Mackenzie Nature Observatory
2012
Annual Birding Report

Cape May Warbler
A new species
for the station.

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Mackenzie Nature Observatory is an incorporated society and a registered charity. Our members enjoy nature and we are involved in various projects. This report will attempt to give an overview of what we do.

Purposes of the Society:

- ***To research, conserve, restore and assist in the management of the natural resources found in the Mackenzie, BC area.***
- ***To promote the understanding and enjoyment of nature by providing opportunities for public participation and education in habitat enhancement, restoration and monitoring projects that will provide additional public knowledge regarding nature.***
- ***To encourage and engage in the protection and restoration of threatened and endangered species with special attention to the preservation of essential habitats.***

Our Executive Committee:

***President**: Ryan Bichon*
***Vice-President**: Jeanne Wysoski*
***Secretary-Treasurer**: Vi Lambie*
***Directors**: David Lambie*
Laird Law
Vida Tattrie
Stephanie Killam
Knut Herzog

***Director for BC Nature**: Vida Tattrie*

***Banding Station Coordinator**: Vi Lambie*

***Christmas Bird Count Coordinator**: David Lambie*

***Fish Committee Coordinator**: Knut Herzog*

***Community Forest Advisory Group** reps: John & Vi Lambie*

***Mackenzie Public Advisory Group for Canfor** reps: Vi Lambie and Ryan Bichon*

Acknowledgements

A special Thanks to our four banders, Amélie Rousseau, Rinchen Boardman, Chris Sukha and Jillian Johnston, for the wonderful year – it was a pleasure working with you. Thanks to all our sponsors for continuing to support our banding station. Thanks to Rinchen Boardman, Chris Sukha and Jillian Johnston for their contributions to this report. Also a big thanks to all of you for sharing your photos of the banding season with MNO – it adds to our collection of photos of the different species and it made it easier to find photos to use in the report.. Thanks to all our volunteers – your help is greatly appreciated. Thanks to David Lambie for his report on the CBC and for helping with the formatting of the Appendices. Thanks to Sandra Kinsey for the report on Listed Species. Thanks to everyone who submitted their bird sightings in 2012. Thanks to John D. Lambie, David Lambie, Sandra Kinsey and Laird Law for reviewing all and/or parts of the report.

Sincerely,
Vi Lambie

Photo Credits

Thanks to everyone who contributed photos for this report. Thanks to Jillian Johnston for her photo of a Ruby-crowned Kinglet and a Magnolia Warbler, to Rinchen Boardman for his photo of a White-crowned Sparrow, to Maeve McLaughlin for the photos of her daughters and Linnea and to Linnea Cross for the photo of Aquinnah McLaughlin. A special thank you to David Lambie and John D. Lambie who took lots of photos which I was able to combine with a few of my own and those I mention above to make the pages of photos for the report. Thanks to John and David for helping me choose the background photos and decide which bird photos to use.

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Migration Monitoring – Mugaha Marsh Banding Station by Vi Lambie

Goals and Objectives of our project(from station protocol)

The migration monitoring program in Mackenzie has three broad goals:

1. To monitor changes in the populations of small landbirds, that use and migrate through the Mackenzie area by providing annual indices of population numbers and structure, species composition, migration timing and possibly survival rates and indices of productivity. Of particular concern are those species not effectively monitored by other survey methods (e.g. Breeding Bird Survey) and species showing declines in other regions.
2. To understand migration ecology and its relationship to breeding dynamics and management issues, particularly the significance of Mugaha Marsh as a stopover site.
3. To build partnerships within the community and between industry, naturalists, academia, First Nations, governments and interested citizens.

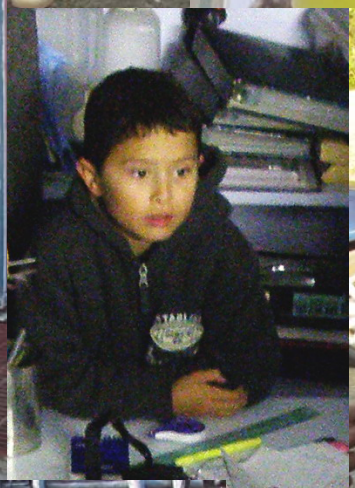
Specifically, we have several objectives:

1. To identify and count individuals (observed and captured) of each species or subspecies, new and recaptures, daily using standard, nationally accepted protocols during fall migration.
2. To determine the age and sex composition of captured birds.
3. To augment public interest and local knowledge of environmental issues through involvement and training opportunities.
4. To produce annual reports: MNO and the banders will produce an annual report summarizing the season, containing numbers and composition of captures and recaptures, comments on habitat changes, weather conditions and other factors that may have affected the capture of birds locally. CWS will support annual trend analyses. CWS will also produce regular analyses and interpretation of data, placing observations in the context of local and regional landscapes, regional weather conditions, population surveys and studies, and other environmental factors.
5. To investigate the use of migration numbers as an index of productivity, particularly for forest birds.
6. To support further integrated research.
7. To reduce, where possible, biases in sampling by improving survey protocols and skills of observers, maintaining local vegetation structure and composition, and supporting consistency of the surrounding landscape of Mugaha Marsh. We will investigate the best measurements and influences of variation in capture population (e.g. age, sex, migratory status, moult, mass gain) and other, uncontrollable potential sources of biases (e.g. weather, habitat change in the surrounding landscape, insect outbreaks, water levels) on the observed trends and adjust analyses accordingly.
8. To follow a standard protocol that meets the scientific requirements of CWS and the Canadian Migration Monitoring Network.

