

Albert Creek Bird Observatory Final Report 2011



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Society of Yukon Bird Observatories
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The 2011 operation of the Albert Creek Bird Observatory was made possible due to support and financial contributions from the following organizations.



Environment
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Cover Photo: White-throated Sparrow banded on July 31st, 2011 (Photo: Jukka Jantunen).

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EXECUTIVE SUMMARY

The Albert Creek Bird Observatory completed its eleventh consecutive year of spring and fall migration monitoring during 2011. In spring, the field station operated for a total of 41 days from April 23 to June 4. During fall, the station operated for 46 days from July 23 to September 10. The primary method of monitoring bird migration through the study site is through the use of standardized mist netting and banding of birds captured. Mist netting resulted in the capture and banding of 1,917 birds of 46 species in spring and 1,966 birds of 54 species in fall. Yellow-rumped Warbler, Yellow Warbler, Common Yellowthroat and Dark-eyed Junco were once again among the top species banded during 2011. Species with a restricted range in the Yukon continue to be monitored at Albert Creek, including the following: Magnolia Warbler, Cape May Warbler, Western Tanager, Swamp Sparrow and White-throated Sparrow. Although not on the same magnitude of Teslin Lake Bird Observatory, there was also evidence of a Boreal Chickadee irruption at Albert Creek in 2011. The data collected at the observatory in 2011 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. The observatory continues to attract numerous volunteers to assist with day to day operations; in 2011 a total of 977 volunteer hours were tallied at the station. Numerous visitors also continue to be attracted to the site; this year the station had a total of 127 visitor hours, including a Y2C2 (Yukon Youth Conservation Corps) crew.

ACKNOWLEDGEMENTS

Jukka Jantunen & Ted Murphy-Kelly were the primary Banders-In-Charge of the bird observatory during the 2011 season. Jukka and Ted's bird identification skills and perseverance were once again a definite asset to the quality of the data collected at the observatory. Jukka also provided many of the superb photographs presented in this report.

The following list summarizes the individuals who played a role in the 2011 operation of the Albert Creek Bird Observatory.

Ted Murphy-Kelly	Station Manager, Primary Bander In Charge, Report Editing
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Jim Hawkings	Report Editing

Cameron Eckert (YG-Environment), Pam Sinclair (CWS) and Katie Aitken (CWS) provided advice and assisted with project logistics. The staff at the Yukon Department of Environment – Watson Lake Office also assisted with project logistics.

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

The following volunteers assisted with the operation of the observatory: over 20 days – Kelly Riggs; 15 to 20 days – Susan Drury, Julie Bauer, Terry Skjonsberg; 10 to 15 days – Brad Bloemendal, Bryn White; 5 to 10 days – Shyloh van Delft, Gwen Baluss, Sarah Davidson, Jessica Condon, Pam Randles, Mario Benassi, Abril Heredia; 1 to 5 days – Megan Cohoon, Jason Strudwick, Wayne Cohoon, Matt Clarke, Mark Gardner, Ben Schonewille, Amber Rudd.

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1.0 Introduction

The Albert Creek Bird Observatory operated during the spring and fall migration season in 2011. The observatory completed its eleventh year of operation thanks to financial support from several government and non-government agencies. Although the observatory began operation during 2001, monitoring at the site became standardized and more rigorous beginning in 2004.

The goals of the Albert Creek Bird Observatory are to:

- Gather baseline information on birds and bird migration in the southeast Yukon.
- Collect data to facilitate the long term monitoring (*i.e.* trend analysis) of birds in the southeast Yukon.
- Conduct and participate in specific studies such as feather collection and color banding of species of interest.
- 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 Watson Lake.

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 Albert Creek 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 Liard 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. This is even more pronounced in the southeast Yukon, where a number of species are at the extreme northwest of their range. A number of species are not regularly found west of Albert Creek, thus allowing the observatory to monitor the presence of these species in the territory. 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 they often have the opportunity to get close up views of many bird species 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 Albert Creek Bird Observatory Field Protocol and Manual (currently being formalized). A brief summary of the field protocol is described in the following sections; however, for a detailed description refer to the aforementioned document. All monitoring activities at the observatory can be separated into standardized and non-standardized. To facilitate long term analysis of the observatory's data, the standardized data is collected in the same format year after year. Non standardized activities may include species specific mist nets within the count area or the collection of banding / observation data outside of the standard count period. For every species observed, estimated totals are calculated for every day of operation using the following categories;

- Band: new birds banded
- Recaptures: previously banded birds, not included if recaptured on the initial day of banding
- Other Visual Migrants: birds observed in obvious migration flight observed incidentally
- Census: birds observed while on census only
- 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 birds observed within/passing through the count area within the standard count period on a daily basis. Using only the standard count period data, this number represents the "Daily Estimated Total – DET" and when the non-standard data is included, this number represents the "Daily Species Total – DST".

2.1 Mist Netting

The primary method of monitoring the movement of birds through the study site is the use of mist nets for the purpose of capturing and banding birds. The observatory operates with 23 standard mist nets and one non-standard mist net (Figure 1). Non-standard nets used in 2011 were limited to net 27 (target: waterbirds) and nets 24 to 26 (target: owls). All nets are 30 mm mesh and 12 m in length, with the exception of nets 18 and 22 which are 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.

2.2 Census

To supplement the banding data, four short "census legs" are surveyed on a daily basis as personnel allow. Many other observatories operate a longer (1 hour) census through the count area; however, this is not possible at Albert Creek due to inconsistent numbers of qualified observers on site. Census

legs are predefined routes which are followed by a single observer to record bird observations independent from the mist netting captures and incidental observations. The short census legs allow for a single observer to census birds without committing a full hour to this activity. On days when bird captures are relatively low/moderate and adequate personnel are onsite, these census legs can be surveyed in combination with the mist net checks.

2.3 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. Any birds in obvious migration flight (flying over the site) are recorded as 'other visual migrants' on the daily log sheets.

2.4 Study Site

The bird observatory is located along Albert Creek in the Liard River Valley, 15 km west of the community of Watson Lake in the southeast region of the Yukon Territory. The majority of the site is composed of a regenerating forest with the marsh being the defining feature of the study site. The area is dominated by willow (*Salix* spp.), alder (*Alnus* spp.) and regenerating white birch (*Betula papyrifera*) with some mature white spruce (*Picea glauca*), trembling aspen (*Populus tremuloides*) and balsam poplar (*Populus balsamifera*) scattered throughout. The under-story vegetation within the regenerating portion of the study site consists primarily of red clover (*Trifolium pretense*), fireweed (*Epilobium augustifolium*), yarrow (*Achillea millefolium*), red raspberry (*Rubus idaeus*), prickly rose (*Rosa acicularis*) as well as various grass species (*Poa* spp). Within the stands of mature white spruce, the under-story is dominated by various bryophytes and cranberry (*Vaccinium vitis-idea*) with willow, alder and red osier dogwood (*Cornus stolonifera*) scattered throughout.

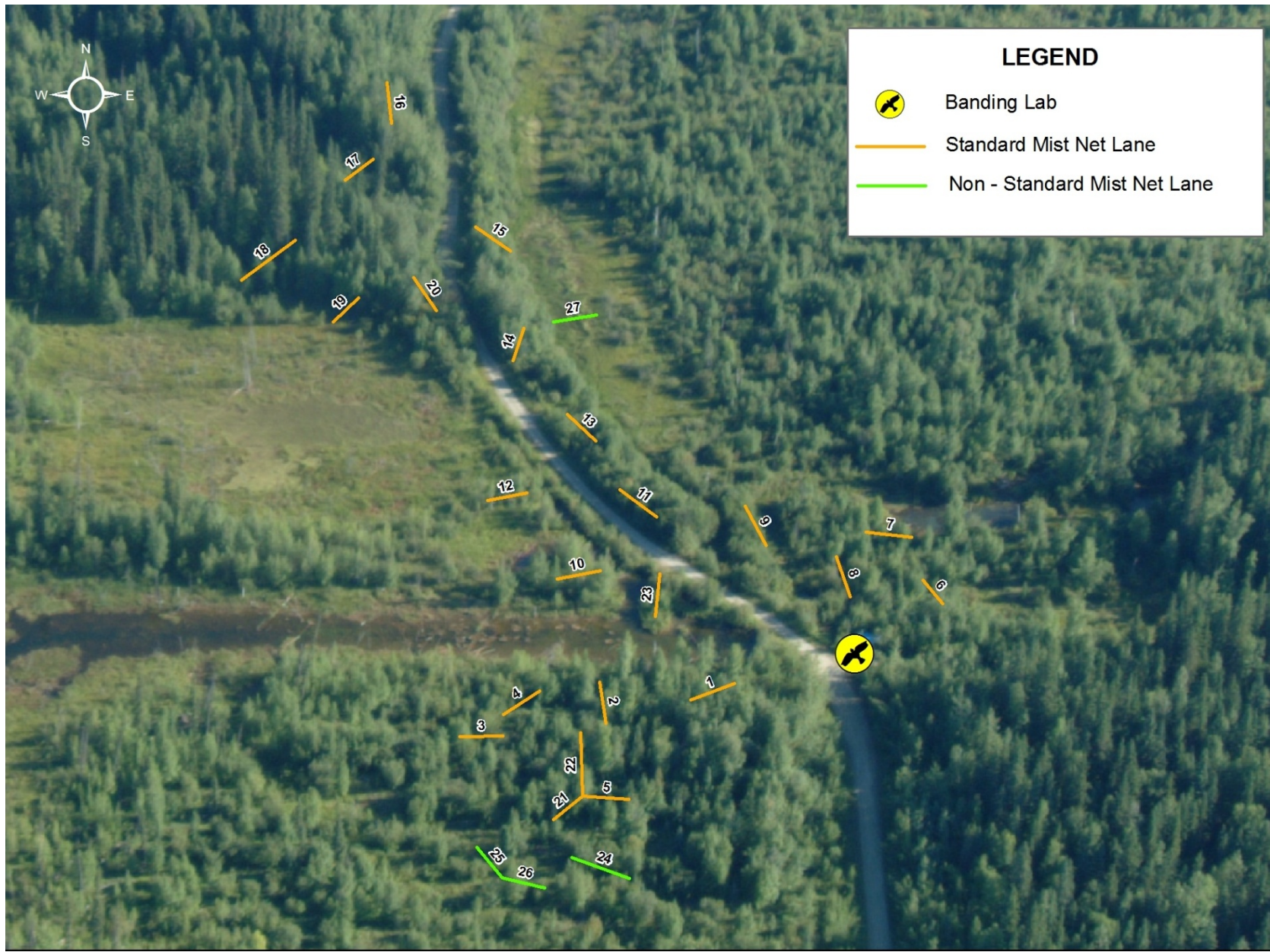


Figure 1. Overview of study area.

3.0 Results & Discussion

During the spring season, 1,917 birds of 46 species were banded and 116 species were observed. During the fall season, 1,966 birds of 54 species were banded and 109 species were observed. The all time total number of birds banded at Albert Creek is 38,604 individuals of 86 species (Appendix A). Each component of the 2011 data is summarized and presented in the following subsections; however, a detailed account of the 2011 estimated total data is shown in Appendix B. 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.

As compared to previous banding totals, the 2011 spring total was slightly below the 2003-2010 average of 2,110 individuals (Figure 2). However, when considering the number of birds banded per 100 net hours, the spring of 2011 was well below average; the 2003-2010 spring average is 52.9 birds per 100 net hours. Banding numbers during the spring are influenced by a number of factors, most notably the weather and timing of the spring. High captures of a small number of species (such as White-crowned Sparrow and Myrtle Warbler) can greatly influence the mist netting productivity.

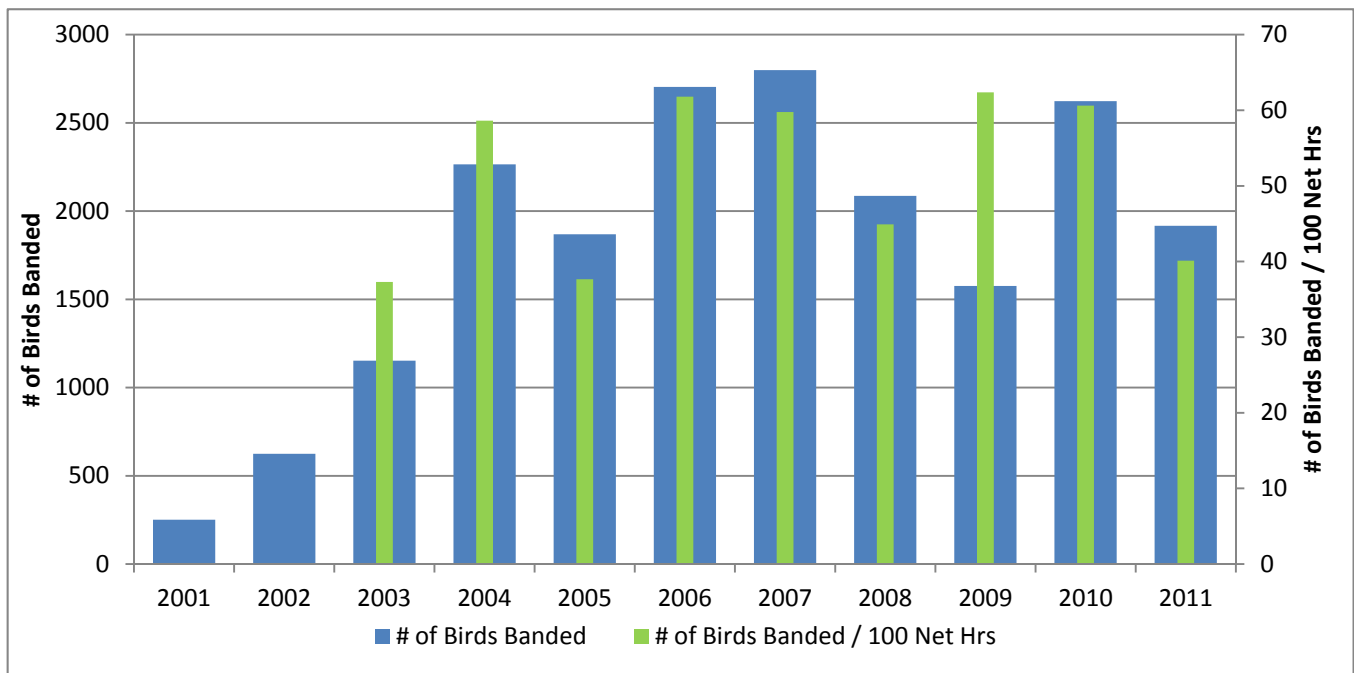


Figure 2. Summary of birds banded at Albert Creek during the spring from 2001 to 2011.

The fall season banding total was only slightly below the 2003-2010 average of 2,007 individuals (Figure 3). However, the mist netting effort was higher in 2011 due to a higher number of qualified personnel onsite, and this resulted in substantially lower birds banded per 100 net hours as compared to the 2003-2010 average of 38. The 2011 fall season was the second lowest birds per net hours, only higher than 26/100 net hours in 2008. The birds banded in the fall are a mixture of local and migrant individuals. Therefore, the number of birds banded in fall may be considered a factor of local

productivity and other factors influencing migration (ie. weather). Water levels in the marsh may also influence the banding totals due to changes to the site as a stopover site and/or changes in local productivity of some species such as Common Yellowthroat and Northern Waterthrush.

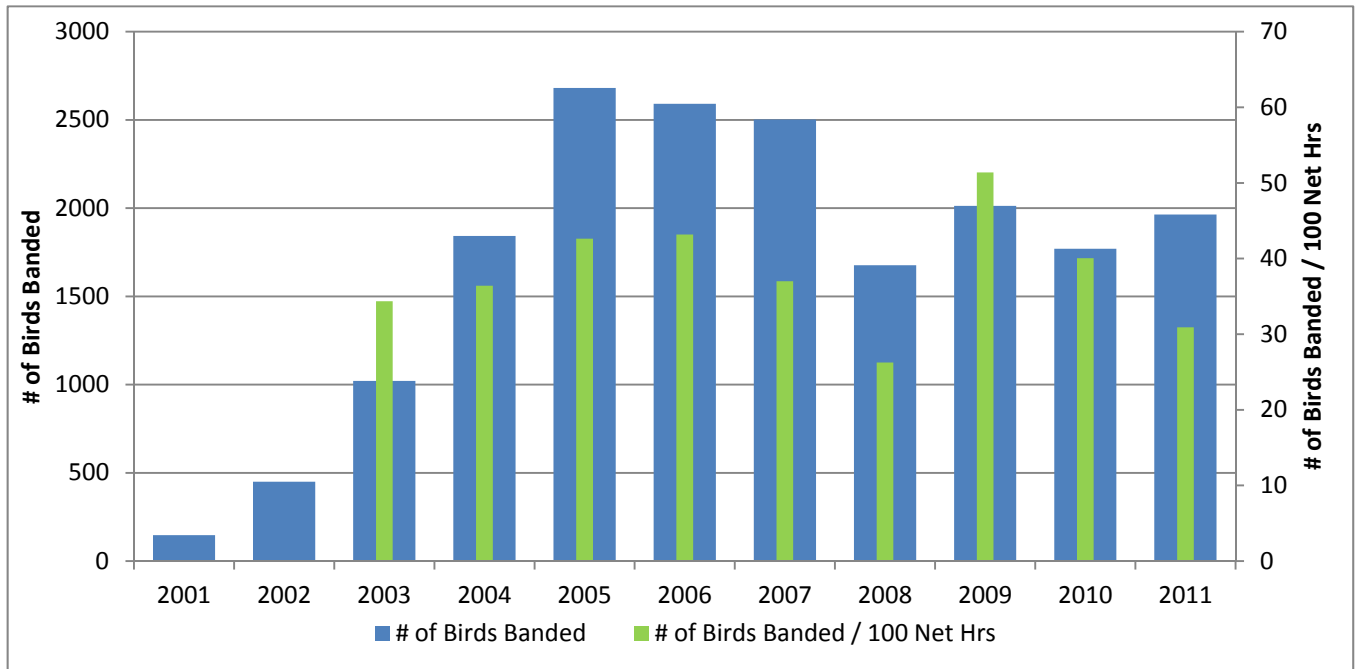


Figure 3. Summary of birds banded at Albert Creek during the fall from 2003 to 2011.

Table 1. Top 10 species banded during the spring of 2011, 2010, 2009, 2008, 2007 and 2006.

Species	2011		2010		2009		2008		2007		2006	
	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#
Yellow Warbler	1	334	8	65	5	96	3	208	4	261	3	313
Yellow-rumped "Myrtle" Warbler	2	217	1	776	1	505	1	434	9	113	2	364
Fox Sparrow	3	164	3	257	15	11	11	51	13	60	19	28
Wilson's Warbler	4	125	4	249	2	274	4	182	1	369	1	398
Blackpoll Warbler	5	121	10	62	6	65	6	88	14	57	12	62
Dark-eyed "Slate-colored" Junco	6	109	T - 12	57	12	15	12	48	3	334	10	70
Common Yellowthroat	7	102	T - 12	57	7	35	14	46	10	85	12	62
Savannah Sparrow	8	85	13	49	6	37	10	53	12	70	16	42
Northern Waterthrush	9	81	9	65	4	113	15	31	7	145	7	91
Orange-crowned Warbler	10	75	5	177	3	170	2	339	5	251	5	214

Table 2. Top 10 species banded during the fall of 2011, 2010, 2009, 2008 and 2007.

Species	2011			2010			2009			2008			2007		
	Rank	#	% HY	Rank	#	% HY	Rank	#	% HY	Rank	#	% HY	Rank	#	% HY
Yellow-rumped "Myrtle" Warbler	1	287	89	8	83	82	12	90	83	5	117	72	1	262	76
Northern Waterthrush	2	191	92	1	248	81	2	202	78	2	195	77	3	248	88
Common Yellowthroat	3	185	92	2	205	87	1	233	92	3	191	81	4	217	92
Tennessee Warbler	4	152	95	3	158	97	5	137	99	28	16	93	18	22	82
Alder Flycatcher	5	122	79	9	78	82	11	93	79	1	202	69	2	253	83
Dark-eyed "Slate-colored" Junco	6	91	71	13	50	67	10	96	68	13	39	78	11	81	78
Orange-crowned Warbler	7	88	89	11	61	82	9	97	74	8	87	61	8	152	77
Yellow Warbler	8	82	78	7	85	81	4	157	83	6	93	67	5	214	77
Lincoln's Sparrow	9	80	86	6	89	97	8	99	86	11	57	75	12	74	84
Swainson's Thrush	10	74	95	10	66	85	14	43	81	9	70	83	9	137	81

Table 3. Birds banded during the spring and fall of 2011.

Common Name	Latin Name	Spring		Fall		Common Name	Latin Name	Spring		Fall	
		# Banded	# Banded / 100 Net Hours	# Banded	# Banded / 100 Net Hours			# Banded	# Banded / 100 Net Hours	# Banded	# Banded / 100 Net Hours
Green-winged Teal	<i>Anas crecca</i>			1	0.02	Northern Waterthrush	<i>Parkesia noveboracensis</i>	81	1.69	191	3.00
Bufflehead	<i>Bucephala albeola</i>	2	0.04			Tennessee Warbler	<i>Oreothlypis peregrina</i>	23	0.48	152	2.39
Sharp-shinned Hawk	<i>Accipiter striatus</i>			7	0.11	Orange-crowned Warbler	<i>Oreothlypis celata</i>	75	1.57	88	1.38
Spotted Sandpiper	<i>Actitis macularius</i>			1	0.02	MacGillivray’s Warbler	<i>Geothlypis tolmiei</i>			1	0.02
Solitary Sandpiper	<i>Tringa solitaria</i>	1	0.02	2	0.03	Common Yellowthroat	<i>Geothlypis trichas</i>	102	2.13	185	2.91
Least Sandpiper	<i>Calidris minutilla</i>			2	0.03	American Redstart	<i>Setophaga ruticilla</i>	3	0.06	52	0.82
Belted Kingfisher	<i>Ceryle alcyon</i>	1	0.02	4	0.06	Cape May Warbler	<i>Setophaga tigrina</i>	1	0.02	1	0.02
Downy Woodpecker	<i>Picoides pubescens</i>			1	0.02	Magnolia Warbler	<i>Setophaga magnolia</i>			24	0.38
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	11	0.23	10	0.16	Yellow Warbler	<i>Setophaga petechia</i>	334	6.99	82	1.29
Western Wood-Pewee	<i>Contopus sordidulus</i>	1	0.02	1	0.02	Blackpoll Warbler	<i>Setophaga striata</i>	121	2.53	30	0.47
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>			6	0.09	Yellow-rumped Warbler	<i>Setophaga coronata</i>	217	4.54	287	4.51
Alder Flycatcher	<i>Empidonax alnorum</i>	14	0.29	122	1.92	Townsend’s Warbler	<i>Setophaga townsendi</i>			1	0.02
Least Flycatcher	<i>Empidonax minimus</i>	3	0.06	44	0.69	Wilson’s Warbler	<i>Cardellina pusilla</i>	1.25	2.62	68	1.07
Hammond’s Flycatcher	<i>Empidonax hammondii</i>	6	0.13	20	0.31	Western Tanager	<i>Piranga ludoviciana</i>	1	0.02	7	0.11
Say’s Phoebe	<i>Sayornis saya</i>	1	0.02			American Tree Sparrow	<i>Spizella arborea</i>	63	1.32	19	0.30
Warbling Vireo	<i>Vireo gilvus</i>	5	0.10	64	1.01	Chipping Sparrow	<i>Spizella passerina</i>	6	0.13	2	0.03
Blue-headed Vireo	<i>Vireo solitarius</i>			1	0.02	Savannah Sparrow	<i>Passerculus sandwichensis</i>	85	1.78	3	0.05
Gray Jay	<i>Perisoreus canadensis</i>			1	0.02	Fox Sparrow	<i>Passerella iliaca</i>	164	3.43	14	0.22
Tree Swallow	<i>Tachycineta bicolor</i>	3	0.06			Lincoln’s Sparrow	<i>Melospiza lincolni</i>	66	1.38	80	1.26
Violet-green Swallow	<i>Tachycineta thalassina</i>	1	0.02			Swamp Sparrow	<i>Melospiza georgiana</i>	7	0.15	16	0.25
Boreal Chickadee	<i>Poecile hudsonicus</i>	8	0.17	47	0.74	White-throated Sparrow	<i>Zonotrichia albicollis</i>	17	0.36	23	0.36
Black-capped Chickadee	<i>Poecile atricapillus</i>			11	0.17	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	68	1.42	16	0.25
Red-breasted Nuthatch	<i>Sitta canadensis</i>			2	0.03	Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	3	0.06	1	0.02
Golden-crowned Kinglet	<i>Regulus satrapa</i>			3	0.05	Dark-eyed Junco	<i>Junco hyemalis</i>	111	2.32	91	1.43
Ruby-crowned Kinglet	<i>Regulus calendula</i>	40	0.84	55	0.87	Lapland Longspur	<i>Calcarius lapponicus</i>	3	0.06		
Gray-cheeked Thrush	<i>Catharus minimus</i>			2	0.03	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	8	0.17		
Swainson’s Thrush	<i>Catharus ustulatus</i>	35	0.73	74	1.16	Rusty Blackbird	<i>Euphagus carolinus</i>	57	1.19	4	0.06
Hermit Thrush	<i>Catharus guttatus</i>	9	0.19	1	0.02	Purple Finch	<i>Carpodacus purpureus</i>	8	0.17		
American Robin	<i>Turdus migratorius</i>	19	0.40	5	0.08	White-winged Crossbill	<i>Loxia leucoptera</i>			2	0.03
Varied Thrush	<i>Ixoreus naevius</i>	5	0.10	10	0.16	Common Redpoll	<i>Acanthis flammea</i>	1	0.02	1	0.02
American Pipit	<i>Anthus rubescens</i>	3	0.06			Pine Siskin	<i>Spinus pinus</i>			28	0.44
Bohemian Waxwing	<i>Bombycilla garrulus</i>	1	0.02			TOTAL INDIVIDUALS		1,917	40.1	1,964	30.9
Cedar Waxwing	<i>Bombycilla cedrorum</i>	1	0.02			TOTAL SPECIES		46	--	54	

During the spring season, there was one notable peak in bird migration as represented by the weekly banding totals. The peak occurred during week 4 (15-21 May) when a diverse group of species were captured, primarily warblers and other neotropical migrants. Species which dominated the catch during this week included the following (from greatest to least): Yellow Warbler (165), Myrtle Warbler (108), Northern Waterthrush (59), Blackpoll Warbler (56) and Wilson’s Warbler (51).

Table 4. Summary statistics of the 2011 spring season.

Week	Date	Days Operated	Birds Banded				Total Species Observed
			#	Species	Net Hours	#/100 Net Hours	
1	April 24 – 30	7	76	8	910	8.35	43
2	May 1 - 7	7	353	14	830	42.53	63
3	May 8 – 14	5	262	23	556	47.12	63
4	May 15 – 21	7	653	32	842	77.55	83
5	May 22 – 28	7	440	26	1,043	42.19	90
6	May 29 – June 4	7	133	20	600	22.17	74
ALL		40	1,917	46	4,781	40.10	116

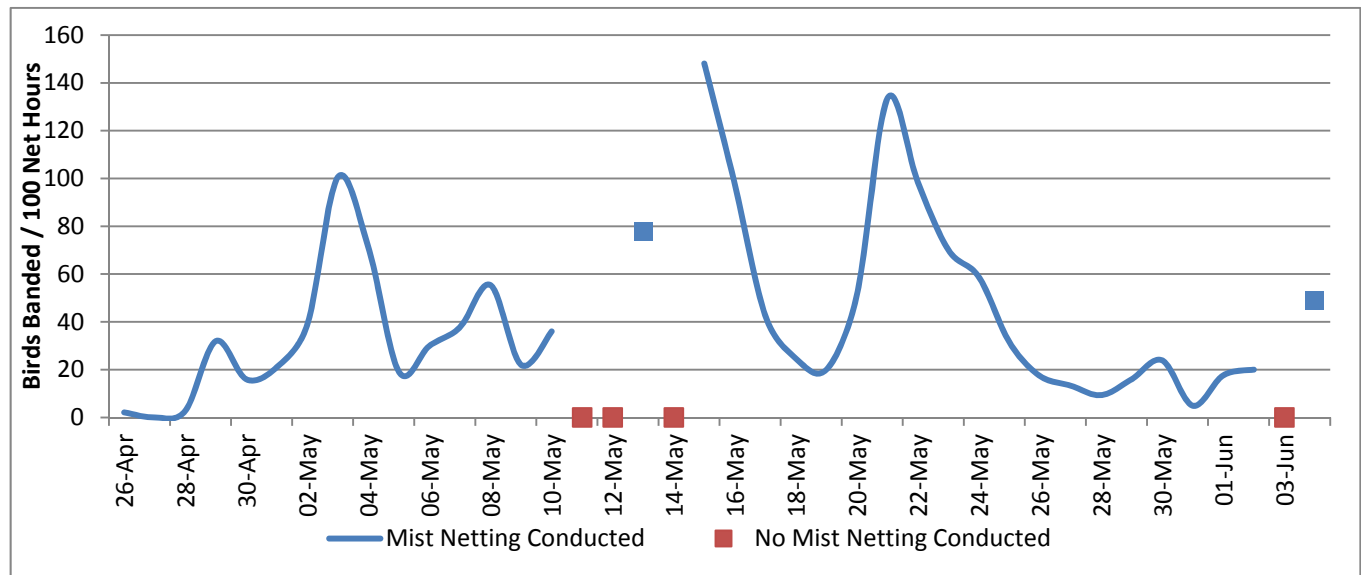


Figure 4. Summary of birds banded per 100 net hours during the spring of 2011.

During the fall season, there were two peaks in migration activity. The first peak occurred during week 1 (23-29 Jul) which is a result of high captures of local breeders and their offspring. The top five species banded during the week included the following (from greatest to least); Tennessee Warbler (48), Northern Waterthrush (37), Common Yellowthroat (31), Myrtle Warbler (29) and Lincoln’s Sparrow (18). The second peak occurred during week 6 (27 Aug – 2 Sep) when a high capture rate of Myrtle Warbler resulted in a relatively high birds per net hour. Due to the relatively late timing, this second peak is likely comprised of primarily migrant individuals as opposed to local breeders/juveniles.

Table 5. Summary statistics of the 2010 fall season.

