Teslin Lake Bird Observatory Final Report 2012

Yukon
BIRD OBSERVATORIES

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Society of Yukon Bird Observatories
December 2012

The 2012 operation of the Teslin Lake Bird Observatory was made possible due to support and financial contributions from the following organizations.

Environment Canada Environnement Canada

Ducks Unlimited Canada
Conserving Canada's Wetlands

ALASKA PipelineProject
TransCanada ExxonMobil

Yukon Environment

Yukon Fish and Wildlife Enhancement Trust

Teslin Renewable Resources Council

EDI Environmental Dynamics Inc.

Cover Photo: adult male American Redstart (Photo: Jukka Jantunen).

The Teslin Lake Bird Observatory is a project of the Society of Yukon Bird Observatories (SOYBO; PO Box 30056, Whitehorse, YT, Y1A 5M2). SOYBO was established during 2010 to formalize the operation of the Yukon Bird Observatories. The objectives of SOYBO are: (1) contribute to the conservation of migratory birds in western North America, (2) to make the public aware of the avifauna of the Yukon and educate the public, and, (3) to work with other societies, organizations and individuals with similar objectives. For further information, email – teslin.bird.banding@gmail.com

EXECUTIVE SUMMARY

The Teslin Lake Bird Observatory completed its fifth consecutive year of fall migration monitoring during the fall of 2012. This year, the field station operated for a total of 94 days from July 23 to October 31.

The primary method of monitoring bird migration through the study site is the use of standardized mist netting and banding of birds captured. Mist netting was conducted from July 23 to October 10 and a total of 2,429 birds of 51 species were banded with 8,461 net hours (28.7 birds/100 net hours). Alder Flycatcher and Yellow Warbler were once again among the top 3 species banded, accounting for over a third of all individuals banded. An irruption of Boreal Chickadees resulted in 142 individuals banded and there was also evidence of an irruption of Red-breasted Nuthatch with 12 banded.

Visual migration counts were also conducted to collect monitoring data for bird species not adequately sampled by mist netting. Between August 1 and October 31, 353 hours of visual migration watching resulted in the counting of 58,796 birds of 97 species. A primary target of the visual counts are diurnal raptors of which 1,977 individuals of 13 species were counted, including regionally important species for monitoring - Swainson's Hawk and American Kestrel.

In addition, lake counts were conducted daily at the station to collect monitoring data for a variety of waterbird species. On lake counts, all regularly occurring species of loons and grebes were counted in relatively high numbers and there were also sightings of a number of gull species considered rare or uncommon in the Yukon including Sabine's Gull, California Gull and Glaucous Gull.

In an effort to increase the collection of monitoring data for waterfowl, a number of stationary counts were conducted at selected wetlands in the Southern Lakes area with an emphasis on regional species of interest including dabbling ducks, scaup and scoters.

The data collected at the observatory in 2012 builds upon the database of knowledge pertaining to the birds of the Yukon. Over the long term, this data will form a crucial step in the calculation of population trend analyses for numerous bird species including songbirds, raptors, waterbirds and waterfowl.

ACKNOWLEDGEMENTS

Jukka Jantunen was the primary Bander In Charge of the bird observatory during the 2012 season. Jukka's excellent bird identification skills were once again a definite asset to the quality of the data collected at the observatory, particularly during the visual migration counts which are very challenging. Jukka also provided many of the superb photographs presented in this report.

The following list summarizes the individuals who played a role in the 2012 operation of the Teslin Lake Bird Observatory.

Jukka Jantunen	Primary Bander In Charge, Report Editing
Ben Schonewille	Station Manager, Data Entry/Analysis/Reporting
Ted Murphy-Kelly	Assistant Station Manager, Secondary Bander In Charge, Report Editing
Jim Hawkings	Report Editing
Adam Skrutkowski	Report Editing

Board members of the Society of Yukon Bird Observatories helped administer the Yukon Bird Observatories. The following volunteers assisted with the operation of the observatory; more than 50 days – Abril Heredia; 10 to 20 days – Ray; 5 to 10 days – Catherine Pohl, Jennifer Sibbald, Toby; 1 to 5 days – Shyloh van Delft, Gwen Baluss, Terry Skjonsberg, Julie Bauer, Andy Pfeffer, Carolyn Allen, Jim Hawkings, Wendy Nixon, Nick Guenette, Gerry Gilbert, Laurette Gilbert.

The 2012 operation of the Teslin Lake Bird Observatory would not have been possible without financial assistance from the following organizations / groups; Environment Canada (Canadian Wildlife Service), Ducks Unlimited Canada, Alaska Pipeline Project, Yukon Environment (Environmental Awareness Fund), Yukon Fish & Wildlife Enhancement Trust Fund, Teslin Renewable Resources Council and EDI Environmental Dynamics Inc.

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1.0 Introduction

The Teslin Lake Bird Observatory operated only during the fall migration season in 2012. The observatory completed its seventh year of operation thanks to financial support from several government and non-government agencies.

The goals of the Teslin Lake Bird Observatory are to:

- Gather baseline information on birds and bird migration in the Teslin area.
- Collect data to facilitate the long term monitoring (*i.e.* trend analysis) of birds in the southern Yukon.
- Conduct and participate in specific studies such as feather collecting for stable isotope analysis and color banding.
- Provide a setting for the public including school groups to learn about birds and bird migration.
- Provide employment and training opportunities for students and volunteers.
- Provide a unique tourist attraction for the community of Teslin.

The observatory carries out research on birds which is shared through an international bird banding database (Canadian Wildlife Service Bird Banding Office and USGS Bird Banding Laboratory), Society of Yukon Bird Observatories annual station reports, and other publications. Many of the birds banded at Teslin Lake are highly migratory spending the winter months as far south as Central and South America. In addition to the potential knowledge gained from band recoveries, the observatory also continues to gather baseline data of birds (and their migration) in the Teslin region, and the Yukon as a whole. Due to the large landmass of the territory, and the relatively few bird biologists and advanced birders in the Yukon, there is still a great deal to be learned regarding the bird life of the Yukon. The observatory serves as a highly valuable research and monitoring project to better understand the distribution of many of the Yukon's bird species, many of which are considered uncommon or rare. Over the long term, the data collected at the observatory will facilitate trend analysis for a number of species. Such information will be valuable for conservation and monitoring of bird populations not only in the Yukon, but North America as a whole.

The observatory plays a role in education as a place where the public, volunteers and students can take part in a unique, community based research project. Across the Yukon (and the world), there are numerous people who have an interest in birds; however, many find it a daunting task to learn the various species. For such people, a visit to the observatory can be extremely rewarding as during banding operation they often have the opportunity to get close up views of a wide variety of bird species, many of which are difficult to observe in nature. The highly trained individuals working at the observatory have the ability to identify these species with ease and are happy to share their expertise with the public.

2.0 Methods

The methods for the operation of the bird observatory follow the Teslin Lake Bird Observatory Field Protocol and Manual [1] (Appendix A). A brief summary of the field protocol is described in the following sections; however, for a detailed description refer to the aforementioned document. All monitoring activities at the observatory can be separated into standardized and non-standardized. To facilitate long term analysis of the observatory's data, the standardized data is collected in the same format year after year. Non standardized activities may include species specific mist nets within the count area or the collection of banding / observation data outside of the standard count period. For every species observed, estimated totals are calculated for every day of operation using the following categories;

- Band: new birds banded.
- Recaptures: previously banded birds, not included if recaptured on the original day of banding.
- Visual Migrants – Migration Watch: birds observed in obvious migration flight, only includes individuals observed during the visual migration counts.
- Visual Migrants – Incidental: birds observed in obvious migration flight, only includes individuals observed incidentally (i.e., not during the visual migration counts).
- Observed: birds observed, but not in obvious migration flight; includes incidental observations and the lake counts.

Using the categories outlined above, the Bander-In-Charge estimates the total number of individuals observed within/passing through the count area within the standard count period on a daily basis. Using only the standard count period data, this number represents the Daily Estimated Total (DET) and when the non-standard data is included, this number represents the Daily Species Total (DST).

2.1 Mist Netting

The primary method of monitoring the movement of birds through the study site is the use of mist nets for the purpose of capturing and banding birds. The observatory operates with 22 standard mist nets and one non-standard mist net (Figure 1). The only non standard net used in 2012 was a canopy net (Net C) near the point which was used on a trial basis when weather conditions were suitable (not windy). All nets are 30 mm mesh and 12 m in length, with the exception of net 28 which is 18 m in length. The standard mist netting effort begins at official sunrise and continues for 6 hours. The full mist netting effort is achieved only on days when adequate personnel are present onsite and weather conditions are favorable. If this is not possible, the effort is reduced in the number of nets operated rather than reducing the duration of effort.

[1] Schonewille, B. 2011. Teslin Lake Bird Observatory (TLBO) Field Protocol (version 2). Society of Yukon Bird Observatories.

2.2 Visual Migration Watch

Visual migration counts are conducted on all days of operation to supplement the banding data. All watches are conducted from the observation site (Figure 1) and involve scanning the sky with binoculars and a spotting scope to observe and count all birds flying past the site. The protocol states that as a minimum, 10 minutes of watch shall be conducted per hour (6 hours) followed by a 1 hour watch at the end of the mist netting period. On many days of operation, the visual count effort is substantially more. The visual migration counts aim to monitor diurnal migrating species such as raptors and large waterfowl. Most nocturnal migrants such as most warblers, sparrows and thrush are well monitored by mist netting. However, for some species which are not adequately covered by mist netting, the visual counts allow for monitoring data to be collected for these species.

2.3 Lake Counts

Completed in conjunction with the visual migration counts, a thorough lake count is performed daily from the observation site with a spotting scope to enumerate all birds on or over Teslin Lake. These counts target a wide range of species including; loons, grebes, some waterfowl, gulls and some species of shorebirds.

2.4 Incidental Observations

Incidental observations are collected on a continuous basis at the observatory. For example, birds observed while conducting mist net checks would be considered incidental observations. Birds in obvious directed migration, e.g. flying overhead in flocks or raptors passing overhead, were recorded as 'incidental migrants'.

2.5 Study Site

During the 2005 season, the observatory was located on the shoreline of Nisutlin Bay; however, issues associated with the site led to a new site being used since 2006. The new site is located on 10 Mile point approximately 10 km northwest of the community of Teslin. The observatory is located in the riparian zone between Teslin Lake and the Yukon Government Campground (Figure 1). The vegetation within the site is a mixture featuring a transition from bare gravel lakeshore to shrubs and larger deciduous trees. Also within the site is a small wetland area connected to Teslin Lake which has seasonally fluctuating water levels. The area is dominated by willow (*Salix* sp.) and alder (*Alnus* sp.) with some mature white spruce (*Picea glauca*), trembling aspen (*Populus tremuloides*) and balsam poplar (*P. balsamifera*) scattered throughout.

2.6 Waterfowl / Waterfowl Counts in other Areas

To supplement the data collected at the observatory, area counts were conducted at a number of other locations in the Southern Lakes region. These counts were initiated to collect additional monitoring data for waterfowl and other waterbirds as many of these species are underestimated in the monitoring activities at the observatory. During 2012, counts were conducted at the following locations;

- Teslin – Nisutlin Bay
- Johnson's Crossing
- Teslin Lake outlet
- Squanga Lake – Highway
- Marsh Lake – Judas Creek Marina
- Little Atlin Lake – Boat Launch
- CWS roadside ponds between Johnson's Crossing and Jakes Corner (trial basis)

3.0 Results & Discussion

A total of 2,429 birds of 51 species were banded during 2012 and 142 species were observed (Tables 1 – 4, Figures 2-3). The all-time total number of birds banded at Teslin Lake Bird Observatory is now 19,874 birds of 88 species/forms and 187 species/forms have been observed (Table 2). Each component of the 2012 data is summarized and presented in the following subsections; however, a summary account of the 2012 estimated total data is shown in Table 5. Note that unless otherwise stated, the results presented in this report combine and summarize both standard and non-standardized data. The standardized data will be used for long-term species trend analysis.

The 2012 fall season covered a total of 94 days from late July until the end of October. Standardized mist netting was conducted from July 23 to September 23 and additional opportunistic banding was conducted until October 10. The peak periods for mist netting were weeks 3-4 (mid August) and week 8 (early September). The 2012 banding total was the lowest fall banding total to date since the station began operating during the fall season in 2008 (Figure 2). Similar to 2011, the late August movement of warblers did not accumulate to high banding totals as was the case during 2008, 2009 and 2010. The reason for this is unclear, but it may be that weather patterns allowed for high numbers of migrants to follow a different migration route or pass directly over the site.

As in previous years, the productivity of the standard mist nets suggest that the majority of birds moving through the count area pass directly along the shoreline of Teslin Lake as suggested by the highest capture rates in mist nets 10, 18, 20 and 28 (Figure 4). Note that although a portion of the mist nets placed away from the lakeshore and in taller vegetation (nets 5, 25 to 27) lack high capture rates, these nets capture species not typically caught on the lakeshore such as Swainson's Thrush and Varied Thrush.

3.1 Migration Timing

The standardized monitoring at the observatory can be used to investigate the migration timing of numerous species. This section is separated into the following subsections; (3.1.1) generalized migration timing of species banded and (3.1.2) species-specific migration timing.

3.1.1 Generalized Migration Timing

Generalized migration timing during 2012 as compared to the 2008 to 2011 average for temperate, neotropical and irruptive migrants is presented in Figure 5. During 2012, the peak in fall migration occurred during mid August; this is relatively early compared to previous years. This was due to exceptionally high captures of Alder Flycatcher on consecutive days which boosted the overall capture rate of this time. The lower captures of neotropical migrants early in the season (late July/early August) and also late August were very apparent at the observatory and resulted in a lower overall banding total for the 2012 season.

Temperate migrants typically migrate later than neotropical migrants and this was once again the case in 2012. Similar to the neotropical migrants, the temperate migrants were captured in lower than average numbers, particularly later in the season.

Irruptive migrants banded are primarily limited to chickadees and redpolls. The relative timing and overall number of individuals banded during 2012 was similar to previous years with increased capture rates later in the season.

3.1.2 Species Specific Migration Timing

Species specific migration timing was analyzed for 51 species using three separate methods as outlined below; mist netting, visual migration counts and the daily species totals. All figures shown combine migration timing during 2012 to the average of 2008-2011 and the data is grouped over 5 day intervals and standardized to the amount of effort (mist netting effort, visual counting effort, etc.)

Mist netting effort and bird capture data were sufficient to assess migration timing for the following species, which are primarily nocturnal migrants and not suited to visual migration watching. The full set of migration timing figures for the species listed below are shown in Figures 6 -19.

- Alder Flycatcher
- Boreal Chickadee
- Ruby-crowned Kinglet
- Swainson's Thrush
- Orange-crowned Warbler
- Yellow Warbler
- Myrtle Warbler
- Blackpoll Warbler
- American Redstart
- Northern Waterthrush
- Common Yellowthroat
- Wilson's Warbler
- American Tree Sparrow
- Slate-colored Junco

The following species were not captured in mist nets (or were only captured in small numbers), but were observed in sufficient numbers to analyze the timing of migration using visual migration watch data. The full set of migration timing figures for the species listed below are shown in Figures 20 – 38. When analyzing raptor migration timing data, there are often a number of small peaks due the fact that raptors often migrate in clusters with high numbers of individuals migrating over a short period of time due to favorable weather conditions.

- Greater White-fronted Goose
- Canada Goose
- Trumpeter Swan
- Tundra Swan
- Osprey
- Northern Harrier
- Sharp-shinned Hawk
- Red-tailed Hawk
- Rough-legged Hawk
- Golden Eagle
- American Kestrel
- Merlin
- Peregrine Falcon
- American Robin
- Varied Thrush
- American Pipit
- Pine Grosbeak
- Common Redpoll
- Pine Siskin

The following species are not well suited to the mist netting or visual migration watch analysis due to the small numbers captured/observed. However, when all observation methods are combined into the daily species totals, there is a large enough sample size to view the migration trend of these species. Thus the daily visual migration watch counts and other observation data were combined to analyze migration timing and are shown in Figures 39 – 53.

- Lesser Scaup
- Surf Scoter
- Red-throated Loon
- Pacific Loon
- Common Loon
- Horned Grebe
- Red-necked Grebe
- Mew Gull
- Herring Gull
- Thayer's Gull
- Arctic Tern
- Spotted Sandpiper
- Belted Kingfisher
- Warbling Vireo
- Savannah Sparrow

3.2 Band Repeats, Returns & Recoveries

The proportion of band repeats was relatively low (4.64%) during the 2012 season (Table 6); this compares to 4.6% during 2011 and 4.7% during 2010. These results indicate that there is a very high turnover of migrants through the study site. For the purpose of migration monitoring, this is the preferred scenario as there is a limited amount of double counting the same individuals on consecutive days.

Band returns (individuals banded at the site in previous years) typically represent individuals that breed within the study site as the likelihood of re-trapping migrants is relatively low. During 2012, the observatory had 13 band returns representing 6 species (Table 7). The oldest band return during 2012 was a Black-capped Chickadee originally banded at the site during April 2006. This individual bird has been recaptured annually since it was initially banded as this bird is at least 8 years old as of 2012. The majority of band returns during 2012 likely represent individuals which breed near the observatory as indicated by the recapture dates that are relatively early during the season. The exceptions are Slate-colored Junco #2401-65055 and Swainson's Thrush #2341-79060 which were recaptured relatively late during the season and may represent passage migrant band returns.

Foreign band recoveries are a very infrequent event; to date the observatory has had three such recoveries and also recovered one bird from another location (Table 8). Most recently, an Alder Flycatcher banded as a hatch year in late August 2009 at TLBO was recaptured at Tacarcuna Nature Reserve near Sapzurro, Choco, Colombia on April 29, 2011 approximately 7,400 km from Teslin Lake.

3.3 Molt Scoring

As supplementary information, data was collected on the stage of molt for a large proportion of the birds banded. Although information on the prebasic molt (amount of juvenile plumage remaining) was collected for hatch year birds, a particular emphasis was placed upon collecting wing molt scores for molting adult individuals. Wing molt score is achieved by assigning each individual wing flight feather a score from zero (old feather remaining) to five (new feather fully grown) and adding them together. During 2012, a total of 118 molt scores were obtained from 111 individuals of 25 species (Table 9).

3.4 Visual Migration Counts

The visual migration counts provide a means to observe numerous species not typically observed using other methods. The counts are especially useful in observing raptors in migration and also serve as a means for observing waterfowl and waterbirds. Note that birds seen during the migration counts which are not in active migration flight are not included in this section. During the fall 2012 season, visual migration watching (standard & nonstandard) was conducted for 352.4 hours (Figure 54). The visual migration counts began in earnest during late August to coincide with higher numbers of raptors and waterfowl migrants passing by the observatory. The highest number of visual migrants observed

was during week 12 (mid October) due to a large movement of tundra and trumpeter swans. Overall, the number of visual migrants observed was the second highest recorded to date, despite the highest amount of visual counting effort to date (Table 10). When the number of migrants observed is converted to consider the amount of watch effort, the number of raptors observed was the lowest to date (Figure 55, left). Alternatively, the number of waterfowl observed was slightly higher during 2012 as compared to the previous two years (Figure 55, right).

The following section summarizes the visual count data by species groups. For species with a sufficient sample, migration windows were assigned for specific species. These windows represent passage of 95% of the migrants observed during 2012. For species observed in sufficient numbers, the number of individuals and visual counting effort during the 2012 migration window are shown. Over the long term, the data from the migration windows will be used for long term species trend analysis.

Representative photos of birds observed during the 2012 visual migration counts are shown in Photos 1 – 12.

3.4.1 Loons & Grebes

A total of 388 loons and grebes were observed during the 2012 visual counts (Table 11), the most common of which was Pacific Loon of which 122 were observed. As a group, these species are better suited to being monitored through the lake counts (Section 3.5) or through the daily estimated totals which combine all monitoring methods (visual migration and lake counts).

3.4.2 Geese, Swans & Ducks

A total of 35,008 individual waterfowl representing 23 species were observed during the 2012 visual counts (Table 11, left). The vast majority of these were swans and geese, 15,222 and 17,095, respectively. Sixty-three percent of the swans identified to species were Tundra Swans and, 52% of the geese were Greater White-fronted Geese. Swans and geese are well suited to being monitored by the visual counts as at the observatory because they are large bodied birds which can accurately be counted from a distance. Furthermore, the vast majority observed in any given year are in active migration flight. In terms of ducks, 2,691 individuals of 17 species were counted. Ducks observed in the highest numbers included Mallard, Lesser Scaup, Surf Scoter, Northern Pintail and Common Merganser.

As presented in Table 12, some of the birds counted on the visual migration counts could not be identified to species, particularly geese and swans. To increase the sample size of individuals identified to species, the unidentified individuals were extrapolated to the actual species based on the relative proportion of individuals identified on each day. The results of this analysis are shown in Table 12 and serve as a method for increasing the overall sample size to facilitate long species trend analysis for these species.

When possible, the age of visual migrants was also recorded. In the case of swans this is often done readily due to their size and relative ease of determining age. For both species of swans, a substantially higher proportion of adults were observed in relation to juveniles (Table 14).

3.4.3 Raptors

As a group, most species of raptors are well monitored by the visual migration counts; in 2012, a total of 1,977 raptors were counted during the visual counts and as incidental "other visual migrants" (Table 15) representing 13 species. The most numerous species observed was Northern Harrier, followed by Sharp-shinned Hawk, Red-tailed Hawk, Golden Eagle, Rough-legged Hawk and American Kestrel.

A breakdown of color morph data collected during 2010, 2011 and 2012 is shown in Table 16 and Table 17 for Rough-legged and Red-tailed hawks, respectively. For Rough-legged Hawk, the majority of birds observed were classified as light morph individuals. For Red-tailed Hawk, Harlan's dark morph was by far the most common with Harlan's light morph being the second most common. The observation of one western dark morph and two possible eastern morphs are very significant as there are no well-documented sightings of these forms in the Yukon.

For many species of raptors, it is possible to determine the age and sex of visual migrants when viewing conditions are suitable. As shown by Table 18, this information adds a great deal to the data collected by the visual migration counts. If conducted over the long term, such data will be valuable for determining the relative productivity of species encountered in sufficient numbers. Furthermore to the determination of age and sex, it is possible to determine different color morphs and subspecies for some species.

3.4.4 Cranes

In 2012, a total of 794 Sandhill Cranes were observed (Table 19); this is lower than the numbers observed in previous years. For example, 2,264 individuals were counted in 2010. In years when high numbers are observed, the vast majority are typically observed in a single day.

3.4.5 Plovers, Sandpipers & Allies

As a group, shorebirds are not well monitored at the observatory due to the relatively low numbers of individuals observed (Table 20); in 2012, a total of 99 shorebirds of 7 species were observed. The visual migration counts are not a suitable method for collecting data for species trend analysis for this group of birds; however, this information can continue to be collected incidentally when counting other species (raptors, waterfowl, etc).

3.4.6 Gulls & Terns

A total of 301 jaegers, gulls and terns representing 6 species were counted during the 2012 visual migration counts (Table 21). Arctic Tern and Thayer's Gull are observed in sufficient numbers to investigate species trends over the long term; however, the other gull species are better monitored through the use of the lake count data due to the large numbers observed on the lake on a daily basis.

3.4.7 Alcids

One murrelet (unidentified to species) was observed briefly on the visual migration counts on September 23. For further detailed on this observation, refer to the Interesting & Notable Captures/Observations section (3.7).

3.4.8 Owls

Owls seen during the 2012 visual counts were limited to four Northern Hawk Owls and one Short-eared Owl (Table 23). As a group, owls are typically observed annually in very low numbers during the visual counts.

3.4.9 Kingfishers & Woodpeckers

With the exception of Yellow-bellied Sapsucker and Northern Flicker which are true migrants, woodpeckers in the Yukon can be considered irruptive migrants. During the 2012 visual counts, 20 woodpeckers of 3 species were counted in addition to 2 Belted Kingfishers (Table 24). The majority of woodpeckers observed were Three-toed Woodpeckers indicating that there was some irruptive migration of this species during the fall of 2012.

3.4.10 Passerines

A wide variety of passerines (21,385 individuals of 36 species) were counted during the 2012 visual migration counts (Table 25). A very large proportion of the passerines observed were large thrush (American Robin, Varied Thrush, unidentified), Yellow-rumped Warblers, small finches (redpolls, Pine Siskin, unidentified) or unidentified small passerines. It is important to note that the species composition of the unidentified small passerines varies by the time of the season. For example, early season unidentified small passerines are likely Yellow-rumped, Blackpoll and Yellow warblers whereas later season individuals are likely Dark-eyed Juncos, Pine Siskins and Common Redpolls.

Where possible, unidentified birds of similar species such as large thrush or small finches can be separated into actual species based upon the daily observed ratio on the same or adjacent days. The results of these data extrapolations is shown in Table 26; note that if these data are transformed using

the same methods in future years, they can be used to increase the sample size of known species to facilitate long term species trend analysis.

For most passerines, standard mist netting/banding is likely to provide more suitable migration monitoring data and those observed on the migration counts simply add to the daily species total data. However, for species which migrate diurnally, are not captured in sufficient numbers by mist nets, and can be identified with relative ease when in flight, the migration count data likely provides the most reliable data. These include species such as the swallows, Townsend's Solitaire, American Robin, Varied Thrush, American Pipit, Bohemian Waxwing, Rusty Blackbird, Pine Grosbeak, Common Redpoll, Pine Siskin and White-winged Crossbill.

3.5 Lake Counts

The lake counts provide monitoring data for various species of loons, grebes, waterfowl and gulls/terns/ jaegers. With the exception of Pacific Loon, relatively few loons and grebes were observed during the visual migration counts. The opposite was true for the lake counts which recorded these species in relatively high numbers. Red-necked Grebe in particular was observed in high numbers with over 1,300 bird days counted for this species (Table 27).

Geese and swans were observed in very low numbers during the lake counts; these species are typically observed flying over the site only (*ie*¸ are visual migrants). However, for some duck species (scoters and mergansers), the lake counts recorded data to supplement the visual migration counts (Table 28). Only small numbers of dabbling and diving ducks were seen mostly due to scarcity of suitable habitat at the observatory.

As a group, gulls, terns and jaegers are well monitored through the use of the lake counts as these species are typically counted in the highest numbers using this method. Herring Gull in particular was observed in high numbers during 2012 with over 2,600 bird days counted (Table 29). It is important to note that a gull feeder (cereal and food scraps) was established at the site during the last week of September and was used until the end of the season (October 31). The purpose of this feeder was to attract gulls towards the site to allow for a positive identification and photo documentation of rare gull species. As this feeder likely influenced the number of gulls at the site during this time, this count data will be considered non-standard and will be included separately during future trend analysis for these species. Refer to Section 3.7 for additional information on rare gull sightings.

Representative photos of birds observed during the 2012 lake counts are shown in Photos 13 – 18.

3.6 Waterfowl / Waterbird Counts at Other Locations

To compliment the monitoring activities at the observatory, waterfowl counts were conducted at a number of sites in the Southern Lakes Region during 2012. The goal of these counts is to investigate the possibility of monitoring bird species (primarily waterfowl and waterbirds) which may be under represented by the monitoring activities at the observatory. In total, 80 counts were completed at 10

locations (Table 30) with the highest priority count locations being Johnson's Crossing, Teslin Lake outlet, Squanga Lake, Little Atlin Lake and Judas Creek Marina. New for 2012, a number of Canadian Wildlife Service (CWS) roadside ponds were also surveyed on an opportunistic basis.

The stationary counts tallied over 12,000 loons, grebes and waterfowl of 38 species as summarized in Table 31. Considering all locations, the most commonly counted species in total were Red-necked Grebe, Mallard, Bufflehead, and Canada Goose (Table 31). The highest number of birds observed were located at the Teslin Lake outlet where both dabbling and diving ducks were observed in moderate numbers. The counts conducted at Marsh Lake-Judas Creek Marina recorded modest numbers of birds but had by far the largest numbers of Red-necked and Horned grebes.

Using the bird observation data, extrapolations were done to estimate bird numbers each day between counts, and these were combined to estimate the total number of bird-days at each area for species observed in sufficient numbers. The extrapolation data allows for a measure of overall bird use for the locations surveyed and to determine the practicality of these methods for the purposes of long term trend monitoring. A summary of the data extrapolations are shown for Johnson's Crossing, Teslin Lake outlet, Squanga Lake, Judas Creek Marina and Little Atlin Lake in Tables 32 to 36.

3.7 Interesting & Notable Captures / Observations

The vast majority of birds banded and observed at Teslin Lake in 2012 were species which are common and widespread north and west of the study site. For these species, the observatory continues to collect baseline data on species distribution, population status and migration timing. These common species will be the primary focus of the long term species trend analysis to be conducted following additional years of data collection. In addition to common species, the observatory continues to add to the knowledge base for rare and uncommon bird species in the Yukon. As the observatory operates on a daily basis throughout the fall migration season, there are often a number of interesting and notable species observed and/or captured in the mist nets. The following section summarizes a number of interesting and/or notable captures and sightings from the 2012 fall season.

Yellow-billed Loon

This species is a rare fall migrant through the southern Yukon, most typically during October and November. Contrary to this pattern, one adult was observed on Teslin Lake on August 2 (Photo 19). A number of unidentified large loons were observed during the latter portion of the 2012 season; however, none could be conclusively identified as Common or Yellow-billed loons. Previous sightings at the observatory include: 3 individuals during late October 2010 and 6 individuals during mid October 2011.

Cackling Goose

Recently split from the familiar Canada Goose, Cackling Goose is a relatively rare migrant in the southern Yukon. Recorded at the observatory for the first time in 2012, a total of 3 individuals were observed on 2 days (October 11, 14) within mixed flocks of Canada Goose and Tundra Swan.

Hooded Merganser

The least common of the mergansers regularly observed in the Yukon, this species is observed annually in low numbers, although it is much more frequently observed in the spring. In 2012, a single individual was observed with a group of Common Mergansers on October 3 (Photo 20). This species has been observed at the observatory on 2 previous occasions, August 28, 2009 and September 24, 2010 with both records being single flyby individuals.

Swainson's Hawk

Prior to the initiation of visual migration counts at the observatory in 2008, fall records of this species in the Yukon were very sparse. Since then, the species has occurred at the observatory annually in low numbers. In 2012, a total of 12 individuals were observed on 8 days, all of which were recorded on the visual migration counts: 2 – August 9, 1 – August 11, 13, 28, 3 – August 29, 2 – September 10, 1 – September 14, 19. The number of individuals observed in previous years have included; 23 – 2011, 10 – 2010, 17 – 2009 and 3 – 2008. This species appears to be a relatively early migrant as only two sightings have been made after September 5.

Gyrfalcon

Although present throughout the Yukon where suitable habitat is present, Gyrfalcon is one of the least common raptors encountered at the observatory. In 2012, three individuals were observed (August 29, September 30 and October 21) with single birds observed on all days. Previous sightings at the observatory have included; 1 on September 18, 2010 and 1 on September 6, 2009.

Black Turnstone

Considered a casual migrant in the southern Yukon, this species is typically associated with marine environments during breeding (western Alaska) or wintering (west coast of North America from southern Alaska to Baja California). Observed for the first time at the observatory in 2012, a single bird was observed briefly on August 27 (Photo 21).

California Gull

Other than the previous records at the observatory, this species is primarily only known from the Whitehorse landfill during fall. Observed first at the observatory in 2010, a total of 39 bird days were recorded on 19 days from October 6 to 24 with a high count of 4 on 15. Not observed in 2011, the species was once again observed in 2012 on 2 days (16-17 September; Photo 22) with single birds on both days.

Glaucous Gull

An arctic nesting gull species, Glaucous Gull has also been observed at the site annually since the fall of 2008 including; twice in 2008 (August 27, September 19); twice in 2009 (August 1, 29), twice during 2010 (October 4, 18) and on 13 days in 2011 from September 16 to October 24. In 2012, the species was observed on 29 days from August 18 to October 26 (Photo 23) with single birds on all days.

Sabine's Gull

Sabine's Gull is a rare fall migrant in the southern Yukon, although it now appears to occur annually at the observatory in small numbers. Previous records at the observatory include: two days in 2008 (2 on September 2, 1 on September 4), two days in 2009 (2 on August 27, 2 on August 29), two days in 2010 (September 30, October 11 with single birds seen on each day), and 8 days in 2011 from September 24 to October 24 with single birds on all days. In 2012, this species was observed on three days (September 14, 26, 27) with single bids on each day.

Parasitic Jaeger

Prior to the initiation of fall migration monitoring at Teslin Lake in 2008, fall migration records of this species in the southern Yukon were limited to a few incidental sightings primarily from large lakes. It has become apparent that this species is a regular fall migrant on Teslin Lake; however, the number of individuals observed is variable between years. A summary of sightings of this species at the observatory is shown in Table 37; the number of individuals observed in 2012 was near average, but well below the high of 72 bird days in 2008. To date, the majority of individuals observed have been light morph adults; however, a small number of dark morph birds have also been seen.

Unidentified Murrelet

Murrelets are small seabirds not typically encountered inland. In 2012, a unidentified murrelet was observed briefly on the visual migration counts on September 23. The bird was observed from a long distance and could not be identified to species; however, it was determined to most likely be a Marbled Murrelet. This species is a year round resident in southeast Alaska. Previous inland records of murrelets in the Yukon are limited to another unidentified murrelet on Teslin Lake in the early 1990s.

Yellow-bellied Flycatcher

Yellow-bellied Flycatcher is likely the least well known *Empidonax* flycatcher in the Yukon. Partially due to identification difficulties with other closely related species, there are relatively few records of this species during migration aside from the Teslin Lake and Albert Creek bird observatories where nearly all of the records are of birds captured in the mist nets. This species is a late spring and an early fall migrant; the latest record to date is September 4 (Table 38) with a median date of August 15.

Based upon data from other bird surveys in the Yukon (Roadside BBS) and incidental observations, it has been suggested that this species is becoming more common in the Yukon. However, the banding data from the observatory indicates a slight decreasing trend from 2008 to 2012 (Figure 56). It is important to note that this trend is based on a small sample size and additional years of data collection are required to provide a more definitive trend for this species.

Western Flycatcher (probable Pacific-slope Flycatcher)

The Western Flycatcher actually encompasses two separate species; Pacific-slope and Cordilleran flycatchers. The Pacific-slope is found on the west coast of the Rocky Mountains and up the Pacific coast to southeast Alaska whereas the Cordilleran is found primarily in the interior of the western USA as far north as the BC/Aberta border east of Prince George, BC. These two species are very difficult to separate without the aid of specific vocalizations and often cannot even be separated in the hand. On August 26, a hatch year Western Flycatcher was banded and was likely a Pacific-slope Flycatcher (Photo 24) given the fact that the documented breeding range of this species is located in southeast Alaska within a few hundred kilometres of the observatory. Previous records of this species in the Yukon include one record near Rancheria (115 km east of TLBO) and three records at the Beaver River is the far southeast Yukon.

Dusky Flycatcher

This species is a high elevation breeder in the southern Yukon where it is at the northern extent of its breeding range. Lowland records of this species in migration are sparse and the observatory captures this species irregularly but annually in fall (Table 39). During 2012, a total of 3 juveniles were banded bringing the all time banding total to 19 individuals in fall. Of note, the individual banded on September 30 is the latest record to date for the observatory (previous record was September 5, 2010) and is a new late record for the Yukon.

Mountain Chickadee

The least common species of the regularly occurring chickadee in the southern Yukon, Mountain Chickadee is a rare year round resident in the south central Yukon. Since 2008, this species has been banded in all years with the exception of 2010. Along with Boreal Chickadee, it is evident that both of these this species regularly stages fall irruptions and, interestingly, they appear to coincide. A breakdown of Mountain Chickadees banded and observed since 2008 is shown in Table 37. In 2012, a

single juvenile was banded and the species were recorded on 4 days from September 18 to October 7 (Photo 25).

Nashville Warbler

Similar in appearance to the relatively common Orange-crowned Warbler, Nashville Warbler is considered casual in the southern Yukon as there are only three previous records of the species in the territory including a juvenile banded at the observatory in October 2008. In 2012, a hatch year female was banded on October 1 (Photo 26).

The species has two distinct populations in North America; the breeding range of the western population in Canada is limited to southeastern BC and the eastern population is found from the Maritime Provinces west to central Saskatchewan. The appearance of the two birds banded to date indicates that they are most likely of the eastern population.

American Redstart

In the Yukon, American Redstart is most common in the southeast portion of the territory; however, it occurs annually in lower numbers further west near Teslin, Whitehorse and Haines Junction. Following the establishment of the fall migration monitoring at the observatory in 2008, it became apparent that this species is much more common in the region than initially thought. To date, 145 individuals have been banded at the station in fall, of which 104 were juveniles (Table 41). This species is most frequently observed during late July and August although there are a few records in mid to late September (latest September 26 – 2011). In 2012, the species was observed on 28 days (66 bird days) from July 22 to September 16 and a total of 22 individuals (12 juvenile, 10 adult) were banded (Table 41; Photo 27).

Magnolia Warbler

In the Yukon, Magnolia Warbler is a species typically restricted to the southeast portion of the Yukon; there are a small number of documented records in the Teslin area. It has been banded at the observatory on two previous occasions; August 19, 2008 (juvenile) and June 11, 2005 (adult; when the station was located on Nisutlin Bay). In 2012, a juvenile was banded on August 15 (Photo 28).

Cape May Warbler

Similar to Magnolia Warbler, the Cape May Warbler is typically restricted to the southeast portion of the Yukon. In recent years, there has been an increase in the number of records in other areas of the Yukon. There is one previous record of this species at the observatory – an adult male banded May 31, 2008. In 2012, a juvenile male was banded on September 2 (Photo 29).

MacGillivray's Warbler

MacGillivray's Warbler is one of the Yukon's rarest regular breeding warbler species It is known from a small number of areas along the territory's southern margin, including several around Teslin. This species has been banded annually (except 2011) since the station became operating during the fall in 2008 (Table 42). Most frequently encountered during the first half of August, the latest record to data is September 6 (2008; adult male banded). In 2012, a juvenile was banded on August 26 (Photo 30).

Western Tanager

In the Yukon, Western Tanager is a regular breeding species in the southeast portion of the territory; however, it is documented irregularly further west. To date, 2 individuals have been banded at the observatory (1 on June 4, 2006 and 1 on August 11, 2009) and also observed on two days in 2010 and three days in 2011. In 2012, one individual was observed briefly near the banding table on July 29.

3.7.1 Chickadee Movements

Chickadees are considered year-round residents, but the observatory has documented chickadee irruptions in four of the last five years (Table 43). *The high number of individuals banded and observed indicates that a substantial number of birds are involved in these irruptions. The relative proportion of the species encountered is likely an indication of the relative abundance in the southern Yukon; however, it is possible that certain species may be more likely to stage fall irruptions. Of particular interest, nearly all chickadees banded are hatch year individuals.

3.8 Rusty Blackbirds

As part of an ongoing project in co-operation with Pam Sinclair (CWS-Whitehorse) and the Albert Creek Bird Observatory, all Rusty Blackbirds captured were fitted with a color band (light blue) in addition to the regular band. As each Rusty Blackbird study site uses a different color, the color bands help to identify the origin of a re-sighted individual without the need to recapture it. Additionally, from 2008 to 2010 a feather was collected from each Rusty Blackbird captured. Feather samples were analyzed for stable isotopes in an effort to make linkages between breeding and wintering grounds of this species. During the fall of 2012, 10 individuals were banded (9 hatch year, 1 after hatch year).

3.9 Visitors and Volunteers

Once again the observatory hosted numerous visitors and volunteers. On most days of operation, adequate personnel were available onsite to assist with the banding operation. This was largely due to the commitment of long term volunteers who provide valuable assistance at the observatory. During 2012, the observatory once again hosted long term volunteer Abril Heredia from early August to mid October. Qualified volunteers such as Abril are necessary to allow for the observatory to be successful over the long term.

Tables 44 and 45 summarize the number of hours spent at the observatory by visitors, volunteers and paid workers. Visitors were defined as those people who visited the observatory (often for a short time) and did not take part in activities at the observatory. Volunteers were those people which took part in the operation of the observatory (often extensively) without being financially compensated. Paid hours were spent by individuals being paid to be at the observatory. This category includes the Bander In Charge (Jukka Jantunen, Ben Schonewille and Ted Murphy-Kelly) and individuals paid by other organizations (Yukon Government, Canadian Wildlife Service, etc). Note that the values shown for "paid hours" only include those spent at the observatory and do not include the extensive amount of travel to and from the site, data entry, data analysis, report writing and other communication of the observatory's results.

In comparison to previous years, the total number of volunteer hours was higher than average but lower than the high of nearly 1,000 hours in 2011 (Figure 58). This is due, in part, to the extended season and a single long term volunteer at the observatory throughout the season. The visitor hours in 2012 were below average; visitor hours typically range from 175 to 225 hours per year.

4.0 Conclusion & Recommendations

The results from this season's operation have continued to add to the knowledge of numerous aspects of bird biology in the Yukon, including: species distribution, migration timing and productivity. The location of the study site has proven to be a very effective for monitoring songbird migration. The primary reason for this is the close proximity of the site to Teslin Lake. As the lake is a very large body of water which runs in a north/south direction, it acts as a funnel for migrants. Additionally, most migrating birds are hesitant to cross the lake and many birds concentrate along the lakeshore and pass directly through and over the study site. On numerous occasions, flocks of migrating birds have been observed moving along the lakeshore and thus have yielded some very impressive banding and observation totals at the observatory. Following five years of fall migration monitoring at the observatory, the ability to monitor songbirds has been well demonstrated by the high numbers of migrants observed and banded on an annual basis. The results gathered this season also confirm the previous assumption that few birds stopover at the study site for extended periods of time. The majority of birds simply pass through the site while in migration and this is supported by the low proportion of band repeats throughout the season. For the purposes of effective migration monitoring, this is a desirable situation as it is clear that most birds observed and banded truly are migrants.

The visual migration and lake counts increase the number of bird species which may be monitored at the observatory and are now a key component of the observatory's activities. Together they serve to collect monitoring data for species not banded (or banded only in low numbers) including; waterfowl, loons/grebes, gulls/terns, raptors and some species of passerines, particularly American Robin, Varied Thrush, American Pipit, Rusty Blackbird, Common Redpoll and Pine Siskin.

To build upon the activities at the observatory and collect additional monitoring data for waterfowl, a number of waterfowl counts continue to be surveyed in the Southern Lakes region to collect additional monitoring data for species not observed in sufficient numbers at the observatory. These results indicate that there is potential for these surveys to effectively monitor a number of species of waterfowl/waterbirds, primarily loons/grebes, diving ducks (goldeneyes, Ring-necked Duck, scaup), Surf Scoter and some species of dabbling ducks.

Over the long term, the data collected at the observatory will be used to calculate species trend analysis to be used to determine the status on bird populations. Given the location of the observatory, the birds counted at the site are known to originate in the Yukon and Alaska. Species trend data from this relatively small catchment area will be useful when used in combination with more southerly bird observatories which monitor birds from a much larger catchment area. For trend analysis to be possible, the observatory must continue to operate on an annual basis and continuing monitoring in a standardized manner (ie, follow the monitoring protocol).

The observatory continues to be successful in attracting members of the public to the observatory to learn about birds and bird migration. During 2011, a Y2C2 (Yukon Youth Conservation Corps) group visited the observatory along with numerous other public visitors. On all occasions, the visiting groups were given an introduction to birds, their migration and methods used for ornithological data collection.

Appendix A –Teslin Lake Bird Observatory Monitoring Protocol

Teslin Lake Bird Observatory (TLBO)
Field Protocol

Ben Schonewille
Society of Yukon Bird Observatories
2011 (version 2)

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1.0 Introduction

The Teslin Lake Bird Observatory (TLBO) was established in the spring of 2005 by Ben Schonewille and Ted Murphy-Kelly with assistance from a number of agencies including the Teslin Renewable Resources Council, Canadian Wildlife Service, Yukon Environment and the Yukon Conservation Society. For 2005, the station was located along the shore of Nisutlin Bay, however; land tenure problems caused the station to relocate to the current location at Ten Mile Point on Teslin Lake. Over the period of 2006 to 2008, the station operated during the spring season with varying amounts of effort (typically 25 – 35 days of operation per year). Prior to 2008, the station operated very sporadically during the fall season, however; in 2008 the station operated continuously during the fall migration season and has continued since.

