Teslin Lake Bird Observatory Final Report 2010

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Cover Photos (all taken by Ben Schonewille):
First Row (L to R): Common Yellowthroat, Blackpoll Warbler
Second Row (L to R): Fox Sparrow, Gray-cheeked Thrush
Third Row (L to R): Sharp-shinned Hawk, Yellow Warbler

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EXECUTIVE SUMMARY

The Teslin Lake Bird Observatory completed its third consecutive year of fall migration monitoring during the fall of 2010. This year, the field station operated for a total of 91 days from July 24 to October 24. The primary method of monitoring bird migration through the study site is the use of standardized mist netting and banding of birds captured. Mist netting was conducted from July 24 to October 4 and a total of 3,706 birds of 52 species were banded with 7,451 net hours (49.7 birds/100 net hours). Encountered in high numbers in previous seasons, Alder Flycatcher and Yellow Warbler were once again among of the top 3 species banded, accounting for nearly a third of all individuals banded. With nearly 700 banded, Yellow-rumped "Myrtle" Warblers were banded in record numbers. Irruptive migrants White-winged Crossbill and Pine Siskin were banded in relatively high numbers, 100 and 91, respectively.

The visual migration counts aim to collect monitoring data for bird species not adequately sampled by mist netting. Between July 24 and October 24, 233 hours of visual migration watching resulted in a total of 43,739 birds counted. A primary target of the visual counts are diurnal raptors of which 1,705 individuals of 13 species were counted, including regionally important species for monitoring - Swainson's Hawk and American Kestrel. Lake counts were conducted daily to collect monitoring data for a variety of waterbird species. In particular, all regularly occurring species of loons and grebes were counted in relatively high numbers. These counts also included sightings of a number of gull species considered rare in the Yukon including Sabine's Gull, Little Gull and California Gull. In an effort to increase the collection of monitoring data for waterfowl, a number of stationary counts were surveyed in the southern Yukon with an emphasis on regional species of interest including Greater Scaup, Lesser Scaup, Surf Scoter and White-winged Scoter.

The data collected at the observatory in 2010 builds upon the database of knowledge pertaining to the birds of the Yukon. Over the long term, this data will form a crucial step in the calculation of population trend analyses for numerous bird species including songbirds, raptors, waterbirds and waterfowl.

ACKNOWLEDGEMENTS

Jukka Jantunen was the primary Bander In Charge of the bird observatory during the 2010 season. Jukka's excellent bird identification skills were once again a definite asset to the quality of the data collected at the observatory, particularly during the visual migrant counts which are very challenging for most birders. Jukka also provided many of the superb photographs presented in this report.

The following list summarizes the individuals who played a role in the 2010 operation of the Teslin Lake Bird Observatory.

Jukka Jantunen	Primary Bander In Charge, Report Editing
Ben Schonewille	Station Manager, Assistant Bander, Data Entry/Analysis/Reporting
Ted Murphy-Kelly	Assistant Station Manager, Secondary Bander In Charge, Report Editing
Jillian Johnston	Secondary Bander In Charge
Shyloh van Delft	Bander In Training

Cameron Eckert (YG-Environment), Pam Sinclair (CWS) and Katie Aitken (CWS) provided advice and assisted with project logistics.

Board members of the Society of Yukon Bird Observatories helped administer the Yukon Bird Observatories. The Yukon Conservation Society (Karen Baltgalis, Georgia Greentham) also assisted in the administration of funds for the project.

The following volunteers assisted with the operation of the observatory; 10 to 15 days – Julie Bauer; 5 to 10 days – Jillian Johnstone, Shyloh van Delft, Adam Skrutkowski, Mary Whitely, Gerry Whitely, Tami Hamilton, Gwen Baluss, 1 to 5 days – Ammanda Partridge, Todd Heakes, Helmut Grunberg.

The 2010 operation of the Teslin Lake Bird Observatories would not have been possible without financial assistance from the following organizations / groups; Environment Canada (Canadian Wildlife Service, Ducks Unlimited Canada, Alaska Pipeline Project, Yukon Environment, Yukon Energy, Teslin Renewable Resources Council, Lotteries Yukon, Yukon Bird Club and EDI Environmental Dynamics Inc.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PHOTOS

1.0 Introduction

The Teslin Lake Bird Observatory operated only during the fall migration season in 2010. The observatory completed its sixth year of operation thanks to financial support from several government and non-government agencies.

The goals of the Teslin Lake Bird Observatory are to:

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

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

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

2.0 Methods

The methods for the operation of the bird observatory follow the Teslin Lake Bird Observatory Field Protocol and Manual. A brief summary of the field protocol is described in the following section; however, for a detailed description refer to the aforementioned document. 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 2010 was a canopy net (Net C) near the point which was used on a trial basis. All nets are 30 mm mesh and 12 m in length, with the exception of net 28 which is 18 m in length. The standard mist netting effort begins at official sunrise and continues for 6 hours. The full mist netting effort is achieved only on days when adequate personnel are present onsite and weather conditions are favorable. If this is not possible, the effort is reduced in the number of nets operated rather than reducing the duration of effort.

To supplement the banding data, visual migration counts are conducted on all days of operation. All watches are conducted from a set location (Figure 1) and involve scanning the sky 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. Completed in conjunction with the visual migration counts, a thorough lake count is performed daily to enumerate all birds on or over Teslin Lake. 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. For some species which are not adequately covered by mist netting, the visual counts allow for monitoring data to be collected for these species. For this reason and to collect additional observational data, the observatory attempted the use of 10 fixed location point counts spread throughout the count area. However, this method was not deemed practical and 4 short "census legs" were established instead and used on a trial basis during 2010. Incidental observations are also collected on an opportunistic manner while conducting other tasks at the observatory. All monitoring activities at the observatory can be separated into standardized and non-standardized. To facilitate long term analysis of the observatory's data, the standardized data is collected in the same format year after year. Non standardized activities may include species specific mist nets within the count area or the collection of banding / observation data outside of the standard count period.

2.1 Study Site

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

Figure 1. Overview of study area.

3.0 Results & Discussion

A total of 3,706 birds of 52 species were banded during 2010 and 151 species/forms were observed (Table 1). The all time total number of birds banded at Teslin Lake Bird Observatory is now 14,649 birds of 84 species/forms and 173 species/forms have been observed (Appendix 1). Each component of the 2010 data is summarized and presented in the following subsections; however, a summary account of the 2010 estimated total data is shown in Appendix 2. Note that unless otherwise stated, the results presented in this report combine and summarize both standard and non-standardized data. The standardized data shall be utilized over the long term for the purposes of conducting species trend analysis.

Table 1. Summary statistics of the 2010 fall season.

Week	Date	Days Operated	Birds Banded				Visual Counts		Total Species Observed
			#	Species	Net Hours	#/100 Net Hours	# of Visual Migrants[1]	Counting Hours	
1	24 – 30 Jul	7	360	32	849.4	42.4	83	1.6	64
2	31 Jul – 6 Aug	7	268	24	774.0	34.6	341	6.5	68
3	7 – 13 Aug	7	357	32	730.0	48.9	462	6.9	75
4	14 – 20 Aug	7	566	28	729.3	77.6	63	0.6	60
5	21 – 27 Aug	7	976	32	733.8	133.0	4,606	0.3	52
6	28 Aug – 3 Sep	7	361	26	752.9	47.9	5,738	19.1	83
7	4 – 10 Sep	7	343	24	877.5	39.1	2,748	19.6	81
8	11 – 17 Sep	7	279	24	910.3	30.6	1,707	13.7	76
9	18 – 24 Sep	7	148	14	587.5	25.2	2,198	17.1	67
10	25 Sep – 1 Oct	6	45	8	403	11.2	6,370	29.6	67
11	2 – 8 Oct	6	2	1	50	4.0	1,408	30.1	66
12	9 – 15 Oct	7	1	1	53	1.9	9,449	40.2	65
13	16 – 22 Oct	7	0	0	0	0	6,956	39.5	62
14	23 – 29 Oct	2	0	0	0	0	1,570	7.5	32
ALL	24 Jul – 24 Oct	91	3,706	52	7,451	49.7	43,739	232.8	151

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

Table 2. Top 10 species banded by age ratio during the fall of 2010 and 2009.

Species	2010			2009		
	Fall Season Rank	# Banded	% HY Banded	Fall Season Rank	# Banded	% HY Banded
Yellow-rumped “Myrtle” Warbler	1	673	95	5	284	86
Alder Flycatcher	2	620	90	2	631	75
Yellow Warbler	3	471	73	4	325	72
Dark-eyed Junco	4	420	96	3	582	81
Orange-crowned Warbler	5	271	90	6	180	81
Blackpoll Warbler	6	194	92	10	107	90
Wilson’s Warbler	7	177	93	8	161	91
Ruby-crowned Kinglet	8	109	92	7	175	97
White-winged Crossbill	9	100	4	42	2	100
Pine Siskin	10	91	90	53	1	100

Table 3. Birds banded during the fall of 2010.

Common Name	Scientific Name	# Banded	# Banded / 100 Net Hrs	Common Name	Scientific Name	# Banded	# Banded / 100 Net Hrs
Sharp-shinned Hawk	*Accipiter striatus*	14	0.19	Tennessee Warbler	*Oreothlypis peregrina*	40	0.54
Solitary Sandpiper	*Tringa solitaria*	1	0.01	Orange-crowned Warbler	*Oreothlypis celata*	271	3.64
Spotted Sandpiper	*Actitis macularius*	1	0.01	Yellow Warbler	*Dendroica petechia*	471	6.32
Belted Kingfisher	*Megaceryle alcyon*	5	0.07	Yellow-rumped Warbler	*Dendroica coronata*	673	9.03
Downy Woodpecker	*Picoides pubescens*	3	0.04	Townsend's Warbler	*Dendroica townsendii*	10	0.13
Northern Flicker	*Colaptes auratus*	1	0.01	Blackpoll Warbler	*Dendroica striata*	194	2.60
Western Wood-Pewee	*Contopus sordidulus*	5	0.07	American Redstart	*Setophaga ruticilla*	30	0.40
Yellow-bellied Flycatcher	*Empidonax flaviventris*	11	0.15	Northern Waterthrush	*Parkesia noveboracensis*	54	0.72
Alder Flycatcher	*Empidonax alnorum*	620	8.32	MacGillivray's Warbler	*Oporornis tolmiei*	2	0.03
Least Flycatcher	*Empidonax minimus*	3	0.04	Common Yellowthroat	*Geothlypis trichas*	70	0.94
Hammond's Flycatcher	*Empidonax hammondi*	17	0.23	Wilson's Warbler	*Wilsonia pusilla*	177	2.38
Dusky Flycatcher	*Empidonax oberholseri*	3	0.04	American Tree Sparrow	*Spizella arborea*	21	0.28
Say's Phoebe	*Sayornis saya*	1	0.01	Chipping Sparrow	*Spizella passerina*	18	0.24
Northern Shrike	*Lanius excubitor*	1	0.01	Savannah Sparrow	*Passerculus sandwichensis*	18	0.24
Warbling Vireo	*Vireo gilvus*	19	0.25	Fox Sparrow	*Passerella iliaca*	28	0.38
Gray Jay	*Perisoreus canadensis*	4	0.05	Song Sparrow	*Melospiza melodia*	1	0.01
Common Raven	*Corvus corax*	1	0.01	Lincoln's Sparrow	*Melospiza lincolnii*	15	0.20
Black-capped Chickadee	*Poecile atricapillus*	22	0.30	Swamp Sparrow	*Melospiza georgiana*	1	0.01
Red-breasted Nuthatch	*Sitta canadensis*	2	0.03	White-crowned Sparrow	*Zonotrichia leucophrys*	36	0.48
Golden-crowned Kinglet	*Regulus satrapa*	2	0.03	Dark-eyed Junco	*Junco hyemalis*	420	5.64
Ruby-crowned Kinglet	*Regulus calendula*	109	1.46	Rusty Blackbird	*Euphagus carolinus*	20	0.27
Gray-cheeked Thrush	*Catharus minimus*	8	0.11	White-winged Crossbill	*Loxia leucoptera*	100	1.34
Swainson's Thrush	*Catharus ustulatus*	53	0.71	Common Redpoll	*Acanthis flammea*	1	0.01
Hermit Thrush	*Catharus guttatus*	12	0.16	Pine Siskin	*Spinus pinus*	91	1.22
American Robin	*Turdus migratorius*	9	0.12	TOTAL INDIVIDUALS BANDED		3706	49.74
Varied Thrush	*Ixoreus naevius*	5	0.07	TOTAL SPECIES BANDED		52	
Cedar Waxwing	*Bombycilla cedrorum*	2	0.03				