Week	Date	Days Operated	Birds Banded				Total Species Observed
			#	Species	Net Hours	#/100 Net Hours	
1	23 – 29 Jul	7	260	27	646	40.25	71
2	30 Jul – 5 Aug	7	316	32	908	34.80	73
3	6 – 12 Aug	7	197	30	790	24.94	62
4	13 – 19 Aug	7	274	30	1,071	25.58	56
5	20 – 26 Aug	7	348	29	1,025	33.95	65
6	27 Aug – 2 Sep	7	363	31	875	41.49	62
7	3 – 9 Sep	7	201	26	1,011	19.88	57
8	10 Sep	1	7	5	33	21.21	6
ALL		50	1,966	54	6,358	30.92	109

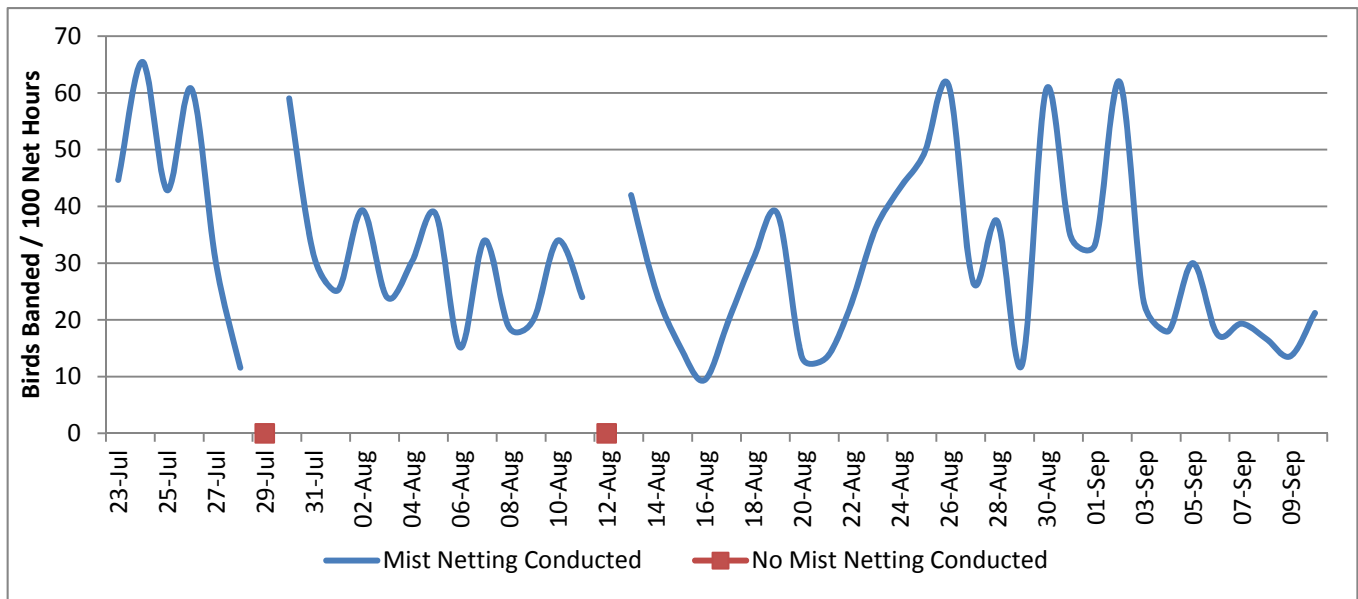


Figure 5. Summary of birds banded per 100 net hours during the fall of 2011.

Standard mist nets with the highest productivity were those within and adjacent to marsh habitats including nets 7, 9, 13 and 23 (Figure 6). This is presumably due to the edge habitats presented by these areas which provide feeding opportunities and movement corridors within the marsh. This is also likely the reason why net 17 had high capture rates in spring; this net is located in a small marshy area surrounded by mature white spruce and alder thickets. Note that the net capture rates are lower in areas with a higher vegetation canopy (ie. net 18). Although the overall captures are low for these nets, the species captured are often under-represented by other nets with higher overall capture rates.

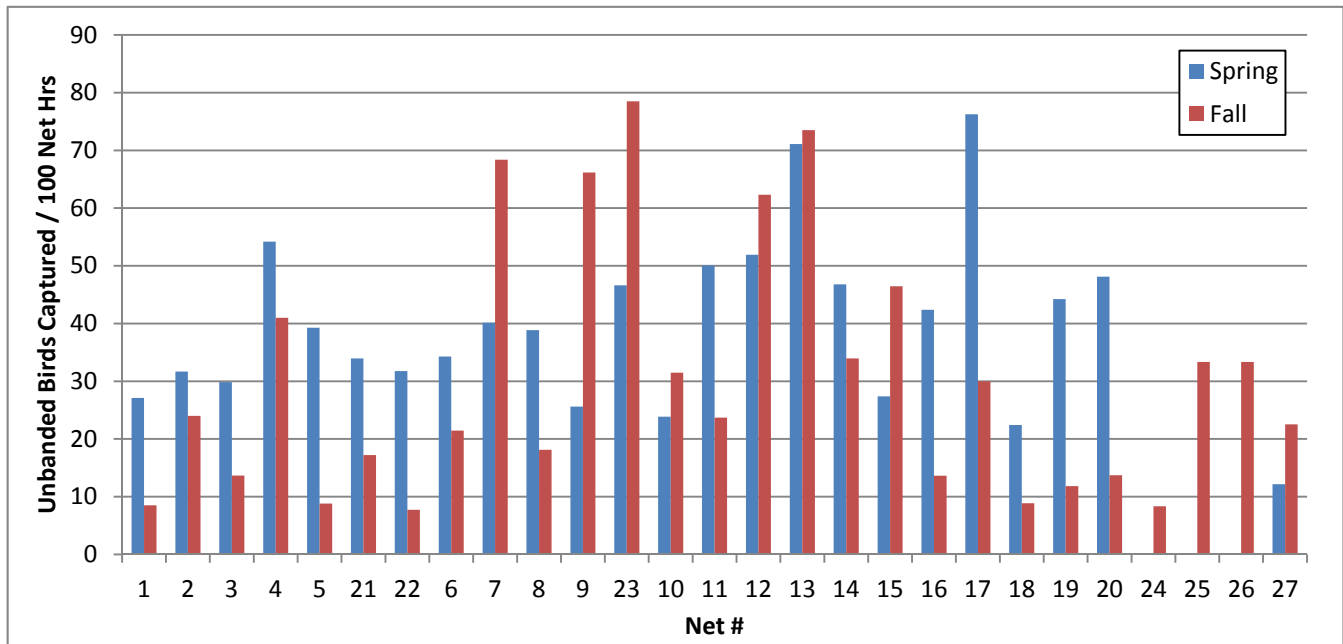


Figure 6. Number of birds banded per mist net during the spring and fall of 2011.

3.1 Spring Migration Timing

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

3.1.1 Generalized Spring Migration Timing

Generalized spring migration timing during 2011 and 2010 for temperate, neotropical and irruptive migrants/residents is presented in Figure 7. During both years, the peak in migration occurred between May 14th and 24th. Temperate migrants (primarily sparrows) outnumber neotropical migrants only during the early portion of the season (late April/early May). Due to the late spring in 2011, the peak in temperate migrants occurred 10 to 14 days later than normal. However, this trend was not as noticeable for the neotropical migrants which occurred on time and possibly even a few days earlier than average for some species.

Spring arrival dates for species encountered in sufficient numbers can also be used to make general migration timing comparisons between years. Spring arrival dates for 22 species are shown in Table 6. This data shows the early season arrivals were late during 2011 as compared to the 2005-2010 average including the following examples: Hammond’s Flycatcher – 6 days, Orange-crowned Warbler – 7 days, Yellow-rumped Warbler – 5 days, Wilson’s Warbler – 2 days, and Savannah Sparrow – 5 days. Contrastingly, many of the later arriving species were early in 2011 including the following examples: Alder Flycatcher – 3 days, Least Flycatcher – 8 days, Swainson’s Thrush – 3 days, Tennessee Warbler – 6 days, and Blackpoll Warbler – 4 days.

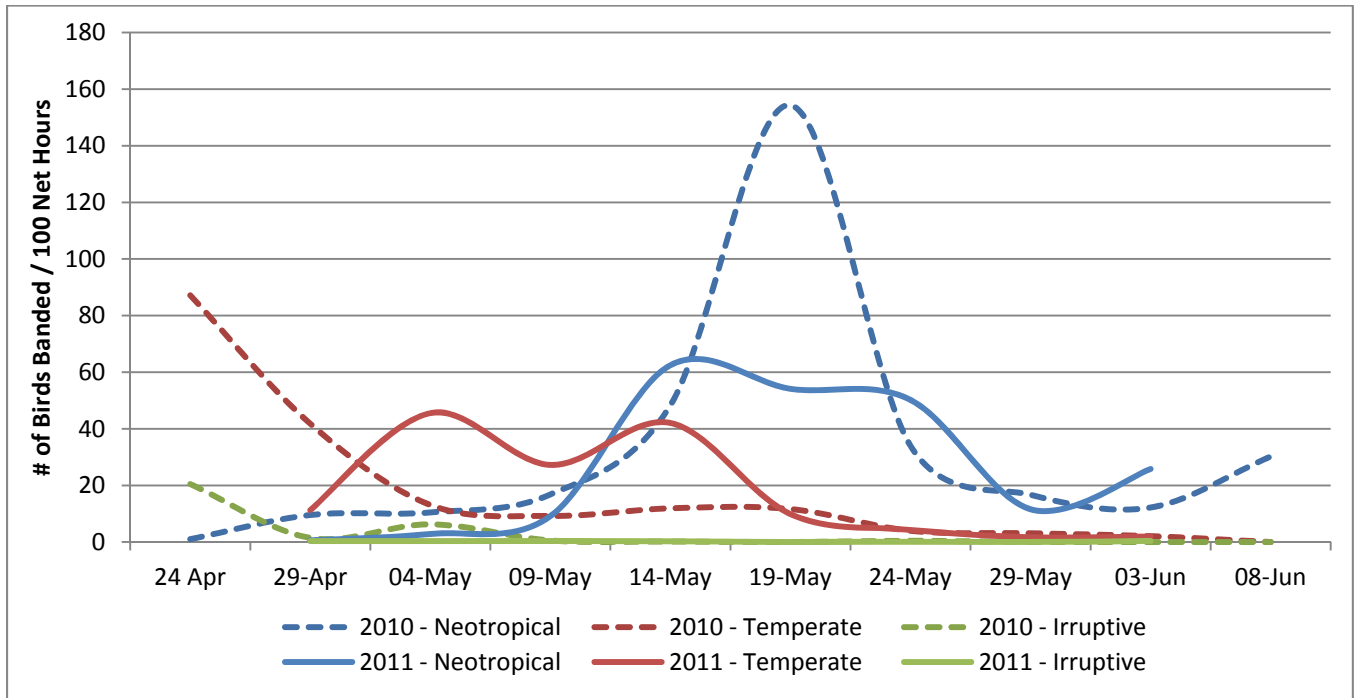


Figure 7. Migration timing for temperate, neotropical and irruptive migrants/residents banded during the spring of 2010 and 2011.

Table 6. Summary of spring arrival dates for select species at Albert Creek from 2005 to 2011.

Species	Spring Arrival Dates							2005 to 2010 Average Arrival Date
	2011	2010	2009	2008	2007	2006	2005	
<i>Station Opening Date</i>	24 April	22 April	11 May	24 April	23 April	23 April	24 April	
Solitary Sandpiper	3 May	10 May	-	12 May	11 May	4 May	7 May	7 May
Yellow-bellied Sapsucker	6 May	24 Apr	-	9 May	2 May	24 April	25 April	30 April
Alder Flycatcher	20 May	26 May	21 May	26 May	23 May	23 May	25 May	23 May
Least Flycatcher	18 May	29 May	4 Jun	26 May	22 May	23 May	29 May	26 May
Hammond’s Flycatcher	13 May	2 May	-	12 May	14 May	7 May	29 April	7 May
Warbling Vireo	21 May	16 May	21 May	20 May	19 May	20 May	12 May	18 May
Gray-cheeked Thrush	-	15 May	23 May	16 May	11 May	14 May	13 May	15 May
Swainson’s Thrush	10 May	16 May	19 May	11 May	11 May	14 May	13 May	13 May
Tennessee Warbler	16 May	24 May	26 May	25 May	24 May	23 May	22 May	22 May
Orange-crowned Warbler	6 May	24 Apr	-	3 May	28 Apr	26 April	29 April	29 April
Yellow Warbler	15 May	17 May	20 May	18 May	18 May	14 May	15 May	16 May
Cape May Warbler	26 May	30 May	26 May	26 May	28 May	1 June	1 June	28 May
Yellow-rumped Warbler	30 Apr	21 Apr	-	30 Apr	23 Apr	24 April	25 April	25 April
Blackpoll Warbler	10 May	15 May	23 May	9 May	16 May	14 May	16 May	14 May
American Redstart	21 May	26 May	29 May	27 May	27 May	27 May	27 May	26 May
Northern Waterthrush	9 May	10 May	-	10 May	5 May	7 May	11 May	8 May
Common Yellowthroat	15 May	13 May	20 May	10 May	11 May	15 May	14 May	14 May
Wilson’s Warbler	8 May	10 May	-	3 May	11 May	6 May	3 May	6 May
Savannah Sparrow	3 May	29 Apr	-	29 Apr	23 Apr	27 April	2 May	28 April
Swamp Sparrow	16 May	5 May	22 May	9 May	5 May	12 May	27 April	9 May
White-throated Sparrow	15 May	1 May	18 May	10 May	15 May	7 May	15 May	11 May
Red-winged Blackbird	3 May	27 Apr	-	3 May	3 May	28 April	27 April	30 April

3.1.2 Species Specific Spring Migration Timing

Species specific spring migration timing was analyzed for 17 species using the mist netting captures and effort. The species analyzed include the following;

- Alder Flycatcher
- Ruby-crowned Kinglet
- Swainson’s Thrush
- Northern Waterthrush
- Tennessee Warbler
- Orange-crowned Warbler
- Common Yellowthroat
- Yellow Warbler
- Blackpoll Warbler
- Myrtle Warbler
- Wilson’s Warbler
- American Tree Sparrow
- Savannah Sparrow
- Fox Sparrow
- Lincoln’s Sparrow
- White-crowned Sparrow
- Slate-colored Junco

Spring migration timing for Yellow Warbler from 2006 to 2011 is shown in Figure 6 below. The spring migration timing figures for all 17 species are shown in Appendix C. These figures show data grouped over 5 day intervals and standardized to a number of birds banded per 100 net hours. The example figure below for Yellow Warbler demonstrates the value in making comparisons in migration timing between years. Although many species arrived late during 2011, Yellow Warbler was a species which arrived early in comparison to the 2006-2010 average.

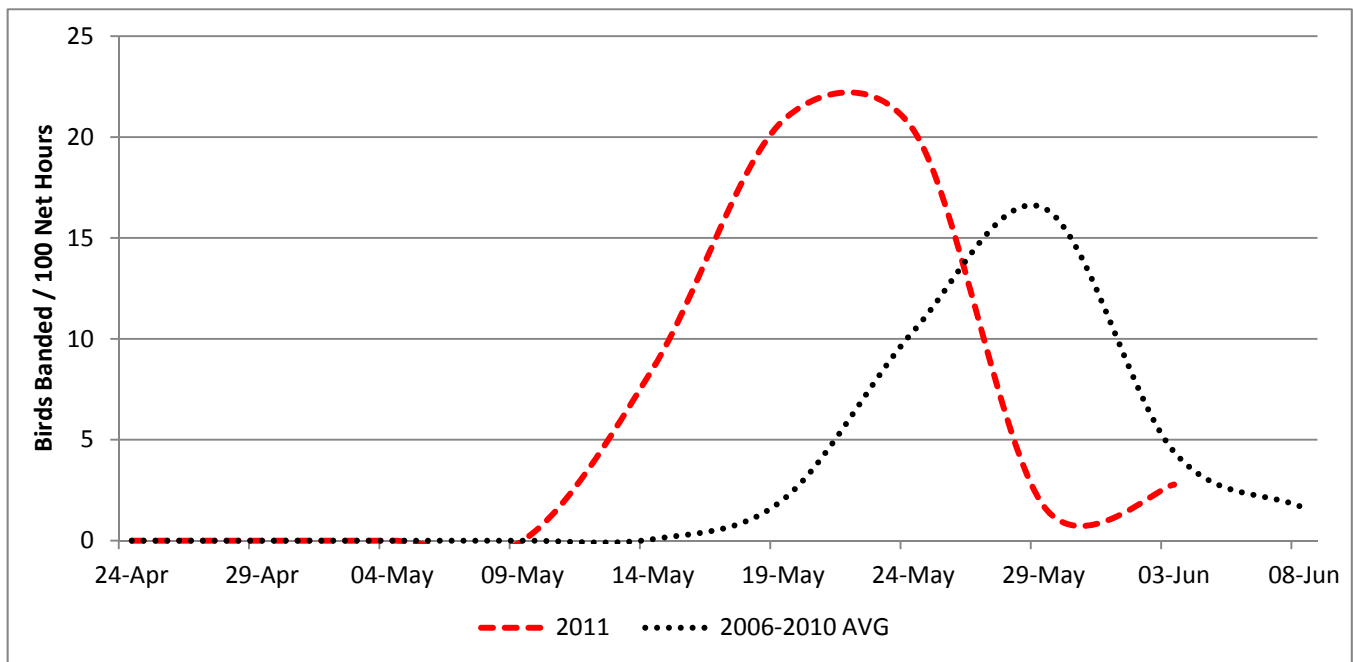


Figure 8. Yellow Warbler spring migration timing from 2006 to 2011.

3.2 Fall Migration Timing

This section is separated into the following subsections: (3.2.1) generalized fall migration timing of species banded, and species specific migration timing (3.2.2).

3.2.1 Generalized Fall Migration Timing

Generalized fall migration timing for temperate, neotropical and irruptive migrants/residents during the fall of 2011 is presented in Figure 9. The pattern of migration timing was not as distinct between temperate and neotropical migrants as compared to the spring season.

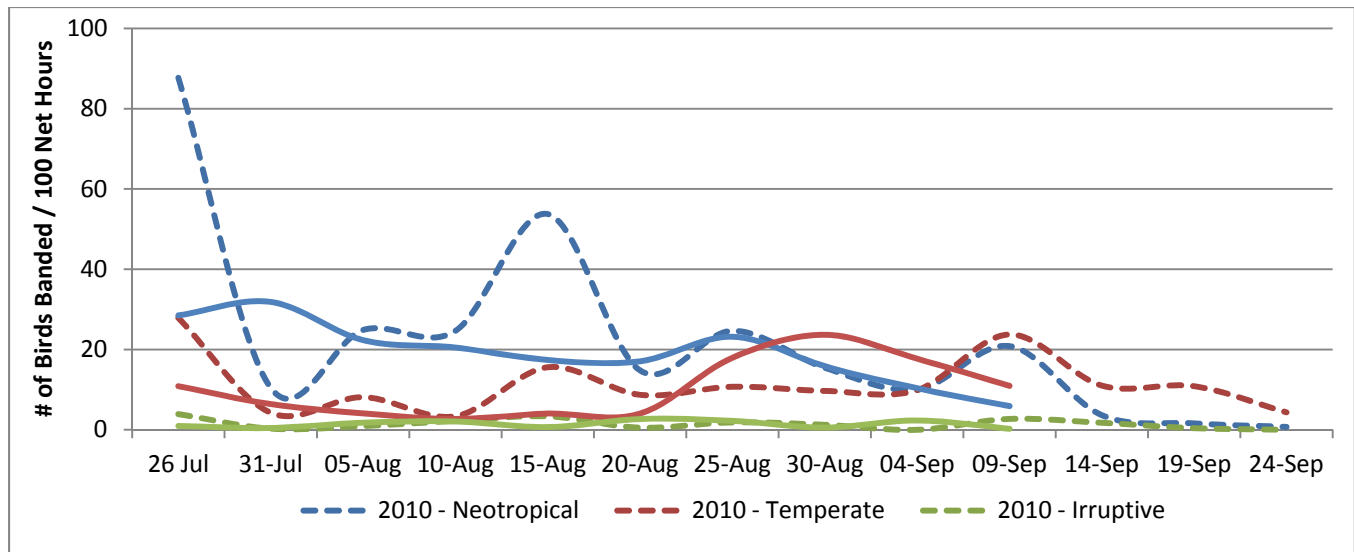


Figure 9. Migration timing for temperate, neotropical and irruptive migrants/residents banded during the fall of 2010 and 2011.

3.2.2 Species Specific Fall Migration Timing

Species specific fall migration timing was analyzed for 21 species using the mist netting captures and effort. The species analyzed include the following:

- Alder Flycatcher
- Least Flycatcher
- Warbling Vireo
- Ruby-crowned Kinglet
- Swainson’s Thrush
- Northern Waterthrush
- Tennessee Warbler
- Orange Crowned Warbler
- Common Yellowthroat
- American Redstart
- Magnolia Warbler
- Yellow Warbler
- Blackpoll Warbler
- Myrtle Warbler
- Wilson’s Warbler
- American Tree Sparrow
- Fox Sparrow
- Lincoln’s Sparrow
- Swamp Sparrow
- White-throated Sparrow
- Slate-colored Junco

Fall migration timing for Alder Flycatcher from 2006 to 2011 is shown in Figure 10 below. The fall migration timing figures for all 21 species are shown in Appendix D. These figures show data grouped over 5 day intervals and standardized to a number of birds banded per 100 net hours. The example figure below for Alder Flycatcher demonstrates that these figures can also be used to make comparisons between the 2011 and 2006-2010 average capture rates for each species. The fall migration timing for Alder Flycatcher was very similar during 2011 as compared to the 2006-2010 average; however, the overall magnitude of birds captured in 2011 was substantially lower than the average.

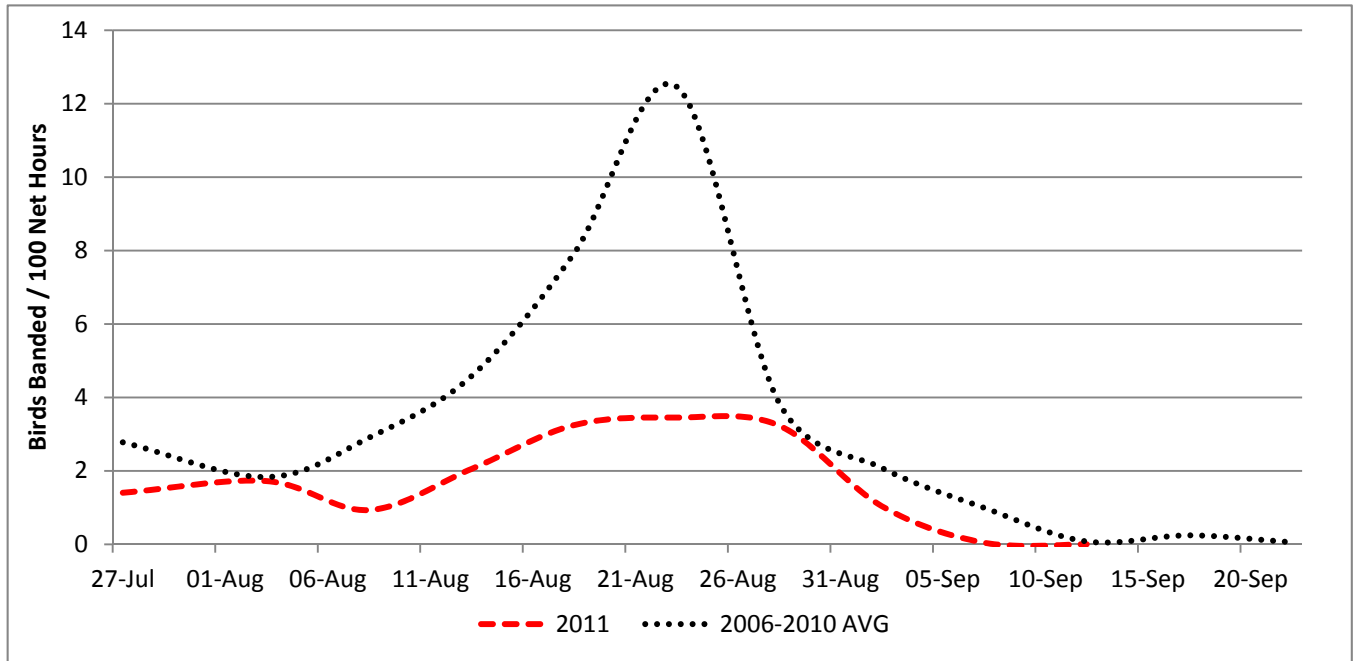


Figure 10. Alder Flycatcher fall migration timing from 2006 to 2011.

3.3 Band Repeats, Returns & Recoveries

The proportion of band repeats was 6.2% and 12.1% during spring and fall, respectively (Table 7). Species which breed within the study site have a substantially higher rate of individuals recaptured, particularly during the fall season. Species which exhibit this pattern include Common Yellowthroat, Northern Waterthrush and Lincoln’s Sparrow.

Table 7. Summary of band repeats during the spring and fall 2011 seasons.

Species	Spring		Fall	
	# of Individuals Recaptured	% of 2010 Original Bandings	# of Individuals Recaptured	% of 2010 Original Bandings
Bufflehead	1	50.0		
Yellow-bellied Sapsucker	3	27.3	4	44.4
Alder Flycatcher			6	4.9
Least Flycatcher			3	6.8
Warbling Vireo			9	14.1
Black-capped Chickadee			12	81.8
Boreal Chickadee	1	12.5		
Ruby-crowned Kinglet	1	2.5		
Swainson's Thrush	3	8.6	13	17.6
Hermit Thrush	1	11.1		
American Robin	5	26.3	1	20.0
Varied Thrush			1	10.0
American Pipit	1	33.3		
Tennessee Warbler	1	4.3	27	17.8
Orange-crowned Warbler	4	5.3	2	2.3
Yellow Warbler	31	9.3	10	12.2
Magnolia Warbler			1	4.2
Yellow-rumped Warbler	8	3.7	15	5.2
Blackpoll Warbler	3	2.5		
American Redstart			7	13.5
Northern Waterthrush	6	7.4	46	30.5
Common Yellowthroat	6	5.9	52	28.1
MacGillivray's Warbler			1	100.0
Wilson's Warbler	4	3.2		
Lapland Longspur	1	33.3		
American Tree Sparrow	8	12.7		
Savannah Sparrow	5	5.9		
Fox Sparrow	2	1.2	1	7.1
Lincoln's Sparrow	9	13.6	14	17.5
Swamp Sparrow	2	28.6	6	37.5
White-throated Sparrow	3	17.6	5	21.7
White-crowned Sparrow	3	4.4		
Dark-eyed Junco	4	3.7	2	2.2
Red-winged Blackbird	1	12.5		
Rusty Blackbird	1	1.8		
ALL SPECIES	118	6.2	238	12.1

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 2011, the observatory had 64 band returns representing 18 species (Table 8). The oldest band return was a Black-capped Chickadee originally banded at the site on September 12, 2004. Species well represented in the band returns, such as Yellow-rumped Warbler, American Redstart, Common Yellowthroat, and Northern Waterthrush are common breeding birds at Albert Creek. Many of the band returns

represent individuals which have been recaptured at the site on a number of occasions in previous years. A summary of band return chronology for birds banded in 2009 or earlier is shown in Table 9.

Foreign band recoveries are a very infrequent event; the observatory's first foreign band recovery was a hatch year male Yellow-rumped Warbler banded at the site on July 26, 2010 and recovered in Louisiana on November 2, 2010.

Table 8. Summary of band returns during the spring and fall 2011 seasons.

Species	Band Number	Banded		Recaptured
		Date	Age – Sex	Date
Sharp-shinned Hawk	1363-27316	17 Aug 2010	SY-M	22 Aug 2011
Solitary Sandpiper	2231-21878	18 May 2010	AHY-U	21 May 2011
Yellow-bellied Sapsucker	2231-21536	24 May 2009	SY-M	9 May 2011
Yellow-bellied Sapsucker	2231-21876	17 May 2010	AHY-U	9 May 2011
Yellow-bellied Sapsucker	2231-21895	5 Aug 2010	AHY-F	19 May 2011
Northern Flicker	1013-51137	27 Jul 2008	HY-M	16 May 2011
Warbling Vireo	2430-42411	25 May 2006	SY-U	30 May 2011
Gray Jay	1383-73327	25 Apr 2010	AHY-U	15 May 2011
Black-capped Chickadee	2400-22812	12 Sep 2004	U-U	26 Apr 2011
Black-capped Chickadee	2400-24299	1 Sep 2005	U-U	18 May 2011 8 Sep 2011
Black-capped Chickadee	2640-17148	25 Jul 2010	HY-U	25 Apr 2011 28 Aug 2011
Black-capped Chickadee	2640-17188	26 Jul 2010	HY-U	25 Apr 2011 30 Aug 2011
Boreal Chickadee	2400-77107	3 Aug 2010	HY-U	28 Apr 2011
Boreal Chickadee	2400-77109	3 Aug 2010	HY-U	28 Apr 2011
Swainson's Thrush	2341-68168	24 May 2010	SY-U	24 Jul 2011
Swainson's Thrush	2341-68169	25 May 2010	SY-U	18 May 2011 28 Jul 2011
American Robin	1232-23948	13 May 2010	ASY-M	10 May 2011
Yellow Warbler	2490-49619	14 Aug 2009	AHY-F	28 May 2011
Yellow Warbler	2640-17147	25 Jul 2010	HY-U	26 Jul 2011
Yellow Warbler	2400-77120	4 Aug 2010	AHY-M	25 May 2011
Yellow-rumped Warbler	2600-08759	10 May 2010	SY-F	21 May 2011
Yellow-rumped Warbler	2600-09000	25 May 2010	SY-M	17 May 2011 24 Jul 2011
Yellow-rumped Warbler	2600-08995	25 May 2010	SY-M	18 May 2011
Yellow-rumped Warbler	1640-35693	23 Aug 2010	AHY-F	29 May 2011
American Redstart	2410-36726	5 Aug 2006	AHY-F	3 Aug 2011
American Redstart	2520-34674	15 Aug 2009	HY-U	27 Jul 2011
American Redstart	2520-35448	26 Jul 2010	AHY-F	27 May 2011 23 Jul 2011
Northern Waterthrush	2400-25630	3 Aug 2005	HY-U	20 May 2011 8 Aug 2011
Northern Waterthrush	2490-52213	8 Aug 2008	AHY-U	22 May 2011
Northern Waterthrush	2640-17066	30 May 2010	SY-U	25 May 2011
Northern Waterthrush	2640-17102	24 Jul 2010	HY-U	21 May 2011
Northern Waterthrush	2640-17126	25 Jul 2010	AHY-U	26 Jul 2011

Species	Band Number	Banded		Recaptured
		Date	Age – Sex	Date
Northern Waterthrush	2400-77022	26 Jul 2010	HY-U	31 Aug 2011
Northern Waterthrush	2400-77058	28 Jul 2010	HY-U	7 Aug 2011
Northern Waterthrush	2400-77077	2 Aug 2010	HY-U	21 May 2011
Northern Waterthrush	2400-77111	3 Aug 2010	HY-U	21 May 2011
Northern Waterthrush	2400-77209	9 Aug 2010	AHY-U	20 May 2011 27 Jul 2011
Common Yellowthroat	2430-39890	27 Jul 2006	HY-U	18 May 2011
Common Yellowthroat	2430-39944	31 Aug 2006	HY-U	27 Jul 2011
Common Yellowthroat	2490-46785	23 Aug 2007	HY-M	18 May 2011
Common Yellowthroat	2490-47904	1 Jun 2008	AHY-F	24 May 2011
Common Yellowthroat	2490-47903	1 Jun 2008	AHY-M	23 Jul 2011
Common Yellowthroat	2490-52575	27 Aug 2008	AHY-M	18 May 2011
Common Yellowthroat	2490-49392	29 May 2009	ASY-M	15 May 2011
Common Yellowthroat	2600-08100	26 Aug 2009	AHY-M	29 May 2011 23 Jul 2011
Common Yellowthroat	2490-49369	1 Sep 2009	AHY-M	23 May 2011
Common Yellowthroat	2490-49482	6 Jun 2009	SY-F	24 Jul 2011
Common Yellowthroat	2640-17049	28 May 2010	SY-F	27 May 2011
Common Yellowthroat	2610-64526	30 May 2010	AHY-M	23 May 2011
Common Yellowthroat	2640-17081	2 Jun 2010	SY-M	17 May 2011
Common Yellowthroat	2640-17098	6 Jun 2010	ASY-F	29 May 2011 24 Jul 2011
Common Yellowthroat	2640-17123	25 Jul 2010	ASY-M	28 May 2011 16 Aug 2011
Common Yellowthroat	2640-17160	25 Jul 2010	HY-U	26 Jul 2011
Common Yellowthroat	2400-77025	26 Jul 2010	HY-M	31 May 2011
Common Yellowthroat	2400-77055	28 Jul 2010	AHY-F	28 Aug 2011
Common Yellowthroat	2400-77106	2 Aug 2010	HY-U	26 Jul 2011
Common Yellowthroat	2400-77223	10 Aug 2010	HY-M	25 May 2011 31 Aug 2011
Common Yellowthroat	2490-52681	7 Aug 2010	AHY-F	22 May 2011
Common Yellowthroat	1640-35660	18 Aug 2010	AHY-M	4 Jun 2011
Fox Sparrow	2231-21882	4 Jun 2010	ASY-M	16 May 2011
Lincoln's Sparrow	2221-70026	17 May 2010	AHY-U	16 May 2011
Lincoln's Sparrow	2221-70049	18 May 2010	AHY-U	25 May 2011
Lincoln's Sparrow	2221-70084	28 May 2010	SY-U	16 May 2011 23 Jul 2011
Dark-eyed Junco	2221-70161	15 Aug 2010	HY-U	9 May 2011 2 Sep 2011

Table 9. Summary of band return chronology at Albert Creek from 2004 to 2011.

