

# Tatlayoko Lake Bird Observatory

## 2023 Annual Report



*Photo by Thea Mills*



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*On behalf of the Tatlayoko Field Station Society*

*and the Canadian Wildlife Service*

*\*Photos by TLBO Staff unless otherwise stated\**



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## 1. Introduction

The Tatlayoko Lake Bird Observatory (TLBO) conducts annual migration monitoring of birds in the West Chilcotin region of British Columbia during the months of August and September. The project is conducted on the Tatlayoko Lake Ranch property, owned by the Nature Conservancy of Canada who initiated and ran the project from 2006 to 2015. In 2017 BC Spaces for Nature took over operation of the TLBO and ran it until 2019. The 2020 season saw the project jointly overseen by BC Spaces for Nature and a new local organization, the Tatlayoko Field Station Society (TFSS). In 2021 the TFSS took over the project in full and is now the long-term home of the TLBO. With the completion of three successful seasons of running the project there is little doubt that the TLBO is in a secure position moving forward for the foreseeable future. Meanwhile, the TLBO continues to provide a flagship project for the TFSS in their efforts to open a field station and encourage research within the Tatlayoko Valley and region at large.

The TLBO is located at the north end of Tatlayoko Lake with the banding lab and net lanes sitting roughly 700m north of the lakeshore. Standard monitoring is conducted daily and consists of 6.5 hours of observational birds counts, 6 hours of mist-netting and banding along with a 1-hour census. At the end of each session a Daily Estimated Total is tallied for each species recorded that day based on these three count methods. The banding and Daily Estimated Totals will be elaborated on in this report.

The TLBO is a member of the Canadian Migration Monitoring Network (CMMN). Along with the 25+ other member stations, data collected at the TLBO is submitted to the CMMN for long-term population analysis and is made publicly available on the NatureCounts website (<https://naturecounts.ca/nc/default/main.jsp>). All bird banding data is submitted to the US Geological Survey, who issues all bird bands in North America, and the Bird Banding Office at Environment and Climate Change Canada.

## 2. Acknowledgments

In 2023 the TLBO was largely funded by both the Canadian Wildlife Service (CWS) which is a branch of Environment and Climate Change Canada (ECCC) and the British Columbia Gaming Grant. We continue to be very grateful to Wendy Easton and Chloe Boynton of CWS (Delta) for their ongoing support of this project as this year's funding was applied for by their office(s). The Birds Canada Birdathon fundraiser was once again a success thanks to many generous individuals who contributed to our team, "The Wandering Tatlers". Several private and in-kind donations were made to the TLBO, with special thanks to Jörg Fischer and Hannalore Ernst, Charlie and Ruth Travers, John Snively, Marlene Johnston, Jim Sims, Calypso Environmental Services, and Kathleen Millar. Also, a thank you to Fred McMecan, Ivor McMahan and Christine

Nickstadt for their contributions to the TFSS. As ever, we are grateful to Nature Conservancy of Canada for their ongoing support of the project in granting access to the Tatlayoko Lake Ranch property and the use of existing infrastructure and equipment. Also, we would like to acknowledge the Cariboo Regional District for a grant that allowed the TFSS to purchase 10 sets of binoculars for the expansion of our education program.

Charlie Travers who has been a long-time donor and supporter passed away this year and is survived by his wife of 70 years Ruth. Both Ruth and Charlie have been supporters of conservation and avid birders throughout their lives with Ruth contributing invaluable data by way of her sightings throughout the decades that she has lived in the Tatlayoko valley. We would like to extend our most heartfelt condolences to Ruth as well as our deepest appreciation for all that the Travers' have done for both the TLBO and birds in general.

The TFSS and TLBO Program Manager Avery Bartels worked together to implement the 2023 project as has been done since 2021. The local community continues to engage and help with the TLBO in a variety of ways. We are deeply grateful for all of the support from the TFSS personnel, local community members and volunteers in 2023:

### **Local Community**

Avery Bartels, Peter and Roma Shaughnessy, Fritz and Sally Mueller, Sandra McGirr and Sandy Hart, Mike Smialowski, Hana Kamea, Charlie and Ruth Travers, John Kerr and Deborah Stephenson Kerr, Sabina and Troy Harris, Andrew Harcombe, Steve Ogle and Chris Chutter.

### **Volunteers**

Adam and Stephen Ross, Thea Mills, Krista Jager, Dominique Morin, Abbey Mills, Alexis Stowards, Bethany-Lynn Walsh, Marko Pezdirc, Takuma Peters, Jim Sims, Gabe Schepens, Iain Summerby-Murray, Courtney Jones, Mae Frank, Sam Green, and Keith Towers.



### 3. Season Overview

The TLBO's 17<sup>th</sup> season ran from August 3 to September 28, 2023. Two full time staff contributed over 687 hours with volunteers adding a further 302 for a total of over 989 hours towards the daytime migration monitoring program. In 387 hours of observation, over 57 days, a total of 143 species were recorded within the census area, which is six species above the long-term average (137). Twelve standard nets were used for a total of 2861 standard net hours, providing us with 881 birds banded and 165 recaptures. In addition, three large gauge (hawk) nets, three 2-panel nets (the "pipit fence") in the north field, and a songbird net (MXY) added 312.5 non-standard net hours during the morning banding period. Non-standard banding, including the bal-chatri trap, produced a further 17 birds banded.

Over the course of 11 nights of owling we had 225.75 net hours from our standard seven-net owl setup. We used the same setup as in the previous four years with five 60mm owl nets and two of our standard songbird nets (nets 9 and 10). Over this period, we banded 88 Northern Saw-whet Owls which is a new record for our regular season which spans the month of September. The results of our October owl banding program can be found on page 29.

In total, 3173.5 net hours produced 898 birds banded, 881 of which were caught by standard nets during standard hours. This is the second season running where we have seen a stark decrease from the norm as it represents a new single season low, well below the 16-season average of 1534 birds banded (Fig. 1).

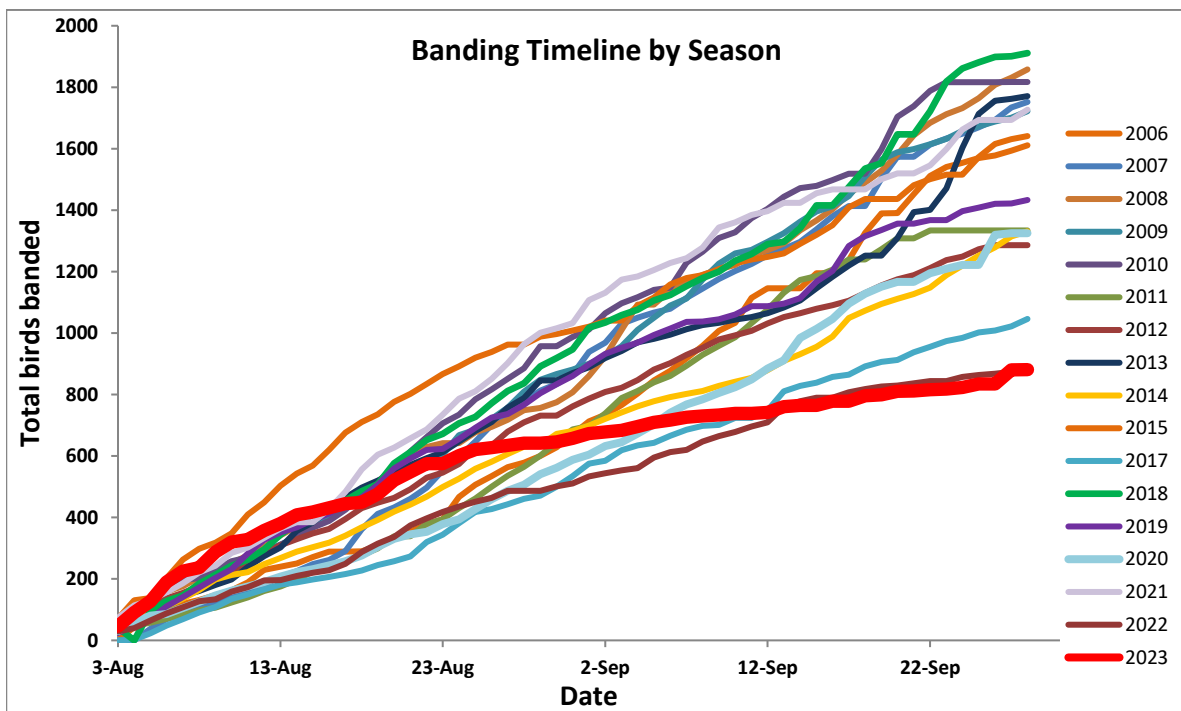


Figure 1 Banding timeline by season

## 4. Vegetation Management and Nets

### 4.1 Vegetation Management

As net locations were originally picked to cover a selection of habitat types some nets pass through regenerating riparian habitat, dominated by willow and alder. To keep habitat conditions standard across years, it is necessary to do some pruning in order to maintain similar vegetation height. This helps ensure the consistency of a net's capture rate from year to year. There are only five nets that regularly receive this treatment: 6, 16, 12, and 17. Upon arrival this year it was apparent that though our pruning efforts at the end of last season were sufficient we would need to be a little heavier handed at the end of the 2023 season.

The vegetation on the west side of Net 6 was given a quick trim to bring the more ambitious shoots back down to net height. A half dozen large trunks along with some of the taller shoots from the alders south of net 16 received some attention in order to bring the vegetation down to match the height of the net. Several hours of topping and thinning was required on both the north and south sides of the 12/17 corridor in order to bring the vegetation back down to near net height. The rest of the nets received little to no pruning beyond a basic trim of any encroaching vegetation from the winter snow which was performed opportunistically at all nets.



Post-pruning view of Net 12 looking East

After the season ended, pruning was conducted at nets 6, 16, and 12/17. Net 6 received a more vigorous pruning with a selection of stems being removed along with the tallest shoots along the northwestern quadrant. The alders on the southwestern quadrant had not been trimmed since 2018 and had overgrown the net so a heavier hand was used as larger trunks were removed and the canopy brought down. At net 16 several large stems with fresh growth lower down were removed between head and breast height along with the remaining suckers that had grown far above net height. The final two nets, 12/17 received a more comprehensive pruning as a selection of older trunks were removed to make room for the new growth that has come up as a result of previous years' pruning. A much more comprehensive thinning and topping was done of the willows that are further north near the banks of the bend in the Homathko as they have received little attention in the past half a decade and were beginning to



overtop the vegetation southwards toward the net lanes. This season we cleared the cottonwood and aspen saplings that have sprouted up along the census route as it turns south to maintain an open meadow as well as cutting a path through a fallen old growth lodgepole pine that crossed the trail just east of the outhouse.

#### 4.2 Net Productivity

Our most productive net, as is often the case, was net 14 despite being used just 46.8% of the time (due mainly to wind exposure). This season it was much more successful than in 2022 which can be attributed to the record numbers of both Chipping (49 of 52 caught in net 14) and Vesper Sparrows (all 14) that we banded this season. In addition, this net captured 28 of the 55 Warbling Vireos along with 11 of the 14 Dusky Flycatchers that we banded this season.

Due to the fact that nets 12 and 17 are physically attached their fates are also similarly intertwined with respect to captures. A lack of pruning in back-to-back seasons (both 2016 and 2017) produced very low capture rates in 2018 which have seen an overall increase in subsequent years. This illustrates the importance of vegetation management in net lanes like these as maintaining healthy vegetation at net height appears to maintain or increase capture rates. Net 17 often enjoys higher capture rates than 12, albeit by a small margin and this season was no different with 17 enjoying the third highest number of birds banded (80) versus 12 which was in the of the middle of the pack at 59. The vegetation both north and south of net 17 is more or less continuous as it borders the fence line whilst 12 has a bend in the Homathko 10-15 metres north which seems to make for less of a foraging corridor for migrating birds.

Since 2018 net 16 has seen a consistent decline in capture rates which no doubt stems from the increased growth of willow stands to the east. Where this net once bisected the border of vegetation and the field this new growth creates a corridor for birds to pass just east of the net. Since 2018 its percent of total catch has decreased annually as follows: 15.4% (2018), 14.3% (2019), 10.7% (2020), 7.2% (2021), 10.3% (2022), and now in 2023 7.6%. A further challenge is that the alder stand south of net 16 has grown beyond our capability to manage barring some aggressive logging.

Table 1 Birds banded per net in 2023

Net	Banded	Birds /Hr	Recaps	% Time used	% Total catch
14	207	1.38	14	46.8%	23.5%
13	83	0.41	21	74.4%	9.4%
6	83	0.41	19	72.9%	9.4%
17	80	0.42	23	71.2%	9.1%
1	68	0.34	18	73.8%	7.7%
16	67	0.34	11	66.4%	7.6%
10	59	0.30	17	75.1%	6.7%
12	59	0.27	7	71.2%	6.7%
15	55	0.24	8	77.6%	6.2%
11	48	0.23	10	75.1%	5.4%
19	39	0.25	10	57.0%	4.4%
9	33	0.16	7	75.1%	3.7%

Nets 15, 9, 11 and 19 were our least productive this season which is most likely due to the high vegetation levels around them. These first three have traditionally enjoyed our lowest percent of the total captures for many seasons now whilst net 19's location was established in 2022 and has some regenerating willows to the west which we hope will go through a growth spurt next spring and provide much needed cover.

Net 10 is usually included in the above paragraph as one of our least productive nets. There are two "thrush windows" at the north and south ends of this net that provide access to the Homathko and these were cleared at the beginning of the season and could account for the increased performance of this net as it ended the season in the middle of the table with 59 birds banded which accounted for 6.7% of the total catch. The most obvious reason for net 10's relative success this season can be attributed to our record high numbers of Swainson's Thrush of which net 10 captured 33 which accounts for 56% of its total captures.

## 5. Staff and Volunteers

The 2023 season saw Sachi Snively continue in the role of Bander-in-charge for the 2<sup>nd</sup> season and his 6<sup>th</sup> overall. Sachiko Schott returned for her second season at the TLBO and more than ably filled the Assistant Bander position with her many years of experience at multiple bird observatories east of the Rocky Mountains. Census was shared between the banders, alternating days to coincide with who was on blog duty that day.

Filling the volunteer roster proved far less challenging than in 2022 which led to very few gaps where no volunteers were present. These included, from August 19<sup>th</sup> – 20<sup>th</sup>, August 29<sup>th</sup> – September 3<sup>rd</sup>, September 6<sup>th</sup> – 7<sup>th</sup>, and finally September 16<sup>th</sup> – 18<sup>th</sup>. A local and friend of the station Jim Sims volunteered on two separate occasions when we found ourselves short-staffed, September 8<sup>th</sup> and 27<sup>th</sup> for owl banding. Over the course of the season the majority of our volunteers were what we would call "short-term", staying for one week or less which is contrary to 2018 and 2019 but similar to the past two seasons.