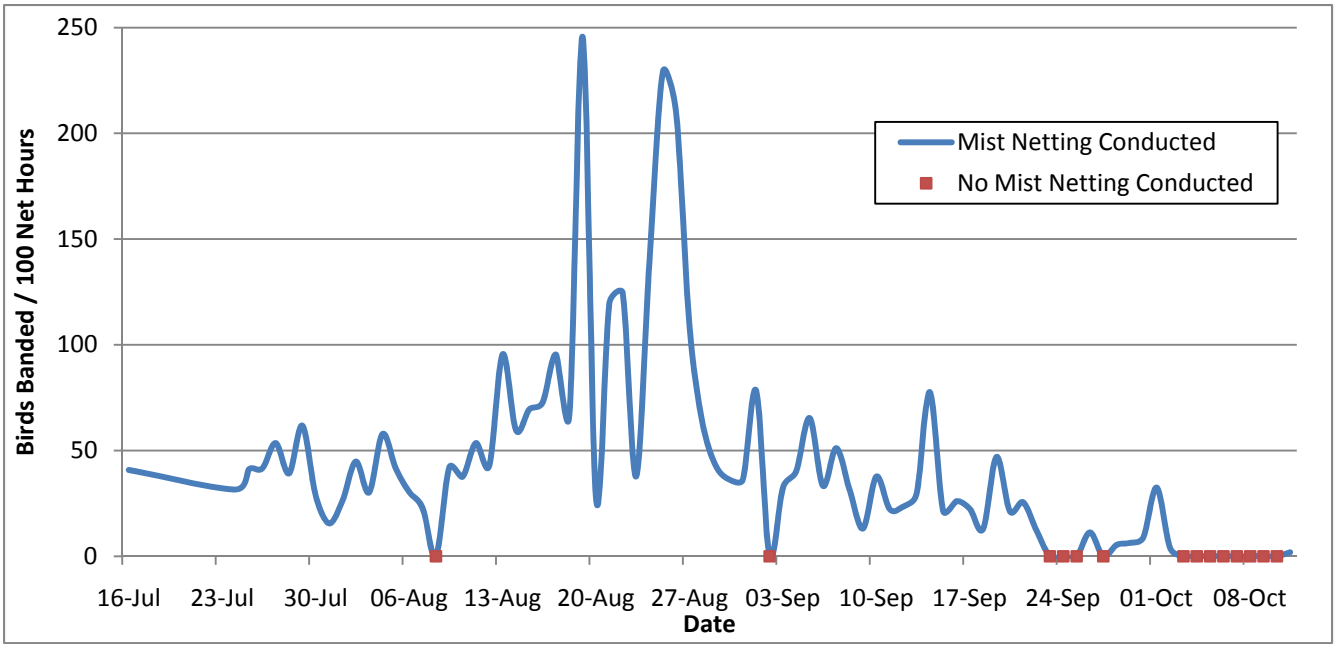

Figure 2. Summary of birds banded per 100 net hours during the fall of 2010.

The productivity of the standard mist nets suggest that the majority of birds moving through the count area pass directly along the shoreline of Teslin Lake as suggested by the highest capture rates in mist nets 7, 10, 18 and 20 (Figure 3). Note that although a portion of the mist nets placed away from the lakeshore and in taller vegetation (nets 5, 25 to 27) lack high capture rates, these nets capture species not typically caught on the lakeshore such as Swainson's Thrush and Varied Thrush. In years with a more productive crop of berries (primarily soapberry), these mist nets are likely to be much more productive.

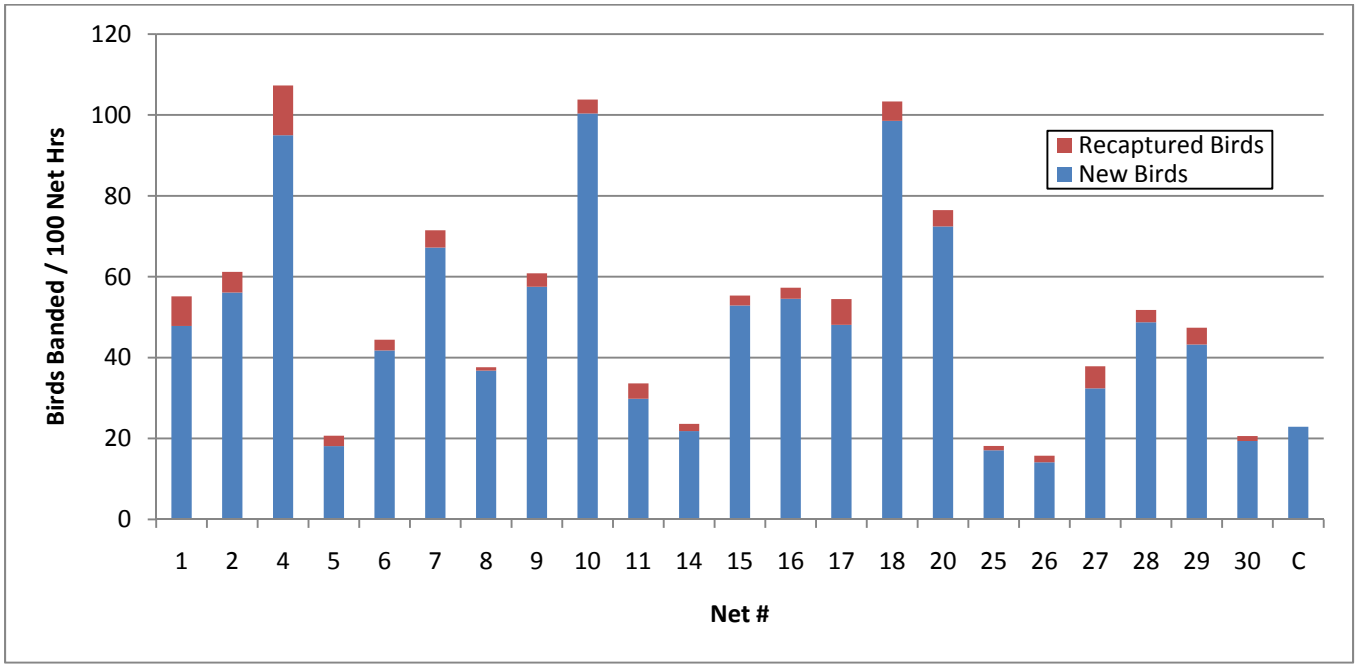

Figure 3. Number of birds banded per mist net during the fall of 2010.

3.1 Migration Timing

As the observatory operation includes standardized mist netting on a daily basis, the bird banding data collected can be used to investigate the migration timing of numerous bird species. Generalized migration timing for temperate, neotropical and irruptive migrants is presented in Figure 4. The peak in fall migration occurred in the final two weeks of August, particularly for neotropical migrants (warblers, flycatchers, etc). Temperate migrants (primarily sparrows) outnumber neotropical migrants only during the later portion of the season (after September 10). Relatively few irruptive migrants were banded; however, there were two peaks in the capture of these species. The peak occurred from July 28 to August 12 and was due to the capture of numerous White-winged Crossbills. The second peak occurred from September 16 to 25 and was due to the capture of numerous Pine Siskins.

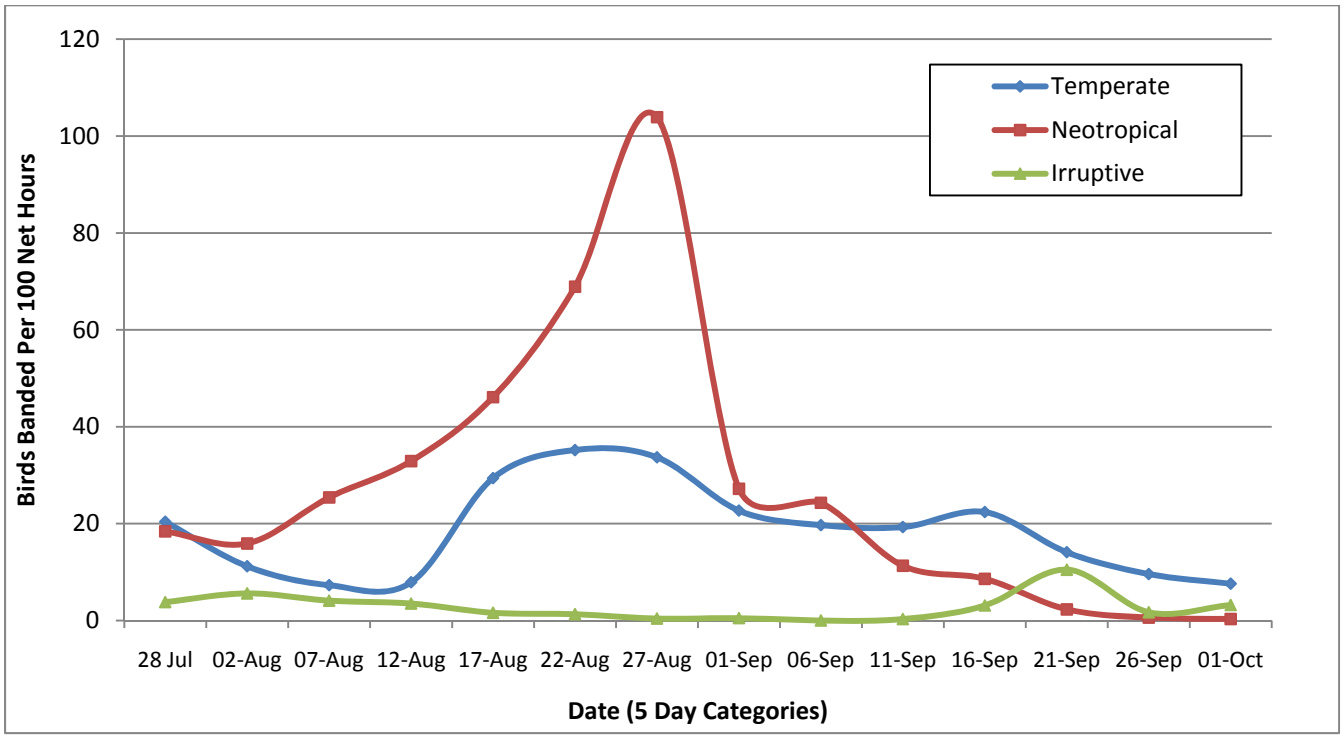

Figure 4. Migration timing for temperate, neotropical and irruptive migrants banded during the fall of 2010.

Migration timing is influenced by a number of factors including weather, diet, timing of breeding, overwintering destination, molt strategy and age. For species which exhibit pre-migration pre-basic molt, the juveniles migrate earlier than adults. This pattern is supported by data collected at the observatory for numerous species including Yellow Warbler, Orange-crowned Warbler and Blackpoll Warbler, among others (Table 4). A different approach is taken for species which exhibit a post-migration pre-basic molt strategy. For example, adult Alder Flycatchers migrate prior to juveniles (Table 4).

Table 4. Summary of migration timing and proportion of molting adults for top 30 bird species banded during 2010.