Species	Band Number	Banded		2011 Recapture Date	Recapture Events ¹															
		Date	Age – Sex		2004		2005		2006		2007		2008		2009		2010		2011	
					S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F
Yellow-bellied Sapsucker	2231-21536	24-May-09	SY-M	09-May											B		R		R	
Northern Flicker	1013-51137	27-Jul-08	HY-M	16-May									B						R	
Warbling Vireo	2430-42411	25-May-06	SY-U	30-May					B			R			R				R	
Black-capped Chickadee	2400-22812	12-Sep-04	U-U	26-Apr		B			R	R		R		R					R	
Black-capped Chickadee	2400-24299	01-Sep-05	U-U	18-May				B		R		R			R	R			R	R
Yellow Warbler	2490-49619	14-Aug-09	AHY-F	28-May												B			R	
American Redstart	2410-36726	05-Aug-06	AHY-F	03-Aug						B		R		R		R		R		R
American Redstart	2520-34674	15-Aug-09	HY-U	27-Jul											B					R
Northern Waterthrush	2400-25630	03-Aug-05	HY-U	20-May				B	R	R		R	R	R	R	R	R		R	R
Northern Waterthrush	2490-52213	08-Aug-08	AHY-U	22-May									B						R	
Common Yellowthroat	2430-39890	27-Jul-06	HY-U	18-May						B		R	R	R		R	R		R	
Common Yellowthroat	2430-39944	31-Aug-06	HY-U	27-Jul						B									R	
Common Yellowthroat	2490-46785	23-Aug-07	HY-M	18-May								B	R						R	
Common Yellowthroat	2490-47904	01-Jun-08	AHY-F	24-May									B						R	
Common Yellowthroat	2490-47903	01-Jun-08	AHY-M	23-Jul									B	R		R		R		R
Common Yellowthroat	2490-52575	27-Aug-08	AHY-M	18-May										B					R	
Common Yellowthroat	2490-49392	29-May-09	ASY-M	15-May											B	R	R		R	
Common Yellowthroat	2600-08100	26-Aug-09	AHY-M	29-May												B	R	R	R	R
Common Yellowthroat	2490-49369	01-Sep-09	AHY-M	23-May											B	R			R	
Common Yellowthroat	2490-49482	06-Jun-09	SY-F	24-Jul											B	R		R		R

¹ B = Banded, R = Recaptured

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 molt (amount of juvenile plumage remaining) was collected for hatch year birds, a particular emphasis was placed upon collecting wing molt scores for molting adult individuals. Wing molt score is achieved by assigning each individual wing flight feather a score from zero (old feather remaining) to five (new feather fully grown) and adding them together. During the fall of 2011, 135 molt scores were collected from 118 individuals of 18 species. Note that multiple molt scores can be obtained for the same individual if the bird is recaptured at a later date (with a changed molt score).

Table 10. Summary of molt scores collected during the fall 2011 season.

Species	Number of Individuals Scored	Total Number of Molt Scores
American Redstart	15	18
Boreal Chickadee	6	6
Common Yellowthroat	22	29
Golden-crowned Kinglet	1	1
Lincoln's Sparrow	8	8
Magnolia Warbler	1	1
MacGillvray's Warbler	1	2
Yellow-rumped Warbler	18	18
Northern Waterthrush	13	19
Ruby-crowned Kinglet	6	6
Rusty Blackbird	4	4
Dark-eyed Junco	3	3
Swamp Sparrow	1	1
Swainson's Thrush	2	2
Tennessee Warbler	6	5
White-throated Sparrow	2	2
Yellow-bellied Sapsucker	1	1
Yellow Warbler	8	9
TOTAL	135	118

3.5 Interesting & Notable Captures / Observations

The vast majority of birds banded and observed at Albert Creek are species which are common and widespread north and west of the study site. As the observatory operates on a daily basis throughout the spring and fall migration seasons, there are often a number of interesting and notable species captured and/or observed at the site. The following section summarizes the interesting and notable captures and sightings during 2011 as well as the occurrence of the species not regularly found farther west and north in the Yukon than Albert Creek.

Hooded Merganser (*Lophodytes cucullatus*)

Hooded Merganser is seen infrequently, but annually in the southern Yukon. The observatory's first Hooded Merganser was observed at the site on May 22nd.

Sora (*Porzana carolina*)

Sora is the only species of rail recorded in the Yukon and is uncommon at productive wetlands, primarily in the southern portion of the territory. In 2011, this species was observed during the spring on 14 days from May 18th to June 4th with a high count of 4 on May 23rd. In fall, this species was observed on 8 days from July 23rd to August 26th with a high count of 2 on July 28th and 31st. The numbers observed appear to be variable between years; however, the numbers recorded in 2011 were the highest to date (Figure 11).

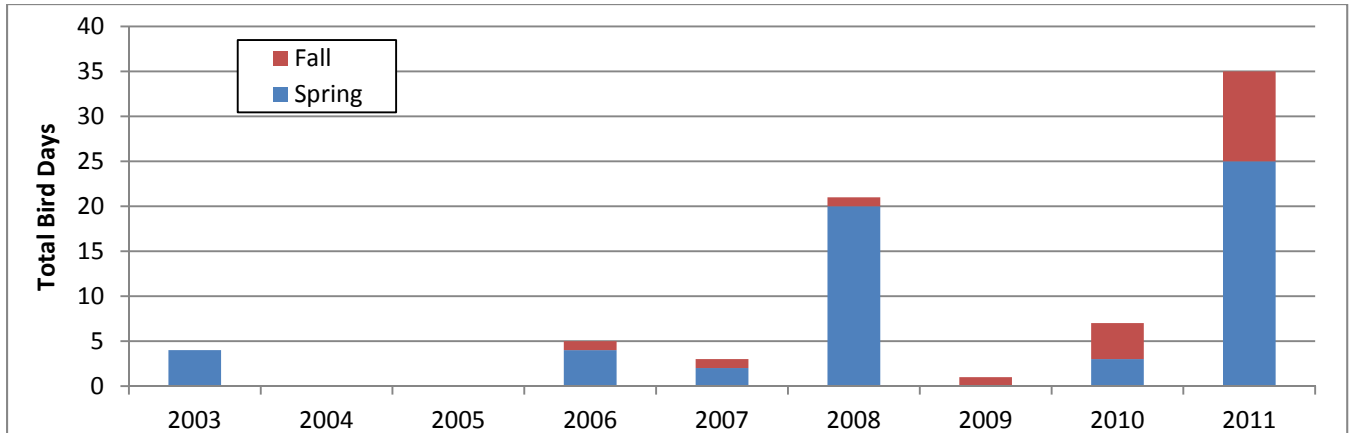


Figure 11. Summary of Sora observations at Albert Creek from 2003 to 2011.

American Coot (*Fulica americana*)

American Coot is an uncommon species at wetlands in the southern Yukon and is seen infrequently at Albert Creek. In 2011, a single individual was seen on 3 days (22 – 24 May). Prior to 2011, there are 4 records at the site (all single birds): 9, 11, 13 May 2003 and 2 May 2005. During site testing during 2002, this species was much more common at the site. During spring, a total of 33 bird days were counted between May 25th and June 14th with a high count of 9 on May 25th. During fall, a total of 85 bird days were counted between August 10th and September 20th with a high count of 21 on September 1st.



Photo 1. American Coot observed at Albert Creek on May 22nd (Photo: Jukka Jantunen).

Pileated Woodpecker (*Dryocopus pileatus*)

The least common woodpecker in the Yukon, Pileated Woodpecker is restricted to the southeast portion of the territory. In 2011, the species was observed at the observatory on 8 days from May 6th to June 4th and in fall on 12 days from July 23rd to August 31st (single birds on all days in spring and fall). Although none were banded in 2011, this species has been banded in previous years; 1 in spring 2005 and 2 in fall 2005. This species was much more common at the site from 2003 to 2008 (Figure 12) than more recently and there have not been sightings of more than one individual per day since 2008.

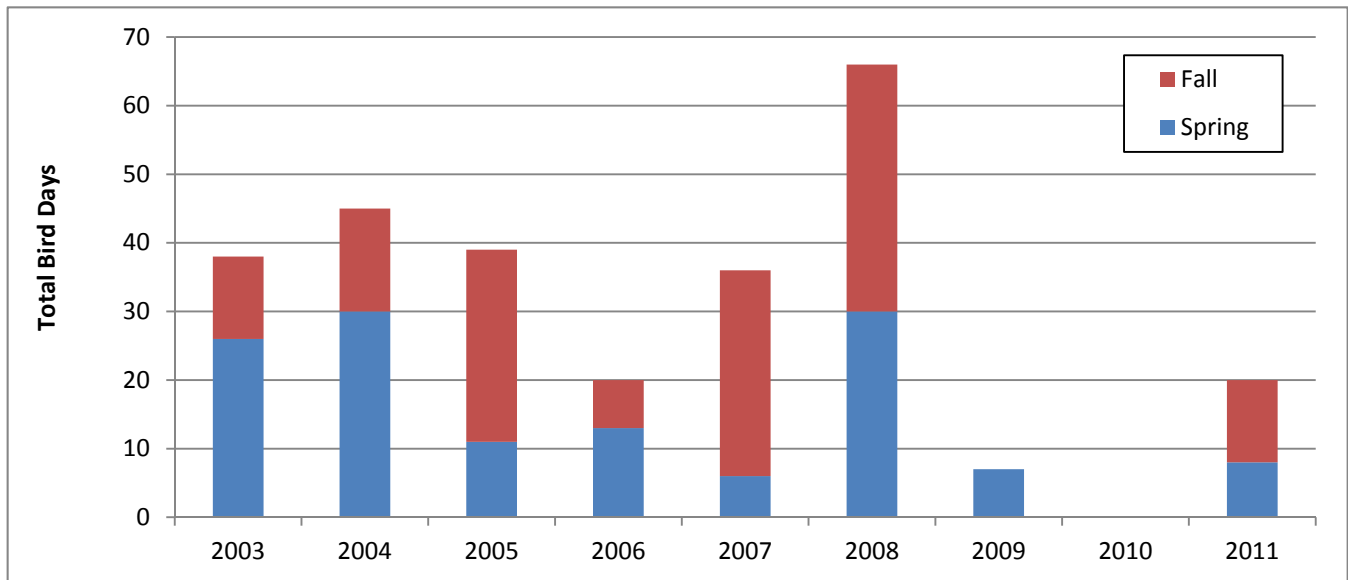


Figure 12. Summary of Pileated Woodpecker observations at Albert Creek from 2003 to 2011.

Yellow-bellied Flycatcher (*Empidonax flaviventris*)

Yellow-bellied Flycatcher is one of the least frequently encountered *Empidonax* flycatchers at Albert Creek. During the spring of 2011, none were banded; however, a single individual was observed on June 2nd. In the fall, 6 individuals (all hatch year) were banded between August 8th and 31st. To date, a total of 29 individuals have been banded with 83% being captured during the fall. This species is a late spring migrant, the earliest individual banded was on June 4 (2007). In most years, the station does not operate later than June 6 and therefore this species is likely underrepresented in the spring data. Based upon mist netting data from the fall season (fall mist netting index), there are indications that this species is becoming more common at Albert Creek (Figure 13). Given that this species does not breed at the site, this data suggests that this species may be increasing in numbers in the Yukon/Alaska.

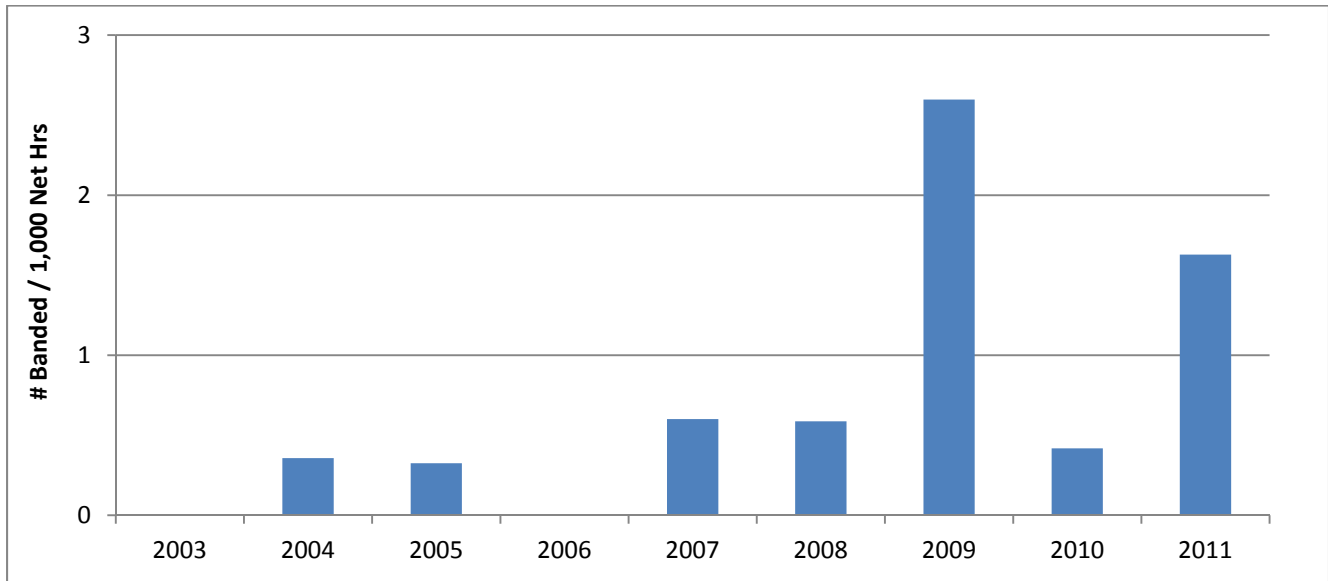


Figure 13. Summary of Yellow-bellied Flycatchers banded during the fall season from 2003 to 2011 (includes data only from migration window of August 5th to 31st).

Blue-headed Vireo (*Vireo solitarius*)

With a range typically restricted to the extreme southeast Yukon, Blue-headed Vireo is observed infrequently at Albert Creek. In 2011, a single hatch year individual was banded on August 1st. To date, a total of 16 individuals have been banded (all in fall) including: 2 in 2003, 6 in 2004, 4 in 2005, 2 in 2006 and 1 in 2007. Prior to the individual banded in 2011, this species had not been encountered at the observatory since the fall of 2007.



Photo 2. Hatch year Blue-headed Vireo banded on August 1st (Photo: Kelly Riggs).

American Crow (*Corvus brachyrhynchos*)

American Crow appears to be increasing in numbers in the Yukon and is now regularly encountered at a number of locations near Albert Creek, including the town of Watson Lake, Watson Lake airport and Upper Liard. In 2011, this species was encountered on 9 days during the spring from April 26 to May

25 with a high count of 2 individuals on April 26th and May 8th. In fall, single birds were observed on 3 days from July 24th to September 5th.

European Starling (*Sturnus vulgaris*)

An introduced species to North America, European Starling is most often found in populated areas and one of the most frequented sites in the Yukon is the Watson Lake Airport, which is a short distance from Albert Creek. In the fall of 2011, numerous starlings were observed roosting at the study site and were often seen in the early morning leaving the roost. This species was observed on 30 days (361 bird days) from July 24th to September 8th with a high count of 29 on September 5th.

Cedar Waxwing (*Bombycilla cedrorum*)

Unlike the more common Bohemian Waxwing, Cedar Waxwing is relatively rare in the Yukon and is encountered sporadically in the southern portion of the territory. None were banded in 2011 and the only sighting was 2 individuals on August 8th. All 24 individuals banded at the observatory have been in the fall with high yearly banding totals of 8 in 2004 and 2007. The capture of adults in breeding condition and recently fledged juveniles suggests that this species breeds at the site in some years.

MacGillivray's Warbler (*Geothlypis tolmiei*)

Unlike most other warblers with a restricted range in the Yukon, MacGillivray's Warbler is more common in the southcentral/southwest portion of the territory rather than the southeast. There is one previous record of this species at the observatory; a single individual banded on June 9th, 2004. In 2011, an adult male was banded on July 26th. This individual was recaptured on a number of occasions during the season with the latest recapture occurring on August 28th.



Photo 3. Adult male MacGillivray's Warbler banded on July 26th (Photo: Jukka Jantunen).

Magnolia Warbler (*Setophaga magnolia*)

In most of the Yukon, Magnolia Warbler is extremely rare; however, it is a regular breeding species in the southeast portion of the territory. In the spring of 2011, none were banded; however, the species was observed on 2 days (May 26th and 30th) with single individuals on both days. In the fall, 24 individuals were banded (96% hatch years) and the species was observed on 20 days from July 23rd to September 9th with a high count of 3 on many days. Similar to other species such as American Redstart, this species is a late spring migrant and it is likely that a large proportion of individuals arrive after the station has closed for the spring season. Of the 305 individuals banded to date, 93% have been banded in fall. The earliest and latest records of this species at the observatory are May 24th (2005) and September 8th (2004).

Based upon data from the fall mist netting index, the capture rate of Magnolia Warblers has remained relatively similar since 2003 (Figure 14); however, there is some indication that this species may be decreasing at the site. Additional years of data collection are required to confirm this pattern. Due to the limited range of this species in the Yukon, lower capture rates may be an indication of a decrease in local productivity.

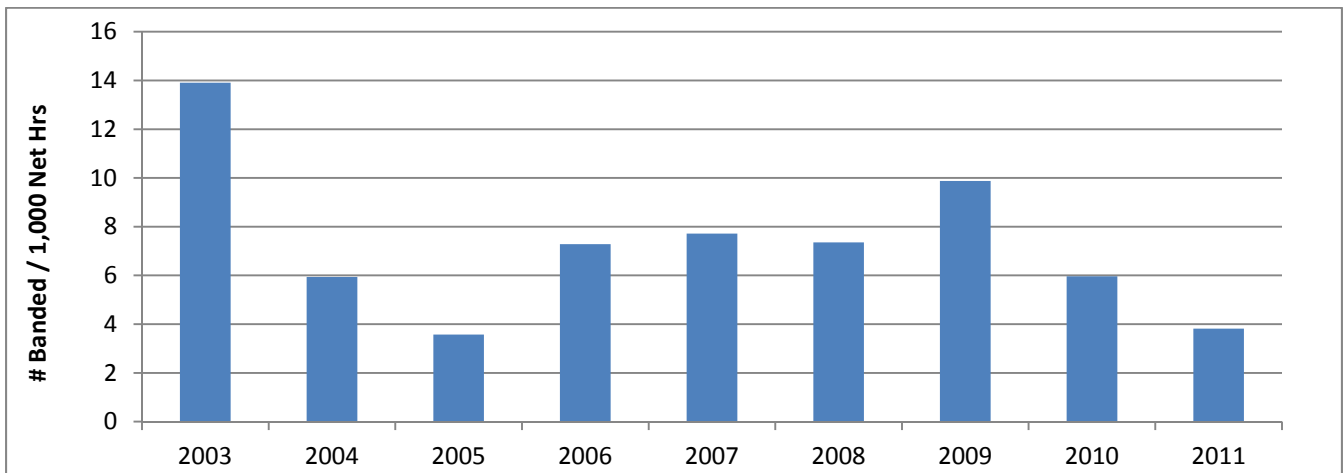


Figure 14. Summary of Magnolia Warblers banded during the fall season from 2003 to 2011 (includes data only from migration window of July 23rd to September 5th).



Photo 4. Magnolia Warblers banded at Albert Creek; adult female on June 5th (left), hatch year female on July 27th (right).

Cape May Warbler (*Setophaga tigrina*)

Similar to Magnolia Warbler, the Cape May Warbler’s Yukon range is primarily restricted to the southeast portion of the territory. In recent years, this species has become more common at Albert Creek and local breeding is highly likely although the number of individuals encountered in 2010 and 2011 was lower than previous years. In the spring of 2011, one was banded on May 29th and the species was observed on 8 days from May 26th to June 4th with a high count of two on May 29th/30th. In the fall, one hatch year was banded on August 8th and the species was observed on one additional day (July 28th). Of the 15 individuals banded to date, 60% have been banded in fall. The earliest and latest records of this species at the observatory are May 24th (2007) and September 6th (2007).

American Redstart (*Setophaga ruticilla*)

American Redstart is found across southern Yukon; however, it is much more common in the southeast portion of the territory. In the spring of 2011, three individuals were banded and the species was observed on 15 days from May 21st to June 4th. In the fall, 52 were banded (77% hatch year) and the species was recorded on 34 days (131 bird days) from July 23rd to August 30th with a high count of 12 individuals on July 23rd and August 5th. As this species arrives relatively late in spring, it is likely that the majority of individuals arrive at the site after the station has closed for the spring. The all time banding total of this species at the observatory is 554 individuals with 85% being during the fall. The earliest and latest records of this species at the observatory are May 26th (2004-2010) and September 15th (2008). Based upon data from the fall mist netting index, the capture rate of American Redstarts appears to be increasing (Figure 15). With additional years of monitoring, further insight may be gained into the status of this species at Albert Creek.

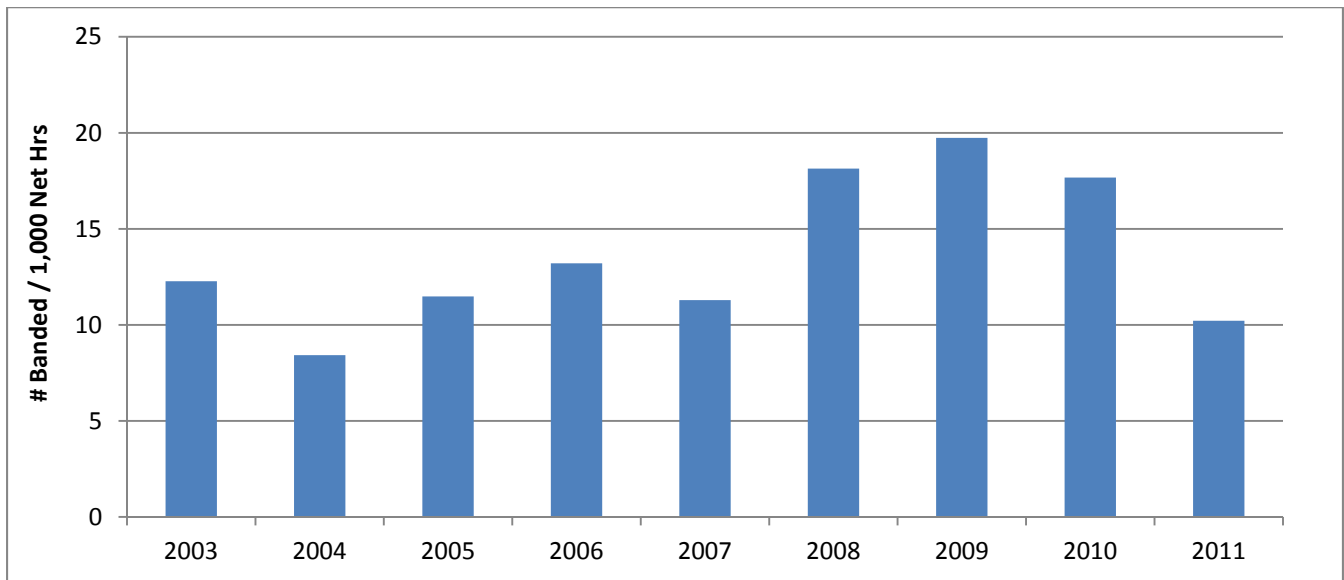


Figure 15. Summary of American Redstarts banded during the fall season from 2003 to 2011 (includes data only from migration window of July 23rd to August 31st).

Western Tanager (*Piranga ludoviciana*)

Western Tanager is another species with a restricted Yukon range which is a likely local breeder at Albert Creek. In the spring of 2011, 1 individual was banded and the species was observed on 7 days from May 25 to June 4 with single birds on all days. In fall, 7 individuals were banded (all hatch years) and the species was observed on 17 days from July 23 to August 10th with a high count of five on August 7th. To date, a total of 31 individuals have been banded with 65% being banded in the fall. The earliest and latest records of this species at the observatory are May 16th (2005) and August 31st (2005).

Swamp Sparrow (*Melospiza georgiana*)

Observed very infrequently in most of the Yukon, this species is a regular breeder at wetlands in the southeast Yukon, including Albert Creek. In 2011, 7 individuals were banded in the spring and 16 in the fall. To date, 236 individuals have been banded at Albert Creek, of which 86% have been in fall. The earliest and latest records of this species are April 27th (2005) and September 21st (2006). High numbers of hatch year birds captured, including many in juvenile plumage, indicates that many of the individuals banded are likely local breeders and their offspring. Based upon data from the fall mist netting index, Swamp Sparrow captures from 2003 to 2011 have been variable and there is no obvious increasing or decreasing trend (Figure 16).

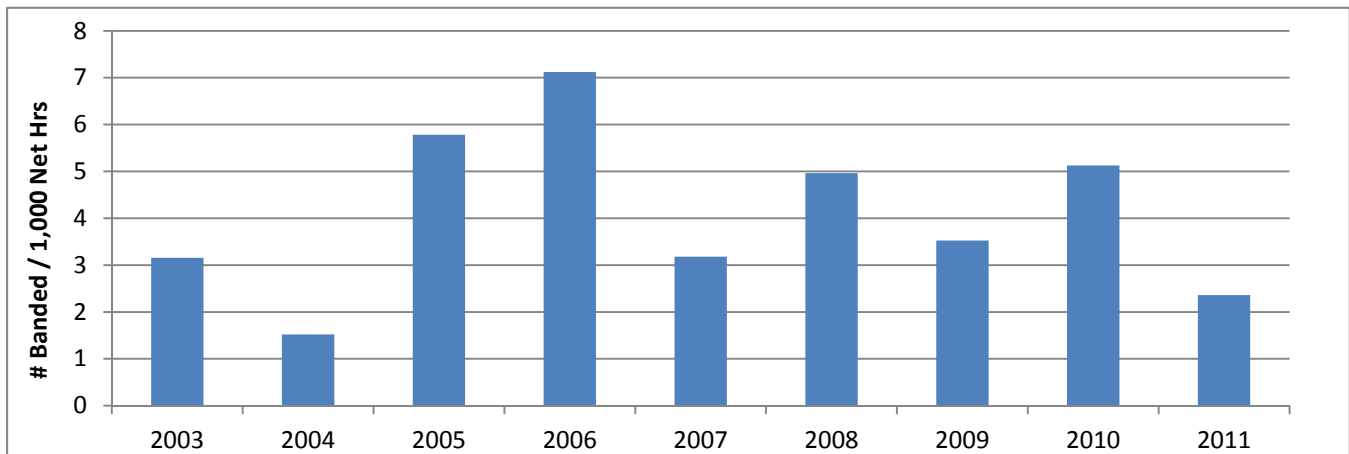


Figure 16. Summary of Swamp Sparrows banded during the fall season from 2003 to 2011 (includes data only from migration window of July 23rd to September 10th).

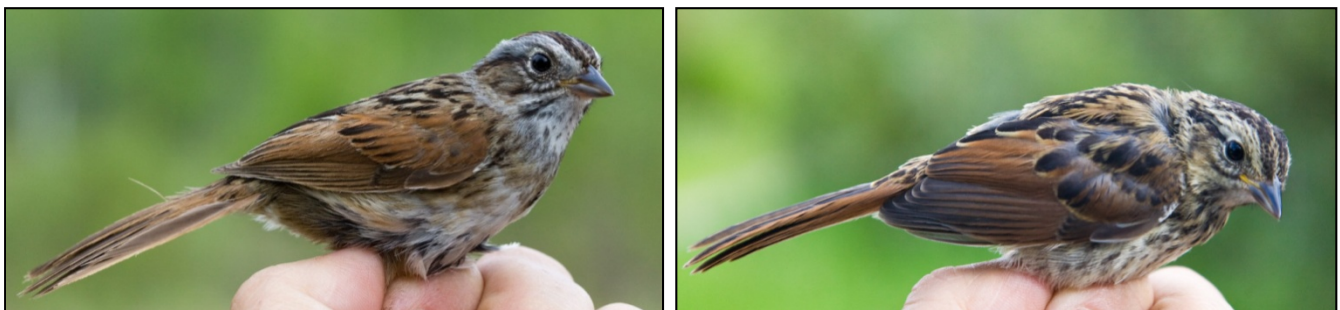


Photo 5. Swamp Sparrows banded at Albert Creek; adult female on June 5th (left), hatch year on July 24th (right).

White-throated Sparrow (*Zonotrichia albicollis*)

This species is observed infrequently in most of the Yukon, but is a regular breeder in the southeast Yukon as far west as the Rancheria area. In 2011, 17 individuals were banded in the spring and 23 in the fall. To date, 358 individuals have been banded at Albert Creek, of which 59% have been in fall. The earliest and latest records of this species are May 1st (2010) and September 21st (2008).

When combined, the spring/fall mist netting index suggests that the capture rates of White-throated Sparrows have declined at Albert Creek since 2003. The individuals captured at Albert Creek represent a mixture of local breeders and migrants so the significance of this trend is unclear. It is important to note that additional years of data collection are require to gain an increased level of confidence in this trend. Preliminary data from Roadside BBS (Breeding Bird Survey) routes in the Watson Lake area also indicate that this species may be increasing in the region. This is possibly due to an increased frequency and size of forest fires in the region which create suitable breeding habitat for this species.



Figure 17. White-throated Sparrows banded at Albert Creek during 2011 (Photo (left): Ted Murphy-Kelly, (right) Jukka Jantunen).

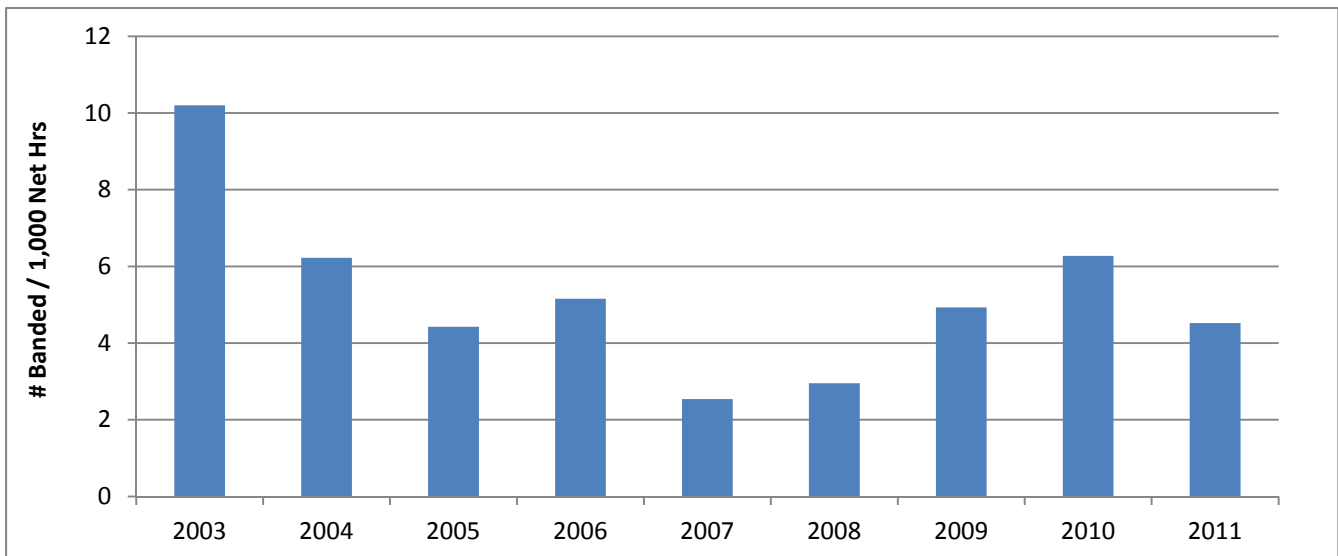


Figure 18. Summary of White-throated Sparrows banded during the spring fall seasons combined from 2003 to 2011 (includes data only from migration window of May 15th to June 5th and July 23rd to September 12th).