Two volunteers were long-term with the first being Thea who stayed for three weeks which was the longest duration of any of our volunteers. The second was Gabe who arrived on September 18<sup>th</sup> and departed in early October (two-week stint). Adam, Stephen and Marko stayed for a

Table 2 Birds banded per bander in 2023

Bander	Banded	Recaps	% Processed
Sachi	321	50	35.5%
Sachiko	313	52	34.9%
Thea	145	41	17.8%
Adam	75	15	8.6%
Gabe	20	5	2.4%
Dominique	2	0	0.2%
Abbey	2	0	0.2%
Krista	0	2	0.2%
Bethany	1	0	0.1%
Alexis	1	0	0.1%
Marko	1	0	0.1%



week during the regular season. A timeline of our “regular season” volunteers can be found in Figure 2. Overall, our volunteers contributed 333 hours of effort to our standard program.

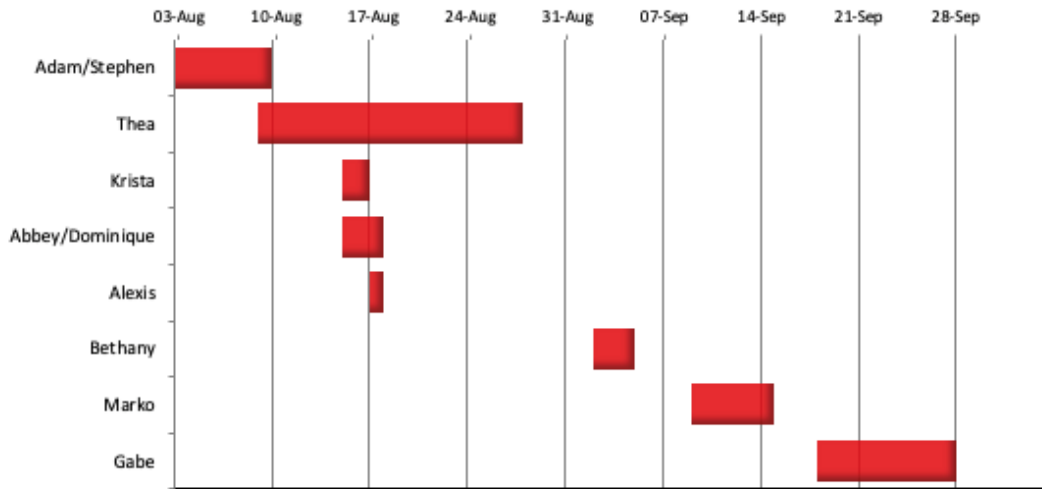


Figure 2 Timeline of our volunteers in 2023

The third season of the October owl banding project required additional volunteers to join Sachi. The end of Gabe’s stay covered October 1<sup>st</sup> with Krista and Iain arriving to cover the 2<sup>nd</sup> and 3<sup>rd</sup>. Jim Sims helped out again on the 4<sup>th</sup> and 5<sup>th</sup> while Mae, Courtney (both returning from last season) along with Sam and Keith volunteered from the 7<sup>th</sup> to the 14<sup>th</sup>. Volunteers contributed a further 54 hours to the TLBO in October.

## 6. Outreach

Bird banding operations provide an excellent setting to engage the public in nature and conservation. The experience of seeing birds up close and learning from knowledgeable staff can have a profound impact on people of all ages but especially the younger generations. With this in mind we try our best to encourage locals, visitors to the valley and school groups to visit the station during our banding season.

### 6.1 Visitors

This year was less well attended than 2022 as we would average a visit about once a week (not including scheduled school groups) with the groups ranging from one to 12 individuals. That said several of our visitors had heard about the TLBO by reading the most recent article that was published in the Williams Lake Tribune, which is encouraging that the publicity is increasing awareness of the station. The regular season owling was less well attended than in

past seasons as we would log nine visitors spread out over three of the 11 nights that we operated up until the end of September.

We were pleased to host both the Tatla Lake and Anahim Lake School groups this season. The Tatla students visited on the 8<sup>th</sup> of September with four adults and 22 students in attendance. We continued to employ the same program as in years past during banding hours as the students were split into two groups and were given a tour of the net loop as well as being able to witness the banding of a



couple rounds worth of birds. This season we developed an additional component to our school visit where the students came back to the Field Station and participated in a short presentation on an overview of migration and what it means for birds followed by a tutorial on the finer points of using binoculars to view birds. The binoculars were purchased by way of a grant from the Cariboo Regional District. The Anahim Lake group came on the 13<sup>th</sup> of September and spent the morning in much the same way as the Tatla group did except for the additional after banding portion. Both days were fairly quiet on the banding front but did have some highlights like a hatch-year Sharp-shinned Hawk on September 8<sup>th</sup> and two Varied Thrush on September 13<sup>th</sup>!

Our standard monitoring and owling accounted for 83 separate visits from 75 individuals. Meanwhile, the October Owl Banding extension accounted for a further 9 visits from 9 individuals over the course of eight nights.

## 6.2 Blog

In 2023 we continued the daily blog posting which began in 2009 ([www.tatlayokobirds.wordpress.com](http://www.tatlayokobirds.wordpress.com)). Each day's post would be comprised of highlights, photos, and educational pieces on various aspects of our migration monitoring program. The banders took turns posting throughout the season and we were grateful for both Adam's and Thea's contribution to the blog by way of a guest post each.

Over the course of 57 posts during the months of August and September we received 2679 views and 860 visits. This was the highest number of views since 2015, and only around 100 visits less than 2018 and 2020. These numbers do not include our 71 followers (up from 53 last year) who receive our blog post directly to their email inbox. As with the past few years, the

highest daily views and visits came after posts onto social media namely, to both Sachiko’s and Sachi’s personal Facebook pages. The most popular post was Thea’s guest post titled “A bird blog... for Toads” which received 263 views from 45 visitors!

While most views were from Canada, we also received views from a further 13 different countries! Over the course of the season the blog received 117 comments and 100 likes which is up from last season’s 47.

Three further posts in October resulted in 325 views, 160 visits, nine likes, and 12 comments for the month.

## 7. Standard Monitoring

### 7.1 Effort and Environmental Conditions

The trend toward increased unpredictability and relative severity of the weather patterns and systems in the valley continued again this season which mirrors the conditions of the previous three albeit even more severe. Much of August and early September were unseasonably warm. August for the most part was rather predictable with the wind patterns following the long-term norm as a light

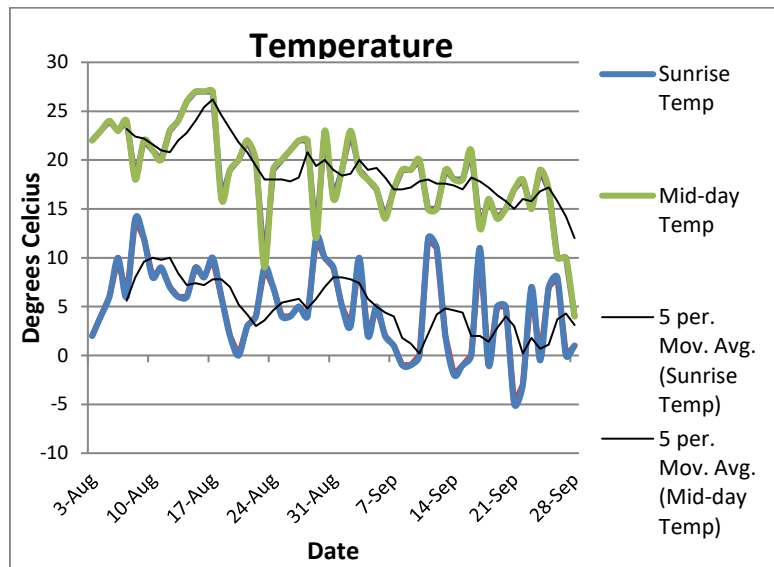


Figure 3 Temperatures over the course of the 2023 season

north wind would greet us at opening before it would switch later in the afternoon once we had closed up with a strong southerly. Overall, August was not overly windy with only a handful of spells of strong unrelenting winds which caused periodic net closures (mainly 14 and 19). As is often the norm, September would prove more volatile as we would lose one more full day to wind on the 17<sup>th</sup>. Rain on the other hand was rather infrequent unlike 2018-2021, but much like the “normal” long-term trends for the valley as we would only experience precipitation on five different days (August 23<sup>rd</sup>, 29<sup>th</sup>, September 3<sup>rd</sup>, 6<sup>th</sup>, and 28<sup>th</sup>). With a big wildlife year provincially and a “Fire of note” in the next valley westward (West Branch), we would experience smoke at some point during the monitoring period on nine days (August 19<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup>, 22<sup>nd</sup>, 25<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup>, September 1<sup>st</sup>, and 2<sup>nd</sup>).

The season started off quite warm with midday temperatures averaging 21 with the hottest spell from the 14<sup>th</sup> – 17<sup>th</sup> (26-27 degrees Celsius) which was the only time that we rose above 24 degrees (Celsius). Midday temperatures in September were on average nearly 5 degrees lower at 16. September also had the undistinguished honour of having the most sub-zero starts since 2009 with eight.

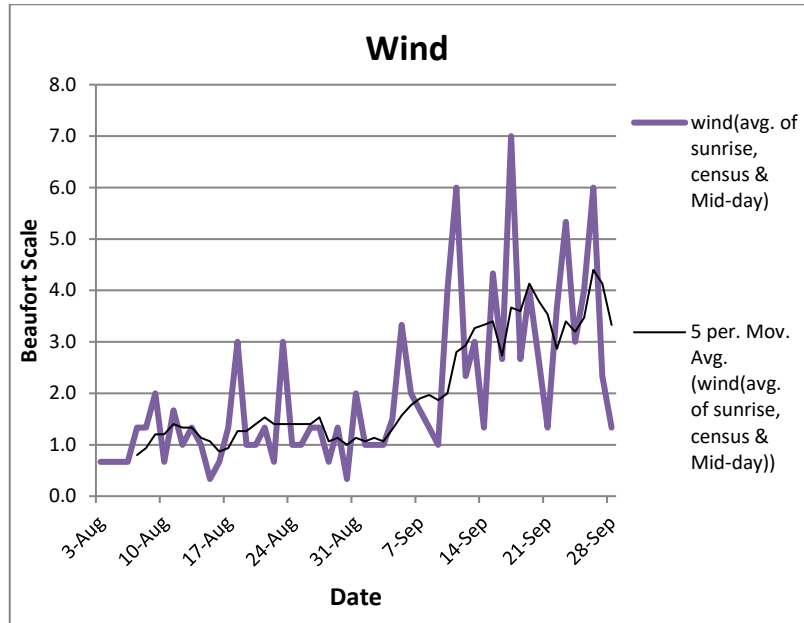


Figure 4 Wind over the course of the 2023 season

These frozen beginnings were spread out over four separate stints namely September 8<sup>th</sup> - 9<sup>th</sup>, 14<sup>th</sup> – 15<sup>th</sup>, 18<sup>th</sup>, and 21<sup>st</sup> – 24<sup>th</sup> (Fig. 3 page 9). The coldest of these came on the 21<sup>st</sup> when the mercury registered -5°C. Additionally, we had three days where the temperature read 0°C at opening (all in September).

The wind is always the most challenging environmental factor that we face when banding birds. It did not prove to be much of a hindrance for the majority of August as our net hours were relatively high at 83% of the total. The 23<sup>rd</sup> was the only day in August where we were unable to open any nets due to a strong southerly that wouldn't abate. As in 2022, September would prove much more challenging as we would only achieve full (72) net hours on three occasions and nearly so (>69) on two others. Over the past three seasons it has become more common for the north wind to pick up mid to late morning which results in net closures. To tie this together, in September we only achieved 56% of the total possible net hours (down 10% from 2022) much of which was due to wind except for the eight cold mornings where we lost several hours of the morning's effort due to sub-zero temperatures (Fig. 4).

In total, we had three days with no banding (Aug. 23<sup>rd</sup>, 29<sup>th</sup>, and Sept. 17<sup>th</sup>) and a further four with less than 10 net hours due to weather (Sept. 15<sup>th</sup>, 23<sup>rd</sup>, 26<sup>th</sup>, and 28<sup>th</sup>). This is at the average for full days lost due to weather as we typically average 2-3 total days without banding per season. Where the story gets interesting is that in 2021 there were nine days, and 2022 20 days, where 12 or more net hours were lost. Meanwhile, in 2023 this total was 26. The slow incremental loss of net hours throughout the season due either to wind or cold starts all culminated, for the second year running, in the lowest season total for net hours with 2861 versus the 16-season average of 3471 hours (Fig. 5, page 12).

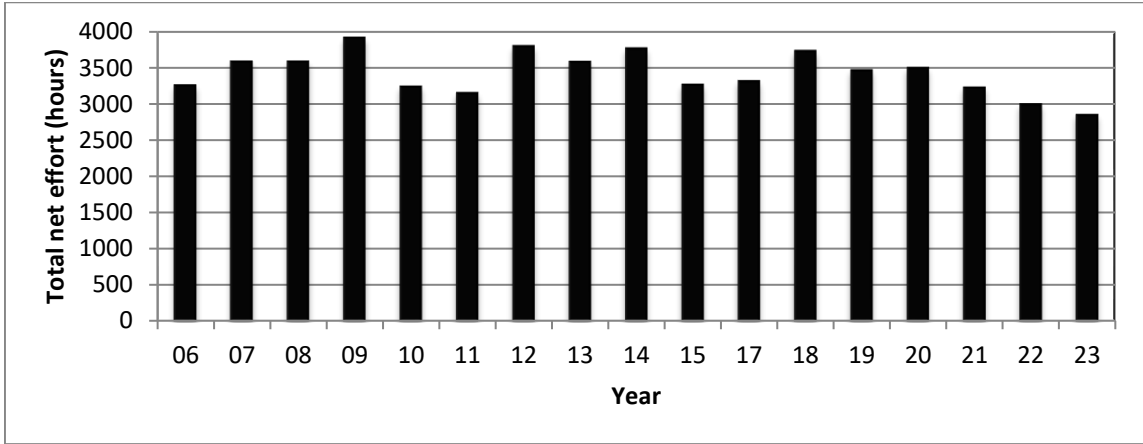


Figure 5 Net hours per year

## 7.2 Banding Results

A total of 881 birds were banded as part of our standard program in 2023, which is not much of a departure from 2022 (885) but a marked decrease from our long-term average of 1534 birds banded per season (Fig. 6) The 881 birds were comprised of 53 species, which is exactly equal to the 16-year average. With these low numbers, one non-standard songbird net was used along with our three hawk nets and “Pipit Fence” from which we banded 17 birds by non-standard means during the regular season. These included three species (Least Flycatcher, European Starling and Northern Harrier) not banded by standard means.