Migratory Group	Species	Molt Strategy[1]	Adults in Flight Feather Molt (%)[2]	Hatch Year Birds (%)	Adults		Juveniles	
					Mean Date	Number of Birds	Mean Date	Number of Birds
Neotropical Migrants	Yellow-bellied Flycatcher	Post	NA	100	-	0	14 Aug	11
	Alder Flycatcher	Post	0	89.8	13 Aug	63	21 Aug	557
	Hammond's Flycatcher	Pre	0	88.2	-	2	9 Aug	15
	Warbling Vireo	MM	0	82.6	-	4	10 Aug	19
	Swainson's Thrush	Pre	38.5	75.5	19 Aug	13	17 Aug	40
	Chipping Sparrow	MM	0	94.4	-	1	4 Aug	17
	Tennessee Warbler	MM	0	97.5	-	1	8 Aug	39
	Orange-crowned Warbler	Pre	7.7	90.4	2 Sep	26	24 Aug	245
	Yellow Warbler	Pre	25.9	73.0	26 Aug	127	17 Aug	344
	Townsend's Warbler	Pre	-	100	-	0	5 Aug	10
	Blackpoll Warbler	Pre	62.5	91.8	24 Aug	16	13 Aug	178
	American Redstart	Pre	40.0	83.3	-	5	9 Aug	25
	Northern Waterthrush	Pre	25.0	92.6	-	4	10 Aug	50
	Common Yellowthroat	Pre	0	82.9	6 Sep	12	23 Aug	58
	Wilson's Warbler	Pre	8.3	93.2	5 Sep	12	22 Aug	165
Temperate Migrants	Sharp-shinned Hawk	Pre	0	92.9	-	1	24 Aug	13
	Ruby-crowned Kinglet	Pre	11.1	91.7	15 Sep	9	3 Sep	100
	Hermit Thrush	Pre	-	100	-	0	7 Sep	12
	Yellow-rumped Warbler	Pre	84.8	95.1	19 Aug	33	17 Aug	640
	American Tree Sparrow	Pre	0	90.5	-	2	13 Sep	19
	Savannah Sparrow	Pre	0	94.4	-	1	24 Aug	17
	Fox Sparrow	Pre	-	100	-	0	31 Aug	28
	Lincoln's Sparrow	Pre	0	92.9	-	1	21 Aug	13
	White-crowned Sparrow	Pre	0	94.4	-	2	22 Aug	34
	Dark-eyed Junco	Pre	29.4	95.9	2 Sep	17	4 Sep	402
	Rusty Blackbird	Pre	-	100	-	0	2 Sep	20
	Purple Finch	Pre	-	100	-	0	26 Jul	10
Irruptive Migrants	Black-capped Chickadee	Pre	0	90.9	-	2	1 Aug	20
	White-winged Crossbill	Pre	27.1	4.0	11 Aug	96	-	4
	Pine Siskin	Pre	11.1	90.1	22 Aug	9	18 Sep	82

[1] Post = post migration, Pre = pre migration, MM = molt migration

[2] Showing visible flight feather molt (primaries, secondaries and tertials)

3.2 Band Repeats, Returns & Recoveries

The proportion of band repeats was relatively low (4.7%) during the 2010 season (Table 5). These results indicate that there is a very high turnover of migrants through the study site. For the purpose of migration monitoring, this is the preferred scenario as there is a limited amount of double counting the same individuals on consecutive days.

Table 5. Summary of band repeats during the fall 2009 season.

Species	# of Individuals Recaptured	% or 2010 Original Bandings	Maximum # of Days From Original Banding	Average # of Days From Original Banding
Alder Flycatcher	5	8.1	4	2
American Redstart	1	3.3	-	1
American Tree Sparrow	1	4.8	-	2
Black-capped Chickadee	9	40.9	78	6
Blackpoll Warbler	18	9.3	10	4
Common Yellowthroat	1	1.4	-	2
Dusky Flycatcher	1	33.3	-	1
Yellow-rumped Warbler	32	4.8	31	6
Northern Waterthrush	11	20.4	20	8
Orange-crowned Warbler	5	1.8	9	4
Purple Finch	1	10.0	-	1
Ruby-crowned Kinglet	3	2.8	3	2
Rusty Blackbird	3	15.0	3	2
Dark-eyed Junco	34	8.1	57	15
Swamp Sparrow	1	50.0	-	1
Swainson's Thrush	6	11.3	36	19
Tennessee Warbler	6	15.0	8	6
Townsend's Warbler	1	10.0	-	7
Wilson's Warbler	2	0.4	2	-
White-winged Crossbill	8	8.0	61	10
Yellow Warbler	25	5.3	28	6
ALL SPECIES	174	4.7	-	-

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 very low. During 2010, the observatory had 9 band returns representing 6 species (
Table 6). As Black-capped Chickadee is a year round resident at the site, the recapture of two individuals banded in 2006 and 2007 is not unexpected. These two individuals have been recaptured annually since their initial banding. The remaining species recaptured (American Robin, Yellow Warbler, Yellow-rumped Warbler, Northern Waterthrush and Dark-eyed Junco) are species which breed within the area. It is most likely that these individuals represent local breeders; however, for individuals recaptured later in the season (after early September), it is possible that these are migrants.

Table 6. Summary of band returns during the fall 2010 season.

Species	Band Number	Banded			Recaptured		
		Date	Age – Sex	Location	Date	Age	Location
Black-capped Chickadee	2400-70951	26 Apr 2006	AHY-U	Teslin Lake	15 Sep 2010	ASY	Teslin Lake
Black-capped Chickadee	2430-38543	29 Apr 2007	AHY-U	Teslin Lake	16 Sep 2010	ASY	Teslin Lake
American Robin	1232-25927	7 May 2008	ASY-U	Teslin Lake	24 Jul 2010	ASY	Teslin Lake
Yellow Warbler	2500-70456	10 Aug 2008	HY-U	Teslin Lake	14 Aug 2010	ASY	Teslin Lake
Yellow Warbler	2560-32161	30 Jul 2009	AHY-M	Teslin Lake	24 Jul 2010	ASY	Teslin Lake
Yellow Warbler	2560-32211	3 Aug 2009	HY-U	Teslin Lake	17 Aug 2010	SY	Teslin Lake
Yellow-rumped Warbler	2560-34836	2 Sep 2009	AHY-F	Teslin Lake	11 Sep 2010	ASY	Teslin Lake
Northern Waterthrush	2400-70667	2 Jun 2006	AHY-U	Teslin Lake	16 Jul 2010	ASY	Teslin Lake
Slate-colored Junco	2311-84005	1 Sep 2009	AHY-M	Teslin Lake	11 Sep 2010	ASY	Teslin Lake

Foreign band recoveries are a very infrequent event; to date, the observatory has had two such recoveries and also recovered one bird from another location (Table 7). Most recently, a Sharp-shinned Hawk banded as a hatch year male in mid August 2009 was trapped and released at Idaho Bird Observatory near Boise, Idaho.

Table 7. Summary of foreign band recoveries at Teslin Lake Bird Observatory.

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

3.3 Census Legs

In an attempt to boost the observational data collected at the observatory, 4 census legs were established within the count area. The rational for short distance census legs rather than a full length census is that shorter legs are easier to complete with a limited number of qualified observers. During 2010, 80 census legs were surveyed on 26 days of the observatory's operation. Overall, the census legs were not successful in boosting the number of birds counted on a daily basis. On a small number of occasions, the census legs identified species not counted using other methods. The study site is relatively small and much of the count area is traversed while checking the mist nets. Coupled with the visual migration counts and lake counts, these methods appear to adequately monitor most species of birds at the site.

3.4 Molt Scoring

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

together. During 2010, a total of 122 molt scores were obtained from 16 species (Table 8). This data is useful to investigate the progress of molt over time as shown by the following figure for Yellow-rumped "Myrtle" Warbler (Figure 5).

Table 8. Summary of molt scores collected during the fall 2010 season.

Species	Number of Individuals Scored	Total Number of Molt Scores
American Redstart	2	2
American Robin	4	4
Belted Kingfisher	1	1
Blackpoll Warbler	9	10
Gray-cheeked Thrush	1	1
Lincoln's Sparrow	1	1
Yellow-rumped Warbler	28	28
Northern Waterthrush	1	1
Orange-crowned Warbler	2	2
Pine Siskin	1	1
Ruby-crowned Kinglet	1	1
Dark-eyed Junco	3	5
Swainson's Thrush	5	5
Wilson's Warbler	1	1
White-winged Crossbill	25	26
Yellow Warbler	31	33

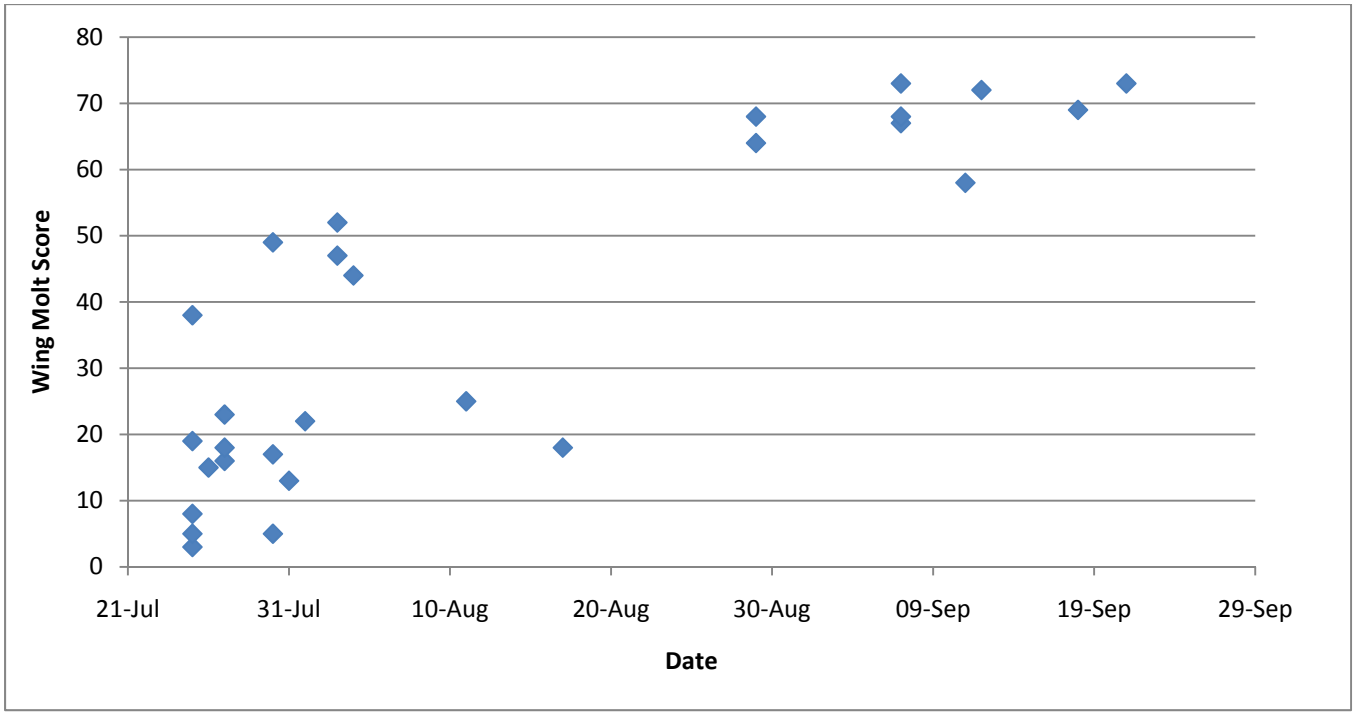

Figure 5. Yellow-rumped "Myrtle" Warbler molt scores over time during the fall of 2010.

3.5 Visual Migration Counts

The visual migration counts provide a means to observe numerous species not typically observed using other methods. The counts are especially useful in observing raptors in migration and also serve as a means for observing waterfowl and waterbirds on Teslin Lake. Note that birds seen during the migration counts which are not in active migration flight are not included in this section. During the fall 2010 season, visual migration watching (standard & nonstandard) was conducted for 233 hours (Figure 6). The following section summarizes the visual count data by species groups.