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)

A new species for the observatory, a single male Yellow-headed Blackbird was observed on May 21st. This species is seen infrequently in the southern Yukon and is not seen annually.



Photo 6. Male Yellow-headed Blackbird observed at Albert Creek on May 21st, 2011 (Photo: Jukka Jantunen).

3.6 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 are fitted with a color band (light green or white) 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. In 2011, 57 individuals were banded in the spring (25 SY, 21 ASY and 11 AHY) and 4 were banded in fall (all AHY). Since 2001, a total of 407 Rusty Blackbirds have been banded at the observatory.

3.7 Owl Banding

To date, a large scale owl banding test project has not been completed at Albert Creek. Building upon a minimal effort during the fall of 2008, 2009 and 2010, a very limited amount of effort was conducted in 2011. The goal of this effort is to further test the feasibility of an owl monitoring program at the observatory to target Boreal Owl and possibly Northern Saw-whet Owl. Boreal Owl call playback was attempted on three evenings; September 2nd – 12.25 net hours, September 7th – 15.5 net hours and September 10th – 12 net hours. One hatch year Boreal Owl was banded on September 10th and a previously banded individual was also captured. The recaptured individual was originally banded at the site as a hatch year on August 30th, 2010.

3.8 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 2011, four species at risk (Table 11, Table 12) were encountered.

Table 11. Summary of COSEWIC designated species encountered during the spring of 2011.

Species	COSEWIC Designation ¹	# Banded	# of Days Observed	High Count (#-date)	Total Bird Days
Horned Grebe	Special Concern	-	4	1 – all days	4
Common Nighthawk	Threatened	-	1	1 – NA	1
Olive-sided Flycatcher	Threatened	-	5	1 – all days	5
Rusty Blackbird	Special Concern	57	35	90 – 3 May	336

¹<http://www.cosewic.gc.ca>

Table 12. Summary of COSEWIC designated species encountered during the fall of 2011.

Species	COSEWIC Designation ¹	# Banded	# of Days Observed	High Count (#-date)	Total Bird Days
Horned Grebe	Special Concern	-	2	1 – both days	2
Common Nighthawk	Threatened	-	2	1 – both days	2
Rusty Blackbird	Special Concern	4	46	21 – 23 Jul	188

¹<http://www.cosewic.gc.ca>

3.9 Visitors and Volunteers

Once again the observatory hosted numerous visitors and volunteers during 2011. On many days of operation, especially in spring, volunteer personnel were available onsite to provide valuable assistance with the observatory’s operation. Table 13 and Table 14 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 Banders-In-Charge (Jukka Jantunen and Ted Murphy-Kelly) and individuals paid by other organizations (Yukon Government, Canadian Wildlife Service, etc). Note that the values shown for “paid hours” only include those spent at the observatory and do not include the extensive amount of travel to and from the site, data entry, data analysis, report writing and other communication of the observatory’s results. The Watson Lake Visitor’s Center played a key role in directing visitors to the observatory, particularly those individuals travelling the Alaska Highway.

Table 13. Hours spent at the bird observatory by volunteers and paid individuals.

Season	Paid		Volunteer	
	# of Individuals	Hours	# of Individuals	Hours
Spring	2	294	20	584
Fall	6	460	8	393

Table 14. Hours spent at the bird observatory by visitors.

Season	Locals		Yukon		Canada		USA		Other International		TOTAL	
	#	Hours	#	Hours	#	Hours	#	Hours	#	Hours	#	Hours
Spring	19	29	9	23	3	10.5	3	9	1	5.25	35	76
Fall	6	5.8	8	13.5	12	15.5	6	6.5	10	9.5	42	51

In comparison to previous years, the total number of volunteer hours was the highest recorded to date (Figure 19). This is due, in part, to a single long term volunteer at the observatory during the fall season. The visitor hours in 2011 were slightly below the 2007 to 2010 average. Since 2007, the visitor hours have ranged from 70 to 260 hours Figure 19).

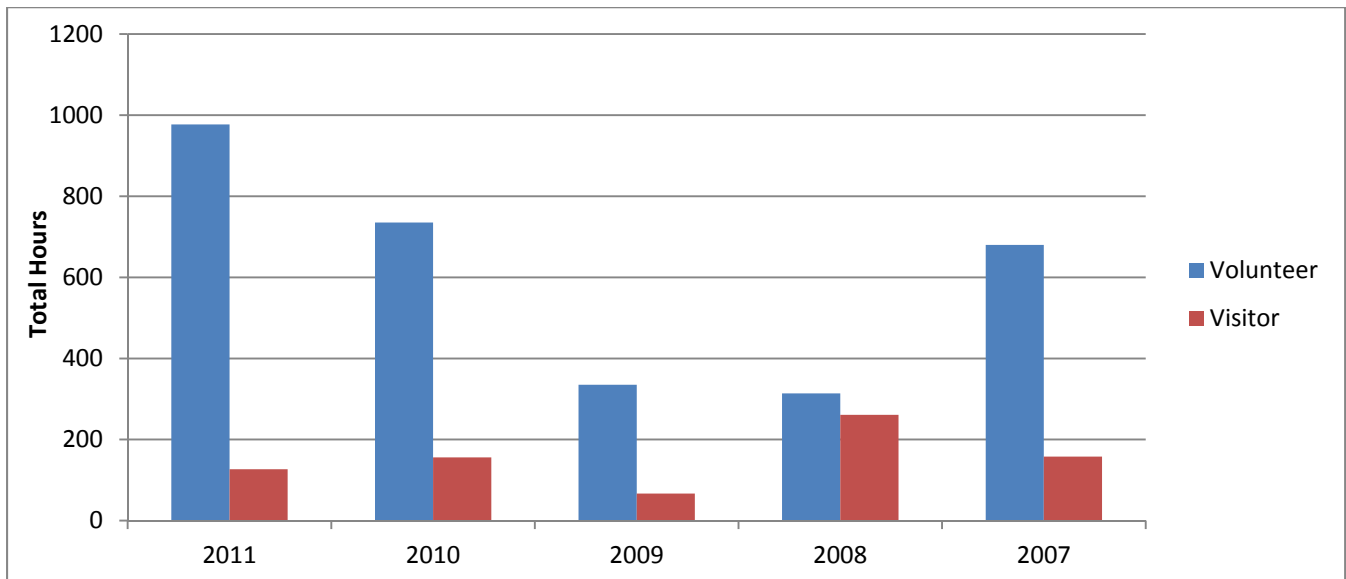


Figure 19. Summary of volunteer and visitor hours at Albert Creek Bird Observatory from 2007 to 2011 (spring and fall combined).

4.0 Conclusion & Recommendations

The results from this season's operation continue to add to the knowledge of numerous aspects of bird biology in the Yukon, including: species distribution, migration timing and local productivity. The study site has proven to be a very effective location for monitoring bird migration. The primary reason for this is the proximity to the extensive Albert Creek Marsh which is a very productive stopover and breeding area for numerous bird species. The geographic location of the observatory also allows a number of species to be monitored which are at the extreme margin of their range and cannot be found elsewhere in the Yukon.

In 2011, the observatory completed its eleventh consecutive year of operation; however, the observatory's protocols were not well developed until 2003/2004. The data collected at the observatory to date have indicated a capacity to monitor bird migration during the spring and fall. 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 high diversity of bird species are encountered at the observatory, not all species are suitable candidates for trend analysis. This is due to inadequate sample size of less numerous species 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. Results collected to date suggest that the observatory has a high potential for monitoring a variety of bird species with a primary focus on passerines. Further data collection is required; however, species trend analysis may also be possible for other groups of birds in the future including waterfowl, waterbirds, shorebirds and raptors.

The observatory has been successful in attracting groups of students and members of the public to the observatory to learn about birds and bird migration. During 2011, Y2C2 (Yukon Youth Conservation Corps) also visited the observatory. A school group from Lower Post, BC also visited the station during the fall season.

APPENDIX A – ALL TIME BANDING TOTALS

SPECIES	SPRING											FALL											TOTAL
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
American Green-winged Teal																				1	1	2	
Bufflehead																						2	
Sharp Shinned hawk			3		1	2	1																
American Kestrel					1																	1	
Solitary Sandpiper			1		3	12	9	1	2	2	1											35	
Spotted Sandpiper								1														3	
Least Sandpiper																						2	
Wilson's Snipe			1		2	3	1		1							1	1					10	
Boreal Owl								1														5	
Belted Kingfisher						1	1															9	
Yellow-bellied Sapsucker	1	2	7	15	9	17	16	9	9	7	11											222	
Downy Woodpecker																1						2	
Hairy Woodpecker			1	1	1				1													4	
Three-toed Woodpecker								1														5	
Black-backed Woodpecker																						1	
Yellow-shafted Nother Flicker		1		2	1			1	3													14	
Pileated Woodpecker					1																	3	
Olive-sided Flycatcher				2		5	1	2		2											1	13	
Western Wood-pewee			1			4		2			2	1										11	
Yellow-bellied Flycatcher		1		2	1		1															29	
Alder Flycatcher	5	19	16	19	23	80	28	21	35	7	14											1701	
Least Flycatcher	1	5	3		2	3	4	2	1		3											182	
Hammond's Flycatcher				1	12	14	9	2	2	1	6											120	
Dusky Flycatcher								1														5	
Say's Phoebe						1					1											2	
Northern Shrike								1														8	
Blue-headed Vireo																						16	
Warbling Vireo	2	8	6	11	10	7	7	3	5	4	5											339	
Philadelphia Vireo																						1	
Red-eyed Vireo				1																		1	
Gray Jay	1	4	4	1	1		1			4												24	
Tree Swallow							1	13		4	3											21	
Violet-green Swallow								2		1	1											4	
Black-capped Chickadee		4		5	2					2												117	
Boreal Chickadee		5	6	1	1	3		3		5	8											184	
Red-breasted Nuhatch			1																			9	
Golden-crowned Kinglet																						9	
Ruby-crowned Kinglet	17	20	24	51	18	246	75	88		42	40											1940	
Gray-cheeked Thrush		9	1	18	2	22	13	2	2	6												145	
Swainson's Thrush	2	25	21	53	19	46	55	15	19	29	35											1112	

SPECIES	SPRING											FALL											TOTAL
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Hermit Thrush		2	2	3	4	6	1	5	2	2	9												84
American Robin	3	6	10	13	19	31	18	5	9	17	19												181
Varied Thrush			1		2	3				1	5												59
American Pipit		1				5	1				3												13
Bohemian Waxwing			2		6	9		2	2		1												22
Cedar Waxwing											1												25
Tennessee Warbler	1	12	17	48	51	60	21	22	8	26	23												870
Orange-crowned Warbler	57		137	286	105	214	251	339	170	177	75												2862
Yellow Warbler	6	84	65	61	33	313	261	208	96	65	334												2669
Magnolia Warbler	1	2	1	4	4	1	5	4															305
Cape May Warbler							2	3	1														15
Yellow-rumped Myrtle Warbler	73	9	143	268	91	364	113	434	505	776	217												4461
Yellow-rumped Warbler						3												1					4
Townsend's Warbler				1				4											2			1	17
Bay-breasted Warbler				1																	1		4
Blackpoll Warbler	3	8	22	22	17	62	57	88	65	62	121												802
Black-and-white Warbler			1			1	1		1														5
American Redstart		9	7	18	9	15	10	6	2	7	3												554
Ovenbird			1																				2
Northern Waterthrush	11	51	47	69	50	91	145	31	113	65	81												2245
MacGillivray's Warbler				1																		1	2
Common Yellowthroat	3	38	35	17	19	62	85	46	35	57	102												2182
Wilson's Warbler	16	189	384	502	552	398	369	182	274	249	125												4517
Western Tanager		1		2	1	1	1		3	1	1										2	7	31
American-tree Sparrow	6	9	24	172	175	196	345	74	28	136	63												2057
Chipping Sparrow		7	10	4	12	8	8	6	2	9	6												98
Clay-colored Sparrow										1													1
Savannah Sparrow	4	7	27	38	31	42	70	53	37	49	85												553
Fox Sparrow	4	1	11	28	143	28	60	51	11	257	164												1017
Song Sparrow																							1
Lincoln's Sparrow	16	30	39	42	51	23	120	27	32	60	66												1313
Swamp Sparrow			4	2	1	4	5	5		6	7												236
White-throated Sparrow	2	19	20	9	14	18	14	14	7	12	17												358
White-crowned Sparrow	6	7	6	184	269	14	217	138	64	262	68												1366
Golden-crowned Sparrow			2	6	4	2	14	3	3	1	3												41
Dark-eyed "Slate-colored" Junco	3	15	20	194	42	70	334	48	15	57	109												2180
Dark-eyed "Oregon" Junco							1																1
Dark-eyed Junco							4		1	2	2									3			12
Lapland Longspur			2			35	1	2	6	1	3												50
Red-winged Blackbird					7	8	4	2	2	1	8												32

SPECIES	SPRING										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Rusty Blackbird	2		5	5	37	81	14	47	1	3	57
Brown-headed Cowbird							4	1		2	
Pine Grosbeak											
Purple Finch	5	9	11	10	8	8	5	9	4	14	8
White-winged Crossbill						16					
Common Redpoll				68	2	46	12	54		127	1
Pine Siskin		6	2	2				2			
TOTAL SPECIES BANDED	26	35	44	46	48	50	53	50	39	46	47
TOTAL BIRDS BANDED	251	625	1152	2265	1869	2704	2799	2086	1576	2623	1919

FALL											TOTAL
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
2	1	10	12	15	35	31	9	10	26	4	407
		1									8
					2						2
			3	11		1					106
				7		12		1	10	2	48
					1		14			1	326
	4	31	5						41	28	121
27	35	40	49	48	46	52	42	40	48	54	87
147	540	1021	1842	2681	2591	2502	1676	2013	1770	1964	38616

APPENDIX B – ESTIMATED TOTAL SUMMARY

Species	Spring						Fall					
	# of Days	Bird Days	First Date	Last Date	High Count #	High Count Date	# of Days	Bird Days	First Date	Last Date	High Count_#	High Count Date
Common Loon	19	35	06-May	02-Jun	4	22-May	41	46	23-Jul	09-Sep	2	many days
Red-throated Loon	1	2	09-May	-	2	-	1	1	31-Jul	-	1	-
Red-necked Grebe	2	2	24-May	30-May	1	both days	1	1	28-Jul	-	1	-
Horned Grebe	4	4	23-May	26-May	1	all days	2	2	03-Aug	05-Aug	1	both days
Greater White-fronted Goose	20	2502	24-Apr	07-May	1036	26-Apr	5	144	17-Aug	06-Sep	80	17-Aug
Canada Goose	38	421	25-Apr	04-Jun	139	25-Apr	14	256	17-Aug	08-Sep	80	03-Sep
<i>Unidentified Goose</i>	1	2										
Trumpeter Swan	26	56	25-Apr	04-Jun	9	25-Apr	14	21	31-Jul	02-Sep	2	many days
Tundra Swan	16	7471	23-Apr	08-May	2632	25-Apr						
<i>Unidentified Swan</i>	3	4										
American Wigeon	10	363	02-May	13-May	160	07-May	4	9	31-Jul	31-Aug	3	26 / 29 Aug
Mallard	37	176	25-Apr	04-Jun	18	28-Apr	41	220	23-Jul	09-Sep	22	31-Aug
Blue-winged Teal	3	5	21-May	25-May	3	22-May						
Northern Shoveler	6	22	06-May	03-Jun	7	25-May	1	1	26-Jul	-	1	-
Northern Pintail	9	980	02-May	25-May	550	03-May						
American Green-winged Teal	21	53	04-May	01-Jun	6	23-May	11	37	30-Jul	08-Sep	10	05-Aug
<i>Unidentified Dabbling Duck</i>	1	33					5	84				
Canvasback	3	44	06-May	08-May	24	07-May						
Ring-necked Duck	22	125	27-Apr	04-Jun	25	25-May						
<i>Unidentified Scaup</i>	1	34										
Bufflehead	21	47	30-Apr	04-Jun	4	13/22 May	11	16	26-Jul	29-Aug	3	06-Aug
Barrow's Goldeneye	2	4	06-May	21-May	2	both days						
Common Goldeneye	34	95	23-Apr	04-Jun	8	06-May	1	1	14-Aug	-	1	-
Common Merganser	5	7	07-May	02-Jun	2	7 May/2 Jun						
Hooded Merganser	1	1	22-May	-	1	-						
<i>Unidentified Duck</i>	5	180					2	3				
Osprey	3	3	24-May	28-May	1	all days						
Bald Eagle	13	17	28-Apr	25-May	2	many days	4	4	25-Jul	29-Aug	1	all days
Northern Harrier	15	38	26-Apr	17-May	11	06-May	12	13	07-Aug	09-Sep	2	14-Aug

Species	Spring						Fall					
	# of Days	Bird Days	First Date	Last Date	High Count #	High Count Date	# of Days	Bird Days	First Date	Last Date	High Count_#	High Count Date
Sharp-shinned Hawk	4	6	26-Apr	15-May	2	26/29 Apr	15	17	07-Aug	06-Sep	2	15 / 22 Aug
Northern Goshawk	5	5	28-Apr	02-Jun	1	all days	1	1	31-Jul	-	1	-
Red-tailed Hawk	6	6	24-Apr	24-May	1	all days	2	3	05-Aug	31-Aug	2	31-Aug
American Kestrel	18	25	24-Apr	03-Jun	2	many days	10	12	23-Jul	03-Sep	3	23-Jul
Merlin	3	3	25-Apr	13-May	1	all days	1	1	07-Sep	-	1	-
Peregrine Falcon							1	1	26-Jul	-	1	-
Ruffed Grouse	30	43	26-Apr	03-Jun	4	09-May	29	117	23-Jul	09-Sep	11	08-Aug
Spruce Grouse	6	9	26-Apr	27-May	2	many days	11	30	27-Jul	04-Sep	10	19-Aug
Sora	14	25	18-May	04-Jun	4	23-May	8	10	23-Jul	26-Aug	2	28 / 31 Jul
American Coot	3	3	22-May	24-May	1	all days						
Sandhill Crane	1	1	07-May	-	1	-	1	213	30-Aug	-	213	-
Semipalmated Sandpiper	1	1	01-Jun	-	1	-						
Killdeer	6	7	06-May	26-May	2	15-May						
Greater Yellowlegs	11	12	03-May	04-Jun	2	06-May	1	1	30-Jul	-	1	-
Lesser Yellowlegs	14	112	30-Apr	04-Jun	45	08-May	12	39	23-Jul	14-Aug	9	24-Jul
<i>Unidentified Yellowlegs</i>	3	20					1	1				
Solitary Sandpiper	22	54	03-May	04-Jun	16	08-May	16	21	23-Jul	19-Aug	3	31-Jul
Spotted Sandpiper	2	2	24-May	26-May	1	both days	4	5	29-Jul	07-Aug	2	29-Jul
Least Sandpiper							2	5	31-Jul	23-Aug	4	31-Jul
Pectoral Sandpiper							1	1	31-Jul	-	1	-
Long-billed Dowitcher	1	2	21-May	-	2	-						
<i>Unidentified Dowitcher</i>							1	1				
Wilson's Snipe	30	46	27-Apr	04-Jun	5	07-May	21	30	23-Jul	08-Sep	8	30-Aug
<i>Unidentified Shorebird</i>							2	2				
Bonaparte's Gull	4	22	08-May	22-May	10	08-May						
Mew Gull	15	42	03-May	04-Jun	10	06-May	2	2	26-Jul	28-Jul	1	both days
Herring Gull	9	13	03-May	22-May	3	03-May	4	4	25-Jul	20-Aug	1	all days
Great Horned Owl	2	2	27-Apr	18-May	1	both days	1	2	02-Sep	-	2	-
Northern Hawk Owl	1	1	06-May	-	1	-						

Species	Spring						Fall					
	# of Days	Bird Days	First Date	Last Date	High Count #	High Count Date	# of Days	Bird Days	First Date	Last Date	High Count_#	High Count Date
Boreal Owl							2	4	07-Sep	10-Sep	2	both days
Common Nighthawk	1	1	30-May	-	1	-	2	2	24-Jul	27-Jul	1	both days
Belted Kingfisher	27	33	02-May	04-Jun	3	17-May	46	62	23-Jul	09-Sep	2	many days
Yellow-bellied Sapsucker	27	96	06-May	04-Jun	8	21-May	20	38	23-Jul	02-Sep	6	23-Jul
Downy Woodpecker							1	1	05-Sep	-	1	-
Hairy Woodpecker	11	11	25-Apr	15-May	1	all days	11	13	29-Jul	08-Sep	2	26 / 27 Aug
American Three-toed Woodpecker	16	16	29-Apr	04-Jun	1	all days	23	27	23-Jul	09-Sep	2	many days
Northern Flicker	24	38	30-Apr	04-Jun	3	many days	32	38	23-Jul	08-Sep	3	06-Aug
Pileated Woodpecker	8	8	06-May	04-Jun	1	all days	12	12	23-Jul	31-Aug	1	all days
<i>Unidentified Woodpecker</i>	1	3					1	2				
Olive-sided Flycatcher	5	5	23-May	04-Jun	1	all days						
Western Wood Pewee	4	5	22-May	26-May	2	23-May	2	2	28-Jul	25-Aug	1	both days
Yellow-bellied Flycatcher	1	1	02-Jun	-	1	-	6	6	08-Aug	31-Aug	1	all days
Alder Flycatcher	11	25	20-May	04-Jun	5	30-May	44	184	23-Jul	08-Sep	15	26-Aug
Least Flycatcher	6	7	18-May	31-May	2	18-May	27	55	23-Jul	23-Aug	7	02-Aug
Hammond's Flycatcher	18	31	13-May	04-Jun	5	13-May	20	37	23-Jul	05-Sep	4	2 / 3 Aug
Dusky Flycatcher	1	1	02-Jun	-	1	-						
<i>Unidentified Empid Flycatcher</i>	1	1					1	1				
Say's Phoebe	2	2	13-May	15-May	1	both days	1	3	20-Aug	-	3	-
Northern Shrike	2	2	27-Apr	28-Apr	1	both days	1	1	07-Aug	-	1	-
Blue-headed Vireo							1	1	01-Aug	-	1	-
Warbling Vireo	13	41	21-May	04-Jun	6	31-May	40	190	23-Jul	09-Sep	16	02-Aug
Gray Jay	22	48	25-Apr	04-Jun	3	many days	42	74	23-Jul	09-Sep	3	07-Aug
American Crow	7	9	26-Apr	25-May	2	26 Apr/8 May	3	3	24-Jul	05-Sep	1	all days
Common Raven	35	118	23-Apr	04-Jun	18	16-Apr	45	95	23-Jul	09-Sep	8	29-Aug
Tree Swallow	29	278	03-May	04-Jun	32	25-May	15	86	23-Jul	07-Aug	25	28-Jul
Violet-green Swallow	12	53	03-May	04-Jun	20	22-May	3	3	23-Jul	29-Jul	1	all days
Bank Swallow	13	52	21-May	04-Jun	20	25-May	9	109	23-Jul	15-Aug	30	28-Aug
Cliff Swallow	13	93	18-May	04-Jun	50	04-Jun	13	169	23-Jul	10-Aug	50	29-Jul

Species	Spring						Fall					
	# of Days	Bird Days	First Date	Last Date	High Count #	High Count Date	# of Days	Bird Days	First Date	Last Date	High Count_#	High Count Date
Barn Swallow	2	4	23-May	24-May	3	23-May	6	18	25-Jul	02-Sep	11	02-Sep
<i>Unidentified Swallow</i>							3	15				
Black-capped Chickadee	38	85	23-Apr	04-Jun	6	22-May	45	155	23-Jul	09-Sep	7	21-Aug
Boreal Chickadee	23	31	25-Apr	30-May	3	09-May	42	198	23-Jul	10-Sep	12	23 / 23 Aug
Red-breasted Nuthatch	19	25	25-Apr	01-Jun	2	many days	21	35	23-Jul	28-Aug	4	03-Aug
Ruby-crowned Kinglet	37	176	26-Apr	04-Jun	20	05-May	42	147	23-Jul	10-Sep	12	07-Sep
Golden-crowned Kinglet	1	1	23-May	-	1	-	4	4	28-Jul	05-Sep	1	all days
Gray-cheeked Thrush							2	2	02-Sep	10-Sep	1	all days
Swainson`s Thrush	21	88	10-May	04-Jun	10	23-May	36	175	23-Jul	05-Sep	8	5 / 10 Aug
Hermit Thrush	19	28	02-May	04-Jun	5	22-May	1	1	04-Sep	-	1	-
American Robin	36	1042	25-Apr	04-Jun	679	06-May	42	93	23-Jul	08-Sep	6	03-Sep
Varied Thrush	31	49	24-Apr	04-Jun	3	24-May	27	41	28-Jul	09-Sep	3	30-Aug
<i>Unidentified Large Thrush</i>	1	87										
European Starling							30	361	24-Jul	08-Sep	29	05-Sep
American Pipit	14	57	02-May	22-May	10	15-May	12	26	15-Aug	09-Sep	8	05-Sep
Bohemian Waxwing	28	121	23-Apr	04-Jun	21	23-Apr	9	21	25-Jul	09-Sep	8	25-Jul
Cedar Waxwing							1	2	08-Aug	-	2	-
Tennessee Warbler	17	85	16-May	04-Jun	10	03-Jun	30	247	23-Jul	07-Sep	29	30-Jul
Orange-crowned Warbler	21	101	06-May	04-Jun	28	15-May	23	108	07-Aug	08-Sep	19	30-Aug
MacGillvray's Warbler							11	11	23-Jul	28-Aug	1	all days
Yellow Warbler	21	436	15-May	04-Jun	170	21-May	37	116	23-Jul	02-Sep	11	13-Aug
Magnolia Warbler	2	2	26-May	30-May	1	both days	20	30	23-Jul	09-Sep	3	many days
Cape May Warbler	8	10	26-May	04-Jun	2	29/30 May	2	2	28-Jul	08-Aug	1	both days
Yellow-rumped Warbler	34	451	30-Apr	04-Jun	58	15-May	49	719	23-Jul	10-Sep	65	26-Aug
Townsend`s Warbler	2	2	20-May	21-May	1	both days	1	1	25-Jul	-	1	-
Blackpoll Warbler	21	184	10-May	04-Jun	54	21-May	22	40	23-Jul	03-Sep	6	26-Aug
American Redstart	15	40	21-May	04-Jun	5	31-May	34	131	23-Jul	30-Aug	12	23 Jul / 5 Aug
Northern Waterthrush	23	186	09-May	04-Jun	34	21-May	46	349	23-Jul	08-Sep	25	13-Aug
Common Yellowthroat	21	234	15-May	04-Jun	25	24-May	48	579	23-Jul	09-Sep	30	23-Jul

Species	Spring						Fall					
	# of Days	Bird Days	First Date	Last Date	High Count #	High Count Date	# of Days	Bird Days	First Date	Last Date	High Count_#	High Count Date
Wilson's Warbler	22	181	08-May	04-Jun	29	15-May	24	88	01-Aug	09-Sep	8	25-Aug
<i>Unidentified Warbler</i>	1	3					2	8				
Western Tanager	7	7	25-May	04-Jun	1	all days	17	38	23-Jul	10-Aug	5	07-Aug
Lapland Longspur	19	113	25-Apr	19-May	21	26-Apr	7	9	22-Aug	04-Sep	2	26 / 27 Aug
American Tree Sparrow	18	157	26-Apr	16-May	30	03-May	10	28	28-Aug	10-Sep	5	04-Sep
Chipping Sparrow	12	25	18-May	03-Jun	5	26-May	8	11	25-Jul	23-Aug	3	10-Aug
Savannah Sparrow	17	107	03-May	24-May	36	13-May	3	4	05-Aug	01-Sep	2	01-Sep
Fox Sparrow	32	301	28-Apr	03-Jun	60	04-May	14	23	24-Jul	09-Sep	4	02-Sep
Lincoln's Sparrow	28	191	01-May	04-Jun	20	21-May	46	173	23-Jul	09-Sep	10	23 Jul / 30 Aug
Swamp Sparrow	20	37	16-May	04-Jun	4	30-May	35	49	23-Jul	09-Sep	4	many days
White-throated Sparrow	20	86	15-May	04-Jun	9	23-May	42	142	23-Jul	08-Sep	7	23-Jul
White-crowned Sparrow	16	180	26-Apr	23-May	55	07-May	14	62	22-Aug	04-Sep	10	30-Aug
Golden-crowned Sparrow	6	6	05-May	24-May	1	all days	1	1	24-Aug	-	1	-
Dark-eyed Junco	33	288	23-Apr	04-Jun	61	29-Apr	43	238	23-Jul	09-Sep	32	02-Sep
<i>Unidentified Sparrow</i>	1	3										
Red-winged Blackbird	26	88	03-May	04-Jun	8	21/22 May	8	27	23-Jul	31-Jul	6	31-Jul
Yellow-headed Blackbird	1	1	21-May	-	1	-						
Rusty Blackbird	35	336	26-Apr	04-Jun	90	03-May	46	188	23-Jul	09-Sep	21	23-Jul
Brown-headed Cowbird	18	58	18-May	04-Jun	5	20-May	1	1	28-Jul	-	1	-
Pine Grosbeak							1	1	19-Aug	-	1	-
Purple Finch	28	62	02-May	04-Jun	5	22/24 May	7	9	24-Jul	31-Jul	2	25/28 Jul
Red Crossbill	2	3	22-May	31-May	2	31-May	8	35	23-Jul	06-Sep	16	23-Jul
White-winged Crossbill	6	10	29-Apr	04-Jun	3	04-Jun	35	393	23-Jul	08-Sep	70	28-Jul
Common Redpoll	17	121	23-Apr	04-Jun	35	27-Apr	19	78	23-Jul	08-Sep	16	23-Jul
Pine Siskin	4	5	30-May	03-Jun	2	31-May	44	666	23-Jul	08-Sep	64	10-Aug
<i>Unidentified Small Passerine</i>	2	112					27	160				