TLBO is an associate member of the nationwide CMMN (Canadian Migration Monitoring Network). Situated along Teslin Lake (60.231^{o} N, 132.916^{o} W) in the south-central Yukon, TLBO offers an ideal location to monitor the migration of landbirds, raptors, waterbirds and possibly waterfowl breeding north of the observatory throughout the Yukon and Alaska. Migration monitoring methods at Teslin Lake follow procedures recommended by the North American Migration Monitoring Council and are similar to methods used elsewhere (Wojnowski et al 2000, Gahbauer and Hudson 2004). This protocol provides a description of field procedures currently in practice at TLBO. It is intended that this protocol should enable personnel, who are unfamiliar with the site, to collect data that are consistent with current procedures.

This document is intended to develop a field protocol for the operation of TLBO with the possibility of revisions to be made should additional components (e.g. owl banding, species specific monitoring using call playback) be added to the protocol in the future.

2.0 Objectives

The primary objectives of Teslin Lake Bird Observatory are as follows:

- Collect data to allow for trend analysis of landbird populations based on the collection of migration monitoring data.
- Collect baseline data on the distribution and migration timing of all bird species in the south-central Yukon.
- Provide an opportunity for the public (especially students) to learn about the birdlife of the Yukon, their migration habits and ornithological data collection.

A secondary objective of the observatory is to document trends in populations of shorebirds, waterbirds and waterfowl based on the collection of migration monitoring data.

High priority landbird species for monitoring at Teslin Lake are shown in Table 1. Species prioritization follows that of Badzinski and Francis (2000). Species shown in **bold** are those which meet the minimum criteria in Badzinski and Francis (2000) for species trend analysis; at least 10 individuals are observed on a least 5 days per year. Such prioritization currently does not exist for other groups of birds including waterfowl, waterbirds and raptors.

Table 1. Priority landbird species for monitoring at Teslin Lake Bird Observatory (not that there are no priority 'E' and 'F' species which occur regularly at TLBO).

Priority 'A'	Priority 'B'	Priority 'C'	Priority 'D'
Alder Flycatcher	American Tree Sparrow	American Redstart	**American Robin**
American Pipit	**Boreal Chickadee**	Bank Swallow	**Black-capped Chickadee**
Blackpoll Warbler	**Bohemian Waxwing**	Barn Swallow	Belted Kingfisher
Gray-cheeked Thrush	**Common Redpoll**	Chipping Sparrow	Cedar Waxwing
Lincoln's Sparrow	**Dark-eyed Junco**	Cliff Swallow	Downy Woodpecker
Northern Waterthrush	Fox Sparrow	Common Nighthawk	Hairy Woodpecker
Orange-crowned Warbler	Lapland Longspur	Common Yellowthroat	Hermit Thrush
Savannah Sparrow	**Myrtle Warbler**	Dusky Flycatcher	Northern Flicker
Swainson's Thrush	Northern Shrike	Hammond's Flycatcher	**Pine Siskin**
Tennessee Warbler	**Pine Grosbeak**	Least Flycatcher	Purple Finch
Wilson's Warbler	**Ruby-crowned Kinglet**	MacGillivray's Warbler	Red-breasted Nuthatch
Yellow-bellied Flycatcher	**Rusty Blackbird**	Olive-sided Flycatcher	Townsend's Solitaire
	Varied Thrush	Say's Phoebe	
	White-crowned Sparrow	Townsend's Warbler	
	White-winged Crossbill	Tree Swallow	
		Violet-green Swallow	
		Warbling Vireo	
		Western Tanager	
		Western Wood-Pewee	
		Yellow Warbler	

A. Species with <50% of North American (Canada and USA only) breeding range covered by BBS, and <60% of their winter range in USA and Canada.
B. Species with <50% of North American breeding range covered by BBS, but >60% of their winter range in the USA and Canada.
C. Species with <60% of their Canadian and Alaskan breeding range (but >50% of North American range) covered by BBS, but >60% of their winter range in USA and Canada.
D. Species with <60% of their Canadian and Alaskan breeding range (but >50% of North American range) cover by BBS, but >60% of their winter range in USA and Canada.
E. Species with >60% of both their Canadian and North American breeding range covered by BBS, and <60% of their winter range in USA and Canada.
F. Species with >60% of both their Canadian and North American breeding range covered by BBS, and >60% of their winter range in USA and Canada.

3.0 Migration Monitoring Methods

3.1 Count Area

Teslin Lake Bird Observatory is located on the east shore of Teslin Lake, approximately 15 km northwest of the community of Teslin (Figure 1). The boundary of the count area is shown by a purple line in Figure 2. The count area is delimited by the Alaska Highway to the east and Teslin Lake to the west. The north boundary is the access road to the boat launch and the south boundary is the location where the Alaska Highway embankment is nearest Teslin Lake. The area of the count area is approximately 0.15 km^2 (15 ha).

Figure 1. Map of the Yukon, showing the location of TLBO.

Figure 2. Map of Teslin Lake Bird Observatory count area (marked by purple line).

The count area encompasses Ten Mile Point and includes the Yukon Government's Teslin Lake Campground. Any birds seen or heard by observers, who are within the count area during the count period, may be included in observations contributing to the estimated total, regardless of whether the birds are within the count area or not. All birds on or over the lake, whether seen by naked eye or with the assistance of optics, are countable if the observer is within the boundaries of the count area.

3.2 Count Period

The daily count period for the estimated totals starts 15 minutes before sunrise and is rounded back to the nearest quarter or an hour (ex – 520 sunrise rounds to 515 start). The duration of the daily mist-netting activities is, conditions permitting, 6 hours, from the opening of the first net to closing the first net (sunrise plus 6 hours) and shall begin 15 minutes after the start of the count period. The remaining time within the daily count period will include a 1 hour watch. The actual duration of the daily count period may vary on a day to day basis due to the 1 hour watch to be completed following the closure of the mist nets and the subsequent processing of birds captured during the closing net round. A daily schedule of the standard start and end times of the count period during the spring and fall season is shown in Appendix 1.

The standard count period timing may be altered by up to 3 hours due to unfavorable weather conditions including rain/snow or cold temperatures. When this occurs, a full scale 6 hour mist netting effort is allowed. In the event that the station is opened later than the scheduled start time and is not attributed to weather, the only effort which is considered standard is that which

extends up to the scheduled count period end. In these instances, a minimum of 3 hours of netting effort is required to be considered standard otherwise the entire effort for the particular day will be considered non-standard.

Some examples of how the standard/non-standard count periods are shown below using an example of September 1st; the predetermined count period for this data is 630 with the net opening and closing being 645 and 1245, respectively.

- Count period starts at 630, nets opened at 645 and closed at 1245, birds are then processed, a 1 hr visual count is conducted and the count period ends at 1400.
    - Standard Count Duration = 7.5 hrs
    - Non-Standard Count Duration = 0 hrs
    - Standard Mist Netting Effort = 6.0 hrs
    - Non-Standard Mist Netting Effort = 0 hrs
- Count period starts at 630, nets opened at 645 and closed at 1445, birds of the 1245 net round are processed at a one hour watch is conducted and finished as 1400. Birds from the 1445 net closing round are banded and the count period ends at 1530.
    - Standard Count Duration = 7.5 hrs
    - Non-Standard Count Duration = 1.5 hrs
    - Standard Mist Netting Effort = 6.0 hrs
    - Non-Standard Mist Netting Effort = 2.0 hrs
- Raining at 630; however, rain ends at 800. Nets opened at 830 and closed at 1430. After the final net round, a 1 hr visual count is done and completed at 1600. An additional 1.5 hr visual count is done and the count period ends at 1730.
    - Standard Count Duration = 7.5 hrs
    - Non-Standard Count Duration = 1.5 hrs
    - Standard Mist Netting Effort = 6.0 hrs
    - Non-Standard Mist Netting Effort = 0 hrs

3.2.1 Seasonal Count Timing

The core timing of the standardized fall count period will be July 25 to September 25 (a total of 9 weeks of operation). Should additional resources be available and weather conditions favorable to allow for an extended season, the standardized protocols will be utilized to operate the observatory before and/or after the July 25 to September 25 period.

3.4 Mist Netting

One qualified bander must be designated as the bander-in-charge (BIC) at all times. The BIC is responsible for ensuring that mist netting and banding is conducted safely and in accordance with this protocol. In order for any capture or banding to take place, a licensed bander **must** be on site. Further, that individual must have the Master Bander's banding permit on hand.

The standard mist netting period extends for 6 hours starting at official sunrise (rounded back to the nearest quarter of an hour; see Appendix 1). At Teslin Lake, the sole method of capturing birds for the purposes of banding is through the use of passerine mist nets.

3.4.1 Operating Guidelines

All mist nets used should be 30 mm, black mesh, 75d/2 ply thread, and tethered. All nets are set on guyed, 3 m high poles.

3.4.1.1 Fall Season

The standard mist net array for the fall season is shown in Figure 3. Mist net specifications are detailed in Table 2. In addition to these nets, non-standard nets are allowed must be indicated as such on all effort and species estimated total sheets. For example, nets may be useful to target specific species (such as Rusty Blackbird) or to test innovative capture techniques such as canopy nets.

Table 2.TLBO mist net specifications.

Net #	Length	Height	# of Panels	CF
1	12 m	2.75 m	4	1
2	12 m	2.75 m	4	1
4	12 m	2.75 m	4	1
5	12 m	2.75 m	4	1
6	12 m	2.75 m	4	1
7	12 m	2.75 m	4	1
8	12 m	2.75 m	4	1
9	12 m	2.75 m	4	1
10	12 m	2.75 m	4	1
11	12 m	2.75 m	4	1
14	12 m	2.75 m	4	1
15	12 m	2.75 m	4	1
16	12 m	2.75 m	4	1
17	12 m	2.75 m	4	1
18	12 m	2.75 m	4	1
20	12 m	2.75 m	4	1
25	12 m	2.75 m	4	1
26	12 m	2.75 m	4	1
27	12 m	2.75 m	4	1
28	18 m	2.75 m	4	1.5
29	12 m	2.75 m	4	1
30	12 m	2.75 m	4	1

CF = Correction Factor. To determine net hours, a 12 meter - 4 panel net is counted as 1 net and an 18 m – 4 panel net is counted as 1.5 net.

Figure 3. TLBO mist net array.

A total of 22 mist nets may be used on a daily basis (see Table 2). The opening and closing of nets shall be conducted in the same order each day and should begin at the banding & observation site and progress in a northward direction along the net loop. The number of nets used on a daily basis shall be determined by a number of factors including; number of qualified personnel onsite, bird activity and weather. The core group of 13 nets which shall be used on a daily basis as conditions allow include the following; 4, 6, 7, 8, 9, 10, 11, 14, 15, 18, 16, 17 and 20. Additional mist nets should be opened when conditions allow and should be done so at the discretion of the BIC. In the advent of unfavorable weather or a backlog of birds, all mist nets should be closed until the backlog of birds is processed or the weather improves. Should birds be released unbanded due to an excessive backlog of birds or other reason, the number of individuals should be recorded as "obs" on the daily log sheet. The number (and species) are birds should also be recorded in the daily narrative and entered accordingly in the observatory database.

Only the standard nets should be operated during the standard period, with the exception of experimental canopy nets and/or species specific nets. Exceptions may be made in order to catch and document a rare bird or where the trapping involves non-target species (e.g. shorebirds) and does not affect the standard program. Birds caught during the standard period in non-standardized nets or traps (e.g. shorebird trap, by hand, etc.) must be denoted as NSB (non-standard banding) in the comments column on the banding sheets. These birds are, however, included in the regular band column on the Daily Log and do contribute to the ET.

Additional passerine netting after the normal closure time may be done at the discretion of the bander-in-charge. New bandings and recaptures outside of the standard Banding Period are denoted as NSB on the banding/recapture data sheets or, respectively and entered into the NSB Band and NSB Recap columns, respectively, of the daily log sheet. Any non-standard netting or trapping effort should be recorded on the daily log sheet, even if no birds are captured.

The use of bird seed / suet within the count area is prohibited within the count area and other means of attracting birds to the count area are not permitted with the following exceptions:

- Nocturnal audio-luring of owls is permitted during testing of the site for monitoring owls.
- The testing of using audio lures to target specific target species, such as finches or woodpeckers at mist nets 5, 25, 26 and 27.

Should either of the above activities prove to be feasible at TLBO, future refinements to this protocol will be made.

3.4.2 Banding

All banding shall be conducted in adherence to the North American Bird Banding Manual (Gustafson et al 1997) and all aging and sexing of birds shall be made using the Identification Guide to the Identification Guide to North American Birds (Pyle 1997). Refer to Appendix 2 (field manual) for additional detail regarding the collection of banding data.

The safety of birds should be utmost importance during the mist netting and banding activities at TLBO.

Should any birds show signs of excessive stress upon extraction, they should be released immediately at the net and recorded within the "Obs" column of the daily log sheet. In the event that birds are released unbanded, the number (and species) are birds should also be recorded in the daily narrative and entered accordingly in the observatory database.

Data sheets to be used include the following: Original Banding Sheet, Recapture Sheet and Molt Sheet (see Appendix 3).

3.5 Visible Migration Count

A series of visible migration watches (i.e., the watches) will be conducted as part of the daily count period at TLBO. Due to problems associated with having a sufficient number of qualified observers, the watches are designed to allow the primary observer (typically the Bander-in-Charge) to carry out the mist netting and banding activities simultaneously.

An extensive (4-6 hour) watch is not typically possible since different species migrate at different times of day, and qualified observers are limited. Therefore a number of shorter duration watches will be conducted throughout the count period. Rather than identify a predetermined visual count effort on an hourly basis (which may not be possible at times due to high mist net captures), the guideline for the visual counts is to conduct as much visual counting as possible during the count period. In addition to the visual counts during the mist netting period, a 1 hour watch should be carried out following the completion of the day's mist

netting / banding activities (where possible). The birds counted for each watch shall be separated and indicated as such on the "Visual Counts Field Data Sheet". On the data sheets, all counts shall be scribed as starting at the top of the hour. For example, if a count is started at 945, the birds seen up until 959 are recorded under the 945 watch period and a new count shall be started at 1000 and progress as long as 1059, when a new (1100) count shall be started.

The watch timing / effort and a tally of all birds seen should be recorded on the daily log sheet (Appendix 4). Note that all birds seen shall be designated as either visual migrants ("vis") or observed ("obs") on the field tally sheet.

Typically, the watch will be completed by a single individual, however; should additional personnel be involved in the watch, one person shall be designated as the lead observer. The lead observer will typically be the most experienced observer and all data will be recorded by the lead observer.

The watch data are to be collected independently of other survey / banding activities at the station. In other words, all birds classified as "vis" cannot be recorded in other Estimated Totals categories.

To assign individual birds or flocks of birds as visual migrants (vis) , the observer is required to use reasonable judgment, however; the following guidelines will aid in making the determination.

- Any birds flying along (or over) Teslin Lake without stopping shall be considered migrants (this is typically in a southward direction but may also be in other directions).
- In the case of small passerines, individuals seen moving through the vegetation at a fairly steady pace without prolonged periods of stopover shall be considered migrants.
- Birds (typically small passerines such as warblers) observed landing at the point, and leaving shortly after shall be considered migrants despite stopping briefly. Such birds must be considered migrants as many birds will stop briefly at the point prior to flying out over the water or continue along the lakeshore.
- Any birds observed "dropping in" to the point and not leaving shortly after shall not be considered migrants.

Unidentified flycatchers, thrushes, sparrows, vireos and warblers should be recorded as such while conducting the visual counts. In the case of similar species in which a species specific identification cannot be determined, it is acceptable to record them as a combination of species. An example would be American Robin / Varied Thrush which in some instances can be difficult to identify at a distance. On the visual count data sheet, the number of birds observed should be recorded as visual migrants ("vis").

3.5.1 Watch Location

All watches should be conducted from the sparsely vegetated location at the tip of the point immediately adjacent to the banding table. At the watch location, there are two primary viewing avenues at which to observe migrating birds. First, viewing towards the west (over the lake) typically yields the majority of waterfowl, waterbird and shorebird migrants over the lake itself and also low numbers of raptors travelling along the far shore. Second, viewing towards the east (over the land) yields the vast majority of landbird and raptor migrants. The watch effort should be split between the two viewing avenues, however; on days when the larger proportion of birds are following either avenue, the effort should be split accordingly. An approximation of the proportion of the day's total watch shall be included on the appropriate data sheet (Appendix 4).

3.6 Other Observations

All birds that are observed during the count period, but are not included in the visible migration counts should be recorded in the other observations column ("Obs") in the daily log. Opportunistic sightings of birds observed in migration shall also be included separately and recorded as "Oth Vis" in the daily log.

These include birds observed during net-rounds, and any other observations from within the count area outside of the visual migration watches. Other observations should be noted by the personnel onsite on the appropriate daily log sheet (Appendix 4).

3.7 Estimated Totals (ETs)

The Estimated Total (ET) is the best estimate of the number of individuals of each species detected in the count area during the standard count period. To arrive at the ETs, all personnel involved in the respective day's activities shall be involved to help reduce the possibility of double counting individual birds.

3.8 Overall Coverage Codes

Each day, an overall coverage code, ranging from 0 to 5, is assigned based on the actual effort during the count period (6.5 hours after sunrise) that day. The coverage code takes into consideration the number of observers and their skill levels (Table 3), as well as the overall counting and mist netting effort. The coverage codes and the criteria used to assign them, are described in Table 4. For the code to be assigned, **all the listed criteria must be met**. The aim should be to achieve Code 3 coverage as frequently as possible.

Table 3. Observer skill levels.

Class	Criteria
1	Able to identify over 90% of birds encountered.
2	Able to identify 75 to 90% of birds encountered.
3	Able to identify 50 to 75% of birds encountered.
4	Able to identify less than 50% of birds encountered.

Table 4. Criteria for assigning daily coverage codes.

Code	Coverage	Criteria
0	**No coverage**	
1	**Casual**	Casual observations and/or banding. Very limited or no visible migration count
2	**Poor**	At least 1 Class 2 observer active throughout count period; variable amount of visible migration count effort; no or limited mist netting effort.
3	**Fair**	At least 1 Class 2 observer active throughout count period; 1.5 hrs visible migration count; mist netting may have been restricted by weather (maximum 100 corrected net hrs).
4	**Good**	At least 1 Class 2 observer active throughout count period; 2.0 hrs visible migration count; at least 100 corrected net hrs unless reduced due to backlog of birds.
5	**Excellent**	At least 1 Class 1 and 1 Class 2 observers active throughout count period; at least 3.0 hrs visible migration count; over 100 corrected net hrs unless reduced due to backlog of birds.

3.9 Additional Observations

The daily species total (DST) reflects the total number of birds of each species seen or heard in the area during the course of the entire day. The DST is determined by combining all birds encountered during the standard (Estimate Total) and non-standard monitoring data. Although not as standardized as the daily ET, the daily species total serves to record species detected outside the daily count period and also makes use of observations made later into the day by the observatory's personnel and volunteers.

4.0 Data Entry

The TLBO standard is to that all data (including effort, banding and ET data) will be entered into a Microsoft Excel / Access database. All applicable banding data will be provided to Environment Canada's Bird Banding Office on a yearly basis in a timely manner. Aside from data submission to Environment Canada to fulfill permit obligations, all relevant data will be provided to the Canadian Wildlife Service (Whitehorse) and the Yukon Bird Club for inclusion in seasonal bird sighting summaries, etc.

5.0 Personnel

At least two qualified people are required to obtain excellent coverage (code 5, Table 4) at TLBO, however; this protocol has been developed to allow for a lone qualified individual to achieve fair to good coverage during periods of favorable weather. It is understood that more than one qualified individual onsite would be the preferred option as is typically the case at other bird observatories. However, due to the relatively low number of qualified personnel in the Yukon, additional qualified personnel cannot be assured. Should the observatory be staffed by a lone individual, it is essential that the individual be a qualified and competent bander, and preferably also with the identification skills to conduct migration watches.

All new personnel must familiarize themselves with the protocol. The BIC, generally the most experienced bander at the station, is responsible for overseeing all aspects of operations including trapping and data recording. Training and supervision of new personnel should be done solely by the BIC or by a person designated by him/her. All persons are expected to

participate in the routine maintenance of the station. The station manager is typically responsible for station setup/closure and data management/reporting duties.

6.0 Vegetation Management

TLBO is located within the riparian influence (within the high water mark) of Teslin Lake and the site is subject to annual flooding during the spring and early summer months (late May to late June) due to the rapid melt of high elevation snowpack within the watershed. This annual flooding has a strong influence on the natural succession of vegetation onto the beach within the count area. As such, there are very few trees within the actual mist netting area (**Error! Reference source not found.**), except for along the margins where nets 5, 25 and 26 are located. However, vegetation management is not a concern for these nets as they are intended as "understory nets" to capture species in such habitats (ie, thrush). In addition, the annual flooding and movement of gravel along the shoreline limits the growth of woody vegetation within the netting area. The only vegetation management required at TLBO is the annual clearing of net lanes; primarily the removal of grasses and material deposited within the net lanes due to the spring flooding.

7.0 Literature Cited

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Appendix 1

DAILY COUNT TIMING

Date	Sunrise	Count Period Start Time	Mist Net Open	Mist Net Close	Count Period End (Approximate)
23-Jul	511	445	500	1100	1230
24-Jul	513	445	500	1100	1230
25-Jul	515	500	515	1100	1230
26-Jul	517	500	515	1115	1245
27-Jul	519	500	515	1115	1245
28-Jul	521	500	515	1115	1245
29-Jul	524	500	515	1115	1245
30-Jul	526	500	515	1115	1245
31-Jul	528	500	515	1115	1245
01-Aug	531	515	530	1130	1300
02-Aug	533	515	530	1130	1300
03-Aug	536	515	530	1130	1300
04-Aug	538	515	530	1130	1300
05-Aug	540	515	530	1130	1300
06-Aug	543	515	530	1130	1300
07-Aug	545	530	545	1145	1315
08-Aug	548	530	545	1145	1315
09-Aug	550	530	545	1145	1315
10-Aug	553	530	545	1145	1315
11-Aug	555	530	545	1145	1315
12-Aug	557	530	545	1145	1315
13-Aug	600	545	600	1200	1330
14-Aug	602	545	600	1200	1330
15-Aug	605	545	600	1200	1330
16-Aug	607	545	600	1200	1330
17-Aug	610	545	600	1200	1330
18-Aug	612	545	600	1200	1330
19-Aug	614	545	600	1200	1330
20-Aug	617	600	615	1215	1345
21-Aug	619	600	615	1215	1345
22-Aug	622	600	615	1215	1345
23-Aug	624	600	615	1215	1345
24-Aug	627	600	615	1215	1345
25-Aug	629	600	615	1215	1345
26-Aug	631	615	630	1230	1400
27-Aug	634	615	630	1230	1400
28-Aug	636	615	630	1230	1400
29-Aug	639	615	630	1230	1400
30-Aug	641	615	630	1230	1400
31-Aug	643	616	630	1230	1400
01-Sep	646	630	645	1245	1415
02-Sep	648	630	645	1245	1415
03-Sep	651	630	645	1245	1415
04-Sep	653	630	645	1245	1415
05-Sep	655	630	645	1245	1415
06-Sep	658	630	645	1245	1415

Date	Sunrise	Count Period Start Time	Mist Net Open	Mist Net Close	Count Period End (Approximate)
07-Sep	700	645	700	1300	1430
08-Sep	702	645	700	1300	1430
09-Sep	705	645	700	1300	1430
10-Sep	707	645	700	1300	1430
11-Sep	710	645	700	1300	1430
12-Sep	712	645	700	1300	1430
13-Sep	714	645	700	1300	1430
14-Sep	717	700	715	1315	1445
15-Sep	719	700	715	1315	1445
16-Sep	721	700	715	1315	1445
17-Sep	724	700	715	1315	1445
18-Sep	726	700	715	1315	1445
19-Sep	728	700	715	1315	1445
20-Sep	731	715	730	1330	1500
21-Sep	733	715	730	1330	1500
22-Sep	736	715	730	1330	1500
23-Sep	738	715	730	1330	1500
24-Sep	740	715	730	1330	1500
25-Sep	743	715	730	1330	1500
26-Sep	745	730	745	1345	1515
27-Sep	747	730	745	1345	1515
28-Sep	750	730	745	1345	1515
29-Sep	752	730	745	1345	1515
30-Sep	754	730	745	1345	1515
01-Oct	757	730	745	1345	1515
02-Oct	759	730	745	1345	1515
03-Oct	801	745	800	1400	1530
04-Oct	804	745	800	1400	1530
05-Oct	806	745	800	1400	1530
06-Oct	808	745	800	1400	1530
07-Oct	811	745	800	1400	1530
08-Oct	813	745	800	1400	1530
09-Oct	815	800	815	1415	1545
10-Oct	818	800	815	1415	1545
11-Oct	820	800	815	1415	1545
12-Oct	823	800	815	1415	1545
13-Oct	825	800	815	1415	1545
14-Oct	827	800	815	1415	1545
15-Oct	830	815	830	1430	1600
16-Oct	832	815	830	1430	1600
17-Oct	835	815	830	1430	1600
18-Oct	837	815	830	1430	1600
19-Oct	840	815	830	1430	1600
20-Oct	842	815	830	1430	1600
21-Oct	845	830	845	1445	1615

Appendix 2

FIELD MANUAL

Teslin Lake Bird Observatory
Field Manual

Table of Contents

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#

1.0 Introduction

The purpose of this field manual is to provide the field crew members of TLBO with a guide with which to collect data during the spring and fall migration seasons. This manual will deal primarily with the daily log sheets and the banding sheets to explain how the data shall be collected and scribed onto the respective data sheets.

2.0 Data Collection

2.1 Daily Log Sheet

The personnel and visitors section shall be filled out in the field to ensure accurate times are recorded. Additionally, all times shall be recorded to the nearest 5 minute interval.

The following outlines the scoring system used to collect weather data.

Wind Direction – record as N, NE, E, SE, S, SW, W or NW prevailing wind direction

Wind Strength – shall be recorded using the Beaufort Scale as outlined in the table below

Scale	Ground Speed (km/h)	Description	Specifications
0	0 – 2	Calm	Smoke rises vertically.
1	2 – 6	Light air	Direction of wind shown by smoke drift.
2	6 – 11	Light breeze	Wind felt on face, leaves rustle.
3	10 – 19	Gentle breeze	Leaves and small twigs in constant motion.
4	19 – 30	Moderate breeze	Raises dust and loose paper, small branches moved.
5	30 - 39	Fresh breeze	Small trees in leaf begin to sway, crested wavelets form on inland waters.
6	39 - 50	Strong breeze	Large branches in motion, umbrellas used with difficulty.
7	50 - 61	Near gale	Whole trees in motion, inconvenience felt when walking into the wind.
8	61 - 74	Gale	Twigs break off of trees, generally impedes progress.
9	74 - 87	Severe gale	Slight structural damage
10	87 - 100	Storm	Rare inland, trees uprooted, considerable structural damage,

Visibility – shall be recorded as accurately as possible using the following landmarks as a guide

- Gull Nesting Island – 2.4 km
- Microwave Tower – 6 km
- Mt. Bryde – 28 km
- Dawson Peaks – 35 km

Cloud Cover – approximation to the nearest 10%

Temperature – measured to the nearest degree

Precipitation – shall be recorded using the following codes

0 = None	0 = None
1 = Trace rainfall	1S = Trace snowfall (few flurries)
2 = Light rainfall (drizzle)	2S = Light snow flurries
3 = Moderate, steady rainfall	3S = Moderate snowfall
4 = Heavy Rain	4S = Heavy snowfall

On page 2 of the daily log sheet, any rare birds and bird injuries/mortalities should be recorded in the respective space. The daily narrative should be filled out at the end of each day's activities and may include a synopsis of the day's activities including a brief synopsis of bird migration. Also to be included are any interesting notes regarding visitors or station maintenance activities.

For the mist net and visual watch data sheets, all times should be recorded as accurately as possible. For the opening and closing of nets, the time the first net was open / closed shall be recorded for all corresponding nets. This will provide an accurate count of mist net effort so long as the nets are opened and closed in the same order.

On both the visual migration watch and incidental observation data sheets, all observations should be recorded as soon as possible in the tally section. And the end of the daily count, all tallies shall be summer and recorded in the appropriate box. Upon summation of the observation data, this information can be scribed on the ET species tables along with the day's banding and recapture data. Note that all observers from each day should be involved in the estimation of the day's ET data.

2.2 Banding Sheet

The following explains the methods for data collection involving the primary banding sheet.

Banders – be sure to include the full name and initials for each bander on the respective banding sheet.

Band Numbers – take extreme care to ensure the first and last band numbers are recorded correctly on the banding sheet. At the start and finish of each page, be sure to scribe the full band number legibly.

Species – record the 4 letter code for the respective species. Should the same species follow the first scribing of the species code, then do not rewrite the codes. In such instances, a line should be written through the species box to ease later data entry. An exception to this rule is the first bird of the day (on each banding sheet) which should always be rewritten regardless of whether or not the last bird of the previous day was the same species.

Net – the net number should be recorded for all birds captured. Upon extraction from the mist nets, a number pin should be placed on the bag ties from each net. After arriving at the banding location, the birds should be processed in the order of extraction. Exceptions to this rule include the capture of large birds of species which become easily stressed such as woodpeckers and kingfishers.

Age and sex – the age and sex codes should be recorded using the following coding system.

0 = Unknown	6 = ASY	0 = Unknown
1 = AHY	7 = TY	4 = Male
2 = HY	8 = ATY	5 = Female
4 = L		
5 = SY		

For each bird, a code describing the method of aging and sexing should be recorded for all birds using the following codes.

1 = Plumage	6 = Brood Patch
2 = Skull	7 = Mouth/bill
3 = Eye Color	8 = Culmen Length
4 = Wing Length	9 = Retrice Shape
5 = Cloacal Protuberance	

Wing – the un-flattened wing length (wing chord) should be recorded in millimeters.

Weight – the weight may be recorded in grams using a digital scale with 0.1 g increments.

Fat Score – the 7 point fat scoring system should be used with the following codes

0 = None
1 = Trace
2 = Light
3 = Half
4 = Filled
5 = Bulging
6 = Greatly Bulging
7 = Excessively Bulging

Cloacal Protuberance – should a bird have a CP, the relative size of the CP should be ranked using the following criteria.

0 = None (cloaca not enlarged)

1 = Small (cloaca somewhat enlarged and noticeably swollen, shape is such that it is widest at the base and narrowest at the tip. Care should be used with this ranking as it can be difficult to ascertain.

2 = Medium (cloaca protuberance large, diameter fully as large near the tip as at the base).

3 = Large (cloaca protuberance very large with a diameter considerably larger in the middle than at the base.

Brood Patch – similar to a CP, all brood patches should be ranked using the following codes

0 = None (no brood patch)

1 = Smooth (lower breast feathers and abdomen feathers lost, some vascularization present but overall, the area is rather smooth and dark red).

2 = Vascularized (vascularization evident, some wrinkles present and some fluid under the skin giving the area a pale, opaque, pinkish color).

3 = Heavy (vascularization extreme, thickly wrinkled and much fluid under the skin. This is the maximum extent of the brood patch and is present when the bird is incubating eggs).

4 = Wrinkled (vascularization mostly has disappeared and the fluid under the skin mostly gone. The skin retains many thin, dry looking wrinkles).

5 = Molting (vascularization and fluid buildup gone, new pin feathers present).

Moult – this space is reserved for recording basic information regarding a bird's moult using the following codes. Note that this information is supplementary and should only be recorded when time and/or bird volume allows.

B = Body
H = Head
T = Tail
W = Wing

GC = Greater Coverts
MC = Median Coverts
LC = Lesser Coverts
A = Alula

A ranking of juvenal plumage may also be recorded in the moult section using the following codes.

3 = Full (full juvenal plumage)
2 = Greater (more than half of juvenal plumage remains, mostly appears like a juvenile)
1 = Less (less than half of juvenal plumage remains)
0.5 = no juvenal plumage remaining, but formative feathers still growing in
0 = None (no juvenal plumage)

Status- the status of each bird shall be recorded using the following codes (only some of the more common codes shown). Should consecutive birds have the same status, a line should be drawn through the status box.

300 = normal wild bird, federal numbered leg band only
301 = normal wild bird, colored leg band
500 = sick, exhausted, injured, crippled or deformed with federal numbered leg band
501 = sick, exhausted, injured, crippled or deformed with colored leg band

Date – the month and day should be recorded at the top of each banding sheet and then a line should be drawn through the date boxes for each corresponding banding record.

Time – the time should be recorded as the time each respective net round was started. On each banding sheet, the first time of each net round should be recorded with a line being recorded in the time box for each bird from the net round.

Intl – the bander's initials should be recorded for each bird banded. Be sure that the initials match the bander's name and initials at the top of the page. Do no rewrite the bander's initials, rather use a line in the corresponding field, except for the first bird of each day.

Trap – record the method of capture for each bird, this should typically be MN (Mist Net). Do no rewrite the trap, rather use a line in the corresponding field, except for the first bird of each day.

Tail & PP – these measurements may be recorded in special circumstances when such data may be valuable. These fields are particularly useful in terms of the *Empidonax* flycatchers.

NSB – include a checkmark is this box for all birds banded outside of the daily count period (non standard banding).

Comments – include any additional information of interest in this field.

2.3 Recapture Sheet

The methods for data collection on the recapture sheet are similar to the original recapture sheet with the following exceptions.

- Take extreme care to accurately record the full band number for all birds, especially those which are not repeats from the current season.
    - In the case of repeats, a line may be drawn beneath the portion of the previous band number with the same digits.
- The age, sex and wing length are supplemental data on the recapture sheet.

2.4 Molt Sheet

As with the recapture sheet, take care to record the band number accurately for all birds which are molt scored. To assign molt scores for each feather, use the codes in the attached diagram which uses a scoring system of 0 (old feather) to 5 (complete new feather). Also note that the scores of the primary and secondary feathers are the priority scores.

Appendix 3

BANDING SHEETS

Location _____ **BAND SIZE** Page # of this band size

Permit # 10791 Banders Initials

_____ _____ _____ _____

_____ _____ _____ _____

First # on this sheet

Year Checked By _____

			Age/	Sex/								Date									
#	**Species**	**Net**	**How**	**How**	**Wing**	**Weight**	**Fat**	**CP**	**BP**	**Moult**	**Status**	**Month**	**Day**	**Time**	**Intl**	**Trap**	**Loc**	**Tail**	**PP**	**NSB**	**Comments**

Last # on this sheet

Species

_____ _____ _____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____ _____

Recapture Data Sheet

Year	

Page # of Recaps	

Banders	Initials	Banders	Initials
____________________	________	____________________	________
____________________	________	____________________	________
____________________	________	____________________	________

Band Number		Species	Age /	Sex /	Wing	Weight	Moult	Date		Time	Intl	Trap	Fat	Loc	Net	NSB	Comments
Prefix	Suffix		How	How	(mm)	(g)		Month	Day								

Molt Scoring Sheet

Year	

Page #	

Band Number		Species	Date		Time	Terts	Secondaries						Primaries										Covs	Tail	Body	Comments
Prefix	Suffix		Month	Day			1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	al				

Appendix 4

DAILY LOG SHEETS

TESLIN LAKE BIRD OBSERVATORY
Daily Log Sheet

DATE	

DAILY COVERAGE CODE	

Personnel	Initials	Code	Time	Hours Onsite	
				Standard	Non-Standard
BIC-					

Visitors	Origin	Time

Weather	Count Period				Synopsis
	Start	Mid	End	Dusk	
Wind Direction					
Wind Strength					
Visibility (km)					
Cloud (%)					
Temperature (^{o}C)					
Precipitation					

Daily Count Timing			
Start	Nets Open	Nets Closed	End

Total Birds Banded	
Total Species Banded	
Total Net Hours	
Birds Banded / 100 hrs	
Total Species Detected	

SEASON BANDED TOTAL	

Rare Bird Bandings / Sightings	Bird Mortalities / Injuries

Daily Narrative (description of migration activity, visitors, station maintenance, etc)

Mist Net & Visual Migration Watch Effort Sheet - FALL

DATE	

Mist Nets		Net Length (m)	Standard Count Period									Non Standard Corrected Net Hrs
			Open	Close	Open	Close	Open	Close	Total Hrs	Correction Factor	Corrected Net Hrs	
Group	#											
A	7	12								1		
	10	12								1		
	15	12								1		
	18	12								1		
B	6	12								1		
	8	12								1		
	9	12								1		
	11	12								1		
	14	12								1		
C	16	12								1		
	17	12								1		
	20	12								1		
D	1	12								1		
	2	12								1		
	4	12								1		
	5	12								1		
	24	18								1.5		
E	21	12								1		
	22	18								1.5		
	23	12								1		
									TOTAL			

Visual Migration Counts						
Time Start	Duration (min)	Observer	Time Start	Duration (min)	Observer	Viewing Avenue (LAKE / LAND) Ratio

Mist Net & Visual Migration Watch Effort Sheet - FALL

DATE	

Mist Nets		Net Length (m)	Standard Count Period									Non Standard Corrected Net Hrs
			Open	Close	Open	Close	Open	Close	Total Hrs	Correction Factor	Corrected Net Hrs	
Group	#											
A	7	12								1		
	10	12								1		
	15	12								1		
	18	12								1		
B	8	12								1		
	9	12								1		
	11	12								1		
	14	12								1		
C	16	12								1		
	17	12								1		
	20	12								1		
D	1	12								1		
	2	12								1		
	4	12								1		
	5	12								1		
	6	12								1		
	24	18								1.5		
E	21	12								1		
	22	18								1.5		
	23	12								1		
									TOTAL			

Visual Migration Counts						
Time Start	Duration (min)	Observer	Time Start	Duration (min)	Observer	Viewing Avenue (LAKE / LAND) Ratio

Visual Migration Watch Field Data Sheet

DATE	

Species	OBSERVED INDIVIDUALS		VISUAL MIGRANTS	
	TALLY	TOTAL	TALLY	TOTAL

Incidental Observations & Visual Migrants Field Data Sheet

DATE	

Species	OBSERVED INDIVIDUALS		VISUAL MIGRANTS	
	TALLY	TOTAL	TALLY	TOTAL

Species	STANDARD COUNT PERIOD							NON STANDARD COUNT				TOTAL
	Band	Recap	Vis	Obs	Other Obs	Other Vis	ET	Band +	Recap +	Vis +	Obs +	DST
Red-throated Loon												
Pacific Loon												
Common Loon												
Horned Grebe												
Red-necked Grebe												
Double-crested Cormorant												
Greater White-fronted Goose												
Snow Goose												
Canada Goose												
Trumpeter Swan												
Tundra Swan												
Gadwall												
American Wigeon												
Mallard												
Blue-winged Teal												
Northern Shoveler												
Northern Pintail												
American Green-winged Teal												
Canvasback												
Redhead												
Ring-necked Duck												
Greater Scaup												
Lesser Scaup												
Harlequin Duck												
Surf Scoter												
White-winged Scoter												
Long-tailed Duck												
Bufflehead												
Common Goldeneye												
Barrow's Goldeneye												
Common Merganser												
Red-breasted Merganser												
Osprey												
Bald Eagle												
Northern Harrier												
Sharp-shinned Hawk												
Northern Goshawk												
Swainson's Hawk												
Red-tailed Hawk												
Rough-legged Hawk												
Golden Eagle												
American Kestrel												
Merlin												
Gyrfalcon												
Peregrine Falcon												
Ruffed Grouse												
Spruce Grouse												
Sora												
Sandhill Crane												
Black-bellied Plover												
American Golden-Plover												
Semipalmated Plover												
Killdeer												
SUB-TOTAL												

Species	STANDARD COUNT PERIOD							NON STANDARD				TOTAL
	Band	Recap	Vis	Obs	Other Obs	Other Vis	ET	Band +	Recap +	Vis +	Obs +	DST
Greater Yellowlegs												
Lesser Yellowlegs												
Solitary Sandpiper												
Spotted Sandpiper												
Sanderling												
Semipalmated Sandpiper												
Least Sandpiper												
Baird's Sandpiper												
Pectoral Sandpiper												
Short-billed Dowitcher												
Long-billed Dowitcher												
Wilson's Snipe												
Parasitic Jaeger												
Bonaparte's Gull												
Mew Gull												
Herring Gull												
Thayer's Gull												
Glaucous-winged Gull												
Glaucous Gull												
Sabine's Gull												
Arctic Tern												
Great Horned Owl												
Northern Hawk Owl												
Short-eared Owl												
Boreal Owl												
Northern Saw-whet Owl												
Common Nighthawk												
Belted Kingfisher												
Yellow-bellied Sapsucker												
Downy Woodpecker												
Hairy Woodpecker												
American Three-toed Woodpecker												
Black-backed Woodpecker												
Northern Flicker												
Olive-sided Flycatcher												
Western Wood-Pewee												
Yellow-bellied Flycatcher												
Alder Flycatcher												
Least Flycatcher												
Hammond's Flycatcher												
Dusky Flycatcher												
Say's Phoebe												
Warbling Vireo												
Gray Jay												
Black-billed Magpie												
American Crow												
Common Raven												
Horned Lark												
Tree Swallow												
Violet-green Swallow												
Northern Rough-winged Swallow												
Bank Swallow												
Cliff Swallow												
Barn Swallow												
Black-capped Chickadee												
Mountain Chickadee												
Boreal Chickadee												
SUB-TOTAL												

Species	STANDARD COUNT PERIOD							NON STANDARD				TOTAL
	Band	Recap	Vis	Obs	Other Obs	Other Vis	ET	Band +	Recap +	Vis +	Obs +	DST
Red-breasted Nuthatch												
Winter Wren												
Golden-crowned Kinglet												
Ruby-crowned Kinglet												
Mountain Bluebird												
Townsend's Solitaire												
Gray-cheeked Thrush												
Swainson's Thrush												
Hermit Thrush												
American Robin												
Varied Thrush												
European Starling												
American Pipit												
Bohemian Waxwing												
Tennessee Warbler												
Orange-crowned Warbler												
Yellow Warbler												
Magnolia Warbler												
Cape May Warbler												
Yellow-rumped (Myrtle) Warbler												
Yellow-rumped (integrade) Warbler												
Townsend's Warbler												
Blackpoll Warbler												
American Redstart												
Northern Waterthrush												
MacGillvary's Warbler												
Common Yellowthroat												
Wilson's Warbler												
Western Tanager												
American Tree Sparrow												
Chipping Sparrow												
Savannah Sparrow												
Fox Sparrow												
Song Sparrow												
Lincoln's Sparrow												
White-throated Sparrow												
White-crowned Sparrow												
Golden-crowned Sparrow												
Lapland Longspur												
Snow Bunting												
Red-winged Blackbird												
Rusty Blackbird												
Brown-headed Cowbird												
Pine Grosbeak												
Purple Finch												
Red Crossbill												
White-winged Crossbill												
Common Redpoll												
Hoary Redpoll												
Pine Siskin												
SUB-TOTAL												
TOTAL												

Appendix B - Figures

Figure 1. Overview of the Teslin Lake Bird Observatory count area showing the location of individual mist nets and the banding/observation site.

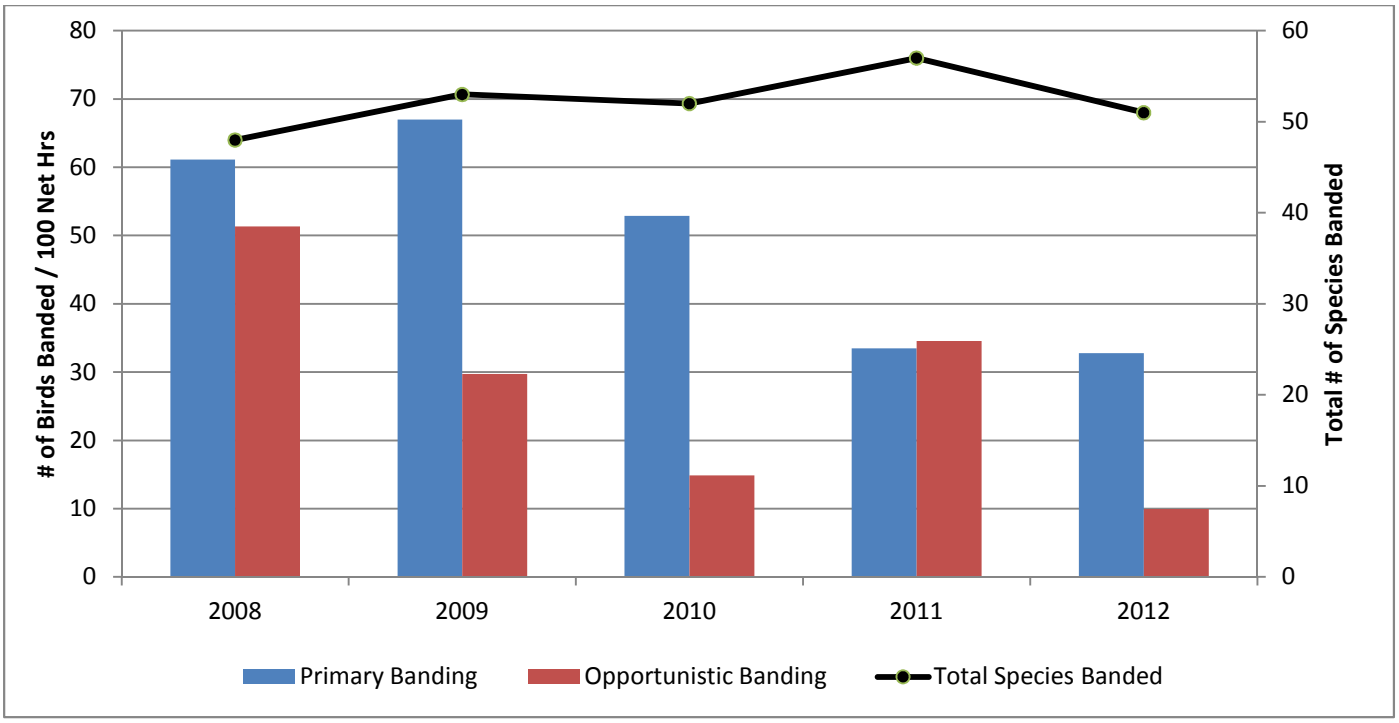

Figure 1. Summary of birds banded during the fall of 2008 through 2012.

