

# Teslin Lake Bird Observatory Final Report 2014



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February 2015

The 2014 operation of the Teslin Lake Bird Observatory was made possible due to support and financial contributions from the following organizations.



Cover Photo: The observatory's first banded Northern Saw-whet Owl (September 22, 2014)  
(Photo: Jukka Jantunen).

The Teslin Lake Bird Observatory is operated by the **Society of Yukon Bird Observatories** (SOYBO; PO Box 30056, Whitehorse, YT, Y1A 5M2). SOYBO was established in 2010 to serve as an umbrella society to coordinate bird monitoring activities and associated educational programs at the Yukon Bird Observatories field stations. The objectives of SOYBO are: (1) contribute to the conservation of migratory birds in western North America, (2) to help people learn about the natural history and conservation of Yukon avifauna, and, (3) to work with other societies, organizations and individuals with similar objectives. For further information, visit the SOYBO website at [www.yukonbirdobservatories.org](http://www.yukonbirdobservatories.org)

## SUMMARY

During 2014, the Yukon Bird Observatories (Teslin Lake and Albert Creek) were granted full membership status to the Canadian Migration Monitoring Network (CMMN). The Yukon Bird Observatories are the northernmost stations and are the only stations located within the core of Canada's Boreal Forest.

The Teslin Lake Bird Observatory completed its seventh consecutive year of fall migration monitoring in 2014. The field station operated for a total of 83 days between July 28 and October 28. The observatory has followed the same operating procedures since standardized migration monitoring began during the fall of 2009.

Crews followed standard methods to mist net, handle, band and record information from captured birds. They banded a total of 2,509 birds of 48 species with 6,540 net hours (38.36 birds/100 net hours). Alder Flycatcher, Yellow Warbler and Pine Siskin were the three most common species banded, accounting for over half of all individuals banded. Alder Flycatcher and Yellow Warbler have been among the top species banded in previous years although the high capture of Pine Siskins was unprecedented.

Visual migration counts were conducted to collect monitoring data for bird species not adequately sampled by mist netting (for example diurnal raptors) by standing and watching the sky and landscape at a predetermined point in the standard count area. Between July 31 and October 5, they spent 279.0 hours and observed 54,974 birds (197 birds per hour). Of these, 2,302 individuals were one of 14 diurnal raptor species, including the first Turkey Vulture for the observatory and two regional species of interest for monitoring - Swainson's Hawk and American Kestrel.

Crews also scanned the lake every day to monitor waterbirds. They recorded relatively high numbers of regularly occurring species of loons and grebes, as well as some gull species considered rare or uncommon in the Yukon including Sabine's Gull and Glaucous Gull.

Building upon testing of methods in previous years, crews used audio equipment to broadcast recorded calls to band Boreal Owls at two sites, the standard count area and a new location approximately 1.5 km southeast of the observatory. On 10 nights between August 16 and October 14 they banded 40 Boreal Owls and two Northern Saw-whet Owls with 297.3 net hours, total, at the two sites. They also tried a similar but fruitless approach with woodpeckers during regular daytime operations in the standard count area.

Noteworthy results from 2014 included:

- The number of birds banded was slightly below average (40.14 birds/100 net hours) during the standard banding period.
- Species banded in particular high numbers included Yellow Warbler and Pine Siskin whereas species banded in notably low numbers included Slate-colored Junco.
- New species banded at the observatory included a single Winter/Pacific Wren and new species observed for the first time included Turkey Vulture, American Dipper and Evening Grosbeak.

- To date a total of 25,003 birds of 90 species have been banded at the observatory and 194 species have been observed. The 25,000<sup>th</sup> bird banded was a hatch year Boreal Owl on October 14, 2014.
- The visual counting effort was consistent with the amount of effort in previous years and the total number of birds observed (197 birds/hour) was above average.
- A total of 2,300 raptors and 28,556 waterfowl were observed on the visual migration counts with the most common species being Harlan's Red-tailed Hawk and Tundra Swan respectively.
- The lake counts tallied a total of 535 bird days of loons (4 species), 1,381 bird days of grebes (2 species) and 2,714 bird days of gulls (9 species).
- A total of 10 volunteers spent a total of 786.25 hours at the observatory and a total of 84 individuals visiting the observatory totaling 121 visitor hours.

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## 1.0 Introduction

This report describes methods and results of work done at the Teslin Lake Bird Observatory from July 28 to October 28 in 2014, the seventh year of fall operation at this site. New activities at the observatory in 2014 included an expanded owl banding project and trial woodpecker banding using call playback.

Previous annual reports and the database can be found on the Society of Yukon Bird Observatories website: [www.yukonbirdobservatories.org](http://www.yukonbirdobservatories.org)

### 1.1 Background

The observatory collects information 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. During 2014, the Yukon Bird Observatories (Teslin Lake and Albert Creek) were granted full membership status to the Canadian Migration Monitoring Network (CMMN). The CMMN is a nationwide network of 26 membership stations from across Canada who collect standardized bird monitoring data and collaborate on research projects. The Yukon Bird Observatories are the northernmost stations and are the only stations located within the core of Canada's western Boreal Forest.

Many of the birds banded and observed 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 the Yukon's bird species, some 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. In addition to monitoring bird populations, the observatory collects a substantial amount of data on each bird banded. Information such as age, sex, measurements (wing, tail, etc.) and molt timing continue to add to the knowledge base of such information across North America.

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. Numerous people visit the observatory on an annual basis and the field station has become a valuable training opportunity for individuals interested in learning about ornithological research and monitoring methods.

## **1.2 Goals of the Teslin Lake Bird Observatory**

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.

## **1.3 Objectives of the 2014 Season**

The objectives of the 2014 field season at the Teslin Lake Bird Observatory were to:

- Continue the fall monitoring work using previously established protocols
- Collect an additional year of bird monitoring data to be used for future trend analysis,
- Further refine the techniques to capture and band owls,
- Test techniques to capture and band woodpeckers,
- Collect information on the molt timing of adult passerines banded, and,
- Compare 2014 bird migration results to the previous 4 to 6 years of similarly collected data.

## **1.4 Acknowledgements**

The 2014 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), Yukon Environment (Environmental Awareness Fund), Yukon Fish & Wildlife Enhancement Trust Fund, Teslin Renewable Resources Council, Yukon Energy and EDI Environmental Dynamics Inc.

Jukka Jantunen's excellent bird identification skills ensured high quality data collection, particularly during the visual migration counts which are challenging to complete with a high level of accuracy and consistency. Barney Smith provided editorial comments on the draft version of this report.

We appreciate the help from the following volunteers:

- more than 50 days – Sarah Nagl;
- 10 to 20 days – Ariel Lenske, and Chris Sukka;
- 5 to 10 days – Vesta Mather, Ted-Murphy-Kelly, and Julie Bauer;
- 1 to 5 days – Gwen Baluss, Shyloh van Delft, and Lila Tauzer.



## 2.0 Methods

### 2.1 Study Site

Teslin Lake is a 125 km long by 2-5 km wide lake in the south central Yukon near the border with British Columbia. The standard count area is located near the outlet of Ten-mile Creek at the site known locally as Ten-mile Point; this area is located on the east shore within the north third of the lake. The lake falls in a natural trench that runs to the northwest and serves as a migration route for many bird species coming from breeding areas to the north in Yukon and Alaska. The site falls within the Yukon Southern Lakes Ecoregion (Boreal Cordillera Ecozone. (Smith et al. 2004)<sup>1</sup>.

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* spp.) and alder (*Alnus* spp.) with some mature white spruce (*Picea glauca*), trembling aspen (*Populus tremuloides*) and balsam poplar (*P. balsamifera*) scattered throughout.

### 2.2 General Methods

The methods for the operation of the bird observatory follow the Teslin Lake Bird Observatory Field Protocol and Manual<sup>2</sup>. A brief summary of the field protocol is described in the following sections; however, for a detailed description refer to the publications page of the Society of Yukon Bird Observatories website ([www.yukonbirdobservatories.org](http://www.yukonbirdobservatories.org)).

All monitoring activities at the observatory can be separated into standardized and non-standardized methods. 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.

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<sup>1</sup> Smith, C.A.S., Meikle, J.C., and Roots, C.F. (editors), 2004. Ecoregions of the Yukon Territory: Biophysical properties of Yukon landscapes. Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01, Summerland, British Columbia, 313 p.

<sup>2</sup> Schonewille, B. 2011. Teslin Lake Bird Observatory (TLBO) Field Protocol (version 2). Society of Yukon Bird Observatories.



**Figure 1.** Overview of the Teslin Lake Bird Observatory (60.2319 °N, -132.9159 °W). The numbers and red lines are mist nets, each 12 m long with the exception of net 28 which was 18 m in length. There is a campground bordering the mist netting area on the south side (right hand side of the photo). The red line with the “C” is the non-standard canopy net.

For every species observed, estimated totals are calculated for each 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.
  - 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). The DET data will provide the basis for future trend analysis of the data collected at the observatory.

During 2014, the operation of the Teslin Lake Bird Observatory was led by the Primary Bander in Charge Jukka Jantunen. Jukka was responsible for overseeing all activities at the observatory including the capture/banding of birds, supervising volunteers, conducting the visual migration watches and recording the daily estimated total data. Ted Murphy-Kelly was Co-Station Manager which included station logistics and staffing. Ben Schonewille was also a Co-Station Manager, and looked after the data entry, analysis and preparation of this report. Board members of the Society of Yukon Bird Observatories helped administer the Yukon Bird Observatories.

Site infrastructure is minimal at this site. A narrow trail connects the banding table to the nets and to the station access point via the Yukon government campground. There is no covered blind from which to watch birds and nets are removed at the end of the season and are stored away from the site. The site is partially within the high water mark of Teslin Lake and on land owned by the Yukon Government as a component of the campground reserve. To date this level of activity has not required any permitting aside from the federal and territorial permits required for the capture and banding of birds.

## **2.3 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 2014 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, 4 panels tall, 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 favourable. If full effort is not possible, then the number of nets operated is reduced rather than reducing the duration of effort. During 2014, the full set of nets (excluding the canopy net) was used on 42 mornings.

## **2.4 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.

Whenever possible, additional information on age, sex and/or color morph is collected for the birds observed during the visual migration watches. Particularly for raptors, the information can supplement the data collected by providing information on the proportion of younger birds.

## **2.5 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 which are visible from the predetermined viewing location. These counts target a wide range of species including; loons, grebes, some waterfowl, gulls and some species of shorebirds.

## **2.6 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’.

## **2.7 Molt Scoring**

As supplementary information, in order to assess the timing of molt, we rated the growth of new flight feathers in adult birds that were 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 because this would tell us about the timing of the molt as it relates to the timing of migration in various species of adult birds.

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. Birds that have not yet started to molt have a cumulative score of zero whereas individuals which have completed molt would have a score of 75 (based on 9 primary flight feathers) or 80 (10 primary flight feathers).

## **2.8 Special Projects**

### **2.8.1 Owl Banding**

Based on owl capture methods used in southern Canada to capture Northern Saw-whet Owls that we had tested in previous years on Boreal Owls, we decided to do more dedicated trials using these methods. This method uses nocturnal call playback in the vicinity of a mist net array.

During 2014, the calls we broadcast were a mixture of Boreal Owl, Northern Saw-whet Owl and Northern Pygmy Owl calls, however, Boreal Owl constituted the majority of the calls used. We used an iPod connected to a portable speaker system with an internal battery. We broadcast within the standard count area at the bird observatory at two locations: (1) the 'tip' between net 15 and net C, (2) along the lakeshore between nets 6 and 8. On most nights, five 12 m nets were used in the standard count area. At this site the owl calls were broadcast constantly for between 1.5 and 4.5 hours beginning at dusk on the following days: August 28, September 5, 8, 14, 22, 23, and October 7.

We also broadcast in a second location in a regenerating lodgepole pine stand 1.5 km southeast of the standard count area. This secondary site was located on the north side of the area known locally as the "Cottage Lots Gravel Pit". Up to 4 nets were used at this site, suspended in the same manner as the other mist nets used for songbirds. At this site the owl calls were broadcast constantly for between 1.5 and 4.5 hours beginning at dusk on the following days: August 16, 21, 28, September 8, 14, 22, 23, October 7 and 14.

## **2.8.2 Woodpecker Banding**

In an attempt to increase captures of woodpeckers at the observatory, we broadcast recorded calls of several woodpecker species constantly in the vicinity on the non-standard canopy net ('C' on Figure 1) for a total of 11 hours on September 23 and 26. We broadcast the calls mostly between 9 am and noon; the calls were played on an iPod connected to a portable speaker system with an internal battery and included a mixture of calls from woodpecker species expected to occur at the site including American Three-toed, Black-backed, Hairy and Downy woodpeckers.

## **2.9 Public Engagement**

To attract members of the public to the observatory, we put up posters at various common buildings in Teslin including the Nisutlin Trading Post, the Yukon Motel, the Teslin Tlingit Council Administration Office and the Post Office. We also worked with the Teslin Renewable Resources Council to host a public BBQ and information session at the observatory on September 4, 2014 when 3 classes from Teslin School also attended. We also advertised the observation through digital media including the Yukon Bird Observatories blog, Facebook page and website.

## 3.0 Results & Discussion

### 3.1 Station Operation

The 2014 fall season included a total of 83 field days between July 26 and October 27. Standardized mist netting occurred on 54 days between July 28 until September 30 opportunistic banding occurring until October 5. After October 5, activities at the observatory were limited to visual migration counts, lake counts and incidental observations.

A total of 2,509 birds of 48 species were banded (excluding special projects) and 140 species were observed (Table 1, Table 2). The all-time total number of birds banded at Teslin Lake Bird Observatory is now 25,003 birds of 90 taxa and 194 species/forms have been observed (Appendix A). New species added to the station checklist during 2014 included: Turkey Vulture, American Dipper and Evening Grosbeak.

**Table 1.** Summary statistics for the 2014 fall season.

Week	Date	Days Operated <sup>1</sup>	Birds Banded				Visual Counts		Total Species Observed
			#	Species	Net Hours	#/100 Net Hours	# of Visual Migrants <sup>2</sup>	Counting Hours	
1	23 – 29 Jul	4	68	17	179.0	37.99	44	0.0	45
2	30 Jul – 5 Aug	7	145	20	696.0	20.83	95	0.3	55
3	6 – 12 Aug	6	104	21	681.5	15.26	858	11.0	62
4	13 – 19 Aug	5	114	25	519.5	21.94	904	16.7	65
5	20 – 26 Aug	7	748	23	934.0	80.09	2,236	18.8	76
6	27 Aug – 2 Sep	7	546	26	838.8	65.09	4,996	17.2	77
7	3 – 9 Sep	5	430	25	596.5	72.09	2,698	16.6	75
8	10 – 16 Sep	7	275	27	869.0	31.65	3,307	27.5	78
9	17 – 23 Sep	6	56	16	672.5	8.18	3,449	27.1	76
10	24 – 30 Sep	6	21	9	388.25	5.41	2,887	31.5	58
11	1 – 7 Oct	6	3	3	75.3	3.98	9,120	30.8	65
12	8 – 14 Oct	7	-	-	-	-	11,138	29.8	52
13	15 – 21 Oct	6	-	-	-	-	11,899	31.8	53
14	22 – 28 Oct	4	-	-	-	-	3,170	19.8	40
ALL	28 Jul – 27 Oct	83	2,509	48	6540.4	38.36	56,801	278.9	140

<sup>1</sup> Requires a minimum of 3 hours onsite with full estimated totals recorded (does not require mist netting if weather conditions are adverse).

<sup>2</sup> Note this total includes visual migrants counted during the visual counts and incidental visual migrants observed.

**Table 2.** Birds banded during the 2014 fall season (not including special projects).

Common Name	Scientific Name	# Banded	# Banded / 1000 Net Hrs
Sharp-shinned Hawk	<i>Accipiter striatus</i>	14	2.14
Solitary Sandpiper	<i>Tringa solitaria</i>	1	0.15
Wilson's Snipe	<i>Gallinago delicata</i>	1	0.15
Belted Kingfisher	<i>Ceryle alcyon</i>	9	1.38
Downy Woodpecker	<i>Picoides pubescens</i>	1	0.15
Western Wood-Pewee	<i>Contopus sordidulus</i>	4	0.61
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	3	0.46
Alder Flycatcher	<i>Empidonax alnorum</i>	506	77.37
Least Flycatcher	<i>Empidonax minimus</i>	2	0.31
Hammond's Flycatcher	<i>Empidonax hammondi</i>	8	1.22
Dusky Flycatcher	<i>Empidonax oberholseri</i>	4	0.61
Northern Shrike	<i>Lanius excubitor</i>	1	0.15
Warbling Vireo	<i>Vireo gilvus</i>	12	1.84
Black-capped Chickadee	<i>Poecile atricapillus</i>	16	2.45
Boreal Chickadee	<i>Poecile hudsonicus</i>	3	0.46
Red-breasted Nuthatch	<i>Sitta canadensis</i>	3	0.46
Winter / Pacific Wren	<i>Troglodytes troglodytes / pacificus</i>	1	0.15
Ruby-crowned Kinglet	<i>Regulus calendula</i>	69	10.55
Gray-cheeked Thrush	<i>Catharus minimus</i>	10	1.53
Swainson's Thrush	<i>Catharus ustulatus</i>	49	7.49
Hermit Thrush	<i>Catharus guttatus</i>	1	0.15
American Robin	<i>Turdus migratorius</i>	9	1.38
Varied Thrush	<i>Ixoreus naevius</i>	3	0.46
Northern Waterthrush	<i>Parkesia noveboracensis</i>	48	7.34
Tennessee Warbler	<i>Oreothlypis peregrina</i>	1	0.15
Orange-crowned Warbler	<i>Oreothlypis celata</i>	149	22.78
Common Yellowthroat	<i>Geothlypis trichas</i>	82	12.54
American Redstart	<i>Setophaga ruticilla</i>	25	3.82
Yellow Warbler	<i>Setophaga petechia</i>	504	77.06
Blackpoll Warbler	<i>Setophaga striata</i>	61	9.33
Myrtle Warbler	<i>Setophaga coronata</i>	178	27.22
Townsend's Warbler	<i>Setophaga townsendi</i>	10	1.53
Wilson's Warbler	<i>Cardellina pusilla</i>	164	25.08
American Tree Sparrow	<i>Spizella arborea</i>	22	3.36
Chipping Sparrow	<i>Spizella passerina</i>	15	2.29
Savannah Sparrow	<i>Passerculus sandwichensis</i>	17	2.60
Fox Sparrow	<i>Passerella iliaca</i>	17	2.60
Lincoln's Sparrow	<i>Melospiza lincolni</i>	9	1.38
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	15	2.29
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	1	0.15
Slate-colored Junco	<i>Junco hyemalis</i>	140	21.41
Rusty Blackbird	<i>Euphagus carolinus</i>	10	1.53
Brown-headed Cowbird	<i>Molothrus ater</i>	2	0.31
Purple Finch	<i>Carpodacus purpureus</i>	3	0.46
White-winged Crossbill	<i>Loxia leucoptera</i>	2	0.31
Common Redpoll	<i>Acanthis flammea</i>	1	0.15
Pine Siskin	<i>Spinus pinus</i>	303	46.33
TOTAL		2,509	383.62

Weather conditions largely influence the activities at the observatory (Table 3). Windy conditions and periods of prolonged precipitation reduce the mist netting effort. Weather conditions also influence the number of birds counted on the visual migration counts due to challenges associated with visibility and the dynamic nature of bird migration in relation to wind patterns. The 2014 saw temperatures that were very similar to previous years and the amount of wind was the lowest recorded compared to

previous years (Table 4). The amount of days with precipitation (37) tied the previous high first recorded in 2011.

**Table 3.** Summary of weather conditions during the 2014 fall season.

Weather Parameter	Week							
	1	2	3	4	5	6	7	8
Average Opening Temperature	11.5	7.1	8.7	7.3	7.0	5.6	3.0	4.6
Average Closing Temperature	18.5	17.6	18.3	13.8	16.0	12.5	9.6	13.7
Average Opening Wind	0.5	1.1	1.2	1.0	0.9	1.7	1.0	1.1
Average Closing Wind	3.0	2.9	2.5	1.8	2.0	1.7	1.6	2.0
Days with Rain	1	1	3	4	3	2	3	3
Days with Snow	0	0	0	0	0	0	0	0
Weather Parameter	Week						TOTAL	
	9	10	11	12	13	14		
Average Opening Temperature	4.3	3.4	3.2	1.9	0.7	0.5	4.7	
Average Closing Temperature	12.4	9.0	4.0	5.4	5.3	6.0	11.8	
Average Opening Wind	1.7	2.0	2.7	1.7	1.3	1.0	1.4	
Average Closing Wind	2.4	2.6	3.4	3.0	1.7	2.3	2.3	
Days with Rain	3	4	3	2	0	0	32	
Days with Snow	0	0	2	1	2	0	5	

**Table 4.** Comparison of weather conditions during 2014 as compared to previous years.

Weather Parameter	Annual Average					2010-2014 Average
	2010	2011	2012	2013	2014	
Average Opening Temperature	4.4	3.5	2.6	6.0	4.7	4.2
Average Closing Temperature	13.0	10.4	10.7	14.4	11.8	12.1
Average Opening Wind	2.3	1.7	1.7	1.5	1.4	1.7
Average Closing Wind	2.8	2.6	2.9	2.7	2.3	2.7
Days with Rain	20	33	17	14	32	23
Days with Snow	3	4	6	0	5	4

### 3.2 Patterns in Captures

Each component of the 2014 data is summarized and presented in the following subsections; however, a summary account of the 2014 estimated total data is shown in Appendix B. Unless otherwise stated, the results presented in this report combine and summarize both standard and non-standardized data. Note that the estimated totals are derived on a daily basis by the Bander in Charge and incorporates all data collection components (mist netting captures and all observations) to estimate the number of birds of each species within or passing through the count area.

Among the top 15 species banded during 2014, 4 were captured in above average numbers, 9 below average and 2 species on average (Table 5). Among the species banded in above average numbers, Pine Siskin was the most notable of which 303 were banded compared to the 2009-2014 average of 69 and the previous record high of 91 in 2010. The most notable species banded in below average numbers was Slate-colored Junco of which 140 were banded in 2014 as compared to the 2009-2014 average of 322 and the previous low total of 116 in 2012.



**Table 5.** The 15 most common bird species banded in 2014 as compared to 2009–2013 totals (numbers in brackets indicate the annual ranking in birds banded. The prefix “T” indicates a tied in annual banding totals.

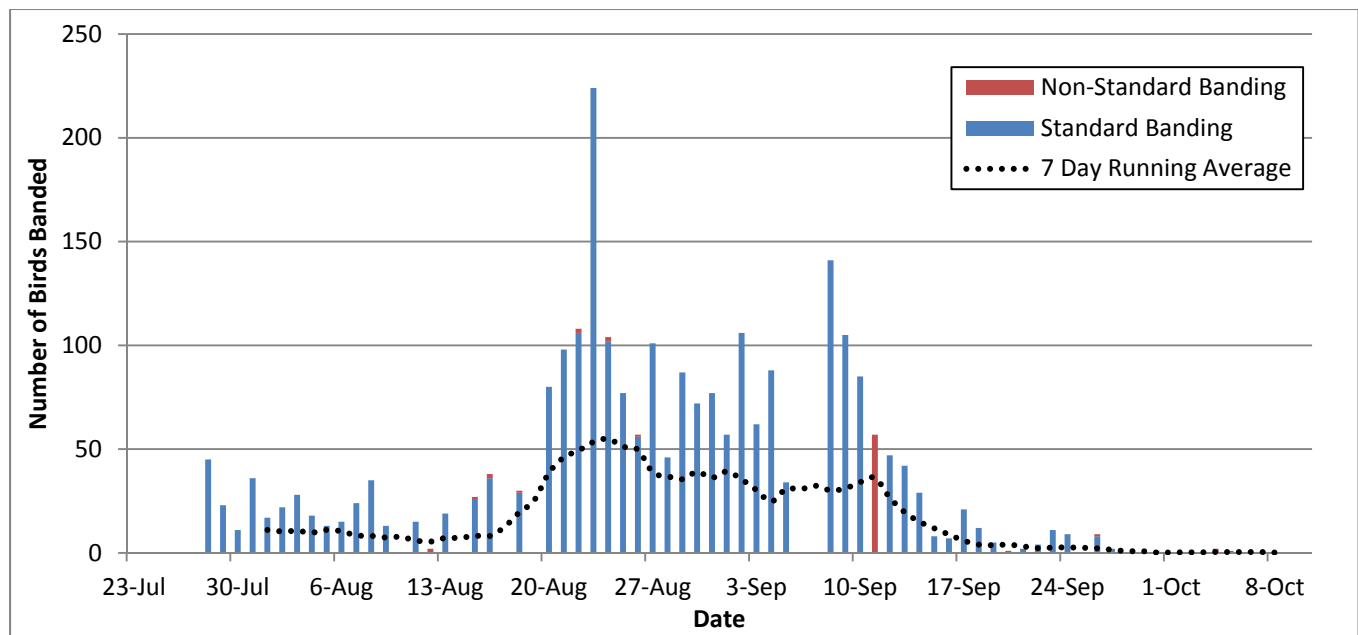
Species	2014	2013	2012	2011	2010	2009	2009-2014 Average
Alder Flycatcher	506 (1)	770 (1)	827 (1)	637 (1)	620 (2)	631 (2)	665
Yellow Warbler	504 (2)	333 (3)	225 (2)	310 (3)	471 (3)	325 (4)	361
Pine Siskin	303 (3)	8 (T24)	3 (T31)	10 (T27)	91 (10)	1 (T44)	69
Myrtle Warbler	178 (4)	163 (4)	195 (3)	142 (5)	673 (1)	284 (5)	273
Wilson’s Warbler	164 (5)	122 (7)	134 (T5)	133 (6)	177 (7)	161 (8)	149
Orange-crowned Warbler	149 (6)	124 (6)	88 (8)	57 (14)	271 (5)	180 (6)	145
Slate-colored Junco	140 (7)	341 (2)	116 (7)	331 (2)	420 (4)	582 (3)	322
Common Yellowthroat	82 (8)	65 (9)	45 (13)	72 (12)	70 (11)	113 (9)	75
Ruby-crowned Kinglet	69 (9)	125 (5)	134 (T5)	86 (8)	109 (8)	175 (7)	116
Blackpoll Warbler	61 (10)	87 (8)	87 (9)	58 (13)	194 (6)	107 (10)	99
Swainson’s Thrush	49 (11)	55 (10)	41 (14)	85 (9)	53 (13)	49 (13)	55
Northern Waterthrush	48 (12)	46 (12)	47 (11)	42 (15)	54 (12)	53 (12)	48
American Redstart	25 (13)	33 (13)	21 (17)	39 (16)	30 (16)	43 (14)	32
American Tree Sparrow	22 (14)	19 (17)	17 (22)	77 (10)	21 (19)	54 (11)	35
Savannah Sparrow	17 (T15)	18 (18)	15 (25)	23 (21)	18 (23)	18 (22)	17
Fox Sparrow	17 (T15)	7 (T26)	6 (T27)	17 (22)	28 (17)	28 (17)	20

Among the top 10 species banded in 2014, the majority of birds banded across all species were hatch year individuals (Table 6). Of particular note were the lack of adult Pine Siskins captured and the record low proportion of hatch year Yellow Warblers.