Methods (a summary)

Each day during the fall season the station operates 12 mist nets for six hours starting at sunrise weather permitting. This is called the Standard Banding period.

The birds are extracted from the mist nets and taken back to the banding lab in individual bird bags. The banders or trained volunteers identify the bird to species and sometimes to subspecies, age and sex the bird, then place a small metal band (with its own unique number stamped on it) on the bird's leg. Measurements such as wing chord, fat and moult are recorded, and then the bird is weighed and released. The



same data is collected on previously banded birds that are recaptured, unless it is a same day recapture in which case the bird is released at the net. Whenever possible a one hour census is conducted over a standardized route each day recording all birds observed or heard in the designated area. In fall this can be difficult as very often birds do not sing; they merely make chip notes or at times are silent as the flit through the vegetation.

In addition casual observations of bird activity are recorded during the standard 6 hour banding period. Birds observed outside the 6 hour standard banding period are also recorded, but these are kept separate from the observations during standard banding.

Totals from banding, recaptures, observations and census are used to help the banders compile an estimated total of the birds in or passing through the area each day.

For a couple hours after sunset banders sometime try to capture a few owls using an audio lure to draw them into the nets. There are two net lanes (occasionally 3) that are used for this. Owl banding is kept separate from the standard banding – it is in what we call non-standard banding.

Reporting Banded Birds

Banded birds help scientists to track the movements of birds. If you find a banded bird it is important to note as much as you can about the bird. If the bird is found alive, please do not try to remove the band. This could result in an injury to the leg (banders use special tools when a band needs to be removed). Please note the following information:

- numbers, in sequence, appearing on the band or bands
- colours, codes and materials of any bands or markers in addition to a metal band
- date on which the bird or band was found or observed
- exact location the bird or band was found or observed
- species, sex and age of the bird (if known)
- whether the bird was alive, dead, injured, free, or trapped
- how the bird died (if known)

Anyone who finds a bird band should report the band by calling toll free 1-800-327-BAND (2263) or online at reportband.gov.

Band Encounter reported to Banding Office

A hatch year Pine Siskin, band number 2580-24464, banded at Mugaha Marsh on 9 August 2011 by Julian Hudson, was recaptured on 3 October 2011 at Cabot Head Research Station (19 miles east from Tobermory, Ontario) by Stephane Menu. It was processed and released.

Learning about Birds

The banding station provides a great opportunity for people to see birds up close. Children can learn to appreciate nature and it helps to kindle a desire to learn more about our environment.

The collection of photos on the previous page shows some of the young visitors at the banding station. They are:
Top row: Nicholas Wright; Rinchen Boardman (bander in charge) and Kaine Valenta; Clea McLaughlin; bander Chris Sukha, Esther McIntyre and a few visitors at owling.
2nd row: Aiden Duerksen; Rinchen Boardman and Eden Dunbar; Ethan Lambie; Jasmine Turnbull.
3rd row: Rinchen Boardman, Nicholas Wright, Sarah Wright and Christy Wright; Chris Sukha and Genevieve Adams; Caedmon Dunbar.

4th row: Rinchen Boardman and Paige Duerksen; Chris Sukha and Madeline McIntyre; Aquinnah McLaughlin.

We also had visits from the Prince George Naturalists Club and the UNBC Wildlife Club, the judges from Communities in Bloom and many individuals.

Location

The Mugaha Marsh banding station is located in the Rocky Mountain Trench, west of the Rocky Mountains and east of the Parsnip Reach of Williston Reservoir (some net lanes are in the floodplain of the reservoir when it is at full pond). Mugaha Marsh (N55° 23' 55", W123° 12' 30") is 14 km northwest of Mackenzie, BC. Access is via an all-weather gravel road.

Facilities

A 12 x 20 building serves as the banding lab. There is electricity, but no running water on site. Two small travel trailers (one belonging to MNO and one on loan from Ministry of Forests, Lands, Natural Resources) plus a large wall tent serve as accommodations for the banders.

Bird Committee

Mackenzie Nature Observatory has a bird committee that helps the banding station coordinator with all the work related to the banding station. They are a wonderful group of people and even though they are all busy they find time to help – Thanks to you all. They are: David Lambie, John Lambie, Ryan Bichon, Jeanne Wysoski, Linnea Cross, Stephanie Killam, Vida Tattrie, Laird Law and Sandra Kinsey.

Although Mark Habdas is not on the bird committee I would like to thank him for helping to recruit volunteers for our station.

Staff – Fall 2012

MNO hires licensed banders for the duration of the season. This year our season ran from July 19th to September 23rd.

Rinchen Boardman was our Bander-in-charge for 2012. Amélie Rousseau and Jillian Johnston shared the 2nd full time bander position (Amélie was here in July and Jillian started on August14.) Chris Sukha was the additional bander that filled in when one of the other banders had days off – he was here for the full season.

