18)	Yellow-rumped Warbler (37)
American Robin (25)	Ruby-cr. Kinglet (24)	American Crow (38)	Song Sparrow (18)	Blue Jay (28)
Common Grackle (25)	Yellow-rumped Warbler (21)	Black-cap. Chickadee (28)	Yellow-rumped Warbler (15)	Ring-billed Gull (21)
				Black-cap. Chickadee (21)

Banding, Fall Week 10 (October 3 - 9):

2005	2006	2007	2008	2009
White-thr. Sparrow (67)	Ruby-cr. Kinglet (115)	Ruby-cr. Kinglet (98)	Yellow-rumped Warbler (650)	Ruby-cr. Kinglet (159)
Ruby-cr. Kinglet (66)	Yellow-rumped Warbler (40)	American Robin (54)	Ruby-cr. Kinglet (126)	White-thr. Sparrow (103)
Black-cap. Chickadee (54)	White-thr. Sparrow (31)	White-thr. Sparrow (54)	White-thr. Sparrow (100)	Yellow-rumped Warbler (70)
Dark-eyed Junco (34)	American Robin (28)	Black-cap. Chickadee (52)	Song Sparrow (32)	White-cr. Sparrow (46)
Yellow-rumped Warbler (30)	White-cr. Sparrow (17)	Yellow-rumped Warbler (46)	American Robin (28)	Hermit Thrush (37)
Song Sparrow (25)	Song Sparrow (11)	Dark-eyed Junco (44)	Dark-eyed Junco (23)	Song Sparrow (33)
Golden-cr. Kinglet (14)	Hermit Thrush (10)	White-cr. Sparrow (35)	Nashville Warbler (21)	American Robin (22)
Swamp Sparrow (12)	Golden-cr. Kinglet (7)	Song Sparrow (18)	White-cr. Sparrow (19)	Dark-eyed Junco (21)
American Goldfinch (10)	Swamp Sparrow (7)	American Goldfinch (16)	Golden-cr. Kinglet (14)	Blue-headed Vireo (15)
Nashville Warbler (8)	Blue-headed Vireo (6)	Swamp Sparrow (10)	Hermit Thrush (12)	Golden-cr. Kinglet (10)
	Winter Wren (6)			

2010	2011	2012	2013	2014
Yellow-rumped Warbler (605)	White-thr. Sparrow (64)	Yellow-rumped Warbler (170)	Ruby-cr. Kinglet (185)	Ruby-cr. Kinglet (81)
Dark-eyed Junco (127)	Ruby-cr. Kinglet (59)	Ruby-cr. Kinglet (165)	White-thr. Sparrow (78)	White-thr. Sparrow (79)
Ruby-cr. Kinglet (96)	Yellow-rumped Warbler (31)	White-thr. Sparrow (158)	Yellow-rumped Warbler (36)	Yellow-rumped Warbler (34)
White-thr. Sparrow (63)	Golden-cr. Kinglet (24)	Dark-eyed Junco (80)	American Robin (34)	Dark-eyed Junco (14)
Golden-cr. Kinglet (33)	Hermit Thrush (14)	Hermit Thrush (39)	Golden-cr. Kinglet (25)	Nashville Warbler (11)
White-cr. Sparrow (22)	Song Sparrow (12)	White-cr. Sparrow (35)	Song Sparrow (22)	Blue Jay (9)
Hermit Thrush (18)	White-cr. Sparrow (10)	Golden-cr. Kinglet (21)	Dark-eyed Junco (19)	Song Sparrow (8)
Song Sparrow (10)	Nashville Warbler (8)	American Robin (19)	Hermit Thrush (16)	Black-cap. Chickadee (6)
Black-cap. Chickadee (8)	Brown Creeper (7)	Song Sparrow (19)	Blue Jay (12)	Golden-cr. Kinglet (6)
Blue-headed Vireo (6)	Dark-eyed Junco (7)	Common Grackle (19)	Nashville Warbler (10)	White-cr. Sparrow (6)

Observations, Fall Week 10 (October 3 - 9):

2005	2006	2007	2008	2009
Canada Goose (1250)	Canada Goose (376)	Canada Goose (901)	Canada Goose (428)	Canada Goose (258)
Common Grackle (142)	American Robin (99)	American Robin (116)	Yellow-rumped Warbler (178)	American Robin (154)
American Crow (115)	American Crow (67)	American Crow (106)	American Robin (108)	White-thr. Sparrow (103)
White-thr. Sparrow (112)	Red-wing. Blackbird (57)	White-thr. Sparrow (38)	American Crow (106)	European Starling (75)
American Robin (100)	Ruby-cr. Kinglet (49)	Red-wing. Blackbird (37)	Common Grackle (85)	Red-wing. Blackbird (61)
Ruby-cr. Kinglet (69)	White-thr. Sparrow (25)	European Starling (32)	White-thr. Sparrow (57)	White-cr. Sparrow (43)
Red-wing. Blackbird (60)	Yellow-rumped Warbler (25)	Ruby-cr. Kinglet (30)	Red-wing. Blackbird (50)	American Crow (40)
Black-cap. Chickadee (46)	Blue Jay (23)	Dark-eyed Junco (29)	Ruby-cr. Kinglet (49)	Ruby-cr. Kinglet (37)
Golden-cr. Kinglet (35)	Common Grackle (22)	Black-cap. Chickadee (26)	Blue Jay (18)	Common Grackle (24)
Dark-eyed Junco (29)	Black-cap. Chickadee (17)	White-cr. Sparrow (20)	Black-cap. Chickadee (17)	Yellow-rumped Warbler (24)

2010	2011	2012	2013	2014
Canada Goose (1396)	Canada Goose (928)	Common Grackle (525)	Canada Goose (350)	Canada Goose (439)
Yellow-rumped Warbler (294)	Red-wing. Blackbird (261)	Canada Goose (407)	Common Grackle (188)	Red-wing. Blackbird (122)
American Crow (220)	American Robin (79)	Red-wing. Blackbird (270)	American Robin (109)	White-thr. Sparrow (81)
Red-wing. Blackbird (217)	American Crow (70)	European Starling (251)	American Crow (65)	Common Grackle (73)
American Robin (114)	White-thr. Sparrow (51)	White-thr. Sparrow (141)	Ruby-cr. Kinglet (54)	American Robin (62)
White-thr. Sparrow (70)	Pine Siskin (50)	American Robin (137)	White-thr. Sparrow (44)	European Starling (58)
Dark-eyed Junco (69)	Blue Jay (34)	Dark-eyed Junco (73)	Blue Jay (35)	American Crow (43)
Ruby-cr. Kinglet (47)	Black-cap. Chickadee (32)	Yellow-rumped Warbler (69)	European Starling (30)	Ruby-cr. Kinglet (31)
European Starling (45)	Ruby-cr. Kinglet (23)	American Crow (60)	Red-wing. Blackbird (22)	Yellow-rumped Warbler (28)
Blue Jay (39)	Yellow-rumped Warbler (21)	Ruby-cr. Kinglet (55)	Black-cap. Chickadee (16)	Blue Jay (21)

Banding, Fall Week 11 (October 10 - 16):

2005	2006	2007	2008	2009
American Robin (34)	American Robin (82)	Ruby-cr. Kinglet (145)	Yellow-rumped Warbler (209)	American Robin (51)
Dark-eyed Junco (32)	Ruby-cr. Kinglet (71)	American Robin (80)	American Robin (103)	Dark-eyed Junco (46)
Ruby-cr. Kinglet (26)	Golden-cr. Kinglet (15)	Black-cap. Chickadee (34)	Dark-eyed Junco (53)	Hermit Thrush (34)
Black-cap. Chickadee (15)	Hermit Thrush (14)	Dark-eyed Junco (29)	Ruby-cr. Kinglet (34)	Ruby-cr. Kinglet (33)
Yellow-rumped Warbler (12)	White-thr. Sparrow (13)	White-thr. Sparrow (25)	Song Sparrow (32)	White-thr. Sparrow (32)
Hermit Thrush (11)	Yellow-rumped Warbler (6)	Hermit Thrush (21)	White-thr. Sparrow (26)	Black-cap. Chickadee (15)
White-thr. Sparrow (10)	Song Sparrow (6)	White-cr. Sparrow (18)	Pine Siskin (14)	Song Sparrow (12)
Song Sparrow (9)	Blue Jay (5)	Song Sparrow (17)	Hermit Thrush (13)	White-cr. Sparrow (9)
Golden-cr. Kinglet (7)	Dark-eyed Junco (5)	Am. Tree Sparrow (10)	Common Grackle (8)	Swamp Sparrow (6)
White-cr. Sparrow (7)	Orange-cr. Warbler (4)	Fox Sparrow (10)	White-cr. Sparrow (7)	Blue-headed Vireo (3)

2010	2011	2012	2013	2014
Dark-eyed Junco (158)	Yellow-rumped Warbler (30)	Ruby-cr. Kinglet (56)	Ruby-cr. Kinglet (61)	White-thr. Sparrow (127)
Black-cap. Chickadee (139)	White-thr. Sparrow (21)	White-thr. Sparrow (55)	White-thr. Sparrow (61)	Ruby-cr. Kinglet (95)
Yellow-rumped Warbler (88)	Ruby-cr. Kinglet (11)	Dark-eyed Junco (43)	American Robin (32)	Hermit Thrush (38)
American Robin (51)	Dark-eyed Junco (9)	Hermit Thrush (32)	Golden-cr. Kinglet (30)	Dark-eyed Junco (37)
Hermit Thrush (43)	Hermit Thrush (8)	American Robin (29)	Dark-eyed Junco (21)	Yellow-rumped Warbler (29)
White-thr. Sparrow (41)	Song Sparrow (6)	Yellow-rumped Warbler (21)	Yellow-rumped Warbler (13)	Swamp Sparrow (12)
Ruby-cr. Kinglet (32)	Swamp Sparrow (5)	Fox Sparrow (12)	Song Sparrow (12)	Golden-cr. Kinglet (10)
Golden-cr. Kinglet (23)	Blue Jay (2)	Purple Finch (10)	Fox Sparrow (11)	Fox Sparrow (9)
Song Sparrow (15)	Black-cap. Chickadee (2)	Black-cap. Chickadee (8)	Hermit Thrush (9)	Black-cap. Chickadee (8)
Fox Sparrow (13)		Golden-cr. Kinglet (8)		White-cr. Sparrow (8)
		Song Sparrow (8)		

Observations, Fall Week 11 (October 10 - 16):

2005	2006	2007	2008	2009
Canada Goose (544)	American Robin (419)	Canada Goose (800)	American Robin (260)	American Robin (403)
American Robin (318)	Canada Goose (233)	American Robin (347)	Red-wing. Blackbird (176)	Canada Goose (169)
Common Grackle (124)	Red-wing. Blackbird (132)	Red-wing. Blackbird (202)	Canada Goose (175)	Red-wing. Blackbird (153)
American Crow (114)	American Crow (131)	American Crow (110)	American Crow (154)	American Crow (113)
Red-wing. Blackbird (50)	Ruby-cr. Kinglet (41)	European Starling (56)	Common Grackle (82)	White-thr. Sparrow (63)
Dark-eyed Junco (49)	Cedar Waxwing (31)	Ruby-cr. Kinglet (38)	Yellow-rumped Warbler (59)	European Starling (53)
White-thr. Sparrow (45)	Mallard (27)	White-thr. Sparrow (36)	European Starling (49)	Dark-eyed Junco (34)
Ruby-cr. Kinglet (44)	European Starling (27)	Dark-eyed Junco (22)	White-thr. Sparrow (26)	Black-cap. Chickadee (18)
Black-cap. Chickadee (25)	White-thr. Sparrow (21)	Common Grackle (20)	Ruby-cr. Kinglet (21)	White-cr. Sparrow (18)
Golden-cr. Kinglet (23)	Blue Jay (21)	Black-cap. Chickadee (18)	Pine Siskin (21)	Ruby-cr. Kinglet (15)

2010	2011	2012	2013	2014
American Robin (431)	Canada Goose (306)	Common Grackle (377)	Canada Goose (191)	Canada Goose (285)
Red-wing. Blackbird (424)	Red-wing. Blackbird (219)	Red-wing. Blackbird (347)	American Robin (157)	Red-wing. Blackbird (167)
Canada Goose (194)	American Robin (87)	Canada Goose (297)	Red-wing. Blackbird (99)	White-thr. Sparrow (94)
American Crow (88)	American Crow (37)	American Robin (213)	European Starling (84)	American Robin (78)
Dark-eyed Junco (71)	Blue Jay (27)	European Starling (133)	American Crow (72)	European Starling (45)
White-thr. Sparrow (57)	White-thr. Sparrow (21)	American Crow (84)	Common Grackle (69)	Common Grackle (38)
Black-cap. Chickadee (54)	European Starling (19)	White-thr. Sparrow (58)	White-thr. Sparrow (47)	American Crow (33)
Yellow-rumped Warbler (51)	Black-cap. Chickadee (12)	Dark-eyed Junco (45)	Ring-billed Gull (37)	Ruby-cr. Kinglet (32)
Common Grackle (33)	Pine Siskin (11)	Ruby-cr. Kinglet (20)	Blue Jay (26)	Yellow-rumped Warbler (22)
European Starling (26)	Yellow-rumped Warbler (8)	Black-cap. Chickadee (19)	Ruby-cr. Kinglet (22)	Dark-eyed Junco (18)

Banding, Fall Week 12 (October 17 - 23):

2005	2006	2007	2008	2009
American Robin (47)	American Robin (146)	Ruby-cr. Kinglet (73)	American Robin (101)	Dark-eyed Junco (109)
Black-cap. Chickadee (37)	Ruby-cr. Kinglet (66)	American Robin (68)	Dark-eyed Junco (54)	American Robin (96)
Dark-eyed Junco (22)	Golden-cr. Kinglet (28)	Dark-eyed Junco (38)	White-thr. Sparrow (15)	White-thr. Sparrow (35)
American Goldfinch (11)	White-thr. Sparrow (19)	Black-cap. Chickadee (21)	Song Sparrow (13)	Black-cap. Chickadee (31)
Am. Tree Sparrow (9)	Dark-eyed Junco (15)	White-thr. Sparrow (21)	Yellow-rumped Warbler (11)	Red-wing. Blackbird (30)
Fox Sparrow (5)	Am. Tree Sparrow (14)	Am. Tree Sparrow (16)	Black-cap. Chickadee (9)	Song Sparrow (12)
Song Sparrow (5)	Song Sparrow (13)	Song Sparrow (16)	Ruby-cr. Kinglet (5)	Fox Sparrow (9)
Ruby-cr. Kinglet (4)	Hermit Thrush (8)	Fox Sparrow (9)	Am. Tree Sparrow (5)	Ruby-cr. Kinglet (8)
Hermit Thrush (4)	Yellow-rumped Warbler (6)	Golden-cr. Kinglet (5)		Am. Tree Sparrow (7)
White-thr. Sparrow (3)		American Goldfinch (5)		Golden-cr. Kinglet (6)

2010	2011	2012	2013	2014
American Robin (191)	White-thr. Sparrow (27)	Black-cap. Chickadee (62)	American Robin (68)	Dark-eyed Junco (97)
Dark-eyed Junco (134)	Dark-eyed Junco (24)	Dark-eyed Junco (47)	Ruby-cr. Kinglet (28)	Ruby-cr. Kinglet (65)
Black-cap. Chickadee (132)	Ruby-cr. Kinglet (18)	American Robin (45)	White-thr. Sparrow (15)	White-thr. Sparrow (62)
Ruby-cr. Kinglet (25)	Golden-cr. Kinglet (15)	Ruby-cr. Kinglet (41)	Golden-cr. Kinglet (12)	American Robin (32)
White-thr. Sparrow (25)	Song Sparrow (15)	Fox Sparrow (25)	Hermit Thrush (11)	Hermit Thrush (25)
Hermit Thrush (21)	American Robin (8)	White-thr. Sparrow (20)	Common Grackle (8)	Am. Tree Sparrow (23)
Song Sparrow (16)	Red-wing. Blackbird (8)	Golden-cr. Kinglet (15)	Dark-eyed Junco (6)	Fox Sparrow (15)
Am. Tree Sparrow (13)	Am. Tree Sparrow (6)	Hermit Thrush (14)	Yellow-rumped Warbler (3)	Black-cap. Chickadee (14)
Fox Sparrow (12)		Am. Tree Sparrow (12)	Am. Tree Sparrow (3)	Golden-cr. Kinglet (12)
Red-wing. Blackbird (10)		Red-wing. Blackbird (10)	Song Sparrow (3)	Song Sparrow (11)

Observations, Fall Week 12 (October 17 - 23):

2005	2006	2007	2008	2009
Canada Goose (260)	American Robin (322)	Canada Goose (946)	Canada Goose (283)	Red-wing. Blackbird (334)
American Robin (240)	Red-wing. Blackbird (174)	American Robin (333)	Red-wing. Blackbird (276)	American Robin (321)
Common Grackle (133)	European Starling (169)	Red-wing. Blackbird (220)	American Robin (264)	Canada Goose (166)
American Crow (101)	American Crow (152)	American Crow (179)	American Crow (197)	American Crow (103)
Red-wing. Blackbird (98)	Canada Goose (78)	Common Grackle (108)	Common Grackle (105)	Dark-eyed Junco (37)
European Starling (92)	White-thr. Sparrow (24)	European Starling (38)	Ring-billed Gull (58)	Black-cap. Chickadee (26)
Dark-eyed Junco (57)	Cedar Waxwing (23)	Dark-eyed Junco (37)	Dark-eyed Junco (36)	European Starling (26)
Black-cap. Chickadee (24)	Ruby-cr. Kinglet (21)	Ruby-cr. Kinglet (20)	European Starling (28)	White-thr. Sparrow (23)
Ring-billed Gull (23)	Mallard (17)	White-thr. Sparrow (17)	Black-cap. Chickadee (22)	Common Grackle (18)
Mourning Dove (22)	Blue Jay (14)	Black-cap. Chickadee (15)	White-thr. Sparrow (14)	Blue Jay (10)
White-thr. Sparrow (22)				

2010	2011	2012	2013	2014
American Robin (552)	Canada Goose (682)	Canada Goose (1159)	American Robin (392)	Canada Goose (328)
Canada Goose (425)	Red-wing. Blackbird (306)	Red-wing. Blackbird (265)	Red-wing. Blackbird (326)	American Robin (185)
Red-wing. Blackbird (349)	American Robin (217)	American Robin (207)	European Starling (251)	Red-wing. Blackbird (135)
European Starling (167)	American Crow (107)	American Crow (130)	Canada Goose (170)	American Crow (94)
American Crow (135)	European Starling (24)	Common Grackle (80)	Common Grackle (63)	Common Grackle (72)
Dark-eyed Junco (69)	Black-cap. Chickadee (22)	European Starling (59)	American Crow (53)	European Starling (72)
Black-cap. Chickadee (51)	White-thr. Sparrow (21)	Dark-eyed Junco (44)	Ring-billed Gull (28)	Dark-eyed Junco (53)
White-thr. Sparrow (33)	Blue Jay (18)	White-thr. Sparrow (27)	White-thr. Sparrow (18)	White-thr. Sparrow (53)
Common Grackle (32)	Dark-eyed Junco (14)	Black-cap. Chickadee (25)	Black-cap. Chickadee (16)	Ruby-cr. Kinglet (17)
Mallard (22)	Mallard (9)	Mallard (20)	Ruby-cr. Kinglet (16)	Blue Jay (16)

Banding, Fall Week 13 (October 24 - 30):

2005	2006	2007	2008	2009
Dark-eyed Junco (79)	American Robin (34)	American Robin (99)	American Robin (95)	Dark-eyed Junco (175)
Black-cap. Chickadee (31)	Am. Tree Sparrow (15)	Black-cap. Chickadee (15)	Dark-eyed Junco (94)	Am. Tree Sparrow (54)
Fox Sparrow (20)	Ruby-cr. Kinglet (14)	Am. Tree Sparrow (8)	Ruby-cr. Kinglet (9)	Black-cap. Chickadee (44)
American Robin (18)	Dark-eyed Junco (9)	Fox Sparrow (5)	Am. Tree Sparrow (6)	White-thr. Sparrow (22)
Am. Tree Sparrow (15)	Song Sparrow (8)	Song Sparrow (4)	Song Sparrow (5)	Fox Sparrow (17)
Golden-cr. Kinglet (6)	White-thr. Sparrow (8)	Dark-eyed Junco (4)	Fox Sparrow (3)	American Robin (9)
White-thr. Sparrow (5)	Golden-cr. Kinglet (2)		White-thr. Sparrow (3)	Song Sparrow (9)
American Goldfinch (4)			Purple Finch (3)	Ruby-cr. Kinglet (4)
			Hermit Thrush (2)	Golden-cr. Kinglet (3)
				Swamp Sparrow (3)

2010	2011	2012	2013	2014
American Robin (125)	American Robin (53)	Black-cap. Chickadee (28)	American Robin (91)	Am. Tree Sparrow (80)
Black-cap. Chickadee (87)	Am. Tree Sparrow (32)	Golden-cr. Kinglet (19)	Am. Tree Sparrow (8)	American Robin (71)
Dark-eyed Junco (66)	Dark-eyed Junco (12)	American Robin (19)	White-thr. Sparrow (7)	Dark-eyed Junco (71)
Am. Tree Sparrow (37)	White-thr. Sparrow (10)	Am. Tree Sparrow (19)	Song Sparrow (4)	White-thr. Sparrow (25)
Fox Sparrow (22)	Red-wing. Blackbird (9)	Dark-eyed Junco (18)	Blue Jay (3)	Fox Sparrow (19)
White-thr. Sparrow (22)	Ruby-cr. Kinglet (7)	Fox Sparrow (10)	Black-cap. Chickadee (3)	Ruby-cr. Kinglet (17)
American Goldfinch (22)	Golden-cr. Kinglet (4)	White-thr. Sparrow (10)	Golden-cr. Kinglet (3)	Hermit Thrush (12)
Ruby-cr. Kinglet (9)	Song Sparrow (4)	American Goldfinch (8)	Hermit Thrush (3)	Golden-cr. Kinglet (8)
Hermit Thrush (3)	Black-cap. Chickadee (3)	Northern Cardinal (5)	Dark-eyed Junco (3)	Song Sparrow (8)
	Northern Cardinal (3)	Ruby-cr. Kinglet (4)	Ruby-cr. Kinglet (2)	Black-cap. Chickadee (7)

Observations, Fall Week 13 (October 24 - 30):

2005	2006	2007	2008	2009
Canada Goose (404)	Red-wing. Blackbird (150)	Canada Goose (1670)	American Robin (259)	Red-wing. Blackbird (465)
Unidentified Scaup sp. (169)	American Crow (144)	Red-wing. Blackbird (700)	Red-wing. Blackbird (211)	American Robin (174)
American Crow (115)	American Robin (136)	American Robin (234)	American Crow (174)	American Crow (143)
American Robin (106)	European Starling (104)	American Crow (167)	European Starling (131)	Canada Goose (91)
Dark-eyed Junco (63)	Canada Goose (72)	Mallard (139)	Canada Goose (80)	Dark-eyed Junco (71)
Red-wing. Blackbird (60)	Cedar Waxwing (27)	Common Grackle (81)	Dark-eyed Junco (48)	Mallard (33)
Common Grackle (40)	Blue Jay (14)	European Starling (63)	Common Grackle (25)	Black-cap. Chickadee (29)
Mourning Dove (36)	Black-cap. Chickadee (14)	Black-cap. Chickadee (16)	Black-cap. Chickadee (15)	White-thr. Sparrow (22)
Black-cap. Chickadee (34)	Mallard (11)	American Goldfinch (13)	Ring-billed Gull (9)	Am. Tree Sparrow (16)
Ring-billed Gull (20)	White-thr. Sparrow (11)	Dark-eyed Junco (10)	Blue Jay (8)	European Starling (15)

2010	2011	2012	2013	2014
American Robin (550)	Canada Goose (486)	Canada Goose (1206)	American Robin (248)	American Robin (776)
Canada Goose (331)	Red-wing. Blackbird (461)	Ring-billed Gull (255)	European Starling (221)	Canada Goose (565)
Red-wing. Blackbird (305)	American Robin (275)	Red-wing. Blackbird (254)	Red-wing. Blackbird (218)	Red-wing. Blackbird (246)
American Crow (208)	American Crow (239)	American Robin (196)	Canada Goose (215)	European Starling (90)
European Starling (117)	European Starling (46)	American Crow (115)	American Crow (32)	American Crow (80)
Dark-eyed Junco (57)	Mallard (23)	European Starling (91)	Black-cap. Chickadee (14)	Common Grackle (58)
Black-cap. Chickadee (35)	Dark-eyed Junco (17)	Common Grackle (59)	Blue Jay (13)	Dark-eyed Junco (43)
Mallard (31)	Black-cap. Chickadee (16)	Mallard (46)	White-thr. Sparrow (9)	Snow Goose (36)
White-thr. Sparrow (22)	Blue Jay (15)	Black-cap. Chickadee (34)	Dark-eyed Junco (8)	Am. Tree Sparrow (30)
Blue Jay (15)	Common Grackle (11)	Mourning Dove (25)	Ring-billed Gull (5)	White-thr. Sparrow (23)

Banding, Fall Season (August 1 - October 30):

2005	2006	2007	2008	2009
White-thr. Sparrow (354)	Yellow-rumped Warbler (522)	Ruby-cr. Kinglet (376)	Yellow-rumped Warbler (1732)	White-thr. Sparrow (428)
Ruby-cr. Kinglet (245)	Ruby-cr. Kinglet (444)	American Robin (318)	American Robin (346)	Dark-eyed Junco (361)
Black-cap. Chickadee (222)	American Robin (302)	White-thr. Sparrow (318)	Ruby-cr. Kinglet (319)	Song Sparrow (322)
Song Sparrow (215)	Song Sparrow (302)	Song Sparrow (198)	White-thr. Sparrow (317)	Ruby-cr. Kinglet (257)
Magnolia Warbler (192)	White-thr. Sparrow (187)	Black-cap. Chickadee (172)	Magnolia Warbler (264)	American Robin (200)
Dark-eyed Junco (191)	Magnolia Warbler (157)	Dark-eyed Junco (127)	Dark-eyed Junco (236)	Black-cap. Chickadee (135)
Nashville Warbler (164)	Nashville Warbler (98)	American Goldfinch (94)	Song Sparrow (199)	Yellow-rumped Warbler (106)
Yellow-rumped Warbler (157)	Common Yellowthroat (77)	White-cr. Sparrow (80)	Nashville Warbler (158)	American Redstart (104)
American Robin (119)	Golden-cr. Kinglet (73)	American Redstart (77)	American Redstart (99)	Magnolia Warbler (103)
Red-eyed Vireo (117)	Baltimore Oriole (62)	Magnolia Warbler (74)	Common Yellowthroat (93)	Hermit Thrush (86)

2010	2011	2012	2013	2014
Yellow-rumped Warbler (2359)	Magnolia Warbler (252)	White-thr. Sparrow (506)	Ruby-cr. Kinglet (347)	White-thr. Sparrow (484)
Dark-eyed Junco (509)	White-thr. Sparrow (216)	Ruby-cr. Kinglet (353)	Magnolia Warbler (284)	Ruby-cr. Kinglet (327)
Black-cap. Chickadee (440)	Tennessee Warbler (208)	Yellow-rumped Warbler (292)	Song Sparrow (267)	Magnolia Warbler (279)
American Robin (394)	Ruby-cr. Kinglet (180)	Song Sparrow (217)	White-thr. Sparrow (263)	Dark-eyed Junco (242)
White-thr. Sparrow (351)	Song Sparrow (170)	Magnolia Warbler (203)	Tennessee Warbler (249)	Tennessee Warbler (168)
Ruby-cr. Kinglet (271)	American Redstart (150)	Dark-eyed Junco (198)	American Robin (236)	Yellow-rumped Warbler (164)
Magnolia Warbler (260)	Nashville Warbler (141)	Swainson's Thrush (176)	American Redstart (146)	American Robin (144)
Song Sparrow (219)	Yellow-rumped Warbler (108)	Black-cap. Chickadee (171)	Yellow-rumped Warbler (108)	American Redstart (138)
Nashville Warbler (161)	Common Yellowthroat (80)	American Redstart (139)	Golden-cr. Kinglet (101)	Song Sparrow (136)
American Redstart (149)	American Robin (79)	American Robin (130)	Cedar Waxwing (91)	Red-eyed Vireo (126)

Observations, Fall Season (August 1 - October 30):

2005	2006	2007	2008	2009
Canada Goose (241)	American Crow (112)	Canada Goose (378)	Canada Goose (143)	Canada Goose (213)
Common Grackle (151)	Canada Goose (91)	Red-wing. Blackbird (103)	American Crow (97)	American Robin (95)
American Robin (64)	American Robin (86)	American Crow (102)	American Robin (79)	Red-wing. Blackbird (86)
American Crow (61)	Red-wing. Blackbird (55)	American Robin (89)	Red-wing. Blackbird (64)	American Crow (50)
White-thr. Sparrow (29)	Common Grackle (46)	Common Grackle (31)	Common Grackle (41)	White-thr. Sparrow (28)
Red-wing. Blackbird (27)	European Starling (27)	White-thr. Sparrow (19)	Yellow-rumped Warbler (35)	Common Grackle (23)
Black-cap. Chickadee (24)	Song Sparrow (21)	American Goldfinch (19)	European Starling (19)	Black-cap. Chickadee (20)
Dark-eyed Junco (16)	Yellow-rumped Warbler (17)	Black-cap. Chickadee (18)	Black-cap. Chickadee (16)	European Starling (18)
Blue Jay (15)	Blue Jay (17)	European Starling (17)	Blue Jay (14)	Cedar Waxwing (17)
American Goldfinch (15)	Cedar Waxwing (17)	Mallard (13)	White-thr. Sparrow (14)	Dark-eyed Junco (13)

2010	2011	2012	2013	2014
Canada Goose (284)	Canada Goose (396)	Canada Goose (294)	Canada Goose (147)	Canada Goose (223)
American Robin (136)	Red-wing. Blackbird (113)	Common Grackle (154)	American Robin (81)	American Robin (106)
Red-wing. Blackbird (112)	American Robin (61)	Red-wing. Blackbird (116)	Red-wing. Blackbird (63)	Red-wing. Blackbird (66)
American Crow (82)	American Crow (59)	American Robin (76)	European Starling (53)	Common Grackle (54)
Yellow-rumped Warbler (70)	Black-cap. Chickadee (21)	European Starling (60)	American Crow (45)	European Starling (50)
European Starling (32)	Cedar Waxwing (17)	American Crow (45)	Common Grackle (34)	American Crow (41)
Common Grackle (31)	Blue Jay (16)	White-thr. Sparrow (37)	American Goldfinch (20)	White-thr. Sparrow (31)
White-thr. Sparrow (29)	White-thr. Sparrow (12)	Blue Jay (25)	Cedar Waxwing (20)	Blue Jay (19)
Black-cap. Chickadee (29)	European Starling (10)	Ring-billed Gull (23)	Black-cap. Chickadee (18)	Black-cap. Chickadee (17)
Blue Jay (27)	American Goldfinch (10)	Black-cap. Chickadee (21)	Blue Jay (17)	American Goldfinch (16)

Appendix D: Species Occurrence Summaries

This section summarizes observation and banding data on a weekly (spring and fall) or monthly (summer and winter) basis for all 210 species observed at MBO between November 2004 and October 2014. Species are organized according to the latest taxonomic revisions by the American Ornithologists' Union (AOU 2015). Selected species accounts feature some supplementary analysis.

Most species accounts begin with a table providing an overview of spring and fall occurrence by year. It identifies the first and last day of occurrence in each season, as well as the date of the peak count, the number of days spanned by first and last observations, number of days on which the species was observed (and percentage of the season), date of the season's high count, and total number of individuals recorded. Mean values for the ten-year period are presented for all categories, calculated as the average date / span / days / high count among years in which the species was observed, and as the average total over ten years counting years with no observations as zeroes.

This section is typically followed by two tables which provide the mean daily count of individuals for each period of the year (tables are omitted if they contain no records). During spring and fall migration monitoring, this is usually the total divided by 7, since those seasons have had almost complete coverage; during summer and winter (and owl banding) the totals are divided by the number of days of observation or banding in each period. Numbers above 0.1 are rounded to one decimal place, and those below 0.1 are rounded to two decimal places to permit distinction among rare records. For each season, the peak is shown in bold red, unless numbers across the season are too similar to identify a distinct peak (usually for rare species). Time periods are defined as follows:

WINTER:

Nov: October 31 – November 30 (of the year BEFORE that listed in the row header)

Dec: December 1 – 31 (of the year BEFORE that listed in the row header)

Jan: January 1 – 31

Feb: February 1 – 28

Mar: March 1 – 27

SPRING:

S1: March 28 – April 3

S6: May 2 – 8

S2: April 4 – 10

S7: May 9 – 15

S3: April 11 – 17

S8: May 16 – 22

S4: April 18 – 24

S9: May 23 – 29

S5: April 25 – May 1

S10: May 30 – June 5

SUMMER*:

Jun: June 6 – 30

July: July 1 – 31

FALL:

F1: August 1 – 7

F8: September 19 – 25

F2: August 8 – 14

F9: September 26 – October 2

F3: August 15 – 21

F10: October 3 – 9

F4: August 22 – 28

F11: October 10 – 16

F5: August 29 – September 4

F12: October 17 – 23

F6: September 5 – 11

F13: October 24 – 30

F7: September 12 – 18

For species that have been banded, another two tables (or one, if not banded in both winter/spring and summer/fall) summarize the number of individuals banded per period, and otherwise following the same approach as the observation tables. A brief paragraph follows the tables for each species, highlighting key points such as seasonal patterns, trends over time, and notable occurrences. Supplementary analysis highlighting trends over time or results of additional research is provided for 27 of the most common species.

* note that in 2009, the last day of MAPS banding was August 4, and in 2012, the first day was June 5

GWFG: Greater White-fronted Goose / Oie rieuse (*Anser albifrons*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013								Sep 21	Sep 21	Sep 21	1	1 (1%)	1	1
2014	Apr 24	Apr 24	Apr 24	1	1 (1%)	1	1							
Mean	Apr 24	Apr 24	Apr 24	1	1 (1%)	1	0.1	Sep 21	Sep 21	Sep 21	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014										0.1							0.01
Mean										0.01							<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013											0.1						0.01
2014																	
Mean											0.01						<0.01

Only two Greater White-fronted Geese have been observed to date at MBO, one in September 2013 and another the next spring in April 2014. Both were associated with flocks of Canada Geese.

SNGO: Snow Goose / Oie des neiges (*Chen caerulescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 5	Apr 9	5	2 (3%)	250	320	Oct 10	Oct 23	Oct 23	14	3 (3%)	110	171
2006	Apr 7	May 6	May 7	31	4 (6%)	3800	4450	Oct 6	Oct 28	Oct 28	23	3 (3%)	32	34
2007	Apr 14	Apr 19	May 3	20	5 (7%)	4500	6135							
2008	Apr 4	May 5	May 5	32	9 (13%)	1050	3299	Oct 22	Oct 22	Oct 22	1	1 (1%)	20	20
2009	Mar 28	Mar 28	May 3	37	7 (10%)	1300	3305	Sep 15	Oct 3	Oct 3	19	5 (5%)	150	225
2010	Apr 3	Apr 3	Apr 3	1	1 (1%)	220	220	Oct 2	Oct 3	Oct 26	25	3 (3%)	71	78
2011	Apr 1	Apr 1	Apr 29	29	7 (10%)	3250	3916	Oct 1	Oct 2	Oct 2	2	2 (2%)	135	178
2012	Apr 25	May 12	May 12	18	2 (3%)	100	188	Oct 17	Oct 28	Oct 28	12	3 (3%)	22	27
2013	Mar 31	Apr 10	Apr 21	22	5 (7%)	260	675	Oct 2	Oct 4	Oct 5	4	4 (4%)	22	25
2014	Apr 2	Apr 25	Apr 25	24	5 (7%)	150	435	Oct 21	Oct 28	Oct 28	8	3 (3%)	250	360
Mean	Apr 5	Apr 17	Apr 26	22	5 (7%)	1488	2294	Oct 7	Oct 15	Oct 18	12	3 (3%)	90	112

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								53.3									5.4
2006								62.5				582.1					64.5
2007		0.9				0.1			27.9	791.4		57.1					87.6
2008	0.1					0.04		20.3	162.1	138.9		150.0					47.1
2009							185.7	7.2	95.7	155.7	28.6	0.3					47.9
2010							31.4										3.1
2011							501.4	36.4		21.4	0.1						55.9
2012					12.6	2.5					12.6		14.3				2.7
2013							7.1	83.6		5.7							9.6
2014	17.8					3.1	3.3		14.3	23.6	21.4						6.4
Mean	0.9	0.1			0.7	0.4	82.3	25.7	30.0	115.3	6.3	79.0	1.4				33.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														10.2	15.7		1.9
2006													0.1	0.1		4.6	0.4
2007																	
2008															2.9		0.2
2009										10.0		0.7	21.4				2.5
2010												0.1	10.1			0.9	0.9
2011												25.4					2.0
2012															0.7	3.1	0.3
2013												0.1	3.4				0.3
2014															15.7	35.7	4.0
Mean										1.0		2.7	3.6	0.9	3.5	4.4	1.2

Snow Goose is a regular spring and fall migrant at MBO, with a few late observations trickling into early winter in three years, and an early flock observed near the end of winter in another. To date, all sightings have been of individuals or flocks flying past MBO, and all are believed to be Greater Snow Geese. Spring numbers are always much higher than those in fall, reflecting the large flocks that stage in eastern Ontario and southern Quebec prior to heading on to the arctic. Timing of migration is highly variable from year to year, with the spring peak ranging from week 1 to 7, and the fall peak from week 9 to 13. Spring numbers have been significantly lower since 2010, except for 2011.

ROGO: Ross's Goose / Oie de Ross (*Chen rossii*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013	May 12	May 12	May 12	1	1 (1%)	1	1							
2014														
Mean	May 12	May 12	May 12	1	1 (1%)	1	0.1							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013													0.1				0.01
2014																	
Mean													0.01				<0.01

Only one Ross's Goose has been observed at MBO, in May 2013, flying low and initially detected by its distinctive high-pitched call.

BRAN (ATBR): (Atlantic) Brant / Bernache cravant (forme à ventre foncé) (*Branta bernicla bernicla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 21	May 21	May 21	1	1 (1%)	10	10							
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean	May 21	May 21	May 21	1	1 (1%)	10	1.0							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														1.4			0.1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.1				0.01

Only one flock of Brant has been observed at MBO, flying past MBO in May 2006.

CACG: Cackling Goose / Bernache de Hutchins (*Branta hutchinsii*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 22	Oct 22	Oct 22	1	1 (1%)	1	1
2006								Oct 10	Oct 10	Oct 10	1	1 (1%)	1	1
2007								Oct 24	Oct 29	Oct 29	6	2 (2%)	6	9
2008	May 2	May 5	May 5	4	2 (3%)	3	5	Sep 22	Sep 22	Sep 22	1	1 (1%)	1	1
2009								Sep 19	Sep 19	Oct 25	37	5 (5%)	1	5
2010	May 4	May 4	May 4	1	1 (1%)	1	1	Oct 26	Oct 26	Oct 26	1	1 (1%)	10	10
2011								Oct 10	Oct 10	Oct 15	6	3 (3%)	1	3
2012	May 9	May 9	May 9	1	1 (1%)	1	1							
2013								Aug 18	Aug 18	Oct 29	73	3 (3%)	4	6
2014								Oct 11	Oct 11	Oct 28	18	2 (2%)	3	5
Mean	May 5	May 6	May 6	2	1 (2%)	2	0.7	Oct 4	Oct 5	Oct 19	16	2 (2%)	3	4.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008	0.1					0.04						0.7					0.07
2009																	
2010	0.05					0.02						0.1					0.01
2011																	
2012													0.1				0.01
2013																	
2014																	
Mean	0.02					0.01						0.09	0.01				0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															0.1		0.01
2006														0.1			0.01
2007																1.3	0.10
2008											0.1						0.01
2009											0.3	0.3				0.1	0.05
2010																1.4	0.1
2011														0.4			0.03
2012																	
2013						0.6				0.1						0.1	0.07
2014														0.4		0.3	0.05
Mean						0.06				0.01	0.04	0.03		0.1	0.01	0.3	0.05

Cackling Goose is an uncommon but annual species at MBO, with fall observations in 9 of 10 years, spring sightings in 3 years, and early winter records in two years. All Cackling Geese have been observed flying past, in mixed flocks with Canada Geese. All spring observations have occurred within a one-week span from May 2 to 9, while the majority of fall observations are between late September and end of October.

CANG: Canada Goose / Bernache du Canada (*Branta canadensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 2	Jun 3	60	56 (95%)	633	4898	Sep 3	Oct 8	Oct 30	58	48 (55%)	5100	21175
2006	Mar 28	Apr 22	Jun 4	69	68 (99%)	1600	27698	Aug 6	Oct 5	Oct 30	86	64 (70%)	580	8321
2007	Mar 28	Mar 31	Jun 5	70	68 (97%)	2007	16620	Aug 16	Oct 28	Oct 30	76	54 (59%)	2510	34409
2008	Mar 28	Apr 23	Jun 4	69	63 (90%)	2150	13331	Aug 4	Sep 21	Oct 30	88	65 (71%)	1120	13026
2009	Mar 28	May 3	Jun 5	70	67 (97%)	1025	8237	Aug 9	Sep 19	Oct 30	83	68 (75%)	4329	19414
2010	Mar 28	May 4	Jun 5	70	60 (86%)	1727	5357	Aug 13	Oct 3	Oct 30	79	59 (65%)	6268	25819
2011	Mar 29	Apr 4	Jun 5	69	68 (97%)	784	11013	Aug 11	Oct 1	Oct 30	81	72 (79%)	10300	35991
2012	Mar 28	Mar 28	Jun 5	70	66 (94%)	710	7870	Aug 6	Oct 17	Oct 30	86	79 (87%)	2343	26761
2013	Mar 28	Mar 31	Jun 5	70	69 (99%)	1200	8855	Aug 2	Sep 26	Oct 30	90	70 (77%)	1002	13388
2014	Apr 2	Apr 15	Jun 4	64	61 (90%)	900	7915	Aug 11	Sep 19	Oct 30	81	65 (71%)	1998	20332
Mean	Mar 29	Apr 16	Jun 4	68	65 (94%)	1274	11179	Aug 11	Oct 2	Oct 30	81	64 (71%)	3555	21864

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	46.0	30.0				17.4		240.7	65.6	91.7	102.4	219.3	11.1	5.6	6.1	6.6	83.0
2006	7.0	8.9			20.0	7.2	715.0	853.8	751.1	898.6	541.0	250.7	9.7	11.3	32.4	15.1	401.4
2007	137.9	875.7	3.7	2.2	0.6	189.2	1098.9	178.3	198.4	321.6	109.1	430.7	13.3	9.3	11.0	3.7	237.4
2008	172.8					57.6	3.4	174.1	439.6	561.1	203.3	458.6	39.4	8.1	13.4	3.3	190.4
2009	42.9	140.0			109.4	60.0	292.6	112.5	88.3	150.9	200.7	292.4	37.4	9.7	5.7	2.6	119.4
2010	117.7	236.8			171.2	100.9	179.1	60.9	11.4	48.4	79.1	328.0	45.7	8.4	2.9	1.3	76.5
2011	524.8				18.0	145.7	454.4	509.6	52.1	146.6	95.6	142.9	119.7	9.9	7.0	35.6	157.3
2012	176.5	31.0			967.4	269.0	297.7	162.3	100.7	158.1	68.6	195.3	128.0	2.4	3.6	7.6	112.4
2013	124.4	4.9			13.4	25.4	297.0	236.1	100.7	110.1	182.7	261.7	57.7	11.1	5.1	2.6	126.5
2014	299.6	7.5				52.7	25.7	90.3	246.4	372.3	101.4	187.9	95.9	4.4	6.6	4.2	116.4
Mean	157.4	163.7	0.3	0.2	109.2	88.2	379.4	255.6	205.4	288.8	168.4	276.7	55.8	8.0	9.4	8.4	163.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.3		0.6					4.6	8.6	22.3	364.9	493.5	1250.2	544.2	259.6	404.1	240.6
2006				0.4	1.1	2.0	2.4	4.4	3.7	7.4	156.3	250.9	376.4	233.4	77.7	72.4	91.4
2007	1.6		0.8			4.4	1.0	0.6	13.6	13.7	132.6	433.1	901.0	800.0	945.7	1669.9	378.1
2008	0.6		0.3	0.4	6.9	0.1	4.4	53.0	28.6	42.4	447.9	310.3	428.1	175.0	283.4	80.3	143.1
2009					8.9	5.4	3.6	24.3	42.7	80.6	1166.4	757.7	257.6	168.9	166.1	91.3	213.3
2010					0.7		7.1	10.0	5.9	46.1	125.9	1147.0	1396.0	194.0	425.0	330.7	283.7
2011	2.7		1.1		1.0	1.4	5.3	35.6	65.3	122.4	147.3	2361.0	928.0	306.3	682.1	485.9	395.5
2012	2.5		1.2	4.9	11.7	45.7	73.0	27.6	45.6	45.6	93.0	407.1	406.6	296.7	1159.1	1206.4	294.1
2013	0.7		0.3	3.6	0.7	14.6	1.7	6.7	11.4	53.3	282.9	612.1	349.7	190.7	170.0	215.1	147.1
2014	1.3		0.6		0.4	0.3	2.4	11.3	15.7	137.1	601.4	518.4	439.3	285.0	328.0	565.1	223.4
Mean	1.0		0.5	0.9	3.1	7.4	10.1	17.8	24.1	57.1	351.8	732.5	664.9	316.2	449.7	512.1	241.1

Due to the large flocks observed migrating past MBO in both spring and fall, Canada Goose outnumbers all other species recorded by a wide margin (nearly 335,000 individuals counted over ten years). Spring migration typically begins in late March and continues through to around mid-May, while fall migration begins around mid-September and often lasts into December. Small numbers are typically observed during the breeding season. The spring peak varies from week 1 to 6, although in every year except 2006 there was a swell in numbers from week 5 to 6 representing the final big push of northward migration. Similarly, the fall peak has ranged over a six-week period, from week 8 to 13. Spring numbers were particularly high in 2006 and low in 2005 and 2010; to a certain extent the season totals reflect the length of time that large flocks linger in the region, making daily flights back and forth past MBO (rather than reflecting true differences in abundance from year to year). The daily movements of staging geese apply to fall as well, but the peak size of flocks varies somewhat more, from 376 in 2006 to 2361 in 2011.

TUSW: Tundra Swan / Cygne siffleur (*Cygnus columbianus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011								Sep 19	Sep 19	Sep 19	1	1 (1%)	1	1
2012								Sep 24	Sep 24	Sep 24	1	1 (1%)	1	1
2013														
2014														
Mean								Sep 21	Sep 21	Sep 21	1	1 (1%)	1	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011											0.1						0.01
2012											0.1						0.01
2013																	
2014																	
Mean											0.03						<0.01

Tundra Swan has been observed at MBO only twice; both sightings were of lone birds flying past in week 8 of fall, in 2011 and 2012.

WODU: Wood Duck / Canard branchu (*Aix sponsa*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 23	Jun 2	59	56 (95%)	14	258	Aug 2	Oct 1	Oct 30	90	45 (51%)	11	233
2006	Mar 30	May 24	Jun 5	68	67 (97%)	30	558	Aug 3	Oct 23	Oct 30	89	65 (71%)	28	307
2007	Apr 2	May 24	Jun 5	65	62 (89%)	33	578	Aug 1	Oct 28	Oct 30	91	36 (40%)	22	110
2008	Apr 8	Apr 29	Jun 2	56	55 (79%)	13	317	Aug 1	Oct 7	Oct 7	68	16 (18%)	5	26
2009	Mar 28	Apr 2	Jun 4	69	67 (97%)	21	394	Aug 6	Aug 7	Oct 28	84	25 (27%)	7	67
2010	Mar 28	Apr 14	Jun 2	67	65 (93%)	16	457	Aug 7	Oct 3	Oct 30	85	41 (45%)	14	169
2011	Apr 4	Apr 7	Jun 5	63	63 (90%)	26	472	Aug 1	Sep 22	Oct 29	90	62 (68%)	21	267
2012	Mar 28	Apr 18	Jun 4	69	67 (96%)	22	666	Aug 7	Oct 20	Oct 29	84	53 (58%)	34	288
2013	Apr 5	Apr 15	Jun 4	61	59 (84%)	15	410	Aug 1	Sep 13	Oct 20	81	40 (44%)	24	134
2014	Apr 9	Apr 18	Jun 3	56	55 (81%)	15	323	Aug 1	Oct 11	Oct 24	85	57 (63%)	18	213
Mean	Apr 2	Apr 26	Jun 3	63	62 (90%)	20	443	Aug 3	Oct 1	Oct 25	85	44 (49%)	18	181

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								4.7	4.0	5.2	4.7	4.3	2.3	3.1	5.9	5.8	4.4
2006	1.0					0.2	5.1	10.0	9.9	7.4	6.3	7.1	11.0	9.7	10.0	4.6	8.1
2007	0.2					0.07	3.0	7.7	5.4	6.4	7.6	9.9	7.9	13.0	16.9	4.9	8.3
2008								0.7	3.1	8.3	7.7	7.1	4.6	7.3	4.3	2.1	4.5
2009					0.2	0.08	8.9	4.2	6.1	10.1	7.9	5.1	5.3	3.1	3.1	3.0	5.7
2010	0.1				2.3	0.5	7.6	8.3	8.3	11.7	9.1	8.1	6.3	2.4	2.1	1.3	6.5
2011	0.1					0.03		13.0	9.7	9.7	5.4	6.3	7.0	5.1	4.7	6.4	6.7
2012					2.8	0.6	8.9	9.3	12.1	14.3	11.6	10.7	14.0	8.6	4.4	1.3	9.5
2013								5.9	6.3	11.6	10.1	7.0	6.3	4.4	4.6	2.4	5.9
2014								0.4	6.0	8.7	7.9	5.3	4.6	4.4	5.4	4.0	4.8
Mean	0.2				0.6	0.2	3.8	6.4	7.1	9.4	7.8	7.1	6.9	6.1	6.1	3.5	6.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.5	0.5	1.0	1.0	0.7	0.1	0.1	0.3	0.9	2.3	3.0	3.7	5.0	7.7	4.6	6.3	2.6
2006	2.8	0.3	1.4	2.1	0.3	1.6	1.3	2.7	5.0	1.1	2.0	5.1	4.0	5.7	6.6	6.3	3.4
2007	1.6	0.2	0.9	0.4	0.7	1.3	1.4	1.1	0.3	1.1	1.6	0.6	0.3	0.6	1.4	4.9	1.2
2008	0.2	0.2	0.2	0.3	0.9	0.6	0.6		0.1	0.1	0.4		0.7				0.3
2009	2.0		0.9	1.1	2.1	0.7	0.6	1.9		0.1	0.6	0.9	0.1	0.1	0.4	0.9	0.7
2010				0.1		0.7	0.3		0.1	1.6	0.4	3.3	4.9	4.0	5.3	3.4	1.9
2011	2.7		1.1	4.4	2.9	2.1	4.9	1.9	1.7		4.3	4.1	4.9	1.9	4.7	0.4	2.9
2012				0.4	0.9	1.3	1.1	1.3	1.3	4.3	3.1	2.3	2.9	7.4	7.7	7.1	3.2
2013	1.3	0.3	0.7	1.0	1.3	1.3	0.7	1.0	1.4	5.1	3.0	1.9	1.4	0.1	0.9		1.5
2014	0.7	0.3	0.4	2.6	3.0	5.0	4.7	3.7	2.9	0.6	0.4	1.9	1.4	3.6	0.1	0.6	2.3
Mean	1.5	0.2	0.8	1.4	1.3	1.5	1.6	1.4	1.4	1.6	1.9	2.3	2.5	3.0	3.2	3.0	2.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011					3												3
2012																	
2013																	
2014																	
Mean					0.3												0.3

Wood Duck is the most common breeding species of waterfowl at MBO, although scarce to absent in some summers, likely related to lower water levels in the ponds. Wood Ducks are always back by the second week of spring, and in five of ten years were present already in the first week (in three of those in fact, the first arrivals were spotted in later winter). Spring counts most commonly peak in week 4, with some migrants presumably continuing onward from MBO, and local residents perhaps somewhat less conspicuous as breeding begins. In five of ten years, Wood Ducks have been observed in every week of fall, and in three others they have missed only one week. Although the peak counts within a given season have ranged from early August to late October, the overall pattern shows a clearer pattern with numbers gradually increasing to a modest peak in mid-late October – though some years (e.g., 2008-09, 2013-14) are clear exceptions; again, water levels on site are likely a big factor driving seasonal occurrence of Wood Ducks. Wood Ducks have only been banded at MBO on one occasion, when three juveniles were opportunistically captured in early August 2011.

GADW: Gadwall / Canard chipeau (*Anas strepera*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 23	May 25	May 25	3	2 (3%)	2	3							
2007														
2008	May 23	May 23	May 30	8	6 (9%)	2	12							
2009	Apr 23	May 8	May 8	16	2 (3%)	5	8							
2010														
2011														
2012														
2013	Apr 29	Apr 29	May 30	32	8 (11%)	2	9							
2014	May 20	May 22	Jun 2	14	11 (16%)	3	19							
Mean	May 11	May 15	May 25	15	6 (8%)	3	5.1							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															0.4		0.04
2007																	
2008															1.4	0.3	0.2
2009									0.4		0.7						0.1
2010																	
2011	0.1					0.03											
2012																	
2013											0.3		0.1	0.6	0.1	0.1	0.1
2014														0.7	1.3	0.8	0.3
Mean	0.01					<0.01			0.04	0.03	0.07	0.01	0.1	0.3	0.1	0.07	

Gadwall is an irregular spring migrant at MBO, with observations in five of ten years; to date there has been only one sighting in another season, a lone individual in the first period of winter. Each spring that Gadwalls have been recorded, there were at least two individuals stopping over for a period of 3 to 32 days; although they lingered until the final week of spring in three of five years, none yet have been observed breeding or staying into summer.

AMWI: American Wigeon / Canard d'Amérique (*Anas americana*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	Apr 30	Apr 30	Apr 30	1	1 (1%)	2	2							
2007	Apr 9	Apr 9	Apr 9	1	1 (1%)	2	2							
2008														
2009	Apr 2	Apr 2	Apr 2	1	1 (1%)	2	2							
2010														
2011	May 8	May 8	May 8	1	1 (1%)	2	2							
2012	Mar 31	Mar 31	Mar 31	1	1 (1%)	1	1							
2013														
2014	May 18	May 20	May 20	3	2 (3%)	2	3							
Mean	Apr 21	Apr 21	Apr 21	1	1 (2%)	2	1.2							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006											0.3						0.03
2007									0.3								0.03
2008																	
2009								0.3									0.03
2010																	
2011												0.3					0.03
2012					0.2	0.04	0.1										0.01
2013																	
2014														0.4			0.04
Mean					0.01	<0.01	0.05	0.03			0.03	0.03		0.04			0.02

Similar to Gadwall, American Wigeon is an irregular spring visitor to MBO, with a lone winter record. Where the two species differ considerably is that Gadwalls tend to stop over at MBO for a short to moderate period, whereas in five of the six spring seasons with American Wigeon observations, they were limited to a single day. Although three of the six spring records have occurred in the first two weeks of the season, the remainder have been scattered between weeks 5 and 8.

ABDU: American Black Duck / Canard noir (*Anas rubripes*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 20	May 2	May 2	13	4 (7%)	4	9	Oct 8	Oct 8	Oct 11	4	2 (2%)	8	16
2006	Apr 19	Apr 19	Jun 1	44	16 (23%)	4	40	Aug 7	Oct 26	Oct 26	81	4 (4%)	4	8
2007	Apr 2	Apr 3	May 26	55	8 (11%)	14	34	Oct 24	Oct 30	Oct 30	7	5 (5%)	10	20
2008	Apr 17	Apr 17	May 13	27	6 (9%)	2	11	Aug 26	Sep 18	Sep 20	26	3 (3%)	3	5
2009								Aug 23	Aug 23	Oct 28	67	2 (2%)	2	3
2010	Apr 28	Apr 28	Apr 28	1	1 (1%)	5	5	Oct 4	Oct 4	Oct 27	24	3 (3%)	1	3
2011								Oct 2	Oct 2	Oct 2	1	1 (1%)	1	1
2012	Apr 12	Apr 12	Apr 12	1	1 (1%)	2	2	Aug 3	Oct 17	Oct 30	89	9 (10%)	8	36
2013	Apr 9	Apr 10	May 5	27	4 (6%)	11	23	Aug 15	Aug 16	Aug 16	2	2 (2%)	4	5
2014	Apr 22	Apr 22	May 7	16	2 (3%)	2	4	Oct 12	Oct 28	Oct 28	17	2 (2%)	2	3
Mean	Apr 16	Apr 17	May 8	23	5 (8%)	6	13	Sep 11	Oct 2	Oct 12	32	3 (4%)	4	10

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.5	0.3	0.6					0.2
2006										0.7	1.4	0.6	1.1	0.1	1.1	0.6	0.6
2007	0.1	2.1				0.4	3.3		0.7	0.3		0.3		0.1	0.1		0.5
2008	0.8					0.2			0.3	0.7	0.3		0.3				0.2
2009																	
2010											0.7						0.07
2011	0.1					0.03											
2012	0.1				0.4	0.1			0.3								0.03
2013								2.4	0.7			0.1					0.3
2014										0.3		0.3					0.06
Mean	0.10	0.3			0.02	0.07	0.4	0.3	0.2	0.2	0.3	0.2	0.1	0.03	0.1	0.06	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005													1.3	1.3			0.2
2006				0.1									0.3		0.1	0.6	0.09
2007																2.9	0.2
2008							0.1			0.4	0.1						0.05
2009							0.3									0.1	0.03
2010													0.3			0.1	0.03
2011												0.1					0.01
2012				0.1	0.1										3.0	1.9	0.4
2013						0.7											0.05
2014														0.1		0.3	0.03
Mean				0.03	0.01	0.07	0.04			0.04	0.01	0.01	0.2	0.1	0.3	0.6	0.1

Among the three duck species that have been observed at MBO in all years, American Black Duck is consistently the least common. Spring sightings were fairly regular over the first four years, but then absent entirely in two of the next three, and rare thereafter, aside from a good count in the second week of 2013; peak timing is relatively indistinct given the patchy observations. Fall observations show more of a concentration toward the final third of the season (i.e., October), but are also quite scattered and highly variable from year to year. Unlike spring, numbers in fall have been consistently very low, with the only exceptions being somewhat larger flocks in final week or two of the season in 2007 and 2012. Late migrants have continued into early winter in four years, and early spring migrants arrived in March in just one year.

MALL: Mallard / Canard colvert (*Anas platyrhynchos*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 10	Jun 3	60	58 (98%)	15	230	Aug 3	Oct 21	Oct 30	89	20 (23%)	31	96
2006	Mar 30	May 10	Jun 5	68	67 (97%)	55	1169	Aug 3	Oct 13	Oct 30	89	47 (52%)	65	523
2007	Mar 28	Apr 3	Jun 4	69	62 (89%)	56	594	Aug 2	Oct 30	Oct 30	90	33 (36%)	346	1156
2008	Apr 7	Apr 12	Jun 5	60	58 (83%)	15	388	Aug 6	Oct 26	Oct 30	86	23 (25%)	23	114
2009	Mar 28	Apr 2	Jun 4	69	65 (94%)	12	282	Aug 2	Oct 29	Oct 30	90	27 (30%)	88	296
2010	Mar 28	May 27	Jun 5	70	64 (91%)	12	290	Aug 4	Oct 19	Oct 30	88	39 (43%)	104	632
2011	Mar 31	Apr 10	Jun 5	67	64 (91%)	27	385	Aug 5	Oct 24	Oct 30	87	34 (37%)	51	357
2012	Mar 28	Apr 12	Jun 5	70	65 (93%)	83	682	Aug 4	Oct 28	Oct 30	88	46 (51%)	109	596
2013	Mar 29	Apr 10	Jun 4	68	60 (86%)	35	391	Aug 4	Aug 15	Oct 30	88	33 (36%)	10	100
2014	Mar 30	May 25	Jun 3	66	57 (84%)	14	255	Aug 1	Oct 24	Oct 30	91	46 (51%)	42	270
Mean	Mar 30	Apr 21	Jun 4	67	62 (91%)	32	467	Aug 3	Oct 16	Oct 30	89	35 (38%)	87	414

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	32.8					9.4		7.0	4.7	2.2	3.6	3.9	4.3	2.7	3.9	2.8	3.9
2006	0.6	0.1				0.2	6.1	6.7	12.1	19.4	20.1	12.3	29.7	18.7	26.3	16.4	16.9
2007	9.4	57.1	0.7			12.5	13.3	7.7	7.6	14.1	7.7	10.7	8.7	7.3	5.4	2.3	8.5
2008	8.3					2.8		1.0	8.0	11.6	7.1	4.3	6.3	6.9	6.0	4.3	5.5
2009	4.9				0.2	1.0	6.6	3.5	1.6	6.9	5.7	3.4	3.1	3.9	4.1	2.0	4.1
2010	21.8	1.6			1.5	7.1	3.3	3.6	3.6	3.4	4.0	3.4	6.9	4.3	8.3	0.7	4.1
2011	27.0					7.3	1.1	9.4	6.7	7.7	6.4	6.3	6.6	3.1	3.0	4.6	5.5
2012	20.2	11.5			25.0	14.9	11.6	7.1	18.6	12.4	10.3	12.4	12.4	6.7	3.9	2.0	9.7
2013	4.0					0.7	2.7	10.7	6.1	7.9	7.4	5.9	6.3	4.3	3.0	1.6	5.6
2014	12.2					2.1	0.2	1.0	4.4	7.1	3.9	4.9	2.6	4.0	4.9	4.2	3.8
Mean	13.5	8.7	0.05		1.7	5.2	5.1	5.8	7.3	9.4	7.6	6.7	8.7	6.2	6.9	4.1	6.8

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.4	0.6	1.0	0.3	1.6	0.3			0.1					3.2	7.4	1.3	1.1
2006	4.2	1.2	2.5	3.4	1.7		0.9	2.1			0.9	3.6	6.9	27.4	16.9	11.0	5.7
2007	0.7		0.4	2.1	0.3	0.4	4.4	1.3	1.4		2.9	0.3	0.6	0.3	12.4	138.7	12.7
2008	1.6	0.2	0.9	1.6	0.7	0.7	1.9		1.7	0.1	1.9	0.1		0.9	0.6	6.1	1.3
2009	0.3		0.1	0.3	0.7	0.9		0.3	0.1		0.3	0.7	4.0	1.1	0.4	33.4	3.3
2010				0.4		0.3		0.1	0.3	0.9	0.4	3.4	24.3	7.1	21.9	31.1	6.9
2011	2.0	0.8	1.3	0.1	0.3	0.3	0.4		0.1	0.1	0.6	9.7	7.1	0.6	8.9	22.7	3.9
2012				0.1	1.4	1.0	1.6	0.1	0.7	1.0	1.4	3.0	1.9	6.9	20.0	46.0	6.5
2013	0.3		0.1	0.1	0.1	3.1	1.0	0.4	1.7	0.1	0.6	0.3	0.6	0.3	2.0	3.9	1.1
2014	0.3	1.8	1.1	2.3			0.7	0.1	0.1	1.3	1.0	3.3	2.3	6.6	6.4	14.4	3.0
Mean	1.5	0.5	1.0	1.1	0.7	0.7	1.1	0.5	0.6	0.4	1.0	2.5	4.8	5.5	9.7	30.9	4.6

Mallard is the most abundant duck at MBO; while spring numbers are only marginally greater than Wood Duck, fall counts are much higher than for Wood Duck, thanks to large flocks late in the season. Outside of a delayed arrival in 2008, Mallards have been observed in every spring period over the past decade. Numbers have fluctuated somewhat from year to year, but the only noteworthy outlier was 2006, with atypically high counts sustained through most of the season. The peak of spring migration varies somewhat from year to year, but most commonly is around mid-April. There are summer records for all years except 2010 and 2012, with numbers generally small. Fall numbers consistently remain low through August and September, then build to a sharp peak, almost always in the final week of October, but spilling over into early winter. Early spring arrivals have been spotted at MBO in late winter in three years out of ten.

BWTE: Blue-winged Teal / Sarcelle à ailes bleues (*Anas discors*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 21	Apr 21	May 30	40	4 (7%)	1	4							
2006	Apr 5	Apr 12	May 3	29	4 (6%)	2	5	Aug 29	Aug 29	Aug 29	1	1 (1%)	1	1
2007	Apr 23	Apr 23	May 13	21	2 (3%)	2	3							
2008														
2009														
2010	May 4	May 4	May 20	17	7 (10%)	2	13							
2011														
2012								Oct 29	Oct 29	Oct 29	1	1 (1%)	5	5
2013	Apr 29	May 3	May 10	12	9 (13%)	4	21							
2014														
Mean	Apr 22	Apr 24	May 15	24	5 (8%)	2	4.6	Sep 28	Sep 28	Sep 28	1	1 (1%)	3	0.6

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.2					0.3	0.2	0.07
2006								0.2	0.3		0.1	0.1					0.07
2007										0.3			0.1				0.04
2008																	
2009																	
2010												0.9		1.0			0.2
2011																	
2012																	
2013											1.0	1.9	0.1				0.3
2014																	
Mean								0.01	0.03	0.04	0.1	0.3	0.03	0.1	0.03	0.01	0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006								0.1									0.01
2007																	
2008																	
2009																	
2010																	
2011																	
2012															0.7		0.05
2013																	
2014																	
Mean								0.01							0.07		<0.01

Blue-winged Teal is an irregular spring and fall migrant at MBO, with no summer or winter records to date. Spring observations have occurred in five of ten years, and in each case have been spread over at least three weeks, although only in 2013 did it appear that particular individuals lingered for an extended period. Overall, spring observations have been scattered across almost the full season, with no clearly defined pattern. The two occurrences during fall migration were both limited to a single day, one in late August and the other in late October.

NSHO: Northern Shoveler / Canard souchet (*Anas clypeata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 1	May 1	May 1	1	1 (2%)	2	2							
2006	Apr 11	Apr 11	May 10	30	2 (3%)	4	5							
2007														
2008														
2009	May 24	May 24	May 24	1	1 (1%)	1	1	Oct 29	Oct 29	Oct 29	1	1 (1%)	2	2
2010														
2011														
2012														
2013														
2014														
Mean	May 2	May 2	May 11	11	1 (2%)	2	0.8	Oct 29	Oct 29	Oct 29	1	1 (1%)	2	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.3						0.03
2006									0.6				0.1				0.07
2007																	
2008																	
2009															0.1		0.01
2010																	
2011																	
2012																	
2013																	
2014																	
Mean									0.06		0.03		0.01		0.01		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009															0.3		0.02
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.03		<0.01

A rare migrant at MBO, Northern Shoveler has not been observed at MBO since October 2009. Spring observations were limited to one day in April and three days in May, scattered across 2005, 2006, and 2009. The lone fall observation was on the second last day of the season in 2009.

NOPI: Northern Pintail / Canard pilet (*Anas acuta*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 30	Apr 30	May 16	17	11 (19%)	3	18	Oct 19	Oct 19	Oct 19	1	1 (1%)	20	20
2006	Apr 9	May 1	May 30	52	29 (42%)	66	301							
2007	Apr 2	Apr 2	May 1	30	4 (6%)	7	16	Aug 28	Sep 27	Sep 27	31	2 (2%)	80	86
2008	Apr 22	Apr 22	Apr 28	7	3 (4%)	6	8							
2009								Oct 28	Oct 28	Oct 28	1	1 (1%)	1	1
2010	Mar 30	Mar 30	Apr 22	24	4 (6%)	2	6							
2011	Mar 31	Apr 5	Apr 5	6	3 (4%)	30	41	Oct 6	Oct 27	Oct 27	22	2 (2%)	11	12
2012	Apr 12	Apr 18	Apr 23	12	6 (9%)	48	95							
2013														
2014								Oct 29	Oct 29	Oct 29	1	1 (1%)	6	6
Mean	Apr 10	Apr 15	Apr 30	21	9 (13%)	23	49	Oct 9	Oct 20	Oct 20	11	1 (2%)	24	13

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.6	0.6	1.1	0.3			0.3
2006								0.3	2.6	12.3	17.0	6.7	1.9	1.3	0.7	0.3	4.4
2007							1.6			0.3	0.4						0.2
2008										0.9	0.3						0.1
2009																	
2010	0.1					0.03	0.3		0.3	0.3							0.09
2011							1.3	4.6									0.6
2012					0.2	0.04			4.9	8.7							1.4
2013																	
2014	1.0					0.2											
Mean	0.07				0.01	0.02	0.4	0.5	0.8	2.3	1.8	0.7	0.3	0.2	0.07	0.03	0.7

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															2.9		0.2
2006																	
2007							0.9					11.4					0.9
2008																	
2009																0.1	0.01
2010																	
2011													0.1			1.6	0.1
2012																	
2013																	
2014																0.9	0.07
Mean							0.09					1.2	0.01		0.3	0.3	0.1

Northern Pintail is an irregular and uncommon migrant at MBO. Observations have been somewhat more frequent and numerous in spring than fall, and there have been only three winter records that reflect late fall or early spring migrants. While Northern Pintail was common throughout spring 2006 and also relatively common for a shorter period in 2005, it has been uncommon ever since, with scattered sightings limited to the first half of the season, and no observations at all in 2009, 2013, or 2014. Fall sightings have always been scarce, with observations scattered across seven days in five years, and no record at all in the other five years. Fall observations have all been in October, except in 2007 when they were in August and September.

GWTE (AGWT): (American) Green-winged Teal / Sarcelle d'hiver (*Anas crecca carolinensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 21	Apr 21	Apr 21	1	1 (2%)	7	7	Oct 15	Oct 15	Oct 15	1	1 (1%)	1	1
2006	May 26	May 26	May 26	1	1 (1%)	1	1							
2007	Apr 3	Apr 3	Apr 14	12	2 (3%)	4	5	Oct 27	Oct 27	Oct 27	1	1 (1%)	1	1
2008	Apr 22	Apr 22	Apr 22	1	1 (1%)	16	16							
2009	Apr 18	Apr 18	Apr 27	10	2 (3%)	3	5	Oct 28	Oct 28	Oct 28	1	1 (1%)	2	2
2010	Apr 1	Apr 15	May 3	33	23 (33%)	5	48	Oct 9	Oct 14	Oct 26	18	4 (4%)	6	16
2011	Apr 6	Apr 6	Apr 12	7	2 (3%)	5	7	Oct 11	Oct 11	Oct 11	1	1 (1%)	1	1
2012	Mar 31	May 6	May 6	37	24 (34%)	16	119							
2013	Apr 16	Apr 28	May 6	21	13 (19%)	18	60							
2014	Apr 16	May 2	May 9	24	5 (7%)	15	34							
Mean	Apr 15	Apr 23	Apr 29	15	7 (11%)	9	30	Oct 18	Oct 19	Oct 21	4	2 (2%)	2	2.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										1.2							0.1
2006															0.1		0.01
2007							0.6		0.1								0.07
2008										2.3							0.2
2009										0.4	0.3						0.07
2010							0.6	0.7	1.9	1.7	1.7	0.3					0.7
2011								0.7	0.3								0.1
2012					1.8	0.4	0.7	1.9	1.9	3.7	3.9	5.0					1.7
2013									0.3	2.1	5.0	1.1					0.9
2014									0.4	1.7		2.6	0.1				0.5
Mean					0.1	0.02	0.2	0.3	0.5	1.3	1.1	0.9	0.01		0.01		0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														0.2			0.01
2006																	
2007																0.1	0.01
2008																	
2009																0.3	0.02
2010												0.4		1.0		0.9	0.2
2011														0.1			0.01
2012																	
2013																	
2014																	
Mean												0.04		0.1		0.1	0.02

Green-winged Teal is a regular spring migrant in small numbers, with numbers and duration of stopover notable higher in 2010 and 2012-14. It is a much less common fall migrant at MBO, with observations in only five of ten years, all in October, and in four cases limited to a single date.

RNDU: Ring-necked Duck / Fuligule à collier (*Aythya collaris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	Apr 4	Apr 22	May 2	29	8 (11%)	6	19							
2008														
2009														
2010	Apr 17	Apr 17	Apr 17	1	1 (1%)	4	4							
2011														
2012														
2013														
2014														
Mean	Apr 10	Apr 19	Apr 24	15	4 (6%)	5	2.3							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007								1.1	0.6	0.9		0.1					0.3
2008																	
2009																	
2010									0.6								0.06
2011																	
2012																	
2013																	
2014																	
Mean								0.1	0.1	0.09		0.01					0.03

Ring-necked Duck has only been observed at MBO in two spring seasons. Sightings in 2007 spanned nearly a full month, but the only other record in 2010 was from a single day in mid-April.

GRSC: Greater Scaup / Fuligule milouinan (*Aythya marila*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	May 22	May 22	May 22	1	1 (1%)	175	175							
2008														
2009														
2010														
2011														
2012														
2013														
2014	May 21	May 21	May 21	1	1 (1%)	15	15							
Mean	May 21	May 21	May 21	1	1 (1%)	95	19							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007														25.0			2.5
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014														2.1			0.2
Mean														2.7			0.3

Flocks of Greater Scaup have been seen flying over MBO only twice, almost exactly 7 years apart.

LESC: Lesser Scaup / Petit Fuligule (*Aythya affinis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 27	Oct 27	Oct 27	1	1 (1%)	5	5
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 27	Oct 27	Oct 27	1	1 (1%)	5	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																0.7	0.05
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.07	<0.01

Five Lesser Scaup were identified within a large flock of 1180 scaup that flew over MBO on 27 October 2005; a smaller flock of unidentified scaup that passed by in November 2006 (see following account) may also have been partly or entirely Lesser Scaup.

USCA: Unidentified Scaup sp. / Aythya sp. (Aythya sp.)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 27	Oct 27	Oct 27	1	1 (1%)	1175	1175
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 27	Oct 27	Oct 27	1	1 (1%)	1180	118

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007	1.1					0.4											
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean	0.2					0.04											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																167.9	12.9
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																16.8	1.3

Once in late fall 2005, and again in early winter 2007, flocks of unidentified scaup were observed flying high over MBO. Given that Lesser and Greater Scaup often migrate in mixed flocks, and the large size of the October 2005 observation in particular, it is likely both species were present.

WWSC: White-winged Scoter / Macreuse brune (*Melanitta fusca*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 21	May 21	May 21	1	1 (1%)	47	47							
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean	May 21	May 21	May 21	1	1 (1%)	47	4.7							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														6.7			0.7
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean														0.7			0.07

White-winged Scoter has only been observed once at MBO, a flock flying over in May 2006.

COGO: Common Goldeneye / Garrot à oeil d'or (*Bucephala clangula*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011								Oct 1	Oct 1	Oct 1	1	1 (1%)	1	1
2012														
2013														
2014														
Mean								Oct 1	Oct 1	Oct 1	1	1 (1%)	1	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011												0.1					0.01
2012																	
2013																	
2014																	
Mean												0.01					<0.01

One of just eight species with only a single individual observed at MBO over ten years, a lone male flying overhead on the first day of October, 2011.

HOME: Hooded Merganser / Harle couronné (*Lophodytes cucullatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 10	Apr 10	Apr 11	2	2 (3%)	3	5							
2006	May 19	May 19	May 19	1	1 (1%)	1	1	Aug 2	Aug 2	Aug 2	1	1 (1%)	1	1
2007	Apr 2	Apr 2	Apr 17	16	3 (4%)	3	6							
2008														
2009	Apr 23	Apr 23	Apr 23	1	1 (1%)	2	2							
2010	Apr 29	Apr 29	Apr 29	1	1 (1%)	1	1							
2011	Apr 8	Apr 29	Jun 1	55	7 (10%)	3	14							
2012														
2013	Apr 7	Apr 7	Apr 7	1	1 (1%)	2	2							
2014	Apr 22	Apr 22	Apr 30	9	2 (3%)	5	6							
Mean	Apr 18	Apr 21	Apr 28	11	2 (3%)	2	3.7	Aug 2	Aug 2	Aug 2	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.5	0.3								0.08
2006														0.1			0.01
2007							0.4		0.4								0.09
2008																	
2009										0.3							0.03
2010											0.1						0.01
2011								0.6			0.7	0.6				0.1	0.2
2012					0.6	0.1											
2013								0.3									0.03
2014										0.7	0.1						0.09
Mean					0.04	0.01	0.05	0.1	0.07	0.1	0.1	0.06		0.01		0.01	0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006				0.1													0.01
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean				0.01													<0.01

Hooded Merganser is a fairly regular although uncommon spring migrant, but has only been observed once each in fall (early August 2006) and winter (March 2012 – an early spring arrival in one of just two years when there were no sightings during the formal spring migration season). Although observed in eight of ten spring seasons, Hooded Merganser was present on just a single day in half of those years; the only spring with sightings on more than three days was 2011. Hooded Mergansers have occurred most frequently over the first six weeks of spring, but lone individuals have twice been seen in the last three weeks of the season.

COME: Common Merganser / Grand Harle (*Mergus merganser*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 23	May 23	May 23	1	1 (1%)	1	1							
2007	Mar 31	Mar 31	Apr 21	22	3 (4%)	7	12							
2008	Apr 11	Apr 11	May 30	50	6 (9%)	2	7							
2009	Apr 23	Apr 25	May 19	27	7 (10%)	3	13	Aug 21	Aug 21	Oct 27	68	3 (3%)	11	13
2010								Oct 1	Oct 1	Oct 14	14	3 (3%)	3	5
2011								Aug 29	Aug 29	Aug 29	1	1 (1%)	1	1
2012	Apr 24	May 18	May 21	28	4 (6%)	3	8	Sep 30	Oct 7	Oct 7	8	2 (2%)	14	15
2013	Mar 30	Mar 30	May 8	40	10 (14%)	2	13	Oct 4	Oct 23	Oct 23	20	2 (2%)	2	3
2014	Apr 6	May 23	May 28	53	3 (4%)	3	6	Aug 3	Aug 3	Oct 25	84	2 (2%)	4	5
Mean	Apr 16	Apr 27	May 17	32	5 (7%)	3	6.0	Sep 9	Sep 13	Oct 10	32	2 (2%)	6	4.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006		0.1				0.03									0.1		0.01
2007							1.0			0.7							0.2
2008	1.0					0.3			0.3	0.1	0.1	0.1			0.1	0.1	0.1
2009	0.4					0.08				0.1	0.7	0.6	0.3	0.1			0.2
2010																	
2011																	
2012										0.1				1.0			0.1
2013							0.3			0.9	0.3	0.4					0.2
2014								0.3							0.6		0.09
Mean	0.1	0.04				0.03	0.1	0.03	0.03	0.2	0.1	0.1	0.03	0.1	0.09	0.01	0.09

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009						1.6									0.1	0.1	0.1
2010												0.4	0.1	0.1			0.05
2011								0.1									0.01
2012												0.1	2.0				0.2
2013													0.1		0.3		0.03
2014				0.6												0.1	0.05
Mean				0.06		0.2		0.01				0.06	0.2	0.01	0.04	0.03	0.05

Common Merganser has been observed in seven spring and six fall seasons. The species tends to occur more frequently in spring, with observations often spanning several weeks, but in small numbers (a peak exceeding 3 individuals only once, in 2007). There were no fall observations until 2009, but since then Common Mergansers have been observed annually, although always on three or fewer days per fall. The number of individuals per sightings tends to be somewhat larger in fall, with peak counts over 10 in two years. In both spring and fall, observations have been widely scattered through the season, although in fall there is somewhat more of a pattern of sightings concentrated in the last five weeks.

RBME: Red-breasted Merganser / Harle huppé (*Mergus serrator*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009								Oct 7	Oct 7	Oct 7	1	1 (1%)	3	3
2010														
2011	Apr 24	Apr 24	Apr 24	1	1 (1%)	3	3							
2012														
2013														
2014														
Mean	Apr 24	Apr 24	Apr 24	1	1 (1%)	3	0.3	Oct 7	Oct 7	Oct 7	1	1 (1%)	3	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011										0.4							0.04
2012																	
2013																	
2014																	
Mean										0.04							<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03														
2006																	
2007																	
2008																	
2009													0.4				0.03
2010																	
2011																	
2012																	
2013																	
2014																	
Mean		0.02	<0.01										0.04				<0.01

By far the least common of the three merganser species at MBO, Red-breasted Merganser has only been observed twice – once in spring, and once in fall. In both cases, a small flock of three individuals was observed flying overhead.

RUGR: Ruffed Grouse / Gélinotte huppée (*Bonasa umbellus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008								Oct 12	Oct 12	Oct 30	19	3 (3%)	1	3
2009	Mar 31	Mar 31	Mar 31	1	1 (1%)	1	1							
2010								Aug 5	Aug 5	Sep 2	29	2 (2%)	1	2
2011														
2012														
2013														
2014								Oct 13	Oct 13	Oct 26	14	3 (3%)	1	3
Mean	Mar 31	Mar 31	Mar 31	1	1 (1%)	1	0.1	Sep 19	Sep 19	Oct 9	21	3 (3%)	1	0.8

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009			0.3		0.07	0.05	0.1										0.01
2010																	
2011				0.2	0.1	0.05											
2012																	
2013																	
2014																	
Mean			0.01	0.01	0.02	0.01	0.02										<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008														0.1	0.1	0.1	0.03
2009																	
2010				0.1				0.1									0.02
2011																	
2012																	
2013																	
2014														0.1	0.1	0.1	0.03
Mean				0.01				0.01						0.03	0.03	0.03	<0.01

Ruffed Grouse has been observed at MBO sporadically since fall 2008, with sightings mostly in fall, but also in mid-late winter, and once in the first week of spring. All sightings have been of lone individuals, and except for the early fall records in 2010, all have been between mid-October and end of March.

COLO: Common Loon / Plongeon huard (*Gavia immer*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 7	May 7	May 29	23	5 (8%)	2	6	Sep 7	Oct 8	Oct 23	47	8 (9%)	6	17
2006	Apr 18	May 21	Jun 2	46	13 (19%)	4	19							
2007	Apr 30	Apr 30	May 30	31	10 (14%)	1	10	Aug 8	Sep 28	Oct 17	71	4 (4%)	3	6
2008	Apr 20	May 2	May 27	38	15 (21%)	6	33	Oct 17	Oct 17	Oct 17	1	1 (1%)	1	1
2009	Apr 18	Apr 19	May 22	35	13 (19%)	2	17	Aug 2	Aug 2	Aug 2	1	1 (1%)	1	1
2010	Apr 14	May 22	May 22	39	12 (17%)	4	18	Sep 29	Sep 29	Oct 5	7	4 (4%)	1	4
2011	Apr 19	May 2	May 25	37	15 (21%)	5	23	Aug 25	Oct 1	Oct 7	44	6 (7%)	2	8
2012	Apr 16	May 12	Jun 1	47	16 (23%)	3	22	Aug 1	Oct 1	Oct 18	79	9 (10%)	6	14
2013	Apr 18	Apr 28	May 28	41	15 (21%)	5	28	Aug 25	Oct 30	Oct 30	67	2 (2%)	2	3
2014	Apr 18	May 7	May 29	42	20 (29%)	2	26	Aug 4	Aug 4	Oct 25	83	6 (7%)	1	6
Mean	Apr 20	May 6	May 27	38	13 (20%)	3	20	Aug 26	Sep 23	Oct 9	44	5 (5%)	3	6.0

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.3	0.3		0.3		0.1
2006										0.4	0.3	0.7	0.3	0.7		0.3	0.3
2007											0.3	0.1	0.6		0.3	0.1	0.1
2008										0.7	0.9	1.1	0.4	0.3	1.3		0.5
2009										0.6		0.7	0.7	0.4			0.2
2010									0.1	0.3	0.4	0.1	0.7	0.9			0.3
2011										0.7	0.6	1.3	0.4	0.1	0.1		0.3
2012									0.1	0.3	0.4	0.1	1.3	0.4	0.3	0.1	0.3
2013										0.3	1.3	1.4	0.6		0.4		0.4
2014										0.6	0.1	0.7	0.9	0.7	0.7		0.4
Mean									0.03	0.4	0.4	0.7	0.6	0.4	0.3	0.06	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03						0.1		0.6	0.2	1.5	0.2	0.1		0.2
2006																	
2007					0.1		0.1					0.4			0.1		0.07
2008															0.1		0.01
2009				0.1													0.01
2010												0.1	0.4				0.04
2011							0.1				0.1	0.4	0.4				0.09
2012				0.1	0.1	0.1			0.1		0.1	0.9	0.1	0.1	0.1		0.2
2013							0.1									0.3	0.03
2014				0.1				0.1		0.4						0.1	0.07
Mean		0.02	<0.01	0.04	0.03	0.01	0.04	0.01	0.03	0.04	0.09	0.2	0.2	0.03	0.06	0.04	0.07

Common Loon is a regular spring and fall migrant at MBO, missed only in spring 2006. Numbers are always modest, with all-time high single-day counts of 6 in both seasons. Spring migration is somewhat more regular, with observations on average spanning more than five weeks and almost always peaking in early-mid May. Fall observations are scattered throughout the season, although somewhat more regular in late September and early October. All observations have been of loons flying past MBO.

PBGR: Pied-billed Grebe / Grèbe à bec bigarré (*Podilymbus podiceps*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 16	Apr 19	May 31	46	24 (41%)	2	30	Aug 3	Aug 3	Aug 3	1	1 (1%)	1	1
2006	May 24	May 24	May 24	1	1 (1%)	1	1							
2007														
2008	Apr 22	Apr 22	May 18	27	3 (4%)	1	3							
2009								Sep 1	Sep 1	Sep 1	1	1 (1%)	1	1
2010	Apr 19	Apr 19	May 16	28	2 (3%)	1	2							
2011														
2012	May 14	May 14	May 14	1	1 (1%)	1	1							
2013														
2014								Aug 1	Aug 1	Aug 1	1	1 (1%)	1	1
Mean	May 1	May 1	May 20	21	6 (9%)	1	3.7	Aug 12	Aug 12	Aug 12	1	1 (1%)	1	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005									0.1	0.5	0.6	0.3	0.9	0.9	1.0	0.2	0.5
2006															0.1		0.01
2007																	
2008									0.1			0.1		0.1			0.04
2009																	
2010									0.1					0.1			0.03
2011																	
2012													0.1				0.01
2013																	
2014																	
Mean									0.01	0.07	0.06	0.04	0.1	0.1	0.1	0.01	0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.1	0.2	0.2	0.1													0.01
2006																	
2007																	
2008																	
2009								0.1									0.01
2010																	
2011																	
2012																	
2013																	
2014				0.1													0.01
Mean	0.04	0.06	0.05	0.03				0.01									<0.01

The only grebe species observed at MBO. Pied-billed Grebe was observed regularly through the spring and summer of 2005, nesting in Stoneycroft Pond, but in subsequent years has been limited to scattered observations in three spring and two fall seasons.

NOGA: Northern Gannet / Fou de Bassan (*Morus bassanus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008								Sep 7	Sep 7	Sep 7	1	1 (1%)	1	1
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Sep 7	Sep 7	Sep 7	1	1 (1%)	1	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008									0.1								0.01
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean									0.01								<0.01

One of just eight species with only a single individual observed at MBO over ten years, a lone bird flying southeast over MBO following passage of a tropical storm in September 2008.

DCCO: Double-crested Cormorant / Cormoran à aigrettes (*Phalacrocorax auritus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 6	Apr 6	May 17	42	5 (8%)	4	11	Sep 5	Oct 8	Oct 8	34	2 (2%)	6	10
2006	Apr 11	Apr 11	May 16	36	4 (6%)	17	24	Aug 5	Aug 5	Oct 12	69	5 (5%)	1	5
2007	Apr 25	May 14	May 26	32	6 (9%)	9	14	Aug 23	Aug 23	Sep 22	31	4 (4%)	2	6
2008	Apr 8	Apr 28	May 28	51	9 (13%)	9	39	Sep 18	Sep 18	Oct 7	20	2 (2%)	1	2
2009	Apr 30	Apr 30	May 8	9	2 (3%)	3	4	Aug 15	Aug 15	Oct 7	54	4 (4%)	32	42
2010	Apr 12	May 12	May 24	43	8 (11%)	12	37	Sep 12	Oct 17	Oct 17	36	3 (3%)	6	8
2011	Apr 25	Apr 25	May 24	30	6 (9%)	14	21	Sep 3	Sep 13	Oct 27	55	4 (4%)	14	23
2012	Apr 21	May 19	May 31	41	11 (16%)	6	28	Aug 7	Sep 16	Oct 9	64	9 (10%)	8	22
2013	Apr 22	May 3	May 28	37	9 (13%)	7	29	Sep 27	Sep 27	Sep 27	1	1 (1%)	1	1
2014	Apr 6	May 2	May 30	55	17 (25%)	18	59	Aug 17	Aug 17	Oct 22	67	5 (5%)	3	10
Mean	Apr 16	Apr 30	May 23	38	8 (11%)	10	27	Aug 28	Sep 9	Oct 9	43	4 (4%)	7	13

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.7		0.2	0.1		0.3	0.4			0.2
2006									2.4	0.1		0.3		0.6			0.3
2007											0.3	0.1	1.3	0.1	0.1		0.2
2008								0.3		0.3	1.3	1.0		1.3	1.4		0.6
2009											0.4	0.1					0.06
2010									0.3	0.7			2.3	1.7	0.3		0.5
2011											2.0	0.4		0.3	0.3		0.3
2012										0.1		0.7	0.3	1.1	0.4	1.3	0.4
2013										0.7		1.9	0.4	0.3	0.9		0.4
2014								0.1		0.1	1.0	2.7	0.9	1.9	1.0	0.8	0.9
Mean								0.1	0.3	0.2	0.5	0.7	0.5	0.8	0.4	0.2	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									0.6				1.0				0.1
2006				0.1	0.1							0.1	0.1	0.1			0.05
2007							0.3	0.1	0.1		0.3						0.07
2008										0.1			0.1				0.02
2009						5.6					0.1		0.3				0.5
2010										0.3					0.9		0.09
2011								0.1		2.0	0.1					1.0	0.3
2012				0.1		0.4				1.1	0.3	0.9	0.3				0.2
2013												0.1					0.01
2014						0.9		0.1					0.3		0.1		0.1
Mean				0.03	0.01	0.7	0.03	0.04	0.07	0.4	0.09	0.1	0.2	0.01	0.1	0.1	0.1

Double-crested Cormorant has been observed at MBO in all spring and fall seasons, but not during summer or winter. Mean daily counts tend to be slightly higher in spring than in fall, although relatively small in both seasons due to being observed only sporadically during the course of the season. Spring sightings show a slight overall peak spanning most of May, but there is no discernible pattern to fall observations.

AMBI: American Bittern / Butor d'Amérique (*Botaurus lentiginosus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 25	Apr 25	May 31	37	6 (10%)	1	6	Aug 3	Aug 3	Sep 17	46	3 (3%)	1	3
2006	Apr 13	Apr 13	May 27	45	4 (6%)	1	4	Aug 9	Aug 9	Aug 9	1	1 (1%)	1	1
2007	May 3	May 3	May 30	28	3 (4%)	1	3	Aug 10	Aug 10	Aug 10	1	1 (1%)	1	1
2008	May 4	May 4	May 18	15	3 (4%)	1	3							
2009	Apr 20	Apr 21	May 8	19	6 (9%)	2	7							
2010	Apr 20	Apr 20	Apr 20	1	1 (1%)	1	1	Sep 18	Sep 18	Sep 18	1	1 (1%)	1	1
2011	May 17	May 21	Jun 5	20	14 (20%)	2	15	Aug 20	Aug 20	Aug 20	1	1 (1%)	1	1
2012	Apr 1	Apr 10	Jun 2	63	8 (11%)	2	10							
2013	Apr 30	Apr 30	Jun 4	36	5 (7%)	1	5							
2014	May 15	May 15	May 15	1	1 (1%)	1	1							
Mean	Apr 26	Apr 28	May 22	26	5 (7%)	1	5.5	Aug 18	Aug 18	Aug 27	10	1 (2%)	1	0.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.3	0.1	0.3			0.2	0.1
2006									0.1	0.1				0.1	0.1		0.06
2007												0.1			0.1	0.1	0.04
2008												0.1		0.3			0.04
2009										0.6	0.1	0.3					0.1
2010										0.1							0.01
2011														0.7	1.0	0.4	0.2
2012							0.1	0.6		0.6						0.1	0.1
2013											0.3	0.1		0.1		0.1	0.07
2014													0.1				0.01
Mean							0.02	0.06	0.01	0.1	0.07	0.09	0.04	0.1	0.1	0.1	0.08

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.3						0.1							0.03
2006					0.1												0.01
2007					0.1												0.01
2008																	
2009																	
2010										0.1							0.01
2011						0.1											0.01
2012																	
2013																	
2014																	
Mean				0.03	0.03	0.01				0.03							<0.01

Of the five heron and egret species observed at MBO, three have been recorded annually; American Bittern is the least common of these. Observations are more consistent in spring, with annual sightings, although as low as one individual in both 2010 and 2014. Even in years with a higher count of sightings, it is likely that only one or two lingering individuals were involved. Spring sightings have been scattered throughout the season without any discernible pattern. Fall observations are less common, with sightings in only five of ten years, most recently in 2011. Although there have been fewer fall sightings, they are more concentrated toward the early part of the season, with only two occurring a month later, in week 7.

GBHE: Great Blue Heron / Grand Héron (*Ardea herodias*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 17	Jun 3	60	30 (51%)	3	39	Aug 1	Aug 2	Oct 18	79	22 (25%)	2	27
2006	Apr 7	Apr 21	Jun 4	59	53 (77%)	7	171	Aug 1	Aug 1	Oct 17	78	22 (24%)	4	27
2007	Apr 8	May 27	Jun 5	59	45 (64%)	10	139	Aug 8	Aug 8	Oct 18	72	27 (30%)	2	34
2008	Mar 31	May 14	Jun 5	67	47 (67%)	14	119	Aug 1	Aug 12	Oct 5	66	21 (23%)	3	24
2009	Mar 28	May 24	Jun 1	66	30 (43%)	4	49	Aug 5	Aug 26	Oct 6	63	21 (23%)	2	22
2010	Apr 2	May 23	Jun 3	63	29 (41%)	4	40	Aug 6	Aug 6	Oct 18	74	18 (20%)	5	25
2011	Mar 31	Apr 24	Jun 5	67	17 (24%)	7	34	Aug 1	Aug 12	Oct 29	90	21 (23%)	6	36
2012	Apr 2	May 9	Jun 3	63	26 (37%)	4	44	Aug 4	Aug 8	Oct 25	83	36 (40%)	4	60
2013	Apr 5	May 5	May 31	57	26 (37%)	3	36	Aug 1	Aug 1	Oct 11	72	15 (16%)	6	22
2014	Apr 2	Apr 18	Jun 1	61	23 (34%)	2	31	Aug 1	Aug 1	Oct 25	86	40 (44%)	5	62
Mean	Apr 2	May 9	Jun 3	62	33 (48%)	6	70	Aug 2	Aug 7	Oct 17	76	24 (27%)	4	34

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.5	0.1	0.2	0.3	0.7	0.6	1.3	1.1	1.2	0.7
2006		0.07				0.02		0.3	1.7	2.6	2.0	4.9	2.4	3.4	4.4	2.7	2.5
2007	0.06	0.1				0.04		0.4		1.4	0.9	4.1	3.3	2.3	4.9	2.6	2.0
2008	0.1					0.04	0.3	0.7	0.6	1.7	1.6	1.9	3.7	1.6	3.4	1.6	1.7
2009							0.3		0.1	0.7	0.4	0.6	1.1	1.6	1.7	0.4	0.7
2010					0.08	0.02	0.1		0.1	1.0	0.3	0.9	1.0	0.7	1.3	0.3	0.6
2011							0.1	0.3	0.1	1.1	0.4	0.4	0.3	0.6	0.4	1.0	0.5
2012					0.2	0.04	0.1	0.1	0.1	0.4	0.3	1.1	1.1	1.0	1.1	0.7	0.6
2013								0.3		0.7	0.6	1.1	0.7	0.7	0.7	0.3	0.5
2014							0.2	0.1	0.3	0.9	0.4	0.3	0.1	0.9	0.9	0.5	0.5
Mean	0.02	0.04			0.02	0.02	0.1	0.3	0.3	1.1	0.7	1.6	1.4	1.4	2.0	1.1	1.0

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.9	1.6	1.3	0.7	0.3	0.4	0.6	0.4	0.1	0.3		0.5	0.2		0.4		0.3
2006	1.2	1.2	1.2	1.3	0.1	0.1	0.1		0.3	0.7	0.3	0.1	0.3	0.3	0.1		0.3
2007	1.3	0.3	0.8		0.6	0.6	0.9	0.4	0.6	1.1			0.6		0.1		0.4
2008	0.4		0.2	0.4	1.1	0.3	0.1	0.1	0.1	0.1	0.4	0.4	0.1				0.3
2009		0.3	0.1	0.1	0.4	0.6	0.7			0.3	0.4	0.4	0.1				0.2
2010				0.9	0.3	0.1	0.4	0.1	0.4	0.7	0.3		0.1		0.1		0.3
2011				0.7	1.3	0.7	0.4	0.3	0.3	0.7	0.1	0.1	0.1		0.1	0.1	0.4
2012		0.3	0.1	0.1	1.3	1.4	0.1	0.3	2.1	1.3	0.7	0.7	0.1	0.1		0.1	0.7
2013		0.3	0.1	1.0	0.4	0.1	0.1	0.1		0.3		0.1	0.7	0.1			0.2
2014		0.5	0.3	1.4	0.6	1.1	1.3	1.0	1.3	1.0	0.3	0.1	0.4	0.1		0.1	0.7
Mean	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.3	0.5	0.7	0.3	0.3	0.3	0.07	0.1	0.04	0.4

Great Blue Heron is the most frequently observed heron at MBO, with observations through most of spring and fall annually, plus some sightings in most summers and also in early and late winter in some years. Spring counts were elevated from 2006 through 2008, but otherwise have been very consistent; numbers tend to be somewhat greater in the second half of the season but there are no strong peaks. Similarly in fall there tends not to be a distinct peak to migration, but sightings are more common in the first half of the season, with greatest numbers in the first half of August in seven years out of ten. Unlike in spring, fall numbers have been relatively consistent across all years, except for a notable increase observations in 2012 and 2014. Considering that many sightings involve individuals landing in the ponds at MBO, frequency of observation is also correlated to some degree with the water level (which, for example, was unusually high in 2014).

GREG: Great Egret / Grande Aigrette (*Ardea alba*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010	Apr 22	Apr 22	Apr 22	1	1 (1%)	1	1							
2011	May 22	May 22	Jun 1	11	3 (4%)	1	3	Oct 12	Oct 12	Oct 12	1	1 (1%)	1	1
2012								Aug 21	Aug 21	Aug 21	1	1 (1%)	2	2
2013								Aug 16	Aug 16	Sep 26	42	2 (2%)	2	3
2014	May 23	May 23	May 23	1	1 (1%)	1	1							
Mean	May 12	May 12	May 15	4	2 (2%)	1	0.5	Sep 5	Sep 5	Sep 19	15	1 (1%)	2	0.6

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010										0.1							0.01
2011														0.1		0.3	0.04
2012																	
2013																	
2014															0.1		0.01
Mean									0.01					0.01	0.01	0.03	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011														0.1			0.01
2012						0.3											0.02
2013						0.3						0.1					0.03
2014																	
Mean						0.06						0.01		0.01			<0.01

Great Egret is a rare species at MBO, with only 11 individuals observed to date, all since April 2010. The five spring observations have been scattered between weeks 4 and 10, while the six fall sightings range from week 3 to 11. All observations are believed to be of birds nesting at the colony at Ile-aux-herons, approximately 28 km east of MBO.

GRHE: Green Heron / Héron vert (*Butorides virescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 25	Jun 1	17	7 (12%)	4	11	Aug 1	Sep 6	Sep 27	58	13 (15%)	3	18
2006	May 6	May 28	Jun 4	30	19 (28%)	3	28	Aug 1	Aug 17	Sep 24	55	29 (32%)	6	50
2007	May 16	May 22	Jun 5	21	7 (10%)	2	8	Aug 1	Aug 8	Oct 6	67	23 (25%)	4	45
2008	May 11	May 28	Jun 3	24	21 (30%)	3	34	Aug 1	Aug 3	Sep 10	41	14 (15%)	5	23
2009	Apr 24	May 12	Jun 3	41	22 (32%)	2	23	Aug 1	Aug 16	Sep 25	56	21 (23%)	5	34
2010	May 4	May 28	May 29	26	7 (10%)	4	11	Aug 1	Aug 1	Sep 23	54	8 (9%)	1	8
2011	May 7	May 11	Jun 5	30	13 (19%)	2	17	Aug 12	Sep 2	Sep 4	24	4 (4%)	3	6
2012	May 5	May 19	May 27	23	8 (11%)	3	13	Aug 3	Aug 4	Aug 19	17	9 (10%)	3	16
2013	May 8	May 8	May 29	22	8 (11%)	1	8	Aug 4	Aug 4	Oct 10	68	3 (3%)	1	3
2014	May 10	May 14	May 31	22	21 (31%)	3	38	Aug 1	Aug 3	Sep 24	55	16 (18%)	5	26
Mean	May 7	May 19	Jun 1	26	13 (19%)	3	19	Aug 2	Aug 12	Sep 20	50	14 (15%)	4	23

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.9	0.8	0.2
2006												0.6	0.6	0.3	1.6	1.0	0.4
2007														0.7	0.3	0.1	0.1
2008													0.4	1.4	1.7	1.3	0.5
2009									0.1			0.4	0.7	0.7	0.7	0.6	0.3
2010												0.4	0.1	0.1	0.9		0.2
2011												0.1	0.7	0.9	0.3	0.4	0.2
2012												0.3	0.1	1.1	0.3		0.2
2013												0.1	0.6	0.3	0.1		0.1
2014													1.3	2.0	1.9	0.3	0.6
Mean										0.01		0.2	0.5	0.8	0.9	0.4	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.7	0.7	0.7	0.3	0.7	0.1	0.7	0.1	0.4			0.2					0.2
2006	0.4	0.8	0.6	1.4	1.1	2.0	0.7	0.4	0.7	0.3	0.4						0.5
2007	0.1	0.3	0.2	1.1	3.0	1.1	0.4	0.3	0.3			0.1					0.5
2008	1.2	1.0	1.1	2.1	0.4		0.3	0.3	0.1								0.3
2009	1.0		0.4	0.7	1.9	1.7	0.3			0.1	0.1						0.4
2010				0.3	0.1				0.1	0.4	0.1						0.09
2011	0.3	0.5	0.4		0.1		0.1	0.6									0.07
2012	0.3		0.1	1.0	0.6	0.7											0.2
2013		0.5	0.3	0.1			0.1							0.1			0.03
2014	0.3	0.3	0.3	2.0	1.0	0.1	0.1	0.1	0.1		0.1						0.3
Mean	0.5	0.5	0.5	0.9	0.9	0.6	0.3	0.2	0.2	0.09	0.09	0.01	0.01	0.01			0.3

Green Heron is a regular though uncommon species from mid-spring through mid-fall. There has been only one spring record in the first half of spring, in week 4 of 2009; numbers almost always peak in week 8 or 9. Periodic sightings throughout summer most years suggest nesting of a pair either on site or nearby; most observations in spring and fall are likely the same individuals. Fall numbers tend to peak in early August and taper off by mid-season, although there have been sightings in week 9 or later in three of ten years. Numbers observed are similarly low across spring, summer, and fall.

BCNH: Black-crowned Night-Heron / Bihoreau gris (*Nycticorax nycticorax*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 28	Apr 28	Apr 28	1	1 (2%)	1	1							
2006	Apr 30	Apr 30	Apr 30	1	1 (1%)	1	1							
2007														
2008														
2009	Apr 21	Apr 21	Apr 21	1	1 (1%)	2	2							
2010														
2011	May 13	May 13	May 13	1	1 (1%)	1	1							
2012								Aug 11	Aug 11	Aug 11	1	1 (1%)	1	1
2013								Aug 3	Aug 3	Aug 3	1	1 (1%)	1	1
2014								Aug 1	Aug 1	Aug 1	1	1 (1%)	1	1
Mean	Apr 30	Apr 30	Apr 30	1	1 (1%)	1	0.5	Aug 5	Aug 5	Aug 5	1	1 (1%)	1	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.1						0.02
2006											0.1						0.01
2007																	
2008																	
2009										0.3							0.03
2010																	
2011													0.1				0.01
2012																	
2013																	
2014																	
Mean										0.03	0.03		0.01				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012								0.1									0.01
2013								0.1									0.01
2014								0.1									0.01
Mean					0.03	0.01											<0.01

Black-crowned Night Heron is a rare species at MBO, with only five observations in spring, and three in fall. Curiously, the spring observations all occurred between 2005 and 2011, while fall observations were annual from 2012 through 2014. All sightings involved lone individuals, except for two together in April 2009. Despite the scarcity of observations, there is some consistency to timing, with four of the five spring observations occurring between April 21 and 30, and all fall observations between August 1 and 11.

TUVU: Turkey Vulture / Urubu à tête rouge (*Cathartes aura*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 18	Apr 18	May 31	44	7 (12%)	5	13	Aug 22	Oct 20	Oct 20	60	7 (8%)	3	9
2006	Mar 31	May 29	May 31	62	20 (29%)	6	35	Aug 5	Oct 29	Oct 30	87	11 (12%)	5	20
2007	Apr 10	May 6	May 30	51	18 (26%)	5	27	Sep 25	Sep 25	Sep 25	1	1 (1%)	1	1
2008	Apr 18	Apr 27	May 30	43	19 (27%)	5	36	Aug 10	Oct 17	Oct 17	69	6 (7%)	3	10
2009	Apr 11	Apr 29	Jun 1	52	24 (35%)	6	57	Aug 20	Sep 25	Oct 23	65	12 (13%)	16	38
2010	Apr 8	Apr 21	May 31	54	31 (44%)	10	79	Aug 1	Oct 3	Oct 24	85	15 (16%)	30	57
2011	Apr 4	May 9	Jun 1	59	34 (49%)	7	92	Aug 1	Sep 18	Oct 27	88	25 (27%)	8	67
2012	Mar 31	May 12	Jun 1	63	31 (44%)	6	69	Aug 7	Sep 27	Oct 24	79	22 (24%)	69	108
2013	Mar 31	May 18	Jun 4	66	40 (57%)	10	116	Aug 7	Sep 25	Oct 24	79	9 (10%)	8	19
2014	Apr 18	Apr 20	Jun 1	45	36 (53%)	6	85	Aug 4	Sep 18	Oct 22	80	18 (20%)	7	36
Mean	Apr 8	May 3	May 31	54	26 (38%)	7	61	Aug 13	Oct 2	Oct 20	69	13 (14%)	15	37

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.8	0.1	0.1		0.6	0.1	0.2	0.2
2006							0.3	0.2	0.1	0.6	0.3	1.1	0.6	0.6	1.1	0.1	0.5
2007								0.1		0.3	0.3	1.7	0.6	0.1	0.6	0.1	0.4
2008										1.4	1.0	0.3	0.9	0.6	0.9	0.1	0.5
2009									0.6	1.3	2.3	1.9	0.4	0.4	1.0	0.3	0.8
2010					0.5	0.10		0.9	0.9	3.3	1.1	1.1	0.7	1.9	1.1	0.3	1.1
2011					0.3	0.05		0.9	1.0	1.7	1.4	3.1	3.0	1.0	0.1	0.9	1.3
2012					0.6	0.1	0.3	0.1	0.7	0.9	1.7	1.4	1.6	0.9	2.0	0.3	1.0
2013							0.1	0.3	0.6	3.3	1.6	2.9	3.0	3.3	0.4	1.1	1.7
2014										2.6	2.4	1.6	3.1	1.1	1.1	0.2	1.2
Mean					0.1	0.03	0.08	0.3	0.4	1.6	1.2	1.5	1.4	1.0	0.9	0.4	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3		0.2				0.1	0.1		0.1	0.1		0.3		0.4		0.1
2006				0.1	0.1	0.1	0.3		0.1	0.7					0.4	0.9	0.2
2007	0.4	0.2	0.3								0.1						0.01
2008					0.1				0.3	0.3	0.1		0.1		0.4		0.1
2009						0.1	0.1	0.1			2.4	0.9	1.1	0.4	0.1		0.4
2010				0.3		0.6	0.1	0.1	0.3	0.1	0.1		4.9	1.0	0.4	0.1	0.6
2011	0.3		0.1	0.6	0.3	0.1	0.3	0.3	0.4	1.3	0.3	2.6	2.3	0.1		1.0	0.7
2012	0.3	0.3	0.2	0.1	0.6		0.1	1.3	0.4	0.1	0.7	10.1	0.6		0.7	0.6	1.2
2013		0.3	0.1	0.3	0.1	0.1	0.1	0.4		0.1	1.1					0.3	0.2
2014	0.7		0.3	0.1	0.3	0.9	0.3	0.3	0.1	1.0	0.1	0.4	0.3	1.0	0.3		0.4
Mean	0.2	0.05	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.5	1.4	1.0	0.3	0.3	0.3	0.4

Turkey Vulture is a fairly common spring and fall migrant and occasional summer resident at MBO. In three years, early spring migrants arrived in the last period of winter; more commonly the first vultures arrive in week 1 or 2 of spring, but occasionally (in 2005, 2008, and 2014) not until week 4. Week 4 also represents the overall peak of spring migration, although depending on year it can range as late as week 6 or 7. Spring counts have been higher since 2010, reflecting the presence of a resident pair each year. Since 2010, there has been a resident pair, although in 2010 they abandoned their nesting attempt early, and there were only single eggs laid in 2011 and 2014, neither of which hatched. Fall numbers are generally lower than in spring, although occasionally the peak of migration in late September or early October brings large flocks past MBO.

OSPR: Osprey / Balbuzard pêcheur (*Pandion haliaetus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 8	Oct 8	Oct 8	1	1 (1%)	1	1
2006	Apr 24	May 4	May 8	15	5 (7%)	9	16	Sep 17	Oct 7	Oct 7	21	4 (4%)	4	10
2007	Apr 23	Apr 23	May 10	18	5 (7%)	3	9	Sep 24	Sep 24	Oct 21	28	4 (4%)	1	4
2008	Apr 24	May 6	May 6	13	4 (6%)	3	7	Aug 20	Aug 20	Aug 20	1	1 (1%)	1	1
2009	Apr 25	Apr 25	May 11	17	2 (3%)	1	2	Aug 14	Aug 14	Aug 14	1	1 (1%)	1	1
2010	Apr 23	May 15	May 31	39	4 (6%)	2	5	Oct 3	Oct 3	Oct 30	28	2 (2%)	1	2
2011	Apr 18	Apr 25	Apr 30	13	5 (7%)	4	9	Sep 8	Sep 8	Oct 1	24	6 (7%)	2	9
2012	Apr 19	May 5	May 14	26	4 (6%)	4	7	Sep 9	Sep 9	Oct 1	23	3 (3%)	1	3
2013	Apr 28	May 4	May 30	33	7 (10%)	2	8	Sep 25	Sep 25	Oct 12	18	2 (2%)	1	2
2014	Apr 27	Apr 27	May 22	26	7 (10%)	3	10	Sep 7	Sep 18	Sep 24	18	5 (5%)	5	11
Mean	Apr 23	May 1	May 14	22	5 (7%)	3	7.3	Sep 13	Sep 16	Sep 28	16	3 (3%)	2	4.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006										0.1	0.7	1.4					0.2
2007										0.4	0.4	0.3	0.1				0.1
2008										0.1	0.1	0.7					0.1
2009											0.1		0.1				0.03
2010										0.1		0.1	0.3			0.1	0.07
2011										0.6	0.7						0.1
2012										0.1		0.6	0.3				0.1
2013											0.1	0.6	0.3			0.1	0.1
2014											0.4	0.1	0.6	0.3			0.1
Mean										0.2	0.3	0.4	0.2	0.03		0.03	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005													0.2				0.01
2006										0.4	0.1		0.9				0.1
2007											0.1	0.1	0.1		0.1		0.04
2008						0.1											0.01
2009																	0.01
2010													0.1			0.1	0.02
2011									0.3	0.3	0.1	0.6					0.10
2012									0.1			0.3					0.03
2013											0.1			0.1			0.02
2014									0.3	0.9	0.4						0.1
Mean					0.01	0.01			0.07	0.2	0.1	0.1	0.1	0.01	0.01	0.01	0.05

Osprey is an uncommon migrant at MBO, observed in every spring except 2005, and in all ten fall seasons. Almost all spring sightings have been between week 4 and 7, with later observations in just three years. Except for an unusually low year in 2009, Osprey have been observed on between four and seven days each spring, with a total count of 5 to 10 individuals per season, aside from a record high of 16 in 2006. Fall sightings are somewhat less common; except for high counts ranging from 9 to 11 individuals in 2006, 2011, and 2014, the season totals have ranged from 1 to 4. While the majority of fall observations are between weeks 7 and 10, there have been two mid-August sightings (perhaps from nest sites relatively nearby), as well as two in the second half of October.

BAEA: Bald Eagle / Pygargue à tête blanche (*Haliaeetus leucocephalus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 14	Sep 14	Sep 14	1	1 (1%)	1	1
2006	Mar 31	Mar 31	May 21	52	4 (6%)	1	4							
2007														
2008	May 1	May 1	May 1	1	1 (1%)	1	1							
2009														
2010								Oct 3	Oct 3	Oct 3	1	1 (1%)	3	3
2011								Sep 17	Oct 1	Oct 1	15	3 (3%)	2	4
2012	May 12	May 12	May 15	4	2 (3%)	1	2	Aug 19	Aug 19	Oct 23	66	6 (7%)	1	6
2013	Apr 21	Apr 21	Apr 21	1	1 (1%)	1	1	Aug 29	Oct 29	Oct 29	62	4 (4%)	2	5
2014	Apr 18	May 15	May 15	28	2 (3%)	2	3	Aug 19	Sep 7	Oct 15	58	6 (7%)	3	11
Mean	Apr 22	Apr 27	May 8	17	2 (3%)	1	1.1	Sep 6	Sep 22	Oct 9	34	4 (4%)	2	3.0

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006							0.1					0.1	0.1	0.1			0.06
2007																	
2008											0.1						0.01
2009																	
2010					0.08	0.02											
2011	0.1					0.03											
2012													0.3				0.03
2013										0.1							0.01
2014										0.1			0.3				0.04
Mean	0.01				0.01	<0.01	0.02			0.03	0.01	0.01	0.07	0.01			0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										0.1							0.01
2006																	
2007																	
2008																	
2009																	
2010													0.4				0.03
2011										0.1		0.4					0.04
2012						0.1						0.4	0.1		0.1		0.07
2013								0.1	0.1		0.1					0.3	0.05
2014						0.1			0.4	0.3		0.4		0.3			0.1
Mean						0.03		0.01	0.06	0.06	0.01	0.1	0.06	0.03	0.01	0.03	0.03

Bald Eagle is a rare but increasing migrant at MBO. Spring observations have been recorded in five of ten years, including the last three; all sightings have been between April 18 and May 21, except for an early migrant on March 31 in 2006. A late winter observation in March 2010 was likely also an early spring migrant. In fall, there was only one sighting in the first five years of operation, but annual observations since 2010, with numbers showing an increasing trend, peaking with 11 individuals counted in 2014. Fall sightings have been broadly spread out from week 3 to 13, but show somewhat of a peak around weeks 9 and 10. The increasing numbers reflect the growing regional population, including a breeding attempt at Ile-aux-Herons in 2010.