**Table 6.** Age ratios (% hatch year) for the top 10 species banded during the fall of 2014.

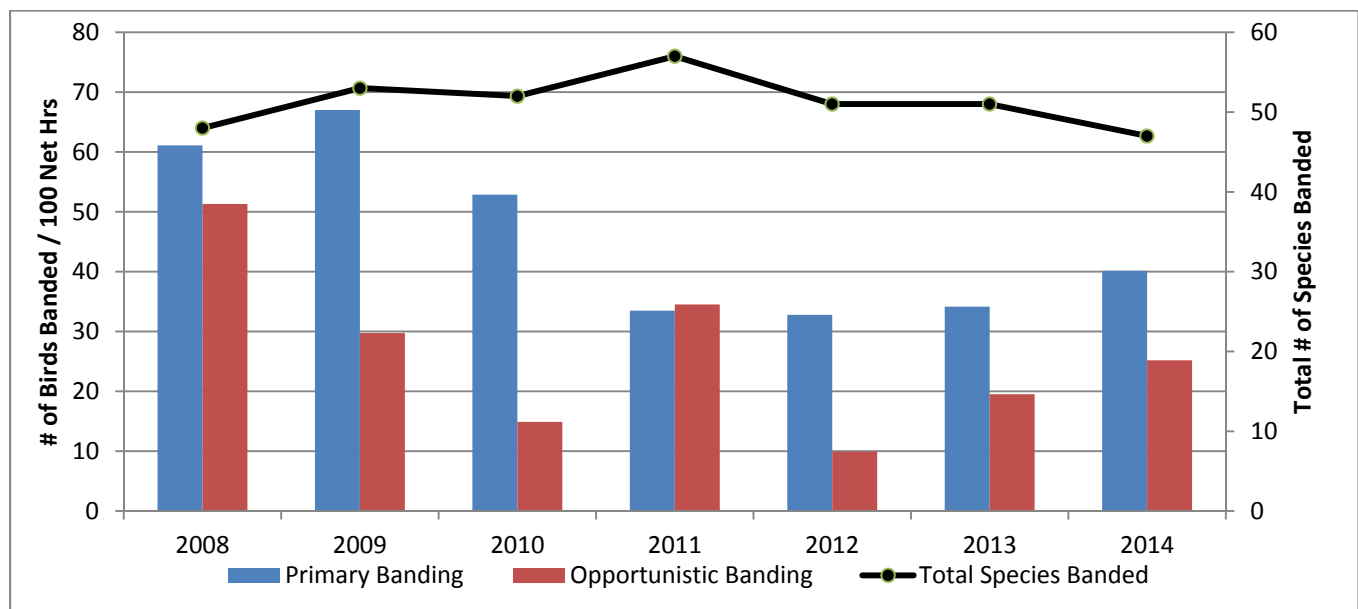
Species	2014	2013	2012	2011	2010	2009	2009-2014 Average
Alder Flycatcher	85	84	81	72	90	75	81
Yellow Warbler	48	68	61	71	73	72	66
Pine Siskin	100	75	-	94	90	-	90
Myrtle Warbler	90	81	83	70	95	86	84
Wilson’s Warbler	82	84	78	72	93	91	83
Orange-crowned Warbler	82	81	84	79	90	81	83
Slate-colored Junco	94	94	89	81	96	81	89
Common Yellowthroat	79	85	78	89	83	88	84
Ruby-crowned Kinglet	93	79	96	81	92	97	90
Blackpoll Warbler	84	91	90	88	92	90	89

The peak period for mist netting included weeks 5 through 7 (August 20 to September 9) when a large movement of warblers and flycatchers resulted in a number of high daily banding totals including the observatory’s second highest ever daily total (224 on August 23; Figure 2).



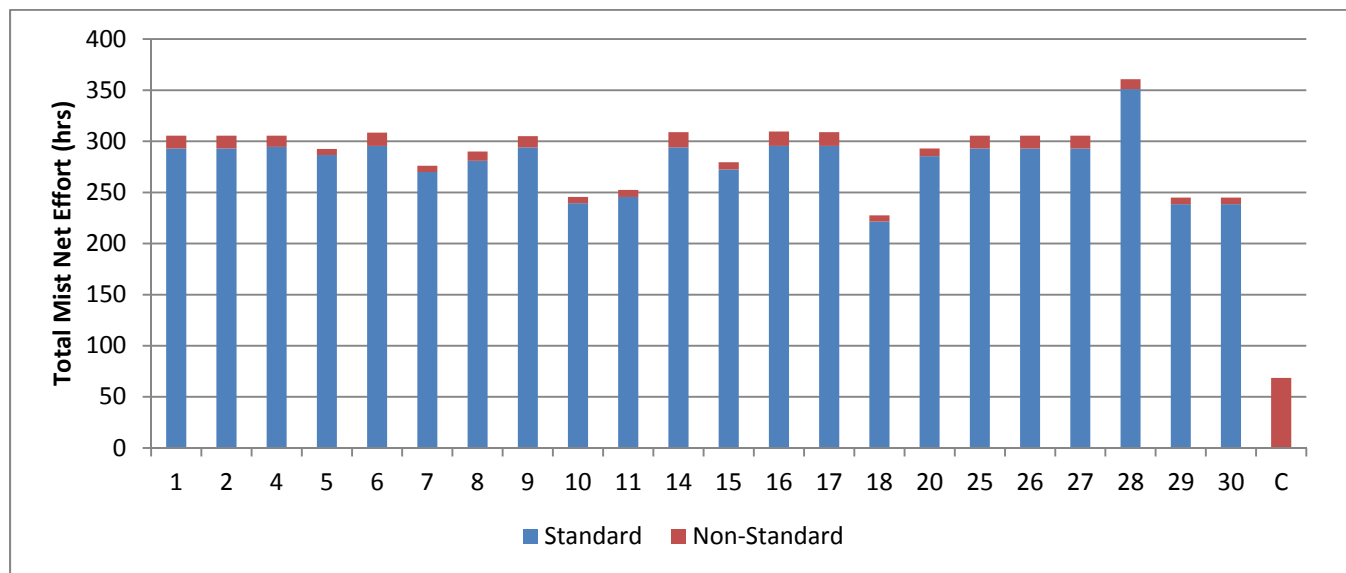
**Figure 2.** Summary of birds banded per day during the fall of 2014.

The 2014 banding total was very similar to 2013; however, when the amount of net hours are considered, the 2014 birds per net hour value (38.36 birds/100 net hours) was the highest since 2010 (Figure 3).



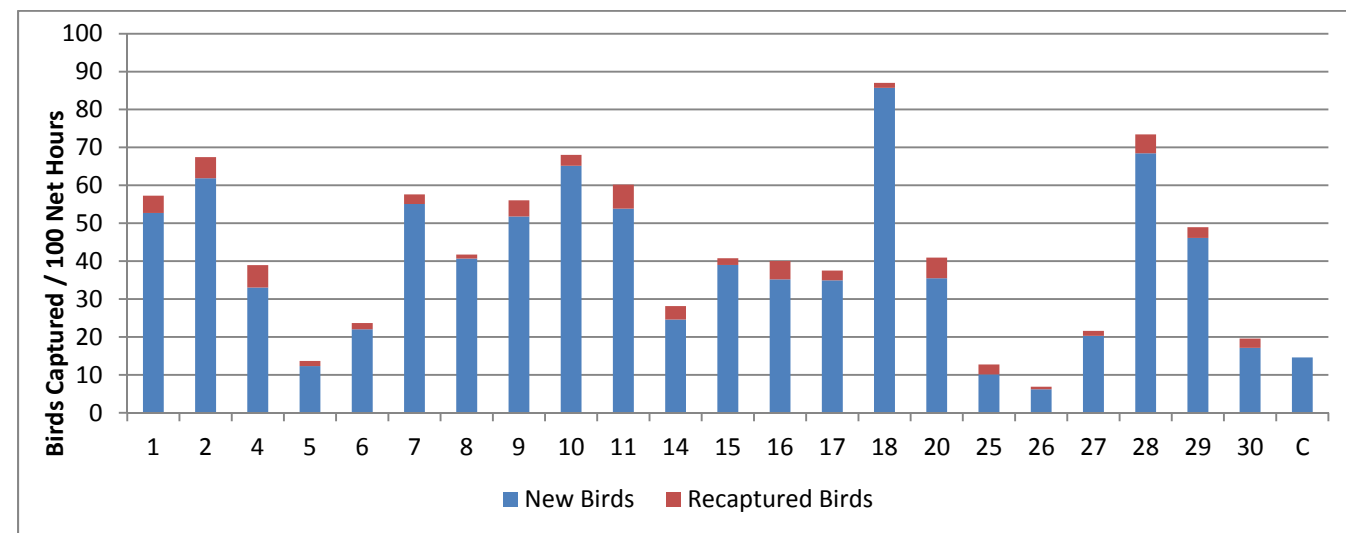
**Figure 3.** Summary of birds banded during the fall from 2008 to 2014.

The high level of consistency in effort across all standard mist nets (Figure 4) demonstrates the adherence to the observatory's monitoring protocol which indicates that effort should be consistent across all standard nets. Note that net 11 could not be used during the early portion of the season as the net lane was flooded and nets 7, 8, 10 and 18 are located directly on the lake shoreline and are occasionally closed due to wind. Net 28 is an 18 m net so would be expected to have 1.5 times the effort of all other nets; however, this net is also closed at times due to wind.



**Figure 4.** Summary of hours per mist net during the fall of 2014 (note net 28 is an 18 m net whereas all other nets are 12m).

The high capture success per unit effort 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 and 28 (Figure 5). This pattern is consistent with previous years although net 20 had considerably lower capture rates in 2014 as compared to previous years. 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 such as Swainson's Thrush and Varied Thrush which are not typically caught on the lakeshore. Mist net 'C' is a canopy net located near the bird processing area and is intended to serve as an operational trial for this type of set up.



**Figure 5.** Number of birds banded per mist net during the fall of 2014.

### 3.3 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.

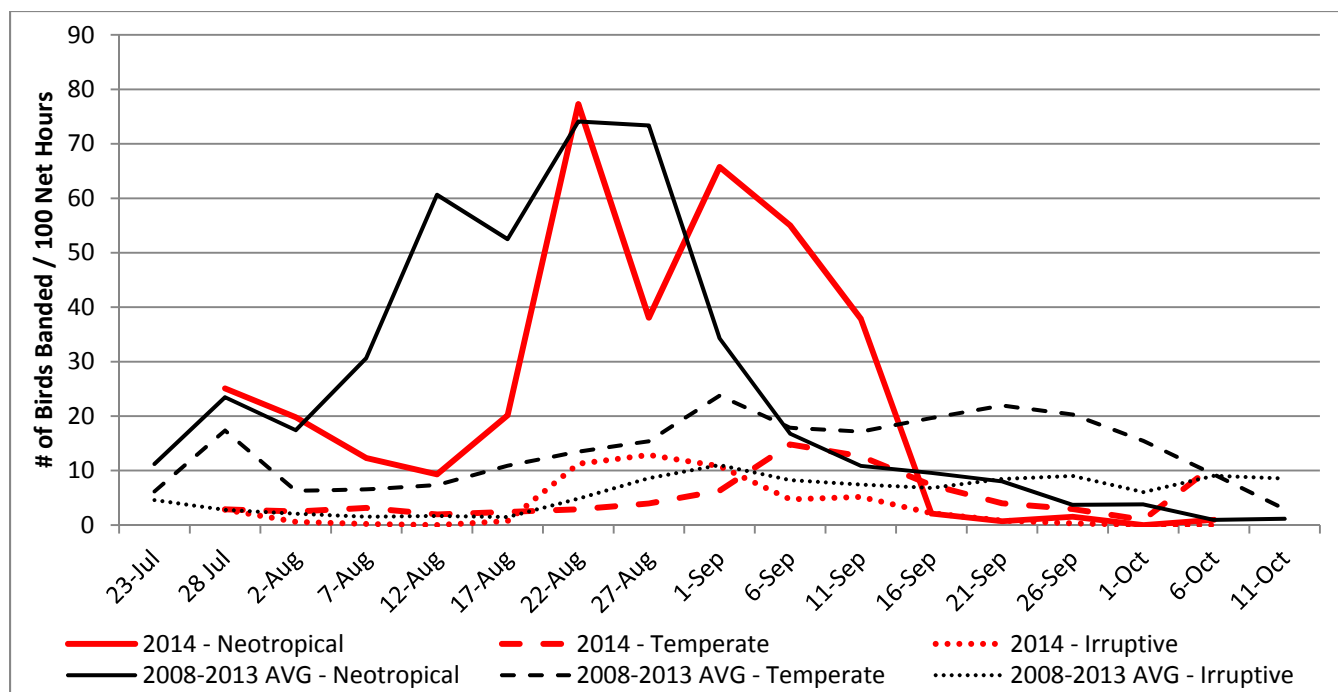
#### 3.3.1 Generalized Migration Timing

Generalized migration timing during 2014 as compared to the 2008 to 2013 average for temperate, neotropical and irruptive migrants/year round residents is presented in Figure 6. Generalized migration timing by species group during 2014 as compared to the average timing from 2008 to 2013.

. During 2014, the peak in fall migration occurred from late August through early September; this is later than the typical average of mid to late August. The lower captures of neotropical migrants during mid-August were very apparent; from August 10 to 14 was 9.3 birds/100 net hours compared to the long term average of 60.6 birds/100 net hours. Captures during this period were heavily influenced by Alder Flycatchers which appeared to migrant later than normal during 2014.

Temperate migrants typically migrate later than neotropical migrants and this was once again the case in 2013. The peak capture of temperate migrants occurred a week later during 2014 as compared to previous years. Captures of temperate migrants during this period are dominated by Ruby-crowned Kinglets and various species of sparrows.

Irruptive migrants banded during 2014 were dominated by Pine Siskins which were primarily captured between August 20 and September 5. The average timing of irruptive migrants is dominated by the high captures of chickadees in previous years which typically peaked in early September.



**Figure 6.** Generalized migration timing by species group during 2014 as compared to the average timing from 2008 to 2013.

### 3.3.2 Species Specific Migration Timing

Species specific migration timing was graphically compiled for 33 species using the daily species total data which incorporates the number of birds captured and observed on each day of operation. The full set of migration timing figures for the species listed below are shown in Appendix C. These species were chosen due to a sufficient number of days observed for each species.

- Red-throated Loon
- Pacific Loon
- Common Loon
- Horned Grebe
- Red-necked Grebe
- Greater White-fronted Goose
- Trumpeter Swan
- Tundra Swan
- Lesser Scaup
- Surf Scoter
- Northern Harrier
- Sharp-shinned Hawk
- Red-tailed Hawk
- Rough-legged Hawk
- Golden Eagle
- American Kestrel
- Mew Gull
- Herring Gull
- Thayer's Gull
- Arctic Tern
- Alder Flycatcher
- Ruby-crowned Kinglet
- American Robin
- Varied Thrush
- Bohemian Waxwing
- Orange-crowned Warbler
- Yellow Warbler
- Myrtle Warbler
- Wilson's Warbler
- Slate-colored Junco
- Rusty Blackbird
- Pine Siskin
- Common Redpoll

### 3.4 Band Repeats, Returns & Recoveries

The proportion of birds caught that had been previously banded at the site in 2014 (band repeats) was relatively low (4.4%) during the 2014 season (Table7), and is consistent with previous years (5.2% in 2013, 4.6% in 2012, 4.6% in 2011 and 4.7% in 2010). These results indicate that there continues to be a very high turnover of migrants through the study site, particularly for species banded in high numbers. For example, a total of 504 Alder Flycatchers were banded and only 1 individual (0.4 %) was recaptured on subsequent days. 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.

**Table 7.** Summary of band repeats during the 2014 fall season.

Species	# of Individuals Recaptured	% of 2014 Original Bandings	Maximum # of Days From Original Banding	Average # of Days From Original Banding
Belted Kingfisher	2	22.2	-	-
Alder Flycatcher	2	0.4	1	-
Warbling Vireo	1	8.3	-	-
Black-capped Chickadee	7	43.8	62	16.0
Ruby-crowned Kinglet	1	1.4	-	-
Gray-cheeked Thrush	1	10.0	-	-
Swainson's Thrush	2	4.1	-	-
Yellow Warbler	40	7.9	33	3.3
Myrtle Warbler	7	3.9	30	6.6
Blackpoll Warbler	3	4.9	4	2.0
American Redstart	6	24.0	29	11.7
Northern Waterthrush	14	29.2	26	8.7
Common Yellowthroat	4	4.9	2	1.25
Wilson's Warbler	6	3.7	2	1.3
American Tree Sparrow	1	4.5	-	-
Slate-colored Junco	13	9.3	38	12.5
TOTAL	111	4.4		

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 2014, the observatory had 9 band returns representing 4 species (Table8). The 2014 band returns likely represent individuals which breed near the observatory as indicated by the recapture dates that are relatively early during the season. An Alder Flycatcher originally banded as a hatch year bird on August 29, 2011 may have been a migrant individual. This individual is also the first band return to date for this species at the observatory.

**Table 8.** Summary of band returns during the 2014 fall season.

Species	Band Number	Banded		Recaptured
		Date	Age – Sex <sup>1</sup>	Date in 2014
Alder Flycatcher	2610-82248	29 Aug 2011	HY – U	8 Aug
Black-capped Chickadee	2560-33581	25 Jul 2013	ASY – U	27 Aug
Black-capped Chickadee	2560-33587	25 Jul 2013	HY – U	3 Aug
Black-capped Chickadee	2610-90865	29 Aug 2013	HY – U	25 Aug
American Redstart	2550-75629	28 Jul 2012	ASY – M	29 Jul
Yellow Warbler	2640-00162	20 Aug 2012	AHY – F	28 Jul
Yellow Warbler	2560-33598	26 Jul 2013	ASY – M	3 Aug
Yellow Warbler	2560-33653	30 Jul 2013	HY – F	28 Jul
Yellow Warbler	2610-90074	18 Aug 2013	AHY – M	22 Aug

<sup>1</sup> HY – hatch year, AHY – after hatch year, ASY – after second year; M – male, F – female, U – unknown.

Foreign band recoveries are a very infrequent event; to date the observatory has had four such recoveries and also recovered one bird from another location (Table 9). The longest distance band recovery to date was an Alder Flycatcher banded at Teslin Lake on August 24, 2009 and recaptured at Tacarcuna Nature Reserve in Colombia on April 29, 2011.

**Table 9.** Summary of foreign band recoveries at the observatory to date.

Species	Banded		Recovered	
	Location	Date	Location	Date
Yellow Warbler	Texas, USA	12 May 2008	Teslin Lake	9 September 2009
Alder Flycatcher	Teslin Lake	25 August 2008	SW Saskatchewan	12 June 2009
Sharp-shinned Hawk	Teslin Lake	14 August 2009	Boise, Idaho, USA	9 October 2010
Alder Flycatcher	Teslin Lake	24 August 2009	Sapzurro, Choco, Colombia	29 April 2011
Myrtle Warbler	Teslin Lake	7 September 2010	McIntyre Marsh Bird Banding Station – Whitehorse, YT	25 May 2013

### 3.5 Molt Scoring

As supplementary information, data was collected on the stage of molt for 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 as this provides information on the progress of molt in relation to migration timing for various species.

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 2014, a total of 157 molt scores were obtained from 134 individuals of 16 species (Table 10). This is a relatively high number of molt scores and is primarily due to the increased number of adult Yellow Warblers captured and subsequently molt scored.

**Table 10.** Summary of wing molt scores collected from adult birds during the 2014 season.

Species	Number of Individuals Scored	Total Number of Molt Scores
Belted Kingfisher	2	2
Black-capped Chickadee	4	8
Swainson's Thrush	1	1
Gray-cheeked Thrush	3	3
American Robin	1	1
Orange-crowned Warbler	2	2
Yellow Warbler	74	82
Myrtle Warbler	14	16
Townsend's Warbler	1	1
Blackpoll Warbler	5	5
American Redstart	6	8
Common Yellowthroat	6	6
Wilson's Warbler	5	5
American Tree Sparrow	1	1
Slate-colored Junco	4	8
White-winged Crossbill	1	1
TOTAL	134	157

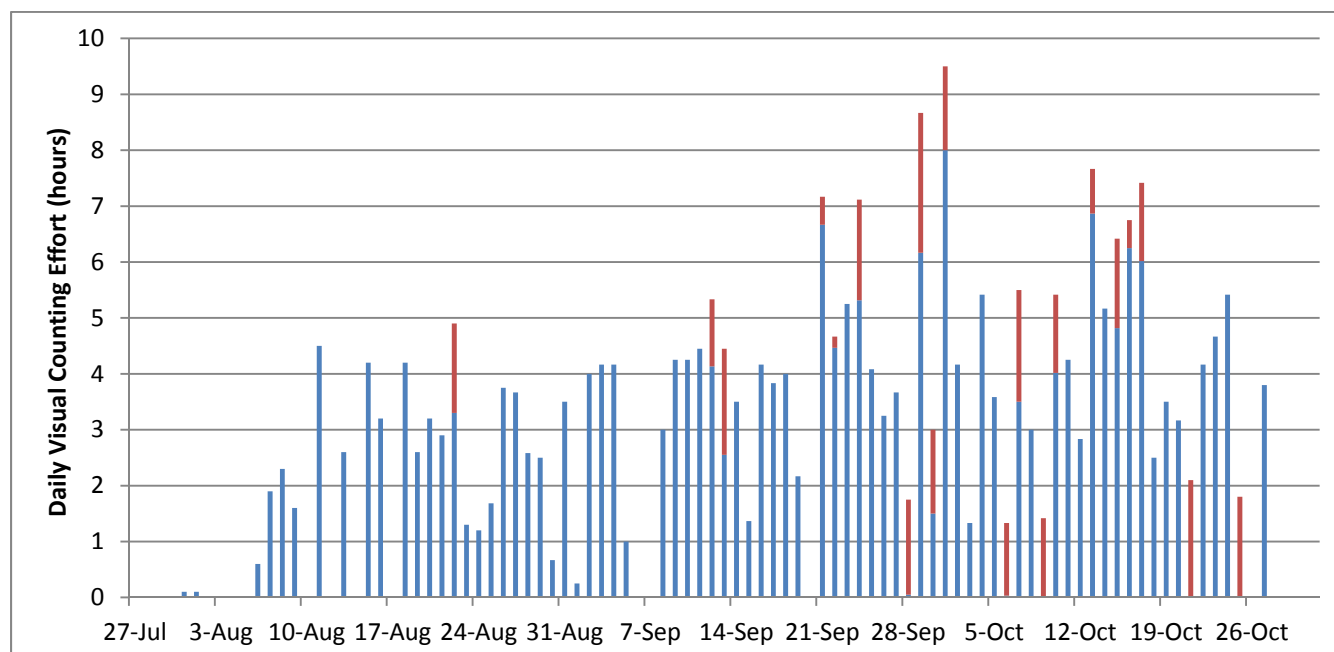
### 3.6 Visual Migration Counts

The visual migration counts provide a method of estimating relative numbers of individuals in the migrant species that would not be caught in mist nets. The counts are especially useful in observing raptors in migration and also serve as a method for monitoring waterbirds, waterfowl and some species of passerines. Note that birds seen during the migration counts which are not in active migration flight are not included in this section. Birds "in active migration flight" typically show a directed flight over the count area and do not appear to linger within the area.

During the fall 2014 season, visual migration counts (standard & nonstandard) were conducted for 279.0 hours (Figure 7). Non-standard counts were limited to days when the total amount of observing



effort was insufficient to constitute standard effort or to days where the allowable duration of standard effort was too high (i.e., extra effort).



**Figure 7.** Visual counting effort, in hours each day, over the duration of the 2014 season.

The highest number of visual migrants observed was during weeks 12 and 13 (October 8 to 21) due to a large movement of swans and redpolls. When considering the amount of watching effort (279.0 hours), the number of birds observed per hour during 2014 was only slightly above average (197 vs 187 birds per hour; Table 11). Most species groups of birds observed were in similar numbers to the long term average with the exception of waterbirds and shorebirds which were observed in record low numbers, about one third that were seen on average (Table 11). This is primarily due to the few migrant Pacific Loons observed; in all previous years, large numbers of these loons have elevated the number of waterbirds counted.

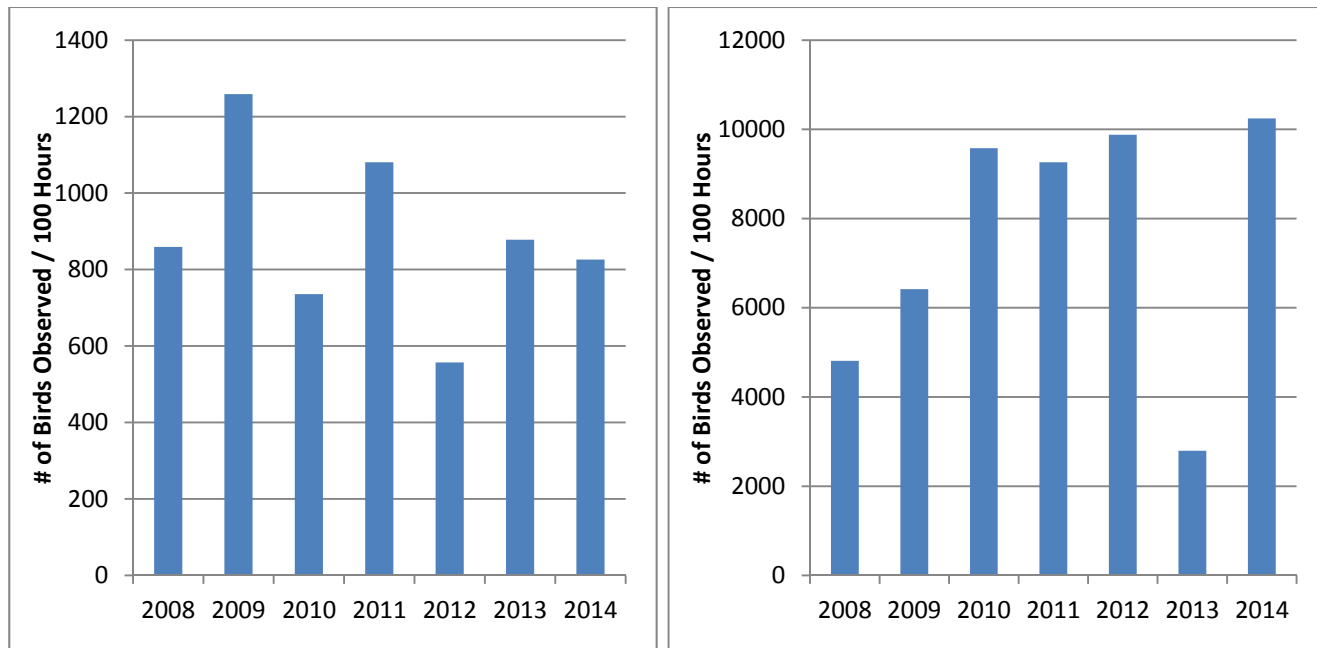
**Table 11.** Summary of birds observed on the visual migration counts from 2009 to 2014.

Group	2014	2013	2012	2011	2010	2009	2009-2014 Average
Waterbirds <sup>1</sup> & shorebirds	721	2,166	1,583	1,072	3,491	4,927	2,327
Waterfowl	28,556	7,852	35,044	31,548	22,258	8,219	22,246
Raptors	2,300	2,466	1,977	3,680	1,710	1,612	2,291
Passerines <sup>2</sup>	23,397	28,839	21,408	37,951	16,277	11,000	23,145
TOTAL BIRDS OBSERVED	54,974	41,323	60,012	74,251	43,736	25,758	50,009
TOTAL BIRDS OBSERVED / HR	197	147	169	218	188	201	187
Visual Counting Effort (hrs)	279.0	280.9	354.8	340.6	232.4	128.1	269

<sup>1</sup> Waterbirds include loons, grebes, gulls and cranes.

<sup>2</sup> Includes owls and woodpeckers.

There are, however, considerable differences between years in observational effort and some differences in the distribution of observational effort by week. Observations per hour for raptors and waterbirds show pretty normal results for 2014 compared to previous years (Figure 8). We provide additional detail in the following sections.



**Figure 8.** Number of raptors (left) and waterfowl (right) observed per 100 watching hours during 2014.

### 3.6.1 Waterbirds (loons, grebes, gulls)

We counted a total of 632 waterbirds of 12 species during 2014 including 126 loons, 67 grebes, 350 cranes and 89 gulls/terns/jaegers (Table 12). These numbers are considerably lower than previous years, particularly due to the relatively low number of loons observed on the visual migration counts. For example, only 68 Pacific Loons were observed in 2014 as compared to 1,312 in 2013. Most species of waterbirds 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).