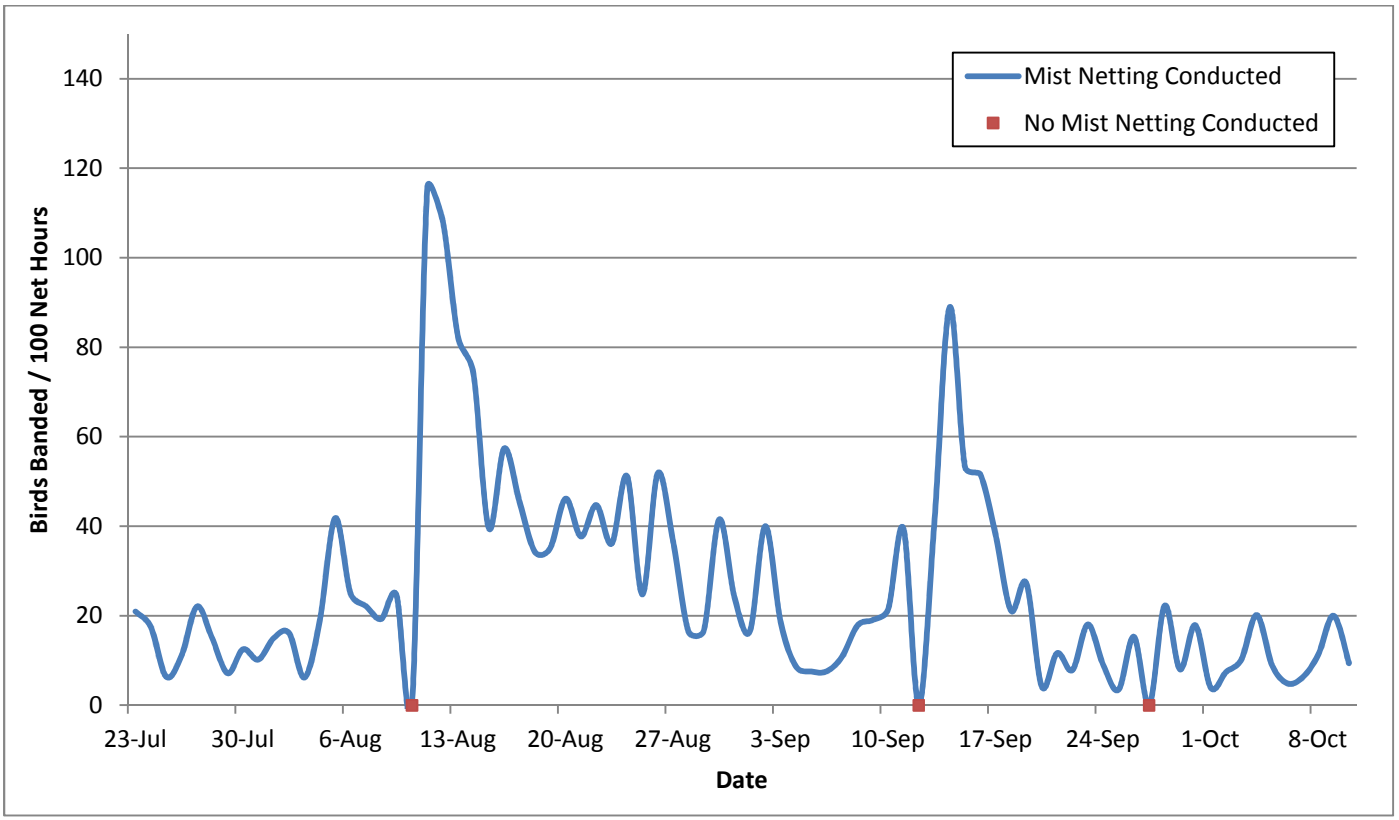

Figure 3. Summary of birds banded per 100 net hours during the fall of 2012.

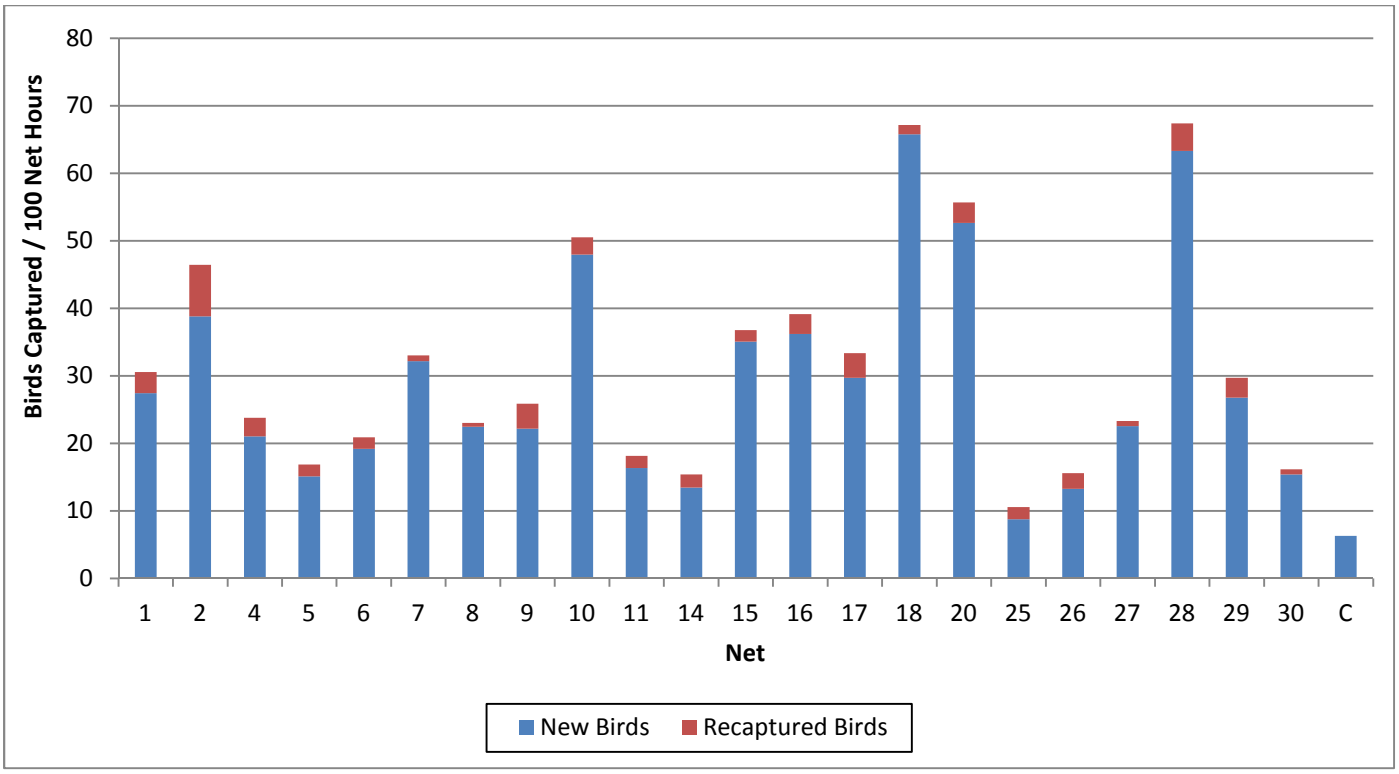

Figure 4. Number of birds banded per specific mist net during the fall of 2012.

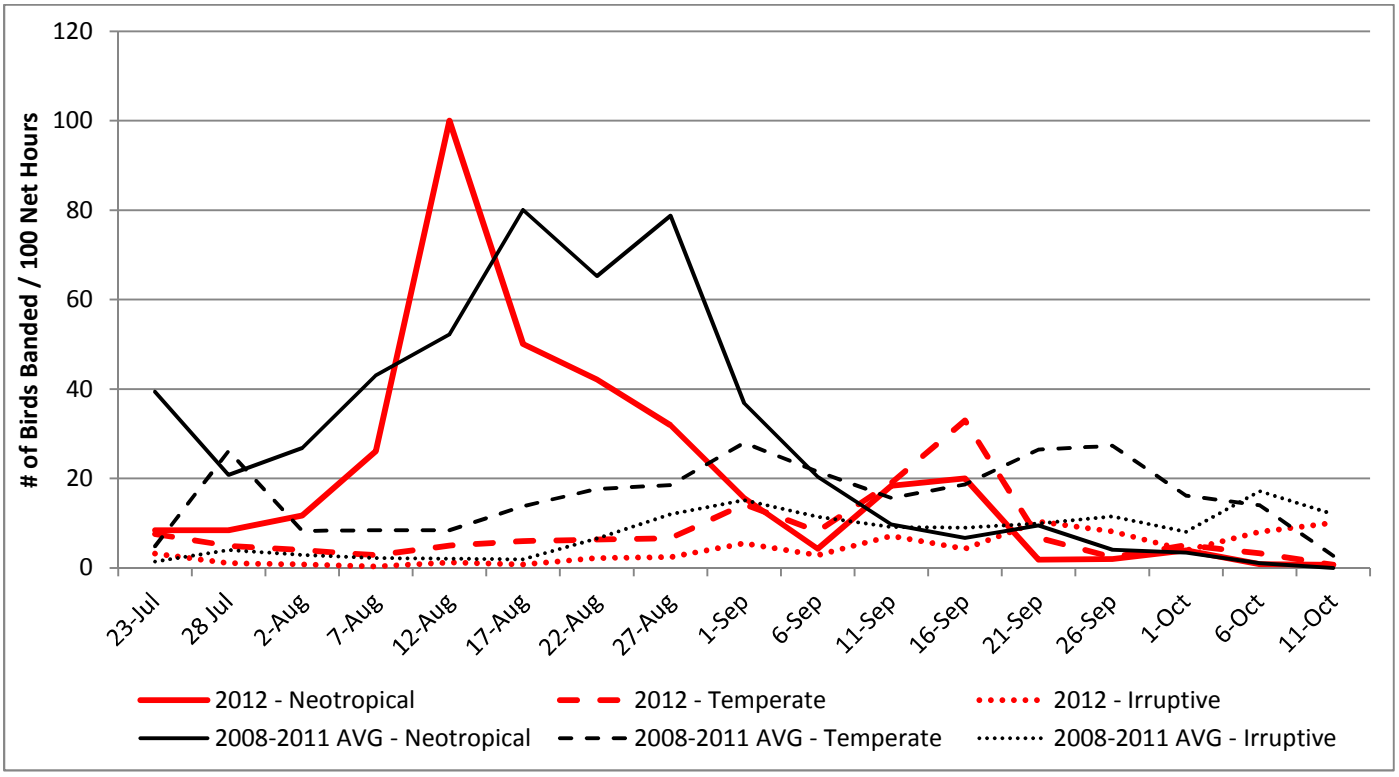

Figure 5. Migration timing for temperate, neotropical and irruptive migrants banded during the fall of 2012 as compared to the 2008-2011 average.

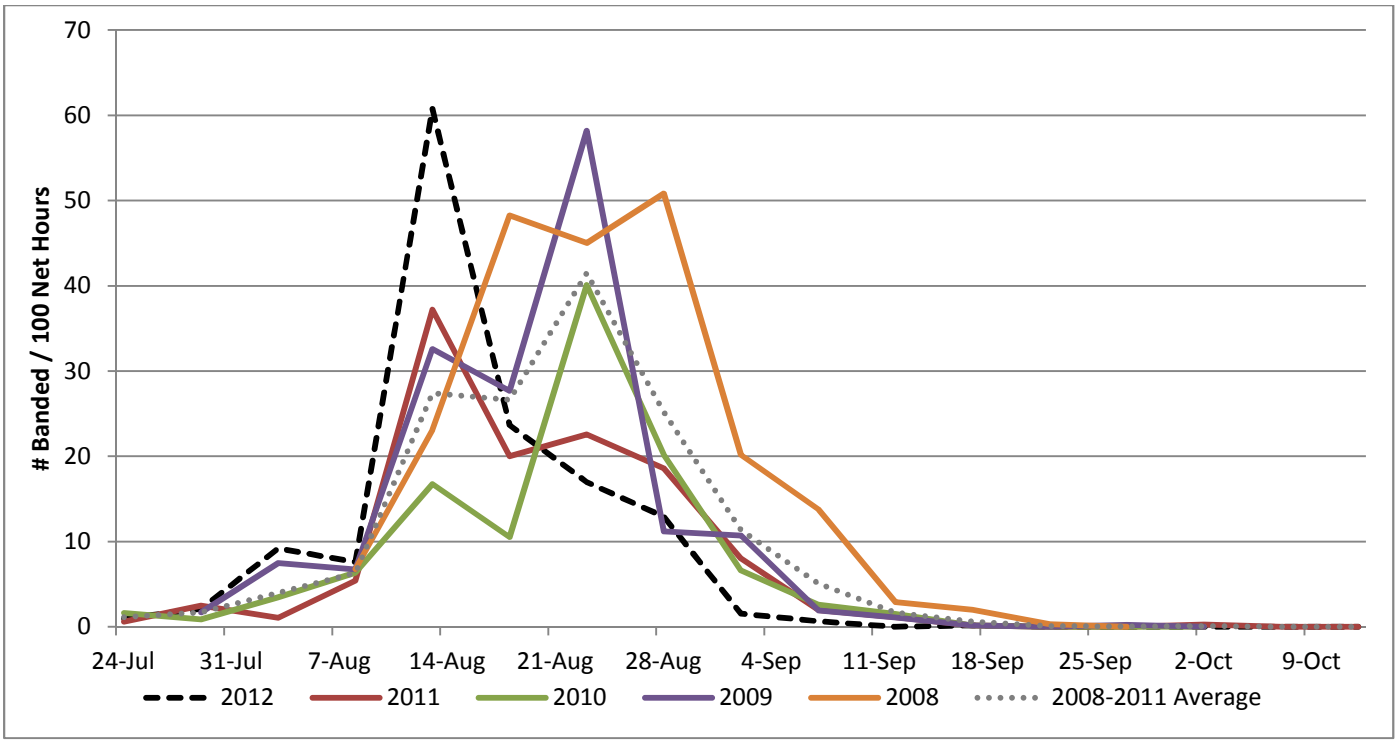

Figure 6. Alder Flycatcher migration timing from 2008 to 2012 (using mist netting data).

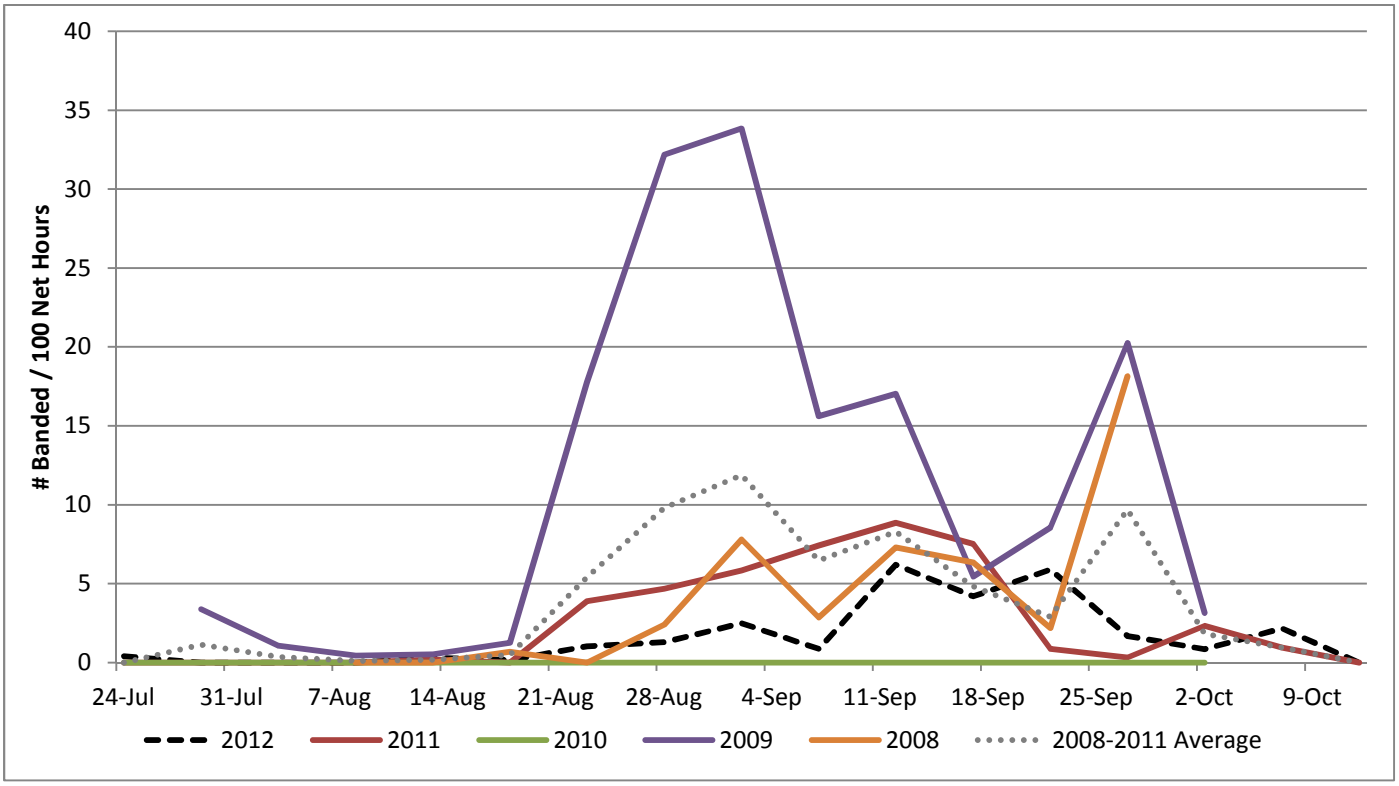

Figure 7. Boreal Chickadee migration timing from 2008 to 2012 (using mist netting data).

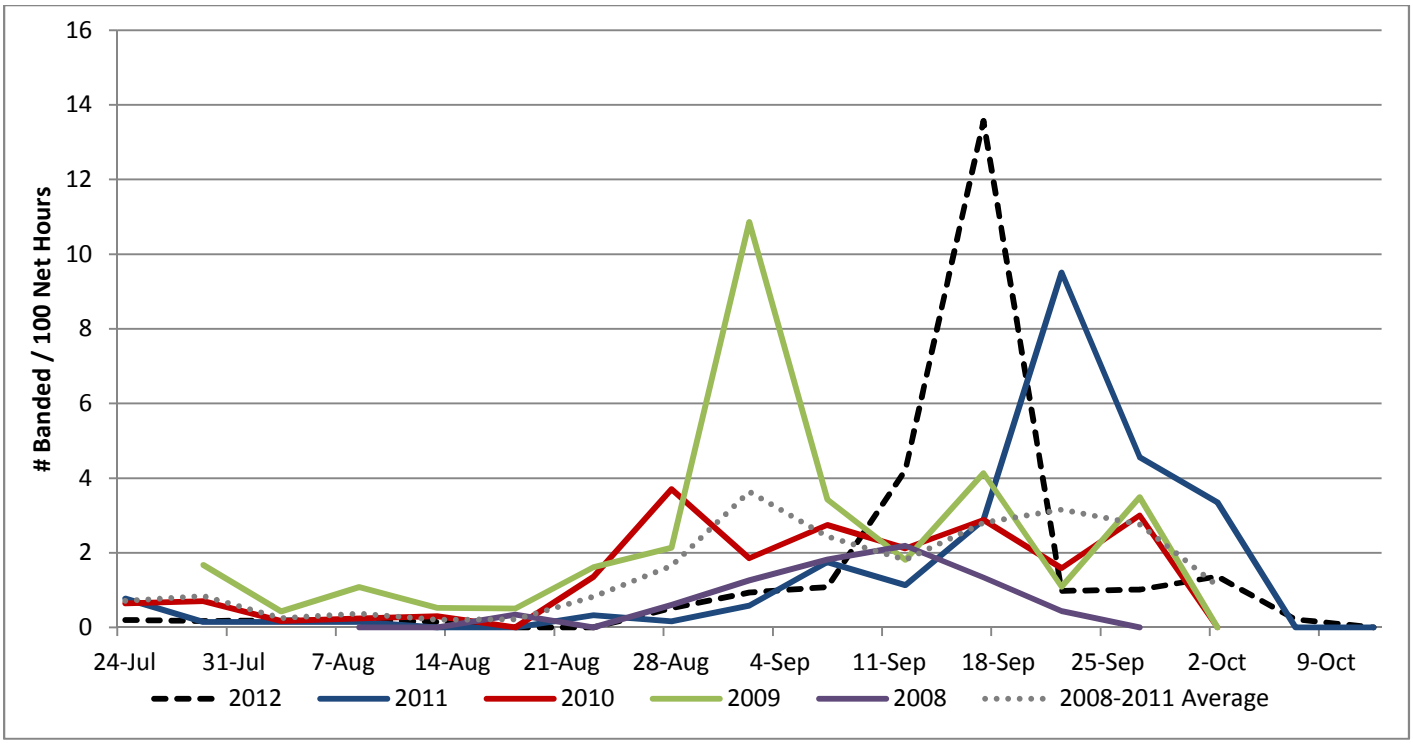

Figure 8. Ruby-crowned Kinglet migration timing from 2008 to 2012 (using mist netting data).

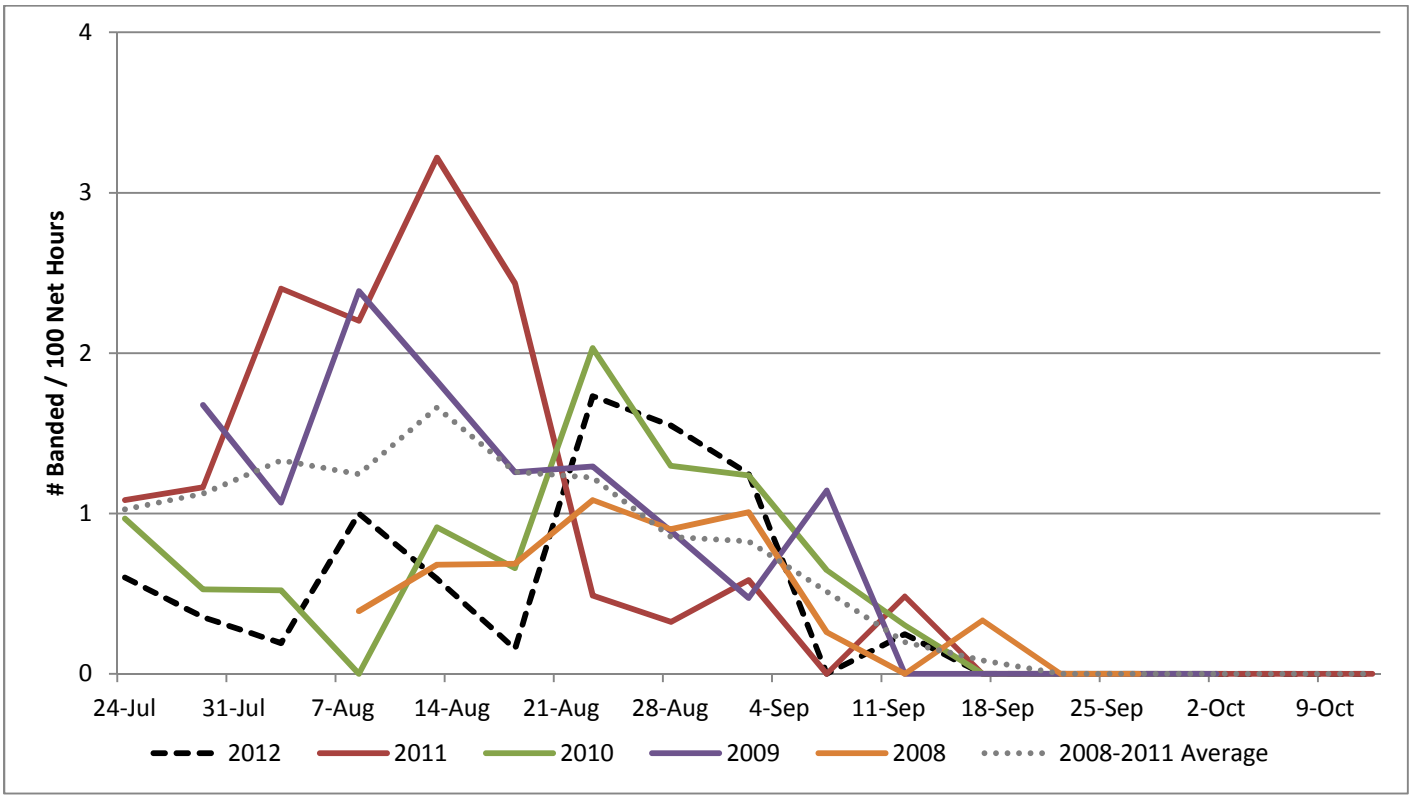

Figure 9. Swainson's Thrush migration timing from 2008 to 2012 (using mist netting data).

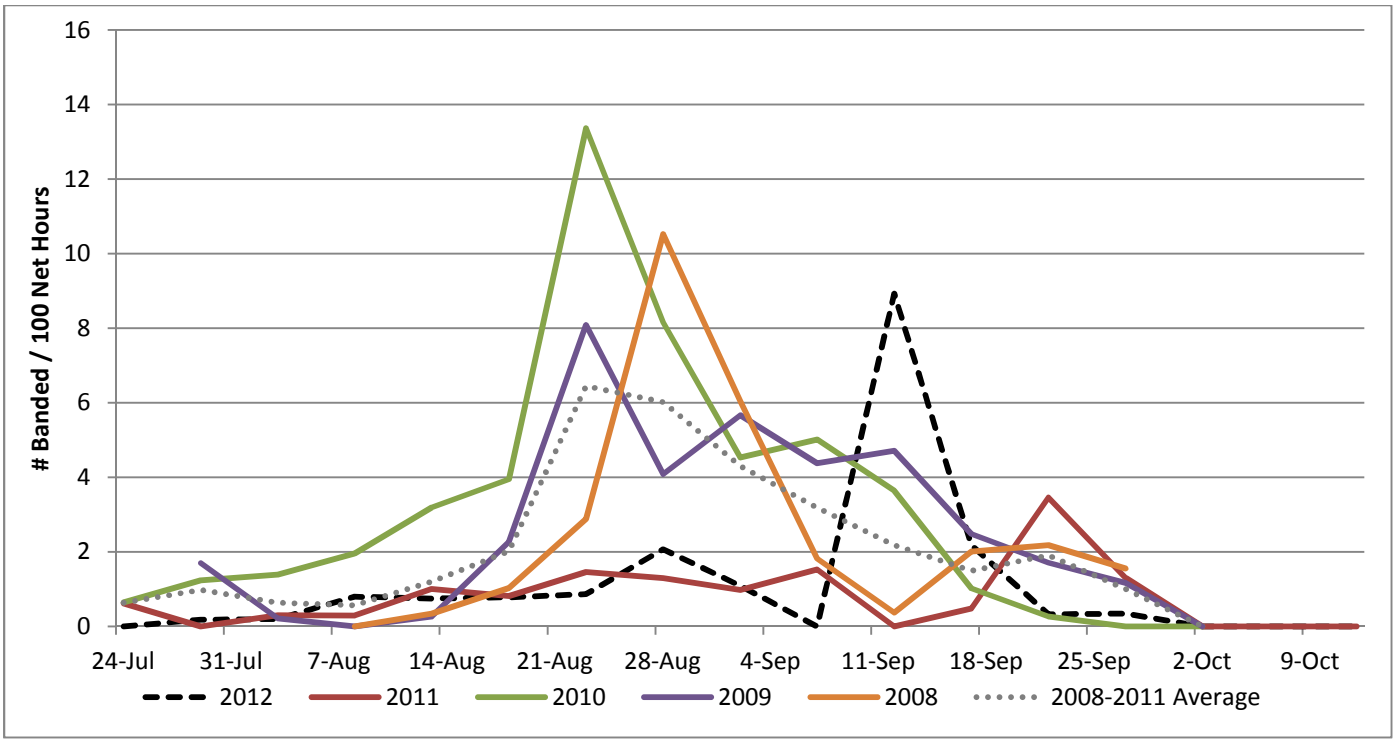

Figure 10. Orange-crowned Warbler migration timing from 2008 to 2012 (using mist netting data).

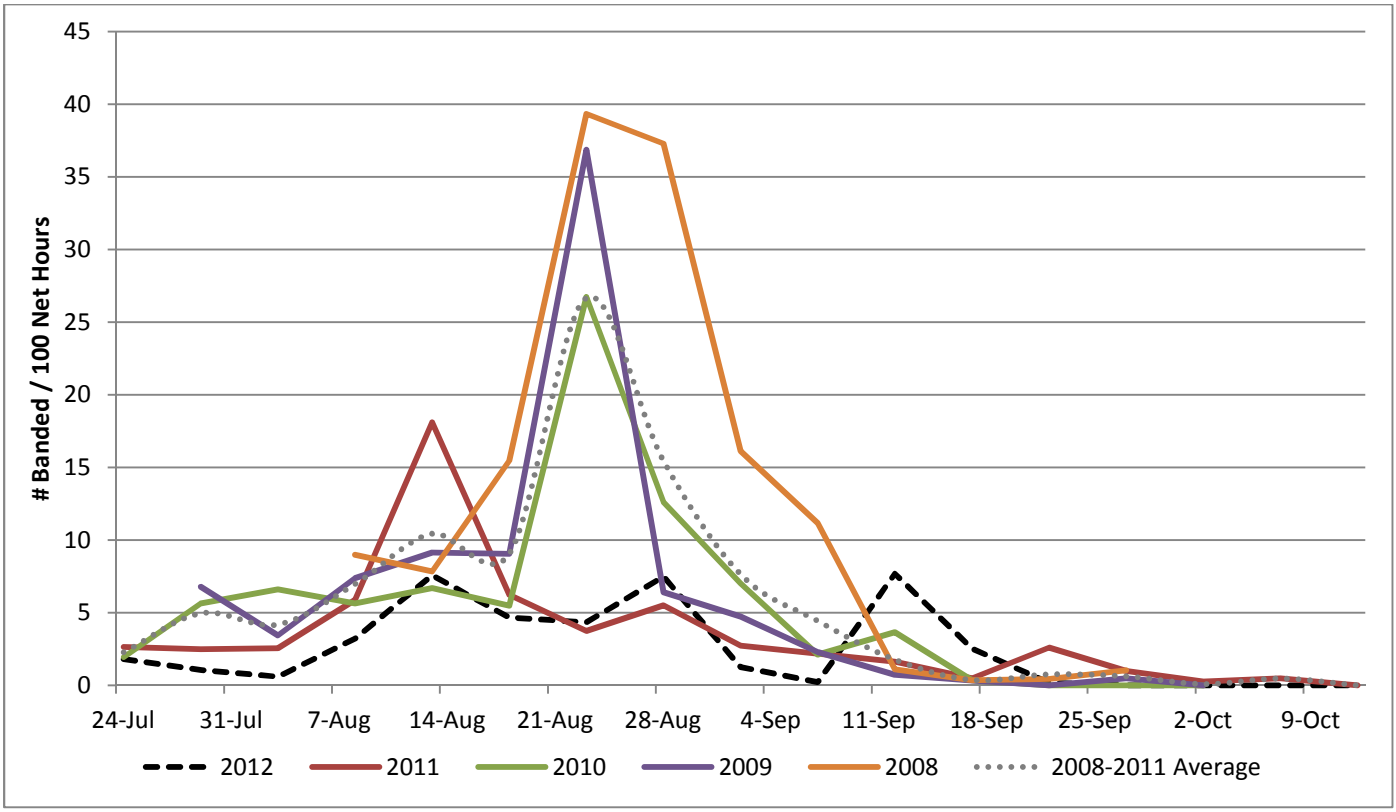

Figure 11. Yellow Warbler migration timing from 2008 to 2012 (using mist netting data).

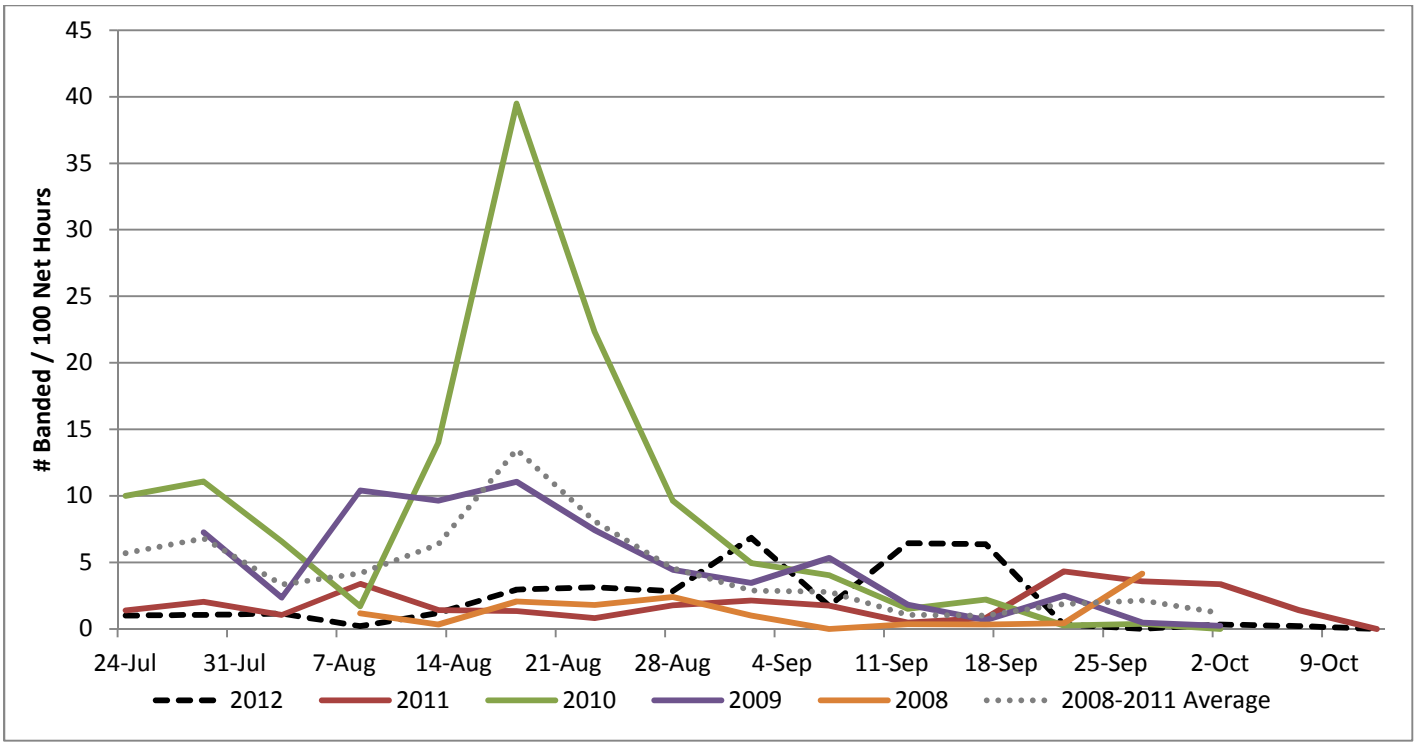

Figure 12. Myrtle Warbler migration timing from 2008 to 2012 (using mist netting data).

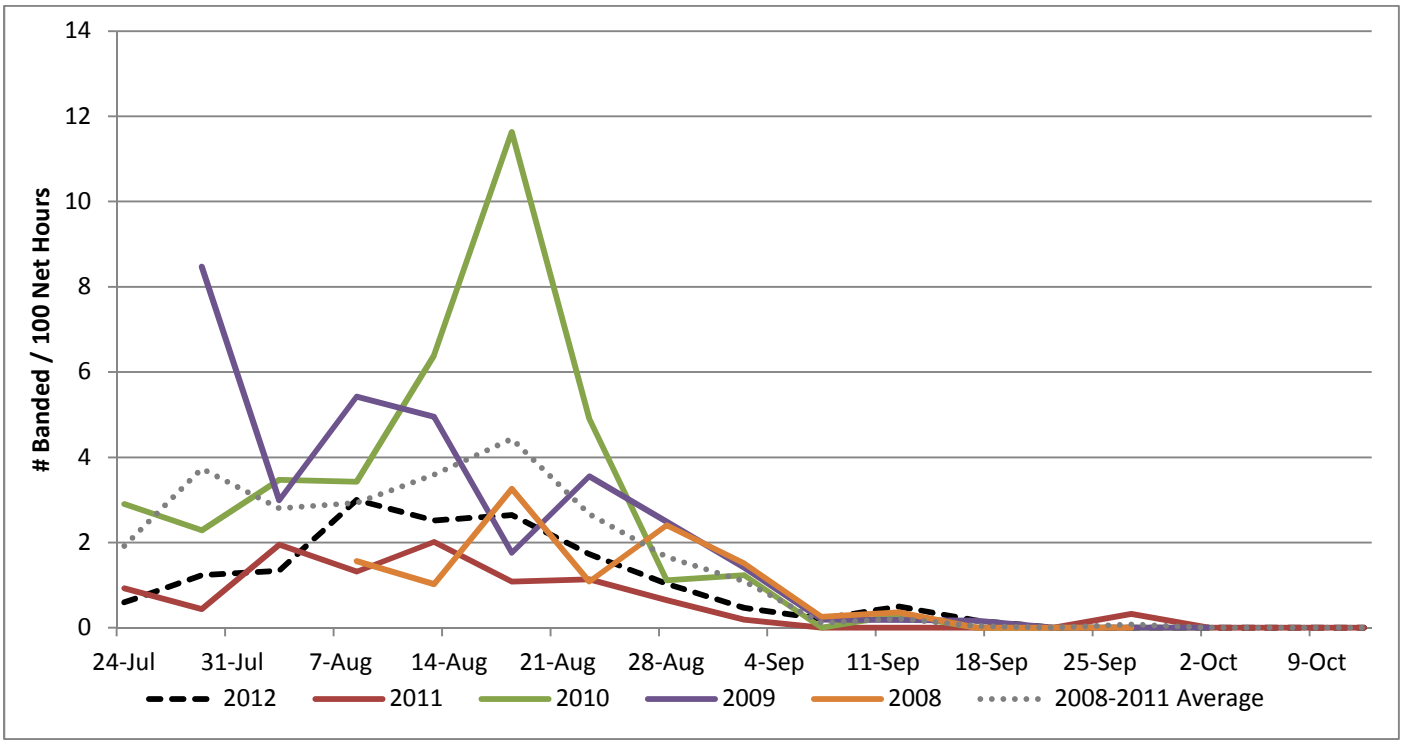

Figure 13. Blackpoll Warbler migration timing from 2008 to 2012 (using mist netting data).

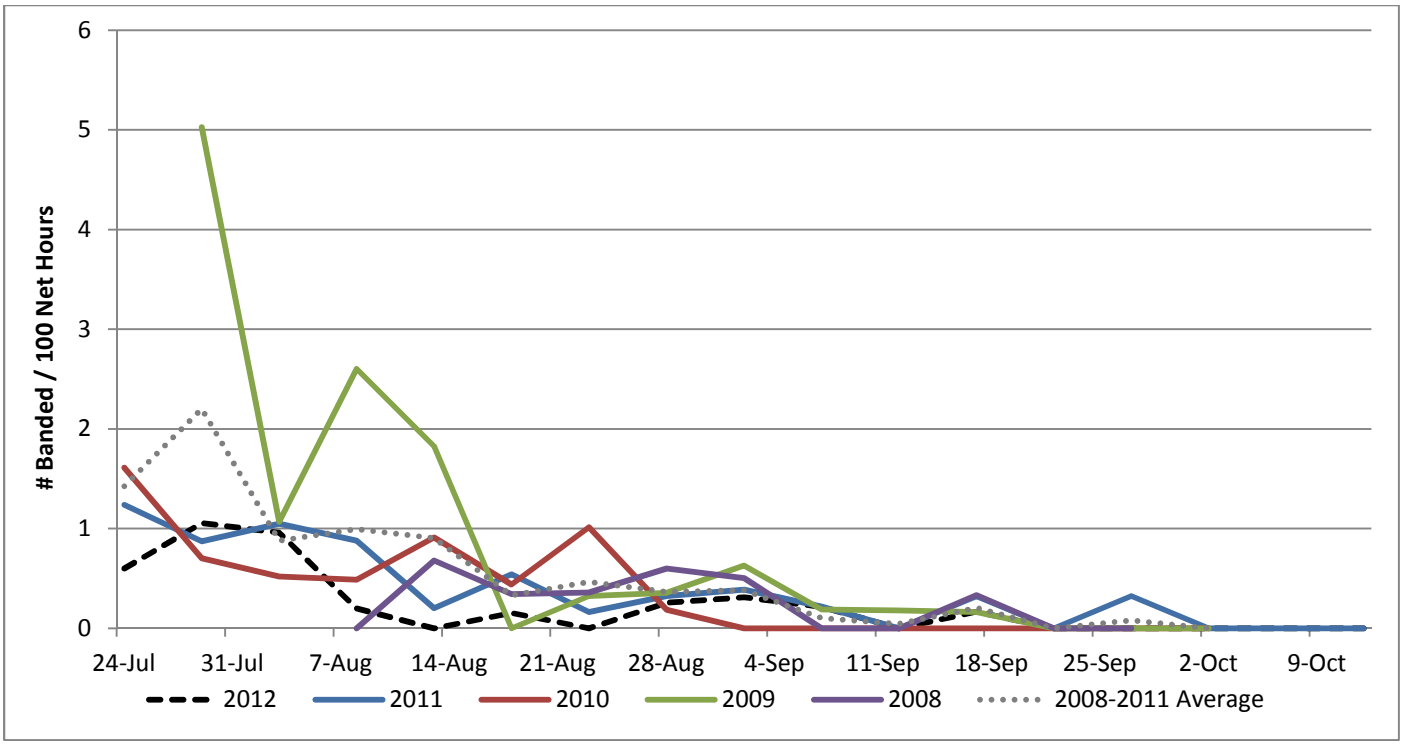

Figure 14. American Redstart migration timing from 2008 to 2012 (using mist netting data).