NOHA: Northern Harrier / Busard Saint-Martin (*Circus cyaneus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 1	May 1	May 1	1	1 (2%)	1	1	Aug 19	Oct 13	Oct 27	70	10 (11%)	2	13
2006	Apr 11	May 4	May 24	44	9 (13%)	2	10	Aug 22	Aug 26	Oct 29	69	18 (20%)	4	24
2007	Apr 16	Apr 16	May 24	39	8 (11%)	1	8	Aug 7	Aug 18	Oct 29	84	21 (23%)	3	29
2008	Apr 23	Apr 27	Jun 1	40	10 (14%)	2	12	Aug 7	Sep 7	Sep 10	35	5 (5%)	2	6
2009	Apr 3	May 9	May 14	42	12 (17%)	2	13	Aug 18	Aug 18	Oct 27	71	11 (12%)	1	11
2010	Apr 21	May 4	May 12	22	4 (6%)	2	5	Aug 31	Oct 3	Oct 24	55	16 (18%)	5	28
2011	Apr 24	Apr 24	May 20	27	7 (10%)	1	7	Aug 31	Oct 1	Oct 11	42	6 (7%)	3	12
2012	Apr 18	Apr 18	Apr 28	11	4 (6%)	1	4	Aug 24	Sep 27	Oct 29	67	17 (19%)	3	23
2013	Apr 23	Apr 23	May 16	24	3 (4%)	1	3	Aug 1	Sep 28	Oct 25	86	7 (8%)	3	12
2014	Apr 18	Apr 18	May 18	31	9 (13%)	2	13	Sep 6	Sep 23	Oct 30	55	15 (16%)	2	20
Mean	Apr 18	Apr 26	May 15	28	7 (10%)	2	7.6	Aug 19	Sep 16	Oct 21	63	13 (14%)	3	18

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.1						0.02
2006									0.4	0.1	0.1	0.4		0.1	0.1		0.1
2007	0.1	0.1			0.1	0.09			0.1	0.3	0.3		0.1	0.1	0.1		0.1
2008										0.1	0.7	0.3	0.1	0.1	0.1	0.1	0.2
2009					0.07	0.03	0.1			0.6	0.6	0.1	0.4				0.2
2010										0.1		0.4	0.1				0.07
2011										0.1		0.4	0.3	0.1			0.1
2012										0.4	0.1						0.06
2013										0.3				0.1			0.04
2014	0.2					0.03				0.9		0.7	0.1	0.1			0.2
Mean	0.03	0.02			0.02	0.02	0.02		0.06	0.3	0.2	0.2	0.1	0.09	0.04	0.01	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						0.1			0.3					0.7	0.3	0.6	0.1
2006							0.9	0.3	0.3		0.3	0.4	0.3	0.1	0.6	0.3	0.3
2007	0.1		0.08	0.1		0.4		0.3	0.3	0.7	0.4	0.7	0.3	0.1	0.4	0.3	0.3
2008				0.1				0.1	0.6								0.07
2009						0.3	0.1	0.1	0.3	0.1	0.1	0.1		0.1		0.1	0.1
2010								1.0		0.4	0.1	0.3	1.4	0.3	0.1	0.3	0.3
2011								0.1		0.3	0.3	0.4		0.6			0.1
2012							0.1	0.3				1.0	0.6		0.6	0.7	0.3
2013				0.3				0.1		0.1	0.3	0.4	0.1			0.3	0.1
2014									0.1	0.1	0.3	1.0		0.6	0.1	0.6	0.2
Mean	0.02		0.01	0.06		0.09	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.3	0.2

Northern Harrier is an uncommon spring and fairly common fall migrant at MBO, with rare sightings in early and late winter, and a single early summer observation. Except for early arrivals in 2006, 2007, and 2009, Northern Harrier consistently arrives in week 4 of spring, and typically also peaks either in the same week or in weeks 5 or 6. Single individuals have been observed in week 9 or later in just three years. Fall sightings are scattered throughout the season, although generally irregular in August, and peaking around late September. In both spring and summer, numbers have varied relatively little from year to year, although fall counts in 2008, 2011, and 2013 were unusually low.

SSHA: Sharp-shinned Hawk / Épervier brun (*Accipiter striatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 12	May 14	May 14	3	2 (3%)	2	3	Aug 13	Sep 11	Oct 24	73	42 (48%)	5	73
2006	Apr 18	Apr 18	May 28	41	8 (12%)	1	8	Aug 6	Aug 11	Oct 30	86	37 (41%)	2	48
2007	Apr 18	May 5	May 31	44	9 (13%)	3	12	Aug 18	Aug 31	Oct 29	73	41 (45%)	6	61
2008	Apr 25	Apr 28	May 30	36	15 (21%)	2	17	Aug 5	Sep 30	Oct 24	81	35 (38%)	4	52
2009	Apr 18	Apr 24	May 24	37	12 (17%)	2	13	Aug 2	Oct 16	Oct 29	89	44 (48%)	9	73
2010	Apr 12	Apr 12	May 31	50	9 (13%)	1	9	Aug 6	Oct 3	Oct 30	86	50 (55%)	21	137
2011	Apr 19	Apr 19	May 12	24	5 (7%)	1	5	Aug 27	Sep 25	Oct 29	64	32 (35%)	6	65
2012	Apr 7	May 5	May 28	52	10 (14%)	4	14	Aug 7	Sep 27	Oct 28	83	63 (69%)	50	182
2013	Apr 21	Apr 28	Jun 5	46	9 (13%)	2	10	Aug 10	Sep 14	Oct 29	81	49 (54%)	9	108
2014	Apr 6	Apr 20	Jun 2	58	9 (13%)	2	11	Aug 14	Sep 18	Oct 26	74	55 (60%)	31	181
Mean	Apr 18	Apr 26	May 26	39	9 (13%)	2	10	Aug 10	Sep 18	Oct 27	79	45 (49%)	14	98

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.4				0.05
2006	0.2			0.09		0.06				0.3	0.1	0.1	0.3		0.3		0.1
2007		0.1	0.2			0.04				0.4			1.0		0.1	0.1	0.2
2008											0.7	0.7	0.4		0.4	0.1	0.2
2009				0.1		0.03				0.6	0.3	0.4	0.4		0.1		0.2
2010	0.2				0.08	0.06			0.3	0.3	0.1	0.1	0.1			0.3	0.1
2011			0.08		0.1	0.05				0.3	0.3		0.1				0.07
2012	0.2					0.08		0.1		0.1	0.1	1.1		0.1	0.3		0.2
2013										0.3	0.6	0.1	0.1		0.1	0.1	0.1
2014	0.2			0.3		0.1		0.1		0.7	0.1	0.3		0.1		0.2	0.2
Mean	0.09	0.02	0.03	0.06	0.02	0.05		0.03	0.03	0.3	0.2	0.4	0.2	0.03	0.1	0.09	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1	0.4	0.3	0.4	1.4	0.7	1.6	1.7	1.5	1.5	1.3	0.1	0.8
2006				0.1	0.3	0.4	0.1	0.4	1.0	1.0	0.9	0.6	1.0	0.1	0.6	0.3	0.5
2007	0.1	0.3	0.2			0.1	0.7	1.6	1.4	0.7	1.3	0.7	0.1	0.7	0.3	1.0	0.7
2008				0.1	0.1	0.1	1.0	0.3	0.7	0.7	1.9	1.3	0.3	0.1	0.6	0.1	0.6
2009				0.1			0.4	0.7	0.9	1.1	1.4	1.3	1.4	1.7	0.6	0.7	0.8
2010				0.1	0.1	0.4	0.4	1.4	1.6	3.3	2.1	1.9	5.3	0.9	0.9	1.1	1.5
2011							0.3	0.4	1.1	0.7	1.3	1.9	1.1	0.9	0.9	0.7	0.7
2012				0.3	0.3	1.1	1.3	1.0	1.9	2.0	2.4	10.1	2.3	1.7	0.7	0.9	2.0
2013					0.4	0.1	0.7	1.6	2.3	2.6	2.1	1.3	1.9	1.3	0.7	0.4	1.2
2014					0.1	0.7	0.6	1.1	1.0	6.7	2.6	5.0	2.0	3.9	1.9	0.3	2.0
Mean	0.02	0.03	0.02	0.09	0.2	0.4	0.6	0.9	1.3	2.0	1.8	2.6	1.7	1.3	0.8	0.6	1.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008												1					1
2009																	
2010																1	1
2011											1						1
2012												1					1
2013																	
2014																	
Mean											0.1	0.2				0.1	0.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									1			2		1			4
2006				1								1					2
2007								1		2	1			1			5
2008				1						1	1	1					4
2009							1	2		1		1	2				7
2010				1		2	1			4	1	3		1			13
2011							1		1	1	1			1	1		6
2012					1	1	1	1	3			2					9
2013								1		2			1				4
2014									1	5	2	7	1	1	1		18
Mean				0.3	0.1	0.3	0.4	0.5	0.6	1.6	0.6	1.7	0.4	0.5	0.2		7.2

Sharp-shinned Hawk is regular at MBO throughout much of spring and fall, but has only been observed in summer in 2007, and not at all yet in winter. Spring migrants typically move through in small numbers, with a slight peak between weeks 4 and 7. Observations are much more frequent in fall, with sightings weekly from week 4 onward in all years, and a variable peak that most often comes between weeks 4 and 7. Sharp-shinned Hawk is by far the most common of the four diurnal raptors banded at MBO, with an average of 7.6 per year. Numbers banded correlate reasonably well with numbers observed, although not linearly, as fall counts are sometimes inflated by large counts on single days of peak migration.

COHA: Cooper's Hawk / Épervier de Cooper (*Accipiter cooperii*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 5	May 17	43	13 (22%)	2	17	Aug 1	Sep 5	Oct 28	89	31 (35%)	3	41
2006	Apr 5	Apr 5	May 18	44	9 (13%)	1	9	Aug 4	Oct 21	Oct 28	86	32 (35%)	4	48
2007	Apr 6	May 10	May 27	52	10 (14%)	2	11	Aug 4	Aug 18	Oct 29	87	43 (47%)	4	54
2008	Apr 23	Apr 27	May 27	35	9 (13%)	2	11	Aug 2	Sep 16	Oct 26	86	35 (38%)	4	48
2009	Apr 11	Apr 25	Jun 5	56	17 (25%)	3	23	Aug 5	Oct 16	Oct 21	78	48 (53%)	5	69
2010	Apr 3	May 7	May 7	35	10 (14%)	4	15	Aug 11	Oct 3	Oct 30	81	32 (35%)	8	51
2011	Apr 24	Apr 24	May 25	32	5 (7%)	4	8	Aug 3	Sep 27	Oct 30	89	34 (37%)	3	48
2012	Apr 6	May 5	Jun 1	57	12 (17%)	3	14	Aug 1	Sep 11	Oct 30	91	62 (68%)	7	97
2013	Apr 6	Apr 6	May 14	39	13 (19%)	2	16	Aug 5	Sep 18	Oct 30	87	39 (43%)	3	53
2014	Apr 18	May 24	May 26	39	13 (19%)	3	18	Aug 7	Aug 29	Oct 30	85	54 (59%)	5	103
Mean	Apr 10	Apr 25	May 22	43	11 (16%)	3	14	Aug 4	Sep 19	Oct 28	86	41 (45%)	5	61

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.8	0.1	0.7		0.6	0.3	0.1			0.3
2006	0.4	0.07	0.08		0.2	0.1		0.5	0.1	0.1	0.3		0.1	0.1			0.1
2007	0.1	0.3	0.5			0.2		0.1		0.3	0.1	0.4	0.3	0.1	0.1		0.2
2008	0.3					0.08				0.1	0.7	0.1	0.3		0.3		0.2
2009					0.07	0.03			0.3	0.4	1.0	0.4	0.1	0.1	0.6	0.3	0.3
2010	0.2		0.09		0.2	0.1	0.1	0.1		0.6	0.4	0.9					0.2
2011	0.1		0.08	0.2		0.08				0.6	0.3				0.3		0.1
2012	0.1					0.04		0.1	0.1		0.1	0.4	0.1	0.4	0.4	0.1	0.2
2013	0.3	0.3	0.07			0.1		0.6	0.1	0.4	0.1	0.7	0.3				0.2
2014										1.1	0.3	0.1		0.4	0.6		0.3
Mean	0.2	0.09	0.09	0.01	0.07	0.09	0.02	0.2	0.09	0.4	0.3	0.4	0.2	0.1	0.2	0.04	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06	0.06	0.06	0.1		0.1	0.1	0.3	1.4	0.3	0.7	1.0	0.8	0.3	0.4	0.4	0.5
2006				0.3	0.1	0.3	0.1	0.6	0.4	0.9	0.4	0.9	0.6	0.6	1.6	0.1	0.5
2007				0.3	0.1	1.3	0.1	0.9	0.7	0.9	0.6	0.7	0.7	0.9	0.3	0.3	0.6
2008				0.3		0.1	0.3	1.0	0.9	1.0	1.1	0.1	0.9	0.4	0.4	0.3	0.5
2009	0.3		0.1	0.4	0.3	0.6	1.3	0.4	1.0	1.1	1.4	0.9	0.3	1.7	0.4		0.8
2010					0.3		0.1	1.3	0.7	0.7	0.1	0.7	2.3	0.4	0.3	0.3	0.6
2011				0.1	0.3	0.7		0.1	0.7	1.0	0.9	1.3	0.7	0.4	0.3	0.3	0.5
2012				0.1	0.3	0.7	0.3	0.7	1.7	1.3	1.0	1.9	1.7	1.7	1.1	1.3	1.1
2013				0.1	0.3	0.1	0.3	1.1	0.9	0.9	0.9	0.7	0.6	0.7	0.7	0.3	0.6
2014				0.1		0.7	0.9	1.6	1.3	1.7	2.0	2.0	1.1	1.3	0.7	1.3	1.1
Mean	0.04	0.02	0.02	0.2	0.2	0.5	0.4	0.8	1.0	1.0	0.9	1.0	1.0	0.9	0.6	0.5	0.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007					1												1
2008																	
2009																	
2010																	
2011											1						1
2012												1					1
2013																	
2014							1										1
Mean					0.1		0.1				0.1	0.1					0.4

Cooper's Hawk is slightly more common than Sharp-shinned Hawk in spring and summer, and considerably more so in winter, with observations in all but two years, and across all months. However, fall counts average roughly 40% lower than for Sharp-shinned Hawk, and only 4 Cooper's Hawks have been banded, compared to 76 Sharp-shinned Hawks. The discrepancy in banding frequency may largely be a function of size, with Cooper's Hawks generally too large to get caught in nets. Spring and especially fall numbers have been quite consistent across years, except for counts more than 50% above the long-term mean in fall 2012 and 2014. Spring numbers typically peak between weeks 4 and 6, but there is rarely a distinct peak in fall, although numbers are somewhat higher from early September to mid-October.

NOGO: Northern Goshawk / Autour des palombes (*Accipiter gentilis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 9	Oct 9	Oct 9	1	1 (1%)	1	1
2006								Sep 14	Sep 14	Sep 14	1	1 (1%)	1	1
2007								Aug 10	Aug 10	Oct 25	77	6 (7%)	1	6
2008								Oct 8	Oct 8	Oct 8	1	1 (1%)	1	1
2009								Aug 14	Oct 16	Oct 20	68	14 (15%)	4	18
2010	May 6	May 6	May 6	1	1 (1%)	1	1	Aug 4	Sep 15	Oct 11	69	17 (19%)	4	25
2011	Apr 9	Apr 9	May 22	44	2 (3%)	1	2	Sep 8	Sep 8	Oct 30	53	10 (11%)	1	10
2012	Apr 8	Apr 8	Apr 29	22	3 (4%)	1	3	Aug 5	Aug 5	Oct 23	80	8 (9%)	1	8
2013								Sep 26	Sep 26	Oct 23	28	5 (5%)	1	5
2014								Aug 30	Aug 30	Sep 13	15	2 (2%)	1	2
Mean	Apr 17	Apr 17	May 9	22	2 (3%)	1	0.6	Sep 3	Sep 13	Oct 11	39	6 (7%)	2	7.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006	0.2					0.05											
2007																	
2008																	
2009																	
2010		0.1				0.02						0.1					0.01
2011								0.1						0.1			0.03
2012					0.2	0.04		0.1	0.1	0.1							0.04
2013																	
2014																	
Mean	0.03	0.02			0.01	0.01		0.03	0.01		0.01	0.01		0.01			<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005													0.2				0.01
2006										0.1							0.01
2007					0.1			0.1		0.1	0.1			0.1		0.1	0.07
2008												0.1					0.01
2009					0.1		0.1				0.3	0.7	0.3	0.7	0.3		0.2
2010				0.1			0.3	0.9	0.3	1.1	0.3	0.4	0.1	0.1			0.3
2011									0.1	0.1	0.3	0.4	0.1		0.1	0.1	0.1
2012				0.3			0.1	0.3				0.1			0.3		0.09
2013												0.3		0.1	0.3		0.05
2014								0.1		0.1							0.02
Mean				0.04	0.03		0.06	0.1	0.04	0.2	0.1	0.2	0.1	0.1	0.1	0.03	0.08

Northern Goshawk is a rare spring and rare to uncommon fall migrant, with three winter sightings. Fall numbers were substantially elevated from 2009 through 2011, and the only spring observations to date have come in the corresponding 2010 to 2012 seasons. In both spring and fall, sightings have been scattered through much of the season, although fall observations show somewhat of a peak between week 7 and 10.

RSHA: Red-shouldered Hawk / Buse à épaulettes (*Buteo lineatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	May 31	Jun 2	57	17 (29%)	2	18	Aug 2	Oct 5	Oct 27	87	26 (30%)	3	33
2006	Mar 28	May 4	Jun 5	70	54 (78%)	9	82	Aug 2	Sep 10	Oct 26	86	67 (74%)	4	84
2007	Mar 30	Apr 13	May 30	62	29 (41%)	2	33	Aug 9	Aug 20	Oct 29	82	31 (34%)	2	33
2008	Apr 11	May 7	Jun 3	54	36 (51%)	6	61	Aug 3	Sep 8	Oct 27	86	32 (35%)	3	43
2009	Apr 1	Apr 25	Jun 5	66	20 (29%)	3	25	Aug 8	Oct 16	Oct 26	80	27 (30%)	4	37
2010	Apr 5	Apr 21	May 31	57	16 (23%)	2	19	Aug 2	Oct 9	Oct 15	75	32 (35%)	4	44
2011	Apr 14	Apr 24	May 31	48	21 (30%)	7	34	Aug 2	Sep 9	Oct 19	79	23 (25%)	3	29
2012	Mar 31	May 15	Jun 1	63	23 (33%)	4	40	Aug 5	Sep 27	Oct 26	83	29 (32%)	5	38
2013	Mar 28	Apr 21	May 31	65	14 (20%)	4	21	Aug 14	Sep 8	Oct 29	77	21 (23%)	6	38
2014	Apr 2	Apr 20	May 31	60	12 (18%)	5	20	Aug 9	Aug 18	Oct 30	83	33 (36%)	7	60
Mean	Apr 3	Apr 30	Jun 1	60	24 (35%)	4	35	Aug 5	Sep 15	Oct 25	82	32 (35%)	4	44

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005					0.3	0.07		0.3		0.3	0.3	0.4		0.3	0.4	0.8	0.3
2006							1.4	1.0	1.0	1.0	1.4	2.6	0.9	0.7	1.3	0.6	1.2
2007	0.06				0.4	0.1	0.7	0.7	0.6	0.4	0.4	0.7	0.1	0.7	0.1	0.1	0.5
2008									0.3	1.7	1.3	2.0	1.3	0.9	0.6	0.7	0.9
2009					0.1	0.05	0.3		0.1	0.1	1.0	0.6	0.4	0.3	0.4	0.3	0.4
2010	0.1				0.2	0.08		0.1		0.6	0.1	0.6	0.4	0.4	0.3	0.1	0.3
2011	0.1					0.03			0.4	1.3	1.1	0.7	0.4	0.1	0.4	0.3	0.5
2012					0.8	0.2	0.1	0.1		0.7	0.3	0.6	1.0	1.9	0.4	0.6	0.6
2013							0.3			0.9	0.1	0.9	0.1	0.3	0.3	0.1	0.3
2014							0.2			1.7		0.1	0.1	0.1	0.1	0.5	0.3
Mean	0.04				0.2	0.05	0.3	0.2	0.2	0.9	0.6	0.9	0.5	0.6	0.4	0.4	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.1	0.3	0.2	0.1		0.1	0.3		0.3	0.3	0.6	0.7	1.5	0.5	0.6	0.1	0.4
2006	0.2	0.3	0.3	0.7	1.1	0.7	0.9	0.7	1.6	1.1	1.3	1.1	1.4	0.6	0.4	0.3	0.9
2007	0.1	0.3	0.2		0.9	1.0	0.3	0.4	0.9	0.6	0.3	0.1	0.1			0.1	0.4
2008				0.3	0.4	0.3	0.1		0.6	1.1	1.6	0.9	0.6	0.1		0.1	0.5
2009	0.7	0.3	0.4		0.6	0.1	0.1	0.3	0.9	0.3	0.7	0.3	0.4	1.0		0.6	0.4
2010	0.7	0.2	0.3	0.4	0.6	0.4	0.6	0.7	0.4	1.0	0.1		1.6	0.4			0.5
2011	1.3	0.8	1.0	0.3	0.4	0.1	0.1	0.4	0.7	0.4	0.4	0.4	0.1	0.3	0.3		0.3
2012	0.3	0.5	0.4	0.3	0.6	0.4	0.6	0.6	0.3	0.9	0.1	1.1			0.3	0.3	0.4
2013					0.1	0.3	0.4	0.3	1.3	1.0	0.4	1.1		0.3		0.1	0.4
2014		0.3	0.1		0.6	1.7	1.6	0.4	0.3	0.9	0.4	0.7	0.4	0.3	0.7	0.6	0.7
Mean	0.2	0.3	0.3	0.2	0.5	0.5	0.5	0.4	0.7	0.8	0.6	0.7	0.6	0.3	0.2	0.2	0.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															1		1
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.1		0.1

Red-shouldered Hawk is regular at MBO from late winter or early spring through to late fall or early winter. The majority of sightings pertain to a pair that nests most years in the adjacent Morgan Arboretum, although some migrants are also counted. Spring numbers have generally been consistently low, aside from higher results in 2006 and 2008; similarly fall numbers have varied relatively little except for a high in 2006. Spring migration tends to peak between weeks 4 and 6; fall migration rarely has a clearly defined peak, but over time, numbers have been somewhat higher between weeks 6 and 10. The one individual banded in October 2005 remains the largest bird banded at MBO.

BWHA: Broad-winged Hawk / Petite Buse (*Buteo platypterus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 19	Apr 19	May 17	29	2 (3%)	1	2	Sep 6	Sep 11	Sep 19	14	3 (3%)	36	39
2006	May 4	May 4	May 4	1	1 (1%)	2	2	Aug 15	Aug 16	Sep 20	37	11 (12%)	3	17
2007	Apr 23	Apr 24	May 11	19	7 (10%)	3	10	Sep 12	Sep 16	Sep 29	18	7 (8%)	25	58
2008	Apr 23	Apr 23	May 14	22	7 (10%)	10	17	Aug 20	Sep 16	Sep 24	36	9 (10%)	29	61
2009	Apr 25	Apr 25	May 24	30	3 (4%)	1	3	Aug 24	Sep 15	Sep 26	34	5 (5%)	10	20
2010	Apr 20	Apr 21	May 29	40	7 (10%)	11	23	Aug 9	Sep 14	Oct 4	57	10 (11%)	6	26
2011	Apr 24	Apr 24	May 21	28	5 (7%)	16	27	Sep 8	Sep 10	Sep 19	12	5 (5%)	300	310
2012	Apr 28	May 5	May 5	8	3 (4%)	23	25	Aug 28	Sep 1	Oct 18	52	9 (10%)	5	19
2013	Apr 19	Apr 19	May 28	40	3 (4%)	1	3	Aug 28	Sep 14	Oct 5	39	13 (14%)	74	133
2014	Apr 21	Apr 21	Apr 21	1	1 (1%)	1	1	Aug 17	Sep 18	Oct 30	75	26 (29%)	327	486
Mean	Apr 23	Apr 24	May 14	22	4 (6%)	7	11	Aug 26	Sep 10	Oct 1	37	10 (11%)	82	117

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.2				0.1			0.03
2006												0.3					0.03
2007										0.7	0.3	0.3	0.1				0.1
2008										1.6	0.4	0.3	0.1				0.2
2009											0.1			0.1	0.1		0.04
2010										2.6	0.1	0.4			0.1		0.3
2011										2.3	1.4			0.1			0.4
2012											0.3	3.3					0.4
2013										0.3					0.1		0.04
2014										0.1							0.01
Mean										0.8	0.3	0.5	0.03	0.04	0.04		0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									5.3		0.3						0.4
2006						0.9	0.6	0.1	0.7		0.1						0.2
2007										7.3	0.7	0.3					0.6
2008						0.1	0.4	0.9	2.4	4.7	0.1						0.7
2009							0.1		1.0	1.4		0.3					0.2
2010					0.3				1.1	1.6			0.7				0.3
2011									44.0	0.1	0.1						3.4
2012							0.1	0.9	0.9		0.1	0.6			0.1		0.2
2013							1.0	1.6	0.3	14.9	0.9	0.1	0.3				1.5
2014						11.1	1.1	2.7	2.1	50.1	0.3	1.0	0.3			0.6	5.3
Mean					0.03	1.2	0.3	0.6	5.8	8.0	0.3	0.2	0.1		0.01	0.06	1.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014										1							1
Mean										0.1							0.1

Broad-winged Hawk is among the more predictable spring arrivals, first detected in week 4 in seven of ten years, and peaking in that week each time. The exceptions (2006, 2009, and 2012) featured arrivals and peaks in week 5 or 6; there have been sightings between week 7 and 9 in seven of ten years, but always involving lone individuals. Fall observations range from week 2 to 13, but with a strong peak in weeks 7 and 8. In all but three years (2006, 2010, and 2012) there has been at least one day with high counts, in two cases 300 individuals or more (2011 and 2014). Broad-winged Hawks are almost always seen flying over MBO, often circling in small or large kettles, but one low-flying individuals was banded in September 2014.

RTHA: Red-tailed Hawk / Buse à queue rousse (*Buteo jamaicensis*)

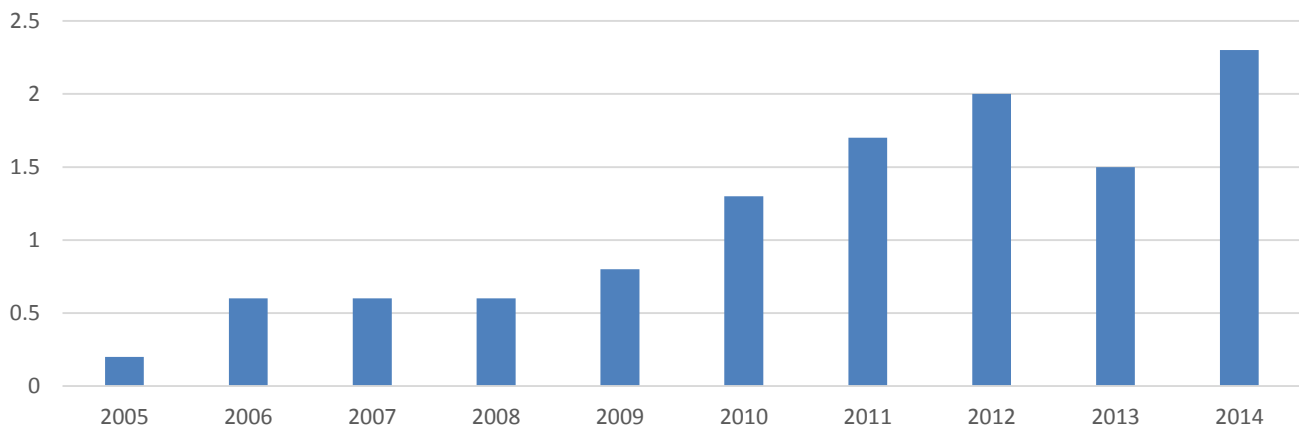
Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 30	Apr 30	May 4	5	2 (3%)	1	2	Aug 28	Oct 8	Oct 27	61	13 (15%)	5	22
2006	Mar 30	May 4	May 23	55	10 (14%)	13	27	Aug 26	Oct 21	Oct 30	66	25 (27%)	21	54
2007	Apr 7	Apr 23	May 18	42	9 (13%)	4	14	Aug 5	Oct 25	Oct 30	87	30 (33%)	7	59
2008	Mar 29	Apr 23	May 30	63	13 (19%)	3	18	Aug 20	Oct 12	Oct 30	72	27 (30%)	6	56
2009	Mar 29	Apr 25	May 23	56	11 (16%)	6	17	Aug 11	Oct 16	Oct 29	80	32 (35%)	16	73
2010	Apr 19	Apr 21	Jun 4	47	11 (16%)	8	21	Aug 9	Oct 3	Oct 30	83	26 (29%)	55	120
2011	Apr 14	May 12	May 30	47	18 (26%)	5	28	Aug 2	Oct 27	Oct 29	89	41 (45%)	56	159
2012	Mar 31	Mar 31	May 31	62	24 (34%)	2	29	Aug 1	Sep 27	Oct 30	91	57 (63%)	20	179
2013	Mar 29	Mar 29	May 31	64	22 (31%)	2	26	Aug 2	Sep 25	Oct 29	89	48 (53%)	24	137
2014	Apr 2	May 31	Jun 4	64	35 (51%)	3	53	Aug 2	Oct 30	Oct 30	90	59 (65%)	19	212
Mean	Apr 6	Apr 25	May 26	50	16 (23%)	5	24	Aug 10	Oct 13	Oct 29	81	36 (39%)	23	107

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005					0.8	0.2					0.1	0.1					0.03
2006	0.3	0.07	0.2		0.2	0.1	0.1	0.2	1.0		0.4	1.9	0.1		0.1		0.4
2007	0.3	0.6	0.3	0.5	0.6	0.4		0.4	0.1	0.9	0.1	0.1	0.1	0.1			0.2
2008	0.6	0.3	0.2			0.3	0.3	0.1	0.3	0.4	0.3	0.3	0.4		0.3	0.1	0.3
2009	0.4	0.5		0.4	0.3	0.3	0.1		0.1	0.3	0.9	0.6		0.3	0.1		0.2
2010	0.3	0.3	0.09	0.08	0.2	0.2				1.3	0.6		0.1	0.6	0.1	0.3	0.3
2011	0.3	1.0	0.08	0.2		0.2			0.1	0.4	0.4	0.9	1.3	0.3	0.4	0.1	0.4
2012	0.6	0.5		1.7	0.4	0.6	0.3	0.1	0.6	0.3	0.6	0.4	0.6	0.7	0.4	0.1	0.4
2013	0.3	0.6	0.5		0.5	0.4	1.1	0.1	0.4	0.4	0.4		0.4	0.4	0.1	0.1	0.4
2014	0.4	0.3	0.3	0.1	0.4	0.3	0.2	0.1		1.3	0.7	0.4	1.0	1.3	1.9	0.8	0.8
Mean	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.2	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.1			0.1	0.1	0.3	1.3	0.7	0.3	0.4	0.2
2006		0.08	0.05				0.1	0.3	0.3	0.1	0.1	0.4	0.6	0.7	3.7	1.3	0.6
2007	0.1		0.08	0.1		0.1	0.3	0.1	0.1	1.4	0.6	0.3	1.3	0.7	1.4	1.9	0.6
2008						0.1	0.3	0.1	0.1	0.1	0.6	0.3	0.7	1.9	2.0	1.7	0.6
2009					0.3		0.3		0.7	0.7	1.1	0.9	0.6	4.1	0.9	0.9	0.8
2010					0.1	0.3		1.1	0.1	0.3	0.1	0.9	11.1	0.7	1.0	1.3	1.3
2011				0.1	0.3		0.4	0.3	0.7	1.4	1.0	2.9	3.6	1.6	1.0	9.4	1.7
2012				0.4	0.4	0.6	1.0	1.7	0.7	0.7	0.4	4.6	2.9	1.9	3.3	7.0	2.0
2013		0.3	0.1	0.1		0.6	1.0	1.1	1.7	1.4	4.1	0.7	1.7	2.1	3.0	1.9	1.5
2014	1.0	0.3	0.6	0.7	0.9	2.1	1.4	1.6	0.9	3.9	1.4	5.0	2.4	1.7	3.7	4.6	2.3
Mean	0.07	0.05	0.06	0.2	0.2	0.4	0.5	0.6	0.5	1.0	1.0	1.6	2.6	1.6	2.0	3.0	1.2

Red-tailed Hawk occurs at MBO through all seasons, although only irregularly in summer. Spring observations are generally spread through most of the season in low numbers, usually with a modest peak somewhere between weeks 4 and 9; counts have varied little across years except for a remarkable low in 2005, and a mean daily count more than double the long-term mean in 2014. A pair breeds nearby most years, on the McGill farm, but is only observed on site occasionally in summer. Fall observations also often span most of the season, but numbers typically build steadily to a peak in late October. Except for a slight regression in 2013, fall counts have increased steadily throughout the past decade.

Mean Daily Count of Red-tailed Hawks in fall (2005-2014)



RLHA: Rough-Legged Hawk / Buse pattue (*Buteo lagopus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 9	May 9	May 9	1	1 (1%)	1	1	Oct 5	Oct 21	Oct 21	17	2 (2%)	2	3
2007	Apr 22	Apr 22	May 2	11	2 (3%)	1	2							
2008								Oct 10	Oct 10	Oct 22	13	2 (2%)	1	2
2009								Oct 29	Oct 29	Oct 29	1	1 (1%)	1	1
2010								Oct 9	Oct 9	Oct 29	21	4 (4%)	1	4
2011								Oct 29	Oct 29	Oct 29	1	1 (1%)	1	1
2012								Oct 25	Oct 25	Oct 25	1	1 (1%)	4	4
2013								Oct 23	Oct 23	Oct 23	1	1 (1%)	2	2
2014								Oct 26	Oct 26	Oct 30	5	2 (2%)	1	2
Mean	Apr 30	Apr 30	May 5	6	2 (2%)	1	0.3	Oct 19	Oct 21	Oct 26	8	2 (2%)	2	1.9

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006	0.07					0.02							0.1				0.01
2007										0.1		0.1					0.03
2008																	
2009				0.1		0.03											
2010		0.1				0.02											
2011																	
2012	0.1					0.04											
2013																	
2014	0.2					0.03											
Mean	0.03	0.02		0.01		0.01				0.01		0.01	0.01				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006													0.1		0.3		0.03
2007																	
2008														0.1	0.1		0.02
2009																0.1	0.01
2010													0.1	0.3		0.1	0.04
2011																0.1	0.01
2012																0.6	0.04
2013															0.3		0.02
2014																0.3	0.02
Mean													0.03	0.04	0.07	0.1	0.02

Rough-legged Hawk is a rare migrant and winter resident at MBO. There have been only three spring sightings, all in mid-season, and limited to 2006 and 2007. Fall sightings are more regular, with occurrences in all years except 2005 and 2007, but limited to no more than four individuals in any year. All fall sightings have been in October, typically peaking late in the month, with fall migration sometimes carrying over into November. All observations have been of hawks flying overhead.

GOEA: Golden Eagle / Aigle royal (*Aquila chrysaetos*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 9	May 9	May 9	1	1 (1%)	1	1							
2007	May 10	May 10	May 10	1	1 (1%)	1	1							
2008														
2009	Apr 25	Apr 25	Apr 25	1	1 (1%)	1	1	Oct 26	Oct 26	Oct 29	4	2 (2%)	1	2
2010														
2011								Oct 10	Oct 10	Oct 10	1	1 (1%)	1	1
2012								Oct 23	Oct 23	Oct 28	6	3 (3%)	1	3
2013														
2014								Oct 26	Oct 26	Oct 26	1	1 (1%)	1	1
Mean	May 4	May 4	May 4	1	1 (1%)	1	0.3	Oct 21	Oct 21	Oct 23	3	2 (2%)	1	0.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006	0.07					0.02							0.1				0.01
2007													0.1				0.01
2008																	
2009											0.1						0.01
2010																	
2011																	
2012	0.1					0.04											
2013																	
2014																	
Mean	0.02					<0.01					0.01		0.03				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																0.3	0.02
2010																	
2011														0.1			0.01
2012															0.1	0.3	0.03
2013																	
2014																0.1	0.01
Mean														0.01	0.01	0.07	0.01

Golden Eagle is a rare migrant at MBO, with three observations in spring, seven in fall, and two in early winter. Spring migrants have all passed between April 25 and May 10. Aside from one early migrant on October 10, all other fall observations have been between October 23 and 29.

VIRA: Virginia Rail / Râle de Virginie (*Rallus limicola*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 24	May 24	May 24	1	1 (2%)	1	1							
2006	Apr 22	Apr 22	Jun 2	42	2 (3%)	1	2	Sep 4	Sep 4	Sep 4	1	1 (1%)	1	1
2007	May 5	May 5	Jun 1	28	3 (4%)	1	3	Aug 21	Aug 21	Aug 27	7	2 (2%)	1	2
2008	May 9	May 9	May 23	15	8 (11%)	2	9	Sep 16	Sep 16	Sep 16	1	1 (1%)	2	2
2009	Apr 23	May 17	May 25	33	14 (20%)	3	20	Aug 7	Aug 7	Aug 7	1	1 (1%)	1	1
2010	Apr 23	May 2	May 24	32	20 (29%)	3	25							
2011	May 1	May 19	Jun 4	35	26 (37%)	3	32							
2012	Apr 21	Apr 21	Jun 2	43	8 (11%)	1	8							
2013	May 4	May 4	May 30	27	14 (20%)	1	14							
2014	May 10	May 19	Jun 4	26	19 (28%)	3	23	Aug 3	Aug 3	Aug 3	1	1 (1%)	1	1
Mean	May 2	May 8	May 29	28	12 (17%)	2	14	Aug 22	Aug 22	Aug 23	2	1 (1%)	1	0.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.1		0.02
2006										0.1						0.1	0.03
2007												0.3				0.1	0.04
2008													0.7	0.4	0.1		0.1
2009										0.3	0.3	0.4	0.9	0.9	0.1		0.3
2010										0.3	1.4	1.3	0.4		0.1		0.4
2011											0.1	1.0	1.3	0.9	0.7	0.6	0.5
2012										0.1	0.3	0.1			0.1	0.4	0.1
2013												0.6	0.4	0.6	0.3	0.1	0.2
2014													0.9	1.4	0.9	0.2	0.3
Mean										0.09	0.2	0.4	0.5	0.4	0.3	0.2	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06	0.06	0.06														
2006								0.1									0.01
2007						0.1	0.1										0.02
2008										0.3							0.02
2009	0.3	0.3	0.3	0.1													0.01
2010	0.7		0.2														
2011																	
2012																	
2013		0.3	0.1														
2014	0.7		0.3	0.1													0.01
Mean	0.1	0.05	0.07	0.03		0.01	0.01	0.01		0.03							<0.01

Virginia Rail has been observed at MBO each spring, with sightings more regular since 2009, reflecting the presence of a breeding pair in Stoneycroft Pond in most of these years. Spring arrival has been between April 21 and 23 in four years, but delayed until May 1 to 10 in five others. In four of the past six years, as well as in 2005, observations have carried on into summer, and in both 2009 and 2014 even into the first week of fall. The only other fall sightings were migrants moving through between mid-August and mid-September from 2006 to 2008.

SORA: Sora / Marouette de Caroline (*Porzana carolina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 16	May 27	12	2 (3%)	1	2							
2006														
2007								Aug 4	Aug 4	Sep 8	36	2 (2%)	1	2
2008	May 11	May 11	May 30	20	3 (4%)	1	3							
2009														
2010	May 9	May 9	Jun 4	27	12 (17%)	2	15							
2011														
2012														
2013	May 27	May 27	May 27	1	1 (1%)	1	1							
2014	May 17	May 17	May 29	13	13 (19%)	2	16							
Mean	May 16	May 16	May 29	15	6 (9%)	1	3.7	Aug 4	Aug 4	Sep 8	36	2 (2%)	1	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.1		0.03
2006																	
2007																	
2008													0.1		0.1	0.1	0.04
2009																	
2010													0.4	0.6	0.7	0.4	0.2
2011																	
2012																	
2013															0.1		0.01
2014														1.1	1.1		0.2
Mean													0.06	0.2	0.2	0.06	0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007				0.1					0.1								0.02
2008																	
2009																	
2010	1.3		0.4														
2011																	
2012																	
2013																	
2014																	
Mean	0.07		0.03	0.01					0.01								<0.01

Sora has occurred at MBO less regularly than Virginia Rail, with sightings in five of ten spring seasons, and only two fall sightings, both in 2007. Both in 2010 and 2014, a pair remained on site for an extended period in spring, with successful breeding in 2010 carrying over into June observations.

COGA: Common Gallinule / Gallinule poule-d'Amérique (*Gallinula galeata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007								Aug 18	Aug 18	Aug 18	1	1 (1%)	1	1
2008														
2009														
2010	May 5	May 5	May 9	5	3 (4%)	1	3							
2011														
2012														
2013														
2014														
Mean	May 5	May 5	May 9	5	3 (4%)	1	0.3	Aug 18	Aug 18	Aug 18	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010												0.3	0.1				0.04
2011																	
2012																	
2013																	
2014																	
Mean												0.03	0.01				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007						0.1											0.01
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean						0.01											<0.01

Common Moorhen is a rare species at MBO, with a lone fall sighting in mid-August 2007, and an individual that was observed three times over a span of five days in early May 2010.

SACR: Sandhill Crane / Grue du Canada (*Grus canadensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	Apr 24	Apr 24	May 12	19	2 (3%)	1	2							
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean	Apr 24	Apr 24	May 12	19	2 (3%)	1	0.2							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007										0.1			0.1				0.03
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean										0.01			0.01				<0.01

Sightings of Sandhill Crane at MBO are limited to two lone individuals flying over MBO three weeks apart in spring 2007.

BBPL: Black-bellied Plover / Pluvier argenté (*Pluvialis squatarola*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011														
2012	May 26	May 26	May 26	1	1 (1%)	1	1							
2013														
2014														
Mean	May 26	May 26	May 26	1	1 (1%)	1	0.1							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012															0.1		0.01
2013																	
2014																	
Mean															0.01		<0.01

Black-bellied Plover is one of eight species with just a single individual observed to date. It was flying over MBO in late May 2012.

SEPL: Semipalmated Plover / Pluvier semipalmé (*Charadrius semipalmatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 28	May 28	May 28	1	1 (1%)	10	10							
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean	May 28	May 28	May 28	1	1 (1%)	10	1.0							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															1.4		0.1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.1		0.01

Semipalmated Plover has only been observed at MBO once, a flock of ten flying overhead in late May 2006.

KILL: Killdeer / Pluvier kildir (*Charadrius vociferus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 8	Apr 20	Jun 2	56	18 (31%)	4	27	Oct 2	Oct 2	Oct 8	7	2 (2%)	2	4
2006	Mar 29	Apr 28	May 28	61	43 (62%)	4	65							
2007	Mar 28	Apr 10	Jun 1	66	27 (39%)	3	36	Aug 15	Aug 15	Sep 11	28	5 (5%)	1	5
2008	Apr 4	Apr 6	Jun 1	59	26 (37%)	3	31	Aug 3	Aug 3	Sep 26	55	2 (2%)	1	2
2009	Mar 29	Apr 2	May 31	64	28 (41%)	2	31	Oct 18	Oct 18	Oct 18	1	1 (1%)	1	1
2010	Apr 2	May 12	May 24	53	16 (23%)	3	21	Sep 15	Sep 15	Sep 15	1	1 (1%)	1	1
2011	Apr 5	May 24	Jun 5	62	29 (41%)	8	57							
2012	Apr 17	May 7	May 31	45	18 (26%)	3	24	Sep 19	Sep 19	Oct 4	16	2 (2%)	1	2
2013	Mar 31	May 6	May 22	53	27 (39%)	4	41	Aug 3	Sep 20	Oct 20	79	5 (5%)	4	9
2014	Apr 7	Apr 25	Jun 2	57	27 (40%)	4	41	Aug 17	Aug 17	Aug 17	1	1 (1%)	1	1
Mean	Apr 3	Apr 26	May 30	58	26 (38%)	4	37	Sep 3	Sep 9	Sep 26	24	2 (3%)	2	2.5

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2	0.4	1.5		0.4	0.3	0.6	0.3	0.6	0.5
2006							0.7	0.5	0.6	0.9	1.3	1.4	1.7	1.1	1.1		0.9
2007							0.3	0.4		1.0	0.3	0.6	1.1	0.6	0.6	0.3	0.5
2008								1.1	0.4	0.7	0.4	0.3	0.4	0.6	0.1	0.3	0.4
2009					0.07	0.03	0.6	0.3	0.1	0.9	0.1	0.9	0.6	0.4	0.4	0.1	0.4
2010					0.2	0.05	0.4	0.1	0.3		0.6	0.3	0.6	0.6	0.1		0.3
2011								0.3	0.1	0.4	0.3	1.0	1.0	0.9	2.9	1.3	0.8
2012					2.6	0.5			0.3	0.6	0.1	0.9	0.6	0.4	0.4	0.1	0.3
2013					0.07	0.02	0.1	0.4	0.6	0.7	0.4	1.7	0.9	1.0			0.6
2014								0.1	0.9	1.9	1.6	0.6	0.4	0.1		0.3	0.6
Mean					0.2	0.05	0.2	0.4	0.4	0.8	0.5	0.8	0.8	0.6	0.6	0.3	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.1	0.06									0.3	0.3				0.05
2006																	
2007	0.1		0.08			0.4		0.1	0.1								0.05
2008				0.1								0.1					0.02
2009															0.1		0.01
2010										0.1							0.01
2011	1.0	0.3	0.6														
2012											0.1		0.1				0.02
2013	0.3	0.5	0.4	0.1		0.3			0.1		0.6				0.1		0.10
2014						0.1											0.01
Mean	0.09	0.08	0.08	0.03		0.09		0.01	0.03	0.01	0.07	0.04	0.04		0.03		0.03

Killdeer is the second most frequently observed shorebird at MBO, although in generally small numbers. It is most common in spring, with a weak overall peak from late April to mid-May; occasionally migrants arrive already in late winter. Summer observations have been scattered over four years. Fall sightings range from week 1 to 12, with no pattern in occurrence. All records have been birds flying over or in the adjacent fields.

SPSA: Spotted Sandpiper / Chevalier grivelé (*Actitis macularius*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 24	May 26	May 26	3	2 (3%)	2	3	Aug 3	Aug 3	Aug 3	1	1 (1%)	1	1
2006	May 11	May 11	May 11	1	1 (1%)	1	1	Aug 1	Aug 1	Aug 5	5	3 (3%)	1	3
2007	May 15	May 15	May 23	9	2 (3%)	1	2	Sep 14	Sep 14	Sep 14	1	1 (1%)	1	1
2008	May 15	May 15	May 27	13	5 (7%)	1	5	Aug 28	Aug 28	Aug 28	1	1 (1%)	1	1
2009	May 25	May 25	May 25	1	1 (1%)	1	1	Sep 8	Sep 8	Sep 8	1	1 (1%)	1	1
2010	May 4	May 17	May 17	14	2 (3%)	2	3							
2011								Aug 11	Aug 11	Aug 21	11	2 (2%)	1	2
2012	May 14	May 14	May 14	1	1 (1%)	1	1							
2013								Aug 5	Aug 5	Aug 11	7	4 (4%)	1	4
2014	May 13	May 13	May 13	1	1 (1%)	1	1	Aug 1	Aug 18	Aug 18	18	7 (8%)	4	10
Mean	May 15	May 17	May 19	5	2 (3%)	1	1.7	Aug 16	Aug 18	Aug 21	6	2 (3%)	1	2.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.4		0.05
2006													0.1				0.01
2007													0.1		0.1		0.03
2008													0.1	0.3	0.3		0.07
2009															0.1		0.01
2010												0.1		0.3			0.04
2011																	
2012													0.1				0.01
2013																	
2014													0.1				0.01
Mean												0.01	0.07	0.06	0.1		0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1													0.01
2006				0.4													0.03
2007										0.1							0.01
2008							0.1										0.01
2009									0.1								0.01
2010																	
2011					0.1	0.1											0.02
2012																	
2013				0.4	0.1												0.04
2014		0.3	0.1	0.1	0.6	0.7											0.1
Mean		0.02	<0.01	0.1	0.09	0.09	0.01		0.01	0.01							0.03

Spotted Sandpiper is a regular but generally rare spring and fall migrant at MBO. Both in spring and fall, it has been missed entirely in two years, and limited to a single individual on one day in four others. The somewhat higher counts in some other years (notably spring 2008 and fall 2014) reflect an individual that stopped over and was recorded on multiple days.

SOSA: Solitary Sandpiper / Chevalier solitaire (*Tringa solitaria*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 7	May 14	May 30	24	18 (31%)	5	34	Aug 7	Aug 7	Aug 23	17	4 (5%)	1	4
2006	May 6	May 21	May 28	23	13 (19%)	4	19	Aug 12	Aug 12	Aug 13	2	2 (2%)	1	2
2007	May 15	May 22	May 23	9	6 (9%)	2	7	Aug 25	Aug 25	Sep 26	33	23 (25%)	3	32
2008	Apr 27	May 9	May 25	29	17 (24%)	7	58	Aug 16	Aug 25	Sep 18	34	18 (20%)	2	21
2009	Apr 18	May 5	May 24	37	15 (22%)	3	24	Aug 1	Aug 29	Sep 22	53	11 (12%)	2	13
2010	May 4	May 16	May 26	23	11 (16%)	2	14	Aug 4	Aug 4	Sep 17	45	10 (11%)	1	10
2011	May 5	May 19	May 20	16	15 (21%)	3	19	Aug 4	Aug 4	Oct 5	63	10 (11%)	2	12
2012	Apr 21	May 5	May 19	29	14 (20%)	6	23	Aug 23	Aug 23	Oct 12	51	10 (11%)	1	10
2013	May 1	May 14	May 30	30	19 (27%)	5	38	Aug 9	Aug 17	Sep 13	36	10 (11%)	2	12
2014	May 5	May 21	May 23	19	16 (24%)	4	27	Aug 11	Aug 16	Sep 21	42	30 (33%)	3	44
Mean	May 1	May 14	May 24	24	14 (21%)	4	26	Aug 11	Aug 16	Sep 16	38	13 (14%)	2	16

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.1	1.7	1.9	1.0	0.2	0.6
2006												0.4	0.7	1.0	0.6		0.3
2007													0.1	0.7	0.1		0.1
2008											0.1	0.9	3.7	3.1	0.4		0.8
2009										0.3		1.3	1.1	0.6	0.1		0.3
2010												0.3	0.6	0.7	0.4		0.2
2011												0.6	1.1	1.0			0.3
2012										0.3		2.0	0.7	0.3			0.3
2013											0.1	1.0	2.0	2.0	0.1	0.1	0.5
2014												0.3	1.9	1.6	0.1		0.4
Mean										0.06	0.03	0.7	1.4	1.3	0.3	0.03	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1	0.3		0.1										0.05
2006					0.3												0.02
2007							0.6	0.9	0.7	1.1	1.1	0.1					0.4
2008						0.3	0.7	0.9	0.9	0.3							0.2
2009				0.3			0.1	0.9	0.3	0.1	0.1						0.1
2010				0.1	0.3				0.3	0.7							0.1
2011				0.3	0.4	0.1	0.3	0.1	0.3				0.1				0.1
2012							0.1			0.6	0.1	0.4		0.1			0.1
2013					0.1	0.6	0.1	0.1	0.6	0.1							0.1
2014					0.4	1.7	1.4	1.7	0.4	0.4	0.1						0.5
Mean				0.09	0.2	0.3	0.4	0.5	0.3	0.3	0.2	0.06	0.01	0.01			0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008														1			1
2009																	
2010																	
2011																	
2012																	
2013													1				1
2014													1				1
Mean													0.2	0.1			0.3

By a small margin over Killdeer, Solitary Sandpiper is the most frequently observed shorebird at MBO. However, it differs in that it is strictly a spring and fall migrant, and that fall observations are much more regular. Spring arrivals have occasionally returned in late April, but most commonly show up in the first week of May. There is generally a distinct peak in weeks 7 and 8, and all three individuals banded have been during this period. Fall migrants have arrived as early as the first week of August in four years, and twice have lingered into early October, and the peak has varied from week 2 to 7, but overall numbers are highest from late August to mid-September.

GRYE: Greater Yellowlegs / Grand Chevalier (*Tringa melanoleuca*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 27	May 27	May 27	1	1 (2%)	1	1	Aug 13	Aug 13	Oct 13	62	4 (5%)	2	5
2006	May 7	May 7	May 21	15	3 (4%)	5	9	Sep 6	Sep 6	Oct 22	47	3 (3%)	2	4
2007	May 10	May 10	May 11	2	2 (3%)	1	2							
2008								Sep 23	Sep 23	Sep 23	1	1 (1%)	1	1
2009														
2010								Sep 12	Sep 12	Sep 12	1	1 (1%)	1	1
2011								Sep 1	Oct 4	Oct 4	34	4 (4%)	12	16
2012	Apr 20	May 2	May 19	30	5 (7%)	2	6	Oct 1	Oct 1	Oct 1	1	1 (1%)	1	1
2013	Apr 26	Apr 26	May 18	23	3 (4%)	1	3	Aug 13	Aug 13	Oct 30	79	2 (2%)	1	2
2014	May 15	May 15	May 15	1	1 (1%)	1	1	Aug 10	Aug 10	Sep 7	29	2 (2%)	2	3
Mean	May 7	May 9	May 18	12	2 (4%)	2	2.2	Sep 2	Sep 6	Oct 2	32	2 (2%)	3	3.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.1		0.02
2006												0.7	0.4	0.1			0.1
2007													0.3				0.03
2008																	
2009																	
2010																	
2011																	
2012										0.3		0.4		0.1			0.09
2013											0.1	0.1		0.1			0.04
2014													0.1				0.01
Mean										0.03	0.01	0.1	0.09	0.04	0.01		0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.3								0.3	0.2			0.06
2006									0.3						0.3		0.04
2007																	
2008											0.1						0.01
2009																	
2010										0.1							0.01
2011								0.1	0.1			0.3	1.7				0.2
2012												0.1					0.01
2013					0.1											0.1	0.02
2014					0.3				0.1								0.03
Mean					0.07			0.01	0.06	0.01	0.01	0.04	0.2	0.01	0.03	0.01	0.04

Greater Yellowlegs is a rare migrant at MBO, with sightings in six spring and eight fall seasons. Spring sightings have all been between weeks 4 and 9, with slightly more frequent records over the middle of that period. In fall, there have been three sightings in the second week of August, but otherwise observations have been from week 5 through the end of the season. If the unusually large flock observed on October 4, 2011 is omitted, there is no clear pattern to the timing of observations, nor any notable difference among years.

LEYE: Lesser Yellowlegs / Petit Chevalier (*Tringa flavipes*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008	May 12	May 12	May 12	1	1 (1%)	1	1	Aug 10	Aug 10	Aug 10	1	1 (1%)	1	1
2009														
2010														
2011	May 13	May 13	May 13	1	1 (1%)	1	1							
2012	May 16	May 16	May 16	1	1 (1%)	1	1							
2013														
2014														
Mean	May 13	May 13	May 13	1	1 (1%)	1	0.3	Aug 10	Aug 10	Aug 10	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008													0.1				0.01
2009																	
2010																	
2011													0.1				0.01
2012														0.1			0.01
2013																	
2014																	
Mean													0.03	0.01			<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008						0.1											0.01
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean						0.01											<0.01

Lesser Yellowlegs is considerably rarer than Greater Yellowlegs, with only three individuals observed in spring, and one in fall. Although the sample size is small, timing of the spring migrants has been remarkably consistent, with all of them observed between May 12 and 16.

DUNL: Dunlin / Bécasseau variable (*Calidris alpina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 8	Oct 8	Oct 8	1	1 (1%)	30	30
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 8	Oct 8	Oct 8	1	1 (1%)	30	3.0

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005													5.0				0.3
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.4				0.03

The only observation of Dunlin at MBO was a flock of 30 individuals flying overhead on October 8, 2005.

LESA: Least Sandpiper / Bécasseau minuscule (*Calidris minutilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007								Aug 11	Aug 11	Aug 11	1	1 (1%)	1	1
2008														
2009								Aug 28	Aug 28	Aug 28	1	1 (1%)	3	3
2010														
2011														
2012														
2013	May 15	May 15	May 15	1	1 (1%)	6	6							
2014														
Mean	May 15	May 15	May 15	1	1 (1%)	6	0.6	Aug 19	Aug 19	Aug 19	1	1 (1%)	2	0.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013													0.9				0.09
2014																	
Mean													0.09				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007						0.1											0.01
2008																	
2009							0.4										0.03
2010																	
2011																	
2012																	
2013																	
2014																	
Mean					0.01		0.04										<0.01

Least Sandpiper is a rare migrant at MBO, with observations limited to a small flock of six individuals feeding along the edge of Stoneycroft Pond on 15 May 2013, and lone individuals in August 2007 and 2009.

WISN: Wilson's Snipe / Bécassine de Wilson (*Gallinago delicata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 15	Aug 15	Sep 5	22	3 (3%)	1	3
2006								Sep 9	Sep 9	Sep 25	17	3 (3%)	1	3
2007	Apr 22	Apr 22	May 15	24	4 (6%)	1	4	Aug 4	Aug 4	Oct 29	87	5 (5%)	1	5
2008	May 20	May 20	May 20	1	1 (1%)	1	1							
2009								Oct 13	Oct 13	Oct 13	1	1 (1%)	1	1
2010	May 22	May 22	May 23	2	2 (3%)	1	2							
2011														
2012														
2013	Apr 20	Apr 20	Apr 20	1	1 (1%)	1	1	Sep 17	Sep 17	Sep 17	1	1 (1%)	3	3
2014								Aug 31	Aug 31	Oct 9	40	2 (2%)	1	2
Mean	May 6	May 6	May 12	7	2 (3%)	1	0.8	Sep 4	Sep 4	Oct 1	28	2 (3%)	1	1.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007										0.1		0.1	0.3				0.06
2008														0.1			0.01
2009																	
2010														0.1	0.1		0.03
2011																	
2012																	
2013										0.1							0.01
2014																	
Mean										0.03		0.01	0.03	0.03	0.01		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						0.3			0.1								0.03
2006									0.1		0.3						0.03
2007				0.1		0.1	0.1	0.1								0.1	0.05
2008																	
2009														0.1			0.01
2010																	
2011																	
2012																	
2013										0.4							0.03
2014								0.1					0.1				0.02
Mean				0.01		0.04	0.01	0.03	0.03	0.04	0.03		0.01	0.01		0.01	0.02

Wilson's Snipe has been observed in spring in four years, and in fall in six years. Spring sightings have ranged between April 20 and May 23, always involving lone individuals. Fall observations are more scattered, having ranged throughout the full season, but without any patterns of occurrence. Except for three individuals observed on September 17, 2013, all other sightings have also been of lone birds.

AMWO: American Woodcock / Bécasse d'Amérique (*Scolopax minor*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 1	Aug 1	Aug 1	1	1 (1%)	1	1
2006								Aug 2	Aug 2	Aug 19	18	4 (4%)	1	4
2007														
2008	Apr 9	Apr 9	Apr 19	11	5 (7%)	2	6	Aug 13	Aug 13	Aug 20	8	2 (2%)	1	2
2009	Apr 10	Apr 10	Apr 10	1	1 (1%)	1	1	Aug 15	Aug 15	Sep 19	36	6 (7%)	1	6
2010								Aug 30	Aug 30	Aug 30	1	1 (1%)	1	1
2011	Apr 1	Apr 1	May 4	34	3 (4%)	1	3	Aug 8	Aug 8	Aug 8	1	1 (1%)	1	1
2012	May 19	May 19	Jun 1	14	2 (3%)	1	2	Aug 3	Oct 7	Oct 22	81	6 (7%)	2	8
2013	Apr 3	Apr 25	May 15	43	11 (16%)	2	13	Aug 5	Oct 5	Oct 19	76	17 (19%)	3	20
2014	Apr 10	Apr 21	May 31	52	8 (12%)	3	12	Oct 11	Oct 11	Oct 11	1	1 (1%)	1	1
Mean	Apr 13	Apr 19	May 8	26	5 (7%)	2	3.7	Aug 16	Aug 30	Sep 9	25	4 (5%)	1	4.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005																		
2006																		
2007																		
2008								0.3	0.4	0.1							0.09	
2009								0.2										0.01
2010																		
2011								0.1	0.1			0.1						0.04
2012					0.2	0.04								0.1		0.1		0.03
2013							0.1	0.1	0.1	0.3	0.4	0.4	0.3					0.2
2014								0.1	0.1	0.4	0.6	0.1			0.3	0.2		0.2
Mean					0.01	<0.01	0.03	0.09	0.06	0.09	0.1	0.07	0.03	0.01	0.03	0.03		0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.1	0.06	0.1													0.01
2006	0.1	0.2	0.1	0.3	0.1	0.1											0.04
2007																	
2008					0.1	0.1											0.02
2009	0.3		0.1			0.1	0.1		0.1	0.3	0.1						0.07
2010								0.1									0.01
2011					0.1												0.01
2012				0.1	0.1							0.4			0.4		0.09
2013				0.3	0.6	0.6	0.3		0.1	0.1	0.1	0.4	0.1	0.1			0.2
2014														0.1			0.01
Mean	0.04	0.06	0.05	0.09	0.1	0.1	0.04	0.01	0.03	0.04	0.03	0.09	0.03	0.06			0.05

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013													1				1
2014																	
Mean													0.1				0.1

American Woodcock was not observed in spring until 2008, but since then has been recorded in six of seven spring seasons. Only in 2013 and 2014 have sightings been regular through most of the season; the elevated season totals for these years reflect the repeated observations of the same individuals, presumably a pair. There were no summer observations in those two years, but there were in three years between 2005 and 2009. Fall sightings have spanned nearly the full season, with records as late as the second half of October in two of the past three years. Observations are most common in August though. There has been little change in fall numbers over time, aside from much more frequent sightings in 2013. Just one individual has been banded, in spring 2013.

RBGU: Ring-billed Gull / Goéland à bec cerclé (*Larus delawarensis*)

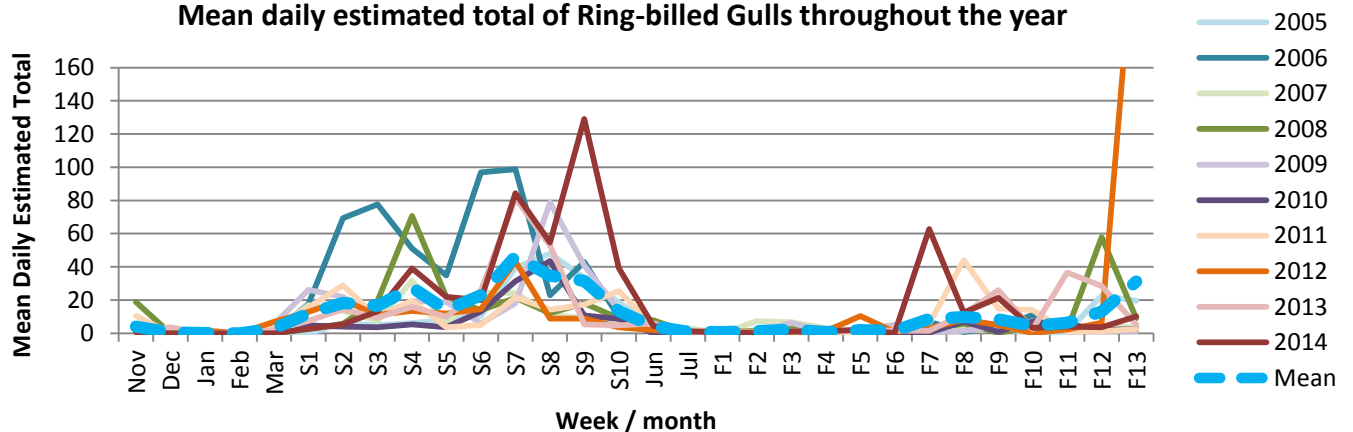
Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 12	Jun 3	60	58 (98%)	128	1176	Aug 1	Oct 24	Oct 30	91	36 (41%)	101	405
2006	Mar 28	May 2	Jun 5	70	69 (100%)	205	3583	Aug 3	Oct 7	Oct 30	89	42 (46%)	57	240
2007	Mar 28	Apr 24	Jun 4	69	65 (93%)	102	1046	Aug 8	Aug 18	Oct 30	84	47 (52%)	31	264
2008	Mar 28	Apr 20	Jun 5	70	65 (93%)	140	1362	Aug 5	Oct 23	Oct 29	86	38 (42%)	300	614
2009	Mar 28	May 19	Jun 5	70	68 (99%)	130	1757	Aug 1	Oct 16	Oct 30	91	44 (48%)	39	216
2010	Mar 28	May 14	Jun 4	69	65 (93%)	92	898	Aug 1	Sep 20	Oct 30	91	28 (31%)	47	190
2011	Mar 28	Jun 3	Jun 5	70	66 (94%)	114	1123	Aug 2	Sep 21	Oct 30	90	54 (59%)	150	620
2012	Mar 29	May 12	Jun 4	68	66 (94%)	150	1040	Aug 2	Oct 28	Oct 30	90	50 (55%)	330	2066
2013	Mar 28	May 15	Jun 4	69	67 (96%)	230	1588	Aug 4	Oct 16	Oct 30	88	52 (57%)	250	825
2014	Mar 29	May 13	Jun 4	68	64 (94%)	320	2826	Aug 1	Sep 13	Oct 30	91	49 (54%)	302	858
Mean	Mar 29	May 10	Jun 4	68	65 (95%)	161	1640	Aug 2	Oct 3	Oct 29	89	44 (49%)	161	630

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5				1.3	0.5	6.0	4.9	6.2	8.3	10.3	39.4	48.0	33.4	18.6	19.9	
2006	2.1	0.07			0.5	0.6	17.4	69.3	77.7	51.1	34.9	96.9	98.9	22.9	43.0	9.7	51.9
2007	0.2	0.4	0.3		1.2	0.4	16.9	13.4	7.6	31.6	6.4	24.4	24.3	11.1	9.0	4.7	14.9
2008	18.9				6.3	2.7	5.7	19.4	70.6	21.9	13.9	21.3	12.0	18.0	9.1	19.5	
2009	0.1				5.4	2.2	26.1	22.0	10.0	19.4	18.9	5.9	18.1	78.7	40.9	14.1	25.5
2010	4.1	0.1			3.7	2.0	4.7	3.9	3.7	5.3	3.6	13.0	31.3	43.6	10.7	8.6	12.8
2011	10.5				3.6	3.6	15.3	28.9	9.4	19.6	3.6	5.0	21.7	14.3	17.3	25.4	16.0
2012	1.8		1.7		6.8	2.3	12.9	19.9	11.1	13.4	11.9	14.6	43.4	8.9	8.9	3.7	14.9
2013	0.3	3.6			1.8	1.1	7.4	14.4	9.3	15.9	10.0	25.6	81.3	53.0	5.3	4.7	22.7
2014	0.8				0.1	2.7	5.4	13.3	39.0	21.9	20.0	84.3	54.7	129.1	39.3	41.6	
Mean	3.9	0.6	0.09		2.8	1.7	11.9	18.3	16.6	27.5	14.1	22.9	46.4	34.7	31.6	13.3	23.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	4.9	1.6	3.2	0.9	1.1	1.4	0.3	0.3		1.9	3.3	6.3	0.5	0.8	22.6	19.6	4.6
2006	5.8	0.3	2.8	0.6	0.4	0.9	0.4	1.0	1.7	6.9	0.7	4.1	10.9	1.3	1.9	3.6	2.6
2007	1.4	3.0	2.2		7.3	6.6	3.0	0.7	1.6	1.7	2.0	2.1	0.9	4.1	4.0	3.7	2.9
2008	7.8	0.6	4.2	0.1	1.6	4.1	0.4	0.4	0.1	2.6	5.7	0.3	3.6	1.6	58.0	9.1	6.7
2009				1.6	0.1	6.3	0.7	1.6	5.1	0.4	1.4	4.1	0.7	6.0	1.4	1.3	2.4
2010				0.3	0.3		0.3	0.7	0.1	0.4	7.1	1.0	7.0	5.3	2.1	2.4	2.1
2011	5.0	1.0	2.7	0.4	1.1	0.1		0.4	2.7	5.7	44.1	15.0	14.1	1.0	1.3	2.4	6.8
2012	1.8	0.5	1.1	1.9	0.4	0.1	1.3	10.4	0.9	3.1	8.3	4.9	0.1	2.3	6.4	255.0	22.7
2013	6.0	1.0	3.1	0.9	0.6	1.1	0.7	1.4	1.7	1.4	11.6	25.9	2.4	36.6	28.4	5.1	9.1
2014	4.3	1.3	2.6	0.3	0.3	1.1	1.1	2.3	0.1	62.7	12.4	21.3	3.3	3.9	3.6	10.1	9.4
Mean	4.2	1.0	2.5	0.7	1.3	2.2	0.8	1.9	1.4	8.7	9.7	8.5	4.4	6.4	13.0	31.2	6.9

Ring-billed Gull is by far the most common gull at MBO, with sightings usually extending from March through November, and occasionally as late as December and even January. Spring numbers have peaked as early as week 2 and as late as week 9, but overall are highest around weeks 7 and 8. Observations taper off considerably in summer, to the extent that none at all were recorded in 2009 or 2010. Low numbers generally persist for the first six weeks of fall before starting to build to a peak in late October. However, the pattern is quite variable from year to year, with the individual season peak as early as mid-August in 2007 and 2009, and in the second half of September in three other years. Spring numbers were unusually low from 2010 to 2012, contrasting with mean daily counts in 2006 and 2014 that were roughly double the long-term mean. Fall counts were relatively consistent from 2005 through 2010, aside from a modest spike in 2008, but have since been higher, most notably in 2012, driven by record high numbers throughout the final week of the season. High counts are usually correlated with active farming in the adjacent fields, both in spring and fall.

Mean daily estimated total of Ring-billed Gulls throughout the year



HERG: Herring Gull / Goéland argenté (*Larus argentatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 8	Apr 18	May 25	48	5 (8%)	3	10	Aug 8	Oct 10	Oct 27	81	8 (9%)	4	12
2006	Apr 5	Apr 24	May 12	38	8 (12%)	7	21	Sep 13	Sep 13	Oct 29	47	6 (7%)	2	8
2007	Mar 28	May 10	Jun 1	66	15 (21%)	5	35	Aug 9	Oct 22	Oct 30	83	10 (11%)	3	18
2008	Apr 5	Apr 18	May 30	56	10 (14%)	6	18	Sep 6	Sep 6	Oct 27	52	4 (4%)	1	4
2009	Apr 27	Apr 27	Apr 27	1	1 (1%)	1	1	Aug 27	Oct 26	Oct 26	61	4 (4%)	7	10
2010	Apr 28	May 18	May 18	21	2 (3%)	4	5	Sep 23	Oct 3	Oct 24	32	8 (9%)	5	16
2011	Apr 24	May 21	May 21	28	3 (4%)	3	6	Aug 23	Aug 23	Oct 4	43	5 (5%)	2	6
2012	Apr 18	May 5	May 30	43	6 (9%)	3	10	Aug 13	Aug 13	Sep 24	43	2 (2%)	1	2
2013	Mar 29	Mar 29	Jun 3	67	6 (9%)	1	6	Sep 14	Sep 14	Oct 19	36	6 (7%)	2	7
2014	Apr 20	Apr 20	May 20	31	6 (9%)	3	10	Aug 4	Oct 2	Oct 27	85	8 (9%)	2	10
Mean	Apr 13	Apr 27	May 21	40	6 (9%)	4	12	Aug 26	Sep 22	Oct 20	56	6 (7%)	3	9.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.3		0.7	0.4				0.1		0.2
2006	0.07		1.6			0.3		0.7		1.7		0.3	0.4				0.3
2007		0.1			0.2	0.07	1.0	0.3		1.0	0.3		1.7	0.4		0.3	0.5
2008	0.1	1.5				0.3		0.1	0.1	1.3	0.1	0.1	0.4	0.1		0.1	0.3
2009	0.1					0.03					0.1						0.01
2010	0.2	0.1				0.08								0.6			0.07
2011										0.1	0.3			0.4			0.09
2012										0.4		0.4	0.3	0.1		0.1	0.1
2013							0.1	0.1		0.1		0.1		0.1		0.1	0.09
2014										0.9	0.1			0.4			0.1
Mean	0.07	0.2	0.3		0.02	0.1	0.1	0.1	0.01	0.6	0.2	0.1	0.3	0.2	0.01	0.07	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1						0.1		0.2	1.0	0.1	0.3	0.1
2006										0.3	0.3			0.3	0.1	0.1	0.09
2007					0.1				0.1	0.1	0.1	0.1			0.4	1.4	0.2
2008									0.1						0.3	0.1	0.04
2009							0.3									1.1	0.1
2010										0.1	0.3	1.6	0.1			0.1	0.2
2011							0.3			0.1		0.1	0.3				0.07
2012					0.1						0.1						0.02
2013										0.3	0.1	0.3	0.1		0.1		0.08
2014				0.1				0.1		0.1		0.3	0.1	0.3	0.1	0.1	0.1
Mean				0.01	0.04		0.06	0.01	0.03	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.1

Herring Gull has been observed at MBO each spring and fall in low numbers, an also in winter from 2006 through 2010. Peak counts have ranged as high as 7 in both spring and fall, but are usually even smaller. In both spring and fall, sightings have spanned the full season, while in winter there have been observations in each month except February. Spring sightings have peaked between weeks 1 and 8, but most often in week 4. Fall has been even more variable, with the peak ranging from week 2 to 13, although sightings are weighted toward the second half of the season overall.

ICGU: Iceland Gull / Goéland arctique (*Larus glaucooides*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 7	Apr 7	1	1 (2%)	1	1							
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean	Apr 7	Apr 7	Apr 7	1	1 (2%)	1	0.1							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2									0.02
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean								0.01									<0.01

Iceland Gull is one of eight species with only a single individual observed at MBO to date, in this case flying overhead with other gulls on April 7, 2005.

GBBG: Great Black-backed Gull / Goéland marin (*Larus marinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 7	Apr 18	14	3 (5%)	2	5	Sep 25	Oct 11	Oct 11	17	3 (3%)	3	5
2006	Apr 19	Apr 19	May 12	24	3 (4%)	1	3	Sep 6	Sep 6	Oct 7	32	2 (2%)	1	2
2007								Sep 24	Oct 23	Oct 29	36	4 (4%)	2	5
2008	May 30	May 30	May 30	1	1 (1%)	2	2	Oct 2	Oct 2	Oct 2	1	1 (1%)	1	1
2009								Oct 17	Oct 19	Oct 23	7	3 (3%)	2	5
2010	Apr 21	Apr 21	Apr 21	1	1 (1%)	1	1	Oct 3	Oct 3	Oct 3	1	1 (1%)	2	2
2011	Apr 24	May 1	May 10	17	3 (4%)	4	7	Sep 27	Oct 3	Oct 7	11	7 (8%)	2	9
2012	Apr 19	Apr 19	Apr 29	11	2 (3%)	2	3	Sep 22	Sep 30	Oct 13	22	6 (7%)	6	14
2013	Mar 29	Mar 30	Jun 5	69	7 (10%)	12	24	Aug 4	Aug 4	Oct 25	83	7 (8%)	2	8
2014	Apr 1	Apr 1	Apr 24	24	4 (6%)	4	7	Oct 12	Oct 12	Oct 27	16	3 (3%)	1	3
Mean	Apr 18	Apr 19	May 7	20	3 (4%)	4	5.2	Sep 23	Sep 29	Oct 14	23	4 (4%)	2	5.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.5		0.3							0.08
2006			0.4		0.2	0.1				0.1			0.3				0.04
2007		1.0				0.2											
2008				0.1		0.04										0.3	0.03
2009				0.3		0.08											
2010	0.6			0.5		0.3				0.1							0.01
2011										0.1	0.6		0.3				0.1
2012	0.1			0.3	0.2	0.1				0.3	0.1						0.04
2013					0.07	0.02	1.9	0.3		0.1	0.1				0.1	0.9	0.3
2014					0.2	0.03	0.7			0.4							0.1
Mean	0.1	0.1	0.07	0.2	0.06	0.1	0.3	0.07		0.2	0.09		0.06		0.01	0.1	0.08

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											0.1		0.2	0.5			0.06
2006									0.1				0.1				0.02
2007											0.3				0.3	0.1	0.05
2008												0.1					0.01
2009															0.7		0.05
2010													0.3				0.02
2011												0.4	0.9				0.10
2012											0.9	0.9	0.1	0.1			0.2
2013				0.3					0.1		0.1			0.1	0.3	0.1	0.09
2014														0.1	0.1	0.1	0.03
Mean				0.03					0.03		0.1	0.1	0.2	0.09	0.1	0.04	0.06

Great Black-backed Gull is a rare fall, winter, and spring bird at MBO. In all seasons, observations have spanned the full period, but spring records have been more frequent in the first half of the season, while in fall the majority of sightings have been in the second half. Numbers have not shown a trend over the years.

CATE: Caspian Tern / Sterne caspienne (*Hydroprogne caspia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006								Aug 13	Aug 13	Aug 13	1	1 (1%)	1	1
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Aug 13	Aug 13	Aug 13	1	1 (1%)	1	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006					0.1												0.01
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean					0.01												<0.01

Caspian Tern is one of eight species with only a single individual observed once at MBO, flying past on August 13, 2006.

BLTE: Black Tern / Guifette noire (*Chlidonias niger*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008	May 15	May 15	May 15	1	1 (1%)	1	1							
2009	May 8	May 8	May 8	1	1 (1%)	2	2							
2010														
2011														
2012								Aug 7	Aug 7	Aug 7	1	1 (1%)	1	1
2013														
2014														
Mean	May 11	May 11	May 11	1	1 (1%)	2	0.3	Aug 7	Aug 7	Aug 7	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008													0.1				0.01
2009												0.3					0.03
2010																	
2011																	
2012																	
2013																	
2014																	
Mean												0.03	0.01				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012					0.1												0.01
2013																	
2014																	
Mean					0.01												<0.01

Black Tern has been observed at MBO on three occasions, twice between May 8 and 15, and once in fall on August 7.

COTE: Common Tern / Sterne pierregarin (*Sterna hirundo*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010								Aug 10	Aug 10	Aug 10	1	1 (1%)	2	2
2011								Sep 12	Sep 12	Sep 12	1	1 (1%)	2	2
2012								Aug 7	Sep 6	Sep 6	31	6 (7%)	3	8
2013	May 11	May 11	May 11	1	1 (1%)	1	1							
2014	May 31	May 31	May 31	1	1 (1%)	2	2	Aug 16	Aug 16	Aug 29	14	2 (2%)	4	5
Mean	May 21	May 21	May 21	1	1 (1%)	2	0.3	Aug 19	Aug 26	Aug 29	12	2 (3%)	3	1.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013													0.1				0.01
2014																0.3	0.03
Mean													0.01			0.03	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010						0.3											0.02
2011										0.3							0.02
2012				0.1		0.4	0.1		0.4								0.09
2013																	
2014						0.6		0.1									0.05
Mean				0.01	0.03	0.1	0.01	0.01	0.04	0.03							0.02

Common Tern has been observed at MBO more frequently than other terns, with sightings in two spring and four fall seasons. Although sightings have been scarce overall, there appears to be an increasing trend, with all sightings having occurred since 2010, and multiple observations per season only since 2012. All fall observations have been in the first half of the season.

ROPI: Rock Pigeon / Pigeon biset (*Columba livia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 18	May 16	40	10 (17%)	7	27	Aug 3	Oct 13	Oct 30	89	27 (31%)	51	204
2006	Mar 28	Apr 26	Jun 2	67	45 (65%)	23	224	Aug 2	Sep 17	Oct 30	90	49 (54%)	20	137
2007	Apr 18	May 29	May 31	44	16 (23%)	12	63	Aug 8	Sep 2	Oct 30	84	21 (23%)	16	96
2008	Mar 29	May 1	May 14	47	14 (20%)	6	35	Aug 1	Aug 12	Oct 28	89	20 (22%)	7	53
2009	Apr 9	May 12	Jun 1	54	9 (13%)	49	65	Aug 3	Oct 27	Oct 27	86	33 (36%)	16	120
2010	Mar 29	May 26	May 31	64	7 (10%)	4	15	Aug 4	Sep 2	Oct 30	88	10 (11%)	25	92
2011	Apr 19	May 2	May 30	42	11 (16%)	6	38	Aug 5	Oct 27	Oct 28	85	31 (34%)	14	116
2012	Apr 5	Apr 5	May 30	56	6 (9%)	4	16	Aug 10	Oct 28	Oct 29	81	27 (30%)	22	132
2013	May 12	May 12	May 30	19	7 (10%)	6	17	Aug 2	Aug 16	Oct 29	89	29 (32%)	24	166
2014	Apr 21	May 19	May 31	41	10 (15%)	7	33	Aug 19	Aug 20	Oct 28	71	23 (25%)	12	89
Mean	Apr 11	May 6	May 27	47	14 (20%)	12	53	Aug 5	Sep 19	Oct 28	85	27 (30%)	21	121

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5					0.1		0.8		1.5	0.6		1.0	0.3			0.5
2006	0.1	10.7	3.0	0.5	0.7	3.2	0.3	0.7	2.0	2.6	7.6	5.1	5.1	2.3	3.0	3.4	3.2
2007	0.1	1.4	1.2		0.2	0.5				1.4	0.9	0.4	2.4	0.9	2.1	0.9	0.9
2008	0.5	1.0		0.4		0.5	0.3	0.4	0.6	0.7	1.6	0.6	0.9				0.5
2009		5.0				0.3		0.3	0.1	0.4	0.3		7.0	0.9	0.1	0.1	0.9
2010	0.5		0.2		0.08	0.2	0.3	0.3			0.4			0.1	0.9	0.1	0.2
2011	2.4		0.4			0.8				0.1	1.1	1.0	0.4	1.7	0.7	0.3	0.5
2012	5.9	1.3				2.6		0.6	0.6		0.9					0.3	0.2
2013					0.2	0.06							0.9	1.1	0.1	0.3	0.2
2014										0.1		1.1		1.3	1.3	1.0	0.5
Mean	1.0	3.4	0.7	0.1	0.2	0.9	0.1	0.3	0.3	0.7	1.3	0.8	1.8	0.9	0.8	0.7	0.8

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.4	0.2	0.3	0.6		1.0	3.3	0.4	0.4	0.4	0.4	3.3	0.7	12.3	4.9	3.7	2.3
2006	0.1	1.0	0.6	1.7	1.1	2.0	1.7	1.1	2.1	3.3	0.7	0.6	1.9	0.6	1.3	1.4	1.5
2007	1.0		0.5		0.7	0.6	2.4	3.9	2.6	0.7			0.1	0.3		2.4	1.1
2008				1.0	1.0	2.0			0.4	0.7	0.1	1.0	0.6		0.4	0.3	0.6
2009				0.3	0.7	0.9	2.1		2.3	0.1	0.3	0.1		3.4	4.1	2.7	1.3
2010				0.1		1.7	0.4	7.0	0.6					0.1		3.1	1.0
2011	1.0		0.4	0.1	0.6	1.0	0.7	0.1	1.4	0.9	1.6	1.3	2.0	1.7	1.6	3.6	1.3
2012					0.7	2.0	1.6	1.1	5.1	0.4	0.9		0.4	0.4		6.1	1.5
2013				2.0	1.1	5.1	0.9	1.0	1.6	1.4	0.1	0.6	6.7	0.4		2.7	1.8
2014						2.9		0.3	1.0	1.1	1.9	1.7	0.4	1.0	0.1	2.3	1.0
Mean	0.3	0.2	0.3	0.6	0.6	1.9	1.3	1.5	1.8	0.9	0.6	0.8	1.3	1.9	1.2	2.8	1.3

Rock Pigeon is uncommon at MBO in all seasons, with sightings scarcest in summer. All observations have been of birds flying past, usually in small flocks. Spring observations are scattered throughout the season, and only in 2006 were Rock Pigeons observed in all weeks. Spring numbers tend to be somewhat higher from late April through May. Summer observations were more regular in the early years, with only one sighting after 2007. Fall sightings are also scattered, with weekly observations throughout the season only in 2006 and 2011, and no defined peak. In both spring and fall, numbers have declined somewhat over time.

MOD0: Mourning Dove / Tourterelle triste (*Zenaida macroura*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 20	Jun 2	59	37 (63%)	5	59	Aug 1	Oct 29	Oct 30	91	55 (62%)	75	539
2006	Mar 28	Apr 29	Jun 3	68	57 (83%)	11	161	Aug 2	Aug 25	Oct 30	90	72 (79%)	12	231
2007	Mar 30	May 21	May 31	63	42 (60%)	8	92	Aug 1	Oct 30	Oct 30	91	66 (73%)	16	226
2008	Mar 30	May 6	Jun 4	67	33 (47%)	6	65	Aug 1	Oct 18	Oct 26	87	46 (51%)	8	81
2009	Mar 28	Mar 28	May 27	61	13 (19%)	2	16	Aug 2	Sep 23	Oct 30	90	58 (64%)	13	215
2010	Mar 28	Apr 7	May 28	62	22 (31%)	3	32	Aug 1	Oct 27	Oct 30	91	51 (56%)	18	153
2011	Mar 28	Apr 19	Jun 1	66	16 (23%)	4	26	Aug 2	Oct 11	Oct 30	90	59 (65%)	18	203
2012	Apr 6	Apr 18	May 27	52	12 (17%)	3	20	Aug 2	Oct 27	Oct 30	90	73 (80%)	44	727
2013	Mar 28	Mar 28	Jun 4	69	42 (60%)	8	71	Aug 1	Aug 27	Oct 30	91	51 (56%)	5	109
2014	Mar 29	Mar 29	Jun 1	65	30 (44%)	4	53	Aug 3	Oct 30	Oct 30	89	46 (51%)	12	121
Mean	Mar 30	Apr 17	May 31	63	30 (44%)	5	60	Aug 1	Oct 9	Oct 29	90	58 (64%)	22	261

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5	1.0		0.3	1.5	0.8		0.7	0.6	1.5	0.3	1.4	1.1	1.9	0.7	0.8	1.0
2006	8.4	3.4	4.4	4.9	2.2	4.7	0.4	3.3	2.3	3.7	6.1	3.4	1.1	1.0	1.3	0.7	2.3
2007	2.8	6.7	14.5	5.0	4.2	5.5	0.6	0.6	0.7	3.6	1.1	1.6	1.3	1.9	1.7	0.1	1.3
2008	1.4					0.5	0.6	0.3	1.0	1.7	1.1	1.1	1.6	1.1	0.1	0.6	0.9
2009	1.9	11.0	3.3	2.2	1.3	2.4	0.6			0.1	0.6	0.1		0.4	0.4		0.2
2010	10.7	13.9	5.7	11.4	2.8	8.8	0.6	0.7	0.1	0.9	0.3	0.3	0.7	0.4	0.6		0.5
2011	2.7	1.0	1.8	1.8	1.6	2.0	0.3	0.1		0.6	0.3	0.4	0.7	0.4	0.7	0.1	0.4
2012	5.1	12.0	2.7	5.7	1.6	5.3		0.3	0.3	0.7	0.6	0.3	0.1	0.4	0.1		0.3
2013	2.4	5.1	16.0	9.4	3.9	7.9	2.0	1.3	1.1	1.3	0.7	0.4	1.1	1.0	0.6	0.6	1.0
2014	4.0	7.5	2.1	2.4	4.2	3.6	1.7	0.9	0.3	1.1	0.6	0.7	0.6	0.7	1.1	0.2	0.8
Mean	5.0	6.5	6.5	4.7	2.6	4.9	0.7	0.8	0.6	1.5	1.2	1.0	0.8	0.9	0.7	0.3	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.7	0.5	0.3	1.4	1.6	1.0	1.3	1.1	0.6	2.3	2.0	1.7	6.7	22.3	36.3	6.1
2006	0.4	1.4	1.0	1.4	1.1	0.6	4.0	1.6	4.1	2.7	2.1	2.0	2.3	3.9	4.1	3.0	2.5
2007	0.1	0.2	0.2	1.6	1.1	1.0	2.9	0.7	1.6	2.1	3.4	1.6	2.7	2.1	4.6	6.9	2.5
2008				0.7	0.3	1.1	0.6	0.6	0.4	0.3	1.9	1.7	0.4	0.9	2.1	0.6	0.9
2009	0.3	0.3	0.3	1.6	0.9	0.3	1.1	0.6	1.6	2.4	2.7	2.7	1.7	3.7	5.4	6.0	2.4
2010		0.3	0.2	0.1	0.6		0.4	0.4	0.4	0.9	1.3	2.3	2.7	2.3	2.7	7.7	1.7
2011	0.7	0.3	0.4	1.0	0.9	1.6	0.9	1.0	0.3	0.4	1.9	1.7	3.4	5.7	5.0	5.3	2.2
2012	0.5		0.2	0.9	1.0	0.7	0.7	3.7	1.6	2.3	5.7	12.4	16.4	17.6	16.3	24.6	8.0
2013	0.7	0.3	0.4	1.6	1.1	1.7	1.7	1.1	0.6	1.1	1.3	0.6	0.1	1.4	1.9	1.3	1.2
2014		0.5	0.3	1.4	1.0	0.1	0.3	1.1	1.9	0.9	0.1	0.4	0.3	1.3	2.9	5.6	1.3
Mean	0.3	0.6	0.4	1.1	0.9	0.9	1.4	1.2	1.4	1.4	2.3	2.8	3.2	4.5	6.7	9.7	2.9

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	1				1	2						1					1
2006	8		1	1	1	11											
2007	4	1	1			6											
2008																	
2009																	
2010	10			6	1	17											
2011	1				1	2											
2012	5					5											
2013					1	1											
2014		1				1											
Mean	3.6	0.3	0.7	1.2	0.6	5.0						0.1					0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012														1			1
2013																	
2014																	
Mean														0.1			0.1

Mourning Dove is a permanent resident at MBO, with only occasional gaps in observations over the course of ten years. Numbers are highest in winter when Mourning Doves frequent the feeders, and all of the individuals banded have been in winter except one each in spring and fall. Overall, spring numbers are highest in the second half of April. In fall, counts increase steadily throughout the season, peaking in the second half of October and spilling over into November; nearly two-thirds of individuals banded in winter have been in November. Fall numbers have been relatively consistent over the years except for high counts in 2005 and 2012 that were two to three times the long-term mean.

YBCU: Yellow-billed Cuckoo / Coulicou à bec jaune (*Coccyzus americanus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Jun 1	Jun 1	Jun 1	1	1 (2%)	1	1	Oct 12	Oct 12	Oct 12	1	1 (1%)	1	1
2006														
2007														
2008														
2009														
2010								Aug 20	Aug 20	Aug 20	1	1 (1%)	1	1
2011								Sep 4	Sep 4	Sep 4	1	1 (1%)	1	1
2012														
2013								Sep 7	Sep 7	Sep 7	1	1 (1%)	1	1
2014														
Mean	Jun 1	Jun 1	Jun 1	1	1 (2%)	1	0.1	Sep 10	Sep 10	Sep 10	1	1 (1%)	1	0.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																0.2	0.02
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.01	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														0.2			0.01
2006																	
2007																	
2008																	
2009																	
2010						0.1											0.01
2011								0.1									0.01
2012																	
2013											0.1						0.01
2014																	
Mean						0.01		0.01	0.01					0.01			<0.01

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														1			1
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean														0.1			0.1

Yellow-billed Cuckoo is a rare species at MBO, with just five observations in ten years. The lone spring observation was in early June 2005, while three of the four fall sightings have come between August 20 and September 7. The lone individual observed later, in mid-October, was the only one banded to date.

BBCU: Black-billed Cuckoo / Coulicou à bec noir (*Coccyzus erythrophthalmus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	May 28	May 28	May 30	3	3 (4%)	1	3	Aug 6	Aug 6	Aug 6	1	1 (1%)	1	1
2007	May 22	May 22	May 22	1	1 (1%)	1	1	Aug 27	Aug 27	Sep 1	6	3 (3%)	1	3
2008	May 24	May 25	Jun 1	9	5 (7%)	2	7	Aug 1	Aug 1	Sep 1	32	3 (3%)	1	3
2009								Sep 5	Sep 5	Sep 17	13	2 (2%)	1	2
2010	May 29	May 29	May 29	1	1 (1%)	1	1							
2011	May 29	May 29	May 31	3	3 (4%)	1	3							
2012								Aug 13	Aug 13	Sep 20	39	2 (2%)	1	2
2013	May 19	May 19	Jun 4	17	2 (3%)	1	2	Aug 7	Aug 7	Oct 8	63	5 (5%)	1	5
2014	May 24	May 24	May 25	2	2 (3%)	1	2	Aug 18	Aug 18	Aug 18	1	1 (1%)	1	1
Mean	May 25	May 25	May 29	5	2 (3%)	1	1.9	Aug 15	Aug 15	Sep 5	22	2 (3%)	1	1.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															0.3	0.1	0.04
2007														0.1			0.01
2008															0.6	0.4	0.1
2009																	
2010															0.1		0.01
2011															0.1	0.3	0.04
2012																	
2013														0.1		0.1	0.03
2014															0.3		0.03
Mean														0.03	0.1	0.1	0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03														
2006				0.1													0.01
2007							0.3	0.1									0.03
2008	0.2		0.1	0.1		0.1		0.1									0.03
2009									0.1	0.1							0.02
2010																	
2011																	
2012					0.1						0.1						0.02
2013				0.1								0.1	0.4				0.05
2014		0.5	0.3			0.1											0.01
Mean	0.02	0.05	0.03	0.04	0.01	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.04				0.02

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011															1		1
2012																	
2013														1			1
2014																	
Mean														0.1	0.1		0.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006				1													1
2007							1										1
2008						1		1									2
2009										1							1
2010																	
2011																	
2012											1						1
2013													1				1
2014		1	1														
Mean		0.1	0.1	0.1		0.1	0.1	0.1		0.1	0.1		0.1				0.7

Although considerably more numerous than Yellow-billed Cuckoo, Black-billed Cuckoo is also a rare bird at MBO, with observations in only seven spring, three summer, and seven fall seasons. All spring sightings have been in the final three weeks of the season, most commonly in the last week of May. Conversely, fall sightings are scattered across the first ten weeks of the season, and curiously, the seven Black-billed Cuckoos banded in fall have each been banded in a different week. Numbers have been similarly low over the years.

Note: for owls, nocturnal observations (i.e., during the fall owl banding program) are presented as a supplement to the standard results. In some years, the owl banding program has extended for as much as three weeks beyond the end of the Fall Migration Monitoring Program, therefore owl banding and observation results are presented for additional weeks 14 to 16, representing Oct 31 - Nov 6, Nov 7-13, and Nov 14-20, respectively.

EASO: Eastern Screech-Owl / Petit-duc maculé (*Megascops asio*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 18	Sep 18	Sep 18	1	1 (1%)	1	1
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013								Sep 5	Sep 5	Sep 17	13	2 (2%)	1	2
2014								Sep 29	Sep 29	Sep 29	1	1 (1%)	1	1
Mean								Sep 17	Sep 17	Sep 21	5	1 (1%)	1	0.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011				0.2		0.03											
2012																	
2013																	
2014																	
Mean				0.01		<0.01											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										0.1							0.01
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013									0.1	0.1							0.02
2014												0.1					0.01
Mean									0.01	0.03		0.01					<0.01

Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005															1					0.1
2006																				
2007															1		1			0.2
2008																				
2009															1	2	1			0.1
2010												1		2	1	1				0.1
2011																				
2012												3	1	1		1				0.1
2013													4	1						0.1
2014												3		1	1					0.2
Mean												0.2	0.1	0.1	0.1	0.1	0.1	0.04		0.1

Banded (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007																				
2008																				
2009																		1	1	2
2010												1						1		2
2011																				
2012												3								3
2013													1		1					2
2014														1						1
Mean												0.5	0.1	0.1	0.1			0.5	0.3	1.3

Eastern Screech-Owl is an uncommon resident species, with a few daytime observations in fall and one in winter, and regular but infrequent detections during the owl banding season each year except 2011.

GHOW: Great Horned Owl / Grand-duc d'Amérique (*Bubo virginianus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 30	Apr 30	Apr 30	1	1 (2%)	1	1	Sep 3	Sep 15	Sep 15	13	4 (5%)	2	5
2006	Apr 9	Apr 9	May 19	41	4 (6%)	2	5							
2007								Aug 10	Aug 10	Oct 28	80	2 (2%)	1	2
2008														
2009								Aug 27	Aug 27	Aug 27	1	1 (1%)	1	1
2010	May 14	May 14	May 14	1	1 (1%)	1	1	Oct 2	Oct 2	Oct 4	3	2 (2%)	1	2
2011	May 8	May 8	May 8	1	1 (1%)	1	1	Aug 8	Sep 6	Oct 30	84	14 (15%)	2	15
2012	May 23	May 23	May 23	1	1 (1%)	1	1	Aug 1	Sep 9	Oct 30	91	10 (11%)	2	12
2013	May 14	May 14	May 14	1	1 (1%)	2	2	Aug 6	Sep 22	Oct 30	86	37 (41%)	2	43
2014	Apr 20	Apr 27	May 19	30	9 (13%)	2	10	Aug 22	Aug 31	Oct 30	70	41 (45%)	3	52
Mean	May 4	May 5	May 13	11	3 (4%)	1	2.1	Aug 21	Sep 7	Oct 12	54	14 (15%)	2	13

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.1						0.02
2006								0.3	0.1			0.1		0.1			0.07
2007																	
2008																	
2009																	
2010													0.1				0.01
2011				0.3		0.05						0.1					0.01
2012		0.3				0.04									0.1		0.01
2013					0.07	0.02							0.3				0.03
2014					0.2	0.03				0.6	0.6	0.1		0.1			0.1
Mean		0.02		0.03	0.02	0.01		0.03	0.01	0.06	0.07	0.04	0.04	0.03	0.01		0.03

Observed (day)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.1	0.3	0.3							0.06
2006																	
2007					0.1											0.1	0.02
2008																	
2009							0.1										0.01
2010		0.2	0.1									0.1	0.1				0.02
2011					0.1	0.1		0.1	0.3	0.3		0.4	0.1	0.3	0.1	0.1	0.2
2012				0.1					0.4	0.1	0.1	0.3	0.3			0.3	0.1
2013				0.1	0.1	0.1			0.6	0.4	0.7	0.9	0.9	0.9	0.7	0.7	0.5
2014							1.0	1.4	0.7	0.6	1.0	1.0	0.6	0.1	0.3	0.7	0.6
Mean		0.02	<0.01	0.03	0.04	0.03	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1

Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005														1.0						0.3
2006																				
2007																				
2008																				
2009												1.0		0.5	0.3	0.6	0.3	0.2		0.3
2010												0.2		0.2		0.3				0.1
2011													0.4	0.8	0.6	0.7	0.3	0.7	0.5	0.5
2012												0.5	0.1	0.5	0.3	0.7	0.6	0.2		0.3
2013												1.4	1.8	1.0	1.0	1.0	1.0			1.2
2014												0.9	0.3	1.0	0.3	0.8	0.8			0.7
Mean												0.6	0.4	0.5	0.4	0.7	0.5	0.3	0.1	0.5

Great Horned Owl is the most regularly observed owl at MBO, with records in all seasons, mostly the local pair and their offspring. Most daytime observations are in early morning as the nets are being opened. The peak of daytime observations in mid-late fall seems to coincidentally align with the saw-whet owl banding season, during which Great Horned Owls are also regularly observed. The number observed at night has been higher since 2011, but this might in part reflect increased attention to noting nocturnal observations. However, daytime observations have also become more frequent over this period, suggesting perhaps that the local breeding owls (and/or their offspring) are spending more time at/near MBO than in previous years. This in turn may be due to the Great Horned Owl that has been housed in the back area of the Ecomuseum in recent years, and receives visits from its wild neighbours. Great Horned Owl is one of just two owl species observed at MBO but not banded; this may simply be a function of their size relative to the nets used for owl banding.

BDOW: Barred Owl / Chouette rayée (*Strix varia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009	May 2	May 2	May 2	1	1 (1%)	1	1	Sep 25	Sep 25	Oct 19	25	2 (2%)	1	2
2010														
2011														
2012														
2013														
2014														
Mean	May 2	May 2	May 2	1	1 (1%)	1	0.1	Sep 25	Sep 25	Oct 19	25	2 (2%)	1	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009												0.1					0.01
2010																	
2011																	
0.04																	
2013																	
2014																	
Mean												0.01					<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009												0.1			0.1		0.02
2010																	
2011																	
2012																	
2013																	
2014																	
Mean												0.01			0.01		<0.01

Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007													0.3		1.0					0.2
2008																				
2009														0.3						0.03
2010																				
2011																				
2012															0.2			0.1		0.04
2013																				
2014																				
Mean													0.02	0.02	0.04			0.03		0.02

Banded (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007																				
2008																				
2009																				
2010																				
2011																				
2012															1					1
2013																				
2014																				
Mean														0.1						0.1

Barred Owl is a rare species at MBO, with just three daytime sightings (all in 2009), and five during the owl banding program in 2007, 2009, and 2012. One of the two individuals detected in 2012 was banded.

GGOW: Great Gray Owl / Chouette lapone (*Strix nebulosa*)

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005					0.3	0.07											
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013			0.6	0.2		0.2											
2014																	
Mean			0.1	0.01	0.01	0.03											

Great Gray Owl is the only one of the seven owl species recorded at MBO that has not been observed during the fall owl monitoring program. Sightings have been limited to a single individual in March 2005 and at least two birds in early 2013, corresponding to the two most recent major winter irruptions of the species.

LEOW: Long-eared Owl / Hibou moyen-duc (*Asio otus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009								Oct 26	Oct 26	Oct 26	1	1 (1%)	1	1
2010														
2011														
2012														
2013														
2014														
Mean								Oct 26	Oct 26	Oct 26	1	1 (1%)	1	0.1

Observed (day)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																0.1	0.01
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.01	<0.01

Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005															0.5					0.1
2006																				
2007																				
2008																				
2009														1.0	0.3	0.8	0.3			0.4
2010											0.8	2.3	1.2	1.0	1.7	0.8	0.6			1.2
2011																				
2012												0.2		0.3	0.3	0.2	0.2	0.1		0.3
2013															0.2					0.03
2014																	0.4			0.06
Mean											0.1	0.3	0.3	0.2	0.2	0.1	0.1			0.3

Banded (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007																				
2008																				
2009																				
2010																				
2011																				
2012															2					2
2013															1					1
2014																				
Mean															0.4					0.4

Long-eared Owl has only been observed once at MBO during the day, but has been recorded frequently during the owl banding program, most notably in 2009 and especially 2010. Only 3 individuals have been banded, all in week 12 in 2012 and 2013.

NSWO: Northern Saw-whet Owl / Petite Nyctale (*Aegolius acadicus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011								Oct 4	Oct 4	Oct 23	20	2 (2%)	1	2
2012								Sep 16	Sep 16	Oct 23	38	6 (7%)	2	10
2013								Sep 7	Sep 7	Sep 7	1	1 (1%)	1	1
2014								Aug 21	Aug 21	Oct 22	63	3 (3%)	1	3
Mean								Sep 11	Sep 11	Oct 11	30	3 (3%)	1	1.6

Observed (day)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011													0.1		0.1		0.02
2012										0.3		0.7		0.1	0.3		0.1
2013									0.1								0.01
2014									0.1						0.3		0.03
Mean									0.01	0.03		0.07	0.01	0.01	0.07		0.02

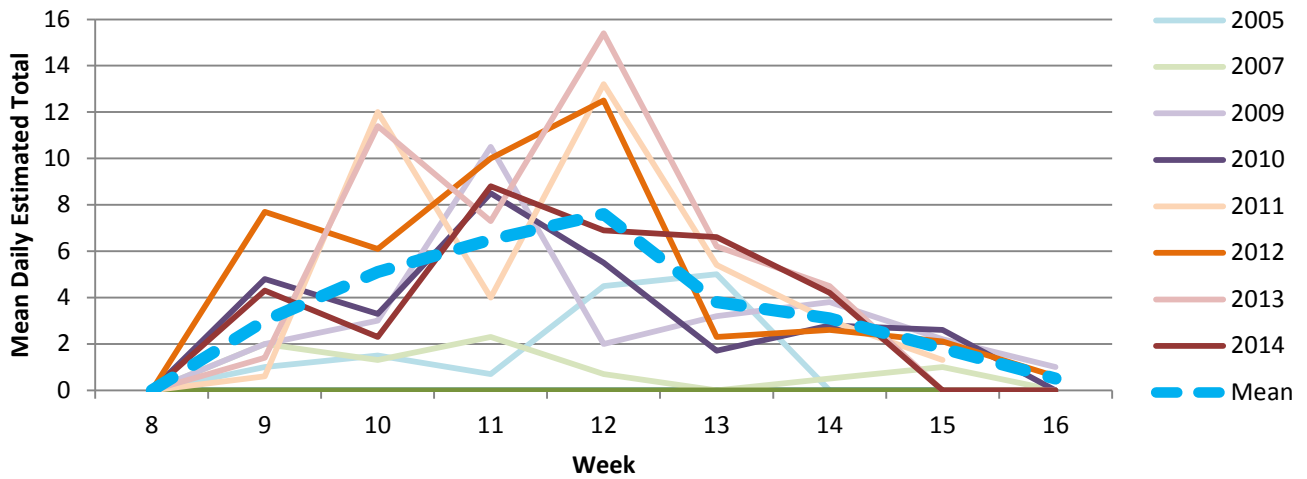
Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005												1.0	1.5	0.7	4.5	5.0				2.4
2006																				
2007												2.0	1.3	2.3	0.7		0.5	1.0		1.5
2008																				
2009												2.0	3.0	10.5	2.0	3.2	3.8	2.2	1.0	3.7
2010												4.8	3.3	8.5	5.5	1.7	2.8	2.6		4.5
2011												0.6	12.0	4.0	13.2	5.4	3.0	1.3		5.5
2012												7.7	6.1	10.0	12.5	2.3	2.6	2.1	0.6	5.4
2013												1.4	11.4	7.3	15.4	6.2	4.5			6.1
2014												4.3	2.3	8.8	6.9	6.6	4.2			5.6
Mean												3.0	5.1	6.5	7.6	3.8	3.1	1.8	0.5	4.3

Banded (day)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011														1		1	2
2012										1		2		1	1		5
2013																	
2014																	
Mean										0.1		0.2	0.1	0.1	0.2		0.7

Banded (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005												1	3	2	7	4				17
2006																				
2007												1	4	6	2		1	1		15
2008																				
2009												2	6	42	7	9	6	4		76
2010												19	16	39	24	1	11	13		123
2011												2	75	14	63	30	9	4		197
2012												41	42	57	73	12	10	11	3	249
2013												8	50	42	30	30	14			174
2014												28	7	40	36	30	16			157
Mean												12.8	25.4	30.3	30.3	14.5	9.6	6.6	1.0	126.1

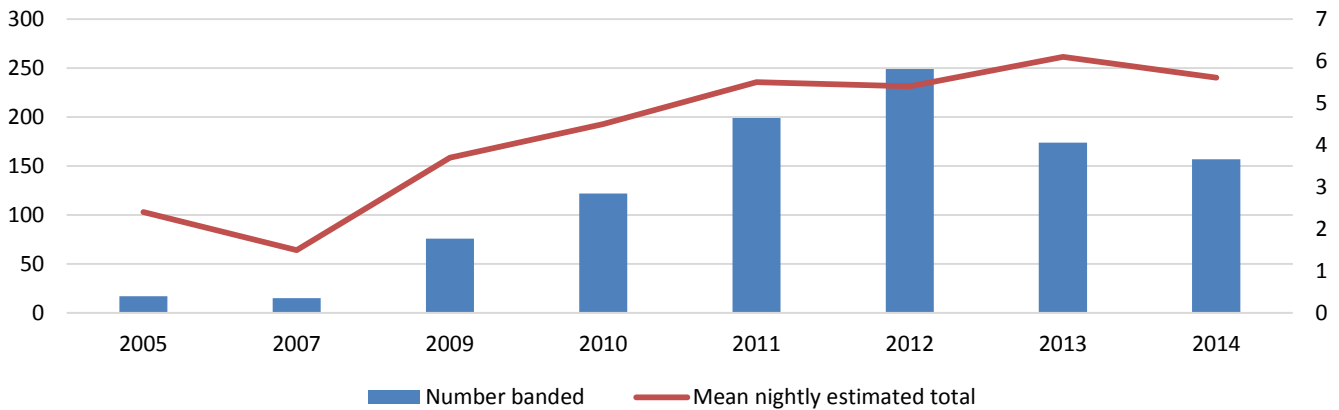
Northern Saw-whet Owl is by far the most frequently banded owl at MBO, with 1015 individuals banded over this ten-year period, all of them during fall migration, and all but 7 of them during targeted banding at night, using an audiolure. Diurnal records have been annual since 2011, but there are no records outside of fall.

Mean nightly estimated total of Northern Saw-whet Owls in fall, by week



The figure above shows that the peak of Northern Saw-whet Owl migration is variable, and that in most years there are in fact two peaks, 2-3 weeks apart. However, the overall numbers show a steady increase until week 12, and then a sharper decline thereafter. The figure below highlights the variability in number banded annually, although this is biased by the fact that effort has been significantly higher since 2010 than in previous years. The mean number of owls observed per night (strongly influenced by the number banded) provides a better indication of numbers in relation to effort, and shows a more modest amount of variability, especially over the past four years. Lower counts in earlier years may in part reflect more limited effort during the peak of migration. This contrasts with results from many other saw-whet owl banding programs in northeastern North America, where there is a fairly pronounced four-year cycle.

Fall Northern Saw-whet Owl numbers (2005-2014)



BOOW: Boreal Owl / Nyctale de Tengmalm (*Aegolius funereus*)

Observed (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007																				
2008																				
2009																				
2010																				
2011																				
2012																	0.8			0.08
2013																				
2014																				
Mean																	0.1			0.02

Banded (night)	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	Fall
2005																				
2006																				
2007																				
2008																				
2009																				
2010																				
2011																				
2012																	4			4
2013																				
2014																				
Mean																	0.6			0.5

The only confirmed records of Boreal Owl at MBO are four individuals banded in week 14 of 2012, a season when Boreal Owls were migrating in strong numbers farther north, and a Boreal Owl broadcast was being used at a secondary site within MBO.

CONI: Common Nighthawk / Engoulevent d'Amérique (*Chordeiles minor*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008								Aug 27	Aug 27	Aug 27	1	1 (1%)	1	1
2009														
2010								Aug 18	Aug 18	Aug 21	4	2 (2%)	1	2
2011								Aug 22	Aug 22	Sep 19	29	2 (2%)	1	2
2012								Aug 27	Aug 27	Sep 14	19	5 (5%)	3	7
2013								Aug 24	Aug 24	Aug 24	1	1 (1%)	1	1
2014								Aug 21	Sep 2	Sep 6	17	4 (4%)	14	19
Mean								Aug 23	Aug 25	Sep 3	12	2 (3%)	4	3.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008							0.1										0.01
2009																	
2010						0.3											0.02
2011							0.1				0.1						0.02
2012							0.6		0.3	0.1							0.08
2013							0.1										0.01
2014						0.1		2.1	0.4								0.2
Mean						0.04	0.1	0.2	0.07	0.01	0.01						0.04

Common Nighthawk is a generally rare fall migrant, with annual observations since 2010, as well as one earlier one in 2008. All sightings have been between August 18 and September 19.

CHSW: Chimney Swift / Martinet ramoneur (*Chaetura pelagica*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 8	May 8	May 8	1	1 (2%)	2	2	Aug 2	Aug 11	Sep 20	50	10 (11%)	4	18
2006	May 18	May 18	May 25	8	3 (4%)	1	3	Aug 1	Aug 22	Aug 23	23	10 (11%)	7	29
2007	May 19	May 19	May 19	1	1 (1%)	3	3	Aug 1	Aug 3	Sep 8	39	16 (18%)	4	36
2008	May 9	May 9	May 29	21	5 (7%)	2	8	Aug 1	Aug 14	Sep 4	35	13 (14%)	4	23
2009	May 21	May 21	May 26	6	2 (3%)	1	2	Aug 12	Aug 21	Aug 26	15	6 (7%)	25	44
2010	May 26	May 26	May 26	1	1 (1%)	2	2	Aug 4	Aug 4	Aug 4	1	1 (1%)	1	1
2011	May 24	May 24	May 24	1	1 (1%)	1	1	Aug 4	Aug 11	Aug 19	16	9 (10%)	8	38
2012	May 6	May 6	May 21	16	2 (3%)	1	2	Aug 1	Aug 10	Aug 22	22	10 (11%)	16	51
2013	May 17	May 17	May 19	3	2 (3%)	2	3	Aug 11	Aug 16	Aug 16	6	3 (3%)	6	8
2014	May 16	May 16	Jun 1	17	3 (4%)	1	3	Aug 19	Aug 19	Aug 19	1	1 (1%)	5	5
Mean	May 16	May 16	May 22	8	2 (3%)	2	2.9	Aug 5	Aug 13	Aug 25	21	8 (9%)	8	25

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.3					0.03
2006														0.1	0.3		0.04
2007														0.4			0.04
2008													0.7	0.1	0.3		0.1
2009														0.1	0.1		0.03
2010															0.3		0.03
2011															0.1		0.01
2012												0.1		0.1			0.03
2013														0.4			0.04
2014														0.3		0.2	0.04
Mean												0.04	0.07	0.2	0.1	0.01	0.04

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03	0.4	1.4	0.3	0.3				0.1						0.2
2006		0.3	0.2	1.7	0.6	0.7	1.1										0.3
2007				2.0	1.4	1.0	0.6		0.1								0.4
2008				0.9	1.4	0.9		0.1									0.3
2009					0.3	3.7	2.3										0.5
2010				0.1													0.01
2011		0.8	0.4	2.1	1.4	1.9											0.4
2012	0.3		0.1	0.9	4.6	1.6	0.3										0.6
2013					0.1	1.0											0.09
2014						0.7											0.05
Mean	0.02	0.1	0.07	0.8	1.1	1.2	0.5	0.01	0.01		0.01						0.3

Chimney Swift is a rare spring and summer migrant at MBO, with a few summer sightings. Except for three early records between May 6 and 9, all spring sightings have been between May 16 and June 1, with numbers fairly stable across years. Fall counts peak around mid-August, but have been scarce in three of the past five years.