**Table 12.** Summary of waterbird visual migrants observed during 2014.

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Red-throated Loon	28	0	28
Pacific Loon	68	0	68
Common Loon	15	1	16
Yellow-billed Loon	1	0	1
<i>Unidentified Loon</i>	12	1	13
Horned Grebe	8	2	10
Red-necked Grebe	57	0	57
Sandhill Crane	350	0	350
Mew Gull	18	8	26
Herring Gull	0	2	2
<i>Unidentified Large Gull</i>	12	2	14
Glaucous Gull	1	0	1
Bonaparte's Gull	4	7	11
Arctic Tern	35	0	35
<b>TOTAL</b>	<b>609</b>	<b>23</b>	<b>632</b>

### 3.6.2 Waterfowl (geese, swans and ducks)

As in previous years, the visual migration counts were an effective and efficient way to monitor waterfowl migration. Although in some cases, portions of the large flocks of swans and/or geese were left as unidentified, most species were identified to species. We counted a total of 29,973 waterfowl during 2014 including 6,966 geese, 19,121 swans and 3,886 ducks (Table 13). The numbers of geese and swans observed was relatively high compared to previous years. Among the geese observed, Greater White-fronted Goose accounted for just over half of all individuals. In terms of swans, Tundra Swans were more common than Trumpeter Swans and accounted for 93% of the swans identified to species. The top 6 duck species observed included the following: Mallard (15% of all ducks), Lesser Scaup (14%), American Wigeon (9%), Northern Shoveler (9%), Surf Scoter (8%) and Northern Pintail (6%).

**Table 13.** Summary of waterfowl visual migrants observed during 2014.

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Greater White-fronted Goose	3,379	441	3,820
Snow Goose	253	0	253
Canada Goose	603	13	616
<i>Unidentified Goose</i>	2,265	12	2,277
Trumpeter Swan	1,217	38	1,255
Tundra Swan	16,068	453	16,521
<i>Unidentified Swan</i>	1,343	2	1,345
American Wigeon	317	16	333
Mallard	571	40	611
Northern Shoveler	332	0	332
Northern Pintail	203	20	223
American Green-winged Teal	44	42	86
<i>Unidentified Dabbling Duck</i>	80	12	92
Canvasback	140	0	140
Redhead	4	0	4
Ring-necked Duck	1	0	1
Greater Scaup	135	2	137
Lesser Scaup	543	6	549
<i>Unidentified Scaup</i>	379	0	379
Harlequin Duck	4	0	4
Surf Scoter	198	21	319
White-winged Scoter	205	0	205
Long-tailed Duck	13	0	13
Bufflehead	24	0	24
Common Goldeneye	37	0	37
Barrow's Goldeneye	3	0	3
<i>Unidentified Goldeneye</i>	15	2	17
Common Merganser	103	0	103
Red-breasted Merganser	17	5	22
<i>Unidentified Duck</i>	60	192	252
<b>TOTAL</b>	<b>28,556</b>	<b>1,317</b>	<b>29,973</b>

When possible, we recorded the age of visual migrants. In the case of swans this is possible due to the darker colouration of the juveniles. For both species of swans, a substantially lower proportion of adults were observed in relation to juveniles in 2014 as compared to previous years (Table 14).

**Table 14.** Summary of age breakdown for swans observed on the visual migration counts from 2011 to 2014 (individuals unclassified to adult or juvenile are excluded from the proportions).

Species	Year	Proportion of Individuals Observed (%)	
		Adult	Juvenile
Trumpeter Swan	2011	82.5	17.5
	2012	82.9	17.1
	2013	98.0	2.0
	2014	65.9	34.1
Tundra Swan	2011	88.2	11.8
	2012	85.0	15.0
	2013	92.9	7.1
	2014	75.0	25.0

### 3.6.3 Raptors

As a group, most species of raptors are well monitored by the visual migration counts. In 2014, we counted a total of 2,338 raptors during the visual counts and as incidental “other visual migrants” representing 14 species (Table 15). The most numerous species observed was Red-tailed Hawk (24% of all raptors), Sharp-shinned Hawk (23%), Golden Eagle (13%), Northern Harrier (11%), Rough-legged Hawk (9%) and American Kestrel (7%).

**Table 15.** Summary of raptor visual migrants observed during 2014.

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Bald Eagle	90	0	90
Northern Harrier	241	13	254
Sharp-shinned Hawk	516	12	528
Northern Goshawk	26	0	26
Swainson’s Hawk	13	0	13
Red-tailed Hawk	554	2	556
Rough-legged Hawk	204	2	206
<i>Unidentified Buteo</i>	34	1	35
Golden Eagle	293	0	293
<i>Unidentified Eagle</i>	4	0	0
American Kestrel	170	3	173
Merlin	67	0	67
Gyr Falcon	1	1	1
Peregrine Falcon	30	4	34
<i>Unidentified Falcon</i>	1	0	1
Turkey Vulture	1	0	1
Osprey	50	1	51
<i>Unidentified Large Raptor</i>	5	0	5
<b>TOTAL</b>	<b>2,300</b>	<b>38</b>	<b>2,338</b>

A breakdown of color morph data collected from 2010 to 2014 is shown in Table 16 and Table 17 for Rough-legged and Red-tailed hawks, respectively. The majority of Rough-legged Hawk observed were classified as light morph individuals. By far the most common Red-tailed Hawk was the Harlan's dark morph, while the Harlan's light morph was the second most common. The observation of seven possible western Red-tails and 3 eastern Red-tails are very significant as there are very few sightings of these forms in the Yukon; many of the Yukon's records are from the Teslin Lake Bird Observatory.

**Table 16.** Summary of color morph data recorded for Rough-legged Hawks observed on visual migration counts from 2010 to 2014. Note that additional individuals with an undetermined color morph are excluded.

Year	Dark Morph (%)	Light Morph (%)
2010	21.7	78.3
2011	13.5	86.5
2012	18.8	81.2
2013	11.1	88.9
2014	11.8	88.2

**Table 17.** Summary of color morph data recorded for Red-tailed Hawks observed on visual migration counts from 2010 to 2014. Note that additional individuals with an undetermined color morph are excluded.

Year	Harlan's Dark Morph	Harlan's Light Morph	Western Dark Morph	Western Light Morph	Western (Color Undetermined)	Eastern
2010	95.1	4.3	0.5 (2 birds)			-
2011	95.0	4.6	0.1 (1 bird)	0.1 (1 bird)		0.2 (2 birds)
2012	92.0	7.1	0.3 (1 bird)	-		0.6 (2 birds)
2013	88.4	10.3	0.6 (3 birds)	-		0.6 (3 birds)
2014	91.3	7.1	0.7 (4 birds)		0.3 (2 birds)	0.5 (3 birds)

We could reliably determine the age and sex of five species of visual migrants when viewing conditions were suitable (Table 18). Over the 5 years, Red-tailed Hawks show consistently low proportions of juveniles of the five raptor species where we obtained age info from the sightings, and Golden Eagles show low proportions of juveniles and immatures in the past two years.

**Table 18.** Summary of age and sex data collected for raptors observed on visual migration counts from 2010 to 2014. Note that additional individuals with an undetermined color morph age/sex categories are excluded.

Species	Year	Proportion of Individuals Counted (%)							
		Adult			Sub - adult	Immature	Juvenile	Female Plumaged (juv/female)	Not Determined
		Male	Female	Not Determined					
Bald Eagle	2010	-	-	42.3	32.1	11.6	14.1	-	
	2011	-	-	14.7	37.3	33.3	14.7	-	
	2012	-	-	54.3	33.7	12.0	0.0	-	
	2013	-	-	28.2	58.3	6.3	7.3	-	
	2014	-	-	35.6	40.2	11.5	12.6	-	
Golden Eagle	2010	-	-	68.2	12.6	8.3	10.9	-	
	2011	-	-	52.3	18.7	18.0	11.0	-	
	2012	-	-	74.5	9.2	12.3	4.1	-	
	2013	-	-	63.7	26.7	5.0	4.6	-	
	2014	-	-	77.3	8.5	7.8	6.4	-	
Northern Harrier	2010	11.3	12.2	-	-	-	37.1	39.3	
	2011	8.9	10.7	-	-	-	26.5	53.9	
	2012	13.9	13.1	-	-	-	26.4	46.6	
	2013	12.0	14.3	-	-	-	22.3	51.5	
	2014	16.4	16.4	-	-	-	19.5	47.7	
Rough-legged Hawk	2010	38.0	23.0	11.5	-	-	27.6	-	
	2011	28.3	37.1	21.0	-	-	15.2	-	
	2012	25.7	25.7	18.9	-	-	30.1	-	
	2013	28.9	35.6	17.1	-	-	18.6	-	
	2014	24.6	33.9	15.4	-	-	26.1	-	
Red-tailed Hawk <sup>1</sup>	2013	-	-	94.0	-	-	6.0	-	
	2014	-	-	89.3	-	-	10.7	-	

### 3.6.4 Shorebirds

We recognize that, as a group, shorebirds are not well monitored at this observatory due to the relatively low numbers of individuals observed (Table 19). In 2014, we counted a total of only 66 shorebirds of seven species. This information can easily continue to be collected as incidental observations when counting other species (raptors, waterfowl, etc).

**Table 19.** Summary of shorebird visual migrants observed during 2014.

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Black-bellied Plover	28	0	28
Semi-palmated Plover	2	7	9
Sanderling	2	0	0
Least Sandpiper	0	1	1
<i>Unidentified Small Sandpiper ('peep')</i>	4	1	5
Pectoral Sandpiper	3	0	3
Long-billed Dowitcher	2	0	2
Red-necked Phalarope	16	0	16
<i>Unidentified Shorebird</i>	2	-	2
<b>TOTAL</b>	<b>59</b>	<b>9</b>	<b>66</b>

### 3.6.5 Owls, Woodpeckers and Passerines

A wide variety of passerines (23,509 individuals of 43 species) were counted during the 2014 visual migration counts (Table 20). A very large proportion of the passerines observed were large thrushes (American Robin, Varied Thrush, unidentified), Rusty Blackbirds, 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.

For most passerines, standard mist netting/banding provide a primary component of the daily species total; however, can also be supplemented by the visual migration counts. For some 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 counts likely provide 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.

**Table 20.** Summary of owls, woodpecker and passerine visual migrants observed during 2014.

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Northern Hawk Owl	2	0	2
Common Nighthawk	1	0	1
Belted Kingfisher	3	0	3
Downy Woodpecker	2	0	2
Hairy Woodpecker	0	1	1
American Three-toed Woodpecker	18	2	20
Northern Flicker	4	0	4
<i>Unidentified Woodpecker</i>	8	0	8
Olive-sided Flycatcher	1	0	1
<i>Unidentified Large Flycatcher</i>	1	0	1
Say's Phoebe	3	0	3
Tree Swallow	0	8	8
Bank Swallow	249	57	306
Cliff Swallow	38	28	66
Barn Swallow	11	3	14
<i>Unidentified Swallow</i>	276	0	276
Boreal Chickadee	0	1	1
Red-breasted Nuthatch	3	0	3
American Dipper	1	0	0
Mountain Bluebird	5	0	5
Townsend's Solitaire	32	2	34
<i>Unidentified Catharus Thrush</i>	1	0	1
American Robin	1,131	4	1,135
Varied Thrush	877	0	877
<i>Unidentified Large Thrush</i>	1,860	0	1,860
American Pipit	206	55	261
Bohemian Waxwing	691	14	705
<i>Unidentified Waxwing</i>	1	0	1
Lapland Longspur	38	3	41
Snow Bunting	1	0	1
Orange-crowned Warbler	3	2	5
Yellow Warbler	46	7	53

Species	Total # Counted		
	Migration Counts	Incidental Migrants	TOTAL
Myrtle Warbler	787	23	510
Blackpoll Warbler	12	4	16
Northern Waterthrush	2	0	2
<i>Unidentified Warbler</i>	99	7	106
American Tree Sparrow	2	0	2
Chipping Sparrow	0	10	10
Savannah Sparrow	6	2	8
Fox Sparrow	1	0	1
Slate-colored Junco	48	0	48
<i>Unidentified Sparrow</i>	11	0	11
Rusty Blackbird	343	7	350
Pine Grosbeak	301	0	301
Purple Finch	0	1	1
Red Crossbill	24	11	35
White-winged Crossbill	72	27	99
<i>Unidentified Crossbill</i>	4	0	4
Pine Siskin	1,217	38	1,255
Common Redpoll	10,030	48	10,079
Evening Grosbeak	3	0	3
<i>Unidentified Small Finch</i>	1,609	5	1,614
<i>Unidentified Small Passerine</i>	3,313	13	3,326
<b>TOTAL</b>	<b>23,426</b>	<b>385</b>	<b>23,509</b>

### 3.7 Lake Counts

The lake counts provide monitoring data for various species of loons, grebes, waterfowl and gulls/terns/ jaegers. The majority of loons and grebes counted at the observatory are observed on the lake counts and this was once again the case during 2014 with a total of 535 loons and 1,381 grebes observed (Table 21). Geese and swans were observed in very low numbers during the lake counts; these species are typically observed flying over the site only (i.e. are visual migrants). However, for some duck species (scoters and mergansers), the lake counts recorded data to supplement the visual migration counts (Table 21). Only small numbers of dabbling and diving ducks were seen mostly due to scarcity of suitable stopover and feeding habitats near the observatory. As a group, gulls, terns and jaegers are well monitored through the use of the lake counts; species of this group are the most commonly recorded birds using this method. Herring Gulls in particular were observed in high numbers during 2014 with over 2,000 bird days counted (Table 21).



**Table 21.** Summary of waterbirds (left) and waterfowl (right) observed on the lake counts during 2014. One bird day represents observed one individual on one day; two bird days could represents single birds on two days or two birds on the same day.

Species	Total # of Bird Days	Species	Total # of Bird Days
Red-throated Loon	118	Greater White-fronted Goose	1
Pacific Loon	199	Canada Goose	100
Common Loon	215	Trumpeter Swan	37
Yellow-billed Loon	3	Tundra Swan	443
Horned Grebe	94	<i>Unidentified Swan</i>	27
Red-necked Grebe	1,287	American Wigeon	16
Mew Gull	191	Mallard	106
Herring Gull	2,063	Northern Shoveler	5
Thayer's Gull	98	Northern Pintail	14
<i>Unidentified Large Gull</i>	21	American Green-winged Teal	7
Glaucous Gull	2	Greater Scaup	1
Bonaparte's Gull	13	Lesser Scaup	2
Sabine's Gull	1	Harlequin Duck	1
Black-legged Kittiwake	2	Surf Scoter	297
Arctic Tern	284	White-winged Scoter	19
Parasitic Jaeger	39	<i>Unidentified Scoter</i>	5
		Long-tailed Duck	42
		Bufflehead	1
		Common Goldeneye	34
		Barrow's Goldeneye	11
		<i>Unidentified Goldeneye</i>	16
		Common Merganser	143
		Red-breasted Merganser	130
		<i>Unidentified Merganser</i>	10
		<i>Unidentified Duck</i>	58
<b>TOTAL</b>	<b>4,630</b>	<b>TOTAL</b>	<b>1,526</b>

### 3.8 Special Projects

#### 3.8.1 Owl Banding

Call playback was used to target owls on 10 evenings (297.3 net hours) and a total of 40 Boreal Owls and two Northern Saw-whet Owls were banded (Table 6). The capture rate of Boreal Owls was considerably higher at the 'Cottage Lots Gravel Pit' (25.0 individuals/100 net hours) as compared to the standard count area at the observatory where the captured rate was 4.2 individuals/100 net hours. This may be due to the Gravel Pit site being located in more suitable habitat for Boreal Owl (coniferous forest). The capture of two hatch year Northern Saw-whet Owls is of interest as this species is considered to be a rare species in the Yukon. Incidental captures of other birds while owl banding included two Swainson's Thrush and one Varied Thrush at the Gravel Pit site on August 28. The results of the 2014 owl banding project indicate that there may be potential for a continuation or expansion of this project in the future in coniferous forest sites.

**Table 6.** Summary of 2014 owl banding results.

Site	Species	Date										TOTAL
		16 Aug	21 Aug	28 Aug	5 Sep	8 Sep	14 Sep	22 Sep	23 Sep	7 Oct	14 Oct	
Standard Count Area	Total Net Hours	-	-	17.5	15.0	20.0	24.0	40.3	36.5	12.0	-	165.3
	Boreal Owl	-	-	0	0	5	1	1	0	0	-	7
	Northern Saw-whet Owl	-	-	0	0	0	0	1	0	0	-	1
Cottage Lots Gravel Pit	Total Net Hours	16.0	12.0	18.0	-	18.0	16.0	18.0	20.0	7.0	7.0	132.0
	Boreal Owl	4	2	2	-	3	4	6	7	1	4	33
	Northern Saw-whet Owl	0	0	0	-	0	0	0	1	0	0	1
Both Sites Combined	Total Net Hours	16.0	12.0	35.5	15.0	38.0	40.0	58.3	56.5	19.0	7.0	297.3
	Boreal Owl	4	2	2	0	8	5	7	7	1	4	40
	Northern Saw-whet Owl	0	0	0	0	0	0	1	1	0	0	2

### 3.8.2 Woodpecker Banding

No woodpeckers were captured through the use of call playback during 7.0 hours of effort 2014. The very low success was likely due to our limited effort, as well as low numbers of woodpeckers present at the site. It may be useful to conduct trials in another location where there is more dense vegetation and mature balsam poplar, pine and spruce trees, perhaps to the east of net 20.

## 3.9 Interesting & Notable Captures / Observations

The vast majority of birds banded and observed at Teslin Lake in 2013 were species which are common and widespread north and west of the study site. 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, and some interesting patterns are outlined in the following sections

### Swainson's Hawk

Prior to the start of visual migration counts at the observatory in 2008, fall records of this species in the Yukon were very sparse. Since the start of visual migration counts, the species has been documented annually at the observatory in low numbers. In 2014, a total of 13 individuals were counted on 5 days from August 26 to September 12 with a high count of 5 on September 2. The number of individuals observed in previous years has included; 3 – 2013, 12 – 2012, 23 – 2011, 10 – 2010, 17 – 2009 and 3 – 2008. This species appears to be a relatively early migrant compared to other raptor species with over 90% recorded before September 5.

### Turkey Vulture

A single Turkey Vulture observed during the visual migration watch on September 24 constituted the first record of this species at the observatory. This species is observed infrequently in the Yukon and is now observed almost annually in the territory.

### Glaucous Gull

An arctic nesting gull species, Glaucous Gull has also been observed at the site annually since the fall of 2008 with a total of 64 records to date (Table 7).

**Table 7.** Summary of Glaucous Gull observations from 2008 to 2014.

Year	Number of Days Observed	Total Bird Days	First Date Observed	Last Date Observed
2014	3	3	September 23	October 2
2013	13	13	August 27	September 19
2012	29	29	August 18	October 26
2011	13	13	September 16	October 24
2010	2	2	October 4	October 18
2009	2	2	August 1	August 29
2008	2	2	August 27	September 19
ALL	64	64	August 1	October 26

### 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. To date, there are 35 records of this species at the observatory with a high count of 14 bird days during 2013 (Table 8).

**Table 8.** Summary of Sabine's Gull observations from 2008 to 2014.

Year	Number of Days Observed	Total Bird Days	First Date Observed	Last Date Observed
2014	1	1	September 4	-
2013	11	14	August 26	September 5
2012	3	3	September 14	September 27
2011	8	8	September 24	October 24
2010	2	2	September 30	October 11
2009	2	4	August 27	August 29
2008	2	3	September 2	September 4
ALL	29	35	August 26	October 24

### Black-legged Kittiwake

A single adult plumaged Black-legged Kittiwake was observed on October 9 and 10 (presumably the same individual). These sightings constitute the second and third records at the observatory with the first record being on September 25, 2010. Other than these sightings, there are four other records of this species from the southern Yukon, although this species is somewhat regular off the Yukon's north coast.

### 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. The number of individuals observed during 2014 was slightly above the average of 38 bird days but below the high of 72 bird days in 2008 (Table 9). To date, the majority of individuals observed have been light morph adults; however, a small number of dark morph birds have also been seen.

**Table 9.** Summary of Parasitic Jaeger observations from 2008 to 2014.

Year	Number of Days Observed	Total Bird Days	First Date Observed	Last Date Observed
2014	21	39	August 6	September 27
2013	25	53	August 24	September 23
2012	21	35	August 8	October 1
2011	9	12	September 2	October 11
2010	20	37	September 1	October 15
2009	11	16	August 24	September 25
2008	28	72	August 7	September 24
ALL	135	264	August 8	October 15

### Yellow-bellied Flycatcher

Yellow-bellied Flycatcher is likely the least understood *Empidonax* flycatcher in the Yukon in terms of distribution and abundance. 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 with a median date of August 15 (Table 10).

**Table 10.** Summary of Yellow-bellied Flycatchers banded from 2008 to 2014.

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
2013	11	0	August 11	August 26
2014	2	1	July 30	August 15
TOTAL	56	3	July 29	September 4

### Dusky Flycatcher

Dusky Flycatcher 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 11). During 2014, a total of 4 juveniles were banded bringing the all-time banding total to 26 individuals in fall; nearly all of which have been juveniles.

**Table 11.** Summary of Dusky Flycatchers banded from 2008 to 2014.

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
2013	3	0	August 23	September 12
2014	4	0	August 6	September 13
TOTAL	24	2	August 1	September 30

### Winter/Pacific Wren

A hatch year Winter/Pacific Wren banded at the observatory on September 22 constituted the first banding record at the current location and the second record for the station, the first of which was on July 28, 2011. Note that a Winter Wren banded during the spring of 2005 when the station was located on Nisutlin Bay was not classified as a Winter or Pacific wren as this occurred before this species was split. The individual banded during 2014 could not be determined to species although given the geographic location (proximity to the coast), it was most likely a Pacific Wren. The majority of records of Pacific/Winter wrens in the Yukon have been determined to be Pacific Wren based on characterization of vocalizations.

### American Dipper

We saw a single American Dipper fly past the bird observatory while conducting the visual migration count on the final day of the season (October 27). This was the first record of this species at the site and although it may be found in appropriate habitat, its occurrence at the observatory was unexpected. During the breeding season, this species is typically found along small mountain streams and during the winter months, it typically migrates to open water areas found in lower elevations. The creek which forms the north boundary of the observatory count area (Ten Mile Creek) may provide suitable habitat for this species and it may be that this individual originated from this area.

### 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, 203 individuals have been banded at the station in fall, of which 155 were juveniles (Table 12). 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 2014, the species was observed on 23 days (48 bird days) from July 28 to September 5 and a total of 25 individuals (23 juvenile, 2 adult) were banded.

**Table 12.** Summary of American Redstarts banded at the observatory from 2008 to 2014.

Year	# of Days Observed	# of Bird Days	# Banded		Early Date <sup>1</sup>	Late Date	High Count
			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
2010	24	47	25	5	16 Jul	6 Sep	6 – 26 Jul
2011	36	137	28	12	16 Jul	26 Sep	10 – 30/31 Jul
2012	28	66	12	10	22 Jul	16 Sep	8 – 5 Aug
2013	30	62	28	5	25 Jul	11 Sep	4 – 25/29 Jul
2014	23	48	23	2	28 Jul	5 Sep	6 – 31 Jul
TOTAL	180	474	155	48	16 Jul	26 Sep	-

<sup>1</sup> Note that during 2008 and 2009, the observatory did not begin fall migration monitoring until August 7 and August 1, respectively.

### Evening Grosbeak

A new species for the observatory, three Evening Grosbeaks were observed during the visual migration watch on October 15. This species is encountered almost annually in the southern Yukon; however, it is more common in the southeast Yukon. Although based on limited observations, there is evidence to suggest that this species used to be more common in the Yukon.

### 3.9.1 Chickadees

Chickadees are considered year-round residents, but the observatory has documented Boreal Chickadee irruptions in four of the last seven years with variation in the magnitude of irruptions between years (Table 13). The high number of individuals banded and observed in some years 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. Also note that Black-capped Chickadee is the only chickadee species which breeds within the study site and therefore a number of the individuals banded are probable local residents/offspring.

**Table 13.** Summary of chickadees banded and observed at the observatory from 2008 to 2014.

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	-	-
2013	# Banded	24	33	-	-	-
	# of Bird Days	40	209	1	-	-
2014	# Banded	3	16	-	-	-
	# of Bird Days	9	157	-	-	-

### 3.10 Rusty Blackbirds

In conjunction with the other Yukon Bird Observatories field stations, all Rusty Blackbirds captured were fitted with a color band (light blue) in addition to the regular numbered leg band. As each observatory 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 2014, 10 individuals were banded (9 hatch year, 1 after hatch year).

### 3.11 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 2014, the observatory hosted two new long term volunteers, Ariel Lenske and Sarah Nagal. Qualified volunteers such as Ariel and Sarah are necessary to allow for the observatory to be successful over the long term. During 2014, the observatory recorded a total of 1,441 hours of observer effort (paid and volunteer) by 16 individuals. A total of 84 individuals visited the observatory and tallied a total of 121 visitor hours. 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). 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.

Visitors to the observatory of note during 2014 included a Y2C2 (Yukon Youth Conservation Corps) group for two days in late July to assist with observatory setup. The Teslin Renewable Resources Council also hosted a community barbeque and banding demonstration on September 4, 2014. A total of 38 individuals visited the observatory on this date included 3 school groups from Teslin School.

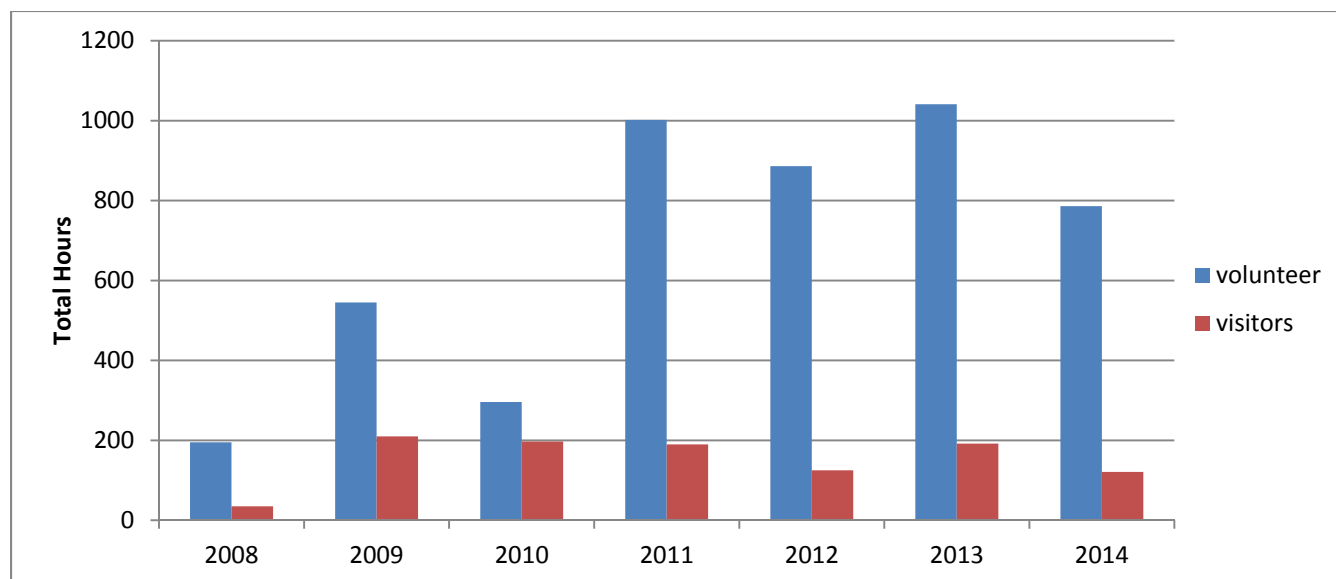
**Table 14.** Hours spent at the observatory by volunteers and paid observers during 2014.

Paid		Volunteer	
# of Individuals	Hours	# of Individuals	Hours
6	654.7	10	786.25

**Table 15.** Hours spent at the observatory by visitors during 2013.

Locals		Yukon		Canada		USA		Other International	
#	Hours	#	Hours	#	Hours	#	Hours	#	Hours
37	90.5	10	20	11	7.5	20	16.75	4	3.75

In comparison to previous years, the total number of volunteer hours was above average but lower than the previous 3 years (Figure 9). The total visitor hours were slightly below average but similar to previous years.



**Figure 9.** Volunteer and visitor hours at the observatory from 2008 to 2014.



## 4.0 Conclusion

The results from the operation of the Teslin Lake Bird Observatory in 2014 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 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 six years of fall migration monitoring at the observatory, the ability to monitor songbirds has been well demonstrated by the large 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 within each season.