APPENDIX C – SPRING MIGRATION TIMING FIGURES

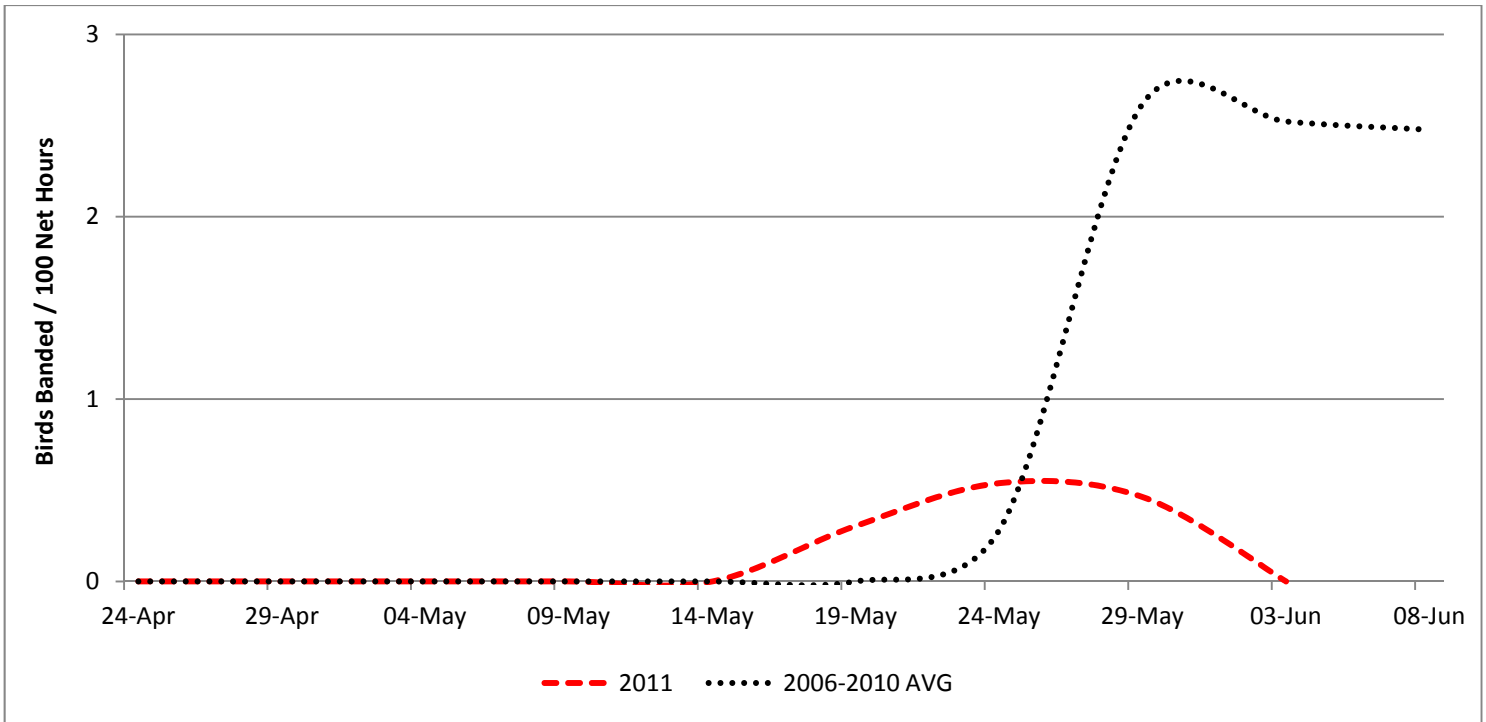


Figure 1. Alder Flycatcher spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

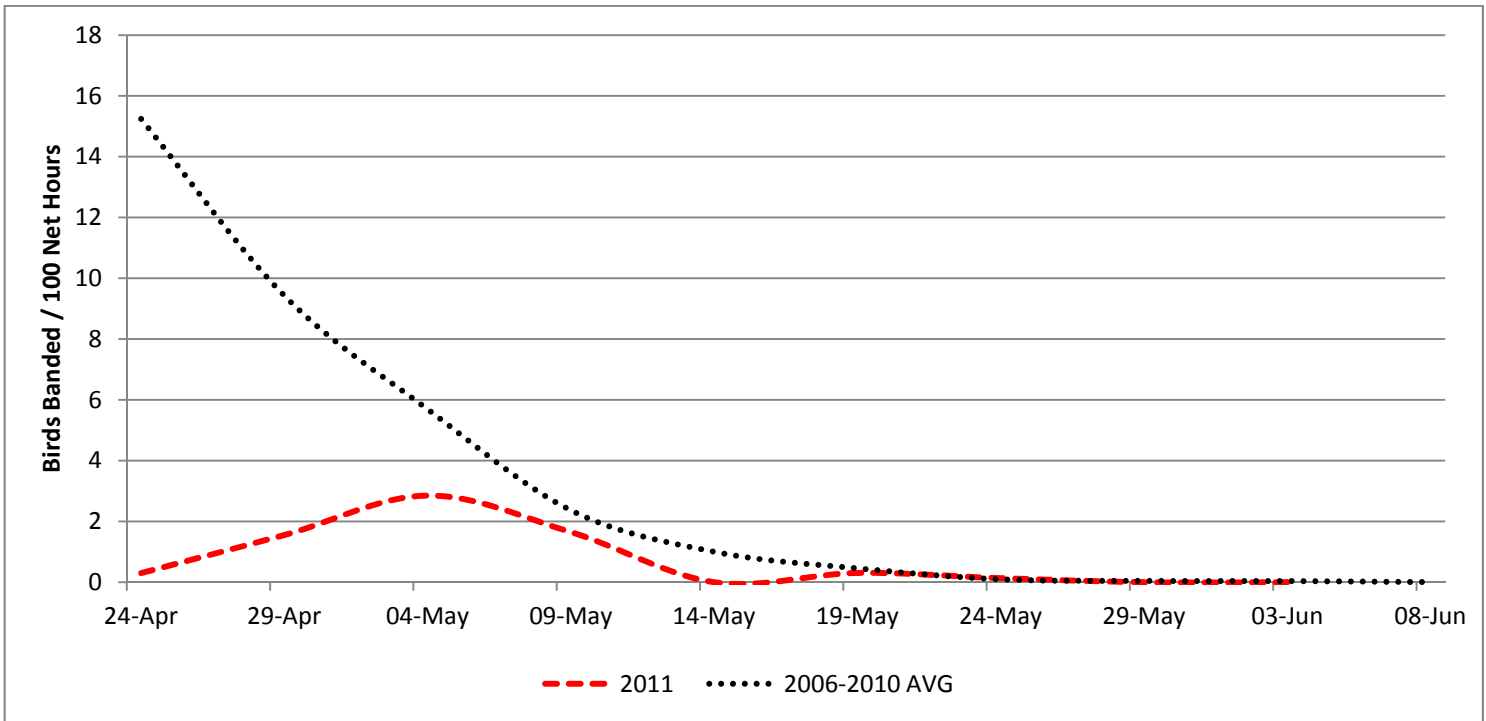


Figure 2. Ruby-crowned Kinglet spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

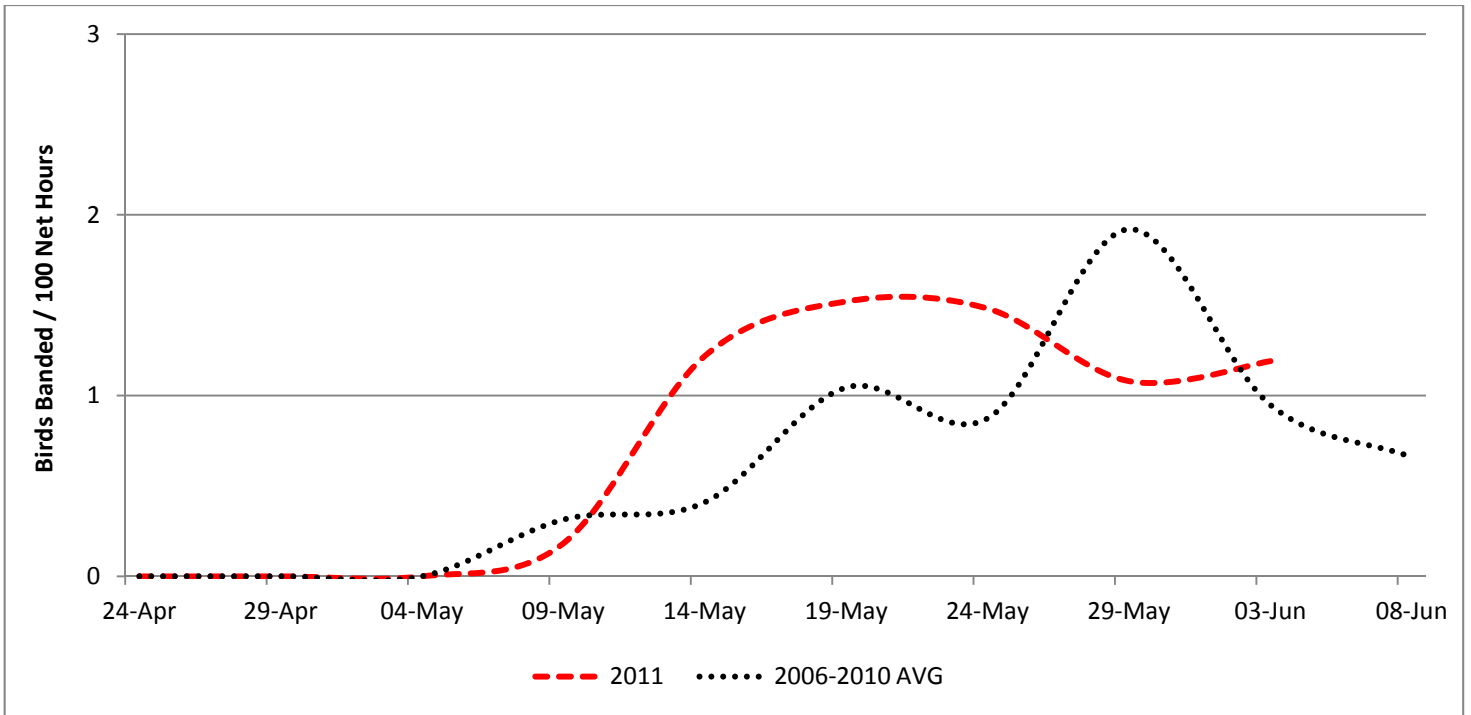


Figure 3. Swainson's Thrush spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

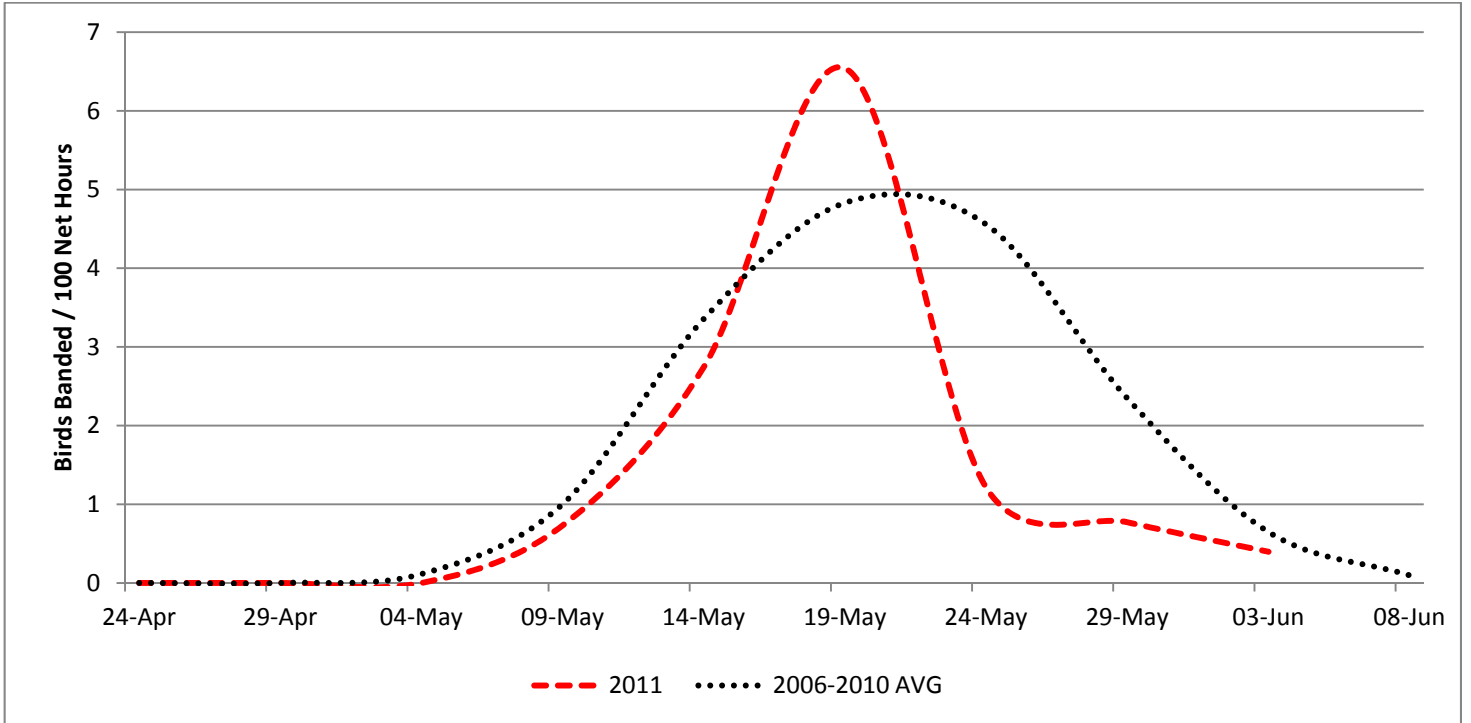


Figure 4. Northern Waterthrush spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

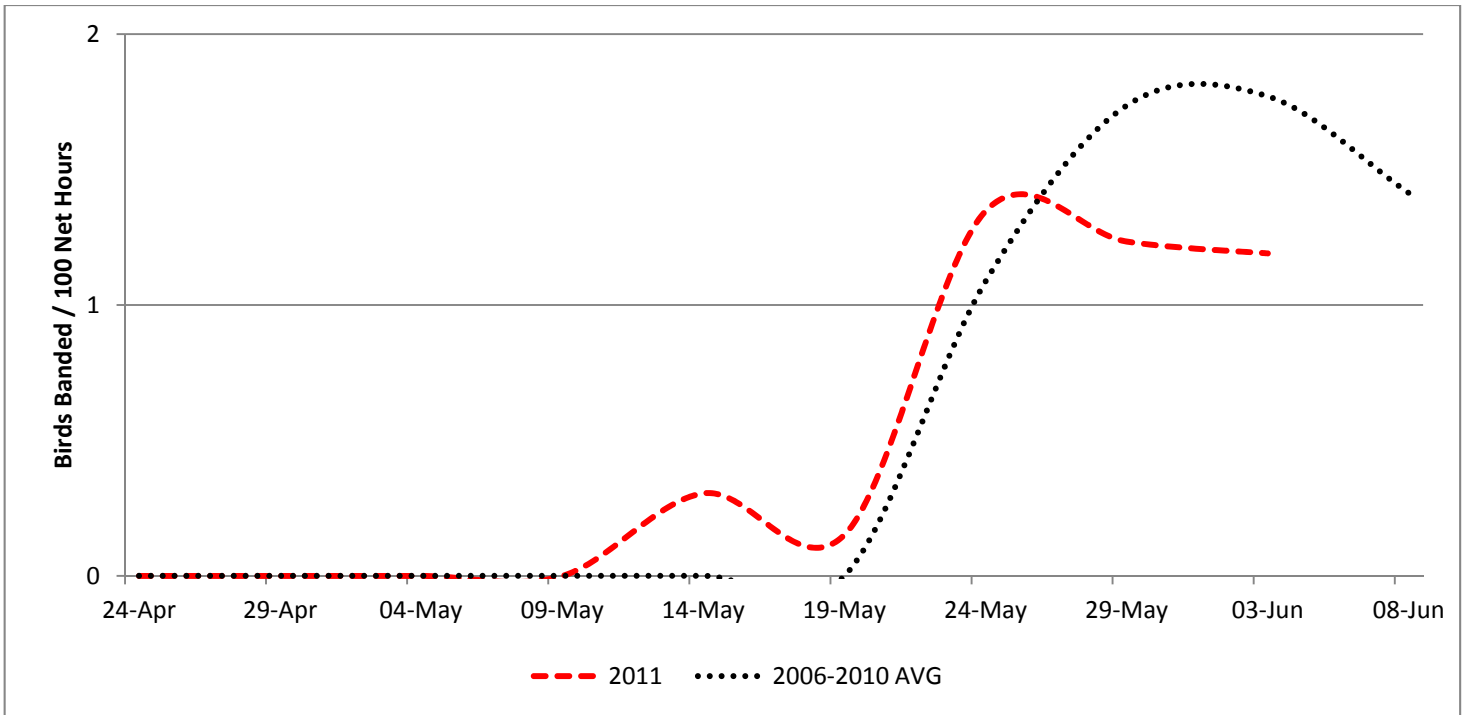


Figure 5. Tennessee Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

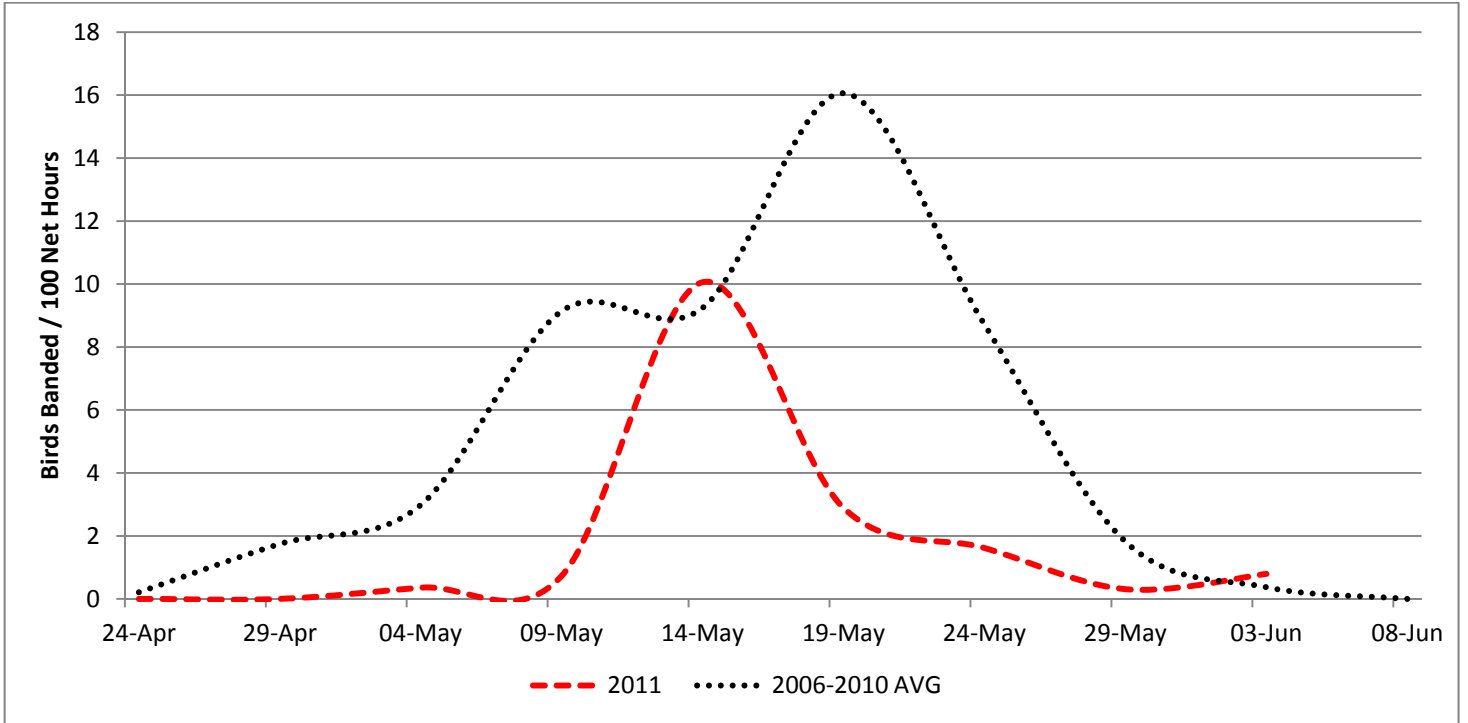


Figure 6. Orange-crowned Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

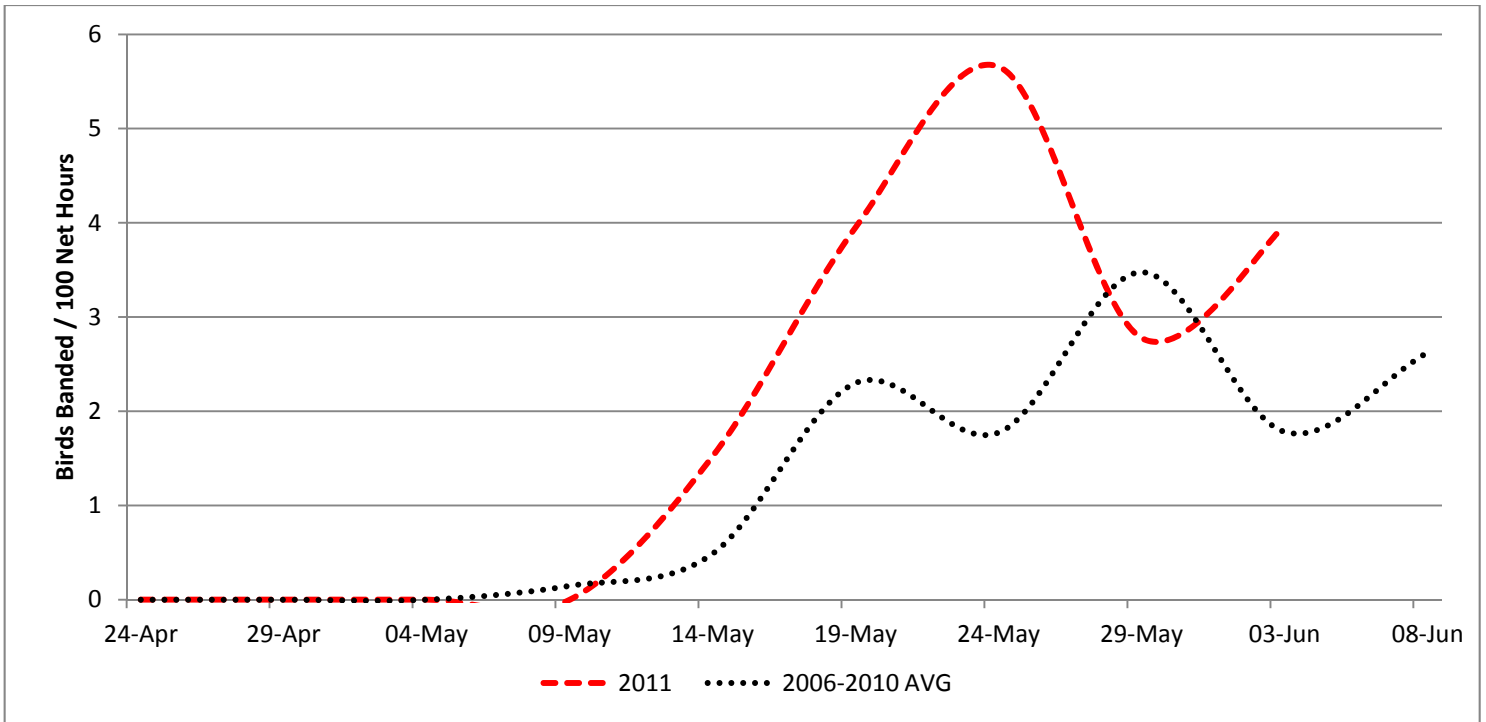


Figure 7. Common Yellowthroat spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

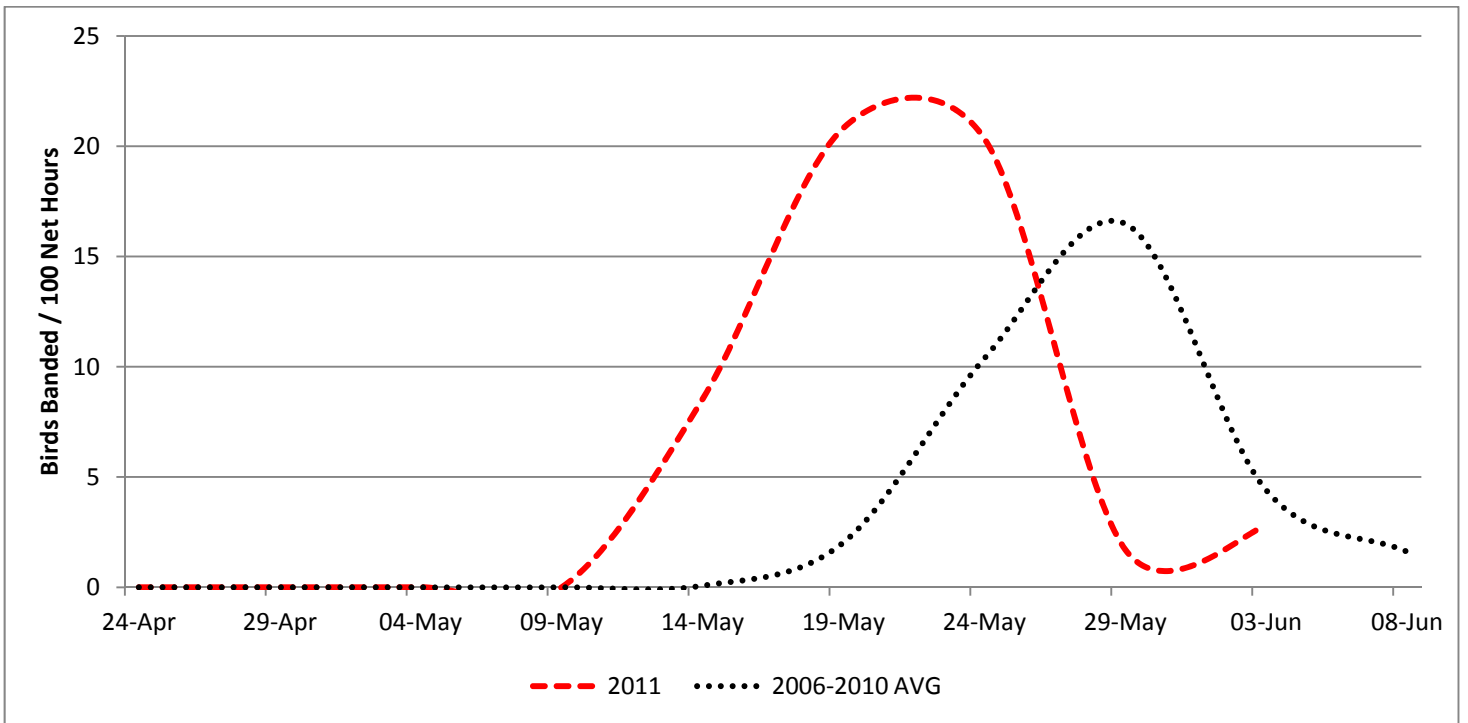


Figure 8. Yellow Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

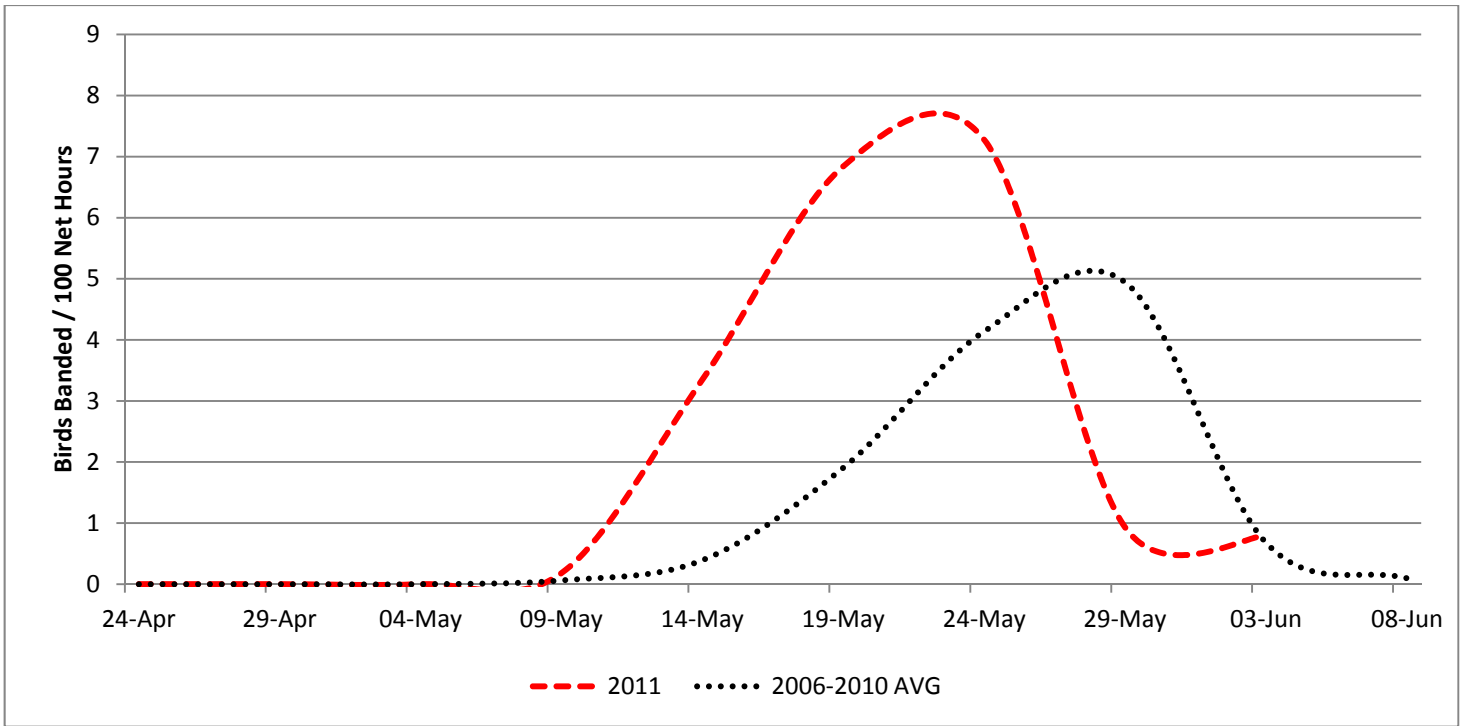


Figure 9. Blackpoll Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

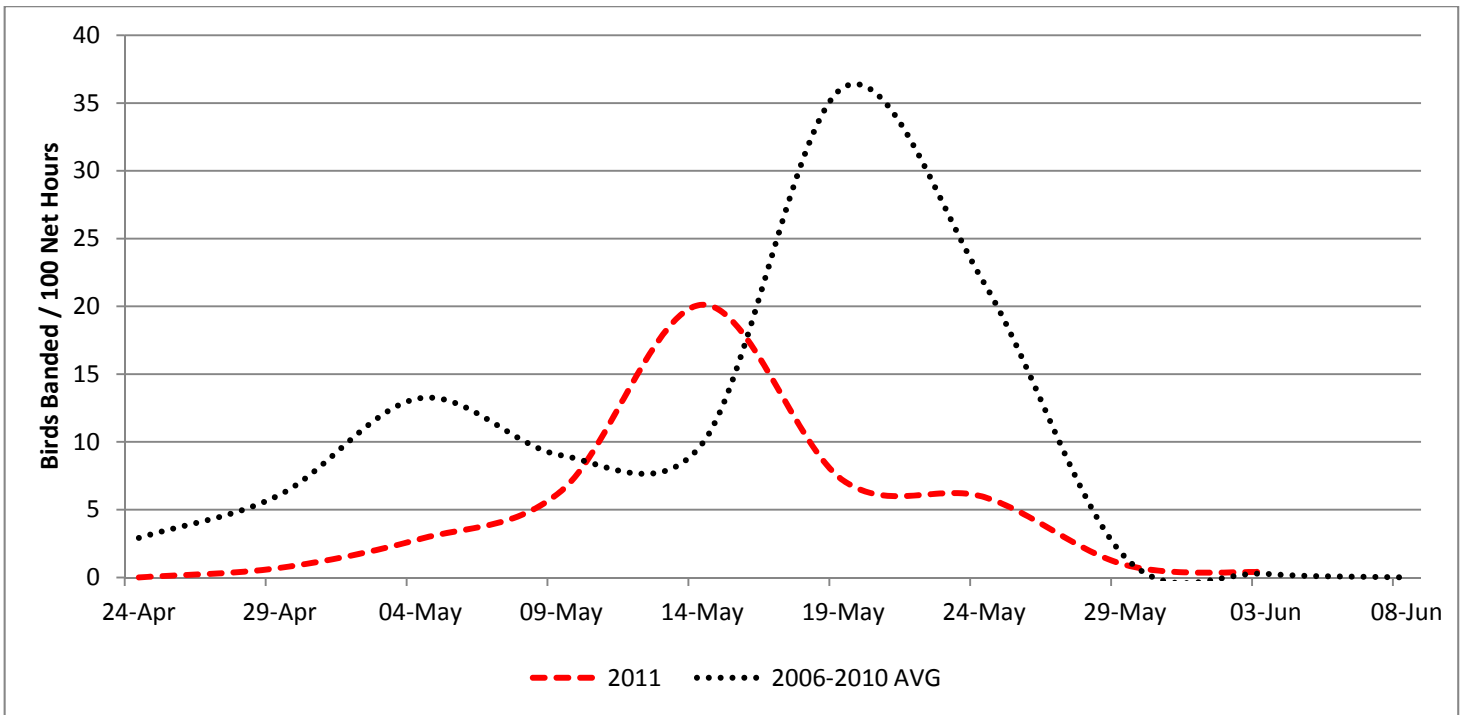


Figure 10. Myrtle Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

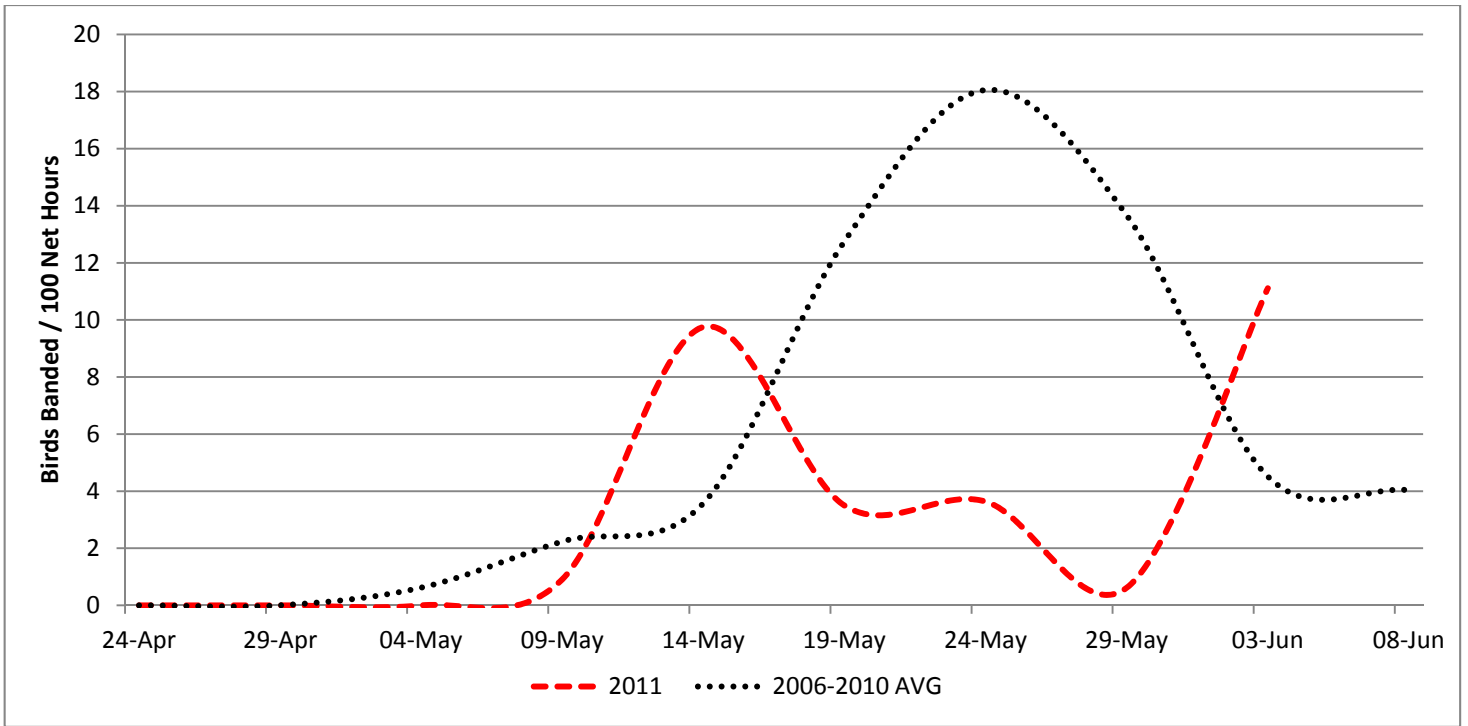


Figure 11. Wilson's Warbler spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