RTHU: Ruby-throated Hummingbird / Colibri à gorge rubis (*Archilochus colubris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 17	May 25	May 30	14	9 (15%)	7	19	Aug 1	Aug 10	Sep 18	49	42 (48%)	10	133
2006	May 10	May 25	Jun 5	27	14 (20%)	5	33	Aug 5	Aug 13	Sep 16	43	34 (37%)	12	184
2007	May 11	May 23	Jun 5	26	13 (19%)	4	21	Aug 1	Aug 9	Sep 10	41	39 (43%)	5	92
2008	May 6	May 25	Jun 4	30	19 (27%)	4	36	Aug 1	Aug 17	Sep 11	42	40 (44%)	10	163
2009	May 9	May 18	Jun 3	26	21 (30%)	4	36	Aug 1	Aug 21	Sep 12	43	41 (45%)	9	153
2010	May 15	May 29	Jun 5	22	13 (19%)	3	18	Aug 1	Aug 15	Sep 14	45	39 (43%)	9	108
2011	May 11	May 22	Jun 5	26	17 (24%)	3	29	Aug 1	Aug 24	Sep 23	54	45 (49%)	16	171
2012	May 8	May 26	Jun 3	27	22 (31%)	4	40	Aug 1	Aug 14	Sep 17	48	45 (49%)	12	193
2013	May 16	May 31	Jun 3	19	13 (19%)	4	26	Aug 1	Aug 21	Sep 15	46	43 (47%)	15	214
2014	May 15	May 24	Jun 4	21	15 (22%)	6	27	Aug 2	Aug 26	Sep 23	53	46 (51%)	10	168
Mean	May 11	May 24	Jun 3	24	16 (23%)	4	29	Aug 1	Aug 17	Sep 15	46	41 (46%)	11	158

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.6	1.9	0.4	0.3
2006													0.9	0.9	2.3	0.7	0.5
2007													0.1	0.4	1.9	0.6	0.3
2008												0.1	0.3	1.9	2.1	0.7	0.5
2009													1.0	2.3	0.9	1.0	0.5
2010													0.1	0.4	1.3	0.7	0.3
2011													0.6	1.1	1.1	1.3	0.4
2012												0.1	1.0	1.3	2.1	1.1	0.6
2013														1.7	0.9	1.1	0.4
2014													0.1	1.1	2.1	0.5	0.4
Mean												0.03	0.4	1.2	1.7	0.8	0.4

Captured	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														4	7	1	12
2006													1		11		12
2007													1	2	2	1	6
2008													1	3	6	3	13
2009													1	9	3	1	14
2010															3	1	4
2011																	
2012														6	9	2	17
2013														5	1	2	8
2014													1	4	3	2	10
Mean													0.5	3.3	4.5	1.3	9.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.4	0.3	2.0	5.3	2.6	2.6	2.7	3.1	0.7							1.5
2006	0.6	0.7	0.6	2.4	6.1	7.0	5.4	4.0	1.0	0.3							2.0
2007	0.7	0.2	0.5	2.7	3.1	2.0	3.0	1.3	1.0								1.0
2008	0.6	1.0	0.8	3.6	4.0	6.1	4.0	2.9	2.7								1.8
2009	2.0	1.3	1.6	3.7	3.7	4.7	3.7	3.9	2.0	0.1							1.7
2010	0.7	0.7	0.7	1.6	2.7	4.3	3.7	2.0	0.9	0.3							1.2
2011	1.7	0.8	1.1	3.4	3.9	5.7	5.4	3.0	2.0	0.9	0.1						1.9
2012	1.3	1.3	1.2	3.1	5.3	6.4	5.0	3.7	2.7	1.3							2.1
2013	1.7	0.8	1.1	2.9	3.7	8.1	7.4	4.4	3.4	0.6							2.4
2014	2.3	1.8	2.0	1.7	4.3	3.4	5.7	3.4	3.7	1.4	0.3						1.8
Mean	0.8	0.7	0.8	2.7	4.2	5.0	4.6	3.1	2.3	0.6	0.04						1.7

Captured	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				4	17	8	9	9	7	3							57
2006				3	4	1		8	1	1							18
2007				6	4	4	9	4	5								32
2008				7	2	8	7	3	4								31
2009				11	6	16	6	7	3	1							50
2010					2	8	10	2	1								23
2011				6	5	1	1	1	3	2							19
2012				9	9	7	18	17	10	5							75
2013				4	6	19	13	11	10	2							65
2014				1	8	5	13	11	9	7	1						55
Mean				5.1	6.3	7.7	8.6	7.3	5.3	2.1	0.1						42.5

Ruby-throated Hummingbird is the only species captured at MBO but not banded, due to the requirement for specialized equipment and training. As such, the tables above report the number of individuals captured rather than banded, and very likely include some individuals captured more than once. These numbers generally correlate well with the observations, which typically peak around week 9 in spring and week 3 in fall, although the fall observations have been shifting slightly later over the years. There has been relatively little variation in numbers over time in either spring or fall, but summer observations have become more common, and the number captured in fall has been well above average since 2012.

BEKI: Belted Kingfisher / Martin-pêcheur d'Amérique (*Megaceryle alcyon*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 10	Apr 10	May 12	33	9 (15%)	2	11	Sep 2	Sep 2	Sep 2	1	1 (1%)	1	1
2006	Apr 11	May 10	Jun 1	52	10 (14%)	4	14	Aug 2	Aug 2	Sep 7	37	10 (11%)	1	10
2007	Apr 12	Apr 12	May 29	48	5 (7%)	1	5	Aug 28	Aug 28	Sep 12	16	3 (3%)	1	3
2008	Apr 17	Apr 17	May 12	26	9 (13%)	1	9	Aug 1	Aug 1	Sep 19	50	3 (3%)	1	3
2009	Apr 18	Apr 27	May 31	44	9 (13%)	2	10	Aug 7	Aug 7	Sep 26	51	10 (11%)	1	10
2010	Apr 20	Apr 20	May 7	18	3 (4%)	2	4	Aug 9	Aug 27	Oct 4	57	7 (8%)	2	8
2011	Apr 22	May 22	Jun 1	41	14 (20%)	3	18	Aug 17	Aug 18	Oct 5	50	7 (8%)	2	9
2012	Apr 6	Apr 6	May 27	52	3 (4%)	1	3	Aug 3	Aug 3	Oct 20	79	7 (8%)	1	7
2013	Apr 10	Apr 10	Apr 24	15	3 (4%)	1	3	Aug 6	Aug 6	Sep 24	50	6 (7%)	1	6
2014	Apr 17	Apr 27	May 7	21	9 (13%)	2	10	Aug 7	Aug 7	Sep 25	50	18 (20%)	1	18
Mean	Apr 14	Apr 22	May 18	35	7 (11%)	2	8.7	Aug 11	Aug 13	Sep 23	44	7 (8%)	1	7.5

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.3		0.3	0.4	0.3	0.3				0.2
2006									0.3	0.1		0.4	0.6	0.1	0.1	0.3	0.2
2007									0.3	0.1		0.1			0.1		0.07
2008									0.1	0.6	0.3	0.1	0.1				0.1
2009										0.6	0.6	0.1				0.1	0.1
2010										0.3		0.3					0.06
2011										0.4	0.3	0.7	0.3	0.4	0.1	0.3	0.3
2012								0.1						0.1	0.1		0.04
2013								0.1		0.3							0.04
2014									0.1	0.6	0.4	0.3					0.1
Mean								0.06	0.09	0.3	0.2	0.2	0.1	0.07	0.06	0.07	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.1									0.01
2006				0.4	0.3	0.3		0.3	0.1								0.1
2007							0.1	0.1		0.1							0.03
2008				0.1				0.1			0.1						0.03
2009				0.1	0.4	0.1			0.1	0.3	0.1	0.1					0.1
2010					0.3	0.3	0.3				0.1		0.1				0.09
2011	0.3	0.3	0.3			0.4		0.3	0.3	0.1			0.1				0.10
2012				0.1	0.3		0.1			0.1		0.1			0.1		0.08
2013				0.1	0.1	0.1	0.1	0.1			0.1						0.07
2014				0.1	0.9	0.6		0.1	0.3	0.3	0.3						0.2
Mean	0.02	0.02	0.02	0.1	0.2	0.2	0.07	0.1	0.09	0.1	0.09	0.03	0.03		0.01		0.08

Belted Kingfisher is an uncommon and somewhat irregular spring and fall visitor to MBO, with summer observations only occurring in 2011. Spring sightings typically being around mid-April, and most commonly peak in week 4, although sightings regularly remain frequent through weeks 5 and 6 as well before tapering off. In fall, sightings are somewhat more frequent over the first three weeks of the season, but as in spring, numbers are always low and there is rarely a strong peak. In both seasons, numbers have fluctuated to some extent among years, but without any clear pattern.

RBWO: Red-bellied Woodpecker / Pic à ventre roux (*Melanerpes carolinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010								Aug 4	Aug 4	Aug 16	13	3 (3%)	1	3
2011														
2012								Aug 26	Aug 26	Oct 24	60	4 (4%)	1	4
2013	Jun 4	Jun 4	Jun 4	1	1 (1%)	1	1	Aug 24	Aug 24	Aug 24	1	1 (1%)	1	1
2014								Aug 30	Aug 30	Aug 30	1	1 (1%)	1	1
Mean	Jun 4	Jun 4	Jun 4	1	1 (1%)	1	0.1	Aug 21	Aug 21	Sep 7	19	2 (2%)	1	0.9

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011					0.1	0.03											
2012																	
2013																0.1	0.01
2014																	
Mean					0.01	<0.01										0.01	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010				0.3		0.1											0.03
2011																	
2012							0.1		0.1			0.1			0.1		0.04
2013							0.1										0.01
2014								0.1									0.01
Mean				0.03		0.01	0.03	0.01	0.01			0.01				0.01	0.01

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																1	1
2013																	
2014																	
Mean																0.1	0.1

The least common of the six woodpecker species observed at MBO, observed for the first time in 2010, and annually ever since; this reflects the northward expansion of the species into southern Quebec, and in particular the establishment of a breeding pair in the adjacent Morgan Arboretum. Aside from one observation in March and one on the second-last day of spring, all others have been in fall, and mostly in August – perhaps reflecting post-breeding dispersal from the neighbouring pair. Only one individual has been banded to date, near the end of fall 2012.

YBSA: Yellow-bellied Sapsucker / *Pic maculé (Sphyrapicus varius)*

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 11	Apr 19	May 31	51	31 (53%)	3	43	Aug 15	Aug 15	Oct 6	53	10 (11%)	1	10
2006	Apr 6	May 3	Jun 2	58	45 (65%)	5	77	Aug 2	Aug 11	Oct 2	62	20 (22%)	2	25
2007	Apr 7	May 1	May 30	54	28 (40%)	5	46	Aug 2	Aug 5	Oct 8	68	18 (20%)	2	25
2008	Apr 18	May 6	May 30	43	35 (50%)	4	53	Aug 2	Sep 22	Oct 6	66	15 (16%)	2	17
2009	Apr 14	Apr 20	May 31	48	34 (49%)	4	65	Aug 1	Oct 1	Oct 11	72	9 (10%)	2	10
2010	Apr 7	May 12	May 31	55	27 (39%)	5	41	Aug 2	Aug 18	Sep 11	41	7 (8%)	2	10
2011	Apr 14	Apr 30	May 30	47	23 (33%)	5	44	Aug 17	Sep 18	Sep 25	40	4 (4%)	3	6
2012	Apr 15	Apr 18	May 24	40	23 (33%)	3	35	Aug 8	Aug 8	Sep 20	44	5 (5%)	1	5
2013	Apr 17	Apr 21	May 15	29	18 (26%)	3	22	Aug 7	Aug 7	Sep 30	55	5 (5%)	1	5
2014	Apr 19	Apr 24	Jun 4	47	23 (34%)	3	36	Aug 1	Aug 9	Oct 26	87	8 (9%)	2	11
Mean	Apr 12	Apr 27	May 29	47	29 (42%)	4	46	Aug 5	Aug 23	Oct 2	59	10 (11%)	2	12

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005									0.3	1.5	1.0	1.3	1.0	0.7	0.3	0.4	0.7
2006								0.2	0.7	1.7	2.3	2.9	0.9	0.7	1.1	0.6	1.1
2007								0.1		0.6	1.3	2.0	1.3	0.9	0.3	0.1	0.7
2008										1.6	1.3	1.7	1.1	1.1	0.6	0.1	0.8
2009									0.6	1.9	1.3	1.6	1.9	0.7	1.1	0.3	0.9
2010								0.1	0.4	1.0	0.3		1.3	1.6	1.0	0.1	0.6
2011									0.4	1.6	1.7	0.4	1.0	0.3	0.7	0.1	0.6
2012									0.3	0.7	1.1	1.7	0.3	0.7	0.1		0.5
2013									0.1	1.0	0.6	0.7	0.7				0.3
2014										1.1	0.6	1.0	1.7	0.4	0.1	0.2	0.5
Mean								0.04	0.3	1.3	1.1	1.3	1.1	0.7	0.5	0.2	0.7

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.5	0.4			0.1			0.3	0.1	0.1	0.5	0.3				0.1
2006	0.1	0.3	0.2	0.3	0.6	0.1	0.4	0.4	0.7		0.3	0.7					0.3
2007	0.1	0.3	0.2	0.4					0.1	0.4	1.3	0.3	1.0				0.3
2008	0.4		0.2	0.3	0.1	0.1		0.1	0.3	0.1	0.4	0.3	0.6				0.2
2009	0.3		0.1	0.3	0.1	0.1		0.1				0.4	0.1	0.1			0.1
2010				0.3		0.3		0.6	0.3								0.1
2011	0.3		0.1			0.1		0.1		0.4	0.1						0.07
2012					0.3	0.1	0.1				0.1						0.05
2013	0.3	0.3	0.3	0.1		0.1		0.1	0.1			0.1					0.05
2014				0.1	0.3	0.3	0.1		0.1	0.3			0.1			0.1	0.1
Mean	0.2	0.2	0.2	0.2	0.1	0.2	0.07	0.2	0.2	0.1	0.2	0.2	0.2	0.01		0.01	0.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1		1		2
2006															1		1
2007																	
2008											2	1					3
2009													2			1	3
2010													2	1			3
2011															3		3
2012												2					2
2013												1					1
2014										1			1				2
Mean										0.1	0.2	0.4	0.6	0.1	0.5	0.1	2.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006				1								1					2
2007													1				1
2008				2		1				1		2					6
2009				1								1	1				3
2010				1					1								2
2011								1		1							2
2012							1										1
2013				1													1
2014				1	1												2
Mean				0.7	0.1	0.1	0.1	0.1	0.1	0.2		0.4	0.2				2.0

Yellow-bellied Sapsucker is the least common of the five woodpeckers observed at MBO annually. Spring arrivals usually return by week 2 or 3, peaking in late April or early May. Small numbers have been observed in summer, although missed in three of the five most recent years. Counts are distinctly lower in fall, and more scattered without a peak of migration, although generally tapering off by early October. In both spring and fall, numbers show a declining trend over the past decade.

DOWO: Downy Woodpecker / Pic mineur (*Picoides pubescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 11	Jun 2	59	37 (63%)	3	47	Aug 1	Oct 28	Oct 30	91	78 (89%)	7	202
2006	Apr 2	Apr 28	Jun 5	65	53 (77%)	7	114	Aug 1	Oct 24	Oct 30	91	87 (96%)	8	294
2007	Mar 29	May 7	Jun 5	69	50 (71%)	5	99	Aug 1	Aug 14	Oct 30	91	85 (93%)	7	272
2008	Mar 28	May 10	Jun 2	67	46 (66%)	7	98	Aug 1	Sep 7	Oct 30	91	84 (92%)	6	219
2009	Mar 30	Apr 16	Jun 1	64	44 (64%)	4	69	Aug 1	Aug 28	Oct 30	91	88 (97%)	6	232
2010	Mar 30	Apr 4	May 29	61	32 (46%)	3	42	Aug 1	Aug 2	Oct 30	91	69 (76%)	4	146
2011	Mar 28	Apr 15	May 30	64	45 (64%)	6	92	Aug 1	Aug 19	Oct 30	91	84 (92%)	7	206
2012	Mar 29	May 3	Jun 1	65	57 (81%)	8	146	Aug 1	Sep 24	Oct 30	91	88 (97%)	10	255
2013	Mar 28	Apr 2	Jun 5	70	61 (87%)	5	119	Aug 1	Aug 21	Oct 30	91	88 (97%)	8	211
2014	Mar 29	Apr 3	Jun 3	67	57 (84%)	4	124	Aug 1	Oct 27	Oct 30	91	86 (95%)	6	202
Mean	Mar 30	Apr 21	Jun 2	65	48 (70%)	5	95	Aug 1	Sep 12	Oct 30	91	84 (92%)	7	224

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.3			0.8	0.5	0.4		0.8	1.1	1.2	0.6	1.1	1.0	0.7	0.1	0.4	0.8
2006	0.9	0.5		0.3	0.3	0.4	0.3	0.8	1.0	2.1	3.0	3.1	1.4	1.7	2.1	0.7	1.7
2007	1.1	0.9	0.5	0.3	1.0	0.8	1.6	1.3	1.0	2.3	0.9	3.0	1.3	0.7	1.4	0.7	1.4
2008	1.0	1.3	0.2	0.4		0.7	1.3		0.7	2.4	2.7	1.7	3.0	1.0	0.9	0.3	1.4
2009	0.7	1.0	0.5	0.4	1.1	0.8	0.7	0.5	1.3	2.1	1.6	1.1	1.0	0.9	0.4	0.3	1.0
2010	1.3	0.1	0.3	1.5	0.4	0.8	0.6	1.1	0.9	1.1	0.6	0.6	0.6	0.3	0.3		0.6
2011	0.7	1.0	0.6	1.5	0.5	0.8	1.0	0.3	1.9	1.7	2.0	1.7	2.1	1.7	0.6	0.1	1.3
2012	0.8	0.8	1.3	1.3	1.6	1.1	2.9	2.0	1.6	2.6	3.1	3.4	2.7	1.1	0.6	0.9	2.1
2013	1.5	1.4	2.4	3.4	2.4	2.2	2.6	1.6	2.1	2.9	1.7	1.7	1.0	1.7	0.9	0.9	1.7
2014	2.2	2.8	2.3	2.4	1.4	2.2	1.5	1.4	2.0	2.3	2.3	2.0	2.3	2.1	1.1	1.0	1.8
Mean	1.0	0.9	0.9	1.2	1.0	1.0	1.4	1.0	1.4	2.1	1.8	2.0	1.6	1.2	0.8	0.5	1.4

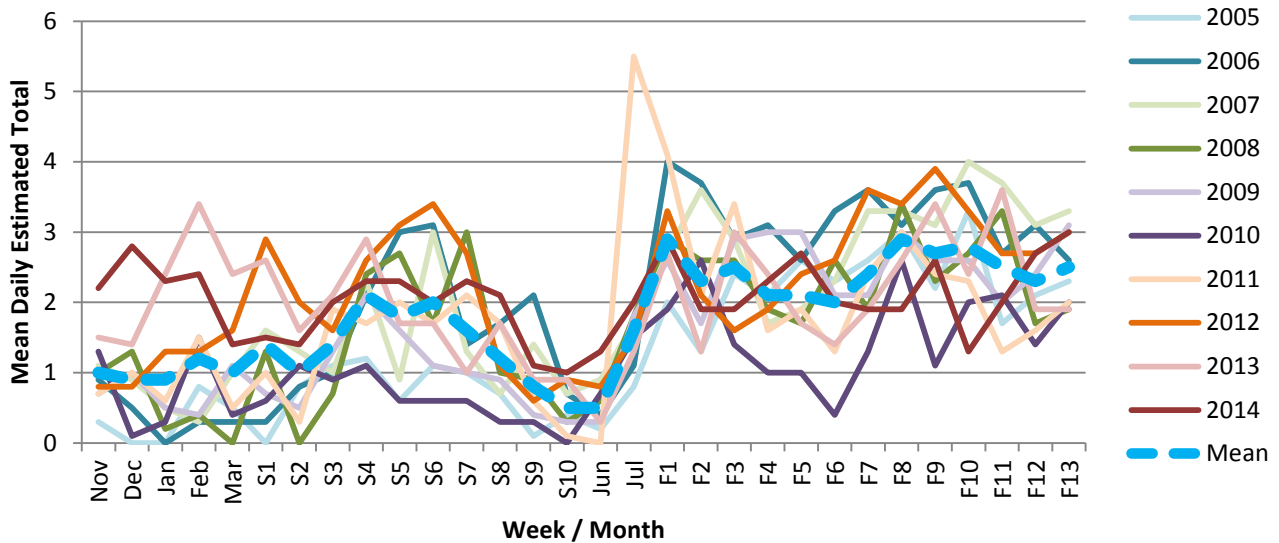
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.2	0.8	0.5	2.0	1.3	2.4	2.1	2.6	2.3	2.6	3.0	2.2	3.3	1.7	2.1	2.3	2.3
2006	0.4	1.1	0.8	4.0	3.7	2.9	3.1	2.6	3.3	3.6	3.1	3.6	3.7	2.7	3.1	2.6	3.2
2007	0.9	1.7	1.2	2.7	3.6	2.9	1.7	1.9	2.3	3.3	3.3	3.1	4.0	3.7	3.1	3.3	3.0
2008	0.6	1.8	1.2	2.9	2.6	2.6	1.9	1.7	2.6	1.9	3.4	2.3	2.7	3.3	1.7	1.9	2.4
2009	0.3	1.8	1.1	2.6	1.7	2.9	3.0	3.0	2.1	2.1	3.0	2.6	2.6	2.0	2.4	3.1	2.5
2010	0.7	1.5	1.2	1.9	2.6	1.4	1.0	1.0	0.4	1.3	2.6	1.1	2.0	2.1	1.4	2.0	1.6
2011		5.5	3.1	4.1	2.1	3.4	1.6	1.9	1.3	2.4	3.0	2.4	2.3	1.3	1.6	2.0	2.3
2012	0.8	1.5	1.1	3.3	2.1	1.6	1.9	2.4	2.6	3.6	3.4	3.9	3.3	2.7	2.7	3.0	2.8
2013	0.3	1.3	0.9	2.7	1.3	3.0	2.4	1.7	1.4	1.9	2.6	3.4	2.4	3.6	1.9	1.9	2.3
2014	1.3	2.0	1.7	2.9	1.9	1.9	2.3	2.7	2.0	1.9	1.9	2.6	1.3	2.0	2.7	3.0	2.2
Mean	0.5	1.6	1.1	2.9	2.3	2.5	2.1	2.1	2.0	2.4	2.9	2.7	2.8	2.5	2.3	2.5	2.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				1		1				1	1			1			3
2006	2					2			1	3		1					5
2007										3		2	2				7
2008										2	1				1		5
2009																	
2010																1	1
2011	1					1				1		1	2	1			5
2012				2		2				1	1				1		3
2013	1				2	3				2							2
2014	2					2					1	1	2	1			5
Mean	0.8			0.5	0.3	1.2			0.5	1.3	0.4	0.5	0.7	0.3	0.3		3.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						2		1		1	1	1	1	1			8
2006				5	3					1		1	2	1	1		14
2007				5	9		1			1		1		1		1	19
2008				1	4	2		2			1						10
2009		6	6	4	1	1	3				1					2	12
2010	2	4	6		5	1		1			2			1	1		11
2011		6	6	6		1	1	1			1	2			1		13
2012	1	1	2	4	3		3			3		2	1	1			17
2013		4	4	6	1	1	1					1		3			13
2014		4	4	3	2	2							2		2		11
Mean	0.5	2.8	3.1	3.4	2.8	1.0	0.9	0.5		0.6	0.6	0.8	0.6	0.8	0.5	0.3	12.8

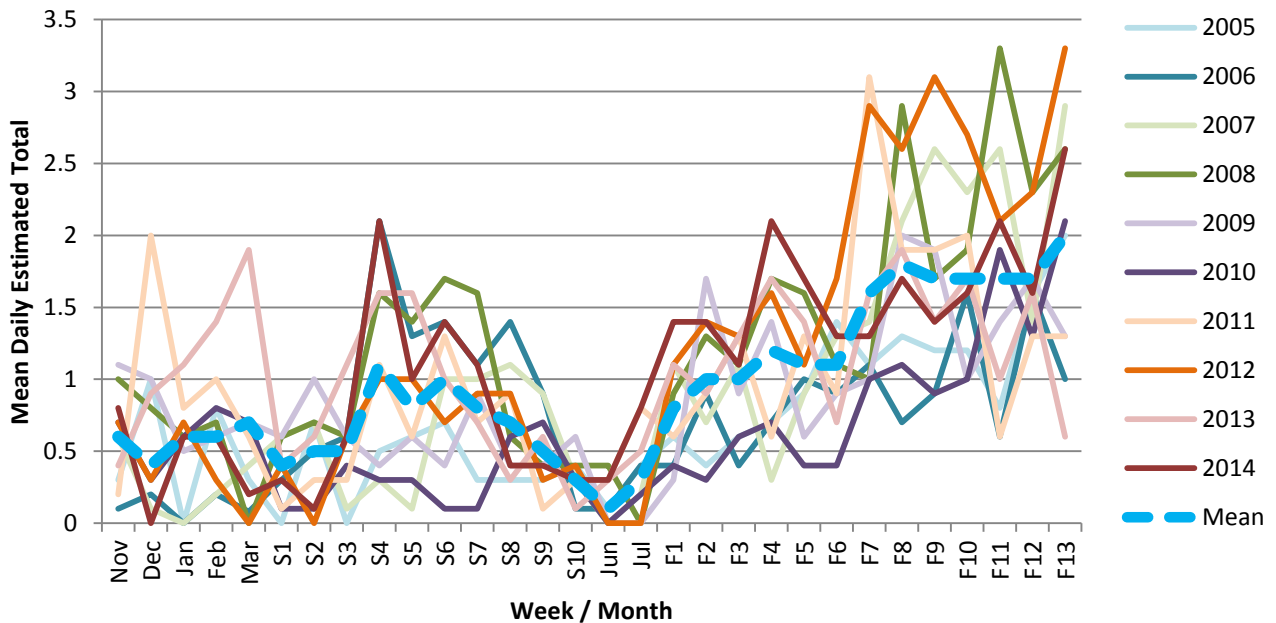
Downy Woodpecker is the most common woodpecker at MBO, and a resident species that has been observed in all periods except December 2004, January 2006, week 2 of spring 2008, week 10 of spring 2010, and June 2011. Daily counts are relatively similar through most of winter, spring, and summer, aside from a small increase from mid-April to early May that may reflect increased detectability due to courtship more than a true spike in numbers. Fall numbers are consistent throughout the season, but roughly double those of spring, presumably representing the influx of juveniles. Numbers have been relatively consistent across years except for a dip in 2010.

Mean daily estimated total of Downy Woodpeckers throughout the year



The figures for Downy Woodpecker (above) and Hairy Woodpecker (below) show many similarities in patterns of abundance throughout the year, although Downy Woodpecker is consistently somewhat more numerous. Despite being permanent residents, both species reach a low in late spring and early summer, reflecting their tendency to be quieter and less conspicuous during the breeding season. The higher counts throughout fall presumably reflect the adults returning to regular behaviour, as well as the presence of their offspring. The most notable difference in pattern of occurrence is that Hairy Woodpecker numbers tend to increase for the second half of fall; whether this is due to an influx of local dispersal from nearby sites, or greater detectability of individuals on site is unclear, but further analysis of recapture data might allow for some insights.

Mean daily estimated total of Hairy Woodpeckers throughout the year



HAWO: Hairy Woodpecker / Pic chevelu (*Picoides villosus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 10	May 31	57	20 (34%)	2	24	Aug 1	Sep 21	Oct 30	91	57 (65%)	5	93
2006	Mar 30	Apr 22	May 30	62	42 (61%)	5	68	Aug 5	Sep 9	Oct 30	87	61 (70%)	3	82
2007	Apr 3	Apr 3	Jun 1	60	30 (43%)	4	43	Aug 4	Oct 3	Oct 30	88	66 (73%)	6	145
2008	Mar 29	Apr 27	Jun 3	67	41 (59%)	4	67	Aug 1	Sep 20	Oct 30	91	76 (84%)	6	163
2009	Mar 28	Apr 7	Jun 5	70	30 (43%)	3	40	Aug 6	Sep 24	Oct 30	86	67 (74%)	5	112
2010	Mar 28	Apr 15	Jun 3	68	18 (26%)	2	22	Aug 2	Oct 28	Oct 30	90	54 (59%)	4	85
2011	Mar 31	May 3	Jun 5	67	30 (43%)	4	40	Aug 1	Sep 12	Oct 30	91	63 (69%)	9	122
2012	Mar 31	Apr 15	Jun 5	67	36 (51%)	2	43	Aug 1	Oct 2	Oct 30	91	88 (97%)	6	191
2013	Mar 29	Apr 20	May 31	64	36 (51%)	4	56	Aug 1	Oct 17	Oct 29	90	71 (78%)	5	118
2014	Apr 1	Apr 21	Jun 1	62	39 (57%)	4	55	Aug 1	Aug 25	Oct 30	91	82 (90%)	4	150
Mean	Mar 30	Apr 17	Jun 2	64	32 (47%)	3	46	Aug 2	Sep 25	Oct 29	90	68 (76%)	5	126

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.3	1.0		0.8	0.3	0.5		0.7		0.5	0.6	0.7	0.3	0.3	0.3	0.4	0.4
2006	0.1	0.2		0.2	0.08	0.1	0.3	0.5	0.6	2.1	1.3	1.4	1.1	1.4	0.9	0.1	1.0
2007	0.6	0.1		0.2	0.4	0.4	0.6	0.7	0.1	0.3	0.1	1.0	1.0	1.1	0.9	0.3	0.6
2008	1.0	0.8	0.6	0.7		0.8	0.6	0.7	0.6	1.6	1.4	1.7	1.6	0.6	0.4	0.4	1.0
2009	1.1	1.0	0.5	0.6	0.7	0.8	0.6	1.0	0.6	0.4	0.6	0.4	0.9	0.4	0.4	0.6	0.6
2010	0.7	0.3	0.6	0.8	0.7	0.6	0.1	0.1	0.4	0.3	0.3	0.1	0.1	0.6	0.7	0.3	0.3
2011	0.2	2.0	0.8	1.0	0.6	0.7	0.1	0.3	0.3	1.1	0.6	1.3	0.7	0.9	0.1	0.3	0.6
2012	0.7	0.3	0.7	0.3		0.4	0.4		0.6	1.0	1.0	0.7	0.9	0.9	0.3	0.4	0.6
2013	0.4	0.9	1.1	1.4	1.9	1.2	0.4	0.6	1.1	1.6	1.6	1.0	0.7	0.3	0.6	0.1	0.8
2014	0.8		0.6	0.6	0.2	0.5	0.3	0.1	0.6	2.1	1.0	1.4	1.1	0.4	0.4	0.3	0.8
Mean	0.6	0.4	0.6	0.6	0.7	0.6	0.4	0.5	0.5	1.1	0.8	1.0	0.8	0.7	0.5	0.3	0.7

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.1	0.4	0.2	0.6	0.4	0.6	0.7	0.9	1.4	1.1	1.3	1.2	1.2	0.8	1.6	2.0	1.1
2006	0.1	0.4	0.3	0.4	0.9	0.4	0.7	1.0	0.9	1.1	0.7	0.9	1.6	0.6	1.6	1.0	0.9
2007		0.2	0.08	1.1	0.7	1.1	0.3	0.9	1.3	1.4	2.1	2.6	2.3	2.6	1.4	2.9	1.6
2008	0.4		0.2	0.9	1.3	1.1	1.7	1.6	1.1	1.0	2.9	1.7	1.9	3.3	2.3	2.6	1.8
2009				0.3	1.7	0.9	1.4	0.6	0.9	1.0	2.0	1.9	1.0	1.4	1.7	1.3	1.2
2010		0.2	0.1	0.4	0.3	0.6	0.7	0.4	0.4	1.0	1.1	0.9	1.0	1.9	1.3	2.1	0.9
2011	0.3	0.8	0.6	0.6	0.9	1.3	0.6	1.3	0.9	3.1	1.9	1.9	2.0	0.6	1.3	1.3	1.3
2012				1.1	1.4	1.3	1.6	1.1	1.7	2.9	2.6	3.1	2.7	2.1	2.3	3.3	2.1
2013	0.3	0.5	0.4	1.1	0.9	1.3	1.7	1.4	0.7	1.6	1.9	1.4	1.7	1.0	1.6	0.6	1.3
2014	0.3	0.8	0.6	1.4	1.4	1.1	2.1	1.7	1.3	1.3	1.7	1.4	1.6	2.1	1.6	2.6	1.6
Mean	0.1	0.3	0.2	0.8	1.0	1.0	1.2	1.1	1.1	1.6	1.8	1.7	1.7	1.7	1.7	2.0	1.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				1		1				1				1			2
2006					1	1				1							1
2007												1	1		1		3
2008														1			1
2009														1			1
2010		1				1											
2011										1		2		1			4
2012				1		1								1			1
2013					2	2											
2014											1						1
Mean		0.1		0.3	0.4	0.7				0.3	0.1	0.3	0.1	0.5	0.1		1.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						2		1									3
2006														1			1
2007				1						1		1	1	1	1	2	8
2008					1			1									2
2009					2												2
2010				1								1					2
2011				2	2			1									5
2012					1				1	1			1			1	6
2013														1	1		2
2014				2	2									1			5
Mean				0.6	0.8	0.2		0.3	0.1	0.2		0.2	0.2	0.5	0.2	0.3	3.6

Like Downy Woodpecker, Hairy Woodpecker is a resident species and has been observed in almost all study periods. However, it is roughly half as numerous, and only one-quarter as many have been banded. Mean daily counts are fairly consistent throughout most of the year, except for a small increase from mid-April to early May matching Downy Woodpecker, and higher numbers in the second half of fall, usually peaking in late October. Also similar to Downy Woodpecker, numbers were down in 2010, but otherwise have been relatively consistent over the past decade.

NOFL (YSFL): Northern (Yellow-shafted) Flicker / Pic flamboyant (*Colaptes auratus auratus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 6	Apr 17	Jun 3	59	46 (78%)	4	83	Aug 3	Sep 25	Oct 20	79	64 (73%)	7	165
2006	Apr 8	Apr 22	Jun 5	59	54 (78%)	7	107	Aug 1	Oct 1	Oct 30	91	81 (89%)	9	245
2007	Apr 7	May 1	Jun 4	59	39 (56%)	6	79	Aug 1	Aug 8	Oct 27	88	74 (81%)	5	174
2008	Apr 10	Apr 30	Jun 2	54	45 (64%)	6	118	Aug 1	Sep 8	Oct 24	85	67 (74%)	5	159
2009	Apr 1	Apr 25	Jun 2	63	41 (59%)	5	83	Aug 1	Sep 19	Oct 30	91	79 (87%)	10	248
2010	Apr 2	Apr 22	Jun 2	62	45 (64%)	6	85	Aug 2	Sep 15	Oct 30	90	79 (87%)	16	247
2011	Apr 10	Apr 29	Jun 5	57	39 (56%)	7	88	Aug 1	Sep 22	Oct 28	89	75 (82%)	16	300
2012	Apr 9	Apr 22	Jun 5	58	42 (60%)	5	96	Aug 1	Sep 23	Oct 30	91	77 (85%)	9	246
2013	Apr 16	Apr 19	Jun 2	48	36 (51%)	6	104	Aug 1	Sep 14	Oct 25	86	69 (76%)	12	224
2014	Apr 14	May 3	Jun 4	52	41 (60%)	7	98	Aug 1	Sep 18	Oct 30	91	81 (89%)	10	244
Mean	Apr 8	Apr 25	Jun 3	57	43 (62%)	6	94	Aug 1	Sep 15	Oct 27	88	75 (82%)	10	225

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.3	1.0	2.2	2.9	2.1	1.1	0.9	0.9	1.2	1.4
2006								0.7	2.4	2.3	2.9	2.1	1.9	1.0	1.0	1.1	1.6
2007	0.1					0.04		0.1		1.9	2.9	2.1	1.1	0.7	1.4	1.0	1.1
2008								0.1	0.3	3.7	3.9	3.4	2.0	1.9	0.9	0.7	1.7
2009	0.1					0.03	0.4		0.3	2.7	3.4	2.0	0.9	0.9	0.4	0.4	1.2
2010							0.1	0.9	1.7	4.0	1.7	1.7	0.4	0.6	0.4	0.6	1.2
2011								0.1	0.6	2.9	3.3	1.7	1.6	0.6	0.4	1.4	1.3
2012					0.2	0.04		0.6	0.9	2.0	3.4	2.1	1.9	1.3	0.7	0.9	1.4
2013									0.1	3.6	3.3	4.3	1.4	1.4	0.3	0.4	1.5
2014									0.7	3.7	2.6	2.6	1.7	1.0	1.0	0.8	1.4
Mean	0.03				0.01	0.01	0.06	0.3	0.8	2.9	3.0	2.4	1.4	1.0	0.8	0.9	1.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.8	0.8	0.8	1.1	1.1	0.6	0.6	2.1	3.3	2.7	4.4	3.0	2.8	2.7	0.3		1.9
2006	1.1	2.4	1.8	2.7	4.4	2.6	2.1	1.3	2.4	4.0	4.7	5.0	3.1	1.1	1.0	0.4	2.7
2007	0.6	1.3	0.9	2.3	3.0	2.6	1.9	3.0	2.0	3.1	2.7	1.4	1.1	0.9	0.7	0.1	1.9
2008	1.2	4.0	2.6	2.3	2.7	2.6	1.9	2.4	2.4	2.4	2.6	1.7	1.0	0.3	0.3	0.1	1.7
2009	0.7	0.8	0.7	2.9	3.0	2.1	3.4	2.0	3.4	4.0	5.0	3.6	2.9	2.4	0.4	0.3	2.7
2010		0.5	0.3	1.6	1.9	1.6	1.9	2.7	4.0	8.9	5.0	3.1	2.3	0.4	0.9	1.1	2.7
2011	0.3	0.8	0.6	2.0	2.0	2.0	1.1	3.7	4.4	4.1	9.6	7.9	3.9	0.7	1.1	0.3	3.3
2012	0.3	1.0	0.6	1.7	2.0	2.6	2.7	1.4	3.4	3.3	5.9	6.1	3.7	1.4	0.4	0.4	2.7
2013	0.3	2.0	1.3	2.6	0.4	1.4	2.3	1.9	3.4	6.9	5.9	3.9	1.4	0.6	1.1	0.3	2.5
2014	1.3	1.5	1.4	2.7	2.6	3.3	1.3	3.6	4.4	5.1	3.1	2.7	1.7	1.4	1.0	1.9	2.7
Mean	0.7	1.5	1.1	2.2	2.3	2.1	1.9	2.4	3.3	4.5	4.9	3.9	2.4	1.2	0.7	0.5	2.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												1					1
2006																	
2007																1	1
2008										1							1
2009										1		1					2
2010										1							1
2011										2	1						3
2012												1					1
2013												1					1
2014																	
Mean										0.5	0.1	0.4				0.1	1.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											1						1
2006					1												1
2007					1												1
2008					1		1					1					3
2009		1	1	3			5						1				9
2010		2	2						2		1						3
2011					1			2		1							4
2012		1	1		1	1									1		3
2013																	
2014				1					2								3
Mean		0.4	0.4	0.4	0.5	0.1	0.6	0.2	0.4	0.1	0.2	0.1	0.1		0.1		2.8

Yellow-shafted Flicker is common at MBO from early spring to late fall. While one or two pairs breed at MBO annually, as reflected by summer numbers, there are also distinct pulses of migration in both spring and fall. The spring peak has been in week 5 in seven years out of ten, although numbers are often almost as high in week 4; the fall peak is almost always between weeks 7 and 9. On three occasions, late fall or early spring migrants have been observed during the winter season. Despite overall counts in spring and fall similar to Downy Woodpecker, far fewer Yellow-shafted Flickers have been banded, likely a function of size and behaviour (some migrant flickers staying high). Numbers have increased slightly over the years.

PIWO: Pileated Woodpecker / Grand Pic (*Dryocopus pileatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 10	Jun 1	58	25 (42%)	2	27	Aug 6	Sep 18	Oct 29	85	36 (41%)	4	49
2006	Mar 29	May 4	Jun 5	69	39 (57%)	4	65	Aug 1	Sep 20	Oct 30	91	70 (77%)	5	109
2007	Mar 28	May 9	Jun 3	68	39 (56%)	3	54	Aug 1	Sep 20	Oct 30	91	75 (82%)	4	121
2008	Mar 29	May 11	Jun 4	68	40 (57%)	4	59	Aug 2	Sep 13	Oct 27	87	57 (63%)	4	92
2009	Mar 28	Apr 10	Jun 4	69	38 (55%)	3	57	Aug 18	Sep 1	Oct 30	74	33 (36%)	3	51
2010	Mar 29	May 7	Jun 5	69	46 (66%)	3	58	Aug 1	Sep 20	Oct 30	91	64 (70%)	4	102
2011	Mar 30	Apr 24	Jun 5	68	36 (51%)	4	50	Aug 1	Sep 12	Oct 30	91	61 (67%)	3	106
2012	Apr 1	Apr 19	Jun 5	66	39 (56%)	3	57	Aug 2	Sep 23	Oct 29	89	81 (89%)	6	184
2013	Mar 30	Apr 22	Jun 5	68	40 (57%)	5	79	Aug 3	Oct 27	Oct 29	88	73 (80%)	5	142
2014	Mar 31	Apr 21	May 31	62	44 (65%)	3	61	Aug 1	Aug 24	Oct 30	91	79 (87%)	3	118
Mean	Mar 30	Apr 25	Jun 3	66	39 (56%)	3	57	Aug 3	Sep 17	Oct 29	88	63 (69%)	4	107

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.8	0.5		0.5	0.3	0.5		0.7	0.4	0.3	0.7	0.3	0.6	0.4	0.1	0.6	0.5
2006	0.07	0.07	0.08	0.2	0.3	0.1	0.7	0.8	0.6	0.4	0.7	2.4	1.0	1.4	1.1	0.1	0.9
2007	0.2	0.3	0.3	0.2	0.3	0.2	0.6	0.4	0.1	1.1	0.6	1.1	1.7	0.9	0.9	0.3	0.8
2008	1.1	0.3		0.1		0.5	0.4	0.4	1.1	1.0	0.7	1.3	1.3	1.4	0.4	0.3	0.8
2009	0.1	0.5	0.5		0.4	0.3	0.3	1.2		1.6	0.9	0.9	0.7	1.3	0.9	0.7	0.8
2010	0.4	0.8	0.4	0.3	0.5	0.4	0.4	0.9	0.1	0.7	0.9	1.1	0.9	1.6	0.7	1.0	0.8
2011	0.3	1.0	0.4	0.8	0.3	0.4	0.3	0.3	0.6	1.1	1.0	1.4	0.7	0.6	0.3	0.9	0.7
2012	0.5	1.8	0.7	0.3	0.8	0.8	0.3	1.0	0.9	0.9	0.6	1.0	1.3	1.1	0.6	0.6	0.8
2013	0.3	0.1	0.2	0.2	0.6	0.3	0.7	0.6	0.7	2.3	1.1	3.0	0.9	0.9	0.7	0.4	1.1
2014	0.4	0.5	0.1			0.2	0.7	0.7	0.1	1.4	1.0	1.7	0.9	1.1	0.9	0.3	0.9
Mean	0.4	0.4	0.3	0.2	0.4	0.3	0.5	0.7	0.5	1.1	0.8	1.4	1.0	1.1	0.7	0.5	0.8

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.06	0.2	0.1	0.1	0.1	0.1	1.1	1.3	1.3	0.9	0.8	1.0	0.2		0.1	0.6
2006	0.1		0.05	1.1	0.9	0.6	0.9	0.7	2.6	1.6	2.0	1.3	1.4	1.4	1.0	0.1	1.2
2007	0.1	0.2	0.2	1.0	1.6	1.7	0.9	1.7	1.3	1.1	1.0	1.1	1.4	1.6	1.6	1.3	1.3
2008	0.2	0.2	0.2	0.6	0.9	0.6	0.6	1.4	1.7	1.4	1.7	1.0	0.3	1.3	1.1	0.6	1.0
2009	0.7	0.3	0.4			0.6	0.6	0.7	0.4		0.4	1.6	1.6	0.9		0.6	0.6
2010	0.7	0.2	0.3	0.9	0.4	0.1	0.6	0.7	1.6	1.4	1.7	1.0	1.9	1.3	1.6	1.4	1.1
2011	0.7	0.8	0.7	0.6	0.7	0.6	1.0	0.4	0.6	2.1	2.1	2.0	1.9	0.7	0.9	1.6	1.2
2012	0.5	0.8	0.6	0.9	1.6	1.9	2.7	1.3	2.1	2.4	2.7	2.1	2.7	2.4	1.3	2.1	2.0
2013	1.0	0.3	0.6	0.6	0.4	1.4	1.6	1.3	2.3	2.0	2.4	2.3	1.4	1.1	1.4	2.0	1.6
2014	1.0	0.8	0.9	1.3	1.1	0.9	1.3	1.1	0.9	1.3	1.0	1.7	1.3	1.4	1.6	2.0	1.3
Mean	0.4	0.2	0.3	0.7	0.8	0.8	1.0	1.1	1.5	1.5	1.6	1.5	1.5	1.2	1.0	1.2	1.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006								1									1
2007										1							1
2008																	
2009																	
2010																	
2011												1					1
2012												1		1			2
2013																	
2014																	
Mean								0.5		0.1		0.2		0.1			0.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																1	1
2012							1									1	2
2013																	
2014																	
Mean							0.1									0.2	0.3

Similar to Downy and Hairy Woodpecker, Pileated Woodpecker is a permanent resident at MBO and has been observed in almost all study periods, in numbers relatively similar to Hairy Woodpecker. However, only 8 individuals have been banded over the past decade, a function of this species keeping more to the larger forests, as well as being able to escape the nets more easily due to its large size. As with the other resident woodpeckers, counts are somewhat higher in mid-spring, probably due to them being more detectable during peak courtship. Fall numbers also are somewhat higher for a few weeks in mid-season. Abundance has fluctuated slightly over the years, but without any consistent pattern.

AMKE: American Kestrel / Crécerelle d'Amérique (*Falco sparverius*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 10	Apr 10	Apr 18	9	4 (7%)	1	4	Sep 3	Sep 3	Oct 13	41	5 (6%)	1	5
2006	Apr 14	Apr 14	Apr 14	1	1 (1%)	1	1	Sep 7	Sep 7	Sep 30	24	4 (4%)	1	4
2007								Aug 7	Aug 7	Sep 14	39	4 (4%)	1	4
2008								Sep 16	Sep 16	Oct 4	19	3 (3%)	1	3
2009	May 12	May 12	May 12	1	1 (1%)	1	1	Aug 20	Aug 20	Aug 20	1	1 (1%)	1	1
2010	Apr 11	Apr 11	May 12	32	3 (4%)	1	3	Aug 4	Aug 4	Oct 24	82	7 (8%)	1	7
2011	May 8	May 8	May 8	1	1 (1%)	1	1	Sep 16	Sep 16	Sep 25	10	4 (4%)	1	4
2012	Apr 26	Apr 26	Apr 26	1	1 (1%)	1	1	Aug 14	Sep 20	Oct 15	63	9 (10%)	2	12
2013	Apr 18	Apr 29	May 23	36	6 (9%)	2	7	Sep 14	Sep 14	Oct 18	35	3 (3%)	3	6
2014	Apr 12	Apr 20	May 28	47	13 (19%)	2	14	Aug 20	Aug 20	Sep 26	38	5 (5%)	1	5
Mean	Apr 21	Apr 23	May 6	16	4 (6%)	1	3.2	Aug 27	Aug 31	Sep 30	35	4 (5%)	1	5.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2	0.3	0.2							0.07
2006									0.1								0.01
2007																	
2008																	
2009													0.1				0.01
2010									0.1	0.1			0.1				0.04
2011												0.1					0.01
2012					0.2	0.04					0.1						0.01
2013									0.4	0.3				0.1	0.1		0.1
2014									0.4	0.7	0.3	0.1	0.1	0.1	0.1		0.2
Mean					0.01	0.00		0.01	0.1	0.1	0.07	0.03	0.04	0.03	0.03		0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.1	0.1	0.1	0.1			0.2			0.06
2006									0.1	0.1		0.3					0.04
2007				0.1				0.3		0.1							0.04
2008										0.3			0.1				0.03
2009						0.1											0.01
2010				0.1				0.3			0.1		0.1	0.1		0.1	0.08
2011										0.3	0.3						0.04
2012					0.1			0.1			0.4	0.7	0.1	0.1			0.1
2013										0.4	0.3				0.1		0.07
2014						0.1		0.1		0.3		0.1					0.05
Mean				0.03	0.01	0.03		0.1	0.03	0.2	0.1	0.1	0.04	0.04	0.01	0.01	0.06

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014											1						1
Mean											0.1						0.1

American Kestrel has been observed in each spring except 2007 and 2008, although only a single individual was spotted in four other years. Total counts were higher in 2013 and 2014 than any previous year, but this was appeared to largely be a function of lone individuals stopping over for a while. The only kestrel banded at MBO was in April 2014. Fall sightings have been irregular throughout the season, although somewhat more frequent mid-season, especially weeks 7 and 8. Overall abundance has varied little across years.

MERL: Merlin / Faucon émerillon (*Falco columbarius*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 8	Apr 8	May 4	27	2 (3%)	1	2	Aug 5	Sep 23	Oct 13	70	9 (10%)	2	10
2006	May 9	May 9	May 21	13	2 (3%)	1	2	Aug 1	Aug 1	Oct 24	85	13 (14%)	1	13
2007	Apr 19	Apr 19	May 12	24	4 (6%)	1	4	Sep 11	Sep 11	Oct 20	40	6 (7%)	1	6
2008	Apr 28	Apr 28	Apr 28	1	1 (1%)	1	1	Aug 2	Aug 12	Oct 14	74	17 (19%)	2	20
2009	May 28	May 28	May 28	1	1 (1%)	1	1	Aug 8	Oct 8	Oct 19	73	20 (22%)	2	21
2010	Apr 21	Apr 21	Apr 21	1	1 (1%)	1	1	Aug 8	Sep 2	Oct 13	67	17 (19%)	3	22
2011	Apr 12	Apr 12	May 11	30	2 (3%)	1	2	Aug 3	Aug 3	Oct 25	84	15 (16%)	1	15
2012	Apr 12	Apr 12	May 18	37	2 (3%)	1	2	Aug 10	Aug 19	Oct 30	82	23 (25%)	2	28
2013	Apr 6	Apr 6	May 15	40	4 (6%)	1	4	Aug 8	Aug 10	Oct 18	72	16 (18%)	2	18
2014	Apr 21	Apr 21	May 31	41	2 (3%)	1	2	Aug 1	Oct 11	Oct 30	91	35 (38%)	5	47
Mean	Apr 22	Apr 22	May 12	22	2 (3%)	1	2	Aug 8	Aug 31	Oct 20	74	17 (19%)	2	20

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2				0.1					0.03
2006													0.1	0.1			0.03
2007	0.06					0.02				0.1		0.1	0.3				0.06
2008	0.1					0.04					0.1						0.01
2009															0.1		0.01
2010		0.1				0.02				0.1							0.01
2011									0.1					0.1			0.03
2012									0.1						0.1		0.03
2013			0.07			0.02		0.1	0.1	0.1			0.1				0.06
2014										0.1							0.03
Mean	0.02	0.02	0.01			0.01		0.03	0.04	0.06	0.01	0.03	0.07	0.03	0.01	0.01	0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1	0.3				0.1		0.4	0.2	0.2	0.2			0.1
2006		0.08	0.05	0.4	0.3	0.1			0.3			0.3		0.3		0.1	0.1
2007									0.1	0.1	0.3	0.1			0.1		0.07
2008		0.2	0.1	0.1	0.4	0.6	0.1	0.4	0.1	0.3	0.1		0.3	0.3			0.2
2009					0.3	0.1	0.3	0.1	0.1	0.4	0.3	0.4	0.3	0.3	0.3		0.2
2010					0.1		0.1	0.9	0.6	0.1		0.6	0.6	0.1			0.2
2011				0.1		0.1	0.4	0.1	0.3		0.1	0.3	0.3	0.1		0.1	0.2
2012					0.1	0.6	0.7	0.4	0.1		0.1	1.0	0.3	0.1	0.1	0.3	0.3
2013					0.7	0.1	0.1	0.1	0.6	0.1	0.1	0.3	0.3		0.1		0.2
2014					0.7	0.1	0.3	0.4	0.3	0.6	0.9	0.9	0.4	0.9	0.3	0.1	0.5
Mean		0.03	0.02	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.2	0.2	0.1	0.07	0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007										1							1
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean										0.1							0.1

Merlin is the most common of the three falcon species observed at MBO, with observations in every spring and fall, plus sightings in two summers and four winters. Despite that, spring numbers are low, with no more than one ever seen on a single day, and a season high of just four individuals. Only one Merlin has been banded at MBO, in April 2007. Fall numbers are somewhat higher and also a bit more variable, showing a slight increase over the years, but no discernible pattern of occurrence within the season.

PEFA: Peregrine Falcon / Faucon pèlerin (*Falco peregrinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 4	May 4	May 4	1	1 (2%)	1	1	Oct 17	Oct 17	Oct 17	1	1 (1%)	1	1
2006	Apr 5	Apr 5	May 19	45	4 (6%)	1	4	Sep 28	Sep 28	Sep 28	1	1 (1%)	1	1
2007								Aug 17	Aug 17	Aug 31	15	3 (3%)	1	3
2008								Aug 24	Aug 24	Oct 23	61	3 (3%)	1	3
2009	Mar 28	Mar 28	Mar 28	1	1 (1%)	1	1	Sep 4	Sep 4	Sep 5	2	2 (2%)	1	2
2010								Sep 12	Sep 12	Oct 14	33	3 (3%)	1	3
2011	May 20	May 20	May 20	1	1 (1%)	1	1	Oct 2	Oct 2	Oct 4	3	2 (2%)	2	3
2012	May 12	May 12	May 20	9	2 (3%)	2	3	Sep 20	Sep 20	Oct 28	39	5 (5%)	1	5
2013	Apr 18	Apr 18	May 6	19	2 (3%)	1	2	Sep 25	Oct 18	Oct 18	24	3 (3%)	2	4
2014								Oct 3	Oct 3	Oct 11	9	2 (2%)	1	2
Mean	Apr 24	Apr 24	May 6	13	2 (3%)	1	1.2	Sep 18	Sep 20	Oct 5	19	2 (3%)	1	2.7

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.1					0.02
2006								0.3				0.1		0.1			0.06
2007																	
2008																	
2009					0.07	0.03	0.1										0.01
2010	0.05					0.02											
2011														0.1			0.01
2012	0.1					0.04							0.3	0.1			0.04
2013									0.1			0.1					0.03
2014																	
Mean	0.02				0.01	<0.01	0.02	0.03		0.01		0.04	0.03	0.04			0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															0.1		0.01
2006												0.1					0.01
2007						0.3		0.1									0.03
2008							0.1	0.1							0.1		0.03
2009								0.1	0.1								0.02
2010										0.3				0.1			0.03
2011												0.3	0.1				0.03
2012											0.1	0.3	0.1			0.1	0.05
2013											0.1			0.1	0.3		0.04
2014												0.1	0.1				0.02
Mean						0.03	0.01	0.04	0.01	0.03	0.03	0.04	0.06	0.06	0.06	0.01	0.03

Peregrine Falcon is a rare migrant at MBO, with observations spanning from late March to mid-May and mid-August to November. Spring sightings have occurred in six of ten years, with observations slightly more frequent in May. Fall observations have been widely scattered, but most frequent between late September and mid-October. While a pair of Peregrine Falcons has occasionally nested on the Ile-aux-Tourtes bridge, just 3.5 km west of MBO, most observations appear to be of migrants, based on the height, direction, and speed of flight. The peak periods of observation also match the expected timing for arctic migrants.

OSFL: Olive-sided Flycatcher / Moucherolle à côtés olive (*Contopus cooperi*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 13	Aug 13	Aug 13	1	1 (1%)	1	1
2006								Aug 29	Aug 29	Aug 29	1	1 (1%)	1	1
2007														
2008								Aug 16	Aug 16	Aug 31	16	2 (2%)	1	2
2009								Aug 13	Aug 13	Sep 2	21	4 (4%)	1	4
2010								Sep 6	Sep 6	Sep 6	1	1 (1%)	1	1
2011								Aug 20	Aug 20	Aug 20	1	1 (1%)	1	1
2012								Aug 15	Aug 15	Aug 15	1	1 (1%)	1	1
2013								Aug 18	Aug 18	Aug 18	1	1 (1%)	1	1
2014	May 28	May 28	May 28	1	1 (1%)	1	1							
Mean	May 28	May 28	May 28	1	1 (1%)	1	0.1	Aug 20	Aug 20	Aug 24	5	2 (2%)	1	1.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014															0.1		0.01
Mean															0.01		<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1												0.01
2006								0.1									0.01
2007																	
2008						0.1		0.1									0.02
2009					0.1			0.4									0.04
2010									0.1								0.01
2011						0.1											0.01
2012						0.1											0.01
2013						0.1											0.01
2014																	
Mean					0.03	0.06		0.07	0.01								0.01

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014															1		1
Mean															0.1		0.1

Olive-sided Flycatcher is the rarest of the flycatchers at MBO, with just one spring observation (in 2014), and a dozen fall observations spread across eight years. All fall sightings have come between August 13 and September 6, although strangely none have occurred in week 4, in the middle of that period. Fall numbers have remained similarly low over the years. The lone spring bird is the only one banded to date.

EAWP: Eastern Wood-Pewee / Pioui de l'Est (*Contopus virens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 1	Aug 15	Sep 19	50	26 (30%)	4	38
2006	May 28	May 28	Jun 2	6	3 (4%)	2	4	Aug 6	Aug 6	Sep 4	30	2 (2%)	1	2
2007	May 18	May 18	Jun 1	15	6 (9%)	2	8	Aug 4	Aug 17	Oct 5	63	7 (8%)	3	9
2008	May 26	May 26	Jun 2	8	4 (6%)	1	4	Aug 29	Aug 29	Aug 29	1	1 (1%)	1	1
2009	May 22	May 22	Jun 5	15	4 (6%)	1	4	Aug 6	Aug 6	Oct 13	69	11 (12%)	1	11
2010	May 26	May 26	May 26	1	1 (1%)	1	1	Aug 5	Aug 5	Aug 5	1	1 (1%)	1	1
2011	May 19	May 19	Jun 2	15	9 (13%)	2	12	Aug 3	Aug 24	Sep 4	33	10 (11%)	4	16
2012	May 27	May 27	May 27	1	1 (1%)	2	2	Aug 12	Aug 12	Aug 26	15	4 (4%)	1	4
2013	May 27	May 27	Jun 3	8	4 (6%)	1	4	Aug 14	Aug 14	Sep 9	27	4 (4%)	1	4
2014	May 24	May 24	Jun 4	12	10 (15%)	2	12	Aug 1	Aug 10	Sep 16	47	21 (23%)	4	36
Mean	May 24	May 24	Jun 1	9	5 (7%)	2	5.1	Aug 8	Aug 13	Sep 9	34	9 (10%)	2	12

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															0.4	0.1	0.06
2007														0.6		0.6	0.1
2008															0.3	0.3	0.06
2009														0.1		0.4	0.06
2010															0.1		0.01
2011														0.6	0.4	0.7	0.2
2012															0.3		0.03
2013															0.1	0.4	0.06
2014															1.1	0.7	0.2
Mean														0.1	0.3	0.3	0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.8	0.6	0.7	1.1	0.9	0.9	0.6	1.0	0.6	0.3	0.1						0.4
2006	0.1	0.08	0.09	0.1				0.1									0.02
2007				0.3		0.4	0.1				0.1	0.1	0.1				0.10
2008								0.1									0.01
2009				0.1	0.4	0.3	0.1	0.3			0.1			0.1			0.1
2010				0.1													0.01
2011				0.1	0.3	0.1	0.7	1.0									0.2
2012	0.3		0.1		0.3		0.3										0.04
2013					0.1	0.1		0.1	0.1								0.04
2014	0.3		0.1	1.4	1.9	1.0	0.3	0.1	0.1	0.3							0.4
Mean	0.3	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.09	0.06	0.04	0.01	0.01	0.01			0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					1	2		1									4
2006								1									1
2007																	
2008																	
2009						1		1									2
2010																	
2011																	
2012																	
2013								1									1
2014					1	1											2
Mean					0.2	0.4		0.4									1.0

Eastern Wood-Pewee is a regular but rare species at MBO from late spring to mid-fall. Spring migrants usually arrive in week 9, with the earliest records coming in week 8 in only three of ten years. Fall migration is somewhat more protracted, with sightings past week 8 in 2007 and 2009, but more commonly peaking in early August and tapering off by early September. Counts in both seasons have generally been low, with unusually high numbers only in spring 2011 and 2014, and fall 2005 and 2014. Just 10 individuals have been banded, all in fall, and none beyond week 5.

YBFL: Yellow-bellied Flycatcher / Moucherolle à ventre jaune (*Empidonax flaviventris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 30	May 30	May 30	1	1 (2%)	1	1	Aug 10	Sep 1	Sep 18	40	10 (11%)	2	12
2006	May 20	May 20	Jun 1	13	5 (7%)	1	5	Aug 6	Aug 16	Sep 5	31	13 (14%)	6	24
2007								Sep 4	Sep 4	Sep 11	8	3 (3%)	1	3
2008	May 28	May 28	May 30	3	2 (3%)	1	2	Aug 9	Aug 31	Oct 4	57	14 (15%)	4	23
2009								Aug 18	Aug 23	Sep 4	18	12 (13%)	4	22
2010	May 23	May 23	May 23	1	1 (1%)	1	1	Aug 6	Sep 9	Sep 18	44	12 (13%)	3	17
2011	May 25	May 28	May 28	4	3 (4%)	3	5	Aug 14	Aug 30	Sep 20	38	20 (22%)	4	32
2012								Aug 11	Aug 14	Sep 22	43	16 (18%)	2	20
2013	May 25	May 25	May 30	6	2 (3%)	2	3	Aug 7	Sep 4	Sep 23	48	22 (24%)	3	27
2014	May 21	May 21	May 26	6	2 (3%)	1	2	Aug 4	Aug 22	Sep 14	42	17 (19%)	9	33
Mean	May 24	May 25	May 28	5	2 (3%)	1	1.9	Aug 12	Aug 27	Sep 16	37	14 (15%)	4	21

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																0.2	0.02
2006														0.1	0.4	0.1	0.07
2007																	
2008															0.1	0.1	0.03
2009																	
2010															0.1		0.01
2011															0.7		0.07
2012																	
2013															0.3	0.1	0.04
2014														0.1	0.1		0.03
Mean														0.03	0.2	0.06	0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.3	0.3		0.6	0.1	0.4							0.1
2006				0.1	0.6	1.4	0.4	0.7	0.1								0.3
2007								0.1	0.3								0.03
2008					0.9	0.4		1.1	0.7			0.1					0.3
2009						0.6	1.3	1.3									0.2
2010				0.1	0.1	0.3	0.4	0.1	0.7	0.6							0.2
2011					0.1	0.9	0.6	1.3	1.1	0.3	0.3						0.4
2012					0.4	1.0	0.4	0.3	0.1	0.1	0.4						0.2
2013				0.1	0.3	0.3	0.9	1.0	0.6	0.4	0.3						0.3
2014				0.1	0.1	0.6	2.4	1.0	0.1	0.3							0.4
Mean				0.06	0.3	0.6	0.6	0.8	0.4	0.2	0.1		0.01				0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																1	1
2006															2		2
2007																	
2008																1	1
2009																	
2010															1		1
2011															5		5
2012																	
2013															1	1	2
2014															1		1
Mean															1.0	0.3	1.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					2	1		3	1	3							10
2006					3	3	1	3	1								11
2007								1									1
2008					6	2		7	4			1					20
2009						2	7	6									15
2010				1	1	1	3	1	5	4							16
2011					1	5	3	8	6		1						24
2012					3	1	3	2		1	1						11
2013				1	2	1	4	4	4	1	2						19
2014				1	1	3	15	7	1	2							30
Mean				0.3	1.9	1.9	3.6	4.2	2.2	1.1	0.4		0.1				15.7

Yellow-bellied Flycatcher is a rare spring but fairly common fall migrant at MBO. It is one of the latest spring arrivals, typically not detected until week 9, and with May 20 as the earliest date of arrival. More than two-thirds of the spring migrants and nearly three-quarters of individuals recorded in fall have been banded, reflecting how easily this species is overlooked when not in the nets. Fall migration spreads over a longer period, including one exceptional record in early October, but typically peaks quite distinctly in weeks 4 and 5. Although fluctuating somewhat, fall numbers have been showing somewhat of an increase over the past decade.

TRFL: Traill's Flycatcher / Moucherolle des saules ou M. des aulnes (*Empidonax traillii* or *alnorum*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 30	Jun 2	18	6 (10%)	3	10	Aug 2	Aug 15	Sep 18	48	14 (16%)	5	21
2006	May 9	May 30	Jun 4	27	9 (13%)	3	13	Aug 2	Aug 21	Sep 15	45	21 (23%)	4	29
2007	May 20	Jun 1	Jun 5	17	11 (16%)	4	20	Aug 3	Aug 8	Sep 11	40	19 (21%)	4	32
2008	May 28	Jun 1	Jun 5	9	7 (10%)	6	17	Aug 1	Aug 8	Sep 19	50	24 (26%)	4	46
2009	May 18	May 23	Jun 3	17	11 (16%)	3	23	Aug 8	Aug 12	Sep 12	36	21 (23%)	4	35
2010	May 22	May 24	Jun 2	12	6 (9%)	2	8	Aug 2	Aug 10	Sep 10	40	11 (12%)	2	13
2011	May 16	May 25	Jun 5	21	11 (16%)	7	39	Aug 6	Aug 15	Sep 7	33	13 (14%)	6	23
2012	May 14	May 28	Jun 5	23	16 (23%)	9	50	Aug 7	Aug 10	Sep 8	33	19 (21%)	6	37
2013	May 15	May 25	Jun 4	21	11 (16%)	5	27	Aug 7	Aug 16	Sep 4	29	15 (16%)	4	23
2014	May 11	May 27	Jun 3	24	15 (22%)	13	54	Aug 3	Aug 22	Aug 30	28	13 (14%)	5	26
Mean	May 16	May 27	Jun 3	19	10 (15%)	6	26	Aug 4	Aug 13	Sep 10	38	17 (19%)	4	29

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.3	0.1	1.4	0.2
2006													0.1		0.9	0.9	0.2
2007														0.4	0.9	1.6	0.3
2008															0.4	2.0	0.2
2009														0.6	1.4	1.3	0.3
2010														0.1	0.7	0.3	0.1
2011														0.1	3.9	1.6	0.6
2012												0.1	0.9	4.3	1.9	0.7	0.7
2013												0.1	0.6	2.0	1.1	0.4	0.4
2014												0.1	0.6	4.9	2.5	0.8	0.8
Mean												0.06	0.4	1.9	1.4	0.4	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.1	0.2	0.3		1.0	0.7	0.7	0.1	0.1							0.2
2006				0.7	1.1	0.9	0.6	0.4	0.3	0.1							0.3
2007	3.4	0.3	2.0	0.7	1.4	0.7	1.4	0.1	0.1								0.4
2008				1.6	2.9	0.7	0.4	0.6	0.1	0.1	0.1						0.5
2009	1.0		0.4		1.4	1.1	1.0	1.1	0.1	0.1							0.4
2010	0.7	0.2	0.3	0.3	0.7	0.3	0.3	0.1	0.1								0.1
2011	0.7		0.3	0.3	0.7	1.0	0.4	0.7	0.1								0.3
2012	0.3	0.3	0.2	0.1	2.4	0.9	1.4		0.4								0.4
2013	0.3	0.5	0.4	0.1	1.0	1.4	0.3	0.4									0.3
2014	1.7	0.5	1.0	0.4	0.9	0.3	2.0	0.1									0.3
Mean	0.7	0.2	0.4	0.5	1.3	0.8	0.9	0.4	0.2	0.06	0.01						0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														2		3	5
2006													1		3	2	6
2007														3	2	2	7
2008															3	6	9
2009														3	8	4	15
2010															5		5
2011															17	2	19
2012													1	1	11	4	17
2013														2	10	4	16
2014														2	25	7	34
Mean													0.2	1.3	8.4	3.4	13.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						5	4	2	1								12
2006				5	4	4	2	1	1	1							18
2007				5	10	1	4	1	1								22
2008				10	13	2	2	2		1							30
2009	1		1		8	8	4	3	1								24
2010		1	1	2	5	1	2	1	1								12
2011				2	5	7	2	1	1								18
2012		1	1	1	15	2	3		3								24
2013	1	2	3	1	7	6	1	1									16
2014	4	1	5	1	5	1	7	1									15
Mean	1.0	0.6	1.2	2.7	7.2	3.7	3.1	1.3	0.9	0.2							19.1

Traill's Flycatcher is the collective name for Willow and Alder Flycatcher, which are difficult to distinguish with certainty unless heard vocalizing. The subset of individuals which were identified to species are summarized on the following page. Traill's Flycatchers are late spring and early fall migrants, typically peaking in week 9 of spring, and in week 2 of fall; there are only two spring records before May 15, and two fall records after September 15. Spring numbers have been much higher over the past four years than previously, but there is no clear long-term pattern in fall counts. There have been summer records in all years except 2006 and 2008, in most cases locally breeding Alder Flycatchers.

ALFL: Alder Flycatcher / Moucherolle des aulnes (*Empidonax alnorum*)

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.1	0.8	0.08
2006															0.1	0.6	0.07
2007															0.1	1.3	0.1
2008																1.1	0.1
2009															0.3	0.6	0.09
2010																0.3	0.03
2011																1.4	0.3
2012														0.6	2.6	1.3	0.4
2013													0.1	0.3	0.4	0.6	0.1
2014													0.1		1.0	1.3	0.2
Mean													0.03	0.09	0.6	0.9	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.2	0.06	0.1	0.1				0.3		0.1							0.05
2006																	
2007	2.0	0.3	1.2														
2008											0.1						0.01
2009	0.7		0.3							0.1							0.01
2010	0.7		0.2														
2011	0.7		0.3														
2012	0.3		0.1														
2013						0.1											0.01
2014	0.3	0.3	0.3	0.1													0.01
Mean	0.4	0.06	0.2	0.03		0.01		0.03		0.03	0.01						<0.01

The charts above and below summarize the records of Trail’s Flycatcher that were identifiable to species through either vocalizations or measurements. The results suggest that in spring, Willow Flycatchers may tend to migrate slightly earlier than Alder Flycatchers. There is only one Willow Flycatcher record from summer, despite this being a period when vocalizations are more common, leading to the conclusion that unidentified summer records are generally also Alder Flycatchers.

WIFL: Willow Flycatcher / Moucherolle des saules (*Empidonax traillii*)

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															0.1		0.01
2007															0.4		0.04
2008																	
2009														0.1			0.01
2010														0.1			0.01
2011																	
2012															0.1		0.01
2013																	
2014														0.1	0.3		0.04
Mean														0.04	0.1		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06		0.03														
2006																	
2007																	
2008									0.1	0.1							0.02
2009					0.1												0.01
2010																	
2011																	
2012					0.1				0.1								0.02
2013																	
2014																	
Mean	0.02		<0.01		0.03				0.03	0.01							<0.01

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008										1							1
2009					1												1
2010																	
2011																	
2012					1				1								2
2013																	
2014																	
Mean					0.2				0.1	0.1							0.4

LEFL: Least Flycatcher / Moucherolle tchébec (*Empidonax minimus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 28	Jun 1	22	16 (27%)	5	26	Aug 1	Aug 22	Sep 4	35	12 (14%)	4	21
2006	May 12	May 21	May 28	17	12 (17%)	4	21	Aug 3	Aug 22	Sep 15	44	15 (16%)	4	23
2007	May 10	May 18	May 29	20	12 (17%)	4	20	Aug 11	Aug 25	Sep 12	33	14 (15%)	4	21
2008	May 7	May 7	Jun 1	26	15 (21%)	1	15	Aug 1	Sep 1	Sep 12	43	22 (24%)	2	25
2009	May 9	May 18	Jun 1	24	12 (17%)	4	19	Aug 2	Aug 13	Sep 4	34	12 (13%)	2	14
2010	May 10	May 17	May 24	15	11 (16%)	4	20	Aug 4	Aug 18	Sep 9	37	11 (12%)	5	19
2011	May 12	May 13	Jun 1	21	14 (20%)	9	39	Aug 8	Aug 22	Sep 21	45	12 (13%)	3	16
2012	May 10	May 13	Jun 5	27	10 (14%)	10	26	Aug 15	Aug 25	Sep 9	26	13 (14%)	2	16
2013	Apr 29	Apr 29	Jun 2	35	17 (24%)	4	42	Aug 4	Aug 17	Sep 2	30	12 (13%)	2	15
2014	May 9	May 13	May 31	23	19 (28%)	11	44	Aug 1	Aug 23	Sep 11	42	19 (21%)	14	37
Mean	May 8	May 14	May 30	23	14 (20%)	6	27	Aug 5	Aug 21	Sep 9	37	14 (16%)	4	21

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.7	1.1	1.4	0.6	0.4
2006													0.7	1.9	0.4		0.3
2007													1.0	1.3	0.6		0.3
2008												0.3	0.7	0.4	0.4	0.3	0.2
2009													0.3	1.7	0.4	0.3	0.3
2010													0.3	2.1	0.4		0.3
2011													1.7	2.3	1.3	0.3	0.6
2012													2.7	0.4	0.1	0.4	0.4
2013											0.6	0.1	1.7	2.6	0.9	0.1	0.6
2014													3.9	0.9	1.3	0.3	0.6
Mean											0.06	0.04	1.4	1.5	0.7	0.2	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1	0.3	0.7	1.7	0.1									0.2
2006		0.2	0.09	0.1	0.7	0.7	0.9	0.3	0.3	0.3							0.3
2007	0.1		0.08		0.3	0.3	1.3	0.4	0.6	0.1							0.2
2008				0.4	0.4	0.4	0.4	1.0	0.7	0.1							0.3
2009		0.3	0.1	0.1	0.6	0.4	0.4	0.4									0.2
2010		0.2	0.1	0.3	0.3	0.9	0.4	0.4	0.4								0.2
2011					0.3	0.1	1.0	0.4	0.1		0.3						0.2
2012		0.8	0.4			0.7	1.0	0.4	0.1								0.2
2013	0.7	1.0	0.9	0.6	0.1	0.4	0.6	0.4									0.2
2014		0.3	0.1	0.6	0.1	0.7	3.1	0.4	0.3								0.4
Mean	0.05	0.2	0.1	0.2	0.3	0.5	1.1	0.4	0.3	0.06	0.03						0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													2	5	1	1	9
2006														3	1		4
2007													3	3	1		7
2008												1			1		2
2009													1	7	1	1	10
2010													1	3			4
2011													4	2	3		9
2012													5	2		2	9
2013													2	8	2		12
2014													14	2	5		21
Mean												0.1	3.2	3.5	1.5	0.4	8.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						3	5										8
2006		1	1		2	3	3		2	1							11
2007					2		6	3	3								14
2008				2	1	2	2	4	2								13
2009		1	1	1	1	1	2	1									6
2010		1	1	1	2	4	2	3	1								13
2011					1		2										3
2012		2	2			2	4	2									8
2013		2	2	1		1	1	2									5
2014		1	1	1		1	10	1	1								14
Mean		0.9	0.9	0.6	0.9	1.7	3.7	1.6	0.9	0.1							9.5

Least Flycatcher is the earliest of the *Empidonax* flycatchers in spring, always returning by week 7, and in two years even earlier. There is consistently a distinct peak spanning weeks 7 and 8, with only a small number lingering into week 10 in some years. Similarly, there is a short and fairly distinct peak to fall migration, on average centered around week 4, with only rare sightings as late as week 7 or 8. Mean daily counts and numbers banded have remained remarkably consistent over the years during both spring and fall, with only 2014 unusually high for both. Small numbers are usually present in summer, and have been banded in July in six years.

EAPH: Eastern Phoebe / Moucherolle phébi (*Sayornis phoebe*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 5	Jun 3	60	51 (86%)	4	81	Aug 1	Oct 2	Oct 9	70	40 (45%)	4	55
2006	Mar 31	Apr 15	Jun 5	67	65 (94%)	3	100	Aug 2	Aug 7	Oct 5	65	17 (19%)	2	18
2007	Mar 28	Mar 31	Jun 5	70	53 (76%)	3	73	Aug 16	Aug 21	Oct 20	66	18 (20%)	4	23
2008	Apr 10	Apr 10	May 30	51	6 (9%)	1	6	Aug 1	Aug 1	Oct 17	78	21 (23%)	3	26
2009	Apr 14	Apr 17	Jun 5	53	45 (85%)	3	67	Aug 4	Aug 13	Oct 10	68	29 (32%)	4	42
2010	Apr 5	May 12	Jun 5	62	13 (19%)	2	16	Aug 2	Aug 13	Oct 21	81	14 (15%)	2	15
2011	Mar 30	May 19	Jun 3	66	25 (36%)	3	32	Aug 2	Sep 14	Oct 18	78	32 (35%)	3	54
2012	Apr 6	Apr 6	May 30	55	20 (29%)	2	26	Aug 8	Sep 20	Oct 28	82	25 (27%)	2	32
2013	Apr 15	Apr 22	Jun 5	52	46 (66%)	6	112	Aug 1	Sep 23	Oct 13	74	42 (46%)	4	58
2014	Apr 10	Apr 19	Jun 1	53	36 (53%)	4	52	Aug 1	Aug 23	Oct 16	77	55 (60%)	3	76
Mean	Apr 6	Apr 18	Jun 3	59	36 (53%)	3	57	Aug 3	Aug 29	Oct 15	74	29 (32%)	3	40

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								2.7	1.3	1.7	0.9	1.3	1.3	1.6	1.0	0.8	1.4
2006							0.7	1.3	2.1	1.3	1.6	1.6	2.0	1.3	1.3	1.3	1.4
2007							1.3	0.7	1.3	2.0	1.1	1.1	1.3	0.9	0.4	0.3	1.0
2008								0.1		0.1				0.3	0.1	0.1	0.09
2009									0.9	2.0	0.7	1.6	1.6	0.9	1.0	1.0	1.0
2010								0.4	0.1	0.1			0.3	0.1	0.4	0.7	0.2
2011							0.3	0.3	0.6	0.7	0.4		0.3	1.0	0.4	0.6	0.5
2012					0.2	0.04		1.0	0.4	0.4	0.4	0.4		0.3	0.4	0.3	0.4
2013									0.9	3.0	2.3	3.1	2.1	2.0	1.4	1.1	1.6
2014								0.1	0.1	1.9	1.7	1.3	1.0	0.4	0.3	0.7	0.8
Mean					0.01	<0.01	0.3	0.6	0.8	1.3	0.9	1.0	1.0	0.9	0.7	0.7	0.8

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.9	1.2	1.1	0.3	0.6	0.1	0.6	0.6	1.3	1.3	1.0	1.5	1.0				0.6
2006	0.8	0.4	0.6	0.7	0.1		0.1	0.4			0.4	0.3	0.4				0.2
2007	0.9		0.5			0.9	0.6		0.3		0.1	0.3	0.7	0.3	0.1		0.3
2008	0.2	0.2	0.2	0.6			0.4	0.4	0.4	0.1	0.6	0.4	0.4	0.1	0.1		0.3
2009	0.3		0.1	0.7	1.6	0.9	0.3		0.3	0.3	0.7	0.6	0.4	0.3			0.5
2010				0.3	0.4	0.1				0.1	0.1	0.1	0.4	0.1	0.3		0.2
2011				0.3	0.3		0.4	1.0	1.0	1.6	2.1	0.4	0.4		0.1		0.6
2012		0.3	0.1		0.1	0.1		0.3		0.1	1.0	0.4	1.4	0.4	0.3	0.3	0.4
2013	1.0	0.8	0.9	1.3		1.1	0.4	0.3	1.1	0.7	1.6	1.0	0.3	0.4			0.6
2014				1.6	1.1	0.7	1.6	1.0	1.3	0.3	0.7	1.3	0.6	0.7			0.8
Mean	0.6	0.5	0.5	0.6	0.4	0.4	0.4	0.4	0.6	0.5	0.8	0.6	0.6	0.2	0.1	0.03	0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								1			1						2
2006									3			1	1				5
2007										3							3
2008																	
2009										1				2			3
2010																	
2011										1							1
2012																	
2013										5	2		1				8
2014										3				1			4
Mean								0.5	1.5	1.3	0.3	0.1	0.2	0.3			2.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										4		1	1				6
2006				1	1												2
2007						1	1		1				1	1			6
2008							3		2		1	1	1				8
2009				1	1						1			2			5
2010				2													2
2011									1	2							3
2012								1				1	2	1			5
2013		1	1	2		1	1	1	1			2					8
2014				1	1		2	2				1					7
Mean		0.1	0.1	0.7	0.3	0.2	0.7	0.4	0.5	0.6	0.2	0.6	0.5	0.4	0.1		5.2

Eastern Phoebe is present at MBO over a much longer season than any other flycatcher, typically present from late March or early April until mid-October. On average, spring numbers are highest in week 4, though the peak in individual years has ranged throughout the season. Similarly, fall numbers are on average highest in week 8, though in five of ten years the peak week has come in the first two weeks of August, while in others it has been as late as week 10. Numbers have fluctuated somewhat over the years, with distinct lows in 2008 and 2010, but there does not (yet?) appear to be any overall trend. Despite being present in most summers, only one individual to date has been banded during that season.

GCFL: Great Crested Flycatcher / Tyrann huppé (*Myiarchus crinitus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 30	Jun 3	24	13 (22%)	9	31	Aug 1	Aug 15	Sep 21	52	29 (33%)	6	45
2006	May 12	May 23	Jun 5	25	16 (23%)	6	32	Aug 2	Aug 18	Sep 2	32	20 (22%)	4	34
2007	May 10	May 22	Jun 5	27	16 (23%)	3	29	Aug 2	Aug 2	Sep 7	37	23 (25%)	4	42
2008	May 13	May 28	Jun 4	23	16 (23%)	5	30	Aug 1	Aug 4	Sep 12	43	35 (38%)	7	88
2009	May 3	Jun 3	Jun 4	33	29 (42%)	6	81	Aug 2	Aug 11	Sep 4	34	12 (13%)	3	16
2010	May 3	May 25	Jun 5	34	27 (39%)	5	57	Aug 5	Aug 15	Sep 6	33	7 (8%)	2	8
2011	May 2	May 24	Jun 5	35	27 (39%)	10	116	Aug 1	Aug 18	Sep 2	33	19 (21%)	7	41
2012	May 7	May 12	Jun 5	30	28 (40%)	8	111	Aug 4	Aug 6	Sep 8	36	28 (31%)	6	67
2013	May 9	May 16	Jun 5	28	21 (30%)	5	51	Aug 1	Aug 18	Sep 3	34	21 (23%)	7	47
2014	May 10	May 31	Jun 4	26	24 (35%)	8	80	Aug 1	Aug 2	Sep 28	59	33 (36%)	5	63
Mean	May 8	May 24	Jun 4	28	22 (32%)	6	62	Aug 2	Aug 10	Sep 9	39	23 (25%)	5	45

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.1	0.4	0.9	4.2	0.5
2006													0.3	1.0	1.9	1.4	0.5
2007													0.6	0.7	1.7	1.1	0.4
2008													0.1	0.6	2.4	1.1	0.4
2009												0.6	2.1	3.9	2.6	2.4	1.2
2010												1.0	0.3	1.9	2.7	2.3	0.8
2011												0.3	2.0	3.6	6.3	4.4	1.7
2012												0.6	5.1	4.6	3.4	2.1	1.6
2013													1.0	2.7	1.3	2.3	0.7
2014													1.0	3.9	3.3	3.8	1.2
Mean												0.2	1.3	2.3	2.6	2.5	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.5	0.8	0.7	0.7	1.1	1.7	0.6	1.3		0.4	0.6						0.5
2006	1.9	0.8	1.3	0.3	1.3	1.6	0.6	1.1									0.4
2007	0.4	0.3	0.4	1.3	2.0	1.6	0.9	0.1	0.1								0.5
2008	0.6	0.4	0.5	4.0	3.0	2.4	1.3	0.9	0.9	0.1							1.0
2009	2.0	1.5	1.7	0.7	1.1	0.1		0.3									0.2
2010	0.7	0.3	0.4	0.1	0.3	0.4		0.1	0.1								0.09
2011	1.3	1.5	1.4	0.7	2.0	2.3	0.6	0.3									0.5
2012	0.3	0.8	0.5	1.6	2.9	3.3	1.3	0.4	0.1								0.7
2013	1.0	4.0	2.7	2.4	1.4	2.0	0.4	0.4									0.5
2014	2.7	1.0	1.7	2.7	2.3	1.6	0.9	0.7	0.7			0.1					0.7
Mean	1.0	1.0	1.0	1.5	1.7	1.7	0.6	0.6	0.2	0.06	0.06	0.01					0.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1			1	2
2006																1	1
2007																	
2008																	
2009														2		1	3
2010															1		1
2011															1	1	2
2012																1	1
2013														2			2
2014															1		1
Mean													0.1	0.4	0.3	0.5	1.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1	3	1				1							6
2006						1											1
2007						1											1
2008					1	4											5
2009		2	2														
2010						1											1
2011		2	2			1											1
2012		1	1		1												1
2013		5	5		2		1										3
2014	1	1	2														
Mean	0.2	1.2	1.3	0.1	0.7	0.9	0.1			0.1							1.9

Great Crested Flycatchers return to MBO in week 6 or 7 of spring, and are typically the most abundant flycatcher over the final three weeks of the season. Although the mean daily count is almost twice as high in spring as fall, the number banded in fall is nearly 50% greater, explained at least in part by migration being spread out over a longer period. However, as in spring the peak spans three weeks, in this case the first three of fall. Numbers taper off sharply by early-mid September, and there is some doubt as to whether the lone observation in week 9 might have been an Ash-throated Flycatcher (it was not observed in sufficient detail to be certain). Numbers have increased over time, especially in summer.

EAKI: Eastern Kingbird / Tyrann tritri (*Tyrannus tyrannus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 17	Jun 2	23	15 (25%)	3	23	Aug 1	Aug 22	Sep 4	35	23 (26%)	10	90
2006	May 4	May 13	Jun 1	29	25 (36%)	2	35	Aug 1	Aug 10	Aug 30	30	23 (25%)	8	95
2007	May 10	May 15	Jun 5	27	26 (37%)	4	59	Aug 1	Aug 1	Aug 23	23	22 (24%)	5	67
2008	May 5	May 6	Jun 3	30	29 (41%)	4	83	Aug 1	Aug 1	Aug 29	29	23 (25%)	4	50
2009	Apr 28	May 11	Jun 5	39	37 (54%)	4	67	Aug 1	Aug 1	Sep 24	55	26 (29%)	6	50
2010	May 3	May 18	Jun 5	34	33 (47%)	8	66	Aug 1	Aug 4	Sep 3	34	15 (16%)	3	24
2011	May 1	May 9	Jun 5	36	33 (47%)	6	83	Aug 1	Aug 7	Aug 30	30	24 (26%)	8	71
2012	May 4	May 13	Jun 3	31	30 (43%)	8	85	Aug 1	Aug 3	Aug 20	20	17 (19%)	5	40
2013	May 6	May 11	Jun 4	30	25 (36%)	5	84	Aug 1	Aug 18	Sep 8	39	23 (25%)	5	43
2014	May 5	May 24	Jun 4	31	27 (40%)	5	62	Aug 1	Aug 1	Aug 30	30	17 (19%)	4	33
Mean	May 4	May 13	Jun 3	31	28 (41%)	5	65	Aug 1	Aug 6	Sep 1	32	21 (23%)	6	56

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.4	1.4	0.9	0.8	0.4
2006												0.6	0.9	1.3	1.9	0.4	0.5
2007													2.1	1.7	2.7	1.9	0.8
2008												1.7	2.7	3.1	2.7	1.6	1.2
2009											0.7	1.3	1.9	2.0	2.1	1.6	1.0
2010												1.3	2.0	2.7	2.0	1.4	0.9
2011											0.1	0.6	3.6	3.0	2.4	2.1	1.2
2012												2.3	4.0	2.1	2.7	1.0	1.2
2013												0.1	2.6	4.1	2.9	2.3	1.2
2014												0.3	2.0	2.7	2.4	1.7	0.9
Mean											0.09	0.8	2.2	2.4	2.3	1.5	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.1	0.06	0.09	0.7	3.3	3.9	4.9	0.1									1.0
2006	0.7	1.0	0.9	3.3	5.0	3.6	1.4	0.3									1.0
2007	3.0	3.0	3.0	4.3	3.4	1.7	0.1										0.7
2008	1.0	2.0	1.5	2.9	1.7	2.1	0.3	0.1									0.5
2009	1.0	0.8	0.9	3.3	1.9	1.0	0.7	0.1		0.1							0.5
2010	0.7	0.8	0.8	1.6	1.0	0.6	0.1	0.1									0.3
2011	1.3	1.3	1.3	3.7	3.4	1.7	1.1	0.1									0.8
2012	1.0	0.3	0.6	2.6	1.4	1.7											0.4
2013				1.7	1.4	2.3	0.3	0.3	0.1								0.5
2014	0.3	2.0	1.3	2.6	1.1	0.6	0.1	0.3									0.4
Mean	0.9	1.0	0.9	2.7	2.4	1.9	0.9	0.2	0.01		0.01						0.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	1		2
2006																1	1
2007														1	1		2
2008																	
2009													1	1			2
2010														1	1		2
2011															2	1	3
2012																	
2013													1				1
2014													1	2			3
Mean													0.3	0.6	0.6	0.1	1.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						1											1
2006				1													1
2007	4		4														
2008					1												1
2009				1													1
2010																	
2011																	
2012																	
2013																	
2014		1	1														
Mean	0.7	0.1	0.6	0.2	0.1	0.1											0.4

Eastern Kingbird is typically present at MBO from early May to late August, being one of the earliest species to leave in fall. The first Eastern Kingbird of spring has arrived between May 3 and 6 in six of ten years; the peak of spring migration was in week 8 or 9 from 2005 to 2009, and shifted somewhat earlier to week 7 or 8 from 2010 to 2014. Fall numbers have peaked in week 1 in seven years out of ten, and generally decline steadily over the first five weeks of the season. Eastern Kingbirds have been observed at MBO in each summer except 2009. Spring numbers have shown a slight increase over time, whereas fall counts have been declining. Note that while there was no formal banding in June 2007, one brood was banded at the nest.

NSHR: Northern Shrike / Pie-grièche grise (*Lanius excubitor*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 7	Apr 10	4	2 (3%)	1	2	Oct 24	Oct 30	Oct 30	7	5 (6%)	2	6
2006	Mar 31	Apr 6	Apr 18	19	13 (19%)	2	15	Oct 7	Oct 7	Oct 29	23	5 (5%)	1	5
2007	Mar 29	Mar 29	Mar 29	1	1 (1%)	1	1	Oct 18	Oct 25	Oct 30	13	9 (10%)	2	10
2008	Apr 16	Apr 16	Apr 26	11	7 (10%)	1	7	Oct 13	Oct 13	Oct 28	16	3 (3%)	1	3
2009	Apr 3	Apr 3	Apr 14	12	6 (9%)	1	6	Oct 28	Oct 30	Oct 30	3	2 (2%)	2	3
2010	Mar 28	Mar 28	Mar 29	2	2 (3%)	1	2							
2011								Oct 24	Oct 30	Oct 30	7	6 (7%)	2	7
2012	Mar 29	Apr 1	Apr 3	6	4 (6%)	2	5	Oct 24	Oct 24	Oct 24	1	1 (1%)	1	1
2013								Oct 27	Oct 27	Oct 30	4	2 (2%)	1	2
2014								Oct 19	Oct 19	Oct 28	10	2 (2%)	1	2
Mean	Apr 2	Apr 4	Apr 9	8	5 (7%)	1	3.8	Oct 20	Oct 22	Oct 28	9	4 (4%)	1	3.9

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.3			0.8		0.3		0.3									0.03
2006	0.3	0.1	0.2			0.1	0.1	1.2	0.9	0.1							0.2
2007	0.3		0.2			0.1	0.1										0.01
2008	0.3					0.08			0.1	0.7	0.1						0.1
2009			0.3	0.2	0.4	0.2	0.1	0.5	0.3								0.09
2010	0.4	0.1	0.09	0.08	0.3	0.2	0.3										0.03
2011	0.4		0.08		0.1	0.2											
2012	0.2			0.3	0.2	0.2	0.7										0.07
2013	0.1				0.07	0.04											
2014	0.4	0.5		0.1	0.2	0.2											
Mean	0.3	0.09	0.09	0.1	0.2	0.2	0.2	0.2	0.1	0.09	0.01						0.06

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																0.9	0.07
2006													0.1		0.1	0.4	0.05
2007															0.6	0.9	0.1
2008														0.3		0.1	0.03
2009																0.4	0.03
2010																	
2011																1.0	0.08
2012																0.1	0.01
2013																0.3	0.02
2014															0.1	0.1	0.02
Mean													0.01	0.03	0.09	0.4	0.04

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				1		1											
2006			1			1											
2007																	
2008										1							1
2009																	
2010	1					1											
2011																	
2012																	
2013																	
2014	2					2											
Mean	0.4		0.3	0.2		0.6				0.1							0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																1	1
2006																	
2007																	
2008														1	2	1	3
2009																1	1
2010																	
2011																1	1
2012																1	1
2013																1	1
2014															1		1
Mean														0.1	0.3	0.6	1.0

Northern Shrike is a regular but rare visitor to MBO from late October to late March or early April. Except for early arrivals in 2006 and 2008, and a late first sighting (not until winter) in 2010, Northern Shrikes generally reach MBO in the second half of October, almost always peaking in the last week of the season. Sightings have occurred in each month of winter, though most commonly in November and March. Spring observations have been recorded in seven years, only twice extending past week 3. Numbers have been similarly low across most years, although missed in three of the past four spring seasons.

BHVI: Blue-headed Vireo / Viréo à tête bleue (*Vireo solitarius*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 14	May 14	Jun 1	19	4 (7%)	1	4	Aug 22	Sep 30	Oct 24	64	25 (28%)	3	34
2006	Apr 30	May 18	May 25	26	10 (14%)	3	14	Sep 5	Sep 23	Oct 24	50	22 (24%)	4	34
2007	May 8	May 13	May 31	24	8 (11%)	2	9	Aug 30	Oct 2	Oct 14	46	21 (23%)	5	36
2008	Apr 20	Apr 20	Jun 1	43	22 (31%)	5	40	Aug 2	Oct 4	Oct 25	85	32 (35%)	10	82
2009	Apr 27	Apr 27	May 22	26	11 (16%)	3	19	Aug 18	Oct 1	Oct 15	59	29 (32%)	9	86
2010	May 5	May 15	May 22	18	6 (9%)	2	8	Aug 7	Oct 1	Oct 30	85	25 (27%)	6	44
2011	Apr 29	May 6	May 31	33	12 (17%)	3	16	Aug 6	Sep 25	Oct 4	60	16 (18%)	5	27
2012	May 2	May 15	May 17	16	7 (10%)	3	10	Sep 15	Oct 2	Oct 26	42	22 (24%)	5	42
2013	May 8	May 16	May 25	18	8 (11%)	2	10	Aug 1	Oct 8	Oct 23	84	21 (23%)	5	38
2014	Apr 22	Apr 22	May 28	37	6 (9%)	1	6	Sep 13	Sep 1	Oct 21	39	25 (27%)	8	60
Mean	May 1	May 7	May 26	26	9 (14%)	2	14	Aug 21	Sep 30	Oct 20	61	24 (26%)	6	48

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005														0.1		0.3	0.2	0.07
2006											0.1	0.3	0.3	1.1	0.1			0.2
2007												0.1	0.4	0.4	0.1	0.1		0.1
2008									0.7	0.3	1.4	1.1	0.7	1.3	0.1			0.6
2009										0.4	0.4	1.0	0.9					0.3
2010												0.3	0.3	0.6				0.1
2011											0.3	0.6	0.3	0.9	0.1	0.1		0.2
2012												0.6	0.6	0.3				0.1
2013												0.1	0.3	0.9	0.1			0.1
2014									0.1				0.1	0.3	0.3			0.09
Mean									0.09	0.1	0.4	0.5	0.6	0.2	0.06			0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.3	0.3	0.3	0.3	0.6	1.2	1.7	0.5	0.1	0.1	0.4
2006									0.4	0.7	1.0	0.6	1.3	0.7		0.1	0.4
2007								0.3	0.3	0.7	0.3	2.1	1.3	0.1			0.4
2008				0.3		0.1	0.1	0.9	0.6	0.6	4.0	4.1	0.7		0.1		0.9
2009						0.9			1.0	1.3	4.4	3.9	0.9				0.9
2010				0.1	0.4	0.1		0.1	0.3	0.7	1.7	1.9	0.3	0.4	0.1		0.5
2011				0.1		0.1		0.1		0.9	1.0	0.9	0.7				0.3
2012									0.1	0.9	2.7	1.9	0.3		0.1		0.5
2013				0.1			0.1	0.1	0.1	1.4	1.1	1.1	0.9		0.3		0.4
2014									1.6	3.0	2.6	0.6	0.6	0.3			0.7
Mean				0.07		0.2	0.07	0.1	0.2	0.8	1.0	2.1	1.8	0.4	0.1	0.07	0.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														1			1
2007													1				1
2008												1	3				4
2009											1			2			3
2010													1				1
2011											1	1					2
2012												1	1				2
2013														1			1
2014																	
Mean											0.2	0.3	0.6	0.4			1.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							2	1		2	3	5	5	1		1	20
2006									1	2	1	2	6	3			15
2007								1	1	2	1	8	5				18
2008									2	4	3	18	8	1			36
2009										2		21	15	3			41
2010							1		1	2	5	4	6	1	3	1	24
2011										4	2	4	2				12
2012										1	1	8	4				14
2013								1		6	1	2			1		11
2014										6	8	5	1	1	1		22
Mean							0.3	0.3	0.5	3.1	2.5	7.7	5.2	1.0	0.5	0.2	21.3

Blue-headed Vireo is the earliest spring and latest fall migrant among the four vireos seen at MBO. In five of ten years, the first spring arrivals have been observed before the end of April, although the peak of spring migration is most commonly week 8 in mid-May. In fall, there are scattered sightings over the first six weeks of the season and in the second half of October, but migration is primarily focused on weeks 7 to 10, on average peaking in week 9. Numbers have remained relatively consistent over the years, except for being somewhat higher in both spring and summer in 2008 and 2009.

WAVI: Warbling Vireo / Viréo mélodieux (*Vireo gilvus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 22	May 22	May 31	10	5 (8%)	1	5	Aug 3	Aug 3	Sep 22	51	9 (10%)	2	12
2006	May 7	May 29	Jun 4	29	21 (30%)	8	37	Aug 3	Aug 3	Sep 24	53	9 (10%)	1	9
2007	May 9	May 22	Jun 5	28	25 (36%)	5	53	Aug 3	Aug 4	Sep 19	48	15 (16%)	3	20
2008	May 6	May 26	Jun 5	31	31 (44%)	5	71	Aug 1	Sep 7	Sep 23	54	19 (21%)	3	28
2009	May 4	May 30	Jun 5	33	23 (33%)	6	46	Aug 2	Aug 28	Sep 21	51	13 (14%)	3	17
2010	May 2	May 7	Jun 5	35	26 (37%)	3	48	Aug 2	Sep 7	Sep 9	39	10 (11%)	2	12
2011	May 13	May 29	Jun 5	24	23 (33%)	10	53	Aug 1	Aug 2	Sep 25	56	9 (10%)	4	17
2012	May 5	May 10	Jun 5	32	32 (46%)	14	182	Aug 4	Sep 7	Sep 11	39	17 (19%)	5	34
2013	May 4	Jun 3	Jun 5	33	29 (41%)	6	97	Aug 1	Aug 18	Sep 25	56	41 (45%)	5	87
2014	May 8	May 16	Jun 4	28	28 (41%)	6	91	Aug 2	Sep 9	Sep 21	50	30 (33%)	7	55
Mean	May 8	May 22	Jun 4	28	24 (35%)	6	68	Aug 3	Aug 21	Sep 20	50	17 (19%)	4	29

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.3	0.4	0.08
2006												0.6	0.4	1.1	1.9	1.3	0.5
2007													1.4	2.3	3.0	0.9	0.8
2008												0.6	2.6	3.0	2.7	1.3	1.0
2009												0.3	0.7	1.3	1.7	2.6	0.7
2010												1.0	0.6	1.9	1.6	1.9	0.7
2011													0.7	2.0	3.3	1.6	0.8
2012												3.0	9.6	4.3	5.4	3.7	2.6
2013												0.6	2.7	3.7	2.7	4.1	1.4
2014												0.1	3.1	3.7	3.4	3.0	1.3
Mean												0.6	2.2	2.3	2.6	2.1	1.0

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.2	0.06	0.1	0.4	0.3	0.1	0.1			0.3	0.4						0.1
2006	0.4		0.2	0.3	0.1		0.1	0.3	0.3		0.1						0.10
2007	0.6	1.0	0.8	1.0	0.4	0.3	0.4	0.3	0.1	0.1	0.1						0.2
2008	1.8	0.2	1.0	0.4	0.4	0.6	0.6	0.9	0.6	0.4	0.1						0.3
2009	0.3		0.1	0.4	0.1	0.1	0.7	0.1	0.7		0.1						0.2
2010		0.7	0.4	0.1	0.3	0.3	0.1	0.1	0.7								0.1
2011		0.5	0.3	1.7	0.1		0.3	0.1		0.1							0.2
2012	1.8	2.3	2.0	0.7	0.4	0.7	0.9	0.6	1.6								0.4
2013	1.3	3.3	2.4	1.6	1.6	2.7	1.9	1.6	1.6	0.7	0.9						1.0
2014	1.3	1.5	1.4	0.4	0.7	0.4	1.4	1.9	2.6	0.3	0.1						0.6
Mean	0.6	0.6	0.6	0.7	0.5	0.5	0.7	0.6	0.8	0.2	0.2						0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007													3	4	2		9
2008													2		1		3
2009														2			2
2010												1		1	1		3
2011													1	1	1		3
2012												2	6		1		9
2013														2			2
2014													3				3
Mean												0.3	1.5	1.0	0.6		3.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						1				1	1						3
2006					1		1	1	2								5
2007				2	2		1										5
2008				2	2	1	2	4	2	2							15
2009				2			1										3
2010		2	2		2	1	1	1	1								6
2011				4													4
2012	2	6	8	2			1			1							4
2013		7	7		3				2								5
2014	1	2	3						2								2
Mean	0.5	1.9	2.2	1.2	1.0	0.3	0.7	0.6	1.0	0.3	0.1						5.2

Warbling Vireo is one of two vireos breeding at MBO, and is typically present from early May through late September. Spring arrival is remarkably consistent, between May 2 and 9 in eight of ten years; the peak of migration varies from week 7 to 10, and overall, numbers are comparable across those four weeks. Numbers observed in fall are generally much smaller, although 50% more individuals have been banded in fall. Counts are fairly consistent over the first six weeks of fall, then taper off quickly; curiously the last bird of the season has been observed in week 8 in eight years out of ten. Spring, summer, and fall numbers have all been well above average since 2012.

PHVI: Philadelphia Vireo / Viréo de Philadelphie (*Vireo philadelphicus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 21	May 21	May 21	1	1 (2%)	1	1	Aug 4	Sep 11	Oct 1	59	15 (17%)	4	26
2006								Aug 14	Sep 5	Oct 2	50	11 (12%)	2	14
2007								Aug 9	Aug 9	Sep 28	51	6 (7%)	2	8
2008	May 18	May 18	May 20	3	2 (3%)	1	2	Aug 14	Sep 2	Oct 2	50	12 (13%)	3	17
2009	May 2	May 2	Jun 1	31	5 (7%)	1	5	Aug 19	Aug 19	Sep 10	23	3 (3%)	2	5
2010								Aug 21	Sep 8	Sep 24	35	12 (13%)	4	17
2011	May 25	May 25	Jun 3	10	3 (4%)	1	3	Aug 26	Sep 8	Oct 4	40	10 (11%)	2	13
2012	May 14	May 14	May 24	11	2 (3%)	1	2	Aug 24	Sep 12	Sep 27	35	7 (8%)	3	11
2013	May 23	May 28	May 30	8	3 (4%)	2	4	Aug 7	Sep 14	Sep 18	43	10 (11%)	3	16
2014	May 15	May 27	May 27	13	2 (3%)	2	3	Aug 8	Sep 15	Sep 26	50	20 (22%)	5	36
Mean	May 16	May 19	May 26	11	3 (4%)	1	2.0	Aug 14	Sep 4	Sep 26	44	11 (12%)	3	16

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1			0.02
2006																	
2007																	
2008														0.3			0.03
2009												0.1	0.1	0.1	0.1	0.1	0.07
2010																	
2011															0.3	0.1	0.04
2012													0.1		0.1		0.03
2013															0.4	0.1	0.06
2014													0.1		0.3		0.04
Mean												0.01	0.04	0.06	0.1	0.04	0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1	0.1	0.1	0.1	0.3	0.9	0.7	0.7	0.7					0.3
2006					0.1		0.4	0.4	0.7			0.3					0.2
2007					0.6			0.3				0.3					0.09
2008					0.1		0.1	1.1	0.6	0.1	0.1	0.1					0.2
2009						0.3			0.4								0.05
2010						0.1		0.1	0.7	1.0	0.4						0.2
2011							0.1	0.1	0.4	0.6	0.4		0.1				0.1
2012							0.1		0.3	0.9		0.3					0.1
2013				0.1			0.3	0.3	0.1	1.4							0.2
2014					0.1		0.4	1.0	0.6	2.0	0.9	0.1					0.4
Mean				0.03	0.1	0.06	0.2	0.4	0.5	0.7	0.3	0.2	0.01				0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008														1			1
2009																	
2010																	
2011																	
2012															1		1
2013																	
2014																	
Mean														0.1	0.1		0.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								2	3	3	2	1					11
2006					1			1	1			2					5
2007								1									1
2008							1	5	2		1						9
2009									1								1
2010						1		1	4	4	1						11
2011							1	1	3	2	3		1				11
2012							1			4		1					6
2013								1	1	5							7
2014					1		2	4	2	6	3						18
Mean					0.2	0.1	0.5	1.6	1.7	2.4	1.0	0.4	0.1				8.0

Philadelphia Vireo is the least common vireo at MBO, especially in spring, when it has been missed entirely in three years, and only two individuals have been banded, compared to 80 in fall. Except for 2009, when sightings spanned five weeks, spring observations are usually limited to one or two weeks, most commonly centered around week 9. Fall numbers are somewhat greater, and although spread out from week 1 to 10, there is a distinct mid-season peak that has been in week 7 for the past five years, although it was in week 5 or 6 in four of the previous five years. Numbers have generally been consistent across years except for lows in 2007 and 2009, and a record high in 2014.

REVI: Red-eyed Vireo / Viréo aux yeux rouges (*Vireo olivaceus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 19	May 28	Jun 3	16	15 (25%)	9	35	Aug 2	Sep 21	Oct 6	66	53 (60%)	18	250
2006	May 18	May 21	Jun 5	19	17 (25%)	3	29	Aug 1	Sep 1	Oct 17	78	60 (66%)	9	186
2007	May 21	May 31	Jun 5	16	13 (19%)	6	33	Aug 1	Aug 26	Oct 24	85	51 (56%)	17	177
2008	May 18	Jun 2	Jun 5	19	12 (17%)	5	23	Aug 1	Aug 12	Oct 12	73	52 (57%)	10	187
2009	May 19	Jun 1	Jun 5	18	14 (20%)	4	22	Aug 1	Aug 24	Oct 8	69	53 (58%)	9	152
2010	May 16	Jun 5	Jun 5	21	15 (21%)	4	25	Aug 1	Sep 7	Oct 19	80	61 (67%)	12	203
2011	May 18	May 29	Jun 5	19	16 (23%)	12	68	Aug 1	Sep 6	Oct 7	68	57 (63%)	13	235
2012	May 12	May 28	Jun 5	25	22 (31%)	7	58	Aug 1	Aug 18	Oct 5	66	62 (68%)	13	266
2013	May 17	May 31	Jun 5	20	17 (24%)	7	58	Aug 1	Aug 27	Oct 11	72	62 (68%)	13	247
2014	May 13	May 27	Jun 4	23	22 (32%)	7	65	Aug 1	Aug 9	Oct 1	62	60 (66%)	18	455
Mean	May 17	May 29	Jun 4	20	16 (24%)	6	42	Aug 1	Aug 27	Oct 11	72	57 (63%)	13	236

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.7	2.4	2.6	0.6
2006														1.0	1.9	1.3	0.4
2007														0.1	2.3	2.3	0.5
2008														0.3	1.3	1.7	0.3
2009														0.7	0.6	1.9	0.3
2010														0.4	1.1	2.0	0.4
2011														0.4	4.3	5.0	1.0
2012												0.4		2.4	3.9	1.6	0.8
2013														2.0	2.7	3.6	0.8
2014													0.4	1.9	3.3	4.3	1.0
Mean													0.09	1.0	2.4	2.6	0.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.3	0.8	1.0	1.0	2.0	2.3	3.1	6.3	4.0	8.3	6.9	2.0	0.2				2.8
2006	1.8	2.8	2.3	3.1	3.3	2.1	3.9	4.4	2.4	3.6	1.7	1.7	0.1		0.1		2.0
2007	3.0	1.0	2.1	2.4	2.7	3.6	5.3	4.9	4.1	0.7	0.6	0.4	0.3	0.1		0.1	1.9
2008	1.6	1.8	1.7	4.1	5.0	2.9	1.9	4.7	4.3	1.1	0.1	1.9	0.6	0.1			2.1
2009	0.3	1.3	0.9	2.7	1.6	4.1	5.9	2.1	1.9	0.9	1.0	1.0	0.6				1.7
2010	1.0	2.5	2.0	4.4	5.0	2.7	3.3	2.7	5.0	2.7	1.3	1.1	0.1	0.3	0.3		2.2
2011	2.3	4.8	3.7	6.4	5.6	6.3	3.1	3.6	4.4	2.0	1.0	0.7	0.4				2.6
2012	2.3	1.5	1.9	4.6	4.1	5.6	5.9	5.1	5.4	3.3	2.6	1.1	0.3				2.9
2013	1.7	1.5	1.6	5.1	4.4	4.0	5.4	3.6	2.3	4.7	3.4	1.7	0.4	0.1			2.7
2014	2.7	4.3	3.6	8.3	7.7	7.1	9.4	9.6	9.0	7.0	5.3	1.6					5.0
Mean	1.8	2.0	1.9	4.2	4.1	4.1	4.7	4.7	4.3	3.4	2.4	1.3	0.3	0.07	0.04	0.01	2.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	1	1	3
2006															1	1	2
2007															3		3
2008															1	1	2
2009														1		2	3
2010														1	1		2
2011															4	1	5
2012														2	1		3
2013															2	1	3
2014													1		4	2	7
Mean													0.1	0.5	1.8	0.9	3.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					7	2	4	27	5	35	33	3	1				117
2006				1		2	6	8	6	10	4	5					42
2007				3	8	5	11	13	16	1	2	1				1	62
2008				4	12	5	4	14	14	7		9	1				70
2009		4	4	10	4	9	14	2	5	4	2	4	2				56
2010		9	9	12	9	4	14	7	20	15	8	4		1	2		96
2011	2	10	12	6	4	1	5	4	11	3	2	2	3				41
2012	3	3	6	13	9	8	9	10	8	8	4	4	2				75
2013		4	4	9	7	5	7	13	6	13	12	6					78
2014	1	7	8	16	6	6	11	23	26	23	10	5					126
Mean	1.0	4.1	4.8	7.4	6.6	4.7	8.5	12.1	11.7	11.9	7.7	4.3	1.0	0.1	0.2	0.1	76.3

Red-eyed Vireo is by far the most common vireo at MBO, present annually from mid-May to October. Spring arrival tends to be consistent, with the first sighting between May 16 and 19 in seven years out of ten; just as often the spring peak is not until week 10. Fall migration is longer, observed weekly until at least week 10 except in 2014, and extending to week 11 or beyond in half of the years. Mean daily counts are fairly stable over the first half of fall, but based on banding numbers, the peak of migration appears to be in the first half of September. Like Warbling Vireo, the breeding population has grown notably in recent years. Similar to Philadelphia Vireo, fall numbers were lowest in 2007 and 2009, and at record levels in 2014.