Permits

Mackenzie Nature Observatory has its own station permit 10788 and Vi Lambie is the person designated as responsible for it. Vi, Rinchen Boardman and Amélie Rousseau have their own master banding permits. Jillian Johnston and Chris Sukha have subpermits.

In addition to the federal banding permit MNO has its own provincial banding permit that covers the provincial birds we band.

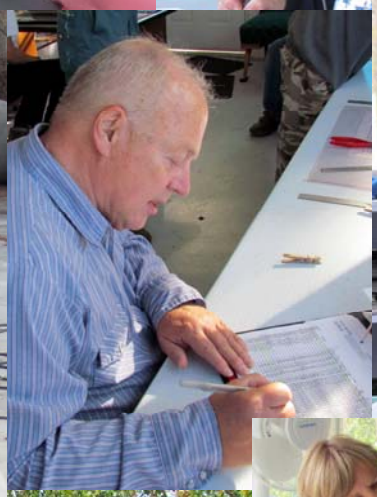
Licence of Occupation

MNO has a licence of occupation for the banding site. We must maintain third party liability insurance for station activities. Thanks to BC Nature for providing this.

Volunteers

Volunteers are so important to keeping this project going. We do our best to keep a record of all volunteers, but please, if we have missed you, it is not intentional and we do appreciate all the help.

This is a list of individuals who assisted at the banding station (with maintenance, setup and during the banding season): Meagan Bailey,



Ryan Bichon, Rinchen Boardman, Linnea Cross, Jukka Jantunen, Jillian Johnston, Knut Herzog, Clive Keen, Sandra Kinsey, David Lambie, John A. Lambie, John D. Lambie, Vi Lambie, Laird Law, Bonnie Meier, Heather Meier, Wayne Paulson, Kirk Smith, Chris Sukha, Diane and Art Weismiller, Theresa Weissenmayer and Jeanne Wysoski. Together we put in 1255 volunteer hours and this does not include the numerous other jobs volunteers do during and after the season such as the washing of bird bags, taking out water for the banders, printing data for checking, checking the data and submitting it to banding office, Bird Studies Canada and Environment Canada; putting together this report, etc.

On the previous page is a group of pictures of many of our volunteers and our banders. They are from left to right:
Top row: Amélie Rousseau & Diego; Jillian Johnston; Laird Law, John Lambie, Sandra Kinsey, Chris Sukha, Rinchen Boardman, David Lambie; Vi Lambie.
2nd row: Rinchen Boardman, Linnea Cross, Clea McLaughlin, Aquinnah McLaughlin; Jeanne Wysoski; Heather Meier; Megan Bailey.
3rd row: Ryan Bichon; Wayne Paulson; Ryan Bichon and Jillian Johnston; Rinchen Boardman and Clive Keen.
4th row: John Lambie working at net lane 11, Bonnie and Heather Meier; Sheila Chisholm; Vi Lambie, Chris Sukha and Theresa Weissenmayer.
Bottom row: Diane and Art Weismiller; Juha & Jari Jordan, Jukka Jantunen, Jaana, Karri, Eero and Hannu Jordan.

Sponsors

Thanks to all our sponsors. All contributions little or big are greatly appreciated and it enables us to keep the station running.

Fish and Wildlife Compensation Program – Peace Region
This Project is partially funded by the Fish and Wildlife Compensation Program (FWCP) on behalf of its program partners BC Hydro, the Province of B.C. and Fisheries and Oceans Canada who work together to conserve and enhance fish and wildlife impacted by the construction of BC Hydro dams. To receive this funding we entered an agreement with the FWCP for $10,000.

In 2011 we received a grant of $6000 from the **Public Conservation Assistance Fund** for 2012 season and we have received an additional grant of $6000 for the 2013 season.

We have a contract with **Environment Canada (Canadian Wildlife Service in Delta, BC)** for $7000.

Friends and members of MNO took part in the **Baillie Birdathon** that is coordinated by Bird Studies Canada to help raise money for the station. We received a cheque for $2825.06 for our share of the funds that were raised in 2011. In 2012 Christopher Coxson, Daniel Dunlop, Sandra Hepburn, Nancy Krueger, Violet Lambie, Heather Meier and Ray Sturney and Maureen Sargent took part in the Baillie Birdathon on behalf of Mackenzie Nature Observatory. Together they raised $4410.25 and we will receive our share of that in 2013. Thanks to all who took part and to all their sponsors!

Donations were also received from **James Bradley**, **June Ryder** and **Michelle Gunter.** They are members of MNO and we appreciate their continued support of the program.

Thanks to **BC Ministry of Forests, Lands, and Natural Resource Operations** for allowing us to use their small travel trailer for accommodations for our bander and for allowing us to store trailers in their compound during the off-season.

Eighteen Years of Banding at Mugaha

This is our eighteenth year of banding at Mugaha Marsh during fall migration. A

summary of what has been banded in standard banding from 1995-2012 is given in Appendix 1. Hummingbirds and owls are included in non-standard banding and the summary of birds banded in non-standard banding from 1994- 2012 is given in Appendix 2. In 1994 there were two weekends when we banded at Mugaha and these are included in the non-standard banding. In 1998 we banded in the spring for a week and this is also included in the non-standard banding chart.