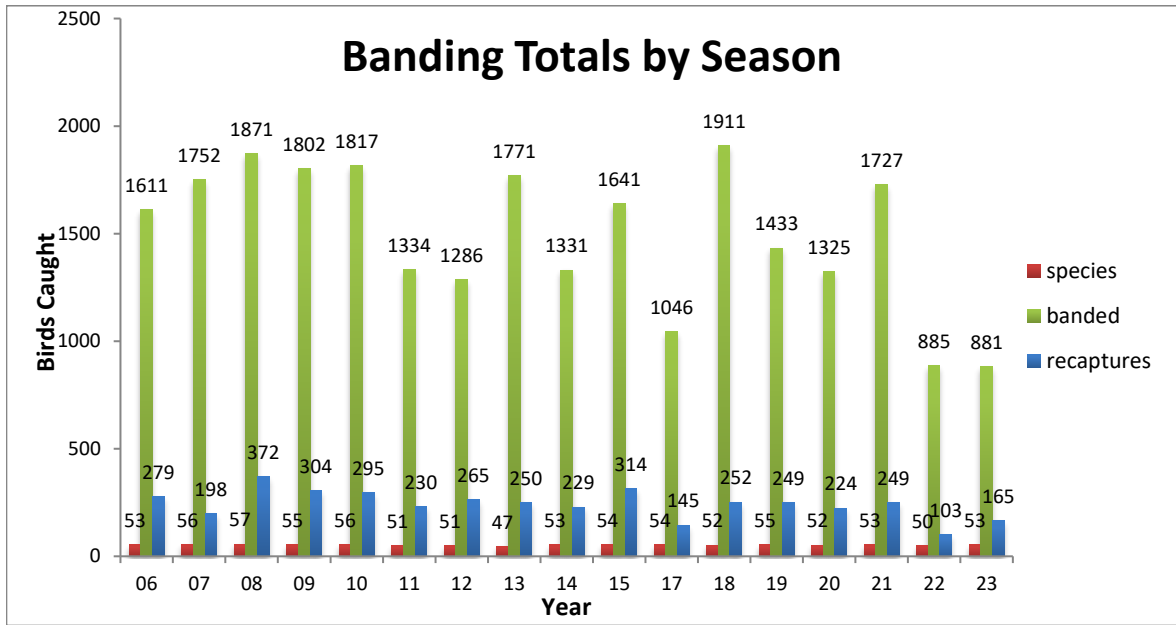


Figure 6 Banding and recapture totals by season

The season got off to a far above average start with 46 and 45 birds banded respectively on the first two days (Fig. 7). With such a strong beginning, banding totals were the second highest overall behind only 2015 for the first two weeks of the season (daily average of 31). Midway through August the tables turned and our banding totals began to drop as we would only crest 20 birds banded on six of 14 days with the 20<sup>th</sup> being our busiest in the second half of August with 45 banded. Our daily average for the second half of August was half that of the first two weeks of the month with 15 birds banded per day. This can be typical of the latter half of August albeit we don't tend to band less than 10 birds in a day while in 2023 there were seven days where we didn't make double digits. By month's end we had gone from the second highest season on record to the fourth lowest on record with 657 birds banded which is below our 16-season average of 793 by the end of August.

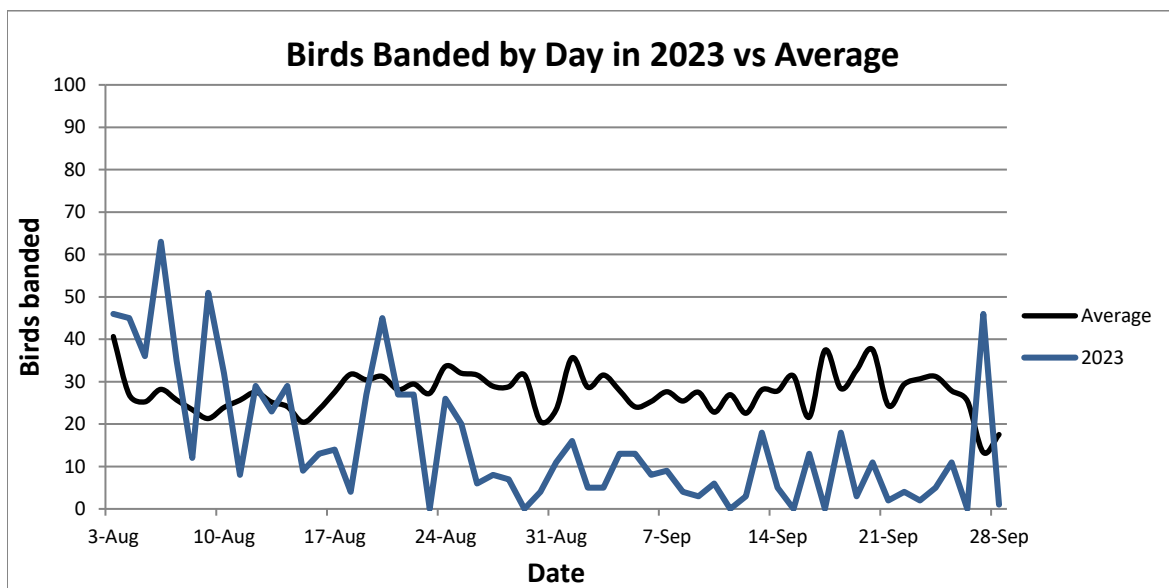


Figure 8 Birds banded per day in 2023 vs average

After such a slow second half of August we maintained hope that September would be a welcome improvement. Sadly, September would prove to be even slower than 2022 (374 banded) as we would go on to band a total of 224 birds over the course of the month. We would only band over 20 birds in a day once throughout September, which came on the 27<sup>th</sup> when we banded 46 birds. Otherwise, we would average 8 birds banded per day with only nine days where we broke the double-digit barrier.

Our busiest day of the season was on August 6<sup>th</sup> with 63 birds banded followed by the 9<sup>th</sup> with 51! Our busiest period of the season typically falls between September 18<sup>th</sup> – 25<sup>th</sup> which coincided with the majority of our frigid starts (18<sup>th</sup>, 21<sup>st</sup>, 22<sup>nd</sup>, and 24<sup>th</sup>). Overall, the trend this season was that of a big start with lots of captures during the first two weeks of August which is likely due to a high reproductive year locally to a stark decline throughout the subsequent six



weeks of the season. It is challenging to say whether this drop in banding totals is due to the poor breeding success of our migrants that come from further afield which could be attributed to the extreme drought this year or because our net hours were vastly reduced in September, or both. Needless to say, this is the lowest September total on record and nearly 550 lower than our long-term average for that month.

As has become the trend since 2018 we banded large numbers of Swainson's Thrush daily through most of August which slowed to a trickle in September as we would band a record breaking 255 which is two higher than the previous single season record for this species which was set in 2018 (253). There isn't an obvious answer to why this species was banded in such record numbers as the local berry crop was rather poor this year. Of the other three thrush species that we band, American Robin of which we banded 22 were nearly double their long-term average of 12 whilst Varied Thrush, a species that we don't tend to band many of, tied the record set in 2017 with five banded. Two sparrow species had record high banding numbers in 2023 namely, Chipping Sparrow with 52 banded and Vesper Sparrow with 14. Surprisingly Chipping Sparrows are not banded at the TLBO with anything resembling frequency (average of four per season) as the flocks tend to be more localized along the road or the old airstrip. This season however a large Chipping Sparrow flock spent the first two weeks foraging in the wild roses immediately north of net 14 as is evidenced by the fact that 49 of the 52 banded were from net 14. Vesper Sparrows were similarly present as we would band a new record of 14 which is well above our average of four. Similar to 2022 both American Redstart and Yellow Warbler banding totals were in decline this season. American Redstart recorded their second lowest of all time with 29 (37 in 2022) which is 55% of average and Yellow Warblers set a new record low with 23 (49 in 2022) which is just 31% of average. Even our most stable warbler species, Northern Waterthrush, was below average with 39 banded (87% of average) down from a strong season in 2022 (54). Over the past 16 seasons banding numbers for this species have stayed quite constant in comparison to the other members of the Warbler group save for their two lowest seasons, 2014 (22 banded) and 2017 (18 banded). Orange-crowned Warbler (15 banded), Wilson's Warbler (19 banded), and MacGillivray's Warbler (8 banded) all had record low totals in 2023, following the same vein as in 2022. Song Sparrow (second highest species banded this season), which in the past



Yellow Warblers were sparse in our nets in 2023

have found our nets with some regularity, narrowly beat out 2022 (57) with 62 birds banded (43% of average) for our second lowest total on record. In a broader context this is only the fourth time in 17 seasons that we have banded under 100 individuals of this species behind 2013 (98), 2007 (67), and 2022 (57). After a record setting season for Warbling Vireos in 2021, we only banded 55 (second lowest total) and only 38% of our long-term average of 145.

With the shift of the season in late August we often see a shift in species composition as early migrants (American Redstart and Northern Waterthrush) have peaked and Common Yellowthroats and Lincoln’s Sparrows traditionally begin to make up the lion’s share of our banding totals. For the third year running (2021-present) we logged low numbers for both species. At just 39 banded, Common Yellowthroats were up from last season but still only 34% of their annual average of 114. Meanwhile, for Lincoln’s Sparrow the 31 banded was the lowest total of all time, shattering 2022’s previous record low of 64. Much like 2022 the low numbers of these three species (Song Sparrow, Common Yellowthroat and Lincoln’s Sparrow) played a large role in the stark deficit in our September banding totals. Our hopes for the late migrant species Ruby-crowned Kinglet to pick up the slack in our banding totals were dashed again this season as we would band our third lowest total with 40 which is 34% of the average and behind only 2017 (22), and 2022 (30). While nearly record numbers of Yellow-rumped Warblers were observed migrating through the valley, few found their way into our nets with a total of 28 banded which is down from last season’s 42.

In addition, Flycatchers as a group were below average. In total we banded 27, which is up from last year (13) but still half of the annual average of 50 for this family as a whole. The only member of this group that was above average was Dusky Flycatcher with 14 (127% of average). This is probably due to the presence of two or more nests near to our netting area where we likely captured every member of each family group. For Willow (4 banded), Alder (3 banded), and Hammond’s (3 banded) 2023 was a slight improvement over last season. Pacific-slope (1

**Table 3 The 15 most banded species in 2023**

Species	2023	Average banded 06-22	% Of Average
Swainson's Thrush	255	147	173%
Song Sparrow	62	145	43%
Warbling Vireo	55	146	38%
Chipping Sparrow	52	4	1300%
Ruby-crowned Kinglet	40	118	34%
Northern Waterthrush	39	45	87%
Common Yellowthroat	39	114	34%
Lincoln's Sparrow	31	178	17%
American Redstart	29	53	55%
Savannah Sparrow	24	27	89%
Yellow Warbler	23	75	31%
American Robin	22	12	183%
Gambel's WC Sparrow	21	35	60%
Wilson's Warbler	19	54	35%
Cedar Waxwing	15	17	88%

banded) and Traill's (1 banded) were low while we did not capture a Least Flycatcher by standard means this season.

A full list of banding totals for the 2023 season can be found in Appendix A (page 41).

### **7.3 Recaptures**

In 2023 we had 165 standard recaptures of 107 unique individuals comprised of 17 species. Although below average our recapture rate is 10% higher than that of our banding total at 67% of our average of 247 recaptures per season.

Swainson's Thrush also dominated the season's recapture chart with 72 (double that of 2022) in total which accounts for 44% of all birds recaptured with Song Sparrow at 22 (13% of the total) which traditionally is one of our most highly recaptured species. Northern Waterthrush again was our third most recaptured species at 20 followed closely by Black-capped Chickadee with 13 whilst American Robin (6) just edged out American Redstart (5), Dusky Flycatcher (5), and Lincoln's Sparrow (5) for fifth place. These low recapture ratios are a good indicator of just how much turnover there can be in a single count area. Species like Swainson's Thrush that will often stop over and refuel on dogwood berries tend to be recaptured, at most, only once per individual and generally after a week of foraging. However, this season we recaptured five different Swainson's Thrush more than once (one five times, another four times and three more individuals at three recaptures apiece), whilst the high number of Song Sparrow (two individuals with four and three) and Northern Waterthrush (two individuals with seven and six) recaptures are due to the same individuals being caught time and time again.

Every year we have a number of inter-annual recaptures, and this season was no different with 30 (Table 4, page 17) which is almost triple that of 2022 (11). Of these, the oldest was a Swainson's Thrush that was originally banded as an after-hatch-year in 2017 making it at least 8 years old! Two species tied for the next oldest namely, two Swainson's Thrush and a Black-capped Chickadee all banded as after-hatch-years in 2018 (minimum of 7 years old). Next, we recaptured three individuals of three species, Song Sparrow, Swainson's Thrush and Yellow Warbler who were all banded as after-hatch-years in 2019 (minimum 6 years old). Two other notables were a Swainson's Thrush who had been sampled as part of the moult migration project (blood and nail samples) and a MacGillivray's Warbler (our only one of the season) both of which were banded as after-hatch-years in 2020 (minimum age of 5). For the rest of the recaptures see Table 4 on the next page.

Much like 2022 we currently have had no recoveries of our birds elsewhere from the preceding year nor have we had any foreign recaptures at the date of writing this report.