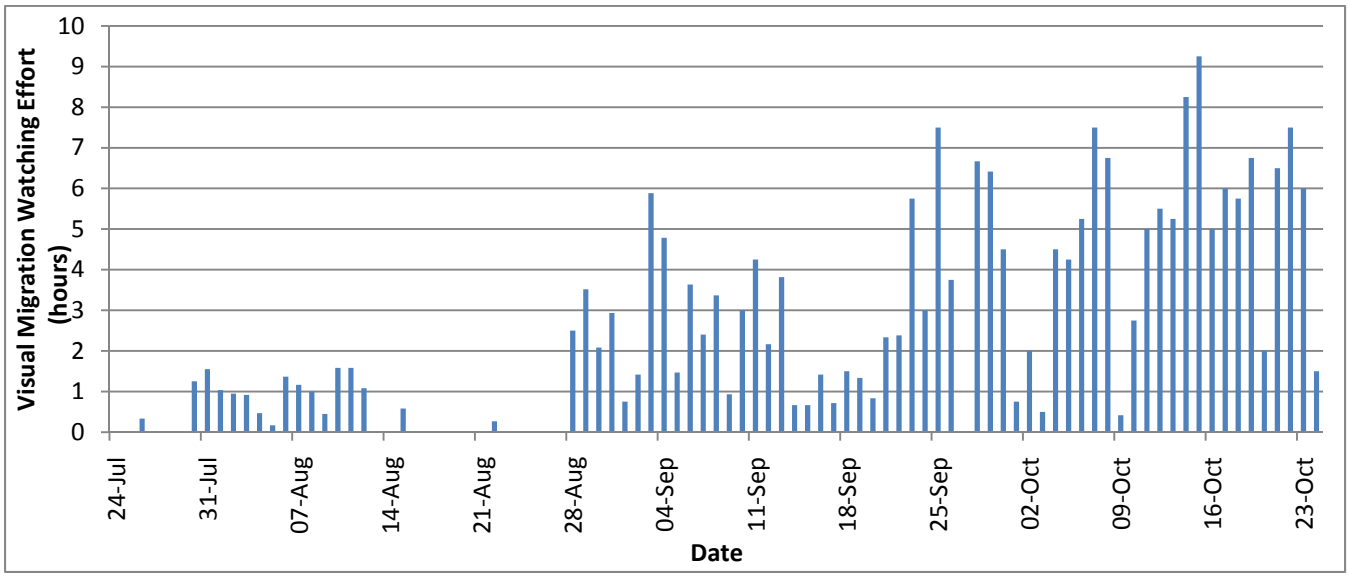

Figure 6. Summary of visual migrant watching effort during the fall 2010 season (includes standard & nonstandard effort).

3.5.1 Loons & Grebes

A total of 840 loons and grebes were observed during the 2010 visual counts (Table 9). The majority (86%) of these were Pacific Loons. As a group, these species are better suited to being monitored through the lake counts (Section 3.6).

Table 9. Summary of loons & grebes observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Red-throated Loon	10	5	6	4	16
Pacific Loon	724	17	-	-	724
Common Loon	25	10	6	4	31
Yellow-billed Loon	1	1	-	-	1
Unidentified Loon	*1*	*1*	-	-	*1*
Red-necked Grebe	26	16	28	14	54
Horned Grebe	9	5	4	3	13

3.5.2 Geese, Swans & Ducks

A total of 22,049 individual waterfowl representing 24 species were observed during the 2010 visual counts (Table 10). The vast majority of these were swans and geese, 11,016 and 9,439, respectively. Eighty-eight percent of the swans identified to species were Tundra Swans and, coincidentally, 88% of the geese identified to species were Greater White-fronted Geese. Swans and geese are well suited to being monitored by the visual counts as at the observatory; they are very infrequently observed while not in active migration flight. In terms of ducks, 1,594 individuals of 18 species were counted. Species observed in the highest numbers included Surf Scoter and Lesser Scaup. Along with mergansers, these species were also observed during the lake counts (Section 3.6). As a whole, the dabbling ducks were not well represented in the visual migration counts.

Table 10. Summary of geese, swans & ducks observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Greater White-fronted Goose	2269	15	5791	9	8060
Snow Goose	188	2	-	-	188
Canada Goose	708	12	122	5	830
Unidentified Goose	*361*	*6*	-	-	*361*
Trumpeter Swan	1049	14	14	1	1063
Tundra Swan	7836	17	346	3	8182
Bewick's Swan	1	1	-	-	1
Unidentified Swan	*1756*	*12*	*14*	*2*	*1770*
American Wigeon	258	8	10	1	258
Mallard	190	10	-	-	190
Northern Shoveler	7	2	-	-	7
Northern Pintail	114	5	14	3	114
Canvasback	8	1	9	2	8
Ring-necked Duck	1	1	1	1	1
Greater Scaup	99	6	16	3	99
Lesser Scaup	334	13	87	6	334
Harlequin Duck	1	1	-	-	1
Surf Scoter	138	9	41	5	138
White-winged Scoter	71	6	8	2	79
Long-tailed Duck	2	1	-	-	2
Bufflehead	19	6	-	-	19
Common Goldeneye	50	13	1	1	51
Barrow's Goldeneye	10	2	-	-	10
Unidentified Goldeneye	*4*	*1*	*2*	*1*	*6*
Hooded Merganser	1	1	-	-	1
Common Merganser	50	8	30	1	80
Red-breasted Merganser	11	3	40	1	51
Unidentified Duck	*73*	*5*	*72*	*9*	*145*

When possible, the age of visual migrants was also recorded. In the case of swans this is often done readily due to their size and relative ease of determining age. For both species of swans, a substantially higher proportion of adults were observed in relation to juveniles (Table 11). Although a large portion remained unspecified, this is due to the distance or the overall number of birds observed did not allow sufficient time for a thorough age determination to be made.

Table 11. Summary of age breakdown of swans observed during 2010 visual migration counts.

Species	Proportion of Individuals Observed (%)		
	Adult	Juvenile	Unspecified
Trumpeter Swan	48	10	42
Tundra Swan	22	4	74

3.5.3 Diurnal Birds of Prey

A total of 1,705 diurnal birds of prey were counted during the 2010 visual counts and as incidental "other visual migrants" (Table 10) representing 13 species. The most numerous species observed was Red-tailed Hawk, followed by Sharp-shinned Hawk, Golden Eagle, Northern Harrier and Rough-legged Hawk. For most of the diurnal birds of prey, the only individuals observed were visual migrants. For this reason, this form of counting is an effective method for migration monitoring of diurnal birds of prey at the observatory.

Table 12. Summary of diurnal birds of prey observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Osprey	21	9	1	1	22
Bald Eagle	82	22	-	-	82
Northern Harrier	230	40	7	5	237
Sharp-shinned Hawk	307	39	6	4	313
Northern Goshawk	17	13	-	-	17
Swainson's Hawk	12	3	-	-	12
Red-tailed Hawk	397	36	1	1	398
Rough-legged Hawk	189	20	-	-	189
Unidentified Buteo	*3*	*3*	-	-	*3*
Golden Eagle	299	25	-	-	299
American Kestrel	66	23	1	1	67
Merlin	34	17	1	1	35
Gyrfalcon	1	1	-	-	1
Peregrine Falcon	25	10	2	2	27
Unidentified Large Raptor	*2*	*2*	-	-	*2*
Unidentified Small Raptor	*1*	*1*	-	-	*1*

For many species of diurnal raptors, it is possible to determine the age and sex of visual migrants when viewing conditions are suitable. As shown by Table 13, this information adds a great deal to the data collected by the visual migration counts. If conducted over the long term, such data will be valuable for determining the relative productivity of species encountered in sufficient numbers. Furthermore to

the determination of age and sex, it is possible to determine different color morphs and subspecies for some species.

During 2010, such determinations were made for Red-tailed Hawk and Rough-legged Hawk with the following break down for each species;

- Red-tailed Hawk – 83.1 % dark morph Harlan's, 3.8 % light morph Harlan's, 0.5 % (2 individuals) possible Western, 12.6 % not determined
- Rough-legged Hawk – 19.8 % dark morph, 71.4 % light morph, 8.9 % not determined

Table 13. Age and sex determinations for diurnal birds of prey during the 2010 visual counts.

Species	Proportion of Individuals Counted (%)							
	Adult			Sub - adult	Immature	Juvenile	Female Plumaged	Not Determined
	Male	Female	Not Determined					
Bald Eagle	-	-	40.2	30.5	11.0	13.4		4.9
Golden Eagle	-	-	56.4	10.4	6.9	9.0	-	17.3
Northern Goshawk	-	-	12.5	-	-	43.8	-	43.8
Northern Harrier	10.9	11.7	-	-	-	35.7	-	3.9
Osprey	4.8	14.3	-	-	-	4.8	37.8	76.2
Peregrine Falcon	-	-	44.0	-	12.0	16.0	-	28.0
Rough-legged Hawk	17.2	10.4	5.2	-	-	12.5	-	54.7

3.5.4 Plovers, Sandpipers & Allies

As a group, shorebirds are not well monitored at the observatory due to the relatively low numbers of individuals observed (Table 14). The majority of visual shorebird migrants observed were mixed flocks of Least and Semi-palmated Sandpipers flying south along the shoreline.

Table 14. Summary of shorebirds observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
American Golden Plover	-	-	1	1	1
Semi-palmated Plover	1	1	7	5	8
Killdeer	-	-	1	1	1
Lesser Yellowlegs	5	2	4	2	9
Solitary Sandpiper	-	-	1	1	1
Spotted Sandpiper	3	1	-	-	3
Semi-palmated Sandpiper	2	1	15	5	17
Least Sandpiper	-	-	55	8	55
Pectoral Sandpiper	9	2	3	2	12
Long-billed Dowitcher	3	2	-	-	3
Wilson's Snipe	6	3	-	-	6
Red-necked Phalarope	-	-	2	1	2
Unidentified Shorebird	*25*	*1*	-	-	*25*

3.5.5 Cranes

Although substantial numbers of Sandhill Cranes were seen, the majority of individuals were observed in a small number of large flocks on a small number of days. For example, nearly 1,900 individuals were observed on September 28.

Table 15. Summary of cranes observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Sandhill Crane	2126	12	138	2	2264

3.5.6 Jaegers, Gulls & Terns

A total of 244 jaegers, gulls and terns representing 6 species were counted during the 2010 visual migration counts (Table 16). The most common species observed during the visual counts was Thayer's Gull. Herring Gull was the most numerous gull encountered overall but due to the large number of locally nesting and foraging birds it was very difficult to differentiate between them and birds in migration flight. To analyze the observation data for this group of birds, the lake watch data (Section 3.6) should also be considered.

Table 16. Summary of jaegers, gulls and terns observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Parasitic Jaeger	9	6	2	2	11
Bonaparte's Gull	3	3	3	2	6
Mew Gull	10	2	6	2	16
Herring Gull	9	3	-	-	9
Thayer's Gull	182	13	-	-	182
Arctic Tern	15	4	5	1	20

3.5.7 Owls

Owls seen during the 2010 visual counts were limited to three Northern Hawk Owls and one Short-eared Owl (Table 17).

Table 17. Summary of owls observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Northern Hawk Owl	3	3	-	-	3
Short-eared Owl	1	1	-	-	1

3.5.8 Nighthawks & Swifts

Nighthawks and swifts seen during the 2010 visual counts were limited to one Common Nighthawk and one Fork-tailed Swift (Table 18). Refer to Section 3.7 for details regarding the exceptional sighting of a Fork-tailed Swift.

Table 18. Summary of nighthawks and swifts observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Common Nighthawk	1	1	-	-	1
Fork-tailed Swift	-	-	1	1	1

3.5.9 Woodpeckers

With the exception of Yellow-bellied Sapsucker and Northern Flicker which are true migrants, woodpeckers in the Yukon can be considered irruptive migrants. During the 2010 visual counts, 24 woodpeckers of 5 species were counted. The majority of individuals seen were Three-toed Woodpeckers indicating that there was some irruptive migration of this species during the fall of 2010.

Table 19. Summary of woodpeckers observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Downy Woodpecker	-	-	1	1	1
Hairy Woodpecker	-	-	2	2	2
Three-toed Woodpecker	13	7	4	4	17
Northern Flicker	2	1	-	-	2
Unidentified Woodpecker	*2*	*2*	-	-	*2*

3.5.10 Passerines

A wide variety of passerines (16,196 individuals of 31 species) were counted during the 2010 visual migration counts (Table 20). Due to the distance at which most visual migrants are observed, it is often difficult to identify such migrants to species. This is illustrated by the high number (4,946) of unidentified small passerines observed. The species composition of such migrants 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 is likely to provide more suitable migration monitoring data. However, for species which migrate diurnally, are not captured in sufficient numbers by mist nets, and can be identified with relative ease when in flight by, this form of data collection

likely provides the most reliable results. These include species such as American Robin, Varied Thrush, American Pipit and many finches. Some species (such as Northern Shrike, Mountain Bluebird and Townsend's Solitaire) are observed very infrequently on the ground and are very rarely captured / banded. The visual migration counts allow such species to be monitored by the observatory despite very low numbers being banded.