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. The raptors are a primary focus of these counts as these species are readily observed and identified from a distance. The ability to collect data on ages and color morphs of these species make this data even more valuable.

Over the long term, the data collected at the observatory will be used to calculate species trends 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 for at least 10 years (until 2017) and continue monitoring using standardized methods (i.e., follow the monitoring protocol) that are consistent with what has been done during the previous six years.

The observatory continues to be successful in attracting members of the public to the observatory to learn about birds and bird migration. During 2014, a Y2C2 (Yukon Youth Conservation Corps) team 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.

## **4.1 Recommendations**

The following list summarizes a number of recommendations for the future operation of the Teslin Lake Bird Observatory.

- Continue standardized monitoring to allow for the future analysis of species trends.
- Continue the owl banding program with more regular and frequent effort.
- Continue to expand species specific banding projects at the observatory, particularly for species such as woodpeckers and potentially raptors which are under captured in the standard mist nets.
- Work with project partners to build an interpretive sign in the adjacent campground to attract camp ground visitors to the observatory,
- Make efforts to attract additional qualified volunteers to assist with activities at the observatory.
- Make efforts to diverse the funding base for the bird observatory to ensure long term operation.

## **Appendix A – Species Checklist**

**Table A1.** 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	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	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					✓		✓	✓		✓	✓	✓	✓	✓	-	-	-
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							✓			✓	✓	✓	✓	✓	-	-	-

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall	Fall	Fall			
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	6	14	3	87	90
Northern Goshawk							✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Swainson's Hawk							✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Red-tailed Hawk			✓				✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Rough-legged Hawk							✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Golden Eagle							✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
American Kestrel	✓						✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Merlin					✓		✓	✓	✓	✓	2	1	✓	✓	-	3	3
Gyr Falcon									✓	✓		✓		✓	-	-	-
Peregrine Falcon					✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Turkey Vulture														✓	-	-	-
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	2	1	-	19	19
Wandering Tattler										✓					-	-	-
Spotted Sandpiper	1		2		1		1	✓	✓	1	2	✓	1	✓	5	4	9
Upland Sandpiper													✓		-	-	-
Black Turnstone												✓			-	-	-

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall	Fall	Fall			
Sanderling								✓	✓	✓	✓	✓		✓	-	-	-
Semipalmated Sandpiper								✓	✓	✓	✓	✓	✓		-	-	-
Western Sandpiper											✓				-	-	-
Least Sandpiper					✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Baird's Sandpiper							✓	✓	✓		✓		✓		-	-	-
Pectoral Sandpiper					✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Stilt Sandpiper													✓		-	-	-
Short-billed Dowitcher							✓								-	-	-
Long-billed Dowitcher								✓	✓	✓	✓	✓		✓	-	-	-
Wilson's Snipe	✓		✓		✓		1	1	1	✓	✓	✓	✓	1	1	3	4
Red-necked Phalarope									✓	✓	✓	✓	✓	✓	-	-	-
Little Gull										✓	✓				-	-	-
Mew Gull	✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
California Gull										✓		✓			-	-	-
Herring Gull	✓		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Thayer's Gull								✓	✓	✓	✓	✓	✓	✓	-	-	-
Glaucous-winged Gull										✓	✓				-	-	-
Glaucous Gull								✓	✓	✓	✓	✓	✓	✓	-	-	-
Bonaparte's Gull	✓		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Sabine's Gull								✓	✓	✓	✓	✓		✓	-	-	-
Black-legged Kittiwake										✓				✓	-	-	-
Arctic Tern	✓		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Parasitic Jaeger								✓	✓	✓	✓	✓	✓	✓	-	-	-
Long-tailed Jaeger													✓		-	-	-
Great Horned Owl								✓	✓	✓	✓			✓	-	-	-
Northern Hawk Owl									✓	✓	✓	✓	✓	✓	-	-	-
Short-eared Owl			✓							✓	✓	✓			-	-	-
Boreal Owl											4			40	-	44	44
Northern Saw-whet Owl														2	-	2	2
Common Nighthawk								✓	✓	✓	✓		✓	✓	-	-	-
Pacific Swift										✓					-	-	-
Rufous Hummingbird					✓										-	-	-
Belted Kingfisher	✓		✓	8	✓		✓	8	6	5	6	6	2	9	-	50	50
Yellow-bellied Sapsucker	2		2		2		1		✓		3	1	1		7	5	12

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall	Fall	Fall			
Downy Woodpecker	✓		✓					2	1	3	7			1	-	14	14
Hairy Woodpecker	2		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	2	-	2
Three-toed Woodpecker	✓							✓	✓	✓	✓	✓	1	✓	-	1	1
Black-backed Woodpecker								✓	✓	✓	✓	✓	✓	✓	-	-	-
Northern Flicker	1		✓		1		✓	✓	✓	1	1	✓	3	✓	2	7	9
Pileated Woodpecker	✓														-	-	-
Olive-sided Flycatcher	✓		11		✓		6		✓	✓	1	✓	✓	✓	17	1	18
Western Wood-pewee	3		2		2		✓	3	6	5	10	3	4	4	7	35	42
Yellow-bellied Flycatcher	2	2	1		1			9	8	11	7	9	11	3	4	60	64
Alder Flycatcher	17	9	41	18	10	5	9	811	631	620	637	827	770	506	77	4834	4911
Least Flycatcher	3		4		3		2	2	1	3	10	3	6	2	12	27	39
Hammond's Flycatcher	7		5		11		18	6	12	17	28	7	12	8	41	90	131
Dusky Flycatcher	2				2			1	6	3	6	3	3	4	4	26	30
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	1	1	-	5	5
Warbling Vireo	13		1	4	✓		1	9	10	19	17	15	48	12	15	134	149
Gray Jay	5		✓		1		✓		5	4	✓	✓	✓	1	6	10	16
Steller's Jay											✓				-	-	-
Black-billed Magpie					✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Common Raven	✓		✓		✓		✓	✓	1	1	✓	✓	✓	✓	-	2	2
Horned Lark			3		✓		✓		✓	✓					3	-	3
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	31	16	8	316	324
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	23	3	15	1370	1385
Hybrid Chickadee			1					1							1	1	2
Red-breasted Nuthatch	✓				✓		1	3	2	2	5	12	6	3	1	33	34

SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall	Fall	Fall			
Brown Creeper											✓				-	-	-
Winter Wren	1										✓			1	1	1	2
American Dipper														✓	-	-	-
Golden-crowned Kinglet		1					✓		10	2	1	3	1		-	18	18
Ruby-crowned Kinglet	25	7	51	3	27		72	29	175	109	86	134	125	69	175	737	912
Mountain Bluebird	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
Townsend's Solitaire								✓	1	✓	1	1	✓	✓	-	3	3
Gray-cheeked Thrush	4	2	2		5		1	1	2	8	2	4	2	10	12	31	43
Swainson's Thrush	99	7	39	10	48		21	19	49	53	85	41	55	49	207	368	575
Hermit Thrush	1		1		✓		1	1	7	12	12	3	2	1	3	36	41
American Robin	27	1	36	5	17		4	✓	27	9	11	✓	4	9	84	66	150
Varied Thrush	✓		1		2		✓	3	12	5	2	2	5	3	3	32	35
European Starling							✓								-	-	-
American Pipit	✓		2		✓		1	1	3	✓	2	✓	2	✓	3	8	11
Bohemian Waxwing	✓		40		✓		23	✓	✓	✓	1	✓	✓	✓	63	1	64
Cedar Waxwing									✓	2			8	✓	-	10	10
Lapland Longspur	✓		✓		✓		5	✓	✓	✓	✓	✓	✓	✓	5	-	5
Smith's Longspur									✓				✓		-	-	-
Snow Bunting										✓	✓	✓	✓	✓	-	-	-
Northern Waterthrush	4	1	14	10	11		4	46	53	54	42	47	46	48	33	347	380
Tennessee Warbler	4		4		6		2		9	40	4	1	1	1	16	56	72
Orange-crowned Warbler	16	6	26	1	47		61	101	180	271	57	88	124	149	150	977	1127
Nashville Warbler								1				1			-	2	2
MacGillvary's Warbler	1		1					1	3	2		1	1		2	8	10
Common Yellowthroat	1		17	4	11	6	21	66	113	70	72	45	65	82	50	523	573
American Redstart			6	4	1			10	43	30	39	21	33	25	7	205	212
Cape May Warbler							1					1			1	1	2
Magnolia Warbler	1							1			✓	1	1		1	3	4
Yellow Warbler	10	6	50	19	37	3	31	486	325	471	310	225	333	504	128	2682	2810
Blackpoll Warbler	3	2	21	4	10		5	47	107	194	58	87	87	61	39	647	696
Myrtle Warbler	60	3	63	5	29		78	49	284	673	142	195	163	178	230	1692	1759
Audubon's Warbler										✓	1				-	1	1
Yellow-rumped Warbler							1	1							1	1	2
Townsend's Warbler			✓				1	✓	8	10	6	6	7	10	1	47	48



SPECIES	2005		2006		2007		2008		2009	2010	2011	2012	2013	2014	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall	Fall	Fall	Fall	Fall			
Wilson's Warbler	116	8	54	5	63		151	113	161	177	133	134	122	164	384	1017	1401
American-tree Sparrow	220		13	1	72		41	19	54	21	77	17	19	22	346	230	576
Chipping Sparrow	28		4	1	6		3	6	24	18	28	17	20	15	41	129	170
Brewer's Sparrow				1					1		2				-	4	4
Savannah Sparrow	11	2	2	2	24		10	14	18	18	23	25	18	17	47	137	184
Fox Sparrow	106		3		17		26	11	28	28	17	6	7	17	152	114	266
Song Sparrow										1					-	1	1
Lincoln's Sparrow	9	1	6		39		21	5	16	15	27	9	9	9	75	91	166
Swamp Sparrow										1					-	1	1
White-throated Sparrow			✓		1										1	-	1
White-crowned Sparrow	86	3	13		579		311	1	33	36	34	22	16	15	989	160	1149
Golden-crowned Sparrow	1				16		9						1	1	26	2	28
Slate-colored Junco	165	12	139	5	135		224	182	582	420	331	116	341	140	663	2129	2792
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	14	10	24	111	135
Brown-headed Cowbird	1		✓		✓		✓			✓	1		✓	2	1	3	4
Pine Grosbeak			2					✓	✓	✓	✓	✓	✓	✓	2	-	2
Purple Finch	27		3		6		1	✓	✓	10	1	2	1	3	37	17	54
Red Crossbill	3						✓	✓	✓	✓	✓	✓	✓	✓	3	-	3
White-winged Crossbill			5					2	2	100	1	2	5	2	5	114	119
Common Redpoll	✓		107		1		22	✓	6	1	75	47	✓	1	130	130	260
Hoary Redpoll					3						2			✓	3	2	5
Pine Siskin	28		1				✓	1	1	91	10	3	8	303	29	417	446
Evening Grosbeak														✓	-	-	-
<b>TOTAL SPECIES BANDED</b>	<b>43</b>	<b>18</b>	<b>48</b>	<b>21</b>	<b>43</b>	<b>4</b>	<b>45</b>	<b>48</b>	<b>53</b>	<b>52</b>	<b>57</b>	<b>51</b>	<b>51</b>	<b>48</b>	<b>70</b>	<b>76</b>	<b>89</b>
<b>TOTAL BIRDS BANDED</b>	<b>1142</b>	<b>77</b>	<b>814</b>	<b>115</b>	<b>1267</b>	<b>15</b>	<b>1238</b>	<b>2319</b>	<b>3956</b>	<b>3706</b>	<b>2793</b>	<b>2429</b>	<b>2,577</b>	<b>2,510</b>	<b>4461</b>	<b>15413</b>	<b>22,451</b>

## **Appendix B – Daily Species Total Summary**

Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
Red-throated Loon	38	146	15-Aug	20-Oct	16	3-Sep	28
Pacific Loon	53	267	29-Jul	15-Oct	71	21-Sep	68
Common Loon	59	231	26-Jul	18-Oct	12	21/26 Aug	16
Yellow-billed Loon	4	4	18-Sep	20-Oct	1	all days	1
<i>Unidentified Loon</i>	7	13	17-Sep	13-Oct	5	29-Sep	13
Horned Grebe	48	104	1-Aug	23-Oct	12	5-Sep	10
Red-necked Grebe	68	1344	28-Jul	21-Oct	95	23-Aug	57
Greater White-fronted Goose	22	3821	8-Aug	15-Oct	1371	27-Aug	3820
Snow Goose	7	253	4-Sep	17-Oct	169	1-Oct	253
Canada Goose	19	716	15-Aug	29-Sep	263	23-Sep	616
<i>Unidentified Goose</i>	8	2277	21-Aug	24-Sep	1950	27-Aug	2277
Trumpeter Swan	25	1302	1-Oct	27-Oct	137	12-Oct	1255
Tundra Swan	27	16964	23-Sep	27-Oct	5213	16-Oct	16521
<i>Unidentified Swan</i>	21	1372	16-Sep	24-Oct	462	1-Oct	1345
American Wigeon	19	349	1-Aug	14-Oct	63	19-Aug	333
Mallard	57	717	28-Jul	25-Oct	246	1-Oct	611
Northern Shoveler	11	337	11-Aug	23-Oct	266	19-Aug	332
Northern Pintail	32	237	9-Aug	22-Oct	26	19-Aug	223
American Green-winged Teal	13	93	9-Aug	23-Sep	30	5-Sep	86
<i>Unidentified Dabbling Duck</i>	4	92	19-Aug	25-Sep	50	25-Sep	92
Canvasback	5	140	21-Sep	18-Oct	48	1-Oct	140
Redhead	1	4	23-Sep	-	4	23-Sep	4
Ring-necked Duck	1	1	23-Sep	-	1	23-Sep	1
Greater Scaup	13	138	28-Jul	24-Oct	49	12-Oct	137
Lesser Scaup	19	551	28-Jul	24-Oct	174	1-Oct	549
<i>Unidentified Scaup</i>	7	379	21-Sep	25-Oct	277	1-Oct	379
Harlequin Duck	3	5	10-Sep	23-Sep	2	10/23 Sep	4
Surf Scoter	28	516	28-Jul	5-Oct	120	5-Aug	219
White-winged Scoter	15	224	29-Jul	19-Oct	119	25-Sep	205

Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
<i>Unidentified Scoter</i>	1	5	26-Sep	-	5	26-Sep	0
Long-tailed Duck	8	55	21-Sep	24-Oct	29	13-Oct	13
Bufflehead	5	25	30-Aug	8-Oct	15	7-Oct	24
Common Goldeneye	14	71	31-Aug	25-Oct	16	13-Oct	37
Barrow's Goldeneye	4	14	14-Sep	2-Oct	7	2-Oct	3
<i>Unidentified Goldeneye</i>	9	33	3-Sep	15-Oct	12	10-Sep	17
Common Merganser	31	246	11-Aug	27-Oct	34	13-Oct	103
Red-breasted Merganser	36	152	26-Jul	25-Oct	18	8-Aug	22
<i>Unidentified Merganser</i>	1	10	24-Aug	-	10	24-Aug	0
<i>Unidentified Duck</i>	11	310	9-Aug	19-Oct	205	1-Oct	252
Bald Eagle	66	181	27-Jul	27-Oct	24	27-Oct	90
Northern Harrier	48	255	11-Aug	22-Oct	42	11-Sep	254
Sharp-shinned Hawk	53	567	6-Aug	27-Oct	64	1-Oct	528
Northern Goshawk	35	84	8-Aug	27-Oct	6	27-Oct	26
Swainson's Hawk	5	13	26-Aug	12-Sep	5	2-Sep	13
Red-tailed Hawk	55	580	7-Aug	27-Oct	189	1-Oct	556
Rough-legged Hawk	26	206	12-Sep	25-Oct	80	29-Sep	206
<i>Unidentified Buteo</i>	14	35	27-Aug	17-Oct	10	1-Oct	35
Golden Eagle	24	293	9-Sep	27-Oct	93	1-Oct	293
<i>Unidentified Eagle</i>	4	4	26-Aug	19-Oct	1	all days	4
American Kestrel	31	173	29-Jul	16-Oct	54	11-Sep	173
Merlin	36	89	6-Aug	19-Oct	15	1-Oct	67
Gyr Falcon	2	2	24-Sep	27-Sep	1	both days	1
Peregrine Falcon	17	34	4-Sep	3-Oct	5	11/12 Sep	34
<i>Unidentified Falcon</i>	1	1	1-Oct	-	1	1-Oct	1
Turkey Vulture	1	1	24-Sep	-	1	24-Sep	1
Osprey	19	53	29-Jul	1-Oct	7	22-Sep	51
<i>Unidentified Large Raptor</i>	3	5	22-Sep	1-Oct	3	1-Oct	5
Ruffed Grouse	58	170	31-Jul	25-Oct	5	many days	0

Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
Spruce Grouse	6	6	26-Jul	26-Sep	1	all days	0
<i>Unidentified Ptarmigan</i>	1	1	23-Oct	-	1	23-Oct	0
Sandhill Crane	6	350	21-Sep	17-Oct	250	1-Oct	350
Black-bellied Plover	1	28	21-Sep	-	28	21-Sep	28
Semi-palmated Plover	7	12	8-Aug	5-Sep	4	13-Aug	9
Lesser Yellowlegs	2	3	1-Aug	4-Aug	2	4-Aug	1
Solitary Sandpiper	10	10	26-Jul	4-Sep	1	all days	0
Spotted Sandpiper	37	111	26-Jul	16-Sep	7	15-Aug	0
Sanderling	4	4	23-Aug	21-Sep	1	all days	2
Least Sandpiper	5	5	8-Aug	23-Aug	1	all days	1
<i>Unidentified Small Sandpiper ('peep')</i>	2	5	11-Aug	13-Aug	4	11-Aug	5
Pectoral Sandpiper	1	3	8-Sep	-	3	8-Sep	3
Long-billed Dowitcher	1	2	21-Sep	-	2	21-Sep	2
Red-necked Phalarope	5	31	3-Aug	30-Aug	14	25-Aug	16
<i>Unidentified Phalarope</i>	1	1	23-Sep	-	1	23-Sep	0
Wilson's Snipe	7	7	13-Aug	-	1	all days	0
<i>Unidentified Shorebird</i>	2	2	27-Aug	19-Oct	1	19-Oct	2
Mew Gull	42	217	28-Jul	14-Sep	26	11-Aug	26
Herring Gull	87	2065	26-Jul	25-Oct	120	29-Jul	2
Thayer's Gull	39	155	1-Sep	25-Oct	33	1-Sep	57
<i>Unidentified Large Gull</i>	12	35	2-Oct	25-Oct	8	10-Oct	14
Glaucous Gull	3	3	23-Sep	2-Oct	1	all days	1
Bonaparte's Gull	12	24	29-Jul	21-Aug	7	29-Jul	11
Sabine's Gull	1	1	4-Sep	-	1	4-Sep	0
Black-legged Kittiwake	2	2	9-Oct	10-Oct	1	both days	0
Arctic Tern	22	319	26-Jul	18-Aug	35	13-Aug	35
Parasitic Jaeger	21	39	6-Aug	27-Sep	4	18/31 Aug	0
Northern Hawk Owl	2	2	19-Sep	7-Oct	1	both days	2
Common Nighthawk	1	1	4-Sep	-	1	4-Sep	1

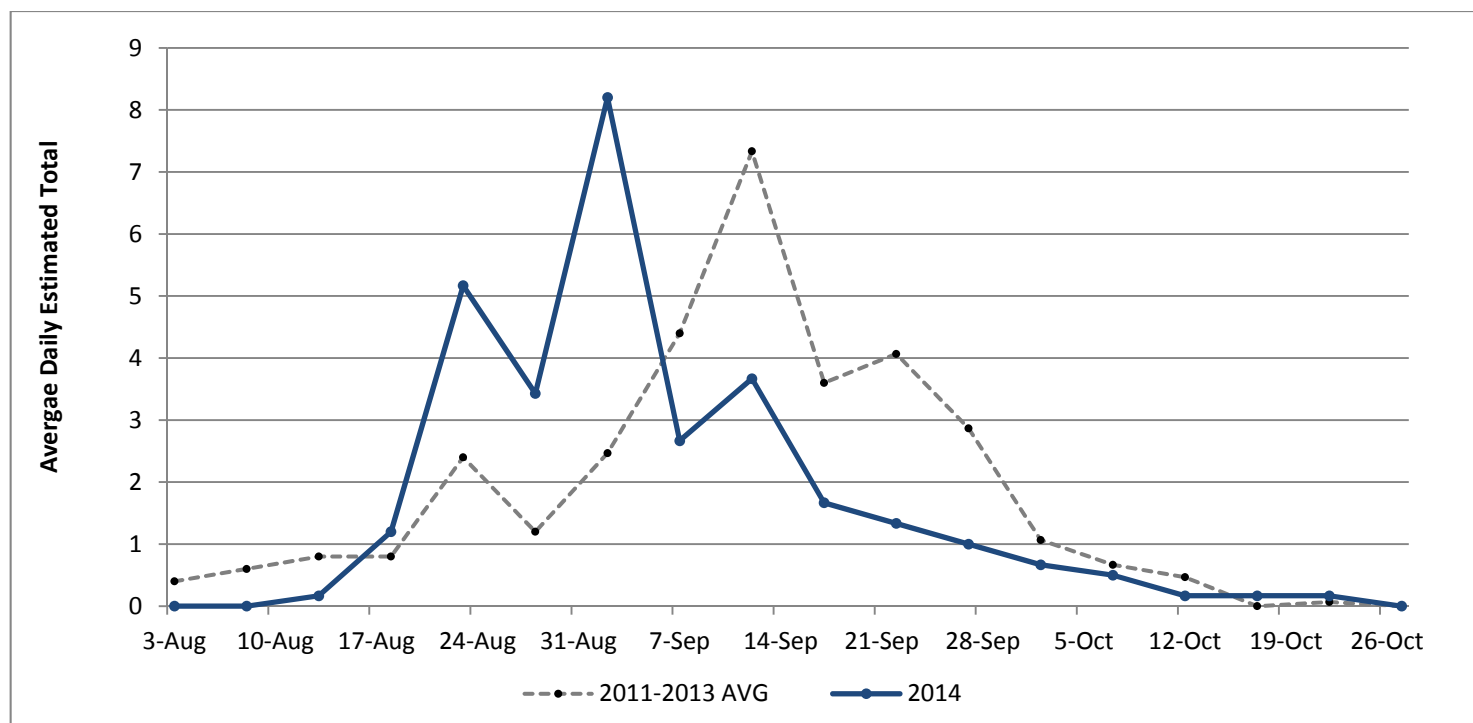
Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
Belted Kingfisher	45	55	26-Jul	12-Oct	3	2-Sep	3
Downy Woodpecker	6	6	23-Aug	25-Sep	1	all days	2
Hairy Woodpecker	3	3	16-Sep	9-Oct	1	all days	1
American Three-toed Woodpecker	16	20	29-Aug	25-Oct	3	14-Sep	20
Black-backed Woodpecker	4	4	24-Aug	17-Sep	1	all days	0
Northern Flicker	7	10	26-Jul	1-Oct	3	3-Sep	4
<i>Unidentified Woodpecker</i>	10	10	23-Aug	29-Sep	1	all days	8
Olive-sided Flycatcher	7	7	31-Jul	18-Sep	1	all days	1
Western Wood-Pewee	5	5	22-Aug	18-Sep	1	all days	0
<i>Unidentified Large Flycatcher</i>	2	4	13-Aug	10-Sep	3	10-Sep	1
Yellow-bellied Flycatcher	3	4	30-Jul	15-Aug	2	11-Aug	0
Alder Flycatcher	42	539	28-Jul	17-Sep	97	23-Aug	0
Least Flycatcher	2	2	29-Jul	16-Aug	1	both days	0
Hammond's Flycatcher	7	8	31-Jul	12-Sep	2	21-Aug	0
Dusky Flycatcher	4	4	6-Aug	13-Sep	1	all days	0
Say's Phoebe	5	6	13-Aug	11-Sep	2	27-Aug	3
Northern Shrike	1	2	26-Sep	8-Oct	1	both days	0
Warbling Vireo	16	22	26-Jul	30-Aug	4	31-Jul	0
Gray Jay	3	3	26-Aug	17-Sep	1	all days	0
Black-billed Magpie	45	82	10-Sep	27-Oct	4	11-Oct	0
Common Raven	88	335	26-Jul	27-Oct	14	20/27 Oct	0
Tree Swallow	3	8	29-Jul	31-Jul	4	29-Jul	8
Bank Swallow	8	306	30-Jul	11-Sep	134	11-Aug	306
Cliff Swallow	9	69	29-Jul	25-Aug	29	11-Aug	66
Barn Swallow	4	14	6-Aug	18-Aug	5	8/11 Aug	14
<i>Unidentified Swallow</i>	8	276	6-Aug	28-Aug	150	11-Aug	276
Black-capped Chickadee	55	157	27-Jul	27-Oct	10	28-Jul	0
Boreal Chickadee	7	9	20-Aug	19-Oct	2	20/30 Aug	1
Red-breasted Nuthatch	11	18	28-Jul	13-Sep	8	16-Aug	3

Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
Winter/Pacific Wren	1	1	22-Sep	-	1	22-Sep	0
American Dipper	1	1	27-Oct	-	1	27-Oct	1
Ruby-crowned Kinglet	30	96	29-Jul	14-Oct	24	8-Sep	0
Mountain Bluebird	3	7	12-Sep	6-Oct	4	12-Sep	5
Townsend's Solitaire	13	35	26-Aug	22-Sep	22	22-Sep	34
Gray-cheeked Thrush	7	12	2-Sep	1-Oct	4	8-Sep	0
Swainson's Thrush	27	59	28-Jul	10-Sep	4	many days	0
Hermit Thrush	1	1	26-Sep	-	1	26-Sep	0
<i>Unidentified Catharus Thrush</i>	2	3	10-Sep	1-Oct	2	10-Sep	1
American Robin	56	1192	27-Jul	19-Oct	285	17-Sep	1135
Varied Thrush	36	903	8-Aug	18-Oct	247	21-Sep	877
<i>Unidentified Large Thrush</i>	28	1860	27-Aug	2-Oct	404	1-Oct	1860
American Pipit	40	305	18-Aug	22-Oct	62	21-Sep	261
Bohemian Waxwing	41	1084	1-Aug	27-Oct	90	16-Oct	705
Cedar Waxwing	1	2	27-Jul	-	2	27-Jul	0
<i>Unidentified Waxwing</i>	1	1	7-Aug	-	1	7-Aug	1
Lapland Longspur	19	43	2-Sep	20-Oct	11	16-Oct	41
Snow Bunting	3	3	1-Oct	27-Oct	1	all days	1
Tennessee Warbler	1	1	16-Sep	-	1	16-Sep	0
Orange-crowned Warbler	30	176	29-Jul	2-Oct	50	8-Sep	5
Yellow Warbler	47	746	27-Jul	18-Sep	47	27-Aug	53
Myrtle Warbler	68	1222	28-Jul	27-Oct	185	10-Sep	810
Townsend's Warbler	7	11	1-Aug	4-Sep	3	16-Aug	0
Blackpoll Warbler	27	95	28-Jul	13-Sep	10	18-Aug	16
American Redstart	23	48	28-Jul	5-Sep	6	31-Jul	0
Northern Waterthrush	38	109	28-Jul	16-Sep	7	6/22 Aug	2
Common Yellowthroat	36	100	31-Jul	26-Sep	12	9-Sep	0
Wilson's Warbler	41	197	28-Jul	22-Sep	23	8-Sep	0
<i>Unidentified Warbler</i>	22	106	9-Aug	13-Sep	19	3-Sep	106