The photo on the next page is of the top 12 species banded during standard banding from 1995 to 2012:

1. Ruby-crowned Kinglet
2. American Redstart
3. Northern Waterthrush
4. Pine Siskin
5. Orange-crowned Warbler
6. Yellow-rumped Warbler
7. Common Yellowthroat
8. Dark-eyed Junco
9. Yellow Warbler
10. Swainson's Thrush
11. Wilson's Warbler
12. Alder Flycatcher

Each year as part of our contract with CWS, we prepare several charts: daily summaries of birds banded (Appendix 3), birds returning and birds recaptured more than once in the season – repeats (Appendices 4 & 5). We also update the summary of birds banded at the site from 1995 - 2012. Appendix 6 is a summary of species captured in each net in 2012. A general interest chart showing the dates each return was captured, and the net, time and bander for each time it was processed was also prepared (Appendix 7).

Net lanes and Birds Captured

In July we realized that we would be looking at high water at the marsh for the start of the fall season. We initially thought we would be able to raise the boardwalk at net lane 3 and net lane 11, but the water came up quickly and it was going to be too much of a challenge. Much of the shrub vegetation that used to be along 3 has died with the years of high water so we opted to try to salvage net lane 11 which still had some willows and spirea along it. John ended up working on the boardwalk several days to get it raised so we could use the net.

Because of high water at the marsh due to the rising levels of Williston Reservoir many of the other net lanes were wetter than normal. Net lane 12 had water on both sides of the point of land it is on. There was water under net 17 most of the season (we used low boardwalks there). For part of the season, net lane 9 was flooded at one end and we had to put in a boardwalk to use it without rubber boots. The back walk between net lanes 22 and 20 was flooded/wet for part of the season so we resorted to backtracking and going in from the roadside. Some boardwalks were used at net lane 22 as well.

Earlier in the spring we pruned the vegetation along several of the net lanes to try to keep birds from flying over the nets. Vegetation along the net lanes was similar to previous years, but out in the marsh there is a lot of dead willows and other shrubs. Some had started to come back, but the high water this year will probably damage the vegetation even more, but we won't know for sure until next spring.

There were blueberries in the forest around the station – they were plentiful by net lane 26. There were some Soopolallie berries at the site, but they weren't as plentiful as last season.

This was a great season for birds. Below is a summary of how each net lane did in the hours it was open.

Net 28 was our least productive net. It was open 360 hours 40 minutes and it captured 98 new birds of 17 different species. Eleven recaptures were also caught in it. The vegetation at this net is more mature and is well above net height. This net was opened on the 21st and it was down for two days after the

#12. ALFL

1. RCKI

2. AMRE

Top 12 Species Banded at Mugaha Marsh 1995 - 2012

11. WIWA

3. NOWA

#10. SWTH

4. PISI

9. YEWA

5. OCWA

8. DEJU

7. COYE

6. YRWA

bear went through the bottom panel.

Net 12 was open for 381 hrs and 55 minutes. It captured 234 new birds of 35 different species including the only Gray Jay and the only Swamp Sparrow that we caught this year. Thirty-five recaptures were caught in this net.

Net 20 was open for 377 hours and 10 minutes and it captured 238 new birds of 37 different species. 35 recaptures were also captured in this net.

Net 22 was open for 380 hours and 40 minutes and it captured 253 new birds of 30 different species. 32 recaptures were caught in this net.

Net 11 was open for 319 hours and 55 minutes. In that time it captured 254 new birds of 32 species. 28 recaptures were caught in this net. This net was not ready for use until July 25th and it lost some time when it was closed due to wind.

Net 21 was open for 380 hours and 40 minutes during which time it captured 256 birds of 32 species. 19 recaptures were caught in this net.

Net 9 was open for 383 hrs and 25 minutes and it captured 263 new birds of 28 species. 30 recaptures were caught in this net.

Net 19 was open for 377 hours and 10 minutes and it captured 269 new birds of 33 species. 32 recaptures were caught in this net

Net 26 was open for 382 hours and 55 minutes and it captured 292 birds of 40 species. 37 recaptures were caught in this net.

Net 25 was open for 383 hours and 55 minutes and it captured 350 birds of 40 species. 40 recaptures were caught in this net.

Net 17 was open for 383 hrs and 55 minutes and it captured 371 birds of 32 species. Of those 371 birds 100 were Northern Waterthrushes – they obviously like that area of the marsh. 47 recaptures were caught in this net.

Net 32 was open 381 hours and 55 minutes and it captured an amazing 813 birds of 39 species. It also caught 72 recaptures. This net caught birds as they came down out of the tall trees on the forest edge and other birds moving in from the cutblock. It caught high numbers of Ruby-crowned Kinglets (126), Orange-crowned Warblers (96), and White-throated Sparrow (84).

Please refer to Appendix 6 Species banded in each net at Mackenzie Nature Observatory's banding station at Mugaha Marsh, Mackenzie, BC for details of species and numbers captured in each net.