Table 20. Summary of passerines observed during the 2010 visual migration counts.

Species	Visual Migration Counts (Standard & Nonstandard)		Other Visual Migrants		Total Number of Visual Migrants Observed (Visual Counts & Other Visual Migrants)
	Total Individuals	Total Number of Days	Total Individuals	Total Number of Days	
Western Wood-Pewee	1	1	-	-	1
Say's Phoebe	4	3	-	-	4
Northern Shrike	7	6	-	-	7
Black-billed Magpie	4	1	-	-	4
Horned Lark	2	2	2	1	4
Bank Swallow	41	6	11	2	52
Cliff Swallow	3	2	9	2	12
Barn Swallow	21	5	-	-	21
Unidentified Swallow	*57*	*5*	-	-	*57*
Ruby-crowned Kinglet	1	1	-	-	1
Mountain Bluebird	35	8	-	-	35
Townsend's Solitaire	19	11	-	-	19
American Robin	2650	35	17	5	2667
Varied Thrush	407	24	2	1	409
Unidentified Large Thrush	*1001*	*16*	*1*	*1*	*1002*
Unidentified Small Thrush	*1*	*1*	-	-	*1*
American Pipit	129	14	121	17	250
Bohemian Waxwing	329	14	31	4	360
Unidentified Waxwing	*7*	*1*	-	-	*7*
Orange-crowned Warbler	2	1	6	3	8
Yellow Warbler	20	11	29	13	49
Yellow-rumped Warbler	332	30	92	24	424
Blackpoll Warbler	14	8	13	10	27
Northern Waterthrush	3	2	4	3	7
Wilson's Warbler	1	1	-	-	1
Unidentified Warbler	*25*	*8*	-	-	*25*
Chipping Sparrow	-	-	7	2	7
Dark-eyed Junco	27	2	49	2	56
Lapland Longspur	56	17	20	10	76
Unidentified Sparrow	*23*	*4*	-	-	*23*
Rusty Blackbird	264	30	84	8	348
Pine Grosbeak	231	7	1	1	232
Purple Finch	2	2	3	2	5
Red Crossbill	28	4	8	3	36
White-winged Crossbill	927	54	223	26	1150
Common Redpoll	2320	15	5	3	2325
Pine Siskin	668	43	92	18	760
Unidentified Small Finch	*778*	*2*	-	-	*778*
Unidentified Small Passerine	*4871*	*63*	*75*	*7*	*4946*

3.6 Lake Counts

The lake counts provide monitoring data for various species of loons, grebes, waterfowl and jaegers/gulls/terns. With the exception of Pacific Loon, relatively few loons and grebes were observed during the visual migration counts. The opposite was true for the lake counts which recorded these species in relatively high numbers. Red-necked Grebe in particular was observed in high numbers with over 700 bird days counted for this species.

Table 21. Summary of loons and grebes observed during the 2010 lake counts.

Species	Total Number of Bird Days	Total Number of Days Observed
Red-throated Loon	185	58
Pacific Loon	147	48
Common Loon	272	68
Yellow-billed Loon	2	1
Red-necked Grebe	727	77
Horned Grebe	170	39

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

Table 22. Summary of geese, swans and ducks observed during the 2010 lake counts.

Species	Total Number of Bird Days	Total Number of Days Observed
Canada Goose	257	18
Trumpeter Swan	6	3
Tundra Swan	32	1
American Wigeon	6	1
Mallard	45	10
Northern Pintail	1	1
Green-winged Teal	2	2
Redhead	3	1
Greater Scaup	5	2
Lesser Scaup	42	3
Surf Scoter	413	14
White-winged Scoter	30	5
Long-tailed Duck	1	1
Common Goldeneye	33	12
Common Merganser	255	40
Red-breasted Merganser	180	44

As a group, jaegers, gulls and terns are well monitored through the use of the lake counts as these species are typically counted in the highest numbers using this method. Herring Gull in particular was observed in high numbers during 2010 with over 2,500 bird days counted. It is important to note that a gull feeder (cereal and food scraps) was established at the site on October 4 and used until the end of the season (October 24). The purpose of this feeder was to attract gulls towards the site to allow for a positive identification and photo documentation of rare gull species. As this feeder likely influenced

the number of gulls at the site during this time, this count data will be considered non-standard and will be included separately during future trend analysis for these species. Refer to Section 3.7 for additional information on rare gull sightings.

Table 23. Summary of jaegers, gulls and terns observed during the 2010 lake counts.

Species	Total Number of Bird Days	Total Number of Days Observed
Parasitic Jaeger	26	16
Little Gull	2	2
Bonaparte's Gull	2	2
Mew Gull	68	23
California Gull	39	19
Herring Gull	2537	93
Thayer's Gull	85	26
Glaucous-winged Gull	8	8
Glaucous Gull	2	2
Sabine's Gull	2	2
Black-legged Kittiwake	1	1
Arctic Tern	64	12

3.6.1 Other Stationary Counts

To compliment the monitoring activities at the observatory, stationary counts were done on a trial basis at a number of potential monitoring sites in the Southern Lakes Region. The goal of these counts is to investigate the possibility of monitoring bird species (primarily waterfowl and waterbirds) which may be under represented by the monitoring activities at the observatory. In total, 38 stationary counts were completed at 12 locations.

Table 24. Summary of other stationary counts completed in the Southern Lakes region during the fall of 2010.

Count Name	Times Surveyed	Dates Surveyed
Johnson's Crossing	5	4, 27 September; 8, 18, 21 October
Marsh Lake – Judas Creek Marina	4	1, 21 September; 1, 23 October
Marsh Lake – North Lookout	1	23 October
Squanga Lake	2	27 September, 23 October
Tagish Narrows	3	1, 21 September; 1 October
Teslin Lake – Brooks Brook	1	8 October
Teslin Lake – Deadman Creek	1	6 October
Teslin Lake – Viewing Platform	2	29 August, 9 October
Teslin – Bridge	8	30, 31 August; 2, 8, 14, 28 September; 10, 21 October
Teslin – Nisutlin Bay	4	31 July; 1, 10, 29 August
Teslin – Sewage Ponds	6	31 July; 10, 30, 31 August, 29 September; 9 October

The stationary counts tallied over 13,000 birds of 100 species including over 12,000 waterfowl, loons and grebes as summarized in Table 25.

Table 25. Summary of waterfowl, loons and grebes counted during the fall 2010 stationary counts.

Species	Johnson's Crossing	Marsh Lake	Tagish Narrows	Squanga Lake	Nisutlin Bay	Teslin Sewage Lagoon	Other Sites	TOTAL
Snow Goose	1							1
Greater White-fronted Goose	1				25			26
Canada Goose	169		1		168		4	342
Trumpeter Swan	167	4		1	2			174
Tundra Swan	508			2	24		6	540
Gadwall	2							2
American Wigeon	1,870		4		170			2,044
Mallard	2,580		1		487	36		3,104
Blue-winged Teal					24			24
Northern Shoveler	28		20		87	180		315
Northern Pintail	357		1		372	3		733
American Green-winged Teal	312				411	93		816
Unidentified dabbling duck	500							500
Canvasback	29				1			30
Redhead	1					1		2
Ring-necked Duck	106		35					141
Greater Scaup	20			4	6		75	105
Lesser Scaup	220	12	30	109	58		40	469
Unidentified Scaup	160	45		105				310
Surf Scoter			20	1	3			24
White-winged Scoter		3	34					37
Long-tailed Duck	2	1			1			4
Bufflehead	190	30		220	141	2		583
Common Goldeneye	90	193	3	65	258	2		611
Barrow's Goldeneye					3	7		10
Common Merganser	57	86	75	33				251
Red-breasted Merganser	1	25	6	3			1	36
Red-throated Loon		5			1		6	12
Pacific Loon	3	1	2	1	1		5	13
Common Loon	13	76	39	7	10		3	148
Yellow-billed Loon	2							2
Horned Grebe	25	19	41	4	7		5	101
Red-necked Grebe		381	103	3	1		11	499
ALL WATERFOWL, LOONS & GREBES	**7,417**	**903**	**415**	**598**	**2,264**	**324**	**221**	**12,142**

3.7 Interesting & Notable Captures / Observations

The vast majority of birds banded and observed at Teslin Lake in 2010 were species which are common and widespread north and west of the study site. However, the observatory continues to add to the knowledge base for rare and uncommon bird species in the Yukon. As the observatory operates on a daily basis throughout the fall migration season, there are often a number of interesting and notable species observed and/or captured in the mist nets. The following section summarizes a number of interesting and/or notable captures and sightings from the 2010 fall season.

Yellow-billed Loon (*Gavia adamsii*)

This species is a rare fall migrant through the southern Yukon where it is infrequently observed during October and November. This species was observed for the first time at the site in 2010 and included the following sightings; one adult flying south on October 6 and two juveniles seen on the lake on October 21.


Photo 1. Yellow-billed Loons (juveniles) observed on October 21 (Photo: Jukka Jantunen).

Bean Goose (*Anser fabalis*)

This species is considered an accidental vagrant in the Yukon with only one previous record (late October 1999) in Whitehorse. The breeding range of this species is in northern Eurasia; however, it is a casual visitor to western Alaska and the Bering Sea Islands. On October 16, a single bird was observed flying south over the observatory within a flock of Tundra Swans.

Bewick's Swan (*Cygnus columbianus bewickii*)

The Bewick's Swan is the Eurasian subspecies of the common Tundra Swan seen frequently during spring and fall throughout southern Yukon. This subspecies has been seen two times previously in the southern Yukon at locations often associated with high numbers of Tundra and Trumpeter swans (Johnson's Crossing, McClintock Bay). On October 17, a single adult was observed flying over Teslin Lake within a flock on Tundra Swans. In addition, a probable individual was observed once again with Tundra Swans on October 12.

Photo 2. Bewick's Swan (adult) observed over Teslin Lake on October 17 (Photo: Jukka Jantunen).

Hooded Merganser (*Lophodytes cucullatus*)

The observatory's second Hooded Merganser was a single visual migrant seen on September 24 within a flock of Common Mergansers. This species is rare but annual in the southern Yukon.

Swainson's Hawk (*Buteo swainsoni*)

Prior to the initiation of visual migration counts at the observatory in 2008, fall records of this species in migration were very sparse. Since then, the species has occurred at the observatory annually in low numbers. Three individuals were counted during visual counts in 2008, 17 in 2009, and 10 in 2010. This species appears to be a relatively early migrant as only one sighting, on September 24, 2008, have been made after September 5. Interestingly, 23 of 30 individuals counted to date have been seen from September 3 to 5. Observations during 2010 included the following; 5 on September 3, 5 on September 4 and 2 on September 6.

Photo 3. Juvenile (left) and adult (right) Swainson's Hawk migrants observed on September 4 (Photo: Jukka Jantunen).

Gyrfalcon (*Falco rusticolus*)

A single migrating Gyrfalcon was observed on September 18; this is the second individual seen at the observatory. The first one was also a visual migrant observed on September 6, 2009.

Sanderling (*Calidris alba*)

A single Sanderling was observed on September 8. This species has been seen annually in low numbers since the observatory began fall migration monitoring in 2008 (4 in 2009, 3 in 2008).

Red-necked Phalarope (*Phalaropus lobatus*)

This species was observed for the first time at the observatory during the fall season of 2010. On July 30, 4 individuals were seen during the lake count and 2 visual migrants were also noted. The lake counts also yielded 2 individuals on August 2 and 1 on August 12.

Parasitic Jaeger (*Stercorarius parasiticus*)

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 sightings primarily from large lakes. However, it has become apparent that this species is a regular fall migrant on Teslin Lake. In 2008, a total of 72 bird days were tallied and 16 in 2009. A higher number of bird days (37) were counted during 2010; however, the observer effort was much higher during 2010. This species has been observed in active migration flight as well as resting/feeding on Teslin Lake. The observation dates span from August 7 to October 15 with the majority of the birds (77%) having been observed in September. In 2010, the jaegers appeared later than during the previous years; the first individual was not seen until September 1.