Table 4 Inter-annual recaptures in 2023 (numbers in bold mean known and or exact age)

Band	Species	Sex	Age at Banding	Original Banding Date	Recapture Date	Days Since Banded	Minimum Age
2661-83114	Swainson's Thrush	U	AHY	2017-09-06	2023-08-14	2168	8+
2810-40431	Black-capped Chickadee	U	AHY	2018-08-18	2023-09-18	1857	7+
2691-76101	Swainson's Thrush	U	AHY	2018-08-26	2023-08-22	1822	7+
2691-76394	Swainson's Thrush	U	ASY	2019-08-03	2023-09-08	1497	7+
2691-76393	Song Sparrow	F	AHY	2019-08-03	2023-08-13	1471	6+
2920-62001	Yellow Warbler	M	AHY	2019-08-26	2023-09-04	1470	6+
2951-23629	Swainson's Thrush	U	AHY	2019-08-25	2023-08-22	1458	6+
2781-50937	MacGillivray's Warbler	M	AHY	2020-08-26	2023-09-01	1101	5+
2951-24009	Swainson's Thrush	U	AHY	2020-08-25	2023-08-22	1092	5+
2960-11523	Yellow Warbler	F	AHY	2021-08-18	2023-08-14	726	4+
2981-21186	Swainson's Thrush	F	AHY	2021-08-12	2023-08-04	722	4+
3041-01018	Swainson's Thrush	U	AHY	2021-09-03	2023-08-21	717	4+
3041-01226	Song Sparrow	U	ASY	2022-08-05	2023-08-26	386	4+
2960-52130	Warbling Vireo	U	ASY	2022-08-09	2023-08-04	360	4+
0942-92380	American Robin	M	ASY	2022-08-18	2023-08-03	350	4+
2960-52238	Black-capped Chickadee	U	AHY	2022-09-02	2023-09-24	387	3+
3041-01248	Swainson's Thrush	U	AHY	2022-08-08	2023-08-14	371	3+
3041-01232	Song Sparrow	F	AHY	2022-08-06	2023-08-03	362	3+
3041-01271	Swainson's Thrush	U	AHY	2022-08-12	2023-08-05	358	3+
3041-20103	Swainson's Thrush	U	AHY	2022-09-01	2023-08-25	358	3+
3041-01274	Song Sparrow	F	AHY	2022-08-14	2023-08-03	354	3+
2960-52168	Yellow Warbler	M	AHY	2022-08-19	2023-08-03	349	3+
2981-21250	Swainson's Thrush	U	HY	2021-08-20	2023-08-14	724	<b>3</b>
2960-52115	Yellow Warbler	F	SY	2022-08-05	2023-08-05	365	<b>3</b>
2960-52113	Dusky Flycatcher	U	SY	2022-08-05	2023-08-03	363	<b>3</b>
2960-52259	Black-capped Chickadee	U	HY	2022-09-05	2023-09-18	378	<b>2</b>
3041-20082	Swainson's Thrush	U	HY	2022-08-30	2023-08-31	366	<b>2</b>
2960-52271	Black-capped Chickadee	U	HY	2022-09-10	2023-09-05	360	<b>2</b>
2960-52293	Black-capped Chickadee	U	HY	2022-09-13	2023-09-05	357	<b>2</b>
3041-20088	Song Sparrow	F	HY	2022-08-31	2023-08-06	340	<b>2</b>

Our regular season (September) Northern Saw-whet Owl program had four recaptures. All of these were same season recaptures that were first banded by us in 2023. The first was banded on September 20<sup>th</sup> and recaptured the following evening. On September 27<sup>th</sup> we

recaptured two owls which we had first banded on the 20<sup>th</sup> a week earlier. Our final recapture of the regular season was also of a bird that we first banded on the 20<sup>th</sup> and recaptured on the 30<sup>th</sup>. All of these recaptures were hatch-year birds one of which was still undergoing its “pre-formative” moult (had remnants of juvenal plumage) which suggests that perhaps they were all hatched locally and due to the abundance of food (rodents) were not in a hurry to move on.



A Swainson's Thrush that is minimum 8 years old

Our Northern Saw-whet Owl extension program had one recapture which brings our grand total to 10, an inter-annual in both 2014 and 2022 and same-seasons in 2019 (1), 2022 (2), September 2023 (4). All five of the recaptures this year were first banded by us in 2023. Our only recapture in October was on October 4<sup>th</sup> of a hatch-year whom we had first banded on September 14<sup>th</sup>. Much like last season on the day of the submission of this report we have not yet had a recapture of any of our owls by another station.

#### 7.4 Estimated Totals and Diversity

The 2023 season saw a rise in species diversity over 2022 as we recorded 143 species in the census area, which is six above the long-term average of 137 (Fig. 8, page 19) and tied for the second highest total with 2021. As in the previous three years, we added a modest count (three) of new species to the TLBO list; Trumpeter Swan, Pygmy Nuthatch, and Black-billed Magpie. These new additions are elaborated upon in Table 10 (page 39) in the “Highlights” section of this report. The TLBO species list now sits at 211 species detected during diurnal monitoring +1 (a Long-eared Owl seen in 2018 during owl banding). Over the course of the season 27 992 detections were made, 26% higher than the 2006-2022 average of 20 774. This represents the second highest total detections in a single season though a disclaimer should be added on two fronts. These are that pre-2018 the coverage of the census area in terms of making observations was less than the past six seasons and that counts of the more abundant species were almost certainly more conservative. A full list of detections for each species can be

found in Appendix B (page 42). A list of the commonest species recorded at the TLBO and their numbers in 2023 vs average can be found in Table 5, page 24.

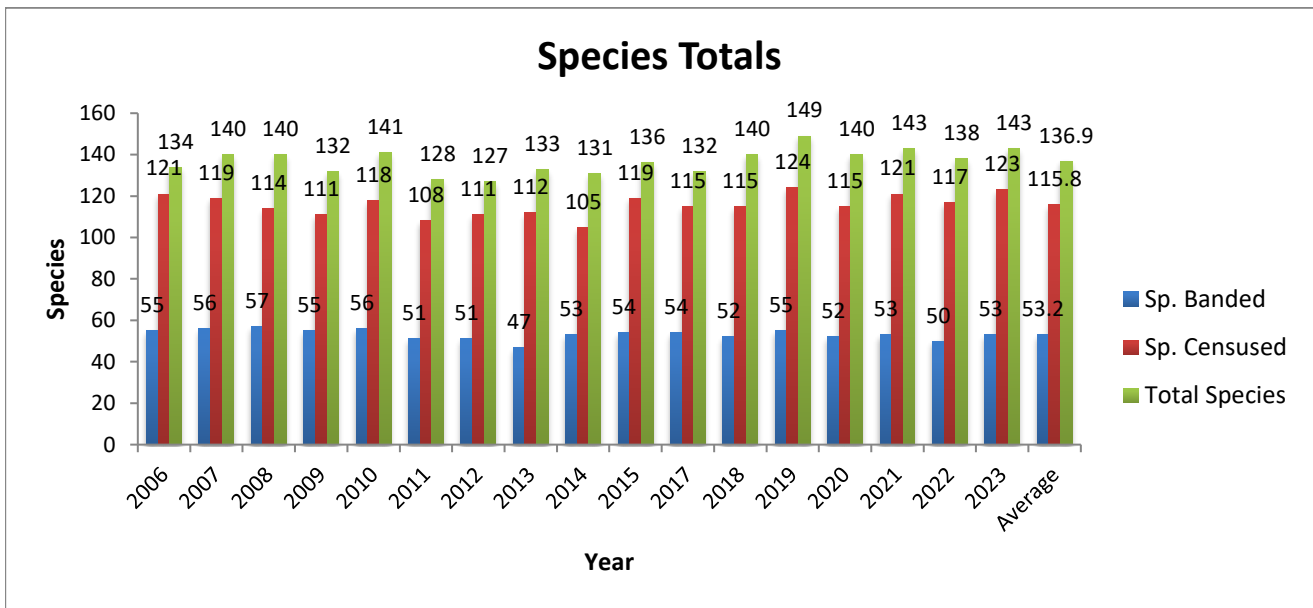


Figure 10 Species detected through banding, census and total

On the waterfowl front, numbers were both up from the mean and from the past four seasons with detections being 110% of the 2006-2022 average. This is an increase on last season which was 92% whilst the three previous seasons saw overall waterfowl numbers at 88% (2021) and 82% (2019 and 2020) of the average. One species that has a strong influence on the waterfowl numbers are Canada Geese. The bulk of many seasons’ totals of this species tends to principally be made up of a single flock that is detected on a daily basis for much of the early part of August. This year we detected this species every day until the 24<sup>th</sup> of August and then not again until mid-September when detections were sporadic. With 478 detections (131% of average) this is the highest season total since 2017. Similarly, American Wigeon (251 detections), and Bufflehead (10 detections) were both above average. Mallard, our most common waterfowl at 367 detections, were 75% of the mean, down from 105% last season while American Green-winged Teal (90% of average) was only marginally below its long-term average. Meanwhile, Ring-necked Duck at 41 detections, Northern Shoveler with 15, Common Merganser



American Wigeon were well above average in 2023



(10), Northern Pintail (7), Blue-winged Teal (4), Hooded Merganser (4) and Common Goldeneye (2), were each significantly below average. All three species of grebe that we detected this season were well above average with both Pied-billed Grebe at 49 detections (283% of average) and Horned Grebe at 10 (327% of average) marking new records. Red-necked Grebe with 11 detections was only marginally below average at 81%. Both Common Loon (117% of average) and Great Blue Heron (188% of average) detections were well above the long-term mean with the latter the second highest of all time behind 2018.

Overall, it was an above average year for raptors as a group as we ended the season with 490 total detections, which is up from last season's 393 and well above the 16-season average of 349. The regular species to have below average numbers were Osprey (39 detections, 76% of average), Northern Harrier (37 detections, 89% of average), and Merlin (34 detections, 86% of average). This is the third consecutive season where we have had low detections of Northern Harriers albeit an improvement over 2022's 27 detections, with the lowest totals for Osprey since 2018 (28), and Merlin since 2011 (22). This season saw a record number of Turkey Vulture detections with 20 (previous high of 9 in 2020) and the first time that more than two individuals were seen together on August 25<sup>th</sup> and September 18<sup>th</sup> (three birds soaring together) as well as the new record of four birds soaring together on September 20<sup>th</sup>. Since their first arrival in the valley in 2014 it is fair to say that they have officially colonized the West Chilcotin. Bald Eagle (58 detections), Coopers Hawk (23 detections), Northern Goshawk (5 detections), and Red-tailed Hawk (17 detections) were all well above average with the first more than doubling its annual average. For the third season running American Kestrel was our most detected raptor with 166 detections (92% above average) and Sharp-shinned Hawk with 84 detections (22% above average). Peregrine Falcon, though a local breeder, is a somewhat rare sighting in our study area and with four detections ties 2006 for the second highest of all time behind 2015 (7).

Shorebird numbers are never high at the TLBO; however, this year was an exception as the final tally came in at 154% of our long-term average for this group. There are three species that are detected with any sort of regularity namely, Killdeer, Spotted Sandpiper and Wilson's Snipe. The former had its highest detection rate of all time at 26 (328% above average) whilst Spotted Sandpiper was above average with 65 detections (112% of average) and Wilson's Snipe with 24 detections (278% of average) tied 2011 for its highest total of all time. This would



Peregrine Falcons had their highest detection rate since 2015

indicate that at least a breeding pair from all three of these species had successfully raised young locally, on or near the property.

Gulls are another group that we tend to infrequently encounter at the TLBO. Based on our past 16-seasons of monitoring Herring Gull tend to typically account for over 2/3 of our gull detections and after two low seasons in a row (2021 and 2022) they were back on course with 133 detections (359% of average) which is our second-best season on record behind 2015 (315 detections)! Of the other three Gull species that we encountered; Ring-billed Gull also had a great season with 42 detections (483% of average) which is also our second highest total behind 2015 (68 detections). After having a record season in 2022 (10 detections) Bonaparte's Gull were nearly absent which isn't unusual as we only had a single day where we detected a flock of three flying south (126% of average).

California Gulls are not detected with much frequency and this season was no different as we would record two (39% of average). Since 2015 we've had regular Sandhill Crane sightings in our census area as at least one pair has seemingly spent the summer in the vicinity. This year we recorded our second highest number of detections with 36 (284% above the average) which is down from last season's record of 65. As is often the case with this species there are numerous instances (not recorded in our data),



Ring-billed Gulls were delightfully numerous in 2023

sometimes daily, when we heard them calling from well outside our census area. Back-to-back seasons with high detection rates are very encouraging as it would suggest that one or more local pairs bred successfully! On September 29<sup>th</sup> while doing vegetation management we saw our biggest flock ever in the valley which was comprised of 14 individuals, presumably migrants, huddled together in the north field as well as a further three flying south.

Rufous Hummingbird detections, at nine, were more than half of the average of 22 while Belted Kingfisher, at 84, was almost exactly the average (82). Of our regularly occurring woodpecker species Northern Flicker (66% of average), Hairy Woodpecker (88% of average) and Red-naped Sapsucker (97% of average) were all below their respective averages. After a lower season in 2022 Downy Woodpecker was up with 81 detections (112% of average) whilst Pileated Woodpecker detection numbers were nearly identical to the past two seasons with 93 (92 in 2021 and 94 in 2022) which is far above the average of 56. It is likely that almost all of these detections of North America's largest woodpecker species pertain to the same few individuals that are resident in the area.

Aerial insectivores, including Swifts, Flycatchers and Swallows often see similar trends as a group in a given year and while 2020 was a bumper year for all, this season, much like 2021 and 2022, was a little more varied. Flycatchers were down overall with only a single species, Dusky Flycatcher, being detected in above average numbers (149 detections, 198% of average) which is the second highest total behind 2020 with 232 detections. The majority of our detections of this species come from one to two pairs that breed in and around our net lanes. The rest were all below average with Olive-sided Flycatcher (14 detections, 86% of average), Hammond's Flycatcher (15 detections, 83% of average), Western Wood-pewee (15 detections, 74% of average), Pacific-slope Flycatcher (1 detection, 24% of average), and Least Flycatcher (2 detections, 17% of average). Much the same as last season, members of the "Traill's" Flycatcher complex were all below average with just 4 detections of Willow (average of 11), 29 of Alder (average of 58) and six "Traill's" (average of 12).



Alder Flycatchers were again below average in 2023

After strong consecutive seasons (2020-2022), swallow numbers were way down this year. The 88 detections were 49% of our 16-season average which is a stark drop from last season's 378 detections. The only species of this group that registered above average numbers was Cliff Swallows with three detections. Violet-green (62 detections, 71% of average), Tree (4 detections, 30% of average), Northern Rough-winged (8 detections, 28% of average) and Barn Swallows (11 detections, 25% of average) were all very sparse in 2023. We have continued to note a marked decline in Barn Swallow numbers, which first began in 2017 since which time the average has been just 17 detections while up until 2015 the average was 60. This season marked the first since 2014 where we did not have a single detection of a Black Swift which is a surprise and a bit alarming considering 2022 set the new record for detections with 131. An eBird search for sightings of this secretive and often aloof species shows no detections in 2023 within a 100-kilometre radius of our census area.

For the second year running Warbling Vireo detections were down with nearly 150 less than the past season at 333 (57% of the average). Most seasons this species forms a mixed flock which roves along the Homathko in numbers with some finding their way into our nets.