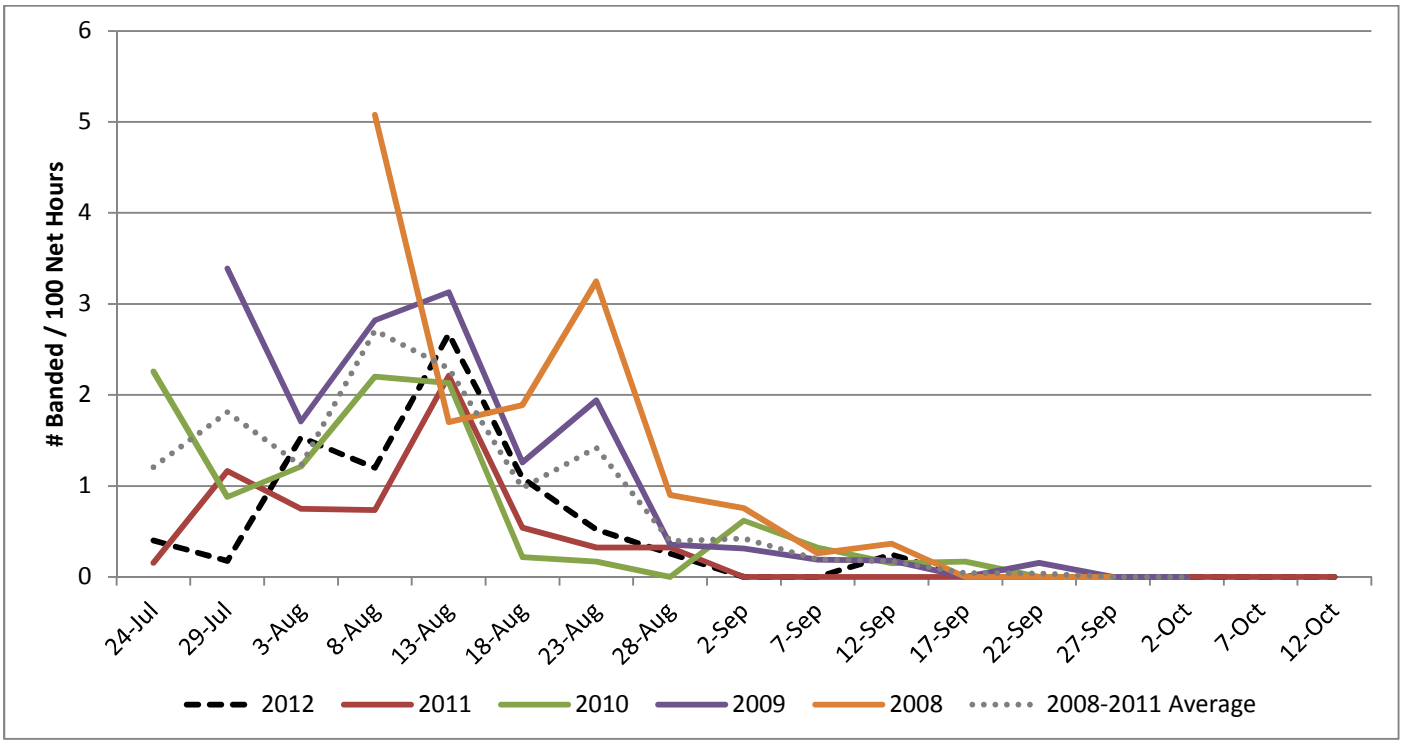

Figure 15. Northern Waterthrush migration timing from 2008 to 2012 (using mist netting data).

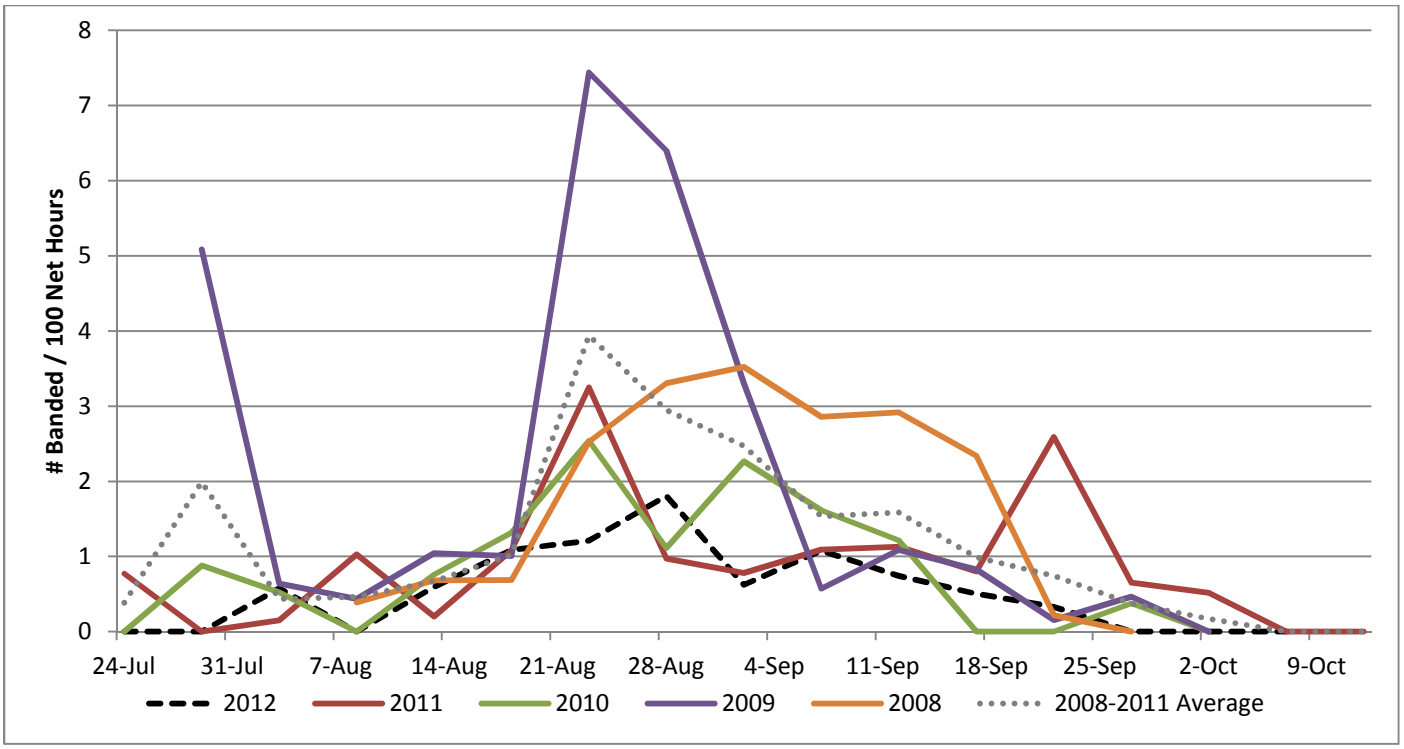

Figure 16. Common Yellowthroat migration timing from 2008 to 2012 (using mist netting data).

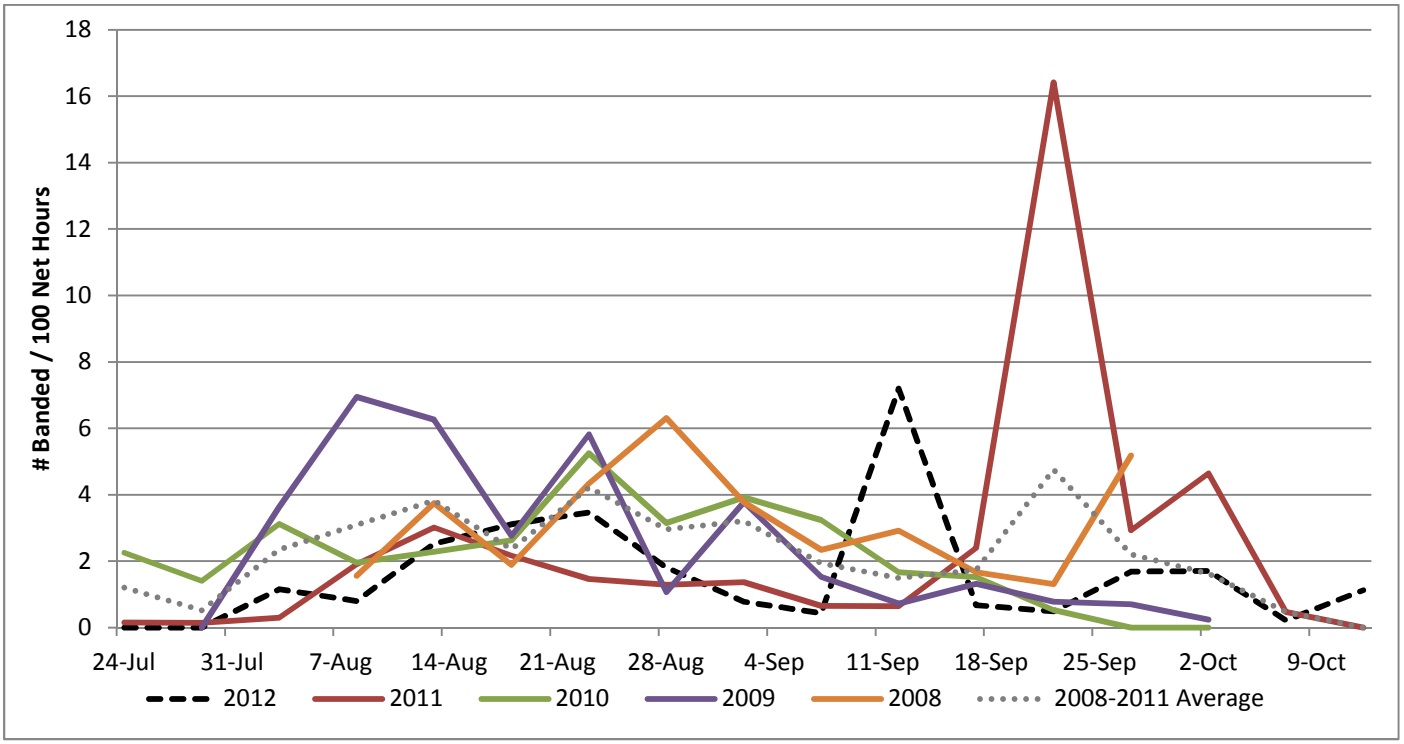

Figure 17. Wilson's Warbler migration timing from 2008 to 2012 (using mist netting data).

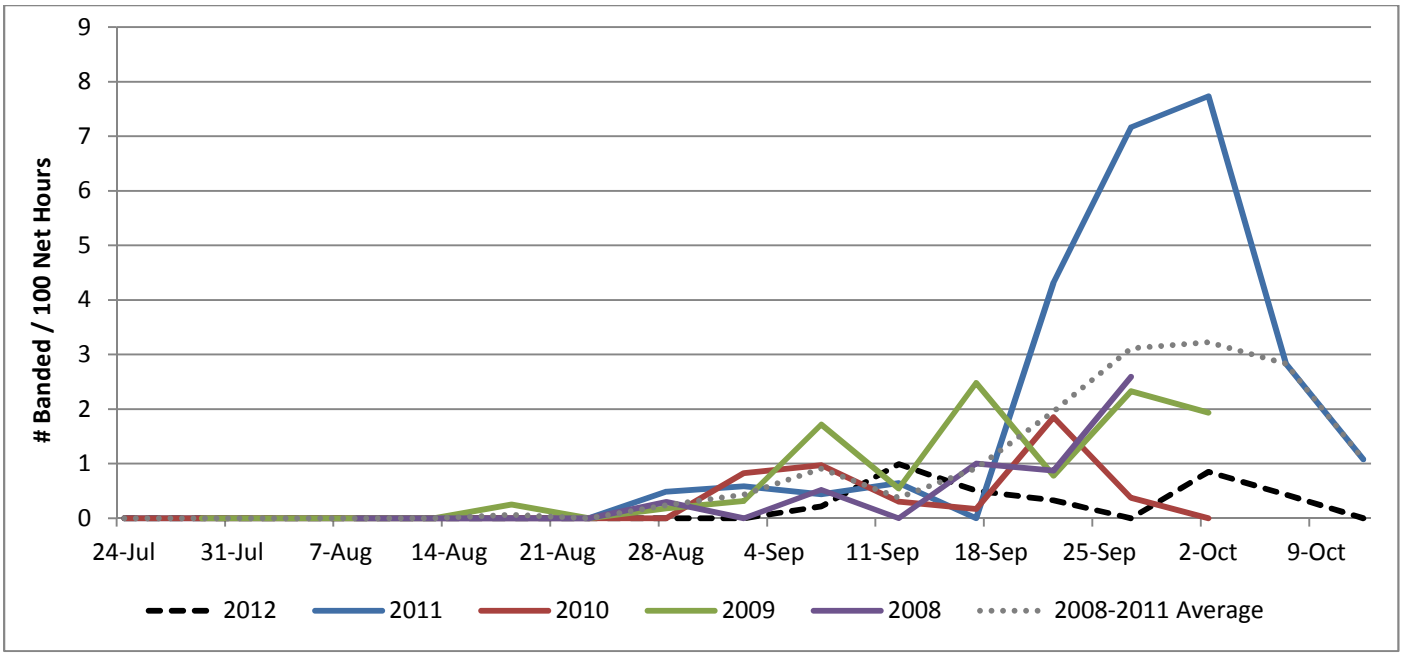

Figure 18. American Tree Sparrow migration timing from 2008 to 2012 (using mist netting data).

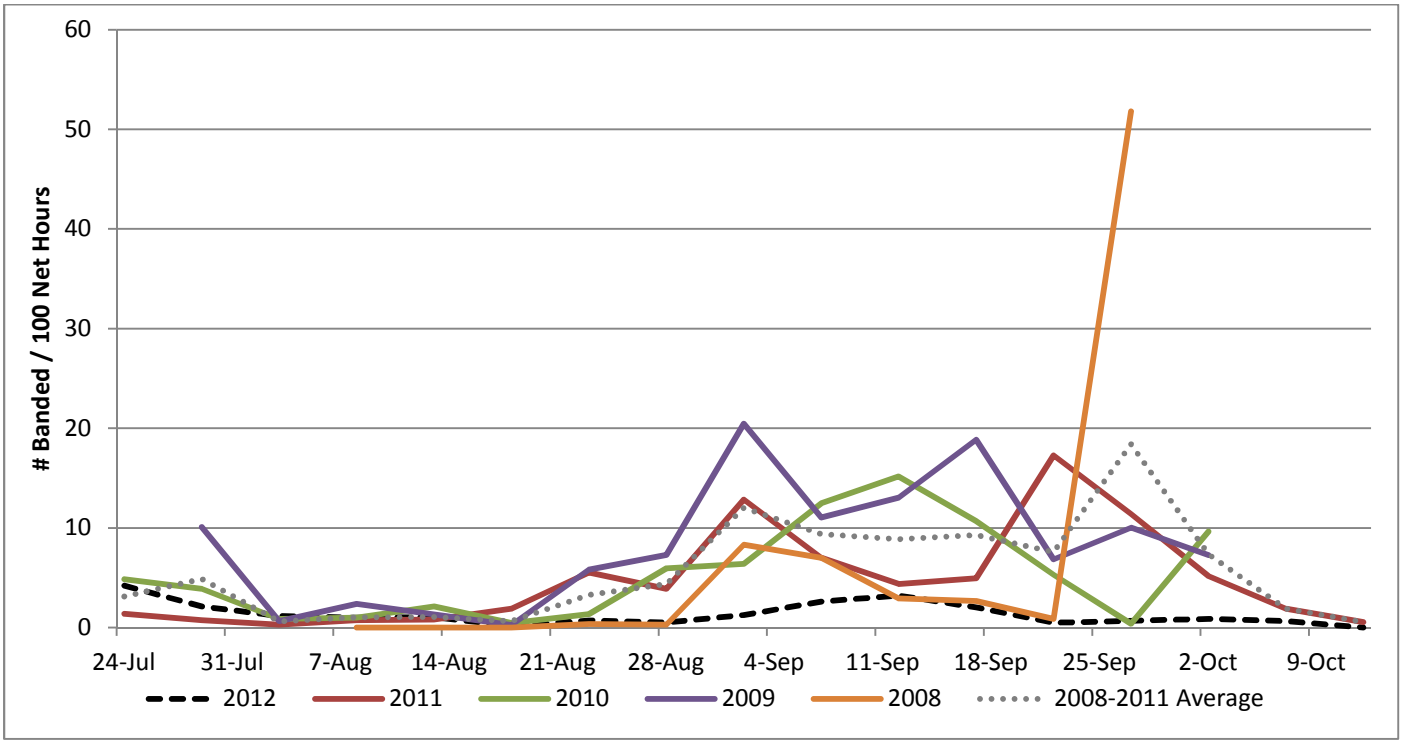

Figure 19. Slate-colored Junco migration timing from 2008 to 2012 (using mist netting data).

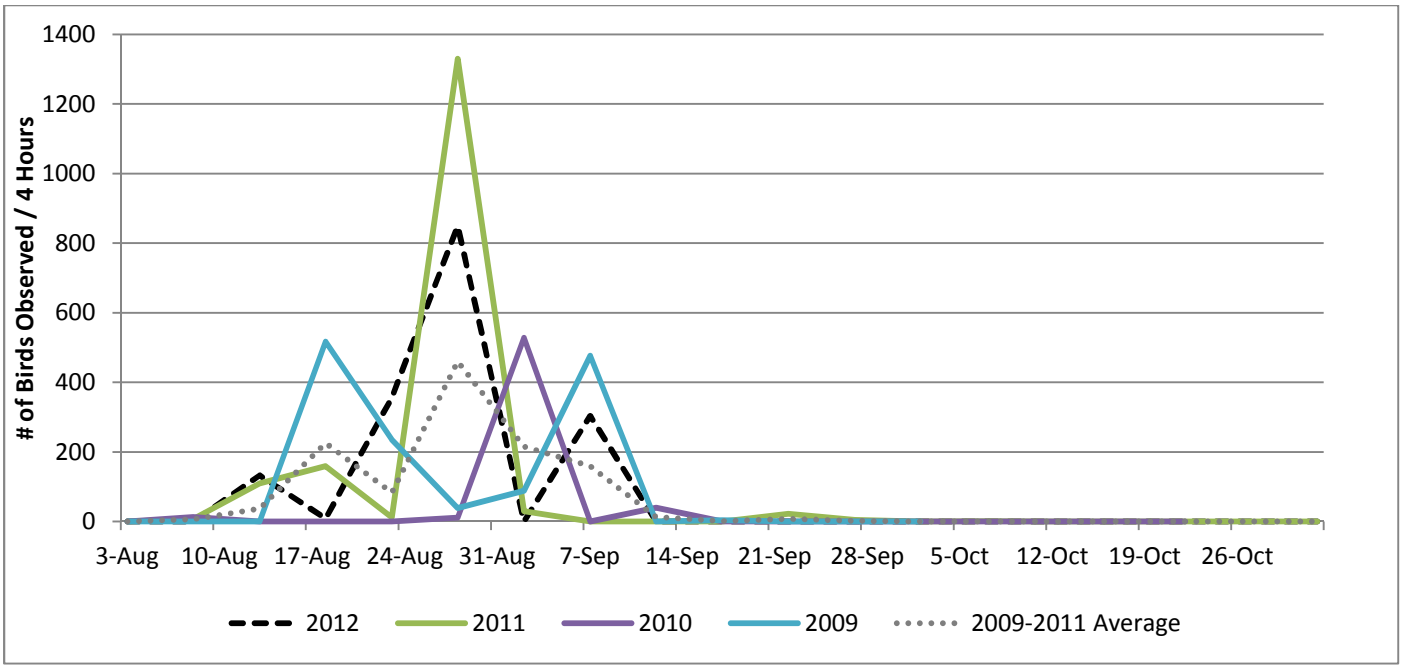

Figure 20. Greater White-fronted Goose migration timing from 2009 to 2012 (using migration count data).

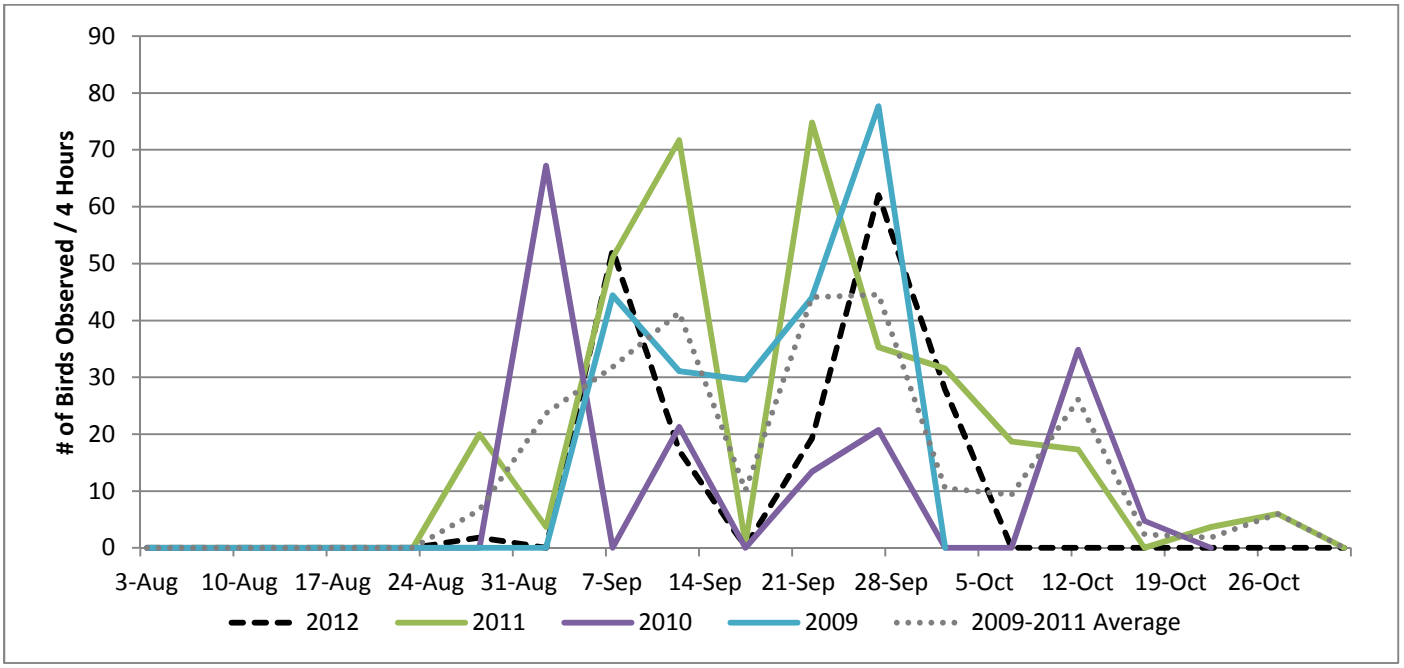

Figure 21. Canada Goose migration timing from 2009 to 2012 (using migration count data).

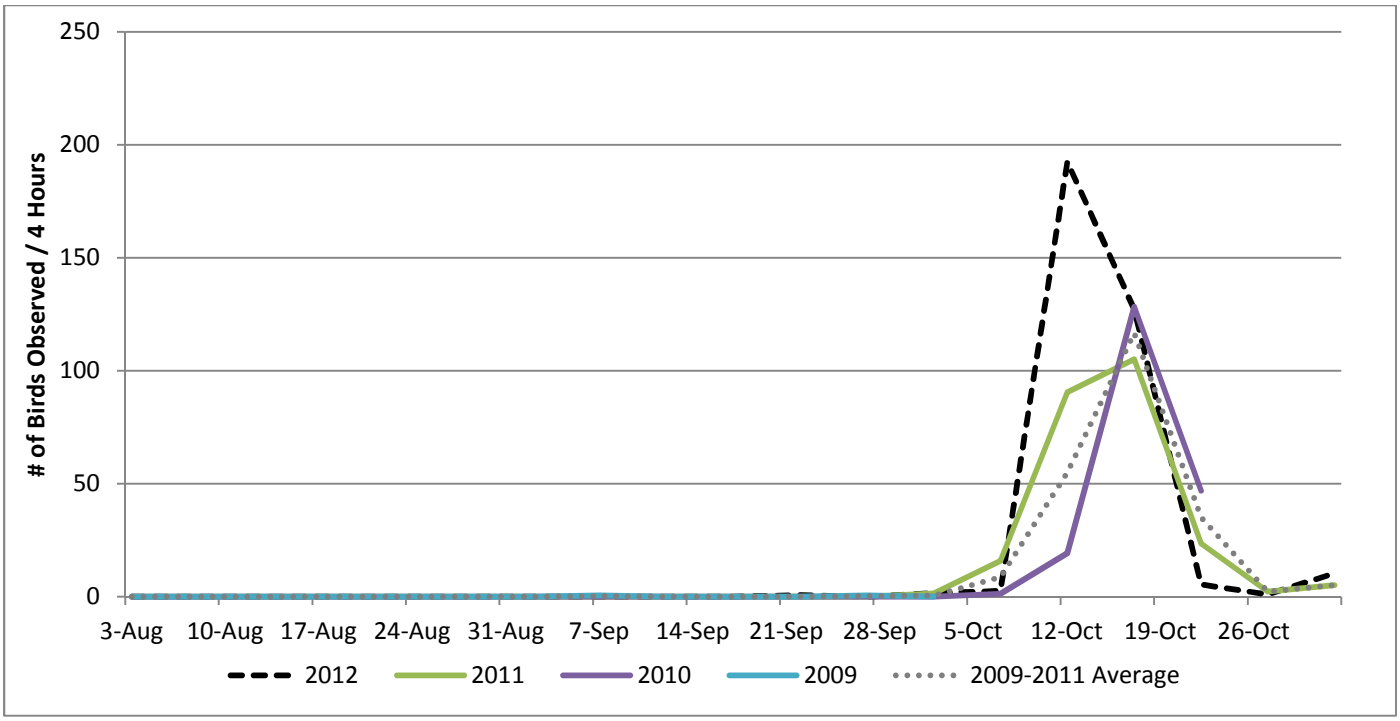

Figure 22. Trumpeter Swan migration timing from 2009 to 2012 (using migration count data).

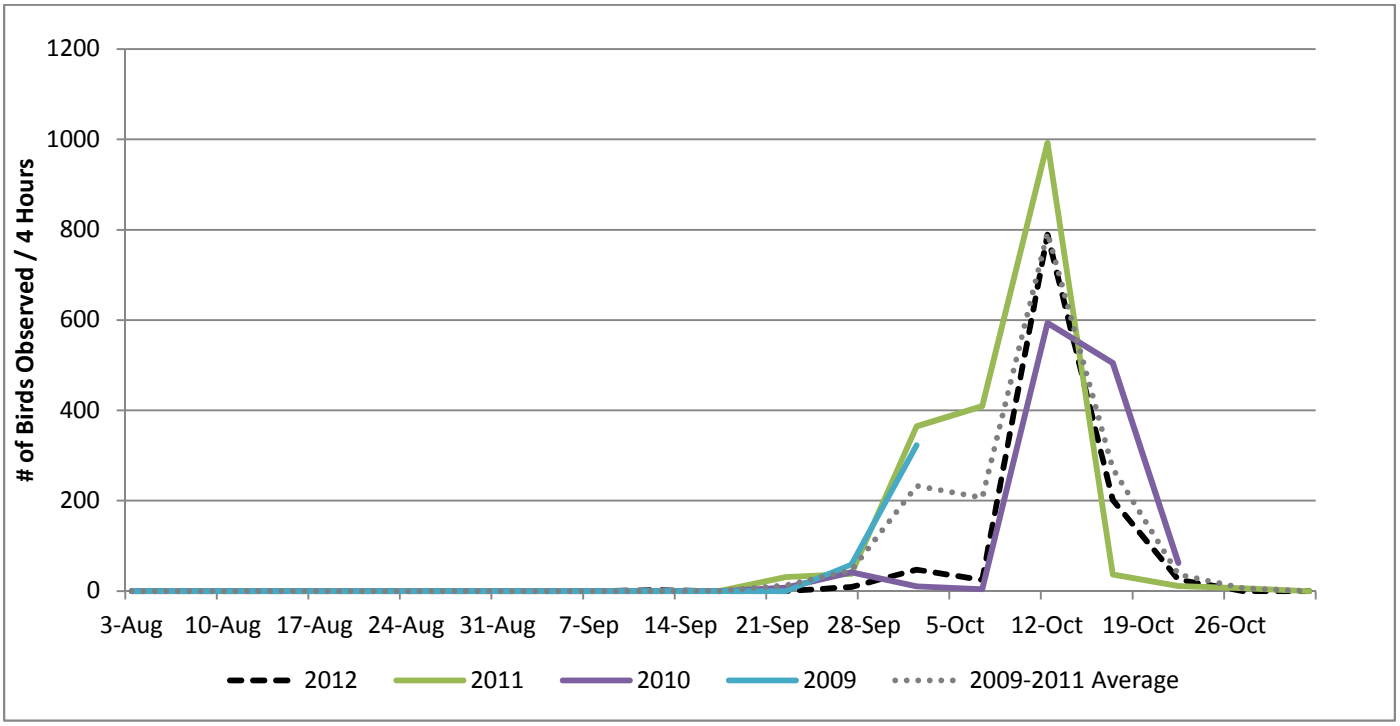

Figure 23. Tundra Swan migration timing from 2009 to 2012 (using migration count data).

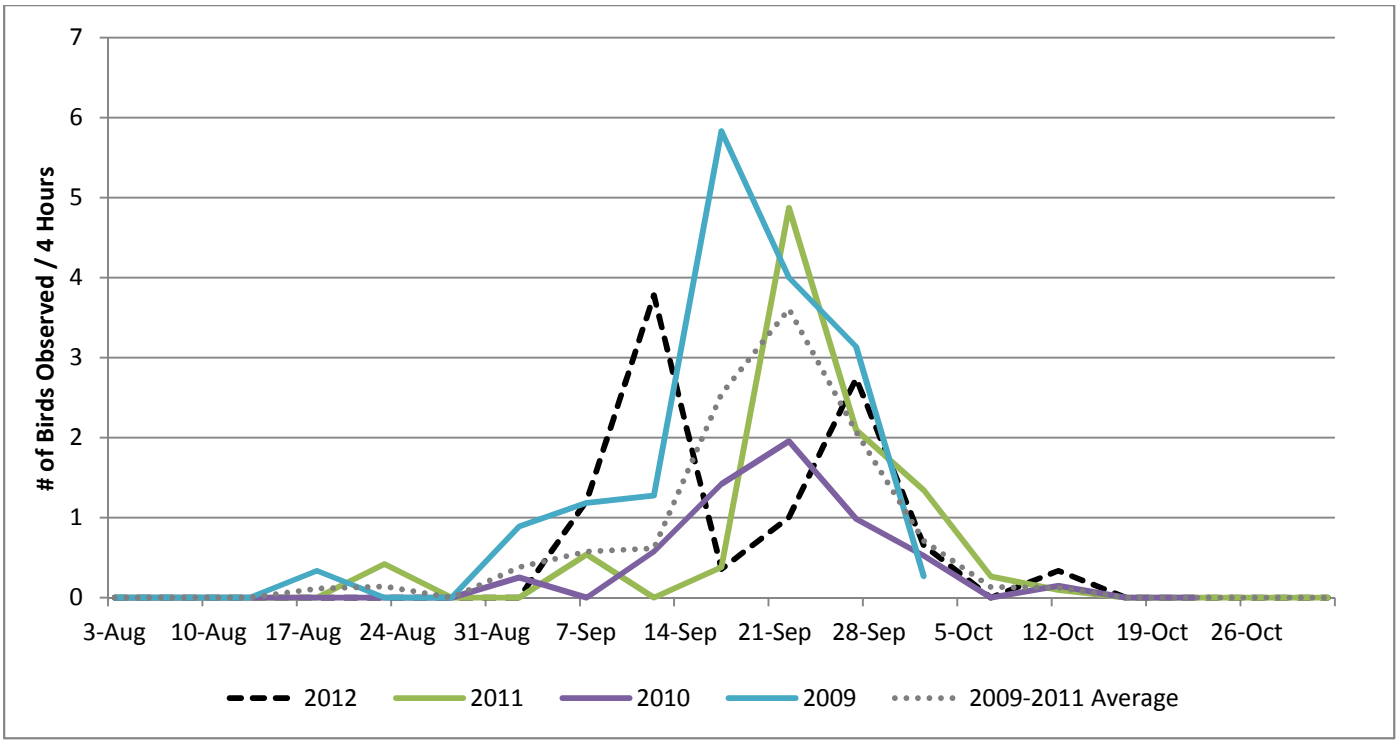

Figure 24. Osprey migration timing from 2009 to 2012 (using migration count data).

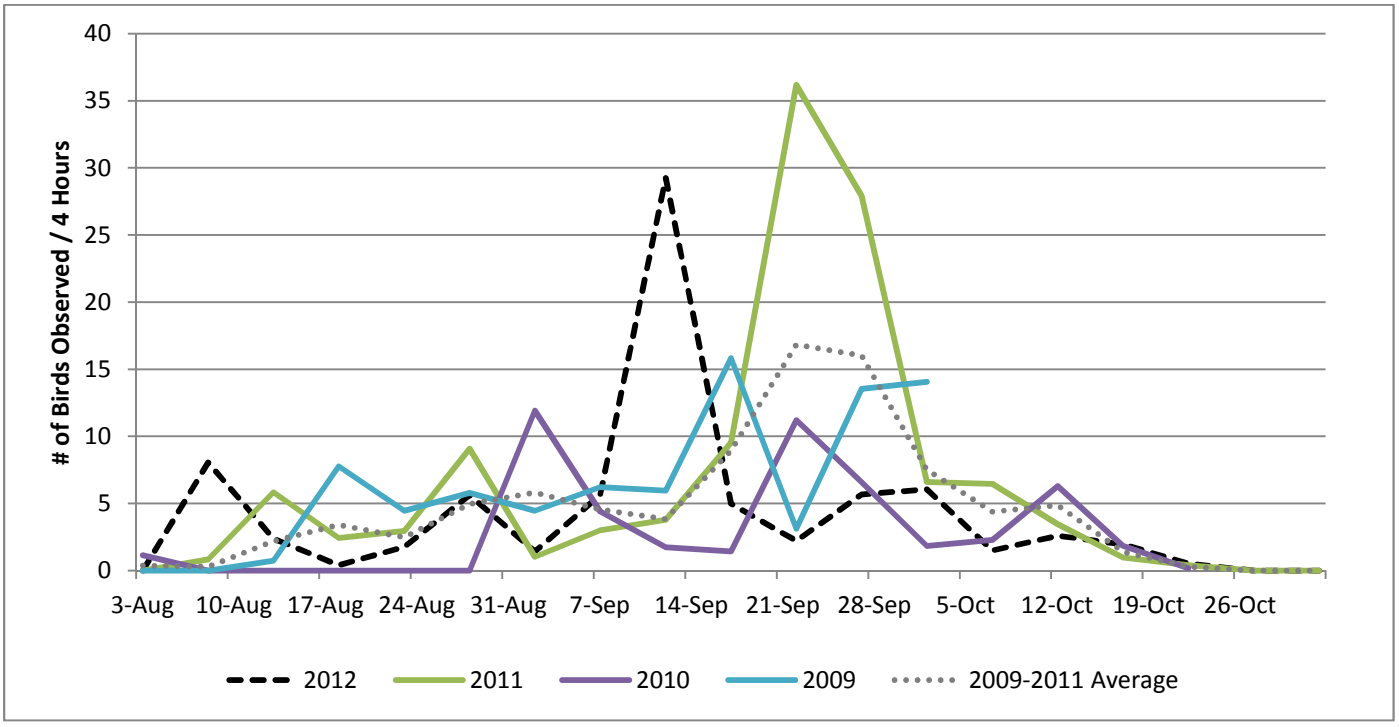

Figure 25. Northern Harrier migration timing from 2009 to 2012 (using migration count data).

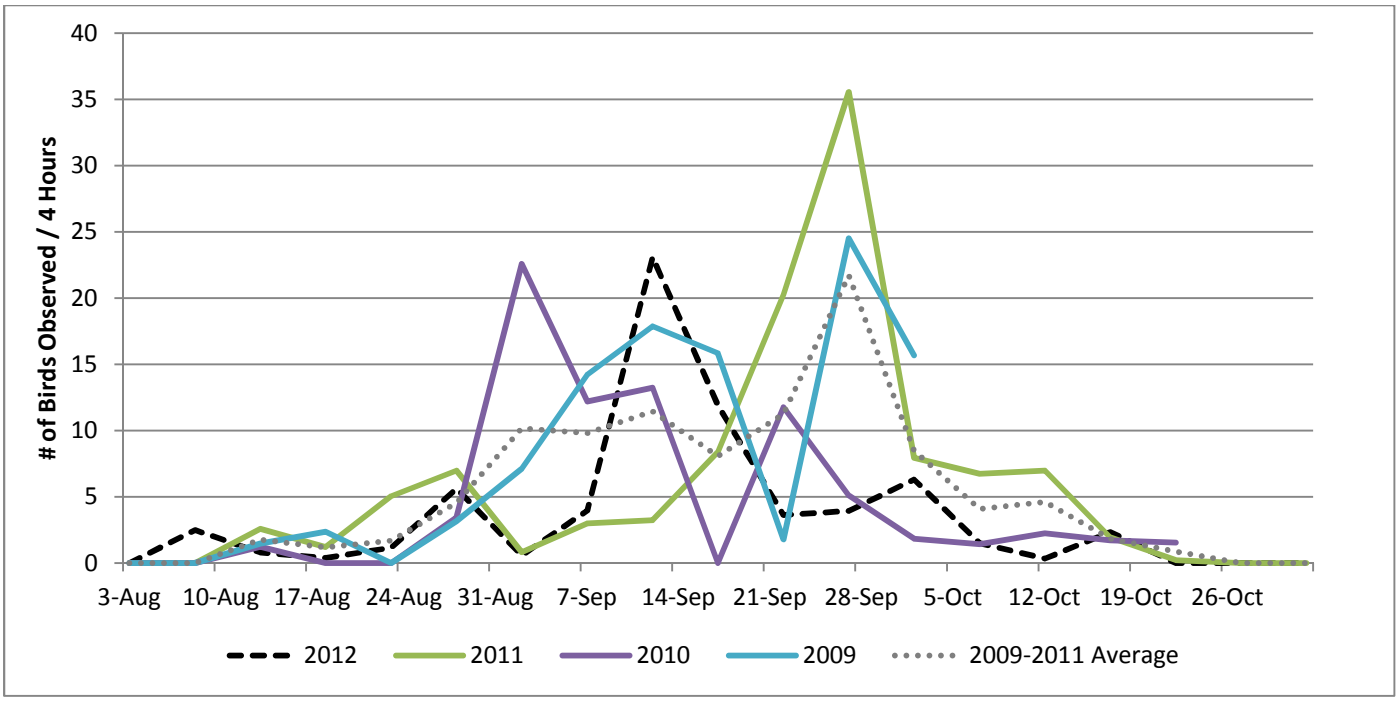

Figure 26. Sharp-shinned Hawk migration timing from 2009 to 2012 (using migration count data).

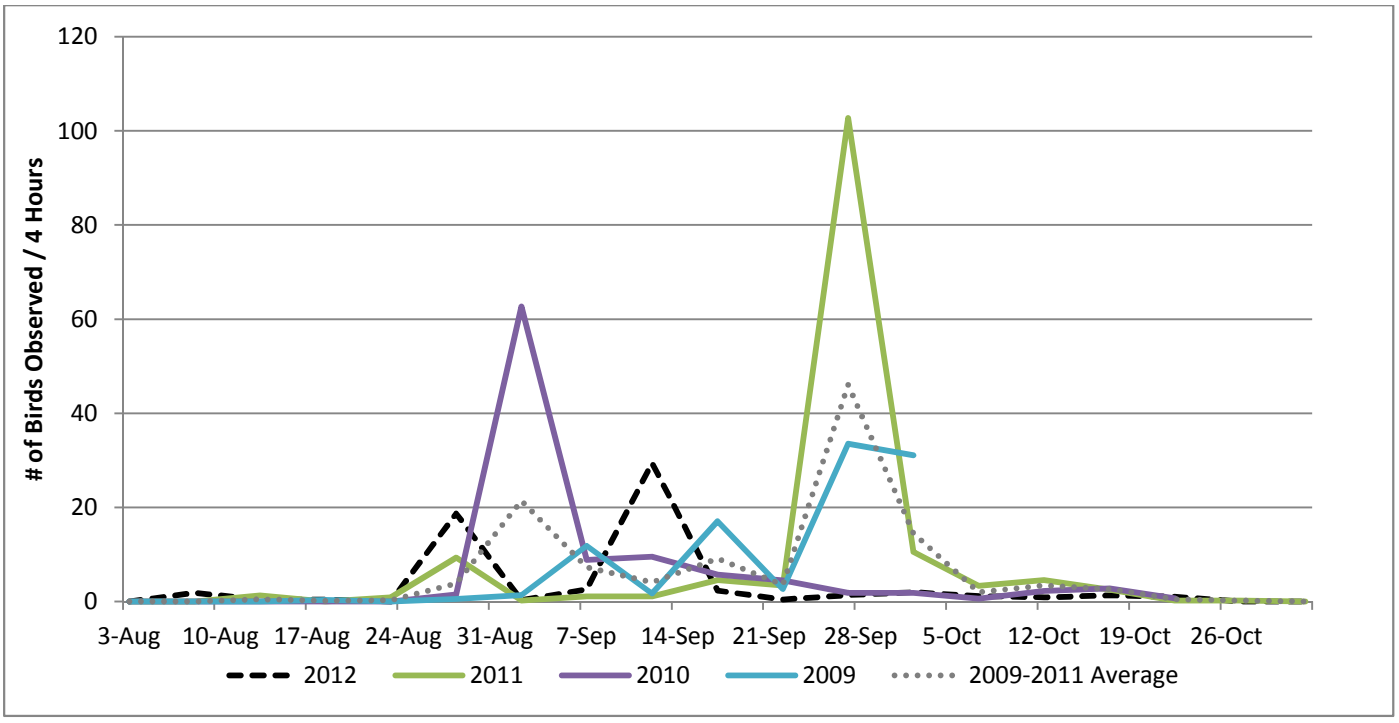

Figure 27. Red-tailed Hawk migration timing from 2009 to 2012 (using migration count data).

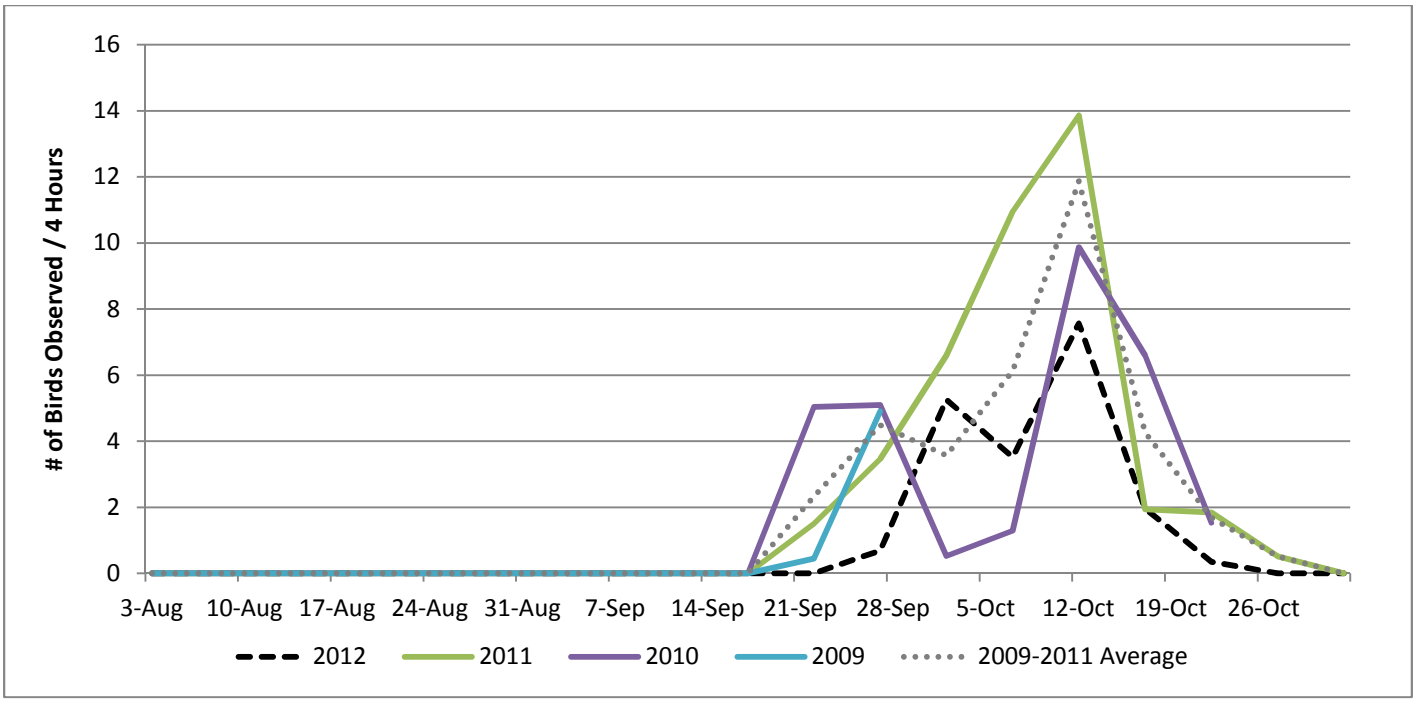

Figure 28. Rough-legged Hawk migration timing from 2009 to 2012 (using migration count data).