California Gull (*Larus californicus*)

A new species for the observatory , California Gulls were observed on 19 days from October 6 to 24 (39 bird days) with a high count of 4 individuals on October 15. The gull feeder operated from October 4 to 24 allowed these individuals to be positively identified and well photographed. Prior to these records, this species had only been known in fall from the Whitehorse landfill.

Photo 4. Juvenile California Gulls observed on October 8 (Photo: Jukka Jantunen).

Little Gull (*Larus minutus*)

The observatory's first Little Gull was a juvenile observed on October 15 and 16. This species is very rare in the Yukon and is not seen annually. Interestingly, this is not only the first record of a juvenile but also a first fall record of the species in the Yukon.

Photo 5. Juvenile Little Gull observed on October 15 (Photo: Jukka Jantunen).

Thayer's Gull (*Larus theyeri*)

Thayer's Gull is an arctic nesting species seen in the southern Yukon only during migration (most often the fall) where it is a relatively late migrant. In 2008, the species was observed on 2 days only with single birds counted on each day (September 17, 20). With increased visual counting effort in 2009, the species was observed on 24 days (103 bird days) from August 29 to October 4. In 2010, 261 bird days were recorded on 32 days from August 29 to October 21 with a high count of 45 on September 10.

Glaucous-winged Gull (*Larus glaucescens*)

The observatory's first Glaucous-winged Gull was seen on October 6. The species was observed on the gull feeder and was seen on 8 days until October 22. Based on the photographs, two different juveniles were involved although only one was seen each time. This species is primarily a rare spring straggler through the southern Yukon where most records are from Whitehorse area.

Glaucous Gull (*Larus hyperboreus*)

Another arctic nesting gull species, Glaucous Gull was observed at the site twice in 2008 (August 27, September 19) and twice in 2009 (August 1, 29). During 2010, single individuals were once again observed on two days (October 4, 18).

Photo 6. Juvenile Glaucous Gull observed on October 18 (Photo: Jukka Jantunen).

Sabine's Gull (*Xema sabini*)

Sabine's Gull is a rare fall migrant in the southern Yukon . At the observatory, this species has been observed in 2008 (2 on September 2, 1 on September 4) and 2009 (2 on August 27, 2 on August 29). During 2010, this species was once again observed on 2 days (September 30, October 11) with single birds seen on each day.

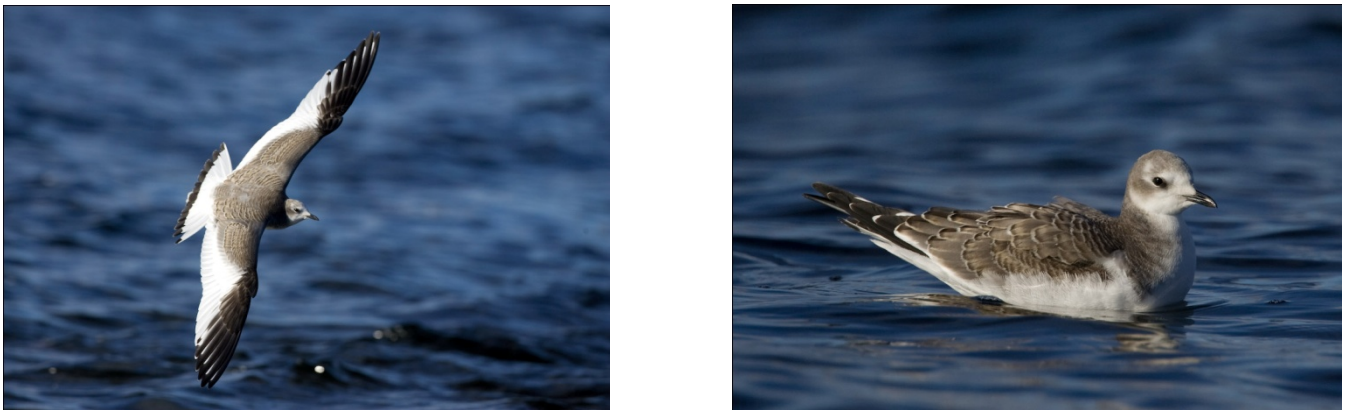

Photo 7. Juvenile Sabine's Gull observed on October 11 (Photo: Jukka Jantunen).

Black-legged Kittiwake (*Rissa tridactyla*)

Black-legged Kittiwake is considered an accidental fall migrant in southern Yukon where there are only two previous record. A single adult was seen over Teslin Lake on September 25. This is the first record of the species at the observatory.

Fork-tailed Swift (*Apus pacificus*)

The most exceptional sighting at the observatory since the initiation of the station in 2005 was a Fork-tailed Swift observed flying northwest over Teslin Lake on September 28. This observation is the first Canadian (and Yukon) record of the species. This is an Asian species breeding in southern Siberia, Mongolia and China; the wintering range includes southern India, Cambodia, Indonesia and Australia. Although the Teslin Lake sighting provided the first Canadian record, this species is considered rare or casual in western Alaska and the Bering Sea Islands.

Yellow-bellied Flycatcher (*Empidonax flaviventris*)

Yellow-bellied Flycatcher is likely the least well known *Empidonax* flycatcher in the Yukon. Partially due to identification difficulties with other closely related species, there are relatively few records of this species during migration aside from the Teslin Lake and Albert Creek bird observatories where vast majority 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 August 25 (Table 26).

Table 26. Summary of Yellow-bellied Flycatchers banded at the observatory.

Year	Season	Number Banded		Earliest Date	Latest Date
		Juvenile	Adult		
2005	Spring	-	2	June 3	June 12
2006	Spring	-	1	June 11	-
2007	Spring	-	1	May 29	-
2008	Spring	-	-	-	-
	Fall	9	1	11 August	22 August
2009	Fall	8	-	4 August	23 August
2010	Fall	11	-	29 July	25 August

Photo 8. Juvenile Yellow-bellied Flycatcher banded on August 8 (Photo: Ben Schonewille).

Dusky Flycatcher (*Empidonax oberholseri*)

This species is a high elevation breeding species 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 almost annually (Table 27).

Table 27. Summary of Dusky Flycatchers banded at the observatory.

Year	Season	Number Banded		Earliest Date	Latest Date
		Juvenile	Adult		
2005	Spring	-	2	May 20	June 3
2006	Spring	-	-	-	-
2007	Spring	-	2	May 21	May 27
2008	Spring	-	-	-	-
	Fall	1	-	September 13	-
2009	Fall	6	-	August 8	August 25
2010	Fall	3	-	August 11	September 5

Photo 9. Juvenile Dusky Flycatcher banded on August 11 (Photo: Jukka Jantunen).

Cedar Waxwing (*Bombycilla cedrorumi*)

Unlike the common and widespread Bohemian Waxwing, the Cedar Waxwing is a rare breeding species in the southern portion of the Yukon. A flock (adults and juveniles) was observed at the site during the fall of 2009 but none were banded. During 2010, two adult females with brood patches were banded; one on July 16 and one on July 24. These results suggest that this species may have bred locally at the study site during 2010. This species was encountered on a total of 6 days from July 16 to August 3 with a total of 10 bird days counted.

Photo 10. Adult female Cedar Waxwing banded on July 16 (Photo: Ben Schonewille).

Yellow-rumped "Audubon`s" Warbler (*Dendroica coronate auduboni*)

The familiar Myrtle Warbler is the race of Yellow-rumped Warbler which breeds throughout the Boreal Forest from Alaska to the Maritimes and the Audubon's race is typically restricted to the remainder of western North America, including southeast Alaska. Definitive records of Audubon's Warbler in the Yukon are restricted to one at Shallow Bay (Lake Laberge) on October 15, 1994 and one at Judas Creek (Marsh Lake) on April 29, 1994. On October 10, a single Audubon's Warbler was observed at the observatory where it touched down briefly and continued on in a southward direction.


Photo 11. Audubon's Warbler observed on October 10 (Photo: Jukka Jantunen).

MacGillivray's Warbler (*Oporornis tolmiei*)

MacGillivray's Warbler is one of the Yukon's rarest regular breeding warbler species It is known from a small number of areas along the territory's southern margin, including several around Teslin. At the Observatory, a pair was heard giving alarm calls and seen carrying food on July 8 indicating local nesting. This species is a late spring migrant and relatively early fall migrant (only oneSeptember record to date; Table 28).

Table 28. Summary of MacGillivray's Warbler banded at the observatory.

Year	Season	Number Banded		Earliest Date	Latest Date
		Juvenile	Adult		
2005	Spring	-	1	June 1	-
2006	Spring	-	1	June 4	-
2007	Spring	-	-	-	-
2008	Spring	-	-	-	-
	Fall	-	1	September 3	-
2009	Fall	3	-	August 3	August 11
2010	Fall	2	-	August 6	August 12

Western Tanager (*Piranga ludoviciana*)

In the Yukon, Western Tanager is a regularly breeding species in the southeast portion of the territory; however, it is documented irregularly further west. To date, 2 individuals have been banded at the observatory (1 on June 4, 2006 and 1 on August 11, 2009). Although not banded during 2010, single individuals were observed on July 16 and 29.

Swamp Sparrow (*Melospiza georgina*)

This species is typically restricted to the southeastern Yukon; however, in recent years, it has been documented further west. In the spring of 2009, a singing male was well documented at MacIntyre Marsh (Whitehorse) and in the summer of 2010. This species was encountered for the first time at the observatory during the fall of 2010 when a single juvenile was banded on July 25.

Song Sparrow (*Melospiza melodia*)

This species has been documented infrequently at a number of scattered locations across the southern Yukon but its presence is not well understood. The observatory's first Song Sparrow was a juvenile banded on August 28; this individual appeared to be one of the coastal subspecies.

Photo 12. Juvenile Song Sparrow banded on August 28 (Photo: Jukka Jantunen).

3.7.1 Chickadee Movements

During the 2008 and 2009 fall seasons, there was an apparent southward eruption of Boreal, Black-capped and Mountain chickadees. Boreal Chickadee was the top species during the 2009 season with 831 individuals banded. Conversely, zero Boreal Chickadees were banded during the 2010 season and there was no indication of chickadee migration. Twenty-two Black-capped Chickadees were banded in 2010; however, these were scattered throughout the season and were likely dispersing juveniles. The continuation of migration monitoring at the observatory will provide data to determine if the 2008 and 2009 chickadees were anomalous or a regular occurrence.

3.8 Rusty Blackbirds

As part of an ongoing project in co-operation with Pam Sinclair (CWS-Whitehorse) and the Yukon bird observatories, all Rusty Blackbirds captured were fitted with a color band (light blue) in addition to the regular band. As each Rusty Blackbird study site uses a different color, the color bands help to identify the origin of a re-sighted individual without the need to recapture it. Additionally, a feather was collected from each Rusty Blackbird captured. Feather samples will be analyzed for stable isotopes in an effort to make linkages between breeding and wintering grounds of this species. During the fall of 2010, 20 hatch year individuals were banded.

3.9 Owl Banding

To date, a large scale owl banding test project has not been completed. Building upon a minimal effort during the fall of 2008 and 2009, a very limited amount of effort (less than 10 hours) was completed in late August/early September using Boreal and Northern Saw-whet Owl call playback. Although no owls were banded, additional testing will be required in the future to determine the feasibility of this add on component to the observatory's operation.

3.10 Species At Risk

Monitoring of species at risk is important throughout the species range and this is even more critical in more remote areas with limited monitoring information. During 2010, 6 designated species at risk (Table 29) and 9 priority species for assessment (Table 30) were recorded.

Table 29. Summary of COSEWIC designated species encountered during the fall of 2010.

Species	COSEWIC Designation[1]	# Banded		# of Days Observed	High Count (#-date)	Total Visual Migrants	Total Bird Days
		HY	AHY				
Horned Grebe	Special Concern	-	-	44	34 - 15 Sep	13	183
Peregrine Falcon	Special Concern	-	-	11	11 – 3 Sep	27	27
Short-eared Owl	Special Concern	-	-	1	1 – 14 Oct	1	1
Olive-sided Flycatcher	Threatened	-	-	10	4 - 29 Aug	-	14
Common Nighthawk	Threatened	-	-	2	1 – both days	1	2
Rusty Blackbird	Special Concern	20	-	57	57 – 13 sep	345	743

[1]http://www.cosewic.gc.ca

Table 30. Summary of COSEWIC priority species encountered during the fall of 2010.