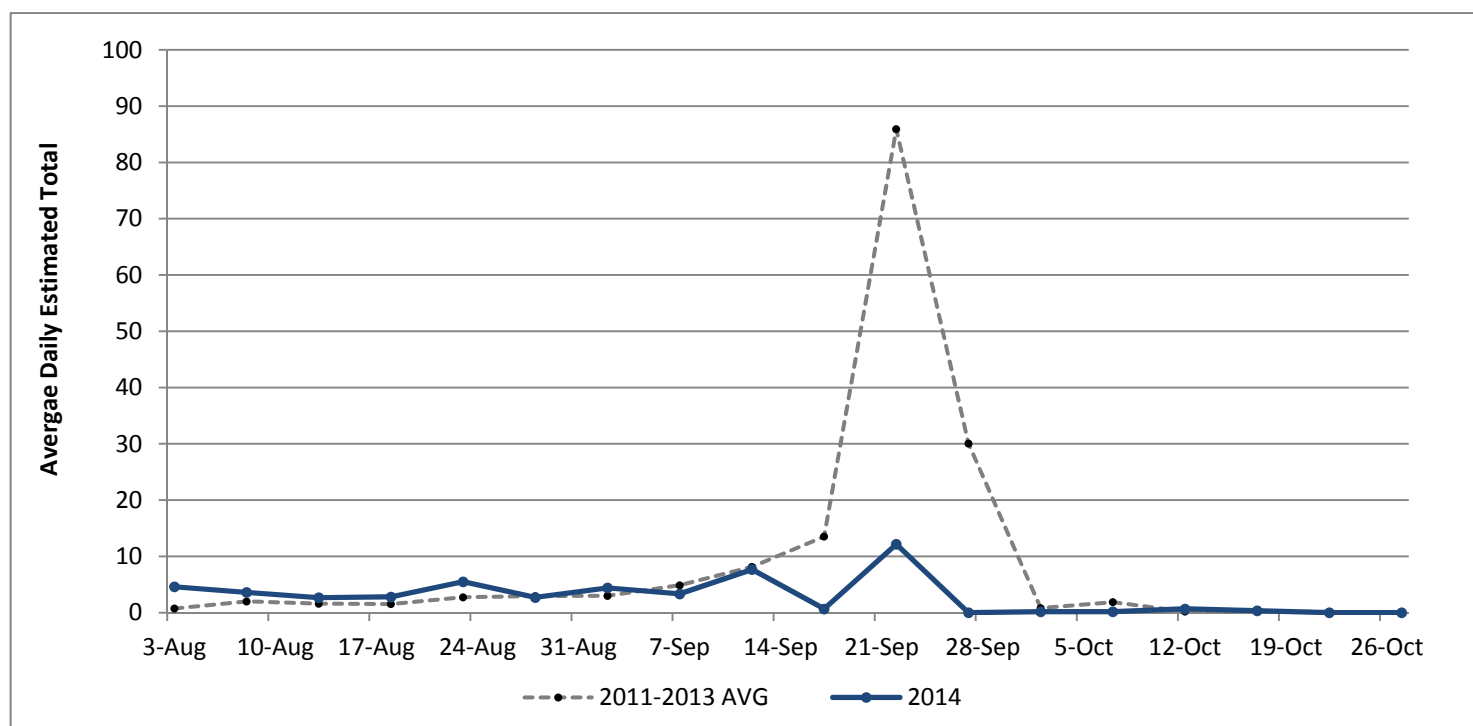
Species	ALL OBS		First Date	Last Date	HIGH COUNT		All Visual Migrants
	# of Days	Bird Days			#	Date	
American Tree Sparrow	31	66	27-Aug	25-Oct	8	12-Sep	2
Chipping Sparrow	18	37	27-Jul	1-Sep	7	7-Aug	10
Savannah Sparrow	19	37	9-Aug	7-Oct	5	9-Sep	8
Fox Sparrow	12	25	29-Jul	2-Oct	8	9-Sep	1
Lincoln's Sparrow	8	9	16-Aug	24-Sep	2	26-Aug	0
White-crowned Sparrow (Gambel's)	14	22	7-Aug	21-Sep	4	4-Sep	0
Golden-crowned Sparrow	1	1	21-Aug	-	1	21-Aug	0
Slate-colored Junco	80	461	27-Jul	25-Oct	34	14-Sep	48
<i>Unidentified Sparrow</i>	4	12	3-Sep	20-Sep	5	3-Sep	11
Rusty Blackbird	57	483	28-Jul	27-Oct	42	12-Sep	350
Brown-headed Cowbird	1	2	7-Aug	-	2	7-Aug	0
Pine Grosbeak	15	316	8-Oct	27-Oct	44	17-Oct	301
Purple Finch	9	11	30-Jul	28-Sep	2	11/21 Aug	1
Red Crossbill	11	40	29-Jul	20-Oct	8	12-Oct	35
White-winged Crossbill	30	123	31-Jul	24-Oct	18	11-Aug	99
<i>Unidentified Crossbill</i>	1	4	14-Oct	-	4	14-Oct	4
Pine Siskin	68	2356	27-Jul	27-Oct	259	13-Oct	1255
Common Redpoll	34	10296	5-Aug	27-Oct	4280	13-Oct	10079
Hoary Redpoll	1	3	23-Oct	-	3	23-Oct	0
Evening Grosbeak	1	3	15-Oct	-	3	15-Oct	3
<i>Unidentified Small Finch</i>	39	1614	18-Aug	27-Oct	241	2-Oct	1614
<i>Unidentified Small Passerine</i>	53	3326	8-Aug	19-Oct	385	3-Sep	3326



## **Appendix C – Migration Timing Figures**



**Figure C1.** Red-throated Loon migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C2.** Pacific Loon migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

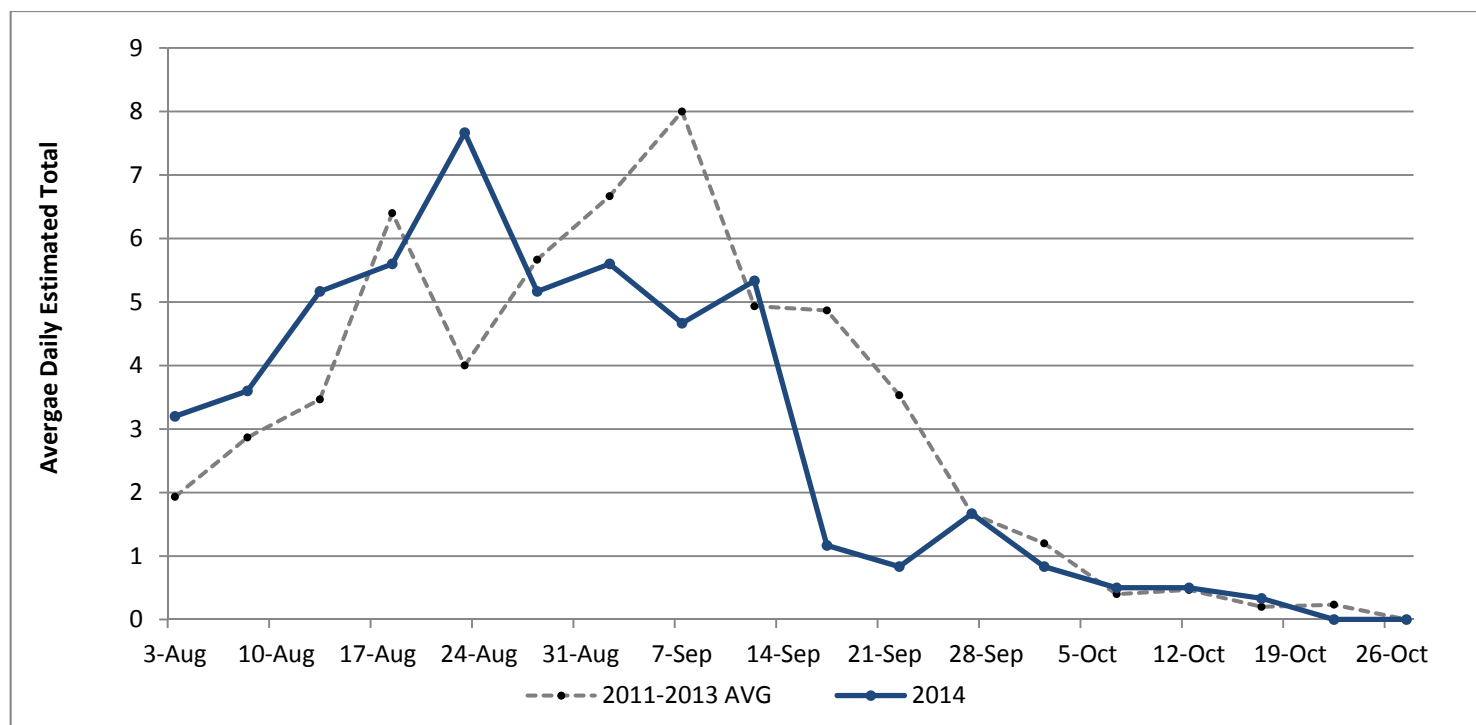


Figure C3. Common Loon migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

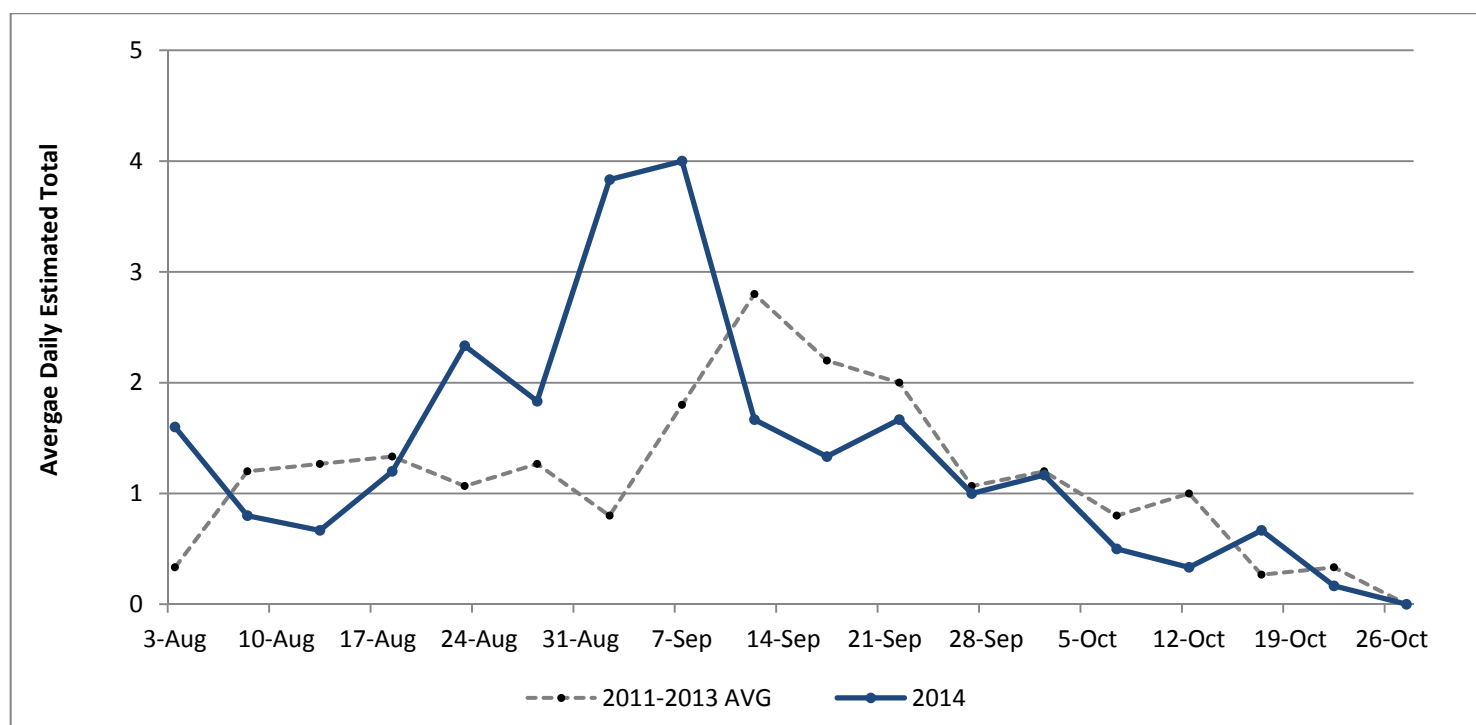
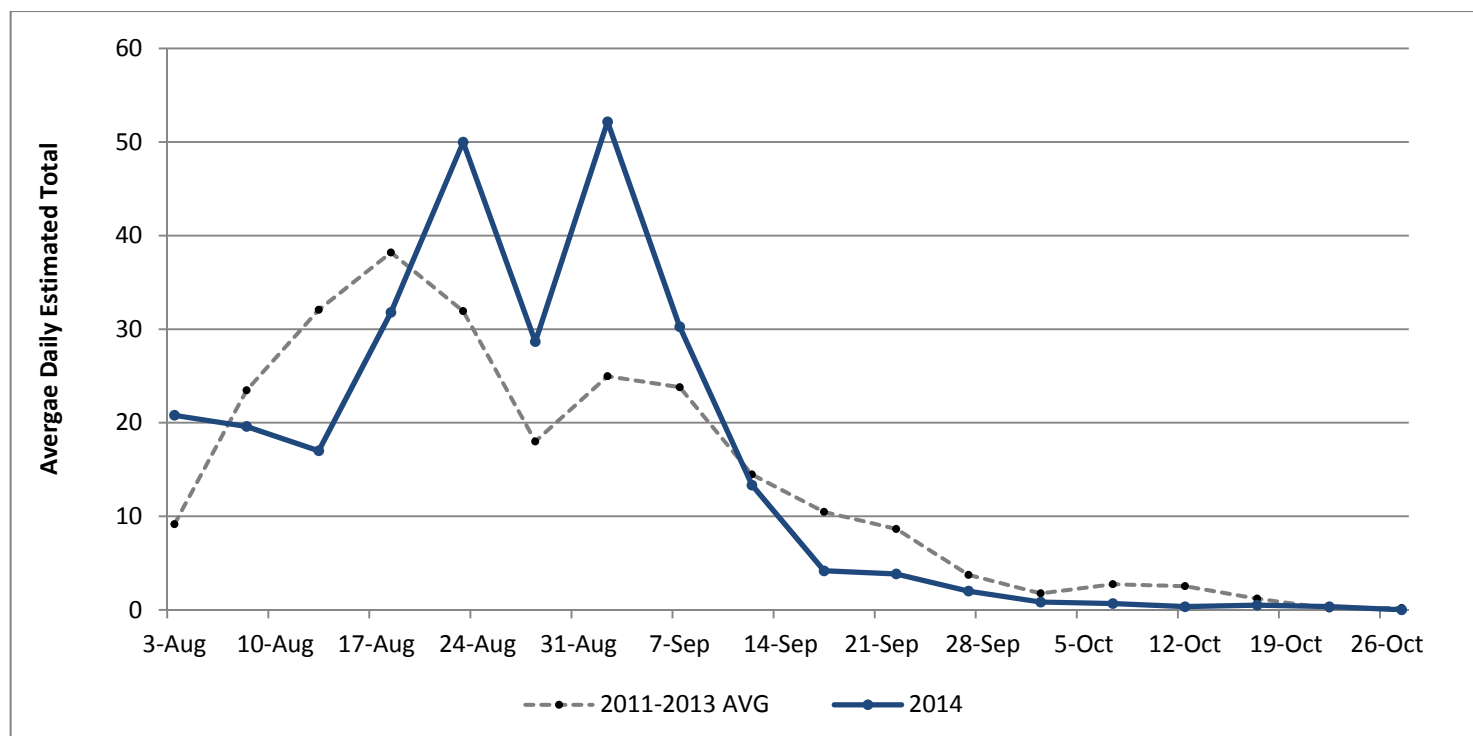
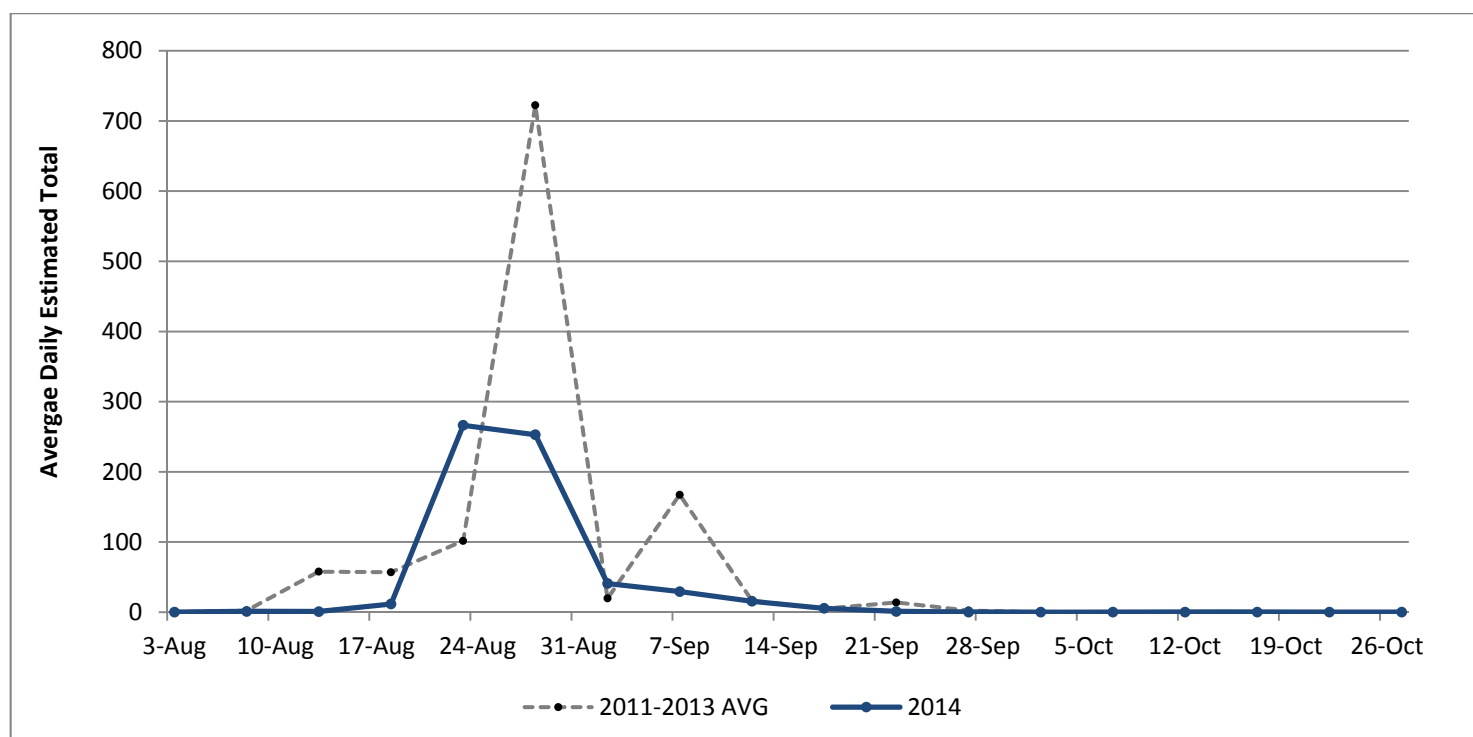


Figure C4. Horned Grebe migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C5.** Red-necked Grebe migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C6.** Greater White-fronted Goose migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

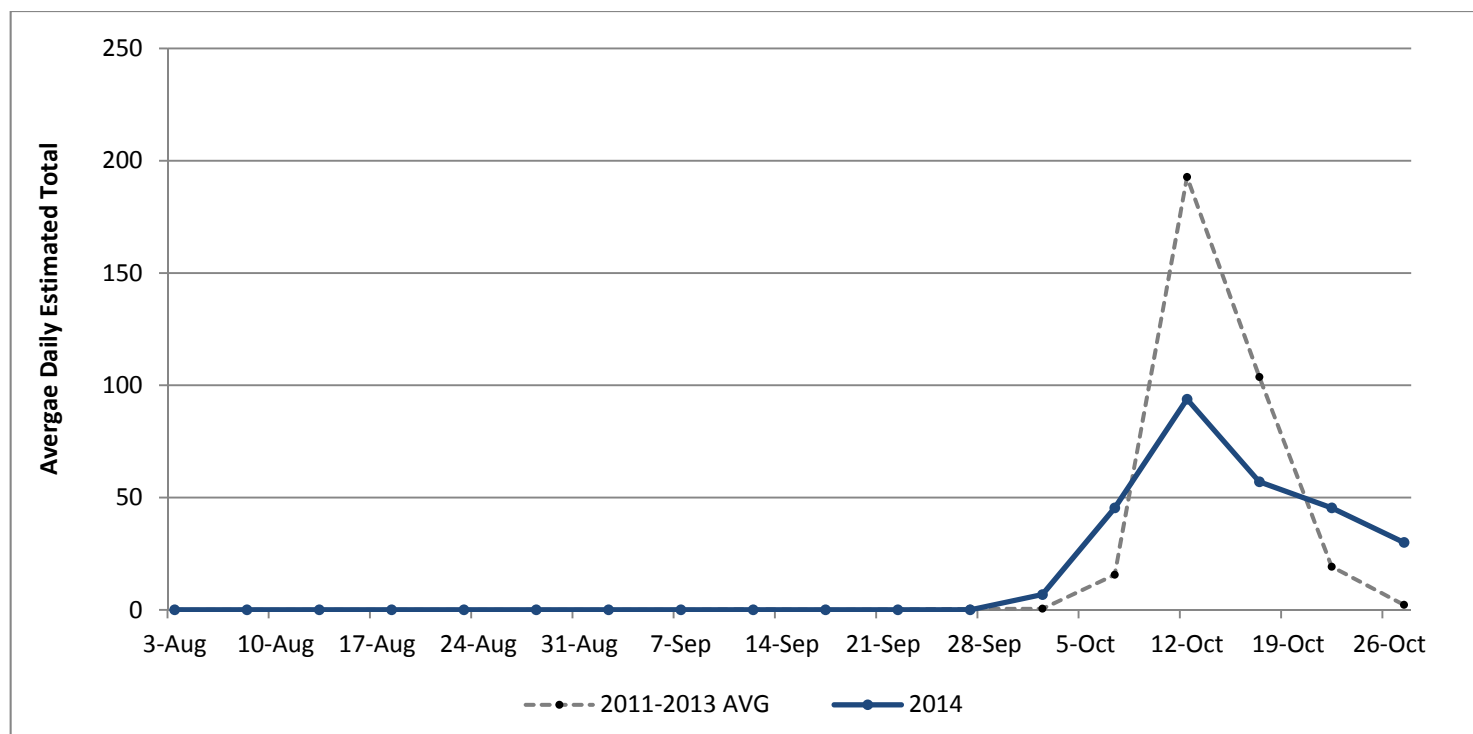


Figure C6. Trumpeter Swan migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