MNO Banders' Report on the 2012 Banding Season:

Summary by Rinchen Boardman

This note summarises the 18th season of migration monitoring in a standard format. It provides a snapshot of information gleaned during the period between July 19 and September 23. A standard protocol was adhered to producing an impressive 3688 individual birds banded of 58 species. An additional 6 Hummingbirds, of two species and 39 Northern Saw-whet Owls were also banded during this period. Over the years, this effort represents the second highest number of birds processed over a season during the life of the station. The highest to date is that of 1998 totalling 4021. During that year an impressive 1305 Pine Siskin were captured.
The abundance of species is slightly above the station average. The weather allowed us to operate approximately 97% of our capacity. Our results represent .862 birds caught per net hour. This represents one of the most productive seasons to date. Our busiest day was September 3 totalling 129 individuals of 24 species. Other productive banding days were;

September 10, with 106 birds of 13 species, and July 28, 100 birds captured of 20 species. Our least active days provided 24 birds of 4 species on September 16 and the same number of individuals of 6 species on September 22. On average, we processed 54.4 birds per day. Two separate nets were affected for a number of days in July; one by a black bear running through it, the other by rising marsh water. I must express my gratitude to the many for their effort and support in assisting in this splendid result. Individuals will be noted in a further segment of this report.

There were 10 species captured which topped previous years' highs. These were; **Northern Rough-winged Swallow-4**, **Orange-crowned Warbler**-301, **Yellow Warbler**-168, **Magnolia Warbler**-112, **Yellow-rumped Warblers**-415, **Blackpoll Warbler**-57, **Northern Waterthrush**-431, **White-throated Sparrow**-108, **White-crowned Sparrow**-68 and **Purple Finch**-9.

In addition, the first **Cape May Warbler** caught on August 1 was a station first! On August 29, a second was captured. Again, on closing day, a third was banded. These birds breed north and northeast of the station and it is puzzling that Mugaha Marsh has not seen them in the past.

Species which were captured in excellent comparative numbers, all second to one other season were: Swainson's Thrush-187, Tennessee Warbler-118, and Townsend's Warbler-41.

Other species caught in healthy numbers included Least Flaycatchers-95, Ruby-crowned Kinglets-346, Common Yellowthroats-184 and American Redstart-296.

Wilson's Warblers seem to have halted their five year decline at the station with 53 individuals captured this season. Only a few years ago the station was capturing more than twice this number.

Species with unexpected low numbers for this season include; the Sapsuckers- 6, Hammonds Flycatcher- 31, Dusky Flycatcher- 19, Solitary Vireo-1, Cassin's Vireo-3, Red-Eyed Vireo-2, Hermit Thrush-15, Swamp Sparrow-1, and Pine Siskin- 45.

Our non-annual season captures included; Gray Jay-1, Northern Rough-winged Swallow-4, Bohemian Waxwing-2, Varied Thrush-2, Clay-colored Sparrow-1, and a Species at Risk Rusty Blackbird-2.

On both July 23 and August 21 the number of species caught represented a season high of 27 species.

About 84% of the birds processed this year were hatch year individuals. This demonstrates that Mugaha Marsh provides a productive stopover area for young inexperienced migrants. Many adults have the ability to fly greater distances with a higher efficiency than their young. Females represented about 48% of the identified sex of our total.

Observations and further notes follow below.

Weather by Rinchen Boardman

July: The days for most of this month could best be described as tropical with afternoon temperatures reaching into the 30°C's under our outdoor tent in the sun.

The average sunrise temperature was 14°C with our net closing thermometer averaged 22°C, six hours after sunrise. Most early mornings began with some cloud cover. As best as we were able to determine, an average of about 47% of the sky was covered at net opening throughout the month.

Though not a weather factor, it must be noted that this month also had rapidly rising marsh waters. We monitored this daily. High marsh levels provided little riparian habitat for the

New Record Highs for number banded in one season set in 2012

From top then counter clockwise:
Northern Waterthrush
Yellow-rumped Warbler
Orange-crowned Warbler
Yellow Warbler
Magnolia Warbler
White-throated Sparrow
White-crowned Sparrow
Blackpoll Warbler
Purple Finch
Northern Rough-winged Swallow

station area and likely had an impact on species distribution throughout the season. Mosquitoes thrived in the warm weather throughout the season.

August: Much of this month's weather continued with the hot, dry days and nights of July. The average sunrise temperature was a balmy 12°C with an average net closing/end of standard banding temperature of 19°C. Most days were primarily sunny with limited cloud cover. At time of net opening (sunrise), we averaged 37% cloud cover. This number may be instructive in regards to the migration movement and foraging activity of birds captured. Our banding period was minimally reduced by rain on two days and by wind on parts of five days. We had excellent coverage over this month.

September: As expected, cooler mornings and an increase in wind started the month. During the first week our days were warm and calm until we encountered our first frost on the morning of September 11. September 12 provided us with our first full day in which we were unable to open nets due to constant rain. As the month unfolded, save for a handful of chilly mornings in which a few nets were too frosted to open, temperatures rose into the high teens on clear calm sunny days. Our average sunrise and net closing temperatures were 7°C and 17.6°C respectively. Our cloud cover at opening averaged 23%. Unseasonably pleasant, this inhibited any major influx of final migrants to the station.

Non-Standard Banding by Rinchen Boardman and Chris Sukha

During July, under the guidance of a hummingbird permit holder for a period of 6 days, 4 Rufous Hummingbirds and 2 Calliope Hummingbirds were processed.