BLJA: Blue Jay / Geai bleu (*Cyanocitta cristata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 8	Jun 3	60	51 (86%)	11	159	Aug 1	Sep 28	Oct 30	91	88 (100%)	45	1334
2006	Mar 28	May 16	Jun 5	70	68 (99%)	24	498	Aug 1	Sep 23	Oct 30	91	91 (100%)	50	1510
2007	Mar 28	Apr 3	Jun 3	68	67 (96%)	18	420	Aug 1	Sep 29	Oct 30	91	91 (100%)	72	1098
2008	Mar 28	May 26	Jun 4	69	67 (96%)	22	386	Aug 1	Sep 20	Oct 30	91	91 (100%)	36	1241
2009	Mar 28	Apr 20	Jun 5	70	66 (96%)	14	254	Aug 1	Sep 24	Oct 30	91	90 (99%)	40	1086
2010	Mar 28	May 4	Jun 5	70	64 (91%)	34	266	Aug 1	Sep 22	Oct 30	91	91 (100%)	220	2457
2011	Mar 28	May 26	Jun 5	70	68 (97%)	18	353	Aug 2	Oct 5	Oct 30	90	83 (91%)	65	1476
2012	Mar 28	Apr 11	Jun 5	70	67 (96%)	14	385	Aug 1	Sep 23	Oct 30	91	91 (100%)	125	2283
2013	Mar 28	May 8	Jun 5	70	68 (97%)	55	519	Aug 1	Oct 4	Oct 30	91	91 (100%)	90	1537
2014	Mar 29	May 14	Jun 2	66	65 (96%)	32	404	Aug 1	Sep 19	Oct 30	91	90 (99%)	83	1720
Mean	Mar 28	May 1	Jun 4	68	65 (95%)	24	364	Aug 1	Sep 25	Oct 30	91	90 (99%)	83	1574

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	2.3	1.5		1.5	3.3	2.2		6.0	2.3	2.2	2.6	2.7	2.3	2.3	0.7	4.0	2.7
2006	4.9	3.6	3.6	1.8	2.7	3.4	4.3	10.5	5.7	8.1	9.1	11.6	7.4	8.0	5.0	2.9	7.2
2007	5.4	5.1	2.0	2.2	6.6	4.7	10.0	7.0	9.0	8.7	5.4	5.4	4.7	3.6	3.6	2.6	6.0
2008	4.4	1.8	2.0	0.3		2.2	3.1	4.6	3.4	6.6	6.6	5.9	7.9	5.6	8.1	3.4	5.5
2009	5.3	6.5	2.3	6.2	7.1	6.0	3.0	3.7	4.4	6.7	3.4	3.7	3.4	2.4	1.9	4.1	3.7
2010	6.5	5.0	3.9	5.8	4.6	5.3	4.6	1.4	2.3	3.3	2.9	11.0	2.3	5.6	2.0	2.7	3.8
2011	4.3	3.0	3.5	4.5	2.6	3.7	6.1	3.4	4.3	6.0	4.1	6.1	5.3	3.9	6.4	4.7	5.0
2012	6.4	3.5	8.3	3.0	2.4	5.0	8.0	5.0	8.3	6.7	6.0	5.0	4.6	4.7	4.9	1.9	5.5
2013	2.3	2.0	2.9	2.8	3.6	2.9	5.1	4.0	3.6	6.7	6.1	19.3	7.6	8.6	4.6	8.6	7.4
2014	5.8	4.3	4.7	2.0	2.6	3.7	6.8	4.0	6.4	11.3	6.9	6.7	8.1	4.0	3.1	1.5	5.9
Mean	5.1	3.7	3.5	3.3	4.3	4.1	5.7	4.9	5.0	6.7	5.3	7.7	5.4	4.9	4.0	3.7	5.3

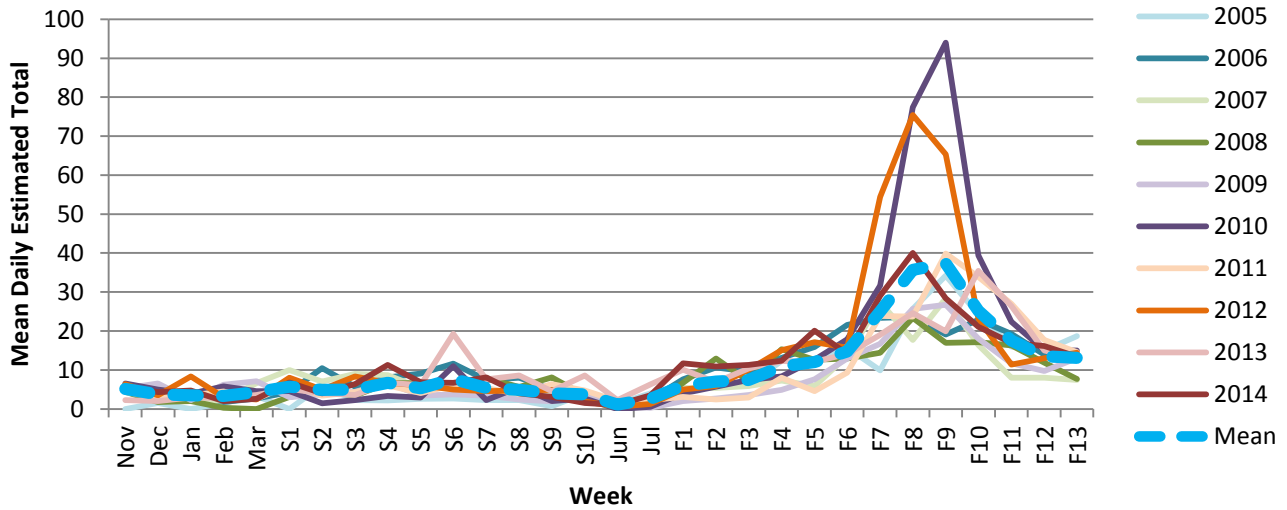
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.3	4.0	2.7	4.3	7.1	6.0	12.4	11.7	15.7	9.9	25.7	34.2	24.3	16.0	15.1	18.7	15.2
2006	1.3	2.4	1.9	7.6	10.6	9.6	13.1	15.9	21.6	23.4	23.6	19.1	22.9	20.6	13.9	14.0	16.6
2007	0.6	2.0	1.2	5.4	5.4	5.9	7.3	5.9	13.6	27.4	17.7	28.4	16.4	8.0	8.0	7.4	12.1
2008	1.2	0.6	0.9	6.7	12.1	8.1	15.3	12.6	12.9	14.1	23.4	18.0	18.1	16.3	11.9	7.7	13.6
2009	0.7	0.3	0.4	2.0	2.7	3.6	4.9	7.6	12.9	16.7	25.7	26.7	18.0	11.7	9.7	13.0	11.9
2010		0.5	0.3	4.0	5.7	7.4	8.3	12.6	17.9	31.7	77.4	94.0	39.4	22.4	15.1	15.0	27.0
2011	2.0	2.3	2.1	3.1	2.4	2.9	8.0	4.6	9.3	23.9	23.7	39.9	33.9	27.0	17.7	14.6	16.2
2012	0.5	1.3	0.9	5.0	5.9	10.1	15.1	17.1	15.7	54.4	75.4	65.3	23.1	11.4	13.0	14.4	25.1
2013	2.3	6.3	4.6	10.1	6.9	10.4	12.3	12.1	14.1	19.0	24.6	19.9	35.4	26.4	15.0	13.3	16.9
2014	1.0	3.5	2.4	11.7	10.9	11.3	12.4	20.1	14.1	29.0	40.0	28.4	21.1	17.0	16.1	13.4	18.9
Mean	1.1	2.6	1.9	6.0	7.0	7.5	10.9	12.0	14.8	25.0	35.7	37.4	25.3	17.7	13.6	13.2	17.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	3			2	1	6											
2006					1	1			1			3	2				6
2007	1					1							1	1	2		4
2008													1	1			2
2009											1						1
2010	1					1											
2011	1					1											
2012	2	2		2	1	7				1	1	1			1		4
2013																	
2014		1				1						1		1			2
Mean	1.0	0.4		0.7	0.4	2.0			0.5	0.1	0.3	0.4	0.4	0.3	0.3		1.9

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1			2	3	3		7	5	1		2	2	26
2006							1	1	1	2	1	1	1	5	3		16
2007											2	4	2	1			9
2008					2		4	2	2	9	7	1	1				28
2009							1	2	3	4	1	2	3		1	1	18
2010							1		2	6	18	9	3	1	1		41
2011							1		1	1	4	7		2	2		18
2012						1		1	1	9	24	9	2	1	1		49
2013		1	1				1			5	5	4	12	3	2	3	35
2014		2	2	3	1		2	1	2	7	17	23	9	1	4	2	72
Mean		0.3	0.3	0.4	0.3	0.1	1.3	1.0	1.5	4.3	8.6	6.5	3.4	1.4	1.6	0.8	31.2

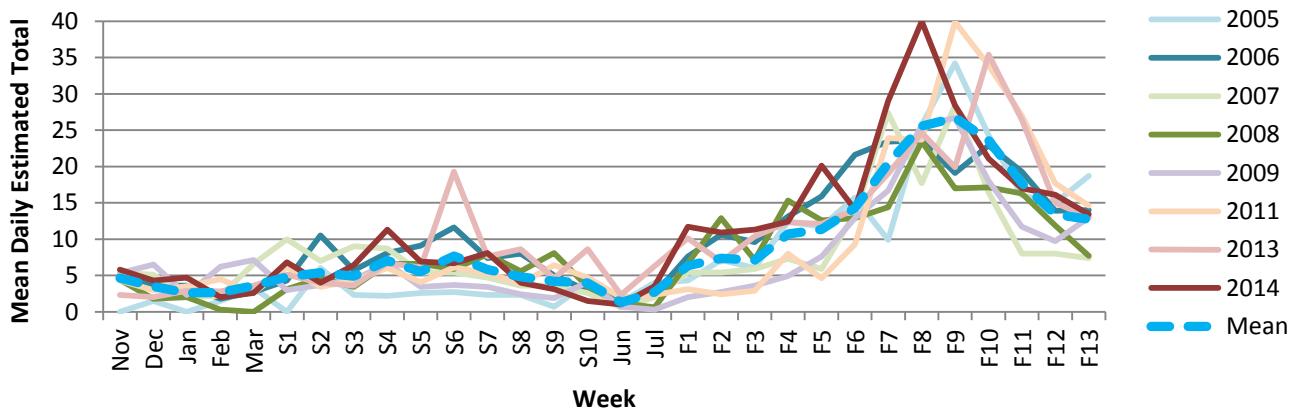
Blue Jays are common at MBO throughout most of the year, although somewhat less so in summer; June 2010 is the only study period in MBO's history that none were observed. Numbers tend to be fairly stable through most of winter and early spring, but peak between mid-April and early May before declining for the summer. Fall counts build steadily to a peak that is almost always in weeks 8 or 9. There is no clear pattern to spring numbers over the years, but fall counts tend to be higher in even-numbered years, most notably 2010 and 2012.

Mean daily estimated total of Blue Jays throughout the year

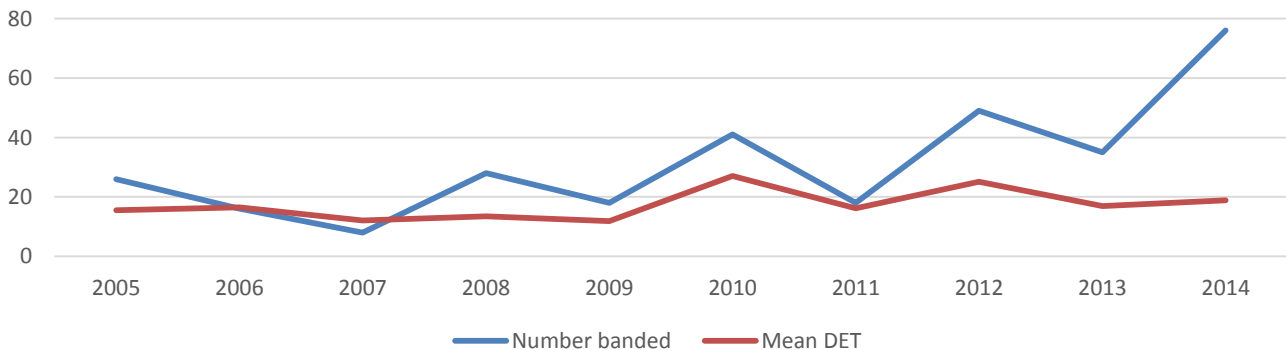


The figure above illustrates the degree to which numbers at the peak of migration in 2010 and 2012 were higher than usual, even though abundance throughout the rest of the year was fairly typical. The figure below shows the lesser degree of variability throughout the seasons in years other than 2010 and 2012. The bottom figure highlights the pattern from 2006-14 of higher totals in the even-numbered years, reflected more distinctly in the number of birds banded than the daily estimated total.

Mean daily estimated total of Blue Jays throughout the year (2010 and 2012 excepted)



Fall Blue Jay numbers, 2005-2014



AMCR: American Crow / Corneille d'Amérique (*Corvus brachyrhynchos*)

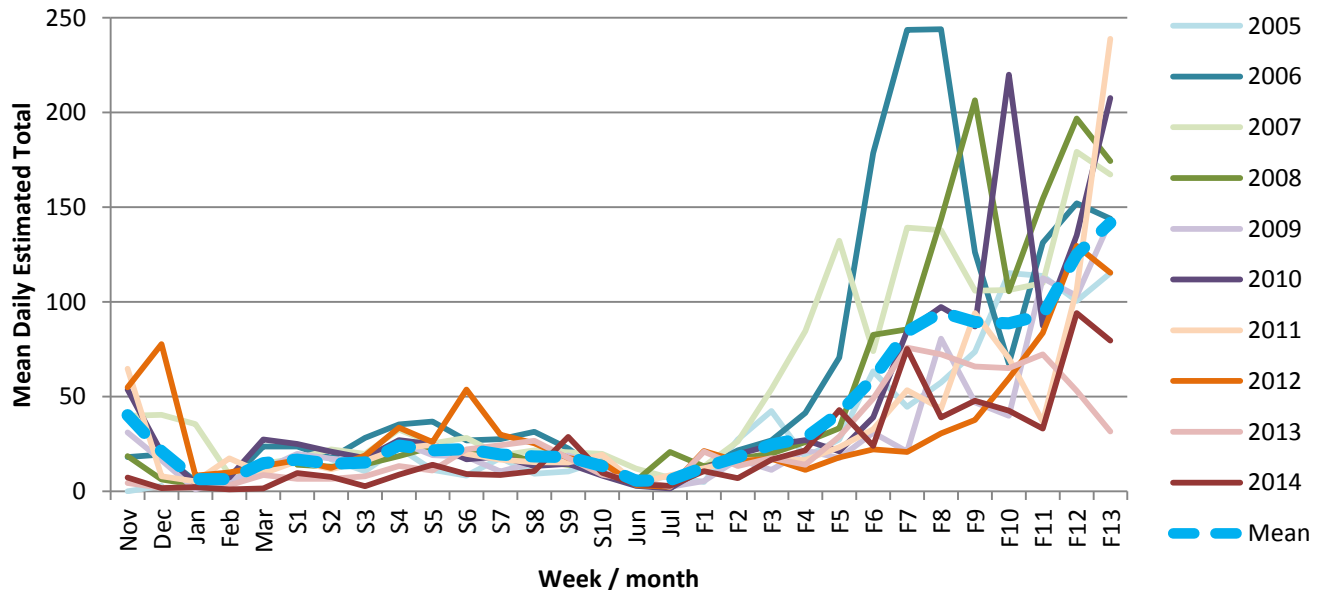
Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 11	Jun 3	60	59 (100%)	75	798	Aug 1	Oct 23	Oct 30	91	87 (99%)	240	5326
2006	Mar 28	Apr 27	Jun 5	70	69 (100%)	113	1800	Aug 1	Sep 17	Oct 30	91	91 (100%)	500	10218
2007	Mar 28	May 1	Jun 5	70	70 (100%)	60	1586	Aug 1	Oct 21	Oct 30	91	91 (100%)	349	9314
2008	Mar 28	Apr 18	Jun 5	70	70 (100%)	50	1178	Aug 1	Oct 22	Oct 30	91	91 (100%)	500	8814
2009	Mar 28	Apr 18	Jun 5	70	69 (100%)	36	1203	Aug 1	Oct 15	Oct 30	91	91 (100%)	319	4561
2010	Mar 28	May 28	Jun 5	70	70 (100%)	44	1313	Aug 1	Oct 24	Oct 30	91	91 (100%)	482	7437
2011	Mar 28	May 1	Jun 5	70	70 (100%)	65	1244	Aug 1	Oct 27	Oct 30	91	90 (99%)	446	5334
2012	Mar 28	May 6	Jun 5	70	70 (100%)	200	1745	Aug 1	Oct 17	Oct 30	91	91 (100%)	355	4084
2013	Mar 28	May 23	Jun 5	70	69 (99%)	51	1019	Aug 1	Sep 18	Oct 30	91	91 (100%)	205	4062
2014	Mar 29	May 29	Jun 4	68	64 (94%)	60	750	Aug 1	Oct 21	Oct 30	91	91 (100%)	185	3741
Mean	Mar 28	May 7	Jun 4	69	68 (99%)	75	1264	Aug 1	Oct 14	Oct 30	91	90 (100%)	358	6289

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	128.8	3.0		4.0	13.3	42.1		17.0	10.7	23.0	11.3	8.3	17.7	9.4	10.6	16.4	13.5
2006	18.2	19.4	5.5	5.2	23.7	14.7	23.7	17.7	28.3	35.3	36.9	26.9	27.6	31.4	22.7	9.3	26.1
2007	40.0	40.4	35.5	8.8	14.8	30.3	17.3	22.1	19.9	32.7	25.4	28.3	18.9	21.6	20.6	19.9	22.7
2008	18.6	6.3	3.4	3.7		9.0	14.1	13.0	14.3	18.7	23.6	20.6	20.7	15.7	14.0	13.6	16.8
2009	31.1	16.5	1.0	6.2	11.5	13.1	19.9	17.3	15.6	26.1	19.1	18.3	10.6	15.3	19.0	13.1	17.4
2010	53.7	20.6	4.3	7.3	27.5	26.6	25.1	21.0	17.7	27.1	24.9	16.9	18.4	13.4	14.6	8.4	18.8
2011	64.7	8.0	5.3	17.5	9.6	24.3	16.0	11.7	16.1	22.7	24.6	19.9	16.7	15.4	15.3	19.3	17.8
2012	54.9	77.8	8.3	10.0	13.4	39.3	16.4	12.4	18.9	33.6	26.1	53.7	29.9	25.4	17.6	15.3	24.9
2013	4.5	1.9	2.0	3.2	8.6	4.5	6.7	6.6	8.0	13.4	11.1	22.1	24.4	26.7	17.6	8.9	14.6
2014	7.4	1.8	2.3	1.0	1.6	2.6	9.7	7.6	2.7	8.9	14.0	9.1	8.7	10.7	28.7	9.8	11.0
Mean	40.3	21.2	6.5	6.4	15.0	19.3	16.7	14.5	15.2	24.2	21.7	22.4	19.4	18.5	18.1	13.4	18.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	5.2	8.2	6.8	4.9	27.4	42.4	18.1	27.4	63.4	44.6	57.4	73.7	115.2	113.7	100.6	115.3	60.5
2006	4.8	1.8	3.2	12.3	21.6	26.9	41.4	70.6	178.6	243.6	243.9	126.3	67.4	131.3	152.0	144.0	112.3
2007	12.0	7.2	9.8	13.3	26.4	54.0	84.6	132.3	74.0	139.3	137.9	106.0	106.3	110.0	179.3	167.3	102.4
2008	5.6	20.8	13.2	13.3	17.3	20.0	26.0	33.3	82.6	85.6	143.6	206.4	105.6	154.4	196.9	174.3	96.9
2009	4.3	2.5	3.3	5.4	17.0	11.3	21.7	17.7	31.0	21.0	80.7	47.0	40.0	112.6	103.3	142.9	50.1
2010	3.0	1.5	2.0	12.1	19.6	24.3	27.0	21.1	39.1	84.7	97.3	87.0	219.9	87.6	135.1	207.6	81.7
2011	4.3	8.5	6.7	12.3	16.6	16.7	16.6	23.3	32.9	53.4	43.7	94.1	70.3	36.7	106.6	238.9	58.6
2012	3.3	2.5	2.9	21.3	15.9	17.3	11.4	18.0	22.1	20.9	30.7	37.7	59.6	83.6	129.6	115.4	44.9
2013	6.0	2.5	4.0	21.0	13.4	17.7	14.0	28.9	49.0	75.9	72.3	66.0	65.1	72.3	53.1	31.6	44.6
2014	3.7	3.0	3.3	10.7	6.9	16.7	21.7	42.9	24.0	75.3	39.0	47.9	42.6	33.1	94.1	79.6	41.1
Mean	5.6	6.0	5.8	12.7	18.2	24.7	28.3	41.5	59.7	84.4	94.6	89.4	88.8	93.2	125.1	141.7	69.3

American Crow is among the most abundant species at MBO in all seasons, with observations throughout all study periods, including daily sightings on all but two days of spring and fall migration monitoring over ten years. Although most of the population is likely resident, there are nonetheless seasonal patterns in observation, with a tendency for a spring peak in late April, and a fall peak that builds from around mid-September to a maximum in late October. Fall numbers have steadily declined over the years.

Mean daily estimated total of American Crows throughout the year



FICR: Fish Crow / Corneille de rivage (*Corvus ossifragus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011														
2012	Apr 20	Apr 20	Apr 20	1	1 (1%)	1	1							
2013														
2014														
Mean	Apr 20	Apr 20	Apr 20	1	1 (1%)	1	0.1							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012										0.1							0.01
2013																	
2014																	
Mean										0.01							<0.01

A lone Fish Crow was observed at MBO on April 20, 2012, part of a growing northward expansion of the species, in particular an influx of sightings along the lower Great Lakes and St. Lawrence Valley that spring.

CORA: Common Raven / Grand Corbeau (*Corvus corax*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 9	Apr 9	Apr 18	10	2 (3%)	1	2	Aug 22	Oct 22	Oct 30	70	25 (28%)	4	38
2006	Mar 28	May 24	Jun 4	69	26 (38%)	2	27	Aug 2	Aug 5	Oct 26	86	31 (34%)	2	34
2007	Apr 20	May 6	Jun 1	43	15 (21%)	3	17	Aug 4	Oct 21	Oct 30	88	39 (43%)	6	61
2008	Apr 2	Apr 30	Jun 3	63	21 (30%)	2	26	Aug 11	Sep 1	Oct 26	77	25 (27%)	2	32
2009	Apr 18	Apr 20	Jun 1	45	10 (14%)	2	13	Aug 9	Oct 23	Oct 29	82	30 (33%)	3	37
2010	Apr 15	Apr 15	May 24	40	8 (11%)	1	8	Aug 2	Oct 13	Oct 30	90	27 (30%)	6	42
2011	Mar 31	May 6	Jun 5	67	23 (33%)	2	24	Aug 1	Sep 18	Oct 29	90	38 (42%)	6	57
2012	Mar 31	May 5	Jun 1	63	27 (39%)	3	32	Aug 8	Sep 27	Oct 29	83	50 (55%)	4	69
2013	Mar 30	May 3	May 31	63	41 (59%)	4	53	Aug 3	Sep 6	Oct 29	88	48 (53%)	4	81
2014	Mar 30	Apr 27	Jun 1	64	41 (60%)	5	66	Aug 3	Oct 22	Oct 30	89	60 (66%)	12	120
Mean	Apr 5	Apr 29	May 27	53	21 (31%)	2	27	Aug 6	Sep 27	Oct 28	84	37 (41%)	5	57

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2		0.2							0.03
2006	0.1	0.07	0.2		0.2	0.1	0.1				0.3	0.6	0.9	0.9	1.0	0.1	0.4
2007	0.06		0.3	0.2	0.4	0.2				0.3	0.3	1.0	0.1	0.4		0.3	0.2
2008			0.2	0.6		0.2	0.3	0.1	0.1	0.3	0.9	0.6	0.1	0.6	0.4	0.3	0.4
2009	0.1	0.5	0.8	0.7		0.3				0.6	0.3	0.4	0.1	0.1	0.1	0.1	0.2
2010	0.4	0.3	1.0	0.3	0.3	0.5			0.1	0.1	0.3	0.1	0.1	0.1	0.1		0.1
2011	0.3		0.5	1.2	0.3	0.5	0.1			0.7	0.6	0.6	0.3	0.3	0.3	0.6	0.3
2012	0.5		0.3		1.2	0.5	0.3	0.1	0.3	0.4	0.4	0.7	0.3	0.4	0.9	0.7	0.5
2013	0.1	0.1	0.4	0.6	0.6	0.4	0.1	0.1	1.0	0.9	1.1	2.0	1.1	0.7	0.1	0.3	0.8
2014	0.6	0.3		0.1	0.2	0.2	0.5	0.4	0.1	1.9	2.0	1.0	1.4	0.9	0.6	0.8	1.0
Mean	0.2	0.1	0.4	0.4	0.3	0.3	0.2	0.1	0.2	0.5	0.6	0.7	0.5	0.4	0.4	0.3	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.1	0.4	0.1	0.4	0.3	0.8	0.7	1.2	0.9	0.9	0.4
2006		0.2	0.09	0.7	0.3	0.4	0.3	0.3	0.6		0.1	0.3	0.7	0.6	0.1	0.4	0.4
2007		0.2	0.08	0.4	0.3	0.4	0.7	1.1	1.0	0.7	0.7	0.7	0.9	0.1	1.3	0.3	0.7
2008					0.3			0.4	0.3	0.7	0.6	0.7	0.1	0.1	1.1	0.1	0.4
2009	0.7	0.3	0.4		0.6	0.1	0.1	0.3	0.3		0.9	0.3	0.6	0.6	1.0	0.6	0.4
2010				0.1	0.4	0.3	0.3	0.4	0.4	0.1	0.1	0.4	0.3	1.6	0.3	1.1	0.5
2011	1.3	2.0	1.7	0.6	0.4	0.1	0.3	0.3	0.7	1.1	0.7	0.9	0.7	0.4	1.3	0.6	0.6
2012	0.5	0.8	0.6		0.7	0.6	1.3	0.7	0.7	0.6	0.4	1.1	1.1	1.3	0.6	0.7	0.8
2013	0.3	1.0	0.7	0.4	0.3	0.4	0.4	0.7	1.7	1.1	2.0	1.0	1.1	0.4	1.0	0.9	0.9
2014	0.7	0.3	0.4	0.4	0.1	1.0	1.0	0.7	0.7	1.3	1.7	1.4	1.7	1.4	3.4	2.1	1.3
Mean	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.7	0.6	0.8	0.8	0.8	0.8	1.1	0.8	0.6

Common Raven is an uncommon year-round resident at MBO, with numbers generally varying little throughout the year, although often a bit higher in mid-spring and late fall. In most seasons, there has been an increasing trend over the years.

HOLA: Horned Lark / Alouette hausse-col (*Eremophila alpestris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008								Oct 23	Oct 23	Oct 23	1	1 (1%)	20	20
2009	Apr 10	Apr 10	Apr 10	1	1 (1%)	2	2							
2010								Oct 30	Oct 30	Oct 30	1	1 (1%)	10	10
2011														
2012														
2013														
2014								Sep 27	Sep 27	Oct 28	32	2 (2%)	2	3
Mean	Apr 10	Apr 10	Apr 10	1	1 (1%)	2	0.2	Oct 16	Oct 16	Oct 27	11	1 (1%)	11	3.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006					0.08	0.02											
2007	1.3	0.7				0.6											
2008																	
2009								0.3									0.03
2010																	
2011																	
2012		0.3				0.04											
2013																	
2014	0.6					0.1											
Mean	0.2	0.1			0.01	0.08		0.03									<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008															2.9		0.2
2009																	
2010																1.4	0.1
2011																	
2012																	
2013																	
2014												0.3				0.1	0.03
Mean												0.03			0.3	0.2	0.04

Horned Lark is a rare species at MBO, with observations on only ten dates over ten years, half of them in winter representing late fall or early spring migrants. Most observations have involved small flocks flying past.

PUMA: Purple Martin / Hirondelle noire (*Progne subis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 17	May 17	May 25	9	3 (5%)	4	6	Aug 7	Aug 11	Aug 24	18	11 (12%)	7	32
2006	May 9	May 9	May 9	1	1 (1%)	1	1	Aug 1	Aug 15	Aug 31	31	21 (23%)	8	73
2007	May 19	May 19	May 31	13	2 (3%)	1	2	Aug 15	Aug 15	Aug 26	12	5 (5%)	25	38
2008	May 21	May 28	May 28	8	2 (3%)	2	3	Aug 1	Aug 1	Aug 31	31	19 (21%)	12	54
2009	May 14	May 14	May 14	1	1 (1%)	1	1							
2010														
2011								Aug 12	Aug 12	Aug 12	1	1 (1%)	1	1
2012								Aug 5	Aug 14	Aug 18	14	4 (4%)	8	18
2013	May 21	May 21	May 21	1	1 (1%)	1	1	Aug 4	Aug 22	Aug 27	24	6 (7%)	5	14
2014	May 19	May 19	May 19	1	1 (1%)	1	1	Aug 6	Aug 21	Aug 24	19	4 (4%)	6	10
Mean	May 17	May 18	May 21	5	2 (2%)	2	1.5	Aug 6	Aug 13	Aug 24	19	9 (10%)	9	24

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.7	0.1		0.1
2006													0.1				0.01
2007														0.1		0.1	0.03
2008														0.1	0.3		0.04
2009													0.1				0.01
2010																	
2011																	
2012																	
2013														0.1			0.01
2014														0.1			0.01
Mean													0.03	0.1	0.04	0.01	0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.7	3.0	0.6	0.3										0.4
2006	0.2		0.09	3.1	3.6	3.1	0.4	0.1									0.8
2007						5.1	0.3										0.4
2008		0.2	0.1	4.9	1.3	1.4		0.1									0.6
2009																	
2010																	
2011						0.1											0.01
2012				0.1	2.0	0.4											0.2
2013				0.9		0.3	0.9										0.2
2014				0.3		1.0	0.1										0.1
Mean	0.04	0.02	0.02	1.0	1.0	1.2	0.2	0.03									0.3

Purple Martin was a fairly common early fall migrant from 2005 to 2008, but was not observed at all in fall 2009 or 2010, and since 2011 has again been observed annually, but in smaller numbers. Observations are always concentrated in the first three weeks of August, and no sightings have extended past the end of the month. Spring numbers have been consistently low, except for a three-year gap from 2010 to 2012 when none were observed. Summer sightings were recorded in just two years.

TRES: Tree Swallow / Hirondelle bicolor (Tachycineta bicolor)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 9	May 8	Jun 3	56	55 (93%)	35	823	Aug 5	Aug 21	Sep 30	57	20 (23%)	12	79
2006	Apr 9	May 10	Jun 5	58	58 (84%)	45	824	Aug 1	Aug 22	Oct 10	71	17 (19%)	11	64
2007	Apr 19	May 20	Jun 5	48	47 (67%)	45	960	Aug 2	Aug 18	Sep 19	49	16 (18%)	58	102
2008	Apr 11	Apr 20	Jun 5	56	53 (76%)	22	681	Aug 5	Aug 12	Aug 22	18	11 (12%)	7	35
2009	Apr 11	May 13	Jun 5	56	55 (80%)	22	620	Aug 1	Aug 5	Sep 11	42	8 (9%)	3	15
2010	Apr 2	May 4	Jun 5	65	62 (89%)	20	748	Aug 4	Aug 4	Sep 17	45	9 (10%)	9	36
2011	Apr 12	Apr 24	Jun 5	55	51 (73%)	63	599	Aug 1	Aug 3	Sep 27	58	21 (23%)	22	97
2012	Mar 31	Apr 26	Jun 5	67	57 (81%)	23	484	Aug 2	Aug 8	Aug 26	25	12 (13%)	6	29
2013	Apr 10	May 17	Jun 5	57	53 (76%)	27	300	Aug 2	Aug 25	Sep 9	39	10 (11%)	20	39
2014	Apr 12	May 6	Jun 4	54	50 (74%)	23	398	Aug 1	Aug 15	Sep 9	40	18 (20%)	70	143
Mean	Apr 9	May 5	Jun 4	57	54 (79%)	32	644	Aug 2	Aug 13	Sep 14	44	14 (16%)	22	64

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								2.3	5.3	12.8	10.3	19.3	18.7	20.9	17.7	17.4	13.9
2006								1.3	7.6	16.0	16.6	15.1	24.6	12.6	14.1	10.0	11.9
2007										5.7	16.0	26.6	27.9	22.4	22.4	16.1	13.7
2008									2.6	13.0	12.4	14.7	15.1	13.4	14.4	11.6	9.7
2009									1.9	4.9	13.9	14.7	17.3	14.0	12.6	9.4	9.0
2010							0.3	2.7	5.3	13.4	12.1	15.1	14.9	18.4	14.4	10.1	10.7
2011									1.3	15.0	12.6	11.1	9.4	9.1	20.3	6.7	8.6
2012							0.3	0.3	3.0	5.3	8.6	13.7	11.0	9.7	9.3	8.0	6.9
2013								0.3	2.4	7.0	5.3	5.7	5.9	10.0	3.1	3.1	4.3
2014									0.9	7.0	7.0	11.4	9.6	8.4	7.9	5.5	5.9
Mean							0.06	0.7	3.0	10.0	11.5	14.8	15.4	13.9	13.6	9.6	9.4

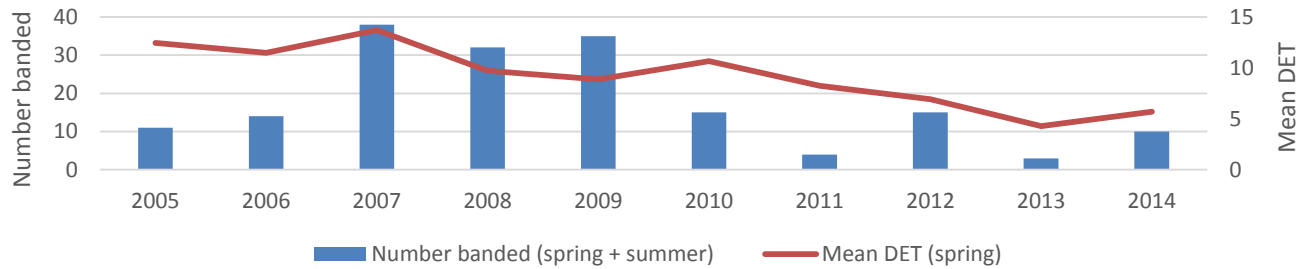
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	8.7	2.1	5.3	0.1	2.9	2.4	1.0	0.6	1.4	0.4	2.1	0.3					0.9
2006	9.6	5.9	7.6	2.1	2.4	2.1	1.9	0.3			0.1			0.1			0.7
2007	16.1	5.7	11.3	0.7	1.1	10.7	1.3			0.6	0.1						1.1
2008	7.6	4.8	6.2	0.3	2.9	1.6	0.3										0.4
2009	9.3		4.0	0.9		0.3	0.3	0.3	0.4								0.2
2010	1.0		0.3	2.3	1.6		0.1		0.6	0.6							0.4
2011	5.0	3.8	4.3	3.7	3.0	0.7	2.9	1.0		2.0	0.4	0.1					1.1
2012	1.5		0.8	1.0	1.9	0.7	0.6										0.3
2013	1.0	1.5	1.3	0.4		1.3	3.4	0.3	0.1								0.4
2014	2.7	0.8	1.6	1.4	0.7	16.7	0.7	0.4	0.4								1.6
Mean	7.9	2.8	5.2	1.3	1.6	3.7	1.2	0.3	0.3	0.4	0.3	0.04		0.01			0.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										1		3	1	1	3	1	10
2006										2		1	2				5
2007													2		1		4
2008										1	5	3	1	2	4		16
2009												4	3	3	1		11
2010										3	3	3	3	1		2	15
2011										2			1	1			4
2012										1	2	4	3		3		13
2013												1		2			3
2014												1	5	2	1	1	10
Mean										1.0	1.0	2.0	2.1	1.3	1.3	0.4	9.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1		1														
2006	9		9														
2007	30	4	34														
2008	12	4	16														
2009	24		24														
2010																	
2011																	
2012	11		11														
2013	4		4														
2014																	
Mean	15.2	0.9	11.0														

Tree Swallow is the most common of the six swallow species at MBO, and present over the longest period, typically from early April to September. First spring arrived has been between April 9 and 12 in seven of ten years, while the peak of migration most commonly occurs in week 7. Both spring and summer numbers have steadily declined over the years, although there was a modest rebound in observations in 2014. Fall observations are mostly in August, with an overall peak in week 3 driven mostly by unusually high pulses of migration in 2007 and 2014. The majority of Tree Swallows banded at MBO have been in summer, all of them at nest boxes.

Tree Swallow numbers (2005-2014)



NRWS: Northern Rough-winged Swallow / Hirondelle à ailes hérissées (*Stelgidopteryx serripennis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 24	May 24	May 24	1	1 (2%)	1	1	Sep 9	Sep 9	Sep 9	1	1 (1%)	1	1
2006	May 2	May 10	May 28	27	18 (26%)	12	61							
2007	May 6	May 26	Jun 1	27	12 (17%)	7	24	Aug 18	Aug 18	Aug 18	1	1 (1%)	3	3
2008	May 9	May 15	May 29	21	9 (13%)	4	20	Aug 6	Aug 15	Aug 15	10	3 (3%)	7	15
2009	May 4	May 4	Jun 5	33	2 (3%)	1	2							
2010	May 6	May 21	May 23	18	4 (6%)	2	5							
2011	May 13	May 14	Jun 3	22	8 (11%)	2	12	Aug 11	Aug 11	Aug 11	1	1 (1%)	2	2
2012	May 5	May 5	May 5	1	1 (1%)	1	1							
2013	May 4	May 15	May 31	28	4 (6%)	3	7	Aug 12	Aug 12	Aug 25	14	2 (2%)	3	4
2014	May 16	May 16	May 31	16	4 (6%)	2	7	Aug 8	Aug 8	Aug 8	1	1 (1%)	1	1
Mean	May 8	May 15	May 27	19	6 (9%)	4	14	Aug 15	Aug 17	Aug 19	5	2 (2%)	3	2.6

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.1		0.02
2006												3.4	4.3	0.4	0.6		0.9
2007												0.1	0.7	0.3	1.9	0.4	0.3
2008													1.3	1.4	0.1		0.3
2009												0.1				0.1	0.03
2010												0.1	0.1	0.3	0.1		0.07
2011													0.6	0.1	0.3	0.7	0.2
2012												0.1					0.01
2013												0.3	0.4	0.1		0.1	0.1
2014														0.6	0.3	0.2	0.1
Mean												0.4	0.7	0.3	0.3	0.2	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.2	0.1						0.1								0.01
2006																	
2007	2.4		1.3			0.4											0.03
2008				1.1		1.0											0.2
2009																	
2010																	
2011					0.3												0.02
2012																	
2013					0.4		0.1										0.04
2014					0.1												0.01
Mean	0.3	0.06	0.2	0.1	0.09	0.1	0.01		0.01								0.03

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															1		1
2006																	
2007															1		1
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014														2			2
Mean														0.2	0.2		0.4

Northern Rough-winged Swallow is observed at MBO each spring, and has also been recorded in six of ten fall seasons. All spring sightings have been in May, with the peak varying from week 6 to 10. Numbers have generally been low, except in 2006 when higher counts were observed in both weeks 6 and 7. Spring counts show a declining trend over time. Fall numbers have been low in all years, with all observations coming in August except for the first one in 2005. Summer sightings have occurred in just two years – 2005 and 2007. Only four individuals have been banded, all in spring.

BANS: Bank Swallow / Hirondelle de rivage (*Riparia riparia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 18	Apr 18	May 17	30	2 (3%)	1	2	Aug 9	Aug 21	Aug 21	13	2 (2%)	6	7
2006														
2007	May 1	May 27	Jun 5	36	4 (6%)	2	7							
2008	May 27	May 27	May 27	1	1 (1%)	2	2							
2009	May 13	May 19	May 19	7	2 (3%)	3	5							
2010	May 10	May 18	May 24	15	6 (9%)	2	11	Aug 31	Aug 31	Aug 31	1	1 (1%)	5	5
2011	May 12	Jun 1	Jun 1	21	7 (10%)	4	17	Aug 1	Aug 1	Aug 19	19	2 (2%)	4	6
2012	Apr 24	Apr 24	May 5	12	2 (3%)	1	2							
2013								Aug 7	Aug 7	Aug 7	1	1 (1%)	2	2
2014														
Mean	May 6	May 15	May 22	17	3 (5%)	2	4.6	Aug 12	Aug 15	Aug 19	8	2 (2%)	4	2.0

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.2				0.1			0.03
2006																	
2007											0.1				0.6	0.3	0.1
2008															0.3		0.03
2009													0.3	0.4			0.07
2010													0.1	1.1	0.3		0.2
2011													0.3		1.0	1.1	0.2
2012										0.1		0.1					0.03
2013																	
2014																	
Mean										0.03	0.01	0.01	0.07	0.2	0.2	0.1	0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1	0.9											0.08
2006																	
2007																	
2008																	
2009																	
2010								0.7									0.05
2011				0.6		0.3											0.07
2012																	
2013				0.3													0.02
2014																	
Mean				0.09	0.01	0.1		0.07									0.02

Bank Swallow is an irregular migrant at MBO, with sightings in seven spring and four fall seasons; none were observed in any season in 2006 or 2014. Spring sightings range from week 4 to 10, with only a weak overall peak in weeks 8 and 9. All fall sightings have been in August, but there are few observations to detect a pattern in timing.

CLSW: Cliff Swallow / Hironnelle à front blanc (*Petrochelidon pyrrhonota*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 7	May 27	May 27	21	5 (8%)	30	41	Aug 1	Aug 1	Sep 9	40	5 (6%)	12	32
2006	May 5	May 10	Jun 4	31	13 (19%)	150	351							
2007	May 1	May 1	Jun 4	35	23 (33%)	50	476	Aug 15	Aug 15	Aug 15	1	1 (1%)	22	22
2008	Apr 20	May 9	Jun 5	46	36 (51%)	55	783	Aug 2	Aug 6	Aug 6	5	2 (2%)	14	21
2009	Apr 20	May 15	Jun 5	47	39 (57%)	99	681							
2010	Apr 24	May 23	Jun 5	43	38 (54%)	72	854							
2011	Apr 22	May 25	Jun 5	45	31 (44%)	40	337	Aug 3	Aug 11	Aug 11	9	2 (2%)	2	3
2012	May 1	May 25	Jun 5	36	27 (39%)	18	172							
2013	May 1	Jun 4	Jun 5	36	31 (44%)	30	319							
2014	May 3	May 25	Jun 3	32	29 (43%)	22	305	Aug 10	Aug 16	Aug 27	18	3 (3%)	5	8
Mean	Apr 28	May 19	Jun 3	37	27 (40%)	57	432	Aug 6	Aug 9	Aug 19	15	3 (3%)	11	8.6

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												1.0		0.6	4.3		0.7
2006												1.3	37.4	6.9	1.7	2.9	5.1
2007											7.1	20.7	13.4	7.6	13.4	5.7	6.8
2008									1.3	1.1	21.7	30.4	16.1	32.3	8.9	11.2	
2009									2.3	5.0	4.1	35.3	22.1	20.6	7.9	9.9	
2010									0.7	3.3	23.0	18.9	37.6	33.3	5.3	12.2	
2011									0.7	3.4	8.4	5.1	6.3	16.1	8.0	4.8	
2012										0.1	3.7	5.4	4.7	6.7	3.9	2.5	
2013										0.3	8.4	3.6	14.7	6.7	11.9	4.6	
2014											6.0	10.7	8.7	9.9	9.7	4.5	
Mean									0.5	2.0	9.8	16.0	12.5	14.5	6.5	6.3	

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.5	0.2	2.1	1.0				1.4								0.4
2006	5.7	12.2	9.2														
2007	2.7	1.2	2.0			3.1											0.2
2008	6.2	11.8	9.0	3.0													0.2
2009																	
2010																	
2011	4.3	0.5	2.1	0.1	0.3												0.03
2012																	
2013																	
2014					0.3	0.7	0.1										0.09
Mean	2.1	3.4	2.8	0.5	0.2	0.4	0.01		0.1								0.09

Cliff Swallow is a common spring but irregular fall species at MBO. From 2005 to 2007 and again from 2012 to 2014, the first spring arrivals returned between May 1 and 7, but in the intervening years from 2008 to 2011 spring arrival was much earlier, between April 20 and 24. Regardless of arrival date, the peak has occurred between week 7 and 9, except for week 6 in 2007. Most spring observations are of individuals from the colony on the nearby McGill radar station, and these sightings carry over into summer in some years. The decline in spring and summer counts in more recent years at least partly reflects a reduction in the level of activity at the colony, and is consistent with the downward trend of most other swallows. However, the scarcity of summer records since 2009 also is a function of observations being largely limited to the south end of MBO where the MAPS program operates, and from which the colony cannot be seen; in earlier years summer observations were spread out more across the site and included views toward the breeding site. Fall records are generally rare and scattered throughout August, with September observations only in 2005.

BARS: Barn Swallow / Hirondelle rustique (*Hirundo rustica*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 19	May 16	May 20	32	11 (19%)	6	27	Aug 9	Aug 17	Sep 7	30	5 (6%)	3	10
2006	Apr 21	May 14	May 26	36	19 (28%)	5	37	Aug 2	Aug 7	Sep 5	35	12 (13%)	7	31
2007	Apr 24	May 3	Jun 1	39	22 (31%)	4	45	Aug 1	Aug 26	Aug 30	30	12 (13%)	25	69
2008	Apr 19	May 20	May 30	42	17 (24%)	5	31	Aug 4	Aug 16	Aug 18	15	8 (9%)	5	18
2009	Apr 15	May 2	May 28	44	11 (16%)	3	16	Aug 1	Aug 14	Aug 26	26	7 (8%)	2	8
2010	Apr 21	May 26	Jun 5	46	16 (23%)	3	24	Aug 2	Aug 4	Aug 15	14	4 (4%)	4	7
2011	Apr 24	May 25	Jun 1	39	14 (20%)	7	33	Aug 2	Aug 12	Aug 23	22	6 (7%)	16	44
2012	Apr 29	May 3	Jun 1	34	23 (33%)	2	31	Aug 3	Aug 11	Aug 11	9	4 (4%)	5	9
2013	Apr 29	May 11	May 31	33	13 (19%)	4	24	Aug 8	Aug 27	Aug 27	20	4 (4%)	16	21
2014	May 2	May 19	Jun 1	31	14 (21%)	5	26	Aug 7	Aug 19	Aug 27	21	6 (7%)	8	19
Mean	Apr 23	May 13	May 29	38	16 (23%)	4	29	Aug 3	Aug 15	Aug 25	22	7 (7%)	9	24

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.3		0.4	0.6	2.6			0.5
2006										0.4	0.1	1.3	2.0	1.0	0.4		0.5
2007										0.1	0.4	1.4	1.7	1.6	1.0	0.1	0.6
2008										0.1	0.3		1.4	2.0	0.4	0.1	0.4
2009									0.1			0.4	0.7	0.3	0.7		0.2
2010										0.1		0.4	0.4	0.9	1.4	0.1	0.3
2011										0.3			1.4	0.7	1.6	0.7	0.5
2012											0.3	1.1	1.1	0.9	0.9	0.1	0.4
2013											0.3		1.7	1.0	0.3	0.1	0.3
2014												0.6	0.3	1.7	0.4	0.8	0.4
Mean									0.01	0.1	0.1	0.6	1.1	1.3	0.7	0.2	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06		0.03		0.1	0.6	0.4		0.3								0.1
2006		0.08	0.05	2.0	0.3	1.6		0.1	0.4								0.3
2007				1.4	0.9	3.0	4.4	0.1									0.8
2008		0.8	0.4	0.4	1.1	1.0											0.2
2009				0.1	0.3	0.4	0.3										0.09
2010				0.7	0.1	0.1											0.08
2011				0.3	4.3	0.7	1.0										0.5
2012				0.4	0.9												0.10
2013					0.1	0.3	2.6										0.2
2014				0.3	0.1	1.1	1.1										0.2
Mean	0.02	0.08	0.05	0.6	0.8	0.9	1.0	0.03	0.07								0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006													1				1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.1				0.1

Barn Swallow has been observed at MBO in every spring and fall, but only in three summer seasons. Unlike most other swallows, there is no clear trend in numbers over the years. The first spring arrivals were between April 15 and 24 for the first seven years, but have been between April 29 and May 2 since 2012. The spring peak has ranged between weeks 6 and 9, but overall numbers are greatest in week 8. Only one Barn Swallow has been banded, an individual that flew in through the open door of the banding cabin and was captured by hand. Aside from a few early September sightings in 2005 and 2006, all fall observations have been in August, with the peak varying across the first four weeks of the season.

BCCH: Black-capped Chickadee / Mésange à tête noire (*Poecile atricapillus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 9	Jun 3	60	59 (100%)	25	460	Aug 1	Oct 3	Oct 30	91	88 (100%)	70	2148
2006	Mar 28	Apr 5	Jun 5	70	68 (99%)	28	640	Aug 1	Sep 8	Oct 30	91	91 (100%)	30	1428
2007	Mar 28	Apr 18	Jun 5	70	66 (94%)	24	599	Aug 1	Oct 2	Oct 30	91	91 (100%)	50	1594
2008	Mar 28	Apr 24	Jun 5	70	70 (100%)	20	557	Aug 1	Oct 20	Oct 30	91	91 (100%)	39	1494
2009	Mar 28	Apr 3	Jun 5	70	69 (100%)	17	566	Aug 1	Oct 26	Oct 30	91	91 (100%)	56	1782
2010	Mar 28	May 11	Jun 5	70	69 (99%)	22	685	Aug 1	Oct 17	Oct 30	91	91 (100%)	102	2628
2011	Mar 28	Apr 18	Jun 5	70	68 (97%)	45	840	Aug 1	Aug 19	Oct 30	91	90 (99%)	58	1930
2012	Mar 28	Apr 20	Jun 5	70	70 (100%)	27	914	Aug 1	Oct 23	Oct 30	91	91 (100%)	67	1904
2013	Mar 28	Apr 18	Jun 5	70	70 (100%)	25	810	Aug 1	Aug 27	Oct 30	91	91 (100%)	42	1641
2014	Mar 29	May 2	Jun 4	68	66 (97%)	26	676	Aug 1	Oct 28	Oct 30	91	91 (100%)	40	1567
Mean	Mar 28	Apr 18	Jun 4	69	68 (99%)	26	675	Aug 1	Oct 2	Oct 30	91	91 (100%)	55	1812

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	12.0	6.5		7.5	6.3	8.3		13.3	6.3	8.0	11.6	10.0	6.3	4.0	5.1	5.8	7.8
2006	15.4	15.8	15.3	11.0	11.8	14.0	12.9	16.5	8.7	7.3	9.4	10.3	8.6	7.9	5.6	6.7	9.3
2007	11.5	8.7	9.5	7.3	8.8	9.7	6.4	8.6	8.9	14.0	8.4	10.6	9.0	9.1	6.4	4.1	8.6
2008	5.9	12.3	5.6	7.7		7.4	9.7	6.1	7.6	12.0	9.3	9.7	9.3	7.4	4.4	4.0	8.0
2009	10.0	14.5	13.3	9.0	7.5	9.4	10.4	8.7	8.9	10.7	8.9	8.6	7.1	7.6	6.0	5.3	8.2
2010	18.3	15.6	14.3	12.6	14.7	15.4	11.9	13.4	7.4	13.9	10.3	12.6	10.4	7.9	5.0	5.1	9.8
2011	21.2	9.0	16.8	15.7	13.4	16.9	13.3	11.4	10.3	21.6	15.7	16.7	9.4	8.6	8.9	4.1	12.0
2012	8.2	7.8	8.0	7.7	7.2	7.8	15.1	10.9	12.1	20.4	17.9	17.0	14.1	8.7	6.7	7.6	13.1
2013	20.6	10.7	6.6	11.6	9.6	10.9	11.1	13.6	11.1	16.9	13.4	15.1	10.7	12.3	5.9	5.6	11.6
2014	16.4	20.8	20.1	17.9	18.0	18.6	9.2	10.4	7.6	13.4	13.0	13.0	10.9	8.9	6.7	5.7	9.9
Mean	14.4	13.1	12.7	11.3	10.8	12.5	11.1	11.2	8.9	13.9	11.8	12.4	9.6	8.2	6.1	5.4	9.8

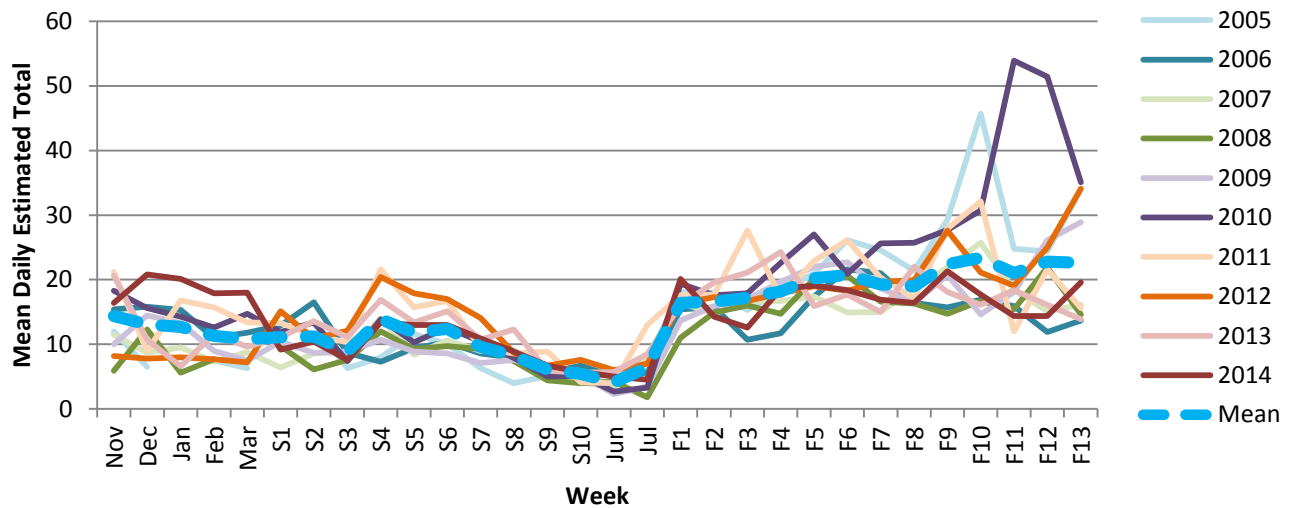
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	3.4	7.6	5.6	18.1	18.0	15.3	18.4	20.9	26.1	24.6	21.4	29.3	45.7	24.8	24.4	34.0	24.4
2006	5.0	5.6	5.3	15.4	15.7	10.7	11.7	17.4	21.6	21.0	16.4	15.7	16.9	15.9	11.9	13.7	15.7
2007	3.3	8.3	5.6	16.4	14.7	16.7	16.7	17.4	14.9	15.0	18.6	21.9	25.7	18.4	15.1	16.1	17.5
2008	4.2	1.8	3.0	11.0	14.9	16.0	14.7	20.1	20.6	16.6	16.3	14.7	16.7	15.4	21.9	14.6	16.4
2009	2.3	3.5	3.0	13.7	15.9	17.0	19.7	22.0	22.7	18.7	16.4	20.7	14.6	18.1	26.1	28.9	19.6
2010	2.7	3.3	3.1	19.4	17.6	17.9	22.6	27.0	20.9	25.6	25.7	27.7	30.7	53.9	51.4	35.1	28.9
2011	4.0	13.0	9.1	17.6	17.7	27.6	17.3	22.9	26.1	20.3	17.1	27.9	32.1	12.0	21.6	15.6	21.2
2012	6.0	7.0	6.5	16.3	17.3	16.7	17.9	19.0	18.3	19.7	19.9	27.6	21.1	19.1	25.0	34.1	20.9
2013	5.7	8.5	7.3	16.1	19.6	21.1	24.3	15.9	17.7	15.0	22.0	18.1	16.1	18.4	16.1	13.9	18.0
2014	5.0	4.5	4.7	20.1	14.3	12.6	18.6	19.1	18.4	16.9	16.4	21.3	17.7	14.4	14.4	19.6	17.2
Mean	4.1	6.4	5.3	16.4	16.6	17.2	18.2	20.2	20.7	19.3	19.0	22.4	23.4	21.0	22.8	22.6	20.0

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	7			12	7	26		1	1							1	3
2006	14	11	7	8	11	51		2	1	1		2				2	8
2007	3	4	6		4	17				3		1	4	1	1		10
2008																	
2009					3	3				1				1			2
2010	12		11	10	21	54				2			1				3
2011	26			2	5	33				4	1	2	2				9
2012	2	2		7	1	12					3			1			4
2013	15	2		1	10	28				14		1					15
2014	1	5				6				5	1					2	8
Mean	10.0	3.4	8.0	6.7	7.8	25.6		1.5	1.0	3.0	0.5	0.6	0.7	0.3	0.3	0.3	6.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				9	2	5	4	9	5	5	8	38	54	15	37	31	222
2006				6	3	2		1	7	4	1		1	2			27
2007				7	7	4	1	2	2	4	7	16	52	34	21	15	172
2008				9	7	5	4	6	2	1	4		1		9	1	49
2009	2	9	11	5	1	3	11	6	4	5	6	2	2	15	31	44	135
2010	5	9	14	13	5	4	4	2	6	8	17	15	8	139	132	87	440
2011	4	4	8	10	4	4	6	4	3	1	5	3	2	2	1	3	48
2012	1	12	13	10	7	4	6	5	2	11	6	10	12	8	62	28	171
2013		1	1	8	9	3	3	3	2	4	1	5	3	2	1	3	47
2014		3	3	11	6		3	2	7	1	3	5	6	8	14	7	73
Mean	2.0	4.2	5.6	8.8	5.1	3.4	4.2	4.0	4.0	4.4	5.8	9.4	14.1	22.5	30.8	21.9	138.4

Black-capped Chickadee is the most abundant year-round resident at MBO, and there have been only a handful of days over the past ten years when none were observed (generally very rainy conditions with minimal bird activity). Despite largely being a resident, numbers almost always peak in week 4 in spring, and at some point in October during fall. Large numbers of migrants pass through in fall in some years, with 2005 and 2010 being the most notable movements, but banding totals in 2007, 2009, and 2012 also indicating that far more than just the local breeders and their offspring were present. Spring numbers were above average from 2011-2013.

Mean daily estimated total of Black-capped Chickadees throughout the year

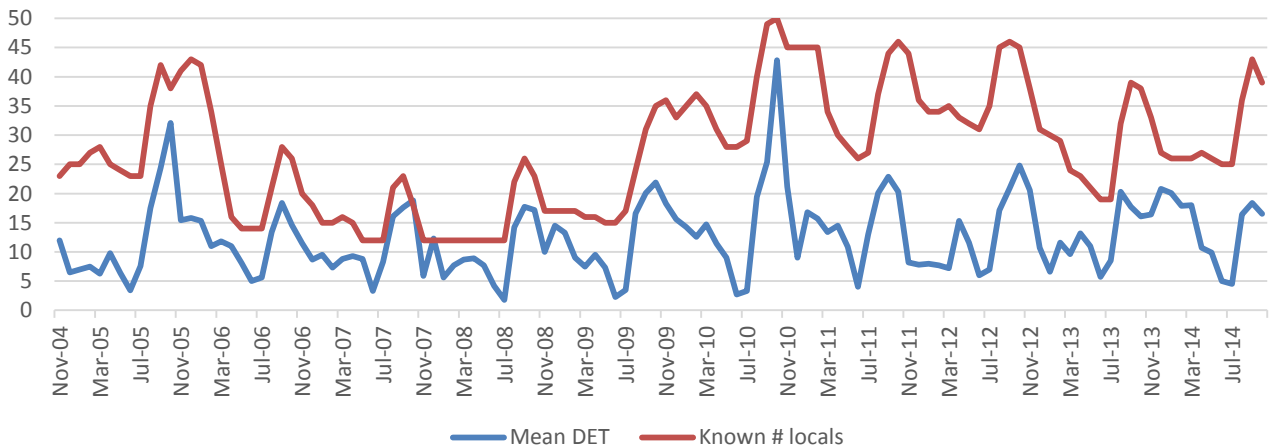


The figure above shows that the number of Black-capped Chickadees spikes in early August, reflecting the reproduction of the local pairs, and builds slightly over the course of fall, then declines gradually until summer. Mostly this illustrates the cycle of the local population, although in some years this is supplemented by a notable spike of migrants in late fall.

Since November 2004, 330 individuals have been recaptured at least 28 days after being banded, and are therefore classified as residents rather than migrants. Among these, 88 have been recaptured at least one year after banding; the record holder for both longevity and number of recaptures is 2500-65165, a female banded as a juvenile on 2 August 2008 and most recently recaptured on 22 October 2014, for a span of 2272 days over 43 captures. Another 26 individuals have a history at MBO spanning at least 3 years.

The figure below was generated through reviewing the history of Black-capped Chickadees recaptured at MBO. By identifying the banding date and most recent recovery date of each individual, the minimum number of known living individuals in the local population was calculated for each date, and averaged by month. While there is likely some local movement (e.g., some individuals may be more prominent at the feeders in winter, but breed in the adjacent Morgan Arboretum), these birds are almost certainly all residents in the area. The figure shows a distinct annual cycle, with numbers peaking in late fall, and at their lowest in early summer. This generally correlates with the observed daily estimated totals, although they are always lower, even in fall 2005 and 2010 when large numbers of migrants were moving through.

Number of Black-capped Chickadees at MBO, Nov 2004 - Oct 2014



BOCH: Boreal Chickadee / Mésange à tête brune (*Poecile hudsonicus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 20	Oct 20	Oct 20	1	1 (1%)	1	1
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 20	Oct 20	Oct 20	1	1 (1%)	1	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															0.1		0.01
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.01		<0.01

A single Boreal Chickadee was observed with Black-capped Chickadees during the late part of a strong chickadee migration in October 2005.

TUTI: Tufted Titmouse / Mésange bicolor (*Baeolophus bicolor*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009														
2010														
2011														
2012	Jun 3	Jun 3	Jun 3	1	1 (1%)	1	1							
2013														
2014	Mar 29	Mar 29	Apr 10	13	2 (3%)	1	2							
Mean	May 1	May 1	May 7	7	2 (2%)	1	0.3							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																0.1	0.01
2013																	
2014				1.0	0.6	0.4	0.2	0.1									0.03
Mean				0.1	0.04	0.03	0.02	0.01								0.01	<0.01

MBO's first Tufted Titmouse showed up near the end of spring 2012. A second was first observed at the feeders in February 2014, and was seen regularly until early April.

RBNU: Red-breasted Nuthatch / Sittelle à poitrine rousse (*Sitta canadensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 12	Aug 21	Oct 28	78	37 (42%)	3	49
2006	Apr 2	May 4	May 26	55	6 (9%)	2	7	Aug 5	Sep 8	Oct 14	71	9 (10%)	2	10
2007	May 7	May 7	May 7	1	1 (1%)	1	1	Aug 2	Aug 5	Oct 24	84	21 (23%)	2	24
2008	Apr 22	Apr 28	Jun 5	45	9 (13%)	2	12	Aug 7	Aug 20	Oct 17	72	23 (25%)	4	37
2009	May 13	May 13	May 27	15	2 (3%)	2	3	Aug 7	Aug 22	Oct 29	84	22 (24%)	2	25
2010	Apr 5	Apr 5	May 7	33	3 (4%)	1	3	Aug 12	Oct 3	Oct 28	78	15 (16%)	5	19
2011	May 6	May 12	May 28	23	5 (7%)	2	7	Aug 13	Aug 13	Oct 4	53	7 (8%)	1	7
2012	Apr 3	Apr 3	May 31	59	6 (9%)	1	6	Aug 12	Aug 17	Oct 30	80	40 (44%)	5	61
2013	Apr 6	May 25	May 27	52	5 (7%)	3	7	Aug 1	Aug 7	Oct 19	80	20 (22%)	2	26
2014	May 2	May 2	May 21	20	3 (4%)	1	3	Aug 10	Aug 10	Oct 10	62	14 (15%)	3	18
Mean	Apr 20	May 1	May 23	34	4 (6%)	2	4.9	Aug 8	Aug 21	Oct 20	74	21 (23%)	3	28

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006		0.07	0.4	0.4	0.3	0.2	0.1					0.3		0.3	0.3		0.1
2007												0.1					0.01
2008									0.1	0.3			0.7		0.4	0.1	0.2
2009					0.07	0.03							0.3		0.1		0.04
2010	0.1					0.03		0.1		0.1		0.1					0.04
2011												0.1	0.3	0.1	0.4		0.1
2012						0.2	0.1		0.3		0.3	0.1		0.1		0.1	0.09
2013	0.1	0.1	0.2	0.2	0.3	0.2					0.1				0.6		0.1
2014	0.2		0.3			0.1							0.1		0.3		0.04
Mean	0.04	0.04	0.1	0.07	0.09	0.08	0.03	0.04		0.06	0.06	0.09	0.1	0.07	0.2	0.03	0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1	1.3	0.6	0.6	0.6	0.6	0.6	0.5	1.0	0.5	0.6	0.4	0.6
2006				0.1	0.4	0.1	0.1	0.1	0.3					0.1			0.1
2007		0.2	0.08	0.4	0.1	0.9	0.1	0.4	0.3		0.3			0.6	0.1	0.1	0.3
2008		0.2	0.1	0.1	0.3	0.6	0.1	0.6	0.3	0.7	1.1	0.4	0.9	0.3	0.1	0.1	0.4
2009				0.1	0.3		0.6	0.1	0.6		0.3	0.1	0.4	0.4	0.3	0.3	0.3
2010					0.3	0.1		0.1	0.3	0.1	0.6	0.1	0.9			0.1	0.2
2011					0.1	0.3	0.1	0.1		0.1			0.1				0.08
2012	0.3	0.8	0.5		0.3	1.1	0.4	0.3	0.7	1.4	0.6	1.3	0.6	0.3	0.9	0.9	0.7
2013				0.4		0.1	0.3	0.7	0.4	0.4	0.1	0.4	0.1	0.4	0.1		0.3
2014					1.0	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.3	0.1		0.2
Mean	0.02	0.08	0.05	0.1	0.3	0.5	0.3	0.3	0.3	0.4	0.4	0.3	0.5	0.2	0.2	0.2	0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006			1			1											
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean			0.3			0.1											

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						1											1
2006																	
2007																	
2008																	
2009					1							1	1	1			4
2010													1				1
2011																	
2012		2	2							1							1
2013																	
2014																	
Mean		0.2	0.2		0.1	0.1				0.1		0.1	0.2	0.1			0.7

Red-breasted Nuthatch is an uncommon and irregular species at MBO in all seasons. Both in spring and fall, observations are spread throughout the season, with small peaks varying widely from year to year and little overall pattern. Spring numbers have been similarly low in most years, while in fall there have been occasional low years (2006 and 2011) and high years (2005 and 2012) that stand out from the more typical seasons. Only ten individuals have been banded, covering all seasons except spring.

WBNU: White-breasted Nuthatch / Sittelle à poitrine blanche (*Sitta carolinensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 12	May 27	53	42 (71%)	3	54	Aug 2	Aug 27	Oct 30	90	54 (61%)	6	107
2006	Mar 30	Apr 27	Jun 5	68	40 (58%)	3	53	Aug 1	Aug 22	Oct 30	91	72 (79%)	9	164
2007	Mar 28	Apr 7	Jun 1	66	26 (37%)	4	37	Aug 1	Aug 9	Oct 25	86	55 (60%)	8	87
2008	Apr 6	May 14	May 30	55	19 (27%)	3	23	Aug 1	Sep 24	Oct 25	86	34 (37%)	3	49
2009	Apr 4	Apr 4	Jun 1	59	14 (20%)	2	15	Aug 1	Aug 22	Oct 30	91	49 (54%)	7	78
2010	Apr 2	Apr 19	May 24	53	21 (30%)	2	23	Aug 2	Sep 20	Oct 30	90	53 (58%)	6	87
2011	Mar 29	Apr 18	May 31	64	11 (16%)	2	14	Aug 1	Sep 8	Oct 28	89	66 (73%)	5	125
2012	Apr 2	Apr 12	May 27	56	32 (46%)	2	39	Aug 1	Sep 12	Oct 30	91	76 (84%)	8	178
2013	Mar 31	Apr 28	May 31	62	34 (49%)	3	48	Aug 1	Aug 27	Oct 30	91	79 (87%)	6	194
2014	Mar 29	Mar 29	Jun 4	68	28 (41%)	3	40	Aug 1	Aug 10	Oct 30	91	68 (75%)	9	138
Mean	Apr 1	Apr 16	May 30	60	27 (39%)	3	35	Aug 1	Aug 30	Oct 28	90	61 (67%)	7	121

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5			0.5	0.3	0.4		0.8	1.6	1.3	0.6	1.3	1.0	0.9	0.6		0.9
2006	0.4	0.4	0.6	0.6	0.2	0.4	0.4	0.3	0.6	0.7	0.9	0.9	0.4	1.4	1.3	0.7	0.8
2007	0.9	0.9	0.5		0.6	0.7	0.6	1.0	0.1	0.6	0.4	1.0	0.9	0.4	0.1	0.1	0.5
2008	0.3	0.3	0.4	1.3		0.6		0.1	0.1	0.3	1.1	0.4	0.7	0.1	0.1	0.1	0.3
2009	0.4	0.5		0.3	0.5	0.4		0.7	0.1	0.1	0.6	0.1	0.3		0.1	0.1	0.2
2010	0.6		0.2	0.4	0.4	0.4	0.1	0.7	0.1	0.9	0.3	0.1	0.3	0.6	0.1		0.3
2011	0.2	1.0	0.4	0.8	0.3	0.4	0.1			0.4	0.1	0.1	0.3	0.6	0.1	0.1	0.2
2012	0.2				0.6	0.2	0.3	0.7	0.9	1.0	0.4	1.0	0.7	0.4	0.1		0.6
2013	0.6	0.1	0.5	0.4	0.6	0.5	0.3	0.6	0.6	1.0	1.0	1.3	0.6	0.4	0.9	0.3	0.7
2014	2.4	1.0	0.9	0.6	0.6	1.0	1.3	0.6	0.1	1.1	0.1	0.6	0.7	0.1	0.6	0.7	0.6
Mean	0.6	0.4	0.4	0.5	0.4	0.5	0.3	0.6	0.4	0.7	0.6	0.7	0.6	0.5	0.4	0.2	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06	0.3	0.2	1.3	1.7	1.3	1.4	1.1	0.9	1.0	2.1	0.8	1.7	0.8	0.4	1.1	1.2
2006	0.6	1.4	1.0	1.9	2.0	2.9	3.1	1.1	1.7	1.6	1.4	1.3	1.1	1.7	2.1	1.4	1.8
2007	0.1	0.5	0.3	0.7	1.9	1.6	1.3	1.1	1.3	0.7	0.6	0.9	0.7	0.6	0.9	0.3	1.0
2008				0.1	0.3	0.4	0.1	0.1	0.3	0.3	1.0	0.9	1.1	1.3	0.7	0.3	0.5
2009	0.3		0.1	1.3	1.3	0.9	1.7	1.0	0.9	0.1	0.4	0.6	0.4	0.4	0.9	1.3	0.9
2010		0.2	0.1	0.6	0.9	1.4	0.9	1.1	0.7	0.4	1.9	0.7	1.7	0.4	0.7	1.0	1.0
2011		0.8	0.4	1.6	1.6	2.4	1.6	1.9	2.3	0.7	1.0	0.6	1.3	0.9	1.6	0.6	1.4
2012		1.0	0.5	2.1	2.6	2.3	3.1	1.9	1.9	2.6	1.9	1.1	1.9	0.9	1.1	2.1	2.0
2013	0.3	1.5	1.0	2.1	1.9	2.0	3.4	3.4	1.1	1.1	2.3	2.7	2.1	2.3	1.4	1.7	2.1
2014	1.0	1.3	1.1	1.6	3.4	2.0	1.0	2.4	1.7	1.3	1.4	0.7	0.6	1.1	0.7	1.7	1.5
Mean	0.2	0.7	0.5	1.3	1.7	1.7	1.8	1.5	1.3	1.0	1.4	1.0	1.3	1.0	1.1	1.2	1.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1			1
2006											1						1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013													1				1
2014	3					3											
Mean	0.4					0.3					0.1		0.1	0.1			0.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															1		1
2006							1										1
2007																	
2008																	
2009																1	1
2010																	
2011														1			1
2012				3									1			1	5
2013				1												1	2
2014																	
Mean				0.4			0.1						0.1	0.1	0.1	0.3	1.1

White-breasted Nuthatch is a fairly common resident at MBO, with observations in all fall periods each year, and few gaps in winter, spring, and summer. Mean daily counts are relatively consistent throughout winter, spring, and summer; they increase in early fall, presumably due to the influx of juveniles to the local population, and start to taper off by mid-season, consistent with juvenile dispersal. Only 17 individuals have been banded, 70% of them within the past four years. Numbers were somewhat lower from 2007 to 2010 in fall and 2008 to 2011 in spring.

BRCR: Brown Creeper / Grimpereau brun (*Certhia americana*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 16	Apr 28	22	5 (8%)	2	6	Sep 5	Oct 6	Oct 29	55	16 (18%)	3	21
2006	Mar 31	Apr 22	May 1	32	10 (14%)	5	16	Sep 22	Oct 6	Oct 29	38	10 (11%)	2	11
2007	Apr 9	Apr 9	May 22	44	3 (4%)	1	3	Aug 2	Sep 16	Oct 3	63	9 (10%)	2	10
2008	Apr 20	Apr 22	Apr 27	8	3 (4%)	3	5	Sep 1	Sep 26	Oct 24	54	9 (10%)	3	12
2009	Apr 2	Apr 24	Apr 27	26	4 (6%)	2	5	Aug 8	Sep 19	Oct 21	75	16 (18%)	2	18
2010	Apr 1	Apr 1	Apr 21	21	4 (6%)	1	4	Sep 10	Sep 21	Oct 29	50	16 (18%)	3	19
2011	Mar 31	Apr 19	Apr 22	23	4 (6%)	4	8	Aug 12	Oct 7	Oct 30	80	20 (22%)	3	28
2012	Apr 7	Apr 7	Apr 29	23	5 (7%)	2	6	Sep 17	Oct 12	Oct 24	38	19 (21%)	8	40
2013	Apr 11	Apr 11	May 15	35	6 (9%)	2	7	Sep 15	Oct 30	Oct 30	46	14 (15%)	2	15
2014	Apr 7	Apr 14	May 22	46	15 (22%)	3	23	Sep 20	Sep 23	Oct 28	39	13 (14%)	2	16
Mean	Apr 6	Apr 14	May 3	28	6 (9%)	2	8.3	Sep 1	Oct 1	Oct 24	54	14 (16%)	3	19

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				0.3		0.07		0.2	0.4	0.2	0.1						0.1
2006		0.07	0.08			0.03	0.6	0.3	0.3	0.7	0.4						0.2
2007	0.3					0.1		0.1		0.1				0.1			0.04
2008		0.3				0.04				0.6	0.1						0.07
2009				0.7	0.07	0.2	0.1			0.4	0.1						0.07
2010	0.2			0.08	0.2	0.10	0.1		0.1	0.3							0.06
2011	0.3		0.08		0.1	0.1	0.1			1.0							0.1
2012					0.2	0.04		0.3		0.3	0.3						0.09
2013					0.07	0.02			0.3	0.3	0.1	0.1	0.1				0.1
2014								0.3	1.0	1.0	0.9			0.1			0.3
Mean	0.1	0.04	0.03	0.1	0.07	0.08	0.1	0.1	0.2	0.5	0.2	0.01	0.01	0.03			0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									0.4	0.1	0.3	0.2	1.0	1.0		0.3	0.2
2006											0.1		0.7	0.1	0.1	0.4	0.1
2007				0.1		0.1			0.1	0.3	0.3	0.3	0.1				0.1
2008								0.1	0.1	0.3	0.1	0.4	0.3	0.1		0.1	0.1
2009					0.1			0.1		0.3	0.9	0.4	0.4	0.1	0.1		0.2
2010									0.1	0.1	0.6	0.1	0.4	0.9	0.1	0.3	0.2
2011					0.1	0.1				0.4	0.9	0.6	1.1		0.1	0.6	0.3
2012										0.1	1.4	0.4	0.9	2.1	0.6	0.1	0.4
2013										0.3	0.6	0.3	0.1	0.1	0.3	0.4	0.2
2014											0.4	0.3	0.6	0.3	0.6	0.1	0.2
Mean				0.01	0.03	0.03		0.03	0.09	0.2	0.6	0.3	0.6	0.5	0.2	0.2	0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											1						1
2006								1									1
2007																	
2008										1							1
2009										2							2
2010										1							1
2011	1					1				1							1
2012										1							1
2013										1							1
2014										1	3						4
Mean	0.1					0.1		0.5		0.8	0.4						1.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									2	1	2		4	2		1	12
2006													3	1			4
2007									1	1	2	1	1				6
2008								1	1	1	1	1	2			1	8
2009					1					1	2	2			1		7
2010										1	4	1	2	2		1	11
2011					1					1	3		7			2	14
2012										1	5	3	6			1	21
2013										2	2	2	1	1	1	1	10
2014											2	2	1	1	2	1	9
Mean					0.2			0.1	0.4	0.9	2.3	1.2	2.7	1.2	0.4	0.8	10.2

Brown Creeper is an uncommon early spring and late fall migrant, with scattered sightings almost every winter. Spring sightings are heavily concentrated in April, with a distinct overall peak in week 4; observations have extended past week 5 in just three years. There were unusually early sightings in the first half of August in 2007, 2009, and 2011, but the bulk of migration generally begins only around mid-season, and peaks in early October. Numbers have varied relatively little from year to year, aside from unusual highs in fall 2012 and spring 2014.

HOWR: House Wren / Troglodyte familier (*Troglodytes aedon*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 17	May 24	Jun 3	18	15 (25%)	2	21	Aug 1	Aug 15	Oct 4	65	37 (42%)	3	51
2006	May 4	May 4	May 31	28	3 (4%)	1	3	Aug 1	Aug 2	Oct 21	82	45 (49%)	8	97
2007	May 11	May 13	Jun 5	26	20 (29%)	3	28	Aug 1	Aug 9	Oct 14	75	63 (69%)	13	255
2008	Apr 28	Jun 2	Jun 5	43	37 (53%)	7	136	Aug 1	Aug 5	Oct 4	65	55 (60%)	9	176
2009	Apr 28	May 8	Jun 5	39	38 (55%)	6	126	Aug 1	Aug 6	Oct 12	73	63 (69%)	12	298
2010	Apr 24	May 5	Jun 4	42	35 (50%)	9	155	Aug 1	Aug 16	Sep 26	57	32 (35%)	6	69
2011	Apr 30	May 19	Jun 5	37	37 (53%)	12	172	Aug 1	Aug 5	Oct 21	82	43 (47%)	7	102
2012	Apr 20	May 10	Jun 5	47	46 (66%)	9	238	Aug 1	Sep 12	Oct 8	69	55 (60%)	4	104
2013	Apr 22	May 2	Jun 5	45	43 (61%)	8	145	Aug 1	Aug 3	Oct 5	66	55 (60%)	7	132
2014	Apr 21	Jun 4	Jun 4	45	30 (44%)	10	105	Aug 1	Aug 10	Oct 11	72	66 (73%)	8	201
Mean	Apr 29	May 15	Jun 4	37	30 (44%)	7	113	Aug 1	Aug 11	Oct 9	71	51 (57%)	8	149

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.9	1.0	1.6	0.4
2006												0.1		0.1		0.1	0.04
2007													1.4	1.0	0.7	0.9	0.4
2008									0.1	0.6	2.4	3.9	4.6	3.7	4.1	1.9	1.9
2009										1.1	3.7	3.9	3.1	3.1	3.0	1.8	1.8
2010									0.1		3.3	3.6	4.4	6.0	4.7	2.2	2.2
2011										0.7	2.1	3.6	5.6	7.0	5.6	2.5	2.5
2012									0.9	3.1	4.4	7.4	6.3	5.9	6.0	3.4	3.4
2013									0.4	1.7	5.1	3.9	4.7	2.4	2.4	1.1	1.1
2014									0.1		0.9	3.4	2.9	3.3	5.2	1.5	1.5
Mean									0.2	0.7	2.2	3.1	3.4	3.3	3.4	1.6	1.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.6	0.6	0.6	0.7	0.6	0.9	0.9	0.6	0.9	0.9	1.1	0.8	0.2				0.6
2006		0.4	0.2	2.7	1.9	2.0	0.6	1.6	1.1	1.9	0.9	0.6	0.6		0.1		1.1
2007	2.0	2.8	2.4	6.0	6.0	5.9	6.0	2.9	3.0	2.4	1.7	2.0	0.1	0.4			2.8
2008	4.6	3.2	3.9	5.1	4.7	3.9	3.4	2.3	1.6	1.7	0.7	1.3	0.4				1.9
2009	2.0	0.8	1.3	8.3	8.4	7.6	4.4	3.3	3.6	2.0	2.1	2.0	0.6	0.3			3.3
2010	0.7	2.3	1.8	3.4	1.3	1.9	1.3	0.6	0.6	0.7		0.1					0.8
2011	1.0	3.0	2.1	4.3	2.9	2.3	0.7	0.1	1.0	1.1	1.1	0.6	0.3		0.1		1.1
2012	1.0	1.3	1.1	2.0	1.9	1.7	1.7	0.9	1.0	2.3	1.9	1.4	0.1				1.1
2013	1.7	2.8	2.3	5.6	3.7	2.1	1.0	1.0	1.0	2.1	1.0	1.0	0.3				1.5
2014	2.7	1.0	1.7	3.3	4.0	4.1	4.4	3.4	2.4	2.1	2.3	1.6	0.6	0.4			2.2
Mean	1.3	1.5	1.4	4.1	3.5	3.2	2.4	1.7	1.6	1.7	1.3	1.1	0.3	0.1	0.03		1.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007													1				1
2008													1	3			4
2009														1	1	1	3
2010														2		1	3
2011												2	1	1	1		5
2012											1		5	3			9
2013											1	3	1	2			7
2014													1	1	1	1	4
Mean											0.2	0.5	1.2	1.1	0.3	0.3	3.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				2		1	2	1	1	2	3	1	1				14
2006		1	1	4	2	4	1		1	3	1						16
2007	6			11	3	4	5	6	3		1	2		1			36
2008		5		3	2		2	2	3	1		2					15
2009		2	2	13	4	4		4	1	1	3	1		1			32
2010		1	1	5	2					1							8
2011		3	3	5	1	2					1						9
2012		5	1						2	4	2	1					9
2013		2	2	2	3	1			1	2	1	1					11
2014	1		1	1			5	2	3		1	2					14
Mean	1.2	2.1	2.9	4.6	1.7	1.6	1.5	1.5	1.5	1.4	1.3	1.0	0.1	0.2			16.4

House Wren sightings were relatively scarce in spring in the first three years, not beginning until May; since 2008 the first sighting has been between April 20 and 30, usually with weekly records through the end of the season. Numbers increased steadily until 2012, then started declining again. Summer numbers were also lowest in 2005 and 2006, but have oscillated up and down over the past 8 years; in 2007 and 2008 nestlings were banded at nest boxes although there was no formal banding program. Fall numbers have also varied irregularly across years, although more than twice as many were banded from 2005 to 2009 as from 2010 to 2014. The fall count peaks in week 1 and declines steadily through the season, lasting into October in all but one year.

WIWR: Winter Wren / Troglodyte des forêts (*Troglodytes hiemalis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 4	Oct 8	Oct 30	57	21 (24%)	4	29
2006	Apr 2	Apr 2	May 26	55	5 (7%)	1	5	Sep 5	Oct 5	Oct 27	53	22 (24%)	6	41
2007	Apr 23	Apr 23	May 17	25	2 (3%)	1	2	Sep 13	Sep 24	Oct 24	42	12 (13%)	4	19
2008								Aug 16	Oct 22	Oct 22	68	11 (12%)	2	12
2009	Mar 28	Mar 28	Apr 22	26	2 (3%)	2	3	Sep 20	Oct 2	Oct 12	23	9 (10%)	2	11
2010	May 5	May 5	May 5	1	1 (1%)	1	1	Aug 9	Oct 2	Oct 29	82	18 (20%)	8	35
2011	Apr 18	Apr 27	May 22	35	5 (7%)	2	6	Sep 2	Sep 28	Oct 26	55	6 (7%)	2	9
2012	Apr 1	Apr 1	May 5	35	5 (7%)	1	5	Sep 15	Oct 3	Oct 21	37	19 (21%)	3	25
2013	Apr 17	Apr 26	May 17	31	8 (11%)	2	9	Aug 18	Sep 14	Oct 29	73	13 (14%)	2	16
2014	Apr 10	Apr 18	May 8	29	12 (18%)	3	17	Sep 7	Oct 20	Oct 28	52	24 (26%)	12	63
Mean	Apr 12	Apr 16	May 11	30	5 (7%)	2	4.8	Sep 1	Oct 3	Oct 24	54	16 (17%)	4	26

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006	0.07					0.02	0.1		0.1	0.1	0.1					0.1	0.07
2007	0.06					0.02				0.1				0.1			0.03
2008																	
2009							0.3			0.1							0.04
2010												0.1					0.01
2011										0.3	0.3	0.1		0.1			0.09
2012							0.3				0.1	0.3					0.07
2013									0.1	0.3	0.7			0.1			0.1
2014								0.1	0.7	1.1	0.3	0.1					0.2
Mean	0.02					<0.01	0.08	0.01	0.1	0.2	0.2	0.07		0.04	0.01		0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.1		0.1	0.4	0.3	1.7	0.7	0.6	0.6	0.3
2006									0.1	0.3	0.7	0.3	1.9	0.9	1.1	0.6	0.5
2007										0.1	0.9	0.1	1.1		0.3	0.1	0.2
2008						0.1				0.1	0.3	0.4	0.4		0.3		0.1
2009											0.3	0.3	0.6	0.4			0.1
2010					0.1				0.1	0.4	0.3	1.1	0.7	1.4	0.6	0.1	0.4
2011								0.1				0.3	0.6	0.1		0.1	0.1
2012										0.3	0.6	0.6	0.9	1.0	0.3		0.3
2013						0.1				0.4	0.1		0.4	0.1	0.4	0.6	0.2
2014									0.1	0.1	0.7	0.3	0.6	1.4	4.0	1.7	0.7
Mean					0.01	0.03		0.03	0.04	0.2	0.4	0.4	0.9	0.6	0.8	0.4	0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014										1		1					2
Mean										0.1		0.1					0.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											2	1	2	1			6
2006										2	2		6				10
2007										1	1		2				4
2008										1			1				2
2009											1		1				2
2010										2				1			5
2011												1		1			2
2012													1	2			5
2013													2		1		3
2014										1				4	9	1	15
Mean										0.7	0.6	0.4	1.5	0.9	1.2	0.1	5.4

Winter Wren is a regular but uncommon spring and fall migrant, and twice has trickled over into early winter. Spring migrants have arrived as early as the first week of the season three times, and in four years single individuals have been observed beyond mid-May, but the majority of records are from weeks 4 to 6. In fall, there have been scattered observations over the first six weeks of the season, but regular sightings are limited to the second half, with a quite distinct overall peak in week 10. Numbers have been relatively similar across years, although mean daily counts and numbers banded were distinctly higher in 2014 for both spring and fall.

SEWR: Sedge Wren / Troglodyte à bec court (*Cistothorus platensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006								Aug 9	Aug 9	Sep 5	28	3 (3%)	1	3
2007														
2008	May 16	May 27	Jun 5	21	13 (19%)	2	16							
2009														
2010														
2011														
2012														
2013														
2014														
Mean	May 16	May 27	Jun 5	21	13 (19%)	2	1.6	Aug 9	Aug 9	Sep 5	28	3 (3%)	1	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008														0.3	0.9	1.1	0.2
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean														0.03	0.09	0.1	0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006					0.1	0.1			0.1								0.03
2007																	
2008	0.6		0.3														
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean	0.05		0.02		0.01	0.01			0.01								<0.01

Sedge Wren is a very rare species at MBO, with observations limited to three sightings in fall 2006 (possibly a single lingering individual), and a pair that was present over the final three weeks of spring 2008, continuing into the first part of summer.

MAWR: Marsh Wren / Troglodyte des marais (*Cistothorus palustris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 28	May 28	May 28	1	1 (2%)	2	2	Aug 5	Aug 23	Oct 6	63	5 (6%)	2	6
2006								Aug 7	Aug 7	Aug 7	1	1 (1%)	1	1
2007								Aug 9	Aug 9	Aug 9	1	1 (1%)	1	1
2008														
2009								Aug 11	Aug 11	Aug 11	1	1 (1%)	1	1
2010	May 21	May 21	May 21	1	1 (1%)	1	1	Sep 11	Sep 11	Sep 11	1	1 (1%)	1	1
2011	May 1	May 1	May 1	1	1 (1%)	1	1	Sep 30	Sep 30	Oct 5	6	5 (5%)	1	5
2012	May 28	May 28	May 28	1	1 (1%)	1	1	Sep 11	Sep 11	Sep 28	18	3 (3%)	1	3
2013														
2014														
Mean	May 19	May 19	May 19	1	1 (1%)	1	0.5	Aug 25	Aug 27	Sep 6	13	2 (3%)	1	1.8

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.3		0.03
2006																	
2007																	
2008																	
2009																	
2010														0.1			0.01
2011											0.1						0.01
2012															0.1		0.01
2013																	
2014																	
Mean											0.01			0.01	0.04		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1			0.3					0.3	0.2				0.07
2006		0.08	0.05	0.1													0.01
2007					0.1												0.01
2008																	
2009					0.1												0.01
2010									0.1								0.01
2011		0.5	0.3									0.3	0.4				0.05
2012		0.3	0.1						0.1	0.1		0.1					0.03
2013		0.3	0.1														
2014																	
Mean		0.08	0.04	0.03	0.03		0.03		0.03	0.01		0.07	0.06				0.02

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012															1		1
2013																	
2014																	
Mean															0.1		0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007					1												1
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean					0.1												0.1

Marsh Wren is an irregular species at MBO, with sightings in four spring, four summer, and seven fall seasons, but only two individuals banded, five years apart. Marsh Wrens were missed entirely only in 2008 and 2014. In both spring and fall, observations have been scattered over multiple weeks, without any clear pattern of occurrence.

CARW: Carolina Wren / Troglodyte de Caroline (*Thryothorus ludovicianus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009	Jun 2	Jun 2	Jun 2	1	1 (1%)	1	1							
2010														
2011	May 29	May 29	May 29	1	1 (1%)	1	1							
2012														
2013	May 4	May 4	May 4	1	1 (1%)	1	1	Aug 3	Aug 3	Oct 21	80	2 (2%)	1	2
2014														
Mean	May 22	May 22	May 22	1	1 (1%)	1	0.3	Aug 3	Aug 3	Oct 21	80	2 (2%)	1	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																0.1	0.01
2010	0.05					0.02											
2011															0.1		0.01
2012																	
2013												0.1					0.01
2014																	
Mean	0.01					<0.01						0.01			0.01	0.01	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013															0.1		0.02
2014																	
Mean						0.01									0.01		<0.01

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	1
2014																	
Mean						0.1											0.1

Carolina Wren has only been observed at MBO six times – three in spring, two in fall, and one in winter. All sightings have been since 2009, and reflect the northward expansion of this species into southern Quebec. Only one has been banded, a juvenile on the third day of the fall season in 2013.

BGGN: Blue-gray Gnatcatcher / Gobemoucheron gris-bleu (*Polioptila caerulea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008	Jun 1	Jun 1	Jun 1	1	1 (1%)	1	1							
2009														
2010														
2011														
2012								Aug 18	Aug 18	Aug 18	1	1 (1%)	1	1
2013								Sep 18	Sep 18	Sep 18	1	1 (1%)	1	1
2014														
Mean	Jun 1	Jun 1	Jun 1	1	1 (1%)	1	0.1	Sep 2	Sep 2	Sep 2	1	1 (1%)	1	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																0.1	0.01
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.01	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012						0.1											0.01
2013										0.1							0.01
2014																	
Mean						0.01				0.01							<0.01

Blue-gray Gnatcatcher is a very rare species at MBO, with only one spring observation in 2008, and two in fall, in 2012 and 2013.

GCKI: Golden-crowned Kinglet / Roitelet à couronne dorée (*Regulus satrapa*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 7	Apr 27	21	11 (19%)	30	60	Sep 10	Oct 9	Oct 30	51	34 (39%)	130	482
2006	Mar 31	Apr 2	Apr 29	30	24 (35%)	22	93	Sep 20	Oct 10	Oct 30	41	35 (38%)	35	362
2007	Apr 3	Apr 6	Apr 27	25	11 (16%)	11	36	Sep 25	Oct 6	Oct 30	36	26 (29%)	30	127
2008	Apr 8	Apr 9	Apr 27	20	10 (14%)	4	17	Aug 1	Sep 22	Oct 30	91	22 (24%)	12	65
2009	Apr 2	Apr 9	May 3	32	14 (20%)	8	42	Aug 19	Oct 23	Oct 30	73	27 (30%)	13	94
2010	Apr 6	Apr 17	May 1	26	5 (7%)	3	9	Sep 15	Oct 6	Oct 27	43	38 (42%)	85	353
2011	Apr 7	Apr 16	May 13	37	7 (10%)	3	10	Sep 17	Oct 4	Oct 28	42	30 (33%)	25	176
2012	Apr 5	Apr 17	May 17	43	7 (10%)	3	13	Sep 5	Oct 18	Oct 30	56	49 (54%)	35	389
2013	Apr 9	Apr 18	May 10	32	13 (19%)	11	55	Aug 16	Oct 5	Oct 30	76	44 (48%)	42	444
2014	Apr 2	Apr 18	May 2	31	15 (22%)	26	115	Aug 24	Sep 24	Oct 30	68	36 (40%)	22	260
Mean	Apr 4	Apr 11	May 3	30	12 (17%)	12	45	Sep 2	Oct 6	Oct 29	58	34 (38%)	43	275

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5					0.1		5.8	2.0	1.2	0.6						1.0
2006	0.1					0.03	4.1	4.0	3.4	1.0	1.3						1.3
2007	1.0					0.4	0.1	2.6	1.4	0.4	0.6						0.5
2008								1.0	0.7	0.4	0.3						0.2
2009	0.4					0.08	0.6	2.8	0.7	2.0	0.1	0.1					0.6
2010								0.1	0.4	0.4	0.3						0.1
2011			0.08			0.03		0.1	0.6	0.3	0.1	0.1	0.1				0.1
2012					0.2	0.04		0.3	0.6	0.9				0.1			0.2
2013								0.6	1.9	4.6	0.6	0.1	0.1				0.8
2014							0.2		5.6	10.4	0.1	0.1					1.7
Mean	0.2		0.01		0.01	0.07	0.6	1.6	1.7	2.2	0.4	0.06	0.03	0.01			0.7

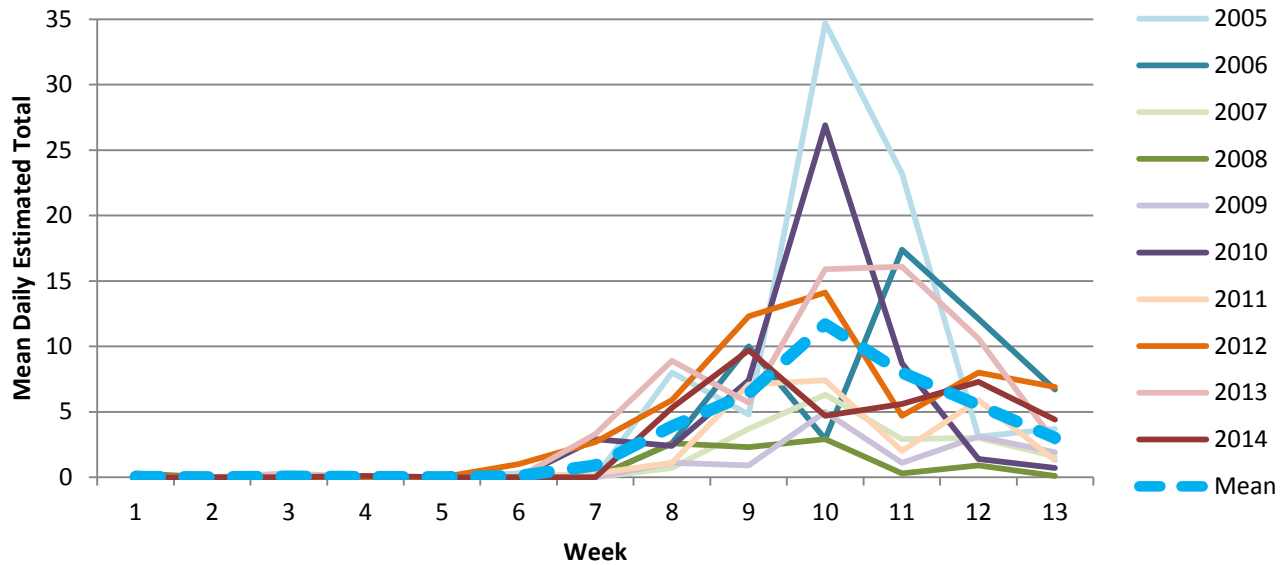
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									0.3		8.0	4.8	34.7	23.2	3.1	3.7	5.5
2006											2.6	10.0	2.9	17.4	12.1	6.7	4.0
2007											0.7	3.7	6.3	2.9	3.0	1.6	1.4
2008				0.3							2.6	2.3	2.9	0.3	0.9	0.1	0.7
2009						0.3					1.1	0.9	5.0	1.1	3.1	1.9	1.0
2010										2.9	2.4	7.4	26.9	8.7	1.4	0.7	3.9
2011										0.3	1.1	7.1	7.4	2.0	5.9	1.3	1.9
2012									1.0	2.7	5.9	12.3	14.1	4.7	8.0	6.9	4.3
2013						0.1	0.1			3.3	8.9	5.7	15.9	16.1	10.6	2.7	4.9
2014							0.1				5.3	9.7	4.7	5.6	7.3	4.4	2.9
Mean				0.03		0.04	0.03		0.1	0.9	3.9	6.4	11.7	8.0	5.5	3.0	3.0

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										1							1
2006								2	5								7
2007										2							2
2008										1							1
2009										2	1						3
2010																	
2011										1		1					2
2012										1				1			2
2013										1	1						2
2014										13							13
Mean								1.0	2.5	2.2	0.2	0.1		0.1			3.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									2		12	11	14	7	2	6	54
2006											4	17	7	15	28	2	73
2007											3	3	6	3	5	2	22
2008				2							8	8	14	2	1	1	36
2009											3	3	10		6	3	25
2010										5	15	10	33	23	2	2	90
2011										2	4	20	24	1	15	4	70
2012									2	7	5	14	21	8	15	19	91
2013						1				7	14	9	25	30	12	3	101
2014											14	32	6	10	12	8	82
Mean				0.2			0.1		0.4	2.1	8.2	12.7	16.0	9.9	9.8	5.0	64.4

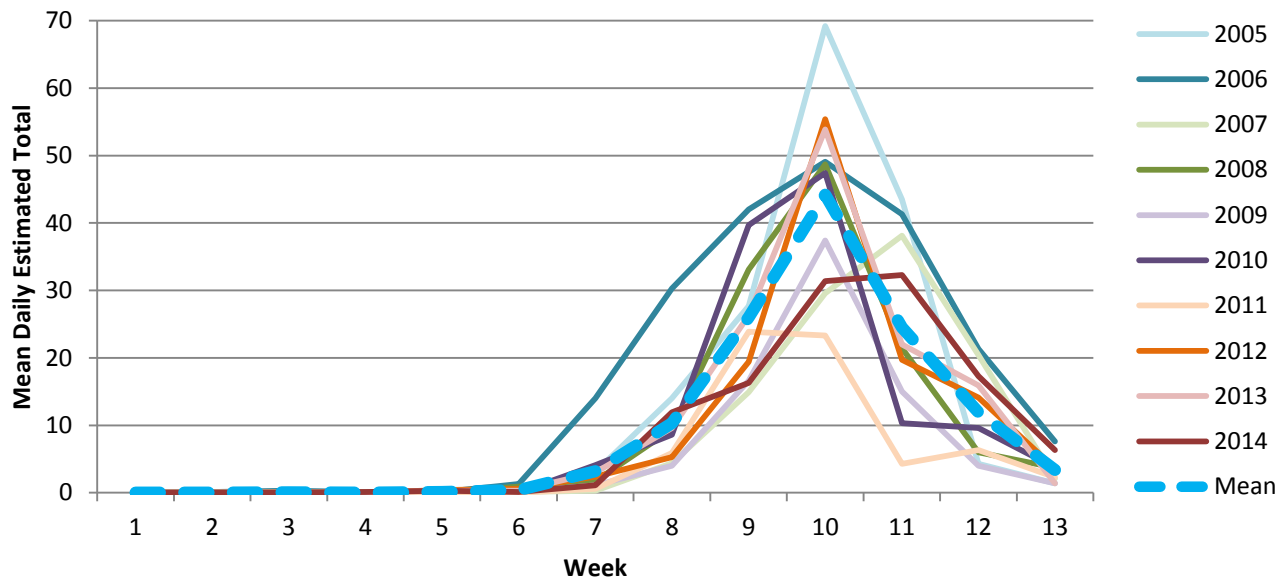
Golden-crowned Kinglet is the hardier of the two kinglets, with fall records extending into November in four years, an early arrival in late March in another year, and even a mid-winter record in January 2011. However, the peak of spring migration has steadily shifted later, from week 1 or 2 in 2005-09 to week 3 in 2010-11 and week 4 in 2012-14. Spring numbers in 2005-06 and 2013-14 were on average roughly four times higher than from 2007-2012. The fall peak has been more consistent, in week 10 except for one year in week 9 and two in week 11; there have been only occasional sightings in the first six weeks of the season. Fall counts were also low from 2007-09 and 2011, and at their highest in 2005 and 2013, preceding the best spring totals in 2006 and 2014.

Mean daily estimated total of Golden-crowned Kinglets in fall, by week



The pattern of fall migration is largely similar for Golden-crowned Kinglets (above) and Ruby-crowned Kinglets (below). The biggest difference is with respect to abundance, with the overall peak more than three times higher for Ruby-crowned Kinglet. The peak of migration is also sharper for Ruby-crowned Kinglet, with the number of individuals observed in week 10 often far greater than the preceding or subsequent week, whereas Golden-crowned Kinglet numbers in most years are similarly high for two to three weeks. Of note for Ruby-crowned Kinglet is that the year with the highest peak count was 2005, but the year with the greatest overall count was 2006, with a considerably more modest peak, but record high numbers from week 7 through 9.

Mean daily estimated total of Ruby-crowned Kinglets in fall, by week



RCKI: Ruby-crowned Kinglet / Roitelet à couronne rubis (*Regulus calendula*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 17	Apr 28	May 21	35	30 (51%)	10	105	Aug 17	Oct 9	Oct 30	75	44 (50%)	200	1006
2006	Apr 12	May 2	May 30	49	33 (48%)	45	277	Aug 11	Oct 4	Oct 30	81	59 (65%)	120	1453
2007	Apr 23	May 6	May 21	29	25 (36%)	30	266	Sep 10	Oct 10	Oct 30	51	42 (46%)	116	770
2008	Apr 17	Apr 21	May 31	45	29 (41%)	51	376	Aug 19	Oct 10	Oct 30	73	49 (54%)	70	876
2009	Apr 20	Apr 27	May 16	27	21 (30%)	28	165	Sep 5	Oct 8	Oct 29	55	43 (47%)	100	558
2010	Apr 17	May 2	May 18	32	29 (41%)	22	141	Sep 12	Oct 1	Oct 30	49	48 (53%)	89	864
2011	Apr 22	May 3	May 26	35	25 (36%)	78	298	Sep 16	Oct 4	Oct 30	45	40 (44%)	50	465
2012	Apr 18	Apr 21	May 13	26	25 (36%)	30	298	Aug 29	Oct 5	Oct 30	63	54 (59%)	97	847
2013	Apr 16	Apr 23	May 28	43	28 (40%)	24	194	Sep 1	Oct 3	Oct 26	56	47 (52%)	95	928
2014	Apr 14	Apr 22	May 18	35	31 (46%)	24	312	Aug 24	Oct 10	Oct 30	68	49 (54%)	79	820
Mean	Apr 17	Apr 27	May 22	36	28 (40%)	34	243	Aug 29	Oct 6	Oct 29	62	48 (52%)	102	859

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005									0.1	3.2	4.6	4.0	2.9	0.7			1.8
2006									1.1	6.3	13.6	16.3	0.3	1.9		0.1	4.0
2007	0.4					0.1				3.1	11.6	17.7	4.1	1.4			3.8
2008									0.3	28.0	10.7	6.7	7.9			0.1	5.4
2009										2.1	17.4	2.0	1.9	0.1			2.4
2010									0.3	4.9	5.3	5.3	3.9	0.6			2.0
2011	0.1					0.03				0.1	7.9	27.4	6.4	0.3	0.4		4.3
2012										12.4	13.1	13.7	3.3				4.3
2013									0.1	10.7	10.1	4.9	0.7	1.0	0.1		2.8
2014									1.3	12.3	11.6	11.0	8.3	0.1			4.6
Mean	0.07					0.02			0.3	8.4	10.6	10.9	4.0	0.6	0.06	0.03	3.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						0.1			0.4	3.1	14.0	27.7	69.2	43.5	4.3	1.4	11.4
2006					0.1	0.3	0.1	0.1	1.3	14.0	30.3	42.0	49.1	41.3	21.3	7.6	16.0
2007									0.1	0.3	4.4	14.9	29.6	38.1	20.4	2.1	8.5
2008						0.1			0.9	1.7	9.4	33.1	48.7	21.4	6.0	3.7	9.6
2009									0.1	1.1	4.0	16.6	37.4	15.0	4.0	1.4	6.1
2010										4.1	8.6	39.7	47.4	10.3	9.6	3.7	9.5
2011										0.6	5.9	23.9	23.3	4.3	6.3	2.3	5.1
2012								0.4	0.6	2.4	5.3	19.4	55.4	19.7	14.1	3.6	9.3
2013								0.3	0.3	3.0	9.6	26.3	53.9	22.0	15.9	1.4	10.2
2014							0.1	0.3	0.1	1.1	11.9	16.3	31.4	32.3	17.3	6.3	9.0
Mean					0.01	0.06	0.03	0.1	0.4	3.2	10.3	26.0	44.2	24.5	11.9	3.4	9.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										6	8		2	4			20
2006									4	15	3	32	1	3			58
2007										6		31	10	5			52
2008										56	6	10	20				92
2009										5	53	7	7	1			73
2010										6	8	14	6	2			36
2011	1					1				1	6	30	5		1		43
2012										20	4	20	10				54
2013										13	10	12	2	2			39
2014										28	5	14	24				71
Mean	0.1					0.1			2.0	15.6	10.3	17.0	8.7	1.7	0.1		53.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										12	46	89	66	26	4	2	245
2006					1				2	19	42	114	115	71	66	14	444
2007									1		13	45	98	145	73	1	376
2008									2	8	24	111	126	34	5	9	319
2009										2	6	45	159	33	8	4	257
2010										7	20	82	96	32	25	9	271
2011											18	67	59	11	18	7	180
2012								1	1	3	15	67	165	56	41	4	353
2013								2		3	12	54	185	61	28	2	347
2014								1		2	21	45	81	95	65	17	327
Mean					0.1			0.4	0.6	5.6	21.7	71.9	115.0	56.4	33.3	6.9	311.9

Ruby-crowned Kinglets arrive at MBO slightly later in spring than Golden-crowned Kinglets, typically just after mid-April, and peak in week 5 or 6; only four times have late individuals lingered into the final two weeks of the season. Although in most years there are a few sightings over the first six weeks of fall, migration generally begins in week 7, and most commonly peaks in week 10. Numbers have fluctuated to some degree in both spring and fall, but not to the same extent as Golden-crowned Kinglet. Even though 2006 represents the highest total banded in any fall, it is an underestimate of the total, as the unexpected influx exceeded the bands available. Winter records are limited to two late fall migrants lingering into early November.

EABL: Eastern Bluebird / Merlebleu de l'Est (*Sialia sialis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 19	Apr 19	Apr 19	1	1 (2%)	1	1	Sep 25	Oct 24	Oct 24	30	4 (5%)	3	6
2006	Apr 5	Apr 5	Apr 5	1	1 (1%)	1	1	Oct 6	Oct 21	Oct 30	25	6 (7%)	6	16
2007								Sep 18	Sep 29	Oct 30	43	18 (20%)	8	45
2008	Apr 24	Apr 25	May 22	29	13 (19%)	3	24	Oct 17	Oct 19	Oct 19	3	2 (2%)	3	4
2009	Apr 8	Apr 8	May 9	32	3 (4%)	1	3							
2010	May 13	May 13	May 13	1	1 (1%)	1	1	Oct 5	Oct 10	Oct 20	16	4 (4%)	7	18
2011	May 8	Jun 4	Jun 5	29	17 (24%)	3	31	Oct 27	Oct 27	Oct 30	4	2 (2%)	1	2
2012	May 12	May 12	May 21	10	2 (3%)	2	3	Sep 28	Oct 20	Oct 23	26	11 (12%)	11	33
2013	May 7	May 7	Jun 1	26	6 (9%)	3	12	Aug 1	Oct 23	Oct 30	91	12 (13%)	14	33
2014	May 12	May 12	May 12	1	1 (1%)	1	1	Sep 30	Oct 24	Oct 29	30	18 (20%)	20	133
Mean	Apr 28	May 1	May 12	14	5 (7%)	2	7.7	Sep 27	Oct 18	Oct 26	30	9 (9%)	8	29

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	3.5					1.0				0.2							0.02
2006								0.2									0.01
2007																	
2008	0.1					0.04				0.1	2.0	1.1		0.1			0.3
2009					0.2	0.08		0.2		0.1			0.1				0.04
2010													0.1				0.01
2011												0.1		0.4	1.9	2.0	0.4
2012													0.3	0.1			0.04
2013	0.4					0.06						0.7			0.6	0.4	0.2
2014													0.1				0.01
Mean	0.2				0.04	0.05		0.03		0.04	0.2	0.2	0.07	0.07	0.2	0.3	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall	
2005												0.1		0.2		0.1	0.4	0.07
2006													0.1		1.3	0.9	0.2	
2007										0.1		2.4	0.9	0.7	0.3	2.0	0.5	
2008															0.6		0.04	
2009																		
2010													0.4	2.0	0.1		0.2	
2011	1.3	0.3	0.7													0.3	0.02	
2012		0.3	0.1									0.3	0.4	0.7	3.3		0.4	
2013				0.4	0.1	0.1								0.6	2.4	1.0	0.4	
2014												0.7		3.9	6.4	8.0	1.5	
Mean	0.07	0.03	0.05	0.04	0.01	0.01				0.01	0.01	0.3	0.2	0.8	1.5	1.3	0.3	

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	1
2010																	
2011																	
2012																	
2013																	
2014																	
Mean												0.1					0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007														2			2
2008																	
2009																	
2010																	
2011		4	4														
2012																	
2013																	
2014																	
Mean		0.4	0.4										0.2				0.2

Eastern Bluebird is a fairly regular spring and migrant, missed in only one of ten years in each season. From 2005-2006 and 2008-2009, the first sighting of spring was in April, but from 2010-2014 it has been between May 7 and 13 each year. Overall there is little pattern to spring timing. Numbers were highest in 2011, due to presence of a breeding pair that stayed through summer. Except for August sightings in 2013, fall observations have been limited to the second half of the season, most notably mid-late October, with sightings carrying over into November in three years. Fall numbers have shown an increasing trend over time, yet the only bluebirds banded since 2008 were four nestlings in a nest box in July 2011.

TOSO: Townsend's Solitaire / Solitaire de Townsend (*Myadestes townsendi*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009								Oct 30	Oct 30	Oct 30	1	1 (1%)	1	1
2010														
2011														
2012														
2013														
2014														
Mean								Oct 30	Oct 30	Oct 30	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010	0.1					0.03											
2011																	
2012																	
2013																	
2014																	
Mean	0.02					<0.01											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																0.1	0.01
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.01	<0.01

One of just eight species with only a single individual observed at MBO, and the only one which was observed on more than one day. The solitaire arrived at MBO on the final day of the fall season in 2009, and lingered into early November.

VEER: Veery / Grive fauve (*Catharus fuscescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 14	Jun 1	Jun 3	21	11 (19%)	4	16	Aug 3	Aug 6	Sep 23	52	20 (23%)	2	27
2006	May 18	May 29	Jun 5	19	15 (22%)	4	34	Aug 1	Aug 27	Sep 18	49	35 (38%)	5	69
2007	May 18	May 27	Jun 1	15	9 (13%)	4	18	Aug 3	Aug 8	Sep 7	36	15 (16%)	3	23
2008	May 11	May 30	Jun 4	25	12 (17%)	2	13	Aug 1	Aug 1	Sep 22	53	27 (30%)	3	38
2009	May 8	May 12	May 31	24	17 (25%)	4	31	Aug 1	Aug 1	Oct 9	70	22 (24%)	6	37
2010	May 7	May 18	Jun 5	30	23 (33%)	3	40	Aug 2	Aug 12	Sep 11	41	18 (20%)	4	25
2011	May 9	May 12	May 22	14	7 (10%)	2	10	Aug 3	Aug 20	Oct 5	64	20 (22%)	2	21
2012	May 9	May 21	May 31	23	9 (13%)	2	10	Aug 1	Aug 12	Oct 20	81	36 (40%)	5	67
2013	May 11	May 25	May 27	17	5 (7%)	2	6	Aug 1	Aug 24	Sep 21	52	29 (32%)	5	55
2014	May 10	May 24	Jun 2	24	18 (26%)	5	35	Aug 1	Aug 16	Sep 18	47	25 (27%)	4	44
Mean	May 11	May 23	May 31	21	13 (18%)	3	21	Aug 3	Aug 12	Sep 24	54	25 (27%)	4	41

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.1	0.3	0.4	2.0	0.3
2006														0.3	2.1	2.4	0.5
2007														0.1	1.7	0.7	0.3
2008													0.3	0.4	0.4	0.7	0.2
2009												0.1	1.3	1.9	0.9	0.3	0.4
2010												0.1	0.3	1.6	2.3	1.4	0.6
2011													0.9	0.6			0.1
2012													0.1	0.9	0.3	0.1	0.1
2013													0.1		0.7		0.09
2014													0.6	1.3	2.6	0.7	0.5
Mean												0.03	0.4	0.7	1.1	0.8	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.1	1.2	1.1	0.6	0.3	0.6	1.0	0.6	0.1	0.4	0.3						0.3
2006	1.9	2.9	2.5	2.1	1.4	1.4	2.7	1.4	0.6	0.1							0.8
2007	0.6	1.5	1.0	0.9	0.7	0.6	0.4	0.6	0.1								0.3
2008	0.8	0.6	0.7	1.3	1.1	0.9	0.7	0.4	0.4	0.3	0.3						0.4
2009	0.7	1.3	1.0	2.4	0.6	0.7	1.0	0.4					0.1				0.4
2010	1.3	0.7	0.9	0.7	1.0	0.1	0.1	0.6	1.0								0.3
2011	0.7	1.0	0.9	0.4	0.6	0.6	0.4	0.3	0.3		0.1	0.1	0.1				0.2
2012	0.3	1.0	0.6	1.7	2.7	1.7	1.9	0.3	0.3	0.4	0.1	0.3			0.1		0.7
2013	0.3	2.8	1.7	2.0	1.0	1.4	1.6	1.0		0.6	0.3						0.6
2014	1.0	2.3	1.7	0.6	1.3	1.3	0.6	1.6	0.9	0.1							0.5
Mean	1.0	1.6	1.3	1.3	1.1	0.9	1.0	0.7	0.4	0.2	0.1	0.04	0.03		0.01		0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																1	1
2006																1	1
2007																1	1
2008													1				1
2009														2	2		4
2010														3			3
2011																	
2012													1			1	2
2013													1			1	2
2014														3	2		5
Mean													0.3	0.8	0.8	0.1	2.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		4	4	1	1	2	3	3		2							12
2006				2	2	1	1										6
2007				1			2										3
2008				3	3	1	5	1	2	2							17
2009		4	4	8	1	3	5	2									19
2010	3	1	4	1	5		1	2	4								13
2011				2	1	1	1	2	1		1						9
2012	1	1	2	3	7	4	5	1	1	1		1					23
2013		8	8	5	1	2	3	3		2	1						17
2014		4	4	1	5	4	4	7	3	1							25
Mean	0.7	2.4	2.9	2.7	2.6	1.8	3.0	2.1	1.1	0.8	0.2	0.1					14.4

Veery is a regular breeder at MBO, present annually from around mid-May to early September, and exceptionally into October in three years. Spring arrival has become somewhat earlier over time, ranging from May 14 to 18 over the first three years to May 7 to 11 since 2008; the spring peak has also advanced from week 9 or 10 in the first four years to week 7 to 9 since 2009. Summer numbers have not shown a trend over time. Fall numbers generally peak at the start of the season and steadily decline, although in some years a small wave of migrants in late August is apparent. Mean daily counts in fall have not shown a clear pattern over time, although the number banded has been increasing.

GCTH: Gray-cheeked Thrush / Grive à joues grises (*Catharus minimus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 30	May 30	May 30	1	1 (2%)	1	1	Sep 16	Sep 21	Oct 3	18	10 (11%)	3	18
2006	May 28	May 28	May 28	1	1 (1%)	1	1	Sep 18	Sep 25	Sep 30	13	4 (4%)	2	5
2007								Sep 23	Sep 24	Oct 6	14	7 (8%)	2	8
2008								Sep 30	Sep 30	Sep 30	1	1 (1%)	1	1
2009	May 18	May 18	May 24	7	2 (3%)	1	2	Sep 20	Sep 21	Oct 2	13	5 (5%)	2	6
2010	May 22	May 22	May 22	1	1 (1%)	1	1							
2011								Sep 21	Sep 21	Sep 27	7	3 (3%)	1	3
2012	May 29	May 29	May 29	1	1 (1%)	1	1	Sep 14	Sep 19	Oct 5	22	15 (16%)	3	23
2013	May 27	May 27	May 27	1	1 (1%)	1	1	Sep 8	Sep 8	Oct 10	33	4 (4%)	1	4
2014								Sep 16	Sep 16	Sep 29	14	3 (3%)	2	4
Mean	May 25	May 25	May 26	2	1 (2%)	1	0.7	Sep 18	Sep 20	Oct 2	15	6 (6%)	2	7.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																0.2	0.02
2006															0.1		0.01
2007																	
2008																	
2009														0.1	0.1		0.03
2010														0.1			0.01
2011																	
2012															0.1		0.01
2013															0.1		0.01
2014																	
Mean														0.03	0.06	0.01	0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										0.1	1.3	0.8	0.5				0.2
2006										0.1	0.4	0.1					0.05
2007											0.4	0.4	0.3				0.09
2008												0.1					0.01
2009											0.4	0.4					0.07
2010																	
2011											0.3	0.1					0.03
2012										0.3	1.9	0.9	0.3				0.3
2013									0.1			0.3		0.1			0.04
2014										0.3		0.3					0.04
Mean									0.01	0.09	0.5	0.3	0.1	0.01			0.08

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																1	1
2006																1	1
2007																	
2008																	
2009																1	1
2010														1			1
2011																	
2012																1	1
2013																1	1
2014																	
Mean														0.1	0.4	0.1	0.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										1	6	4					11
2006										1	1	1					3
2007											3	1	2				6
2008												1					1
2009											3	3					6
2010																	
2011											2	1					3
2012										2	10	4	1				17
2013									1			2		1			4
2014										2		2					4
Mean									0.1	0.6	2.5	1.9	0.3	0.1			5.5

Gray-cheeked Thrush is the least common of the four annually occurring *Catharus* thrushes at MBO. It is particularly scarce in spring, with only eight records over seven years, 75% of them involving birds that were banded. All spring records have been within a 13-day span between May 18 and 30. Except for record early and late sightings in 2013, all fall observations have all been in a narrow time window, a 23-day span from September 14 to October 6. Fall numbers have been consistently low, except for 2005 and 2012 when they were more than double the long-term average; in both those years there was a distinct peak in week 8.