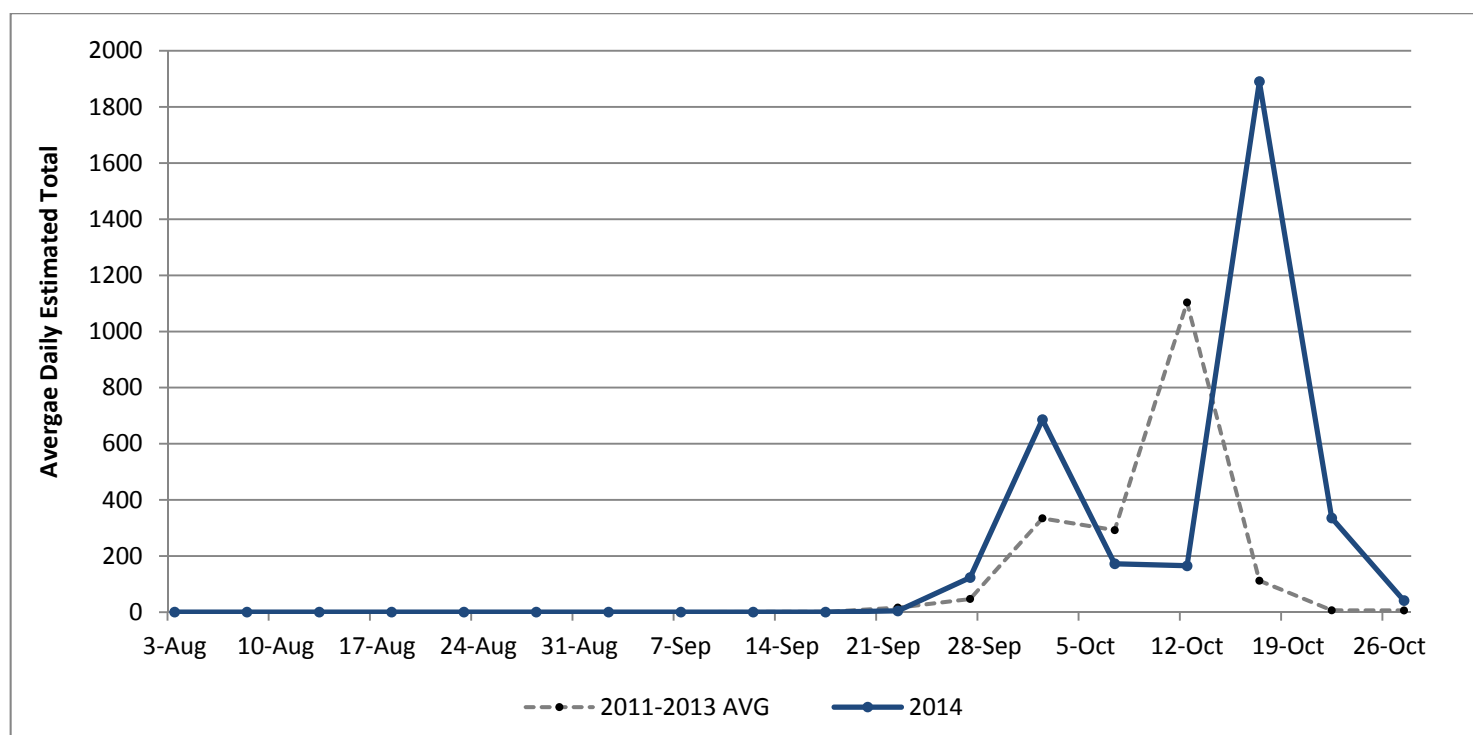


Figure C7. Tundra Swan migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

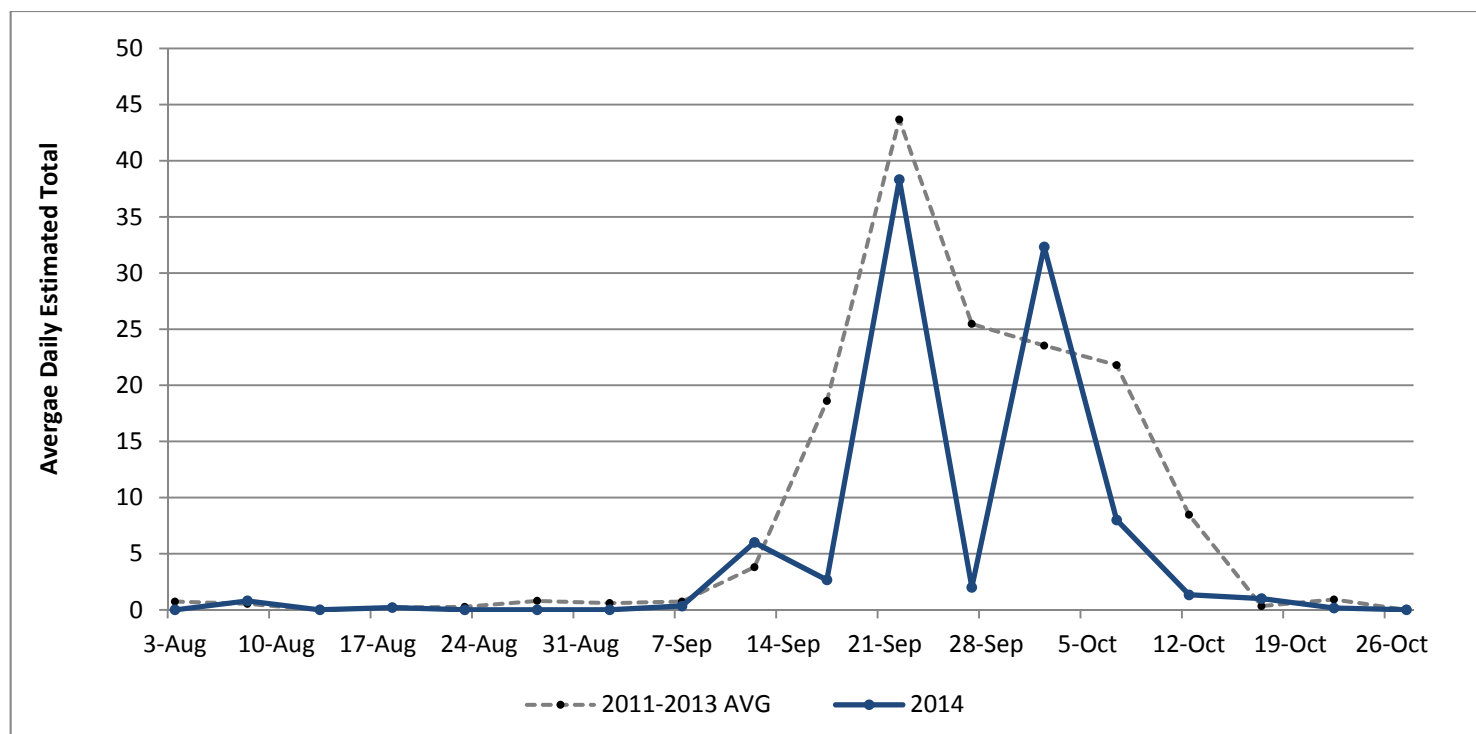


Figure C8. Lesser Scaup migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

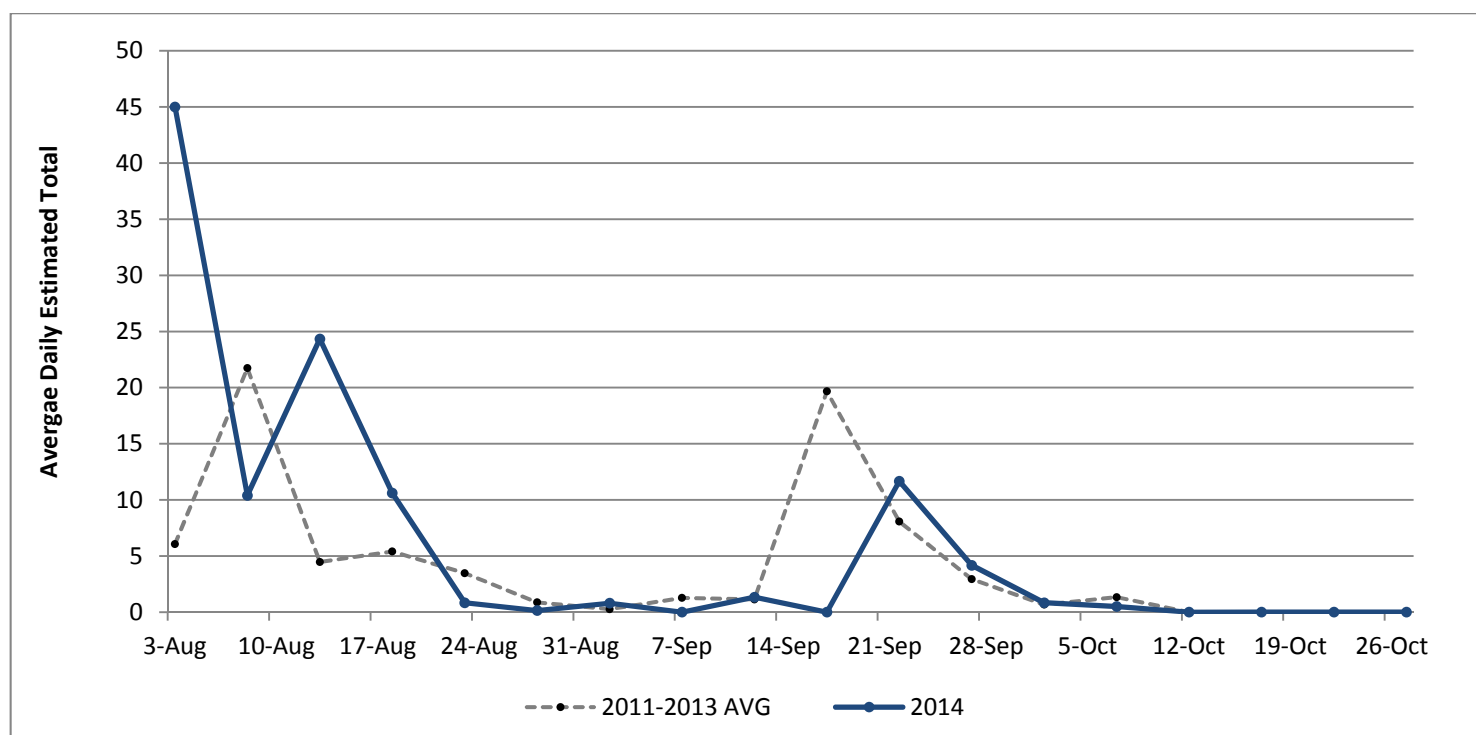
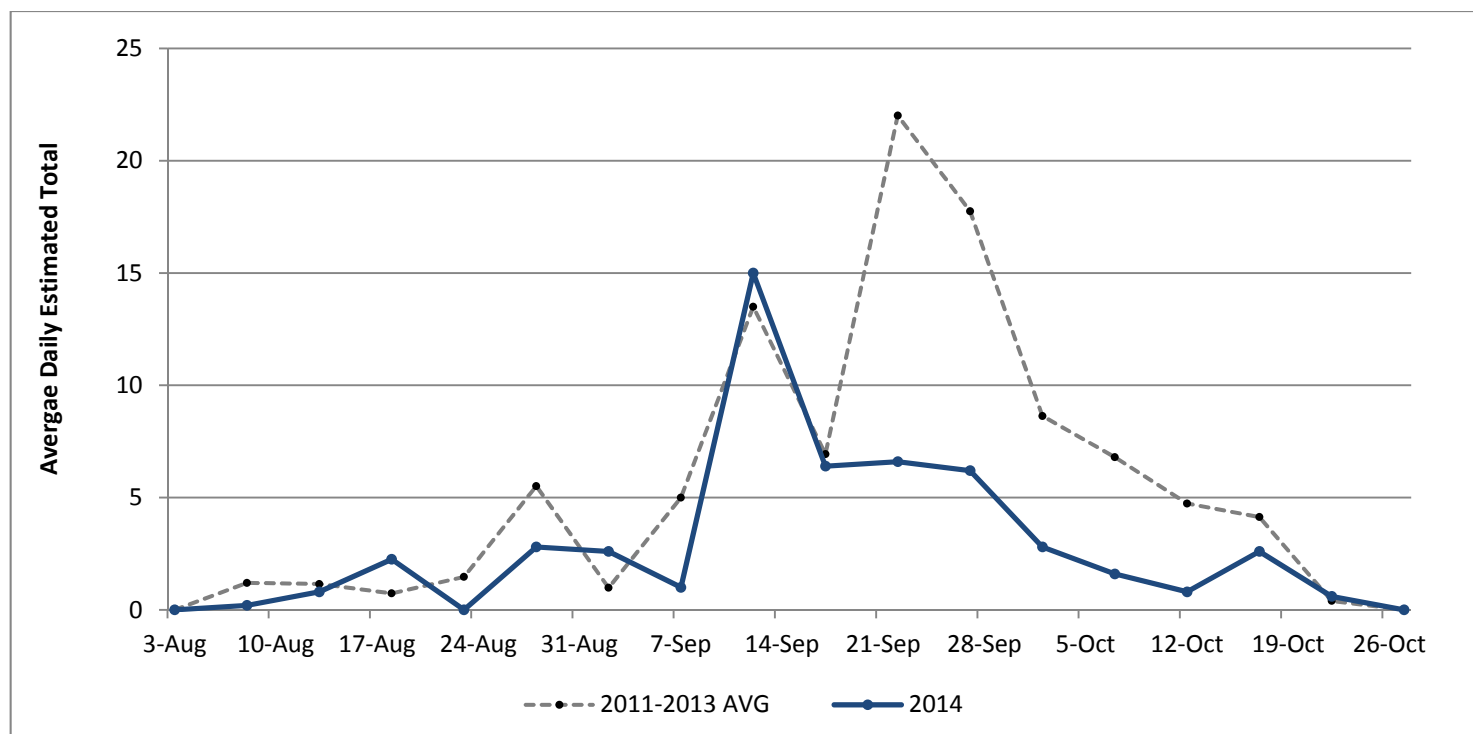
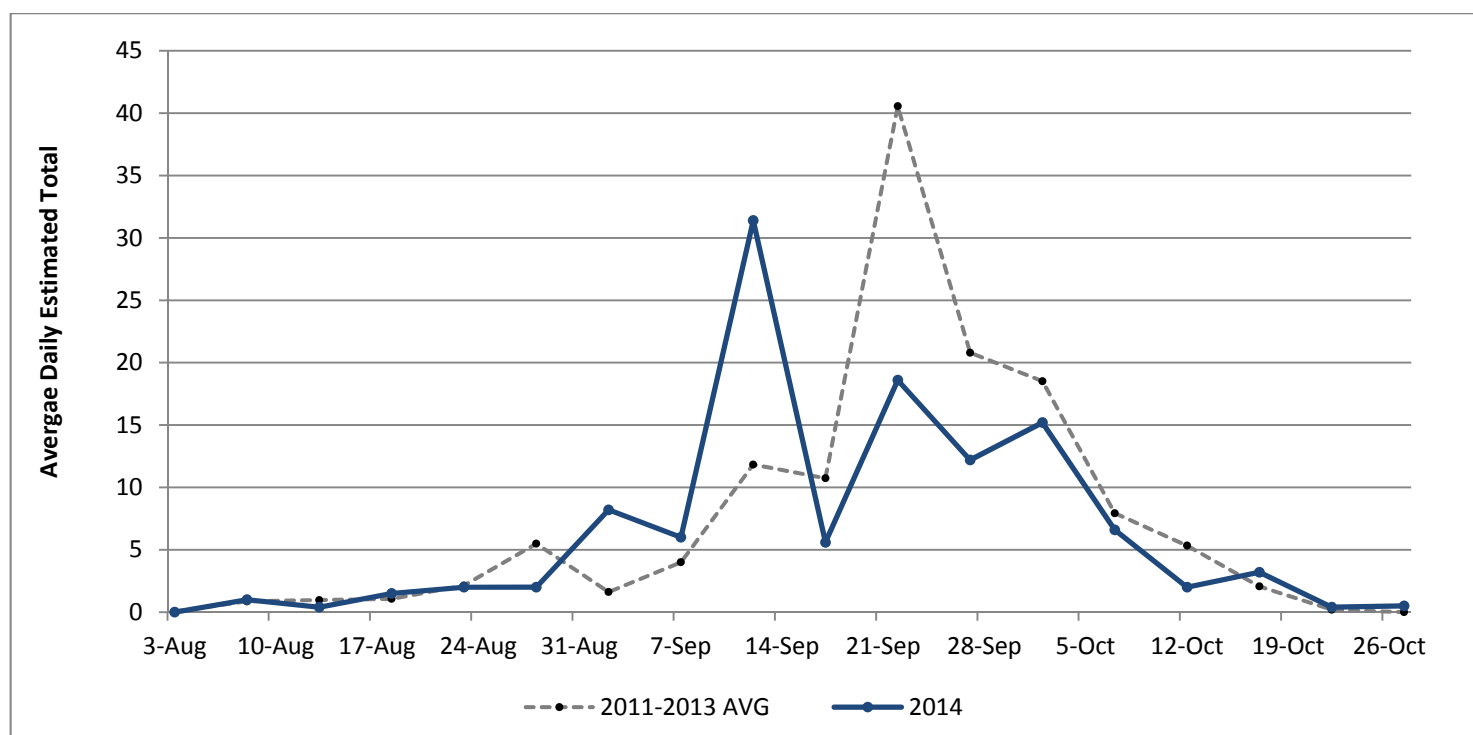


Figure C9. Surf Scoter migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C10.** Northern Harrier migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C11.** Sharp-shinned Hawk migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

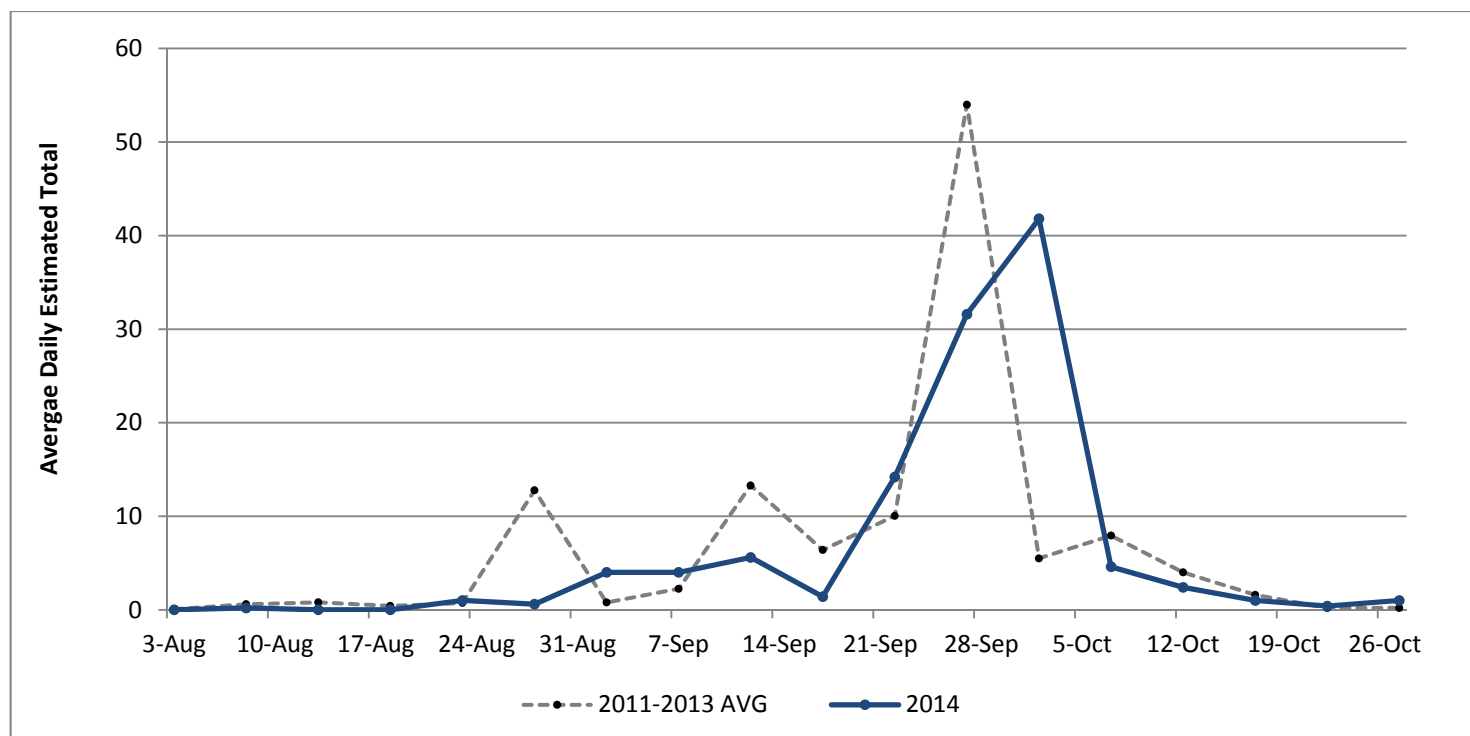


Figure C12. Red-tailed Hawk migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

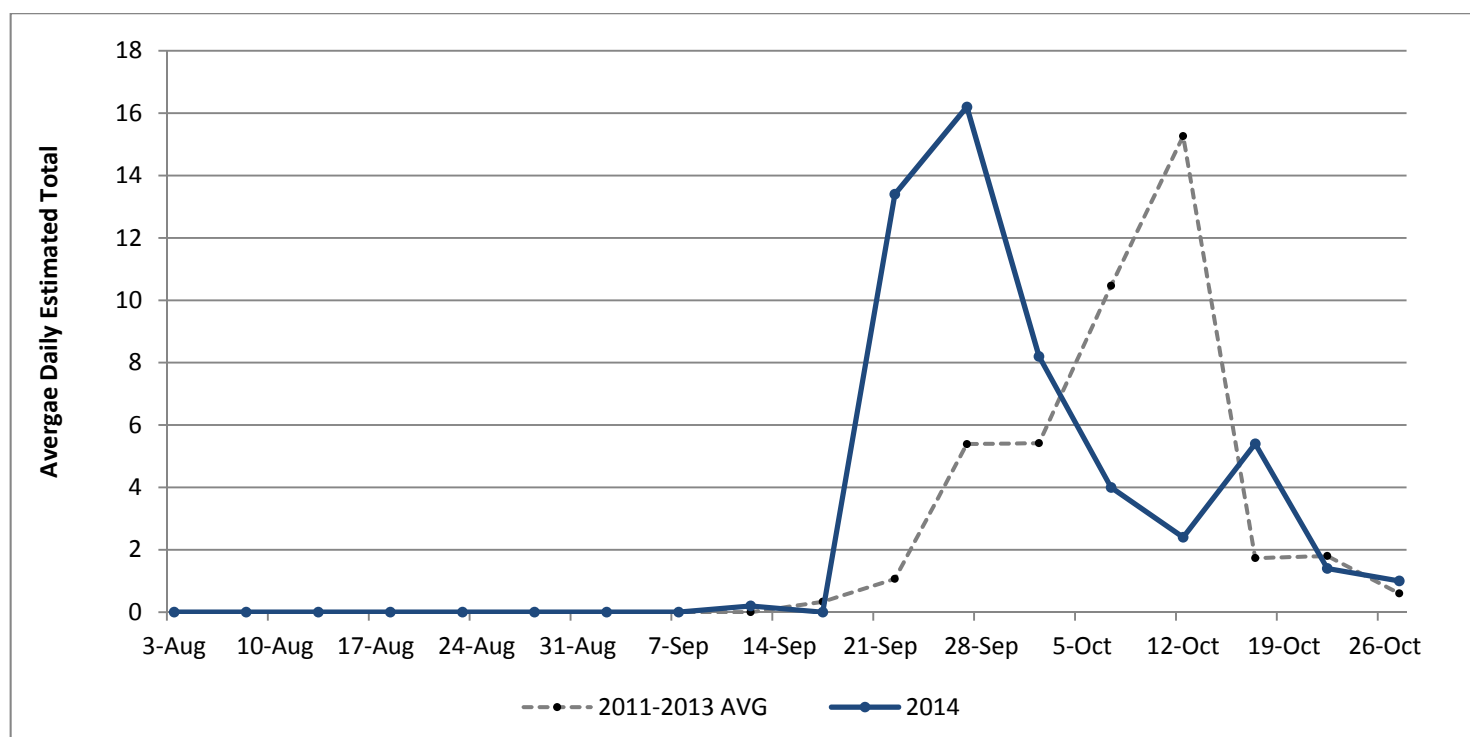
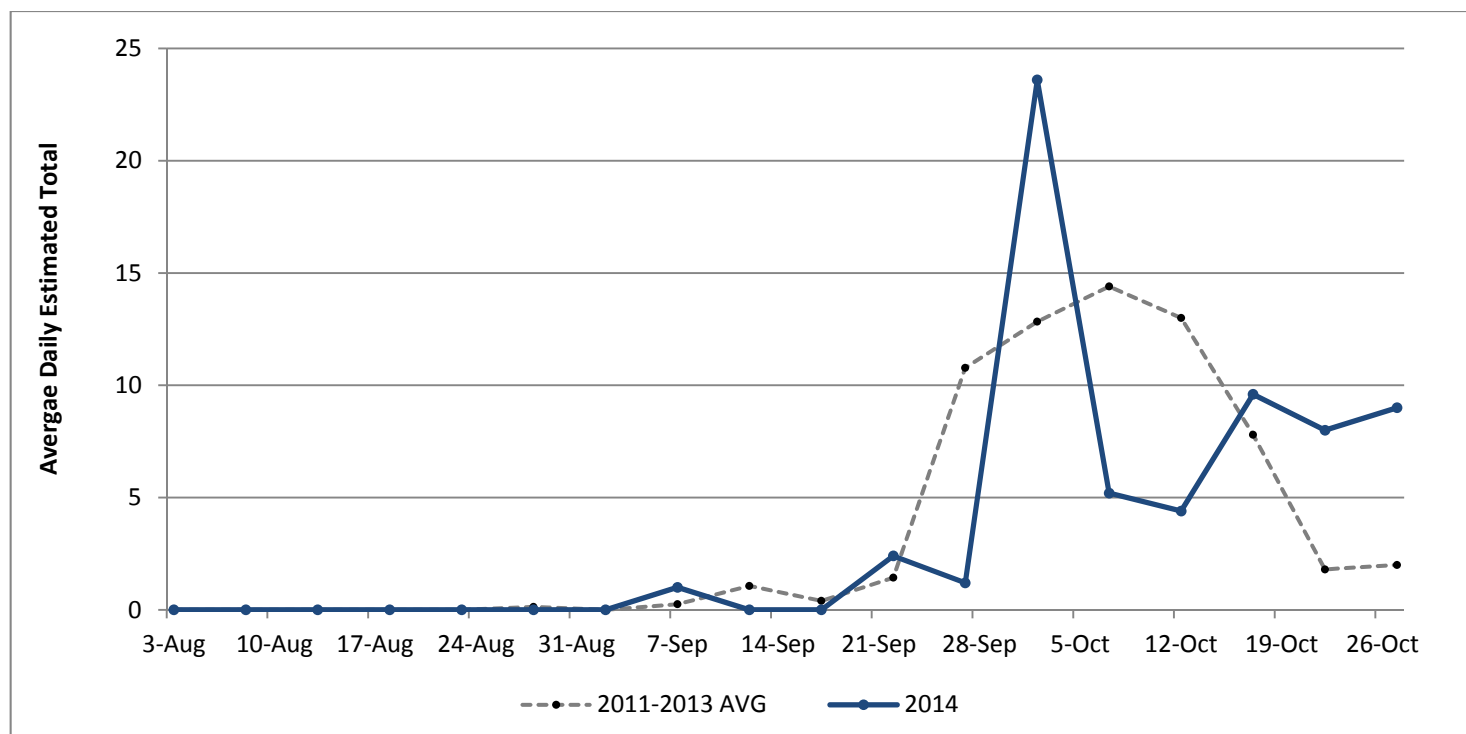
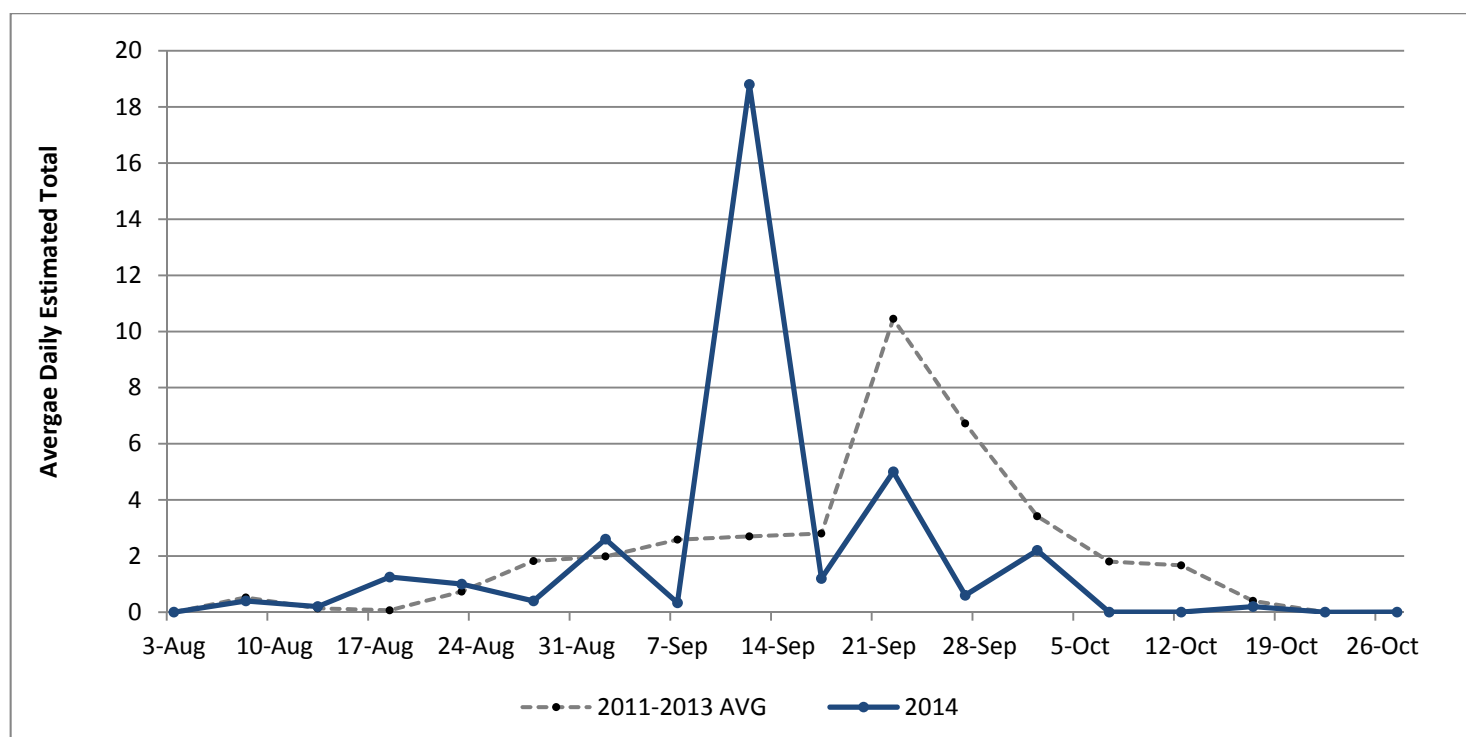


Figure C13. Rough-legged Hawk migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