However, this season that never really occurred as they peaked early albeit in low numbers with only three days where we observed 20 or more, August 6<sup>th</sup> (24), 9<sup>th</sup> (20), and 10<sup>th</sup> (24). Both Cassin's and Red-eyed Vireos fared far better with 51 (242% of average) and 81 (124% of average) detections respectively. The common corvids all finished above their respective averages with American Crows enjoying their highest season total at 3292 detections which is 275% of the average. This is over 1000 more than the previous best set in 2012 (2174) and can be attributed to flock of 150 that arrived on the 5<sup>th</sup> of September and swelled to nearly 400 individuals over the course of 10 days.



Clark's Nutcrackers were again above average with 349 detections

For the eighth successive season American Pipit numbers were high. The 1388 detections (160% above average) were up from the previous four seasons and is now our new high count surpassing the previous record set in 2018 (1306 detections). Meanwhile, another high elevation breeder that prefers open habitats, the Horned Lark, at 48 detections was well below our average of 80 but more in step with 2019, 2020, and 2022's detection rates.

As in the past three seasons, our two resident Chickadee species had opposing numbers. Black-capped Chickadee numbers were the highest since 2019 (598) with 530 detections which is 94% of the average. Meanwhile, Mountain Chickadees had their second-best season on record with 313 observations being 233% of the average, behind only last season's record of 432. For the latter, increased coverage of the conifer's northeast of the banding lab since 2017 has seen a marked rise in detections of this species. That being said, as in 2022 this species was also regularly seen around the banding lab, the pine flats along the census route and in the conifers along the road, opposite the south end of the airstrip. Red-breasted Nuthatches had their lowest total since 2017, at 170 detections.

Ruby-crowned Kinglets are prone to large fluctuations in numbers from year-to-year but this was an only slightly above average season with 922 detections (up from last year's 866), compared to the average of 819. Meanwhile, Golden-crowned Kinglets were triple that of last



season with 155 detections compared with the average of 65 and the second highest total behind 2013 (196).

Since 2018 thrush numbers have been on the rise with 2020 being the only season when their detections were nearly the average. This season many members of this group once again had exceptional breeding success with all but one finishing above average. American Robins were down from last season’s 1115 detections with 945 which was still 130% of the average. Swainson’s Thrush with 693 detections were up from last season at 153% of the average while Townsend’s Solitaire detections were very similar to those of 2022 with 15 which is 112% of the average. Mountain Bluebird detections saw a steep increase this season with 132 detections (77 in 2022) which was 211% of the the average. A portion of these observations are due to the presence of a breeding pair who were detected most days as they raised a late brood in a nest box on the northern fence line which fledged in mid-August. Varied Thrush had their third best season on record with 103 detections (221% of the average) behind 2019 (109 detections) and 2020 (168 detections). Hermit Thrush were sparse for the second season running with 14 detections (58% of average). Unlike 2022 the berry crop in our census area was poor and quickly picked clean by the numerous individuals of the thrush clan so it is possible that majority of our detections were of individuals and not

**Table 5 The most detected species in 2023 as compared to average**

Species	2023	Avg 06-22	% of average
Golden-crowned Sparrow	160	22.4	715%
European Starling	208	53.9	386%
White-crowned Sparrow	901	242.9	371%
Herring Gull	133	37.1	359%
Spotted Towhee	181	60.3	300%
Oregon Junco	1161	416.3	279%
American Crow	3292	1198.6	275%
American Pipit	1388	534.5	260%
Cassin’s Vireo	51	21.1	242%
Golden-crowned Kinglet	155	65.3	238%
Mountain Chickadee	313	134.5	233%
Varied Thrush	103	46.6	221%
Ruffed Grouse	325	153.7	211%
Mountain Bluebird	132	62.6	211%
Vesper Sparrow	131	63.9	205%
Bald Eagle	58	28.7	202%
Dusky Flycatcher	149	75.3	198%
Chipping Sparrow	698	355.1	197%
Yellow-rumped Warbler	6453	3284.1	196%
American Kestrel	166	86.6	192%
Great Blue Heron	53	28.2	188%
Pileated Woodpecker	93	55.8	167%
Western Meadowlark	279	169.9	164%
Swainson’s Thrush	629	410.8	153%
Savannah Sparrow	716	489.8	146%
American Redstart	323	227.4	142%
Canada Goose	478	364.6	131%
American Robin	945	725.6	130%
Red-eyed Vireo	81	65.4	124%
Sharp-shinned Hawk	84	69.1	122%
Clark’s Nutcracker	349	291.7	120%
Common Loon	55	46.9	117%
American Wigeon	251	217.3	116%
Northern Waterthrush	168	146.0	115%
Common Raven	115	100.4	115%
Ruby-crowned Kinglet	922	819.3	113%

duplications of the same individual every day over the course of a week. The poor berry crop locally was almost certainly a contributing factor to low numbers of the other frugivores like Cedar Waxwing (693 detections, 72% of average) and Western Tanager (63, 70% of average).

This season had yet again, mixed results for the more commonly occurring warbler species with four of these nine species detected in above average numbers whilst the remaining five were below average. After posting record numbers the past two seasons (>200 detections) Northern Waterthrush were down with 168 (15% above average). American Redstart posted their third highest season of all time with 323 detections (142% of the average) behind 2019 (343) and 2021 (446). Townsend's Warbler's are never detected with much frequency and this season was no different with 27 which is 7% above the average. As ever, the most detected warbler species this season was Yellow-rumped Warbler with 6453 detections being the 2<sup>nd</sup> highest on



Yellow-rumped Warblers were numerous this season

record and 196% of the average. This total was helped by consistent numbers throughout the month of September with several big days of movement. The largest of these was on the 28<sup>th</sup> when we counted 630 individuals during four hours of monitoring. The remaining five warbler species that had below average detections were, Yellow Warbler (224, 79% of average), Orange-crowned Warbler (178, 77% of average), MacGillivray's Warbler (63, 74% of average), Wilson's Warbler (90, 66% of average), and Common Yellowthroat (278, 52% of average). This last species, Common Yellowthroat, has experienced a rapid decline since 2021 and 2023 was no different. Last season (311 detections) had set a new record low by breaking 2011's record of 359 detections which we beat again in 2023 with 278 detections being just 52% of the average and the new record low for this species. It is alarming that we continue to document marked decreases in the numbers of this species of warbler which has also been mirrored in our banding totals.

After four seasons of consistently high numbers, most sparrows were again above average in 2023, the notable exceptions being Lincoln's Sparrow (162 detections, 27% of average), Fox Sparrow (7 detections, 42% of average), and Song Sparrow (726 detections, 90% of average). Detection rates of Lincoln's Sparrow have been on a steady decline since the record setting season of 2019 (1162 detections) as 2023's 162 represents a new all-time low by over 230. Song Sparrow had banner seasons in 2019 (1564), 2020 (1187), and 2021 (1360) with numbers



declining in 2022 (802) and in 2023 (726). The three regularly occurring members of the genus *Zonotrichia* all had outstanding seasons where detections were concerned. Both White-crowned Sparrow (901 detections, 371% of the average) and Golden-crowned Sparrow (160 detections, 715% of the average) shattered their previous record highs. For Golden-crowned Sparrows this was a huge increase as the previous record was 63 set in 2018. As a short-distance migrant Golden-crowned Sparrows often move through the valley



White-throated Sparrow detections were up in 2023

in numbers in October once our monitoring has finished but perhaps due to the early cold snap in September, they arrived sooner than normal and thus made it into our estimated totals. The third member of the *Zonotrichia* clan, White-throated Sparrow is our least detected of the three yet with 18 detections this was the third highest season on record for this species. “Oregon” Dark-eyed Junco with 1161 detections (279% of the average) and Spotted Towhee with 181 detections (400% of the average) also set new single season records which had also been broken in 2022. Sparrows of open habitats namely Savannah, Chipping, and Vesper all had strong breeding seasons as they registered high numbers with 716 (146% of the average), 698 (197% of the average), and 131 (205% of the average).

After record numbers of Red-winged Blackbirds in 2022 (766) this season saw a concerning drop with 81 which is the second lowest on record at only 29% of average. The drought that gripped the province this year could have made what were already marginal wetlands locally unattractive to this species and thus contributed to poor breeding success locally. Conversely, Western Meadowlarks, with 279 detections (164% of the average) had their third-best season on record behind 2022 (293) and 2015 (398) which is encouraging after consecutive low seasons in 2020 and 2021. Brewer’s Blackbird is not a commonly detected species on the property even though they can be found breeding locally in the valley in large numbers. This season marks the second highest with 39 detections beating out last season (27) and behind 2006 (418 detections).

Last but never least, Finches are always irruptive and/or nomadic as they follow cone crops across the continent making it challenging to parse out their numbers year to year. All of our regularly occurring species were below average this season with Evening Grosbeak leading the pack at 89 detections (87% of average), White-winged Crossbill at 24 (42% of average), Red

Crossbill at 49 (35% of average) and Pine Siskin at 452 (32% of average). For Evening Grosbeak this is the first season since 2020 where we have had less than 200 detections while for Pine Siskin this represents the second lowest total on record. Our Purple Finch detections were down from last season with 35 (68% of the mean). Cassin's Finch were again noted more regularly for the third season running with 15 detections which is a new single season record for this species. Prior to 2020 there were just eight detections in total, while since then there have been 51. It is possible that this species could have easily been mistaken for Purple Finches, but more likely that they were absent due to the habitat in our census area not being suitable for breeding.

## 8. Non-Standard Banding

Non-standard banding activities were limited in 2023 as just a single non-standard songbird net was used. The three large gauge "Hawk Nets", HN4, HN7 and HN9, retained their locations

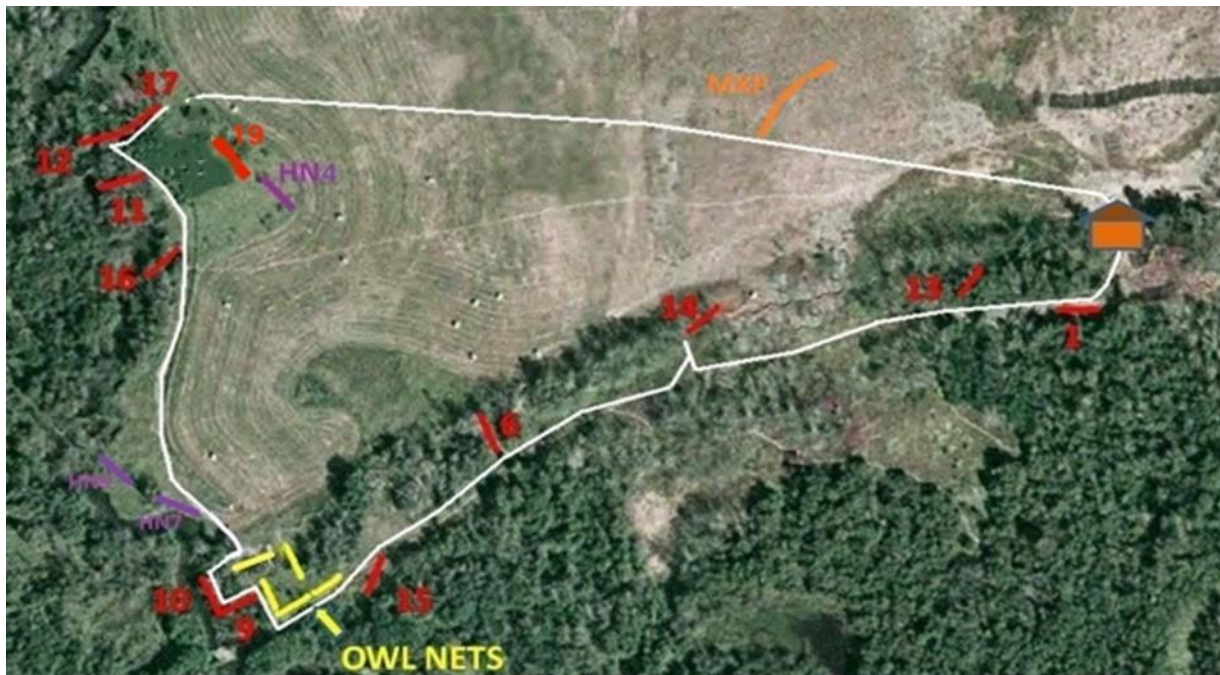


Figure 9 The net setup in 2023 including non-standard nets

from previous years and these accounted for eight birds banded. HN4 caught a lone Northern Harrier and a Sharp-shinned Hawk, HN9 caught a Least Flycatcher and an American Robin with HN7 being our most productive large gauge net catching two Sharp-shinned Hawks and two American Robins. The "Hawk Nets" were used most days, wind permitting, though were often closed during the census period.

The “Pipit fence” constructed from three consecutive two panel nets was open an average amount of time this season. In all it was opened on 18 different days which is a week more than 2022 and caught six birds comprised of three species namely, Savannah Sparrow (4 banded), American Pipit (1 banded) and the TLBO’s first ever European Starling! The non-standard songbird mist-net (MXY) which is located just east of the banding lab was erected later on in the third week of September and was only used on three days and captured three birds, namely, two Audubon’s Yellow-rumped Warblers and one Gambel’s White-crowned Sparrow. The bal-chatri was only used on one occasion and didn’t account for any captures.

With the extension of the Northern Saw-whet Owl banding program into the first two weeks of October songbird nets 1, 13, 14, 6, 9 and 10 along with hawk nets 7 and 9 were left in place in order to be available for nonstandard day time songbird banding which was carried out on a purely opportunistic basis. Songbird banding occurred on seven of the 15 days in October (3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 13<sup>th</sup>) with four of the six running for two hours while the other two ran for an hour and a half. During these six sessions 28 birds were banded comprised of 11 species and four recaptures of a single species (Table 6). The most banded species was White-crowned Sparrow with eight followed by Ruby-crowned Kinglet and Golden-crowned Sparrow each with four. Other highlights included our second Wilson’s Snipe of the season, second and third Fox Sparrows, second Hairy Woodpecker and two recap Black-capped Chickadees who were first banded in 2018 as hatch-years making them exactly five years old.