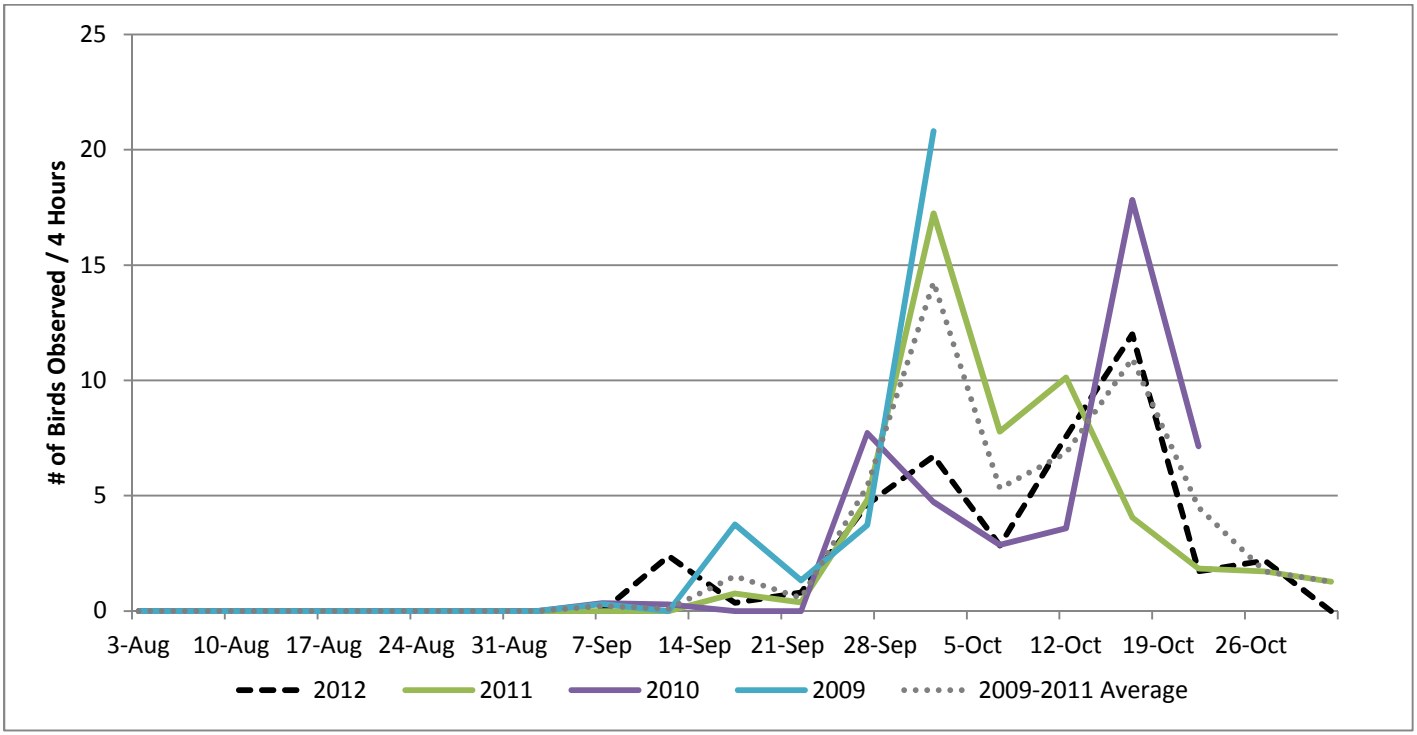

Figure 29. Golden Eagle migration timing from 2009 to 2012 (using migration count data).

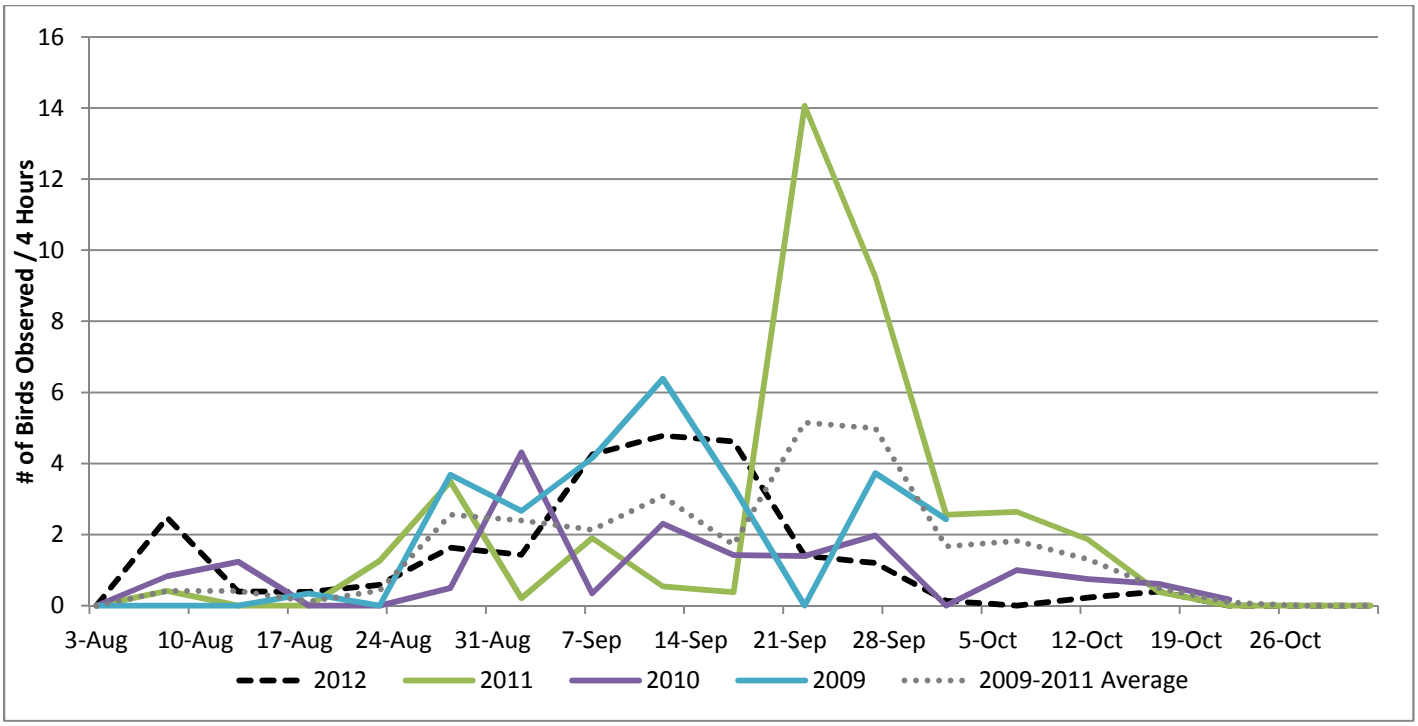

Figure 30. American Kestrel migration timing from 2009 to 2012 (using migration count data).

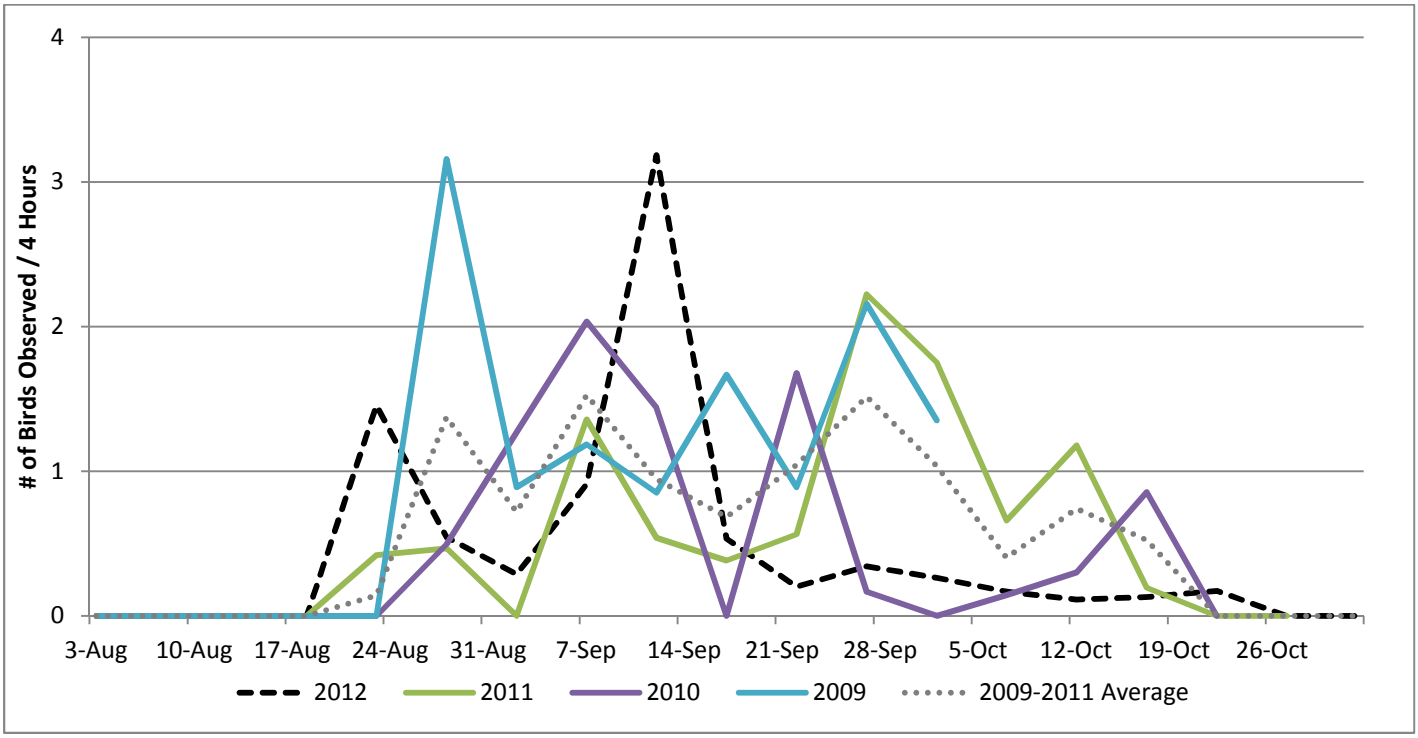

Figure 31. Merlin migration timing from 2009 to 2012 (using migration count data).

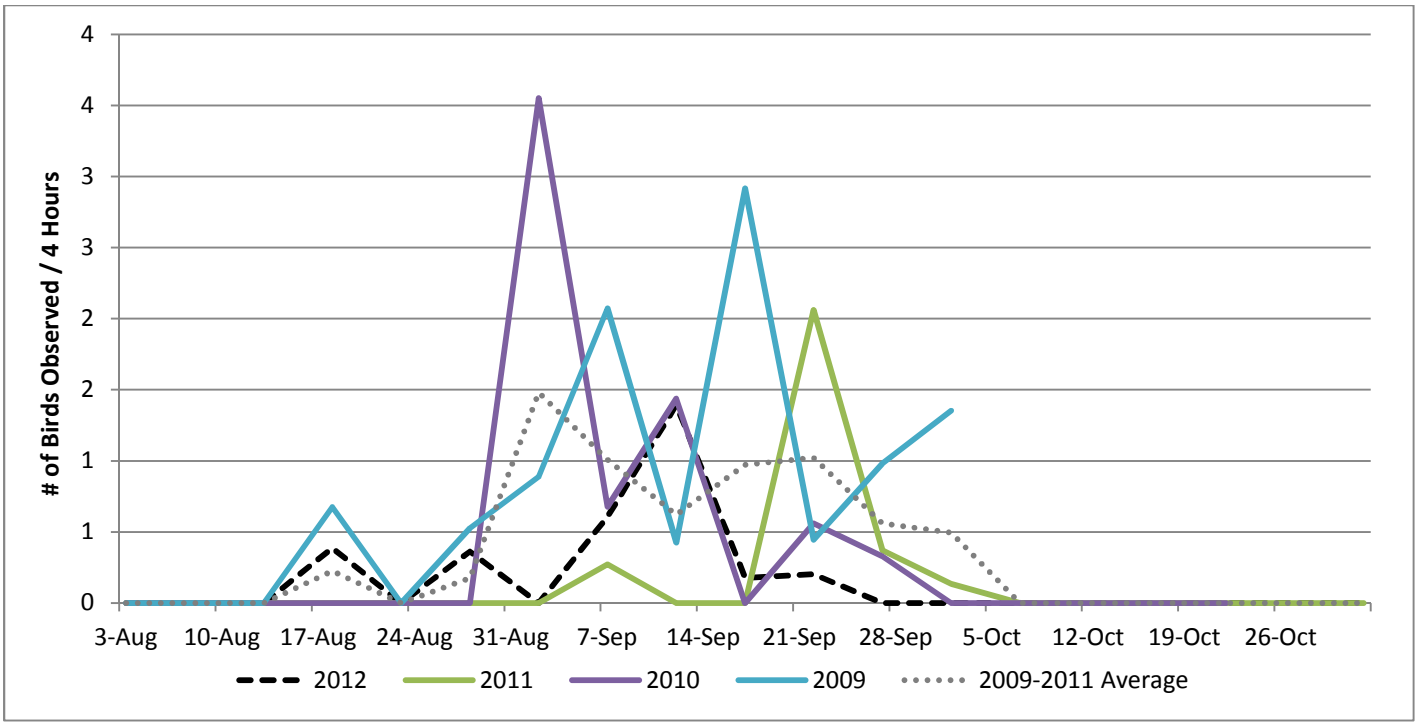

Figure 32. Peregrine Falcon migration timing from 2009 to 2012 (using migration count data).

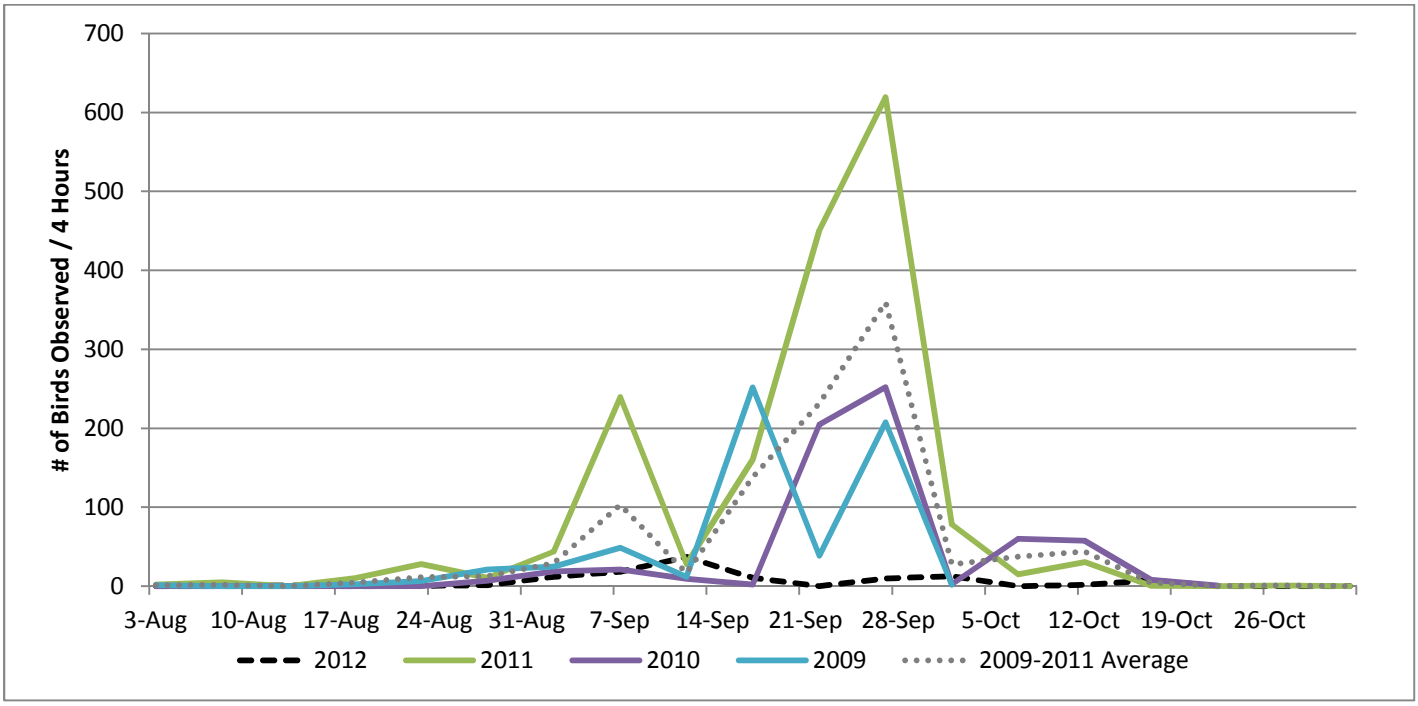

Figure 33. American Robin migration timing from 2009 to 2012 (using migration count data).

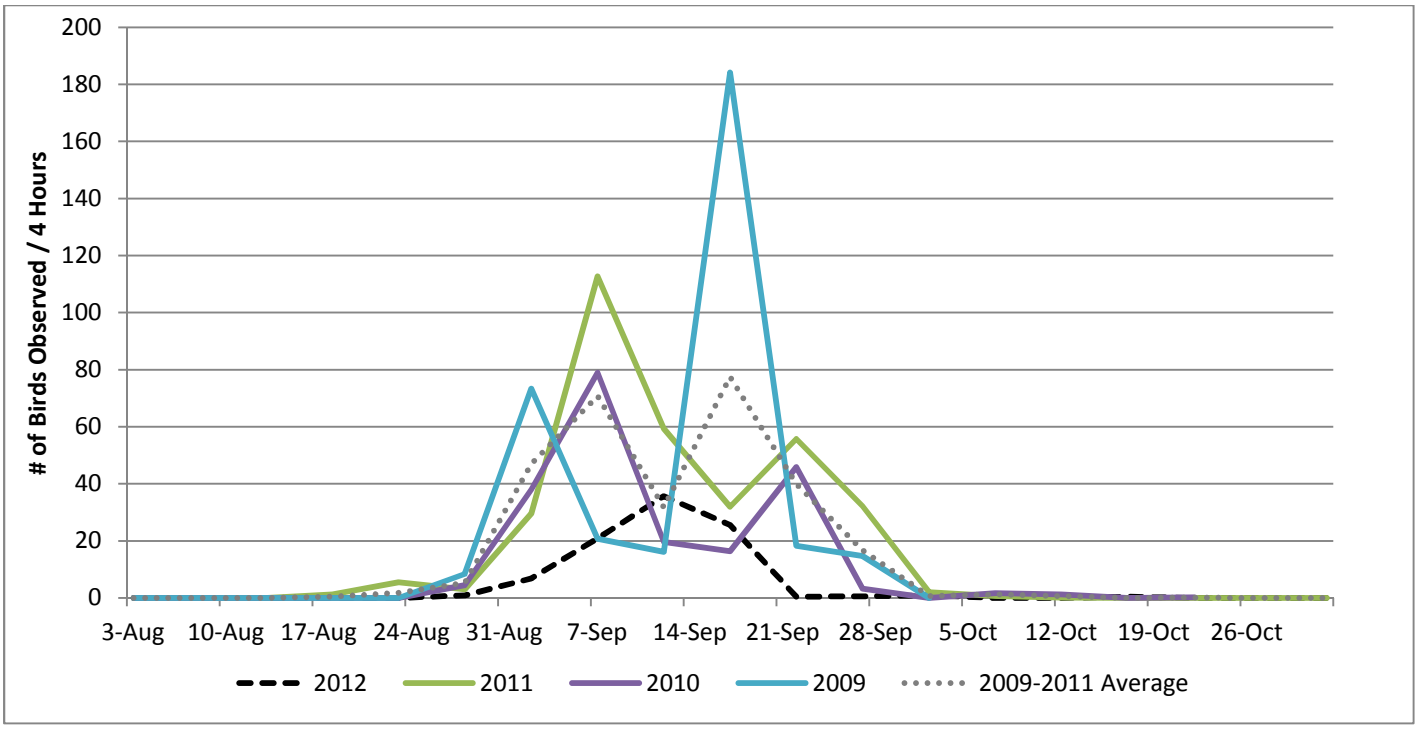

Figure 34. Varied Thrush migration timing from 2009 to 2012 (using migration count data).

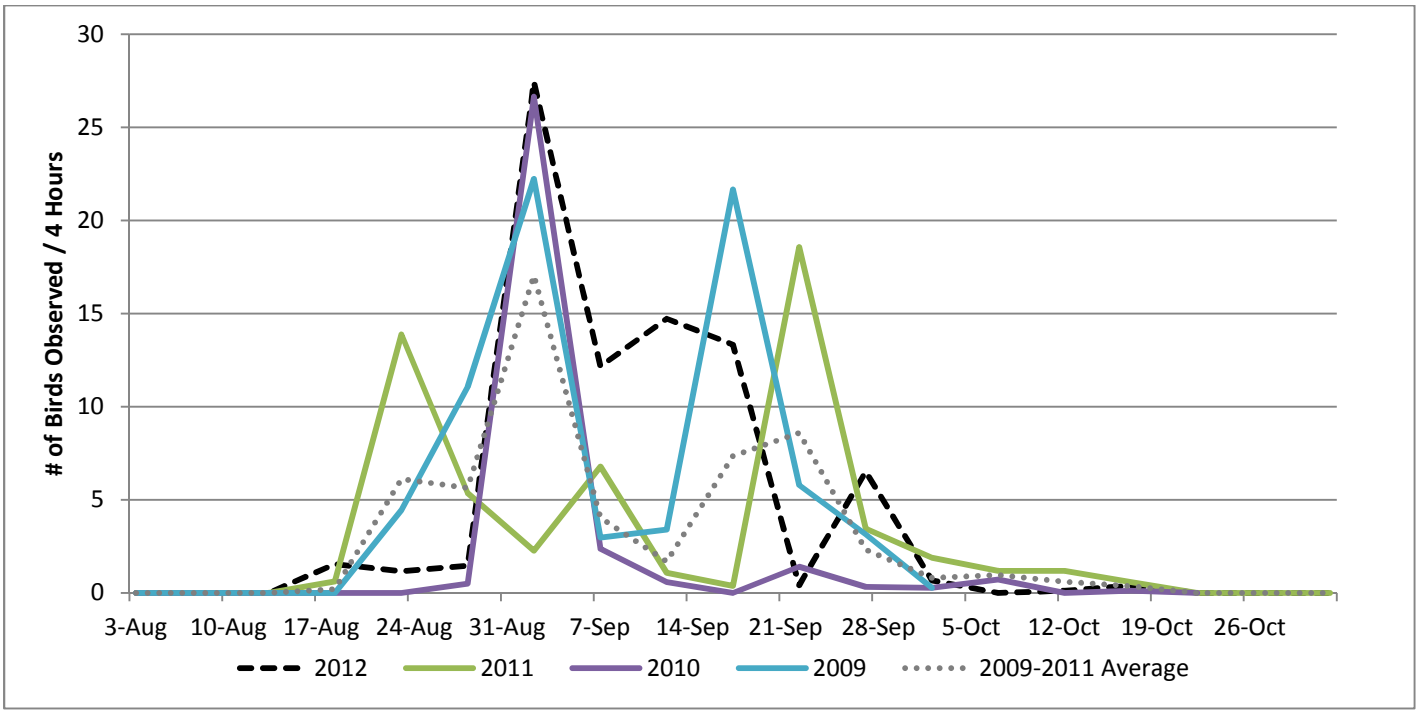

Figure 35. American Pipit migration timing from 2009 to 2012 (using migration count data).

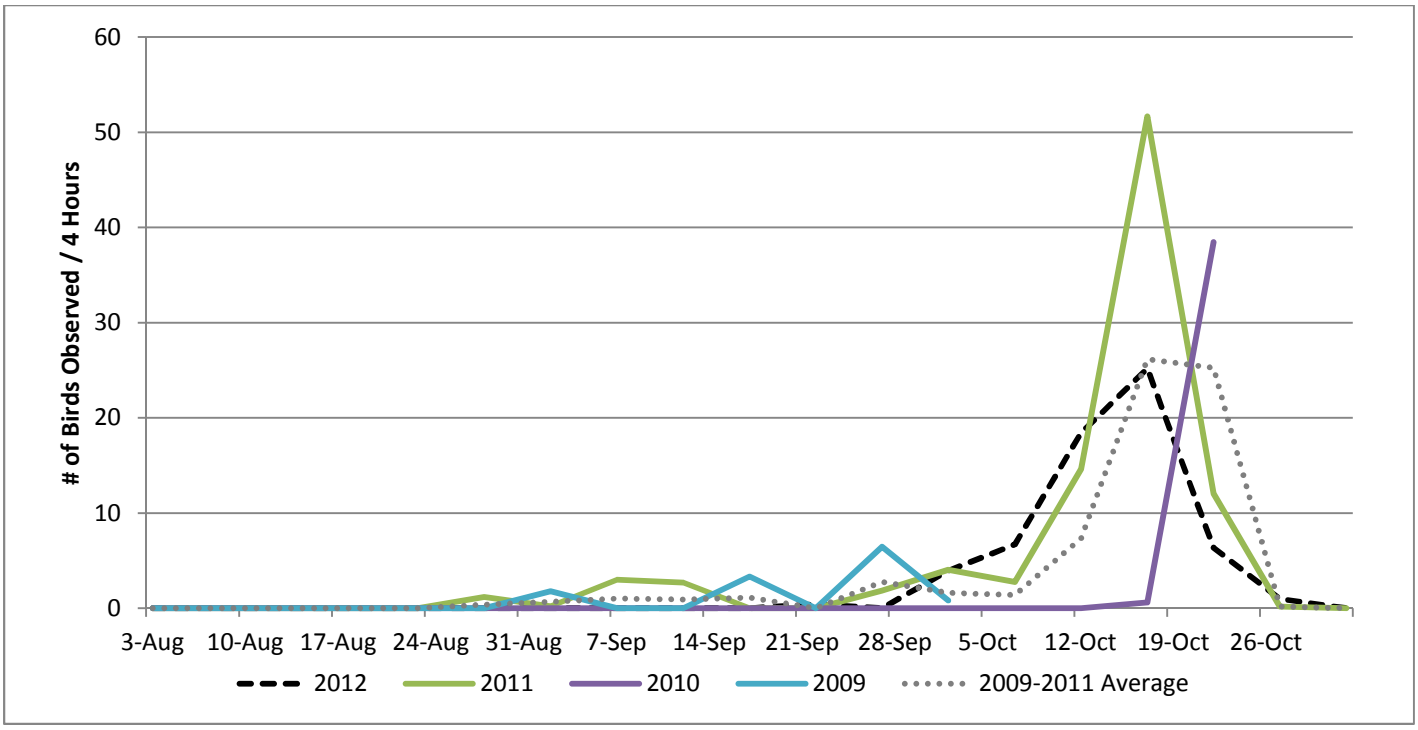

Figure 36. Pine Grosbeak migration timing from 2009 to 2012 (using migration count data).

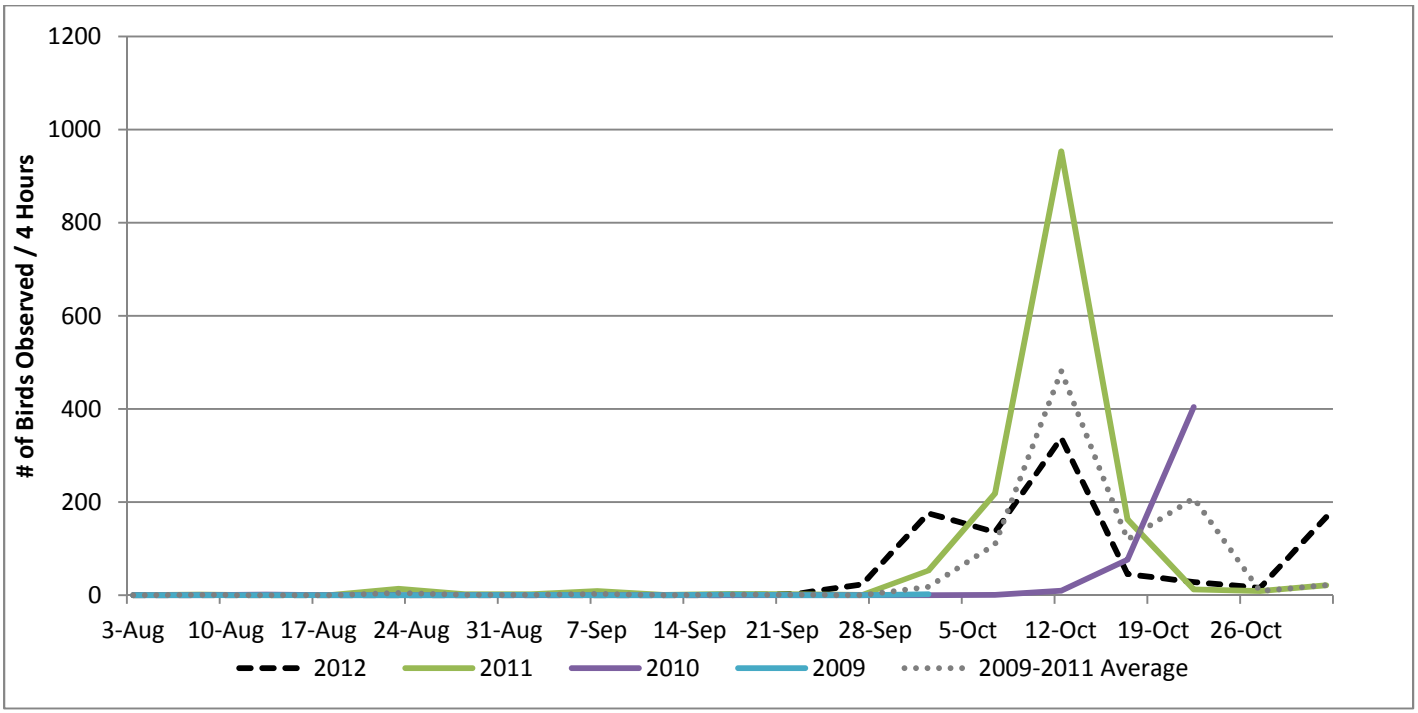

Figure 37. Common Redpoll migration timing from 2009 to 2012 (using migration count data).

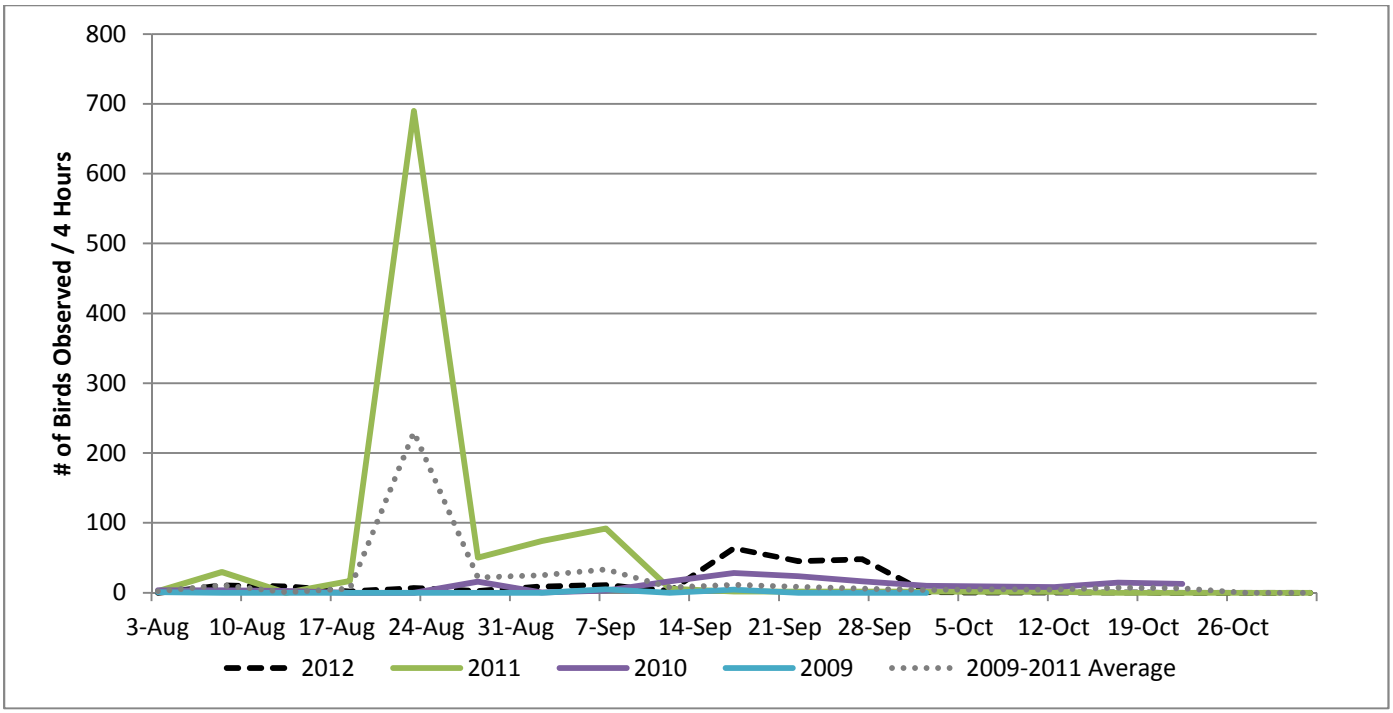

Figure 38. Pine Siskin migration timing from 2009 to 2012 (using migration count data).

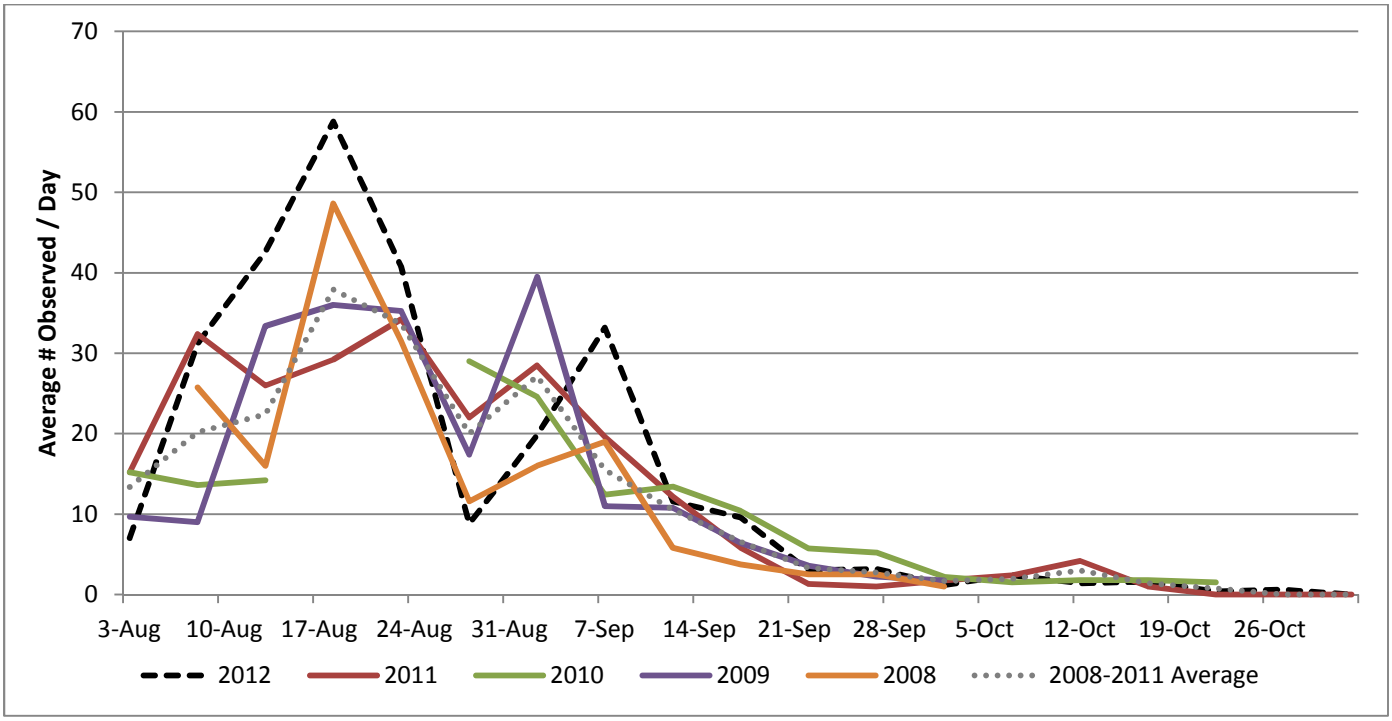

Figure 39. Red-necked Grebe migration timing from 2008 to 2012 (using daily species total data).

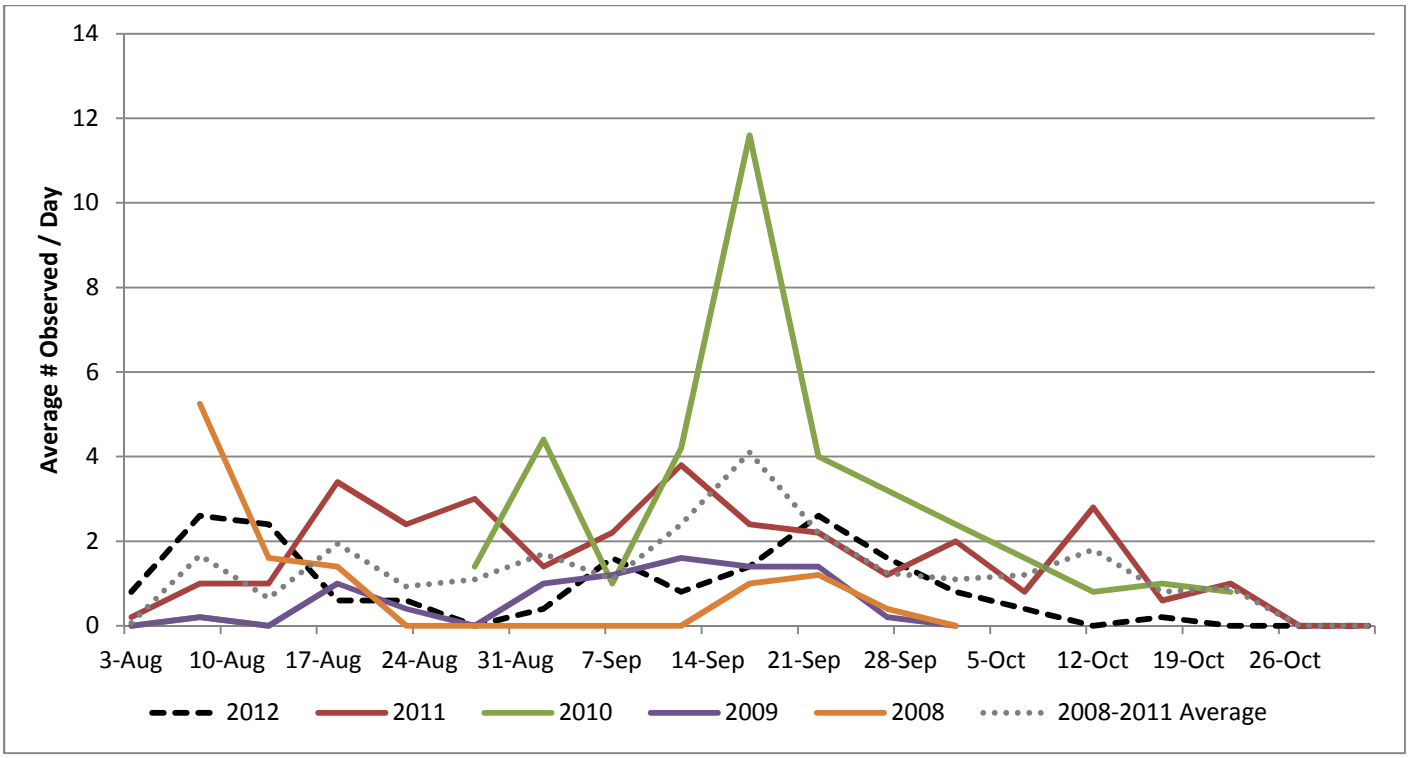

Figure 40. Horned Grebe migration timing from 2008 to 2012 (using daily species total data).

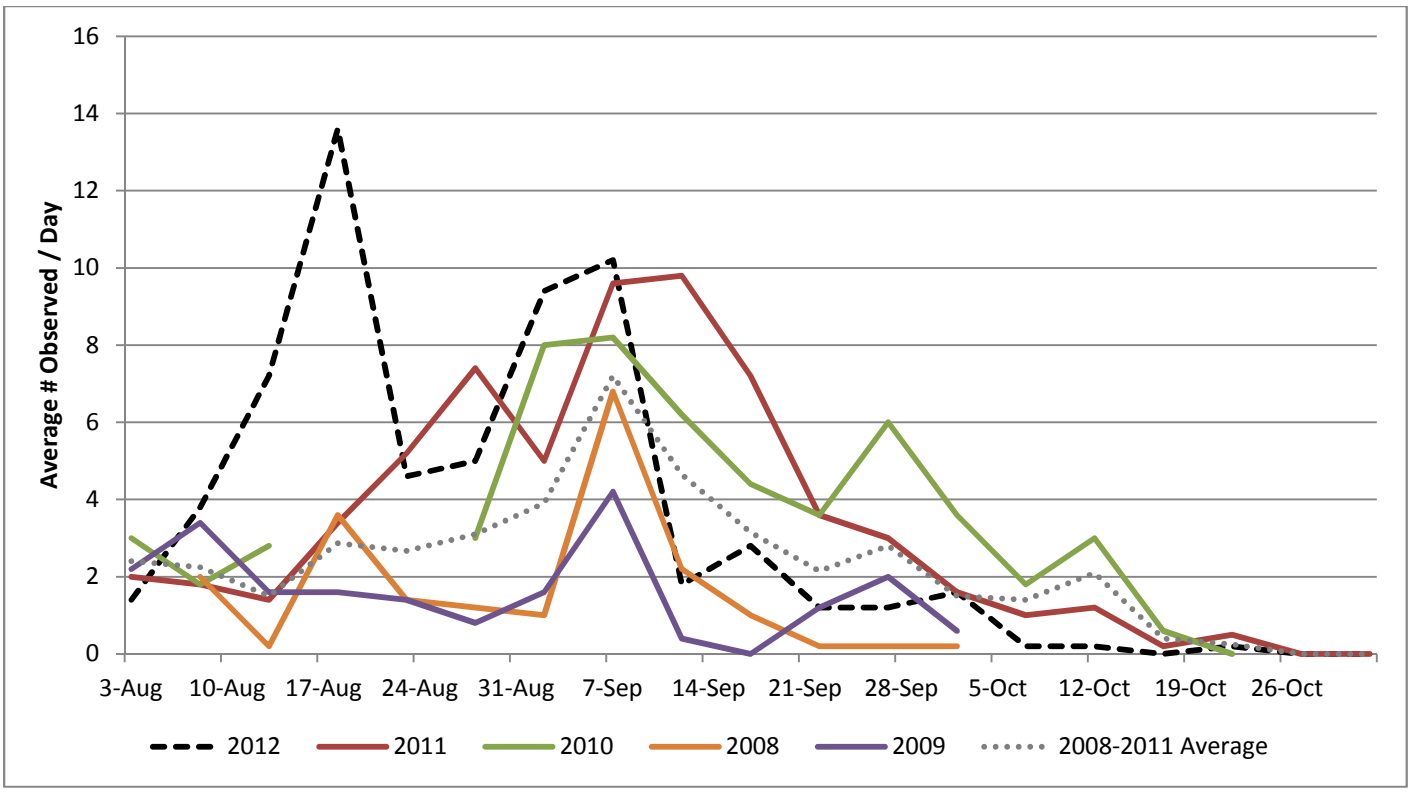

Figure 41. Common Loon migration timing from 2008 to 2012 (using daily species total data).