BITH: Bicknell's Thrush / Grive de Bicknell (*Catharus bicknelli*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 27	May 27	May 27	1	1 (2%)	1	1							
2006														
2007														
2008								Oct 6	Oct 6	Oct 6	1	1 (1%)	1	1
2009														
2010														
2011								Sep 26	Sep 26	Sep 26	1	1 (1%)	1	1
2012								Sep 29	Sep 29	Oct 2	4	2 (2%)	1	2
2013														
2014														
Mean	May 27	May 27	May 27	1	1 (2%)	1	0.1	Sep 30	Sep 30	Oct 1	2	1 (1%)	1	0.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																0.1	0.02
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.01		<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008													0.1				0.01
2009																	
2010																	
2011												0.1					0.01
2012												0.3					0.02
2013																	
2014																	
Mean												0.04	0.01				<0.01

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															1		1
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.1		0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008													1				1
2009																	
2010																	
2011												1					1
2012												2					2
2013																	
2014																	
Mean												0.3	0.1				0.4

Bicknell's Thrush is the rarest of the five *Catharus* thrushes at MBO, with just one spring and four fall observations, all involving birds banded. All four fall sightings have been within an 11-day period from September 26 to October 6.

SWTH: Swainson's Thrush / Grive à dos olive (*Catharus ustulatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 30	May 30	May 30	1	1 (2%)	1	1	Aug 19	Sep 18	Oct 9	52	23 (26%)	7	45
2006	May 19	May 19	May 25	7	3 (4%)	1	3	Sep 4	Sep 4	Oct 12	39	10 (11%)	1	10
2007	May 23	May 23	Jun 1	10	3 (4%)	1	3	Aug 15	Sep 18	Oct 21	68	19 (21%)	2	23
2008	May 16	May 27	May 28	13	3 (4%)	3	5	Aug 7	Oct 3	Oct 6	61	11 (12%)	5	19
2009	May 24	May 24	May 24	1	1 (1%)	1	1	Aug 6	Oct 3	Oct 12	68	13 (14%)	2	16
2010	May 23	May 23	May 23	1	1 (1%)	1	1	Aug 1	Sep 16	Oct 16	77	25 (27%)	4	35
2011	May 15	May 15	May 15	1	1 (1%)	1	1	Aug 2	Sep 25	Oct 6	66	20 (22%)	4	30
2012	May 31	May 31	May 31	1	1 (1%)	1	1	Aug 2	Sep 13	Oct 22	82	59 (65%)	28	288
2013	May 23	May 26	May 26	4	2 (3%)	2	3	Aug 1	Sep 14	Oct 10	71	33 (36%)	11	82
2014	May 11	May 14	Jun 1	22	5 (7%)	3	9	Aug 2	Sep 24	Oct 22	82	33 (36%)	11	63
Mean	May 21	May 23	May 26	6	2 (3%)	2	2.8	Aug 9	Sep 19	Oct 13	67	25 (27%)	8	61

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																0.2	0.02
2006														0.3	0.1		0.04
2007															0.3	0.1	0.04
2008													0.1	0.6			0.07
2009															0.1		0.01
2010															0.1		0.01
2011													0.1				0.01
2012																0.1	0.01
2013															0.4		0.04
2014													0.9	0.3		0.2	0.1
Mean													0.1	0.07	0.2	0.06	0.04

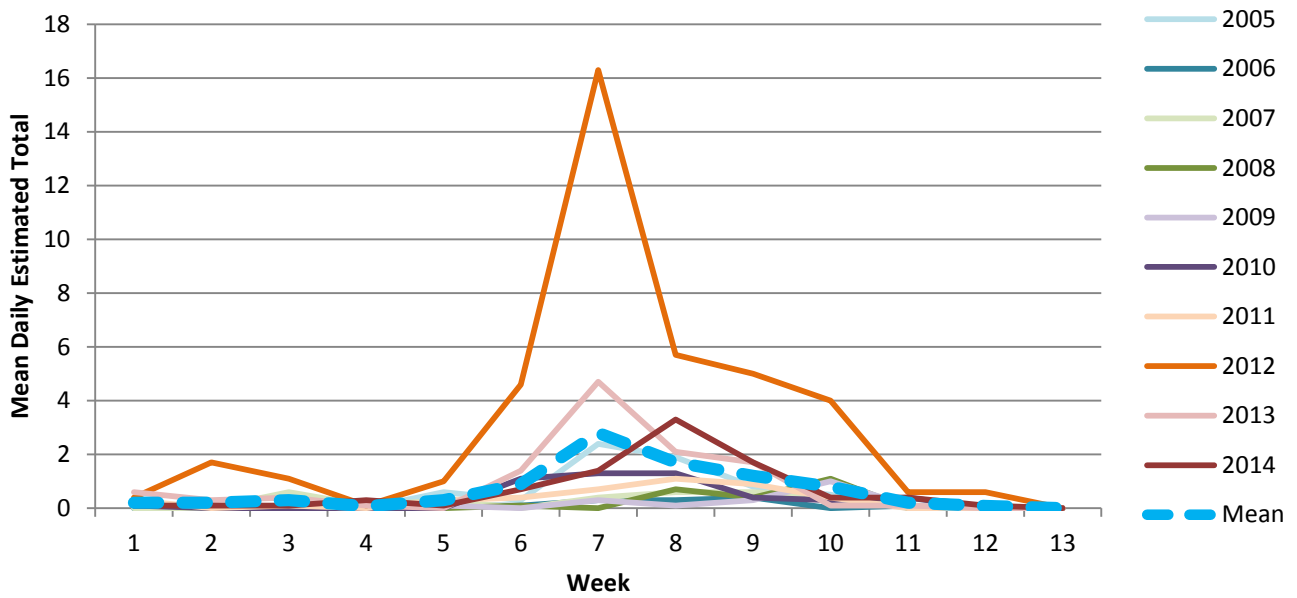
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						0.1		0.6	0.3	2.4	1.9	0.8	0.5				0.5
2006								0.1	0.1	0.3	0.3	0.4		0.1			0.1
2007						0.6	0.1	0.3		0.4	0.6	0.6	0.4	0.1	0.1		0.3
2008				0.1	0.1			0.1	0.1	0.7	0.4	1.1					0.2
2009				0.1	0.1			0.1		0.3	0.1	0.3	1.0	0.1			0.2
2010				0.1					1.1	1.3	1.3	0.4	0.3	0.4			0.4
2011				0.3		0.1		0.3	0.4	0.7	1.1	0.9	0.4				0.3
2012				0.4	1.7	1.1	0.1	1.0	4.6	16.3	5.7	5.0	4.0	0.6	0.6		3.2
2013				0.6	0.3	0.4	0.1		1.4	4.7	2.1	1.7	0.1	0.1			0.9
2014				0.1	0.1	0.1	0.3	0.1	0.7	1.4	3.3	1.7	0.4	0.4	0.1		0.7
Mean				0.2	0.2	0.3	0.07	0.3	0.9	2.8	1.7	1.2	0.8	0.2	0.09		0.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																1	1
2006														1			1
2007															2		2
2008															1		1
2009															1		1
2010															1		1
2011																	
2012																1	1
2013															1		1
2014													2	1		1	4
Mean													0.2	0.2	0.6	0.3	1.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						1		3	2	13	10	5	2				36
2006								1		2	2	2					7
2007						4		2		2	1	3	2	1			15
2008				1	1			1			4	3	5				15
2009				1	1			1		2		2	7				14
2010				1					7	9	7	1	1	1			27
2011				2		1		2	3	1	6	5	1				21
2012				3	9	5	1	7	24	66	20	21	17	1	2		176
2013				2			1		2	12	4	4					25
2014				1		1	2	1	5	6	16	9	2	2	1		46
Mean				1.1	1.1	1.2	0.4	1.7	4.4	11.3	7.0	5.5	3.7	0.5	0.3		38.2

Swainson's Thrush is a rare spring but common fall migrant at MBO. Although observed every spring, in five years out of ten only a single individual was recorded; nearly half of spring sightings are birds banded. All spring sightings are over a period of 22 days from May 11 to June 1. Fall sightings have started within the first two days of the season for the past five years, and overall, August records (all adults arriving as molt migrants) have become more numerous over time. Migration usually ends by mid-October, but in three years there has been a late migrant on October 21 or 22. The fall peak is regularly in week 7 or 8. Fall numbers have been above average for the past three years, but significantly higher in 2012 than any other year.

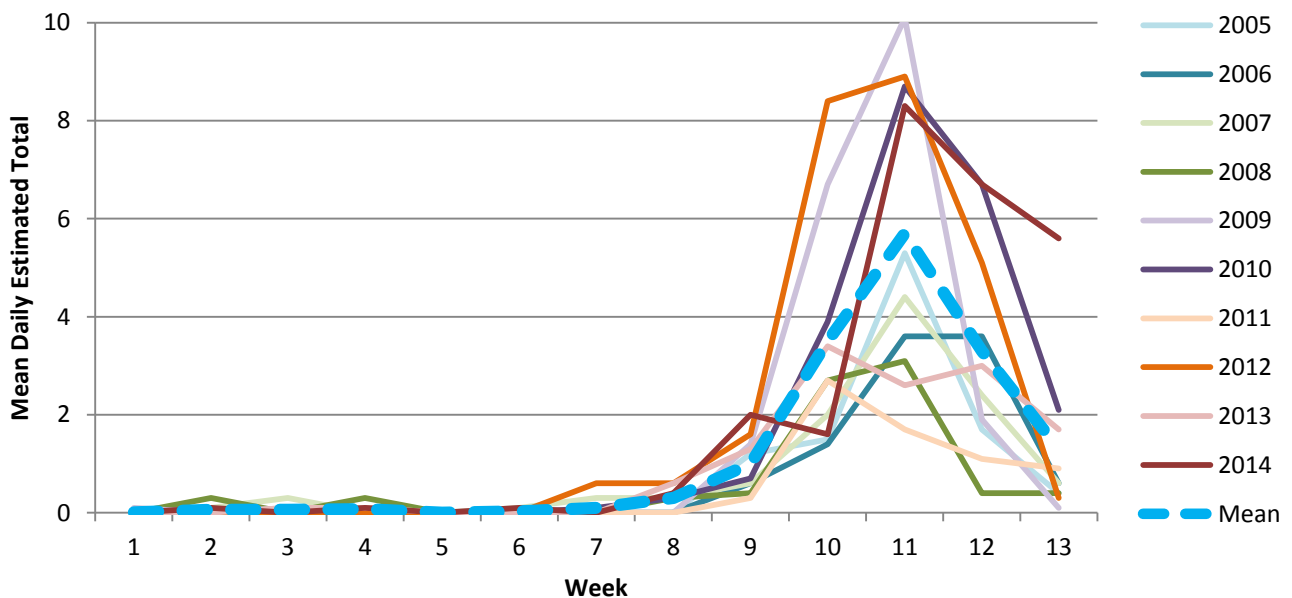
Mean daily estimated total of Swainson's Thrushes in fall, by week



The pattern of Swainson's Thrush fall migration (above) illustrates how exceptional 2012 was, with record counts throughout the season, often exceeding the ten-year mean by close to an order of magnitude. However, the basic pattern held true that year as well, with relatively small numbers over the first 5-6 weeks (mostly adults arriving as molt migrants), a sharp spike in week 7, and numbers tapering off over the following four weeks. Although the record high in 2012 was driven almost entirely by juveniles, there were also more adults as molt migrants that August than in any other year.

Hermit Thrush (below) is similar in that records in the early part of the season are scarce compared to the peak of migration, and primarily comprise adults stopping over at MBO as molt migrants. Otherwise though, the pattern of migration is quite different, with numbers not starting to build until week 9, well after the peak of Swainson's Thrush migration, and typically peaking around week 11. Also, while 2012 as a particularly good year for both species, Hermit Thrush was similarly high in 2009, 2010, and 2014.

Mean daily estimated total of Hermit Thrushes in fall, by week



HETH: Hermit Thrush / Grive solitaire (*Catharus guttatus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 27	Apr 27	May 6	10	2 (3%)	1	2	Sep 25	Oct 11	Oct 28	34	22 (25%)	7	64
2006	Apr 28	Apr 28	May 17	20	2 (3%)	1	2	Sep 30	Oct 16	Oct 26	27	22 (24%)	12	68
2007	Apr 29	Apr 29	May 24	26	5 (7%)	1	5	Aug 9	Oct 14	Oct 25	78	26 (29%)	8	78
2008	Apr 18	Apr 18	May 14	27	3 (4%)	1	3	Aug 9	Oct 8	Oct 30	83	25 (27%)	6	56
2009	Apr 27	Apr 27	May 18	22	2 (3%)	1	2	Aug 7	Oct 10	Oct 29	84	22 (24%)	22	144
2010	May 13	May 13	May 13	1	1 (1%)	1	1	Sep 16	Oct 9	Oct 30	45	29 (32%)	14	158
2011	Apr 27	Apr 30	May 30	34	4 (6%)	2	6	Aug 26	Oct 6	Oct 29	65	23 (25%)	10	48
2012	Apr 18	Apr 27	Jun 1	45	13 (19%)	5	28	Sep 16	Oct 7	Oct 25	40	35 (38%)	17	178
2013	Apr 17	Apr 17	Apr 17	1	1 (1%)	1	1	Aug 16	Oct 19	Oct 30	76	33 (36%)	12	90
2014	Apr 16	May 20	May 24	39	11 (16%)	6	22	Aug 14	Oct 11	Oct 30	78	38 (42%)	19	175
Mean	Apr 25	Apr 29	May 16	22	4 (6%)	2	7.2	Aug 29	Oct 11	Oct 28	61	28 (30%)	13	106

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.1	0.1					0.03
2006											0.1			0.1			0.03
2007	0.2					0.07					0.1			0.4	0.1		0.07
2008										0.1		0.1	0.1				0.04
2009											0.1			0.1			0.03
2010													0.1				0.01
2011											0.4	0.3				0.1	0.09
2012										0.9	3.0					0.1	0.4
2013									0.1								0.01
2014									0.7	0.7	0.4	0.1		0.9	0.3		0.3
Mean	0.03					0.01			0.09	0.2	0.4	0.07	0.03	0.2	0.04	0.03	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall	
2005												0.1	1.2	1.5	5.3	1.7	0.4	0.7
2006													0.6	1.4	3.6	3.6	0.6	0.7
2007						0.1	0.3			0.1	0.3	0.3	0.6	2.0	4.4	2.4	0.6	0.9
2008						0.3	0.3					0.3	0.4	2.7	3.1	0.4	0.4	0.6
2009					0.1		0.1					1.4	6.7	10.1	1.9	0.1	1.6	
2010										0.1	0.3	0.7	3.9	8.7	6.7	2.1	1.7	
2011							0.1					0.3	2.7	1.7	1.1	0.9	0.5	
2012										0.6	0.6	1.6	8.4	8.9	5.1	0.3	2.0	
2013							0.1	0.1			0.6	1.3	3.4	2.6	3.0	1.7	1.0	
2014						0.1	0.1	0.1		0.1	0.4	2.0	1.6	8.3	6.7	5.6	1.9	
Mean					0.01	0.06	0.06	0.07		0.03	0.1	0.3	1.0	3.5	5.7	3.3	1.3	1.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009											1						1
2010																	
2011																	
2012										2							2
2013																	
2014											1						1
Mean										0.2	0.2						0.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005												2	4	11	4	1	22
2006												4	10	14	8	1	37
2007											1	4	7	21	3		36
2008					2		1				2	1	12	13	1	2	34
2009						1						8	37	34	5	1	86
2010										1	2	2	18	43	21	3	90
2011							1					1	14	8	3	2	29
2012										2	1	7	39	32	14		95
2013						1					4	5	16	9	11	3	49
2014							1		1		2	10	5	38	25	12	94
Mean					0.2	0.2	0.3		0.1	0.3	1.2	4.4	16.2	22.3	9.5	2.5	57.2

Hermit Thrush is the most common of the *Catharus* thrushes at MBO in both spring and fall, with a few early winter records in November 2006. Spring arrivals are earlier than for related species, beginning in April every year except 2010. The spring peak is typically in week 5, and only twice have individuals been observed as late as week 10. August observations scattered across six years were likely all molt migrants; otherwise arrivals usually begin in week 7 or 8, and build to a peak that has been remarkably consistent, in week 11 eight years out of ten, although the banding peak is often one week earlier. Spring numbers have remained low except for spikes in 2012 and 2014; fall numbers reached remarkably similar peaks in 2009, 2010, 2012, and 2014.

WOTH: Wood Thrush / Grive des bois (*Hylocichla mustelina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 11	May 27	17	3 (5%)	1	3	Sep 5	Sep 5	Oct 13	39	3 (3%)	1	3
2006	May 8	May 8	May 21	14	5 (7%)	1	5							
2007	May 20	May 20	May 20	1	1 (1%)	1	1	Aug 9	Aug 9	Aug 9	1	1 (1%)	1	1
2008	May 5	Jun 5	Jun 5	32	2 (3%)	3	4	Oct 2	Oct 2	Oct 2	1	1 (1%)	1	1
2009	May 19	May 19	May 22	4	3 (4%)	1	3	Aug 2	Aug 2	Sep 11	41	3 (3%)	1	3
2010	May 7	May 16	May 26	20	4 (6%)	2	5	Sep 13	Sep 13	Sep 13	1	1 (1%)	1	1
2011	May 14	May 14	May 31	18	3 (4%)	1	3							
2012	May 9	May 9	May 15	7	3 (4%)	2	4	Sep 25	Sep 25	Sep 28	4	2 (2%)	1	2
2013	May 20	May 20	May 23	4	3 (4%)	3	6							
2014	May 10	May 20	May 28	19	10 (15%)	6	22	Aug 1	Sep 13	Sep 20	51	7 (8%)	4	13
Mean	May 12	May 17	May 24	14	4 (5%)	2	5.6	Aug 30	Sep 5	Sep 17	20	3 (3%)	1	2.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.1	0.1	0.05
2006												0.1	0.1	0.4			0.07
2007														0.1			0.01
2008												0.1				0.4	0.06
2009														0.4			0.04
2010												0.1	0.1	0.3	0.1		0.07
2011													0.1			0.3	0.04
2012													0.6				0.06
2013														0.6	0.3		0.09
2014													0.3	1.3	1.6		0.3
Mean												0.04	0.1	0.3	0.2	0.07	0.08

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06		0.03						0.1					0.3			0.03
2006																	
2007					0.1												0.01
2008												0.1					0.01
2009				0.3					0.1								0.03
2010										0.1							0.01
2011																	
2012											0.1	0.1					0.02
2013	0.3		0.1														
2014	1.0	2.5	1.9	0.7	0.4					0.6	0.1						0.1
Mean	0.09	0.2	0.1	0.1	0.06				0.03	0.07	0.03	0.03		0.03			0.03

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010														1			1
2011																	
2012														1			1
2013																	
2014														1	1		2
Mean													0.2	0.1	0.1		0.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007					1												1
2008												1					1
2009				1													1
2010																	
2011																	
2012											1						1
2013																	
2014		6	6	1	1												2
Mean		0.7	0.7	0.2	0.2						0.1	0.1					0.6

Wood Thrush has generally been a rare species at MBO, with sightings each spring and in seven of ten fall seasons, as well as three summers. All spring observations have been in the second half of the season, typically showing a slight peek around week 8. In three years, there have been early August sightings, and there was one unusually late record near mid-October, but otherwise fall observations have been between early September and early October. Overall, counts have been consistently low, outside of a spike in all seasons in 2014, highlighted by the presence of at least two breeding pairs, an increase from the one pair the previous year, which was a first.

AMRO: American Robin / Merle d'Amérique (*Turdus migratorius*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 11	Jun 3	60	58 (98%)	43	469	Aug 1	Oct 14	Oct 30	91	87 (99%)	500	5588
2006	Mar 28	Apr 15	Jun 5	70	69 (100%)	57	883	Aug 1	Oct 15	Oct 30	91	91 (100%)	1508	7870
2007	Mar 28	Apr 20	Jun 5	70	70 (100%)	50	689	Aug 1	Oct 23	Oct 30	91	91 (100%)	1150	8131
2008	Mar 28	Apr 16	Jun 5	70	69 (99%)	49	568	Aug 1	Oct 13	Oct 30	91	89 (98%)	519	7195
2009	Mar 28	Apr 26	Jun 5	70	69 (100%)	49	781	Aug 1	Oct 13	Oct 30	91	90 (99%)	700	8671
2010	Mar 28	Apr 7	Jun 5	70	70 (100%)	35	542	Aug 1	Oct 30	Oct 30	91	89 (98%)	1094	12377
2011	Mar 28	Apr 19	Jun 5	70	69 (99%)	36	684	Aug 1	Oct 18	Oct 30	91	87 (96%)	485	5576
2012	Mar 28	Apr 22	Jun 5	70	70 (100%)	205	1009	Aug 1	Oct 25	Oct 30	91	90 (99%)	404	6914
2013	Mar 28	Apr 18	Jun 5	70	67 (96%)	24	471	Aug 1	Oct 19	Oct 30	91	90 (99%)	613	7350
2014	Mar 29	Apr 17	Jun 4	68	67 (99%)	77	1041	Aug 1	Oct 30	Oct 30	91	91 (100%)	3033	9616
Mean	Mar 28	Apr 17	Jun 4	69	68 (99%)	62	714	Aug 1	Oct 20	Oct 30	91	90 (99%)	1001	7929

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	1.5			1.0		0.7		10.0	15.7	9.7	15.1	6.9	3.9	2.9	3.9	2.6	7.9
2006	9.6	0.07			0.5	2.2	8.6	21.0	23.4	22.4	14.1	12.3	9.6	6.4	7.1	4.1	12.8
2007	28.9	6.3	0.5		0.7	12.1	13.3	10.0	12.6	26.0	10.6	7.3	5.6	4.1	5.6	3.4	9.8
2008	91.5	2.0	0.2	2.6		31.6	4.0	9.6	16.3	14.9	8.0	7.0	6.4	5.4	4.3	5.3	8.1
2009	18.0	25.5	0.8	2.6	5.7	7.8	14.7	18.0	17.1	18.4	20.4	7.4	4.0	6.6	5.6	1.9	11.3
2010	30.8	0.8	0.09	0.4	3.0	10.1	12.7	11.0	6.3	11.6	8.6	8.0	8.7	4.6	3.6	2.4	7.7
2011	4.0		2.1	1.7	0.9	2.2	7.7	12.1	12.4	19.4	13.3	13.7	7.4	5.6	4.0	2.0	9.8
2012	34.4	9.0	4.7	26.0	9.4	20.8	13.1	11.9	14.0	57.3	20.7	9.4	7.0	3.3	4.1	3.3	14.4
2013	27.5	1.4	1.3	0.2	0.6	5.4	4.4	8.1	8.3	11.9	7.0	8.4	6.4	6.7	4.3	1.7	6.7
2014	14.8	1.0	1.0	6.0	7.0	5.8	5.0	8.6	25.3	43.0	24.1	17.6	7.3	5.3	7.6	6.7	15.3
Mean	27.0	3.0	1.0	2.6	2.8	8.8	9.4	11.8	15.1	23.7	14.2	9.8	6.6	5.1	5.0	3.3	10.4

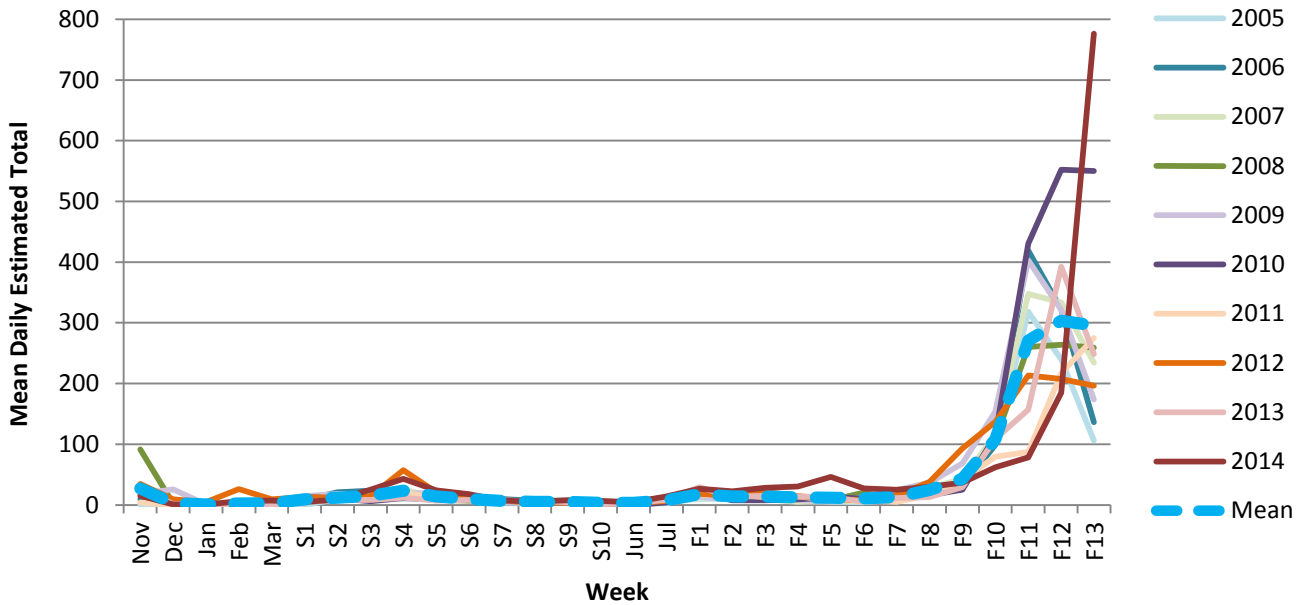
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	3.1	6.8	5.0	9.7	10.1	8.9	6.7	5.0	4.4	8.0	17.6	27.7	99.8	318.3	239.7	106.0	63.5
2006	4.8	12.4	9.0	13.4	18.0	13.4	9.6	6.7	8.3	15.9	31.7	31.1	99.1	419.0	321.7	136.3	86.5
2007	3.9	3.7	3.8	11.3	15.4	9.0	4.9	6.4	6.0	7.0	28.1	42.4	115.9	347.4	333.4	234.3	89.4
2008	3.8	5.0	4.4	16.1	10.9	13.3	11.1	7.9	20.4	6.9	16.7	33.9	107.9	260.0	263.9	259.0	79.1
2009	2.3	3.0	2.7	13.7	8.6	8.1	8.0	5.4	12.7	24.7	36.9	68.4	153.9	403.0	321.4	173.9	95.3
2010		4.0	2.7	21.7	7.9	7.4	9.3	12.3	11.0	10.9	15.9	25.3	113.9	430.6	552.1	550.0	136.0
2011	1.7	12.0	7.6	16.9	16.0	13.0	14.1	8.1	6.9	5.1	16.3	41.3	79.3	87.4	217.0	275.1	61.3
2012	2.5	6.5	4.5	18.4	15.4	21.3	14.6	9.9	7.4	16.1	37.6	93.1	136.9	213.3	207.4	196.3	76.0
2013	3.3	8.0	6.0	29.4	13.7	15.0	14.1	12.3	5.3	11.4	12.9	29.3	108.9	157.0	392.4	248.3	80.8
2014	4.7	14.0	10.0	26.7	22.3	28.1	30.4	46.1	27.4	25.1	29.7	36.7	62.0	78.3	184.7	776.0	105.7
Mean	3.3	7.7	5.7	17.7	13.8	13.8	12.3	12.0	11.0	13.1	24.3	43.1	107.9	270.8	303.4	295.5	87.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	4					4		2	2	1	3	2			6		16
2006								2	6	3	2	3	1			1	18
2007										8		1	1	1		1	12
2008										2			2	2		2	8
2009										1	2	2					5
2010	5					5				1	2	2	6	4	1	1	17
2011										14	6	6	1	1	2		30
2012	1					1				4	13	1	1		1	1	21
2013	2					2				2				4			7
2014	1					1				21	8	6	3	4	1	1	44
Mean	1.6					1.4		2.0	4.0	5.7	3.6	2.3	1.5	1.6	1.1	0.8	17.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				4	4	2	2			2	2	2	2	34	47	18	119
2006				4	3	1				3		1	28	82	146	34	302
2007				2	2				1	1	5	6	54	80	68	99	318
2008				1	6	1	4		2		3	2	28	103	101	95	346
2009	1	12	13	11	2				2	2	2	3	22	51	96	9	200
2010		13	13	17	3	1	1			1		2	2	51	191	125	394
2011	1	13	14	9	2	1					1	4		1	8	53	79
2012		18	18	5	2	3	1		3			4	19	29	45	19	130
2013	3	8	11	6	1	2	1	1					34	32	68	91	236
2014	1	19	20	8	8	7	7	1	2	2		1	2	3	32	71	144
Mean	1.0	9.2	9.9	6.7	3.3	1.8	1.6	0.2	1.0	1.1	1.3	2.5	19.1	46.6	80.2	61.4	226.8

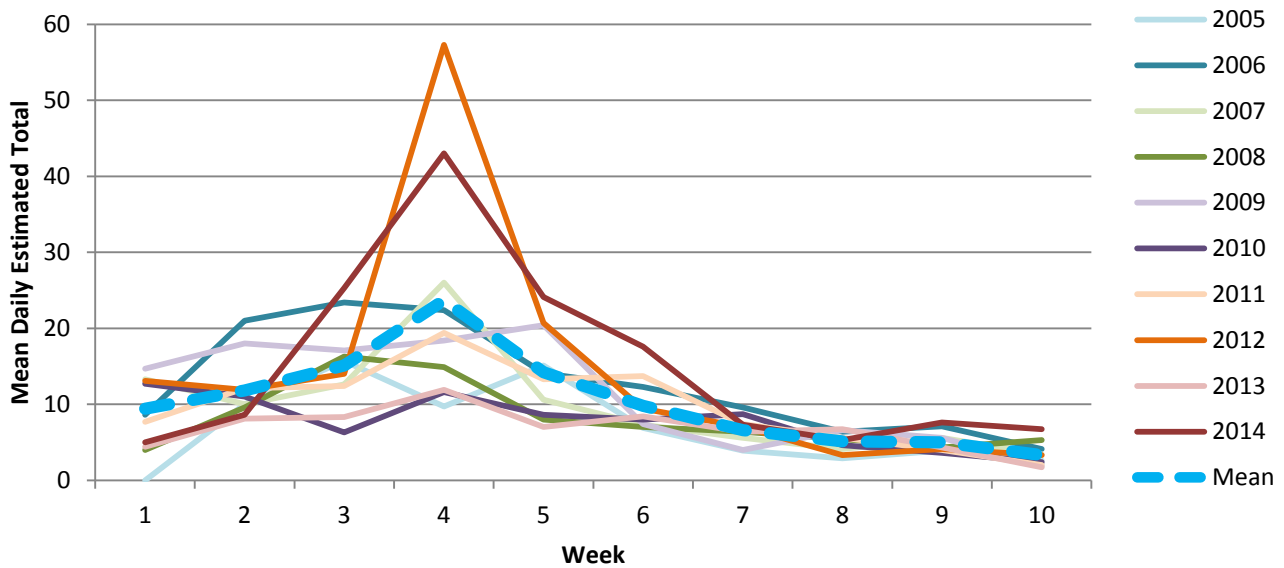
American Robin is among the most abundant species at MBO, observed nearly daily across all spring and fall seasons, and with sightings in almost all summer and winter periods as well. Spring migration almost always peaks in mid-late April, including week 4 for the past four consecutive years. Fall numbers build rapidly beginning in mid-late September, to a dramatic peak in the second half of October, then taper off rapidly in November, although small numbers usually overwinter. Numbers vary more from year to year in spring than fall, but there is no long-term trend evident.

Mean daily estimated total of American Robins throughout the year



The figure above illustrates how the number of American Robins throughout most of the year is dwarfed by the influx of migrants over the final 3-4 weeks of fall. The figure below shows that in spring there is also a distinct peak to migration, emphasized by unusually big flights in 2012 and 2014, but also generally holding true in other years. The high spring years do not show any correlation with results from the previous fall.

Mean daily estimated total of American Robins in spring, by week



GRCA: Gray Catbird / Moqueur chat (*Dumetella carolinensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 29	Jun 3	24	21 (36%)	7	60	Aug 1	Sep 18	Oct 24	85	75 (85%)	14	372
2006	May 9	May 19	Jun 5	28	27 (39%)	6	65	Aug 1	Aug 26	Oct 17	78	77 (85%)	13	414
2007	May 3	May 26	Jun 5	34	26 (37%)	15	99	Aug 1	Sep 21	Oct 14	75	70 (77%)	11	371
2008	May 6	May 21	Jun 5	31	29 (41%)	9	85	Aug 1	Aug 1	Oct 13	74	72 (79%)	12	376
2009	May 8	May 21	Jun 5	29	25 (36%)	12	77	Aug 1	Sep 28	Oct 14	75	74 (81%)	17	515
2010	Apr 24	May 19	Jun 5	43	29 (41%)	8	99	Aug 1	Aug 4	Oct 14	75	69 (76%)	11	337
2011	May 1	May 21	Jun 5	36	25 (36%)	8	84	Aug 1	Sep 22	Oct 10	71	68 (75%)	11	317
2012	May 6	May 21	Jun 3	29	27 (39%)	8	109	Aug 1	Sep 13	Oct 24	85	85 (93%)	18	480
2013	May 9	May 23	Jun 5	28	21 (30%)	12	79	Aug 1	Sep 15	Oct 30	91	73 (80%)	15	422
2014	May 8	May 25	Jun 2	26	25 (37%)	9	85	Aug 1	Sep 16	Oct 13	74	72 (79%)	15	457
Mean	May 5	May 22	Jun 4	31	26 (37%)	9	84	Aug 1	Sep 7	Oct 17	78	74 (81%)	14	406

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1.0	1.4	3.6	3.6	1.0
2006													0.9	3.3	3.4	1.7	0.9
2007												0.7	1.7	4.4	5.9	1.4	1.4
2008												0.9	1.0	4.1	3.3	2.9	1.2
2009												0.1	1.1	4.0	3.3	2.4	1.1
2010	0.05					0.02			0.1			0.1	1.4	5.0	4.7	2.7	1.4
2011										0.1		0.1	1.0	3.1	5.4	2.1	1.2
2012												0.6	3.4	4.9	4.7	2.0	1.6
2013													0.3	4.6	4.6	1.9	1.1
2014												0.1	2.4	3.7	4.0	2.2	1.2
Mean	0.01					<0.01			0.01	0.01	0.3	1.4	3.9	4.3	2.3	1.2	

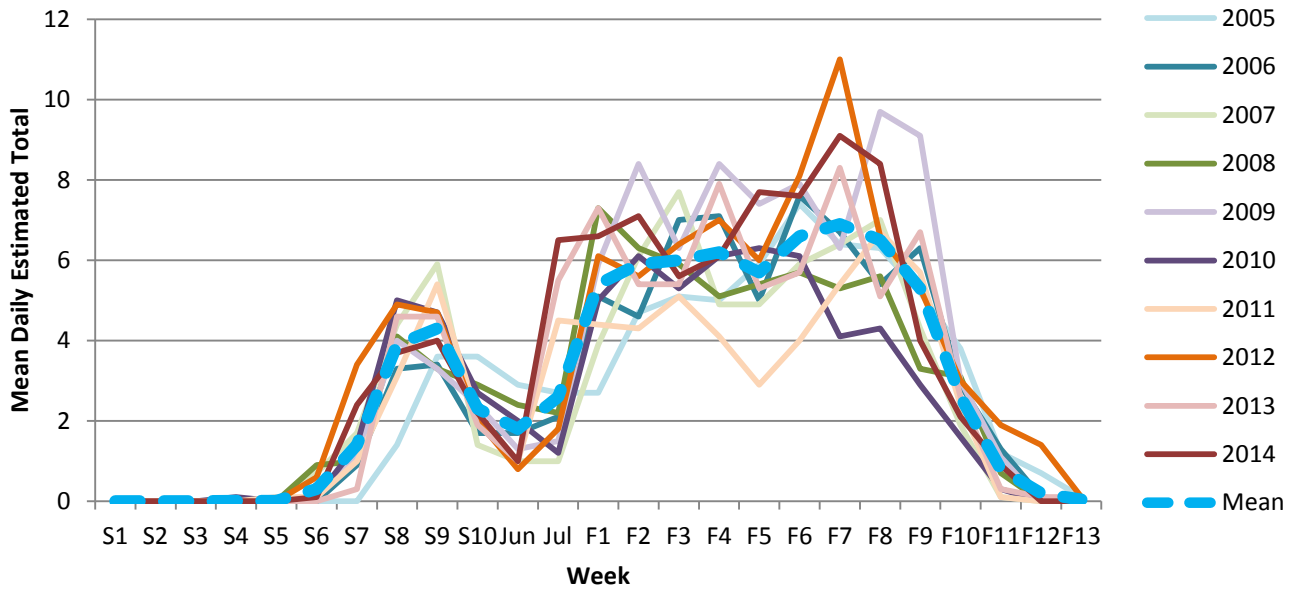
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.9	2.7	2.8	2.7	4.7	5.1	5.0	5.9	7.4	6.4	6.3	5.2	3.8	1.2	0.7	0.1	4.2
2006	1.7	2.1	1.9	5.1	4.6	7.0	7.1	5.0	7.6	6.7	5.4	6.3	2.9	1.3	0.1		4.5
2007	1.0	1.0	1.0	3.9	6.1	7.7	4.9	4.9	5.9	6.4	7.0	4.3	1.9	0.1			4.1
2008	2.4	2.2	2.3	7.3	6.3	5.9	5.1	5.4	5.7	5.3	5.6	3.3	3.1	0.7			4.1
2009	1.3	1.5	1.4	5.9	8.4	6.3	8.4	7.4	7.9	6.3	9.7	9.1	3.0	1.1			5.7
2010	2.0	1.2	1.4	5.0	6.1	5.3	6.1	6.3	6.1	4.1	4.3	2.9	1.6	0.3			3.7
2011	1.0	4.5	3.0	4.4	4.3	5.1	4.1	2.9	4.0	5.4	6.7	5.7	2.4	0.1			3.5
2012	0.8	1.8	1.2	6.1	5.6	6.4	7.0	6.0	8.1	11.0	6.6	5.3	3.0	1.9	1.4	0.1	5.3
2013	1.0	5.5	3.6	7.3	5.4	5.4	7.9	5.3	5.7	8.3	5.1	6.7	2.6	0.3	0.1	0.1	4.6
2014	1.0	6.5	4.1	6.6	7.1	5.6	6.1	7.7	7.6	9.1	8.4	4.0	2.1	0.9			5.0
Mean	1.8	2.6	2.3	5.4	5.9	6.0	6.2	5.7	6.6	6.9	6.5	5.3	2.6	0.8	0.2	0.04	4.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													2	2	3	2	9
2006														7	2		9
2007													1	5	8		14
2008												1	2	6	3		12
2009													3	6	2	1	12
2010												1	4	5	4	1	15
2011													2	5	3	2	12
2012													6	7	6	2	21
2013														10	6	2	18
2014													5	6	8		19
Mean												0.2	2.5	5.9	4.5	1.0	14.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		2	2	4	6	4	6	6	8	9	7	2	5			1	58
2006				8	2	4		2	8	6	3	8					41
2007				4	7	2		2	5	10	6	3					39
2008				12	3	3	1	3	4	3	4	7	5				45
2009		4	4	10	11	9	4	4	2	5	10	2	5	1			63
2010		3	3	7	2		4	5	4	3	3	3	1				32
2011	1	6	7	6	3	3	2		3	8	6	7					38
2012		3	3	10	8	4	6	6	11	12	2	3	2				64
2013	1	13	14	13	2	1	5	4	3	6	6	5	1			1	47
2014	1	17	18	18	15	7	3	7	11	13	9	10	1				94
Mean	0.5	5.3	5.7	9.2	5.9	3.7	3.1	3.9	5.9	7.5	5.6	5.0	2.0	0.1		0.2	52.1

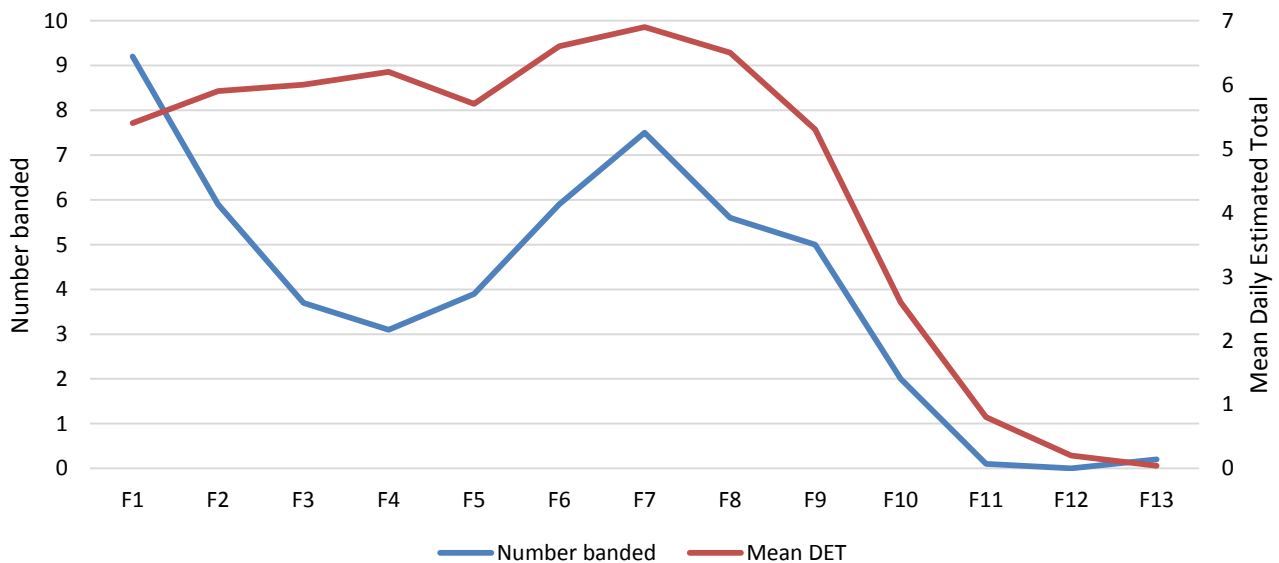
Gray Catbird is observed almost daily at MBO from early May to mid-October, with only exceptional records slightly earlier or later. Spring migration peaks in week 8 or 9, after which residents and their offspring account for most observations until at least early fall. Fall numbers remain relatively consistent across August and September overall, with peaks for individual years ranging from week 1 to 8. Although numbers observed have varied relatively little over the years in both spring and fall, the number banded has increased over time in both seasons; the number banded during MAPS has also jumped greatly in just the past two years.

Mean daily estimated total of Gray Catbirds from spring through fall



The figure above shows an unusual pattern of annual occurrence, with a sustained peak spanning roughly two-thirds of the fall season. Notably, mean numbers actually increase slightly from week 1 of fall to week 7. While recapture data indicate that this pattern is at least partly a function of some local juveniles staying around until mid-September or beyond, the gradual increase is indicative of more northern migrants supplementing their numbers. This pattern is clearer when comparing against the number of new birds banded by week, as in the figure below. Over the first four weeks of fall, the mean daily estimated total remains relatively unchanged, but the number of individuals banded per week drops at a sharp rate, suggesting that most of the birds are local juveniles, and over time most of them are already banded. From week 5 through 7, numbers observed increase only modestly, but there is a sharp uptake in the number banded, suggesting that new migrants are arriving, and some local residents are beginning to disperse. Although the number banded declines beginning in week 8, it is likely that the vast majority of individuals from this point onward are also northern migrants, and by week 9, the pattern of numbers banded and observed is highly correlated until the end of the season.

Mean numbers of Gray Catbirds in fall, 2005-2014



BRTH: Brown Thrasher / Moqueur roux (*Toxostoma rufum*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 11	May 17	Jun 3	54	29 (49%)	4	50	Aug 9	Sep 18	Oct 9	62	22 (25%)	4	34
2006	Apr 25	May 24	Jun 5	42	19 (28%)	3	25	Aug 5	Sep 22	Oct 1	58	24 (26%)	3	31
2007	May 1	May 1	May 31	31	12 (17%)	3	16	Aug 1	Sep 6	Sep 26	57	10 (11%)	2	12
2008	Apr 27	May 9	Jun 2	37	18 (26%)	4	25	Aug 8	Sep 11	Oct 3	57	12 (13%)	2	14
2009	Apr 27	May 9	Jun 3	38	18 (26%)	2	21	Aug 1	Aug 5	Oct 11	72	32 (35%)	3	48
2010	Apr 24	Apr 24	May 24	31	15 (21%)	2	16	Aug 9	Sep 7	Oct 5	58	21 (23%)	2	25
2011	Apr 29	May 2	Jun 4	37	18 (26%)	4	25	Aug 23	Sep 20	Oct 3	42	5 (5%)	2	6
2012	Apr 26	Jun 1	Jun 1	37	19 (27%)	2	20	Aug 1	Aug 1	Sep 18	49	23 (25%)	2	34
2013	Apr 21	May 4	May 23	33	13 (19%)	3	19	Aug 1	Sep 18	Oct 1	62	40 (44%)	5	70
2014	Apr 15	Apr 17	May 28	44	17 (25%)	2	23	Aug 1	Sep 26	Oct 8	69	46 (51%)	4	75
Mean	Apr 23	May 7	May 31	38	18 (26%)	3	24	Aug 5	Sep 7	Oct 2	59	24 (26%)	3	35

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005									0.1		0.4	0.3	1.1	2.0	2.3	1.2	0.8
2006											1.0		0.3	0.7	1.0	0.6	0.4
2007											0.4	0.3	0.9	0.4	0.1	0.1	0.2
2008											0.9	0.4	1.0	0.6	0.6	0.1	0.4
2009											0.3	0.3	0.7	0.4	0.6	0.7	0.3
2010									0.3		0.7	0.4	0.3	0.4	0.1		0.2
2011											0.7	1.4	0.4	0.3	0.4	0.3	0.4
2012											0.9	0.4	0.4	0.1	0.7	0.3	0.3
2013										0.1		1.3	0.3	0.9	0.1		0.3
2014									0.4	0.3	0.3	0.4	0.6	0.1	1.1		0.3
Mean									0.06	0.07	0.6	0.5	0.6	0.6	0.7	0.3	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.2	0.2		0.9	0.1		0.3	0.4	1.1	1.1	0.7	0.3				0.4
2006	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0.6	0.9	0.7	0.9	0.7					0.3
2007	0.1		0.08	0.1	0.1	0.1			0.4	0.4	0.3	0.1					0.1
2008		0.2	0.1		0.3	0.1		0.1	0.7	0.3		0.3	0.1				0.2
2009	0.3		0.1	1.1	1.3	0.1	0.3		0.3	0.4	1.7	0.9	0.6	0.1			0.5
2010					0.4	0.1	0.3	0.3	0.7	0.9	0.6	0.1	0.1				0.3
2011	0.3		0.1				0.1			0.1	0.3	0.1	0.1				0.07
2012		0.3	0.1	1.0	1.1		0.6	0.3	0.6	1.3							0.4
2013		0.5	0.3	0.9	1.4	0.3	0.6	1.3	1.0	2.4	1.6	0.6					0.8
2014	0.3	0.8	0.6	0.9	1.0	0.6	0.6	0.6	1.4	1.6	2.1	1.6	0.4				0.8
Mean	0.2	0.2	0.2	0.4	0.7	0.2	0.3	0.3	0.6	0.9	0.9	0.5	0.2	0.01			0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														3	1		4
2006											1		1		1	1	4
2007											1		2				3
2008											1		1				2
2009															1		1
2010											1		1				2
2011											1	1					2
2012													1	1			2
2013															1		1
2014										1		1			1		3
Mean										0.1	0.5	0.2	0.6	0.4	0.5	0.1	2.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					1							1					2
2006							1		1	4	1						7
2007						1			1	1							3
2008					1				1	1		1	1				5
2009				2			1		1		2	1	1				8
2010					1												1
2011													1				1
2012		1	1	2	1												3
2013		2	2					1									1
2014		2	2	1	1	1	1		1	1	3	1					10
Mean		0.6	0.6	0.5	0.5	0.2	0.3	0.1	0.5	0.7	0.6	0.4	0.3				4.1

Brown Thrasher is present at MBO over a similar length of time annually as Gray Catbird, but shifted roughly two weeks earlier. The first Brown Thrasher of the year has arrived in April every year but one (and then only delayed to May 1), but only trickles into October in small numbers, and has not been recorded past week 11. Like Gray Catbird, there is relatively little variation in abundance within each season, although for Brown Thrasher there is a surprisingly consistent peak in fall between weeks 6 and 8. Numbers have also not shown any clear pattern over time, but in fall, 2011 was unusually low, while 2014 was unusually high.

NOMO: Northern Mockingbird / Moqueur polyglotte (*Mimus polyglottos*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 30	Apr 30	Apr 30	1	1 (2%)	1	1							
2006														
2007	May 12	May 12	May 18	7	2 (3%)	1	2							
2008														
2009														
2010														
2011														
2012	May 7	May 7	May 7	1	1 (1%)	1	1							
2013														
2014								Oct 12	Oct 12	Oct 12	1	1 (1%)	1	1
Mean	May 6	May 6	May 8	3	1 (2%)	1	0.4	Oct 12	Oct 12	Oct 12	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											0.1						0.02
2006																	
2007													0.1	0.1			0.03
2008																	
2009																	
2010																	
2011																	
2012												0.1					0.01
2013																	
2014																	
Mean											0.01	0.01	0.01	0.01			0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	0.01
Mean														0.01			<0.01

There have been only five Northern Mockingbird sightings at MBO in ten years, two of which were within one week in mid-May 2007 and likely involved the same individual. All four spring observations have been within a span of just 19 days from April 30 to May 18; the lone fall sighting was on October 12.

EUST: European Starling / Étourneau sansonnet (*Sturnus vulgaris*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 6	Jun 3	Jun 3	59	32 (54%)	6	68	Aug 1	Oct 19	Oct 30	91	36 (41%)	200	1178
2006	Mar 28	Apr 6	Jun 5	70	51 (74%)	18	171	Aug 3	Oct 21	Oct 30	89	51 (56%)	700	2480
2007	Mar 28	May 6	Jun 4	69	33 (47%)	40	168	Aug 2	Oct 24	Oct 30	90	45 (49%)	275	1560
2008	Apr 1	Jun 3	Jun 5	66	33 (47%)	30	150	Aug 1	Oct 26	Oct 30	91	51 (56%)	405	1694
2009	Mar 28	Apr 3	Jun 1	66	34 (49%)	30	197	Aug 4	Oct 8	Oct 30	88	52 (57%)	212	1683
2010	Mar 29	Apr 8	May 31	64	24 (34%)	22	98	Aug 2	Oct 22	Oct 30	90	44 (48%)	345	2880
2011	Mar 28	Apr 21	Jun 5	70	50 (71%)	32	270	Aug 1	Oct 27	Oct 30	91	49 (54%)	109	939
2012	Mar 31	Mar 31	Jun 3	65	22 (31%)	42	91	Aug 3	Oct 3	Oct 30	89	52 (57%)	561	5463
2013	Mar 28	Apr 6	Jun 4	69	41 (59%)	60	261	Aug 5	Oct 22	Oct 30	87	53 (58%)	510	4849
2014	Mar 29	Mar 30	Jun 1	65	35 (51%)	30	185	Aug 4	Sep 23	Oct 30	88	55 (60%)	800	4541
Mean	Mar 29	Apr 20	Jun 3	66	36 (52%)	31	166	Aug 2	Oct 16	Oct 30	89	49 (54%)	412	2727

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	2.0			10.3	3.5	4.5		2.5	1.0	0.3	0.9	0.1	1.3	2.0	0.6	2.0	1.2
2006	0.07	12.8	10.3	11.8	2.1	7.3	2.1	8.3	1.3	2.1	2.9	1.6	0.9	1.1	1.7	3.6	2.5
2007	4.3	3.7	17.5	5.2	12.9	7.8	5.0	4.7	1.7	2.3	0.7	6.1	1.3	0.6	1.3	0.3	2.4
2008	30.3	1.5	0.8	5.0		12.0	0.4	3.9	3.0	0.7	1.3	1.6	1.4	1.1	0.1	7.9	2.1
2009	7.1	22.0	44.0	33.4	28.7	27.1	6.0	6.7	2.4	6.4	4.4	1.1	0.7			1.3	2.9
2010	5.3	4.8	72.3	0.8	0.8	15.1	3.3	3.7		0.7	0.9	1.7	0.4	0.9	1.9	0.6	1.4
2011	13.7		5.3	10.2	13.0	9.9	2.6	0.9	7.1	11.0	7.4	2.3	1.1	1.9	0.1	4.1	3.9
2012	52.5	153.0	16.7	6.7	5.8	49.4	6.3	0.4	0.6	0.4	1.3	0.6	0.6	0.4	1.1	1.3	1.3
2013	42.8	20.0	12.6	0.8	6.1	15.6	5.1	13.6	5.0	1.7	3.7	2.7	2.0	0.9	0.4	2.1	3.7
2014		51.3	72.0	30.3	24.0	36.9	6.3	3.4	0.6	2.6	1.9	4.0	3.4	1.6	3.0	0.7	2.7
Mean	14.5	23.6	26.8	12.3	11.0	17.0	4.1	4.8	2.3	2.9	2.5	2.2	1.3	1.0	1.0	2.4	2.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.0	0.6	1.3	0.3				11.4		0.1	5.7	7.7	21.8	22.8	92.4	13.4	13.4
2006	1.4	2.2	1.8	9.9	0.1	5.4	1.4	1.3	4.1	5.0	7.3	10.7	9.1	27.3	169.0	103.6	27.3
2007		6.7	3.1	0.7			0.1	0.9	6.7	3.3	9.6	12.3	31.7	56.1	38.1	63.3	17.1
2008	3.6	19.0	11.3	3.3	1.4	1.7	1.0	0.4	6.9	1.1	5.7	7.6	4.0	49.1	28.3	131.4	18.6
2009				0.1	0.6	0.4	1.4		0.7	25.1	9.0	34.7	74.7	53.1	25.7	14.7	18.5
2010		1.3	0.9	1.7				0.1	0.4	11.1	31.0	12.1	45.1	26.1	167.0	116.6	31.6
2011	1.0	0.8	0.9	3.4	3.4	0.6	1.4	0.3	1.3	0.4	15.6	10.0	9.1	18.6	23.7	46.3	10.3
2012		0.8	0.4	1.4	10.0	2.1	1.3	0.9	1.6	5.6	221.9	251.1	133.0	58.6	91.4	60.0	
2013	12.3	2.0	6.4	0.1	0.4	0.3	0.1	0.7	11.7	74.9	12.6	5.1	30.3	84.4	250.6	221.4	53.3
2014				2.4	2.3		0.9	4.0	1.3	174.6	124.3	73.7	58.4	45.3	72.0	89.6	49.9
Mean	1.8	2.9	2.4	2.3	1.8	1.1	0.8	2.0	3.5	29.7	22.6	40.0	54.0	52.0	92.5	89.2	30.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											1			1			2
2006																	
2007					1	1											
2008																	
2009										1							1
2010					1	1											
2011										2							2
2012																	
2013																	
2014																	
Mean					0.3	0.2				0.3	0.1			0.1			0.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006															1		1
2007																	
2008																	
2009																	
2010		1	1												1		1
2011		1	1														
2012		1	1												1		1
2013		2	2											1			1
2014																	
Mean		0.6	0.6											0.1	0.3		0.4

European Starling occurs at MBO throughout the year, often in large numbers, although only 17 individuals have been banded over 10 years. Spring numbers tend to be modest, often peaking the first two weeks of the season. The mean daily count is usually at its lowest in August, then builds sharply around mid-fall, with an overall peak in the second half of October. Numbers drop off in November, but remain higher throughout winter than for most of the rest of the year. Spring counts have fluctuated randomly over the years, but fall numbers have been distinctly higher since 2012 compared to all previous years.

AMPI: American Pipit / Pipit d'Amérique (*Anthus rubescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 11	Sep 11	Oct 12	32	5 (6%)	13	22
2006	Apr 30	Apr 30	May 4	5	3 (4%)	10	12	Sep 10	Oct 27	Oct 27	48	4 (4%)	18	24
2007								Sep 1	Sep 1	Sep 8	8	2 (2%)	1	2
2008	May 24	May 24	May 24	1	1 (1%)	1	1	Oct 8	Oct 8	Oct 8	1	1 (1%)	2	2
2009	May 8	May 8	May 8	1	1 (1%)	1	1	Sep 20	Sep 26	Sep 26	7	2 (2%)	3	4
2010								Oct 4	Oct 6	Oct 30	27	4 (4%)	6	11
2011								Oct 2	Oct 4	Oct 4	3	2 (2%)	3	5
2012								Sep 21	Oct 4	Oct 26	36	18 (20%)	44	134
2013	May 4	May 4	May 7	4	2 (3%)	1	2	Sep 24	Oct 25	Oct 29	36	20 (22%)	24	131
2014								Sep 27	Oct 1	Oct 30	34	13 (14%)	22	72
Mean	May 9	May 9	May 10	3	2 (3%)	3	1.6	Sep 21	Oct 2	Oct 14	23	7 (8%)	14	41

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006											1.4	0.3					0.2
2007																	
2008															0.1		0.01
2009												0.1					0.01
2010																	
2011																	
2012	0.2					0.08											
2013												0.3					0.03
2014																	
Mean	0.02					0.01					0.1	0.07			0.01		0.02

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									1.9		0.1	0.8	0.3	0.2			0.2
2006									0.3			0.1				3.0	0.3
2007								0.1	0.1								0.02
2008													0.3				0.02
2009											0.1	0.4					0.04
2010													1.0	0.3		0.3	0.1
2011												0.3	0.4				0.05
2012											0.1	2.3	12.3	1.1	2.6	0.7	1.5
2013											2.4	4.4	3.1	2.1	2.9	3.7	1.4
2014												4.7		4.1	0.1	1.3	0.8
Mean								0.01	0.2		0.3	1.3	1.8	0.8	0.6	0.9	0.4

American Pipit is a rare spring and uncommon fall migrant at MBO, with one late sighting trickling over into November. Aside from an unusually late observation on May 24, all other spring records were between April 30 and May 8. Fall sightings are scattered over a longer period, spanning nine weeks, but most commonly peaking in week 9 or 10. Fall counts have been much higher since 2012 than in any previous years. All sightings have been of individuals or small flocks flying over MBO. As they are often high up, many may pass by undetected, and the higher counts in recent years may in part reflect a greater number of experienced observers on site.

BOWA: Bohemian Waxwing / Jaseur boréal (*Bombycilla garrulus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 8	Apr 18	14	12 (20%)	93	230	Oct 23	Oct 23	Oct 23	1	1 (1%)	1	1
2006														
2007								Oct 29	Oct 29	Oct 30	2	2 (2%)	6	9
2008	Apr 1	Apr 3	Apr 3	3	2 (3%)	66	98							
2009	Mar 29	Mar 29	Apr 18	21	9 (13%)	300	466							
2010	Mar 28	Mar 31	Mar 31	4	2 (3%)	27	29	Oct 28	Oct 28	Oct 28	1	1 (1%)	1	1
2011	Mar 31	Mar 31	May 5	36	24 (34%)	163	871							
2012								Oct 23	Oct 27	Oct 29	7	7 (8%)	9	19
2013	Mar 31	Mar 31	Apr 23	24	3 (4%)	7	14							
2014														
Mean	Mar 31	Apr 1	Apr 16	17	9 (13%)	109	171	Oct 25	Oct 26	Oct 27	3	3 (3%)	4	3.0

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				33.3	9.3	12.1		35.3	2.3	0.3							3.9
2006			3.7	11.1	1.3	2.9											
2007																	
2008	0.1			25.0		7.3	14.0										1.4
2009			31.0	23.7	35.9	23.6	54.6	13.5	0.1	0.3							6.8
2010	0.1			1.6	6.7	1.7	4.1										0.4
2011			13.1	5.2	0.8	5.2	26.7	31.3	10.6	42.4	9.6	3.9					12.4
2012		0.5	0.3			0.1											
2013	1.0	3.6	1.4	0.2	4.8	2.5	1.0			1.0							0.2
2014																	
Mean	0.1	0.5	4.7	9.8	8.8	4.7	11.3	7.6	1.3	4.5	1.0	0.4					2.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															0.1		0.01
2006																	
2007																1.3	0.10
2008																	
2009																	
2010															0.1		0.01
2011																	
2012															0.4	2.3	0.2
2013																	
2014																	
Mean															0.06	0.4	0.03

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																1	1
2013																	
2014																	
Mean															0.1	0.1	

Bohemian Waxwing is an irregular winter visitor to MBO, occasionally arriving within the final two weeks of fall, and often lingering into spring. Winter numbers typically do not build until January, and overall have peaked in February and March. Spring counts typically taper off quickly, except for 2011 when a late wave of migrants moved through in week 4, and smaller numbers lingered into May for the first time. Only one individual has been banded, in the final week of fall in 2012.

CEDW: Cedar Waxwing / Jaseur d'Amérique (*Bombicilla cedrorum*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 5	Jun 3	60	55 (93%)	95	1184	Aug 1	Sep 20	Oct 21	82	52 (59%)	40	447
2006	Apr 5	May 29	Jun 5	62	31 (45%)	31	298	Aug 1	Oct 24	Oct 30	91	85 (93%)	94	1508
2007	Apr 20	May 30	Jun 5	47	17 (24%)	38	167	Aug 1	Sep 20	Oct 29	90	82 (90%)	78	1046
2008	Mar 29	Mar 31	Jun 5	69	32 (46%)	55	289	Aug 1	Sep 8	Oct 26	87	70 (77%)	100	1163
2009	Apr 9	Apr 17	Jun 5	58	29 (42%)	28	259	Aug 1	Sep 19	Oct 30	91	79 (87%)	105	1559
2010	Apr 1	Apr 23	Jun 5	66	55 (79%)	70	1180	Aug 1	Aug 6	Oct 27	88	62 (68%)	47	736
2011	Mar 29	May 3	Jun 5	69	51 (73%)	128	1157	Aug 1	Oct 3	Oct 29	90	75 (82%)	63	1566
2012	Apr 1	May 21	Jun 5	66	46 (66%)	54	678	Aug 1	Aug 24	Oct 24	85	62 (68%)	55	1046
2013	Mar 28	Jun 1	Jun 5	70	25 (36%)	32	276	Aug 1	Aug 20	Oct 30	91	82 (90%)	70	1805
2014	Mar 29	Apr 25	Jun 4	68	59 (87%)	400	2992	Aug 1	Aug 11	Oct 29	90	76 (84%)	50	1017
Mean	Apr 3	May 6	Jun 4	64	40 (58%)	93	848	Aug 1	Sep 9	Oct 27	88	72 (80%)	70	1189

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005					7.3	2.1		18.0	36.4	32.0	18.7	44.4	5.9	4.6	7.7	12.0	20.1
2006					1.6	0.3		3.2	4.4	3.7	0.3			3.6	14.9	13.0	4.3
2007	1.0				1.4	0.7				2.3			0.7	2.6	9.3	9.0	2.4
2008			3.2	2.4		1.4	16.6	0.1	0.4	0.3	0.7	0.3	0.9	1.4	9.1	11.4	4.1
2009					0.2	0.08		0.8	8.1	3.6	0.6	1.6	2.3	1.9	10.9	7.4	3.8
2010	0.4					0.1	3.1	15.1	9.0	34.3	24.0	18.3	23.3	12.6	16.0	12.9	16.9
2011			14.6	2.3	3.8	5.9	11.0	18.1	6.4	24.1	3.0	28.4	10.0	13.0	25.0	26.1	16.5
2012	0.8	1.8	11.7		1.4	2.3	0.1	6.4	19.4	1.7	6.4	1.1	1.7	19.7	22.7	17.4	9.7
2013							1.9					9.0	3.1	1.0	5.7	18.7	3.9
2014	0.6			0.8	7.6	1.6	5.0	35.4	26.4	69.1	153.6	53.6	17.7	9.0	34.0	28.3	44.0
Mean	0.4	0.1	3.0	0.5	1.6	1.2	4.2	9.8	11.1	16.9	20.7	15.7	6.6	6.9	15.5	15.6	12.4

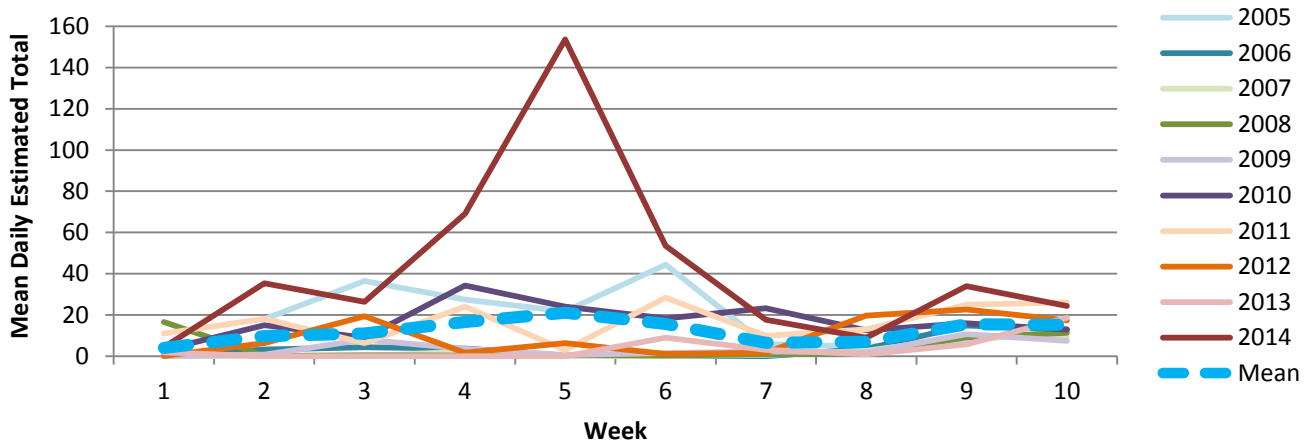
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	8.8	2.5	5.6	5.7	3.0	2.1	3.9	11.4	4.7	8.6	12.7	3.7	5.0	0.8	3.6		5.1
2006	7.0	8.2	7.6	17.7	17.4	14.6	19.4	8.1	13.9	13.7	11.4	13.9	4.3	31.0	23.4	26.6	16.6
2007	6.6	3.7	5.2	13.9	18.3	7.6	13.4	11.6	19.9	11.9	20.7	6.7	5.6	10.1	7.4	2.4	11.5
2008	4.4	5.2	4.8	8.9	13.7	11.7	6.7	9.9	32.9	28.7	22.1	17.3	6.6	3.6	2.4	1.7	12.8
2009	3.0	1.8	2.3	13.3	11.0	15.9	19.6	16.4	25.4	24.0	51.0	23.9	8.7	7.9	2.6	3.1	17.1
2010	2.7	3.8	3.4	25.3	9.7	11.6	6.1	18.9	13.1	9.6	4.6	3.1	2.3	0.3		0.6	8.1
2011	7.3	10.5	9.1	23.9	23.6	28.6	25.3	32.3	17.4	13.4	18.4	13.6	16.1	3.1	5.6	2.4	17.2
2012	3.8	3.5	3.6	19.9	22.3	25.9	31.4	13.3	7.7	10.4	8.7	8.6	0.7		0.3	0.3	11.5
2013	19.7	12.3	15.4	36.6	29.6	41.4	40.1	33.4	19.7	19.6	11.6	10.7	4.9	2.4	3.7	4.1	19.8
2014	5.0	4.8	4.9	11.0	16.4	15.1	21.1	23.1	16.1	17.1	10.6	4.9	1.6	0.9	4.1	3.1	11.2
Mean	7.1	5.2	6.1	17.6	16.5	17.4	18.7	17.8	17.1	15.7	17.2	10.7	5.6	6.1	5.3	4.4	13.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005									7	14	5	15		4		14	59
2006									1					2	8	6	17
2007															10	7	17
2008													1		11	17	29
2009									2						10	2	14
2010									23	6	3		9	23	8	72	
2011									5		3	9	2	24	7	50	
2012										1			9	38	29	77	
2013														6	1	7	
2014									33	147	12	3	2	24	11	232	
Mean								4.0	7.7	15.9	3.3	1.3	2.8	15.4	10.2	57.4	

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								2		1	5						8
2006				4	6		1		3	1		6				1	22
2007		1	1	6	5				3	1	6						21
2008				2	2				4		3	5					16
2009	3	5	8	12	2	2	7	4	1	1	4	4			1	1	39
2010	4	6	10	15	7	1					2						25
2011		2	2	14	7	6	4	6	7	1							45
2012		4	4	13	10	3	3										29
2013	1		1	56	10	7	4		5	3		2	4				91
2014				3	6	1		5	1							1	17
Mean	1.3	2.0	2.9	12.5	5.5	2.0	1.9	1.7	2.4	0.8	2.0	1.7	0.4		0.1	0.3	31.3

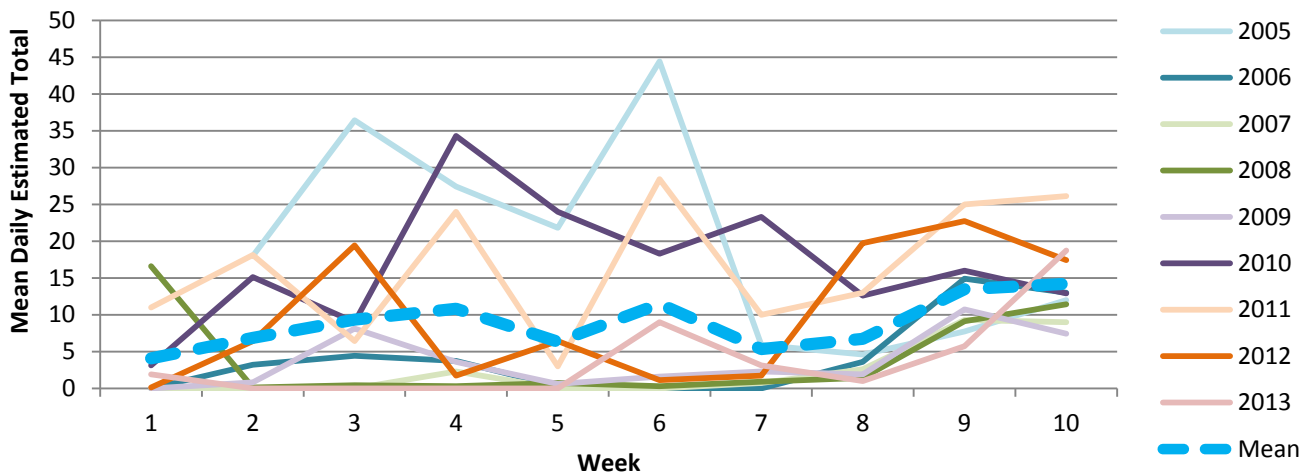
Cedar Waxwing is among the most erratic species at MBO, with the peak of spring migration ranging throughout the season depending on year, and from week 1 to week 11 in fall. Combining results over ten years, there appear to be two waves of spring migration, one in late April, and another in late May. In fall, the number banded is most often highest in week 1, though overall numbers observed are similar throughout August and September before tapering off. The species is common in summer, and also present in part of most winters. Total fall numbers have been fairly consistent except for modest lows in 2005 and 2010, whereas spring counts have fluctuated much more, most notably an extreme high in 2014 more than double any previous spring.

Mean daily estimated total of Cedar Waxwings in spring, by week (2005-2014)

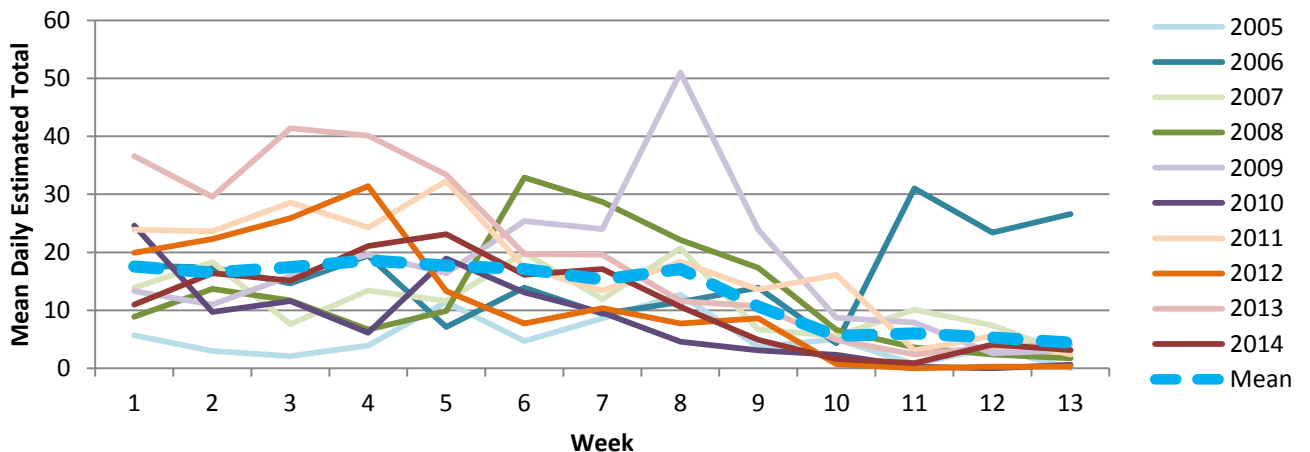


The figure above highlights the exceptionally high abundance of Cedar Waxwings in spring 2014, especially the peak in week 5 (the last week of April). In comparison, the figure below shows that even in other years with lower numbers, the pattern of abundance over the course of spring is highly variable, and often fluctuates up and down during the season. Similarly, the bottom figure reveals that while weekly mean counts are stable for the first two months of fall, there are substantial differences in seasonal occurrence from year to year.

Mean daily estimated total of Cedar Waxwings in spring, by week (2005-2013)



Mean daily estimated total of Cedar Waxwings in fall, by week (2005-2014)



SNBU: Snow Bunting / Plectrophenax des neiges (*Plectrophenax nivalis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 30	Oct 30	Oct 30	1	1 (1%)	34	34
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 30	Oct 30	Oct 30	1	1 (1%)	34	3.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	12.5					3.6											
2006	2.5					0.5											
2007																	
2008																	
2009																	
2010				0.8		0.2											
2011																	
2012		8.8				1.4											
2013																	
2014																	
Mean	0.8	0.7		0.1		0.3											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																4.9	0.4
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.5	0.04

Although Snow Bunting is a common winter species in the areas surrounding Montreal, it is rare at MBO, with only one fall sighting on the last day of the season in 2005, plus observations in four winter periods scattered across four years.

OVEN: Ovenbird / Paruline couronnée (*Seiurus aurocapilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 24	May 28	Jun 3	11	8 (14%)	2	9	Aug 6	Sep 5	Sep 25	51	27 (31%)	6	47
2006	May 9	May 18	Jun 5	28	19 (28%)	2	26	Aug 2	Aug 23	Sep 22	52	34 (37%)	6	59
2007	May 8	May 21	May 31	24	10 (14%)	4	19	Aug 3	Aug 3	Sep 16	45	18 (20%)	2	20
2008	May 7	May 13	May 29	23	12 (17%)	4	22	Aug 2	Aug 14	Oct 10	70	36 (40%)	5	75
2009	May 9	May 13	Jun 5	28	28 (41%)	4	53	Aug 1	Aug 18	Oct 2	63	33 (36%)	4	45
2010	May 7	May 18	Jun 5	30	28 (40%)	4	74	Aug 2	Aug 30	Sep 21	51	29 (32%)	4	49
2011	May 9	May 24	Jun 5	28	24 (34%)	6	47	Aug 1	Aug 27	Sep 25	56	31 (34%)	5	55
2012	May 7	May 11	May 19	13	9 (13%)	3	12	Aug 1	Aug 24	Sep 25	56	28 (31%)	3	38
2013	May 12	May 17	Jun 5	25	15 (21%)	2	19	Aug 3	Aug 9	Oct 3	62	39 (43%)	4	63
2014	May 10	May 26	Jun 1	23	13 (19%)	3	26	Aug 5	Aug 16	Sep 24	51	32 (35%)	5	51
Mean	May 10	May 18	Jun 1	23	17 (24%)	3	31	Aug 2	Aug 20	Sep 26	56	31 (34%)	4	50

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.6	1.0	0.2
2006													0.3	1.0	1.3	1.1	0.4
2007												0.3	0.4	1.3	0.6	0.1	0.3
2008												0.1	2.0	0.7	0.3		0.3
2009													2.1	2.1	1.1	2.1	0.8
2010												0.1	1.7	3.0	2.7	3.0	1.1
2011													0.6	2.1	2.4	1.6	0.7
2012												0.1	1.3	0.3			0.2
2013													0.3	0.7	0.7	1.0	0.3
2014													0.7	0.3	1.9	1.0	0.4
Mean												0.07	0.9	1.2	1.2	1.1	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.2	0.4	0.3	0.1	0.1	0.7	0.9	1.9	1.3	1.0	0.7						0.5
2006		0.2	0.09	0.6	0.9	2.3	1.9	0.6	1.4	0.6	0.3						0.6
2007	0.9		0.5	0.4	0.3	0.4	0.6	0.7	0.3	0.1							0.2
2008	0.6		0.3	0.3	1.0	1.6	1.0	2.0	2.3	1.3	1.0	0.1		0.1			0.8
2009	0.7	0.5	0.6	1.1	0.6	1.1	1.4	0.6	0.4	0.1	0.7	0.3					0.5
2010	1.0		0.3	0.6	0.7	1.1	1.3	1.1	1.3	0.6	0.3						0.5
2011	0.3	0.8	0.6	1.0	0.9	0.9	1.9	1.1	0.7	0.7	0.7						0.6
2012		0.3	0.1	0.7	0.3	0.7	1.6	0.7	0.6	0.6	0.3						0.4
2013	1.0	0.3	0.6	0.9	1.3	0.9	1.7	1.0	0.9	1.4	0.7	0.1	0.1				0.7
2014		1.8	1.0	0.3	0.7	1.6	1.1	1.6	1.1	0.6	0.3						0.6
Mean	0.4	0.3	0.3	0.6	0.7	1.1	1.3	1.1	1.0	0.7	0.5	0.06	0.01	0.01			0.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007														1	1		2
2008																	
2009																	
2010												1	3				4
2011													1				1
2012																	
2013																	
2014													1				1
Mean													0.2	0.5	0.1		0.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1	1	4	6	7	6	6	3						34
2006		1	1	4	6	8	10	3	9	4	2						46
2007				1	2	2	2	3	2	1							13
2008				1	7	7	5	12	3	3	5	1					44
2009		1	1	8	2	6	8	2	3	1	4	2					36
2010				4	5	8	7	6	7	1	2						40
2011		2	2	5	6	6	12	7	4	3	4						47
2012		1	1	4	2	4	9	4	4	3	2						32
2013		1	1	3	8	4	10	6	5	6	3	1	1				47
2014		5	5	1	5	8	7	10	6	2	2						41
Mean		1.2	1.2	3.2	4.4	5.7	7.6	6.0	4.9	3.0	2.7	0.4	0.1				38.0

Ovenbird is typically present at MBO from the second week of May until late September or early October. The first spring arrival has been between May 7 and 12 every year except 2005 when no Ovenbirds were observed until May 24. Although mean daily counts are comparable during the peak of spring and fall migration, almost 50 times more individuals have been banded in fall. The spring peak is usually indistinct, varying between week 7 and 10; in fall there is a more consistent peak between week 3 and 5. Spring numbers have been relatively consistent except for a distinct high in 2010; fall numbers have fluctuated only slightly over the years. At least one pair breeds in the woods at MBO in most years.

NOWA: Northern Waterthrush / Paruline des ruisseaux (*Parkesia noveboracensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 14	May 21	May 31	18	9 (15%)	2	10	Aug 6	Aug 29	Sep 19	45	22 (25%)	3	28
2006	May 11	May 24	Jun 3	24	10 (14%)	4	15	Aug 9	Aug 22	Sep 15	38	22 (24%)	7	51
2007	May 5	May 25	Jun 1	28	13 (19%)	5	22	Aug 7	Aug 9	Sep 21	46	23 (25%)	2	26
2008	May 6	May 28	May 30	25	14 (20%)	8	24	Aug 9	Aug 31	Sep 27	50	10 (11%)	4	21
2009	Apr 27	May 21	Jun 4	39	21 (30%)	13	59	Aug 8	Aug 26	Sep 17	41	22 (24%)	4	36
2010	May 1	May 22	May 28	28	12 (17%)	4	22	Aug 6	Sep 3	Sep 19	45	29 (32%)	10	63
2011	May 1	May 22	Jun 5	36	24 (34%)	7	62	Aug 1	Sep 2	Sep 18	49	16 (18%)	6	27
2012	May 2	May 21	Jun 1	31	21 (30%)	6	49	Aug 4	Sep 1	Sep 12	40	26 (29%)	4	42
2013	May 2	May 23	Jun 1	31	24 (34%)	12	84	Aug 3	Aug 28	Sep 4	33	19 (21%)	6	39
2014	May 5	May 12	May 31	27	26 (38%)	8	109	Aug 1	Aug 23	Oct 1	62	34 (37%)	5	66
Mean	May 4	May 21	Jun 1	29	17 (25%)	7	46	Aug 5	Aug 26	Sep 18	45	22 (25%)	5	40

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005														0.3	0.7	0.1	0.4	0.2
2006														0.1	0.6	1.3	0.1	0.2
2007												0.1	0.6	0.3	1.9	0.3	0.3	
2008												0.3	0.6	0.3	1.9	0.4	0.3	
2009											0.4	0.4	0.1	4.6	2.1	0.7	0.9	
2010											0.1	0.1		2.0	0.9		0.3	
2011											0.1		1.6	2.6	3.6	1.0	0.9	
2012												0.3	1.9	2.7	1.9	0.3	0.7	
2013												0.4	1.1	5.0	4.7	0.7	1.2	
2014												0.4	5.0	5.6	4.0	0.7	1.6	
Mean											0.07	0.2	1.1	2.4	2.2	0.5	0.7	

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03	0.1	0.3	0.1	0.9	1.0	0.6	0.9	0.1						0.3
2006					0.9	0.3	3.9	1.6	0.6	0.1							0.6
2007				0.1	0.7	0.1	0.9	0.7	0.6	0.4	0.1						0.3
2008					0.3		0.6	1.3	0.7			0.1					0.2
2009					0.7	0.4	1.0	1.6	0.9	0.6							0.4
2010				0.1	0.3	0.9	1.0	2.6	3.4	0.6	0.1						0.7
2011				0.3	0.3	0.3	0.3	2.1	0.4	0.1							0.3
2012				0.7	1.1	1.1	0.4	1.3	1.1	0.1							0.5
2013				0.3	0.6	0.9	2.9	1.0									0.4
2014				1.1	1.3	1.1	3.0	0.6	1.1	0.9	0.1	0.1					0.7
Mean		0.02	<0.01	0.3	0.6	0.5	1.5	1.4	0.9	0.4	0.06	0.03					0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														3		1	4
2006													1		4		5
2007												1	1	2	9	2	15
2008												1	1	2	8		12
2009											2		1	15	7	1	26
2010											1			8	3		12
2011													2	8	15	3	28
2012													6	15	6	1	28
2013												1	4	23	14	1	43
2014												2	16	15	13	2	48
Mean											0.3	0.5	3.2	9.1	7.9	1.1	22.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		1	1	1	2		1	4	4	4	1						17
2006					4	2	20	8	4	1							39
2007				1	2	1	5	4	2		1						16
2008					2		3	8	5			1					19
2009					2	2	6	4	3	4							21
2010				1	2	6	7	17	17	2	1						53
2011				2	2		2	15	2								23
2012				5	7	6	3	8	5	1							35
2013				2	4	5	17	5									33
2014				7	4	6	18	4	8	5	1	1					54
Mean		0.1	0.1	1.9	3.1	2.8	8.2	7.7	5.0	1.7	0.4	0.2					31.0

Northern Waterthrush arrives slightly earlier in spring than Ovenbird, and also departs earlier in fall, but differs in that there is only one summer record for the species. Spring migration always has a distinct peak in week 8 or 9, and also unlike Ovenbird, relatively large numbers of Northern Waterthrush are banded in spring. Fall migration is similarly predictable, almost always peaking in week 4 or 5. Spring numbers have shown a substantial increase over time; the trend in fall is in the same direction but far more modest.

GWWA: Golden-winged Warbler / Paruline à ailes dorées (*Vermivora chrysoptera*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007								Sep 11	Sep 11	Sep 11	1	1 (1%)	1	1
2008								Aug 10	Aug 10	Aug 11	2	2 (2%)	1	2
2009														
2010														
2011														
2012	May 18	May 18	May 18	1	1 (1%)	1	1							
2013														
2014														
Mean	May 18	May 18	May 18	1	1 (1%)	1	0.1	Aug 26	Aug 26	Aug 26	2	2 (2%)	1	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012														0.1			0.01
2013																	
2014																	
Mean														0.01			<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007									0.1								0.01
2008					0.3												0.02
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean					0.03				0.01								<0.01

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007									1								1
2008					1												1
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean					0.1				0.1								0.2

Golden-winged Warbler is among the rarest of the 27 warbler species observed at MBO, with only one spring and two fall records over ten years. Both fall birds were banded, and appeared almost exactly one month apart, in consecutive years.

BWWA: Blue-winged Warbler / Paruline à ailes bleues (*Vermivora cyanoptera*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 27	Aug 27	Aug 27	1	1 (1%)	1	1
2006														
2007														
2008														
2009	May 14	May 14	May 14	1	1 (1%)	1	1							
2010														
2011														
2012														
2013														
2014														
Mean	May 14	May 14	May 14	1	1 (1%)	1	0.1	Aug 27	Aug 27	Aug 27	1	1 (1%)	1	0.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009													0.1				0.01
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.01				<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.1										0.01
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean							0.01										<0.01

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009													1				1
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.1				0.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							1										1
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean							0.1										0.1

Blue-winged Warbler is another of the rare warblers at MBO, with only one spring and one fall record over ten years, and none since 2009. Both individuals were banded.

BAWW: Black-and-white Warbler / Paruline noir et blanc (*Mniotilta varia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 13	May 16	May 29	17	10 (17%)	2	13	Aug 1	Aug 27	Sep 28	59	33 (38%)	4	53
2006	May 3	May 25	Jun 5	34	22 (32%)	7	57	Aug 5	Aug 16	Oct 1	58	22 (24%)	4	47
2007	May 8	May 11	Jun 5	29	12 (17%)	3	20	Aug 1	Aug 19	Sep 12	43	28 (31%)	5	52
2008	May 6	May 17	May 31	26	20 (29%)	6	47	Aug 1	Aug 20	Oct 3	64	34 (37%)	4	52
2009	Apr 28	May 12	May 25	28	14 (20%)	3	24	Aug 1	Aug 24	Sep 13	44	25 (27%)	7	60
2010	May 6	May 18	May 29	24	14 (20%)	16	41	Aug 2	Aug 20	Sep 18	48	30 (33%)	11	71
2011	May 3	May 7	May 25	23	14 (20%)	2	18	Aug 1	Aug 30	Sep 25	56	32 (35%)	6	66
2012	May 4	May 9	May 21	18	8 (11%)	5	23	Aug 1	Aug 15	Sep 16	47	24 (26%)	3	35
2013	May 1	May 19	May 25	25	6 (9%)	4	13	Aug 5	Aug 13	Sep 24	51	26 (29%)	3	40
2014	May 10	May 11	Jun 3	25	13 (19%)	6	29	Aug 1	Aug 18	Oct 5	66	33 (36%)	4	46
Mean	May 5	May 14	May 29	25	13 (19%)	5	29	Aug 1	Aug 20	Sep 23	54	29 (32%)	5	52

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.4	0.6	0.9	0.2
2006												0.4	0.4	3.9	2.6	0.9	0.8
2007												0.1	0.9	1.6	0.1	0.1	0.3
2008												0.6	2.7	2.4	0.4	0.6	0.7
2009											0.3	0.1	1.3	1.6	0.1		0.3
2010												0.4	0.4	4.1	0.9		0.6
2011												0.6	0.7	0.9	0.4		0.3
2012												0.7	2.1	0.4			0.3
2013											0.3			1.1	0.4		0.2
2014													3.0	0.6	0.3	0.3	0.4
Mean											0.06	0.3	1.2	1.7	0.6	0.2	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.2	0.2	0.6	1.0	1.0	2.1	0.9	0.4	1.1	0.1	0.3					0.6
2006	0.1	0.08	0.09	0.1	1.0	1.0	1.3	0.7	1.1	1.1		0.3					0.5
2007	0.3	0.3	0.3	1.9	1.9	2.0	1.1	0.3	0.1	0.1							0.6
2008				0.7	0.9	1.7	1.4	0.6	0.9	1.0	0.1		0.1				0.6
2009				1.4	1.0	3.0	2.6	0.3	0.1	0.1							0.7
2010				1.1	1.0	3.1	1.4	1.4	1.0	1.0							0.8
2011		0.8	0.4	0.9	1.1	1.1	2.3	2.3	0.7	0.7	0.3						0.7
2012		0.3	0.1	1.0	0.7	1.1	1.1	0.4	0.3	0.3							0.4
2013				0.1	1.0	1.0	0.9	0.6	0.6	1.3	0.3						0.4
2014				0.7	0.3	1.0	1.1	0.6	0.7	0.4	1.3		0.4				0.5
Mean	0.1	0.2	0.1	0.9	1.0	1.6	1.5	0.8	0.6	0.7	0.2	0.06	0.06				0.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1			1
2006														2			2
2007														3	1		4
2008												1	1	3	1		6
2009														2			2
2010														1	1		2
2011												2		1	2		5
2012													2				2
2013														1			1
2014													3		1		4
Mean												0.3	0.6	1.4	0.6		2.9

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1	2	3	6	5		4		1					22
2006					3	3	5	2	4	1							18
2007				3	2	1	2	1									9
2008				4	5	5	4	1	3	5			1				28
2009				3	3	10	8			1							25
2010				6	3	12	2	8	4	4							39
2011		3	3	2	3	4	5	4	1	2	1						22
2012				5	2	3	2	1	1	2							16
2013				1	4	4	4	3	1	6							23
2014				3		1	2	1	1	2	4		1				15
Mean		0.3	0.3	2.8	2.7	4.6	4.0	2.6	1.5	2.7	0.5	0.1	0.2				21.7

Black-and-white Warbler is a fairly common spring and fall migrant and occasional summer resident at MBO. The timing of spring arrival varies considerably, but regularly peaks in week 8 (occasionally one week earlier, including two of the past three years). The species was observed in both June and July in the first three years, but since then summer observations have been limited to July 2011 and 2012, and the three banded in July 2011 were all molting adults, suggesting a molt migration for this species. Fall counts always peaked in week 3 or 4 over the first eight years, but then suddenly switched to a later peak of week 7 or 8 in 2013 and 2014. Both in spring and fall there have been fluctuations over time, with a weak declining trend overall.

TEWA: Tennessee Warbler / Paruline obscure (*Oreothlypis peregrina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 18	May 28	May 28	11	4 (7%)	6	12	Aug 6	Aug 22	Oct 8	64	40 (45%)	8	83
2006	May 16	May 21	May 29	14	9 (13%)	5	21	Aug 2	Sep 13	Sep 30	60	38 (42%)	13	135
2007	May 13	May 21	Jun 1	20	13 (19%)	17	68	Aug 4	Aug 4	Oct 10	68	24 (26%)	2	33
2008	May 8	May 20	Jun 1	25	15 (21%)	6	32	Aug 1	Sep 13	Oct 3	64	48 (53%)	14	147
2009	May 15	May 23	Jun 3	20	19 (28%)	30	166	Aug 2	Sep 22	Sep 28	58	24 (26%)	4	38
2010	May 7	May 21	May 28	22	11 (16%)	6	28	Aug 1	Sep 9	Oct 1	62	48 (53%)	9	141
2011	May 13	May 22	May 30	18	15 (21%)	33	153	Aug 1	Sep 30	Oct 10	71	64 (70%)	23	382
2012	May 5	May 17	May 28	24	21 (30%)	45	248	Aug 3	Aug 24	Oct 5	64	49 (54%)	20	168
2013	May 14	May 22	May 28	15	15 (21%)	30	126	Aug 1	Sep 3	Oct 11	72	57 (63%)	56	473
2014	May 14	May 23	Jun 3	21	21 (31%)	72	344	Aug 2	Aug 22	Oct 8	68	58 (64%)	32	314
Mean	May 12	May 21	May 30	19	14 (21%)	25	120	Aug 2	Sep 3	Oct 5	65	45 (50%)	18	191

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	1.6		0.2
2006														1.4	1.6		0.3
2007													0.9	7.0	1.4	0.4	1.0
2008												0.1	0.9	1.9	1.0	0.7	0.5
2009													0.4	12.9	8.7	1.7	2.4
2010												0.4	1.0	2.3	0.3		0.4
2011													1.1	6.6	14.0	0.1	2.2
2012												0.3	7.6	18.0	9.6		3.5
2013													0.3	9.6	8.1		1.8
2014													0.9	12.6	28.1	8.8	5.1
Mean												0.09	1.3	7.2	7.4	1.1	1.7

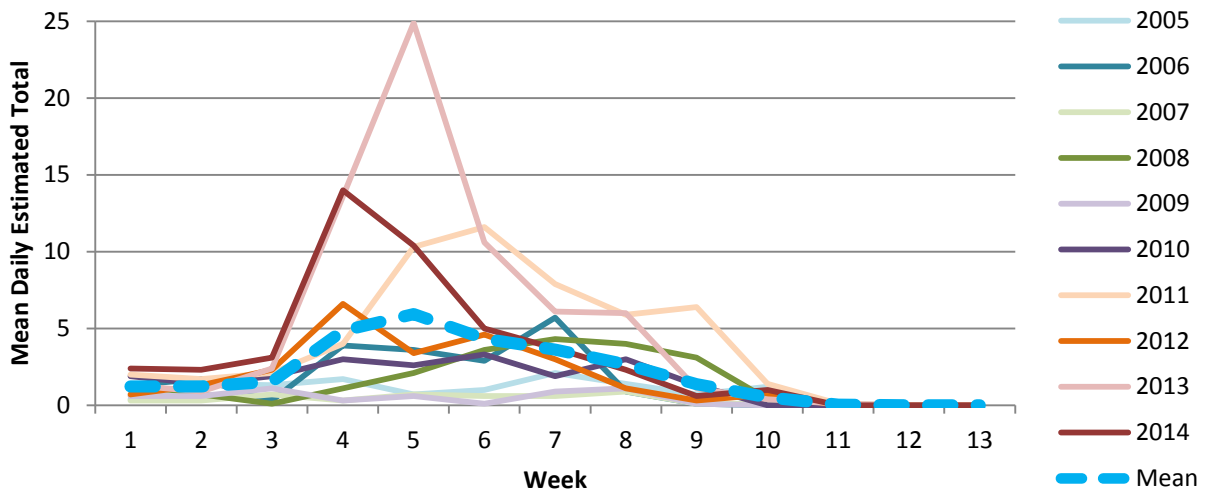
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.2	0.09	0.4	1.4	1.3	1.7	0.7	1.0	2.1	1.4	0.7	1.3				0.9
2006		0.08	0.05	1.3	0.7	0.3	3.9	3.6	2.9	5.7	0.9	0.1					1.5
2007				0.3	0.3	0.7	0.3	0.7	0.6	0.6	0.9	0.1	0.1	0.1			0.4
2008				1.4	0.7	0.1	1.1	2.1	3.6	4.3	4.0	3.1	0.4				1.6
2009		0.3	0.1	0.6	0.6	1.1	0.3	0.6	0.1	0.9	1.1	0.1					0.4
2010	0.3	0.2	0.2	1.9	1.4	1.9	3.0	2.6	3.3	1.9	3.0	1.3					1.5
2011		0.3	0.1	2.0	1.7	2.1	4.0	10.4	11.6	7.9	6.0	7.3	1.4	0.1			4.2
2012				0.7	1.3	2.3	6.6	3.4	4.6	3.0	1.1	0.3	0.7				1.8
2013				1.3	0.9	2.4	13.7	24.9	10.6	6.1	6.0	1.1	0.4	0.1			5.2
2014		0.3	0.1	2.4	2.3	3.1	14.0	10.4	5.0	3.7	2.3	0.6	1.0				3.5
Mean	0.02	0.1	0.07	1.2	1.1	1.5	4.9	5.9	4.3	3.6	2.7	1.5	0.5	0.04			2.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	3		4
2006														1	1		2
2007													1	12	3		16
2008														2	1	3	6
2009														36	44	2	82
2010													1	6			7
2011													1	23	46	1	71
2012													16	48	30		94
2013														38	11		49
2014													1	25	100	16	142
Mean													2.0	19.2	23.9	2.2	47.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				3	7	3	7	2	1	13	6	2	2				46
2006				5	3	1	10	7	9	20	1	1					57
2007					2	2	1	2	2	3	4		1	1			18
2008				9	3	1	6	6	16	18	16	11					86
2009		1	1	2	1	5	1	1		5	7	1					23
2010		1	1	10	6	11	10	17	20	11	20	9					114
2011				8	6	5	23	52	37	28	23	22	4				208
2012				4	5	5	21	8	20	5	2	1	4				75
2013				2	2	8	74	87	36	17	18	3	2				249
2014		1	1	7	6	9	56	47	12	14	9	3	5				168
Mean		0.3	0.3	5.0	4.1	5.0	20.9	22.9	15.3	13.4	10.6	5.3	1.8	0.1			104.4

Tennessee Warbler is one of the most common warblers at MBO, with a total of 473 banded in spring (more than any other warbler) and 1044 banded in fall (ranked fifth behind Yellow-rumped, Magnolia, Nashville, and American Redstart). Spring numbers consistently peak in weeks 8 and 9, with observations as early as week 6 in only three years out of ten. Limited summer records are primarily early arriving molt migrants near the end of July. Additional molt migrants arrive in the first week of August each year, and the span of fall observations generally extends over more than two months, longer than any other warbler. Observations typically trickle into early October, but to date none have extended past week 11.

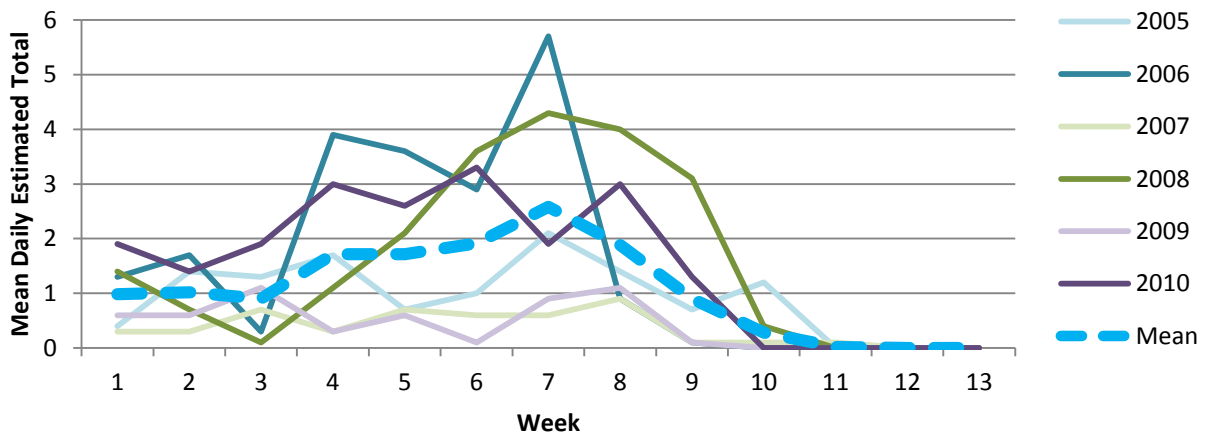
Mean DET of Tennessee Warblers in fall, by week (2005-2014)



The overall fall peak of Tennessee Warblers occurs in week 5, but this is driven strongly by the unusually high peaks in 2011 (week 6), 2013 (week 5), and 2014 (week 4), and to a lesser degree 2012 (week 4). This is consistent with a spike in banding records from 2011 through 2014, with those four years accounting for 75% and 67% of birds banded in spring and fall, respectively. This presumably is at least partly the result of a growing spruce budworm outbreak in parts of Quebec northeast of MBO.

Recognizing that Tennessee Warbler numbers have been elevated at MBO since 2011, the figure below shows the fall pattern for 2005 through 2010. Over that period, the peak of observations was somewhat variable, but overall increased steadily until week 7, which was the peak in three of those six years. The two-week advance in the peak of migration in recent years may simply reflect a shift in timing, as is the case for some other species (e.g., American Redstart). However, it is also possible that it reflects a larger volume of birds coming from Quebec than before, which may be migrating through MBO earlier in fall than those coming from farther away (stable isotope analysis has shown that a number of species migrating through MBO originate in northwestern Canada, following the boreal forest east across Lake Superior, before starting to curve south).

Mean DET of Tennessee Warblers in fall, by week (2005-2010)



OCWA: Orange-crowned Warbler / Paruline verdâtre (*Oreothlypis celata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 15	Oct 11	Oct 11	27	9 (10%)	4	13
2006	May 18	May 21	May 25	8	3 (4%)	2	4	Sep 17	Sep 23	Oct 20	34	12 (13%)	4	18
2007								Sep 17	Sep 28	Oct 16	30	14 (15%)	4	22
2008								Sep 30	Sep 30	Oct 15	16	7 (8%)	1	7
2009	May 2	May 18	Jun 1	31	4 (6%)	2	6	Sep 17	Oct 10	Oct 12	26	8 (9%)	4	13
2010	May 18	May 19	May 28	11	3 (4%)	4	6	Sep 25	Sep 25	Oct 18	24	2 (2%)	1	2
2011	May 19	May 19	May 19	1	1 (1%)	1	1	Sep 10	Oct 3	Oct 3	24	6 (7%)	8	13
2012	May 20	May 20	May 21	2	2 (3%)	1	2	Sep 19	Oct 4	Oct 19	31	10 (11%)	5	16
2013	May 29	May 29	May 29	1	1 (1%)	1	1	Sep 7	Sep 15	Oct 4	28	6 (7%)	2	8
2014	May 11	May 11	May 20	10	2 (3%)	1	2	Sep 12	Oct 5	Oct 13	32	12 (13%)	2	17
Mean	May 16	May 19	May 24	9	2 (3%)	2	2.2	Sep 16	Sep 30	Oct 13	27	9 (9%)	4	13

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														0.4	0.1		0.06
2007																	
2008																	
2009												0.1	0.1	0.3		0.3	0.09
2010														0.7	0.1		0.09
2011														0.1			0.01
2012														0.3			0.03
2013															0.1		0.01
2014													0.1	0.1			0.03
Mean												0.01	0.03	0.2	0.04	0.03	0.03

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										0.3	0.7		0.2	0.8			0.1
2006										0.3	0.7	0.1		1.0	0.4		0.2
2007										0.1	0.4	1.1	0.9	0.6			0.2
2008												0.1	0.6	0.3			0.08
2009										0.3		0.1	0.4	1.0			0.1
2010											0.1				0.1		0.02
2011									0.1		0.1	0.4	1.1				0.1
2012											0.1	0.3	1.6	0.1	0.1		0.2
2013									0.1	0.4		0.4	0.1				0.09
2014										0.1	0.1	0.1	1.0	1.0			0.2
Mean									0.03	0.2	0.2	0.3	0.6	0.5	0.07		0.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														1			1
2007																	
2008																	
2009																	
2010														2			2
2011																	
2012														1			1
2013																	
2014													1				1
Mean													0.1	0.4			0.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										1	3			3			7
2006										1		1		4	1		7
2007										1	2	5	2	2			12
2008												1	3	2			6
2009										1		1	3	2			7
2010											1				1		2
2011												2	2				4
2012												2	7		1		10
2013										1		3	1				5
2014													3	3			6
Mean										0.5	0.6	1.5	2.1	1.6	0.3		6.6

Orange-crowned Warbler is a rare spring and uncommon fall migrant at MBO. The majority of spring sightings have occurred in the second half of May, with four of the five individuals banded in week 8, corresponding to the peak of observations in most years. Fall observations span seven weeks, but are heavily weighted to weeks 9 to 11. Spring sightings, although rare, have occurred annually since 2009 after being missed in three of the first four years. Fall numbers fluctuate somewhat irregularly, without any discernible pattern over time.

NAWA: Nashville Warbler / Paruline à joues grises (*Oreothlypis ruficapilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 28	Jun 2	23	10 (17%)	4	16	Aug 2	Sep 10	Oct 9	69	62 (70%)	16	347
2006	May 5	May 18	May 26	22	19 (28%)	5	40	Aug 1	Aug 28	Oct 12	73	56 (62%)	11	204
2007	May 1	May 18	May 25	25	18 (26%)	17	58	Aug 1	Sep 11	Oct 16	77	45 (49%)	10	116
2008	May 5	May 20	May 29	25	22 (31%)	8	42	Aug 1	Oct 3	Oct 11	72	64 (70%)	26	285
2009	Apr 29	May 11	May 29	31	18 (26%)	7	55	Aug 4	Sep 14	Oct 22	80	41 (45%)	9	95
2010	May 4	May 15	May 26	23	11 (16%)	3	19	Aug 1	Sep 9	Oct 8	69	51 (56%)	31	220
2011	May 1	May 20	Jun 5	36	14 (20%)	9	46	Aug 1	Sep 16	Oct 23	84	64 (70%)	23	288
2012	May 4	May 12	May 26	23	16 (23%)	6	42	Aug 1	Oct 4	Oct 17	78	49 (54%)	15	126
2013	May 6	May 26	May 28	23	19 (27%)	8	53	Aug 1	Oct 3	Oct 15	76	53 (58%)	9	113
2014	May 10	May 13	May 29	20	18 (26%)	8	54	Aug 2	Sep 12	Oct 18	78	63 (69%)	16	175
Mean	May 4	May 18	May 28	25	16 (24%)	8	43	Aug 1	Sep 16	Oct 15	76	55 (60%)	17	197

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.3	0.7	1.0	0.4	0.3
2006												0.4	1.4	3.0	0.9		0.6
2007											0.1	0.1	2.6	4.9	0.6		0.8
2008												0.4	2.1	2.4	1.0		0.6
2009											0.1	0.6	4.4	2.0	0.7		0.8
2010												0.7	1.0	0.9	0.1		0.3
2011											0.3		1.9	3.1	1.1	0.1	0.7
2012												1.0	3.6	1.3	0.1		0.6
2013												0.3	3.4	1.7	2.1		0.8
2014													3.9	2.3	1.6		0.8
Mean											0.06	0.4	2.5	2.2	0.9	0.04	0.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.2	0.1	2.4	5.9	2.7	4.0	6.7	10.0	8.9	5.0	2.8	1.8				3.9
2006				0.6	1.0	2.1	3.6	2.6	4.1	5.7	5.1	2.6	1.4	0.3			2.2
2007				2.3	2.3	1.9	1.1	1.0	2.0	2.7	2.1	0.4	0.3	0.4			1.3
2008				1.1	1.1	2.3	3.1	4.1	6.7	4.3	5.0	6.4	5.7	0.7			3.1
2009				0.1	0.3	0.9	0.6	1.3	0.4	1.9	2.6	3.1	2.1	0.1	0.1		1.0
2010		0.2	0.1	0.6		0.9	2.0	1.4	8.1	4.1	9.6	4.3	0.4				2.4
2011				2.6	1.6	2.4	4.6	6.3	7.1	5.7	3.1	4.6	2.4	0.1	0.6		3.2
2012				0.6	0.6	1.4	1.1	0.7	2.7	3.3	2.0	2.1	3.3		0.1		1.4
2013				0.6	0.4	0.7	1.4	2.1	1.7	3.0	2.3	1.6	2.0	0.3			1.2
2014		0.3	0.1	0.9	1.3	1.4	3.1	1.6	1.6	5.7	3.6	2.3	2.0	1.0	0.6		1.9
Mean		0.09	0.05	1.2	1.4	1.7	2.5	2.8	4.5	4.5	4.0	3.0	2.2	0.3	0.1		2.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1	3	1	1	6
2006												1	2	3			6
2007													5	8	1		14
2008												1	3	4			8
2009											1	1	6	5	1		14
2010												2	4	2			8
2011													1	6			7
2012												3	10	3			16
2013												2	6	5			13
2014													10				10
Mean											0.1	1.0	4.8	3.9	0.3	0.1	10.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				2	18	5	16	28	20	38	19	10	8				164
2006				2	2	7	9	7	18	23	15	10	5				98
2007				7	5	4	5	3	5	8	10	1	1	1			50
2008				5	4	6	11	10	22	19	20	36	21	4			158
2009				1	2	4	3	3	2	10	10	13	9		1		58
2010		1	1	2		2	3	5	47	22	53	26	1				161
2011				12	2	4	10	22	22	19	18	22	8		2		141
2012				3	2	3	4	1	11	13	8	11	16		1		73
2013				3	1	3	7	6	4	8	9	8	10				59
2014		1	1	3	5	5	13	4	4	26	15	12	11	5	3		106
Mean		0.2	0.2	4.0	4.1	4.3	8.1	8.9	15.5	18.6	17.7	14.9	9.0	1.0	0.7		106.8

Nashville Warbler is among the more common spring and fall warbler migrants at MBO, with early fall migrants arriving in late July in three years. The earliest spring arrival has been in the first week of May in seven years. The spring peak was in week 8 or 9 from 2005 through 2008, but then shifted earlier, occurring in week 7 in five of the next six years. The fall pattern is somewhat more variable, with the peak fluctuating between week 6 and 9, although in 2012 and 2013 the largest number banded was not until week 10. Spring numbers have been fairly consistent except for lows in 2005 and 2010; fall results show greater fluctuations, but without any trend over time.

CONW: Connecticut Warbler / Paruline à gorge grise (*Oporornis agilis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 4	Sep 4	Sep 4	1	1 (1%)	1	1
2006														
2007														
2008														
2009								Sep 23	Sep 23	Sep 23	1	1 (1%)	1	1
2010														
2011														
2012														
2013														
2014								Sep 3	Sep 3	Sep 3	1	1 (1%)	1	1
Mean								Sep 10	Sep 10	Sep 10	1	1 (1%)	1	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.1									0.01
2006																	
2007																	
2008																	
2009											0.1						0.01
2010																	
2011																	
2012																	
2013																	
2014								0.1									0.01
Mean								0.03			0.01						<0.01

Connecticut Warbler joins Golden-winged and Blue-winged as the rarest of the warblers at MBO, with only three observations over ten years. Unlike those other two rarities, Connecticut Warbler has yet to be banded at MBO. All observations have come between September 3 and 23.

MOWA: Mourning Warbler / Paruline triste (*Geothlypis philadelphia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 28	May 28	May 30	3	2 (3%)	1	2	Aug 7	Aug 15	Oct 9	64	14 (16%)	2	15
2006	May 20	May 20	May 27	8	4 (6%)	1	4	Aug 16	Aug 16	Sep 2	18	7 (8%)	1	7
2007	May 18	May 23	May 28	11	3 (4%)	2	4	Aug 16	Aug 16	Sep 11	27	7 (8%)	3	9
2008	May 25	May 25	May 30	6	2 (3%)	2	3	Aug 10	Aug 29	Oct 7	59	15 (16%)	3	20
2009	May 21	May 21	May 30	10	2 (3%)	1	2	Aug 3	Aug 13	Sep 10	39	12 (13%)	3	16
2010	May 27	May 27	May 27	1	1 (1%)	2	2	Aug 7	Aug 9	Sep 16	41	13 (14%)	3	15
2011	May 18	May 25	May 28	11	5 (7%)	5	14	Aug 7	Aug 15	Sep 7	32	11 (12%)	2	12
2012	May 19	May 19	May 19	1	1 (1%)	1	1	Aug 11	Aug 15	Aug 31	21	11 (12%)	2	12
2013								Aug 9	Aug 9	Aug 18	10	5 (5%)	2	7
2014	May 13	May 19	Jun 3	22	12 (18%)	3	18	Aug 10	Aug 23	Sep 8	30	8 (9%)	2	9
Mean	May 21	May 23	May 28	8	4 (5%)	2	5.0	Aug 9	Aug 16	Sep 11	34	10 (11%)	2	12

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005															0.1	0.2	0.03
2006														0.3	0.3		0.06
2007														0.1	0.4		0.06
2008															0.3	0.1	0.04
2009														0.1		0.1	0.03
2010															0.3		0.03
2011														0.3	1.7		0.2
2012														0.1			0.01
2013																	
2014													0.1	1.3	0.9	0.3	0.3
Mean													0.01	0.2	0.4	0.07	0.07

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1	0.6	0.6		0.4	0.1	0.1			0.2				0.2
2006						0.3	0.4	0.3									0.08
2007						0.7	0.3	0.1	0.1								0.10
2008					0.3	0.4	1.0	0.6	0.1	0.1		0.1	0.1				0.2
2009				0.1	0.4	0.7	0.4	0.4	0.1								0.2
2010				0.1	0.6	0.4	0.4		0.1	0.4							0.2
2011				0.1	0.1	0.4	0.3	0.6	0.1								0.1
2012					0.6	0.9	0.1	0.1									0.1
2013					0.6	0.4											0.08
2014					0.3	0.3	0.4	0.1	0.1								0.10
Mean				0.06	0.3	0.5	0.3	0.3	0.1	0.07		0.01	0.03				0.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007														1	3		4
2008															1	1	2
2009														1		1	2
2010															1		1
2011															4		4
2012																	
2013																	
2014														2	4		6
Mean														0.4	1.3	0.2	1.9

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					2	2		3	1	1			1				10
2006						2	2	2									6
2007						5	2	1	1								9
2008					2	1	6	2	1			1					13
2009				1	2	4	3	3	1								14
2010				1	4	3	3			2							13
2011				1	1	1	1	3									7
2012					3	6	1	1									11
2013					1	2											3
2014					2	1	2	1	1								7
Mean				0.3	1.7	2.7	2.0	1.6	0.5	0.3		0.1	0.1				9.3

Mourning Warbler is typically a rare spring and uncommon fall migrant at MBO. Although observed in the final week of spring in four years and the first week of fall in another four years, and despite presence of somewhat suitable habitat nearby, there have not yet been any summer records. Mourning Warbler is a late spring migrant, only once arriving before the second half of May. The fall peak spans weeks 2 to 5 depending on the year, although the number banded tends to be highest in week 3. In both spring and fall, numbers have declined over the past 2-3 years after being at an elevated level for 4-5 years.