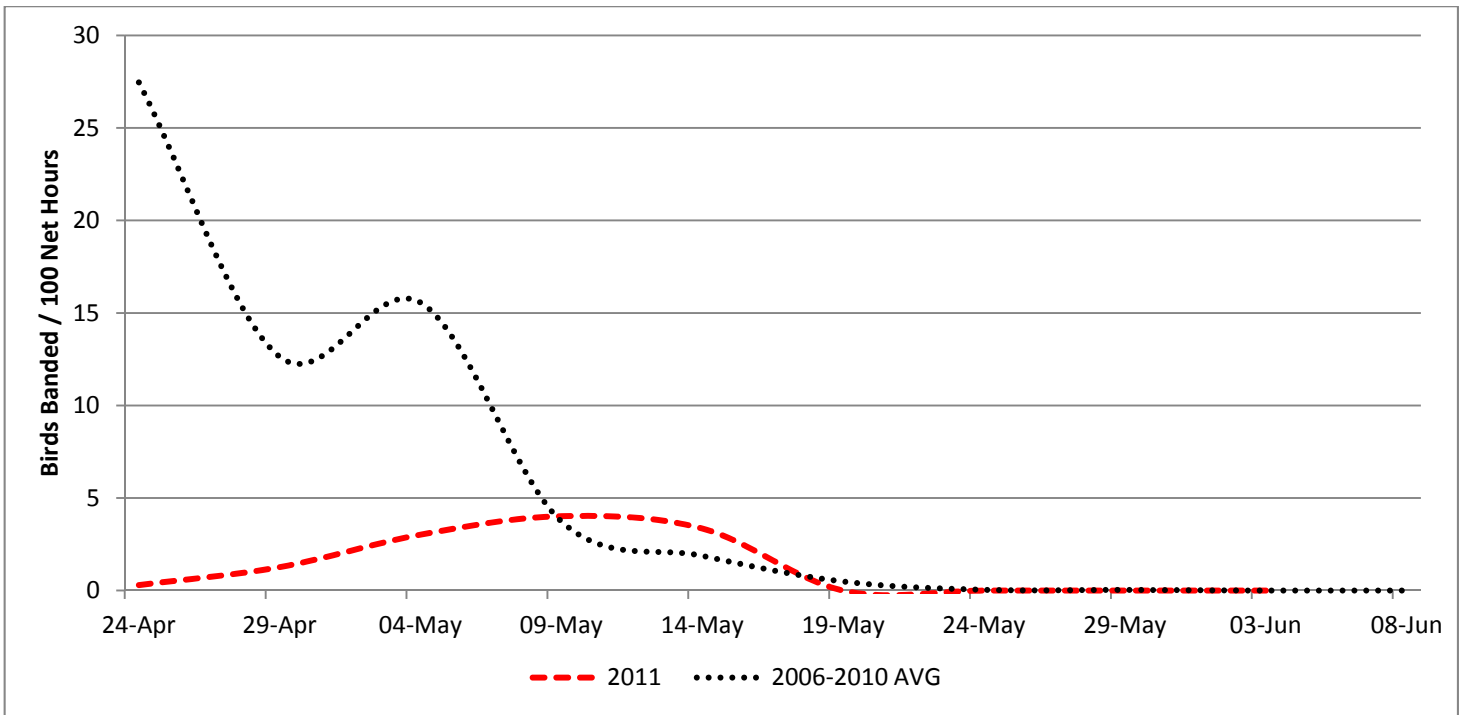


Figure 12. American Tree Sparrow spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

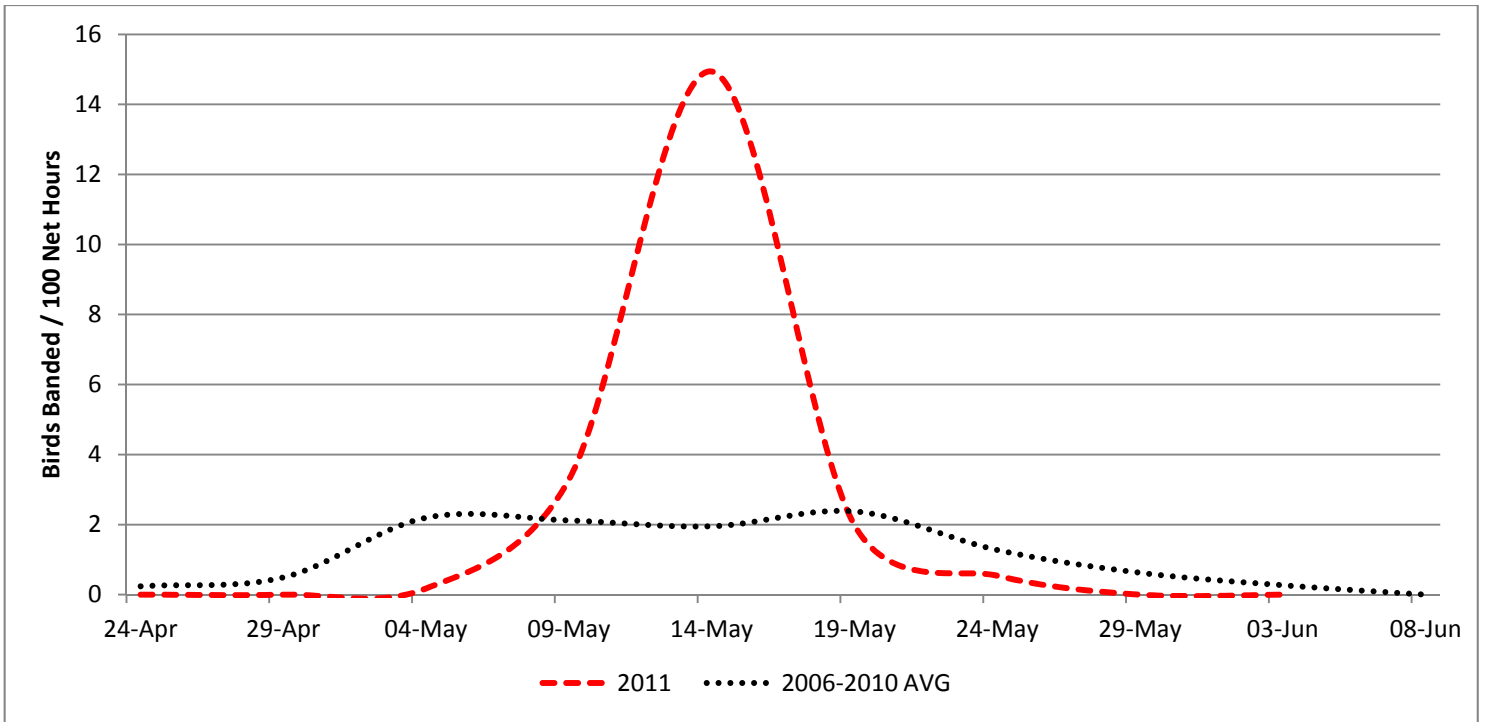


Figure 13. Savannah Sparrow spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

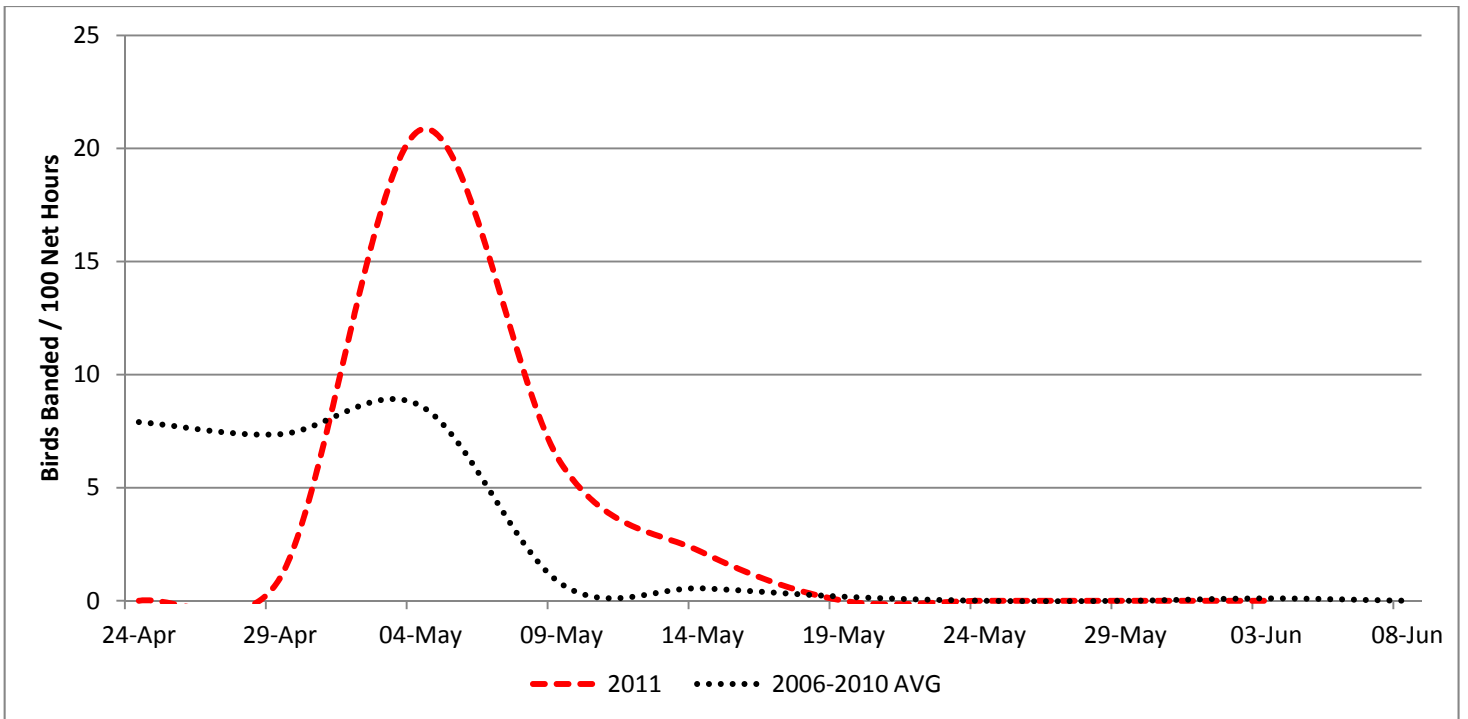


Figure 14. Fox Sparrow spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

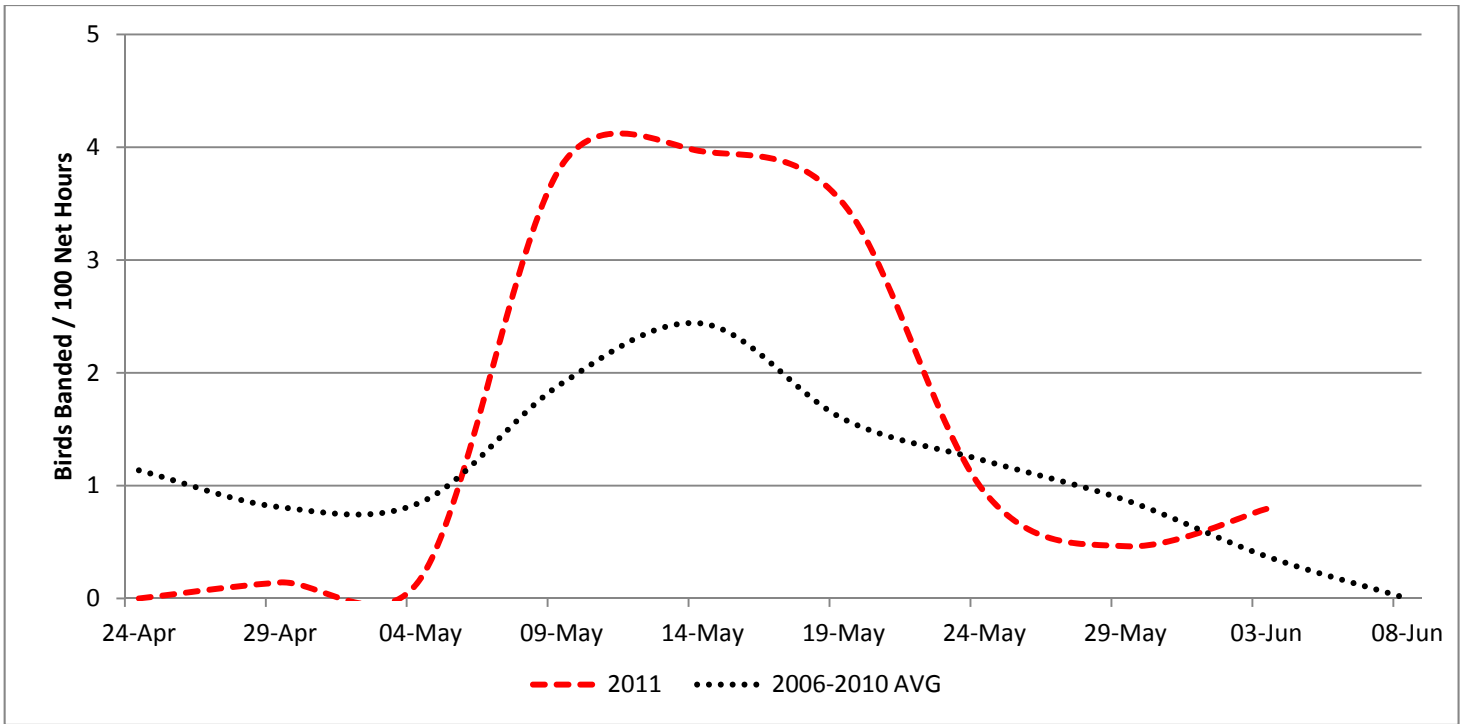


Figure 14. Lincoln's Sparrow spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

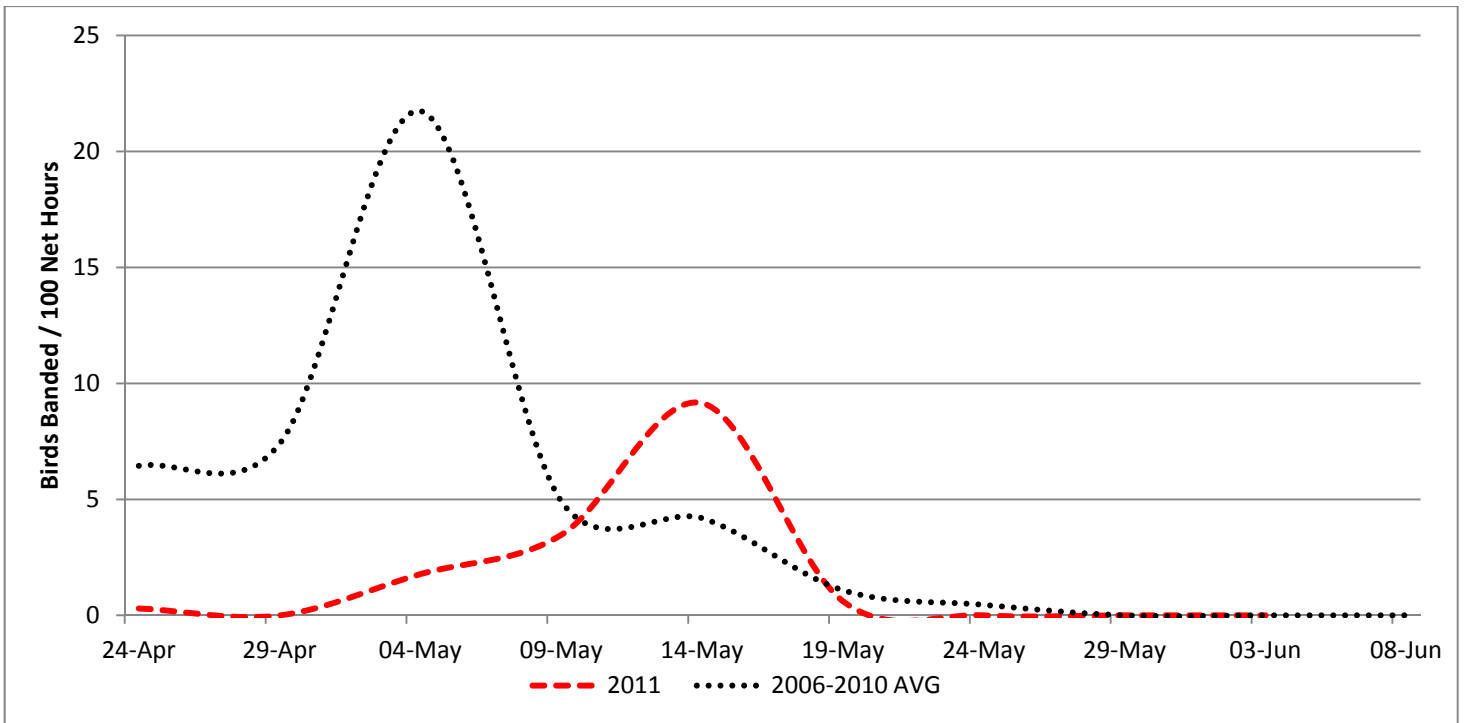


Figure 15. White-crowned Sparrow spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

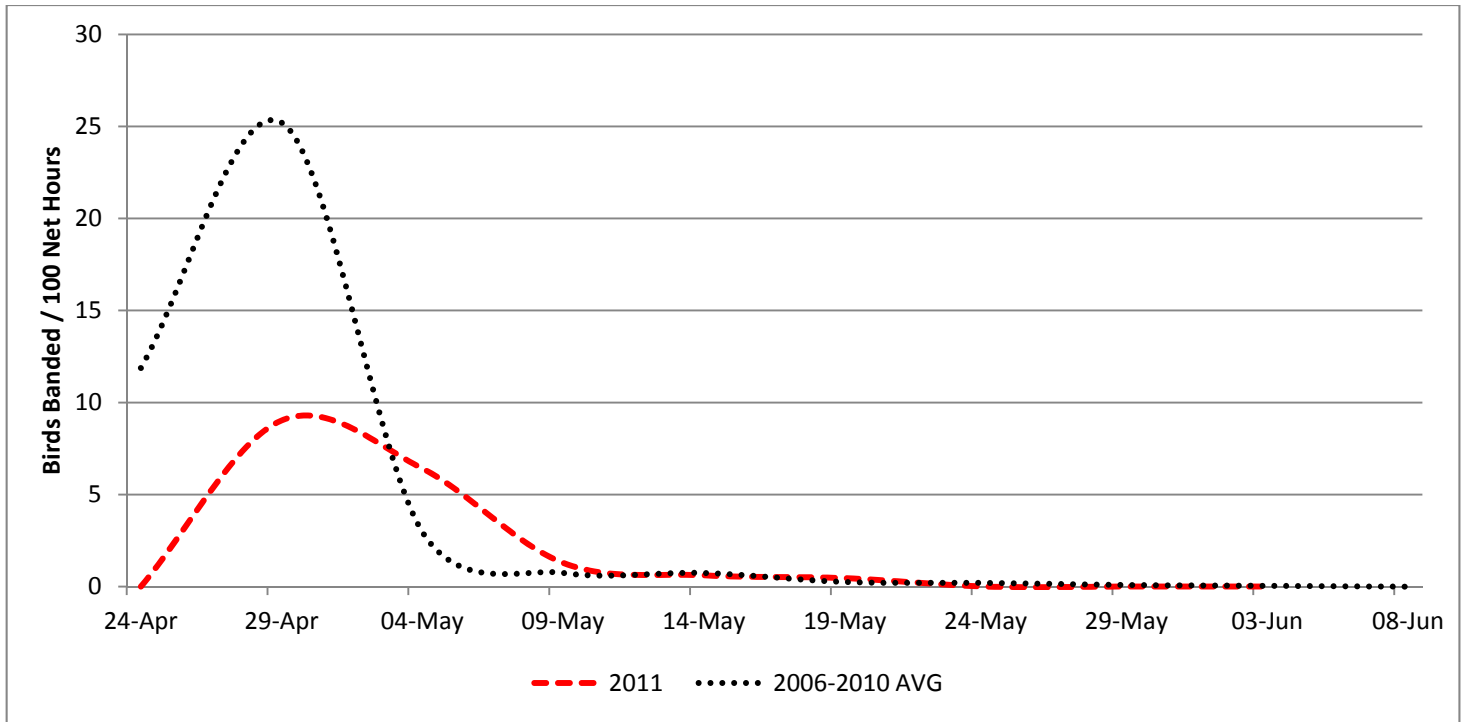


Figure 16. Slate-colored Junco spring migration timing at Albert Creek Bird Observatory from 2006 to 2011.

APPENDIX D – SPRING MIGRATION TIMING FIGURES

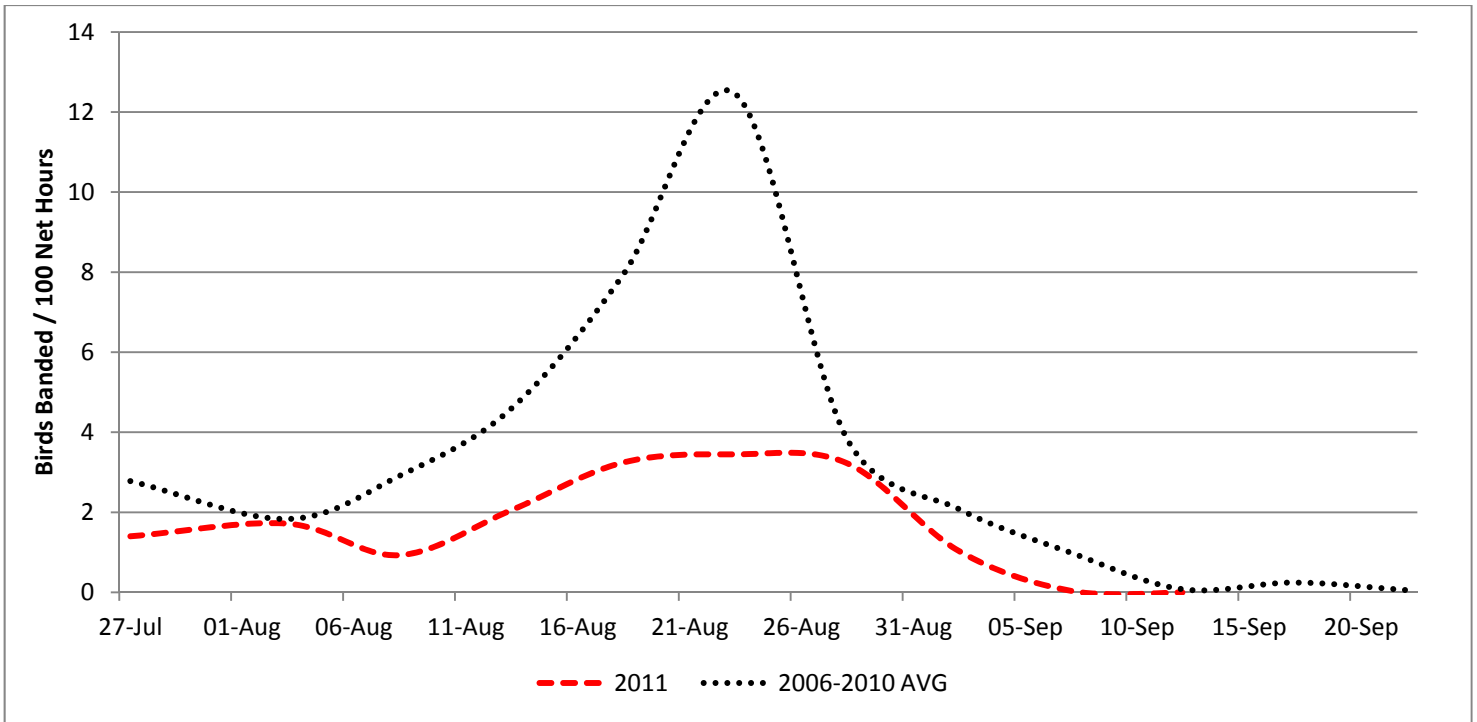


Figure 1. Alder Flycatcher fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

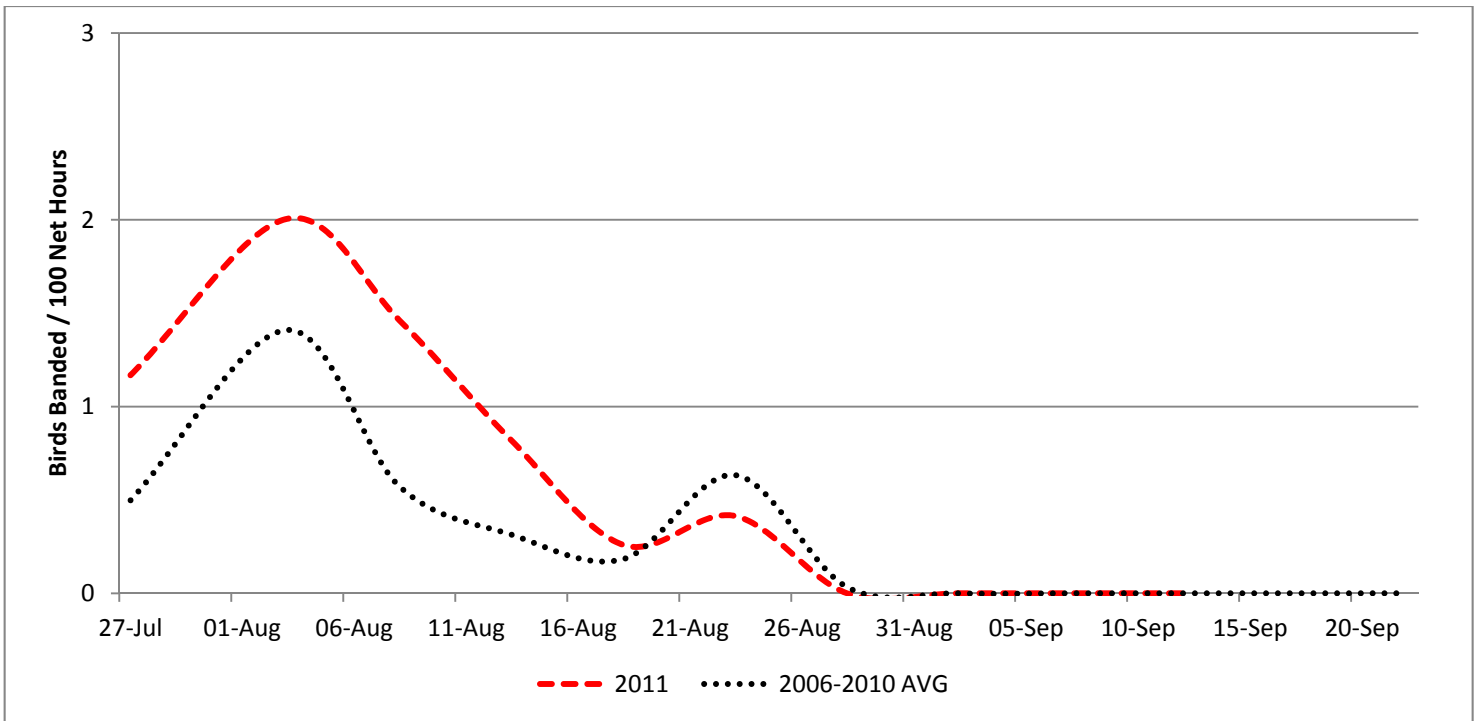


Figure 2. Least Flycatcher fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