Species	Priority for COSEWIC Assessment[1]	# Banded		# of Days Observed	High Count (#-date)	Total Visual Migrants	Total Bird Days
		HY	AHY				
Greater Scaup	Low	-	-	9	58 – 8 Oct	109	114
Lesser Scaup	Low	-	-	18	152 – 12 Sep	421	463
American Kestrel	Mid	-	-	25	13 – 3 Sep	67	70
American Golden Plover	Low	-	-	1	1 – 30 Aug	1	1
Killdeer	Low	-	-	1	1 – 31 Jul	-	1
Red-necked Phalarope	High	-	-	3	6 – 30 Jul	-	9
Belted Kingfisher	Mid	4	1	26	4 – 12 Aug	-	35
Bank Swallow	High	-	-	10	18 – 9 Aug	52	68
Boreal Chickadee	Low	-	-	6	6 – 9 Aug	-	12

[1]http://www.cosewic.gc.ca

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 volunteers who provide valuable assistance when the observatory is busy. Table 31 and Table 32 summarize the number of hours spent at the observatory by visitors, volunteers and paid workers. Visitors were defined as those people who visited the observatory (often for a short time) and did not take part in activities at the observatory. Volunteers were those people which took part in the operation of the observatory (often extensively) without being financially compensated. Paid hours were spent by individuals being paid to be at the observatory. This category includes the Bander In Charge (Jukka Jantunen, Ben Schonewille, Ted Murphy-Kelly and Jillian Johnston) and individuals paid by other organizations (Yukon Government, Canadian Wildlife Service, etc).

Table 31. Hours spent at the bird observatory by volunteers and paid individuals.

Paid		Volunteer	
# of Individuals	**Hours**	**# of Individuals**	**Hours**
9	907	11	298

Note that the values shown for "paid hours" only include those spent at the observatory and do not include the extensive amount of data entry, data analysis, report writing and other communication of the observatory's results.

Table 32. Hours spent at the bird observatory by visitors.

Locals		Yukon		Canada		USA		Other International	
#	**Hours**	**#**	**Hours**	**#**	**Hours**	**#**	**Hours**	**#**	**Hours**
4	37	13	88	12	33	10	30	2	1

4.0 Conclusion & Recommendations

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

Additional counting methods including lake counts and visible migration counts have been implemented to increase the number of bird species which may be monitored at the observatory. A diverse group of raptors have been counted at the observatory and it is likely that the numbers counted will allow for long term trend analysis of these species in the future. Given the proximity to Teslin Lake, waterbirds (loons, grebes and gulls) are also of a particular interest for monitoring. Through a combination of the lake counts and the visual migration counts, these species are monitored in adequate numbers to allow for a future trend analysis. To date, most waterfowl species have been under represented by all monitoring methods at the observatory (with the exception of swans and geese). To build upon the activities at the observatory and collect usable monitoring data for waterfowl, a number of stationary counts were surveyed on a trial basis in the Southern Lakes region during 2010. The results of these surveys have been very positive to date, particularly for dabbling ducks and Lesser/Greater Scaup.

The observatory continued to be successful in attracting groups of students to the observatory to learn about birds and bird migration. During 2010, a Y2C2 (Yukon Youth Conservation Corps) group and a visiting school group from Whitehorse visited the observatory. On all occasions, the visiting school groups were given an introduction to birds, their migration and methods used for ornithological data collection. The observatory also hosted a youth from Tagish (Shyloh van Delft) who received extensive training on bird banding techniques. Shyloh is very interested in continuing her training in the 2011 season and also attended the Doug Tarry Young Ornithologist Workshop at Long Point Bird Observatory in Ontario during the summer of 2010.

During 2010, the observatory completed its third consecutive fall season and the second season using the formalized monitoring protocol developed in 2008. The primary long term goal of the observatory is to continue migration monitoring and collect data to facilitate the calculation of long term population trends. Although a very high diversity of bird species were observed at the observatory, it is likely that not all species are suitable candidates for trend analysis. This may be due to an overall

lack in the sample size of observations/bandings or incomplete migration season coverage. As such, the key species for monitoring are those which are relatively common and have the majority of their migration covered by the observatory's monitoring season. The data collected to date suggest that the observatory has a high potential for monitoring a wide diversity of species including waterbirds, raptors and songbirds. Waterfowl and shorebirds have yet to be observed in sufficient numbers; however, there appears to be potential for monitoring a limited number of these species (particularly through the use of the stationary counts).

5.0 Recommendations

For 2011, it is hoped that financial support can be secured to once again operate the observatory at full capacity (ie-daily coverage) during the fall migration season. During 2010, the season was extended into late October and the visual migration counts during this time indicated that it would be desirable to operate the station with similar timing in the future.

APPENDIX 1 –ALL TIME BANDING TOTALS

SPECIES	2005		2006		2007		2008		2009	2010	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall			
Northern Harrier							1				1		1
Sharp Shinned hawk					2		1	10	23	14	3	47	50
Solitary Sandpiper				2				2	5	1		10	10
Spotted Sandpiper	1		2		1		1			1	5	1	6
Wilson's Snipe							1	1	1		1	2	3
Belted Kingfisher				8				8	6	5		27	27
Yellow-bellied Sapsucker	2		2		2		1				7		7
Downy Woodpecker								2	1	3		6	6
Hairy Woodpecker	2										2		2
Yellow-shafted Northern Flicker	1				1					1	2	1	3
Olive-sided Flycatcher			11				6				17		17
Western Wood-pewee	3		2		2			3	6	5	7	14	21
Yellow-bellied Flycatcher	2	2	1		1			9	8	11	4	30	34
Alder Flycatcher	17	9	41	18	10	5	9	811	631	620	77	2094	2171
Least Flycatcher	3		4		3		2	2	1	3	12	6	18
Hammond's Flycatcher	7		5		11		18	6	12	17	41	35	76
Dusky Flycatcher	2				2			1	6	3	4	10	14
Eastern Phoebe			1								1	0	1
Say's Phoebe			2		2		1	1	1	1	5	3	8
Northern Shrike										1		1	1
Warbling Vireo	13		1	4			1	9	10	19	15	42	57
Common Raven									1	1		2	2
Gray Jay	5				1				5	4	6	9	15
Horned Lark			3								3		3
Tree Swallow	5										5		5
Barn Swallow									1			1	1
Black-capped Chickadee		4	4	3	2		2	57	26	22	8	112	120
Mountain Chickadee							2	15	11		2	26	28
Chestnut-backed Chickadee								1				1	1
Boreal Chickadee	2		3		2		8	138	831		15	969	984
Hybrid Chickadee			1					1			1	1	2
Red-breasted Nuthatch							1	3	2	2	1	7	8

SPECIES	2005		2006		2007		2008		2009	2010	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall			
Winter Wren	1										1		1
Golden-crowned Kinglet		1							10	2		13	13
Ruby-crowned Kinglet	25	7	51	3	27		72	29	175	109	175	323	498
Townsend's Solitaire									1			1	1
Gray-cheeked Thrush	4	2	2		5		1	1	2	8	12	13	25
Swainson's Thrush	99	7	39	10	48		21	19	49	53	207	138	345
Hermit Thrush	1		1				1	1	7	12	3	20	23
American Robin	27	1	36	5	17		4		27	9	84	42	126
Varied Thrush			1		2			3	12	5	3	20	23
American Pipit			2				1	1	3		3	4	7
Bohemian Waxwing			40				23				63		63
Cedar Waxwing										2		2	2
Tennessee Warbler	4		4		6		2		9	40	16	49	65
Orange-crowned Warbler	16	6	26	1	47		61	101	180	271	150	559	709
Nashville Warbler								1				1	1
Yellow Warbler	10	6	50	19	37	3	31	486	325	471	128	1310	1438
Magnolia Warbler	1							1			1	1	2
Cape May Warbler							1				1		1
Myrtle Warbler	60	3	63	5	29		78	49	284	673	230	1014	1244
Yellow-rumped Warbler							1	1			1	1	2
Townsend's Warbler							1		8	10	1	18	19
Blackpoll Warbler	3	2	21	4	10		5	47	107	194	39	354	393
American Redstart			6	4	1			10	43	30	7	87	94
Northern Waterthrush	4	1	14	10	11		4	46	53	54	33	164	197
MacGillvary's Warbler	1		1					1	3	2	2	6	8
Common Yellowthroat	1		17	4	11	6	21	66	113	70	50	259	309
Wilson's Warbler	116	8	54	5	63		151	113	161	177	384	464	848
Western Tanager			1						1		1	1	2
American-tree Sparrow	220		13	1	72		41	19	54	21	346	95	441
Chipping Sparrow	28		4	1	6		3	6	24	18	41	49	90
Brewer's Sparrow				1					1			2	2
Savannah Sparrow	11	2	2	2	24		10	14	18	18	47	54	101

SPECIES	2005		2006		2007		2008		2009	2010	SPRING TOTAL	FALL TOTAL	ALL TIME TOTAL
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Fall	Fall			
Fox Sparrow	106		3		17		26	11	28	28	152	67	219
Song Sparrow										1		1	1
Lincoln's Sparrow	9	1	6		39		21	5	16	14	75	36	111
Swamp Sparrow										2		2	2
White-throated Sparrow					1						1		1
White-crowned Sparrow	86	3	13		579		311	1	33	36	989	73	1062
Golden-crowned Sparrow	1				16		9				26		26
Slate-colored Junco	165	12	139	5	135		224	182	582	420	663	1201	1864
Dark-eyed Junco					9		31	11			40	11	51
Lapland Longspur							5				5		5
Red-winged Blackbird			1		1						2		2
Rusty Blackbird	19		3		2	1		11	30	20	24	62	86
Brown-headed Cowbird	1										1		1
Pine Grosbeak			2								2		2
Purple Finch	27		3		6		1			10	37	10	47
Red Crossbill	3										3		3
White-winged Crossbill			5					2	2	100	5	104	109
Common Redpoll			107		1		22		6	1	130	7	137
Hoary Redpoll					3						3		3
Pine Siskin	28		1					1	1	91	29	93	122
TOTAL SPECIES BANDED	**43**	**18**	**48**	**21**	**43**	**4**	**45**	**48**	**53**	**52**	**70**	**67**	**84**
TOTAL BIRDS BANDED	**1142**	**77**	**814**	**115**	**1267**	**15**	**1238**	**2319**	**3956**	**3706**	**4461**	**10188**	**14649**

APPENDIX 2 – ESTIMATED TOTAL DATA SUMMARY

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Red-throated Loon	55	197	29-Jul	14-Oct	20	02-Sep	12-Sep
Pacific Loon	55	871	26-Jul	23-Oct	347	25-Sep	25-Sep
Common Loon	68	303	16-Jul	18-Oct	17	08-Sep	08-Sep
Yellow-billed Loon	2	3	06-Oct	21-Oct	2	21-Oct	-
Horned Grebe	44	183	07-Aug	21-Oct	34	15-Sep	16-Sep
Red-necked Grebe	80	773	27-Jul	23-Oct	49	02-Sep	31-Aug
Greater White-fronted Goose	20	8060	06-Aug	12-Oct	4030	24-Aug	24-Aug
Snow Goose	2	188	28-Sep	21-Oct	187	28-Sep	-
Canada Goose	32	1077	02-Aug	20-Oct	149	03-Sep	24-Sep
Bean Goose	1	1	20-Oct	-	1	-	-
Trumpeter Swan	17	1069	07-Sep	23-Oct	212	17-Oct	17-Oct
Tundra Swan	18	8214	28-Sep	22-Oct	3605	14-Oct	14-Oct
Bewick's Swan	1	1	17-Oct	-	1	-	-
American Wigeon	10	274	04-Sep	14-Oct	101	14-Oct	25-Sep
Mallard	19	235	26-Jul	20-Oct	49	12-Oct	29-Sep
Northern Shoveler	2	7	23-Sep	25-Sep	5	23-Sep	-
Northern Pintail	9	129	31-Jul	19-Oct	57	23-Sep	23-Sep
American Green-winged Teal	2	2	29-Aug	12-Sep	1	both days	-
Canvasback	4	52	12-Sep	19-Oct	35	19-Oct	-
Redhead	1	3	29-Sep	-	3	29-Sep	-
Ring-necked Duck	2	2	12-Sep	05-Oct	1	both days	-
Greater Scaup	9	114	11-Sep	14-Oct	58	08-Oct	08-Oct
Lesser Scaup	18	463	08-Aug	20-Oct	152	12-Sep	12-Sep
Harlequin Duck	1	1	05-Sep	-	1	-	-
Surf Scoter	25	592	26-Jul	10-Oct	381	10-Aug	10-Aug
White-winged Scoter	11	109	31-Aug	10-Oct	42	22-Sep	22-Sep
Long-tailed Duck	2	3	07-Sep	23-Oct	2	23-Oct	-
Bufflehead	6	19	10-Aug	20-Oct	6	19-Oct	-
Common Goldeneye	20	84	02-Aug	24-Oct	17	22-Oct	14-Oct