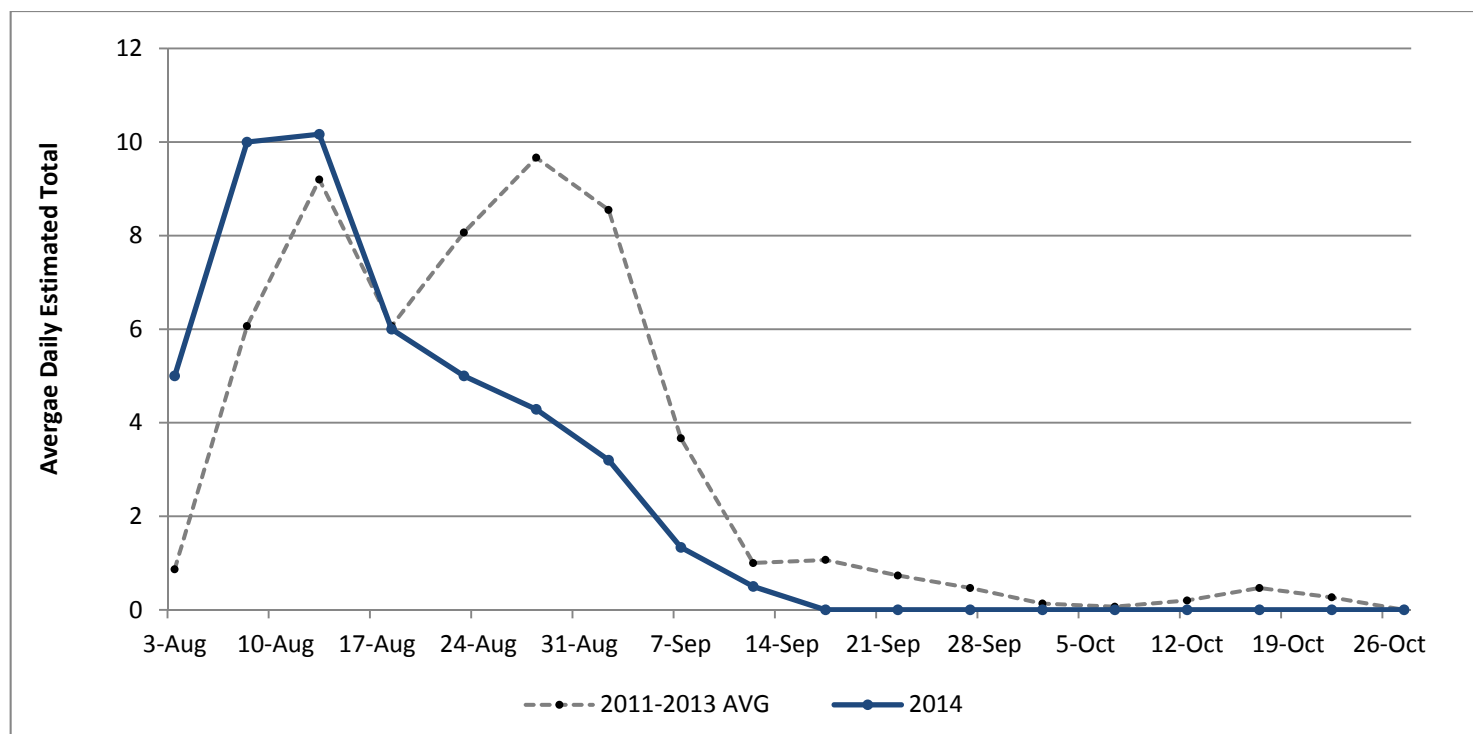




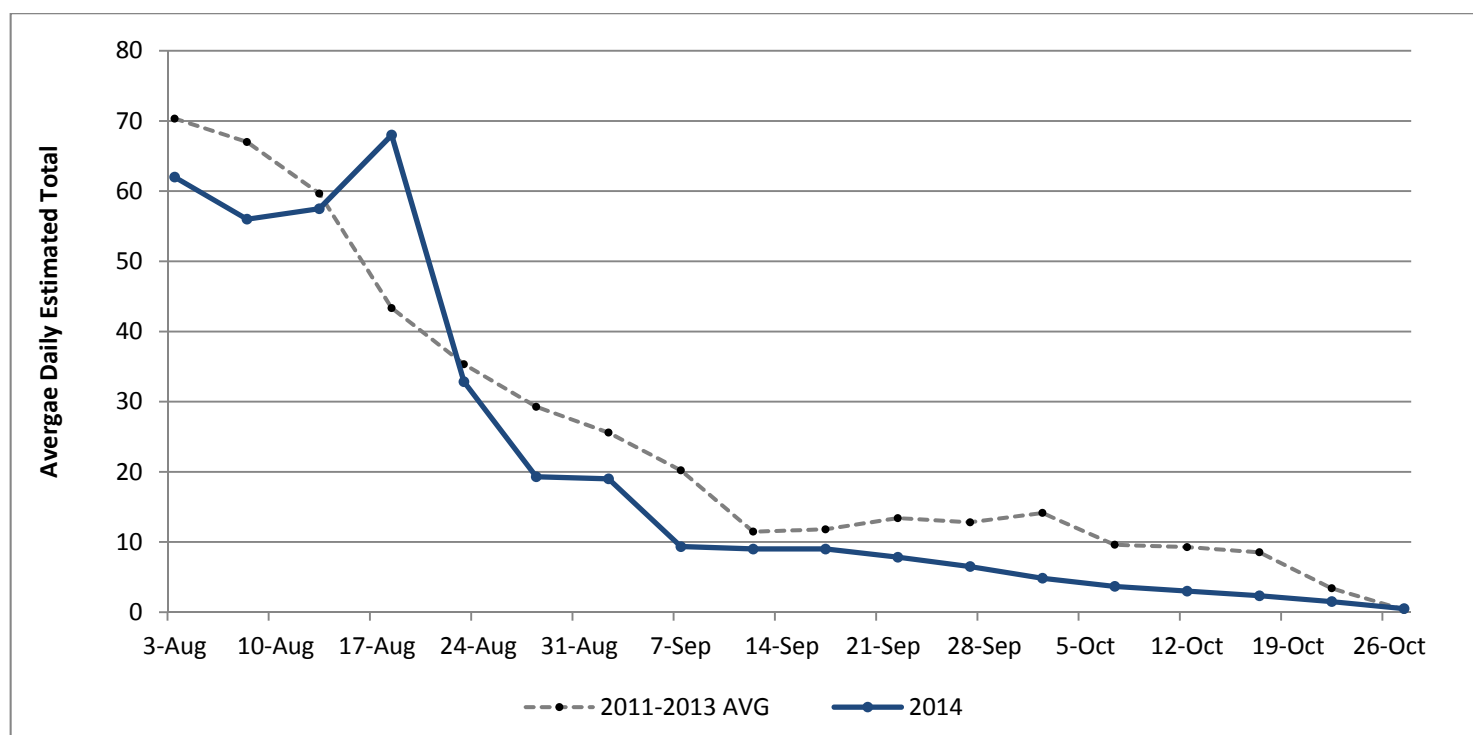
**Figure C14.** Golden Eagle migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C15.** American Kestrel migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C16.** Mew Gull migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C17.** Herring Gull migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

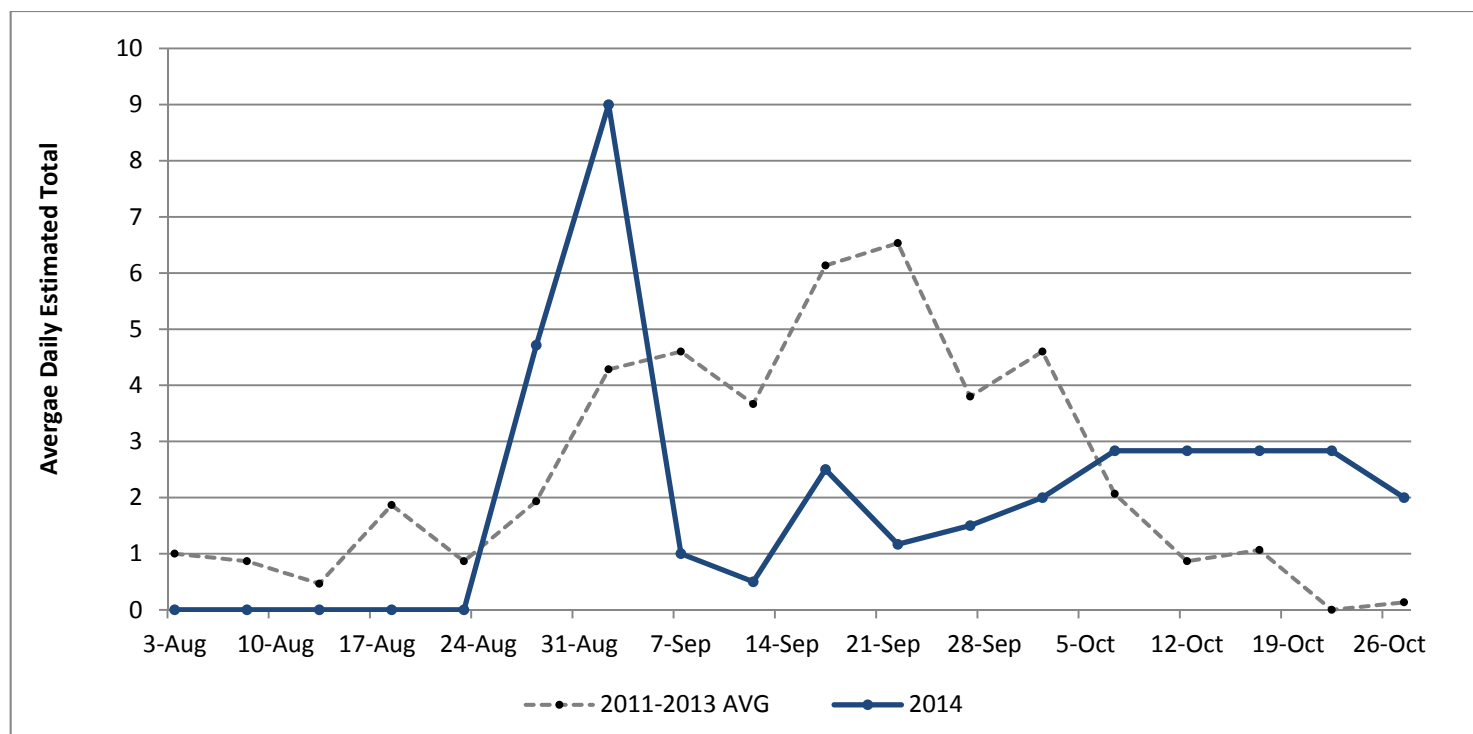


Figure C18. Thayer's Gull migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

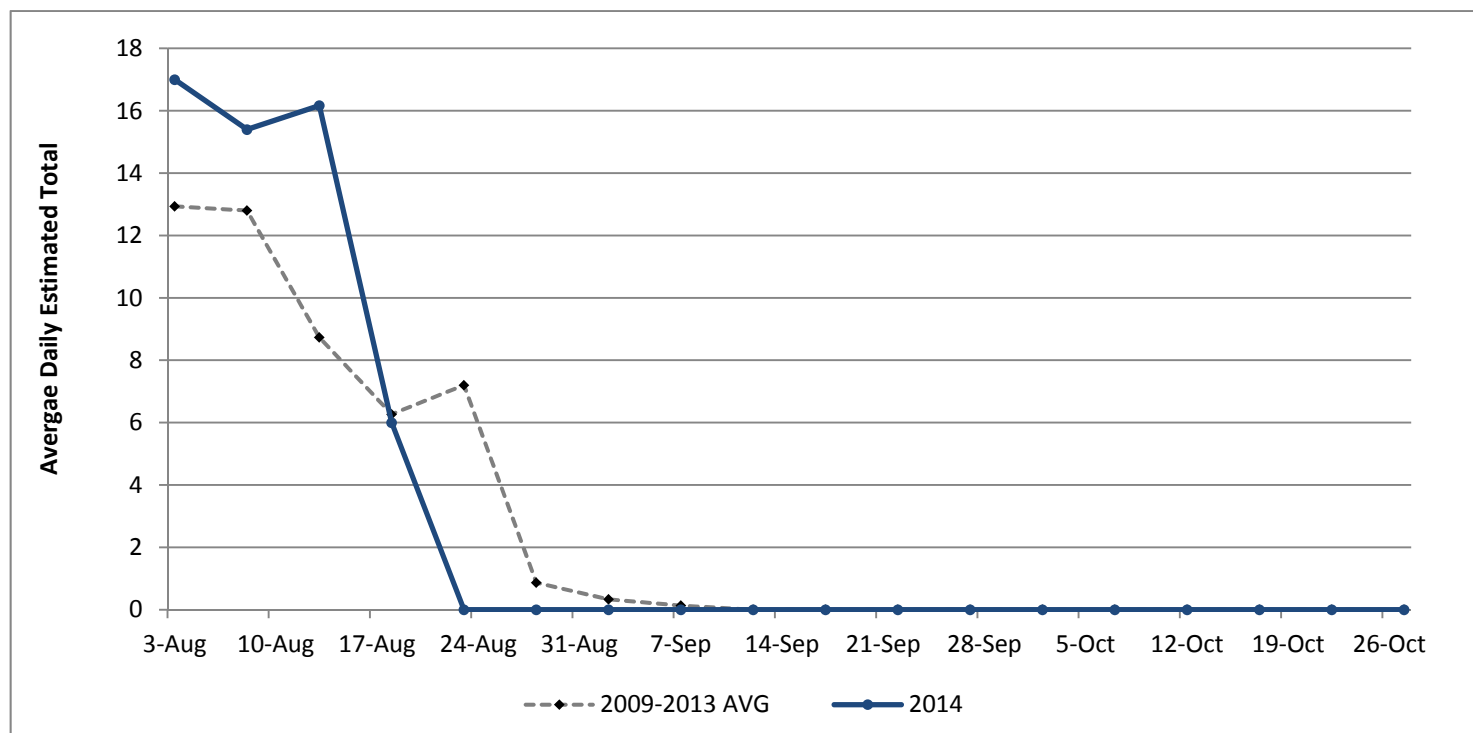
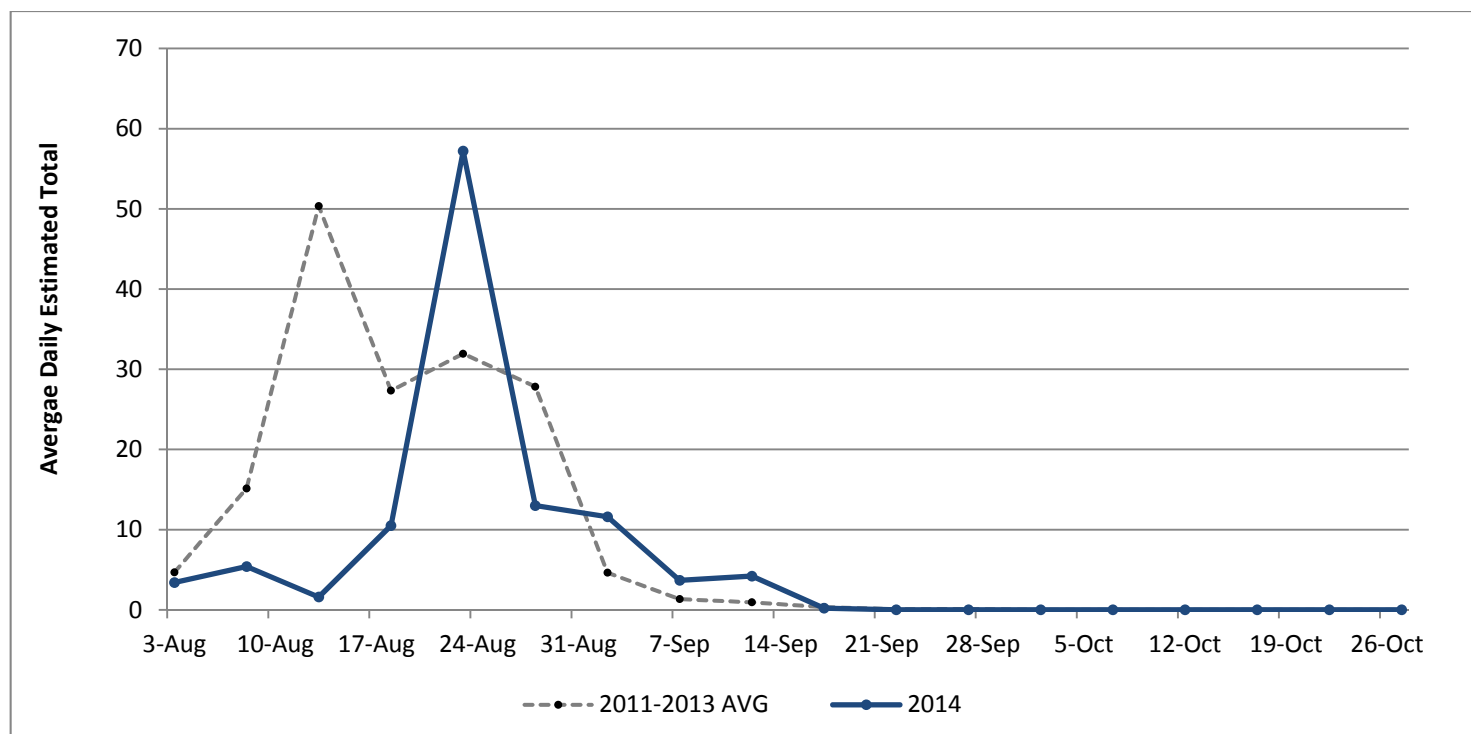
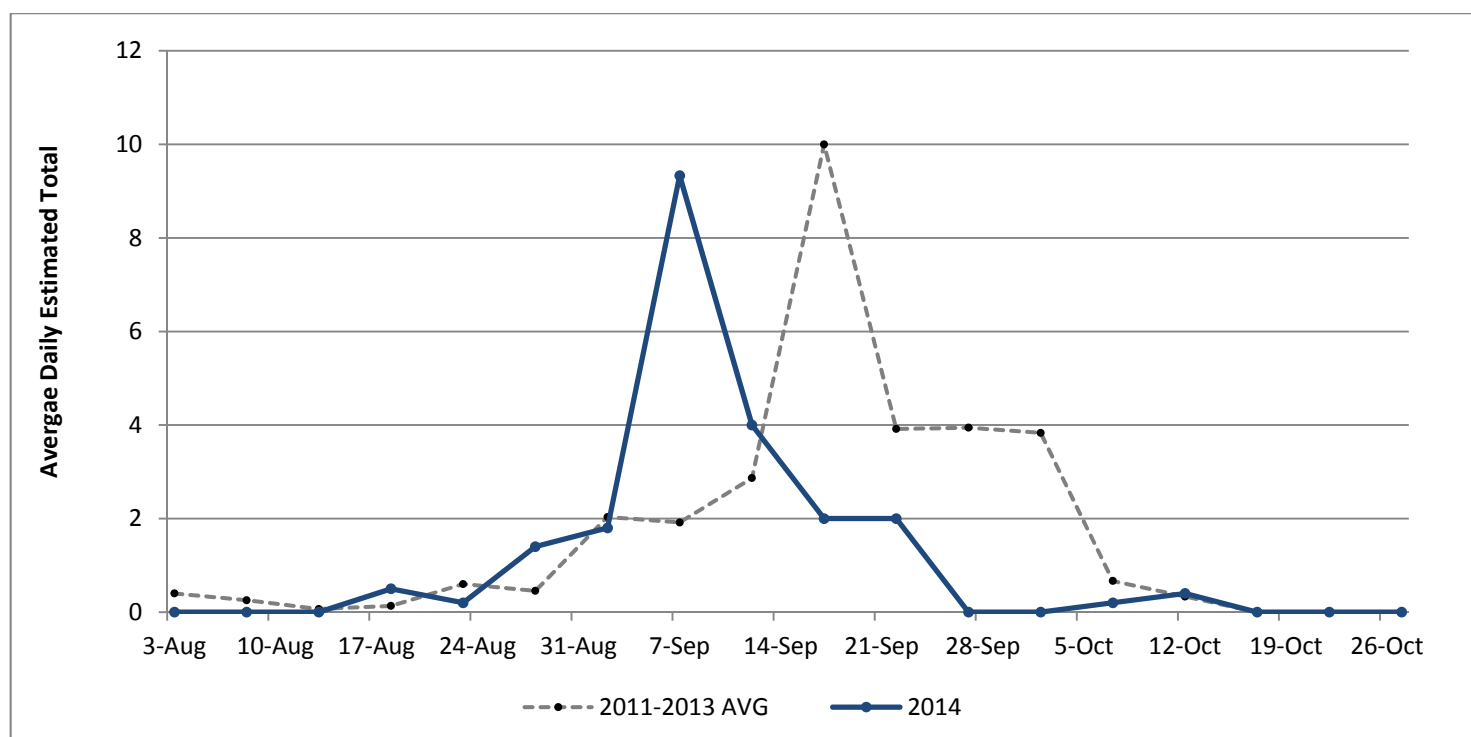


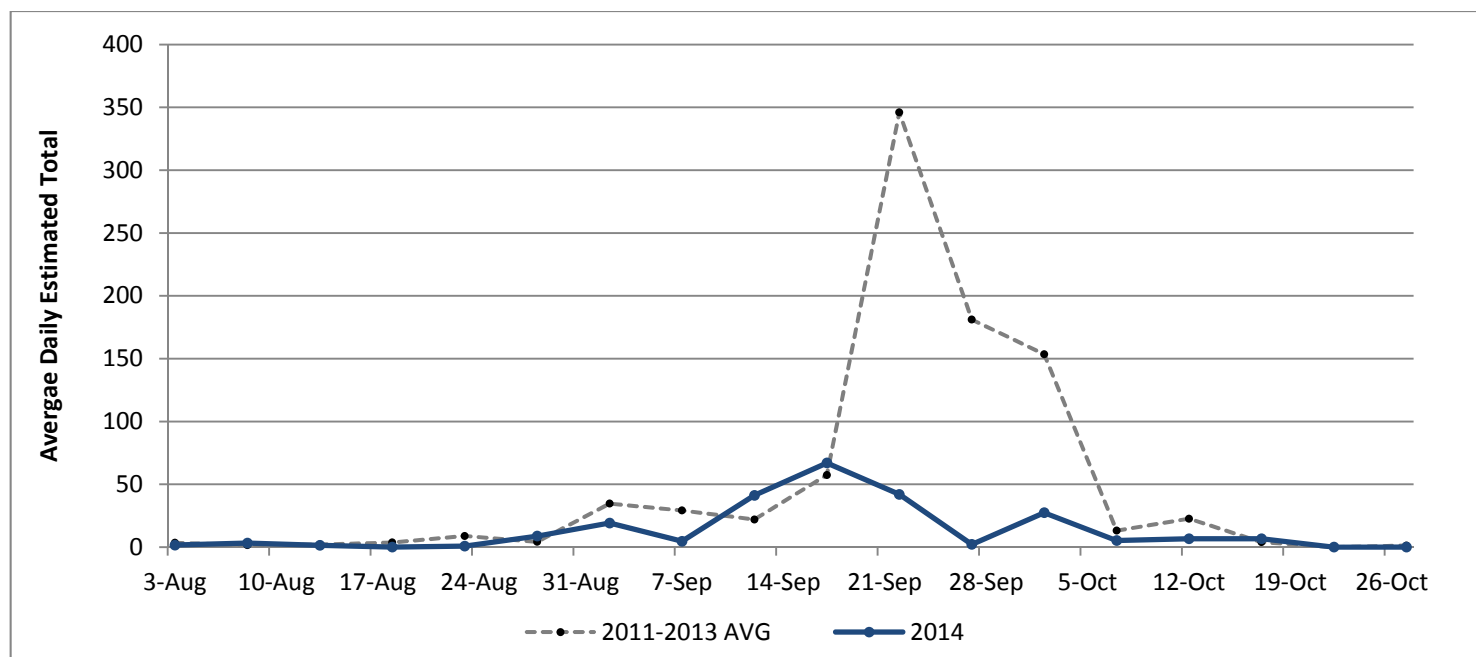
Figure C19. Arctic Tern migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



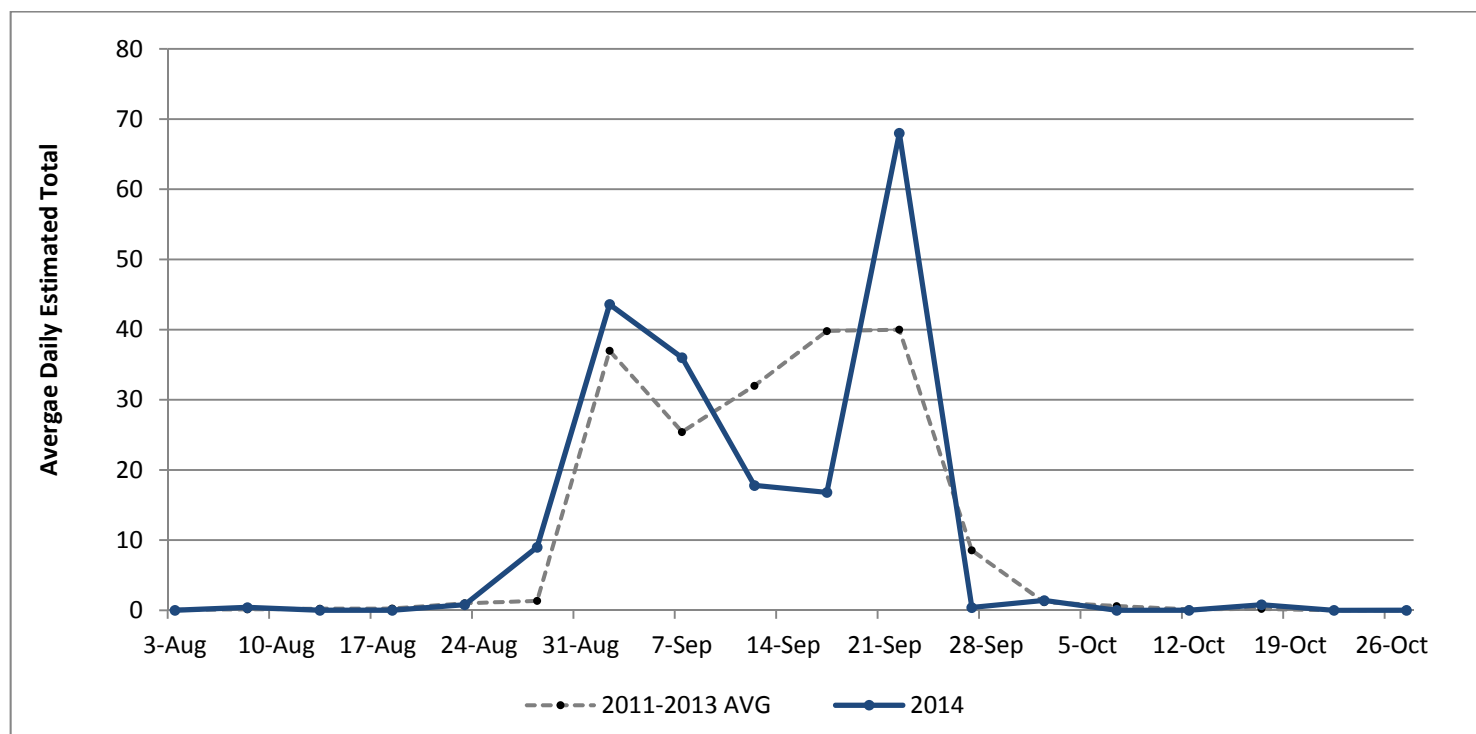
**Figure C20.** Alder Flycatcher migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C21.** Ruby-crowned Kinglet migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C22.** American Robin migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C23.** Varied Thrush migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

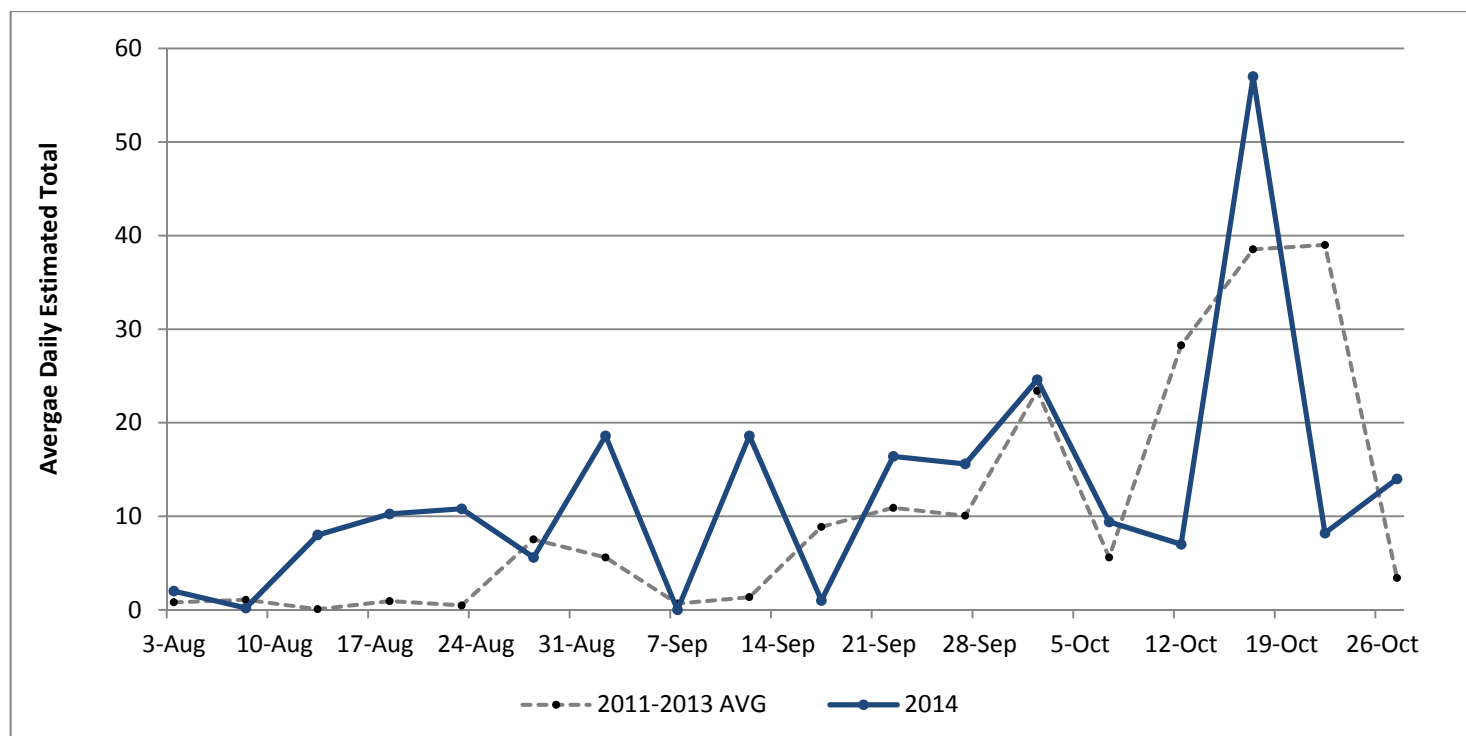


Figure C24. Bohemian Waxwing migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