In September, 2 owl nets with tape lure were used on 10 nights producing 39 Northern Saw-whet Owls. On one of these evenings the song of a Boreal Owl was played with the hopes of attracting this species. The desired affect was not produced. However, two Northern Saw-whet Owls were curious enough to be attracted to the nets on this particular occasion.

Standard Banding by Rinchen Boardman and Chris Sukha

Non-Passerines

2 diurnal raptors were banded; both Sharp-shinned Hawks. 3 Wilson's Snipe were captured. In addition, 6 Yellow-bellied Sapsucker, 11 Downy Woodpecker, 1 Hairy Woodpecker and 1 Yellow-shafted Flicker were caught this year.

Tyrant Flycatchers - *Tyrannidae*

A total of 197 Flycatchers were caught this year. Leading the tally were 95 Least Flycatchers (above average). Alder Flycatchers represented 49 of the total (second lowest), with Hammonds, Dusky and Yellow-bellied Flycatchers with 31 (third lowest), 19 (below average) & 3 respectively. Absent were Western Flycatcher and Pacific-slope Flycatchers.

Jays – *Corvidae*

This year we captured 1 Gray Jay, the first since 2001.

Vireos - *Vireonidae*

A total of 48 Vireos were handled in the lab, of which 1 was identified as a Solitary Vireo, 3 as Cassin's Vireo, 2 as Red-eyed Vireo and 43 (below average) as Warbling Vireo.

Swallows – *Hirundinidae*

4 Northern Rough-winged Swallows (above average) and 2 Barn Swallows were captured and banded this season.

Chickadees - *Paridae,* Kinglets - *Regulidae* and alike

Black-capped Chickadees were observed regularly throughout the season. No invasion occurred. 31 Black-capped Chickadees were banded (below average). The addition of 3 Boreal Chickadees in September provided an above average catch for this occasional annual visitor.

Notably missing was Brown Creeper. None were caught. The previous average capture is 2.3 annually.

12 Red-breasted Nuthatches represents about the average for the station.

88 Golden-crowned Kinglets reflects about an average total over the years. The number of Ruby-crowned Kinglets; 346, also mirrors the station average.

Thrushes - *Turdidae*

4 Gray-cheeked Thrush were caught, above the station average. Swainson's Thrush totalled 187 individuals which represents the second highest number of this species banded at the station in its history. The highest was the 2011 season totalling 190. In addition, 16 Hermit Thrush were noted, below average, 14 American Robin and 2 Varied Thrush which were also below the average capture numbers.

Waxwings - *Bombycillidae*

Bohemian Waxwings have only been caught in 3 previous seasons. This year there were 2 of this species to brighten our eyes. Cedar Waxwings also fared well for the station totalling a well above average tally and a close second over the years with 29 individuals. They no doubt enjoyed the fine berry crop this year.

Wood Warblers - *Parulidae*

Ovenbirds had a similar season to 2011, with 5 banded.

Northern Waterthrush had a record breaking season, with 431 banded, surpassing their old record of 411, set in 2003.

Tennessee Warblers had their second highest total ever, with 118. Orange-crowned Warblers set a new record, with 301 banded, beating their old record of 206, in 2006.

MacGillivray's Warbler numbers were about average, with 21 banded.

A highlight was the capture of a MacGillivray X Mourning Warbler hybrid; it had the bold eye-arcs of the MacGillivray's, and a complete thin eye ring like a Mourning. Measurements also helped to identify it as a hybrid.

Common Yellowthroat numbers were moderate, with 184 banded, their 4th highest total.

American Redstart numbers were also moderate, with 296 banded, their 4th best season.

Magnolia Warblers had a record season, with 112 banded, beating their record of 106, in 2002.

Cape May Warbler was an exciting addition to the species tally, as this was the first season they have been captured at Mugaha. A total of 3 were banded.

Yellow Warblers had a record-setting season, with 168 banded, breaking their old record of 166, in 2008.

Blackpoll Warbler also had a record season, with 57 banded, their previous high being 46 in 2002, and 2006.

Yellow-rumped Warblers had a very productive season with 415 banded, well above their record of 306, set in 2006. Most of them (237) could not be identified to subspecies, and so were banded as "Yellow-rumped Warblers".

Audubon's Warbler, the western subspecies had a good showing, with 171 banded, while only 7 of the eastern "Myrtle" Warblers were banded.

Townsend's Warblers had their second-best season, with 41 banded, just short of tying their best season in 2001, when 42 were banded.

Wilson's Warblers had a poor season, with 53 banded, below their long-term average of 85. Although 53 is low over the long run, they still

had better numbers than last year, when only 43 were banded.