COYE: Common Yellowthroat / Paruline masquée (*Geothlypis trichas*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 7	May 30	Jun 3	28	21 (36%)	12	115	Aug 1	Sep 5	Oct 12	73	58 (66%)	18	238
2006	May 16	May 25	Jun 5	21	21 (30%)	15	161	Aug 1	Aug 30	Oct 2	63	62 (68%)	16	329
2007	May 8	May 31	Jun 5	29	28 (40%)	13	157	Aug 1	Aug 19	Oct 18	79	63 (69%)	11	231
2008	May 7	May 20	Jun 5	30	29 (41%)	11	159	Aug 1	Sep 1	Oct 12	73	66 (73%)	15	350
2009	Apr 28	May 20	Jun 5	39	31 (45%)	12	139	Aug 1	Aug 22	Oct 12	73	63 (69%)	9	236
2010	Apr 29	May 22	Jun 5	38	32 (46%)	8	139	Aug 1	Sep 3	Oct 17	78	63 (69%)	15	295
2011	Apr 29	May 22	Jun 5	38	32 (46%)	13	174	Aug 1	Aug 19	Oct 4	65	58 (64%)	26	349
2012	Apr 28	May 15	Jun 5	39	30 (43%)	13	180	Aug 1	Aug 5	Oct 29	90	69 (76%)	15	389
2013	Apr 29	May 21	Jun 5	38	30 (43%)	15	190	Aug 1	Sep 5	Oct 15	76	63 (69%)	16	354
2014	May 10	May 27	Jun 4	26	26 (38%)	18	240	Aug 1	Aug 26	Oct 11	72	65 (71%)	12	298
Mean	May 4	May 23	Jun 4	33	28 (41%)	13	165	Aug 1	Aug 25	Oct 13	74	63 (69%)	15	307

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005												0.1	0.4	4.0	7.6	6.0	1.9	
2006														6.4	10.7	5.9	2.3	
2007												0.3	1.7	5.4	8.9	6.1	2.2	
2008												0.6	4.1	6.0	7.1	4.9	2.3	
2009											0.1	0.3	3.1	7.3	5.1	3.9	2.0	
2010											0.1	1.3	3.3	5.4	5.9	3.9	2.0	
2011											0.6	0.7	3.7	6.6	6.6	6.7	2.5	
2012											0.3	0.1	4.1	8.4	6.9	5.9	2.6	
2013											0.1	0.3	3.0	9.0	8.1	6.6	2.7	
2014														6.1	11.9	10.0	7.3	3.5
Mean											0.1	0.4	3.0	7.0	7.7	5.7	2.4	

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.6	2.9	2.3	2.7	2.4	1.9	3.6	4.0	8.4	6.3	3.0	1.0	0.8	0.2			2.7
2006	4.1	3.4	3.7	5.4	2.3	3.3	7.1	7.4	9.1	7.3	2.6	2.4					3.6
2007	4.6	2.7	3.7	5.3	4.4	4.9	2.6	3.7	3.7	3.9	2.6	1.3	0.6		0.1		2.5
2008	5.2	5.0	5.1	5.6	3.9	6.1	6.3	8.3	8.0	3.7	4.0	3.3	0.7	0.1			3.8
2009	2.3	1.5	1.9	4.6	3.1	4.0	5.1	4.0	3.0	3.3	3.9	1.3	1.1	0.3			2.6
2010	1.3	1.3	1.3	5.1	5.3	5.3	5.0	7.0	6.9	2.9	3.1	1.0	0.1	0.3	0.1		3.2
2011	2.7	4.3	3.6	7.6	6.9	9.7	4.3	3.7	6.1	4.7	5.6	0.9	0.4				3.8
2012	2.3	6.0	4.1	9.6	6.9	7.7	7.6	5.6	3.9	8.0	3.3	1.4	0.6	0.3		0.9	4.3
2013	4.3	3.8	4.0	6.1	4.4	6.4	7.7	8.6	7.0	5.7	2.9	1.0	0.6	0.1			3.9
2014	4.3	3.8	4.0	5.0	3.9	3.7	6.4	5.7	4.1	5.1	5.0	2.6	0.6	0.4			3.3
Mean	3.1	3.3	3.2	5.7	4.3	5.3	5.6	5.8	6.0	5.1	3.6	1.6	0.6	0.2	0.03	0.09	3.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												1		11	9	1	22
2006														11	13	1	25
2007													1	4	4	3	12
2008												2	4	8	10	1	25
2009													5	17	4	2	28
2010												2	3	8	4		17
2011												3	9	10	7	1	30
2012													4	15	5	1	25
2013											1		5	9	7	1	23
2014														16	12	10	40
Mean											0.1	0.8	4.7	10.5	7.3	1.3	24.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				2	3	3	8	13	19	14	9	3	2				76
2006				1	1	5	7	12	27	15	6	3					77
2007				6	5	8	4	7	9	4	3	4	1				51
2008				7	3	9	14	19	16	9	8	7	1				93
2009		5	5	7	5	10	16	8	6	7	13	3	2				77
2010				11	14	12	4	17	24	8	7	2		1			100
2011	1	2	3	9	10	10	11	8	7	10	13	1	1				80
2012		8	8	28	10	21	15	11	6	18	4	6	1			1	121
2013		1	1	8	9	8	19	20	10	6	3	2	2				87
2014		2	2	2	6	6	16	12	6	10	7	6					71
Mean	0.2	2.0	2.1	8.1	6.6	9.2	11.4	12.7	13.0	10.1	7.3	3.7	1.0	0.1		0.1	83.3

Common Yellowthroat is a common migrant and breeder at MBO, generally present from mid-spring until mid-October. The first arrival of spring was on April 28 or 29 for five years in a row (2009-2013), but in other years has been much later, between May 7 and 16. Regardless of arrival date, the spring peak is almost always in week 8 or 9, before tapering off to just the local breeders. Fall numbers remain high throughout the first half of the season, with peak ranging from week 1 to 6, although there has been at least one October sighting each year. Spring numbers have shown a modest but fairly steady increase over the years, but fall counts have fluctuated without a clear long-term trend.

AMRE: American Redstart / Paruline flamboyante (*Setophaga ruticilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 12	May 30	Jun 3	23	18 (31%)	5	39	Aug 6	Aug 29	Oct 9	65	36 (41%)	10	132
2006	May 12	May 22	Jun 5	25	19 (28%)	7	49	Aug 2	Sep 2	Sep 20	50	37 (41%)	13	124
2007	May 16	May 24	May 29	14	5 (7%)	3	8	Aug 1	Aug 26	Sep 28	59	49 (54%)	10	147
2008	May 13	May 26	Jun 3	22	14 (20%)	7	30	Aug 2	Sep 8	Sep 27	57	41 (45%)	11	186
2009	May 4	May 24	Jun 2	30	15 (22%)	4	26	Aug 1	Aug 28	Oct 3	64	48 (53%)	15	211
2010	May 13	May 24	Jun 5	24	22 (31%)	6	57	Aug 1	Aug 17	Sep 22	53	49 (54%)	20	299
2011	May 13	May 13	May 31	19	15 (21%)	14	52	Aug 1	Aug 26	Oct 3	64	51 (56%)	31	354
2012	May 9	May 25	May 31	23	15 (21%)	6	40	Aug 1	Aug 18	Oct 2	63	52 (57%)	18	243
2013	May 4	May 25	Jun 5	33	17 (24%)	6	39	Aug 1	Aug 17	Oct 6	67	56 (62%)	16	297
2014	May 10	May 15	Jun 1	23	21 (31%)	4	37	Aug 1	Aug 9	Oct 19	80	57 (63%)	19	259
Mean	May 10	May 22	Jun 2	24	16 (24%)	6	38	Aug 1	Aug 24	Oct 1	62	48 (52%)	16	225

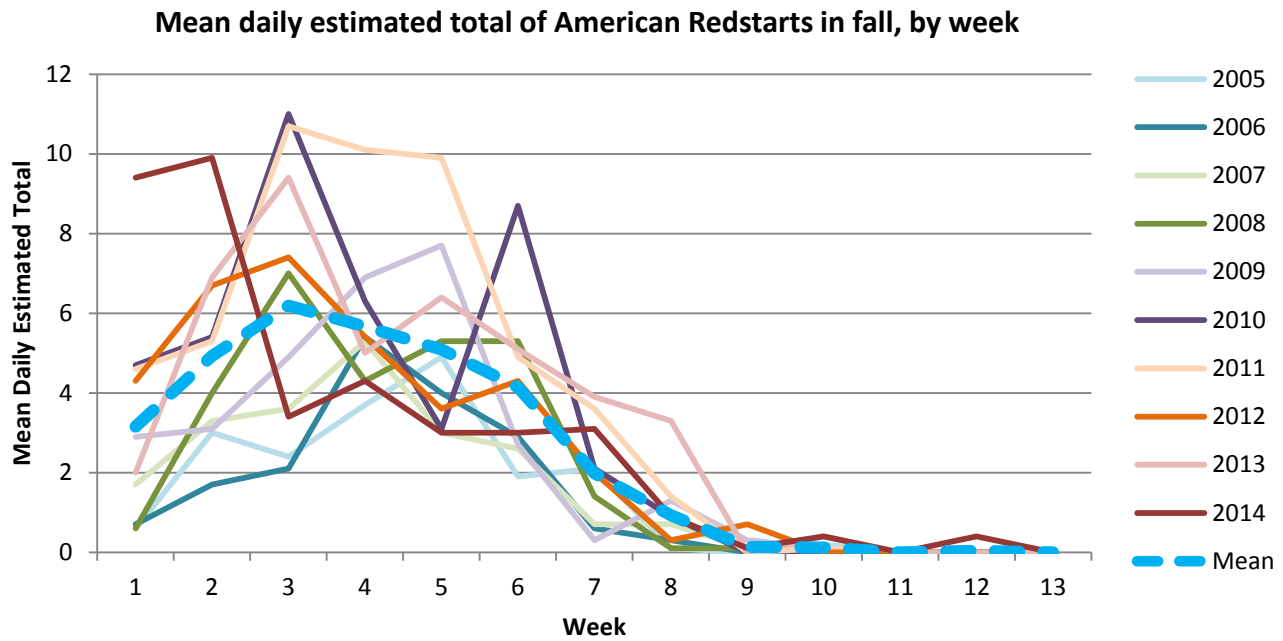
Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.4	1.6	2.1	2.0	0.7
2006													0.1	2.7	2.7	1.4	0.7
2007														0.3	0.9		0.1
2008													0.4	0.6	1.6	1.7	0.4
2009												0.1	0.6	1.3	0.9	0.9	0.4
2010													0.3	1.3	3.6	3.0	0.8
2011													2.3	2.3	2.7	0.1	0.7
2012													0.9	2.0	2.7	0.1	0.6
2013												0.1	0.1	0.9	2.6	1.9	0.6
2014													1.6	1.7	1.7	0.3	0.5
Mean												0.03	0.7	1.5	2.1	1.1	0.6

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.9		0.4	0.6	3.0	2.4	3.7	4.9	1.9	2.1	0.1		0.2				1.5
2006	0.8	0.2	0.5	0.7	1.7	2.1	5.4	4.0	2.9	0.6	0.3						1.4
2007	0.9	0.3	0.6	1.7	3.3	3.6	5.3	3.0	2.6	0.7	0.7	0.1					1.6
2008	0.2	0.2	0.2	0.6	4.0	5.4	4.3	5.3	5.3	1.4	0.1	0.1					2.0
2009	0.3		0.1	2.9	3.1	4.9	6.9	7.7	2.7	0.3	1.3	0.3	0.1				2.3
2010		0.2	0.1	5.1	5.4	11.0	6.3	3.1	8.7	2.1	0.9						3.3
2011	1.0	0.3	0.6	4.6	5.3	10.7	10.1	9.9	4.9	3.6	1.4		0.1				3.9
2012				4.3	6.7	7.4	5.4	3.6	4.3	2.0	0.3	0.7					2.7
2013	0.7	0.8	0.7	2.0	6.9	9.4	5.0	6.4	5.1	3.9	3.3		0.4				3.3
2014		1.3	0.7	8.4	9.9	3.4	4.3	3.0	3.0	3.1	0.9	0.1	0.4		0.4		2.8
Mean	0.6	0.2	0.4	3.1	4.9	6.0	5.7	5.1	4.1	2.0	0.9	0.1	0.1		0.04		2.5

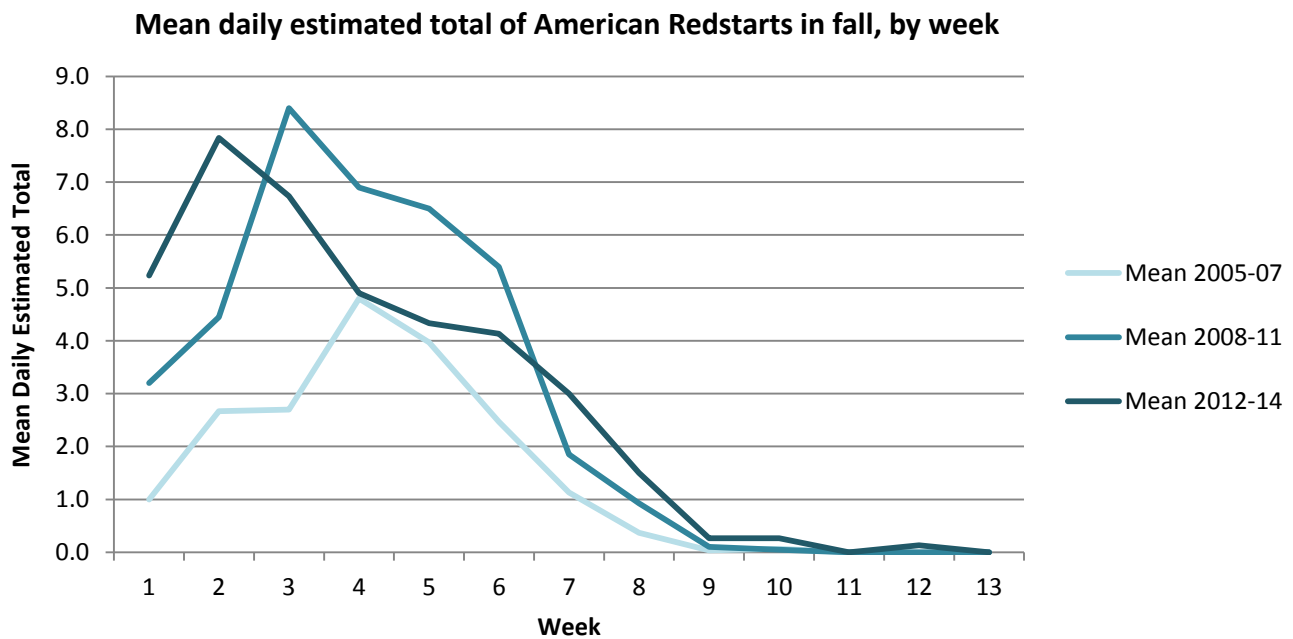
Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	4	1	6
2006														1	2		3
2007															3		3
2008														1	5		6
2009														5	1		6
2010														2	2	1	5
2011													2	7	5		14
2012													2	5	12		19
2013												1		3	4	1	9
2014													5	1	4		10
Mean												0.1	0.9	2.6	4.2	0.3	8.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1	13	7	6	26	6	6	1						66
2006				3	6	6	12	10	8	2	1						48
2007				9	15	12	14	14	10	1	2						77
2008				4	21	22	17	15	11	8		1					99
2009				15	10	20	18	26	7	2	3	2	1				104
2010		1	1	22	14	41	22	8	32	8	2						149
2011	1		1	20	22	25	31	26	10	12	3		1				150
2012				23	39	19	28	10	12	5		3					139
2013	1	3	4	10	22	29	19	24	18	12	11		1				146
2014		2	2	29	38	13	15	10	11	13	5	1	1		2		138
Mean	0.3	0.7	0.9	13.6	20.0	19.4	18.2	16.9	12.5	6.9	2.8	0.7	0.4		0.2		111.6

American Redstart is present at MBO from around mid-May to late September, with a few individuals lingering into October in some years. Spring numbers most commonly peak in week 9, but sometimes one week earlier. The fall peak has advanced over time, from week 5 in 2005 to week 2 in 2014. The number of individuals observed in both spring and fall has increased greatly over time, with the largest change between 2007 and 2010, and this has largely been reflected in the number banded as well. The species has been observed at MBO every summer, although has been banded during the season only since 2010.



The figure above shows considerable variability in the patterns of abundance of American Redstart over the first half of fall, with an overall peak of abundance that is quite protracted and rounded. Combining data into 3-4 years periods (see figure below) reveals different patterns. Overall numbers have been higher since 2008 than from 2005-07. More notably though, the peak has advanced by one week for every 3-4 year period. In fact, a comparison of 2008-11 vs. 2012-14 shows a very similar pattern of occurrence over the first half of the season, just with the 2012-14 results all shifted one week earlier. Notably, week 1 counts were higher in 2014 than any previous year, only slightly below the numbers in week 2, suggesting that the shift may be continuing further. Conversely, timing of spring migration does not appear to have changed over time.



CMWA: Cape May Warbler / Paruline tigrée (*Setophaga tigrina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 15	Sep 18	Sep 18	35	4 (5%)	2	5
2006	May 18	May 18	May 21	4	3 (4%)	1	3	Aug 9	Aug 24	Aug 31	23	3 (3%)	2	4
2007	May 9	May 9	May 22	14	4 (6%)	1	4	Aug 30	Aug 30	Sep 11	13	3 (3%)	1	3
2008	May 12	May 27	May 30	19	3 (4%)	4	6							
2009	May 11	May 18	May 31	21	9 (13%)	3	13	Aug 4	Oct 1	Oct 1	59	3 (3%)	2	4
2010	May 17	May 17	May 17	1	1 (1%)	1	1	Aug 2	Aug 2	Sep 9	39	8 (9%)	1	8
2011	May 16	May 16	May 25	10	3 (4%)	1	3	Aug 1	Aug 3	Sep 18	49	24 (26%)	4	35
2012	May 9	May 9	May 9	1	1 (1%)	5	5	Aug 14	Aug 21	Sep 15	33	6 (7%)	2	8
2013	May 14	May 22	May 23	10	7 (10%)	4	12	Aug 16	Sep 8	Oct 1	47	27 (30%)	12	96
2014	May 14	May 25	May 27	14	7 (10%)	4	13	Aug 3	Aug 11	Oct 8	67	16 (18%)	4	24
Mean	May 13	May 17	May 22	10	4 (6%)	3	6.0	Aug 10	Aug 26	Sep 19	41	10 (12%)	3	19

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														0.4			0.04
2007													0.3	0.3			0.06
2008													0.1		0.6	0.1	0.09
2009													0.6	0.4	0.3		0.2
2010														0.1			0.01
2011														0.3	0.1		0.04
2012													0.7				0.07
2013													0.4	1.1	0.1		0.2
2014													0.1	0.6	1.1		0.2
Mean													0.2	0.3	0.2	0.04	0.09

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						0.1	0.1	0.1		0.3							0.06
2006					0.1		0.3	0.1									0.04
2007								0.1	0.3								0.03
2008																	
2009				0.1					0.1			0.3					0.04
2010				0.1	0.1	0.1	0.1	0.1	0.4								0.09
2011				1.7	0.3	0.7	0.7	0.9	0.4	0.3							0.4
2012					0.1	0.3	0.4		0.1	0.1							0.09
2013						0.4	2.3	2.6	3.0	4.1	0.6	0.7					1.1
2014				0.9	1.1	0.4	0.3	0.1	0.1		0.1	0.1	0.1				0.3
Mean				0.3	0.2	0.2	0.4	0.4	0.5	0.5	0.07	0.1	0.01				0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														1			1
2007													1	1			2
2008																	
2009														1			1
2010																	
2011														1			1
2012													3				3
2013														1			1
2014														1	1		2
Mean													0.4	0.6	0.1		1.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						1		1		1							3
2006																	
2007								1	2								3
2008																	
2009									1								1
2010				1	1	1	1		2								6
2011				6	1	2	4	3	2	1							19
2012						2				1							3
2013						3	10	12	4	14		2					45
2014				5	4						1						10
Mean				1.2	0.6	0.9	1.5	1.7	1.1	1.7	0.1	0.2					9.0

Cape May Warbler is typically observed at MBO during both spring and fall migration, although missed in spring 2005 and fall 2008. Nearly all spring records are from weeks 7 to 9, without a consistent peak within that period. Fall results are more variable, with observations spanning the first ten weeks of the season, and the peak ranging from week 1 to 9, although most commonly between late August and mid-September. Numbers have increased over time, most notably in fall, presumably in response to the outbreak of Spruce Budworm in parts of Quebec northeast of MBO.

NOPA: Northern Parula / Paruline à collier (*Setophaga americana*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 20	May 20	May 28	9	3 (5%)	2	4	Aug 7	Sep 14	Sep 28	53	9 (10%)	5	20
2006	May 19	May 25	May 29	11	8 (12%)	6	18	Aug 15	Aug 30	Oct 4	51	8 (9%)	3	11
2007	May 8	May 17	Jun 1	25	10 (14%)	6	25	Aug 31	Sep 17	Sep 17	18	2 (2%)	2	3
2008	May 12	May 20	May 22	11	6 (9%)	3	8	Aug 31	Sep 12	Oct 3	34	10 (11%)	2	11
2009	May 8	May 18	May 27	20	9 (13%)	5	17	Sep 4	Sep 4	Oct 4	31	3 (3%)	2	6
2010	May 13	May 13	May 18	6	5 (7%)	2	7	Aug 31	Aug 31	Oct 2	33	6 (7%)	1	6
2011	May 14	May 22	May 30	17	8 (11%)	4	13	Sep 1	Sep 18	Sep 24	24	7 (8%)	3	10
2012	May 9	May 9	May 13	5	3 (4%)	5	7	Aug 29	Sep 6	Sep 26	29	10 (11%)	4	17
2013	May 11	May 11	May 23	13	4 (6%)	2	6	Aug 7	Sep 13	Sep 26	51	9 (10%)	3	12
2014	May 10	May 13	May 25	16	6 (9%)	3	10	Aug 23	Sep 13	Sep 20	29	9 (10%)	2	11
Mean	May 12	May 16	May 24	13	6 (9%)	4	12	Aug 24	Sep 9	Sep 27	35	7 (8%)	3	11

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.4	0.1		0.07
2006														0.9	1.7		0.3
2007												0.1	1.0	1.7	0.4	0.3	0.4
2008													0.3	0.9			0.1
2009												0.1	0.1	1.7	0.4		0.2
2010													0.6	0.4			0.1
2011													0.3	1.0	0.4	0.1	0.2
2012													1.0				0.1
2013													0.6		0.3		0.09
2014													0.7	0.1	0.6		0.1
Mean												0.03	0.5	0.7	0.4	0.04	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1				0.1	0.4	1.4	0.6	0.2					0.2
2006						0.1		0.6	0.1		0.3	0.3	0.1				0.1
2007								0.1		0.3							0.03
2008								0.3	0.6	0.4		0.1	0.1				0.1
2009								0.3			0.3		0.3				0.07
2010								0.3		0.3	0.1	0.1					0.07
2011								0.1	0.3	0.6	0.4						0.1
2012								0.3	1.0	1.0		0.1					0.2
2013				0.1			0.1		0.3	0.9	0.1	0.1					0.1
2014							0.3	0.1	0.1	0.9	0.1						0.1
Mean				0.03		0.01	0.04	0.2	0.3	0.6	0.2	0.1	0.06				0.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007														1	1		2
2008													1				1
2009														5	2		7
2010													1	2			3
2011														3	1		4
2012																	
2013																	
2014															1		1
Mean													0.2	1.1	0.5		1.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									1	5	3	1					10
2006												1	1				2
2007								1									1
2008									1	2		1					4
2009													1				1
2010								1		2	1	1					5
2011											3						3
2012									5	3							8
2013				1					1	3		1					6
2014							1		1	2	1						5
Mean				0.1			0.1	0.2	0.9	1.7	0.8	0.5	0.2				4.5

Northern Parula is an uncommon spring and fall migrant at MBO, with observations in both seasons annually, although the species has only been banded in six of ten spring seasons. Since 2007, the first arrival of spring has always been between May 8 and 14; over the first two years the species was much later, with no observations until May 19 or 20. The spring peak has been advancing, from week 8 or 9 in the first several years to week 7 in four of the past five years. Fall migration usually spans several weeks in the middle of the season, with a distinct overall peak in week 7. Numbers have fluctuated somewhat over time in both seasons, but without any clear patterns.

MAWA: Magnolia Warbler / Paruline à tête cendrée (*Setophaga magnolia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 27	Jun 1	17	8 (14%)	4	15	Aug 9	Aug 27	Oct 9	62	44 (50%)	27	323
2006	May 14	May 18	Jun 2	20	17 (25%)	20	98	Aug 7	Aug 28	Oct 2	57	43 (47%)	24	303
2007	May 8	May 17	Jun 1	25	20 (29%)	8	70	Aug 2	Aug 26	Oct 5	65	37 (41%)	19	111
2008	May 7	May 20	May 28	22	16 (23%)	13	60	Aug 13	Sep 6	Oct 12	61	49 (54%)	31	406
2009	May 12	May 18	Jun 1	21	18 (26%)	12	78	Aug 1	Aug 31	Oct 12	73	40 (44%)	20	149
2010	May 5	May 15	Jun 5	32	19 (27%)	8	37	Aug 5	Sep 9	Oct 9	66	52 (57%)	50	355
2011	May 1	May 13	Jun 4	35	19 (27%)	20	77	Aug 5	Sep 16	Oct 2	59	45 (49%)	45	432
2012	May 7	May 9	May 30	24	21 (30%)	21	97	Aug 4	Sep 12	Oct 6	64	55 (60%)	32	350
2013	May 17	May 22	Jun 1	16	14 (20%)	39	101	Aug 3	Sep 14	Oct 15	74	55 (60%)	48	450
2014	May 10	May 16	Jun 3	25	23 (34%)	20	147	Aug 2	Sep 12	Oct 19	79	54 (59%)	50	460
Mean	May 9	May 17	Jun 1	24	18 (26%)	16	78	Aug 5	Sep 5	Oct 9	66	47 (52%)	35	334

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.6	1.1	0.6	0.3
2006													0.1	8.4	5.1	0.3	1.4
2007												0.1	2.4	3.9	2.7	0.9	1.0
2008												0.3	0.6	3.6	4.1		0.9
2009													0.6	7.4	2.7	0.4	1.1
2010												0.3	1.1	2.0	0.7	1.1	0.5
2011											0.1		3.3	2.9	3.7	1.0	1.1
2012												0.6	7.3	3.7	2.1	0.1	1.4
2013														10.1	4.0	0.3	1.4
2014													4.9	10.1	5.0	1.2	2.2
Mean											0.01	0.1	2.0	5.3	3.1	0.6	1.1

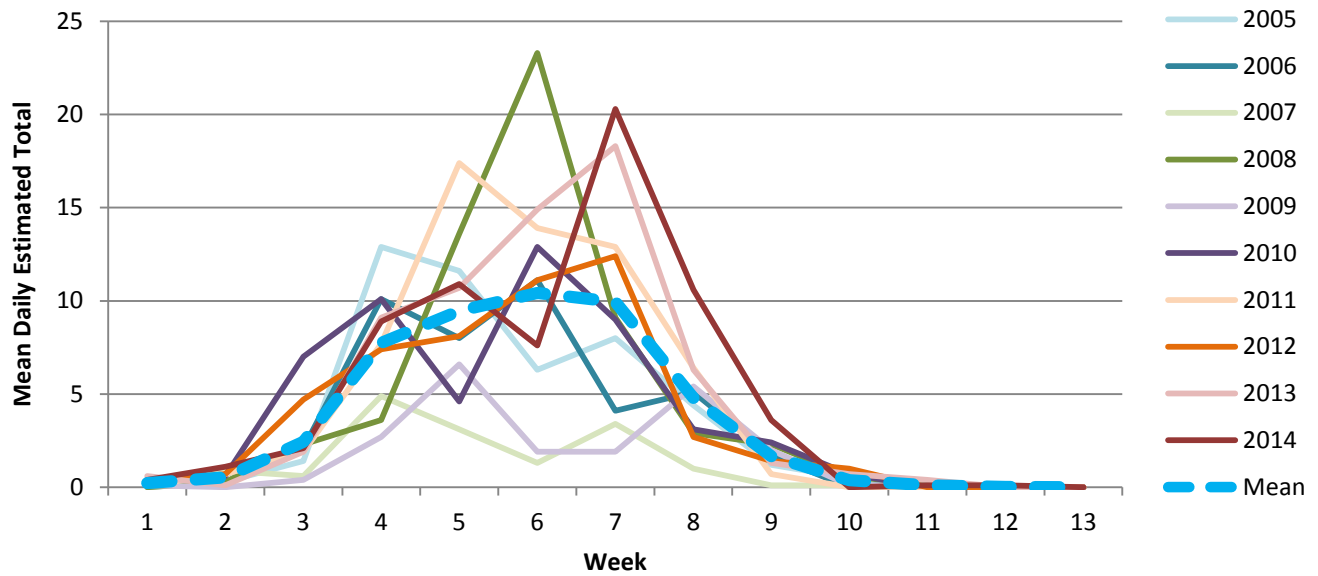
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.3	1.4	12.9	11.6	6.3	7.9	4.4	1.2	0.5				3.7
2006				0.1	0.7	2.1	10.1	8.0	11.1	4.1	5.1	1.7					3.3
2007				0.4	0.9	0.6	4.9	3.1	1.3	3.4	1.0	0.1	0.1				1.2
2008	0.2		0.1		0.3	2.3	3.6	13.6	23.3	9.1	2.9	2.3	0.6	0.1			4.5
2009				0.1		0.4	2.7	6.6	1.9	5.4	2.0	0.1	0.1				1.6
2010	0.3		0.1	0.3	0.6	7.0	10.1	4.6	12.9	9.0	3.1	2.4	0.7				3.9
2011				0.1	0.7	1.9	7.7	17.4	13.9	12.9	6.4	0.7					4.7
2012				0.3	0.7	4.7	7.4	8.1	11.1	12.4	2.7	1.4	1.0				3.8
2013				0.6	0.1	1.9	9.1	10.7	14.9	18.3	6.3	1.3	0.7	0.4			4.9
2014				0.4	1.1	2.1	8.9	10.9	7.6	20.3	10.6	3.6		0.1	0.1		5.1
Mean	0.04		0.02	0.2	0.5	2.4	7.7	9.5	10.4	9.9	4.8	1.7	0.4	0.09	0.01		3.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	3	1	5
2006														10	11	1	22
2007													5	4	5	3	17
2008														7	11		18
2009													1	26	12	2	41
2010													3	3	3	2	11
2011													6	8	12	1	27
2012													8	18	13		39
2013														51	14	1	66
2014													19	39	21	3	82
Mean													4.2	16.7	10.5	1.4	32.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					1	7	48	53	20	37	22	3	1				192
2006				1	3	12	39	21	39	18	16	8					157
2007				1	3	2	24	19	5	14	4	1	1				74
2008					2	12	19	62	109	36	10	11	3				264
2009				1		1	11	31	10	12	25	11	1				103
2010				2	4	37	44	23	74	46	17	11	2				260
2011				1	2	4	43	79	52	38	28	5					252
2012				1	3	12	36	31	44	59	7	7	3				203
2013				3		5	45	53	70	84	19	3	2				284
2014				2	4	9	40	40	27	94	42	20		1			279
Mean				1.2	2.2	10.1	34.9	41.2	45.0	43.8	19.0	8.0	1.3	0.1			206.8

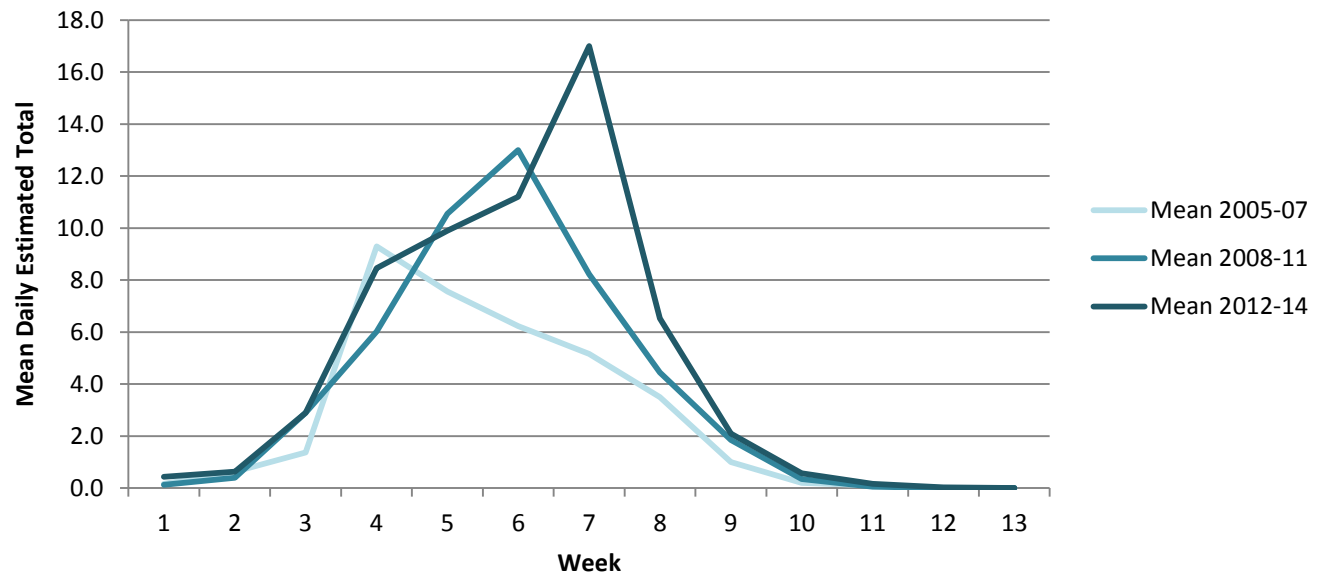
Magnolia Warbler is consistently among the most common spring and fall migrants at MBO. The date of spring arrival varies widely, but the peak is almost always in week 8 or 9; late migrants have lingered into June in most years, including two that stayed into the summer period. Fall migrants almost always start arriving in the first week of August and linger into early-mid October annually. The fall peak has been getting later over time, occurring in week 4 to 6 from 2005 through 2011, but in week 7 in each of the past three years. Both in spring and fall, numbers have shown an increasing trend over time.

Mean daily estimated total of Magnolia Warblers in fall, by week



The figure above shows that the fall peak of Magnolia Warbler migration varies considerably, with an overall peak of abundance that is quite protracted and rounded. Combining data into 3-4 years periods (see figure below) reveals different patterns. As with American Redstart, overall numbers have been higher since 2008 than from 2005-07. However, whereas the peak of American Redstart migration has been advancing, the opposite is the case for Magnolia Warbler, with a peak in week 4 over the first three years, shifting to week 6 over the next four years, and finally week 7 over the three most recent years. Notably, numbers over the first four weeks have remained largely consistent over all three periods; the difference is that from 2005-07, migration tapered off beginning in week 5, whereas in 2008-11 it continued to increase for another two weeks before declining, and from 2012-14, that period of increase extended yet another week. From week 9 onward, results are again almost identical across all periods.

Mean daily estimated total of Magnolia Warblers in fall, by week



BBWA: Bay-breasted Warbler / Paruline à poitrine baie (*Setophaga castanea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 7	Sep 21	Sep 21	46	7 (8%)	2	8
2006	May 18	May 18	May 18	1	1 (1%)	1	1	Aug 11	Sep 1	Sep 24	45	8 (9%)	2	10
2007								Aug 25	Aug 25	Aug 26	2	2 (2%)	1	2
2008	May 20	May 20	May 26	7	4 (6%)	2	6	Aug 31	Aug 31	Sep 7	8	4 (4%)	1	4
2009	May 5	May 5	May 30	26	10 (14%)	4	16	Aug 21	Aug 21	Sep 26	37	4 (4%)	1	4
2010	May 18	May 18	May 22	5	2 (3%)	1	2	Aug 22	Sep 9	Oct 1	41	5 (5%)	3	7
2011	May 14	May 14	May 22	9	2 (3%)	1	2	Aug 26	Aug 26	Sep 27	33	6 (7%)	2	8
2012	May 14	May 14	May 18	5	2 (3%)	1	2	Aug 15	Aug 15	Sep 22	39	8 (9%)	1	8
2013	May 19	May 25	May 25	7	3 (4%)	4	7	Aug 25	Aug 27	Oct 1	38	11 (12%)	4	18
2014	May 10	May 21	May 30	21	4 (6%)	4	7	Aug 8	Aug 23	Sep 23	47	17 (19%)	2	22
Mean	May 14	May 16	May 23	10	4 (5%)	2	4.3	Aug 19	Aug 29	Sep 20	34	7 (8%)	2	9.1

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														0.1			0.01
2007																	
2008														0.4	0.4		0.09
2009												0.6	1.0	0.6		0.1	0.2
2010														0.3			0.03
2011													0.1	0.1			0.03
2012													0.1	0.1			0.03
2013														0.4	0.6		0.1
2014													0.1	0.7		0.2	0.1
Mean												0.06	0.1	0.3	0.1	0.03	0.06

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1			0.3	0.3		0.1	0.3						0.09
2006					0.1		0.1	0.9			0.3						0.1
2007							0.3										0.02
2008								0.1	0.4								0.04
2009						0.1		0.1	0.1			0.1					0.04
2010							0.3		0.4	0.1		0.1					0.08
2011							0.3	0.4		0.3		0.1					0.09
2012						0.1	0.3		0.1	0.4	0.1						0.09
2013							1.1	0.9	0.1	0.3		0.1					0.2
2014					0.6		0.6	0.7		0.9	0.4						0.2
Mean				0.01	0.07	0.03	0.3	0.3	0.1	0.2	0.1	0.06					0.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008															1		1
2009													1	1		1	3
2010																	
2011														1			1
2012														1			1
2013														1	1		2
2014														3		1	4
Mean													0.1	0.7	0.2	0.2	1.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							1	2			2						5
2006							1	2									3
2007							2										2
2008								1	2								3
2009								1	1								2
2010							2		3			1					6
2011							2	3		2							7
2012						1	1			3	1						6
2013							6	2		2							10
2014					1		1	3		3	2						10
Mean					0.1	0.1	1.6	1.4	0.6	1.0	0.5	0.1					5.4

Bay-breasted Warbler is a rare to uncommon spring and fall migrant at MBO. In spring, week 8 is the only period with regular observations, although some sightings have been as early as week 6 or as late as week 10. The fall migration window is also relatively narrow compared to other warblers, with an overall peak ranging from week 4 to 7, and relatively few earlier or later records, including just two sightings on the first of October. In both seasons, numbers have shown a modest increase over time, with the growth in recent years perhaps reflecting the Spruce Budworm outbreak in parts of Quebec northeast of MBO.

BLBW: Blackburnian Warbler / Paruline à gorge orangée (*Setophaga fusca*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 21	May 21	May 21	1	1 (2%)	1	1	Aug 8	Sep 14	Sep 14	38	3 (3%)	2	4
2006	May 11	May 18	May 20	10	4 (6%)	2	6	Aug 10	Sep 2	Sep 4	26	10 (11%)	4	16
2007	May 8	May 8	May 28	21	4 (6%)	1	4	Aug 19	Aug 19	Aug 25	7	2 (2%)	1	2
2008	May 20	May 20	May 20	1	1 (1%)	2	2	Aug 21	Aug 21	Aug 25	5	2 (2%)	1	2
2009	May 15	May 15	May 28	14	4 (6%)	1	4	Aug 28	Aug 28	Sep 4	8	3 (3%)	1	3
2010	May 13	May 13	May 16	4	2 (3%)	1	2	Aug 17	Aug 17	Sep 22	37	8 (9%)	3	11
2011	May 14	May 14	May 29	16	2 (3%)	2	3	Aug 26	Aug 26	Sep 20	26	10 (11%)	3	15
2012	May 9	May 9	May 21	13	4 (6%)	4	8	Aug 20	Aug 20	Aug 31	12	2 (2%)	1	2
2013	May 22	May 22	May 22	1	1 (1%)	1	1	Aug 25	Aug 25	Sep 22	29	4 (4%)	1	4
2014	May 13	May 13	May 31	19	5 (7%)	3	8							
Mean	May 14	May 15	May 23	10	3 (4%)	2	3.9	Aug 19	Aug 26	Sep 8	21	5 (5%)	2	5.9

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1			0.02
2006													0.1	0.7			0.09
2007												0.1	0.1		0.3		0.06
2008														0.3			0.03
2009													0.1	0.1	0.3		0.06
2010													0.1	0.1			0.03
2011													0.3		0.1		0.04
2012													0.9	0.3			0.1
2013														0.1			0.01
2014													0.4	0.6		0.2	0.1
Mean												0.01	0.2	0.2	0.07	0.01	0.06

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1			0.1		0.3							0.05
2006		0.2	0.09		0.3	0.7	0.1	1.1									0.2
2007						0.1	0.1										0.02
2008						0.1	0.1										0.02
2009							0.1	0.3									0.03
2010	0.3		0.1			1.0	0.1		0.3		0.1						0.1
2011							0.7	0.7	0.3	0.3	0.1						0.2
2012						0.1		0.1									0.02
2013							0.3	0.1			0.1						0.04
2014																	
Mean	0.02	0.03	0.02		0.04	0.2	0.2	0.3	0.06	0.06	0.04						0.07

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1			1
2006																	
2007																	
2008																	
2009															1		1
2010																	
2011																	
2012																	
2013														1			1
2014																	
Mean														0.2	0.1		0.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006					1	3	1	3									8
2007																	
2008							1										1
2009																	
2010						4											4
2011							3	1	2								6
2012																	
2013											1						1
2014																	
Mean					0.1	0.7	0.5	0.4	0.2		0.1						2.0

Blackburnian Warbler is generally a rare spring and fall migrant at MBO, though it was missed entirely in fall 2014. Compared to other warblers, it is banded quite irregularly, with none banded in either season in 2007, 2012, or 2014. Almost all spring records are within a 20-day span from May 8 to 28. Fall migration is also relatively constrained compared to other warblers, with all observations to date between week 2 and 8, and a distinct overall peak spanning weeks 3 to 5. Fall numbers were somewhat higher in 2010 and 2011, but otherwise there has been little change in abundance over time.

YEWA: Yellow Warbler / Paruline jaune (*Setophaga petechia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 20	Jun 3	24	24 (41%)	25	358	Aug 1	Aug 3	Sep 19	50	27 (31%)	20	135
2006	May 4	May 25	Jun 5	33	30 (43%)	30	444	Aug 1	Aug 6	Sep 25	56	33 (36%)	18	189
2007	May 7	May 13	Jun 5	30	30 (43%)	25	405	Aug 1	Aug 5	Sep 5	36	24 (26%)	15	115
2008	May 6	May 22	Jun 5	31	31 (44%)	25	390	Aug 1	Aug 1	Sep 3	34	23 (25%)	14	106
2009	Apr 28	May 19	Jun 5	39	38 (55%)	20	339	Aug 1	Aug 6	Sep 3	34	21 (23%)	15	131
2010	May 2	May 13	Jun 5	35	32 (46%)	15	303	Aug 1	Aug 4	Sep 12	43	24 (26%)	15	93
2011	May 1	May 29	Jun 5	36	31 (44%)	21	317	Aug 1	Aug 5	Sep 11	42	28 (31%)	28	246
2012	May 4	May 12	Jun 5	33	33 (47%)	30	431	Aug 1	Aug 1	Sep 14	45	23 (25%)	18	148
2013	May 5	May 16	Jun 5	32	32 (46%)	25	450	Aug 1	Aug 4	Sep 17	48	30 (33%)	11	115
2014	May 9	May 27	Jun 4	27	27 (40%)	28	329	Aug 1	Aug 9	Sep 12	43	27 (30%)	6	69
Mean	May 4	May 19	Jun 4	32	31 (45%)	24	377	Aug 1	Aug 4	Sep 12	43	26 (29%)	16	135

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													6.3	16.7	14.6	19.0	6.1
2006												0.4	11.7	15.3	21.1	14.9	6.4
2007												0.6	17.9	15.6	15.1	8.7	5.8
2008												2.7	9.0	17.1	16.9	10.0	5.6
2009											2.0	3.0	9.1	14.1	11.6	8.6	4.9
2010												2.0	11.7	13.1	9.3	7.1	4.3
2011											0.1	0.6	7.3	12.0	15.1	10.1	4.5
2012												5.4	20.7	15.6	12.1	7.7	6.2
2013												5.0	13.7	20.0	13.0	12.6	6.4
2014													10.9	14.7	12.7	10.2	4.8
Mean											0.2	2.0	11.8	15.4	14.2	10.7	5.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	11.7	5.5	8.5	7.9	6.0	3.3	1.7	0.1		0.1	0.1						1.5
2006	10.2	5.2	7.5	10.3	9.9	3.7	1.9	0.4	0.6	0.1	0.1						2.1
2007	7.7	5.0	6.5	8.1	5.3	2.3	0.6		0.1								1.3
2008	6.6	3.0	4.8	5.9	5.1	3.3	0.4	0.4									1.2
2009	5.3	2.8	3.9	7.3	7.9	3.4		0.1									1.4
2010	1.3	2.7	2.2	6.6	3.9	2.1	0.1	0.3	0.1	0.1							1.0
2011	3.3	7.3	5.6	18.1	10.4	4.9	0.7		1.0								2.7
2012	2.5	19.0	10.8	10.7	6.3	3.4	0.6			0.1							1.6
2013	4.3	2.0	3.0	6.3	2.6	5.0	2.3	0.1		0.1							1.3
2014	3.0	1.0	1.9	3.0	3.0	1.7	1.9	0.1		0.1							0.8
Mean	7.7	5.2	6.4	8.4	6.0	3.3	1.0	0.2	0.2	0.09	0.03						1.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													10	27	9	1	47
2006													3	5	13		21
2007													16	5	7	1	29
2008												2	1	24	9		36
2009											2		8	29	3	1	43
2010													7	12	4	3	26
2011													7	8	13	2	30
2012												3	13	17	2	2	37
2013												1	10	25	6	1	43
2014													15	16	4	1	36
Mean											0.2	0.6	9.0	16.8	7.0	1.2	34.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		4	4	6	19	7	5			1	1						39
2006		3	3	23	14	4		1	1								43
2007				27	9	6			1								43
2008				24	4	7	2	2									39
2009	1	9	10	25	18	7											50
2010		8	8	29	10	3				1							43
2011	2	9	11	52	15	5	3										75
2012	4	57	61	31	9		1			1							42
2013	1	7	8	19	2	6	7										34
2014	1	3	4	7	3					1							11
Mean	1.5	11.1	12.1	24.3	10.3	4.5	1.8	0.3	0.2	0.4	0.1						41.9

Yellow Warbler is among the most abundant breeding birds at MBO, but observations also include migrants. The earliest spring arrival is most commonly in the first week of May, but numbers usually spike in week 7 and peak most often in week 8, before tapering off to just the local breeders by early June. Fall numbers almost always peak in the first week and decline sharply over the course of August, with only low counts extending into early-mid September. Spring numbers show a modest 2-4 year cycle, while fall observations have been relatively stable outside of highs in 2006 and 2011, and below average numbers in 2013 and 2014. The exceptional number banded in July 2012 likely reflected early fall migrants.

CSWA: Chestnut-sided Warbler / Paruline à flancs marron (*Setophaga pensylvanica*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 28	Jun 3	19	11 (19%)	4	18	Aug 2	Aug 22	Sep 23	53	24 (27%)	5	40
2006	May 10	May 16	Jun 5	27	13 (19%)	4	23	Aug 12	Aug 28	Sep 30	50	20 (22%)	3	27
2007	May 10	May 20	Jun 5	27	19 (27%)	5	35	Aug 3	Aug 26	Sep 11	40	19 (21%)	3	23
2008	May 20	May 26	Jun 1	13	13 (19%)	4	30	Aug 1	Aug 17	Sep 27	58	32 (35%)	6	56
2009	May 2	May 30	Jun 5	35	21 (30%)	4	34	Aug 4	Aug 16	Sep 22	50	27 (30%)	4	41
2010	May 16	May 27	Jun 5	21	13 (19%)	3	19	Aug 1	Aug 18	Sep 18	49	22 (24%)	10	51
2011	May 7	May 13	Jun 5	30	24 (34%)	4	46	Aug 3	Aug 26	Sep 25	54	32 (35%)	11	73
2012	May 11	May 24	Jun 5	26	22 (31%)	6	45	Aug 1	Aug 8	Sep 24	55	28 (31%)	3	40
2013	May 11	May 22	May 30	20	18 (26%)	5	38	Aug 3	Aug 20	Oct 13	72	31 (34%)	4	48
2014	May 10	May 14	Jun 3	25	24 (35%)	4	50	Aug 5	Aug 10	Sep 27	54	17 (19%)	3	27
Mean	May 11	May 22	Jun 3	24	18 (26%)	4	34	Aug 3	Aug 19	Sep 25	54	25 (28%)	5	43

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	1.7	1.0	0.3
2006													0.3	2.0	0.7	0.3	0.3
2007													0.6	1.6	2.6	0.3	0.5
2008														0.7	2.7	0.9	0.4
2009												0.3	0.1	1.9	1.6	1.0	0.5
2010														0.7	0.9	1.1	0.3
2011												0.1	1.3	1.3	2.6	1.3	0.7
2012													1.4	1.0	2.7	1.3	0.6
2013													0.7	2.6	2.0	0.1	0.5
2014													1.1	2.4	2.3	1.5	0.7
Mean												0.04	0.6	1.4	2.0	0.9	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.2	0.2	0.4	0.4	0.7	1.6	0.9	0.7	0.6	0.4						0.5
2006					0.7	0.4	0.6	0.6	0.6	0.4	0.4	0.1					0.3
2007	0.3		0.2	0.7	0.4	0.6	0.7	0.3	0.6								0.3
2008				0.4	0.7	2.6	0.7	1.3	1.3	0.6	0.3	0.1					0.6
2009	0.7	0.5	0.6	0.4	1.0	1.4	1.3	1.1	0.1	0.1	0.3						0.5
2010				0.3	0.4	3.7	0.9	0.1	1.4	0.4							0.6
2011	0.7		0.3	0.3	1.4	1.6	2.7	2.1	0.7	0.7	0.9						0.8
2012	0.3		0.1	1.0	1.6	0.9	0.3	0.9	0.7	0.3	0.1						0.4
2013				0.6	1.0	1.9	1.4	0.4	0.4	0.9	0.1			0.1			0.5
2014	0.3	0.3	0.3	0.3	0.4	0.9	0.3	0.6	0.4	0.9		0.1					0.3
Mean	0.2	0.09	0.1	0.4	0.8	1.5	1.0	0.8	0.7	0.5	0.3	0.04		0.01			0.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	2		3
2006															1		1
2007														1	6		7
2008														1	4		5
2009														5	1		6
2010														1	2	1	4
2011													1	3	3		7
2012													3	1	1	2	7
2013													1	4	3		8
2014													5		4		9
Mean													1.0	1.7	2.7	0.3	5.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						3	6	3	3		1						16
2006					4	1	2	1	2	1	1	1					13
2007				3	1	2	3	1	2								12
2008				3	2	10	3	3	6	1		1					29
2009		2	2		4	5	6	2	1	1							19
2010				2	2	13	5	1	9	1							33
2011				1	3	1	15	7	3	2	4						36
2012				6	6	3	2	1	3	2							23
2013				1	4	2	4	2	1	3							17
2014		1	1	1	1	2		1	1	3		1					10
Mean		0.3	0.3	1.7	2.7	4.2	4.6	2.2	3.1	1.4	0.6	0.3					20.8

Chestnut-sided Warbler is an uncommon spring and fall migrant, with occasional summer records. The first arrival of spring was on May 10 or 11 in five of ten years, but as early as May 2 and late as May 20 in others. The spring peak has been in week 8 or 9 every year except 2010 when it was delayed until week 10, although the banding peak has been as early as week 7 in two years. Fall observations usually occur weekly throughout the first seven weeks of the season, then taper off sharp; there has been only one unusually late migrant in October. The fall peak is most commonly in week 3, although more have been banded in week 4. Numbers have fluctuated over time, but without a clear pattern.

BLPW: Blackpoll Warbler / Paruline rayée (*Setophaga striata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 30	Jun 2	18	8 (14%)	4	17	Aug 22	Sep 9	Oct 3	43	16 (18%)	3	22
2006	May 25	May 28	Jun 2	9	9 (13%)	4	21	Aug 26	Sep 16	Sep 25	31	17 (19%)	7	36
2007	May 21	Jun 1	Jun 1	12	12 (17%)	12	97	Aug 26	Sep 2	Sep 22	28	12 (13%)	3	21
2008	May 11	May 26	Jun 4	25	11 (16%)	13	62	Aug 25	Aug 31	Sep 29	36	20 (22%)	15	68
2009	May 18	May 24	Jun 4	18	14 (20%)	21	119	Sep 4	Sep 13	Oct 4	31	14 (15%)	3	20
2010	May 18	May 22	Jun 1	15	13 (19%)	7	39	Aug 29	Sep 9	Sep 30	33	18 (20%)	9	41
2011	May 13	May 29	Jun 1	20	14 (20%)	27	148	Aug 24	Sep 6	Oct 9	47	26 (29%)	7	63
2012	May 8	May 23	Jun 1	25	16 (23%)	15	85	Aug 20	Sep 7	Oct 2	44	19 (21%)	13	70
2013	May 19	May 23	May 31	13	12 (17%)	20	58	Aug 27	Sep 13	Sep 30	35	19 (21%)	5	38
2014	May 14	May 27	Jun 2	20	14 (21%)	18	76	Aug 19	Sep 3	Sep 26	39	17 (19%)	6	27
Mean	May 16	May 26	Jun 1	18	12 (18%)	14	72	Aug 25	Sep 7	Sep 30	37	18 (20%)	7	41

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.7	2.2	0.3
2006															1.9	1.1	0.3
2007														1.0	9.3	3.6	1.4
2008												0.1			5.1	3.6	0.9
2009														1.4	10.7	4.9	1.7
2010														2.1	2.4	1.0	0.6
2011													0.1	3.1	15.4	2.4	2.1
2012												0.4		4.4	5.9	1.4	1.2
2013														1.4	6.6	0.3	0.8
2014													0.6	1.9	7.3	1.3	1.1
Mean												0.04	0.09	1.6	6.5	2.2	1.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.4	0.1	0.6	1.3	0.4	0.2	0.2				0.2
2006							0.6	0.9	2.1	1.3	0.3						0.4
2007							0.3	0.7	1.1	0.7	0.1						0.2
2008	0.2		0.1				0.3	4.0	2.9	1.4	0.9	0.3					0.7
2009								0.1	0.4	1.1	0.3	0.7	0.1				0.2
2010								0.3	2.4	1.0	1.6	0.6					0.5
2011							0.6	1.1	1.3	2.7	2.0	0.9	0.4				0.7
2012							0.1	0.6	5.7	2.6	0.9	0.1					0.8
2013								0.4	0.9	1.6	1.7	0.6	0.3				0.4
2014							0.1	0.3	1.4	0.4	1.1	0.3	0.1				0.3
Mean	0.02		<0.01				0.03	0.3	1.0	1.9	1.5	0.7	0.3	0.07			0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	1	1	3
2006															1	2	3
2007														3	34	10	47
2008															17	7	24
2009														7	25	7	39
2010														1	4	1	6
2011													1	8	31	5	45
2012														4	9	7	20
2013															14	1	15
2014													1	2	9	2	14
Mean													0.2	2.6	14.5	4.3	21.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							2	1	1	4	1	1	1				11
2006							3	4	8	4	2						21
2007							2	4	4	3	1						14
2008							2	16	11	7	6	2					44
2009								1	3	7		4					15
2010								2	14	4	10	3					33
2011							3	2	8	15	12	5	2				47
2012							1	2	21	12	3	1					40
2013								2	5	7	5	1					20
2014							1		8	2	7	2					20
Mean							0.2	1.4	4.5	7.9	6.8	3.8	1.6	0.3			26.5

Blackpoll Warbler is one of the latest spring migrants at MBO, with only a few records before week 8, and a strong peak in week 9 almost every year. Fall migrants almost always start arriving in the final third of August and build to a peak in mid-September, but then taper off by end of month, with early October records in just four years. Both in spring and fall, there seem to be high years (spring 2007, 2009, 2011; fall 2008, 2011, 2012) and low years (spring 2005, 2006, 2010; fall 2005, 2007, 2009).

BTBW: Black-throated Blue Warbler / Paruline bleue (*Setophaga caerulescens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 20	May 31	21	7 (12%)	2	9	Aug 2	Sep 20	Oct 10	70	41 (47%)	5	72
2006	May 13	May 18	Jun 5	24	14 (20%)	10	43	Aug 14	Sep 30	Oct 16	64	19 (21%)	5	30
2007	May 9	May 17	May 31	23	12 (17%)	4	20	Aug 11	Aug 26	Oct 4	55	18 (20%)	4	30
2008	May 6	May 20	May 21	16	6 (9%)	3	11	Aug 1	Sep 19	Oct 13	74	35 (38%)	4	69
2009	May 8	May 14	Jun 1	25	9 (13%)	2	11	Aug 1	Sep 3	Oct 10	71	47 (52%)	7	86
2010	May 6	May 16	Jun 5	31	16 (23%)	4	27	Aug 2	Sep 2	Oct 14	74	43 (47%)	5	71
2011	May 9	May 14	May 25	17	11 (16%)	3	17	Aug 2	Oct 4	Oct 8	68	43 (47%)	5	72
2012	May 8	May 9	May 19	12	9 (13%)	11	22	Aug 14	Oct 2	Oct 4	52	16 (18%)	4	26
2013	May 10	May 22	Jun 4	26	21 (30%)	3	34	Aug 2	Aug 10	Oct 21	81	31 (34%)	3	50
2014	May 10	May 13	Jun 4	26	24 (35%)	4	49	Aug 1	Sep 23	Oct 18	79	38 (42%)	9	66
Mean	May 9	May 16	May 30	22	13 (19%)	5	24	Aug 5	Sep 13	Oct 11	69	33 (36%)	5	57

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.3	0.9		0.2	0.2
2006													0.1	4.3	1.3	0.4	0.6
2007													1.1	0.9	0.7	0.1	0.3
2008												0.3	0.3	1.0			0.2
2009												0.1	0.4	0.6	0.3	0.1	0.2
2010												0.4	0.7	1.7	0.6	0.4	0.4
2011													1.4	0.7	0.3		0.2
2012												0.1	2.1	0.9			0.3
2013													1.0	1.1	1.6	1.1	0.5
2014													2.6	2.1	1.4	1.0	0.7
Mean												0.1	1.0	1.4	0.6	0.3	0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03	0.3	1.0	1.0	0.4	1.1	0.7	0.6	2.0	2.0	1.5	0.2			0.8
2006					0.1	0.1	0.4	0.4	0.7	0.6	0.4	1.1		0.3			0.3
2007					0.1	0.3	0.7	0.7	0.3	0.9	0.7	0.3	0.3				0.3
2008				0.1	0.1	0.6	1.3	0.9	1.7	0.3	1.1	1.4	2.1	0.1			0.8
2009				1.0	0.4	0.9	0.4	3.1	1.4	0.6	1.4	1.4	1.3	0.3			0.9
2010	0.3	0.3	0.3	0.1	0.1	1.0	0.6	1.7	1.9	1.9	1.4	1.0	0.3	0.1			0.8
2011	0.7		0.3	1.3	1.3	0.9	1.3	0.9	0.9	1.1	0.9	0.9	1.0				0.8
2012	0.3	0.3	0.2		0.1	0.1	0.4	0.7	0.3	0.6	0.4	0.9	0.1				0.3
2013		0.5	0.3	0.6	0.6	0.9	0.1	1.0	0.6	1.1	1.1	0.7	0.3		0.1		0.5
2014	0.7		0.3	1.0	1.0	0.7	0.6	0.4	0.9	1.1	2.3	0.3	0.9	0.1	0.1		0.7
Mean	0.1	0.09	0.10	0.4	0.5	0.6	0.6	1.1	0.9	0.9	1.2	1.0	0.8	0.1	0.03		0.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1			1
2006																	
2007													1				1
2008													1	1			2
2009													1	1		1	3
2010												1	1				2
2011													1				1
2012													2				2
2013													1	1			2
2014													2	1			3
Mean												0.1	1.0	0.5		0.1	1.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1	2	1	1	4	1	2	8	10	4				34
2006					1		1	2	2		2	4		2			14
2007							4	5	2	5	4	2					22
2008						3	5	5	7	1	2	9	10	1			43
2009				4		3	1	8	5	3	10	8	8				50
2010		1	1	1		3	1	10	10	8	7	4	2	1			47
2011				8	1	1	6	2	5	6	1	5	4				39
2012					1	1	3	4	1	1	1	2					14
2013		2	2	2		2		2	1	7	6	1	2		1		24
2014	1		1	3	4	1	4	2	2	6	12	2	4	1	1		42
Mean	0.2	0.3	0.4	1.9	0.9	1.5	2.6	4.4	3.6	3.9	5.3	4.7	3.4	0.5	0.2		32.9

Black-throated Blue Warbler is a mostly uncommon migrant through the second half of spring and much of fall, and a regular summer resident since 2010. Spring migration is quite regular, with the first arrival of the year always between May 6 and 13 (May 6-10, since 2007), and a peak in week 7 or 8, although far more have been banded in week 7. The fall peak ranges widely, between week 5 and 10 in most years, but as early as week 1 in 2011; overall though, numbers tend to be highest in late September. Spring and fall numbers have fluctuated modestly, without any distinct pattern.

WPWA: Western Palm Warbler / Paruline à couronne rousse (forme de l'Ouest) (*Setophaga palmarum palmarum*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 18	May 18	May 18	1	1 (2%)	1	1	Aug 25	Sep 7	Oct 10	47	22 (25%)	7	50
2006	May 4	May 4	May 4	1	1 (1%)	1	1	Sep 12	Sep 12	Oct 12	31	9 (10%)	4	20
2007	Apr 28	Apr 28	May 11	14	2 (3%)	1	2	Sep 16	Sep 24	Oct 7	22	13 (14%)	17	51
2008								Sep 1	Sep 10	Oct 6	36	13 (14%)	3	19
2009								Sep 8	Sep 19	Oct 12	35	15 (16%)	3	19
2010	May 5	May 5	May 5	1	1 (1%)	1	1	Aug 31	Sep 7	Oct 3	34	23 (25%)	24	127
2011	May 3	May 13	May 14	12	5 (7%)	8	13	Sep 14	Sep 14	Sep 27	14	5 (5%)	1	5
2012	Apr 21	Apr 21	May 9	19	4 (6%)	1	4	Sep 8	Sep 27	Oct 12	35	18 (20%)	5	41
2013	Apr 29	Apr 29	May 16	18	6 (9%)	1	6	Sep 1	Sep 25	Oct 10	40	15 (16%)	3	23
2014	May 3	May 3	May 20	18	3 (4%)	1	3	Sep 7	Sep 24	Oct 17	41	15 (16%)	4	25
Mean	May 2	May 3	May 12	10	3 (4%)	2	3.1	Sep 6	Sep 16	Oct 8	34	15 (16%)	7	38

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1			0.02
2006												0.1					0.01
2007											0.1		0.1				0.03
2008																	
2009																	
2010												0.1					0.01
2011												0.6	1.3				0.2
2012									0.1			0.3	0.1				0.06
2013											0.3	0.1	0.3	0.1			0.09
2014												0.3		0.1			0.04
Mean										0.01	0.04	0.2	0.2	0.04			0.05

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							0.3	1.1	3.0	1.4	0.1	0.3	0.7	0.3			0.6
2006										0.6	0.6	0.6	0.6	0.6			0.2
2007										0.1	4.0	1.7	1.4				0.6
2008								0.3	0.9		0.1	0.9	0.6				0.2
2009									0.3	0.3	0.9	0.4	0.6	0.3			0.2
2010								1.9	10.4	2.4	2.6	0.7	0.1				1.4
2011										0.1	0.4	0.1					0.05
2012									0.3	0.9	1.0	2.6	1.0	0.1			0.5
2013								0.3	0.3	0.6	0.6	0.7	0.7	0.1			0.3
2014									0.3	0.1	1.1	1.3	0.4	0.1	0.1		0.3
Mean							0.03	0.4	1.5	0.7	1.1	0.9	0.6	0.2	0.01		0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011												1					1
2012										1		1					2
2013													1				1
2014																	
Mean										0.1		0.2	0.1				0.4

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								3	3	2		1	2				11
2006											1	3					4
2007										1	16	6	6				29
2008							1	4		1	6	3					15
2009									1	1	2	1	1				6
2010								3	37	5	13	5					63
2011											3	1					4
2012									2	2	1	6	4	1			16
2013											1	2					3
2014											2	4	1				7
Mean								0.7	4.7	1.1	4.0	3.3	1.9	0.1			15.8

Western Palm Warbler is typically more numerous at MBO than Yellow Palm Warbler, but even so is generally a rare spring and uncommon fall migrant; numbers were substantially higher only in fall 2010 and spring 2011. Spring migration is earlier than most other warblers, with a peak centered around week 6; conversely the fall peak is typically past the middle of the season, although the big flight in 2010 peaked earlier, in week 6. Fall migration of Western Palm Warblers is on average slightly earlier than for Yellow Palm Warblers.

YPWA: Yellow Palm Warbler / Paruline à couronne rousse (forme de l'Est) (*Setophaga palmarum hypochrysea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 8	Sep 14	Oct 10	33	21 (24%)	15	110
2006								Aug 21	Sep 18	Oct 7	48	9 (10%)	2	12
2007	May 6	May 6	May 6	1	1 (1%)	1	1	Sep 24	Sep 24	Oct 6	13	7 (8%)	4	13
2008	Apr 24	Apr 24	Apr 25	2	2 (3%)	1	2	Sep 19	Sep 24	Oct 13	25	7 (8%)	2	8
2009	May 5	May 5	May 30	26	2 (3%)	1	2	Sep 20	Sep 20	Oct 8	19	4 (4%)	1	4
2010	May 5	May 5	May 5	1	1 (1%)	1	1	Sep 19	Sep 19	Oct 8	20	3 (3%)	1	3
2011								Sep 25	Oct 4	Oct 12	18	4 (4%)	2	5
2012	May 6	May 6	May 6	1	1 (1%)	1	1	Sep 22	Sep 22	Oct 4	13	2 (2%)	1	2
2013								Aug 21	Oct 5	Oct 5	46	3 (3%)	2	4
2014								Oct 3	Oct 3	Oct 3	1	1 (1%)	1	1
Mean	May 3	May 3	May 8	6	1 (2%)	1	0.7	Sep 15	Sep 24	Oct 7	24	6 (7%)	3	16

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005																		
2006																		
2007																	0.01	
2008										0.1	0.1		0.1				0.03	
2009																0.1	0.03	
2010																	0.01	
2011																		
2012																	0.01	
2013																		
2014																		
Mean										0.01	0.01	0.06					0.01	0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									5.4	7.3	2.0	0.7	0.3	0.2			1.2
2006						0.1				0.3	0.9	0.1	0.3				0.1
2007											1.0	0.6	0.3				0.1
2008											0.6	0.1	0.1	0.3			0.09
2009											0.1	0.1	0.3				0.04
2010											0.1		0.3				0.03
2011											0.1		0.3	0.3			0.05
2012											0.1		0.1				0.02
2013						0.1						0.1	0.3				0.04
2014													0.1				0.01
Mean						0.03			0.5	0.8	0.5	0.2	0.2	0.07			0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008										1							1
2009																	
2010													1				1
2011																	
2012																	
2013																	
2014																	
Mean										0.1		0.1					0.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									9	31	5	2	1				48
2006										2	2		1				5
2007													1				1
2008											2	1	1	1			5
2009											1		1				2
2010																	
2011											1		1	1			3
2012											1						1
2013												1					1
2014													1				1
Mean									0.9	3.3	1.2	0.4	0.7	0.2			6.7

Except in fall 2005, Yellow Palm Warblers have been outnumbered by Western Palm Warblers in every spring and fall season, often by a large margin. There are only seven spring records, four of which have come in week 6. The big flight in 2005 peaked in week 7, but most commonly the fall peak for Yellow Palm Warbler has been in week 10, which is later than the peak of Western Palm Warbler in any year. Even if the 2005 results are considered an anomaly, there has been a decreasing trend over time in fall.

PIWA: Pine Warbler / Paruline des pins (*Setophaga pinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006	Apr 30	Apr 30	May 7	8	3 (4%)	1	3	Aug 24	Aug 24	Sep 10	18	2 (2%)	1	2
2007								Oct 2	Oct 2	Oct 5	4	2 (2%)	1	2
2008														
2009	May 11	May 11	May 25	15	3 (4%)	1	3	Sep 3	Sep 3	Sep 3	1	1 (1%)	1	1
2010								Aug 16	Aug 16	Sep 20	36	3 (3%)	2	4
2011														
2012								Aug 27	Aug 27	Sep 7	12	2 (2%)	1	2
2013	May 13	May 13	May 13	1	1 (1%)	1	1	Aug 21	Aug 21	Sep 30	41	3 (3%)	1	3
2014	May 27	May 27	May 27	1	1 (1%)	1	1	Aug 29	Aug 29	Sep 1	4	2 (2%)	1	2
Mean	May 12	May 12	May 18	6	2 (3%)	1	0.8	Aug 30	Aug 30	Sep 15	17	2 (2%)	1	1.6

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006											0.1	0.3					0.04
2007																	
2008																	
2009													0.3		0.1		0.04
2010																	
2011																	
2012																	
2013													0.1				0.01
2014																0.1	0.01
Mean											0.01	0.03	0.04		0.03		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006							0.1		0.1								0.02
2007												0.1	0.1				0.02
2008																	
2009								0.1									0.01
2010						0.3	0.1				0.1						0.04
2011																	
2012							0.1		0.1								0.02
2013						0.1					0.1	0.1					0.03
2014									0.3								0.02
Mean						0.04	0.04	0.04	0.03		0.03	0.03	0.01				0.02

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010											1						1
2011																	
2012							1										1
2013																	
2014								1									1
Mean							0.1	0.1			0.1						0.3

Despite the presence of at least one breeding pair annually at the Morgan Arboretum immediately adjacent to MBO, Pine Warbler is a rare species at MBO, with only 24 observations over a decade, and just 3 individuals banded. Records are scarcer in spring than fall, ranging from the end of April to late May. Fall observations have been from the second half of August to the end of September, except in 2007 when both sightings were in the first week of October.

YRWA (MYWA): Yellow-rumped (Myrtle) Warbler / Paruline à croupion jaune (*Setophaga coronata coronata*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 27	May 26	May 28	32	21 (36%)	8	67	Aug 2	Oct 8	Oct 15	75	42 (48%)	44	516
2006	Apr 25	May 19	Jun 2	39	28 (41%)	18	205	Aug 5	Sep 25	Oct 30	87	61 (67%)	200	1545
2007	Apr 23	May 15	Jun 1	40	24 (34%)	34	152	Aug 10	Sep 27	Oct 30	82	41 (45%)	40	285
2008	Apr 25	May 15	May 30	36	27 (39%)	31	219	Aug 10	Oct 3	Oct 27	79	42 (46%)	324	3155
2009	Apr 27	May 18	Jun 1	36	23 (33%)	21	92	Aug 7	Oct 5	Oct 21	76	39 (43%)	55	347
2010	Apr 21	May 13	May 18	28	17 (24%)	33	130	Aug 11	Oct 4	Oct 29	80	51 (56%)	641	6345
2011	Apr 27	May 13	May 25	29	28 (40%)	104	595	Aug 15	Sep 28	Oct 27	74	42 (46%)	80	457
2012	Apr 27	May 9	May 19	23	16 (23%)	55	180	Aug 5	Oct 4	Oct 23	80	48 (53%)	191	975
2013	Apr 29	May 14	May 25	27	22 (31%)	30	152	Aug 1	Sep 27	Oct 25	86	62 (68%)	33	473
2014	May 9	May 13	May 27	19	17 (25%)	50	191	Aug 6	Oct 1	Oct 30	86	48 (53%)	63	743
Mean	Apr 27	May 15	May 26	31	22 (33%)	38	198	Aug 7	Oct 1	Oct 25	80	48 (52%)	167	1484

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											1.1	1.4	2.3	1.9	2.9		1.1
2006											0.6	5.6	8.0	11.3	3.7	0.1	3.0
2007										0.1	0.6	4.4	8.9	5.9	1.7	0.1	2.2
2008	0.1					0.04					0.7	1.3	16.3	6.4	6.0	0.6	3.1
2009											0.1	1.6	2.1	7.6	1.3	0.4	1.3
2010									0.1		0.6	2.7	13.4	1.7			1.9
2011											7.9	18.4	29.3	25.7	3.7		8.5
2012											0.6	8.6	15.7	0.9			2.6
2013											0.6	1.9	11.7	7.3	0.3		2.2
2014													20.4	6.1	0.7		2.8
Mean	0.01					<0.01				0.03	1.3	4.6	12.8	7.5	2.0	0.1	2.9

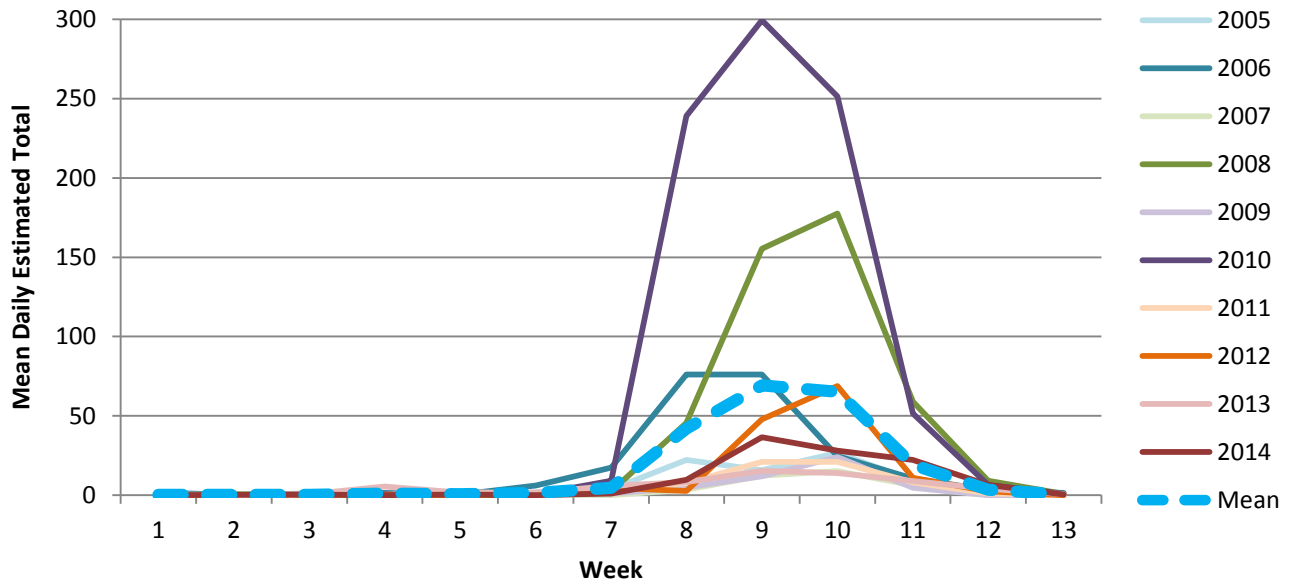
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.4			1.3	0.1	1.6	3.7	22.3	15.7	26.7	9.3			5.9
2006				1.7	0.3	1.1	1.4	0.4	6.1	17.4	76.1	76.1	24.6	10.6	3.3	1.4	17.0
2007	0.1		0.08		0.4		0.3	1.0	0.4		3.4	12.4	15.1	6.3	1.0	0.3	3.1
2008					0.6		0.1		0.1	2.4	45.7	155.3	177.6	58.9	9.1	0.9	34.7
2009				0.1	0.1	0.4	0.4		1.7	1.0	4.9	12.0	24.0	4.7	0.1		3.8
2010					0.1	0.1	0.6	0.7	0.4	9.1	239.0	303.0	294.4	51.4	6.6	0.9	69.7
2011						0.6	0.3	1.9	1.0	2.1	7.7	21.1	21.0	8.1	1.1	0.3	5.0
2012				0.1		0.3	0.3	0.1	1.0	4.7	2.7	47.9	68.9	10.9	2.4		10.7
2013				0.6		0.6	5.6	1.7	1.7	6.0	8.3	15.4	14.0	8.9	4.1	0.7	5.2
2014				0.1	0.3	0.4	0.1	0.4	0.1	1.0	9.7	36.6	28.0	22.3	6.6	0.4	8.2
Mean	0.02		0.01	0.3	0.2	0.4	1.0	0.6	1.4	4.8	42.0	70.3	70.0	19.3	3.4	0.5	16.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											3	2	1	8	11		25
2006											1	1	5	13	2		22
2007													19	6	7		32
2008											2	1	24	11	9		47
2009													5	26	6		37
2010												3	19	8			30
2011											4	26	22	48	2		102
2012											1	2	41	2			46
2013												1	15	5	2		23
2014													45	8	3		56
Mean											1.1	3.6	19.6	13.5	4.2		42.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							2		2	14	76	21	30	12			157
2006							2		8	49	169	241	40	6	6	1	522
2007							1	1			12	46	7	1			68
2008										4	170	688	650	209	11		1732
2009					1				2	3	6	21	70	2	1		106
2010								1		27	881	750	605	88	7		2359
2011								2	1	1	10	33	31	30			108
2012				1		1		1	4	6	2	84	170	21	2		292
2013							13	4	3	6	5	24	36	13	3	1	108
2014										1	12	84	34	29	4		164
Mean				0.1	0.1	0.1	1.8	0.9	2.0	11.1	133.1	195.8	171.2	41.7	3.5	0.2	561.6

More Yellow-rumped Warblers have been banded at MBO than any other species, by a wide margin (5856, compared to 3875 White-throated Sparrows in second place). From 2005 through 2012, the first spring arrival was always between April 21 and 27, but has been later in the two most recent years, most notably May 9 in 2014; the peak is in week 7 in most years. Small numbers are recorded over the first six weeks of fall most years, before numbers build to a sharp peak in weeks 9 and 10. Spring numbers have varied modestly over the years, aside from a big spike in 2011, but fall counts have fluctuated more dramatically, with incredibly high and sustained peaks in both 2008 and 2010.

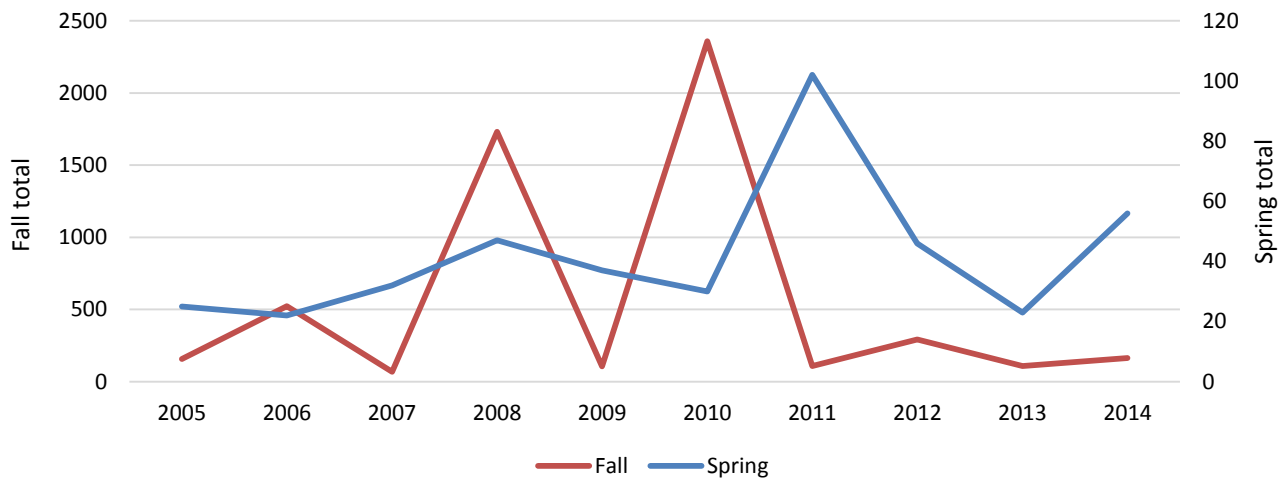
Mean daily estimated total of Yellow-rumped Warblers in fall, by week



The figure above illustrates the degree to which Yellow-rumped Warbler numbers in fall 2008 and 2010 exceeded normal levels. Aside from high counts in those two years extending into week 11, the results show that the vast majority of Yellow-rumped Warblers pass through from weeks 8 through 10.

The figure below shows that the number of Yellow-rumped Warblers banded in fall has consistently shown a two-year cycle, with peaks in even-numbered years. However, the intensity of these peaks increased steadily from 2006 to 2010, then declined drastically in 2012 and by 2014 was barely detectable. For some species, intense fall peaks (or lows) have been followed by corresponding extremes the following spring, but for Yellow-rumped Warbler this appears to have happened only once, with the fall 2010 peak reflected by a record high in spring 2011.

Number of Yellow-rumped Warblers banded by year



BTNW: Black-throated Green Warbler / Paruline à gorge noire (*Setophaga virens*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 11	May 30	20	6 (10%)	1	6	Aug 6	Sep 11	Oct 9	65	33 (38%)	10	67
2006	May 11	May 18	Jun 2	23	14 (20%)	10	33	Aug 11	Sep 25	Oct 4	55	33 (36%)	7	67
2007	May 8	May 14	Jun 1	25	12 (17%)	4	24	Aug 26	Sep 17	Oct 3	39	10 (11%)	4	18
2008	May 6	May 13	May 27	22	13 (19%)	5	27	Aug 27	Sep 6	Oct 3	39	25 (27%)	7	45
2009	May 8	May 10	May 22	15	6 (9%)	3	10	Aug 27	Aug 31	Oct 6	41	15 (16%)	5	28
2010	May 5	May 10	May 22	18	7 (10%)	3	12	Aug 15	Sep 7	Oct 5	52	28 (31%)	4	46
2011	Apr 30	May 13	May 26	27	13 (19%)	7	25	Aug 13	Aug 24	Oct 7	56	23 (25%)	5	56
2012	May 5	May 12	May 28	24	10 (14%)	6	26	Aug 16	Sep 14	Sep 26	42	19 (21%)	6	39
2013	May 11	May 22	Jun 4	25	12 (17%)	3	18	Aug 7	Sep 5	Oct 4	59	21 (23%)	3	33
2014	May 10	May 15	May 27	18	12 (18%)	3	18	Aug 22	Sep 4	Oct 27	67	13 (14%)	5	21
Mean	May 7	May 13	May 28	22	10 (15%)	4	20	Aug 16	Sep 8	Oct 6	52	22 (24%)	6	42

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.3	0.3	0.1	0.2	0.1
2006													0.4	2.7	1.3	0.3	0.5
2007												0.3	2.0	0.4	0.6	0.1	0.3
2008												0.4	2.3	1.0	0.1		0.4
2009												0.1	0.7	0.6			0.1
2010												0.1	0.6	1.0			0.2
2011											0.1	0.4	2.3	0.6	0.1		0.4
2012												0.7	1.7	1.0	0.3		0.4
2013													0.4	1.3	0.7	0.1	0.3
2014													1.4	0.7	0.4		0.3
Mean											0.01	0.2	1.2	1.0	0.4	0.07	0.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03	0.4	0.3	0.4	1.0	1.4	2.3	1.0	2.0	0.3	0.5				0.8
2006		0.3	0.2			0.7	0.4	0.7	1.6	1.1	1.6	2.7	0.6	0.1			0.7
2007								0.1	0.3	0.4	0.6	0.9	0.1	0.1			0.2
2008								0.1	0.7	2.0	0.9	1.3	1.3	0.1			0.5
2009								0.3	1.3	0.4	0.6	0.1	0.9	0.4			0.3
2010							0.6	0.4	1.1	1.0	1.7	1.0	0.6	0.1			0.5
2011					0.3	0.4	1.6	1.3	1.1	1.9	0.7	0.1	0.6				0.6
2012						0.1	0.4	0.9	0.4	3.1	0.4	0.1					0.4
2013				0.1		0.1	0.6	0.1	0.9	1.3	1.1	0.1	0.3				0.4
2014							0.7	0.7		0.7	0.4		0.1	0.1		0.1	0.2
Mean		0.08	0.04	0.06	0.1	0.2	0.6	0.9	1.0	1.3	1.1	0.4	0.2	0.01		0.01	0.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																1	1
2008														1			1
2009																	
2010														1			1
2011															1		1
2012																	
2013														1			1
2014														1	1		2
Mean														0.4	0.2	0.1	0.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				2		1	2	4	6	1	7		1				24
2006		1	1		1	1		1	2	2	11	1					19
2007										1	2						3
2008								2	11	3	3	9					28
2009							1	2	1	1		2					7
2010						3		3	4	7	6	2					25
2011							5	4	5	2	2	1	2				21
2012							2		2	15		1					20
2013				1				1		4	3	1	2				12
2014							4				2					1	7
Mean		0.1	0.1	0.3	0.1	0.5	1.4	1.7	3.1	3.6	3.6	1.7	0.5			0.1	16.6

Black-throated Green Warbler is an uncommon spring and fall migrant at MBO, although more than 20 times as many have been banded in fall compared to spring. The first arrival of spring was on May 10 or 11 in 2005 and 2006, and again in 2013 and 2014; in between it was always between May 5 and 8, aside from an exceptionally early arrival on April 30 in 2011. Although the overall spring peak is in week 7, no individuals have ever been banded before week 8. In fall, numbers typically start building in late August and peak between weeks 6 and 8. The last sighting of the year has been between October 3 and 9 in eight of ten years. Spring numbers have remained relatively consistent, but fall results have declined somewhat over time.

CAWA: Canada Warbler / Paruline du Canada (*Cardellina canadensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Aug 12	Aug 17	Sep 15	35	10 (11%)	4	17
2006	May 25	May 28	May 29	5	3 (4%)	2	5	Aug 10	Aug 14	Sep 12	34	12 (13%)	5	21
2007	May 17	May 27	Jun 1	16	6 (9%)	3	9	Aug 12	Aug 26	Sep 4	24	6 (7%)	4	11
2008	May 21	May 24	Jun 1	12	8 (11%)	3	11	Aug 9	Aug 19	Sep 10	33	16 (18%)	6	36
2009	May 2	May 18	May 29	28	7 (10%)	3	9	Aug 3	Aug 31	Aug 31	29	10 (11%)	4	19
2010	May 18	May 18	May 30	13	2 (3%)	1	2	Aug 5	Aug 18	Sep 18	45	25 (27%)	8	49
2011	May 21	May 25	May 31	11	7 (10%)	4	12	Aug 11	Aug 19	Sep 14	35	21 (23%)	4	34
2012	May 21	May 24	May 27	7	7 (10%)	5	11	Aug 7	Aug 14	Sep 7	32	11 (12%)	3	17
2013	May 19	May 22	May 27	9	4 (6%)	4	9	Aug 11	Aug 13	Sep 13	34	17 (19%)	4	27
2014	May 14	May 28	May 28	15	6 (9%)	4	10	Aug 9	Aug 16	Sep 14	37	15 (16%)	3	28
Mean	May 17	May 23	May 29	13	6 (8%)	3	7.8	Aug 8	Aug 18	Sep 10	34	14 (16%)	4	26

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															0.7		0.07
2007														0.6	0.6	0.1	0.1
2008														0.1	1.1	0.3	0.2
2009												0.1	0.1	0.7	0.3		0.1
2010														0.1		0.1	0.03
2011														0.4	1.1	0.1	0.2
2012														0.3	1.3		0.2
2013														0.7	0.6		0.1
2014													0.1	0.3	1.0		0.1
Mean												0.01	0.03	0.3	0.7	0.07	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1	0.9	0.6	0.6	0.1	0.1							0.2
2006					1.1	0.9	0.1	0.6	0.1	0.1							0.2
2007					0.3	0.3	0.9	0.1									0.1
2008					1.6	2.4	0.6	0.6	0.6								0.4
2009				0.1		1.1	0.6	0.9									0.2
2010				0.6	0.9	2.9	1.1	0.7	0.7	0.1							0.5
2011					0.6	1.4	0.7	0.9	0.9	0.4							0.4
2012				0.3	1.3	0.4	0.3		0.1								0.2
2013					1.0	1.6	1.0		0.1	0.1							0.3
2014					0.4	1.1	1.1	0.7		0.6							0.3
Mean				0.1	0.7	1.3	0.6	0.5	0.3	0.2							0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006															2		2
2007														3	1	1	5
2008															3	1	4
2009														1			1
2010														1		1	2
2011														2	7	1	10
2012														1	4		5
2013														5	4		9
2014														1	6		7
Mean														1.4	2.7	0.4	4.5

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					1	6	2	4	1	1							15
2006					6	4	1	1	1								13
2007					2	2	4	1									9
2008					10	9		2	3								24
2009				1		6	3	4									14
2010				4	4	16	4	5	2								35
2011					3	3	4	2	2	3							17
2012				2	7	2	2		1								14
2013					5	7	4		1	1							18
2014					2	5	7	5		4							23
Mean				0.7	4.0	6.0	3.1	2.4	1.1	0.9							18.2

Canada Warbler is a rare to uncommon late spring and early fall migrant at MBO. Only twice have there been spring sightings before week 8; the peak is always in week 8 or 9, with few individuals lingering into the final week of the season. Nearly 60% of individuals recorded in spring and over 70% of those in fall were banded, reflecting the generally secretive inconspicuous nature of this species. Fall sightings are scarce in the first week of August, but peak later in the month before quickly tapering off in early September, with the last sighting of the year between September 10 and 15 in six of ten years, and just one later observation on September 18. Numbers have shown a weak increasing tendency over time in both spring and fall.

WIWA: Wilson's Warbler / Paruline à calotte noire (*Cardellina pusilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 21	May 30	May 31	11	5 (8%)	2	6	Aug 6	Aug 29	Sep 23	49	24 (27%)	4	41
2006	May 19	May 27	May 30	12	10 (14%)	8	25	Aug 10	Sep 6	Sep 16	38	19 (21%)	8	52
2007	May 19	May 27	Jun 1	14	9 (13%)	5	20	Aug 21	Sep 7	Oct 3	44	24 (26%)	8	60
2008	May 15	May 28	Jun 3	20	12 (17%)	11	46	Aug 15	Sep 3	Sep 12	29	22 (24%)	7	75
2009	May 17	May 21	Jun 1	16	16 (23%)	9	47	Aug 23	Aug 31	Oct 1	40	15 (16%)	2	17
2010	May 16	May 17	May 24	9	6 (9%)	2	7	Aug 15	Sep 6	Oct 3	50	26 (29%)	7	55
2011	May 22	May 22	May 31	10	7 (10%)	6	26	Aug 29	Sep 6	Sep 25	28	21 (23%)	8	81
2012	May 12	May 28	Jun 2	22	17 (24%)	8	50	Aug 15	Sep 8	Sep 22	39	24 (26%)	6	42
2013	May 17	May 27	May 31	15	10 (14%)	4	21	Aug 21	Sep 8	Sep 24	35	19 (21%)	4	38
2014	May 14	May 20	Jun 1	19	16 (24%)	10	66	Aug 20	Sep 14	Oct 7	49	23 (25%)	5	38
Mean	May 17	May 24	May 31	15	11 (16%)	6	31	Aug 17	Sep 5	Sep 25	40	22 (24%)	6	50

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	0.3	0.6	0.1
2006														0.7	2.7	0.1	0.4
2007														0.7	1.7	0.4	0.3
2008												0.1		0.3	4.7	1.4	0.7
2009														3.1	2.7	0.9	0.7
2010														0.9	0.1		0.1
2011														0.9	2.6	0.3	0.4
2012												0.3		1.4	4.6	0.9	0.7
2013														0.7	1.6	0.7	0.3
2014													0.6	2.6	5.9	0.5	1.0
Mean													0.1	1.1	2.7	0.6	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				0.1		0.6	1.4	1.6	0.4	1.3	0.4						0.5
2006					0.1	0.6	2.0	2.0	2.6	0.1							0.6
2007						0.1	1.3	2.3	3.0	1.4	0.1	0.1	0.1				0.7
2008						1.0	1.0	4.4	4.0	0.3							0.8
2009							0.3	0.7	0.3	0.7	0.3	0.1					0.2
2010						0.4	1.1	1.1	3.4	1.4	0.1		0.1				0.6
2011								3.6	5.0	2.0	1.0						0.9
2012						0.1	0.9	1.3	2.3	1.3	0.1						0.5
2013						0.1	0.4	0.9	2.6	1.1	0.3						0.4
2014						0.1	0.6	0.4	0.3	2.6	0.7	0.4	0.3				0.4
Mean				0.01	0.01	0.3	0.9	1.8	2.4	1.2	0.3	0.07	0.06				0.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	2	2	5
2006														2	12	1	15
2007														1	7	1	9
2008														1	19	4	24
2009														15	9	4	28
2010														5	1		6
2011														4	8	2	14
2012												1		4	16	4	25
2013														4	9	4	17
2014													1	7	24	3	35
Mean													0.2	4.4	10.7	2.5	17.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				1		3	3	9	2	7	2						27
2006					1	3	9	6	9	1							29
2007							8	9	17	5	1	1					41
2008						4	6	22	20	1							53
2009							2	5	2	3	1	1					14
2010						3	5	5	18	7	1						39
2011								15	18	8	5						46
2012						1	4	5	14	5	1						30
2013						1	2	5	11	5	1						25
2014							4	1	2	12	3	3					25
Mean				0.1	0.1	1.5	4.3	8.2	11.3	5.4	1.5	0.5					32.9

Wilson's Warbler is among the latest of spring migrants, with the earliest arrival ever on May 12, and no observations until week 8 in seven of ten years. There is typically a distinct peak in week 9, although in 2009 and 2010 it was shifted earlier. Spring numbers have been relatively consistent, aside from record highs in 2014. There have been only two records in the first two weeks of fall, and observations beyond week 8 in just four years, but Wilson's Warbler is generally regular in the intervening weeks, with a peak most years in week 6. Fall numbers have been relatively steady over the years, although consistently a bit below average since 2012.

EATO: Eastern Towhee / Tohi à flancs roux (*Pipilo erythrophthalmus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	May 11	May 11	May 11	1	1 (1%)	1	1							
2008														
2009								Aug 2	Aug 2	Aug 30	29	2 (2%)	1	2
2010								Aug 12	Aug 12	Aug 12	1	1 (1%)	1	1
2011	Jun 2	Jun 2	Jun 2	1	1 (1%)	1	1							
2012														
2013														
2014								Oct 16	Oct 16	Oct 16	1	1 (1%)	1	1
Mean	May 22	May 22	May 22	1	1 (1%)	1	0.2	Aug 30	Aug 30	Sep 8	10	1 (1%)	1	0.4

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007													0.1				0.01
2008																	
2009																	
2010																	
2011																0.1	0.01
2012																	
2013																	
2014																	
Mean													0.01			0.01	<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009				0.1				0.1									0.02
2010					0.1												0.01
2011																	
2012																	
2013																	
2014														0.1			0.01
Mean				0.01	0.01			0.01						0.01			<0.01

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007													1				1
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.1				0.1

Eastern Towhee is a rare species at MBO, with only two spring and four fall observations, only one of which was banded (a female in May 2007). Too few observations have been recorded to identify any clear patterns, although it is notable that three of the four fall sightings have been in August.

ATSP: American Tree Sparrow / Bruant hudsonien (*Spizelloides arborea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 6	May 10	36	17 (29%)	9	52	Oct 13	Oct 28	Oct 30	18	15 (17%)	12	81
2006	Mar 28	Apr 3	Apr 30	34	24 (35%)	12	110	Oct 11	Oct 28	Oct 30	20	13 (14%)	17	96
2007	Mar 28	Apr 19	Apr 23	27	20 (29%)	7	54	Oct 1	Oct 25	Oct 30	30	20 (22%)	15	108
2008	Apr 1	Apr 9	Apr 20	20	11 (16%)	12	50	Oct 7	Oct 18	Oct 30	24	12 (13%)	19	37
2009	Mar 29	Apr 9	Apr 23	26	16 (23%)	15	83	Oct 12	Oct 30	Oct 30	19	13 (14%)	45	137
2010	Mar 28	Mar 29	Apr 17	21	8 (11%)	21	47	Oct 11	Oct 27	Oct 30	20	15 (16%)	30	117
2011	Mar 28	Mar 30	May 2	36	28 (40%)	19	118	Oct 9	Oct 30	Oct 30	22	10 (11%)	13	57
2012	Apr 2	Apr 15	Apr 26	25	10 (14%)	9	39	Oct 15	Oct 27	Oct 30	16	16 (18%)	9	75
2013	Mar 28	Apr 10	Apr 27	31	23 (33%)	25	136	Oct 15	Oct 30	Oct 30	16	10 (11%)	7	23
2014	Mar 29	Apr 1	May 6	39	28 (41%)	14	118	Oct 12	Oct 29	Oct 30	19	13 (14%)	38	260
Mean	Mar 29	Apr 6	Apr 27	30	18 (27%)	14	81	Oct 10	Oct 27	Oct 30	20	14 (15%)	20	99

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	1.3	3.5		1.3	5.0	2.6		4.5	1.9	0.7	0.9	0.1	0.1				0.9
2006	0.8	0.6	1.8	2.0	4.1	1.8	6.7	6.3	2.3	1.0	0.3						1.6
2007	3.0	2.7	4.3	6.5	4.2	3.8	2.9	1.3	1.6	2.0							0.8
2008	1.0					0.3	0.3	2.1	3.6	1.1							0.7
2009	0.9	0.5	1.8	1.6	2.4	1.7	5.1	5.7	1.6	0.3							1.2
2010	3.3	1.8	3.3	5.0	8.5	4.5	6.6		0.1								0.7
2011	4.4	1.0	3.6	1.0	2.8	3.1	6.9	2.4	1.4	3.7	2.3	0.1					1.7
2012	4.4	2.5	0.3	2.3	9.0	4.3	0.6	0.9	1.9	1.6	0.7						0.6
2013	1.6	3.9	1.7	2.2	4.1	2.8	1.9	8.9	4.1	4.0	0.6						1.9
2014	2.0	1.8	0.3	2.4	4.4	2.1	4.2	4.1	3.1	4.1	1.4	0.4					1.7
Mean	2.5	1.8	2.2	2.6	4.7	2.8	3.9	3.5	2.2	1.9	0.6	0.07	0.01				1.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														0.2	5.3	6.1	0.9
2006														0.4	4.4	8.9	1.1
2007												0.1	0.1	3.4	5.3	6.4	1.2
2008												0.4	0.1	3.6	1.1	0.4	0.4
2009														0.3	2.9	16.4	1.5
2010														0.7	4.3	11.7	1.3
2011												0.1		1.1	6.9	0.6	0.6
2012														0.4	4.6	5.7	0.8
2013														0.3	0.4	2.6	0.3
2014														0.1	7.4	29.6	2.9
Mean												0.01	0.07	0.6	3.9	9.5	1.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	3	2		3	1	9		2		1							3
2006	5	2	2	1	1	11		2	4	1							7
2007		2			5	7				2							2
2008										2							2
2009					2	2											
2010	8	3	2	2	23	38											
2011	21				4	25				6	9						15
2012	25	2		2	27	56				2							2
2013	4	13		1	6	24				5	1						6
2014	3	1				4				5	2	2					9
Mean	8.6	3.6	1.3	1.5	8.6	19.6		2.0	2.0	2.4	1.2	0.2					4.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														1	9	15	25
2006															14	15	29
2007														10	16	8	34
2008												1	1	5	6	13	13
2009														1	7	54	62
2010														3	13	37	53
2011															6	32	38
2012														2	12	19	33
2013														2	3	8	13
2014															23	80	103
Mean													0.1	2.0	10.8	27.4	40.3

American Tree Sparrow is fairly common at MBO from early-mid October to late April or early May. Fall numbers almost always peak in week 13, although often continue in similar or even greater abundance into early November. A small subset of the migrants overwinters at MBO annually, including several individuals that have been recaptured in multiple winters. Spring numbers taper off steadily from the start of the season, with a few remaining until mid-April each year, and into May three years out of ten. In all seasons, numbers are relatively consistent from year to year, except for unusually few in winter 2008 and spring 2010, and particularly many in fall 2014.

CHSP: Chipping Sparrow / Bruant familier (*Spizella passerina*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 10	May 11	Jun 3	55	21 (36%)	6	36	Aug 1	Sep 13	Oct 28	89	30 (34%)	12	88
2006	Apr 20	Apr 30	Jun 3	45	29 (42%)	5	52	Aug 4	Aug 12	Oct 9	67	19 (21%)	4	37
2007	Apr 24	May 26	Jun 1	39	21 (30%)	5	29	Aug 3	Oct 15	Oct 18	77	25 (27%)	7	55
2008	Apr 22	May 8	Jun 1	41	35 (50%)	5	61	Aug 3	Oct 10	Oct 17	76	15 (16%)	4	25
2009	Apr 18	May 10	May 30	43	26 (38%)	4	45	Aug 1	Oct 2	Oct 21	82	12 (13%)	4	18
2010	Apr 20	May 5	Jun 1	43	33 (47%)	4	51	Aug 17	Sep 22	Oct 10	55	9 (10%)	3	13
2011	Apr 28	May 3	May 29	32	18 (26%)	4	25	Aug 1	Sep 28	Oct 21	82	27 (30%)	16	97
2012	Apr 9	May 15	Jun 3	56	39 (56%)	7	103	Aug 1	Sep 14	Oct 21	82	42 (46%)	10	130
2013	Apr 16	May 16	Jun 3	49	42 (60%)	12	155	Aug 1	Sep 17	Oct 11	72	18 (20%)	4	29
2014	Apr 18	May 19	Jun 2	46	36 (53%)	5	87	Aug 1	Oct 11	Oct 27	88	42 (46%)	8	123
Mean	Apr 18	May 11	Jun 1	45	30 (44%)	6	64	Aug 3	Sep 23	Oct 18	77	24 (26%)	7	62

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2		0.7	0.1	1.1	2.1	0.6		0.6	0.6
2006										0.4	1.0	1.3	1.3	1.0	1.3	1.1	0.8
2007										0.3	0.1	0.4	1.1	0.6	1.3	0.3	0.4
2008										0.4	1.4	1.7	1.7	1.7	1.1	0.6	0.9
2009										0.1	0.4	0.9	2.6	1.6	0.7	0.1	0.7
2010										0.3	0.6	2.1	1.4	1.4	0.9	0.6	0.7
2011											0.9	1.3	0.7	0.3	0.4		0.4
2012				0.3		0.04		0.1	0.3	0.4	0.7	2.6	3.7	3.3	2.7	0.9	1.5
2013	0.3					0.04			0.1	0.3	2.0	5.6	3.7	4.9	3.9	1.7	2.2
2014										1.4	0.9	1.6	1.6	2.3	3.3	1.7	1.3
Mean	0.02			0.01		0.01		0.03	0.04	0.4	0.8	1.9	2.0	1.8	1.6	0.7	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.6	0.5	0.6			0.3	0.1	1.9	2.6	3.1	2.3	2.0	0.2		0.1	1.0
2006	0.6	0.2	0.4	0.7	1.1	0.1	0.6		0.4	0.3	0.6	0.7	0.7				0.4
2007	0.3	0.2	0.2	0.1	0.4	0.3		0.6	0.1	1.1	1.3	0.4	1.7	1.6	0.1		0.6
2008	0.2		0.1	0.1					0.1	0.1	0.7	0.4	1.1	0.6	0.3		0.3
2009				0.4	0.1	0.1			0.1	0.1		0.6	0.3	0.3	0.4		0.2
2010		0.2	0.1			0.1					0.9	0.3	0.4	0.1			0.1
2011	0.3	0.5	0.4	0.1			0.4	0.3	0.1	1.4	3.0	5.1	2.0	1.0	0.3		1.1
2012	0.5	0.8	0.6	0.7	0.3	0.1	1.7	2.9	1.7	4.7	1.4	0.9	3.4		0.7		1.4
2013	0.3		0.1	0.9	0.1	0.3		0.3		0.7	0.7	0.4	0.6	0.1			0.3
2014	1.0	0.3	0.6	0.6	0.7		0.3	0.3	0.4		0.4	2.7	3.7	4.1	2.9	1.4	1.4
Mean	0.4	0.3	0.3	0.4	0.3	0.1	0.3	0.4	0.5	1.1	1.2	1.4	1.6	0.8	0.5	0.2	0.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										1						2	3
2006																	
2007													1			1	2
2008													3	3			6
2009													2				2
2010													2			1	3
2011																	
2012				1		1						2	1		1	1	5
2013	2					2						2	4	4	1		11
2014												1	1	2	1		5
Mean	0.3			0.2		0.3				0.1		0.5	1.4	0.9	0.3	0.5	3.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005							1			4	12	1	1	1		1	21
2006				1	1					1			2				5
2007										4	1	2	3	2			12
2008										1		3	6	1			11
2009				1						1		3	1	1	3		10
2010						1					3	1	1				6
2011				1			2		1	1	11	12	4	1			33
2012		2	2	3	2	1	1	8	2	9	1		5		1		33
2013				2				1			1	1					5
2014									1			3	5	2	2		13
Mean		0.2	0.2	0.8	0.3	0.2	0.4	0.9	0.4	2.1	2.9	2.6	2.8	0.8	0.6	0.1	14.9

Chipping Sparrow is a generally uncommon spring and fall migrant and breeder, with winter observations limited to two late fall migrants in November 2012 and an unexpected mid-winter visitor in February 2012. Spring numbers typically peak in week 6 or 7, but as late as week 9 in two years; overall spring counts have been higher since 2012 than in all previous years. Somewhat similarly, fall numbers were well above average in 2011, 2012, and 2014, though near record low levels in 2013. The fall peak consistently falls between weeks 7 and 10.

CCSP: Clay-colored Sparrow / Bruant des plaines (*Spizella pallida*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007														
2008														
2009								Sep 17	Sep 24	Sep 24	8	2 (2%)	2	3
2010														
2011								Oct 18	Oct 18	Oct 18	1	1 (1%)	1	1
2012														
2013								Sep 17	Sep 17	Sep 17	1	1 (1%)	1	1
2014	May 17	May 17	May 17	1	1 (1%)	1	1							
Mean	May 17	May 17	May 17	1	1 (1%)	1	0.1	Sep 27	Sep 29	Sep 29	3	1 (1%)	1	0.5

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014														0.1			0.01
Mean														0.01			<0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009										0.1	0.3						0.03
2010																	
2011															0.1		0.01
2012																	
2013										0.1							0.01
2014																	
Mean										0.03	0.03				0.01		<0.01

Clay-colored Sparrow is rare at MBO, with only one spring observation and four in fall, all since September 2009. Three of the four fall records were between September 17 and 24, but the other was almost one month later, on October 18. None have yet been banded.

FISP: Field Sparrow / Bruant des champs (*Spizella pusilla*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total	
2005								Aug 3	Aug 3	Oct 5	64	6 (7%)	1	6	
2006	May 19	May 19	May 21	3	2 (3%)	1	2								
2007								Sep 21	Sep 21	Sep 21	1	1 (1%)	2	2	
2008															
2009	May 26	May 26	May 26	1	1 (1%)	1	1	Oct 18	Oct 18	Oct 18	1	1 (1%)	1	1	
2010								Sep 23	Sep 23	Sep 23	1	1 (1%)	2	2	
2011								Sep 18	Sep 18	Sep 18	1	1 (1%)	1	1	
2012								Oct 3	Oct 3	Oct 3	1	1 (1%)	1	1	
2013	Apr 19	Apr 19	May 18	30	3 (4%)	1	3	Sep 15	Sep 15	Sep 15	1	1 (1%)	1	1	
2014	Apr 19	Apr 19	Apr 19	1	1 (1%)	1	1								
Mean	May 5	May 5	May 13	9	2 (3%)	1	0.7	Sep 18	Sep 18	Sep 27	10	2 (2%)	1	1.4	

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														0.3			0.03
2007																	
2008																	
2009															0.1		0.01
2010																	
2011																	
2012																	
2013										0.3				0.1			0.04
2014										0.1							0.01
Mean										0.04				0.04	0.01		0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06		0.03	0.1					0.1			0.3	0.3				0.07
2006																	
2007											0.3						0.02
2008																	
2009															0.1		0.01
2010											0.3						0.02
2011										0.1							0.01
2012													0.1				0.01
2013										0.1							0.01
2014																	
Mean	0.02		0.01	0.01					0.01	0.03	0.06	0.03	0.04		0.01		0.02

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006														1			1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014										1							1
Mean										0.1				0.1			0.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005													1				1
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean													0.1				0.1

Field Sparrow is a rare migrant at MBO with seven spring records over four seasons, and fourteen fall observations in seven years; only two have been banded in spring, and one in fall. Although records are too scarce for proper analysis of seasonal occurrence, three of the spring sightings have come in week 4, while the rest have been in week 8 or 9; the slightly more frequent fall records have all been between week 6 and 12 except for the first one in 2005, which was in week 1.

VESP: Vesper Sparrow / Bruant vespéral (*Poocetes gramineus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	Apr 24	Apr 24	May 6	13	2 (3%)	2	3							
2008														
2009	May 31	May 31	May 31	1	1 (1%)	1	1							
2010														
2011	Apr 24	Apr 24	Apr 25	2	2 (3%)	2	3							
2012	Apr 22	Apr 22	May 5	14	2 (3%)	1	2							
2013														
2014														
Mean	May 2	May 2	May 9	8	2 (3%)	2	0.9							

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007										0.3		0.1					0.04
2008																	
2009																0.1	0.01
2010																	
2011										0.3	0.1						0.04
2012										0.1		0.1					0.03
2013																	
2014																	
Mean										0.07	0.01	0.03				0.01	0.01

Vesper Sparrow is a rare spring migrant at MBO, with sightings in just four of ten years, most recently in 2012. Except for a late migrant in week 10 of 2009, all other sightings have been in mid-spring, between weeks 4 and 6.

SAVS: Savannah Sparrow / Bruant des prés (*Passerculus sandwichensis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 24	Apr 30	Jun 3	41	15 (25%)	3	20	Sep 28	Sep 28	Sep 28	1	1 (1%)	1	1
2006	Apr 19	Apr 20	Jun 5	48	13 (19%)	3	19	Sep 13	Sep 13	Sep 30	18	2 (2%)	1	2
2007	Apr 23	May 5	May 28	36	32 (46%)	6	80	Sep 14	Sep 14	Sep 14	1	1 (1%)	2	2
2008	Apr 18	Apr 24	Jun 4	48	36 (51%)	7	146	Aug 4	Sep 27	Oct 23	81	8 (9%)	3	15
2009	Apr 18	May 4	Jun 5	49	29 (42%)	3	47							
2010	Apr 29	Apr 29	May 31	33	4 (6%)	1	4	Oct 6	Oct 6	Oct 6	1	1 (1%)	1	1
2011	Apr 24	Apr 24	Apr 28	5	3 (4%)	1	3							
2012	Apr 20	Apr 20	May 6	17	3 (4%)	1	3							
2013	Apr 28	May 4	May 17	20	5 (7%)	2	6	Sep 29	Sep 29	Oct 19	21	3 (3%)	1	3
2014	May 7	May 27	Jun 3	28	6 (9%)	2	7	Oct 3	Oct 3	Oct 3	1	1 (1%)	1	1
Mean	Apr 24	Apr 30	May 25	32	15 (21%)	3	34	Sep 18	Sep 25	Oct 4	18	2 (3%)	1	2.5

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										0.2	0.7	0.7	0.6	0.3	0.1	0.4	0.3
2006										0.9		0.7	0.3	0.4	0.3	0.1	0.3
2007										0.6	1.4	3.9	2.7	2.0	0.9		1.1
2008										3.1	4.7	5.3	4.6	2.9	0.1	0.1	2.1
2009										0.9	1.1	1.3	1.3	1.0	1.0	0.1	0.7
2010											0.3				0.1	0.1	0.06
2011										0.1	0.3						0.04
2012										0.1		0.3					0.04
2013											0.1	0.3	0.1	0.3			0.09
2014											0.1	0.3	0.1	0.3	0.2	0.1	0.1
Mean										0.6	0.9	1.3	1.0	0.7	0.3	0.1	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		0.06	0.03									0.2					0.01
2006		0.08	0.05							0.1		0.1					0.02
2007	0.1	0.2	0.2							0.3							0.02
2008		0.8	0.4	0.1								0.7	0.3	0.7	0.3		0.2
2009																	
2010													0.1				0.01
2011																	
2012																	
2013												0.1		0.1	0.1		0.03
2014													0.1				0.01
Mean	0.02	0.1	0.07	0.01						0.04		0.1	0.06	0.09	0.04		0.03

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006										1		1					2
2007												2	1			2	5
2008										1		1					2
2009																	
2010																	
2011																	
2012																	
2013													1	1			2
2014																	
Mean										0.2		0.4	0.2	0.1	0.2		1.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006										1		1					2
2007										2							2
2008												3	2	3	1		9
2009																	
2010																	
2011																	
2012																	
2013														1	1		2
2014													1				1
Mean										0.3		0.4	0.3	0.4	0.2		1.6

Savannah Sparrow is most regularly observed at MBO in spring, but also occurs in some years in summer and fall. Overall, the species has been significantly less numerous since 2010, with 93% of spring, 100% of summer, and 80% of fall sightings over the past decade coming between 2005 and 2009. This appears to be a function of habitat availability, as the field immediately adjacent to MBO has not been hay since 2008. Spring migration peaks between weeks 4 and 7, most commonly around the end of April. Fall migrants generally show up in the second half of the season, most commonly between weeks 9 and 11. In several years, individuals have been observed in the adjacent McGill meadow, but not banded.