**Table 6 Nonstandard birds banded during October**

Species	Banded	Recaps
White-crowned Sparrow	8	
Golden-crowned Sparrow	4	
Ruby-crowned Kinglet	4	
Varied Thrush	3	
Fox Sparrow	2	
Lincoln's Sparrow	2	
Wilson's Snipe	1	
Yellow-rumped Warbler	1	
Dark-eyed Junco	1	
Savannah Sparrow	1	
Hairy Woodpecker	1	
Black-capped Chickadee		4

## 9. Owl Banding

### 9.1 September Owl Banding (Regular Season)

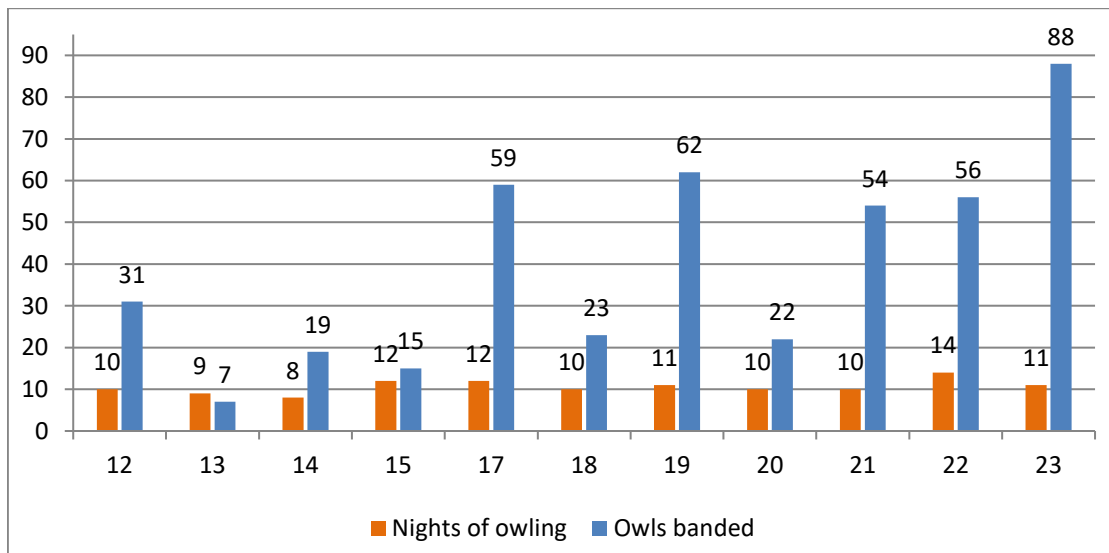
Unlike last season, our owl monitoring was hampered by the usual poor weather in September after our opening night on the 3<sup>rd</sup>. Only one session was cut short due to precipitation, the night of September 28<sup>th</sup>. From the 3<sup>rd</sup> to the 27<sup>th</sup> the trend was two good nights of weather followed by 4-7 of poor with the latter end of the month finally cooperating as we would owl from the 27<sup>th</sup> to the 30<sup>th</sup>. Overall, we would end up conducting 11 owl sessions, down from last year’s big effort of 14, for a total of 32.25 hours and 225.75 net hours (Table 7, page 29).

We averaged 8 owls banded per night with four nights exceeding the mean namely, September 13<sup>th</sup> (15 owls), September 20<sup>th</sup> (13 owls), September 29<sup>th</sup> (10 owls), and September 30<sup>th</sup> (14 owls) for a total of 88 owls which is our new regular season record (Fig. 10).

In general, we would expect the trend in big owl years to be a low adult to young ratio but for the third year running adults have taken up a larger share in September with 17% in 2021, 14% in 2022, and 14% in 2023 which is higher than our previous big years (8% in 2017 and 5% in 2019).

**Table 7 September Owling totals**

Date	Effort (hrs)	Banded	Recaps
03-Sep	3	7	
08-Sep	3	5	
09-Sep	3	6	
13-Sep	3	15	
14-Sep	3	6	
20-Sep	3	13	
21-Sep	3	5	1
27-Sep	3	6	2
28-Sep	2.25	1	
29-Sep	3	10	
30-Sep	3	14	1
<b>Total</b>	<b>32.25</b>	<b>88</b>	<b>4</b>



**Figure 10 Effort and owls banded per year during September "the regular season"**

### 9.2 October Owl Banding Extension

The two-week extension of the TLBO’s owl monitoring program until mid-October has now been incorporated into standard monitoring protocol. Sachi stayed on to run the program this year and was joined by volunteers for most of the period. Unlike last season the weather was a mixed bag as it was an improvement on 2021 but nowhere near as mild and calm as in 2022. The same seven-net setup was used for a total of 27.5 hours of effort (192.5 net hours). Of the eight nights of monitoring half ran for the standard three hours while the other four continued

beyond ranging from 3.25 to 4.5 hours. The standard seven net set up was used during all eight of the nights that we operated.

During the eight sessions a total of 89 owls were banded for an average of 11.1 per night which is up from 8.0 during September. Though high, this is down from 2021’s record setting average of 13.2 for October but up from last season’s average of 3 per night. Of the 89 owls, 81 were hatch-years with the remaining eight being adults. The percentage of adults captured during October has been consistently less than that of September over the past three seasons with 2021 registering the highest at 13%, 2022 the lowest at 7% and this season in the middle with 9%. This is an interesting trend as long-term songbird data has shown that hatch-years are the first to begin their migration with the adults following once they are finished their moult. Because adult owls do not undergo a complete pre-basic moult (replace every feather on their body) and their migration appears to be more haphazard and perhaps more related to food availability there is less incentive to stay put post breeding.

Table 8 Owls banded in October

Date	Effort (hrs)	Banded	Recaps
02-Oct	3	12	
04-Oct	3	9	1
05-Oct	4.25	11	
06-Oct	4.5	16	
08-Oct	3	8	
09-Oct	3.25	14	
11-Oct	3.5	12	
12-Oct	3	7	
<b>Total</b>	<b>27.5</b>	<b>89</b>	<b>1</b>

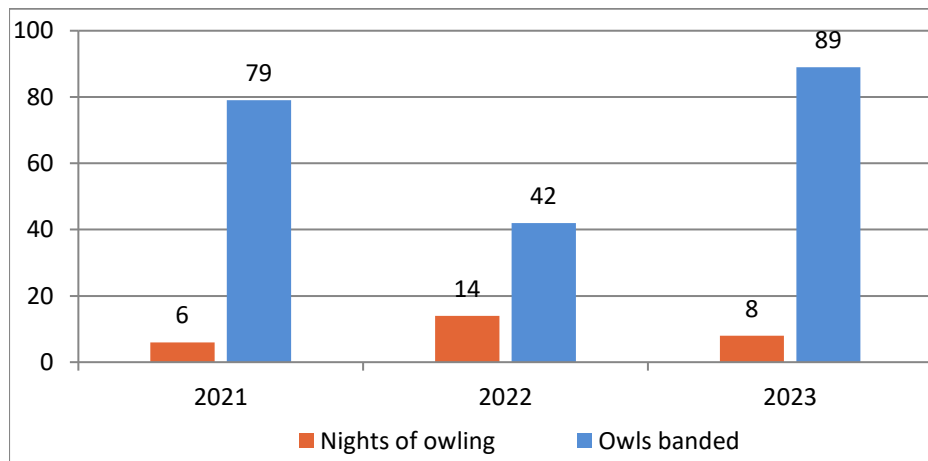


Figure 11 Effort and owls banded per year during October

### 9.3 Owl Banding Overview

Over the course of six weeks of monitoring (four on an opportunistic basis and two more concerted) we banded a record total of 177 Northern Saw-whet Owls and five recaptures during 19 nights of monitoring for an average of 9.3 owls per night. Unsurprisingly, hatch-year



birds made up the bulk with 157 banded (89% of the total) whilst we captured 20 adults (11% of the total). Ages of the adult owls included, one after-hatch-year (likely older than four-years old), 13 second-years, two after-second-years, one third-year, and three after-third-years. With the last big breeding season for this species coming in 2021 it is encouraging to see so many second-years (birds that survived from last year) along with older birds.



## 10. Injuries and Fatalities

An unfortunate consequence of mist-netting birds is that there is the occasional injury and even fatality. While measures are taken to prevent casualties and injuries, (i.e., highly skilled staff, frequent net checks, monitoring nets when a predator is seen nearby etc.) the odd mishap is inevitable. In 2023 we had an average number of injuries, albeit on the higher end of the spectrum, being nearly double that of 2022 but less than that of 2021. It should be noted that we handled more birds than in 2022 but less than half the number of birds in 2021 making the injury rates somewhat comparable over the past four seasons with 0.56% in 2020, 1.05% in 2021, 0.81% in 2022, and 1.3% in 2023. Of the total of 1,104 birds banded, 174 recaptured and an unknown number of same-day recaptures we had three fatalities, 16 injuries and one attempted predation of an American Robin by a Sharp-shinned Hawk. Two of the fatalities were a predation event in net 14 by a Short-tailed Weasel whilst the other was of a Swainson's Thrush which perished of unknown causes during processing.

The 16 injuries included six incidences of wing strain, four leg and or joint related injuries (two Lincoln's Sparrow, one White-crowned Sparrow and a Common Yellowthroat), two superficial wounds and/or lacerations and a Varied Thrush who was bleeding from being very tongued in the net. Most years we will subsequently catch one or two of our previously injured birds that had recovered. In 2023 this was the case with one of our Swainson's Thrush who was released with wing strain at banding and subsequently caught three days later without any sign of injury.

We also notice other old injuries, maladies and deformities occasionally on birds and record these as well. This season we only noted one case of avian pox. Two old healed leg injuries



(mainly to the tarsus) were noted along with two bill deformities on both a Song Sparrow and White-crowned Sparrow.

## **11. New in 2023**

### **11.1 Banding Lab Upgrades and Equipment**

During the off-season the banding lab got a new coat of paint both on the exterior and interior for the first time since it was constructed in 2007. Also, a proper viewing platform was constructed to provide a place for smaller children to stand outside the lab.

Some small items were replaced this season such as a new charger for our hand-held radios and a carrying case for the laptop which was new last season.

### **11.2 CMMN Habitat Monitoring Protocol**

In 2023 we continued the photographic component of our habitat monitoring protocol as we had in 2022 which is a requirement of our membership with the Canadian Migration Monitoring Network (CMMN).

This season we undertook the gargantuan task of implementing a broader habitat monitoring component which will be implemented every five years or sooner if there is a broadscale habitat change (like wildfire). From a base map provided by CMMN we delineated our 125-acre study area into four different habitat types namely, willow/alder scrub, open grassy fields, coniferous forest and deciduous forest and calculated the percent cover for each within the count area. We drew out 14 base maps where we sketched out vegetation in order to better estimate percent cover of three different vegetation height ranges; understory (0.5 – 5 metres), midstory (5 – 15 metres), and upperstory (greater than 15 metres). We also calculated the average height of three different vegetation types within each habitat type namely, Tree, Shrub, and Herb. Total percent cover of both running and standing water were also calculated across the entire area. All of these values were summed across the 14 base maps in order to calculate a total for each of these values within each of the four habitat types.

### 11.3 Motus Tower Location Change and Flammulated Owl

The Motus equipment was moved this fall from Mike Smialowski's tower where we had set it up in 2021 to an adjacent tower (~15m north) which was decommissioned and given to the Tatlayoko Field Station Society by the Tatlayoko Think Tank.

Last season Sachiko found a dead Flammulated owl on her return journey to the station from census. The owl specimen was handed over to the Provincial Government who sent off samples for testing, namely to determine if this owl had been a casualty of the avian influenza that had severely impacted bird populations in 2022. As of the date of writing this report the lab results have not yet been received by the local Biologists for the Provincial Government as the lab who performed the analysis and testing has been very backlogged over the past several years.



The new Motus Tower set up

Finding this owl spurred surveys for this species at risk in the Tatlayoko valley and adjacent valleys this past spring which was undertaken by a partnership between the Provincial Government and the Tsilhqot'in National Government. For all their efforts during their call playback surveys they detected a single individual toward the south end of Tatlayoko Lake on the eastern slope.

## 12. Research Collaborations

The TLBO contributed to two research projects this season. As in 2022, we continued to collect tail feather samples from a suite of species for two projects (Aerial Insectivores and Boreal Breeders) conducted by Birds Canada and the Canadian Wildlife Service (CWS) under the umbrella of Environment and Climate Change Canada (ECCC). The second project was a new collaboration with Dr. Laura Grieneisen at UBC in Kelowna studying the gut microbiome in Northern Saw-whet Owls.

### 12.1 Tail Feather Sampling

For the second consecutive season we participated in a Canada-wide project that is jointly run by Birds Canada and the Canadian Wildlife Service where the TLBO along with other Canadian bird observatories collected tail feather samples from a suite of species. Half the project targeted aerial insectivores, who as the name suggests, specialize in capturing insects on the wing. Due to the low volume of this group at the TLBO we only collected samples from Alder Flycatcher and “Traill’s” Flycatcher. This group of species has declined by nearly 59% in Canada since 1970 and have also seen marked decreases at the TLBO over our 17 seasons of monitoring. The second part of this study focused on boreal breeders as many of the water sources in the vast boreal forest, which acts both as a songbird nursery and the lungs of North America, are being contaminated by aerial pollutants. The boreal breeders that we sampled this season included, Red-eyed Vireo, Swainson’s Thrush, Song Sparrow, White-throated Sparrow, Northern Waterthrush, American Redstart, and Common Yellowthroat. The aim is to measure the concentrations of heavy metal pollutants as well as nutrients, along with the use of isotope analysis for better understanding migratory connectivity and DNA for genetic variation of Canada-wide populations. In all, we collected a total of 103 samples (2 feathers per sample) from 8 separate species and one unknown (“Traill’s” Flycatcher).



### 12.2 Northern Saw-whet Owl Microbiome

We started a collaboration on a new pilot project this year with Dr. Laura Grieneisen and Master’s Student Megan Buers both from the University of British Columbia Okanagan. In this project we collected fecal samples from Northern Saw-whet Owls with the aim of better understanding both the diets and microbiome of these mysterious denizens of the night. Since the project is a pilot the collection methods are still being refined with cloacal swabbing and passive collection of feces being the two under investigation. During this pilot we collected 50 fecal samples, 49 of which were from cloacal swabs whilst the 50<sup>th</sup> was opportunistic, namely fecal matter swabbed from the bander’s hand.

### 12.3 Motus Tower Detection Update

Since the submission of last season's report, we have had three detections of birds by our Skinner Ridge Motus tower. All three of these birds were not tagged by us (Table 9). The first detection was of a Golden-crowned Sparrow (GCSP, tag ID 63133) which was tagged in the Greater Vancouver Area in November 2022 where it spent the winter before migrating northwards ~350-400km in 9.5 hours to then be detected by our tower on April 29<sup>th</sup>. It spent roughly 13 hours within range of our tower before moving on. The other two detections were of two Swainson's Thrush (SWTH) which were tagged near Whistler in the fall of 2022 before migrating southwards for the winter and then being detected by our tower in late May of this year in one case and early June in the other.