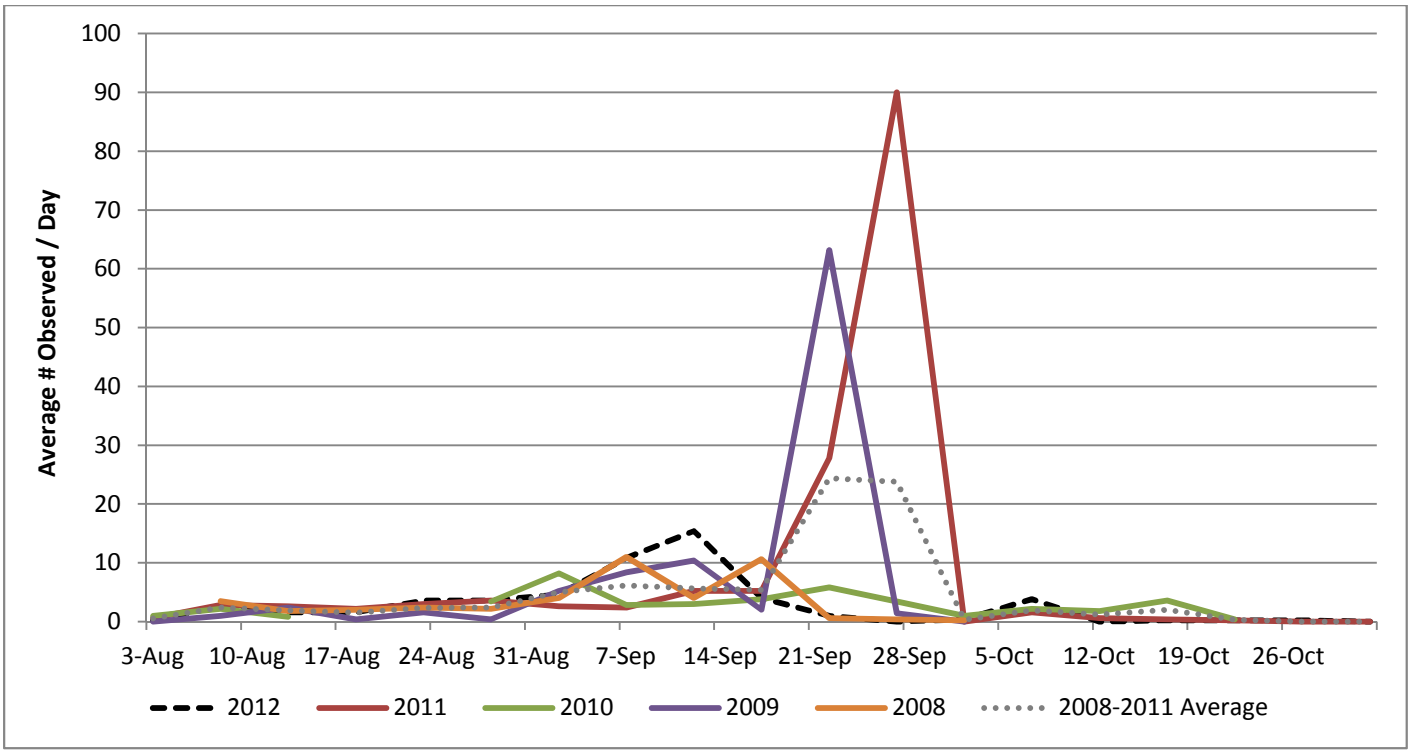

Figure 42. Pacific Loon migration timing from 2008 to 2012 (using daily species total data).

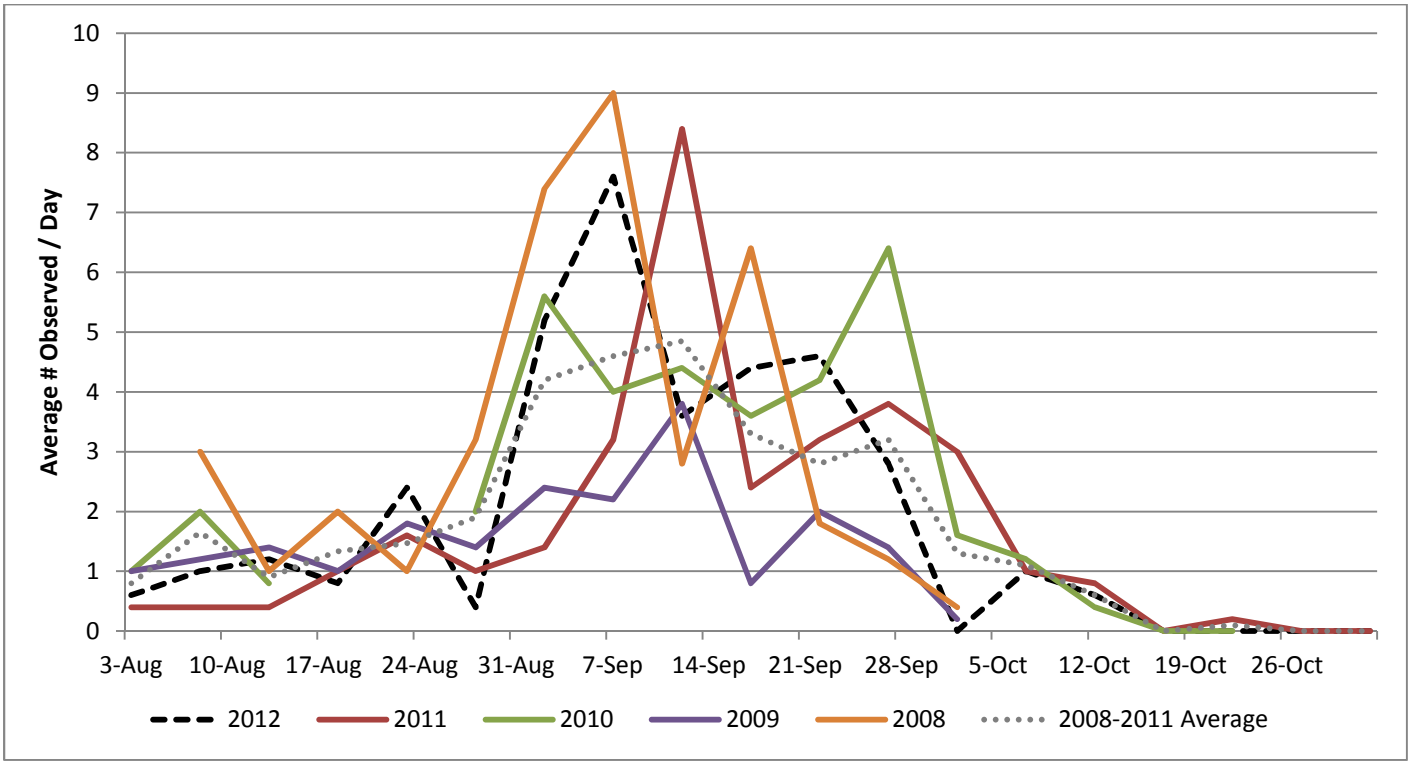

Figure 43, Red-throated Loon migration timing from 2008 to 2012 (using daily species total data).

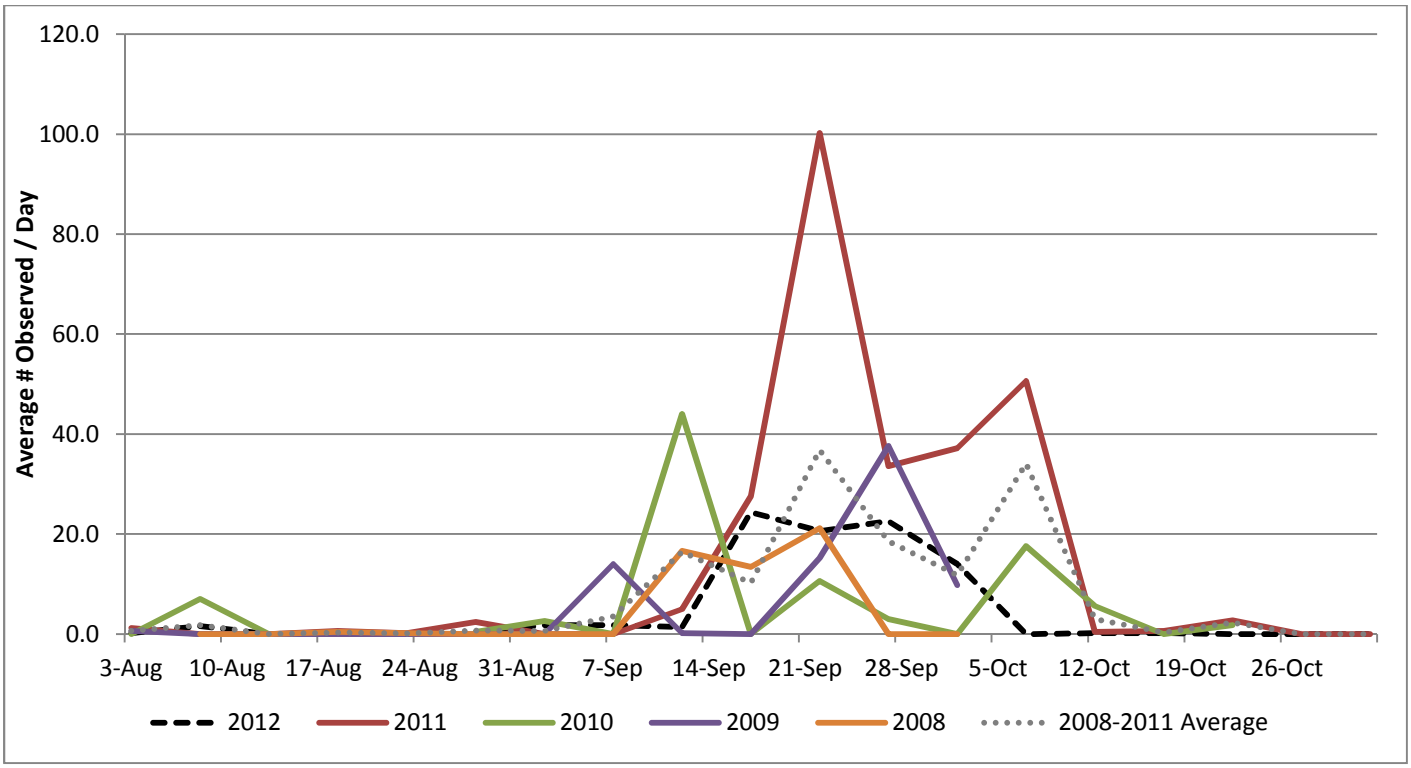

Figure 44. Lesser Scaup migration timing from 2008 to 2012 (using daily species total data).

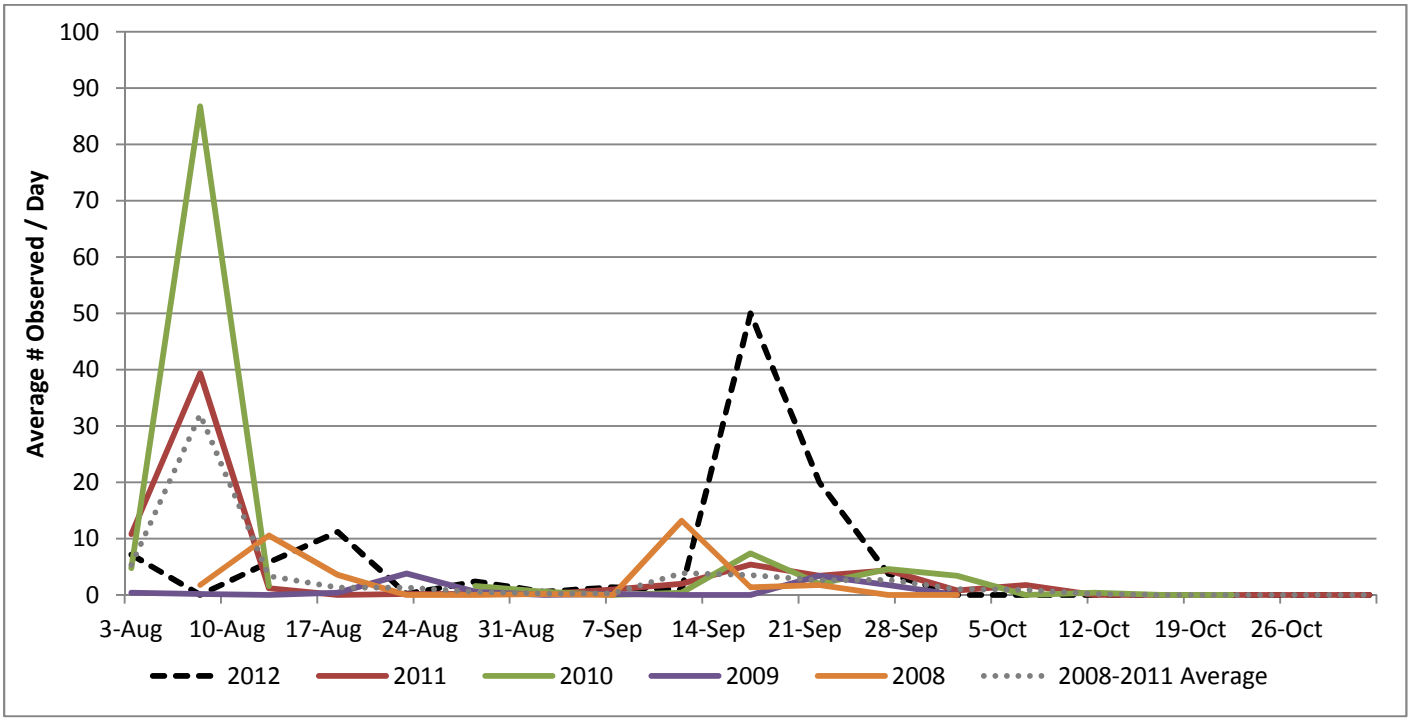

Figure 45. Surf Scoter migration timing from 2008 to 2012 (using daily species total data).

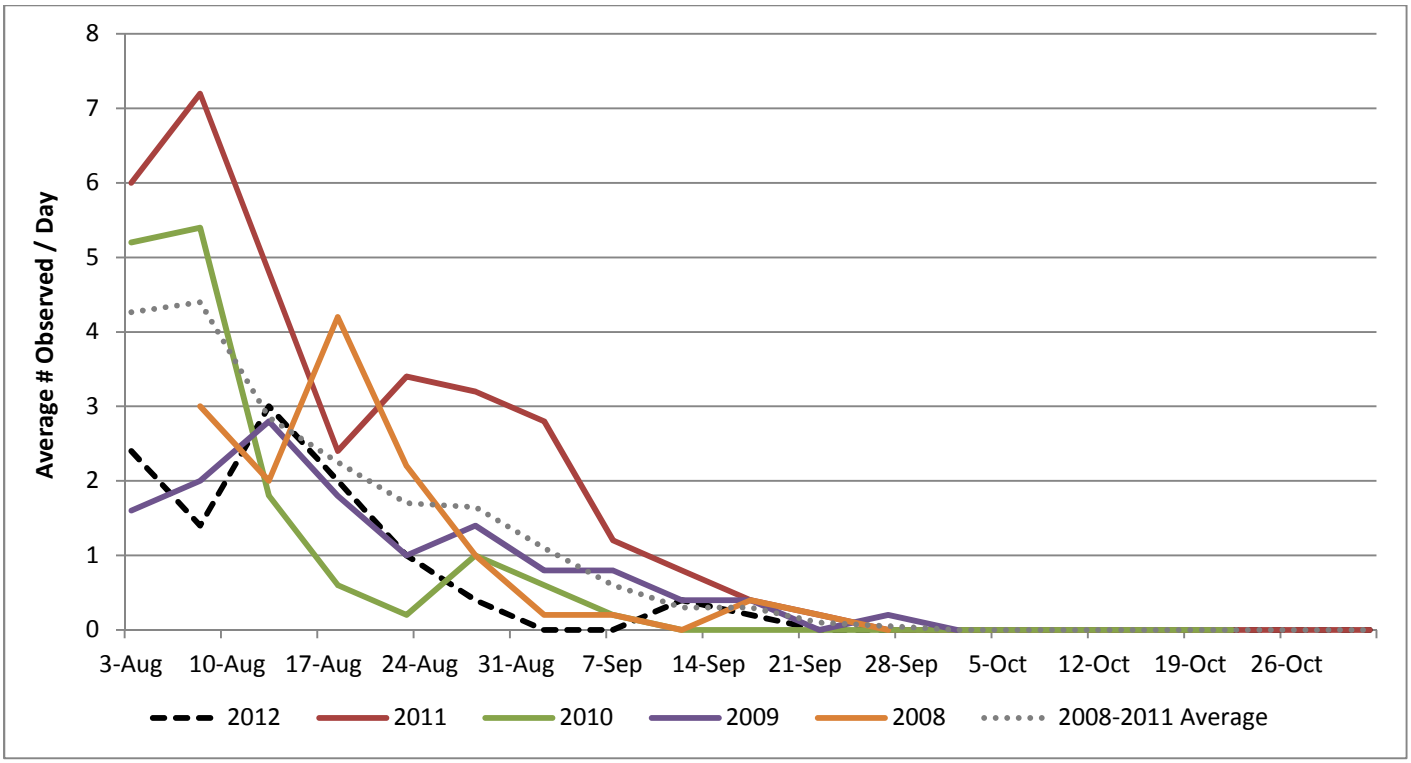

Figure 46. Spotted Sandpiper migration timing from 2008 to 2012 (using daily species total data).

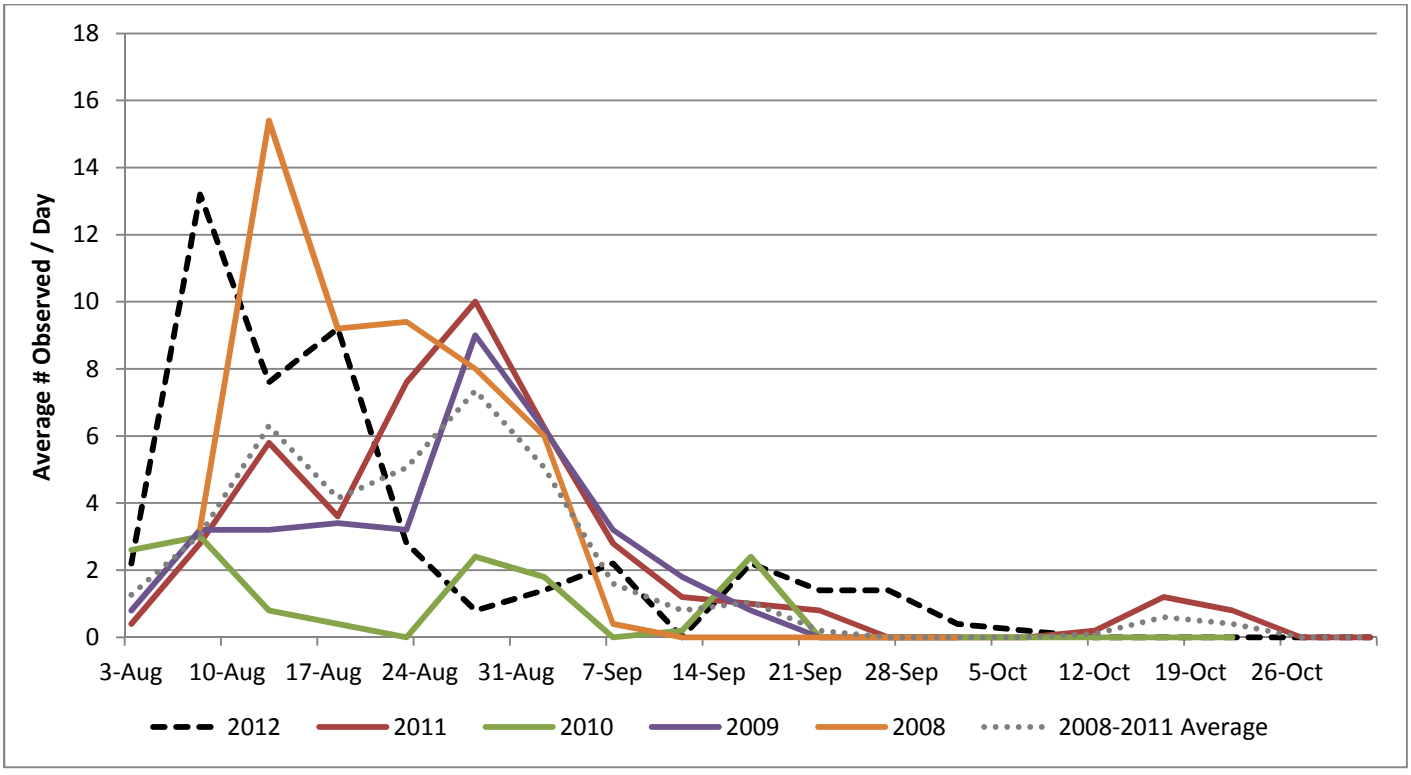

Figure 47. Mew Gull migration timing from 2008 to 2012 (using daily species total data).

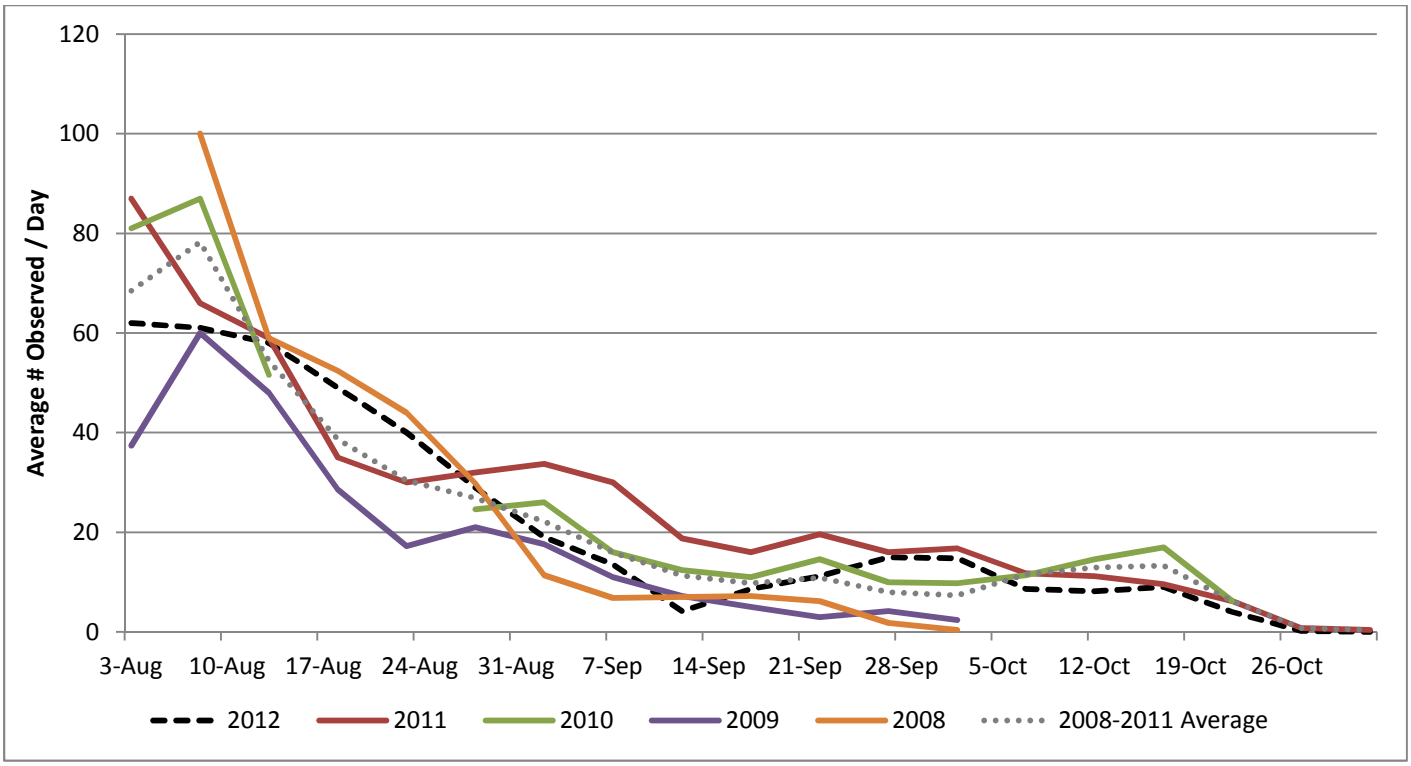

Figure 48. Herring Gull migration timing from 2008 to 2012 (using daily species total data).

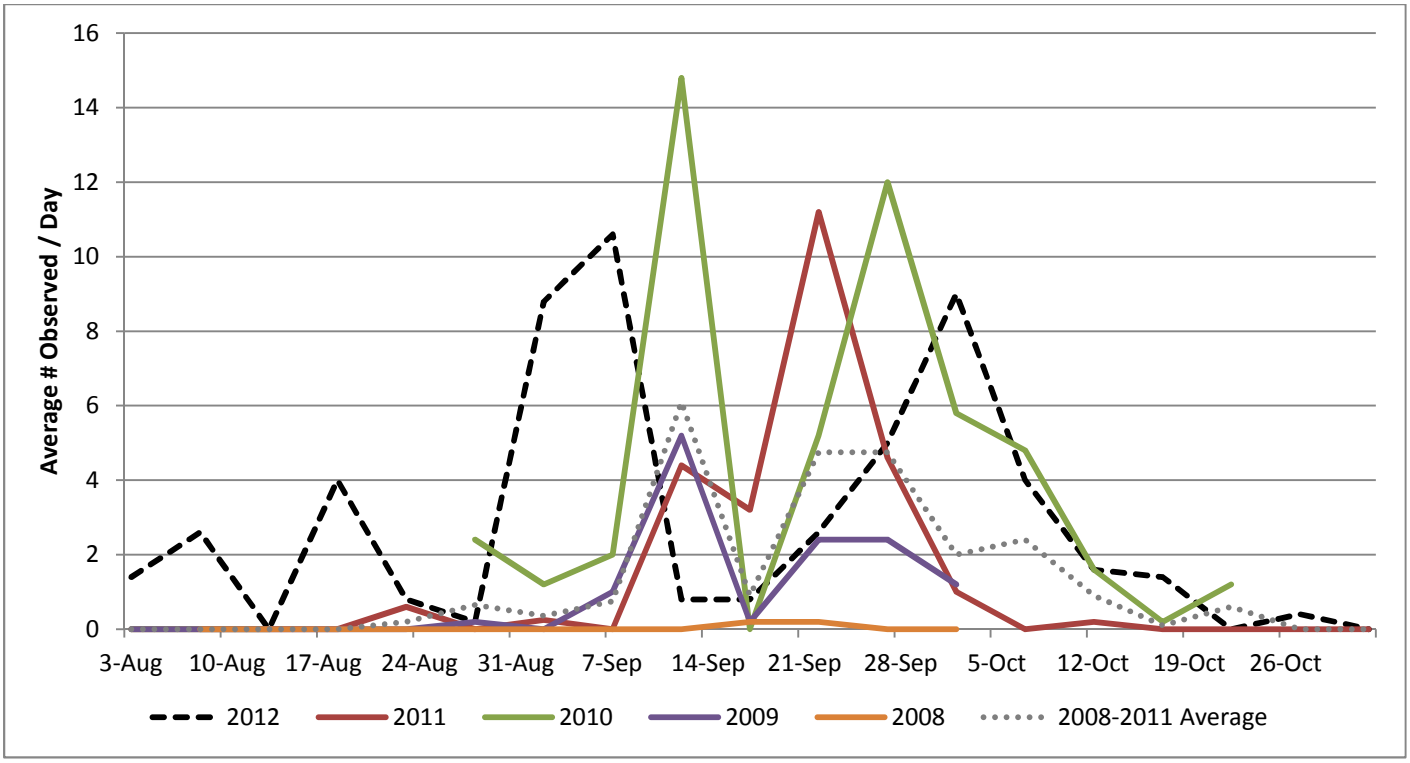

Figure 49. Thayer's Gull migration timing from 2008 to 2012 (using daily species total data).

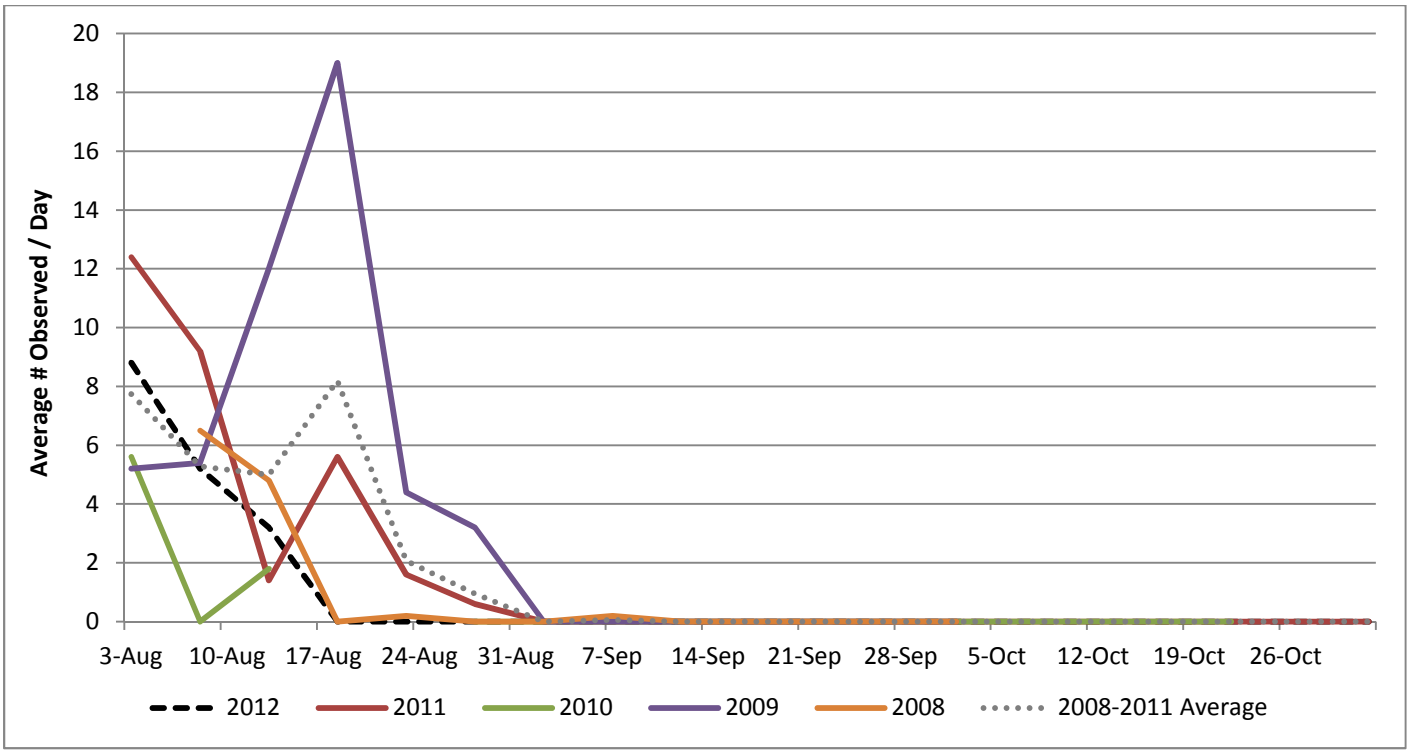

Figure 50. Arctic Tern migration timing from 2008 to 2012 (using daily species total data).

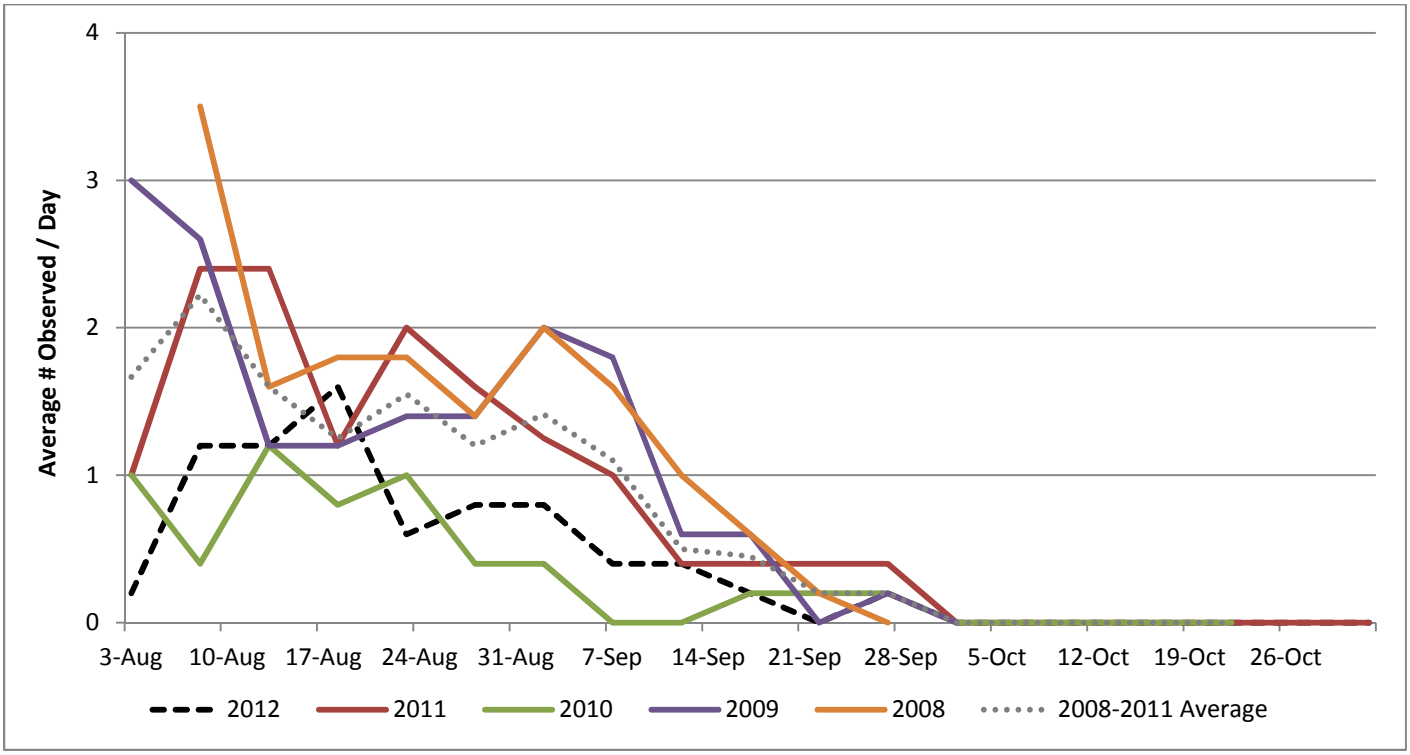

Figure 51. Belted Kingfisher migration timing from 2008 to 2012 (using daily species total data).

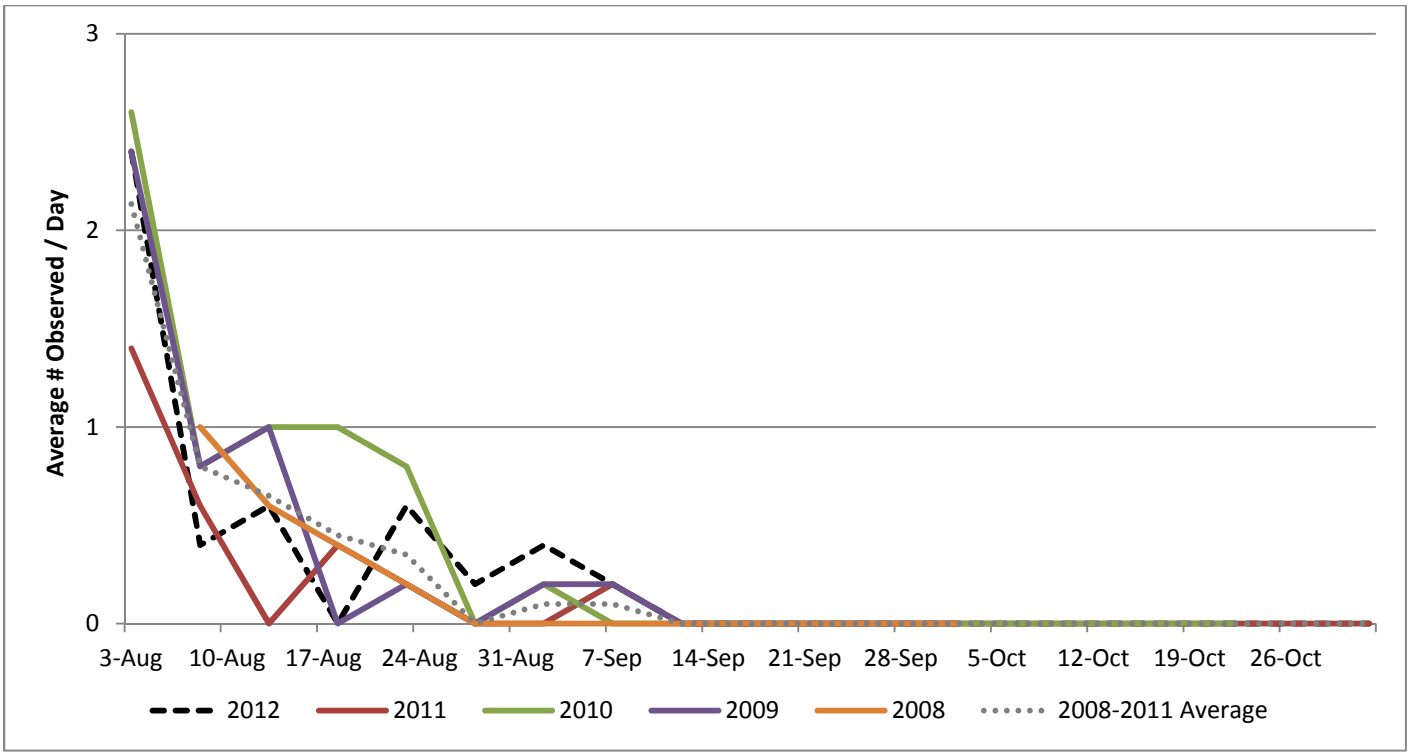

Figure 52. Warbling Vireo migration timing from 2008 to 2012 (using daily species total data).

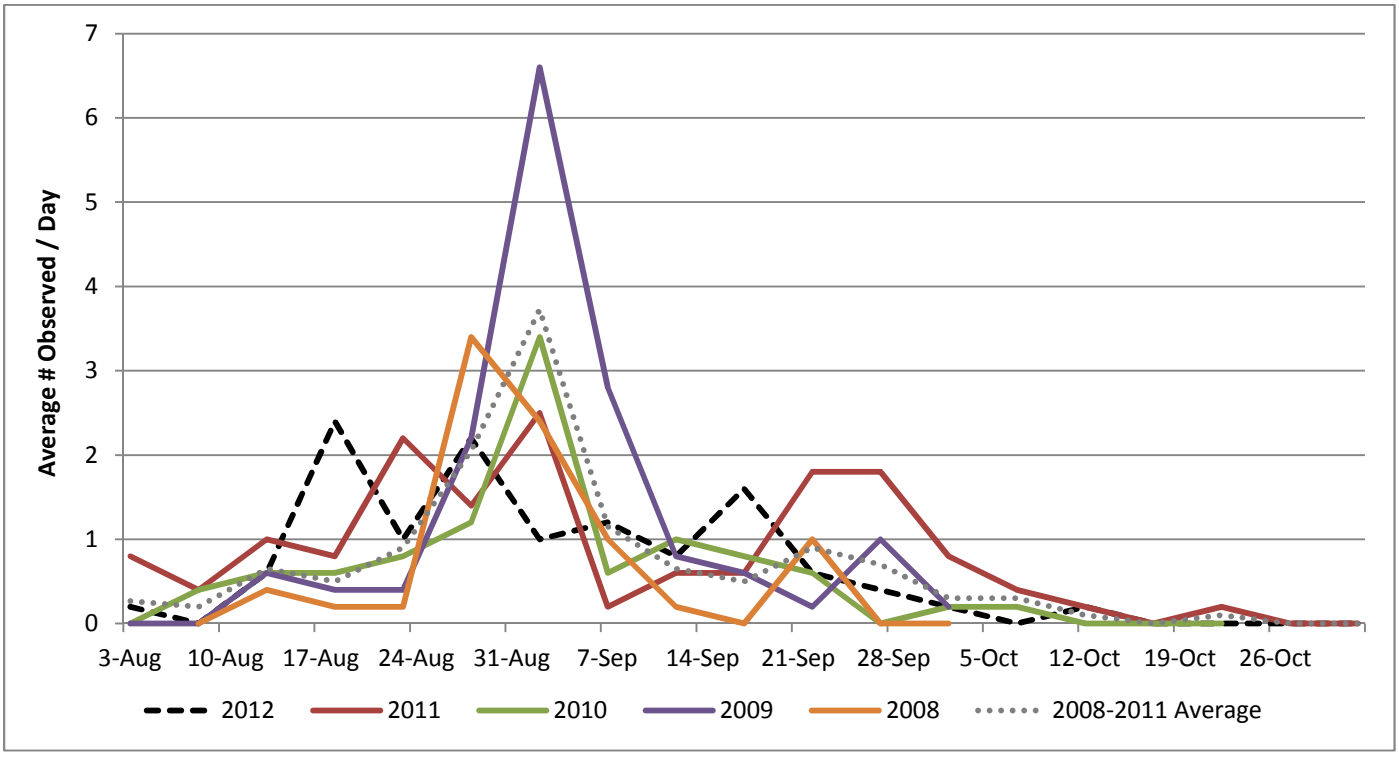

Figure 53. Savannah Sparrow migration timing from 2008 to 2012 (using daily species total data).

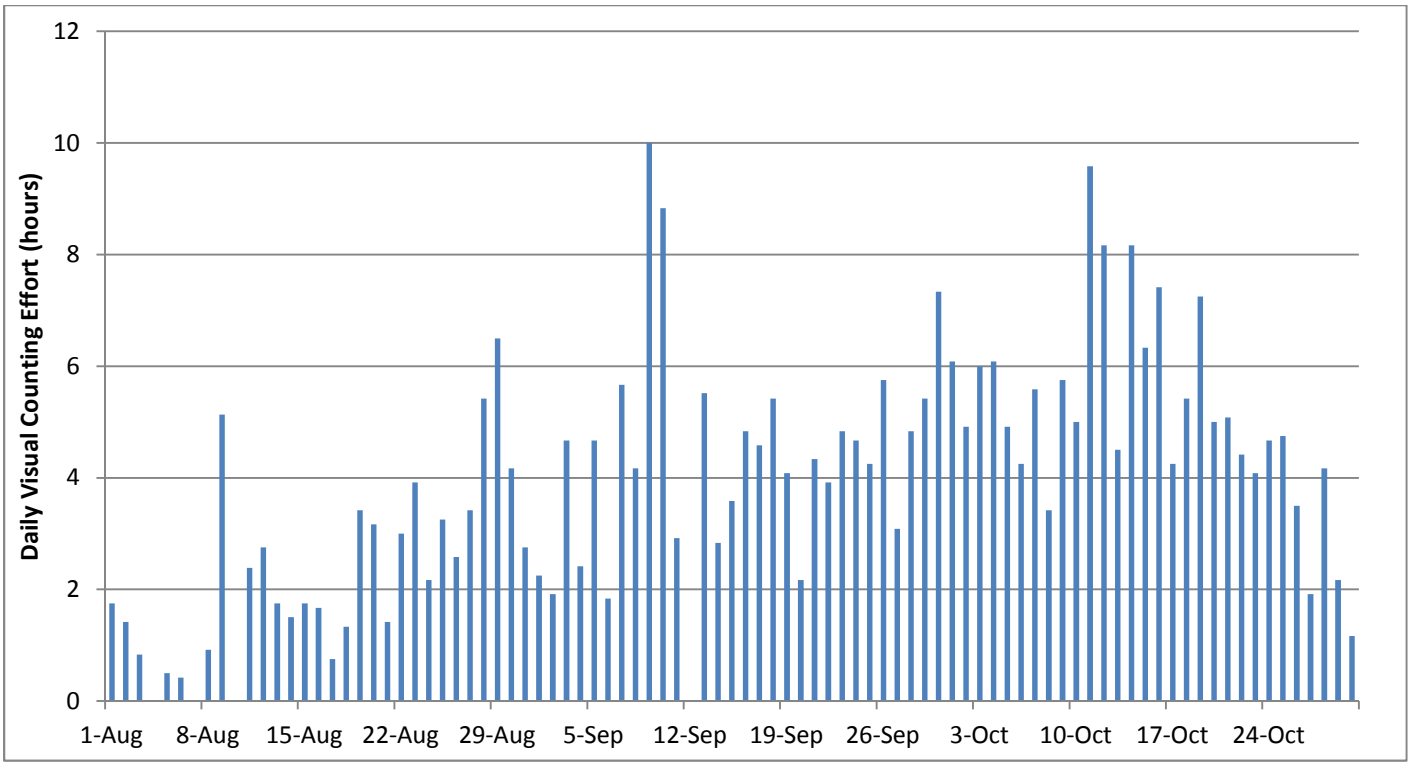

Figure 54. Summary of visual migration watching effort during the fall 2012 season.