FOSP: Fox Sparrow / Bruant fauve (*Passerella iliaca*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 7	Apr 18	May 3	27	14 (24%)	5	26	Oct 11	Oct 28	Oct 30	20	18 (20%)	25	135
2006	Apr 2	Apr 16	May 1	30	27 (39%)	13	131	Oct 5	Oct 21	Oct 28	24	10 (11%)	8	20
2007								Oct 8	Oct 13	Oct 30	23	21 (23%)	7	60
2008	Apr 10	Apr 21	Apr 28	19	16 (23%)	22	119	Oct 4	Oct 14	Oct 28	25	10 (11%)	2	13
2009	Apr 10	Apr 22	Apr 27	18	10 (14%)	7	25	Oct 6	Oct 25	Oct 30	25	18 (20%)	13	82
2010	Apr 6	Apr 19	Apr 30	25	15 (21%)	14	81	Oct 1	Oct 27	Oct 30	30	24 (26%)	15	120
2011	Apr 12	Apr 19	May 9	28	26 (37%)	15	93	Oct 4	Oct 21	Oct 29	26	10 (11%)	3	15
2012	Apr 18	Apr 24	May 9	22	13 (19%)	4	23	Oct 4	Oct 20	Oct 29	26	23 (25%)	23	125
2013	Apr 16	Apr 19	May 6	21	18 (26%)	32	217	Sep 26	Oct 15	Oct 30	35	20 (22%)	7	47
2014	Apr 14	Apr 17	May 6	23	23 (34%)	21	167	Sep 23	Oct 29	Oct 30	38	26 (29%)	34	169
Mean	Apr 10	Apr 19	May 3	24	18 (26%)	15	88	Oct 3	Oct 21	Oct 29	27	18 (20%)	14	79

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2	0.7	1.5	1.1	0.4					0.4
2006	1.4					0.3	0.3	3.7	5.3	7.1	2.9						1.9
2007	0.06					0.02											
2008	0.3					0.08		0.1	1.1	14.0	1.7						1.7
2009								0.5	0.1	2.9	0.1						0.4
2010	2.1					0.6		0.1	2.9	8.0	0.6						1.2
2011	1.0					0.3			1.7	7.3	2.9	1.3	0.1				1.3
2012	0.9	0.3			0.4	0.5				1.3	1.6	0.3	0.1				0.3
2013	0.5					0.08			1.1	19.9	9.7	0.3					3.1
2014									3.6	12.9	5.9	1.6					2.5
Mean	0.8	0.02			0.02	0.2	0.03	0.4	1.7	7.6	2.6	0.4	0.03				1.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														2.0	5.7	11.9	1.5
2006													0.6	0.3	1.9	0.1	0.2
2007													0.4	2.3	3.1	2.7	0.7
2008													0.3	0.4	0.7	0.4	0.1
2009													1.0	0.6	2.3	7.9	0.9
2010												0.3	1.1	4.3	4.3	7.1	1.3
2011													0.4	0.1	1.1	0.4	0.2
2012													0.9	3.0	8.7	5.3	1.4
2013												0.4	0.3	3.4	2.0	0.6	0.5
2014											0.1	0.1	0.4	4.6	4.6	14.3	1.9
Mean											0.01	0.09	0.6	2.1	3.4	5.1	0.9

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										4	3	1					8
2006	1					1		1	5	3							9
2007																	
2008										23							23
2009										1	1						2
2010	7					7				16							16
2011	6					6				12	4	1	1				18
2012	2					2				2	4						6
2013										32	10						42
2014										28	6						34
Mean	2.0					1.8		0.5	2.5	12.1	2.8	0.2	0.1				15.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005														1	5	20	26
2006													3		2		5
2007													2	10	9	5	26
2008												1	3	1	3		8
2009													5	1	9	17	32
2010													4	13	12	22	51
2011													1		3	1	5
2012													4	12	25	10	51
2013												2		11	2	1	16
2014													1	9	15	19	44
Mean												0.2	2.1	6.0	8.3	9.8	26.4

Fox Sparrow is a fairly common early spring and late fall migrant, generally continuing in small numbers into early winter. Abundance varies considerably from year to year, with none at all observed in spring 2007 and unusually low numbers also in 2005, 2009, and 2012, but particularly many in 2008, 2013, and 2014. The spring lows were preceded by distinctly below average fall numbers in 2006, 2008, and 2011, but of the three fall seasons with the highest number of observations (2005, 2010, and 2012), only one was followed by a high spring. There is usually a sharp peak to spring migration in week 4, while the fall peak is more spread out over weeks 11 to 13.

SOSP: Song Sparrow / Bruant chanteur (*Melospiza melodia*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 9	Jun 3	60	59 (100%)	25	842	Aug 1	Sep 28	Oct 30	91	87 (99%)	36	974
2006	Mar 29	Apr 19	Jun 5	69	68 (99%)	35	963	Aug 1	Aug 11	Oct 29	90	90 (99%)	60	1933
2007	Mar 28	Apr 24	Jun 5	70	69 (99%)	35	796	Aug 1	Aug 3	Oct 30	91	90 (99%)	32	923
2008	Apr 1	Apr 18	Jun 5	66	65 (93%)	25	712	Aug 1	Oct 17	Oct 30	91	88 (97%)	29	881
2009	Mar 28	Apr 20	Jun 5	70	69 (100%)	27	711	Aug 1	Sep 26	Oct 30	91	90 (99%)	40	1062
2010	Mar 28	Apr 6	Jun 5	70	70 (100%)	16	638	Aug 1	Aug 2	Oct 30	91	89 (98%)	26	773
2011	Mar 29	Apr 24	Jun 5	69	69 (99%)	24	538	Aug 1	Aug 19	Oct 29	90	87 (96%)	43	773
2012	Mar 28	Apr 18	Jun 5	70	70 (100%)	24	794	Aug 1	Aug 24	Oct 29	90	88 (97%)	29	876
2013	Apr 4	Apr 19	Jun 5	63	62 (89%)	42	789	Aug 1	Aug 3	Oct 29	90	86 (95%)	50	1229
2014	Apr 1	Apr 24	Jun 4	65	64 (94%)	36	878	Aug 1	Oct 11	Oct 30	91	90 (99%)	21	737
Mean	Mar 30	Apr 18	Jun 4	67	66 (97%)	29	766	Aug 1	Sep 1	Oct 29	91	88 (98%)	37	1016

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								13.5	17.3	17.0	13.1	17.7	12.0	12.4	12.0	13.4	14.3
2006							6.7	20.0	21.0	19.1	15.0	14.3	13.0	10.0	11.3	10.0	14.0
2007	0.1	0.1			0.1	0.09	7.0	8.9	6.4	24.1	14.9	16.9	12.7	9.1	8.0	5.7	11.4
2008	0.4					0.1	1.0	7.0	13.0	20.0	11.1	11.7	12.3	9.0	8.0	8.6	10.2
2009					0.6	0.2	10.0	12.7	11.4	16.6	13.4	8.1	9.6	8.0	6.9	6.7	10.3
2010	0.3				1.5	0.4	7.3	11.7	10.9	11.0	10.1	10.0	9.0	7.3	7.0	6.9	9.1
2011	0.1					0.03	2.7	6.4	11.3	15.0	11.3	6.3	5.9	6.4	7.4	4.1	7.7
2012	0.2				2.6	0.6	11.4	13.0	16.0	14.1	17.7	11.1	9.0	6.7	6.6	7.7	11.3
2013	0.1	0.3	0.2	0.2		0.1		5.6	13.3	26.0	16.4	15.1	10.9	9.3	7.9	8.3	11.3
2014							0.8	6.3	15.0	19.4	15.3	17.9	16.0	13.1	12.3	11.0	12.9
Mean	0.1	0.06	0.04	0.01	0.5	0.2	5.3	10.3	13.6	18.3	13.8	12.9	11.0	9.1	8.7	8.0	11.2

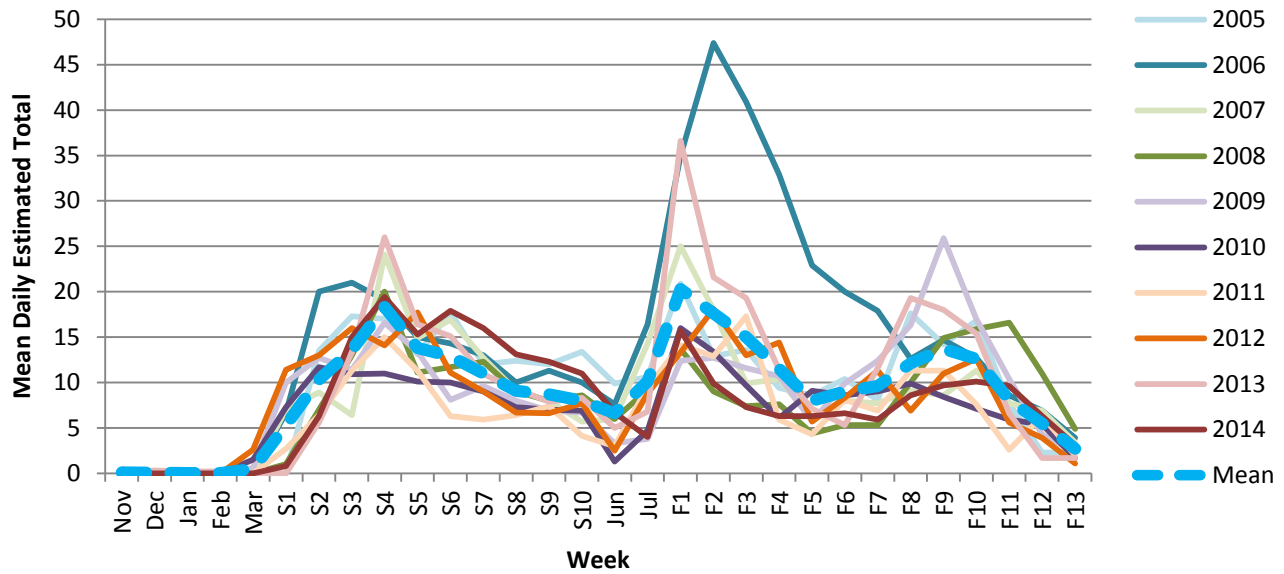
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	9.9	10.6	10.2	20.9	12.9	13.6	9.4	8.6	10.4	8.1	17.6	14.2	16.8	7.7	2.3	2.3	11.1
2006	7.6	16.4	12.4	35.0	47.4	40.9	32.9	22.9	20.0	17.9	12.6	14.7	12.7	8.6	6.9	3.9	21.2
2007	6.0	14.3	9.8	25.0	18.0	9.9	10.4	5.9	8.0	7.7	9.1	8.6	11.3	7.7	6.9	3.4	10.1
2008	6.0	9.2	7.6	13.7	9.0	7.4	7.6	4.4	5.3	5.3	10.0	14.9	15.9	16.6	11.0	4.9	9.7
2009	3.3	3.8	3.6	12.4	12.7	11.6	10.7	5.7	9.9	12.4	16.3	25.9	17.0	10.4	4.3	2.4	11.7
2010	1.3	4.7	3.6	16.0	13.4	9.7	6.1	9.1	8.6	9.0	9.9	8.4	7.1	5.9	5.4	1.7	8.5
2011	3.0	9.5	6.7	14.1	12.9	17.3	5.9	4.3	8.1	6.9	11.3	11.3	7.6	2.6	6.3	2.0	8.5
2012	2.5	8.8	5.6	13.3	18.1	13.0	14.4	5.7	8.3	11.3	6.9	11.0	12.6	5.6	3.9	1.1	9.6
2013	5.0	6.8	6.0	36.6	21.6	19.3	11.4	7.1	5.3	11.6	19.3	18.0	15.4	6.6	1.7	1.7	13.5
2014	6.7	4.0	5.1	15.7	9.9	7.3	6.3	6.3	6.6	5.9	8.6	9.7	10.1	9.6	6.3	3.1	8.1
Mean	6.6	10.1	8.5	20.3	17.6	15.0	11.5	8.0	9.0	9.6	12.1	13.7	12.6	8.1	5.5	2.7	11.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								5	3	7	7	2		2	3	1	30
2006								2	5	7		1	2	1	1	1	20
2007					1	1				9			3		2		14
2008										8	2		1	1	2	1	15
2009										1	6	2	1		2	1	13
2010					3	3				14	1	2		5	4	1	27
2011	1					1				3	1		1	1	1		7
2012					2	2				10	4	2	4	2	1		23
2013	1	1				2				9	2	5		1		2	19
2014										10	6	3	2		2	2	25
Mean	0.3	0.1			0.8	1.0		3.5	4.0	7.8	2.9	1.7	1.4	1.3	1.8	0.9	19.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		4	4	17	17	23	13	24	13	23	27	18	25	9	5	1	215
2006		10	10	34	78	49	27	16	21	16	10	13	11	6	13	8	302
2007		3	3	57	20	9	9	6	7	9	11	15	18	17	16	4	198
2008				21	12	11	8	7	11	10	13	24	32	32	13	5	199
2009	3	7	10	25	32	37	30	10	10	34	28	50	33	12	12	9	322
2010	2	18	20	34	49	27	10	16	10	6	16	9	10	15	16	1	219
2011	1	17	18	31	16	22	9	5	4	6	10	30	12	6	15	4	170
2012	1	25	26	56	37	14	16	2	14	13	9	19	19	8	8	2	217
2013	4	25	29	95	33	22	17	8	4	7	19	21	22	12	3	4	267
2014	2	5	7	26	20	8	13	5	6	5	5	14	8	7	11	8	136
Mean	2.2	12.7	14.1	39.6	31.4	22.2	15.2	9.9	10.0	12.9	14.8	21.3	19.0	12.4	11.2	4.6	224.5

Song Sparrow is among the most common species at MBO from early spring through late fall, but there are only scattered mid-winter records. Spring migration most commonly peaks in week 4, but as early as week 2 or as late as week 6. Spring numbers declined from 2005 to 2011, but have rebounded since then. More Song Sparrows have been banded in summer than any other species, with a high of 29 in 2013. Fall numbers generally are highest in early August, although there is a second wave of migration that peaks around late September. Fall numbers were exceptionally high in 2006, and were lowest in 2014.

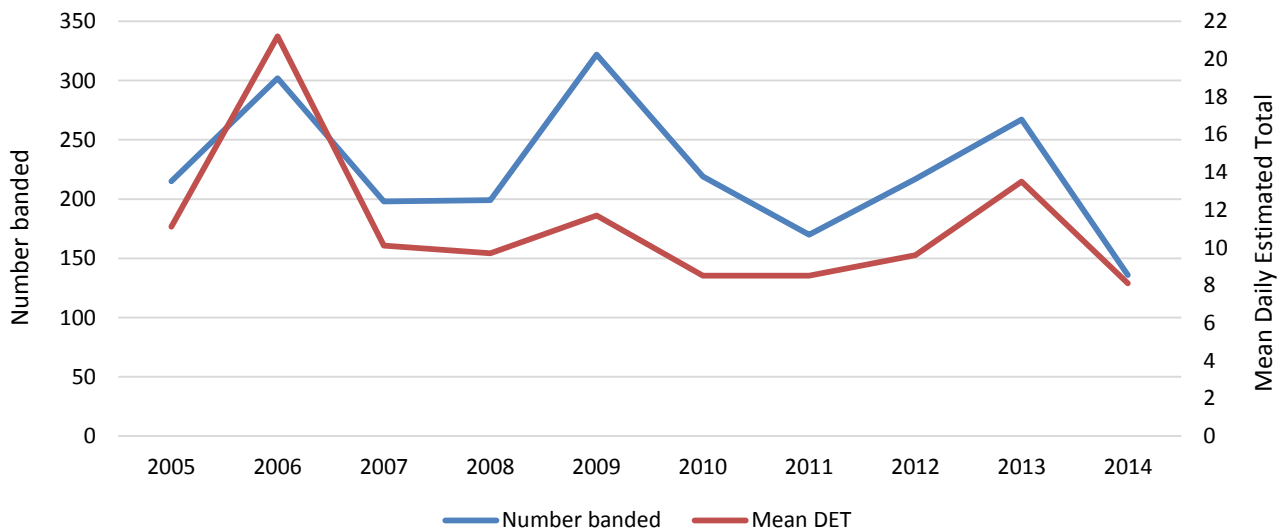
Mean daily estimated total of Song Sparrows throughout the year



The figure above shows the unusual pattern of abundance of Song Sparrows, with three distinct peaks in early spring, mid-summer / early fall, and mid-fall. Based on banding data, the spike centered around the first week of August is overwhelmingly driven by juveniles. While some of these are the offspring of pairs breeding at MBO, the numbers in some years indicate that there must also be some local dispersal occurring. Numbers typically drop over the course of August before starting to increase again throughout September; the second peak presumably represents migrants coming from farther north, and includes a mix of adults and juveniles. The figure above also illustrates the exceptionally high numbers recorded in 2006, as well as an unusually large “secondary peak” in 2009.

The figure below shows that there is generally good correlation between the number of Song Sparrows banded and observed at MBO in fall, although fluctuations are more noticeable among numbers banded. Overall there is a slight declining trend over the ten years, although this is influenced heavily by the peak in 2006, and the low in 2014.

Fall Song Sparrow numbers, 2005-2014



LISP: Lincoln's Sparrow / Bruant de Lincoln (*Melospiza lincolni*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 12	May 12	May 20	9	4 (7%)	1	4	Sep 11	Sep 21	Oct 24	44	11 (12%)	4	17
2006	May 6	May 16	May 19	14	5 (7%)	2	7	Aug 30	Sep 10	Oct 21	53	25 (27%)	6	45
2007	May 12	May 13	May 31	20	6 (9%)	2	8	Sep 1	Sep 24	Oct 13	43	18 (20%)	3	27
2008	May 6	May 12	May 28	23	9 (13%)	3	12	Aug 29	Sep 27	Oct 12	45	19 (21%)	7	33
2009	May 3	May 3	May 23	21	5 (7%)	1	5	Sep 14	Sep 20	Oct 13	30	24 (26%)	5	41
2010	May 13	May 13	May 15	3	2 (3%)	1	2	Aug 24	Sep 16	Oct 17	55	18 (20%)	2	21
2011	May 12	May 13	May 28	17	6 (9%)	4	12	Sep 12	Sep 25	Oct 3	22	9 (10%)	3	13
2012	May 9	May 13	May 31	23	6 (9%)	3	10	Aug 29	Oct 4	Oct 17	50	19 (21%)	13	44
2013	May 19	May 19	May 27	9	5 (7%)	3	8	Sep 9	Sep 9	Oct 19	41	10 (11%)	1	10
2014	May 5	May 5	May 24	20	7 (10%)	6	14	Sep 8	Sep 15	Oct 27	50	21 (23%)	3	35
Mean	May 9	May 11	May 24	16	6 (8%)	3	8.2	Sep 4	Sep 20	Oct 16	43	17 (19%)	5	29

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.1	0.4			0.07
2006												0.1		0.9			0.1
2007													0.7	0.3		0.1	0.1
2008												0.3	0.7	0.4	0.3		0.2
2009												0.3	0.1	0.1	0.1		0.07
2010													0.3				0.03
2011													1.0	0.4	0.3		0.2
2012													1.0	0.1	0.1	0.1	0.1
2013														0.7	0.4		0.1
2014												0.9	0.9	0.1	0.1		0.2
Mean												0.2	0.5	0.4	0.1	0.03	0.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									0.1	0.4	1.1			0.5	0.1	0.1	0.2
2006								0.6	2.9	0.6	1.1	0.4	0.1	0.4	0.3		0.5
2007								0.1	0.6	0.9	0.6	0.6	0.9	0.3			0.3
2008								0.3	0.9	0.3	0.9	1.9	0.3	0.3			0.4
2009										1.1	2.3	0.9	0.9	0.7			0.5
2010							0.1		0.3	0.7	0.3	0.3	0.9	0.3	0.1		0.2
2011										0.7	1.0		0.1				0.1
2012								0.1	0.1	0.9	1.0	0.4	3.6		0.1		0.5
2013									0.1	0.1	0.6	0.1	0.1	0.1	0.1		0.1
2014									0.3	1.3	1.3	0.3	0.7	0.9	0.1	0.1	0.4
Mean							0.01	0.1	0.5	0.7	1.0	0.5	0.8	0.3	0.1	0.03	0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1	1			2
2006												1		4			5
2007													4	1		1	6
2008												2	2	3	2		9
2009												1	1	1	1		4
2010													2				2
2011													5	3	2		10
2012													6	1	1	1	9
2013														5	2		7
2014													5	1	1		7
Mean												0.4	2.6	2.0	0.9	0.2	6.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005										4	7						11
2006								1	6	1	5	2	1	1			17
2007								1	4	2	3	4	4	2			20
2008								1	3	2	2	5	1	1			15
2009										5	4	2	2	2			15
2010							1		1	2	1	1	3	2			11
2011										2	3						5
2012								1	1	2	4	2	11		1		22
2013									1		1			1			3
2014									1	2	3	2	1		1	1	11
Mean							0.1	0.4	1.7	2.2	3.3	1.8	2.3	0.9	0.2	0.1	13.0

Lincoln's Sparrow is a regular but uncommon spring and fall migrant. Most years the first spring migrants arrive between May 5 and 13, peaking shortly thereafter in week 7 or 8, and the migration window spans only two to three weeks. A few early fall migrants occasionally arrive in late August or early September, but the peak of migration is usually somewhere between weeks 6 and 10. Fall numbers have been relatively consistent over time except for unusually low counts in 2011 and 2013.

SWSP: Swamp Sparrow / Bruant des marais (*Melospiza georgiana*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 9	Apr 26	Jun 3	56	54 (92%)	9	164	Aug 1	Sep 25	Oct 24	85	59 (67%)	8	152
2006	Apr 10	Apr 25	Jun 5	57	54 (78%)	9	152	Aug 1	Aug 2	Oct 23	84	52 (57%)	6	115
2007	Apr 21	Apr 28	Jun 4	45	21 (30%)	3	34	Aug 1	Sep 24	Oct 30	91	57 (63%)	6	137
2008	Apr 20	May 7	Jun 4	46	42 (60%)	6	133	Aug 1	Sep 23	Oct 23	84	50 (55%)	6	101
2009	Apr 19	Apr 27	Jun 4	47	45 (65%)	8	117	Aug 1	Oct 10	Oct 29	90	53 (58%)	15	122
2010	Apr 7	May 1	Jun 5	60	47 (67%)	12	107	Aug 1	Sep 23	Oct 29	90	48 (53%)	5	81
2011	Apr 12	May 3	Jun 1	51	38 (54%)	8	131	Aug 1	Aug 3	Oct 25	86	41 (45%)	4	74
2012	Apr 17	May 2	Jun 5	50	44 (63%)	8	126	Aug 1	Oct 5	Oct 28	89	52 (57%)	5	105
2013	Apr 12	Apr 21	Jun 5	55	50 (71%)	8	177	Aug 1	Aug 2	Oct 25	86	58 (64%)	7	129
2014	Apr 15	May 9	Jun 4	51	49 (72%)	8	186	Aug 1	Oct 11	Oct 29	90	59 (65%)	7	124
Mean	Apr 14	Apr 29	Jun 4	52	44 (65%)	8	133	Aug 1	Sep 12	Oct 26	88	53 (58%)	7	114

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.5	1.9	4.5	5.4	4.3	2.6	2.7	1.4	1.2	2.8
2006								0.2	1.0	4.7	3.7	3.0	2.7	2.7	2.3	1.4	2.2
2007										0.4	1.3	1.6	0.6	0.6	0.3	0.1	0.5
2008										2.9	3.7	3.6	3.4	3.1	1.4	0.9	1.9
2009										2.0	3.9	4.0	2.9	1.9	1.4	0.7	1.7
2010	0.1					0.03		0.6	2.3	3.1	4.4	1.9	1.1	0.6	0.7	0.6	1.5
2011									0.3	0.4	2.0	5.3	4.3	3.1	3.0	0.3	1.9
2012									0.1	3.3	4.7	4.1	1.4	0.7	2.1	1.4	1.8
2013									0.4	4.1	5.3	5.3	2.3	2.3	2.4	3.1	2.5
2014									0.4	4.1	3.4	5.6	5.9	3.3	2.1	2.0	2.7
Mean	0.02					<0.01		0.1	0.6	2.9	3.8	3.9	2.7	2.1	1.7	1.2	1.9

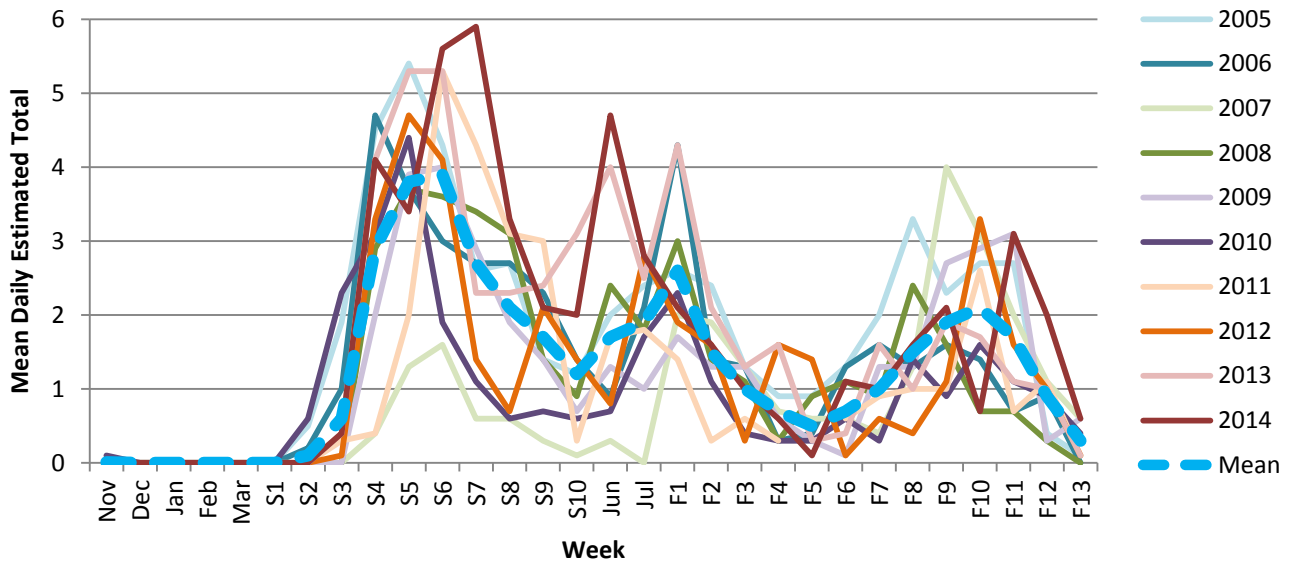
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.0	2.4	2.2	2.6	2.4	1.3	0.9	0.9	1.3	2.0	3.3	2.3	2.7	2.7	0.4	0.1	1.7
2006	0.9	2.1	1.5	4.3	1.4	1.3	0.3	0.4	1.3	1.6	1.3	1.6	1.4	0.7	0.9		1.3
2007	0.3		0.2	2.0	1.9	1.3	0.7	0.6	0.6	0.4	1.3	4.0	3.1	2.0	1.1	0.6	1.5
2008	2.4	1.8	2.1	3.0	1.4	1.1	0.3	0.9	1.1	0.9	2.4	1.6	0.7	0.7	0.3		1.1
2009	1.3	1.0	1.1	1.7	1.3	1.3	0.6	0.3	0.1	1.3	1.3	2.7	2.9	3.1	0.3	0.6	1.3
2010	0.7	1.7	1.3	2.3	1.1	0.4	0.3	0.3	0.6	0.3	1.4	0.9	1.6	1.1	0.9	0.4	0.9
2011	1.7	1.8	1.7	1.4	0.3	0.6	0.3		0.6	0.9	1.0	1.0	2.6	0.7	1.1	0.1	0.8
2012	0.8	2.8	1.8	1.9	1.6	0.3	1.6	1.4	0.1	0.6	0.4	1.1	3.3	1.6	1.0	0.1	1.2
2013	4.0	2.5	3.1	4.3	2.1	1.3	1.6	0.3	0.4	1.6	1.0	1.9	1.7	1.1	1.0	0.1	1.4
2014	4.7	2.8	3.6	2.1	1.6	1.0	0.6	0.1	1.1	1.0	1.6	2.1	0.7	3.1	2.0	0.6	1.4
Mean	1.7	1.9	1.8	2.6	1.5	1.0	0.7	0.5	0.7	1.0	1.5	1.9	2.1	1.7	0.9	0.3	1.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								1	1	4	4	4	1	3	1		19
2006										3	2	1	1	2	2		11
2007										2				1			3
2008										7	6	2	2	1		1	19
2009										1	6	1		2		1	11
2010										5	5	2	4				16
2011										1	1	7	1	2			12
2012										7	7	3	2				19
2013										5	10	7	1		2	1	26
2014										1	2	2	10	1			16
Mean								0.5	0.5	3.6	4.3	2.9	2.2	1.2	0.5	0.3	15.2

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		2	2	4	6	3	2	2		8	5	2	12	5	2	1	52
2006		4	4	4	3				1	4	2	1	7	3	3		28
2007				10	3	3	1	2		2	7	13	10	5	4	2	62
2008				6	4	1	1	2		2	4	4	2	2			28
2009		2	2	4	2	1		1	1	7	6	8	9	6	1	3	49
2010	1	4	5	2	2	2			1		2	4	3	2	1	1	20
2011	2	1	3	4	1		1		1	2	2	3	5	5	3	1	28
2012		5	5	6	3	1	1	1		1	1	4	10	6	3		37
2013	1	1	2	6	3	2	1	1	1	2	1	7	7	2			32
2014	1	2	3	4	3	2		1		2	5	5	1	12	5		40
Mean	0.8	2.3	2.9	5.0	3.0	1.5	0.7	0.9	0.5	3.0	3.5	5.1	6.6	4.8	2.2	0.8	37.6

With rare exceptions, Swamp Sparrow is present at MBO from mid-April through late October. The spring peak typically occurs in week 5 or 6, after which most observations are likely of residents breeding on site. The highest fall numbers occur on average in the first week of August and are influenced by the presence of local juveniles. Most years there is a strong secondary peak in fall centered around week 10. Spring numbers have fluctuated, but with a slight increase over time; fall results have been more consistent, aside from a two-year dip in 2010 and 2011. Only once has a late fall migrant lingered into early winter.

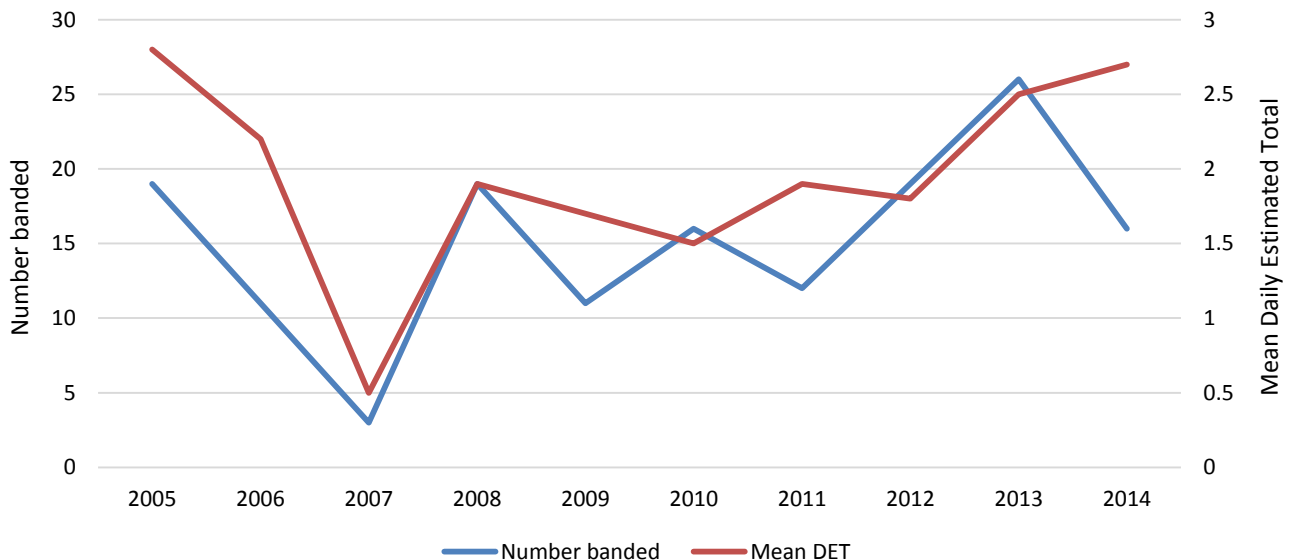
Mean daily estimated total of Swamp Sparrows throughout the year



The figure above shows that Swamp Sparrow is one of relatively few species that is observed at MBO in larger numbers in spring than in fall. Similar to Song Sparrow, Swamp Sparrow shows three distinct peaks in abundance overall, in mid-spring, mid-summer / early fall, and mid-late fall. The low between the two fall peaks is even more pronounced than for Song Sparrow, with observations in late August and early September scarcer than at any other time between mid-April and late October. This suggests that the vast majority of local Swamp Sparrows migrate by the end of August, and that the secondary peak from mid-September into mid-October is likely to overwhelmingly comprise northern migrants.

The figure below shows that there was good correlation between the number of Swamp Sparrows banded and observed at MBO in spring from 2005 through 2008, but since then the link between the two data sources has been more unpredictable, diverging most notably in 2010 and 2014.

Spring Swamp Sparrow numbers, 2005-2014



WTSP: White-throated Sparrow / Bruant à gorge blanche (*Zonotrichia albicollis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 17	Apr 28	May 26	40	31 (53%)	70	263	Aug 6	Oct 8	Oct 30	86	77 (88%)	265	2528
2006	Apr 9	May 3	Jun 3	56	46 (67%)	40	384	Aug 1	Sep 30	Oct 30	91	84 (92%)	70	1233
2007	Apr 13	Apr 28	May 26	44	21 (30%)	31	142	Aug 1	Sep 28	Oct 30	91	73 (80%)	90	1751
2008	Apr 17	Apr 27	Jun 2	47	38 (54%)	50	419	Aug 2	Oct 8	Oct 30	90	69 (76%)	82	1230
2009	Apr 19	Apr 27	May 28	40	24 (35%)	27	117	Aug 1	Oct 12	Oct 30	91	86 (95%)	150	2534
2010	Mar 28	May 9	May 16	50	33 (47%)	18	144	Aug 1	Sep 30	Oct 30	91	79 (87%)	180	2636
2011	Mar 30	Apr 28	May 23	55	34 (49%)	51	433	Aug 1	Oct 4	Oct 30	91	69 (76%)	100	1135
2012	Apr 12	Apr 24	Jun 1	51	33 (47%)	102	487	Aug 1	Oct 6	Oct 30	91	86 (95%)	210	3333
2013	Mar 30	May 4	Jun 1	64	44 (63%)	34	340	Aug 1	Oct 12	Oct 30	91	77 (85%)	75	1414
2014	Apr 14	May 9	Jun 3	51	40 (59%)	50	305	Aug 2	Oct 11	Oct 30	90	80 (88%)	155	2784
Mean	Apr 9	Apr 30	May 28	50	34 (50%)	47	303	Aug 1	Oct 5	Oct 30	90	78 (86%)	138	2058

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005									0.3	2.3	20.4	5.6	7.7	1.4	0.1		4.5	
2006	0.4	0.07	0.08				0.1		0.2	3.6	12.9	13.4	16.7	4.0	3.4	0.4	0.3	5.6
2007	0.1						0.04			0.1	1.0	8.4	4.9	3.3	1.6	1.0		2.0
2008	0.8						0.2			0.1	6.0	19.9	11.3	17.6	2.3	2.6	0.1	6.0
2009	0.1						0.03				2.0	6.7	5.1	2.0	0.6	0.3		1.7
2010	4.0	1.6	1.4	0.3	0.9	1.9	0.7	0.7	0.9	4.9	3.4	3.4	6.4	0.1				2.1
2011	2.7	2.0	0.2	0.2	0.1	0.9	0.1		0.1	1.3	15.9	25.9	14.1	4.3	0.1			6.2
2012	0.5					0.2			0.1	23.0	20.9	16.4	8.4	0.6			0.1	7.0
2013	2.3	1.3	1.1	2.0	1.5	1.5	0.3	1.0	1.6	7.6	14.9	12.3	8.6	2.0	0.1	0.3		4.9
2014	1.2	0.5	0.3	0.9	0.2	0.6			0.4	5.3	12.0	13.0	9.3	1.6	1.0	1.2		4.5
Mean	1.4	0.5	0.5	0.3	0.4	0.7	0.1	0.2	0.7	6.7	13.6	11.5	8.1	1.8	0.6	0.2		4.4

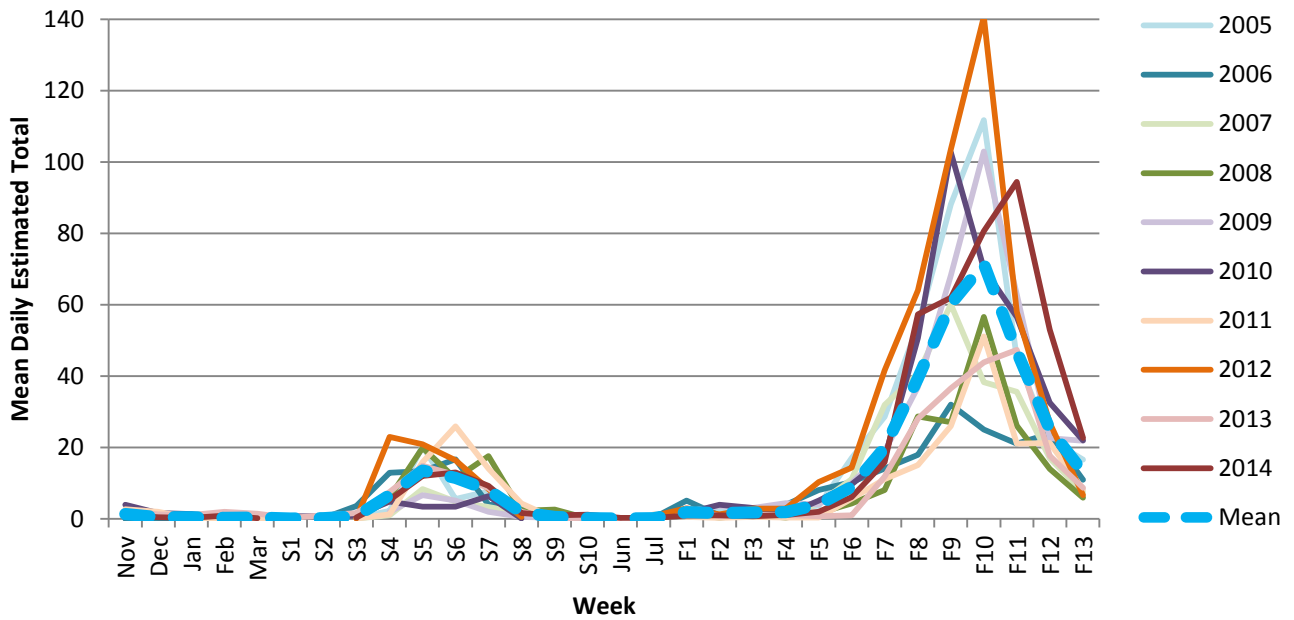
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3		0.2	0.6	2.7	2.4	3.0	3.7	17.1	28.6	54.3	88.2	111.7	45.0	22.3	16.6	28.7
2006		0.3	0.2	5.1	0.9	2.6	4.0	8.1	10.3	14.1	18.0	32.0	25.0	21.1	23.9	11.0	13.5
2007				1.3	0.9	0.6	0.7	4.4	11.1	31.9	40.7	60.1	38.3	35.6	17.0	7.6	19.2
2008		0.2	0.1	1.3	0.4	1.1	0.4	1.6	4.3	8.1	28.7	27.1	56.6	26.1	14.0	5.9	13.5
2009				2.1	3.6	3.1	4.4	4.1	10.1	18.9	37.0	68.3	103.0	62.9	22.6	21.9	27.8
2010		0.3	0.2	1.6	4.0	3.1	1.1	5.1	9.7	17.1	50.7	102.7	70.1	56.6	32.6	22.0	29.0
2011		1.3	0.7	0.6	0.3	0.6	0.4	0.4	5.7	11.1	15.1	26.0	51.1	21.1	21.3	8.3	12.5
2012		0.8	0.4	3.0	1.3	2.9	2.9	10.3	14.4	41.6	64.0	103.6	140.7	58.0	26.9	6.7	36.6
2013	0.3		0.1	3.0	0.7	1.1	1.1	0.7	1.0	11.9	28.1	36.6	43.9	47.4	17.7	8.7	15.5
2014	0.3	0.3	0.3	0.9	1.0	0.7	1.1	2.0	6.1	15.9	57.3	62.0	80.6	94.4	53.0	22.7	30.6
Mean	0.1	0.2	0.2	1.9	1.6	1.8	1.9	4.1	9.0	19.9	39.4	60.3	71.5	46.9	25.1	13.1	22.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										2	16	5	6				29
2006	2					2			1	6	4	18	7	4		2	42
2007												7	5	1			13
2008										8	27	13	29	2			79
2009										2	7	16	7	2			34
2010	5	1				6				2	3	10	7				22
2011	11				1	12				3	8	30	7	3			51
2012	1					1				18	11	24	4				57
2013	6			1	1	8				5	12	10	9	3		1	40
2014	3					3				6	6	16	10	2			40
Mean	3.5	0.1		0.2	0.3	3.6			0.5	5.2	9.4	14.9	9.1	1.7		0.3	40.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005				3	6	4	3	1	18	44	86	104	67	10	3	5	354
2006				4	2	2	4	2	13	18	14	57	31	13	19	8	187
2007				2	3			2	21	32	60	96	54	25	21	2	318
2008				8	1		3	4	13	20	50	74	100	26	15	3	317
2009				11	11	1		2	18	31	62	100	103	32	35	22	428
2010		2	2	5	4	2		2	7	25	85	70	63	41	25	22	351
2011		2	2	3	1	1	1	2	9	13	15	49	64	21	27	10	216
2012		2	2	11	4	3	2	10	8	53	60	112	158	55	20	10	506
2013				3	2		2	1	1	15	23	55	78	61	15	7	263
2014		1	1	2	6	1	3	2	10	13	66	88	79	127	62	25	484
Mean		0.8	0.8	5.2	4.0	1.4	1.8	2.8	11.8	26.4	52.1	80.5	79.7	41.1	24.2	11.4	342.4

White-throated Sparrow is among the most abundant species at MBO, with a strong migration in spring and especially in fall, plus small numbers observed most years in both summer and winter. The peak of spring migration is typically in late April or early May; in fall it is usually around early October, although slightly later the past two years. Spring numbers were low in 2007, 2009, and 2010, but otherwise have been relatively consistent. Conversely, mean daily totals in fall seem to fall into either low (12.5 to 19.2 per day, in 2006, 2007, 2008, 2011, and 2013) or high (27.8 to 36.6 per day in 2005, 2009, 2010, 2012, and 2014) categories. Late migrants usually trickle in to November, with small numbers overwintering at the feeders.

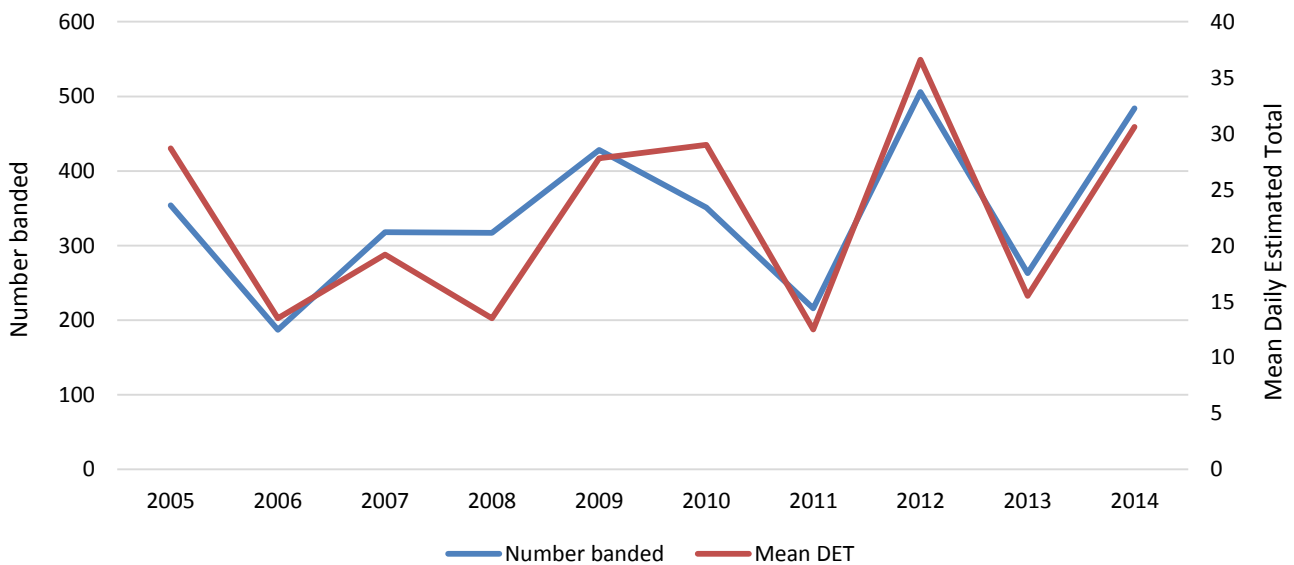
Mean daily estimated total of White-throated Sparrows throughout the year



The figure above shows that the magnitude of fall migration is on average around five times greater than in spring, and numbers in winter, summer, and early fall are minimal in comparison. While the peak of fall migration varies between weeks 9 and 11, there is a sharp overall maximum in week 10.

The figure below illustrates the exceptionally tight correlation between the number of White-throated Sparrows banded and observed at MBO in fall, especially from 2005 to 2007 and 2011 to 2014.

Fall White-throated Sparrow numbers, 2005-2014



WCSP (EWCS): (Eastern) White-crowned Sparrow / Bruant à couronne blanche (*Zonotrichia leucophrys leucophrys*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 11	May 12	May 28	18	8 (14%)	2	10	Sep 21	Oct 11	Oct 27	37	25 (28%)	13	114
2006	May 4	May 14	May 30	27	17 (25%)	7	54	Sep 20	Sep 30	Oct 23	34	34 (37%)	45	334
2007	May 8	May 10	May 26	19	9 (13%)	5	22	Sep 21	Oct 8	Oct 30	40	28 (31%)	42	340
2008	May 4	May 9	May 25	22	19 (27%)	16	110	Sep 21	Oct 3	Oct 27	37	28 (31%)	20	166
2009	Apr 26	May 20	May 23	28	12 (17%)	11	40	Sep 21	Oct 10	Oct 26	36	27 (30%)	100	497
2010	May 2	May 15	May 19	18	12 (17%)	20	68	Sep 13	Oct 6	Oct 30	48	31 (34%)	25	167
2011	Apr 27	May 11	May 22	26	12 (17%)	6	35	Sep 7	Oct 3	Oct 21	45	16 (18%)	50	136
2012	May 4	May 12	May 17	14	9 (13%)	10	27	Sep 5	Oct 4	Oct 29	55	42 (46%)	69	331
2013	May 6	May 10	May 22	17	12 (17%)	8	45	Sep 23	Sep 24	Oct 22	30	25 (27%)	13	129
2014	Apr 27	May 11	May 30	34	13 (19%)	10	49	Sep 24	Oct 11	Oct 29	36	30 (33%)	15	111
Mean	May 2	May 12	May 24	22	12 (18%)	10	46	Sep 17	Oct 5	Oct 26	40	29 (32%)	39	233

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													0.7	0.4	0.3		0.2
2006	0.07					0.02						1.3	3.6	2.4	0.3	0.1	0.8
2007												0.1	2.0	0.6	0.4		0.3
2008												3.4	8.1	3.4	0.7		1.6
2009										0.1	0.3	1.0	4.1	0.1			0.6
2010	0.05	0.4				0.06						1.4	6.6	1.7			1.0
2011	0.1					0.03					0.1	0.6	3.4	0.9			0.5
2012	0.1					0.04						0.4	3.3	0.1			0.4
2013												0.9	1.6	4.0			0.6
2014											0.1	0.7	5.0	0.9	0.1	0.2	0.7
Mean	0.04	0.06				0.02					0.04	0.9	3.5	1.9	0.2	0.03	0.7

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											0.4	5.0	5.7	5.8	1.4	0.3	1.3
2006											3.6	17.9	12.1	9.0	5.1		3.7
2007											0.6	10.9	20.3	15.0	1.4	0.4	3.7
2008											1.0	4.3	13.7	3.6	0.9	0.3	1.8
2009											0.9	8.7	42.9	17.6	0.7	0.3	5.5
2010										0.1	1.1	4.1	10.3	5.6	2.3	0.3	1.8
2011									0.6			4.4	13.4	0.3	0.7		1.5
2012									0.6	0.4	1.4	5.0	28.4	5.4	4.6	1.4	3.6
2013											2.7	8.0	5.4	1.6	0.7		1.4
2014											0.9	1.1	2.7	7.0	2.9	1.3	1.2
Mean									0.1	0.06	1.3	7.0	15.6	7.1	2.1	0.4	2.6

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													1	3	1		5
2006												3		5			8
2007													3	3	3		6
2008												3	15	10	2		30
2009													5	20			25
2010												4	11	6			21
2011	1					1						1	7	2			10
2012													8				8
2013												1	1	14			16
2014													5	2	1		8
Mean	0.1					0.1						1.2	5.6	6.5	0.4		13.7

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											2	6	4	7	1		20
2006											2	27	17	2	2		50
2007											2	22	35	18	3		80
2008											6	7	19	7			39
2009											1	14	46	9		1	71
2010										1	5	8	22	7		2	45
2011												4	10	1			15
2012										1		9	35	3	5		53
2013											3	5	3	1			12
2014											4	5	6	8	8		31
Mean										0.2	2.5	10.7	19.7	6.3	1.9	0.3	41.6

White-crowned Sparrow is a fairly common spring and common fall migrant, occasionally lingering into early winter in small numbers. Spring migration is heavily concentrated in weeks 7 and 8; numbers observed have been relatively consistent across years, aside from spikes in 2008 and 2010 which followed the two best fall seasons in 2007 and 2009. Fall numbers are somewhat more variable, with counts of birds observed and banded in the high years (also including 2006 and 2012) two to three times higher than in others. The fall migration peak is also usually sharp and brief, typically centered on week 10. To date, only the eastern subspecies has been observed, although Gambel's is also expected eventually.

DEJU (SCJU): Dark-eyed (Slate-colored) Junco / Junco ardoisé (*Junco hyemalis hyemalis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 5	May 7	33	22 (37%)	9	55	Aug 29	Oct 28	Oct 30	63	43 (49%)	180	1368
2006	Mar 28	Apr 27	May 8	42	39 (57%)	55	749	Sep 28	Oct 27	Oct 30	33	25 (27%)	25	199
2007	Mar 28	Mar 28	May 2	36	22 (31%)	11	81	Sep 9	Oct 6	Oct 30	52	42 (46%)	90	731
2008	Mar 29	Apr 22	May 4	37	32 (46%)	22	189	Sep 16	Oct 22	Oct 30	45	39 (43%)	90	837
2009	Mar 28	Apr 21	May 9	43	25 (36%)	24	205	Sep 18	Oct 25	Oct 30	43	38 (42%)	110	1171
2010	Mar 29	Apr 17	May 6	39	21 (30%)	23	120	Sep 8	Oct 8	Oct 30	53	44 (48%)	130	1956
2011	Mar 28	May 5	May 12	46	40 (57%)	65	739	Aug 10	Oct 25	Oct 30	82	35 (38%)	26	295
2012	Mar 28	Apr 6	May 12	46	31 (44%)	24	149	Sep 11	Oct 6	Oct 30	50	38 (42%)	130	1325
2013	Mar 28	Apr 16	May 7	41	38 (54%)	24	254	Sep 24	Oct 15	Oct 30	37	33 (36%)	51	387
2014	Mar 29	Apr 14	May 12	45	36 (53%)	18	191	Sep 26	Oct 18	Oct 30	35	34 (37%)	131	928
Mean	Mar 29	Apr 16	May 7	41	31 (45%)	28	273	Sep 11	Oct 18	Oct 30	49	37 (41%)	96	920

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	4.3	4.5		2.8	2.0	3.2		3.3	1.6	2.3	1.1	0.3					0.9
2006	9.4	13.5	13.7	5.6	7.3	10.1	12.0	20.0	22.6	24.4	24.7	6.1					10.9
2007	4.6	3.7	6.8	6.7	5.9	5.3	4.4	3.0	0.3	3.0	0.7	0.1					1.2
2008	3.6	1.5		1.7		2.0	4.1	2.6	4.9	11.4	3.4	0.6					2.7
2009	8.9	10.0	7.0	3.9	5.1	6.0	6.6	5.0	2.3	15.1	0.7	0.1	0.1				3.0
2010	25.3	8.4	9.5	8.5	5.2	13.1	3.4	0.4	4.3	7.1	1.4	0.4					1.7
2011	36.6	6.0	13.8	7.8	6.0	17.1	12.6	3.7	18.4	30.1	26.0	13.0	1.7				10.6
2012	11.0	5.0	9.0	3.7	3.4	7.4	2.3	7.9	5.1	4.4	1.0	0.4	0.1				2.1
2013	11.6	10.7	10.4	13.4	8.8	10.5	3.6	9.4	5.9	9.1	7.1	1.1					3.6
2014	13.4	22.0	16.3	15.1	10.4	15.2	5.3	6.3	9.3	4.1	2.1	0.4	0.4				2.8
Mean	14.1	9.5	10.7	7.2	6.3	9.8	6.0	6.0	7.5	11.3	6.8	2.3	0.2				4.0

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								0.3	0.7	1.0	1.3	5.2	29.0	49.3	57.4	63.1	15.5
2006												0.3	2.6	6.3	8.6	10.7	2.2
2007									0.4	1.0	1.0	4.1	29.3	22.4	36.6	9.6	8.0
2008										0.9	1.1	2.9	9.7	20.6	36.0	48.4	9.2
2009										0.3	0.9	1.9	22.3	33.7	37.1	71.1	12.9
2010									0.3	0.3	6.4	6.3	69.4	70.7	69.0	57.0	21.5
2011		0.3	0.1		0.1						0.1	2.6	4.1	4.9	13.6	16.7	3.2
2012									0.4	0.4	1.1	2.6	73.1	45.4	43.7	22.4	14.6
2013											0.1	4.3	10.9	18.9	13.4	7.7	4.3
2014												7.9	9.9	18.1	53.4	43.3	10.2
Mean		0.02	0.01		0.01			0.03	0.2	0.4	1.2	3.8	26.0	28.7	36.9	35.0	10.1

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	13	3		2	2	20			1		3	1					5
2006	26	6	17	3	2	54		3	20	9	14	2					48
2007	10	3	1		6	20											
2008										9							9
2009										8	1	1					10
2010	45	2	1		2	50				6	2						8
2011	147				3	150				24	10	1	1				36
2012	63	11		7	9	90							1				1
2013	24	6		6	6	42				9	2	1					12
2014	21	7				28				3			1				4
Mean	43.6	5.4	6.3	3.0	3.8	50.4		1.5	10.5	6.8	3.2	0.6	0.3				13.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005								2		2	3	17	34	32	22	79	191
2006												1	3	5	15	9	33
2007									2	3	1	6	44	29	38	4	127
2008										1	1	10	23	53	54	94	236
2009											3	7	21	46	109	175	361
2010											16	8	127	158	134	66	509
2011											6	7	9	24	12		58
2012								2	2	1	5	80	43	47	18		198
2013										1	10	19	21	6	3		60
2014												23	14	37	97	71	242
Mean								0.2	0.4	0.8	2.6	9.3	37.2	43.3	54.6	53.1	201.5

Dark-eyed Junco is generally a fairly common winter resident and spring migrant, and common fall migrant at MBO. As one of the most numerous winter species at MBO, it has been banded in all but three winter study periods. Spring migration usually peaks in week 4, and extends in to early May, with a late date of May 12 reached three times in the past four years. Fall sightings are rare in August, regular but uncommon through most of September, then jump to a high level sustained for most of October; there is a modest overall peak in week 12. Fall numbers vary substantially, from highs in 2005 and 2010 to lows in 2006 and 2011. Spring numbers were particularly high in 2006 and 2011, following the two highest fall seasons, but lows were not similarly aligned.

SCTA: Scarlet Tanager / Piranga écarlate (*Piranga olivacea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 18	May 18	Jun 1	15	6 (10%)	1	6	Sep 3	Sep 11	Sep 15	13	5 (6%)	4	8
2006	May 19	May 19	May 24	6	2 (3%)	2	3	Aug 9	Sep 24	Oct 3	56	9 (10%)	4	16
2007	May 13	May 13	May 29	17	4 (6%)	1	4	Aug 7	Sep 2	Sep 25	50	9 (10%)	2	10
2008	May 15	May 15	May 23	9	2 (3%)	1	2	Aug 17	Aug 17	Sep 1	16	3 (3%)	1	3
2009	May 13	Jun 1	Jun 1	20	5 (7%)	2	6	Aug 2	Aug 21	Sep 22	52	9 (10%)	2	11
2010	May 16	May 16	Jun 4	20	4 (6%)	2	5	Aug 20	Aug 20	Sep 1	13	3 (3%)	1	3
2011	May 13	May 13	Jun 4	23	4 (6%)	1	4	Aug 18	Aug 18	Oct 4	48	3 (3%)	1	3
2012	May 4	May 4	May 30	27	6 (9%)	1	6	Aug 3	Aug 3	Sep 25	54	10 (11%)	3	12
2013	May 27	May 27	Jun 1	6	2 (3%)	1	2	Aug 6	Aug 6	Aug 20	15	3 (3%)	1	3
2014	May 25	May 25	Jun 4	11	2 (3%)	1	2	Aug 3	Aug 12	Sep 18	47	11 (12%)	2	13
Mean	May 16	May 18	May 30	15	4 (5%)	1	4.0	Aug 11	Aug 22	Sep 16	36	6 (7%)	2	8.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.3	0.3	0.4	0.1
2006														0.3	0.1		0.04
2007													0.1	0.3	0.1		0.06
2008													0.1		0.1		0.03
2009													0.1	0.3	0.1	0.3	0.09
2010														0.6		0.1	0.07
2011														0.1	0.1	0.1	0.06
2012												0.1	0.1	0.1	0.3	0.1	0.09
2013															0.1	0.1	0.03
2014															0.1	0.2	0.03
Mean												0.01	0.07	0.2	0.2	0.1	0.06

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.06		0.03					0.1	0.7	0.3							0.09
2006	0.1		0.05		0.1	0.1		0.1	0.1		1.6		0.1				0.2
2007				0.1		0.1	0.3	0.4	0.1		0.3						0.1
2008	0.2		0.1			0.3	0.6	0.1									0.03
2009	0.7		0.3	0.1		0.3	0.6	0.1	0.1	0.1	0.1						0.1
2010						0.1	0.1	0.1									0.03
2011						0.3							0.1				0.03
2012				0.6	0.3	0.4		0.3			0.1						0.1
2013		0.3	0.1	0.1		0.3											0.03
2014				0.3	0.3		0.3	0.6	0.1	0.3							0.1
Mean	0.09	0.02	0.05	0.1	0.07	0.2	0.1	0.2	0.1	0.07	0.2		0.03				0.09

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									3	1							4
2006					1						4						5
2007				1			1		1								3
2008								1									1
2009				1			1										2
2010							1										1
2011						1											1
2012					1			2									3
2013				1													1
2014				2			1		1	1							5
Mean				0.5	0.2	0.1	0.4	0.3	0.5	0.2	0.4						2.6

Scarlet Tanager is an uncommon spring and fall migrant at MBO, with occasional summer sightings. Over the first seven years of the Spring Migration Monitoring Program, the first arrivals were always between May 13 and 19, but in 2012 the earliest one came much sooner on May 4, and in the two most recent years none were detected until the final week of May. Overall there is just a modest peak of migration around weeks 8 and 9. Fall migration is often spread over a longer period, with the peak ranging from as early as week 1 to as late as week 8, although most commonly between weeks 3 and 6. Both in spring and fall there has been relatively little change in numbers over time. Although at least one individual has been banded each fall, all have been hatch-year birds, and to date none have been banded in spring or summer.

NOCA: Northern Cardinal / Cardinal rouge (*Cardinalis cardinalis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 25	Jun 3	60	57 (97%)	5	126	Aug 1	Oct 23	Oct 30	91	78 (89%)	12	249
2006	Mar 28	Apr 29	Jun 5	70	69 (100%)	12	406	Aug 1	Sep 5	Oct 30	91	91 (100%)	12	328
2007	Mar 28	Apr 10	Jun 5	70	68 (97%)	9	269	Aug 1	Aug 17	Oct 30	91	87 (96%)	8	261
2008	Mar 28	Mar 29	Jun 5	70	67 (96%)	5	174	Aug 1	Oct 12	Oct 30	91	79 (87%)	6	192
2009	Mar 28	Apr 20	Jun 5	70	69 (100%)	13	367	Aug 1	Aug 1	Oct 30	91	78 (86%)	7	161
2010	Mar 28	Apr 2	Jun 5	70	67 (96%)	7	235	Aug 1	Oct 13	Oct 30	91	86 (95%)	11	325
2011	Mar 28	Apr 18	Jun 5	70	66 (94%)	9	222	Aug 1	Oct 30	Oct 30	91	85 (93%)	13	306
2012	Mar 28	May 1	Jun 5	70	68 (97%)	12	326	Aug 1	Oct 27	Oct 30	91	91 (100%)	20	404
2013	Mar 28	Apr 22	Jun 5	70	70 (100%)	10	369	Aug 1	Aug 18	Oct 30	91	90 (99%)	11	460
2014	Mar 29	Apr 15	Jun 4	68	67 (99%)	11	342	Aug 1	Oct 7	Oct 30	91	89 (98%)	10	380
Mean	Mar 28	Apr 17	Jun 4	69	67 (98%)	9	284	Aug 1	Sep 24	Oct 30	91	85 (94%)	11	307

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	2.8	1.5		1.0	1.3	1.6		1.2	1.9	1.7	2.4	3.0	2.7	2.1	2.1	1.8	2.1
2006	3.5	4.7	1.8	2.9	2.5	3.1	3.4	4.7	6.7	8.1	7.7	6.3	7.0	5.0	6.3	3.4	5.9
2007	4.4	4.6	3.3	0.2	3.8	3.6	3.7	3.6	3.0	5.1	3.7	4.7	4.6	3.3	3.9	2.9	3.8
2008	2.6	2.5	0.4	0.6		1.5	3.4	2.9	2.3	2.7	3.0	2.7	2.1	2.3	1.6	1.9	2.5
2009	2.7	4.0	1.5	2.1	5.0	3.4	6.6	5.3	3.9	6.4	6.4	5.9	4.4	4.9	4.9	4.6	5.3
2010	4.7	5.0	2.5	2.2	4.0	3.7	3.6	2.4	3.6	4.4	3.9	3.3	2.7	3.9	3.6	2.3	3.4
2011	3.0	1.0	0.3	3.0	3.6	2.2	3.3	2.1	2.3	4.6	4.0	4.3	3.7	3.1	2.1	2.1	3.2
2012	1.7	4.0	4.0	1.3	2.4	2.4	2.9	3.7	5.1	5.1	6.1	5.3	6.7	5.3	4.4	1.9	4.7
2013	2.8	3.3	3.7	4.4	4.4	3.8	5.9	5.7	4.6	7.1	5.4	6.0	4.3	5.6	3.9	4.3	5.3
2014	4.8	2.8	3.3	4.6	4.0	4.0	4.5	4.7	6.0	6.0	5.7	5.0	5.0	6.3	3.9	2.8	5.0
Mean	3.5	4.0	2.3	2.4	3.8	3.2	4.1	3.6	3.9	5.2	4.8	4.6	4.3	4.2	3.7	2.8	4.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.3	2.3	2.3	1.6	2.3	1.6	1.7	2.0	2.9	1.7	3.0	3.0	3.5	3.7	4.1	6.0	2.8
2006	3.4	3.7	3.5	4.1	3.0	3.6	5.0	4.4	4.7	3.9	3.4	2.6	2.3	3.1	3.4	3.3	3.6
2007	1.6	1.5	1.5	3.6	2.9	4.0	3.4	2.1	2.7	3.4	3.0	2.3	2.0	2.6	2.0	3.3	2.9
2008	1.8	2.0	1.9	2.1	2.4	2.0	2.0	2.1	2.0	1.1	2.1	2.1	1.3	3.1	2.4	2.4	2.1
2009	1.0	0.3	0.6	3.4	2.7	1.6	1.1	1.6	1.7	1.3	2.4	1.4	0.6	0.9	1.4	2.9	1.8
2010	2.3	1.3	1.7	4.9	5.9	3.6	2.6	1.4	3.4	3.1	2.0	2.4	2.3	3.7	4.4	6.7	3.6
2011	2.0	3.3	2.7	5.6	4.6	4.1	1.9	1.9	2.9	3.4	3.3	2.6	3.0	1.7	3.1	5.7	3.4
2012	1.0	2.8	1.9	4.3	3.1	3.4	3.6	3.4	5.3	4.6	3.6	3.6	2.9	4.0	5.6	10.4	4.4
2013	2.3	2.5	2.4	5.7	6.6	6.9	5.3	4.7	3.0	3.4	4.7	4.6	4.6	5.3	7.0	4.0	5.1
2014	2.7	3.5	3.1	4.9	3.7	2.4	4.0	4.7	3.4	5.1	5.6	2.7	4.0	5.1	3.4	5.1	4.2
Mean	2.2	2.4	2.3	4.0	3.7	3.3	3.1	2.8	3.2	3.1	3.3	2.7	2.6	3.3	3.7	5.0	3.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	5	2				7			1			1		1	2		5
2006	1	1	1	1		4			1		1	2					4
2007	2					2											
2008																	
2009					1	1				3		1					4
2010	2		2			4											
2011	3				2	5				2	1						3
2012	11					11				1		1	2	1			5
2013	4	2			3	9				2		2	1				5
2014	7	2				9							2	1	1		4
Mean	4.4	1.0	1.0	0.2	0.8	5.8			1.0	0.8	0.2	0.7	0.5	0.3	0.3		3.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					1		1			1		1	1	2	1	1	9
2006					1		1	1	1					1	2		7
2007				1	1								1	2		2	7
2008				1	1	1							1	3			7
2009	1		1	1	1	1			1			1			1	2	7
2010				4	2	1				2					2	1	12
2011				3	1	2		1	1			1		1	1	3	14
2012		1	1	2	1	2	1	1			1	1	1		6	5	21
2013		3	3	2	1	1	1	2			2		2		1		11
2014		1	1	1		1						1	2	2	2	2	9
Mean	0.2	0.6	0.7	1.5	0.9	0.8	0.4	0.5	0.3	0.3	0.3	0.4	0.7	1.1	1.6	1.6	10.4

Northern Cardinal is a common year-round resident that is one of just 3 species that has been observed in all study periods (along with American Crow and Black-capped Chickadee). Mean daily counts are relatively similar across seasons, although a bit higher in spring, perhaps because singing males are more readily detected. In fall, numbers sometimes are higher toward the end of the season. While spring counts have been fairly variable among years, fall counts have been considerably higher since 2010, with roughly 50% more individuals banded and 75% more individuals observed than on average from 2005 to 2009.

RBGR: Rose-breasted Grosbeak / Cardinal à poitrine rose (*Pheucticus ludovicianus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 7	May 16	Jun 3	28	26 (44%)	8	79	Aug 1	Aug 15	Oct 11	72	44 (50%)	9	123
2006	May 8	May 31	Jun 5	29	28 (41%)	8	103	Aug 1	Aug 30	Sep 25	56	48 (53%)	13	213
2007	May 8	May 18	Jun 5	29	26 (37%)	9	100	Aug 1	Aug 7	Oct 13	74	41 (45%)	12	133
2008	May 1	May 20	Jun 4	35	30 (43%)	10	124	Aug 1	Aug 5	Oct 12	73	43 (47%)	15	137
2009	May 3	May 13	Jun 4	33	22 (32%)	7	58	Aug 1	Aug 16	Oct 12	73	43 (47%)	10	131
2010	May 15	May 25	Jun 5	22	12 (17%)	6	20	Aug 1	Aug 2	Sep 22	53	43 (47%)	10	117
2011	May 2	May 20	Jun 5	35	26 (37%)	11	69	Aug 1	Aug 7	Sep 24	55	43 (47%)	7	82
2012	May 9	May 10	Jun 5	28	23 (33%)	7	47	Aug 1	Aug 24	Sep 28	59	43 (47%)	14	122
2013	May 11	May 17	Jun 1	22	12 (17%)	6	20	Aug 1	Aug 9	Oct 9	70	49 (54%)	10	141
2014	May 9	May 11	Jun 4	27	16 (24%)	4	28	Aug 1	Aug 1	Sep 29	60	50 (55%)	11	162
Mean	May 7	May 18	Jun 4	29	22 (32%)	8	65	Aug 1	Aug 11	Oct 3	64	45 (49%)	11	136

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.3	2.6	3.9	2.1	3.4	1.3
2006												0.1	1.9	4.4	4.3	4.0	1.5
2007												0.4	4.9	5.4	2.6	1.0	1.4
2008											0.1	0.6	3.6	7.9	4.1	1.4	1.8
2009												0.1	3.9	1.1	2.1	1.0	0.8
2010													0.1	0.6	1.1	1.0	0.3
2011												0.3	2.0	2.9	3.6	1.1	1.0
2012													3.0	1.1	1.1	1.4	0.7
2013													0.3	1.6	0.9	0.1	0.3
2014													2.0	0.7	0.4	1.0	0.4
Mean											0.01	0.2	2.4	3.0	2.2	1.5	0.9

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	1.6	1.5	1.5	3.4	4.6	3.0	2.0	1.6	1.6	0.6	0.4	0.2	0.2	0.2			1.4
2006	1.2	3.1	2.2	6.6	6.6	2.6	4.9	4.3	2.9	2.4	0.3						2.3
2007	0.9	2.7	1.7	5.1	4.1	3.6	1.4	2.9	0.7	0.9	0.1			0.1			1.5
2008	2.0	1.6	1.8	5.4	5.0	3.4	2.0	1.3	1.6	0.3	0.1	0.3		0.1			1.5
2009	1.0	1.3	1.1	5.0	3.9	4.3	0.9	1.3	1.9	0.6	0.6	0.3		0.1			1.4
2010	0.3	1.3	1.0	4.7	2.7	1.9	1.9	0.9	2.7	1.6	0.4						1.3
2011	0.7		0.3	2.3	1.9	1.9	1.6	1.6	1.1	0.9	0.6						0.9
2012		0.8	0.4	3.9	3.3	2.1	4.9	0.6	1.0	1.1	0.3	0.3					1.3
2013	1.3	0.8	1.0	3.1	2.1	4.4	3.3	1.6	2.4	1.7	1.3		0.1				1.5
2014	1.3	4.0	2.9	4.4	3.7	3.0	2.9	2.6	2.4	2.0	1.0	1.1					1.8
Mean	1.2	1.8	1.5	4.4	3.8	3.0	2.6	1.8	1.8	1.2	0.5	0.2	0.03	0.06			1.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													3	9			12
2006													2	4	3		9
2007													1	3			4
2008													2	5			7
2009													3	2	2		7
2010													1	1			2
2011														1			1
2012													1				1
2013																	
2014																	
Mean													1.3	2.5	0.5		4.3

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		4	4	2	11	6	6	2		1	1		1				30
2006		3	3	8	17	2	4	5	7	2							45
2007				14	4	8	1	3			1						31
2008				15	8		4	1	1			1					30
2009		5	5	16	5	7		1	1	1	2	1		1			35
2010		5	5	13	4	2	3	3	5	3							33
2011				3	4	3			4	2	2						18
2012		1	1	6	5	2	15		1	1							30
2013		1	1	8	7	6	2	1	5	4	1						34
2014		8	8	7	6	2	7	5	3	4	1	1					36
Mean		3.0	3.0	9.2	7.1	3.8	4.2	2.1	2.7	1.8	0.8	0.3	0.1	0.1			32.2

Rose-breasted Grosbeak is fairly common at MBO from around mid-May to mid-September. The first spring arrivals always appear in the first half of May, and migration most commonly peaks in week 8. One or two pairs breed at MBO in most years, and at least one individual has been banded in summer in seven of nine banding seasons. In most years, fall numbers peak in week 1 and steadily decline through to week 8, with scattered sightings continuing as late as the second week of October in four years. Mean daily counts and numbers banded in spring have both declined considerably over the past decade, but fall results have been remarkably consistent except for a high in 2006 and a low in 2011.

INBU: Indigo Bunting / Passerin indigo (*Passerina cyanea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 16	May 30	Jun 3	19	11 (19%)	6	20	Aug 1	Aug 10	Oct 4	65	43 (49%)	10	97
2006	May 20	May 21	Jun 2	14	6 (9%)	2	7	Aug 1	Aug 2	Oct 27	88	36 (40%)	5	76
2007	May 17	May 17	Jun 1	16	6 (9%)	2	8	Aug 3	Sep 18	Oct 3	62	23 (25%)	6	43
2008	May 18	May 25	Jun 2	16	13 (19%)	4	22	Aug 1	Aug 6	Oct 7	68	47 (52%)	6	98
2009	May 13	May 18	Jun 5	24	20 (29%)	3	39	Aug 1	Sep 3	Oct 8	69	59 (65%)	8	197
2010	May 5	May 18	Jun 5	32	26 (37%)	5	61	Aug 1	Aug 4	Oct 6	67	56 (62%)	14	199
2011	May 8	May 29	Jun 5	29	16 (23%)	8	36	Aug 1	Aug 2	Oct 1	62	50 (55%)	14	158
2012	May 14	May 24	Jun 5	23	22 (31%)	6	73	Aug 1	Aug 11	Sep 23	54	37 (41%)	5	64
2013	May 21	Jun 1	Jun 5	16	13 (19%)	5	35	Aug 1	Aug 4	Sep 30	61	52 (57%)	8	170
2014	May 15	May 22	Jun 4	21	17 (25%)	8	54	Aug 1	Aug 3	Oct 2	63	38 (42%)	6	65
Mean	May 14	May 23	Jun 3	21	15 (22%)	5	36	Aug 1	Aug 12	Oct 5	66	44 (49%)	8	117

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														0.1	1.1	2.2	0.3
2006														0.6	0.3	0.1	0.1
2007														0.4	0.3	0.4	0.1
2008														0.6	2.1	0.4	0.3
2009													0.3	1.6	1.9	1.9	0.6
2010												0.1	0.7	2.6	3.0	2.3	0.9
2011												0.1	0.4	0.7	2.1	1.7	0.5
2012													0.7	2.9	4.0	2.9	1.0
2013														0.9	1.1	3.0	0.5
2014													0.1	2.3	3.7	1.8	0.8
Mean												0.03	0.2	1.3	2.0	1.7	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.3	0.6	0.5	2.3	3.6	1.3	0.7	1.7	0.1	1.6	1.3	1.3	0.2				1.1
2006	0.7	2.2	1.5	2.9	1.7	0.7	0.4	2.0	1.9	0.9	0.3				0.1		0.8
2007	0.6	0.5	0.5	0.4	0.3	0.1		0.3	0.4	1.6	1.3	1.3	0.4				0.5
2008	1.2	1.4	1.3	3.4	2.4	1.7	0.9	1.1	1.6	0.1	0.7	1.1	0.9				1.1
2009	0.7	0.8	0.7	4.1	4.0	2.4	1.7	2.1	3.0	3.3	4.6	2.4	0.4				2.2
2010	2.0	2.7	2.4	8.1	5.9	3.1	2.1	3.4	1.7	1.4	1.6	0.7	0.3				2.2
2011	0.7	2.3	1.6	5.9	2.4	1.4	2.1	2.1	2.1	2.9	3.1	0.4					1.7
2012	0.8	0.8	0.8	2.0	2.3	1.0	1.4	1.0	0.1	1.1	0.1						0.7
2013	0.3	0.3	0.3	6.6	4.1	3.6	1.9	2.1	2.1	2.3	0.7	0.9					1.9
2014	0.8	0.8	0.4	3.1	1.4	1.0	0.4	0.9	0.9	0.6	0.3	0.7					0.7
Mean	0.6	1.2	1.0	3.9	2.8	1.6	1.2	1.7	1.4	1.6	1.4	0.9	0.2			0.01	1.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005														1	2		3
2006															1		1
2007																1	1
2008															4		4
2009														1		1	2
2010																	
2011																	
2012															2		2
2013															1	2	3
2014																	
Mean														0.2	1.0	0.4	1.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					13	3		8		7	5	2	1				39
2006		1	1	2	4	1		2	6	2	2					1	20
2007		1	1					2	2	2	2	5					13
2008				4	2	4	3	3	3		2	6	5				32
2009				4	3	2	5	5	6	10	10	6					51
2010		2	2	8	8	12	4	8	7	2	9	4					62
2011		2	2	7		1	9	7	9	10	5						48
2012				3	2	2	9	2	1	6							25
2013				4	2	5	7	7	8	6	3						42
2014				1	1	4		1	1	2		4					14
Mean		0.7	0.7	3.3	3.5	3.4	3.7	4.5	4.3	4.7	3.8	2.7	0.6			0.1	34.6

Indigo Bunting is a fairly common species at MBO, generally present from around mid-May to early October. The first spring arrivals have been between May 13 and 21, except for earlier birds in 2010 and 2011; the peak is most often in week 9. Most years one or two pairs breed at MBO, with some occasionally banded in July. Fall counts are highest in early August and taper off over the next two months, although curiously the greatest number have been banded from early to mid-September. One exceptionally late migrant was banded in the final week of October in 2006. Numbers were particularly high in fall 2009 and 2010; otherwise they have fluctuated among years, but without any clear pattern.

BOBO: Bobolink / Goglu des prés (*Dolichonyx oryzivorus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 12	May 17	Jun 3	23	13 (22%)	3	20	Aug 21	Aug 21	Aug 21	1	1 (1%)	1	1
2006	May 13	May 16	May 26	14	7 (10%)	2	9	Aug 3	Aug 16	Sep 16	45	30 (33%)	45	331
2007	May 6	May 25	Jun 5	31	24 (34%)	8	97	Aug 1	Aug 26	Aug 28	28	4 (4%)	3	6
2008	May 5	May 16	Jun 5	32	30 (43%)	7	113	Sep 9	Sep 9	Sep 9	1	1 (1%)	1	1
2009	May 5	May 15	May 28	24	11 (16%)	3	13							
2010	May 13	May 13	Jun 2	21	6 (9%)	4	10							
2011	May 6	May 18	May 23	18	11 (16%)	7	33							
2012	May 8	May 13	Jun 1	25	10 (14%)	5	18	Aug 3	Aug 29	Aug 29	27	3 (3%)	2	4
2013	May 14	May 19	May 19	6	3 (4%)	2	4	Aug 20	Aug 20	Sep 6	18	3 (3%)	15	23
2014	May 14	May 15	May 29	16	6 (9%)	2	8	Aug 21	Aug 21	Aug 21	1	1 (1%)	2	2
Mean	May 9	May 16	May 29	21	12 (18%)	4	33	Aug 15	Aug 24	Aug 31	17	6 (7%)	10	37

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												0.1	0.6	0.6	0.6	1.4	0.3
2006													0.3	0.7	0.3		0.1
2007												0.1	1.9	3.9	5.3	2.7	1.4
2008												1.3	3.4	5.4	4.0	2.0	1.6
2009												0.1	1.0	0.6	0.1		0.2
2010													0.9	0.4		0.1	0.1
2011												0.3	1.0	3.3	0.1		0.5
2012												0.3	1.6	0.4	0.1	0.1	0.3
2013													0.1	0.4			0.06
2014													0.4	0.6	0.1		0.1
Mean												0.2	1.1	1.6	1.1	0.6	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.1		0.06			0.1											0.01
2006				0.1	8.7	15.3	11.6	8.6	2.4	0.6							3.6
2007	1.1		0.6	0.1			0.7										0.07
2008									0.1								0.01
2009	1.0		0.4														
2010		1.3	0.9														
2011																	
2012				0.3				0.3									0.04
2013						2.3			1.0								0.3
2014						0.3											0.02
Mean	0.2	0.1	0.2	0.06	0.9	1.8	1.2	0.9	0.4	0.06							0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008														1			1
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean														0.1			0.1

Bobolink has been observed in every spring, as well as four summer and seven fall seasons. Spring arrivals were between May 5 and 8 in five years, and between May 12 and 14 in the five other years; the overall peak is in week 8. In 2007 and 2008, Bobolinks set up territories in the adjacent field, with sightings weekly through the second half of spring, and into June in 2007. In fall there were regular sightings throughout the first half of the season, including large numbers in the second half of August. However, no Bobolinks were observed in fall from 2009 to 2011, and only in small numbers on scattered dates in the other six years.

RWBL: Red-winged Blackbird / Carouge à épaulettes (*Agelaius phoeniceus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 30	Jun 3	60	59 (100%)	55	1496	Aug 1	Oct 21	Oct 30	91	62 (70%)	175	2364
2006	Mar 28	Apr 16	Jun 5	70	69 (100%)	140	3011	Aug 1	Oct 20	Oct 30	91	64 (70%)	430	5024
2007	Mar 28	May 10	Jun 5	70	70 (100%)	225	4348	Aug 1	Oct 24	Oct 30	91	69 (76%)	2501	9375
2008	Mar 28	May 13	Jun 5	70	70 (100%)	95	3185	Aug 1	Oct 17	Oct 30	91	66 (73%)	550	5805
2009	Mar 28	Apr 27	Jun 5	70	69 (100%)	70	2373	Aug 1	Oct 27	Oct 30	91	74 (81%)	2500	7785
2010	Mar 28	Apr 21	Jun 5	70	70 (100%)	92	2593	Aug 1	Oct 30	Oct 30	91	71 (78%)	1100	10217
2011	Mar 28	Apr 19	Jun 5	70	70 (100%)	90	2989	Aug 1	Oct 27	Oct 30	91	73 (80%)	1200	10251
2012	Mar 28	Apr 29	Jun 5	70	69 (99%)	180	3423	Aug 1	Oct 10	Oct 30	91	76 (84%)	1009	10557
2013	Mar 28	Apr 9	Jun 5	70	70 (100%)	110	3364	Aug 1	Oct 29	Oct 30	91	71 (78%)	850	5691
2014	Mar 29	Apr 20	Jun 4	68	67 (99%)	100	3014	Aug 2	Oct 12	Oct 30	90	78 (86%)	450	5966
Mean	Mar 28	Apr 25	Jun 4	69	68 (100%)	116	2980	Aug 1	Oct 21	Oct 30	91	70 (78%)	1076	7304

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	2.0					0.6		28.2	20.6	23.7	30.1	28.6	28.1	20.9	23.0	25.2	25.4
2006	1.9	0.1	0.08		0.7	0.6	24.6	37.5	56.6	46.1	79.3	41.4	49.6	36.4	37.6	26.4	43.6
2007	0.4				3.2	0.8	47.1	43.6	31.0	72.6	65.0	96.9	124.6	56.7	48.9	34.9	62.1
2008	3.6					1.2	24.3	41.6	39.6	57.3	49.0	38.9	72.3	54.4	41.3	36.4	45.5
2009				0.1	10.9	4.5	25.1	40.3	30.3	44.3	43.1	36.4	33.0	35.9	28.3	28.0	34.4
2010	73.8	0.8			29.2	28.4	44.3	35.0	34.0	47.9	38.0	41.9	43.4	40.9	22.7	22.4	37.0
2011	1.4				5.9	1.6	31.4	29.3	42.9	59.1	45.0	53.9	46.6	48.0	39.3	31.6	42.7
2012	43.5	5.5			18.2	21.9	42.1	29.1	42.1	55.0	86.0	71.0	57.6	41.1	32.4	32.4	48.9
2013	13.5	0.7	0.6		10.0	5.4	36.9	57.6	46.3	57.1	49.0	60.1	56.4	51.3	34.3	31.6	48.1
2014	3.6	0.5	0.7	1.0	3.6	1.8	16.3	40.6	55.7	61.7	51.1	53.7	51.0	43.6	34.3	29.0	44.3
Mean	20.1	0.7	0.2	0.1	10.3	7.7	32.7	38.4	39.9	52.9	53.6	52.3	56.3	42.9	34.2	29.9	43.5

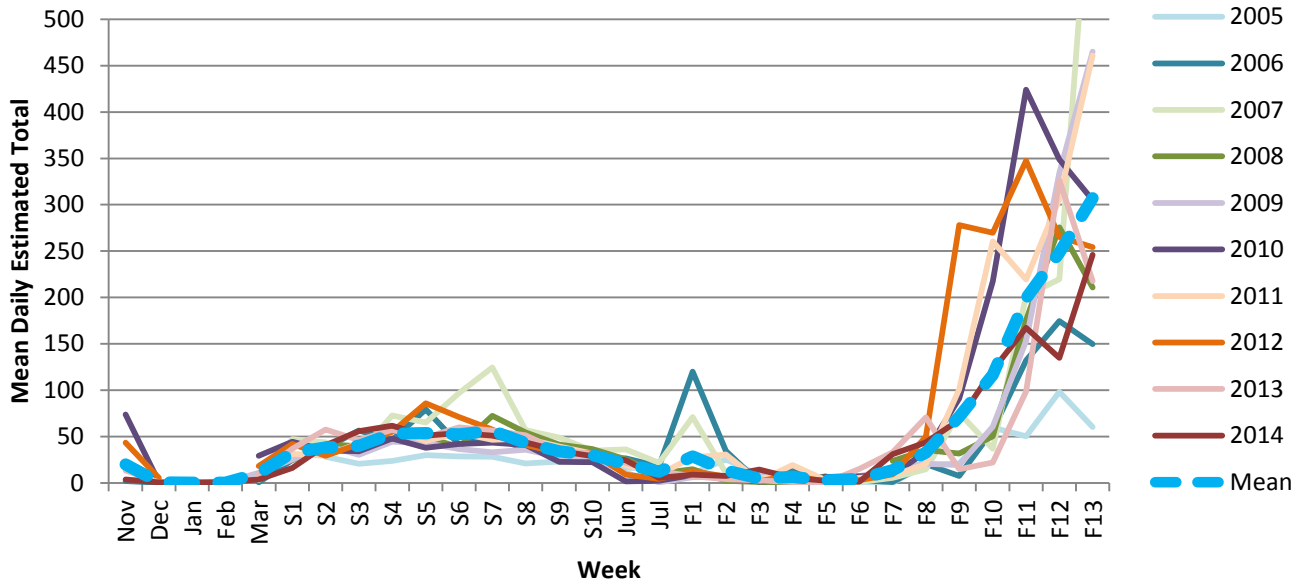
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	16.6	14.5	15.5	10.1	25.6	8.1	2.9	0.4	0.3	0.3	19.1	21.0	59.7	50.2	98.4	60.3	26.9
2006	26.5	17.8	21.7	120.1	34.6	0.7	16.7	0.6	3.0	1.1	20.3	7.6	57.0	132.0	174.4	149.6	55.2
2007	36.3	21.5	29.5	71.1	10.6	2.3	0.1	0.4	0.9	5.4	14.9	75.4	36.9	201.9	219.7	699.7	103.0
2008	25.6	10.2	17.9	14.7	2.4	0.9	0.4	7.3		23.9	35.6	31.6	50.3	175.7	275.7	210.9	63.8
2009	10.7	0.5	4.9	6.1	6.4	12.4	7.3	3.9	7.3	15.3	20.7	19.4	60.6	153.3	334.4	465.0	85.5
2010	1.7	2.5	2.2	8.6	4.7	1.6	2.7	6.6	7.0	8.9	33.3	91.0	217.4	424.0	348.7	305.1	112.3
2011	19.3	9.3	13.6	27.4	30.6	2.1	19.1	3.1	5.4	8.3	20.3	101.0	260.6	219.3	306.1	461.0	112.6
2012	8.8	4.5	6.6	12.6	6.9	2.0	8.3	1.3	3.0	9.1	50.0	278.0	269.9	347.3	265.4	254.4	116.0
2013	21.7	12.8	16.6	7.1	3.9	2.7	0.9	0.1	15.1	33.0	70.7	14.7	22.1	98.6	326.3	217.7	62.5
2014	24.3	5.5	13.6	9.0	7.4	14.4	5.4	2.4	1.4	30.9	43.6	68.0	121.7	167.3	134.7	246.0	65.6
Mean	20.7	11.9	16.0	28.7	13.3	4.7	6.4	2.6	4.3	13.6	32.8	71.5	116.4	199.1	248.4	307.0	80.5

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005										2	24	21	9	11	5	1	73
2006									4	18	35	42	25	20	21	4	169
2007										12	11	27	65	22	12	6	155
2008										9	11	13	33	20	21	7	114
2009										2	3	5	21	16	2	1	50
2010	1				14	15				12	15	19	9	18	8	4	85
2011	1					1				3	8	15	23	13	6	2	70
2012	8	16			1	25				21	12	49	19	9	2	4	116
2013	10					10				8	12	25	24	11	3		83
2014										4	4	19	17	8	11		63
Mean	2.5	2.3			1.9	5.7			2.0	9.1	13.5	23.5	24.5	14.8	9.1	2.9	97.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006		1	1	1											2		3
2007				1											1	1	3
2008														5	1	1	7
2009	22	7	29												30		30
2010	3	3	6										1	10	1	1	12
2011					1										8	9	18
2012	5		5	1										2	10		13
2013	10	1	11												1	1	2
2014	2		2													3	3
Mean	7.0	1.3	6.0	0.3	0.1									0.8	6.3	1.6	9.1

Red-winged Blackbird is one of the most abundant birds at MBO, with a large breeding population and giant flocks of migrants in late fall; overall it is present annually from late March through November, and smaller numbers have occurred throughout winter. Although usually present on all days during both spring and fall, there is a distinct spring peak between weeks 4 and 7, while fall numbers tend to build strongly from mid-season through to week 13, after dipping to a low from mid-August to mid-September. Spring numbers appear to have stabilized around the long-term mean, but in fall there is a mix of high years with a mean daily count of 103 to 116 birds (2007, 2010, 2011, 2012) and low years ranging from 27 to 66 (2005, 2006, 2008, 2013, 2014).

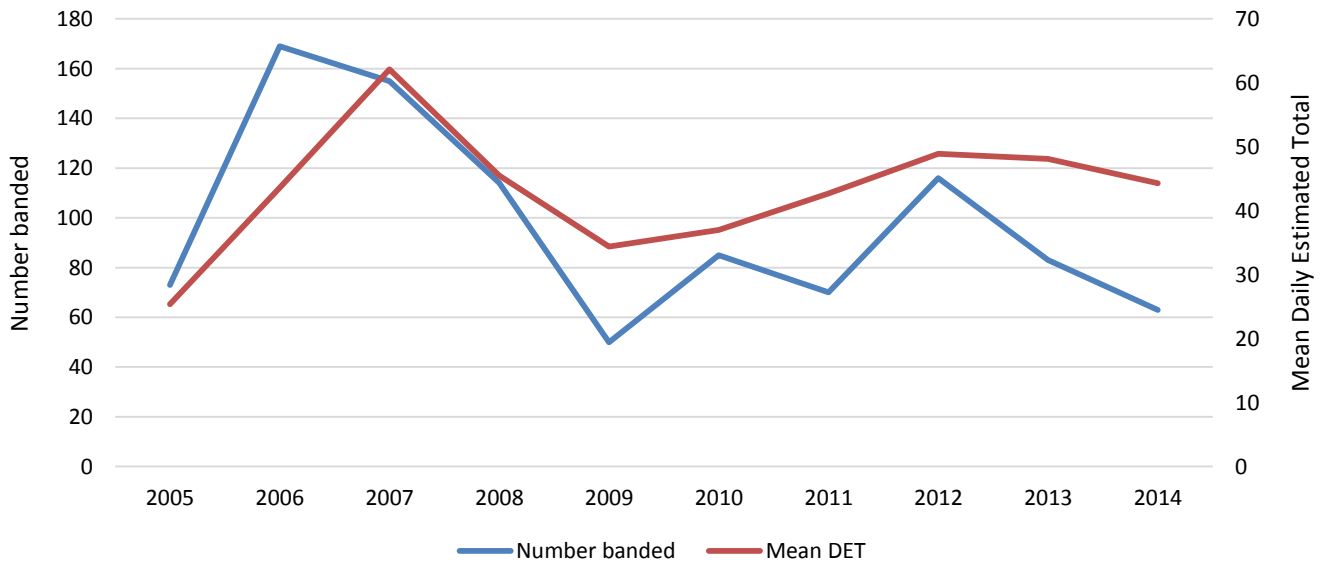
Mean daily estimated total of Red-winged Blackbirds throughout the year



The figure above shows the annual pattern of occurrence of Red-winged Blackbird at MBO, which generally includes a large breeding population through most of spring, a small early fall peak related to local dispersal, and a large late fall peak as mixed-blackbird flocks gather at MBO. The lack of a distinct peak in spring suggests that the majority of individuals observed during the season are local residents, with relatively few migrants stopping over. Numbers in early September are lower than any other time of year except December to February.

The figure below shows a fair correlation between number of Red-winged Blackbirds banded and observed at MBO in spring. Fluctuations are somewhat more pronounced among number of individuals banded, as is the case for many species. Overall, numbers fluctuated more dramatically over the first few years, and have on average been relatively stable since 2008.

Spring Red-winged Blackbird numbers, 2005-2014



EAME: Eastern Meadowlark / Sturnelle des prés (*Sturnella magna*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007	May 3	May 3	May 19	17	2 (3%)	1	2							
2008								Oct 18	Oct 18	Oct 24	7	2 (2%)	1	2
2009	Apr 25	Apr 25	Apr 25	1	1 (1%)	1	1							
2010														
2011	Apr 30	Apr 30	Apr 30	1	1 (1%)	1	1							
2012														
2013	Apr 5	Apr 5	Apr 5	1	1 (1%)	1	1							
2014														
Mean	Apr 23	Apr 23	Apr 27	5	1 (2%)	1	0.5	Oct 18	Oct 18	Oct 24	7	2 (2%)	1	0.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007												0.1		0.1			0.03
2008																	
2009											0.1						0.01
2010																	
2011											0.1						0.01
2012																	
2013								0.1									0.01
2014																	
Mean								0.01			0.03	0.01		0.01			0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008															0.1	0.1	0.02
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean															0.01	0.01	<0.01

Eastern Meadowlark is a rare species at MBO, with two spring sightings in 2007, and one more in every second year thereafter, plus a pair of observations in late October 2008.

RUBL: Rusty Blackbird / Quiscale rouilleux (*Euphagus carolinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 30	May 2	May 9	10	5 (8%)	7	14	Sep 11	Sep 27	Oct 30	50	23 (26%)	68	263
2006	Apr 7	Apr 19	May 4	28	7 (10%)	2	8	Sep 6	Sep 25	Oct 27	52	30 (33%)	166	425
2007	Apr 23	May 9	May 9	17	7 (10%)	4	12	Sep 22	Sep 30	Oct 22	31	15 (16%)	52	155
2008	Apr 26	May 29	May 31	36	6 (9%)	7	27	Sep 29	Oct 12	Oct 28	30	15 (16%)	17	74
2009	Mar 31	May 12	May 20	51	13 (19%)	7	23	Aug 8	Oct 8	Oct 30	84	28 (31%)	55	293
2010	Apr 14	Apr 21	May 12	29	8 (11%)	3	11	Sep 15	Oct 2	Oct 30	46	29 (32%)	28	130
2011	Apr 7	Apr 29	May 6	30	7 (10%)	6	12	Aug 30	Sep 25	Oct 30	62	23 (25%)	46	91
2012	Apr 18	Apr 21	May 14	27	21 (30%)	6	39	Sep 11	Oct 1	Oct 27	47	26 (29%)	50	210
2013	Apr 19	May 1	May 17	29	11 (16%)	9	39	Sep 16	Sep 25	Oct 29	44	24 (26%)	17	90
2014	Apr 13	May 9	May 9	27	16 (24%)	45	148	Sep 17	Sep 23	Oct 30	44	37 (41%)	24	238
Mean	Apr 16	May 3	May 13	28	10 (15%)	10	33	Sep 10	Sep 29	Oct 28	49	25 (28%)	52	197

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring	
2005											0.6	1.3	0.1				0.2	
2006		0.3	0.5				0.2		0.2	0.1	0.4	0.1	0.3				0.1	
2007	0.2						0.09			0.4	0.4	0.3	0.6				0.2	
2008											1.1		0.1		1.0	1.6	0.4	
2009								0.1		0.7	0.9	0.4	1.0	0.1			0.3	
2010	0.6						0.2		0.1	0.6	0.1	0.3	0.4				0.2	
2011								0.3		0.1	1.1	0.1					0.2	
2012	0.6						0.2			1.7	1.0	1.3	1.6				0.6	
2013										0.7	3.3	1.4		0.1			0.6	
2014	0.4						0.07		1.7	1.3	5.6	6.1	6.4				2.2	
Mean	0.2	0.08	0.08				0.09	0.02	0.04	0.2	0.6	1.4	1.2	1.0	0.03	0.1	0.2	0.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005									0.1	1.6	9.6	16.0	7.5	0.7	5.0	0.6	3.0
2006									1.6	1.9	30.3	11.0	5.0	4.7	4.9	1.4	4.7
2007											0.6	9.7	3.1	0.9	7.9		1.7
2008												2.1	2.7	4.3	1.1	0.3	0.8
2009					0.1						5.4	8.9	14.9	10.0	0.9	1.7	3.2
2010									2.0	2.0	4.1	4.0	2.4	2.4	1.6	1.4	
2011								0.1	0.4	0.1	7.0	1.0	0.6	0.7	1.3	1.7	1.0
2012									0.1			14.3	9.1	2.1	3.7	0.6	2.3
2013										0.3	3.1	1.3	6.0	0.9	1.0	0.3	1.0
2014										1.6	5.3	7.6	4.4	3.4	8.1	3.6	2.6
Mean					0.01			0.01	0.2	0.7	6.3	7.5	5.7	3.0	3.6	1.2	2.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											1						1
2006			1			1			1								1
2007																	
2008																	
2009										1	2						3
2010																	
2011																	
2012										1			3				4
2013														1			1
2014																	
Mean			0.3			0.1			0.5	0.2	0.3		0.3	0.1			1.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010															1		1
2011																	
2012												1			1		2
2013																	
2014																	
Mean												0.1			0.2		0.3

Rusty Blackbird is a regular spring and fall migrant at MBO, with sightings continuing into November in four years, and an overwintering bird seen on multiple occasions in 2006. Spring observations have occurred throughout the season, but are distinctly more numerous from mid-April to early May, with an overall peak centered on week 5. Aside from an unusually early record in August 2009, fall migration typically begins around mid-September, with an overall peak around week 9. While fall numbers are generally larger than in spring, most blackbirds are flying high, and as such, over 70% of individuals have been banded in spring. Spring numbers have been consistent except for a high in 2014; fall counts have oscillated considerably.

COGR: Common Grackle / Quiscale bronzé (*Quiscalus quiscula*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 20	Jun 3	60	51 (86%)	18	349	Aug 1	Sep 18	Oct 29	90	75 (85%)	1000	13251
2006	Apr 2	Apr 16	Jun 5	65	61 (88%)	50	921	Aug 1	Sep 2	Oct 27	88	76 (84%)	564	4177
2007	Mar 29	May 13	Jun 4	68	55 (79%)	20	388	Aug 1	Oct 18	Oct 30	91	74 (81%)	502	2843
2008	Mar 30	Apr 21	Jun 5	68	61 (87%)	153	594	Aug 1	Oct 17	Oct 30	91	76 (84%)	670	3695
2009	Mar 28	May 19	Jun 5	70	59 (86%)	20	442	Aug 1	Sep 26	Oct 30	91	82 (90%)	487	2136
2010	Mar 28	May 12	Jun 5	70	58 (83%)	26	349	Aug 1	Aug 29	Oct 30	91	61 (67%)	593	2777
2011	Apr 3	May 24	Jun 5	64	58 (83%)	20	409	Aug 1	Aug 24	Oct 30	91	57 (63%)	95	522
2012	Mar 30	May 7	Jun 5	68	59 (84%)	28	570	Aug 1	Sep 11	Oct 30	91	83 (91%)	1809	14004
2013	Mar 28	May 17	Jun 5	70	60 (86%)	24	466	Aug 1	Oct 6	Oct 29	90	60 (66%)	1200	3114
2014	Apr 3	Apr 20	Jun 3	62	54 (79%)	37	427	Aug 1	Sep 18	Oct 30	91	85 (93%)	612	4916
Mean	Mar 31	May 7	Jun 4	66	58 (84%)	40	492	Aug 1	Sep 19	Oct 29	90	73 (80%)	753	5144

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								8.2	0.9	4.8	2.6	3.4	8.9	10.3	7.0	8.0	5.9
2006							0.3	4.8	9.9	5.7	19.0	35.4	27.9	14.3	9.4	5.6	13.3
2007					0.4	0.09	1.6	2.7	0.1	5.3	3.3	8.3	13.4	8.6	9.4	2.7	5.5
2008							1.0	2.3	2.4	38.3	5.3	6.1	8.0	8.7	8.3	4.4	8.5
2009					0.4	0.2	1.6	0.8	5.4	5.4	4.3	8.6	13.9	10.1	9.3	3.9	6.4
2010	1.9				2.1	1.0	3.1	0.6	1.6	4.6	5.6	7.1	10.6	8.0	6.3	2.4	5.0
2011					1.3	0.3	0.9	4.3	2.1	5.6	5.1	8.1	7.0	8.0	8.6	8.7	5.8
2012	2.0				16.6	4.1	3.3	1.3	4.7	6.4	10.4	15.9	17.1	10.7	7.6	4.0	8.1
2013	0.1				0.1	0.06	4.3	0.9	2.6	5.9	7.0	9.6	10.7	14.0	5.4	6.3	6.7
2014							0.7	3.1	2.6	12.4	3.7	4.6	8.7	7.1	10.9	8.5	6.3
Mean	0.6				1.6	0.5	1.9	2.8	3.2	9.5	6.6	10.7	12.6	10.0	8.2	5.3	7.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	3.5	3.7	3.6	3.7	4.7	10.7	82.0	137.4	425.0	366.3	333.6	150.0	142.0	124.5	132.7	39.9	150.6
2006	4.8	8.4	6.8	12.7	10.1	9.6	48.6	205.0	111.0	65.9	83.6	9.3	21.6	3.0	6.7	9.7	45.9
2007	3.3	3.0	3.2	19.0	14.3	10.3	8.7	10.3	10.4	13.6	48.9	56.0	5.6	20.1	108.4	80.6	31.2
2008	4.6	10.4	7.5	9.0	23.3	19.3	28.4	60.1	42.4	19.1	3.7	26.6	84.6	82.0	104.6	24.7	40.6
2009	4.0	0.5	2.0	42.1	18.1	6.6	6.9	11.9	21.0	13.7	50.0	79.9	24.1	10.0	18.4	2.4	23.5
2010		1.3	0.9	13.1	8.0	24.0	20.4	184.4	8.9	32.1	4.4	25.3	7.7	33.0	31.6	3.7	30.5
2011	5.0	4.8	4.9	13.7	8.6	2.3	16.4	5.0	0.6	0.4	2.7	1.6	2.6	7.4	1.9	11.4	5.7
2012	0.8	1.0	0.9	7.1	69.0	186.0	114.9	129.7	319.0	21.0	3.4	109.7	524.7	377.3	79.6	59.1	153.9
2013	9.3	7.0	8.0	9.3	2.3	4.6	10.3	4.7	2.3	79.6	5.4	1.7	187.7	68.6	63.4	5.0	34.2
2014	8.3	5.3	6.6	12.7	16.0	35.9	14.4	8.6	6.1	108.1	198.4	60.3	72.7	38.1	72.4	58.4	54.0
Mean	4.1	4.8	4.5	14.3	17.4	30.9	35.1	75.7	94.7	72.0	73.4	50.6	106.8	75.7	62.0	29.5	56.7

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005												3	3	6	4	4	20
2006									1		9	24	14	6	4	1	59
2007												5	4	4	5		18
2008													2	1	6	2	11
2009										1		1	12	3	4	1	22
2010										2	2	3	5	1	2		15
2011												1		2	5	3	11
2012	2					2					5	8	5	5	2	1	26
2013	1					1						2	4	4			10
2014										2		1	5	2	9	10	29
Mean	0.4					0.3			0.5	0.5	1.6	4.8	5.4	3.4	4.1	2.2	22.1

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		1	1						1		5			1			7
2006								2	33								35
2007															1		1
2008				2	1	1		2					7	8			21
2009	2		2	2									1				3
2010					1			6				10		1	1		19
2011	1		1	1												1	2
2012		1	1			1							19	6	1		27
2013		1	1							1					8		15
2014	4	2	6	4							5					1	10
Mean	1.2	0.6	1.3	0.9	0.2	0.2		1.0	3.4	0.1	1.0	1.0	3.3	1.6	1.1	0.2	14.0

Common Grackle is one of the most abundant species at MBO from late March through end of October. Spring numbers typically build to a strong peak between weeks 6 and 8. Fall is more variable, with the peak as early as week 4, and as late as week 12. Fall numbers are higher in the first half of the season than Red-winged Blackbird, while the overall peak also comes sooner, in week 10. Spring numbers have been fairly consistent outside of an exceptionally high total in 2006, but fall counts vary substantially from an extreme low in 2011 to highs roughly 25 times greater in both 2005 and 2012. Although a regular breeding bird at MBO, only modest numbers have been banded. Winter records are of late fall or early spring migrants.

BHCO: Brown-headed Cowbird / Vacher à tête brune (*Molothrus ater*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 9	Jun 3	60	56 (95%)	12	263	Aug 1	Sep 27	Oct 29	90	16 (18%)	19	62
2006	Apr 2	Apr 24	Jun 5	65	63 (91%)	41	505	Aug 24	Sep 28	Oct 24	62	12 (13%)	42	80
2007	Mar 28	May 14	Jun 5	70	49 (70%)	16	204	Aug 2	Oct 22	Oct 24	84	8 (9%)	5	21
2008	Apr 11	Apr 26	Jun 5	56	52 (74%)	14	180	Aug 1	Oct 18	Oct 18	79	4 (4%)	3	7
2009	Mar 30	Apr 3	Jun 5	68	62 (90%)	14	316	Aug 2	Oct 17	Oct 19	79	8 (9%)	3	11
2010	Mar 28	Mar 28	Jun 5	70	64 (91%)	12	187	Aug 30	Sep 26	Oct 20	52	7 (8%)	24	44
2011	Apr 10	Apr 27	Jun 5	57	51 (73%)	20	272	Aug 3	Aug 3	Oct 5	64	6 (7%)	4	10
2012	Mar 28	Apr 22	Jun 4	69	54 (77%)	20	185	Aug 3	Oct 7	Oct 26	85	9 (10%)	4	14
2013	Mar 31	May 29	Jun 5	67	50 (71%)	5	114	Aug 3	Sep 25	Oct 10	69	7 (8%)	11	21
2014	Apr 6	Apr 22	Jun 2	58	50 (74%)	7	155	Aug 5	Sep 29	Oct 25	82	3 (3%)	2	5
Mean	Apr 2	Apr 23	Jun 4	64	55 (80%)	16	238	Aug 7	Sep 29	Oct 20	75	8 (9%)	12	28

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								4.7	4.9	5.3	4.7	5.3	3.1	3.4	4.6	4.2	4.5
2006	0.07					0.02	0.9	7.0	11.1	13.4	9.7	12.6	6.9	4.9	3.9	2.9	7.3
2007							1.3	1.0	0.4	3.6	0.9	5.1	7.6	3.1	3.6	2.6	2.9
2008									2.3	2.6	5.9	3.0	4.6	3.1	2.9	1.4	2.6
2009							2.4	2.8	3.1	6.0	7.1	5.3	6.3	5.7	3.6	3.1	4.6
2010					0.8	0.2	3.1	2.3	1.3	5.3	3.4	2.9	3.0	1.9	2.0	1.6	2.7
2011								0.1	2.1	3.1	8.3	10.4	4.7	4.3	3.6	2.1	3.9
2012					1.0	0.2	1.4	0.4	4.3	5.9	3.7	3.3	2.6	2.1	2.0	0.7	2.6
2013							0.4	0.7	1.0	2.6	2.4	2.1	1.9	0.9	2.1	2.1	1.6
2014								1.0	0.6	4.3	4.4	2.6	2.4	3.3	2.0	1.8	2.3
Mean	0.01				0.2	0.04	1.1	1.9	3.1	5.2	5.1	5.3	4.3	3.3	3.0	2.2	3.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.5	1.8	2.1	1.4	0.3	0.1		0.1			2.1	4.3	0.2	0.2	0.4	0.3	0.7
2006	2.2	0.8	1.5				0.9	0.3			0.1	8.0	0.4	0.1	1.1	0.4	0.9
2007	1.0	1.2	1.1	0.4	0.1						1.0		0.1	0.4	0.7	0.1	0.2
2008	0.2	1.2	0.7	0.3					0.3						0.4		0.08
2009	0.7		0.3	0.1	0.1	0.1			0.1	0.3				0.1	0.6		0.1
2010								0.1				5.3	0.3		0.6		0.5
2011	0.3	1.0	0.7	0.6		0.1	0.3	0.1					0.3				0.1
2012	0.3	0.3	0.2	0.1	0.1	0.1					0.1	0.4	0.7		0.1	0.1	0.2
2013	1.0	0.5	0.7	0.3		0.4				0.3	1.6	0.1		0.3			0.2
2014	0.3		0.1	0.1								0.3				0.3	0.05
Mean	1.4	0.9	1.1	0.3	0.07	0.1	0.1	0.07	0.04	0.06	0.5	1.8	0.2	0.1	0.4	0.1	0.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											1	2					3
2006									2			3	2				7
2007												1	1		2	1	5
2008													5	1			6
2009											1	2	1	1			5
2010					1	1					1		2			1	4
2011											3				1		4
2012														1			1
2013													1				1
2014												1	1				2
Mean					0.1	0.1			1.0		0.6	0.9	1.3	0.3	0.3	0.2	3.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011					1												1
2012		1	1														
2013		1	1														
2014																	
Mean		0.2	0.2		0.1												0.1

Brown-headed Cowbird is a fairly common spring migrant and breeder at MBO, and an uncommon fall migrant. Spring migration begins as early as the first day of the season (or even in late winter in 2010 and 2012), and usually peaks between weeks 4 and 6. Summer observations have been recorded each year except 2010. Fall sightings are scattered throughout the season, although somewhat more frequently over the final six weeks of the season. Over 90% of birds banded have been in spring. Both spring and fall numbers have declined somewhat over time.

BAOR: Baltimore Oriole / Oriole de Baltimore (*Icterus galbula*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	May 10	May 25	Jun 3	25	25 (42%)	10	152	Aug 1	Aug 17	Sep 14	45	37 (42%)	12	148
2006	May 5	May 25	Jun 5	32	32 (46%)	15	222	Aug 1	Aug 16	Sep 22	53	39 (43%)	27	352
2007	May 9	May 11	Jun 5	28	27 (39%)	17	201	Aug 1	Aug 5	Oct 8	69	32 (35%)	23	131
2008	May 5	May 15	Jun 5	32	32 (46%)	14	221	Aug 1	Aug 1	Sep 20	51	37 (41%)	12	171
2009	May 2	May 18	Jun 5	35	33 (48%)	12	198	Aug 1	Aug 20	Sep 6	37	29 (32%)	8	117
2010	May 3	May 22	Jun 5	34	34 (49%)	10	221	Aug 1	Aug 21	Sep 11	42	32 (35%)	15	137
2011	May 7	May 13	Jun 5	30	30 (43%)	20	239	Aug 1	Aug 24	Sep 2	33	30 (33%)	12	131
2012	May 5	May 10	Jun 5	32	32 (46%)	30	325	Aug 1	Aug 15	Sep 17	48	32 (35%)	13	187
2013	May 10	May 16	Jun 5	27	27 (39%)	18	243	Aug 1	Aug 17	Sep 20	51	33 (36%)	12	163
2014	May 9	May 16	Jun 4	27	27 (40%)	15	244	Aug 1	Aug 7	Sep 16	47	35 (38%)	6	107
Mean	May 6	May 17	Jun 4	30	30 (44%)	16	227	Aug 1	Aug 14	Sep 16	48	34 (37%)	14	164

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													3.1	5.6	7.6	7.6	2.6
2006												0.7	5.4	8.7	10.3	6.6	3.2
2007													7.1	7.9	9.3	4.4	2.9
2008												1.7	6.9	10.3	7.6	5.1	3.2
2009												1.1	8.0	8.6	5.6	5.0	2.9
2010												2.6	6.7	7.6	7.9	6.9	3.2
2011												0.4	6.1	11.4	9.4	6.7	3.4
2012												5.6	17.9	9.7	7.7	5.6	4.6
2013													5.1	14.7	7.6	7.3	3.5
2014													9.6	12.0	8.0	6.2	3.6
Mean												1.2	7.6	9.6	8.1	6.1	3.3

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	3.4	1.8	2.6	3.3	3.4	4.4	5.9	2.9	1.0	0.3							1.7
2006	4.5	3.8	4.1	9.7	16.1	10.7	9.3	3.3	0.9	0.1	0.1						3.9
2007	5.6	1.5	3.7	7.7	5.4	2.3	2.4	0.4	0.3			0.1					1.4
2008	5.4	1.2	3.3	6.3	5.1	6.0	4.0	2.4	0.1	0.1	0.3						1.9
2009	2.7	2.3	2.4	3.3	4.1	4.9	3.7	0.6	0.1								1.3
2010	2.0	1.2	1.4	2.9	4.0	5.7	1.9	4.0	1.1								1.5
2011	3.0	2.8	2.9	3.4	4.9	4.9	4.4	1.1									1.4
2012	1.8	1.5	1.6	4.3	7.3	8.3	6.3	0.4		0.1							2.1
2013	3.7	2.5	3.0	2.1	1.9	8.1	7.0	3.1	0.4	0.4	0.1						1.8
2014	3.7	3.8	3.7	2.0	4.3	2.6	3.6	2.6	0.1	0.1							1.2
Mean	3.8	2.3	3.0	4.5	5.7	5.8	4.8	2.1	0.4	0.1	0.06		0.01				1.8

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005													3	3	6	2	14
2006													3	6	2		11
2007													8	3	7		18
2008												1	5	7	1		14
2009													7	6	2		15
2010													3	5	6	2	16
2011														7			7
2012												1	6	1		1	9
2013													1	4		2	7
2014													11	6	1	1	19
Mean												0.2	4.7	4.8	2.5	0.8	13.0

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					6	7	13	5									31
2006		1	1	14	25	18	4	1									62
2007				17	1												18
2008				16	14	9	5	4									48
2009		7	7	7	3	1	1										12
2010	2	4	6	7	3	1	2	2									15
2011	4	5	9	8	5	1	2										16
2012		1	1	8	11	1	3										23
2013		3	3	1		10	10	4									25
2014		4	4	4	2		1										7
Mean	1.0	2.8	3.4	8.2	7.0	4.8	4.1	1.6									25.7

Baltimore Oriole arrives within the first ten days of May each year, and is then seen daily through the end of August. The spring peak has gotten earlier over time, advancing from weeks 9 or 10 in the first three years to week 8 in most years since. Fall numbers typically peak in the middle two weeks of August and taper off by mid-September, aside from one exceptional record in early October. However, the number banded in fall peaks in the first week of August, perhaps suggesting a higher capture rate for the offspring of local breeders. The number observed in spring has increased slightly over time, while fall has declined a bit, although the change is more apparent in the banding totals than observations.

PIGR: Pine Grosbeak / Durbec des sapins (*Pinicola enucleator*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 28	Oct 28	Oct 28	1	1 (1%)	1	1
2006														
2007								Oct 29	Oct 29	Oct 29	1	1 (1%)	2	2
2008														
2009														
2010														
2011														
2012														
2013														
2014														
Mean								Oct 28	Oct 28	Oct 28	1	1 (1%)	2	0.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005				1.3		0.4											
2006																	
2007																	
2008																	
2009	0.3			2.2		0.6											
2010																	
2011																	
2012																	
2013	0.1	0.1	0.1			0.08											
2014																	
Mean	0.03	0.02	0.03	0.4		0.08											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																0.1	0.01
2006																	
2007																0.3	0.02
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean																0.04	<0.01

Pine Grosbeak is a rare species at MBO, with only two observations just before the end of fall, plus a few observations scattered over three other winter seasons. None have been banded.