Table 9 New MOTUS tower detections since the 2022 report

Tag	Species	Tag Deployed	Dates Detected (new detections)	Tower Location
63133	GCSP	11/16/2022	April 29 <sup>th</sup> and 30 <sup>th</sup> , 2023	Skinner Ridge Tatlayoko, BC
62970	SWTH	08/28/2022	May 29 <sup>th</sup> , 2023	Skinner Ridge Tatlayoko, BC
68393	SWTH	09/02/2022	June 9 <sup>th</sup> and 10 <sup>th</sup> , 2023	Skinner Ridge Tatlayoko, BC

### 13. Highlights

We outdid the past three seasons by adding three new species to the TLBO list, which now stands at 211 species (+1 Long-eared Owl detected during owl banding in 2018). The first new species of the season came on August 3<sup>rd</sup> when Sachi encountered a Trumpeter Swan in the lagoon on census. This Swan would be detected every day of our migration monitoring season on census in the lagoon. We later learned that the Swan had arrived in the spring with a possible mate and never left, of the presence of the mate we have no knowledge but the Swan continued to be sighted every time Sachi visited the lagoon through the month of October. The second new species for the station's list arrived on the 31<sup>st</sup> of August and was found by Sachi again on census. Pygmy Nuthatch was never really on our radar as a potential addition to the station's list so it was a big surprise when it was encountered calling from two old growth pines just south of the pines. This is a very interesting record for it is only the second for the Cariboo region, the first of which was from 1942 at Lac la Hache. Nuthatches as a group are rather nomadic after the breeding season but Pygmy's tend to run against the grain as they are much more faithful to their breeding habitat year-round. The nearest known breeding population is just outside of Lillooet which is over 200km away as the crow flies. The final and third addition during the monitoring season was a trio of Black-billed Magpies on September 23<sup>rd</sup> who were first detected by Sachi and then seen by all present as they feasted on grasshoppers in the north field amidst a murder of American Crows before being chased off by a territorial Merlin.

This represents the second record on eBird for the valley proper the first of which was back in 2009.

On the banding front we added two new species to our banding list this season as well as several notable captures. On August 15<sup>th</sup> we caught a Clark's Nutcracker in net 14 which was in actuality the TLBO's second banding record but the first for our site in the valley bottom. In 2008 the then Bander-in-Charge Steve Ogle ventured up onto Potato mountain to test out the feasibility of having a mist-netting site up there where we could monitor high elevation bird populations, namely Clark's Nutcracker. For all his effort he caught only one as the wind and weather can be quite severe and that plan was abandoned and hasn't been revisited since. The other new species that we added to our 17-season banding tally was European Starling which we caught by "non-standard" means in the "pipit fence" on September 14<sup>th</sup>.



Fourth banding record of Wilson's Snipe

For the second season running we caught a hatch-year Brown-headed Cowbird on August 4<sup>th</sup> which continue to be rather scarce in the valley for this represents only the 6<sup>th</sup> banding record at the TLBO. Much like 2022 we caught only one of our locally scarce warbler species, a hatch-year Nashville Warbler on August 6<sup>th</sup>. This is the 13<sup>th</sup> banding record of this species and the first since 2020. On August 24<sup>th</sup> we caught our first Lazuli Bunting since 2020 which we used to catch every year for the first 14 seasons for an average of four per season. Moving up in size we caught the TLBO's 4<sup>th</sup> ever Wilson's Snipe on August 14<sup>th</sup> in net 15 as a family group had been seen foraging in the lush grasses just north of the net over several days. We would band our fifth and sixth records of Belted Kingfisher (both out of net 16) on August 13<sup>th</sup> and September 7<sup>th</sup> as well as our 7<sup>th</sup> and 8<sup>th</sup> records of Steller's Jay on August 27<sup>th</sup> and September 3<sup>rd</sup>.



First record of Eastern Kingbird since 2018

On the raptor front, it was an overall poor season for Northern Harriers with lower-than-average numbers detected. However, we did still manage to catch a lone hatch-year in the "Harrier Net" (HN4) on September 10<sup>th</sup> (16<sup>th</sup> banding record). Sharp-shinned Hawks were far less

plentiful in our nets than in 2022 for we banded a total of five which is just below our long-term average of six.

On our opening day (August 3<sup>rd</sup>), we had our only sighting of an Eastern Kingbird (12<sup>th</sup> record) along the road on the return journey from census. Not 10 minutes later on that same day we noted our second record of a Prairie Falcon as it was perched atop the “Kestrel Snag”. We would detect this species twice more throughout the season the second of which came on August 5<sup>th</sup> and then again on September 20<sup>th</sup>. On the 8<sup>th</sup> of August a pair of Red-necked Phalaropes in the lagoon represented our 18<sup>th</sup> and 19<sup>th</sup> detections of this species with another detection coming just five days later on the 13<sup>th</sup>. Our second detection of a Black-headed Grosbeak came when Sachiko spied a hatch-year/female type down by the lake while on census on August 10<sup>th</sup>. We would have our first of four detections of a lone Peregrine Falcon on the 18<sup>th</sup> of August with the remaining three on September 9<sup>th</sup>, 16<sup>th</sup>, and 23<sup>rd</sup>. Two days later, on the 19<sup>th</sup> of August, we would have our only 2023 detection of Yellow-headed Blackbirds, two of which were seen amidst a flock of Red-



The TLBO's 11<sup>th</sup> record of a Northern Shrike

winged Blackbirds flew across the north field. This species is rather sparse at the TLBO for with the addition of these two individuals our 17-season total now sits at 18 detections. August 23<sup>rd</sup> proved to be too rainy for mist-netting however as we were closing up, we were fortunate enough to be visited by the TLBO's second record of a Say's Phoebe. Our first exciting shorebird of the season came on the 27<sup>th</sup> when Sachi spotted the TLBO's second ever Baird's Sandpiper down on the north shore of the lake. The next day two more would be added when Sachiko observed the TLBO's second record of a Semipalmated Plover down at the lake at the end of census and then later that day we would log our 4<sup>th</sup> ever record of a Lesser Yellowlegs as it was heard calling as it flew south towards the lake. The final day of the month of August had more in store for us as we would detect our 14<sup>th</sup> record of a Blackpoll Warbler.

Moving into September we had our first of three encounters with a Rusty Blackbird on the 4<sup>th</sup>, 20<sup>th</sup>, and the 21<sup>st</sup>. We would detect our first Bohemian Waxwing since 2019 thrice, on the 7<sup>th</sup>, 9<sup>th</sup> and 22<sup>nd</sup>. Lapland Longspurs are an often-scarce and easily overlooked species at the TLBO with detections only coming in seven of the past 16 seasons. We would add 2023 to that list with detections coming first on the 10<sup>th</sup>, then on the 20<sup>th</sup> with the third on the final day of monitoring, the 28<sup>th</sup>. On the same day as our first detection of a Lapland Longspur (September 10<sup>th</sup>) we would also have our only one of a Black-backed Woodpecker which marks our 19<sup>th</sup> of



all time. The next day Sachi spotted our only Mourning Dove of the season as he was calculating percent cover of vegetation in the Douglas-firs northeast of the station. Late September is often the best time for unusual species to show up and this was again the case in 2023. On the 20<sup>th</sup> during census Sachi spotted our 17<sup>th</sup> Magnolia Warbler of all-time. Four days later while scanning the treetops from the south field Sachi would spot an adult Northern Shrike (11<sup>th</sup> record).

We set some single day high counts for species this season, albeit far fewer than in 2022. The most notable was setting a new record for American Pipits when we recorded 280 on September 26<sup>th</sup>. Golden-crowned Sparrows which are a later short-distance migrant often don't arrive in numbers until after we have departed so it was exciting when we set a new high-count record of 37 on September 27<sup>th</sup>.

With Sachi taking his turn to stay on for the extra two weeks to do the owl banding extension we were all interested to see what the birding in October 2023 would be like. Lapland Longspur detections continued through October with observations of this species on the 1<sup>st</sup>, 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, and 13<sup>th</sup>. Similarly, the oft scarce species Northern Shrike was detected on the 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, and 13<sup>th</sup>.

October 2<sup>nd</sup> marked the first time that Long-billed Dowitcher had been seen in the valley since 2020 as Sachi observed two foraging in the muck in the wetland that borders the southern portion of the south field. The next day Sachi had his second detection of a Black-backed Woodpecker in 2023 along with the first October detection of a Ring-billed Gull aside from up at Eagle Lake.



The Hotspot's second Greater Scaup

In similar fashion to 2021 October 4<sup>th</sup> provided a spectacle of goose migration as a total of 307 Canada Geese, 161 Snow Geese along with the two Cackling Geese were observed! This final species is a long-awaited addition to the station's eBird hotspot.

On October the 6<sup>th</sup> Sachi observed the hotspot's second record of a Greater Scaup who hung around until the 9<sup>th</sup> along with the first observation of a Barrow's Goldeneye in 2023. Barred Owl was the next species added to the hotspot's 2023 list later that evening during owl monitoring. A second detection of a Barred Owl would come on the afternoon of the 15<sup>th</sup> as Sachi duetted with one while taking down the owl nets.



The 7<sup>th</sup> of the month would mark the hotspot's second observation of a Eurasian Wigeon this time a female in the lagoon amidst a raft of American Wigeon. Three days later on the 10<sup>th</sup> Sachi would log our second observation of a Black-billed Magpie down at the north end of the lake. On Friday the 13<sup>th</sup> Sachi observed the hotspot's fourth record of an American Coot as it foraged amidst the other species of waterfowl in the lagoon.



The first Long-billed Dowitchers since 2020



The Hotspot's second Eurasian Wigeon

Table 10 Highlights from the 2023 season; birds highlighted in yellow are 1st banding records, in red 1st station records

Species	Details
Trumpeter Swan	Single bird observed in the lagoon every day from Aug. 3 <sup>rd</sup> to Oct. 14 <sup>th</sup> (1 <sup>st</sup> TLBO record)
Eastern Kingbird	Single bird seen on the return from census on Aug. 3 <sup>rd</sup> (12 <sup>th</sup> TLBO record)
Prairie Falcon	Single individual detected Aug. 3 <sup>rd</sup> , 5 <sup>th</sup> , and Sept. 20 <sup>th</sup> (2 <sup>nd</sup> through 4 <sup>th</sup> regular season records)
Brown-headed Cowbird	HY/M banded on Aug. 4 <sup>th</sup> (6 <sup>th</sup> banding record)
Nashville Warbler	HY/U banded on Aug. 6 <sup>th</sup> (13 <sup>th</sup> banding record)
Black-headed Grosbeak	Immature/female seen on census on Aug. 10 <sup>th</sup> (2 <sup>nd</sup> TLBO record)
Red-necked Phalarope	Two on Aug. 8 <sup>th</sup> and one on the 13 <sup>th</sup>
Belted Kingfisher	Two HY/M's banded on Aug. 13 <sup>th</sup> and Sept. 7 <sup>th</sup> (5 <sup>th</sup> and 6 <sup>th</sup> banding records)
Wilson's Snipe	SY/M banded on Aug. 14 <sup>th</sup> (4 <sup>th</sup> banding record) and on Oct. 6 <sup>th</sup>
Clark's Nutcracker	SY/M banded on Aug. 15 <sup>th</sup> (1 <sup>st</sup> TLBO site banding record)
Yellow-headed Blackbird	Two observed on Aug. 19 <sup>th</sup>
Say's Phoebe	Seen before leaving on Aug. 23 <sup>rd</sup> (2 <sup>nd</sup> TLBO record)
Baird's Sandpiper	Seen on Aug. 27 <sup>th</sup> on the beach during census (2 <sup>nd</sup> TLBO record)
Steller's Jay	Two HY's banded on Aug. 27 <sup>th</sup> and Sept. 3 <sup>rd</sup> (7 <sup>th</sup> and 8 <sup>th</sup> banding records)
Semipalmated Plover	Seen on Aug. 28 <sup>th</sup> on the beach during census (2 <sup>nd</sup> TLBO record)
Lesser Yellowlegs	Flyover heard on Aug. 28 <sup>th</sup> (4 <sup>th</sup> TLBO record)
Pygmy Nuthatch	Seen on census south of the pines on Aug. 31 <sup>st</sup> (1 <sup>st</sup> TLBO record)
Blackpoll Warbler	A single bird seen on the return from census on Aug. 31 <sup>st</sup> (14 <sup>th</sup> TLBO record)
Rusty Blackbird	Multiple obs: Sept. 4 <sup>th</sup> , 20 <sup>th</sup> , and 21 <sup>st</sup>
Bohemian Waxwing	Multiple obs: Sept. 7 <sup>th</sup> , 9 <sup>th</sup> , and 22 <sup>nd</sup>
Lapland Longspur	Multiple obs: Sept. 10 <sup>th</sup> , 20 <sup>th</sup> , and 28 <sup>th</sup> along with Oct. 1 <sup>st</sup> – 13 <sup>th</sup>
Black-backed Woodpecker	Seen on Sept. 10 <sup>th</sup> (19 <sup>th</sup> TLBO record) and Oct. 3 <sup>rd</sup>
Northern Harrier	HY/F banded on Sept. 10 <sup>th</sup> (16 <sup>th</sup> banding record)
Mourning Dove	Observed in the Douglas-firs on Sept. 11 <sup>th</sup>
European Starling	HY/M banded from the "Pipit fence" on Sept. 14 <sup>th</sup> (1 <sup>st</sup> banding record)
Magnolia Warbler	Seen in a mixed flock near the south field on Sept. 20 <sup>th</sup> (17 <sup>th</sup> record)
Black-billed Magpie	Trio seen with crows on Sept. 23 <sup>rd</sup> and one on Oct. 10 <sup>th</sup> (1 <sup>st</sup> TLBO record)
Northern Shrike	Multiple obs: Sept. 24 <sup>th</sup> , Oct. 6 <sup>th</sup> – 13 <sup>th</sup>
Cackling Goose	Two observed amidst 307 Canada Geese on Oct. 4 <sup>th</sup> (Hotspot first)
Greater Scaup	Observed Oct. 6 <sup>th</sup> – 9 <sup>th</sup> in the lagoon (2 <sup>nd</sup> Hotspot record)
Eurasian Wigeon	Seen Oct. 7 <sup>th</sup> in the lagoon (2 <sup>nd</sup> Hotspot record)

# 2023 Highlights



Figure 11 highlights of 2023, top to bottom, left to right: Trumpeter Swan, Prairie Falcon, Clark's Nutcracker, Pygmy Nuthatch, European Starling, Say's Phoebe, and Black-billed Magpie