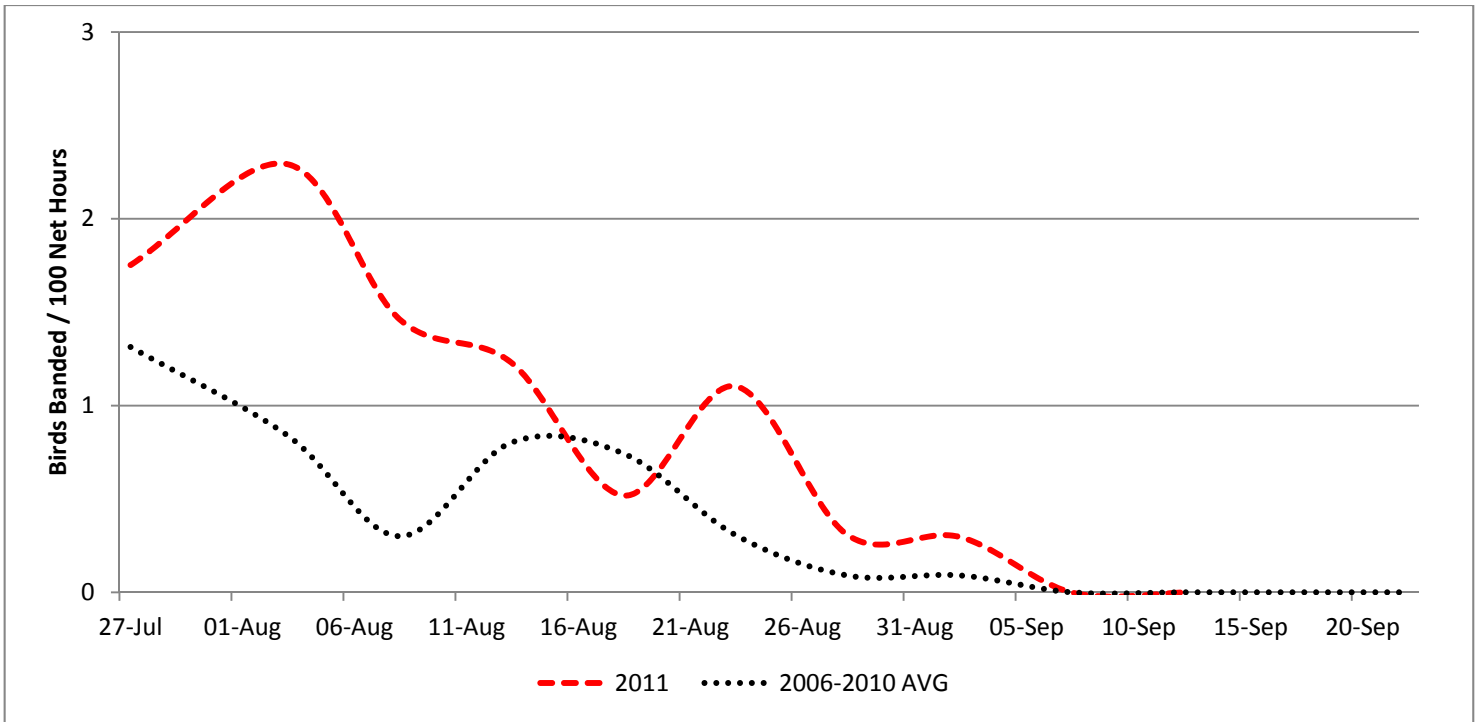


Figure 3. Warbling Vireo fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

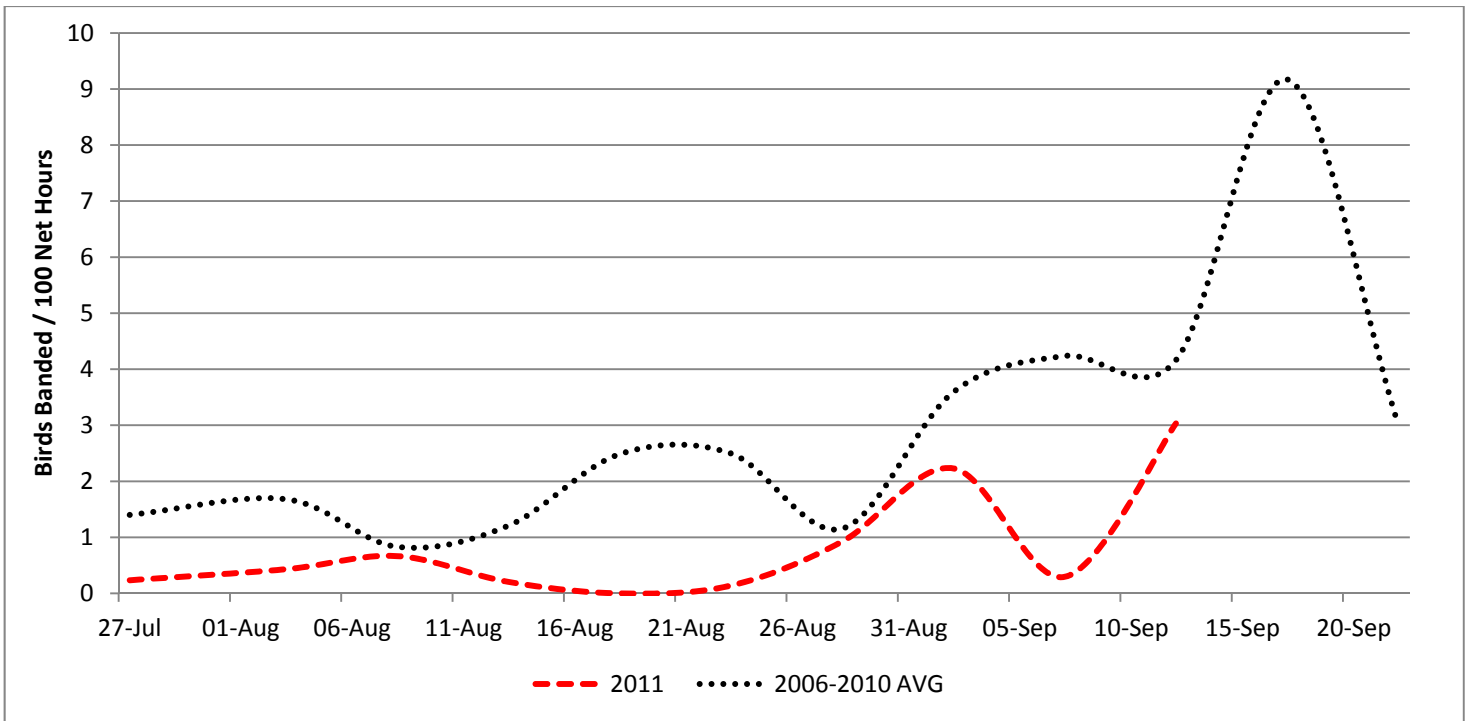


Figure 4. Ruby-crowned Kinglet fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

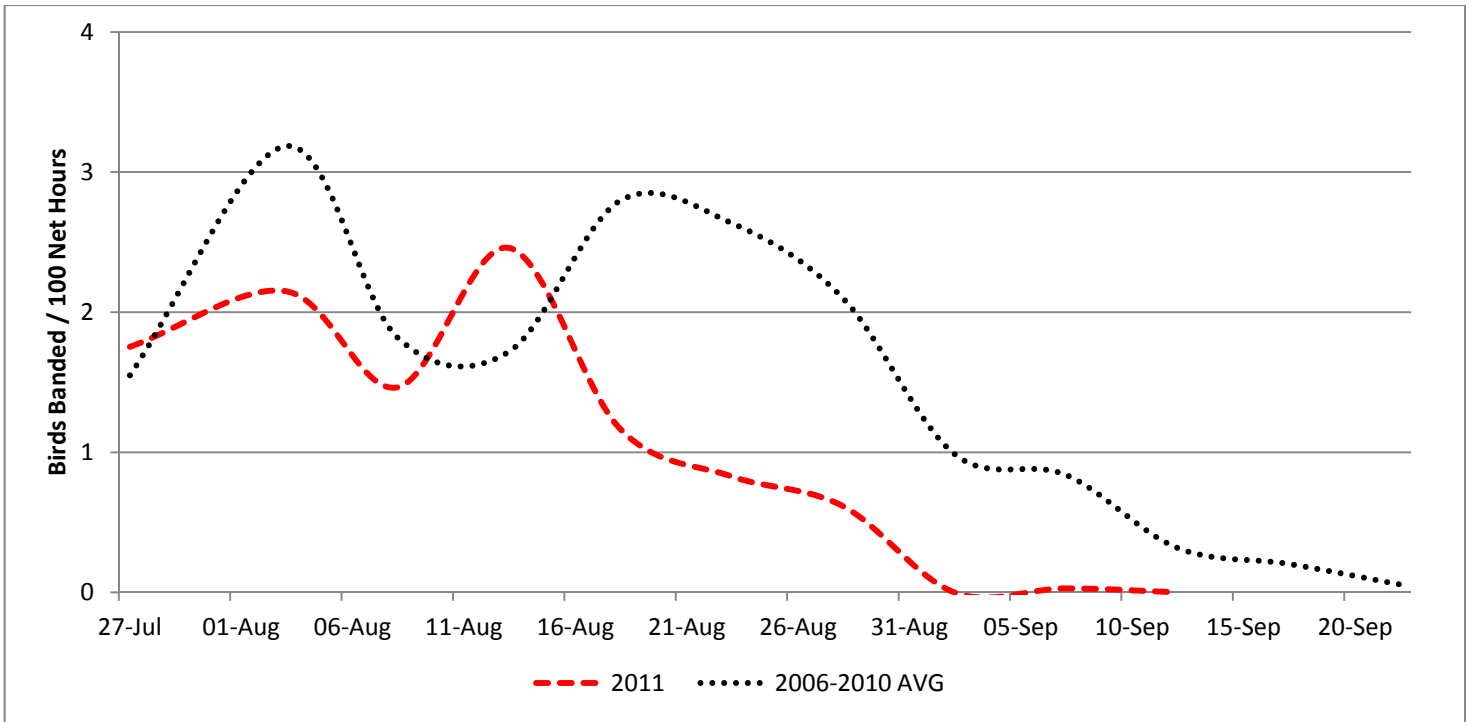


Figure 5. Swainson’s Thrush fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

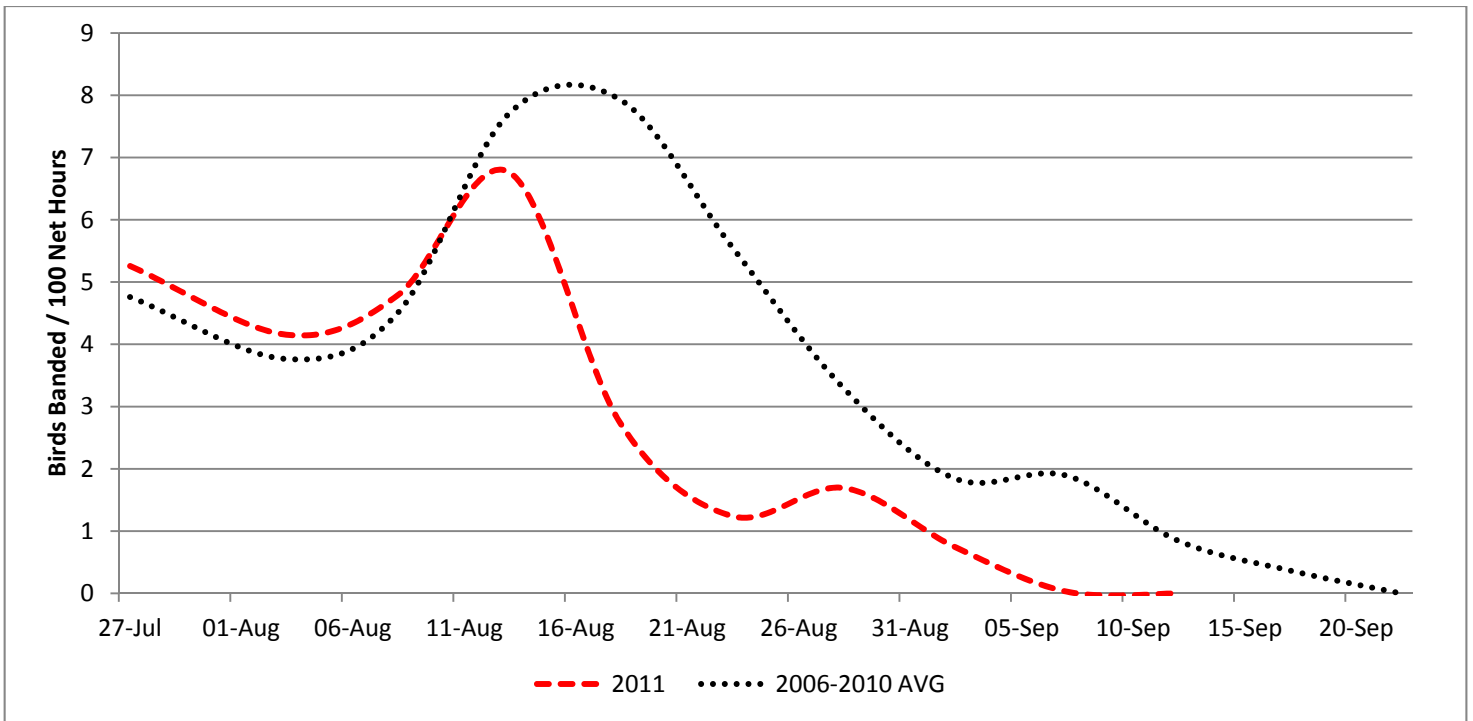


Figure 6. Northern Waterthrush fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

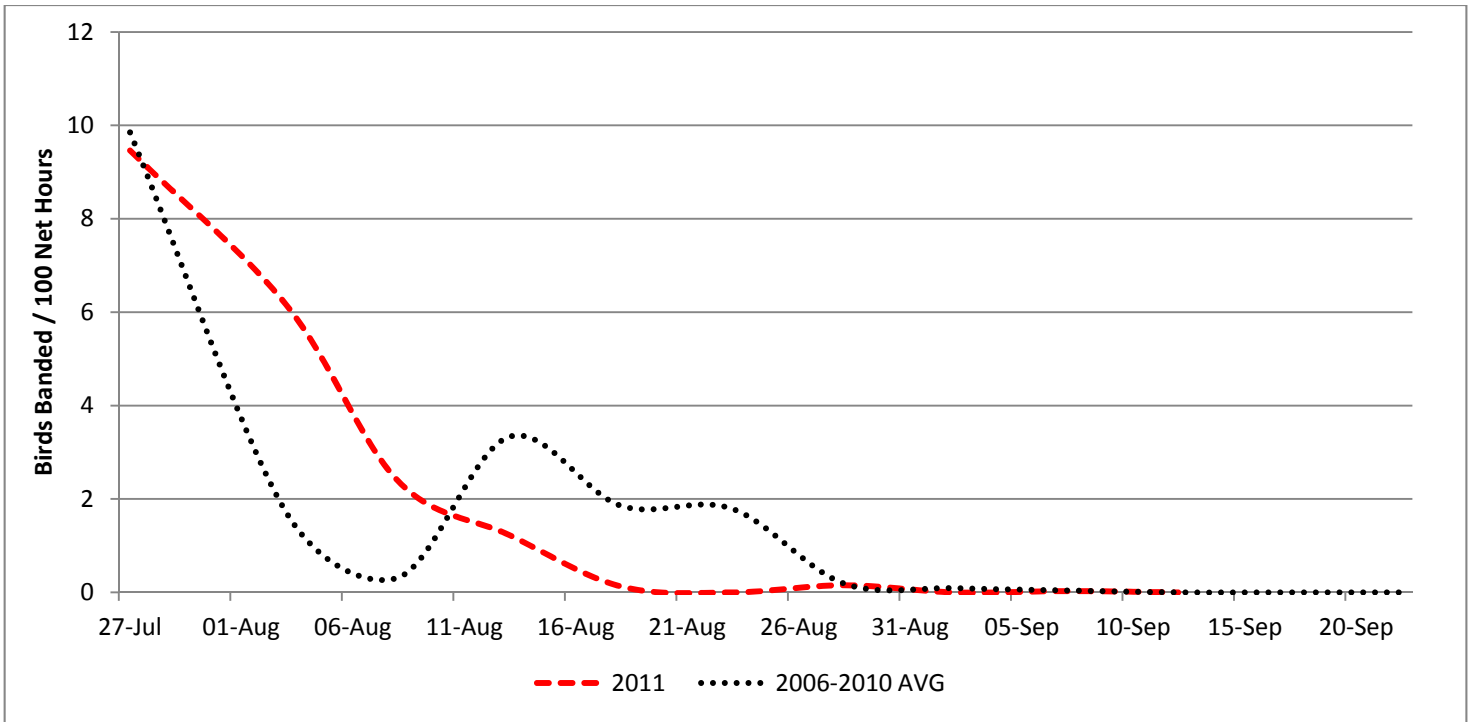


Figure 7. Tennessee Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

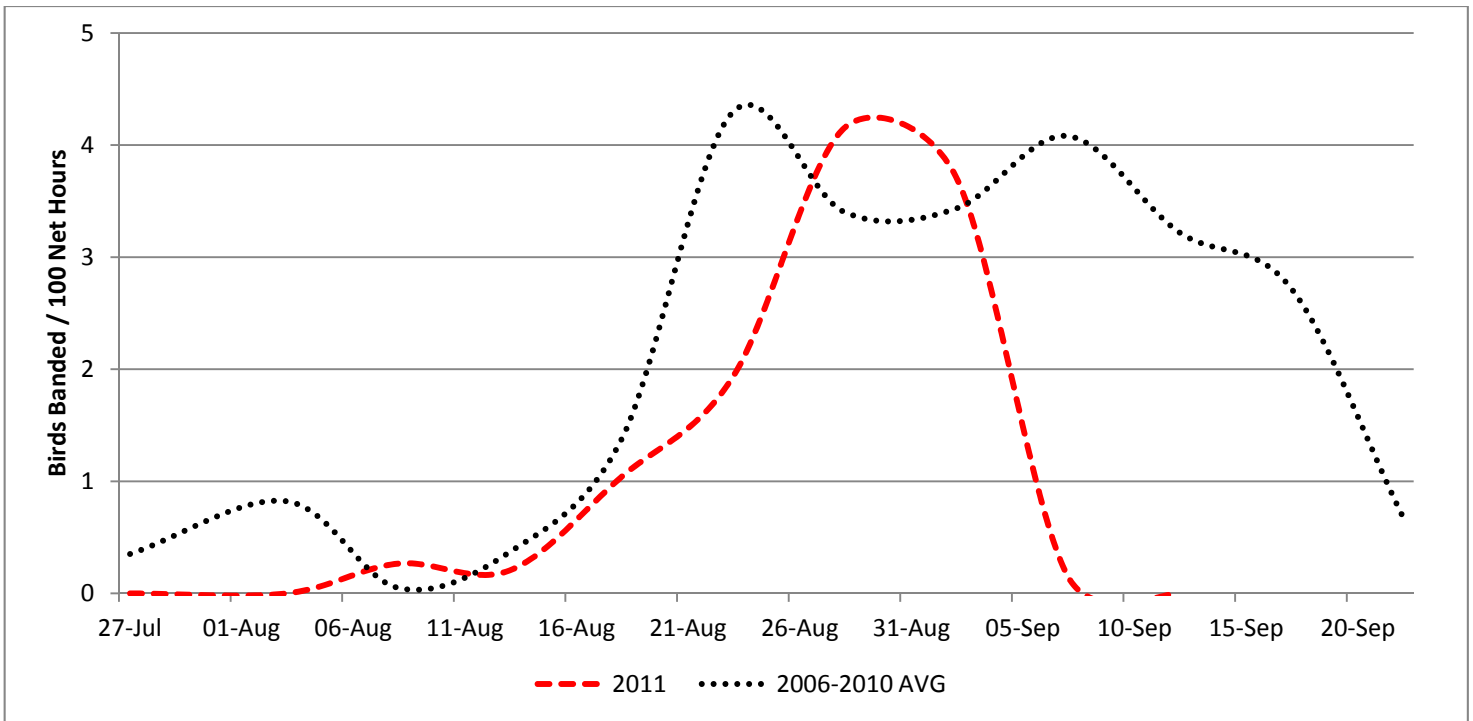


Figure 8. Orange-crowned Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

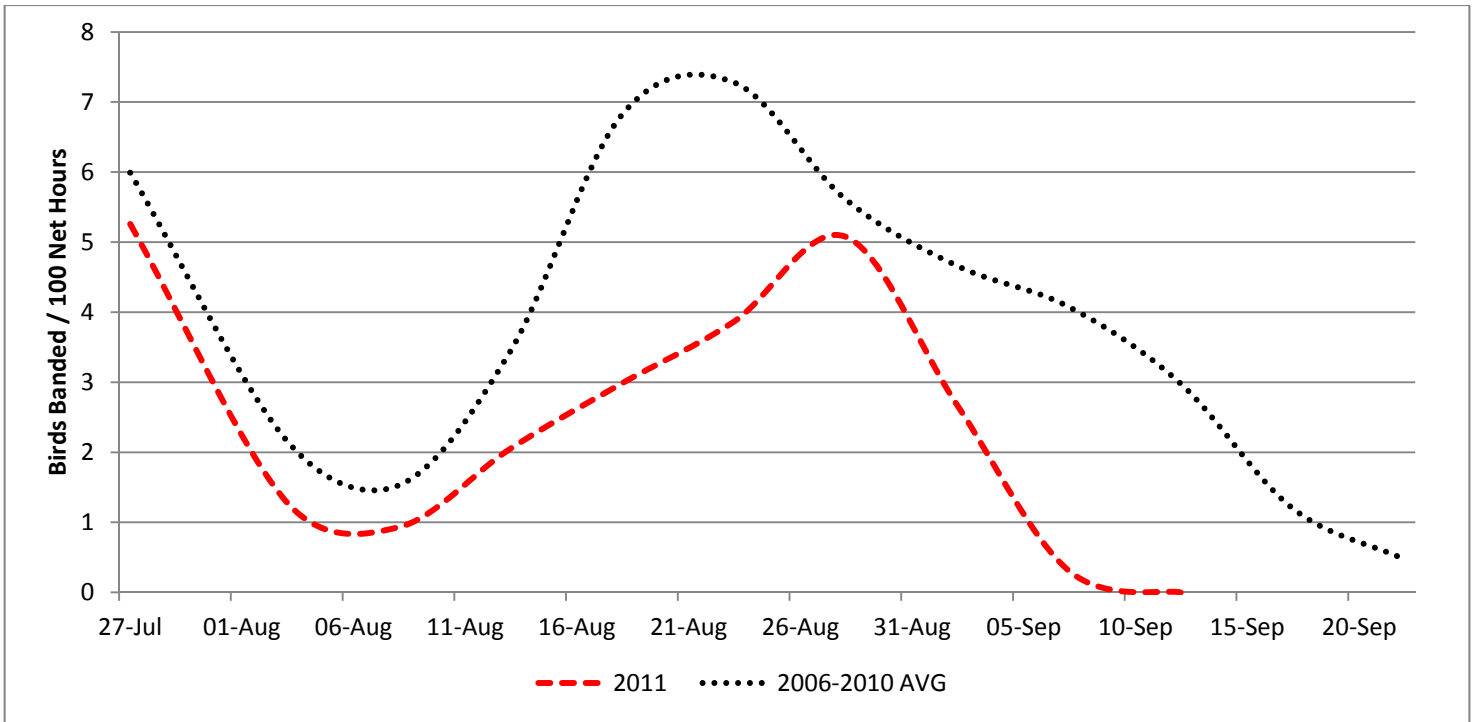


Figure 9. Common Yellowthroat fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

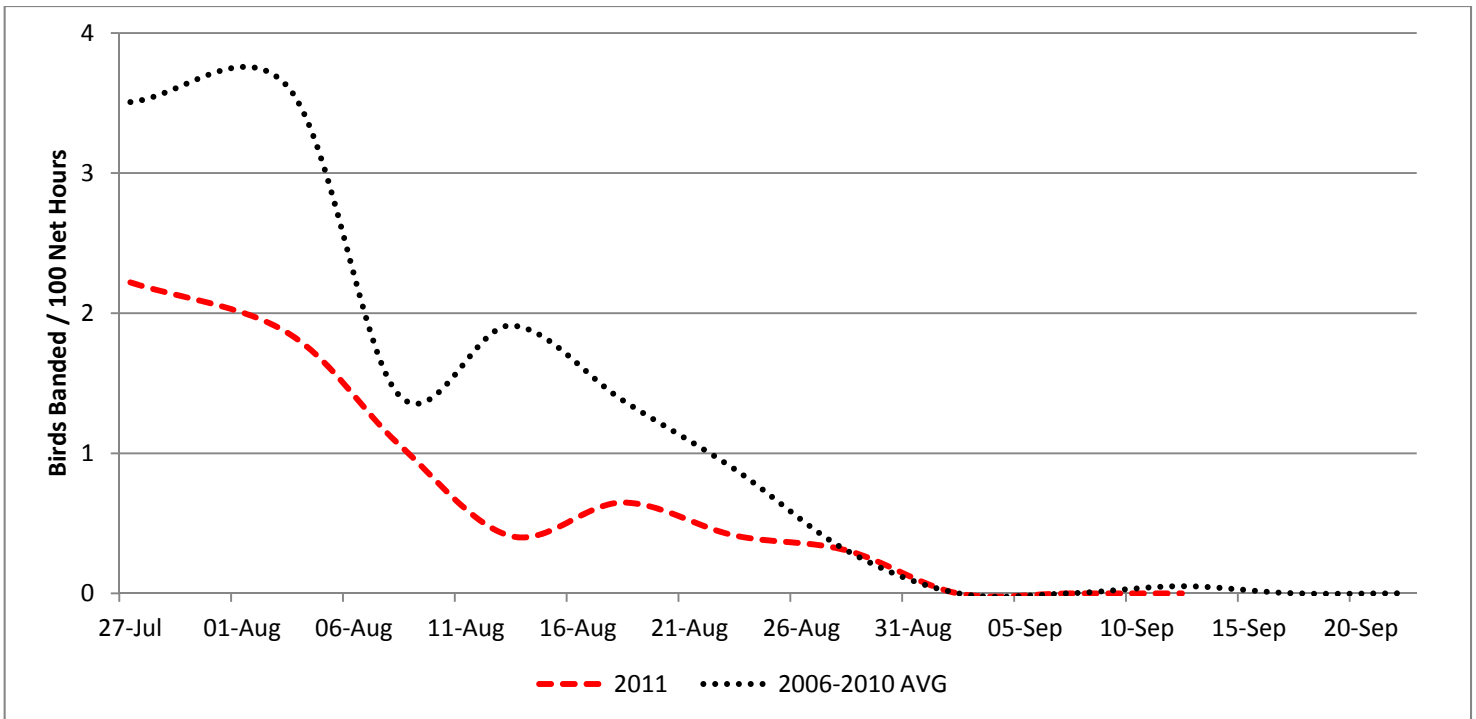


Figure 10. American Redstart fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