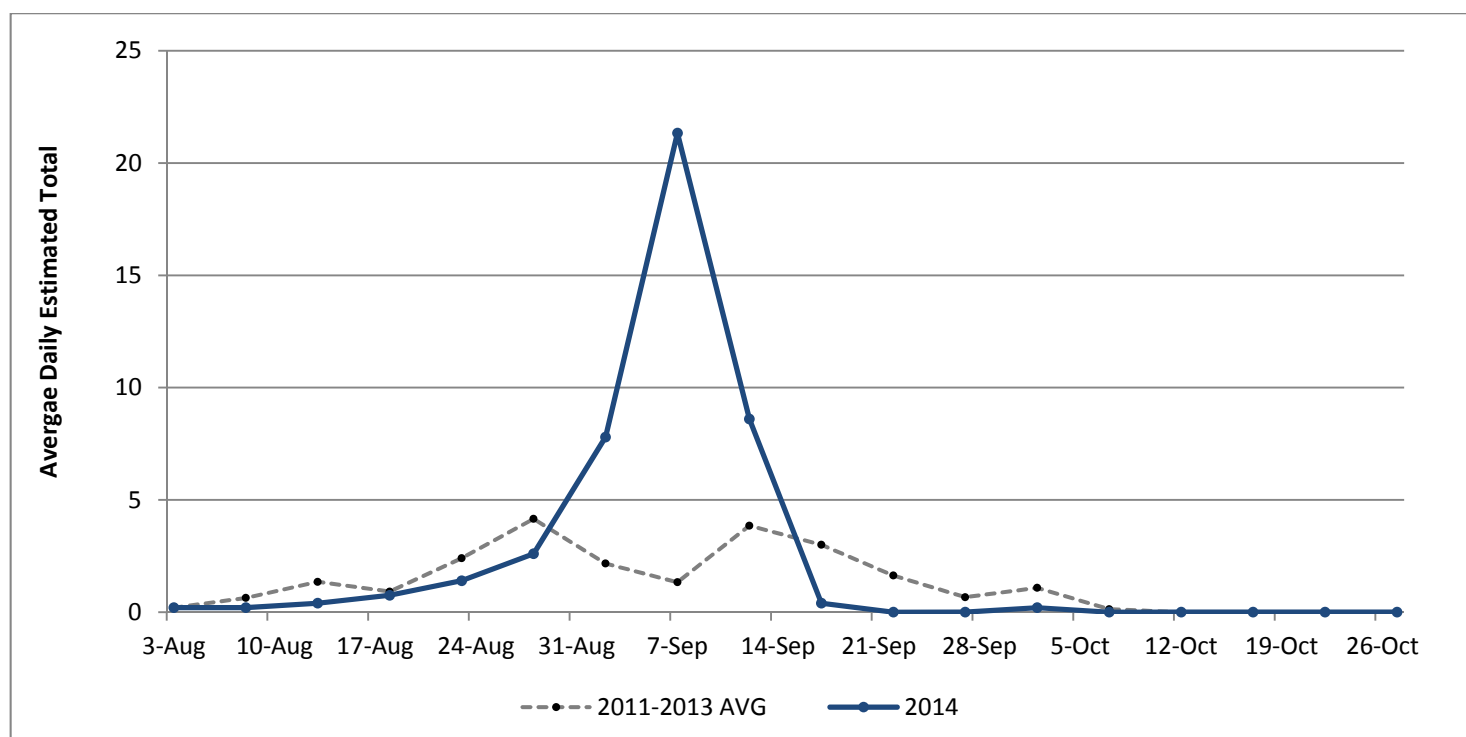
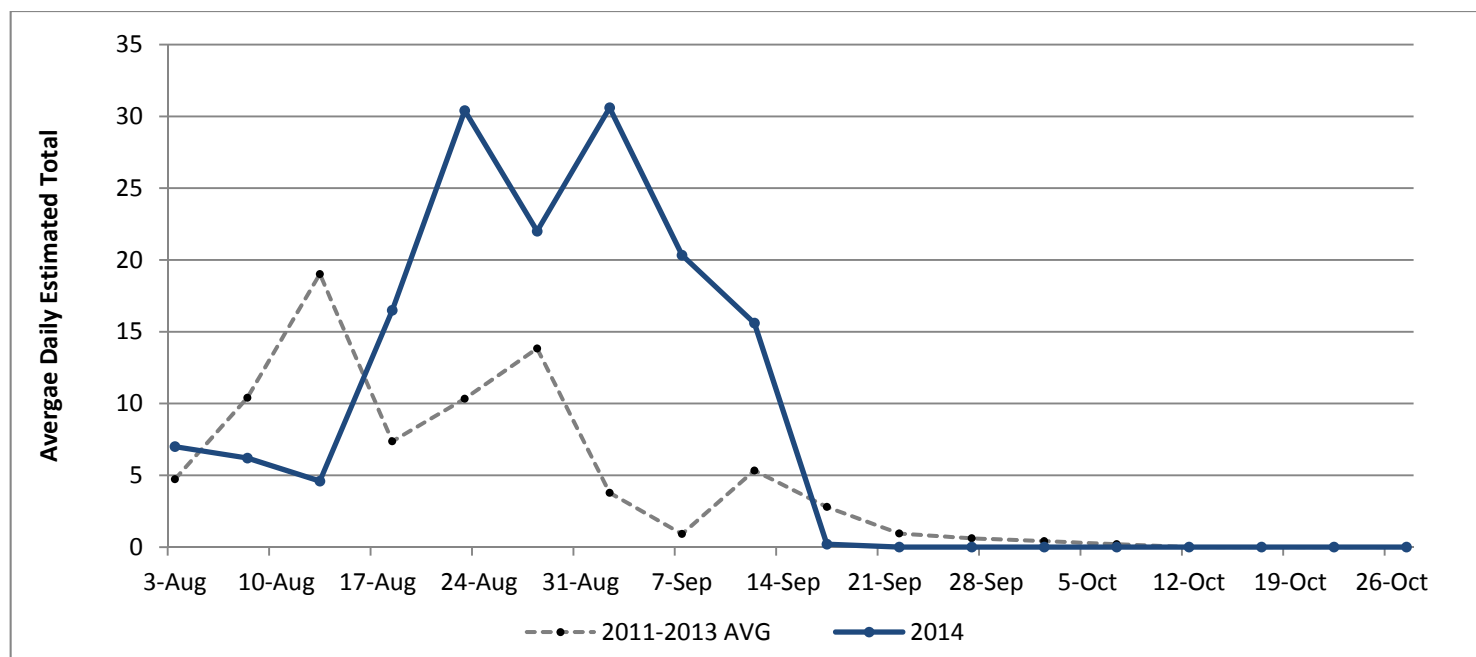
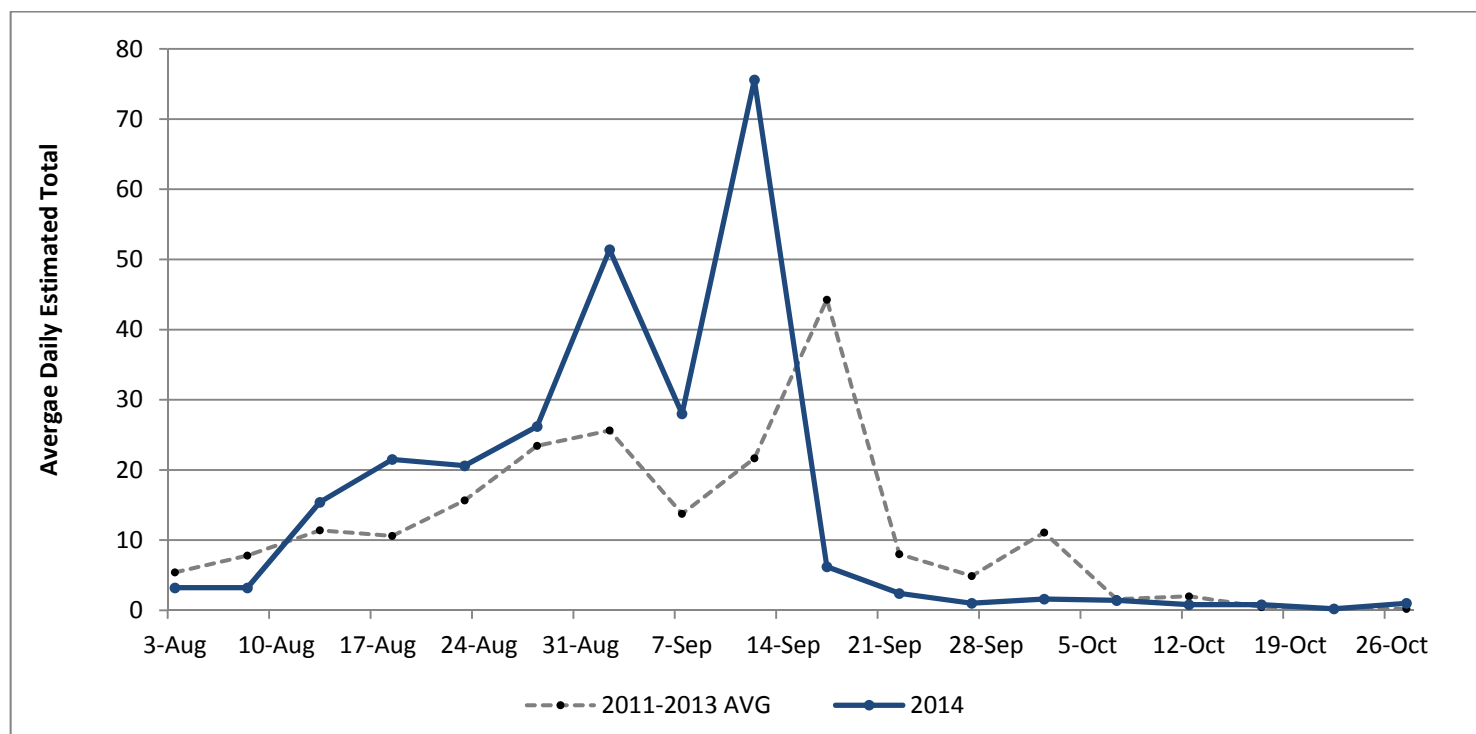


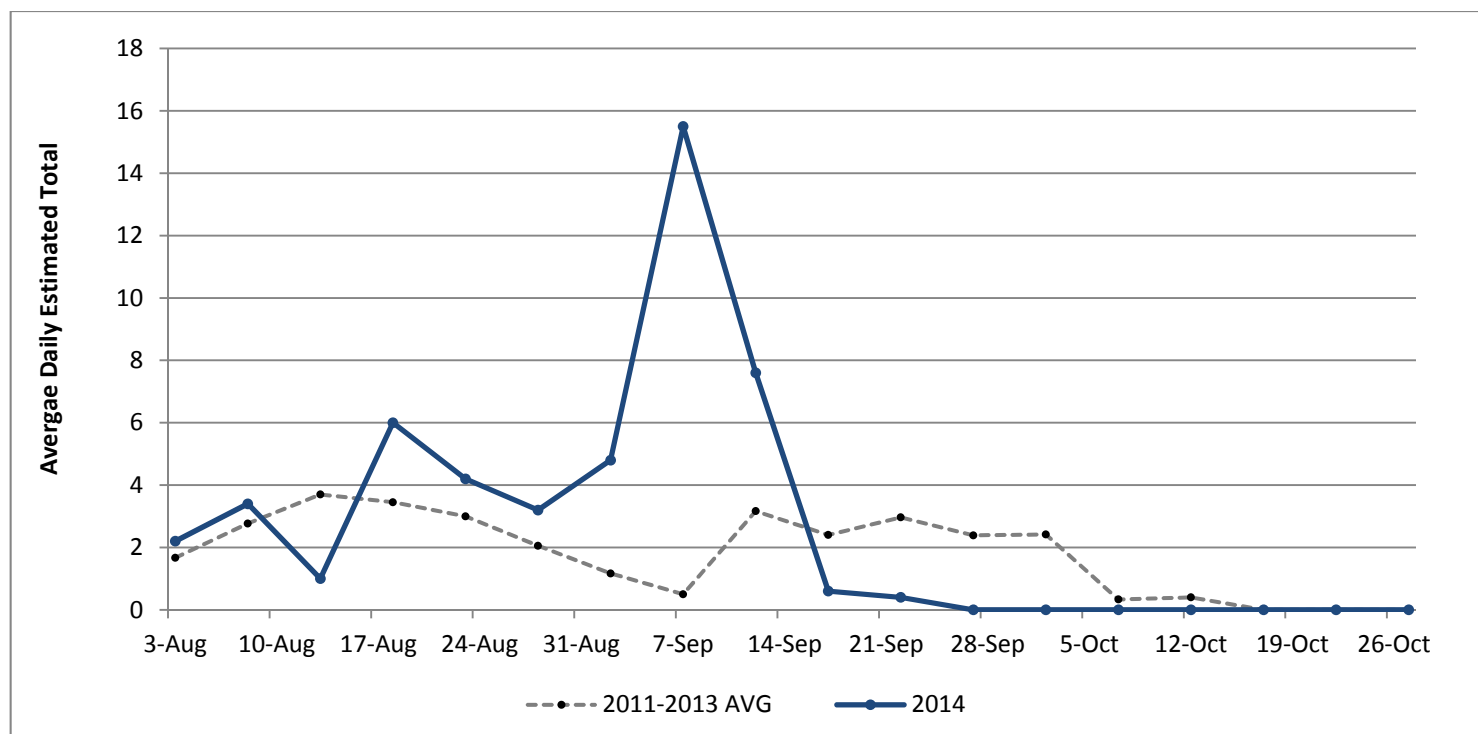
Figure C25. Orange-crowned Warbler migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



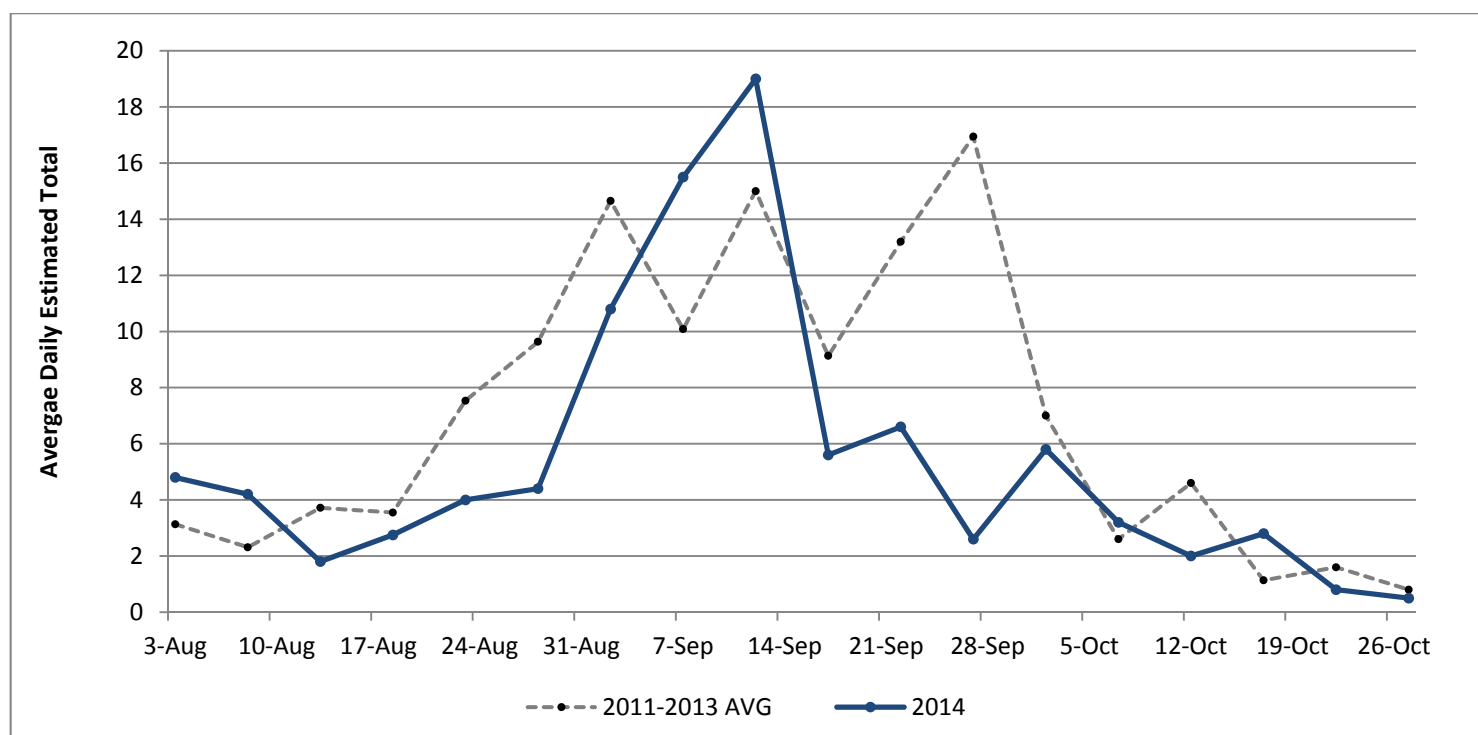
**Figure C26.** Yellow Warbler migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C27.** Myrtle Warbler migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

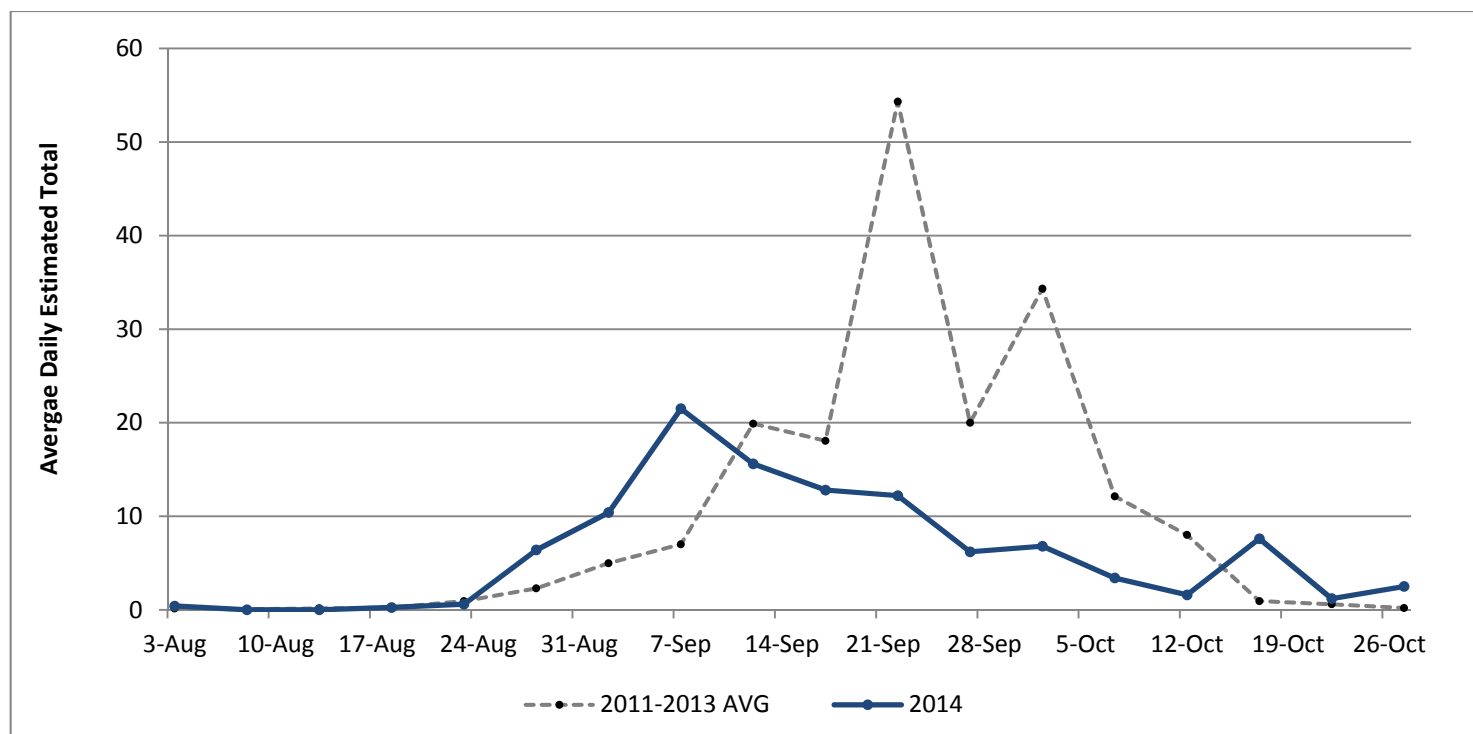


**Figure C28.** Wilson’s Warbler migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

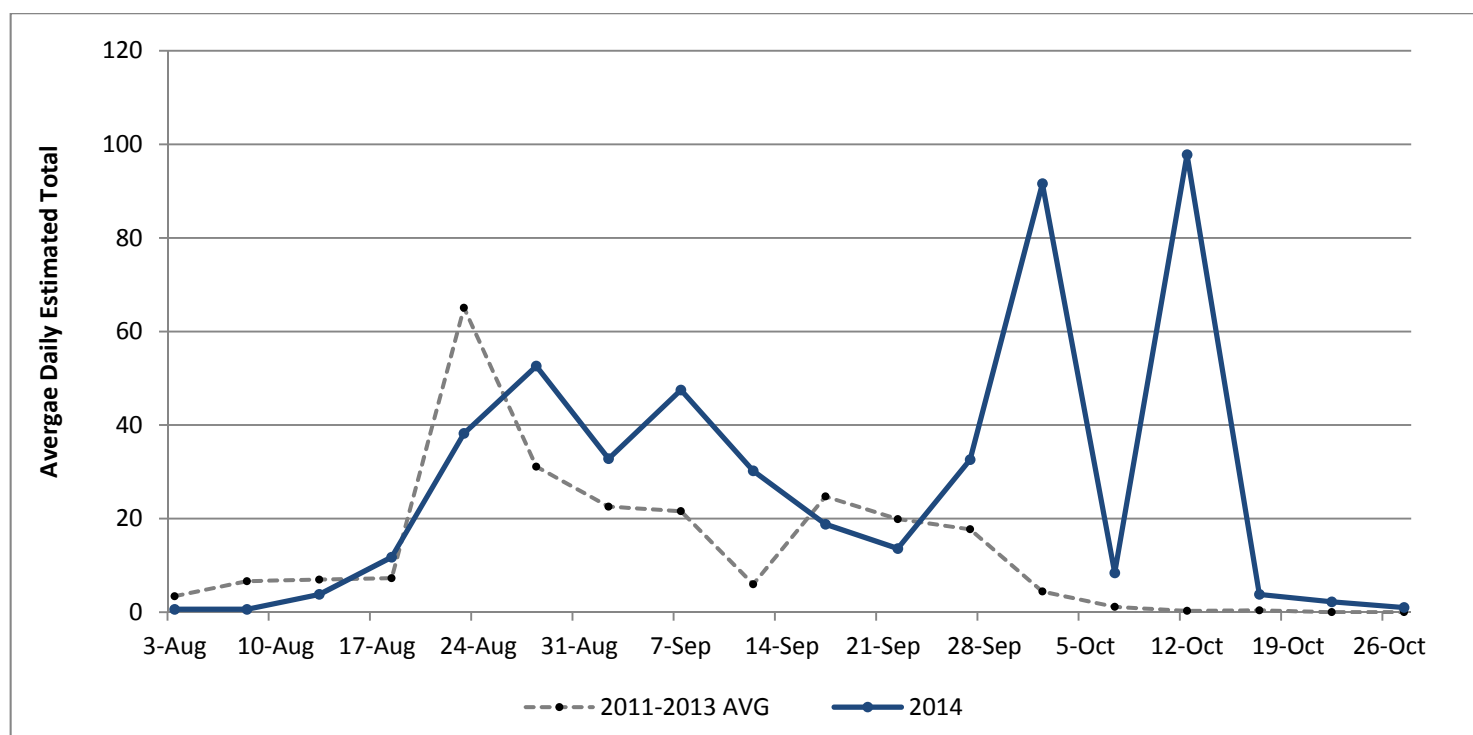


**Figure C29.** Slate-colored Junco migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.

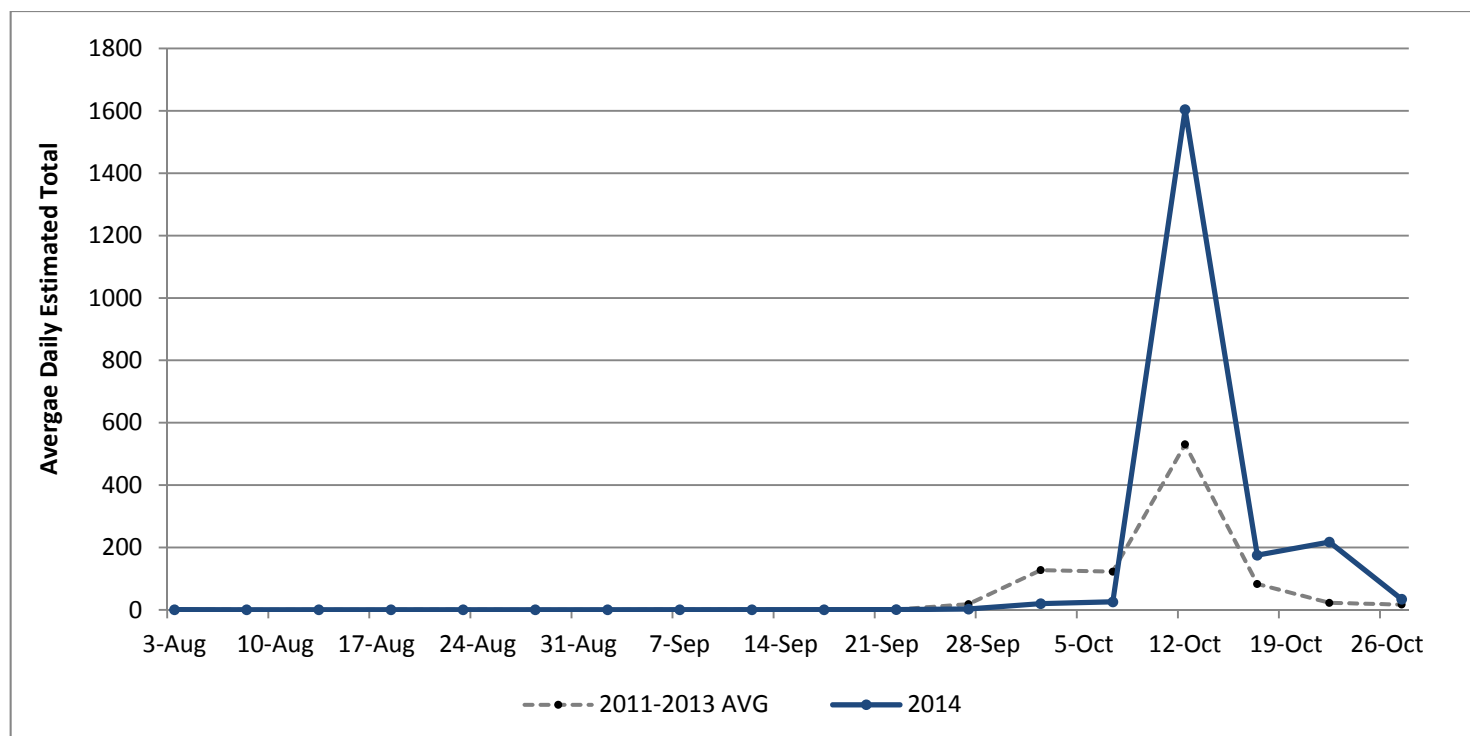




**Figure C30.** Rusty Blackbird migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C31.** Pine Siskin migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.



**Figure C32.** Common Redpoll migration timing at Teslin Lake Bird Observatory during 2014 as compared to 2011-2013.