Appendix A Banding and recapture totals from 2023

Species	Band	Recap
Sharp-shinned Hawk	2	0
Wilson's Snipe	1	0
Belted Kingfisher	2	0
Downy Woodpecker	1	0
Hairy Woodpecker	1	0
Pacific-slope Flycatcher	1	0
Willow Flycatcher	4	0
Alder Flycatcher	3	0
Hammond's Flycatcher	3	0
Dusky Flycatcher	14	5
Cassin's Vireo	2	0
Warbling Vireo	55	4
Red-eyed Vireo	4	0
Steller's Jay	2	0
Clark's Nutcracker	1	0
Black-capped Chickadee	4	13
Red-breasted Nuthatch	1	0
Golden-crowned Kinglet	2	0
Ruby-crowned Kinglet	40	0
Hermit Thrush	4	0
Swainson's Thrush	255	72
American Robin	22	6
Varied Thrush	5	0
American Pipit	1	0
Cedar Waxwing	15	1
Northern Waterthrush	39	20
Orange-crowned Warbler	15	0
Nashville Warbler	1	0
MacGillivray's Warbler	8	1
Common Yellowthroat	39	2
American Redstart	29	5
Yellow Warbler	23	4
Yellow-rumped Warbler	28	0
Townsend's Warbler	2	0
Wilson's Warbler	19	0
Spotted Towhee	6	1

Species	Band	Recap
Chipping Sparrow	52	2
Savannah Sparrow	24	0
Vesper Sparrow	14	1
Fox Sparrow	1	0
Song Sparrow	62	22
Lincoln's Sparrow	31	5
Oregon Junco	5	0
White-crowned Sparrow	21	0
Golden-crowned Sparrow	7	0
White-throated Sparrow	4	1
Western Tanager	2	0
Lazuli Bunting	1	0
Brown-headed Cowbird	1	0
Purple Finch	1	0
Trail's Flycatcher	1	0
<b>Totals</b>	<b>881</b>	<b>165</b>

Appendix B Daily Estimated Totals (DET) and Banding totals in 2023 compared to average, in taxonomical order

Species	DET	Avg. DET 2006-22	Band	Avg. Banded 2006-22
Greater White-fronted Goose	0	8.1	0	0.0
Canada Goose	478	364.6	0	0.0
Snow Goose	0	2.9	0	0.0
Trumpeter Swan	57	0	0	0.0
Wood Duck	0	6.8	0	0.0
Mallard	367	487.4	0	0.0
Gadwall	0	2.5	0	0.0
Northern Pintail	7	24.6	0	0.0
American Wigeon	251	217.3	0	0.0
Eurasian Wigeon	0	0.1	0	0.0
Blue-winged Teal	4	6.3	0	0.0
Cinnamon Teal	0	0.4	0	0.0
Northern Shoveler	15	25.9	0	0.0
American Green-winged Teal	109	120.5	0	0.0
Redhead	0	0.1	0	0.0
Ring-necked Duck	41	90.6	0	0.0
Greater Scaup	0	0.1	0	0.0
Lesser Scaup	0	3.4	0	0.0
Surf Scoter	0	0.1	0	0.0
Barrow's Goldeneye	0	8.8	0	0.0
Common Goldeneye	2	3.6	0	0.0
Bufflehead	10	3.3	0	0.0
Hooded Merganser	4	9.8	0	0.0
Common Merganser	10	35.1	0	0.0
Red-breasted Merganser	0	0.3	0	0.0
Dusky Grouse	0	5.1	0	0.0
Ruffed Grouse	325	153.7	0	0.0
Common Loon	55	46.9	0	0.0
Horned Grebe	10	3.1	0	0.0
Red-necked Grebe	11	13.6	0	0.0
Western Grebe	0	0.3	0	0.0
Pied-billed Grebe	49	17.3	0	0.0
American White Pelican	0	0.2	0	0.0
American Bittern	0	0.4	0	0.0
Great Blue Heron	53	28.2	0	0.0
Turkey Vulture	20	1.8	0	0.0
Northern Harrier	37	41.8	0	0.1
Osprey	39	51.2	0	0.0

<b>Species</b>	<b>DET</b>	<b>Avg. DET 2006-22</b>	<b>Band</b>	<b>Avg. Banded 2006-22</b>
Sharp-shinned Hawk	84	69.1	2	4.8
Cooper's Hawk	23	12.8	0	0.1
Northern Goshawk	5	4.0	0	0.0
Broad-winged Hawk	0	0.1	0	0.0
Red-tailed Hawk	17	12.2	0	0.0
Golden Eagle	0	0.4	0	0.0
Bald Eagle	58	28.7	0	0.0
American Coot	0	0.2	0	0.0
Sandhill Crane	36	9.4	0	0.0
Virginia Rail	0	1.1	0	0.0
Sora	5	5.3	0	0.1
Semipalmated Plover	1	0.1	0	0.0
Killdeer	26	7.9	0	0.0
Greater Yellowlegs	3	1.5	0	0.0
Lesser Yellowlegs	1	0.2	0	0.0
Solitary Sandpiper	0	2.2	0	0.0
Spotted Sandpiper	65	58.0	0	0.0
Upland Sandpiper	0	0.2	0	0.0
Long-billed Curlew	0	0.1	0	0.0
Western Sandpiper	0	0.3	0	0.0
Baird's Sandpiper	1	0.1	0	0.0
Least Sandpiper	8	2.1	0	0.0
Pectoral Sandpiper	0	0.1	0	0.0
Long-billed Dowitcher	0	0.3	0	0.0
Wilson's Snipe	24	8.6	1	0.2
Wilson's Phalarope	0	0.3	0	0.0
Red-necked Phalarope	3	1.1	0	0.0
Red Phalarope	0	0.1	0	0.0
Sabine's Gull	0	0.2	0	0.0
Bonaparte's Gull	3	2.4	0	0.0
Mew Gull	0	0.4	0	0.0
Ring-billed Gull	42	8.7	0	0.0
California Gull	2	5.1	0	0.0
Herring Gull	133	37.1	0	0.0
Caspian Tern	0	0.1	0	0.0
Common Tern	0	0.3	0	0.0
Long-tailed Jaeger	0	0.3	0	0.0
Parasitic Jaeger	0	0.2	0	0.0
Mourning Dove	1	1.3	0	0.1
Eurasian collared-Dove	3	2.3	0	0.0

<b>Species</b>	<b>DET</b>	<b>Avg. DET 2006-22</b>	<b>Band</b>	<b>Avg. Banded 2006-22</b>
Great Horned Owl	6	3.1	0	0.0
Barred Owl	0	0.4	0	0.0
Northern Saw-whet Owl	0	5.6	0	0.1
Northern Pygmy-Owl	8	5.6	0	0.0
Black Swift	0	35.8	0	0.0
Vaux's Swift	0	1.7	0	0.0
Calliope Hummingbird	0	1.5	0	0.0
Rufous Hummingbird	9	22.3	0	0.1
Belted Kingfisher	84	81.5	2	0.2
Lewis' Woodpecker	0	1.3	0	0.0
Red-breasted Sapsucker	0	2.9	0	0.6
Red-naped Sapsucker	41	42.4	0	2.1
Downy Woodpecker	81	72.5	1	3.4
Hairy Woodpecker	82	93.7	1	3.4
Three-toed Woodpecker	1	2.6	0	0.0
Black-backed Woodpecker	1	1.1	0	0.0
Northern Flicker	137	212.4	0	1.0
Pileated Woodpecker	93	55.8	0	0.1
Peregrine Falcon	4	1.4	0	0.0
Prairie Falcon	3	0.1	0	0.0
Gyr Falcon	0	0.1	0	0.0
American Kestrel	166	86.6	0	0.0
Merlin	34	39.4	0	0.1
Olive-sided Flycatcher	14	16.3	0	0.4
Western Wood-pewee	15	20.3	0	1.3
Pacific-slope Flycatcher	1	4.2	1	3.1
Yellow-bellied Flycatcher	0	0.1	0	0.1
Willow Flycatcher	4	11.1	4	8.4
Alder Flycatcher	29	57.7	3	10.7
Least Flycatcher	2	11.7	0	3.1
Hammond's Flycatcher	15	18.1	3	7.4
Dusky Flycatcher	149	75.3	14	9.9
Say's Phoebe	1	0.1	0	0.0
Eastern Kingbird	1	0.7	0	0.0
Northern Shrike	1	0.6	0	0.0
Cassin's Vireo	51	21.1	2	1.4
Warbling Vireo	333	582.4	55	137.1
Red-eyed Vireo	81	65.4	4	8.4
Steller's Jay	24	12.1	2	0.3
Blue Jay	0	0.3	0	0.0



<b>Species</b>	<b>DET</b>	<b>Avg. DET 2006-22</b>	<b>Band</b>	<b>Avg. Banded 2006-22</b>
Black-billed Magpie	3	0	0	0.0
Clark's Nutcracker	349	291.7	1	0.0
Gray Jay	2	4.8	0	0.0
Common Raven	115	100.4	0	0.0
American Crow	3292	1198.6	0	0.1
Horned Lark	48	80.0	0	0.0
Tree Swallow	4	13.1	0	0.0
Violet-green Swallow	62	87.5	0	0.0
Bank Swallow	0	3.9	0	0.0
N. Rough-winged Swallow	8	28.4	0	0.0
Cliff Swallow	3	2.4	0	0.0
Barn Swallow	11	43.8	0	0.0
Mountain Chickadee	313	134.5	0	2.0
Black-capped Chickadee	530	566.0	4	19.2
Chestnut-backed Chickadee	0	1.3	0	0.6
Boreal Chickadee	0	1.8	0	0.1
Red-breasted Nuthatch	170	184.9	1	4.3
Pygmy Nuthatch	1	0	0	0.0
Brown Creeper	2	4.8	0	1.6
House Wren	0	0.2	0	0.0
Pacific Wren	8	8.0	0	1.4
Marsh Wren	0	3.3	0	0.5
American Dipper	0	0.1	0	0.0
Golden-crowned Kinglet	155	65.3	2	8.4
Ruby-crowned Kinglet	922	819.3	40	104.9
Townsend's Solitaire	15	13.4	0	0.1
Mountain Bluebird	132	62.6	0	0.0
Western Bluebird	0	0.2	0	0.0
Veery	0	0.3	0	0.2
Gray-cheeked Thrush	0	0.1	0	0.1
Hermit Thrush	14	23.9	4	11.8
Swainson's Thrush	629	410.8	255	146.2
American Robin	945	725.6	22	12.3
Varied Thrush	103	46.6	5	1.5
Gray Catbird	1	2.3	0	0.3
European Starling	208	53.9	0	0.0
American Pipit	1388	534.5	1	0.0
Bohemian Waxwing	4	4.6	0	0.0
Cedar Waxwing	693	961.3	15	16.1
Lapland Longspur	5	0.8	0	0.0

<b>Species</b>	<b>DET</b>	<b>Avg. DET 2006-22</b>	<b>Band</b>	<b>Avg. Banded 2006-22</b>
Northern Waterthrush	168	146.0	39	44.6
Black and White Warbler	0	0.2	0	0.1
Orange-crowned Warbler	178	230.4	15	79.1
Tennessee Warbler	0	0.7	0	0.3
Nashville Warbler	1	2.2	1	0.8
MacGillivray's Warbler	63	85.5	8	30.9
Common Yellowthroat	278	531.9	39	110.7
American Redstart	323	227.4	29	52.0
Magnolia Warbler	1	1.0	0	0.6
Yellow Warbler	224	284.2	23	73.3
Blackpoll Warbler	1	0.8	0	0.4
Western Palm Warbler	0	0.1	0	0.1
Yellow-rumped Warbler	6453	3284.1	28	81.1
Black-throated Gray Warbler	0	0.1	0	0.1
Townsend's Warbler	27	25.2	2	3.9
Wilson's Warbler	90	135.7	19	52.3
Spotted Towhee	181	60.3	6	2.4
Clay-colored Sparrow	0	0.9	0	0.4
Chipping Sparrow	698	355.1	52	3.9
Brewer's Sparrow	0	0.1	0	0.1
Savannah Sparrow	716	489.8	24	25.8
Le Conte's Sparrow	0	0.1	0	0.0
Vesper Sparrow	131	63.9	14	3.6
Lark Sparrow	0	0.1	0	0.0
American Tree Sparrow	0	0.1	0	0.0
Fox Sparrow	7	16.8	1	6.3
Song Sparrow	726	807.1	62	143.9
Lincoln's Sparrow	162	607.1	31	175.0
Swamp Sparrow	0	1.0	0	0.6
Oregon Junco	1161	416.3	5	29.6
White-crowned Sparrow	901	242.9	21	33.9
Golden-crowned Sparrow	160	22.4	7	4.8
White-throated Sparrow	18	9.8	4	1.4
Western Tanager	63	89.8	2	7.1
Lazuli Bunting	2	12.3	1	4.2
Indigo Bunting	0	0.1	0	0.1
Brewer's Blackbird	39	32.4	0	0.0
Rusty Blackbird	3	3.3	0	0.0
Red-winged Blackbird	81	283.6	0	2.1
Yellow-headed Blackbird	2	1.0	0	0.0

<b>Species</b>	<b>DET</b>	<b>Avg. DET 2006-22</b>	<b>Band</b>	<b>Avg. Banded 2006-22</b>
Brown-headed Cowbird	10	9.6	1	0.3
Western Meadowlark	279	169.9	0	0.0
Bullock's Oriole	0	0.2	0	0.0
Pine Grosbeak	0	3.3	0	0.0
Evening Grosbeak	89	101.8	0	0.3
Purple Finch	35	51.5	1	4.2
Cassin's Finch	15	2.8	0	0.0
Red Crossbill	49	140.1	0	0.1
White-winged Crossbill	24	57.4	0	0.1
Pine Siskin	452	1401.0	0	12.0
American Goldfinch	0	0.1	0	0.0
Rose-breasted Grosbeak	0	0.1	0	0.1
Black-headed Grosbeak	1	0.1	0	0.0
Unidentified Goose	0	1.9	0	0.0
Unidentified Duck	27	38.1	0	0.0
Unidentified Dabbler	0	1.6	0	0.0
Unidentified Accipiter	2	1.2	0	0.0
Unidentified Shorebird	0	4.9	0	0.0
Unidentified Gull	16	26.4	0	0.0
Unidentified Hummingbird	1	1.1	0	0.0
Hybrid Sapsucker	1	0	0	0.1
Flicker Intergrade	7	3.2	0	0.8
Red-shafted Flicker	4	1.7	0	0.0
Yellow-shafted Flicker	0	7.6	0	0.0
Unidentified Empidonax	7	8.6	0	0.2
Traill's Flycatcher	6	12.0	1	4.5
Unidentified Swallow	4	14.4	0	0.0
Unidentified Warbler	0	7.9	0	0.0
Slate-colored Junco	0	0.2	0	0.1
Unidentified Sparrow	1	4.7	0	0.0
Unidentified Blackbird	0	4.1	0	0.0
Unidentified Finch	0	3.2	0	0.0
<b>Totals</b>	<b>27992</b>	<b>20774</b>	<b>881</b>	<b>1536.8</b>