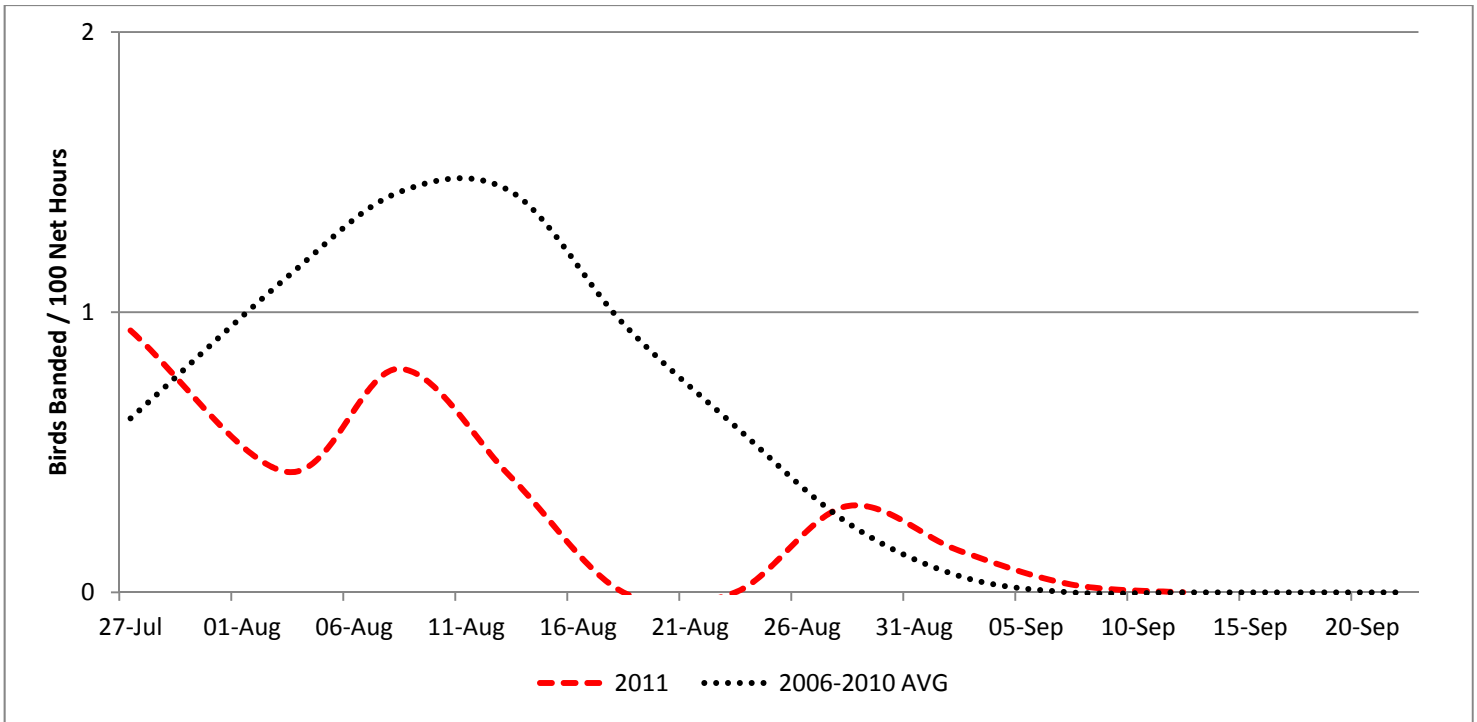


Figure 11. Magnolia Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

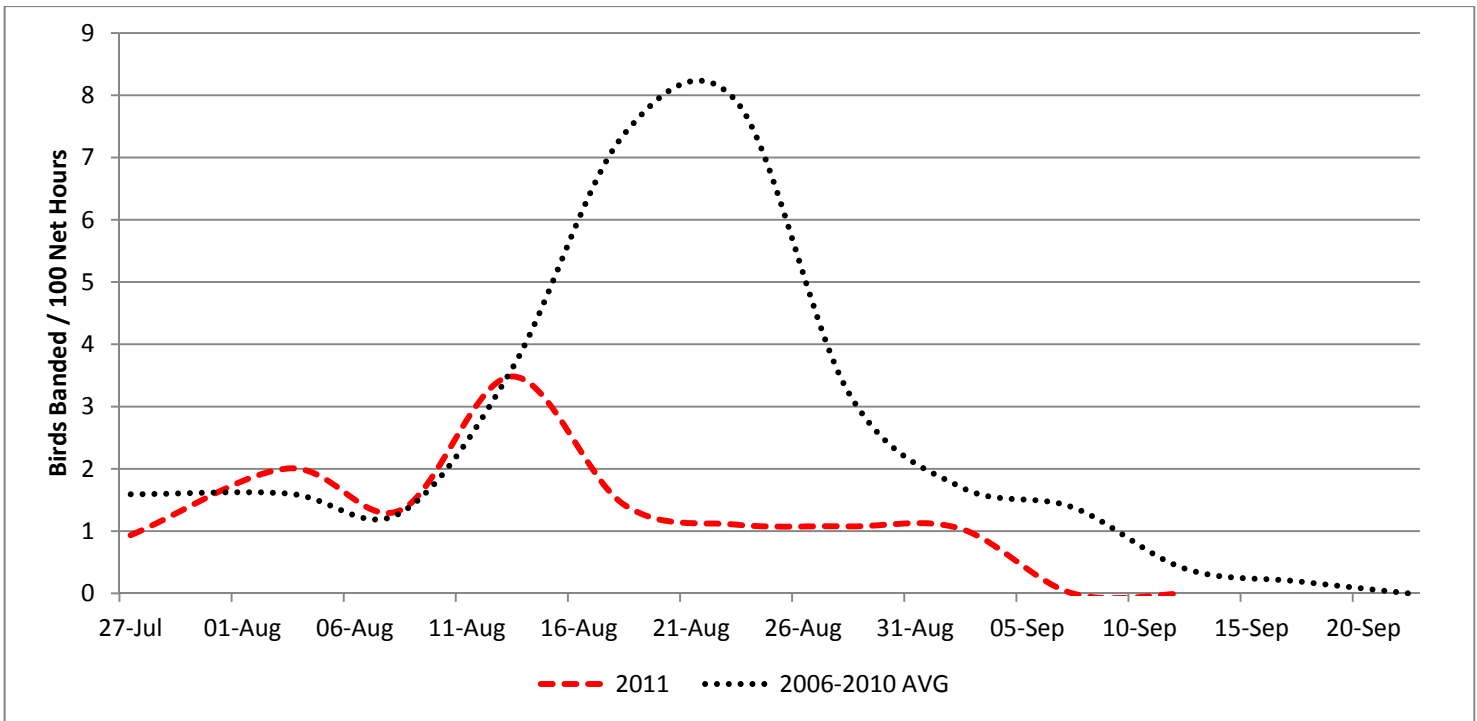


Figure 12. Yellow Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

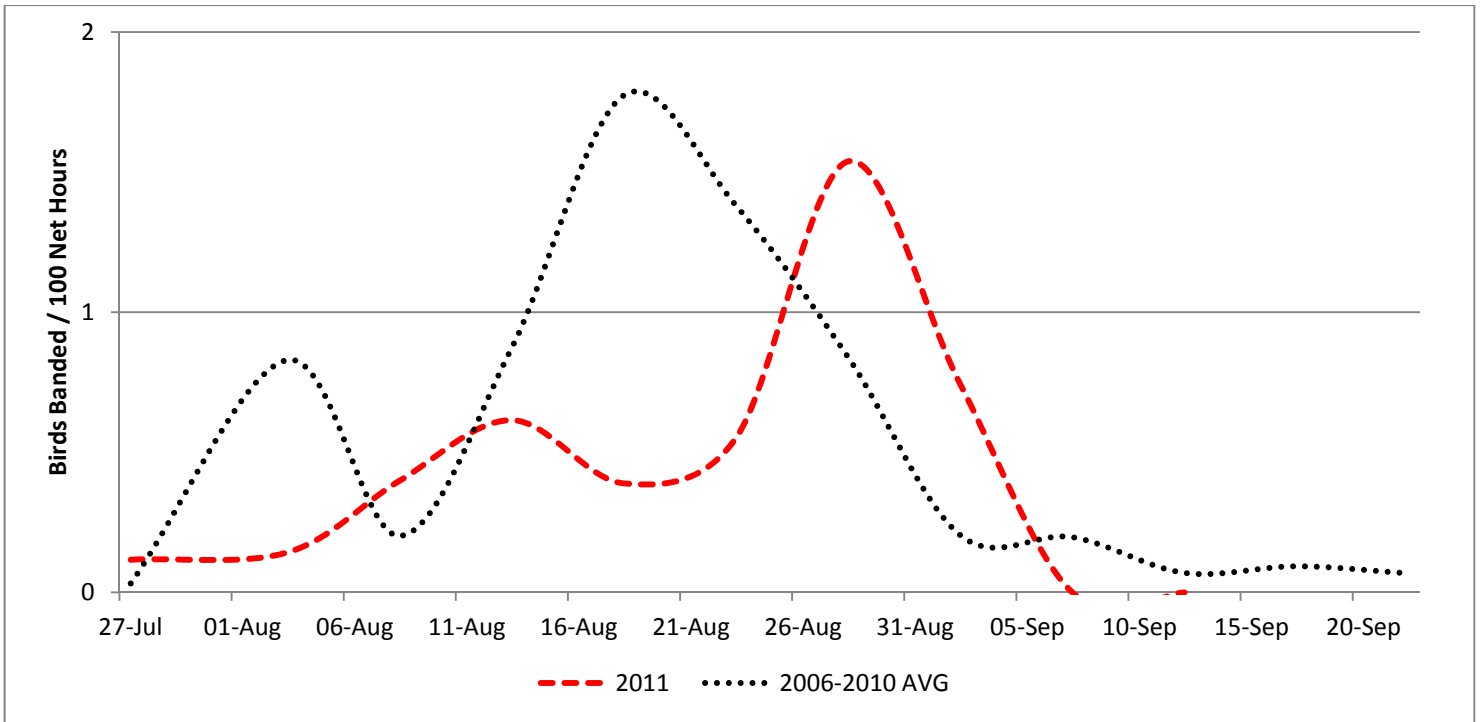


Figure 13. Blackpoll Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

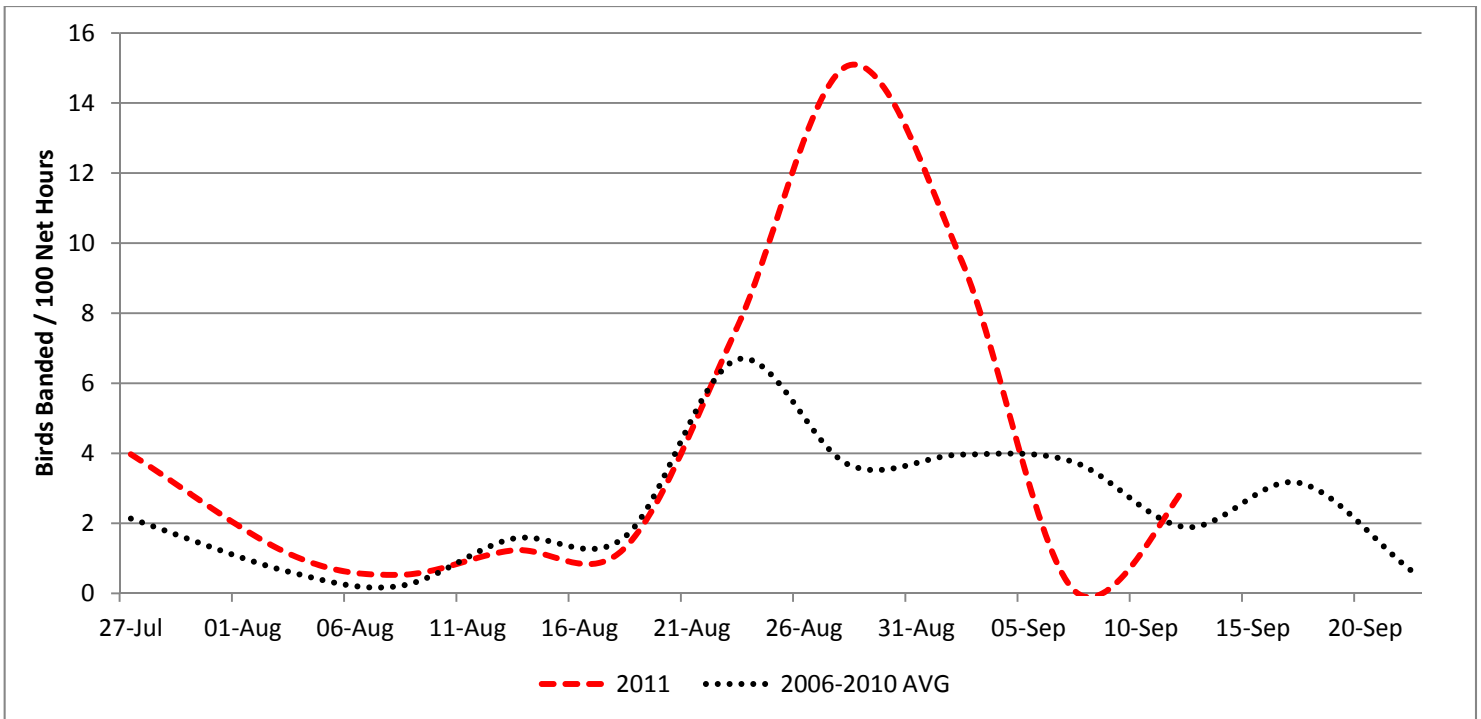


Figure 14. Myrtle Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

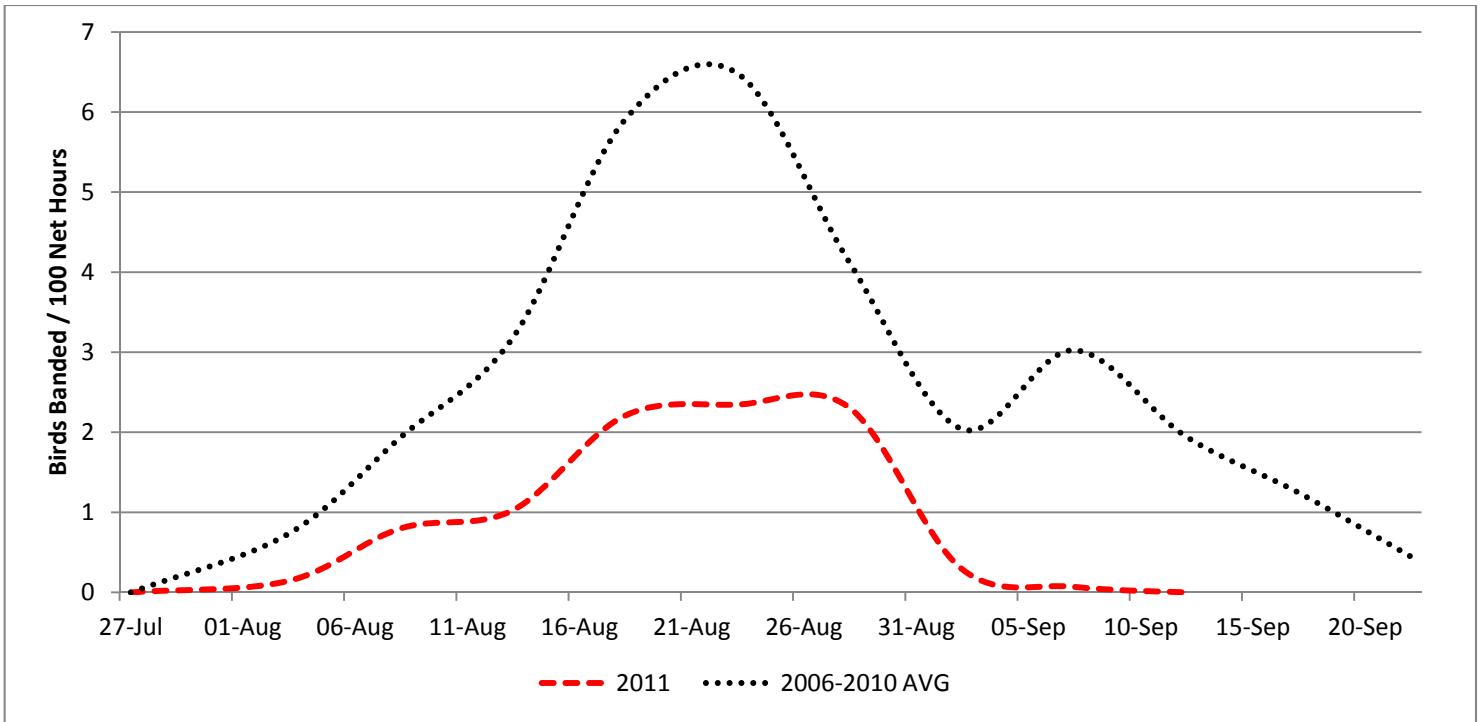


Figure 15. Wilson's Warbler fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

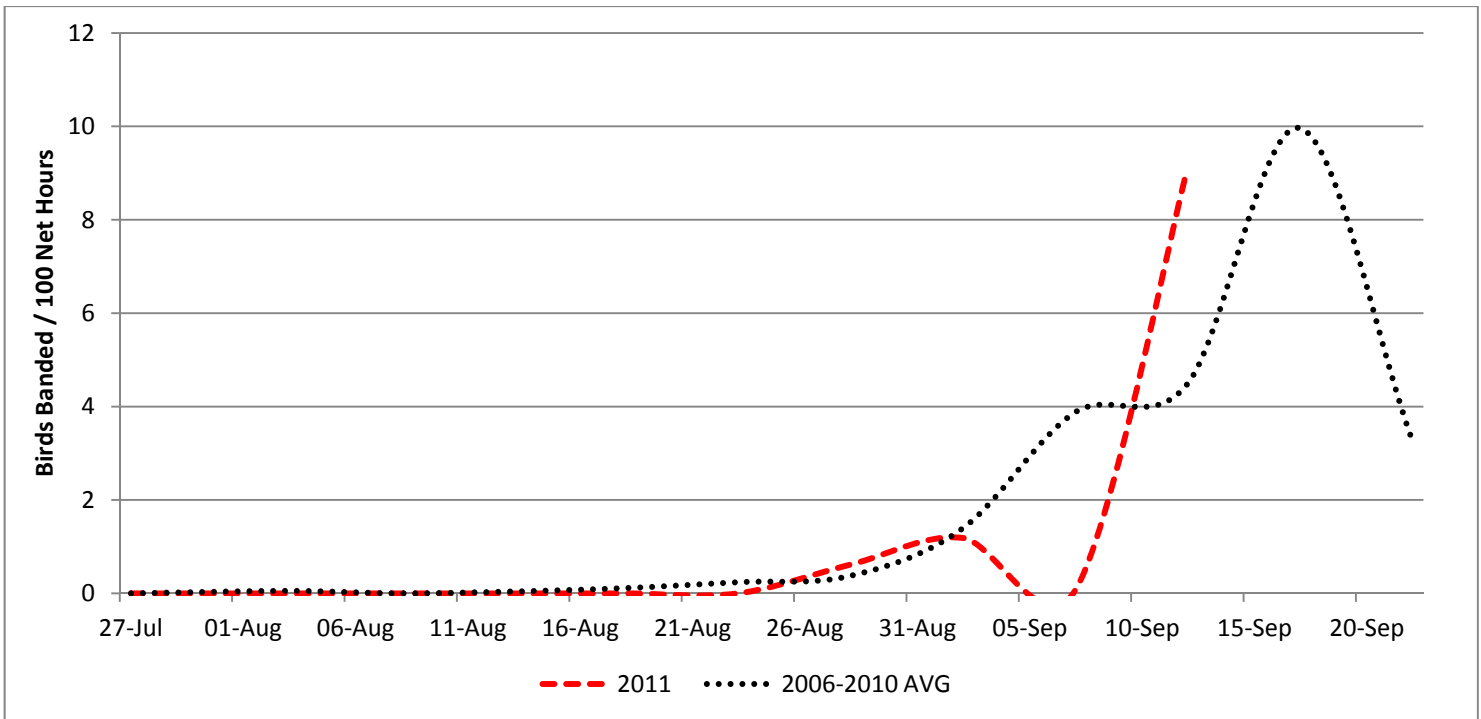


Figure 16. American Tree Sparrow fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

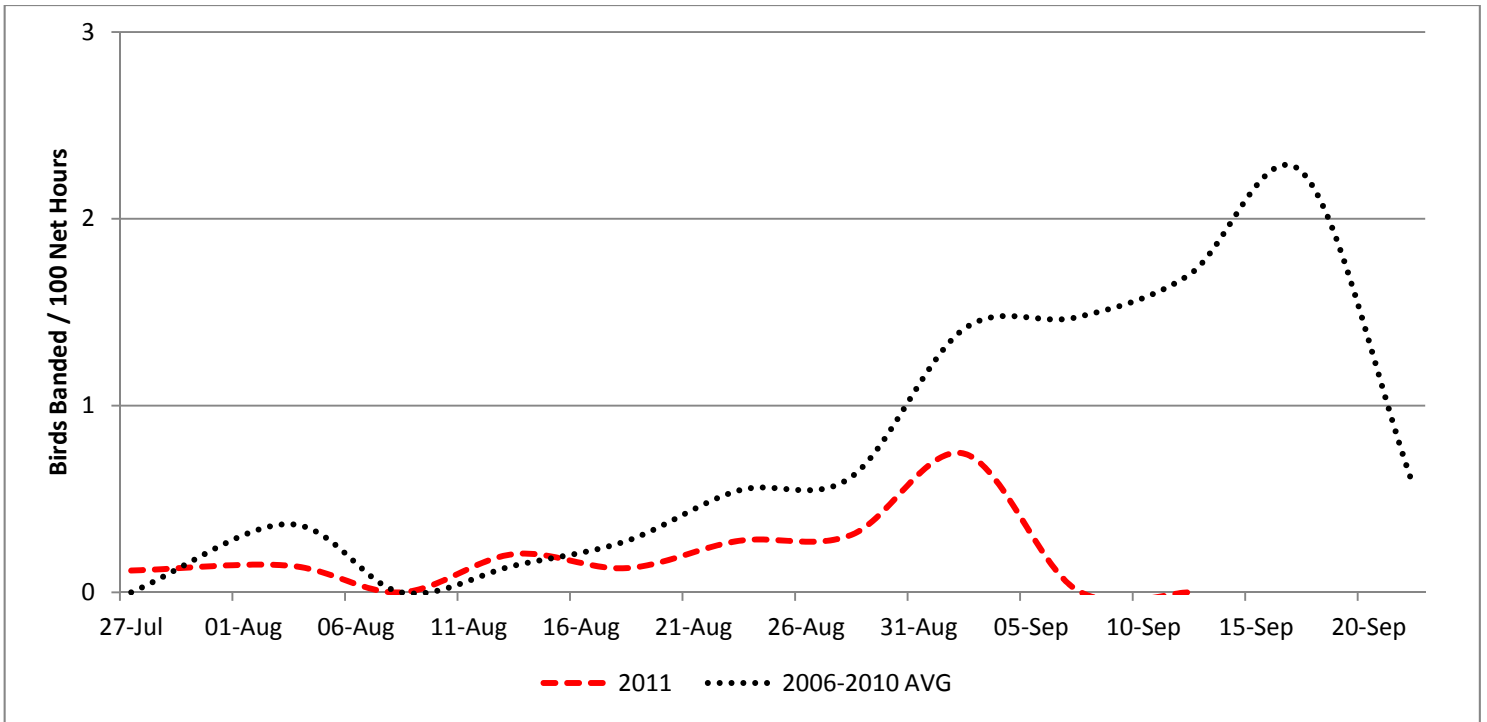


Figure 17. Fox Sparrow fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

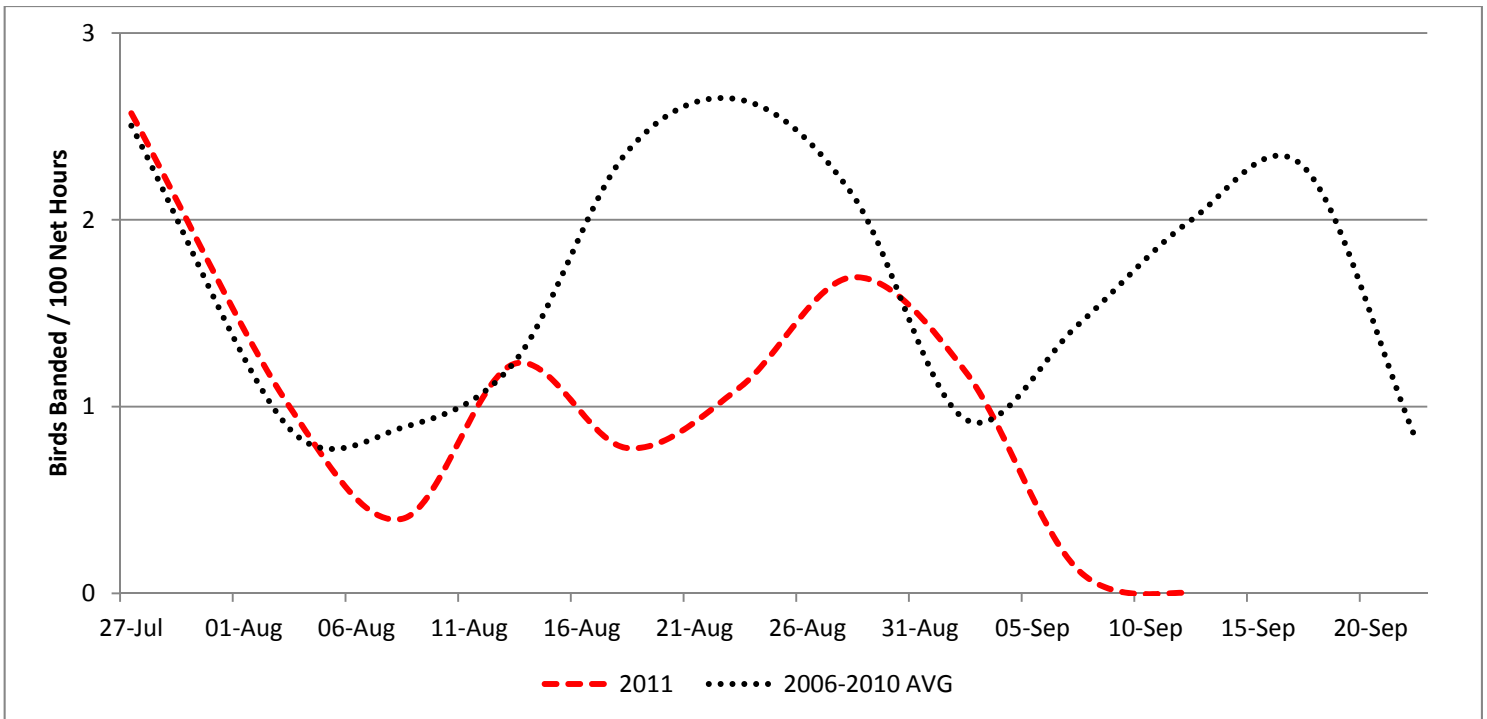


Figure 18. Lincoln's Sparrow fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

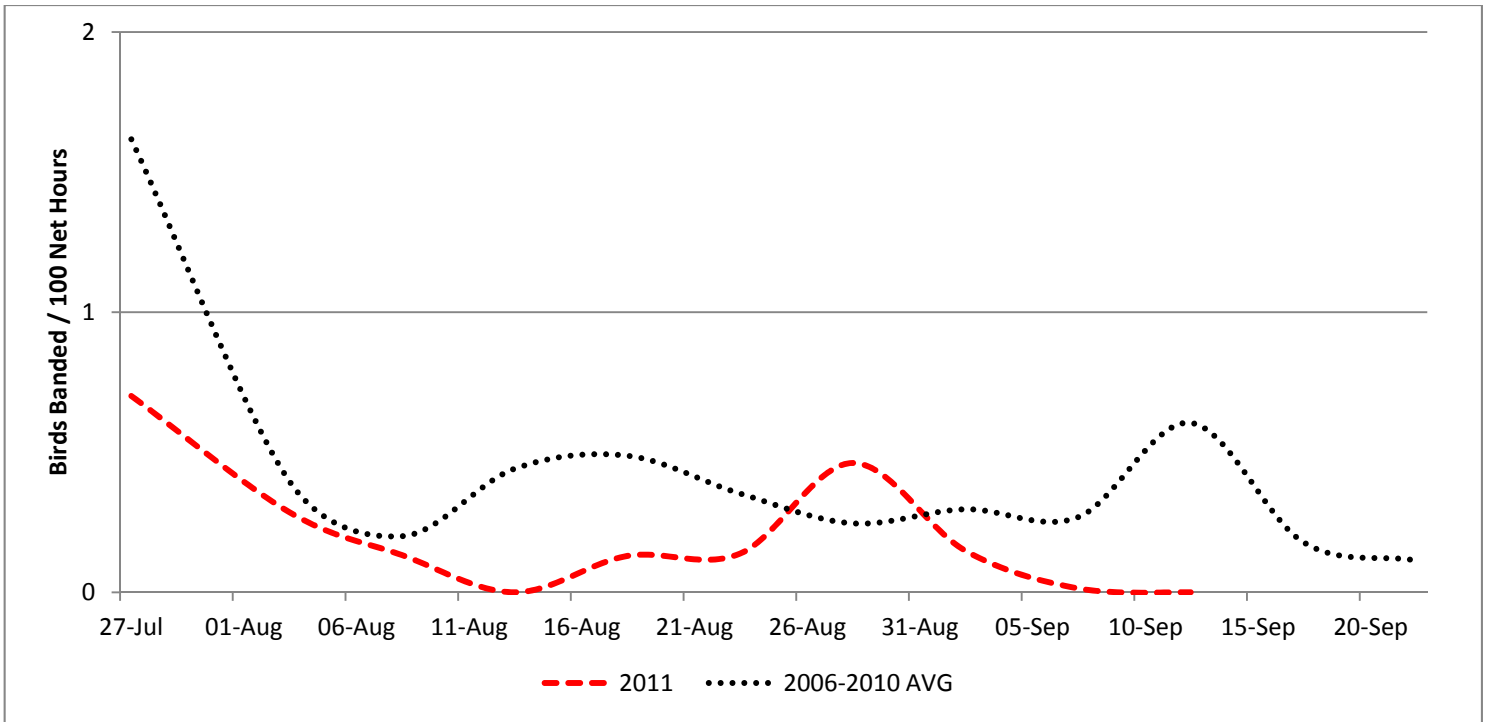


Figure 19. Swamp Sparrow fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

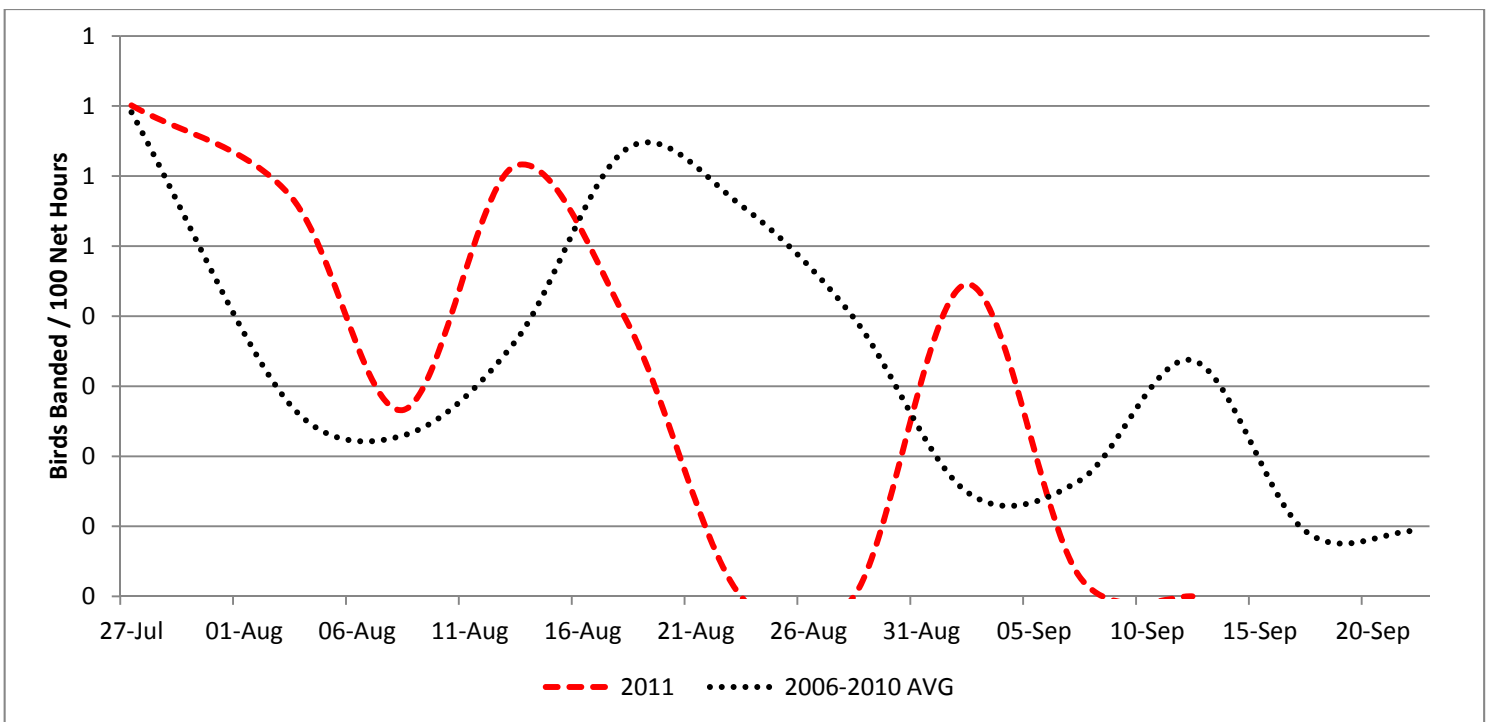


Figure 20. White-throated Sparrow fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.

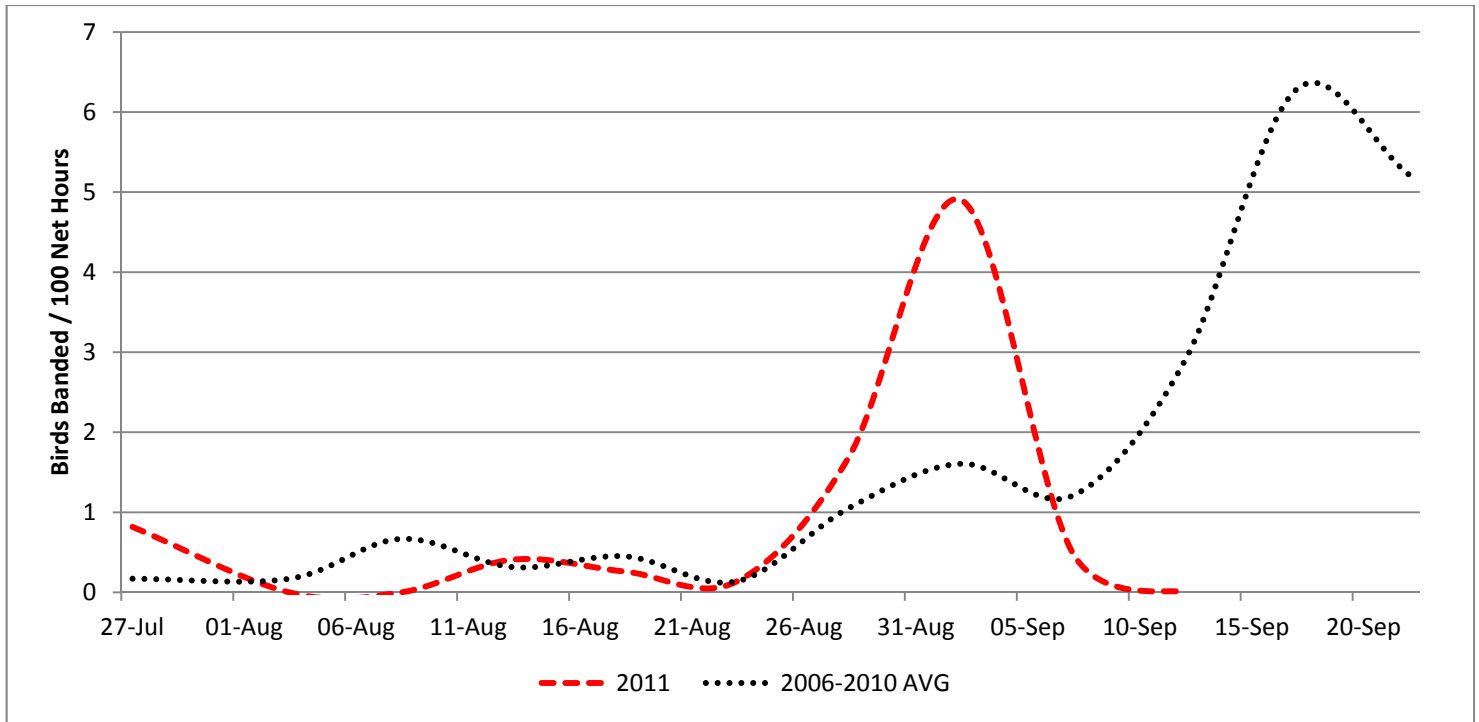


Figure 21. Slate-colored Junco fall migration timing at Albert Creek Bird Observatory from 2006 to 2011.