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Barrow's Goldeneye	2	10	25-Sep	18-Oct	9	25-Sep	-
Hooded Merganser	1	1	24-Sep	-	1	-	-
Common Merganser	45	336	29-Jul	23-Oct	30	31-Aug	15-Sep
Red-breasted Merganser	48	231	25-Jul	17-Oct	40	29-Aug	04-Sep
Osprey	11	23	28-Aug	12-Oct	6	23-Sep	23-Sep
Bald Eagle	55	141	24-Jul	24-Oct	13	18-Oct	06-Oct
Northern Harrier	44	238	01-Aug	22-Oct	28	03-Sep	25-Sep
Sharp-shinned Hawk	52	347	01-Aug	23-Oct	55	04-Sep	10-Sep
Northern Goshawk	28	42	27-Aug	24-Oct	5	18-Oct	11-Oct
Swainson's Hawk	3	12	03-Sep	06-Sep	5	3/4 Sep	-
Red-tailed Hawk	40	405	02-Aug	23-Oct	194	04-Sep	04-Sep
Rough-legged Hawk	20	189	23-Sep	24-Oct	44	14-Oct	14-Oct
Golden Eagle	25	299	05-Sep	24-Oct	57	18-Oct	15-Oct
American Kestrel	25	70	06-Aug	22-Oct	13	03-Sep	23-Sep
Merlin	19	40	28-Aug	19-Oct	6	23-Sep	11-Sep
Gyrfalcon	1	1	18-Sep	-	1	-	-
Peregrine Falcon	11	27	01-Sep	28-Sep	11	03-Sep	04-Sep
Ruffed Grouse	73	131	16-Jul	23-Oct	6	10-Sep	-
Spruce Grouse	2	4	12-Oct	21-Oct	3	21-Oct	-
Sandhill Crane	14	2266	03-Sep	15-Oct	1886	28-Sep	28-Sep
American Golden Plover	1	1	30-Aug	-	1	-	-
Semi-palmated Plover	7	9	29-Jul	02-Sep	2	4/6 Aug	06-Aug
Killdeer	1	1	31-Jul	-	1	-	-
Lesser Yellowlegs	9	14	29-Jul	13-Aug	3	30-Jul	01-Aug
Solitary Sandpiper	15	19	16-Jul	15-Aug	3	26-Jul	30-Jul
Spotted Sandpiper	35	91	16-Jul	05-Sep	10	07-Aug	06-Aug
Sanderling	1	1	08-Sep	-	1	-	-
Semi-palmated Sandpiper	9	25	27-Jul	15-Aug	8	02-Aug	02-Aug
Least Sandpiper	11	120	29-Jul	14-Aug	36	06-Aug	06-Aug

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Pectoral Sandpiper	8	16	21-Aug	13-Oct	6	11-Sep	11-Sep
Long-billed Dowitcher	2	3	26-Sep	08-Oct	2	26-Sep	-
Red-necked Phalarope	3	9	30-Jul	12-Aug	6	30-Jul	-
Wilson's Snipe	4	8	11-Sep	08-Oct	3	29-Sep	-
Parasitic Jaeger	20	37	01-Sep	15-Oct	3	25/26 Sep	25-Sep
Little Gull	2	2	15-Oct	16-Oct	1	both days	-
Bonaparte's Gull	7	8	31-Jul	03-Sep	2	10-Aug	-
Mew Gull	25	84	29-Jul	18-Sep	12	10 Aug / 18 Sep	10-Aug
California Gull	19	39	04-Oct	24-Oct	4	15-Oct	15-Oct
Herring Gull	93	2546	16-Jul	24-Oct	115	07-Aug	11-Aug
Thayer's Gull	32	261	29-Aug	21-Oct	45	10-Sep	23-Sep
Glaucous-winged Gull	8	8	08-Oct	22-Oct	1	all days	-
Glaucous Gull	2	2	04-Oct	18-Oct	1	both days	-
Sabine's Gull	2	2	30-Sep	11-Oct	1	both days	-
Black-legged Kittiwake	1	1	25-Sep	-	1	-	-
Arctic Tern	15	88	16-Jul	15-Aug	20	01-Aug	31-Jul
Great Horned Owl	1	1	14-Aug	-	1	-	-
Northern Hawk Owl	3	3	04-Sep	21-Oct	1	all days	-
Short-eared Owl	1	1	14-Oct	-	1	-	-
Common Nighthawk	2	2	14-Aug	10-Sep	1	both days	-
Fork-tailed Swift	1	1	28-Sep	-	1	-	-
Belted Kingfisher	26	35	24-Jul	25-Sep	4	12-Aug	15-Aug
Downy Woodpecker	12	14	07-Aug	04-Oct	2	11 AUG/30AUG	28-Aug
Hairy Woodpecker	6	6	28-Jul	16-Sep	1	all days	-
American Three-toed Woodpecker	12	18	28-Aug	22-Oct	4	07-Oct	16-Sep
Black-back Woodpecker	2	2	09-Aug	07-Sep	1	both days	-
Northern Flicker	18	29	16-Jul	19-Sep	5	24-Jul	09-Aug
Olive-sided Flycatcher	10	14	26-Jul	07-Sep	4	29-Aug	28-Aug
Western Wood-Pewee	8	10	20-Aug	06-Sep	2	27 Aug/ 6 Sep	26-Aug

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
	# of Days	Bird Days			#	Date	
Yellow-bellied Flycatcher	10	13	29-Jul	25-Aug	3	25-Aug	14-Aug
Alder Flycatcher	49	692	16-Jul	16-Sep	88	22-Aug	22-Aug
Least Flycatcher	4	4	27-Jul	10-Aug	1	all days	-
Hammond's Flycatcher	12	23	30-Jul	04-Sep	7	03-Aug	04-Aug
Dusky Flycatcher	4	4	11-Aug	06-Sep	1	-	-
Say's Phoebe	6	8	09-Aug	12-Sep	2	27 Aug/12 Sep	27-Aug
Northern Shrike	8	9	09-Sep	21-Oct	2	11-Oct	11-Oct
Warbling Vireo	22	41	25-Jul	31-Aug	5	05-Aug	05-Aug
Gray Jay	58	106	24-Jul	23-Oct	3	many days	-
Black-billed Magpie	40	55	30-Aug	23-Oct	5	07-Oct	06-Oct
Common Raven	93	556	16-Jul	24-Oct	25	16-Oct	18-Sep
Horned Lark	3	4	04-Sep	11-Oct	2	04-Sep	-
Tree Swallow	4	5	16-Jul	31-Jul	2	16-Jul	-
Violet-green Swallow	1	1	15-Aug	-	1	-	-
Bank Swallow	10	68	16-Jul	12-Aug	18	09-Aug	09-Aug
Cliff Swallow	5	15	16-Jul	28-Sep	10	01-Aug	-
Barn Swallow	9	33	29-Jul	13-Aug	16	31-Jul	31-Jul
Black-capped Chickadee	90	295	16-Jul	23-Oct	10	22-Aug	05-Sep
Boreal Chickadee	6	12	30-Jul	26-Aug	6	09-Aug	-
Red-breasted Nuthatch	23	23	26-Jul	07-Oct	1	all days	13-Aug
Golden-crowned Kinglet	2	3	19-Sep	02-Oct	2	02-Oct	-
Ruby-crowned Kinglet	62	206	25-Jul	20-Oct	13	10/19 Sep	08-Sep
Mountain Bluebird	9	41	10-Sep	16-Oct	13	28-Sep	08-Oct
Townsend's Solitaire	12	20	28-Aug	16-Oct	4	05-Sep	08-Sep
Gray-cheeked Thrush	7	8	23-Aug	21-Sep	2	04-Sep	-
Swainson's Thrush	40	104	16-Jul	15-Sep	8	22-Aug	20-Aug
Hermit Thrush	11	14	27-Aug	05-Oct	4	10-Sep	10-Sep
American Robin	60	2738	16-Jul	23-Oct	1149	28-Sep	28-Sep
Varied Thrush	34	444	28-Jul	21-Oct	72	08-Sep	08-Sep

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	# of Days	Bird Days			#	Date	
American Pipit	44	250	09-Aug	22-Oct	105	02-Sep	03-Sep
Bohemian Waxwing	23	508	16-Aug	23-Oct	110	16-Oct	16-Oct
Cedar Waxwing	6	10	16-Jul	03-Aug	2	many days	-
Tennessee Warbler	26	59	24-Jul	08-Oct	6	04-Aug	04-Aug
Orange-crowned Warbler	57	341	24-Jul	23-Oct	25	25-Aug	26-Aug
Yellow Warbler	55	680	16-Jul	17-Sep	81	25-Aug	21-Aug
Yellow-rumped "Myrtle" Warbler	83	1894	16-Jul	19-Oct	231	02-Sep	24-Aug
Yellow-rumped "Audobon's" Warbler	1	1	09-Oct	-	1	-	-
Townsend's Warbler	10	15	16-Jul	28-Aug	3	29-Jul	05-Aug
Blackpoll Warbler	49	297	16-Jul	16-Sep	21	16-Aug	15-Aug
American Redstart	24	47	16-Jul	06-Sep	6	26-Sep	05-Aug
Northern Waterthrush	32	103	16-Jul	19-Sep	7	07-Aug	05-Aug
MacGillivray's Warbler	2	2	06-Aug	12-Aug	1	both days	-
Common Yellowthroat	41	100	27-Jul	28-Sep	7	21-Aug	27-Aug
Wilson's Warbler	55	233	24-Jul	22-Sep	19	25-Aug	25-Aug
Western Tanager	2	2	16-Jul	29-Jul	1	both days	-
American Tree Sparrow	29	47	03-Sep	23-Oct	5	21-Sep	21-Sep
Chipping Sparrow	19	38	25-Jul	09-Sep	7	07-Aug	07-Aug
Savannah Sparrow	29	54	27-Jul	08-Oct	8	02-Sep	01-Sep
Fox Sparrow	22	46	07-Aug	18-Sep	4	many days	02-Sep
Song Sparrow	1	1	28-Aug	-	1	-	-
Lincoln's Sparrow	13	17	16-Jul	28-Sep	3	13-Aug	14-Aug
Swamp Sparrow	3	3	25-Jul	15-Aug	1	all days	-
White-crowned Sparrow	21	40	26-Jul	23-Oct	8	14-Aug	22-Aug
Dark-eyed Junco	81	1199	16-Jul	23-Oct	120	07-Sep	07-Sep
Lapland Longspur	26	84	28-Aug	23-Oct	10	10-Sep	29-Sep
Snow Bunting	2	3	15-Oct	23-Oct	2	15-Oct	-
Rusty Blackbird	57	743	25-Jul	23-Oct	57	13-Sep	13-Sep
Brown-headed Cowbird	1	1	15-Aug	-	1	-	-

Species	ALL OBS		First Date	Last Date	HIGH COUNT		Median Date
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Pine Grosbeak	8	233	16-Sep	24-Oct	97	23-Oct	22-Oct
Purple Finch	19	35	16-Jul	01-Sep	4	29-Jul	29-Jul
Red Crossbill	9	39	01-Aug	22-Oct	12	11-Oct	11-Oct
White-winged Crossbill	90	1605	16-Jul	23-Oct	59	29-Aug	09-Sep
Common Redpoll	19	2326	07-Aug	24-Oct	652	22-Oct	22-Oct
Pine Siskin	77	1424	16-Jul	23-Oct	170	17-Sep	19-Sep