Sparrows - *Emberizidae*

Spizella sparrows had a poor year for species diversity, as only 18 Chipping Sparrows were banded, and 1 Clay-colored Sparrow banded.
Savannah Sparrows had a slower year, with only 20 banded, a little below the average of 24 per season.
Fox Sparrow numbers were about average, with 6 banded. Representatives of all three subspecies were caught.
Melospiza sparrows were represented by all three species, but at low numbers of individuals.
Only 1 Swamp Sparrow was banded, tying for lowest number banded in a season.
Lincoln's Sparrows, with 30 banded, were a little below their average of 36 per season.
Song Sparrows had a slightly above average season, with 32 banded, double their total of 15 in 2011.
Unlike the other sparrows, Zonotrichia sparrows had a record-setting season, with both White-crowned Sparrows and White-throated Sparrows setting new records. White-crowned had a good season, with 68 banded, passing the record of 66, set in 2011. Most years the "Gambel's" subspecies is the main form of White-crowned Sparrow banded at Mugaha, but this season many were of unknown subspecies.
White-throated Sparrows blew all previous records away, with 108 banded. A giant leap in numbers, considering the total in 2011 was 78. 2010 only had 27!
Dark-eyed Juncos seem to come in waves at Mugaha, with highly variable numbers banded per season. 2012 was on the lower end for numbers, with 120 banded, tying with 2003, when 111 were banded also. Of the 120, 55 were identified as Oregon Juncos, 1 as Slate-coloured, and 64 were not able to be identified to subspecies, and/or were hybrids between the Oregon and Slate-coloured Juncos.

Cardinals, Grosbeaks, Saltators - *Cardinalidae*

9 Western Tanagers were banded this season, about average for the station.

Blackbirds - *Icteridae*

Only 2 Rusty Blackbirds were banded this season, making 2012 third-lowest season for this species.
Brown-headed Cowbirds had a good season, with 3 banded. None were captured in 2011, and most years only have 1 or 2 captured.

Finches - *Fringillidae*

Purple Finches set a new record high, with 9 banded; the previous high was 7, back in 1998. Only 2 were banded last year.
Pine Siskins had a slow season, with only 45 banded, well below 2011, when 171 were banded.

The photo on the next page shows the Top 12 Species Banded in 2012:

1. *Northern Waterthrush*
2. *Yellow-rumped Warbler*
3. *Ruby-crowned Kinglet*
4. *Orange-crowned Warbler*
5. *American Redstart*
6. *Swainson's Thrush*
7. *Common Yellowthroat*
8. *Yellow Warbler*
9. *Dark-eyed Junco*
10. *Tennessee Warbler*
11. *Magnolia Warbler*
12. *White-throated Sparrow*

Recaptures and Returns by Chris Sukha

Every year, since 1996, Mugaha Marsh Banding Station has been busy monitoring bird migration in the Northern Rocky Mountain Trench, north of Mackenzie, BC. Although

Top 12 Species Banded at Mugaha Marsh Fall 2012

WTSP 108

NOWA 431

YRWA 415

MAWA 112

RCKI 346

TEWA 118

OCWA 301

DEJU 120

AMRE 296

YEWA 168

COYE 184

SWTH 187

"new" birds, without and in need of bands are very interesting, we learn much more when birds are recaptured, that have been banded at some previous date. We can then learn about how long these birds live, how long they linger in an area, what their physical condition is like, and much more besides.

Visitors often ask "Do you catch birds that you have banded earlier in the season?" The answer is a very definite "yes!" The season of 2012 was no exception, with more than 400 recaptures, of more than 30 species.

There are two types of recaptures encountered, termed "Returns" and "Repeats". Returns are birds banded in a previous season that are recaptured for the first time in a following season. An example would be an American Redstart banded in 2011. That Redstart is a return the first time it is recaptured in 2012, as it is "returning" the year after its initial capture.

Repeats are birds recaptured the same year they are banded. A Yellow Warbler that was banded on July 20th and recaptured on the next day would be an example of a repeat. Also, a bird that was a return and is recaptured again that year becomes a repeat. In the initial example of an American Redstart banded in 2011, the first time it is recaptured in 2012 it is a return; the second time it is recaptured in 2012 it is a repeat. So as you can see why there will be some overlap in the following report, and why that overlap occurs.

July

The station opened its nets for business on July 19th. The day was one of the busiest of the season, with 93 individual birds banded, of 23 species, and 4 returns of 4 species. The highlight was a Song Sparrow, originally banded as an After Second Year (ASY) bird in 2009, making it at least 6 years old.

Overall, July proved to be the busiest month for returns, with 28 individual birds recaptured, of 13 species. Highlights included a Least Flycatcher Return from 2011, as few flycatchers are recaptured, and a Yellow Warbler and American Redstart return, both originally banded in 2007. The Yellow Warbler was banded as an After Hatch-Year (AHY) bird in 2007, making it at least 7 years old. The American Redstart was banded as a Second Year bird in 2007, making it 7 years old. Both were banded on the same day, and recaptured within a week of the original date of capture. The Yellow Warbler was banded on July 21, 2007 and recaptured July 23, 2012; the American Redstart was originally banded on July 21, 2007 and recaptured July 28, 2012. The American Redstart was even recaptured in the same net it was originally captured in! Following is a list of returns for July:

Downy Woodpecker 1
Least Flycatcher 1
Warbling Vireo 2
Black-capped Chickadee 1
Swainson's Thrush 3
Common Yellowthroat 1
Northern Waterthrush 2
Orange-crowned Warbler 1
American Redstart 8
Magnolia Warbler 1
Yellow Warbler 3
Lincoln's Sparrow 1
Song Sparrow 1

We also had 94 repeats in July, of 19 species. That number includes a few birds that started as returns, and then were recaptured again, a few days after initial recapture.