HOFI: House Finch / Roselin familier (*Haemorhous mexicanus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 1	Jun 2	59	12 (20%)	3	16	Aug 11	Oct 30	Oct 30	81	16 (18%)	12	53
2006	Apr 2	Apr 2	May 1	30	4 (6%)	1	4	Aug 7	Aug 7	Sep 28	53	3 (3%)	1	3
2007	Apr 24	May 26	Jun 1	39	4 (6%)	4	9	Aug 3	Aug 3	Oct 29	88	8 (9%)	3	17
2008	Apr 17	Apr 21	Apr 23	7	4 (6%)	2	5	Aug 31	Oct 10	Oct 23	54	9 (10%)	9	23
2009	May 12	May 12	Jun 1	21	3 (4%)	1	3	Aug 5	Sep 19	Oct 21	78	8 (9%)	2	9
2010	Apr 8	Apr 18	May 11	34	5 (7%)	6	12	Aug 6	Oct 30	Oct 30	86	27 (30%)	37	139
2011	May 10	May 10	May 18	9	2 (3%)	1	2	Sep 3	Oct 29	Oct 30	58	11 (12%)	5	22
2012	Apr 3	May 2	May 12	40	6 (9%)	5	10	Aug 8	Oct 25	Oct 30	84	43 (47%)	12	109
2013	Mar 28	Apr 2	Apr 29	33	10 (14%)	3	18	Aug 3	Oct 25	Oct 30	89	34 (37%)	10	80
2014	Mar 29	Mar 29	Apr 5	8	2 (3%)	1	2	Aug 1	Oct 17	Oct 30	91	65 (71%)	15	226
Mean	Apr 13	Apr 24	May 10	28	5 (8%)	3	8.1	Aug 10	Oct 4	Oct 25	76	22 (25%)	11	68

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	14.0	6.0		2.3	3.0	6.4		0.5	0.3	0.3	0.9				0.3	0.2	0.3
2006	4.4	4.3	1.0	0.4	0.4	2.2	0.1			0.3	0.1						0.06
2007	4.9	2.7	12.7	13.5	8.4	7.4				0.1	0.4				0.6	0.1	0.1
2008									0.1	0.6							0.07
2009	0.9	22.5	3.3	2.0	2.7	3.3							0.3			0.1	0.04
2010	6.5	6.1	0.09	1.7	0.8	3.2		0.1	0.6	0.9			0.1				0.2
2011	31.7			0.2		8.6							0.1	0.1			0.03
2012	8.3	13.3	10.7	0.3		6.8	0.1	0.3			0.1	0.7	0.1				0.1
2013	16.4	14.9	18.3	22.6	10.3	15.6	1.3		0.3	0.4	0.6						0.3
2014	13.6	6.3	3.7	6.9	9.4	7.6	0.2	0.1									0.03
Mean	9.1	6.9	5.6	4.3	3.9	6.1	0.2	0.1	0.1	0.3	0.2	0.07	0.07	0.01	0.09	0.04	0.1

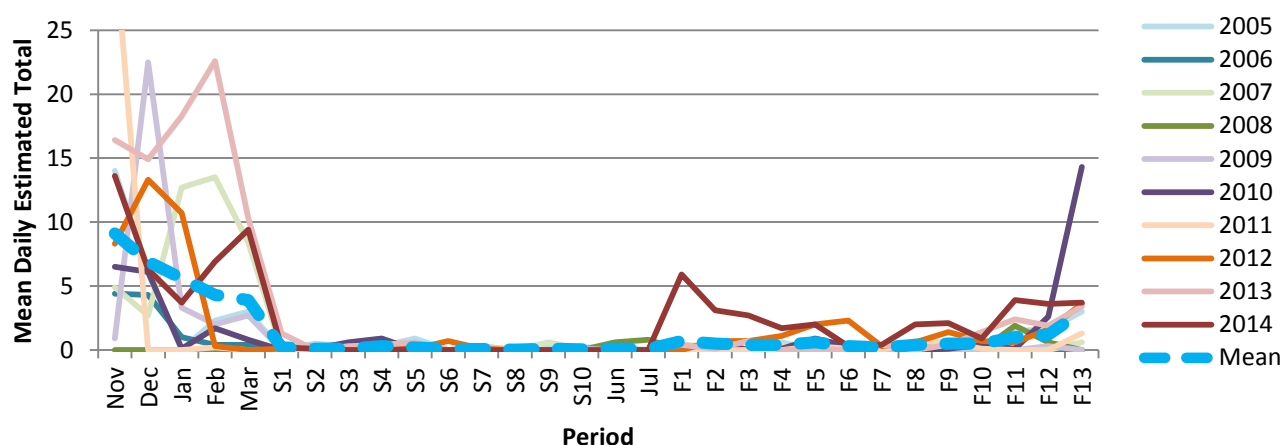
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	0.2		0.09		0.3		0.6			0.3	0.1	0.2	0.3	1.5	1.6	3.0	0.6
2006				0.1						0.1		0.1					0.03
2007	0.1		0.08	0.4	0.3	0.1	0.3						0.7			0.6	0.2
2008	0.6	0.8	0.7					0.4			0.4			1.9	0.6		0.3
2009				0.1		0.1		0.1	0.1		0.3	0.1			0.3		0.10
2010				0.1	0.6		0.1	0.9	0.3	0.3		0.1	0.4	0.1	2.6	14.3	1.5
2011								0.3	0.1		0.7	0.6	0.1			1.3	0.2
2012					0.7	0.7	1.1	2.0	2.3	0.3	0.6	1.4	0.7	0.6	1.6	3.6	1.2
2013				0.4	0.1	0.7		0.1		0.4		0.4	1.4	2.4	1.9	3.4	0.9
2014				5.9	3.1	2.7	1.7	2.0	0.3	0.4	2.0	2.1	0.9	3.9	3.6	3.7	2.5
Mean	0.1	0.06	0.09	0.7	0.5	0.4	0.4	0.6	0.3	0.2	0.4	0.5	0.5	1.0	1.2	3.0	0.8

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	52	5		1		58											
2006	4		1			5											
2007	16	5				21											
2008																	
2009																	
2010	31	1				32											
2011	61					61											
2012	65	4				69											
2013	57	31		1	6	95											
2014	29	3				32											
Mean	39.4	7.0	0.3	0.3	0.8	41.4											

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																2	2
2006										1		1					2
2007																	
2008																	
2009																	
2010				1										1	3	2	7
2011																	
2012					2	2	1	2									7
2013				1													1
2014				5													5
Mean				0.7	0.2	0.2	0.1	0.2		0.1		0.1		0.1	0.3	0.4	2.4

House Finch has been observed at MBO throughout the year, but ranges from rare in summer to very common in winter, with somewhat irregular occurrence during both spring and fall. Although winter numbers are inflated by attraction to the feeders, they tend to build in late fall even before the feeders have been installed, and then peak in November, dropping off steadily for the remainder of winter. Once the feeders are removed at the end of winter, sightings fall much farther, with only one week in spring ever reaching the threshold of a mean daily count over one individual. Fall observations are scattered throughout the season, and only in 2014 occurred in every week. Most have been banded in winter, with none at all in spring or summer.

Mean daily estimated total of House Finches throughout the year



The figure above illustrates that House Finch is distinctly more abundant in winter, a rarity among birds at MBO. Recognizing this, a special research program was launched in November 2011 to explore the local movements of House Finches. Over the winter of 2011-12, 69 House Finches were marked with colour bands (for visual identification without recapture), plus another 30 in October-November 2012. Interactive reporting forms in both English and French were developed for the MBO website to facilitate reports of sightings: <http://www.migrationresearch.org/mbo/report-a-bird.html>. The website and the project were promoted through social media, listservs, local media, and to birding clubs in and around Montreal.

Of the 99 individuals with colour bands, 47 individuals (47%) were resighted 142 times; in contrast, only 21 (12%) of the 171 House Finches banded during the same period were captured at MBO. All but two of the colour-banded birds were hatch-year individuals, therefore no comparison by age was possible. However, the sex ratio was more balanced, and there was little difference in frequency of resightings, with 25 of 50 males (50%) and 22 of 49 females reported.

The majority of sightings of colour-banded House Finches (56%) came from two backyards in Senneville, within 3 km of MBO, while most of the rest (41%) were at MBO itself. In December 2012, the first few reports arrived from Beaconsfield and Ste-Anne-de-Bellevue, both also within 5 km of the study site. Two of the birds banded at MBO were reported elsewhere before being seen again at MBO, suggesting that House Finches may move around considerably within a larger winter territory.



Resightings were most frequent during the first winter of the study (111 of 142; 78%). Only 23 observations (involving 11 individual House Finches) were reported in 2013 and 2014, with all but two of them at MBO; this may represent a mix of natural mortality and possibly dispersal to other locations where the birds were either not seen, or that observers were unaware of where to report sightings. However, 8 individuals with colour bands from the winter of 2011-2012 were observed back at MBO the following winter, even though only one individual (without an auxiliary marker) was recaptured, which highlighted the value of the colour bands in tracking the occurrence of individuals in this species. Whereas the recapture rate of 12% implies low winter site fidelity, the resightings indicate that more House Finches linger in the area (or periodically return) than previously thought. However, half of the colour-banded individuals were not seen again, either at MBO or at nearby feeders, suggesting that some House Finches also appear to be moving through MBO as migrants or winter nomads, similar to the behaviour shown by other finch species.

PUFI: Purple Finch / Roselin pourpré (*Haemorrhous purpureus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 10	Apr 30	May 27	48	10 (17%)	2	12	Aug 13	Oct 4	Oct 30	79	17 (19%)	3	26
2006	Apr 30	May 6	Jun 5	37	14 (20%)	2	16							
2007	Apr 3	Apr 9	May 20	48	11 (16%)	2	13	Aug 4	Sep 5	Oct 23	81	29 (32%)	5	56
2008	Apr 20	May 2	May 27	38	18 (26%)	3	25	Aug 20	Sep 25	Oct 27	69	17 (19%)	3	25
2009	Apr 18	Apr 30	May 19	32	11 (16%)	3	16	Aug 8	Aug 19	Oct 28	82	12 (13%)	2	14
2010	Mar 31	Apr 13	May 21	52	16 (23%)	3	24	Aug 24	Oct 2	Oct 30	68	12 (13%)	3	17
2011	May 6	May 6	May 13	8	4 (6%)	1	4	Sep 17	Sep 17	Oct 30	44	4 (4%)	1	4
2012	Apr 12	Apr 24	May 24	43	22 (31%)	4	35	Aug 1	Oct 23	Oct 25	86	61 (67%)	10	197
2013	Apr 22	Apr 30	Jun 1	41	16 (23%)	4	24	Aug 1	Aug 5	Oct 23	84	15 (16%)	4	28
2014	Apr 7	Apr 19	Jun 1	56	31 (46%)	4	49	Aug 3	Oct 11	Oct 25	84	17 (19%)	5	34
Mean	Apr 15	Apr 25	May 25	40	15 (22%)	3	22	Aug 13	Sep 18	Oct 26	75	20 (23%)	4	40

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005								0.2		0.2	0.7	0.3		0.3	0.1		0.2
2006											0.1	0.9	0.7	0.1	0.3	0.1	0.2
2007							0.1	0.6	0.1	0.3	0.1		0.1	0.4			0.2
2008										0.3	0.6	1.7	0.6	0.1	0.3		0.4
2009		4.5				0.2				0.4	0.7	0.7	0.3	0.1			0.2
2010	0.2				0.08	0.06	0.1	0.1	1.7	0.3	0.4	0.1		0.6			0.3
2011	0.2					0.05						0.1	0.4				0.06
2012	0.6	0.8				0.4			0.3	0.6	1.1	1.1	0.9	0.7	0.3		0.5
2013				0.2	0.3	0.1				0.6	1.1	1.1		0.3		0.3	0.3
2014								0.1	0.6	0.9	1.0	0.1	0.9	2.0	1.3	0.2	0.7
Mean	0.1	0.2		0.01	0.06	0.08	0.03	0.1	0.3	0.3	0.6	0.6	0.4	0.5	0.2	0.06	0.3

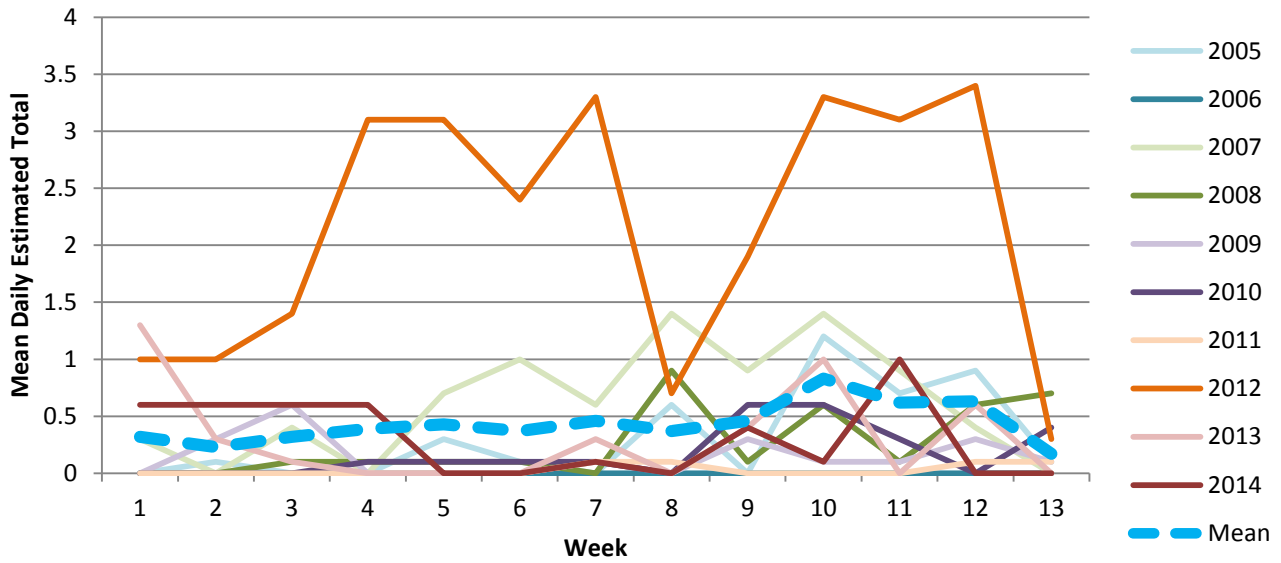
Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005					0.1			0.3	0.1		0.6		1.2	0.7	0.9	0.1	0.3
2006																	
2007				0.3		0.4		0.7	1.0	0.6	1.4	0.9	1.4	0.9	0.4		0.6
2008					0.1	0.1	0.1	0.1			0.9	0.1	0.6	0.1	0.6	0.7	0.3
2009					0.3	0.6				0.1		0.3	0.1	0.1	0.3	0.1	0.2
2010		0.2	0.1				0.1	0.1	0.1	0.1		0.6	0.6	0.3		0.4	0.2
2011										0.1	0.1				0.1	0.1	0.04
2012		0.3	0.1	1.0	1.0	1.4	3.1	3.1	2.4	3.3	0.7	1.9	3.3	3.1	3.4	0.3	2.2
2013				1.3	0.3	0.1				0.3		0.4	1.0		0.6		0.3
2014	0.3	0.3	0.3	0.6	0.6	0.6	0.6			0.1		0.4	0.1	1.0		0.9	0.4
Mean	0.02	0.05	0.03	0.3	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.8	0.6	0.6	0.3	0.4

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005											3			2			5
2006												1	2				3
2007														1			1
2008																	
2009												3					3
2010	1					1											
2011	1					1											
2012	3	3				6			3				2	2	1		8
2013					1	1					2						2
2014													2	4			6
Mean	0.6	0.4			0.1	1.0				0.3	0.5	0.4	0.6	0.9	0.1		2.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005											1		2				3
2006																	
2007								2	1			2	3	3			11
2008								1			1		2			3	7
2009					1					1		1	1	1			5
2010												3				1	4
2011																	
2012		1	1	3			2	9	2	9	1	2	4	10	2		44
2013				4													4
2014				3	1		2			1							7
Mean		0.1	0.1	1.0	0.2		0.4	1.2	0.3	1.1	0.3	0.8	1.2	1.4	0.2	0.4	8.5

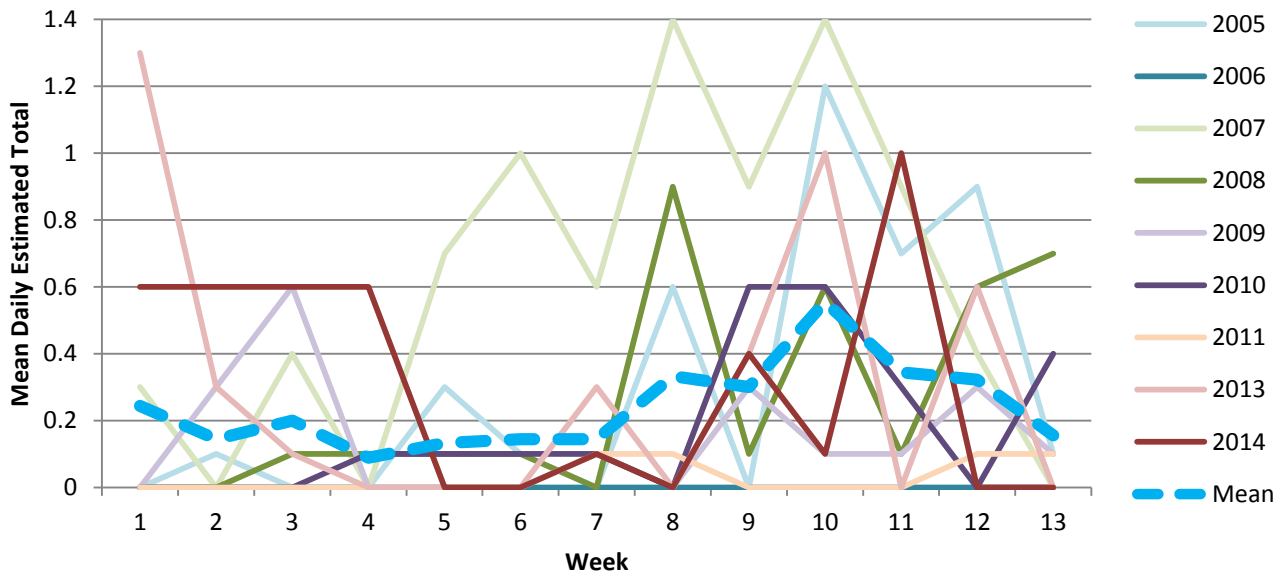
Purple Finch is an uncommon and irregular species at MBO in all seasons. Spring sightings have spanned all ten weeks of spring, and individual season peaks have been as early as week 2 or late as week 8, but the overall peak is in weeks 5 and 6. Sightings are least frequent in summer, but there has been evidence of breeding annually since 2012. Fall sightings have also been highly variable, with the peak in individual years ranging from week 1 to 12, but on the whole numbers tend to be a bit higher between weeks 10 and 12. Winter observations were all in a five-year block from 2009 to 2013. Overall, spring and fall numbers have remained fairly consistent over time, except for lows in spring and fall 2011, and highs in spring and fall 2012 and spring 2014.

Mean daily estimated total of Purple Finches in fall, by week



The figure above highlights the exceptional abundance of Purple Finches in fall 2012, with two waves of migrants moving through MBO in unprecedented numbers, one spanning late August to mid-September, and another from end of September to past mid-October. The figure below, with 2012 omitted, shows that there is a fair amount of variability among other years, but a fairly distinct overall peak in week 10.

Mean daily estimated total of Purple Finches in fall, by week (2012 omitted)



WWCR: White-winged Crossbill / Bec-croisé bifascié (*Loxia leucoptera*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005														
2006														
2007								Oct 9	Oct 9	Oct 9	1	1 (1%)	2	2
2008								Aug 26	Oct 22	Oct 29	65	3 (3%)	17	20
2009														
2010														
2011								Oct 28	Oct 28	Oct 28	1	1 (1%)	2	2
2012								Aug 23	Oct 23	Oct 29	68	6 (7%)	6	17
2013														
2014								Oct 24	Oct 24	Oct 24	1	1 (1%)	1	1
Mean								Sep 27	Oct 21	Oct 23	27	2 (3%)	6	4.2

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009			0.5	0.2	0.1	0.2											
2010																	
2011	0.3					0.08											
2012																	
2013	0.5					0.08											
2014																	
Mean	0.07		0.03	0.03	0.02	0.03											

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007													0.3				0.02
2008							0.1								2.4	0.3	0.2
2009																	
2010																	
2011																0.3	0.02
2012							0.1					0.1		0.9	1.3		0.2
2013																	
2014																0.1	0.01
Mean							0.03					0.04		0.3	0.2		0.05

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013	1					1											
2014																	
Mean	0.1					0.1											

White-winged Crossbill is a rare fall and winter bird at MBO. Except for two records in late August in 2008 and 2012, all other fall sightings have been in October, spread across five years, and usually in the final two weeks of the season. In 2011, fall observations carried over into early November; there were also November sightings in 2013 when none were seen during fall. The only time that White-winged Crossbills were observed over a long period was spanning January to March 2009. Just one individual has been banded in early winter 2013.

CORE: Common Redpoll / Sizerin flammé (*Acanthis flammea*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 27	Oct 27	Oct 27	1	1 (1%)	4	4
2006														
2007								Oct 29	Oct 29	Oct 29	1	1 (1%)	3	3
2008	Apr 10	Apr 10	Apr 17	8	2 (3%)	4	5							
2009	Apr 17	Apr 17	Apr 17	1	1 (1%)	1	1							
2010								Oct 22	Oct 22	Oct 22	1	1 (1%)	3	3
2011	Mar 28	Mar 29	Apr 25	29	4 (6%)	45	97	Oct 30	Oct 30	Oct 30	1	1 (1%)	3	3
2012								Oct 28	Oct 28	Oct 28	1	1 (1%)	3	3
2013	Mar 28	Mar 28	Apr 13	17	11 (16%)	50	191	Oct 25	Oct 25	Oct 25	1	1 (1%)	18	18
2014								Oct 26	Oct 30	Oct 30	5	3 (3%)	2	4
Mean	Apr 5	Apr 5	Apr 18	14	4 (6%)	25	29	Oct 26	Oct 27	Oct 27	2	1 (1%)	5	3.8

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	1.3				1.3	0.7											
2006		2.8	8.5	2.7	14.9	5.6											
2007																	
2008	4.8			3.6		2.6		0.6	0.1								0.07
2009	1.0		15.8	25.9	29.4	20.1			0.1								0.01
2010																	
2011	0.8		2.0	64.3	61.1	24.5	10.7	2.9			0.3						1.4
2012																	
2013	0.5	13.3	42.0	43.0	44.6	31.8	23.3	2.4	1.6								2.7
2014																	
Mean	0.6	2.5	10.5	12.5	20.4	9.3	3.8	0.6	0.2		0.03						0.4

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																0.6	0.05
2006																	
2007																0.4	0.03
2008																	
2009																	
2010															0.4		0.03
2011																0.4	0.03
2012																0.4	0.03
2013																2.6	0.2
2014																0.6	0.04
Mean															0.04	0.5	0.04

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005					1	1											
2006			26		14	40											
2007																	
2008																	
2009					21	21											
2010																	
2011	1			2	50	53											
2012																	
2013	3	23		87	227	340											
2014																	
Mean	0.5	3.3	8.7	14.8	39.1	50.6											

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008																	
2009																	
2010																	
2011																	
2012																3	3
2013																	
2014																	
Mean																0.3	0.3

Common Redpoll is widely known to be an irruptive migrant, with large number overwintering in southern Canada every two to three years. This pattern is reflected well by MBO's winter results with particularly high numbers in winters 2009, 2011, and 2013, and more modest ones also in 2006 and 2008. Even in peak winters, numbers only started building significantly in December or January, building to a peak in March. Nonetheless, small numbers have been observed in the final nine days of fall in seven out of ten years. Sightings have extended into spring after four of the five big winter movements. More Common Redpolls have been banded in winter than any other species except American Goldfinch.

HORE: Hoary Redpoll / Sizerin blanchâtre (*Acanthis hornemanni*)

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006					0.2	0.03											
2007																	
2008																	
2009																	
2010																	
2011				0.2	0.3	0.08											
2012																	
2013			0.5	0.2	0.1	0.2											
2014																	
Mean			0.09	0.03	0.07	0.04											

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006					1	1											
2007																	
2008																	
2009																	
2010																	
2011					1	1											
2012																	
2013					1	1											
2014																	
Mean					0.4	0.3											

Hoary Redpoll is a rare winter visitor to MBO, with sightings in early 2006, 2011, and 2013, corresponding to three of the peak redpoll invasion years. In each of those years, a lone individual was banded; some of the sightings may have involved the same individuals lingering at the feeders for a period of time.

PISI: Pine Siskin / Tarin des pins (*Spinus pinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Oct 21	Oct 21	Oct 28	8	3 (3%)	8	10
2006	Apr 2	Apr 2	Apr 5	4	2 (3%)	3	5	Oct 10	Oct 10	Oct 10	1	1 (1%)	1	1
2007								Oct 17	Oct 28	Oct 28	12	4 (4%)	12	29
2008								Oct 13	Oct 13	Oct 27	15	9 (10%)	100	215
2009	Mar 31	Apr 19	May 22	53	30 (43%)	12	111							
2010								Oct 22	Oct 30	Oct 30	9	4 (4%)	16	29
2011	Mar 31	May 20	May 30	61	12 (17%)	6	26	Sep 23	Oct 3	Oct 30	38	18 (20%)	150	454
2012	Apr 25	May 5	May 5	11	3 (4%)	4	7	Aug 10	Sep 29	Oct 30	82	23 (25%)	60	152
2013	Apr 11	Apr 11	Jun 1	52	4 (6%)	5	11							
2014								Sep 23	Oct 24	Oct 30	38	30 (33%)	43	284
Mean	Apr 7	Apr 23	May 12	36	10 (15%)	6	16	Oct 2	Oct 16	Oct 26	25	12 (13%)	49	117

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	0.5					0.1											
2006				0.7	1.9	0.5	0.4	0.3									0.07
2007																	
2008																	
2009		0.5		13.4	5.7	5.6	0.7	1.7	1.0	5.7	2.7	3.3	0.6	0.4			1.6
2010	0.05					0.02											
2011	0.1					0.03	0.4			0.3				2.1	0.7	0.1	0.4
2012	1.3	0.5			0.6	0.7					0.1	0.9					0.1
2013	9.1	0.6	0.07	0.8		1.7			0.7	0.4						0.1	0.3
2014																	
Mean	0.9	0.1	0.01	1.9	1.3	0.9	0.2	0.2	0.2	0.7	0.3	0.4	0.06	0.3	0.09	0.04	0.2

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005															1.3	0.1	0.1
2006														0.1			0.01
2007															1.4	2.7	0.3
2008														21.0	4.6	5.1	2.4
2009																	
2010															1.6	2.6	0.3
2011										0.1	0.1	50.0	11.3		3.3	5.0	
2012					0.4			0.4				8.6	1.7	3.6	3.3	3.7	1.7
2013																	
2014											1.6	3.3	1.9	7.6	6.4	19.9	3.1
Mean					0.04			0.04			0.2	1.2	5.4	4.4	1.9	3.7	1.3

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006				7		7											
2007																	
2008																	
2009					3	3				1	1		1				3
2010																	
2011														2	1		3
2012																	
2013																	
2014																	
Mean				1.2	0.4	1.1				0.1	0.1		0.1	0.2	0.1		0.6

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005																	
2006																	
2007																	
2008														14			14
2009																	
2010																	
2011													1				1
2012																	
2013																	
2014																6	6
Mean													0.1	1.4		0.6	2.1

Pine Siskin is an irregular species at MBO, with sightings in all seasons except summer. Spring observations have occurred throughout the season, but were regular over an extended period only in 2009. Fall observations have been recorded in every year except 2009 and 2013, although in large numbers only in 2008, 2011, 2012, and 2014. From 2005 to 2010, all fall sightings were in the final three weeks of the season, but more recently there have been earlier observations, including a record large peak in week 10 of 2011. Winter sightings have occurred in all months, but were numerous only in February and March 2009 – an irruption that carried over into the following spring. Small numbers have been banded in all three seasons. A pair bred at MBO in May 2011.

AMGO: American Goldfinch / Chardonneret jaune (*Spinus tristis*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	Apr 28	Jun 3	60	59 (100%)	20	625	Aug 1	Sep 13	Oct 30	91	83 (94%)	50	1303
2006	Mar 28	May 10	Jun 5	70	68 (99%)	38	825	Aug 1	Sep 13	Oct 30	91	82 (90%)	100	1421
2007	Mar 28	May 13	Jun 5	70	66 (94%)	36	773	Aug 1	Sep 7	Oct 30	91	90 (99%)	50	1685
2008	Mar 29	May 30	Jun 5	69	61 (87%)	28	576	Aug 1	Sep 10	Oct 30	91	85 (93%)	31	1023
2009	Mar 28	May 25	Jun 5	70	65 (94%)	28	511	Aug 1	Sep 16	Oct 30	91	85 (93%)	43	1102
2010	Mar 28	May 5	Jun 5	70	69 (99%)	28	642	Aug 1	Sep 1	Oct 30	91	87 (96%)	52	1162
2011	Mar 28	May 25	Jun 5	70	54 (77%)	30	342	Aug 1	Sep 9	Oct 30	91	84 (92%)	38	887
2012	Mar 30	Apr 24	Jun 5	68	65 (93%)	27	642	Aug 1	Sep 12	Oct 30	91	84 (92%)	50	1572
2013	Mar 28	Jun 4	Jun 5	70	63 (90%)	15	387	Aug 1	Sep 3	Oct 30	91	86 (95%)	85	1850
2014	Mar 29	May 13	Jun 4	68	65 (96%)	30	509	Aug 1	Sep 1	Oct 30	91	88 (97%)	50	1482
Mean	Mar 29	May 14	Jun 4	68	64 (93%)	28	583	Aug 1	Sep 8	Oct 30	91	85 (94%)	55	1349

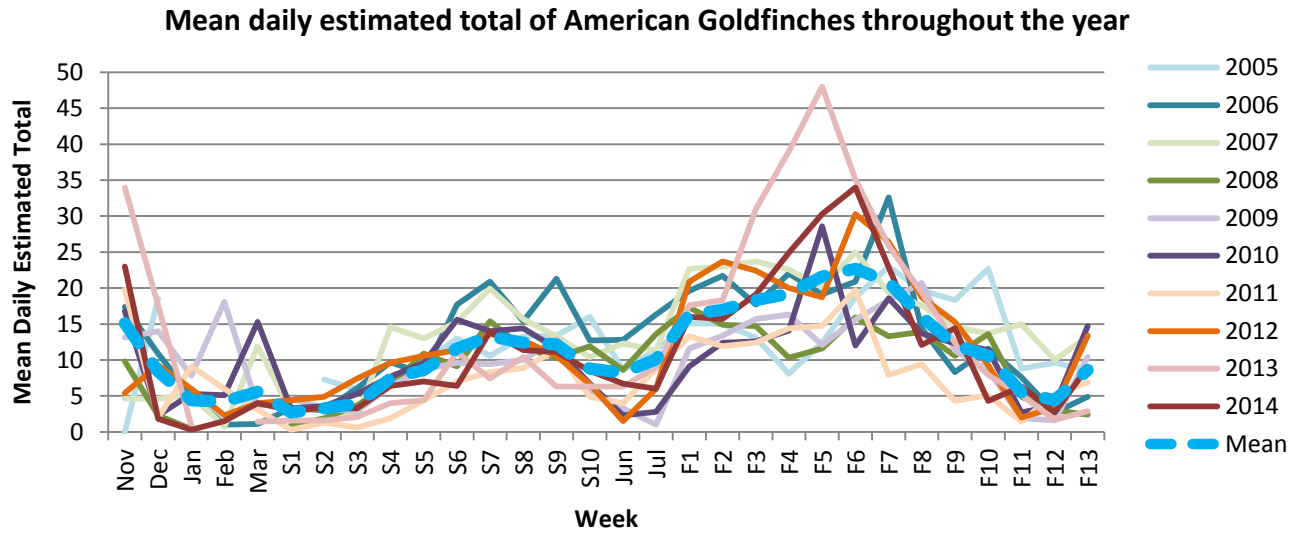
Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	21.8	18.5		1.5	5.0	10.7		7.3	5.9	6.7	9.7	13.0	10.6	13.3	13.4	16.0	10.6
2006	17.4	10.9	5.0	1.0	1.1	7.6	3.3	3.0	6.1	9.7	8.1	17.7	20.9	15.4	21.3	12.7	12.0
2007	4.6	4.6	5.2	0.7	11.9	5.6	2.9	3.3	2.1	14.6	13.0	15.3	19.9	15.7	13.3	10.4	11.0
2008	9.8	2.3	0.4			3.7	0.9	1.9	3.7	6.6	10.9	9.1	15.4	11.7	10.3	11.9	8.2
2009	13.1	14.0	7.8	18.1	3.5	9.9	4.6	3.3	2.9	6.4	8.7	9.6	9.4	10.0	12.9	5.7	7.4
2010	16.8	2.3	5.3	5.1	15.3	10.4	3.3	3.6	5.3	7.7	9.6	15.6	14.0	14.4	11.6	6.7	9.2
2011	19.8	2.0	9.1	6.0	3.1	10.0	0.3	1.3	0.6	1.9	4.4	7.0	8.3	8.9	11.4	4.9	4.9
2012	5.4	9.3	6.0	2.3	4.0	5.4	4.4	4.9	7.4	9.6	10.6	11.4	13.6	12.7	10.6	6.6	9.2
2013	34.0	17.6	0.9		1.4	8.9	1.6	1.6	2.1	4.0	4.4	11.1	7.4	10.4	6.3	6.3	5.5
2014	23.0	1.8	0.3	1.5	4.0	5.4	3.0	3.3	3.3	6.4	7.0	6.4	13.9	11.4	11.1	8.5	7.5
Mean	15.1	8.4	4.4	4.2	5.6	8.0	2.7	3.3	3.9	7.4	8.6	11.6	13.3	12.4	12.2	8.8	8.5

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	8.6	11.4	10.1	15.1	15.0	13.1	8.1	12.4	18.7	23.0	19.7	18.3	22.7	8.8	9.6	8.6	14.8
2006	12.8	16.3	14.7	19.6	21.7	17.7	22.0	19.1	20.9	32.6	14.4	8.3	11.6	7.6	2.7	4.9	15.6
2007	12.3	11.3	11.8	22.7	23.0	23.7	22.6	20.1	25.0	19.4	17.6	14.6	13.7	15.0	10.0	13.3	18.5
2008	8.6	13.6	11.1	17.3	14.9	14.7	10.3	11.6	15.9	13.3	13.9	10.6	13.6	4.9	3.0	2.4	11.2
2009	3.3	1.0	2.0	11.6	13.4	15.7	16.3	12.1	15.6	18.3	20.7	11.3	8.6	1.9	1.6	10.4	12.1
2010	2.3	2.8	2.7	9.1	12.4	12.6	14.1	28.6	12.0	18.6	13.7	12.3	11.4	2.7	3.7	14.7	12.8
2011	4.0	8.8	6.7	13.3	11.9	12.4	14.4	14.7	19.7	7.9	9.4	4.3	5.1	1.4	5.3	6.9	9.7
2012	1.5	6.0	3.8	20.9	23.7	22.4	20.0	18.7	30.3	26.4	18.7	15.3	9.3	2.0	3.4	13.4	17.3
2013	6.3	9.0	7.9	17.6	18.3	31.0	39.0	48.0	35.1	25.9	19.4	12.4	7.9	5.1	1.7	2.9	20.3
2014	6.7	6.0	6.3	16.0	15.7	19.1	24.9	30.3	34.0	22.9	12.1	14.4	4.3	6.3	2.7	9.0	16.3
Mean	8.2	10.1	9.2	16.3	17.0	18.3	19.2	21.6	22.7	20.8	16.0	12.1	10.6	5.5	4.4	8.6	14.9

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	72	21		2	18	113		5	1	4	12	16	7	34	20	12	111
2006	69	20	17	3	2	111			2	4	2	3	8	3	9	1	32
2007	2	5	6		8	21				4	1	6	18	11	8	3	51
2008										8	5	5	6	9	8		41
2009					2	2				2		4	8	13	18	2	47
2010	56	1	1	3	19	80				4	5	1	10	12	13		45
2011	93					93						2	2	5	7	1	17
2012	41	34		4	8	87				5	2	8	4	17	14	1	51
2013	146	77			5	228						1	1	3	3	1	9
2014	69	1				70				2	2	1	26	15	7	7	60
Mean	68.5	22.7	8.0	2.0	7.8	89.4		2.5	1.5	3.3	2.9	4.7	9.0	12.2	10.7	2.8	46.4

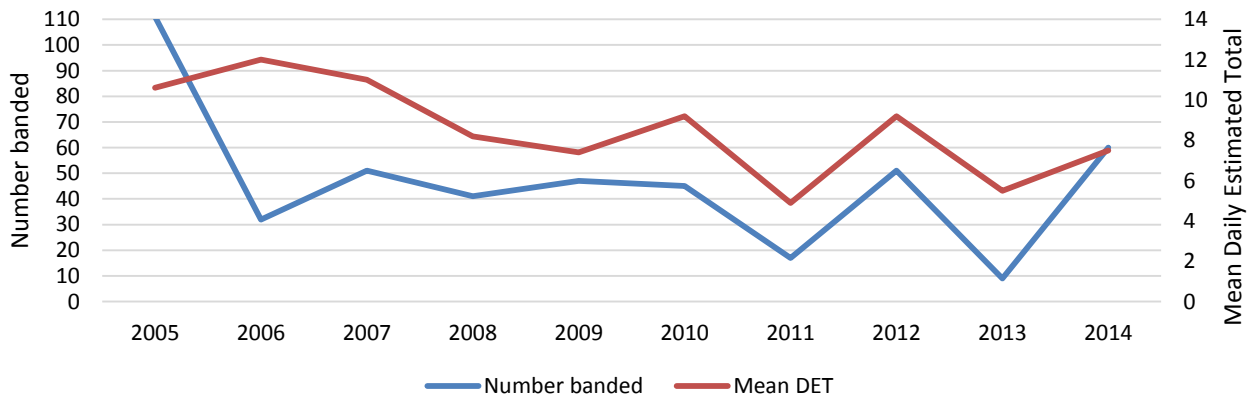
Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005						3		2	6	40	5		10	1	11	4	82
2006				1	2	3	7	3	3	14	1	2	4	2	1		43
2007				2	3	1		3	20	4	17	15	16	6	5	2	94
2008				2	2	2	2	1	11	7	4	12	10	1			54
2009		1	1	2		7	6	1	2	2	7	3	3		1	1	35
2010					1	2	1	4	2	17	13	14	5	4		22	85
2011	1		1			1	3	6	6					1			17
2012	2		2			2	5	3	13	12	1	1	3			8	48
2013	1	1	2	2	2	4	12	9	13	14	4	8		2			70
2014	8	5	13		4	1	3	8	44	11	1	12					84
Mean	2.0	0.8	2.1	0.9	1.4	2.6	3.9	4.0	12.0	12.1	5.3	6.7	5.1	1.7	1.8	3.7	61.2

American Goldfinch is among the most abundant birds at MBO in all seasons, but is particularly abundant in winter, with the 804 individuals banded accounting for more than one-quarter of birds of all species during that season. However, American Goldfinch has also been observed in all spring, summer, and fall periods. Despite being present throughout the year, there are regular peaks to migration in the second half of spring and middle of fall. Spring numbers have shown somewhat of a decline over time, whereas fall counts have fluctuated without showing any consistent pattern.

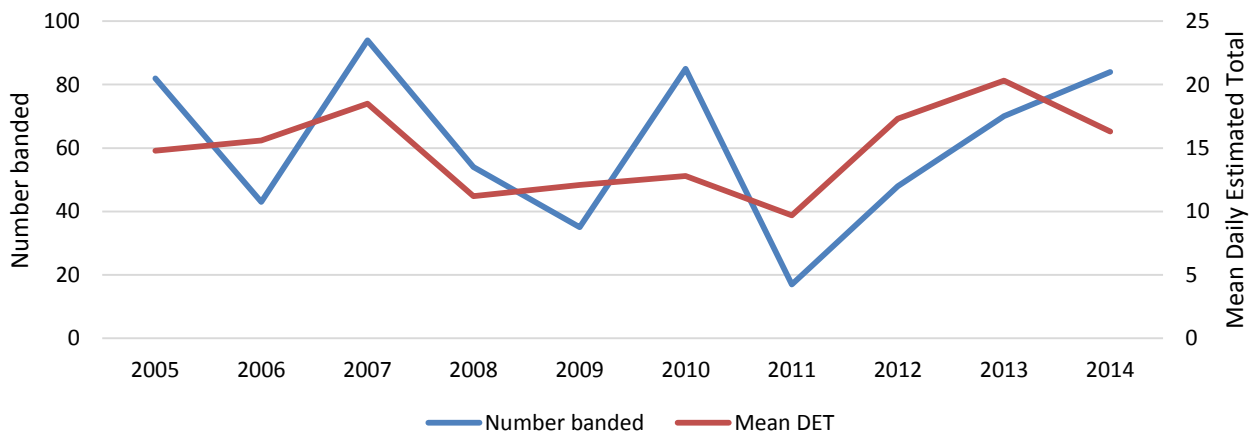


The figure above shows three overall peaks to American Goldfinch abundance annually, around mid-May, mid-September, and in November. The first figure below shows the slight decline over time in spring numbers, with the number banded and the daily estimated total correlating quite well, especially over the past five years. The second figure below shows that fall numbers have oscillated more, with little overall pattern, and the link between number banded and daily estimated total is somewhat less reliable.

Spring American Goldfinch numbers, 2005-2014



Fall American Goldfinch numbers, 2005-2014



EVGR: Evening Grosbeak / Gros-bec errant (*Coccothraustes vespertinus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005								Sep 28	Oct 8	Oct 19	22	4 (5%)	3	7
2006	Apr 16	Apr 18	Apr 18	3	2 (3%)	2	3							
2007								Oct 30	Oct 30	Oct 30	1	1 (1%)	3	3
2008	Apr 26	Apr 26	Apr 26	1	1 (1%)	2	2							
2009														
2010														
2011	Apr 15	Apr 15	Apr 15	1	1 (1%)	3	3							
2012								Oct 25	Oct 25	Oct 25	1	1 (1%)	12	12
2013	May 4	May 4	May 4	1	1 (1%)	1	1	Oct 25	Oct 25	Oct 25	1	1 (1%)	1	1
2014														
Mean	Apr 22	Apr 23	Apr 23	2	1 (2%)	2	0.9	Oct 19	Oct 22	Oct 24	6	2 (2%)	5	2.3

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005																	
2006									0.1	0.3							0.04
2007																	
2008											0.3						0.03
2009																	
2010																	
2011	0.7					0.2			0.4								0.04
2012																	
2013												0.1					0.01
2014																	
Mean	0.07					0.02			0.06	0.03	0.03	0.01					0.01

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005												0.5	0.5		0.1		0.08
2006																	
2007																0.4	0.03
2008																	
2009																	
2010																	
2011																	
2012																1.7	0.1
2013																0.1	0.01
2014																	
Mean												0.04	0.04		0.01	0.2	0.03

Evening Grosbeak is a rare and irregular spring and fall migrant at MBO, with one early winter sighting. Spring observations have occurred in four years, always between April 16 and May 4. Fall observations have also been recorded in four years; aside from earlier sightings in 2005, all more recent records have been in the final week of October. Evening Grosbeak is the only finch to have been observed at MBO but never banded.

HOSP: House Sparrow / Moineau domestique (*Passer domesticus*)

Observed	First	Peak	Last	Span	# days	High	Total	First	Peak	Last	Span	# days	High	Total
2005	Apr 5	May 5	Jun 3	60	50 (85%)	9	154	Aug 1	Oct 15	Oct 30	91	30 (34%)	15	144
2006	Mar 28	Apr 11	Jun 5	70	69 (100%)	15	498	Aug 28	Aug 28	Oct 14	48	7 (8%)	2	11
2007	Mar 28	May 8	Jun 4	69	46 (66%)	6	110	Aug 9	Aug 12	Oct 9	62	8 (9%)	2	10
2008	Apr 9	May 1	May 8	30	4 (6%)	2	5	Oct 12	Oct 17	Oct 24	13	5 (5%)	4	9
2009	May 17	May 17	May 17	1	1 (1%)	1	1	Oct 6	Oct 6	Oct 30	25	2 (2%)	4	5
2010														
2011														
2012								Oct 28	Oct 28	Oct 28	1	1 (1%)	1	1
2013														
2014														
Mean	Apr 11	May 2	May 26	46	34 (50%)	7	77	Sep 13	Sep 27	Oct 22	40	9 (10%)	5	18

Observed	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	1.5	0.5		1.3	2.0	1.4		4.3	3.0	4.2	1.9	4.3	1.9	0.7	1.0	2.8	2.6
2006	2.6	1.4	11.6	4.0	5.6	5.0	5.3	7.5	10.4	11.0	11.1	9.4	6.3	3.9	5.1	2.1	7.2
2007	3.2	0.6	1.0	0.5	2.9	2.1	0.9	0.9	1.1	0.9	0.3	3.4	2.6	1.7	3.1	0.9	1.6
2008								0.1		0.1	0.3	0.1					0.07
2009					0.07	0.03								0.1			0.01
2010					0.08	0.02											
2011				0.3	0.3	0.1											
2012																	
2013																	
2014																	
Mean	1.0	0.5	2.1	0.8	1.2	1.1	0.7	1.2	1.5	1.6	1.4	1.7	1.1	0.6	0.9	0.5	1.1

Observed	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005	2.1	1.4	1.8	0.7		0.3	0.9				0.4	0.7	0.7	4.8	4.7	8.3	1.6
2006	1.9	0.08	0.9				0.3	0.1			0.1		0.6	0.4			0.1
2007	0.4	0.2	0.3		0.6	0.1		0.3			0.1	0.1	0.1				0.1
2008	0.2		0.1											0.3	0.9	0.1	0.10
2009												0.6				0.1	0.05
2010																	
2011																	
2012																0.1	0.01
2013																	
2014																	
Mean	1.0	0.4	0.7	0.07	0.06	0.04	0.1	0.04			0.07	0.07	0.2	0.5	0.6	0.9	0.2

Banded	Nov	Dec	Jan	Feb	Mar	Winter	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Spring
2005	4			1	2	7						1				1	2
2006	1		7		3	11		1			3	1	1				6
2007	3	1			2	6											
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean	1.0	0.1	2.3	0.2	0.9	2.7		0.5			0.3	0.2	0.1			0.1	0.8

Banded	Jun	Jul	Summer	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	Fall
2005		1	1													2	2
2006	2		2											1			1
2007																	
2008																	
2009																	
2010																	
2011																	
2012																	
2013																	
2014																	
Mean	0.3	0.1	0.3											0.1		0.2	0.3

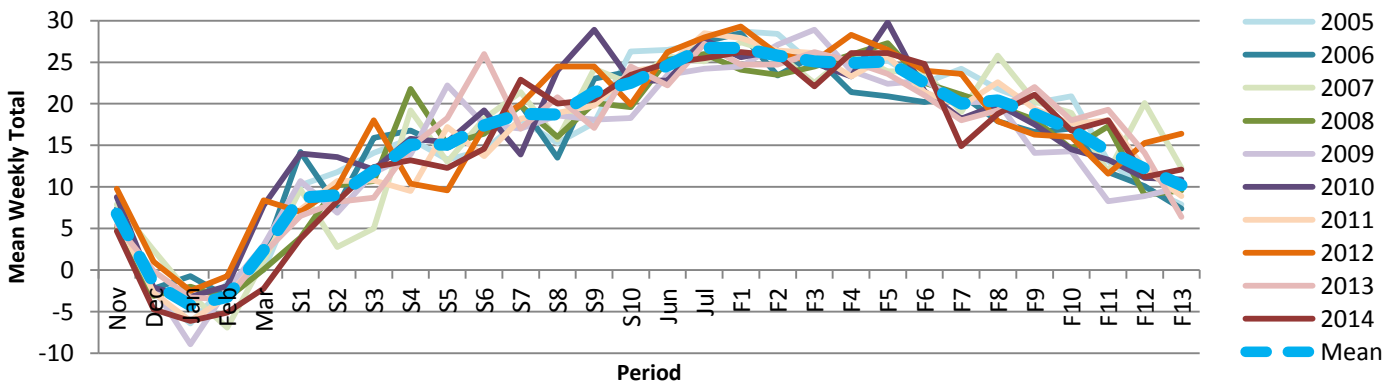
House Sparrow was a regular presence at MBO during the first three years of operation, with sightings particularly regular and numerous in winter and spring, though spotty over much of fall. Observations tailed off rapidly in 2009 and 2010, and even further in 2011 and 2012; there have been no sightings at all since the end of fall 2012. In the early years, House Sparrow was among the most frequently banded species in winter, and smaller numbers were also banded in spring and fall in both 2005 and 2006, as well as a few at nest boxes in summer 2005 and 2006.

Appendix E: Weather Summaries

Weather can have a significant effect on the operations of MBO in any season, and during spring and fall can also influence the timing and nature of migration. The tables below summarize archived Environment Canada weather data for Montreal (at Trudeau International Airport, 15 km east of MBO). Temperatures more than 1.0°C below the ten-year mean are shown in blue, with the coldest year in bold; those more than 1.0°C above the ten-year mean are shown in red, with the warmest year in bold. Rainfall and snowfall amounts more than 25% below the ten-year mean are shown in red, with the wettest year in bold; those more than 25% above the ten-year mean are shown in blue, with the driest year in bold. Seasonal averages (or totals in the case of precipitation) are reported at the bottom of each section. As elsewhere, November and December data pertain to the year before that indicated (e.g., the data for December 2005 can be found in the December 2006 cells).

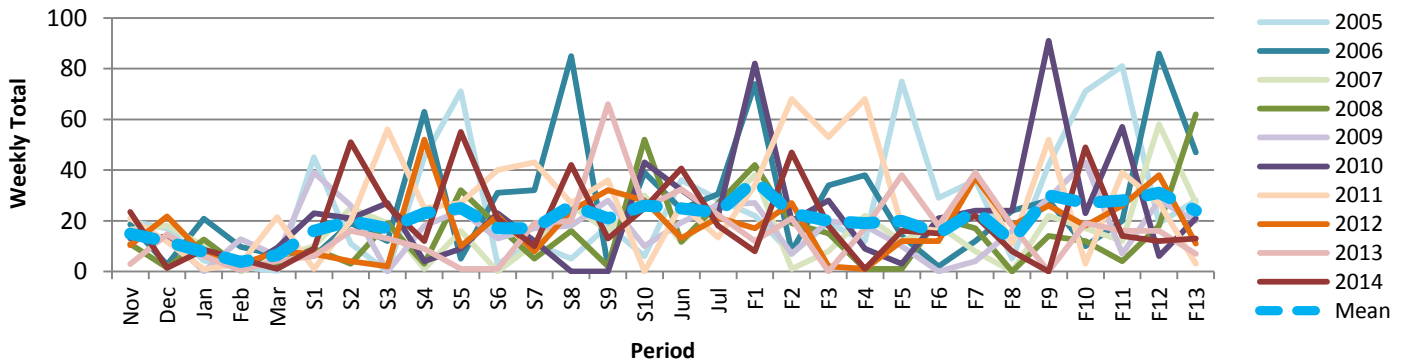
	Mean daily low temperature											Mean daily high temperature										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Mean	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Mean
Oct 31 – Nov 30	-1.6	-1.1	0.9	-2.6	-1.0	0.4	-1.5	0.8	-3.7	-2.6	-1.2	6.6	7.4	7.9	5.2	6.0	8.8	6.3	9.8	5.4	4.7	6.8
December	-12.1	-9.4	-4.8	-9.6	-11.2	-8.6	-9.0	-6.1	-6.9	-12.0	-9.0	-2.7	-2.2	2.4	-3.1	-2.1	-2.1	-2.7	1.0	-0.1	-4.7	-1.6
January	-15.5	-8.3	-11.1	-10.3	-16.8	-9.6	-12.8	-12.3	-12.8	-14.3	-12.4	-6.4	-0.7	-2.9	-2.0	-8.9	-3.2	-6.1	-2.5	-3.3	-6.1	-4.2
February	-11.4	-10.4	-14.9	-11.9	-11.7	-7.5	-11.9	-8.8	-10.3	-12.7	-11.2	-1.6	-3.2	-6.9	-3.4	-2.3	-1.9	-3.2	-0.7	-3.5	-5.1	-3.2
March 1 - 27	-9.1	-5.5	-8.3	-9.1	-7.0	-1.6	-6.8	-1.9	-4.6	-12.0	-6.0	0.0	1.8	1.1	0.1	3.0	7.8	1.9	8.4	2.0	-2.2	2.4
WINTER	-9.9	-6.9	-7.5	-8.7	-9.4	-5.4	-8.4	-5.7	-7.6	-10.7	-8.0	-0.8	0.7	0.4	-0.6	-0.9	1.9	-0.8	3.2	0.1	-2.7	0.1
S1: Mar 28 - Apr 3	1.8	0.7	-1.1	-5.3	2.4	2.6	-1.8	-2.7	-2.5	-1.4	-0.7	10.2	14.2	9.7	3.9	10.7	14.0	7.3	7.0	6.5	3.8	8.7
S2: Apr 4 - 10	0.4	-1.9	-2.8	0.8	-0.6	6.2	-0.5	2.0	-1.2	-0.6	-0.2	11.8	7.7	2.8	10.2	6.9	13.6	10.7	10.0	8.2	8.3	9.0
S3: Apr 11 - 17	-0.2	3.6	0.0	0.0	-0.7	2.3	1.4	5.0	1.1	-0.9	1.2	14.1	15.9	5.0	10.7	11.7	12.1	10.8	18.0	8.7	12.4	11.9
S4: Apr 18 - 24	2.2	4.9	4.2	6.2	2.5	3.9	0.9	2.1	2.2	2.8	3.2	15.8	16.8	19.2	21.8	13.9	15.8	9.5	10.4	14.8	13.2	15.1
S5: Apr 25 - May 1	5.6	1.4	4.8	4.9	6.5	4.1	5.9	1.2	6.0	3.4	4.4	13.3	14.7	13.0	15.1	22.2	15.4	17.2	9.6	18.3	12.3	15.1
S6: May 2 - 8	4.9	5.3	4.8	5.2	7.6	8.5	6.6	7.5	10.7	6.0	6.7	14.4	17.1	18.2	16.4	17.5	19.2	13.7	17.2	26.0	14.6	17.4
S7: May 9 - 15	5.9	11.3	8.2	8.0	6.8	4.0	7.9	9.3	6.7	11.5	8.0	18.1	19.9	21.4	19.8	17.0	13.9	18.2	19.9	17.0	22.9	18.8
S8: May 16 - 22	7.0	8.8	3.8	6.2	6.5	9.6	10.3	11.3	10.1	9.4	8.3	15.3	13.5	15.7	16.0	18.6	24.0	18.9	24.5	20.8	20.0	18.7
S9: May 23 - 29	9.1	11.8	12.5	7.8	9.2	16.3	11.7	13.4	7.6	10.1	11.0	17.7	23.0	24.2	20.1	18.1	28.9	19.8	24.5	17.1	20.5	21.4
S10: May 30 - Jun 5	13.9	13.1	13.6	12.1	7.3	14.0	12.9	11.6	14.4	13.3	12.6	26.3	23.9	22.4	19.6	18.3	22.8	23.9	19.9	24.5	23.5	22.5
SPRING	5.0	5.9	4.8	4.6	4.7	7.2	5.5	6.1	5.5	5.4	5.5	15.7	16.7	15.2	15.3	15.5	18.0	15.0	16.1	16.2	15.2	15.9
Jun 6 - 30	16.5	14.9	14.0	15.8	14.2	13.8	15.0	15.0	13.6	15.1	14.8	26.5	24.3	25.7	25.3	23.5	22.8	24.6	26.2	22.2	24.9	24.6
July	17.1	17.7	15.7	16.8	15.9	18.2	17.6	16.5	17.2	16.8	17.0	27.3	27.5	25.1	26.0	24.2	27.7	28.5	28.0	27.2	25.5	26.7
SUMMER	16.8	16.4	14.9	16.3	15.1	16.3	16.4	15.8	15.6	16.1	16.0	26.9	26.0	25.4	25.7	23.9	25.5	26.8	27.2	25.0	25.2	25.8
F1: Aug 1 - 7	17.8	17.4	17.1	16.8	16.1	15.5	17.7	19.2	15.1	16.3	16.9	28.7	28.5	27.4	24.1	24.5	25.6	27.9	29.3	24.7	26.2	26.7
F2: Aug 8 - 14	19.2	12.4	15.3	14.6	16.7	16.9	17.2	18.2	16.2	15.8	16.3	28.4	23.4	26.0	23.5	27.1	26.4	26.4	26.0	24.7	25.8	25.8
F3: Aug 15 - 21	14.8	16.0	10.7	13.6	19.5	15.8	16.4	14.9	15.4	13.5	15.1	24.6	25.8	22.5	24.5	28.9	24.9	26.1	25.1	26.2	22.1	25.1
F4: Aug 22 - 28	14.2	11.8	16.0	13.3	13.9	14.9	15.0	17.7	15.4	16.2	14.8	25.8	21.4	26.1	25.9	24.0	23.3	23.3	28.3	25.1	26.1	24.9
F5: Aug 29 - Sep 4	16.3	12.1	12.2	16.2	12.3	19.9	16.6	14.2	15.8	17.0	15.3	25.2	20.9	23.9	27.3	22.4	29.8	25.7	26.5	23.6	26.1	25.1
F6: Sep 5 - 11	10.2	11.1	12.5	12.3	10.8	11.7	12.8	12.6	11.0	13.1	11.8	22.5	20.2	23.9	22.5	22.8	21.5	21.4	24.0	21.0	24.8	22.5
F7: Sep 12 - 18	16.6	12.6	7.3	10.5	9.4	9.5	10.2	10.2	9.3	6.0	10.2	24.2	21.1	19.0	21.1	20.2	18.2	19.7	23.6	18.0	14.9	20.0
F8: Sep 19 - 25	11.2	9.3	12.8	7.4	8.7	8.3	13.5	8.7	8.9	8.0	9.7	21.8	17.9	25.8	19.7	20.2	19.9	22.6	17.9	19.2	18.8	20.4
F9: Sep 26 - Oct 2	9.1	8.1	11.3	12.1	7.2	10.7	11.0	8.4	9.6	10.9	9.8	20.1	16.6	20.3	18.1	14.1	17.5	19.4	16.3	22.0	21.1	18.8
F10: Oct 3 - 9	10.9	5.6	9.5	3.8	9.3	6.2	7.6	7.7	8.6	8.6	7.8	20.9	17.0	18.9	14.6	14.3	14.5	17.6	16.0	18.0	16.8	16.9
F11: Oct 10 - 16	9.0	4.0	4.8	6.1	0.5	4.6	9.8	3.1	9.0	8.4	5.9	13.1	11.8	11.8	17.3	8.3	13.3	18.0	11.6	19.3	18.0	14.3
F12: Oct 17 - 23	3.1	3.6	8.6	0.5	0.0	1.4	6.7	6.6	5.2	6.2	4.2	9.9	10.1	20.1	9.0	8.9	11.1	12.2	15.3	14.1	11.2	12.2
F13: Oct 24 - 30	1.6	2.1	1.9	2.6	2.5	4.5	0.2	7.7	-1.2	5.9	2.8	7.9	7.4	12.3	9.6	10.0	10.9	8.9	16.4	6.4	12.1	10.2
FALL	11.8	9.7	10.8	10.0	9.8	10.8	11.9	11.5	10.6	11.2	10.8	21.0	18.6	21.4	19.8	18.9	19.8	20.7	21.3	20.2	20.3	20.2

Mean high temperature throughout the year

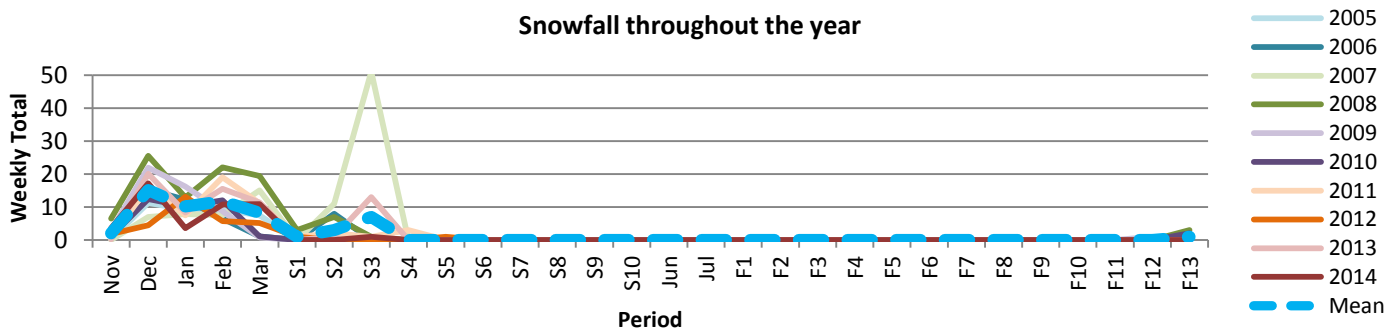


	Total rainfall (mm)											Total snowfall (cm)										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Mean	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Mean
Oct 31 - Nov 30	88	82	73	48	57	58	93	46	13	104	66	1	14	0	29	13	5	4	8	1	16	9
December	75	12	80	7	61	61	52	96	65	6	52	50	68	31	113	97	55	71	20	89	76	67
January	19	92	45	56	0	32	4	30	27	38	34	41	54	35	57	72	45	33	58	37	16	45
February	7	39	0	7	51	2	12	11	2	19	15	37	26	30	88	35	48	76	23	62	43	47
March 1 - 27	1	25	21	12	24	36	83	30	16	4	25	29	4	58	75	3	4	43	20	44	42	32
WINTER	190	250	219	130	193	189	244	213	123	171	192	157	166	154	362	229	157	227	129	233	193	201
S1: Mar 28 - Apr 3	45	6	10	9	39	23	1	7	6	9	16	0	0	0	3	0	0	1	1	0	0	1
S2: Apr 4 - 10	11	19	25	3	26	21	20	4	16	51	20	0	8	11	7	1	0	2	0	1	0	3
S3: Apr 11 - 17	0	12	19	19	0	27	56	2	13	26	17	0	0	51	1	0	0	1	0	13	1	7
S4: Apr 18 - 24	45	63	1	3	18	4	25	52	9	12	23	0	0	0	0	0	0	3	0	0	0	0
S5: Apr 25 - May 1	71	5	16	32	24	9	27	10	1	55	25	0	0	0	0	0	0	0	1	0	0	0
S6: May 2 - 8	3	31	0	18	13	23	40	22	1	21	17	0	0	0	0	0	0	0	0	0	0	0
S7: May 9 - 15	11	32	11	5	17	12	43	8	19	10	17	0	0	0	0	0	0	0	0	0	0	0
S8: May 16 - 22	5	85	26	16	18	0	27	24	20	42	26	0	0	0	0	0	0	0	0	0	0	0
S9: May 23 - 29	18	2	16	2	28	0	36	32	66	13	21	0	0	0	0	0	0	0	0	0	0	0
S10: May 30 - Jun 5	6	39	30	52	10	43	0	28	25	25	26	0	0	0	0	0	0	0	0	0	0	0
SPRING	214	295	154	158	194	163	274	190	176	263	208	0	8	62	10	1	0	6	2	14	1	10
Jun 6 - 30	129	88	41	42	69	115	94	47	116	145	89	0	0	0	0	0	0	0	0	0	0	0
July	126	135	106	119	117	97	59	94	99	80	103	0	0	0	0	0	0	0	0	0	0	0
SUMMER	255	223	147	161	186	212	153	141	215	225	192	0	0	0	0	0	0	0	0	0	0	0
F1: Aug 1 - 7	22	74	38	42	27	82	34	17	12	8	36	0	0	0	0	0	0	0	0	0	0	0
F2: Aug 8 - 14	7	8	1	19	7	20	68	27	21	47	23	0	0	0	0	0	0	0	0	0	0	0
F3: Aug 15 - 21	19	34	8	15	20	28	53	2	0	18	20	0	0	0	0	0	0	0	0	0	0	0
F4: Aug 22 - 28	12	38	22	1	18	9	68	1	17	1	19	0	0	0	0	0	0	0	0	0	0	0
F5: Aug 29 - Sep 4	75	14	12	1	10	3	18	12	38	16	20	0	0	0	0	0	0	0	0	0	0	0
F6: Sep 5 - 11	29	2	18	21	0	21	16	12	18	15	15	0	0	0	0	0	0	0	0	0	0	0
F7: Sep 12 - 18	36	12	8	17	4	24	39	37	39	22	24	0	0	0	0	0	0	0	0	0	0	0
F8: Sep 19 - 25	5	24	0	0	16	24	11	18	18	8	12	0	0	0	0	0	0	0	0	0	0	0
F9: Sep 26 - Oct 2	42	28	22	14	29	91	52	26	0	0	30	0	0	0	0	0	0	0	0	0	0	0
F10: Oct 3 - 9	71	10	17	12	43	23	3	18	19	49	27	0	0	0	0	0	0	0	0	0	0	0
F11: Oct 10 - 16	81	20	12	4	7	57	39	26	16	14	28	0	0	0	0	0	0	0	0	0	0	0
F12: Oct 17 - 23	19	86	58	18	28	6	27	38	16	12	31	0	0	0	0	1	0	0	0	0	0	0
F13: Oct 24 - 30	28	47	27	62	20	21	3	11	7	13	24	0	0	0	3	0	2	0	0	0	0	1
FALL	445	398	242	227	229	410	432	246	223	222	307	0	0	0	3	1	2	0	0	0	0	1

Rainfall throughout the year



Snowfall throughout the year



Appendix F: Foreign recoveries

While the success of migration monitoring does not depend on the recovery of banded birds, such data do provide some interesting insights into the travels of particular individuals. Listed below in taxonomic order are the 84 individuals of 23 species that were banded at MBO between 2005 and 2014 and have subsequently been reported elsewhere.

Northern Saw-whet Owl is disproportionately numerous in this list, with 33 recaptures (including one individual at two separate banding stations in Pennsylvania on the same night) representing 3.2% of individuals banded at MBO. This is attributable to the use of an audiolure at MBO and other banding stations, which increases capture rate of Northern Saw-whet Owls far beyond that of other species. The next most commonly recaptured species are American Robin (10 individuals; 0.4% of the total banded at MBO), Common Grackle (7; 1.9%), and Red-winged Blackbird (5; 0.4%). All three of these recovery rates are higher than average for songbirds, but reflect the fact that these species are common in suburban areas, and the majority of reports were of individuals found dead as a result of cat predation or victims of vehicle or window collisions.

The recoveries can be subdivided into those that are local (within 10 km; 20 individuals, 23% of all recoveries), regional (within 100 km; 15, 18%), and long-distance (>100 km; 49, 59%). Only five individuals (6% of all recoveries) have been recaptured more than 1000 km from MBO, with the greatest distance being covered by an American Robin recovered near Duson, Louisiana, approximately 2320 km to the southwest, just two months after being banded; the other four were a Swainson's Thrush in South Carolina, another American Robin in North Carolina, a Cedar Waxwing in Alabama, and an American Goldfinch in Tennessee. All but one of the Northern Saw-whet Owl recoveries are in the long-distance class, and 85% of them between 395 and 830 km away, in part influenced by the density of banding stations in Pennsylvania, which account for 40% of the MBO owl recaptures. Curiously, four of the five owls that were recovered less than 300 km away were banded over a three-day span (October 8-10, 2013).

Just over one-quarter of recoveries (22 individuals; 26%) were within one month of banding, while another 20 individuals (24%) were within 6 months, and 8 (10%) more within 12 months. Only 13 (15%) were reported more than two years after banding, with the longest periods being a Common Grackle after more than 6.5 years, and a Merlin after just over 5 years. Among the Northern Saw-whet Owls, just over half (17 of 33; 52%) were recovered later in the same fall that they were banded (i.e., within three months). Half of the local recoveries (<10 km, across all species) were within 6 months of banding.

Species	Band number	Date banded	Age	Sex	Date recovered	Location recovered	Distance & Direction	Time elapsed
Sharp-shinned Hawk	1232-58582	5 Aug 08	HY	M	17 Dec 08	Pincourt QC	8 km SW	4 months, 12 days
Sharp-shinned Hawk	1272-07831	2 Oct 08	HY	M	30 Nov 08	Pincourt QC	8 km SW	1 month, 28 days
Sharp-shinned Hawk	1593-88634	11 Sep 12	HY	F	9 Nov 12	West Cape May NJ	727 km S	1 month, 28 days
Northern Saw-whet Owl	0924-19541	12 Oct 09	SY	F	19 Oct 10	Danielsville PA	532 km SSW	1 year, 7 days
Northern Saw-whet Owl	0924-19545	12 Oct 09	ASY	F	15 Nov 09	New Paltz NY	410 km S	1 month, 3 days
Northern Saw-whet Owl	0924-19557	13 Oct 09	HY	F	2 Nov 09	Rohrersville MD	734 km SSW	19 days
Northern Saw-whet Owl	0924-19571	15 Oct 09	HY	U	6 Nov 10	Welland ON	503 km WSW	1 year, 21 days
Northern Saw-whet Owl	0924-19582	25 Oct 09	HY	F	8 Oct 10	St. Williams ON	602 km WSW	11 months, 13 days
Northern Saw-whet Owl	1014-18028	3 Oct 10	HY	F	4 Nov 11	Carsonville PA	597 km SSW	1 year, 1 month, 1 day
Northern Saw-whet Owl	1014-18061	12 Oct 10	SY	F	1 Nov 12	Port Rowan ON	607 km WSW	2 years, 19 days
Northern Saw-whet Owl	0924-66252	6 Oct 11	SY	F	24 Oct 12	New Tripoli PA	548 km SSW	1 year, 18 days
Northern Saw-whet Owl	0924-66266	6 Oct 11	HY	F	5 Nov 12	New Ringgold PA	554 km SSW	1 year, 29 days
Northern Saw-whet Owl	0924-66296	8 Oct 11	SY	F	8 Nov 12	Gibraltar OH	830 km WSW	1 year, 1 month
Northern Saw-whet Owl	0924-66300	9 Oct 11	ATY	F	9 Nov 12	Port Rowan ON	607 km WSW	1 year, 1 month
Northern Saw-whet Owl	1014-44207	10 Oct 11	HY	F	17 Oct 12	Elizabethville PA	591 km SSW	1 year, 7 days
Northern Saw-whet Owl	1014-44241	22 Oct 11	SY	F	24 Oct 12	Drumlin Farm MA	395 km SSE	1 year, 2 days
Northern Saw-whet Owl	1014-44245	22 Oct 11	HY	F	7 Apr 13	Toronto ON	480 km WSW	1 year, 5 months, 15 days
Northern Saw-whet Owl	1014-47617	27 Sep 12	HY	F	7 Nov 12	Mount Holly Springs PA	648 km SSW	1 month, 10 days
Northern Saw-whet Owl	1014-47669	7 Oct 12	HY	F	9 Nov 12	McConnellsburg PA	696 km SSW	1 month, 2 days
Northern Saw-whet Owl	1014-47676	8 Oct 12	HY	F	10 Nov 12	Kingstown PA	710 km SSW	1 month, 2 days
Northern Saw-whet Owl	1014-64413	13 Oct 12	HY	F	5 Nov 12	Cape May Point NJ	730 km S	22 days
Northern Saw-whet Owl	1014-64436	16 Oct 12	HY	U	15 Nov 12	Hillsboro PA	708 km SSW	30 days
Northern Saw-whet Owl	1014-64436	16 Oct 12	HY	U	16 Nov 12	Queen Anne PA	709 km SSW	1 month
Northern Saw-whet Owl	1014-64441	17 Oct 12	HY	F	6 Nov 12	New Ringgold PA	554 km SSW	19 days
Northern Saw-whet Owl	1014-64466	18 Oct 12	HY	F	14 Jan 13	North Haven CT	458 km S	2 months, 26 days

Species	Band number	Date banded	Age	Sex	Date recovered	Location recovered	Distance & Direction	Time elapsed
Northern Saw-whet Owl	1014-64507	23 Oct 12	HY	U	15 Nov 12	Edinburg NY	246 km S	22 days
Northern Saw-whet Owl	1014-64593	8 Oct 13	SY	F	24 Oct 13	Shelburne VT	130 km SSE	16 days
Northern Saw-whet Owl	1014-64596	9 Oct 13	SY	F	12 Oct 13	Lake Clear NY	120 km SSW	3 days
Northern Saw-whet Owl	1014-90222	10 Oct 13	SY	F	13 Mar 14	Saint-Calixte QC	58 km N	5 months, 3 days
Northern Saw-whet Owl	1014-90227	10 Oct 13	SY	F	28 Oct 13	Charlton NY	278 km S	18 days
Northern Saw-whet Owl	1014-90236	11 Oct 13	TY	F	19 Nov 13	Cressona PA	565 km SSW	1 month, 8 days
Northern Saw-whet Owl	1014-90247	12 Oct 13	ASY	F	30 Oct 14	Elizabethville PA	591 km SSW	1 year, 18 days
Northern Saw-whet Owl	1014-90303	27 Oct 13	SY	F	24 Oct 14	Port Rowan ON	607 km WSW	11 months, 27 days
Northern Saw-whet Owl	1014-90355	1 Oct 14	HY	F	29 Oct 14	Drumlin Farm MA	395 km SSE	28 days
Northern Saw-whet Owl	1014-90379	11 Oct 14	HY	M	24 Oct 14	New Paltz NY	410 km S	13 days
Northern Saw-whet Owl	1014-94209	13 Oct 14	HY	U	15 Nov 14	North White Plains	488 km S	1 month, 2 days
Eastern Screech-Owl	1115-06054	11 Oct 14	HY	U	10 Apr 15	Senneville QC	2 km S	5 months, 29 days
Merlin	1583-85911	19 Apr 07	ASY	M	27 May 12	Winchendon MA	341 km SSE	5 years, 1 month, 8 days
Blue Jay	1603-43837	17 Sep 08	HY	U	8 Jun 10	St-Jean-de-Matha QC	95 km NNE	1 year, 8 months, 21 days
Blue Jay	1342-00907	19 Oct 09	HY	U	26 Feb 10	Ste-Anne-de-Bellevue QC	3 km S	4 months, 7 days
Black-capped Chickadee	2460-40011	1 Feb 06	SY	U	20 Feb 06	Morgan Arboretum QC	<1 km W	19 days
Black-capped Chickadee	2490-24914	9 Sep 07	HY	U	6 Nov 07	Lachine QC	18 km E	1 month, 27 days
Black-capped Chickadee	2500-65183	16 Aug 08	HY	U	1 Nov 10	Morgan Arboretum QC	<1 km W	2 years, 2 months, 15 days
Black-capped Chickadee	2650-43061	18 Mar 12	SY	U	29 Mar 12	Morgan Arboretum QC	<1 km W	11 days
Swainson's Thrush	2571-23287	17 Sep 12	HY	U	10 Oct 12	Millwood SC	1395 km SSW	23 days
American Robin	1222-70269	21 Apr 06	SY	F	22 Apr 07	Ste-Anne-de-Bellevue QC	2 km S	1 year, 1 day
American Robin	1232-08343	17 Oct 06	HY	M	Dec 06	Duson LA	2320 km SW	approx. 2 months
American Robin	1232-08355	17 Oct 06	HY	M	1 Oct 09	Ile Perrot QC	6 km SW	2 years, 11 months, 14 days
American Robin	1232-08515	26 Oct 06	HY	M	12 Jul 07	Senneville QC	418 km NW	8 months, 16 days
American Robin	1232-26413	5 Oct 07	HY	U	14 Jun 12	Kirkland QC	7 km ENE	4 years, 8 months, 9 days
American Robin	1272-07989	19 Oct 08	AHY	M	12 Jul 09	Sainte-Anne-de-Bellevue QC	3 km S	8 month, 23 days
American Robin	1342-00944	22 Oct 09	AHY	F	1 Apr 10	Henderson NC	1080 km SSW	5 months, 9 days
American Robin	1342-36341	18 Aug 12	HY	U	22 Apr 13	Greendale QC	9 km ENE	8 months, 4 days
American Robin	1342-36433	7 Nov 12	HY	F	26 Apr 13	Trois-Rivieres QC	148 km NE	5 months, 19 days
American Robin	1352-01653	28 Oct 13	HY	U	27 Apr 14	Montreal QC	30 km ENE	5 months, 29 days
European Starling	1232-08517	25 Mar 07	AHY	M	12 Dec 08	Ava NY	255 km SSW	1 year, 8 months, 17 days
Cedar Waxwing	2691-45557	24 Apr 14	SY	M	6 Mar 15	Pike Road AL	1803 km SW	10 months, 11 days
Common Yellowthroat	2460-40390	4 Aug 06	HY	U	18 Aug 06	Hudson QC	18 km WNW	14 days
American Redstart	2410-92963	2 Sep 05	HY	F	18 May 10	Trois-Rivieres QC	148 km NE	4 years, 8 months, 16 days
Yellow Warbler	2460-40300	1 Aug 07	HY	M	9 Aug 07	Sainte-Anne-de-Bellevue QC	1 km SSW	8 days
Magnolia Warbler	2630-69192	4 Sep 12	HY	M	17 Jun 14	Sir John Lake QC	40 km NW	1 year, 9 months, 13 days
Yellow-rumped Warbler	2510-81875	30 Sep 06	HY	M	16 Oct 06	Chestertown MD	710 km SSW	16 days
Yellow-rumped Warbler	2650-42001	15 Sep 13	HY	F	23 Sep 13	Kirkland QC	4 km SSE	8 days
Indigo Bunting	2351-48783	9 Sep 10	HY	M	27 May 11	King City ON	475 km WSW	8 months, 18 days
American Tree Sparrow	2600-15486	26 Oct 09	AHY	U	22 Apr 10	Lac Megantic QC	240 km E	5 months, 26 days
Song Sparrow	2241-39518	28 Jul 06	HY	U	17 Aug 06	Hudson QC	18 km WNW	19 days
White-throated Sparrow	2261-90366	24 Sep 07	HY	U	12 Jul 11	Blainville QC	38 km N	3 years, 9 months, 18 days
Red-winged Blackbird	1152-34065	30 Apr 05	SY	M	26 Apr 10	Sainte-Anne-de-Bellevue QC	2 km S	4 years, 11 months, 26 days
Red-winged Blackbird	1222-70315	22 Apr 06	SY	M	4 Jul 06	Sainte-Anne-de-Bellevue QC	3 km WSW	2 months, 12 days
Red-winged Blackbird	1232-08594	22 May 07	SY	M	18 Apr 11	Port Rowan ON	607 km WSW	3 years, 10 months, 26 days
Red-winged Blackbird	1951-51396	10 May 08	SY	F	31 May 08	Lacolle QC	54 km SE	21 days
Red-winged Blackbird	1292-00599	24 May 09	SY	M	30 Apr 14	Sainte-Anne-de-Bellevue QC	3 km SW	4 years, 11 months, 6 days
Common Grackle	1323-93244	3 May 06	AHY	M	2 Dec 12	Saint-Michel-de-Wentworth QC	60 km NW	6 years, 6 months, 29 days
Common Grackle	1363-68390	7 May 07	ASY	M	21 Apr 11	Sainte-Anne-de-Bellevue QC	2 km SW	3 years, 11 months, 14 days
Common Grackle	2003-45007	7 Aug 08	AHY	U	20 Jul 11	Hudson QC	15 km W	2 years, 11 months, 13 days
Common Grackle	1603-88220	24 Apr 10	SY	F	24 May 11	Beaconsfield QC	5 km E	1 year, 1 month
Common Grackle	1603-88249	29 Aug 10	HY	U	6 May 12	Laval QC	20 km NE	1 year, 8 months, 7 days
Common Grackle	1713-34521	13 Oct 12	HY	M	1 Jun 14	Pointe-des-Cascades QC	15 km S	1 year, 7 months, 18 days
Common Grackle	1713-34524	14 Oct 12	HY	U	3 Mar 14	Southampton Township NJ	616 km S	1 year, 4 months, 19 days
House Finch	2431-86824	1 Nov 10	AHY	M	2 Aug 11	Laval QC	23 km NE	9 months, 1 day
American Goldfinch	2510-81047	14 May 07	ASY	F	4 May 10	Sainte-Anne-de-Bellevue QC	2 km S	2 years, 11 months, 20 days
American Goldfinch	2600-17001	15 Sep 10	HY	U	28 Aug 12	Saint-Dominique QC	18 km WSW	1 year, 11 months, 13 days
American Goldfinch	2650-41217	18 May 12	SY	M	8 Aug 15	Seymour TN	1347 km SW	1 year, 11 months, 13 days
American Goldfinch	2650-44078	10 Sep 14	HY	U	2 Oct 14	Potsdam NY	120 km SW	22 days

During the same period, 47 birds of 10 species banded elsewhere have been observed at MBO, as summarized in the table below. Northern Saw-whet Owl dominates this list with 38 birds (81%); all nine other species are represented by a single individual. More birds on this list are long-distance recoveries (94%, vs. 59% for birds banded at MBO), but this largely reflects the scarcity of other banding efforts within 100 km of MBO. Only two individuals recaptured at MBO were banded >1000 km away, both Northern Saw-whet Owls (one recaptured 29 days after being banded in Minnesota nearly 1300 km to the west, and another nearly one year after being banded in Indiana, 1100 km to the southwest). Among the owls, 11 (29%) were banded in Pennsylvania, 8 (21%) in Ontario, and the remainder from 8 other states.

Half (19) of the foreign Northern Saw-whet Owls recaptured at MBO were banded the previous fall, while only two (5%) were banded earlier in the same season, and three (8%) in spring or summer of the same year; the remainder were all banded in fall and recaptured at MBO either two (8 individuals; 21%), three (4 individuals; 11%), or four (2 individuals; 5%) years later. Among the other species, time elapsed ranges from an incredibly quick recapture of a Nashville Warbler just three days after being banded in Rochester, New York, to a Northern Waterthrush banded in Pennsylvania and recaptured at MBO just over 7 years later.

Species	Band number	Date banded	Location banded	Age	Sex	Date recovered	Distance & Direction	Time elapsed
Canada Goose	998-48777	3 Jul 05	Boucherville QC	AHY	M	28 Apr 06	46 km WSW	9 months, 25 days
Northern Saw-whet Owl	1283-88336	8 Oct 01	Waupoos Island ON	SY	F	18 Oct 04	290 km NE	3 years, 10 days
Northern Saw-whet Owl	934-86010	1 Jul 08	Whitefish Point MI	SY	F	19 Oct 09	855 km E	1 year, 3 months, 11 days
Northern Saw-whet Owl	1014-11228	18 Oct 08	Charlton NY	HY	M	13 Oct 12	275 km N	3 years, 11 months, 26 days
Northern Saw-whet Owl	924-37161	5 Nov 08	Bentonville VI	ASY	U	20 Oct 09	812 km NNE	11 months, 15 days
Northern Saw-whet Owl	1014-02489	19 Oct 09	Northbridge MA	HY	F	3 Oct 10	417 km NNW	11 months, 14 days
Northern Saw-whet Owl	1014-01834	25 Oct 09	Prince Edward Point ON	HY	F	6 Oct 11	283 km NE	11 months, 11 days
Northern Saw-whet Owl	1014-01881	29 Oct 09	Prince Edward Point ON	ASY	M	23 Oct 11	283 km NE	1 year, 11 months, 24 days
Northern Saw-whet Owl	924-57535	4 Oct 10	New Liskeard ON	HY	F	11 Oct 10	492 km ESE	7 days
Northern Saw-whet Owl	924-64977	8 Oct 10	Thunder Cape ON	SY	U	30 Oct 11	1175 km E	1 year, 22 days
Northern Saw-whet Owl	1014-20019	9 Oct 10	Charlton NY	AHY	F	11 Oct 13	275 km N	3 years, 2 days
Northern Saw-whet Owl	1014-25330	10 Oct 10	Ellenville NY	SY	U	3 Oct 13	406 km N	2 years, 11 months, 24 days
Northern Saw-whet Owl	1014-33312	13 Oct 10	Fort Loudon PA	HY	F	4 Oct 11	690 km NNE	11 months, 22 days
Northern Saw-whet Owl	1014-07024	13 Oct 10	South Hadley MA	ASY	F	11 Oct 11	363 km NNW	11 months, 29 days
Northern Saw-whet Owl	1014-08661	17 Oct 10	Prince Edward Point ON	HY	F	23 Oct 11	283 km NE	1 year, 6 days
Northern Saw-whet Owl	924-59832	17 Oct 10	Huntsdale PA	SY	F	9 Oct 12	606 km NNE	1 year, 11 months, 23 days
Northern Saw-whet Owl	1014-26965	1 Nov 10	Friedensburg PA	SY	F	21 Oct 11	563 km NNE	11 months, 20 days
Northern Saw-whet Owl	1014-50214	4 Nov 10	Berlinsville PA	HY	F	21 Oct 13	535 km NNE	2 years, 11 months, 17 days
Northern Saw-whet Owl	1014-12027	10 Nov 10	Bentonville PA	ASY	F	11 Oct 11	812 km NNE	11 months, 1 day
Northern Saw-whet Owl	1014-33802	25 Sep 11	Tofte MN	AHY	U	24 Oct 11	1295 km E	29 days
Northern Saw-whet Owl	1014-07171	26 Oct 11	South Hadley MA	ASY	F	11 Oct 13	362 km NNW	1 year, 11 months, 16 days
Northern Saw-whet Owl	924-30411	5 Nov 11	Lamb's Knoll MD	HY	F	10 Oct 13	725 km NNE	1 year, 11 months, 5 days
Northern Saw-whet Owl	1014-36196	26 Sep 12	New Liskeard ON	HY	F	27 Oct 14	496 km ESE	2 years, 1 month, 1 day
Northern Saw-whet Owl	1014-50867	7 Oct 12	Drumlin Farm MA	HY	F	10 Oct 13	390 km NNW	1 year, 3 days
Northern Saw-whet Owl	1014-51480	11 Oct 12	New Paltz NY	HY	U	8 Oct 13	402 km N	11 months, 28 days
Northern Saw-whet Owl	1014-76916	17 Oct 12	Hawk Mountain PA	HY	F	9 Oct 13	554 km NNE	11 months, 23 days
Northern Saw-whet Owl	1014-50425	17 Oct 12	Berlinsville PA	HY	U	11 Oct 14	535 km NNE	1 year, 11 months, 24 days
Northern Saw-whet Owl	1014-77160	20 Oct 12	Leesport PA	HY	F	8 Oct 13	570 km NNE	11 months, 19 days
Northern Saw-whet Owl	1014-13827	3 Nov 12	Huntsdale PA	HY	F	5 Oct 13	647 km NNE	11 months, 2 days
Northern Saw-whet Owl	1014-36952	3 Nov 12	Malden Centre ON	ASY	F	21 Oct 13	818 km ENE	11 months, 18 days
Northern Saw-whet Owl	1014-51646	4 Nov 12	Liberty IN	HY	F	28 Oct 13	1105 km NE	11 months, 24 days
Northern Saw-whet Owl	1014-51372	5 Nov 12	New Paltz NY	HY	U	27 Oct 14	403 km N	1 year, 11 months, 22 days
Northern Saw-whet Owl	1014-04452	14 Nov 12	Kiptopeke VI	HY	U	11 Oct 13	930 km N	10 months, 27 days
Northern Saw-whet Owl	1014-78897	14 Nov 12	Berlinsville PA	HY	U	16 Oct 13	535 km NNE	11 months, 2 days
Northern Saw-whet Owl	1014-49227	16 Nov 12	Lamb's Knoll MD	HY	F	10 Oct 13	725 km NNE	10 months, 24 days
Northern Saw-whet Owl	1014-49227	16 Nov 12	Lamb's Knoll MD	HY	F	15 Oct 13	725 km NNE	10 months, 29 days
Northern Saw-whet Owl	914-91705	16 Apr 13	Whitefish Point MI	SY	U	3 Oct 13	856 km E	5 months, 17 days
Northern Saw-whet Owl	914-91873	25 Apr 13	Whitefish Point MI	SY	F	29 Oct 13	860 km E	6 months, 4 days
Northern Saw-whet Owl	1014-80043	28 Oct 13	Shelburne VT	SY	F	22 Oct 14	124 km NNW	11 months, 25 days
Trail's Flycatcher	2150-12970	5 Jun 03	Alpena MI	AHY	U	27 May 06	754 km E	11 months, 22 days
Tree Swallow	1921-10760	18 Jun 06	Saint-Guillaume QC	HY	U	11 May 07	108 km WSW	10 months, 23 days
Ruby-crowned Kinglet	2410-08206	9 Oct 5	Toronto ON	HY	M	2 May 06	470 km ENE	6 months, 24 days
European Starling	1342-01116	7 Jun 10	Hudson QC	JUV	U	12 Jul 10	12 km ENE	1 month, 5 days
Northern Waterthrush	1821-03311	16 May 03	Westmoreland PA	SY	U	21 May 10	735 km NE	7 years, 7 days
Nashville Warbler	2530-77537	14 May 09	Rochester NY	ASY	F	17 May 09	386 km NE	3 days
Common Yellowthroat	2510-64888	25 Sep 11	Block Island RI	HY	U	23 Jun 12	496 km NNW	8 months, 28 days
American Goldfinch	2330-07413	5 Oct 05	Laval QC	HY	M	18 Nov 05	23 km SW	1 month, 13 days

Appendix G: MBO Volunteers

Volunteers are essential to the operation of programs at MBO. Between 2005 and 2014, 614 volunteers contributed on site, and numerous others have helped out behind the scenes instead. Volunteers who have participated during at least four years are listed in bold, and those who have served as a bander-in-charge are annotated with an asterisk.

Nick Acheson	2007	David Bird	2005-2009,	Michèle Carignan	2008
Jessica Adams	2009		2011,2013	Vincent Carignan	2013
Josiane Alarie	2009	Sue Bishop	2010-2014	Alison Casazza	2010
Angelika Aleksieva	2013-2014	Isabelle-Anne Bisson	2009	Natalia Castellanos	2006-2008
Nadège Allan	2005-2006	Susan Black	2006	Sophie Cauchon	2006-2010
Chris Alsop	2007	Geneviève Blanchet	2011	Adriana Celada	2010
Lise Amarasakera	2006	Marie-Ève Blanchet	2010	Dominic Chambers	2006,2008
Alexandre Ancil	2008	Jose Bnchetrit	2007	Alistair Chan	2011
David Anderson	2011	Emily Board	2012	Megan Chan	2010
Sheldon Andrews	2009-2010	Nancy Boily	2010	Victoria Chang	2008
Evelyn Aponte	2009	Marc Boisvert	2012-2014	Céline Charette	2010
Veronica Aponte	2008-2010,	Elise Bolduc	2005	Steve Charlton	2010
	2014	Marianne Bolla	2010	Anne Chen	2007-2008
Lina Artinian	2010	Salomé Bonnefoi	2013	Shannon Christianson	2011
Kenzie Azmi	2011	Éric Boodman	2010	Marc-Philippe Christophe	2010
Jean Bacon	2008-2010	Cindy Bouchard	2012-2014	Gary Clemence	2009-2010
Rob Baker	2010	Kim Bouchard	2013	Marc-André Clément	2010
Laura Balanoff	2006	Marc-Henri Bouchard	2014	Chantal Cloutier	2010,2012
Eva Banlaki	2011	Marie-France Boudreault	2013-2014	Chris Cloutier	2009-2012
Pierre Bannon	2005-2006	Emily Boulanger	2012-2013	Claude Cloutier	2010,2014
Nathalie Barbeau	2011	Robert Boule	2012	Amélie Constantineau	2007-2008,
Lina Bardo	2005-2006,	Bianca Bourdeau	2005		2010
	2009	Manon Bourdon	2014	Ariel Cordova-Rojas	2010
Bob Barnhurst	2010-2012	Martin Bowman	2005-2006	Jane Cormack	2010
Marie-Christine Barrette	2005	Mark Brenchley	2008	Yolande Cossette	2012-2013
Christine Barrie	2009-2014	Sarah Briand	2009	Serge Côté	2013
Sylvie Bazinet	2007	Jennifer Bridgeman	2006	Stéphanie Côté	2011
Richard Beauchamp	2012-2014	Dan Brisebois	2012	Gabrielle Cottam	2013-2014
Jean-François Beauchemin	2008	Kaitlin Broadhurst	2011	Joel Coutu	2011
Normand Beaudet	2012	Kristen Brochu	2007	Averill Craig	2005-2006
Jean Beaudreault	2005-2009	Adam Bromwich	2012	Ian Craig	2011
Jeanne Beaudry-Pilotte	2010	Carl Bromwich	2012-2014	Shawn Craik*	2005-2010
Pierre Beaulé	2009	Marcelo Brongo	2009,2013	Dawn Cruchet	2012
Christine Beaumier	2010	Chantal Broueou	2008	Luke Currin	2013-2014
Michel Beaupré	2009-2011	Daniel Brown	2005-2006	Mark Currin	2013-2014
Louise Bédard	2008	Duncan Brown	2008	Jennifer Cyr-Devine	2005
Christine Bedra	2006	Mélisa Brunet	2005	Marine Dageville	2012
Katrina Bélanger-Smith	2008	Jason Bueckert	2010	Tiffany Damaglin	2008
Ève Bélisle	2010	Gilles Burelle	2007-2010	Christina Damant	2013
Brian Bell	2007-2008	Skye Burgan	2011	Jacinthe Daprato	2006
Yves Bellemare	2010	Lindsay Burkhart	2011	David Davey	2008-2014
Dan Benoit	2010	Christine Burt	2009-2010	Geneviève D'Avignon	2008
Benoit Bérard	2011	Francis Cabana	2010	Anna de Aguayo	2008-2010
Suzanne Bérard	2012	Virginie Cabana-Vaudrin	2008	Diane Deakin	2010
Alex Bernal	2012	Leonardo Cabrera	2007	Jessica Deakin	2008
Johannie Bernard	2014	Chrystine Cadieux	2008	Steven Dedesko	2006
Elisa Bernier	2008	Iain Caldwell	2014	Rui de Jesus	2011-2013
Nicolas Bernier*	2010-2014	Barb Campbell	2010	Alejandro del Peral	2005-2006
Yvan Bernier	2013-2014	Diane Campbell	2010	Jean De Marre	2009
Melanie Bernstein	2009	Véronik Campbell	2005-2007	Diane Demers	2005-2007
Christine Berry	2008	Marie-Eve Campin	2008	Jean Demers	2005-2014
Matthias Bieber	2010	Marilyne Caponi	2010	Samuel Denault	2008-2009

Leah den Besten	2010-2014	Maura Forrest	2008	Patrick-Jean Guay	2006
Andrée-Anne Deschamps	2008, 2010-2013	Liette Fortier	2011-2014	Joelle Guellet	2007
Victoria Desmarais-Low	2008,2010	Alexandre Fouillet	2012	Samantha Guérard	2011
Gail Desnoyer	2012	Val Francella	2006-2008	Mathilde Guglielmi	2014
Mégane Déziel	2014	Katie Fraser	2010	Nicole Guido	2014
Cheryl Diamond	2006	Sarah Fraser	2005-2006	Christina Guillemette	2008
Ross Diamond	2007	Gérard Fréchette	2006-2007, 2009	Alison Hackney	2011-2014
Diana Dima	2007	Sara Fréchette-Laflamme	2008	Myriam Haineault	2011-2012
Marianna Dimauro	2011,2014	Barbara Frei*	2005-2014	Peter Hall	2007
Joy Ding	2009	Kurt Frei	2007	Julie Hamel	2013
Emilie Dion	2006-2007	Maria Frei	2006-2008	Bana Hamze	2005-2009
Sarah Dixon	2011	Mike Frei	2005,2007	Frédéric Hareau	2010-2014
Christina Donehower	2005-2006	Andray Gagné	2012	Nathaniel Harper	2012
Catherine Doucet	2009	Louise Gagné	2012-2013	Jeff Harrison	2007-2011, 2013
Nicole Doucet	2012	Jo-Annie Gagnon	2010, 2012-2014	Kanako Hasegawa	2006
Lena Douris	2005	Marianne Gagnon	2008,2010, 2013	Valerie Hayot-Sasson	2010
Abigail Dowden	2010	Marie-France Gagnon	2012	Jessica Head	2014
Connie Downes	2010	Marcel Gahbauer*	2005-2014	Isaac Hébert	2007
Tyler Driber	2005	Tiffany Gamelin	2007-2008	Lacey Hébert	2007
Amanda Droghini	2012	Alyssa Gangai	2009	Janina Heim	2008
Amélie Drolet	2009-2011	Ruoxi Gao	2010	Amy Henderson	2006-2007
Melanie Drouin	2007	Helen Garland	2005-2006	Meggy Hervieux	2006,2008
Manon Dubé	2006	Marie-Hélène Gauthier	2008	Annie Hibbert	2005
Geneviève Dubois	2013-2014	Olivier Gautheron	2010	Audrey Hihasiwi	2009
Andrée Dubois-Laviolette	2005,2007, 2009-2014	Marie-Pierre Gauthier	2009	Martina Hoft	2013
Josée Dubreuil	2013	Nina Gauthier	2009	Nicolas Houde	2010
Lauriane Dubuc	2014	Kirsten Gavin	2013	Vicky Houde	2008
Karine Duffy	2010	Chloe Gendre	2009	Lesley-Anne Howes	2008
Steve Dumont	2010-2014	Nathalie Gendron	2012-2014	Juliane Hudson	2005
Philippe Dunn	2010-2011	Marie-Line Gentes	2009-2010	Marie-Anne Hudson*	2005-2010
Richard Dupuis	2010	Chris Gibb	2005	Leslie Hunt	2013
Benoît Duthu	2009-2010	Gregor Gilbert	2006	Keelan Jacobs	2005-2006
Pierre Duval	2008	Tiffany Gilchrist	2008-2010, 2012	Daniel Jackson	2009
Réjean Duval	2010-2013	Josée Girard	2006	Marie-Eve Jacques	2005
Simon Duval*	2007-2014	Jude Girard	2010	Jukka Jantonen	2009
Kate Earl	2006,2008	Thomas Glover	2011	Stacey Jarema	2008
Bob Edwards	2007-2008	Sean Godwin	2011-2012	Malcolm Johnson	2008-2014
Tammy Elliott	2011-2012	Robin Goldstein	2005	Norsola Johnson	2012
Matthew Emrich	2009	Ian Goodfellow	2011	Lindsey Jones	2011
Jenia Faibusovitch	2009-2010	Alain Goulet	2010	Isabel Julian	2005-2006, 2009
Luc Farly	2008	Raphael Goulet	2006	Marie-France Julien	2010-2011
Kate Farrell	2007	Thierry Grandmont	2014	James Junda*	2008-2009, 2012-2014
Dominique Fauteux	2007	Christine Gray	2006-2007	Greg Kaiman	2011
Adam Feller	2013	Emily Gray	2006-2009	Marie-Melissa Kalamaras	2007-2011
Kristian Fidrych	2011	Herb Greenslade	2008	Pia Kaukoranta	2010
Isaac Finkelstein	2010	Jacinthe Gregoire	2005	Lima Kayello	2011-2012
Max Finkelstein	2010	Jean Gregson	2009-2010	Lisa Keelty*	2011-2014
Jessica Fiset	2012	Richard Gregson	2009-2010	Sharon Kelly	2009
David Fishman	2006-2009, 2012	Pedro Grillo	2014	Tricia Kerr	2005
Linda Fishman	2007,2009	Monique Groulx	2012-2013	Kristen Keyes*	2008-2011
Michael Fleming	2008-2009, 2012-2013	Gay Gruner*	2005-2014	Gillian Kinsman	2006-2008
Nicola Fleming	2008-2013	Jennifer Gruner	2009	Shelley Kirk	2012
Maryse Forest-Tremblay	2011	Peter Gruner	2005-2010	Diana Kirkwood	2010-2011
				Demetrios Kobiliris	2007-2008

Alessia Kockel	2007-2008	Victoria Lukasik	2005	Chloé Nadeau-Perrier	2008-2009
Helen Kohler	2014	Kristen Lynn	2010	Karen Nassi	2012
Genki Kondo	2008	Geneviève Lussier	2007	Armin Nazemi	2011
Johanna Koppes	2010	Marie-Pier Lussier	2011	Tash Nicholson	2012
Tony James Kouach	2011	Barbara Macduff	2005-2014	Marie Nicole	2008
Jessica Krohner	2010	Don Macduff	2005-2014	Ian Niu	2006
Julia Kucharski	2005	Alyssa Macleod	2007	Marissa Nolan	2009-2010
Erik Kudelka	2011	Jennifer MacWilliam	2006-2007	Ken Nomura	2008
Vivek Kumar	2010	Asya Malinova	2012,2014	Joey O'Connor	2011
Jeremy Labrecque	2006	Charlotte Maloney	2011	Mark O'Connor	2006-2007
Joane Lafontaine	2012	Barry Mantal	2008	David Oldacre	2013
Louis-Philip Lafrance	2006	Helen Marchand	2009	Robert Oigny	2005-2006
Marjolaine Lagacé	2008-2009	Christine Marcoux	2013	Kenn Olivier	2011
Benoît Laliberté	2011-2012	Francine Marcoux	2005-2014	Jennifer Orr	2005
Marie-Pier Lambert	2006-2007	Melanie Marier	2009	Daniel Ouellette	2006
Line Lamontagne	2013-2014	Meghna Marjadi	2009	Daniel Oyama	2006-2007
Le Duing Lang	2010-2011	Daniel Martin	2011-2012	Raymonde Palardy	2014
Catherine Langevin	2012	Rudi Markgraf	2005	Mariner Palmer	2010,
Meg Langley	2009	Eve Marshall	2005,2007,		2012-2014
Patrick Laniel	2012		2009	George Panciuk	2012
Dominique Lantier	2008	Sarah Marteinson	2006-2009	Aubrey Paolino	2012
Joëlle Lapalme	2007-2009	Dara Mashones	2008	Frederic Paquet	2005
Marie-Pier Laplante	2012	Poonam Maskeri	2006-2007	Johanne Paquette	2010
Noémie Laplante	2005,2011	Laurie Maurais	2006	Annie-Claude Paradis	2006-2007
Colette Laprade	2005	Michael Mayerhofer	2005-2009	Guillaume Passavy	2005
Meghan Larivée	2005	Gracey Hlywa Mayta	2008	Kasper Pater	2010
Gabrielle Laurent	2009	Sophie Mazowita	2007-2008	Andrew Patterson	2012
Ghislaine Laurin	2013	Melanie McCormack	2008	Charla Patterson	2012
Lance Laviolette*	2005-2014	Meaghan McDermott	2009	Jeremy Pauté	2009
Meghan Laviolette	2005,2007,	Dan McDonough	2009	Charlotte Payette	2013
	2009-2013	Betsy McFarlane	2005-2014	Yves Payette	2012-2013
Agathe Lebeau	2014	Shawn McNamee	2009	Jennifer Pearson	2007
Marcel Lebeau	2014	Sandy McNeil	2006	Joe Peck	2008
Caroline Lecoeur	2006	Marjorie Mercure	2009	Emily Pedersen	2011
Louise Lebel	2011-2012	Raymond Michaud	2014	André Pelletier	2006-2010
Céline Lecompte	2008,2010	Lynn Miller	2005-2006	Scott Pemberton	2011-2012
Seabrooke Leckie*	2006	Christina Miller	2008-2010	Casey Pendergast	2011
Steve Leckman	2006	France Millette	2010	Julie Pépin	2005-2007
Catherine Leclerc	2011-2012	Heather Milligan	2007	Amélie Perez	2010
Melisa Lefebvre	2009	Marina Milligan	2007	Marie Perkins	2013
Marylise Lefevre	2005	Richard Milligan	2009	Alyse Perrault	2011
Marie-Lise Legaise	2008	Anthi Mimidakis	2005-2006	Geneviève Perreault	2010
Camille Legall-Payne	2010	Ed Minotti	2009	Jérôme Petigny	2007-2008
Catherine Legault	2014	Sandra Minotti	2006,2009	Lucile Pic	2010
Irene Lépine	2006	Julia Mlynarek	2005-2006	Leigh Piercey-Brunet	2007
Helen Leroux	2007-2008,	Mahmoud Moghrabi	2009-2010	Benoît Piquette	2010-2014
	2010	Pierre Molina	2011	Francine Piquette	2010,2012
Martin Lessard	2012	Kevin Mongey	2011	Andrew Plimer	2006-2007
Steph Letendre	2007	Allison Moore	2009	Kevin Poirier	2011
Stéphanie Levesque	2008	Ana Morales	2012-2014	Yves Poirier	2012
Alex Liautaud	2007	Harriel Morgan	2012	Majorie Poirier	2005
Juliana Lisi	2005-2006	Chris Murphy	2005-2013	Geneviève Potvin	2012
Emma Loosigian	2008	Claire Murphy	2010	Sophie Price	2010
Andréanne Lortie	2005	Dan Murphy	2010	Kristy Putnam	2005
Christie Lovatt	2008,2011,	Ted Murphy-Kelly	2009,2014	Fred Racine	2009
	2013	Jim Murray	2008-2009	Victor Benjamin Ramos	2009
Valentin Lucet	2014	Nashat Mustafa	2009		

Greg Rand	2006-2011, 2014	Shawna Sévigny	2013-2014	Alex Tran	2011
Crissy Ranellucci	2005-2008	Ahmad Shah	2011-2014	Bruno Tremblay	2012
Khaled Rashid	2011	Marilou Skelling	2011-2014	Christiane Tremblay	2014
Bronwyn Rayfield	2010	Steven Skipper	2005	Rae Trenchard	2007-2008
Natacha Raymond-Bleau	2005	Roman Skorko	2010	Fernanda Triconi	2013
Michelle Reeves	2011	Jillian Slater	2013-2014	Jessica Turgeon	2012,2014
Limoilou-Amélie Renaud	2005-2006	Carolynne Smith	2014	Denis Vachon	2007
Charles Regnier	2011-2012	Jennifer Smith	2008	Élodie Vajda	2010
Sabrina Richard-Lalonde	2006,2008	David Soares	2005	Joost Valkenburg	2012
Ian Ritchie	2005-2009	Anna Solecki	2007	Jay VanderGaast	2012-2014
Katleen Robert	2006-2008	Jane Sorensen	2010,2012	Virginie Vaudine	2008
Mark-André Robert	2007	Lily Soucy	2009	Monique Venne	2011-2013
Mary Robichaud	2011-2012	Clémence Soulard	2005-2014	Rachel Verkade	2005-2007
Kate Robinson	2006	Bonnie Soutar	2010-2012	Kaja Verret-Holding	2009
Julien Robitaille	2010	Gordon Southward	2011	Mieke van der Heyde	2010
Sabrina Rochefort	2011-2012	Audrey Speck	2010	Gijs van Tol	2012
Jean Rogez	2013	Cat Spina	2008-2009, 2011	Matthew von Bornhoft	2009-2012
Amanda Rollinson	2011	Vince Spinelli	2005,2010	Anne-Marie von Geenhoven	2011
Mark Romer	2010	Katie St-Jean	2010-2011	Michel Vorasane	2014
Cindy Romero	2010	Laurie St-Onge	2008	Phong Vuong	2010
Nicole Rose	2005	Réal Ste-Marie	2007	Audrey Wachter	2005-2006
Lisa Rosenberger	2011-2014	Stephanie Steeves	2006-2007	Guillaume Wachter	2006
Amelie Rousseau	2006	Alex Stone	2009-2012	Michael Waddes	2013
Sonia Rousseau	2010	Patricia Stotland	2010-2014	Corrine Waheed	2013
François Rousseau	2011	Katie Sullivan	2006	Roland Wahlgren	2009
Marie-Claude Roy	2006	Alexandra Summer	2011	Tegan Wahlgren	2009
Emilie Roy-Dufresne	2006-2009	Stephanie Surveyer	2005	Maria Waldron	2008
Brittney Roughan	2007-2008	Krystal Swift Dumesnil	2007-2008	Yifu Wang	2012-2014
Catherine Russell	2010-2014	Arnaud Tarrowx	2005	Jessica Ward	2011
Joanne Ryan	2013	Chick Taylor	2012	Sandra Warren	2006-2007
Michelle Saint-Martin	2005	Chris Taylor	2012	Shona Watt	2007
Sarah Saldanha	2011	Pierrot Tellier-Machabée	2010-2011	Geoffrey Webster	2012
Christina Saliba	2007	Kim Tendland-Frenette	2005	John Webster	2006
France Salvaille	2009	Nathalie Tessier	2013	Sylvia Wees	2010
Marie-Odile Samson	2010	Sophie Tessier	2014	Fredella Weil	2008
Léo Sarrazin	2013	Rachel Theoret-Gosselin	2007	Brian Wilson	2011
Kathleen Sary	2008	Alain Theriault	2005	Mona Wizenberg	2005
Audrey Saumure Di Fruscia	2008	Raphaëlle Thomas	2009-2010	Alan Wongkee	2014
Melissa Scerbo	2010	Victor Thomasson	2008,2012	Linda Wongkee	2014
Helena Scheffer	2006-2007	Dara Thompson	2010	Davis Wood	2009
Marylise Schmidt	2008	Alexis Thorbecke	2009-2010	Sarah Woods	2007
Brian Schmucker	2007	Elise Titman	2011-2014	James Young	2006
Daniel Schmucker	2007-2010	Rodger Titman	2005-2014	Ryan Young	2009,2012
Ted Scodras	2009	Gijs van Tol	2005	Brigitte Zacharczenko	2008
Luke Scott	2006	Carine Touma	2008-2009, 2012-2013	Tim Zarins	2011
Charles Séguin	2010			Tiera Zukerman	2011

Appendix H: Seasonal occurrence of species

The table below summarizes the frequency of all species observed at MBO in each of the time periods throughout the year (weekly in spring and fall, monthly in winter and summer), based on data compiled from 2005 through 2014. The cumulative total number of species observed during each period is listed at the bottom of the chart; note that effort is much more standardized and extensive in spring and fall than in summer and winter, therefore species status estimates are likely to be most accurate during spring and fall. To date only 21 species (Cooper's Hawk, Red-tailed Hawk, Rock Pigeon, Mourning Dove, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, Blue Jay, American Crow, Common Raven, Black-capped Chickadee, White-breasted Nuthatch, American Robin, European Starling, Cedar Waxwing, Northern Cardinal, Song Sparrow, White-throated Sparrow, Red-winged Blackbird, House Finch, and American Goldfinch) have been observed during all time periods throughout the year. See Appendix D for the legend to spring (S) and fall (F) dates.

Legend:

Very rare	Generally limited to one occurrence (single individual or flock) per period
Rare	Generally occurring in a period in at least two years, but with a mean daily count <1
Uncommon	Generally occurring in a period annually, with a mean daily count between 1 and 4.9
Fairly common	Generally occurring in a period annually, with a mean daily count between 5 and 9.9
Common	Occurring in a period annually, with a mean daily count between 10 and 49.9
Abundant	Occurring in a period annually, with a mean daily count >50

Species	JAN	FEB	MAR	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	JUN	JUL	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	NOV	DEC	
GWFG																															
SNGO																															
ROGO																															
ATBR																															
CACG																															
CANG																															
TUSW																															
WODU																															
GADW																															
AMWI																															
ABDU																															
MALL																															
BWTE																															
NSHO																															
NOPI																															
AGWT																															
RNDU																															
GRSC																															
LESC																															
USCA																															
WWSC																															
COGO																															
HOME																															
COME																															
RBME																															
RUGR																															
COLO																															
PBGR																															
NOGA																															
DCCO																															
AMBI																															
GBHE																															
GREG																															
GRHE																															
BCNH																															
TUVU																															
OSPR																															
BAEA																															
NOHA																															

Species	JAN	FEB	MAR	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	JUN	JUL	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	NOV	DEC	
SSHA																															
COHA																															
NOGO																															
RSHA																															
BWHA																															
RTHA																															
RLHA																															
GOEA																															
AMKE																															
MERL																															
PEFA																															
VIRA																															
SORA																															
COMO																															
SACR																															
BBPL																															
SEPL																															
KILL																															
SPSA																															
SOSA																															
GRYE																															
LEYE																															
DUNL																															
LESA																															
WISN																															
AMWO																															
RBGU																															
HERG																															
ICGU																															
GBBG																															
CATE																															
BLTE																															
COTE																															
ROPI																															
MODO																															
YBCU																															
BBCU																															
EASO																															
GHOW																															
BDOW																															
GGOW																															
LEOW																															
NSWO																															
CONI																															
CHSW																															
RTHU																															
BEKI																															
RBWO																															
YBSA																															
DOWO																															
HAWO																															
YSFL																															
PIWO																															
OSFL																															
EAWP																															
YBFL																															
TRFL																															
LEFL																															
EAPH																															
GCFL																															
EAKI																															
NSHR																															

Species	JAN	FEB	MAR	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	JUN	JUL	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	NOV	DEC	
BHVI																															
WAVI																															
PHVI																															
REVI																															
BLJA																															
AMCR																															
FICR																															
CORA																															
HOLA																															
PUMA																															
TRES																															
NRWS																															
BANS																															
CLSW																															
BARS																															
BCCH																															
BOCH																															
TUTI																															
RBNU																															
WBNU																															
BRCR																															
HOWR																															
WIWR																															
SEWR																															
MAWR																															
CARW																															
BGGN																															
GCKI																															
RCKI																															
EABL																															
TOSO																															
VEER																															
GCTH																															
BITH																															
SWTH																															
HETH																															
WOTH																															
AMRO																															
GRCA																															
BRTH																															
NOMO																															
EUST																															
AMPI																															
BOWA																															
CEDW																															
SNBU																															
OVEN																															
NOWA																															
GWWA																															
BWWA																															
BAWW																															
TEWA																															
OCWA																															
NAWA																															
CONW																															
MOWA																															
COYE																															
AMRE																															
CMWA																															
NOPA																															
MAWA																															
BBWA																															

Species	JAN	FEB	MAR	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	JUN	JUL	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	NOV	DEC	
BLBW																															
YEWA																															
CSWA																															
BLPW																															
BTBW																															
WPWA																															
YPWA																															
PIWA																															
MYWA																															
BTNW																															
CAWA																															
WIWA																															
EATO																															
ATSP																															
CHSP																															
CCSP																															
FISP																															
VESP																															
SAVS																															
FOSP																															
SOSP																															
LISP																															
SWSP																															
WTSP																															
EWCS																															
SCJU																															
SCTA																															
NOCA																															
RBGR																															
INBU																															
BOBO																															
RWBL																															
EAME																															
RUBL																															
COGR																															
BHCO																															
BAOR																															
PIGR																															
HOFI																															
PUFI																															
WWCR																															
CORE																															
HORE																															
PISI																															
AMGO																															
EVGR																															
HOSP																															

COUNT OF SPECIES OBSERVED DURING EACH TIME PERIOD:

V. Rare	18	18	30	22	24	21	27	37	43	45	37	34	45	26	26	38	33	36	27	32	41	31	29	29	33	31	36	29	32	24
Rare	13	12	18	21	30	31	40	43	62	52	55	61	52	34	39	51	51	50	50	56	55	58	56	48	53	43	33	37	31	14
Uncom.	6	9	13	9	10	13	17	16	19	33	35	26	22	22	18	24	26	29	28	25	26	24	27	30	21	16	20	19	7	5
F. com.	3	3	3	5	5	4	11	8	6	8	13	11	9	6	5	4	4	7	5	6	5	6	3	5	4	9	6	4	3	5
Common	4	3	5	5	7	7	7	9	10	9	7	8	5	1	3	8	8	7	9	7	7	8	11	8	8	6	6	7	8	3
Abundant	-	-	1	2	1	1	3	2	3	2	-	-	-	-	-	-	-	-	-	1	2	3	3	6	8	6	6	5	1	1
TOTAL	44	45	70	64	77	77	105	115	143	149	147	140	133	89	91	125	122	129	119	127	136	130	129	126	127	110	107	101	82	52