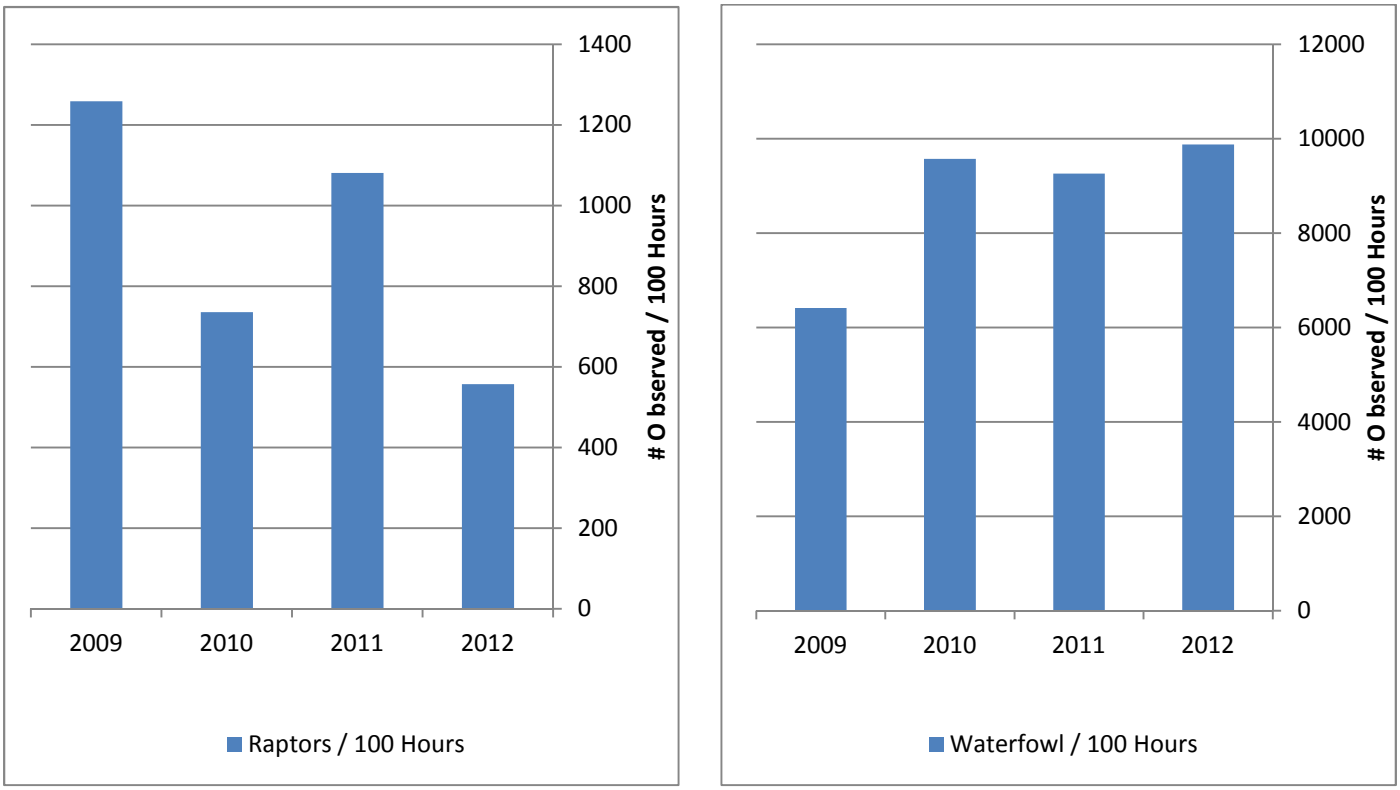

Figure 55. Number of raptors (left) and waterfowl (right) observed per 100 visual counting hours from 2009 to 2012. Note that 'waterfowl' include swans, geese and ducks.

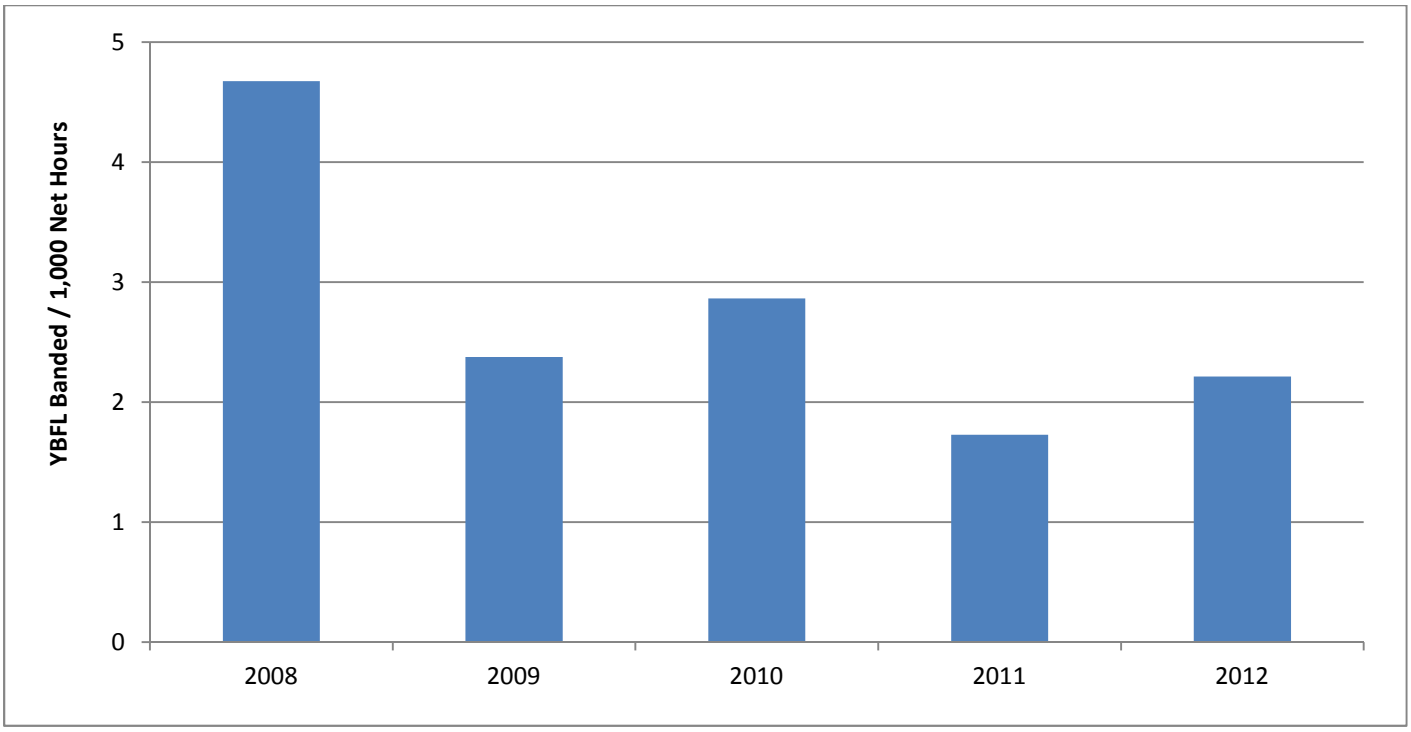

Figure 56. Yellow-bellied Flycatchers banded per 1,000 net hours from 2008 to 2012 during the migration window of August 1 to September 5.

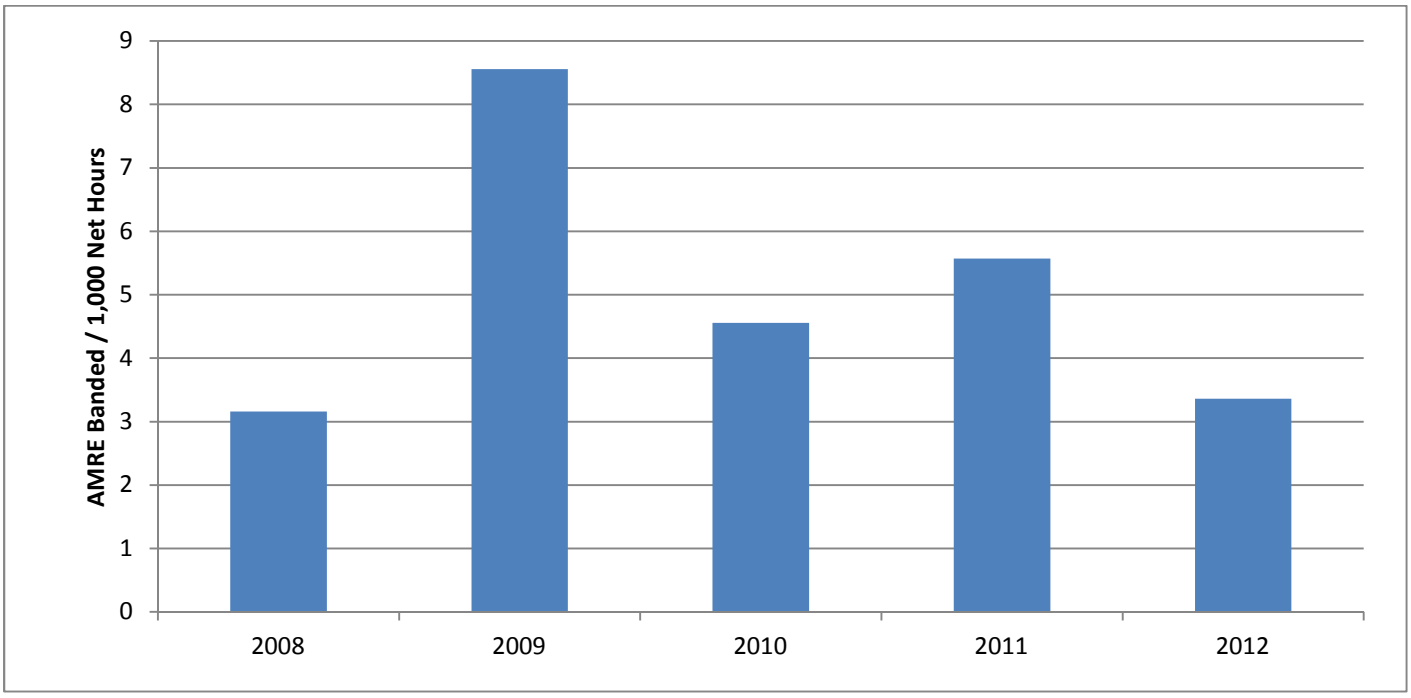

Figure 57. American Redstarts banded per 1,000 net hours from 2008 to 2012 during the migration window of July 23 to September 20.

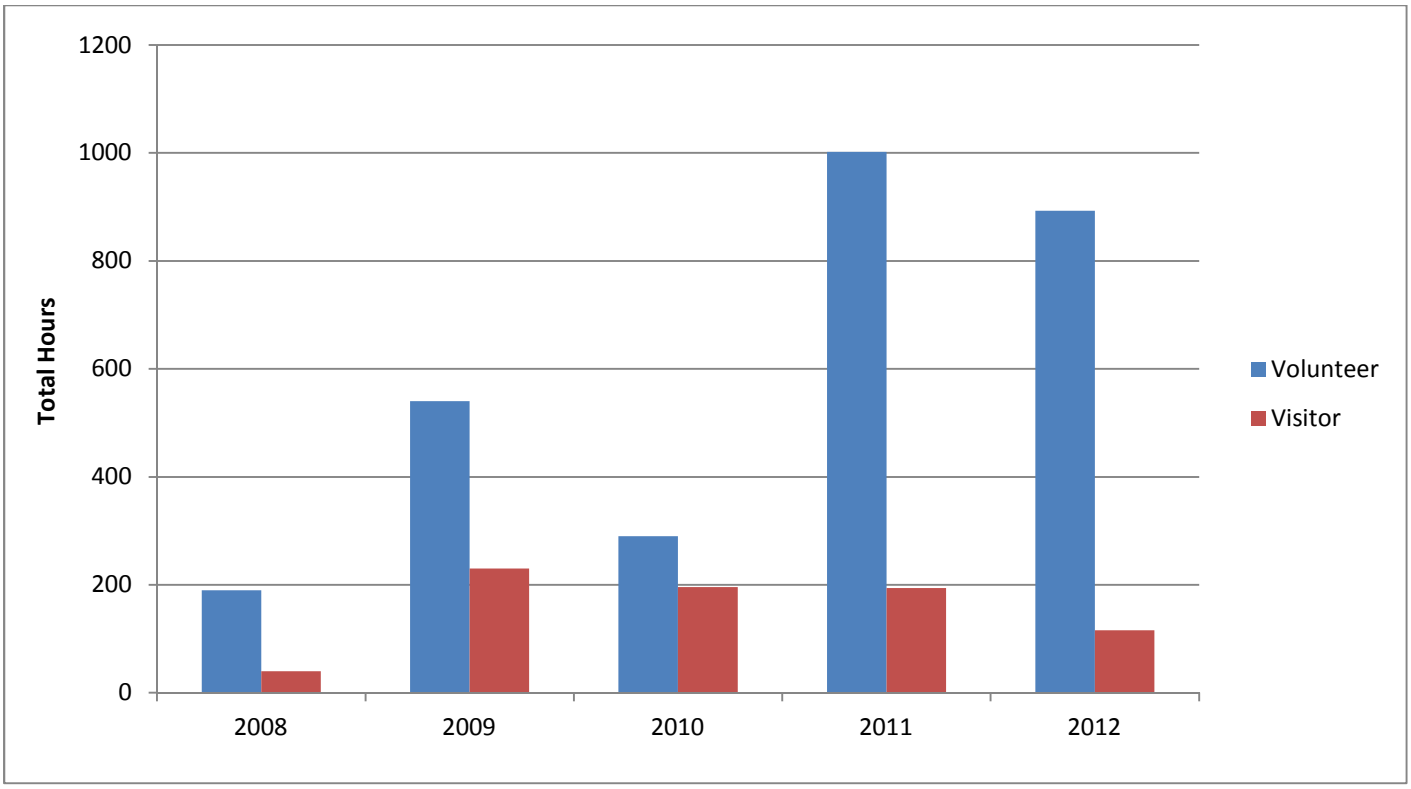

Figure 58. Summary of volunteer and visitor hours at the observatory from 2008 to 2012.

Appendix C – Tables

Table 1. Summary statistics of the 2012 fall season.

Week	Date	Days Operated	Birds Banded				Visual Counts		Total Species Observed
			#	Species	Net Hours	#/100 Net Hours	# of Visual Migrants[1]	Counting Hours	
1	23 – 29 Jul	7	118	21	840.10	14.06	-	-	49
2	30 Jul – 5 Aug	7	134	23	749.25	17.88	259	5.0	65
3	6 – 12 Aug	6	413	24	768.25	53.76	1,013	11.6	75
4	13 – 19 Aug	7	489	24	919.50	53.18	534	9.8	69
5	20 – 26 Aug	7	285	27	825.25	34.53	5,511	19.5	74
6	27 Aug – 2 Sep	5	207	26	655.50	31.58	7,618	26.4	68
7	3 – 9 Sep	6	90	24	719.25	12.51	5,313	33.4	72
8	10 – 16 Sep	5	322	23	628.25	51.25	5,740	28.5	69
9	17 – 23 Sep	7	160	19	849.25	18.84	2,635	29.3	71
10	24 – 30 Sep	6	57	11	524.25	10.87	3,644	35.3	72
11	1 – 7 Oct	7	77	15	846.75	9.09	5,029	37.8	60
12	8 – 14 Oct	7	16	5	139.50	11.47	15,230	44.6	58
13	15 – 21 Oct	7	-	-	-	-	5,368	40.8	52
14	22 – 28 Oct	7	-	-	-	-	828	27.5	35
15	29 – 31 Oct	3	-	-	-	-	74	3.3	9
ALL	23 Jul – 31 Oct	94	2,429	51	8461.25	28.71	58,796	352.8	142

[1] Note this total includes visual migrants counted during the visual counts and incidental visual migrants observed.

Table 2. Birds banded and observed (✓) at Teslin Lake Bird Observatory from 2008 to 2012. Note that observations were not collected during the fall of 2005, 2006 and 2007; observatory was located at a different location on Nisutlin Bay during 2005.

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Red-throated Loon	✓						✓	✓	✓	✓	✓	✓	-	-	-
Pacific Loon								✓	✓	✓	✓	✓	-	-	-
Common Loon	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Yellow-billed Loon										✓	✓	✓	-	-	-
Horned Grebe								✓	✓	✓	✓	✓	-	-	-
Red-necked Grebe	✓		✓					✓	✓	✓	✓	✓	-	-	-
Western Grebe											✓		-	-	-
Double-crested Cormorant							✓						-	-	-
Greater White-fronted Goose	✓		✓				✓	✓	✓	✓	✓	✓	-	-	-
Bean Goose										✓			-	-	-
Snow Goose					✓		✓	✓		✓	✓	✓	-	-	-

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Canada Goose	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Cackling Goose												✓	-	-	-
Trumpeter Swan	✓		✓		✓		✓		✓	✓	✓	✓	-	-	-
Tundra Swan			✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Bewick's Tundra Swan										✓	✓		-	-	-
Gadwall	✓						✓						-	-	-
American Wigeon	✓		✓				✓	✓	✓	✓	✓	✓	-	-	-
Mallard	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Blue-winged Teal							✓						-	-	-
Northern Shoveler	✓						✓	✓	✓	✓	✓	✓	-	-	-
Northern Pintail	✓				✓		✓	✓	✓	✓	✓	✓	-	-	-
American Green-winged Teal	✓		✓					✓	✓	✓	✓	✓	-	-	-
Canvasback								✓	✓	✓	✓	✓	-	-	-
Redhead									✓	✓			-	-	-
Ring-necked Duck	✓						✓	✓		✓	✓	✓	-	-	-
Greater Scaup								✓	✓	✓	✓	✓	-	-	-
Lesser Scaup							✓	✓	✓	✓	✓	✓	-	-	-
Harlequin Duck							✓	✓		✓	✓	✓	-	-	-
Surf Scoter	✓						✓	✓	✓	✓	✓	✓	-	-	-
White-winged Scoter	✓							✓	✓	✓	✓	✓	-	-	-
Long-tailed Duck							✓			✓	✓	✓	-	-	-
Bufflehead	✓				✓					✓	✓	✓	-	-	-
Common Goldeneye	✓		✓		✓			✓	✓	✓	✓	✓	-	-	-
Barrow's Goldeneye							✓		✓	✓	✓		-	-	-
Hooded Merganser									✓	✓		✓	-	-	-
Common Merganser	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Red-breasted Merganser	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Bald Eagle	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Northern Harrier	✓		✓		✓		1	✓	✓	✓	✓	✓	1	-	1
Sharp Shinned hawk	✓		✓		2		1	10	23	14	7	13	3	67	70
Northern Goshawk							✓	✓	✓	✓	✓	✓	-	-	-
Swainson's Hawk							✓	✓	✓	✓	✓	✓	-	-	-
Red-tailed Hawk			✓				✓	✓	✓	✓	✓	✓	-	-	-
Rough-legged Hawk							✓	✓	✓	✓	✓	✓	-	-	-
Golden Eagle							✓	✓	✓	✓	✓	✓	-	-	-
American Kestrel	✓						✓	✓	✓	✓	✓	✓	-	-	-

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Merlin					✓		✓	✓	✓	✓	2	1	-	3	3
Gyrfalcon									✓	✓		✓	-	-	-
Peregrine Falcon					✓		✓	✓	✓	✓	✓	✓	-	-	-
Osprey	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Ruffed Grouse	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Spruce Grouse	✓						✓		✓	✓	✓	✓	-	-	-
Sandhill Crane								✓	✓	✓	✓	✓	-	-	-
Black-bellied Plover											✓		-	-	-
American Golden-Plover							✓			✓	✓		-	-	-
Semipalmated Plover	✓				✓			✓	✓	✓	✓	✓	-	-	-
Killdeer	✓		✓		✓		✓			✓	✓		-	-	-
Greater Yellowlegs			✓		✓		✓		✓		✓		-	-	-
Lesser Yellowlegs	✓		✓		✓		✓		✓	✓	✓	✓	-	-	-
Solitary Sandpiper	✓		✓	2	✓		✓	2	5	1	3	3	-	16	16
Wandering Tattler										✓			-	-	-
Spotted Sandpiper	1		2		1		1	✓	✓	1	2	✓	5	3	8
Upland Sandpiper													-	-	-
Black Turnstone												✓	-	-	-
Sanderling								✓	✓	✓	✓	✓	-	-	-
Semipalmated Sandpiper								✓	✓	✓	✓	✓	-	-	-
Western Sandpiper											✓		-	-	-
Least Sandpiper					✓		✓	✓	✓	✓	✓	✓	-	-	-
Baird's Sandpiper							✓	✓	✓		✓		-	-	-
Pectoral Sandpiper					✓		✓	✓	✓	✓	✓	✓	-	-	-
Short-billed Dowitcher							✓						-	-	-
Long-billed Dowitcher								✓	✓	✓	✓	✓	-	-	-
Wilson's Snipe	✓		✓		✓		1	1	1	✓	✓	✓	1	2	3
Red-necked Phalarope									✓	✓	✓	✓	-	-	-
Little Gull										✓	✓		-	-	-
Mew Gull	✓		✓				✓	✓	✓	✓	✓	✓	-	-	-
California Gull										✓		✓	-	-	-
Herring Gull	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Thayer's Gull								✓	✓	✓	✓	✓	-	-	-
Glaucous-winged Gull										✓	✓		-	-	-
Glaucous Gull								✓	✓	✓	✓	✓	-	-	-
Bonaparte's Gull	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Sabine's Gull								✓	✓	✓	✓	✓	-	-	-
Black-legged Kittiwake										✓			-	-	-
Arctic Tern	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Parasitic Jaeger								✓	✓	✓	✓	✓	-	-	-
Great Horned Owl								✓	✓	✓	✓		-	-	-
Northern Hawk Owl									✓	✓	✓	✓	-	-	-
Short-eared Owl			✓							✓	✓	✓	-	-	-
Boreal Owl											4		-	4	4
Common Nighthawk								✓	✓	✓	✓		-	-	-
Pacific Swift										✓			-	-	-
Rufous Hummingbird					✓								-	-	-
Belted Kingfisher	✓		✓	8	✓		✓	8	6	5	6	6	-	39	39
Yellow-bellied Sapsucker	2		2		2		1		✓		3	1	7	4	11
Downy Woodpecker	✓		✓					2	1	3	7		-	13	13
Hairy Woodpecker	2		✓		✓		✓	✓	✓	✓	✓	✓	2	-	2
Three-toed Woodpecker	✓							✓	✓	✓	✓	✓	-	-	-
Black-backed Woodpecker								✓	✓	✓	✓	✓	-	-	-
Northern Flicker	1		✓		1		✓	✓	✓	1	1	✓	2	2	4
Pileated Woodpecker	✓												-	-	-
Olive-sided Flycatcher	✓		11		✓		6		✓	✓	1	✓	17	1	18
Western Wood-pewee	3		2		2		✓	3	6	5	10	3	7	27	34
Yellow-bellied Flycatcher	2	2	1		1			9	8	11	7	9	4	46	50
Alder Flycatcher	17	9	41	18	10	5	9	811	631	620	637	827	77	3558	3635
Least Flycatcher	3		4		3		2	2	1	3	10	3	12	19	31
Hammond's Flycatcher	7		5		11		18	6	12	17	28	7	41	70	111
Dusky Flycatcher	2				2			1	6	3	6	3	4	19	23
Pacific-slope Flycatcher												1	-	1	1
Eastern Phoebe			1										1	-	1
Say's Phoebe			2		2		1	1	1	1	✓	✓	5	3	8
Northern Shrike	✓								✓	1	1	1	-	3	3
Warbling Vireo	13		1	4	✓		1	9	10	19	17	15	15	74	89
Gray Jay	5		✓		1		✓		5	4	✓	✓	6	9	15
Steller's Jay											✓		-	-	-
Black-billed Magpie					✓		✓	✓	✓	✓	✓	✓	-	-	-
Common Raven	✓		✓		✓		✓	✓	1	1	✓	✓	-	2	2
Horned Lark			3		✓		✓		✓	✓			3	-	3

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Tree Swallow	5		✓		✓		✓	✓	✓	✓	✓	✓	5	-	5
Violet-green Swallow	✓		✓		✓		✓	✓		✓	✓	✓	-	-	-
Bank Swallow	✓		✓				✓	✓	✓	✓	✓	✓	-	-	-
Cliff Swallow	✓		✓		✓		✓	✓	✓	✓	✓	✓	-	-	-
Barn Swallow	✓		✓		✓			✓	1	✓	✓	✓	-	1	1
Black-capped Chickadee	✓	4	4	3	2		2	57	26	22	92	65	8	269	277
Mountain Chickadee							2	15	11		2	1	2	29	31
Chestnut-backed Chickadee								1			✓		-	1	1
Boreal Chickadee	2		3		2		8	138	831	✓	233	142	15	1344	1359
Hybrid Chickadee			1					1					1	1	2
Red-breasted Nuthatch	✓				✓		1	3	2	2	5	12	1	24	25
Brown Creeper											✓		-	-	-
Winter Wren	1										✓		1	-	1
Golden-crowned Kinglet		1					✓		10	2	1	3	-	17	17
Ruby-crowned Kinglet	25	7	51	3	27		72	29	175	109	86	134	175	543	718
Mountain Bluebird	✓				✓		✓	✓	✓	✓	✓	✓	-	-	-
Townsend's Solitaire								✓	1	✓	1	1	-	3	3
Gray-cheeked Thrush	4	2	2		5		1	1	2	8	2	4	12	19	31
Swainson's Thrush	99	7	39	10	48		21	19	49	53	85	41	207	264	471
Hermit Thrush	1		1		✓		1	1	7	12	12	3	3	33	38
American Robin	27	1	36	5	17		4	✓	27	9	11	✓	84	53	137
Varied Thrush	✓		1		2		✓	3	12	5	2	2	3	24	27
European Starling							✓						-	-	-
American Pipit	✓		2		✓		1	1	3	✓	2	✓	3	6	9
Bohemian Waxwing	✓		40		✓		23	✓	✓	✓	1	✓	63	1	64
Cedar Waxwing									✓	2			-	2	2
Lapland Longspur	✓		✓		✓		5	✓	✓	✓	✓	✓	5	-	5
Smith’s Longspur									✓				-	-	-
Snow Bunting										✓	✓	✓	-	-	-
Northern Waterthrush	4	1	14	10	11		4	46	53	54	42	47	33	253	286
Tennessee Warbler	4		4		6		2		9	40	4	1	16	54	70
Orange-crowned Warbler	16	6	26	1	47		61	101	180	271	57	88	150	704	854
Nashville Warbler								1				1	-	2	2
MacGillvary's Warbler	1		1					1	3	2		1	2	7	9
Common Yellowthroat	1		17	4	11	6	21	66	113	70	72	45	50	376	426
American Redstart			6	4	1			10	43	30	39	21	7	147	154

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall			
Cape May Warbler							1					1	1	1	2
Magnolia Warbler	1							1			✓	1	1	2	3
Yellow Warbler	10	6	50	19	37	3	31	486	325	471	310	225	128	1845	1973
Blackpoll Warbler	3	2	21	4	10		5	47	107	194	58	87	39	499	538
Myrtle Warbler	60	3	63	5	29		78	49	284	673	142	195	230	1351	1581
Audubon`s Warbler										✓	1		-	1	1
Yellow-rumped Warbler							1	1					1	1	2
Townsend's Warbler			✓				1	✓	8	10	6	6	1	30	31
Wilson's Warbler	116	8	54	5	63		151	113	161	177	133	134	384	731	1115
American-tree Sparrow	220		13	1	72		41	19	54	21	77	17	346	189	535
Chipping Sparrow	28		4	1	6		3	6	24	18	28	17	41	94	135
Brewer's Sparrow				1					1		2		-	4	4
Savannah Sparrow	11	2	2	2	24		10	14	18	18	23	25	47	102	149
Fox Sparrow	106		3		17		26	11	28	28	17	6	152	90	242
Song Sparrow										1			-	1	1
Lincoln's Sparrow	9	1	6		39		21	5	16	14	27	9	75	72	147
Swamp Sparrow										2			-	2	2
White-throated Sparrow			✓		1								1	-	1
White-crowned Sparrow	86	3	13		579		311	1	33	36	34	22	989	129	1118
Golden-crowned Sparrow	1				16		9						26	-	26
Slate-colored Junco	165	12	139	5	135		224	182	582	420	331	116	663	1648	2311
Dark-eyed Junco					9		31	11	✓	✓	✓	✓	40	11	51
Western Tanager			1						1		✓	✓	1	1	2
Red-winged Blackbird	✓		1		1		✓		✓		✓	✓	2	-	2
Rusty Blackbird	19		3		2	1	✓	11	30	20	16	9	24	87	111
Brown-headed Cowbird	1		✓		✓		✓			✓	1		1	1	2
Pine Grosbeak			2					✓	✓	✓	✓	✓	2	-	2
Purple Finch	27		3		6		1	✓	✓	10	1	2	37	13	50
Red Crossbill	3						✓	✓	✓	✓	✓	✓	3	-	3
White-winged Crossbill			5					2	2	100	1	2	5	107	112
Common Redpoll	✓		107		1		22	✓	6	1	75	47	130	129	259
Hoary Redpoll					3						2		3	2	5
Pine Siskin	28		1				✓	1	1	91	10	3	29	106	135
TOTAL SPECIES BANDED	**43**	**18**	**48**	**21**	**43**	**4**	**45**	**48**	**53**	**52**	**57**	**51**	**70**	**76**	**88**
TOTAL BIRDS BANDED	**1142**	**77**	**814**	**115**	**1267**	**15**	**1238**	**2319**	**3956**	**3706**	**2793**	**2429**	**4461**	**15413**	**19874**
TOTAL SPECIES OBSERVED															

Table 1. Birds banded during the fall of 2012

Common Name	Scientific Name	# Banded	# Banded / 100 Net Hrs
Sharp-shinned Hawk	*Accipiter striatus*	13	015
Merlin	*Falco columbarius*	1	0.01
Solitary Sandpiper	*Tringa solitaria*	3	0.04
Belted Kingfisher	*Ceryle alcyon*	6	0.07
Yellow-bellied Sapsucker	*Sphyrapicus varius*	1	0.01
Western Wood-Pewee	*Contopus sordidulus*	3	0.04
Yellow-bellied Flycatcher	*Empidonax flaviventris*	9	0.11
Pacific-slope Flycatcher	*Empidonax difficilis*	1	0.01
Alder Flycatcher	*Empidonax alnorum*	827	9.77
Least Flycatcher	*Empidonax minimus*	3	0.04
Hammond's Flycatcher	*Empidonax hammondii*	7	0.08
Dusky Flycatcher	*Empidonax oberholseri*	3	0.04
Northern Shrike	*Lanius excubitor*	1	0.01
Warbling Vireo	*Vireo gilvus*	15	0.18
Black-capped Chickadee	*Poecile atricapillus*	65	0.77
Mountain Chickadee	*Poecile gambeli*	1	0.01
Boreal Chickadee	*Poecile hudsonicus*	142	1.68
Red-breasted Nuthatch	*Sitta canadensis*	12	0.14
Golden-crowned Kinglet	*Regulus satrapa*	3	0.04
Ruby-crowned Kinglet	*Regulus calendula*	123	1.58
Townsend's Solitaire	*Myadestes townsendi*	1	0.01
Gray-cheeked Thrush	*Catharus minimus*	4	0.05
Swainson's Thrush	*Catharus ustulatus*	41	0.48
Hermit Thrush	*Catharus guttatus*	3	0.04
Varied Thrush	*Ixoreus naevius*	2	0.02
Northern Waterthrush	*Parkesia noveboracensis*	47	0.56
Tennessee Warbler	*Oreothlypis peregrina*	1	0.01
Orange-crowned Warbler	*Oreothlypis celata*	88	1.04
Nashville Warbler	*Oreothlypis ruficappilla*	1	0.01
Common Yellowthroat	*Geothlypis trichas*	45	0.53
MacGillivray's Warbler	*Geothlypis tolmiei*	1	0.01
American Redstart	*Setophaga ruticilla*	21	0.25
Yellow Warbler	*Setophaga petechia*	225	2.66
Magnolia Warbler	*Setophaga magnolia*	1	0.01
Blackpoll Warbler	*Setophaga striata*	87	1.03
Myrtle Warbler	*Setophaga coronata*	195	2.30
Cape May Warbler	*Setophaga tigrina*	1	0.01
Townsend's Warbler	*Setophaga townsendi*	6	0.07
Wilson's Warbler	*Cardellina pusilla*	134	1.58
American Tree Sparrow	*Spizella arborea*	17	0.20
Chipping Sparrow	*Spizella passerina*	17	0.20
Savannah Sparrow	*Passerculus sandwichensis*	25	0.30
Fox Sparrow	*Passerella iliaca*	6	0.07
Lincoln's Sparrow	*Melospiza lincolnii*	9	0.11
White-crowned Sparrow	*Zonotrichia leucophrys*	22	0.26
Slate-colored Junco	*Junco hyemalis*	116	1.37
Rusty Blackbird	*Euphagus carolinus*	9	0.11
Purple Finch	*Carpodacus purpureus*	2	0.02
White-winged Crossbill	*Loxia leucoptera*	2	0.02
Common Redpoll	*Acanthis flammea*	47	0.56
Pine Siskin	*Spinus pinus*	3	0.04
TOTAL		2,429	28.71

Table 4. Age ratios for the top 10 species banded during the fall of 2012, 2011 and 2010.

Species	2012			2011			2010		
	Rank	# Banded	% HY	Rank	# Banded	% HY	Rank	# Banded	% HY
Alder Flycatcher	1	827	81	1	637	72	2	620	90
Yellow Warbler	2	225	61	3	309	71	3	471	73
Myrtle Warbler	3	195	83	5	142	70	1	673	95
Boreal Chickadee	4	142	94	4	235	100	-	0	-
Ruby-crowned Kinglet	5	134	96	8	86	81	8	109	92
Wilson's Warbler	6	134	78	6	134	72	7	177	93
Slate-colored Junco	7	116	89	2	331	81	4	420	96
Orange-crowned Warbler	8	88	84	14	57	79	5	271	
Blackpoll Warbler	9	87	90	13	58	88	6	194	
Black-capped Chickadee	10	65	92	7	89	96	14	22	91

Table 5. Summary of 2012 daily species total data.

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Red-throated Loon	51	183	26-Jul	14-Oct	14	7-Sep	8-Sep
Pacific Loon	50	274	27-Jul	28-Oct	71	13-Sep	9-Sep
Common Loon	71	349	22-Jul	22-Oct	26	18-Aug	24-Aug
Yellow-billed Loon	1	1	2-Aug	-	1	2-Aug	-
Common / Yellow-billed Loon	7	10	28-Sep	13-Oct	3	10-Oct	-
Unidentified Loon	19	74	23-Aug	16-Oct	35	30-Sep	-
Horned Grebe	37	84	1-Aug	16-Oct	8	7-Aug	9-Sep
Red-necked Grebe	81	1393	24-Jul	29-Oct	103	20-Aug	20-Aug
Greater White-fronted Goose	23	8901	11-Aug	14-Oct	3137	26-Aug	26-Aug
Snow Goose	5	545	22-Sep	11-Oct	493	30-Sep	-
Canada Goose	26	1510	18-Aug	1-Oct	424	25-Sep	23-Sep
Cackling Goose	2	3	11-Oct	14-Oct	2	11-Oct	-
Unidentified Goose	11	6285	12-Aug	11-Oct	4290	28-Aug	-
Trumpeter Swan	23	2777	23-Sep	30-Oct	1207	14-Oct	14-Oct
Tundra Swan	27	9574	10-Sep	23-Oct	3886	11-Oct	11-Oct
Unidentified Swan	24	2932	18-Sep	28-Oct	842	11-Oct	-
American Wigeon	12	244	14-Aug	27-Sep	100	26-Aug	-
Mallard	62	820	22-Jul	19-Oct	234	14-Oct	10-Oct
Northern Shoveler	7	74	1-Aug	27-Sep	20	1-Aug	9-Aug
Northern Pintail	21	255	2-Aug	15-Oct	49	9-Aug	26-Aug
American Green-winged Teal	6	22	9-Aug	13-Oct	12	26-Sep	-
Unidentified Dabbling Duck	1	20	26-Aug	-	20	26-Aug	-
Canvasback	5	95	3-Sep	14-Oct	44	10-Oct	-
Ring-necked Duck	1	4	14-Oct	-	4	14-Oct	-
Greater Scaup	6	20	25-Sep	25-Oct	7	1-Oct	-
Lesser Scaup	23	448	3-Aug	18-Oct	99	18-Sep	24-Sep
Greater Scaup / Lesser Scaup	5	64	16-Sep	8-Oct	27	26-Sep	-

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Harlequin Duck	1	2	5-Aug	-	2	5-Aug	-
Surf Scoter	25	522	29-Jul	29-Sep	179	16-Sep	16-Sep
White-winged Scoter	13	103	12-Aug	18-Oct	28	9-Oct	3-Oct
Long-tailed Duck	2	2	19-Sep	1-Oct	1	both days	-
Bufflhead	6	13	12-Aug	20-Oct	5	10-Oct	-
Common Goldeneye	23	111	22-Sep	28-Oct	28	13-Oct	13-Oct
Unidentified Goldeneye	9	41	26-Jul	20-Oct	19	20-Oct	-
Hooded Merganser	1	1	3-Oct	-	1	3-Oct	-
Common Merganser	39	382	22-Jul	30-Oct	124	16-Sep	16-Sep
Red-breasted Merganser	33	108	26-Jul	28-Oct	13	11-Aug	18-Sep
Unidentified Merganser	8	89	8-Aug	26-Oct	36	26-Oct	
Unidentified Duck	7	88	24-Jul	24-Oct	40	26-Aug	
Bald Eagle	85	250	22-Jul	28-Oct	14	28-Oct	
Northern Harrier	52	460	9-Aug	22-Oct	85	10-Sep	
Sharp-shinned Hawk	58	412	24-Jul	24-Oct	110	10-Sep	
Northern Goshawk	43	63	1-Aug	26-Oct	5	19-Oct	
Swainson's Hawk	8	12	9-Aug	19-Sep	3	29-Aug	
Red-tailed Hawk	51	375	6-Aug	21-Oct	102	29-Aug	
Rough-legged Hawk	23	150	26-Sep	23-Oct	37	14-Oct	
Golden Eagle	36	292	9-Sep	28-Oct	34	16-Oct	
American Kestrel	36	133	9-Aug	19-Oct	17	10-Sep	
Merlin	41	70	28-Jul	24-Oct	13	10-Sep	
Gyrfalcon	3	3	29-Aug	21-Oct	1	all days	
Peregrine Falcon	11	18	12-Aug	21-Sep	5	10-Sep	
Osprey	22	62	5-Aug	11-Oct	13	10-Sep	
Unidentified Buteo	8	15	9-Sep	19-Oct	3	14 / 28 Sep	
Unidentified Eagle	2	2	10-Sep	30-Oct	1	both days	
Unidentified Small Falcon	2	2	7-Sep	18-Sep	1	both days	
Unidentified Large Raptor	3	5	25-Sep	30-Sep	3	25-Sep	
Unidentified Small Raptor	2	2	7-Sep	10-Sep	1	both days	
Unidentified Raptor	1	1	29-Aug	-	1	29-Aug	
Ruffed Grouse	35	86	28-Jul	31-Oct	7	20-Aug	-
Spruce Grouse	4	6	28-Jul	24-Sep	2	15 / 20 Aug	-
Sandhill Crane	5	794	28-Aug	10-Oct	402	10-Sep	-
Semi-palmated Plover	12	26	11-Aug	3-Sep	5	19-Aug	19-Aug
Lesser Yellowlegs	3	3	23-Jul	19-Aug	1	all days	-
Solitary Sandpiper	16	21	25-Jul	20-Aug	3	12-Aug	9-Aug
Spotted Sandpiper	41	81	22-Jul	23-Sep	5	many days	11-Aug
Black Turnstone	1	1	27-Aug	-	1	27-Aug	-

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Sanderling	3	3	27-Aug	30-Aug	1	all days	-
Semi-palmated Sandpiper	2	3	8-Aug	17-Aug	2	8-Aug	-
Least Sandpiper	8	21	31-Jul	24-Aug	4	1-Aug	6-Aug
Western Sandpiper / Least Sandpiper	1	1	31-Jul	-	1	31-Jul	-
Unidentified Peep	6	39	1-Aug	4-Sep	10	6 / 9 Aug	-
Pectoral Sandpiper	1	13	9-Sep	-	13	9-Sep	-
Long-billed Dowitcher	1	1	24-Sep	-	1	24-Sep	-
Wilson's Snipe	2	2	21-Aug	16-Oct	1	both days	-
Red-necked Phalarope	2	2	9-Aug	4-Sep	1	both days	-
Unidentified Shorebird	5	19	8-Aug	18-Oct	13	9-Aug	-
Mew Gull	54	226	31-Jul	8-Oct	44	6-Aug	15-Aug
California Gull	2	2	16-Sep	17-Sep	1	both days	-
Herring Gull	96	2681	22-Jul	25-Oct	80	1-Aug	13-Aug
Thayer's Gull	48	272	2-Aug	26-Oct	43	3-Sep	9-Sep
Glaucous Gull	29	29	18-Aug	26-Oct	1	all days	-
Bonaparte's Gull	18	70	23-Jul	24-Aug	23	5-Aug	-
Sabine's Gull	3	3	14-Sep	27-Sep	1	all days	-
Arctic Tern	15	103	22-Jul	13-Aug	28	1-Aug	3-Aug
Unidentified Gull	1	10	26-Jul	-	10	26-Jul	-
Hybrid Gull - HERG x GLGU	2	2	10-Sep	17-Sep	1	both days	-
Hybrid Gull - HERG x GWGU	14	25	16-Sep	29-Sep	3	25-Sep	-
Unidentified Large Gull	28	201	4-Sep	28-Sep	25	4-Sep	-
Parasitic Jaeger	21	35	8-Aug	1-Oct	4	8-Sep	15-Sep
Unidentified Murrelet	1	1	23-Sep	-	1	23-Sep	-
Northern Hawk Owl	4	4	30-Aug	24-Oct	1	all days	-
Short-eared Owl	1	1	19-Oct	-	1	19-Oct	-
Belted Kingfisher	36	44	22-Jul	29-Sep	2	many days	-
Yellow-bellied Sapsucker	1	1	28-Jul	-	1	28-Jul	-
American Three-toed Woodpecker	14	18	30-Aug	25-Oct	3	18-Sep	-
Hairy Woodpecker	1	1	23-Sep	-	1	23-Sep	-
Black-backed Woodpecker	1	1	15-Oct	-	1	15-Oct	-
Northern Flicker	4	5	22-Jul	1-Aug	2	24-Jul	-
Unidentified Woodpecker	5	5	11-Sep	7-Oct	1	all days	-
Olive-sided Flycatcher	4	6	9-Aug	14-Aug	3	9-Aug	-
Western Wood-Pewee	4	4	25-Aug	3-Sep	1	all days	-
Yellow-bellied Flycatcher	6	9	2-Aug	23-Aug	3	12-Aug	12-Aug
Alder Flycatcher	42	864	23-Jul	15-Sep	125	11-Aug	14-Aug
Least Flycatcher	3	3	12-Aug	18-Aug	1	all days	-
Hammond's Flycacher	9	10	24-Jul	4-Oct	2	24-Jul	-

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Dusky Flycatcher	3	3	8-Aug	30-Sep	1	all days	
Pacific-slope Flycatcher	1	1	26-Aug	-	1	26-Aug	-
Unidentified Empidonax flycatcher	2	2	9-Aug	26-Aug	1	both days	-
Say's Phoebe	5	5	20-Aug	17-Sep	1	all days	-
Northern Shrike	7	13	17-Sep	20-Oct	5	29-Sep	29-Sep
Warbling Vireo	26	45	22-Jul	5-Sep	6	27-Jul	2-Aug
Unidentified Vireo	1	1	18-Sep	-	1	18-Sep	-
Gray Jay	5	7	26-Aug	27-Oct	2	26 / 27 Oct	-
Black-billed Magpie	53	74	3-Sep	30-Oct	3	many days	-
Common Raven	100	501	22-Jul	31-Oct	30	24-Oct	-
Tree Swallow	3	22	22-Jul	2-Aug	20	24-Jul	-
Violet-green Swallow	3	12	2-Aug	9-Aug	10	9-Aug	-
Bank Swallow	5	107	1-Aug	15-Aug	41	1-Aug	-
Barn Swallow	3	7	4-Aug	21-Aug	4	11-Aug	-
Cliff Swallow	6	43	1-Aug	25-Aug	17	3-Aug	-
Unidentified Swallow	11	461	1-Aug	1-Oct	159	9-Aug	-
Black-capped Chickadee	80	231	22-Jul	23-Oct	10	19-Sep	-
Mountain Chickadee	4	5	18-Sep	7-Oct	2	18-Sep	-
Boreal Chickadee	47	230	24-Jul	27-Oct	20	19/21 Aug	18-Sep
Red-breasted Nuthatch	38	66	1-Aug	30-Sep	6	21-Aug	27-Aug
Golden-crowned Kinglet	2	5	9-Sep	17-Sep	3	17-Sep	-
Ruby-crowned Kinglet	45	177	23-Jul	11-Oct	43	15-Sep	15-Sep
Mountain Bluebird	1	1	16-Oct	-	1	16-Oct	-
Townsend's Solitaire	16	58	13-Aug	12-Oct	7	27-Aug	7-Sep
Gray-cheeked Thrush	3	4	30-Aug	14-Sep	2	11-Sep	-
Swainson's thrush	34	57	22-Jul	11-Sep	5	23-Aug	22-Aug
Hermit Thrush	3	4	8-Sep	15-Sep	2	15-Sep	-
American Robin	41	667	22-Jul	19-Oct	149	13-Sep	13-Sep
Varied Thrush	24	515	11-Aug	19-Oct	168	13-Sep	13-Sep
American Robin / Varied Thrush	21	711	1-Sep	1-Oct	230	13-Sep	-
American Pipit	44	480	20-Aug	24-Oct	76	13-Sep	13-Sep
Bohemian Waxwing	37	1028	28-Jul	28-Oct	131	26-Oct	16-Oct
Unidentified Waxwing	2	31	27-Jul	1-Aug	30	1-Aug	-
Lapland Lonsgpur	8	26	2-Sep	19-Oct	14	15-Oct	-
Snow Bunting	8	67	10-Oct	17-Oct	32	10-Oct	-
Tennessee Warbler	1	1	6-Aug	-	1	6-Aug	-
Orange-crowned Warbler	38	108	26-Jul	5-Oct	23	14-Sep	11-Sep
Nashville Warbler	1	1	1-Oct	-	1	1-Oct	-
Yellow Warbler	51	355	22-Jul	29-Sep	27	13-Aug	19-Aug

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Magnolia Warbler	1	1	15-Aug	-	1	15-Aug	-
Cape May Warbler	1	1	2-Sep	-	1	2-Sep	-
Myrtle Warbler	84	1530	22-Jul	19-Oct	250	13-Sep	13-Sep
Townsend's Warbler	6	9	17-Aug	2-Sep	2	many days	23-Aug
Blackpoll Warbler	44	150	24-Jul	18-Sep	11	7-Aug	15-Aug
American Redstart	28	66	22-Jul	16-Sep	8	5-Aug	30-Jul
Northern Waterthrush	28	65	23-Jul	11-Sep	6	11-Aug	11-Aug
Common Yellowthroat	32	56	4-Aug	24-Sep	4	20-Aug	26-Aug
MacGillvray's Warbler	1	1	26-Aug	-	1	26-Aug	-
Wilson's Warbler	50	151	1-Aug	10-Oct	20	14-Sep	26-Aug
Unidentified Warbler	10	32	15-Aug	3-Sep	8	21-Aug	-
American Tree Sparrow	31	60	20-Aug	29-Oct	6	15-Sep	2-Oct
Chipping Sparrow	16	31	28-Jul	28-Aug	7	7-Aug	7-Aug
Savannah Sparrow	33	64	30-Jul	13-Oct	8	19-Aug	30-Aug
Fox Sparrow	9	10	23-Aug	12-Oct	2	24-Aug	30-Aug
Lincoln's Sparrow	9	9	26-Jul	3-Oct	1	all days	-
White-crowned Sparrow	22	27	14-Aug	18-Sep	3	14-Sep	31-Aug
Slate-colored Junco	79	336	22-Jul	30-Oct	16	18-Sep	2-Sep
Unidentified Dark-eyed Junco	7	7	20-Aug	24-Sep	1	all days	-
Unidentified Sparrow	4	36	11-Sep	2-Oct	23	13-Sep	-
Western Tanager	1	1	29-Jul	-	1	29-Jul	-
Red-winged Blackbird	3	3	2-Aug	12-Aug	1	all days	-
Rusty Blackbird	49	374	27-Jul	19-Oct	63	14-Sep	14-Sep
Unidentified Blackbird	1	30	12-Aug	-	30	12-Aug	-
Pine Grosbeak	30	534	20-Sep	31-Oct	77	19-Oct	15-Oct
Purple Finch	9	9	23-Jul	17-Aug	1	all days	-
Red Crossbill	14	48	24-Jul	5-Oct	8	29-Sep	9-Aug
White-winged Crossbill	52	453	22-Jul	27-Oct	94	25-Aug	18-Aug
Pine Siskin	62	1226	23-Jul	16-Oct	162	17-Sep	18-Sep
Common Redpoll	53	6316	22-Jul	30-Oct	2294	12-Oct	12-Oct
Common Redpoll / Pine Siskin	45	3295	23-Aug	28-Oct	449	5-Oct	-
Unidentified Small Passerine	65	4435	1-Aug	21-Oct	1361	13-Sep	-

Table 6. Summary of band repeats during the fall 2012 season.

Species	# of Individuals Recaptured	% of 2011 Original Bandings	Maximum # of Days From Original Banding	Average # of Days From Original Banding
American Redstart	8	38.10	13	7.3
Blackpoll Warbler	4	4.60	3	1.8
Common Yellowthroat	6	13.33	2.2	7
Alder Flycatcher	3	0.36	1	1
Belted Kingfisher	1	16.67	23	-
Common Redpoll	1	2.13	1	-
Myrtle Warbler	4	2.05	2	1.8
Pine Siskin	1	33.33	3	-
Hammond's Flycatcher	1	14.29	3	-
Northern Waterthrush	7	14.89	9	2.6
American Tree Sparrow	1	5.88	3	-
Black-capped Chickadee	14	21.54	45	14.7
Boreal Chickadee	1	0.70	9	-
Ruby-crowned Kinglet	2	1.49	1	-
Slate-colored Junco	26	22.41	38	9.8
Swainson's Thrush	3	7.32	2	1.7
Warbling Vireo	5	33.33	9	5.4
White-crowned Sparrow	1	4.55	1	-
Wilson's Warbler	5	3.73	2	1.4
Yellow Warbler	18	8.00	13	52
TOTAL	112	4.64	-	-

Table 7. Summary of band returns during the fall 2012 season.

Species	Band Number	Banded		Recaptured
		Date	Age – Sex	Date
American Redstart	2520-59977	17 Aug 2008	SY – M	29 Jul 2012
American Redstart	2570-10460	16 Jul 2011	SY – M	23 Jul 2012
American Redstart	2570-10486	27 Jul 2011	AHY – F	26 Jul 2012
Black-capped Chickadee	2400-70951	26 Apr 2006	AHY – U	18 Aug 2012
Slate-colored Junco	2311-84005	1 Sep 2009	HY – M	7 Aug 2012
Slate-colored Junco	2401-65043	22 Jul 2011	AHY – M	23 Jul 2012
Slate-colored Junco	2401-65055	30 Jul 2011	HY – U	2 Sep 2012
Slate-colored Junco	2410-65122	25 Aug 2011	HY – M	26 Jul 2012
Swainson’s Thrush	2341-79060	29 Jul 2011	HY – U	3 Sep 2012
Warbling Vireo	2610-93109	4 Aug 2011	AHY – F	27 Jul 2012
Yellow Warbler	2560-32211	3 Aug 2009	HY – U	23 Aug 2012
Yellow Warbler	2610-64552	16 Jul 2010	AHY – M	23 Jul 2012
Yellow Warbler	2610-92034	16 Jul 2011	HY – U	25 Jul 2012

Table 8. Summary of foreign band recoveries at Teslin Lake Bird Observatory.

Species	Banded		Recovered		
	Location	Date	Location	Date	Status
Yellow Warbler	Texas, USA	May 12, 2008	Teslin Lake	September 9, 2009	Recaptured
Alder Flycatcher	Teslin Lake	August 25, 2008	SW Saskatchewan	June 12, 2009	Found Dead
Sharp-shinned Hawk	Teslin Lake	August 14, 2009	Boise, Idaho, USA	October 9, 2010	Recaptured
Alder Flycatcher	Teslin Lake	August 24, 2009	Sapzurro, Choco, Colombia	April 29, 2011	Recaptured

Table 9. Summary of molt scores collected during the fall 2012 season.

Species	Number of Individuals Scored	Total Number of Molt Scores
American Redstart	11	14
Black-capped Chickadee	5	6
Belted Kingfisher	1	1
Blackpoll Warbler	9	9
Boreal Chickadee	7	7
Common Redpoll	1	1
Common Yellowthroat	4	4
Myrtle Warbler	26	27
Northern Waterthrush	1	2
Orange-crowned Warbler	5	5
Pine Siskin	1	1
Red-breasted Nuthatch	2	2
Ruby-crowned Kinglet	1	1
Rusty Blackbird	2	2
Slate-colored Junco	6	6
Sharp-shinned Hawk	1	1
Swainson's Thrush	4	4
Townsend's Warbler	1	1
Wilson's Warbler	2	2
Yellow Warbler	21	22
TOTAL	111	118

Table 10. Summary of birds observed on the visual migration counts from 2009 to 2012.

Group	2012	2011	2010	2009
Waterbirds[1] & shorebirds	1,583	1,072	3,491	4,927
Waterfowl	35,044	31,548	22,258	8,219
Raptors	1,977	3,680	1,710	1,612
Passerines	21,408	37,951	16,277	11,000
TOTAL BIRDS OBSERVED	60,012	74,251	43,736	25,758
Visual Counting Effort (hrs)	*354.8*	*340.6*	*232.4*	*128.1*

[1] Waterbirds include loons, grebes, gulls and cranes.

Table 11. Summary of loons & grebes observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Red-throated Loon	65	6	71	-	-	-	-
Pacific Loon	119	3	122	-	-	-	-
Common Loon	35	2	37	-	-	-	-
Common / Yellow-billed Loon	10	0	10	-	-	-	-
Unidentified Loon	72	0	72	-	-	-	-
Horned Grebe	1	0	1	-	-	-	-
Red-necked Grebe	59	16	75	-	-	-	-

Table 12. Summary of geese, swans & ducks observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Greater White-fronted Goose	8,278	622	8,900	16 Aug – 9 Sep	7,934	86.5	9,434
Snow Goose	545	0	545	-	-	-	-
Canada Goose	1,112	250	1,362	7 – 30 Sep	1,099	113.0	973
Cackling Goose	3	0	3	-	-	-	-
Unidentified Goose	6,220	65	6,285	-	-	-	-
Trumpeter Swan	2,747	4	2,751	11 – 19 Oct	2,668	61.1	4,367
Tundra Swan	9,249	308	9,557	1 – 19 Oct	8,901	113.1	7,870
Unidentified Swan	2,912	2	2,914	-	-	-	-
American Wigeon	160	5	165	-	-	-	-
Mallard	693	25	718	-	-	-	-
Northern Shoveler	53	14	67	-	-	-	-
Northern Pintail	244	6	250	-	-	-	-
American Green-winged Teal	19	0	19	-	-	-	-
Unidentified Dabbling Duck	0	20	0	-	-	-	-
Canvasback	95	0	95	-	-	-	-
Ring-necked Duck	4	0	4	-	-	-	-
Greater Scaup	18	0	18	-	-	-	-
Lesser Scaup	416	1	417	7 Sep – 2 Oct	398	124.0	321
Unidentified Scaup	56	0	56	-	-	-	-
Harlequin Duck	2	0	2	-	-	-	-
Surf Scoter	354	3	357	12 Aug-23 Sep	348	149.7	232
White-winged Scoter	101	0	101	-	-	-	-
Long-tailed Duck	2	0	2	-	-	-	-
Bufflehead	5	2	7	-	-	-	-
Common Goldeneye	65	1	66	-	-	-	-
Unidentified Goldeneye	34	0	34	-	-	-	-
Common Merganser	215	3	218	-	-	-	-
Red-breasted Merganser	23	0	23	-	-	-	-
Unidentified Merganser	3	0	3	-	-	-	-
Unidentified Duck	69	0	69	-	-	-	-

Table 13. Summary of total counts of swans and geese observed on the 2012 migration counts; includes data extrapolations from unidentified geese and swans.

Species	Total # Counted (Migration Counts Only)	Migration Window			
		Dates	# Observed	Watch Effort	# Observed / 100 hrs
Greater White-fronted Goose	14,068	16 Aug – 9 Sep	13,691	86.5	15,828
Canada Goose	1,441	7 – 30 Sep	1,404	113.0	1,242
Trumpeter Swan	3,302	11 – 19 Oct	3,163	61.1	5,177
Tundra Swan	11,526	1 – 19 Oct	11,126	113.1	9,837

Table 14. Summary of age breakdown of swans observed during 2012 visual migration counts.

Species	Year	Proportion of Individuals Observed (%)		
		Adult	Juvenile	Unspecified
Trumpeter Swan	2011	66	14	20
	2012	58	12	29
Tundra Swan	2011	30	4	66
	2012	51	9	40

Table 15. Summary of diurnal birds of prey observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Bald Eagle	92	0	92	30 Sep – 28 Oct	88	158.0	56
Northern Harrier	414	5	419	11 Aug – 16 Oct	390	285.9	136
Sharp-shinned Hawk	374	1	375	24 Aug – 10 Oct	342	213.0	161
Northern Goshawk	20	0	20	-	-	-	-
Swainson's Hawk	11	1	12	-	-	-	-
Red-tailed Hawk	343	0	343	29 Aug – 17 Oct	324	244.6	132
Rough-legged Hawk	149	0	149	30 Sep – 17 Oct	139	107.8	129
Unidentified Buteo	15	0	15	-	-	-	-
Golden Eagle	291	0	291	15 Sep – 24 Oct	270	209.4	129
American Kestrel	120	6	126	20 Aug – 14 Oct	112	254.9	44
Merlin	43	2	45	22 Aug – 19 Oct	41	281.0	15
Gyrfalcon	3	0	3	-	-	-	-
Peregrine Falcon	16	0	16	-	-	-	-
Osprey	58	1	59	9 Sep – 3 Oct	54	120.2	45
Unidentified Eagle	2	0	2	-	-	-	-
Unidentified Small Falcon	2	0	2	-	-	-	-
Unidentified Large Raptor	5	0	5	-	-	-	-
Unidentified Small Raptor	2	0	2	-	-	-	-
Unidentified Raptor	1	0	1	-	-	-	-

Table 16. Summary of color morph data for Rough-legged Hawks observed during the 2010, 2011 and 2012 visual migration counts.

Species	Year	Dark Morph (%)	Light Morph (%)	Not Determined (%)
Rough-legged Hawk	2010	19.8	71.4	8.9
Rough-legged Hawk	2011	12.4	79.5	8.2
Rough-legged Hawk	2012	17.1	74.0	8.9

Table 17. Summary of color morph data for Red-tailed Hawks observed during the 2010, 2011 and 2012 visual migration counts.

Species	Year	Harlan's Dark Morph	Harlan's Light Morph	Western Dark Morph	Western Light Morph	"Possible" Eastern	Not Determined
Red-tailed Hawk	2010	83.1	3.8	0.5 (2 birds)		-	12.6
Red-tailed Hawk	2011	90.5	4.4	0.1 (1 bird)	0.1 (1 bird)	0.2 (2 birds)	4.7
Red-tailed Hawk	2012	89.6	6.9	0.3 (1 bird)	-	0.6 (2 birds)	2.6

Table 18. Age and sex determinations for raptors observed during the 2010, 2011 and 2012 visual migration counts.

Species	Year	Proportion of Individuals Counted (%)							
		Adult			Sub - adult	Immature	Juvenile	Female Plumaged (juv/female)	Not Determined
		Male	Female	Not Determined					
Bald Eagle	2010	-	-	40.2	30.5	11.0	13.4		4.9
	2011	-	-	14.5	36.8	32.9	14.5	-	1.3
	2012	-	-	54.3	33.7	12.0	-	-	-
Golden Eagle	2010	-	-	56.4	10.4	6.9	9.0	-	17.3
	2011	-	-	35.7	12.8	12.3	7.5	-	31.7
	2012	-	-	54.5	6.7	9.0	3.0	-	26.8
Northern Goshawk	2010	-	-	12.5	-	-	43.8	-	43.8
	2011	-	-	27.8	-	-	44.4	-	27.8
	2012	-	-	35.0	-	-	45.0	-	20.0
Northern Harrier	2010	10.9	11.7	-	-	-	35.7	37.8	3.9
	2011	8.4	10.1	-	-	-	24.9	50.7	5.9
	2012	13.0	12.2	-	-	-	24.7	43.5	6.5
Osprey	2010	4.8	14.3	-	-	-	4.8	-	76.2
	2011	5.0	-	-	-	-	1.7	-	93.3
	2012	-	-	-	-	-	-	-	100.0
Gyrfalcon	2012	-	-	-	-	-	-	-	100
Peregrine Falcon	2010	-	-	44.0	-	12.0	16.0	-	28.0
	2011	25.0	12.5	12.5	-	-	6.3	-	43.8
	2012	12.5	6.3	18.9	-	-	25.0	-	37.5
Rough-legged Hawk	2010	17.2	10.4	5.2	-	-	12.5	-	54.7
	2011	17.5	23.0	13.0	-	-	9.4	-	37.2
	2012	12.3	12.3	8.9	-	-	14.4	-	52.1

Table 19. Summary of cranes observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Sandhill Crane	612	182	794	-	-	-	-

Table 20. Summary of shorebirds observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Semi-palmated Plover	11	4	15	-	-	-	-
Lesser Yellowlegs	1	2	3	-	-	-	-
Solitary Sandpiper	3	1	4	-	-	-	-
Spotted Sandpiper	0	2	2	-	-	-	-
Western / Least Sandpiper	1	0	1	-	-	-	-
Unidentified Peep	15	24	39				
Pectoral Sandpiper	13	0	13	-	-	-	-
Long-billed Dowitcher	1	0	1	-	-	-	-
Red-necked Phalarope	1	1	2	-	-	-	-
Unidentified Shorebird	16	3	19	-	-	-	-

Table 21. Summary of gulls and terns observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Mew Gull	27	7	34	-	-	-	-
Herring Gull	21	0	21	-	-	-	-
Thayer's Gull	153	9	162	3 Sep – 3 Oct	122	143.6	85
Glaucous Gull	2	0	2	-	-	-	-
Bonaparte's Gull	1	2	3	-	-	-	-
Arctic Tern	41	3	44	-	-	-	-
Unidentified Large Gull	10	25	35	-	-	-	-

Table 22. Summary of alcids observed during the 2012 visual migration counts.

Species	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Unidentified Murrelet	1	0	1	-	-	-	-

Table 23. Summary of owls observed during the 2012 visual migration counts.

Species	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Northern Hawk-Owl	4	0	4	-	-	-	-
Short-eared Owl	1	0	1	-	-	-	-

Table 24. Summary of woodpeckers observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Belted Kingfisher	2	0	2	-	-	-	-
Three-toed Woodpecker	14	0	14	-	-	-	-
Hairy Woodpecker	1	0	1	-	-	-	-
Black-backed Woodpecker	1	0	1	-	-	-	-
Unidentified Woodpecker	4	0	4	-	-	-	-

Table 252. Summary of passerines observed during the 2012 visual migration counts.

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Olive-sided Flycatcher	5	0	5	-	-	-	-
Alder Flycatcher	3	4	7	-	-	-	-
Unidentified Empidonax sp.	1	1	2	-	-	-	-
Say's Phoebe	4	0	4	-	-	-	-
Northern Shrike	11	0	11	-	-	-	-
Violet-green Swallow	10	0	10	-	-	-	-
Bank Swallow	97	10	107	-	-	-	-
Cliff Swallow	23	20	43	-	-	-	-
Barn Swallow	2	4	6	-	-	-	-
Unidentified Swallow	430	30	460	-	-	-	-
Black-capped Chickadee	3	0	3	-	-	-	-
Mountain Chickadee	2	0	2	-	-	-	-
Boreal Chickadee	47	11	58	-	-	-	-
Red-breasted Nuthatch	10	4	14	-	-	-	-
Mountain Bluebird	1	0	1	-	-	-	-
Townsend's Solitaire	57	0	57	-	-	-	-
American Robin	641	6	647	1 Sep – 1 Oct	553	136.7	405
Varied Thrush	504	0	504	3 – 23 Sep	484	91.3	530
Unidentified Large Thrush	711	0	711	-	-	-	-
American Pipit	390	56	446	30 Aug – 29 Sep	371	130.4	285
Bohemian Waxwing	771	19	790	16 Sep – 28 Oct	748	220.2	340
Unidentified Waxwing	30	0	30	-	-	-	-
Lapland Longspur	23	3	26	-	-	-	-
Snow Bunting	49	0	49	-	-	-	-
Orange-crowned Warbler	0	2	2	-	-	-	-
Yellow-rumped Warbler	1,038	71	1,109	15 Aug – 18 Sep	989	126.8	780
Townsend's Warbler	2	0	2	-	-	-	-
Blackpoll Warbler	25	15	40	-	-	-	-
Wilson's Warbler	1	0	1	-	-	-	-

Species	Total # Counted			Migration Window			
	Migration Counts	Incidental Migrants	TOTAL	Dates	# Observed	Watch Effort (h)	# Observed / 100 hrs
Unidentified Warbler	27	3	30	-	-	-	-
American Tree Sparrow	0	4	4	-	-	-	-
Savannah Sparrow	22	3	25	-	-	-	-
Dark-eyed Junco	13	0	13	-	-	-	-
Unidentified Sparrow	35	0	35	-	-	-	-
Red-winged Blackbird	1	0	1	-	-	-	-
Rusty Blackbird	291	2	293	30 Aug – 6 Oct	275	169.9	162
Unidentified Blackbird	30	0	30	-	-	-	-
Pine Grosbeak	469	0	469	3 – 21 Oct	438	112.2	390
Purple Finch	1	1	2	-	-	-	-
Red Crossbill	21	13	34	-	-	-	-
White-winged Crossbill	211	147	358	-	-	-	-
Common Redpoll	5,917	161	6,078	30 Sep – 23 Oct	5632	139.0	4051
Pine Siskin	1,078	58	1,136	14 Aug – 29 Sep	1036	175.6	590
Unidentified Small Finch	3,290	5	3,295	-	-	-	-
Unidentified Small Passerine	4,432	3	4,435	-	-	-	-

Table 26. Summary of passerines observed on the 2012 migration counts; includes data extrapolations from unidentified passerines.

Species	Total # Counted (Migration Counts)	Migration Window			
		Dates	# Observed	Watch Effort	# Observed / 100 hrs
American Robin	1,051	2 Sep – 1 Oct	954	134.6	709
Varied Thrush	845	3 – 28 Sep	806	113.9	708
Common Redpoll	8,654	30 Sep – 23 Oct	8,141	139.0	5,857
Pine Siskin	1,659	23 Aug – 29 Sep	1,587	157.6	1,007

Table 27. Summary of loons and grebes observed during the 2011 lake counts (does not include birds in migration flight).

Species	Total # of Bird Days	Migration Window	
		Dates	# of Bird Days
Red-throated Loon	112	2 Aug – 29 Sep	106
Pacific Loon	150	31 Jul – 24 Sep	142
Common Loon	312	24 Jul – 23 Sep	295
Yellow-billed Loon	1	-	-
Unidentified Loon	2	-	-
Horned Grebe	83	2 Aug – 8 Oct	79
Red-necked Grebe	1,318	6 Aug – 1 Oct	1251

Table 28. Summary of ducks, geese and swans observed during the 2011 lake counts.

Species	Total # of Bird Days	Migration Window	
		Dates	# of Bird Days
Greater White-fronted Goose	1	-	-
Canada Goose	148	-	-
Trumpeter Swan	26	-	-
Tundra Swan	17	-	-
Unidentified Swan	18	-	-
American Wigeon	79	-	-
Mallard	102	-	-
Northern Shoveler	7	-	-
Northern Pintail	5	-	-
American Green-winged Teal	3	-	-
Greater Scaup	2	-	-
Lesser Scaup	31	-	-
Unidentified Scaup	8	-	-
Surf Scoter	165	5 Aug – 28 Sep	160
White-winged Scoter	2	-	-
Bufflehead	6	-	-
Common Goldeneye	45	-	-
Unidentified Goldeneye	7	-	-
Hooded Merganser	1	-	-
Common Merganser	164	1 Aug – 28 Oct	154
Red-breasted Merganser	85	9 Aug – 17 Oct	81
Unidentified Merganser	80	-	-
Unidentified Duck	19	-	-

Table 29. Summary of gulls, terns and jaegers observed during the 2012 lake counts.

Species	Total # of Bird Days	Migration Window	
		Dates	# of Bird Days
Mew Gull	192	5 Aug – 26 Sep	181
California Gull	2	-	-
Herring Gull	2,670	23 Jul – 14 Oct	2,559
Thayer's Gull	110	7 Aug – 17 Oct	104
Glaucous Gull	27	-	-
Bonaparte's Gull	67	28 Jul – 19 Aug	64
Sabine's Gull	3	-	-
Arctic Tern	53	23 Jul – 13 Aug	57
Hybrid Gull – Herring x Glaucous	2	-	-
Hybrid Gull – Herring x Glaucous-winged	25	-	-
Unidentified Large Gull	166	-	-
Unidentifieid Gull	10	-	-

Table 30. Summary of waterfowl / waterbird counts completed in the Southern Lakes region during the fall of 2012.

Count Name	Times Surveyed	Dates Surveyed
Johnson's Crossing	17	1, 7, 13, 17, 21, 24 August; 3, 13, 18, 22, 28 September; 4, 8, 13, 17, 23, 31 October
Teslin Lake Outlet	16	1, 13, 17, 21, 24 August; 3, 13, 18, 22, 28 September; 4, 8, 13, 17, 23, 31 October
Squanga Lake	16	1, 7, 13, 17, 21, 24 August; 3, 11, 18, 22, 28 September; 4, 8, 13, 17, 23 October
Judas Creek Marina	8	7, 13, 21, 31 August; 13, 22 September; 5, 13 October
Little Atlin Lake	8	7, 13, 21, 31 August; 13, 22 September; 5, 13 October
Nisutlin Bay	7	19 August; 2, 21 September; 11, 18, 21, 24 October
CWS Roadside Pond # 652	5	3, 11, 18, 22, 28 September
CWS Roadside Pond #651	1	18 September
CWS Roadside Pond # 679	1	18 September
CWS Roadside Pond #684	1	18 September

Table 31. Summary of loons, grebes and waterfowl counted during the fall 2012 waterfowl / waterbird counts.

Species	Johnson's Crossing /	Teslin Lake outlet	Squanga Lake	Little Atlin Lake	Judas Creek Marina	Teslin – Nisutlin Bay	TOTAL
Red-throated Loon		1	3	1	2		7
Pacific Loon	1		2	4	7		14
Common Loon	4	47	89	116	83		339
Horned Grebe	1	47	58	173	90		369
Red-necked Grebe	2	11	31	802	1,678		2,524
Unidentified Grebe				80			80
Greater White-fronted Goose		7		6			13
Canada Goose	34	112		444		48	638
Trumpeter Swan	306	19	16	2		9	352
Tundra Swan	340	64	44			126	574
Unidentified Swan	96	138	22	133		10	399
American Wigeon	201	283	1			1	486
Mallard	411	1,410	6	50		125	2,002
Northern Shoveler	8						8
Northern Pintail	5	126				3	134
American Green-winged Teal		27					27
Unidentified Dabbling Duck		670		85		30	785
Ring-necked Duck	33			88		2	123
Greater Scaup			21			3	24
Lesser Scaup	3	11	65	1	20	1	101
Unidentified Scaup		188	6		4	4	202
Scaup / Ring-necked Duck	15						15
Surf Scoter	11	8	141	7	1	5	173
White-winged Scoter				5	11		16
Black Scoter		2					2
Unidentified Scoter				4			4
Long-tailed Duck	4		47				51
Bufflehead	112	382	267	40	8	55	864

Species	Johnson's Crossing /	Teslin Lake outlet	Squanga Lake	Little Atlin Lake	Judas Creek Marina	Teslin – Nisutlin Bay	TOTAL
Common Goldeneye	106	156	52	69	7	9	399
Barrow's Goldeneye						7	7
Unidentified Goldeneye	5	260	140	50		14	469
Unidentified Diving Duck	50	240	124		55		469
Common Merganser	109	11		22	1	12	155
Red-breasted Merganser	14	12		28	14	1	69
Ruddy Duck		3					3
Unidentified Duck					4		4
Unidentified Grebe / Duck				131			131
Total Individuals	***1,871***	***4,235***	***1,135***	***2,341***	***1,985***	***465***	***12,032***
Total Species	***23***	***25***	***19***	***23***	***15***	***19***	***38***

Table 32. Total bird days for selected species at Johnson's Crossing during the fall 2012 season.

Species	Date Range	Bird Days		
		# Observed	# Extrapolated	TOTAL (observed & extrapolated)
Trumpeter Swan	1 Aug – 31 Oct	306	1,291	1,597
Tundra Swan	1 Aug – 31 Oct	340	1,369	1,709
Trumpeter / Tundra Swan	1 Aug – 31 Oct	742	3,195	3,937
American Wigeon	1 Aug – 31 Oct	201	1,207	1,408
Mallard	1 Aug – 31 Oct	411	1,914	2,325
Dabbling Duck	1 Aug – 31 Oct	625	2,957	3,582
Bufflehead	1 Aug – 31 Oct	112	508	620
Common Goldeneye	1 Aug – 31 Oct	106	473	579
All Ducks	1 Aug – 31 Oct	1,087	5,540	6,627
All Loons, Grebes & Waterfowl	1 Aug – 31 Oct	1,871	8,975	10,846

Table 33. Total bird days for selected species at Teslin Lake outlet during the fall 2012 season.

Species	Date Range	Bird Days		
		# Observed	# Extrapolated	TOTAL (observed & extrapolated)
Horned / Red-necked Grebe	1 Aug – 31 Oct	58	212	270
Trumpeter / Tundra Swan	1 Aug – 31 Oct	221	876	1,145
American Wigeon	1 Aug – 31 Oct	281	961	1,254
Mallard	1 Aug – 31 Oct	455	6,238	7,648
Dabbling Ducks	1 Aug – 31 Oct	2,496	11,224	13,720
Lesser / Greater Scaup	1 Aug – 31 Oct	198	840	1,038
Bufflehead	1 Aug – 31 Oct	382	1,495	1,877
Barrow's / Common Goldeneye	1 Aug – 31 Oct	416	1,859	2,275
Diving Ducks	1 Aug – 31 Oct	1,247	5,660	6,907
All Ducks	1 Aug – 31 Oct	3,789	17,604	21,393
All Loons, Grebes & Waterfowl	1 Aug – 31 Oct	4,235	19,788	24,023

Table 34. Total bird days for selected species at Squanga Lake during the fall 2012 season.

Species	Date Range	Bird Days		
		# Observed	# Extrapolated	TOTAL (observed & extrapolated)
Common Loon	1 Aug – 23 Oct	89	375	464
Surf Scoter	1 Aug – 23 Oct	141	532	673
Bufflehead	1 Aug – 23 Oct	260	968	1,228
Unidentified Goldeneye	1 Aug – 23 Oct	192	741	933
Diving Ducks	1 Aug – 23 Oct	596	2,337	2,933
All Loons, Grebes & Waterfowl	1 Aug – 23 Oct	1,135	4,700	5,835

Table 35. Total bird days for selected species at the Judas Creek Marina during the fall 2012 season.

Species	Date Range	Bird Days		
		# Observed	# Extrapolated	TOTAL (observed & extrapolated)
Common Loon	7 Aug - 13 Oct	83	688	771
Horned Grebe	7 Aug - 13 Oct	90	726	816
Red-necked Grebe	7 Aug - 13 Oct	1,678	13,210	14,888
All Ducks	7 Aug - 13 Oct	163	1,461	1,624
All Loons, Grebes & Waterfowl	7 Aug - 13 Oct	2,023	16,163	18,186

Table 36. Total bird days for selected species at Little Atlin Lake during the fall 2012 season.

Species	Date Range	Bird Days		
		# Observed	# Extrapolated	TOTAL (observed & extrapolated)
Common Loon	7 Aug – 13 Oct	116	974	1,090
Horned Grebe	7 Aug – 13 Oct	173	1,487	1,660
Red-necked Grebe	7 Aug – 13 Oct	802	5,730	6,532
Canada Goose	7 Aug – 13 Oct	444	3,429	3,873
All Ducks	7 Aug – 13 Oct	449	3,802	4,251
All Loons, Grebes & Waterfowl	7 Aug – 13 Oct	2,341	17,964	20,305

Table 37. Summary of Parasitic Jaeger observations from 2008 to 2012.

Year	# of Days	# of Bird Days	High Count	Early Date	Late Date	Median Date
2008	28	72	8 – 6 Sep	7 Aug	24 Sep	8 Sep
2009	11	16	3 – 30 Aug	24 Aug	25 Sep	31 Aug
2010	20	37	3 – 7/25 Sep	1 Sep	15 Oct	25 Sep
2011	9	12	3 – 7 Sep	2 Sep	11 Oct	7 Sep
2012	21	35	4 – 8 Sep	8 Aug	1 Oct	15 Sep

Table 38. Summary of Yellow-bellied Flycatchers banded during the fall season from 2008 to 2012.

Year	Number Banded		Earliest Date	Latest Date
	Juvenile	Adult		
2008	9	1	August 11	August 22
2009	8	0	August 4	August 23
2010	11	0	July 29	August 25
2011	7	0	August 12	September 4
2012	8	1	August 2	August 23
TOTAL	35	1	29 July 29	September 4

Table 39. Summary of Dusky Flycatchers banded in the fall of 2008 to 2012.

Year	Number Banded		Earliest Date	Latest Date
	Juvenile	Adult		
2008	1	0	September 13	-
2009	6	0	August 8	August 25
2010	3	0	August 11	September 5
2011	4	2	August 1	August 17
2012	3	0	August 8	September 30
TOTAL	17	2	August 1	September 30

Table 40. Summary of Mountain Chickadees observed and banded from 2008 to 2012.

Year	# of Days Observed	# of Bird Days	# Banded		Early Date	Late Date	High Count	Median Date
			Juvenile	Adult				
2008	8	20	15	-	3 Sep	26 Sep	6 – 24/25 Sep	24 Sep
2009	8	24	11	-	5 Sep	27 Sep	10 – 19 Sep	19 Sep
2010	-	-	-	-	-	-	-	-
2011	3	3	2	-	12 Sep	3 Oct	1 – all days	-
2012	4	5	1	-	18 Sep	7 Oct	-	-
TOTAL	19	47	29	-	3 Sep	26 Sep	10 – 19 Sep 09	-

Table 41. Summary of American Redstarts observed and banded from 2008 to 2012.

Year	# of Days Observed	# of Bird Days	# Banded		Early Date[1]	Late Date	High Count	Median Date
			Juvenile	Adult				
2008	13	15	5	5	7 Aug	18 Sep	2 – many	-
2009	26	99	34	9	1 Aug	19 Sep	9 – 6 Aug	9 Aug
2010	24	47	25	5	16 Jul	6 Sep	6 – 26 Jul	3 Aug
2011	36	137	28	12	16 Jul	26 Sep	10 – 30/31 Jul	1 Aug
2012	28	66	12	10	22 Jul	16 Sep	8 – 5 Aug	30 Jul
TOTAL	127	364	104	41	16 Jul	26 Sep	-	-

[1] Note that during 2008 and 2009, the observatory did not begin fall migration monitoring until August 7 and August 1, respectively.

Table 42. Summary of MacGillivray's Warblers observed and banded from 2008 to 2012.

Year	# of Days Observed	# of Bird Days	# Banded		Early Date[1]	Late Date	High Count	Median Date
			Juvenile	Adult				
2008	2	2	-	1	29 Aug	6 Sep		
2009	4	4	3	-	5 Aug	11 Aug	1 – all days	-
2010	2	2	2	-	6 Aug	12 Aug	1 – 6/12 Aug	-
2011	-	-	-	-	-	-	-	-
2012	1	1	1	-	26 Aug	-	1 – 26 Aug	-
TOTAL	9	9	6	1	5 Aug	6 Sep	-	-

[1] Note that during 2008 and 2009, the observatory did not begin fall migration monitoring until August 7 and August 1, respectively.

Table 43. Summary of chickadees banded and observed from 2008 to 2012.

Year		Boreal Chickadee	Black-capped Chickadee	Mountain Chickadee	Chestnut- backed Chickadee	Hybrid Chickadee
2008	# Banded	128	57	15	1	1
	# of Bird Days	293	172	20	1	1
2009	# Banded	831	26	11	-	-
	# of Bird Days	1,612	221	24	-	-
2010	# Banded	-	22	-	-	-
	# of Bird Days	12	295	-	-	-
2011	# Banded	233	92	2	-	-
	# of Bird Days	486	270	3	1	-
2012	# Banded	142	65	1	-	12
	# of Bird Days	230	231	5	-	-

Table 44. Hours spent at the bird observatory by volunteers and paid individuals during 2012.

Paid		Volunteer	
# of Individuals	Hours	# of Individuals	Hours
6	813	17	893

Table 45. Hours spent at the bird observatory by visitors during 2012.

Locals		Yukon		Canada		USA		Other International	
#	Hours	#	Hours	#	Hours	#	Hours	#	Hours
3	3.5	10	24.25	21	22.25	12	13.25	10	52.25

Appendix D - Photos

Photo 1. Adult Common Loon observed on the migration counts September 7, 2012 (Photo – J. Jantunen).

Photo 2. Greater White-fronted Geese observed on the migration counts August 14, 2012 (Photo – J. Jantunen).

Photo 3. Tundra Swans observed on the migration counts October 11, 2012 (Photo – J. Jantunen).

Photo 4. Juvenile Trumpeter Swans observed on the migration counts October 13, 2012 (Photo – J. Jantunen).

Photo 5. Juvenile male Northern Harrier observed on the migration counts September 9, 2012 (Photo – J. Jantunen).

Photo 6. Dark-morph Harlan's Red-tailed Hawk observed on the migration counts August 29, 2012 (Photo – J. Jantunen).

Photo 7. Adult Golden Eagle observed on the migration counts October 17, 2012 (Photo – J. Jantunen).

Photo 8. American Kestrel observed on the migration counts September 19, 2012 (Photo – J. Jantunen).

Photo 9. Merlin observed on the migration counts August 14, 2012 (Photo – J. Jantunen).

Photo 10. Osprey observed on the migration counts September 28, 2012 (Photo – J. Jantunen).

Photo 11. Sandhill Cranes observed on the migration counts August 27, 2012 (Photo – J. Jantunen).

Photo 12. Bohemian Waxwings observed on the migration counts October 25, 2012 (Photo – J. Jantunen).

Photo 13. Adult Common Loons observed on the lake counts September 1, 2012 (Photo – J. Jantunen).

Photo 14. Adult Pacific Loons observed on the lake counts September 8, 2012 (Photo – J. Jantunen).

Photo 15. Adult Red-necked Grebe observed on the lake counts September 17, 2012 (Photo – J. Jantunen).

Photo 16. Horned Grebe observed on the lake counts September 20, 2012 (Photo – J. Jantunen).

Photo 17. Juvenile Sanderling observed on the lake counts August 27, 2012 (Photo – J. Jantunen).

Photo 18. Female Herring Gull (left) and male Thayer's Gull (right) observed on the lake counts September 9, 2012 (Photo – J. Jantunen).

Photo 19. Adult Yellow-billed Loon observed August 2, 2012 (Photo – J. Jantunen).

Photo 20. Hooded Merganser (third from right) observed October 3, 2012 (Photo – J. Jantunen).

Photo 21. Black Turnstone observed on August 27, 2012 (Photo – J. Jantunen).

Photo 22. California Gull observed on September 16, 2012 (Photo – J. Jantunen).

Photo 23. Glaucous Gull observed October 21, 2012 (Photo – J. Jantunen).

Photo 24. Western Flycatcher banded August 26, 2012 (Photo – J. Jantunen).

Photo 25. HY Mountain Chickadee banded on October 5, 2012 (Photo – J. Jantunen).

Photo 26. HY female Nashville Warbler banded October 1, 2012 (Photo – J. Jantunen).

Photo 27. Adult male American Redstart banded on August 19, 2012 (Photo – J. Jantunen).

Photo 28. HY Magnolia Warbler banded August 15, 2012 (Photo – J. Jantunen).

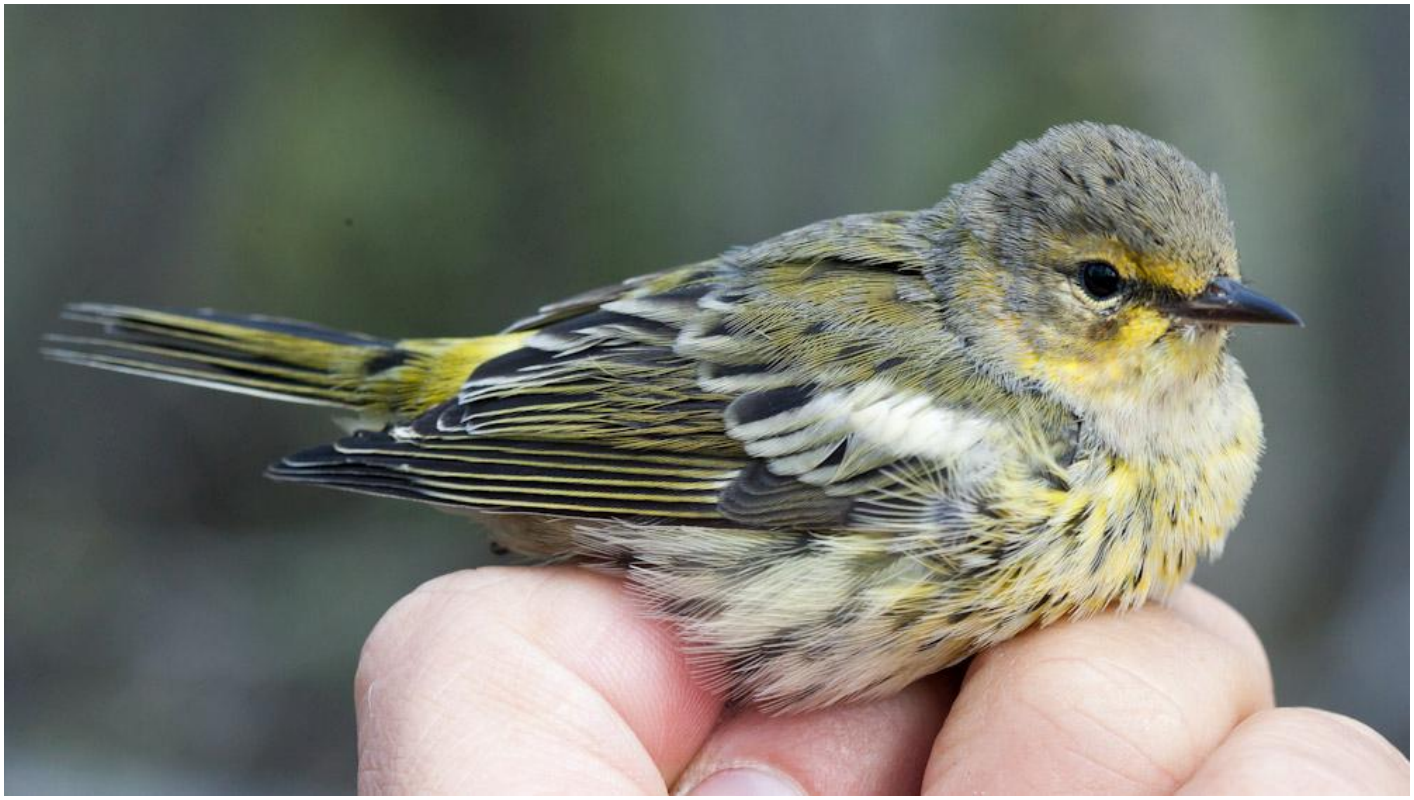

Photo 29. HY male Cape May Warbler banded September 2, 2012 (Photo – J. Jantunen).

Photo 30. HY -MacGillivray's Warbler banded August 26, 2012 (Photo – J. Jantunen).