August

August turned out to be much slower for returns than July had been. We only had 7 returns of 5 species the entire month of August; considering that August is the only month in which the entire month is covered by the operations at Mugaha, that low rate of returns was quite disappointing! Following is the list of returns for August:

Black-capped Chickadee 1

Ruby-crowned Kinglet 2
Orange-crowned Warbler 1
Yellow Warbler 1
Song Sparrow 2

Despite the low number August was not without excitement. One of the highlights of the 2012 season was the recapture of a Yellow Warbler that was originally banded in 2006. Since it was initially banded as an After Second Year (ASY) bird in 2006, it must have been born in 2004, if not earlier. That would make it at least 8 years old when it was recaptured in 2012, if not possibly older! It was a repeat a few times in 2006, was recaptured only once in 2007, and wasn't recaptured again until 2009, being recaptured every year thereafter. And, as if the story of his recaptures at Mugaha alone were not enough, he was recaptured in 2012 in the exact same net as he was initially taken from, 6 years previously!

Another highlight was the return of 2 Ruby-crowned Kinglets. These tiny insectivores are banded by the hundreds every year at Mugaha, but very few are recaptured in following years. One of them was from 2011, and the other was from 2010. After being banded as a Hatch Year (HY) in 2010, he wasn't subsequently encountered again until this year. After his initial recapture as a return in August, he was recaptured again as a repeat 5 more times during our season, always from the same sets of nets. Something there must have suited him! What August lacked in returns, it made up for in repeats, with 188 repeats of 27 species during the month. Some were only recaptured once after initial banding, while others were recaptured numerous times.

September

September proved to be the slowest month for recaptures. Returns were represented by only 5 individuals of 2 species the entire month, which as far as banding went ended on September 23rd. Following is the list of returns for September:

American Redstart 1
Orange-crowned Warbler 4

All the Orange-crowned Warblers were from 2011, and the American Redstart was originally banded in 2010.

Repeats were also relatively few, as there were only 95 repeats of 20 species over the course of the month.

Note that the number of repeats, unlike returns, is not a count of individuals recaptured, but is rather a count of the number of retrap records. Although most birds leave Mugaha after being banded, a good number stay in the area, for many reasons, including body health, food supply, and state of feather moult.

From July 19th, our first day of banding, to September 23rd, our last day of banding, we had 40 individual returns of 14 species. In the same period we also had 377 repeats, of 32 species.

Observations at the Banding Station by Jillian Johnston, with assistance from Rinchen Boardman

Note: These observations were prepared using the census and daily observations but do not include detections through banding and recaptures. Not all species are discussed, i.e. those species for which more data was obtained through captures. The season ran from Jul 19 to September 23.

Once again not many flocks of waterfowl were noted passing over the station, and the majority of observations were birds seen on the water on the south side. A single **Greater White-fronted Goose** was heard on September 12. **Canada Geese** were detected in small numbers on most days between August 5 and September 23, with a high count of 39 on August 21. Two **Trumpeter Swans** were seen this year, arriving September 21 and remaining until close. One **Gadwall** was seen on August 18. **American Wigeon** were observed on 27 days

from July 22 to September 18, with a high of 105 on September 11. **Mallards** were again the most frequently observed duck, with observations on every day of the season except July 30. Their numbers peaked at 25 on August 3. Small numbers of **Blue-winged Teal were** seen on July 20, August 14 (high of five), and September 3. **Northern Shoveler** appeared to be absent this season. With a high of 60 on Sep 7, **Northern Pintails** were spotted on 12 occasions between August 18 and September 14. From 1 to 3 **American Green-winged Teal** were observed on July 19, August 9, Sep 11 and September 12. **Ring-necked Duck** were seen on 57 days between July 19 and September 19, reaching their maximum of 30 on August 3 and 4. From August 30 to September 11 **Lesser Scaup** were seen on 6 occasions, with a high of 5 on September 10. **Bufflehead** were observed on 43 occasions between July 19 to September 19, peaking at 10 on July 21. On twelve occasions between July 19 and August 31 from one to four **Barrow's Goldeneye** were seen. A **Ruddy Duck** was spied on July 19. Single **Hooded Mergansers** were seen on seven days between July 31 and September 12. A pair of **Common Mergansers** was detected on August 12.

Ruffed Grouse were detected on ten occasions between July 22 and September 22, with nine on July 30.

Common Loons were seen daily until the end of the season. The local nesting pair raised two young. Loons were also seen September 17, 19, and season end. On September 8, one of the young was found on the road twice as it was learning to fly. A high of 8 loons were tallied August 13.

Nine times between July 19 and September 19, **Pied-billed Grebes** were detected. All were single aside from September 14 when 4 were observed. Two and three **Red-necked Grebes** were seen on July 26 and August 22 respectively. Single **Horned Grebes** were seen on July 25, August 21, and September 9.

Nineteen times between July 30 and August 27 **Great Blue Heron** were observed, peaking at eight on August 6. Several were observed being harassed by the parent ospreys around the osprey nest.

Raptors were observed in greater diversity this year compared to last**. Osprey** were observed daily with a high count of eight on July 26. The local pair had three nestlings visible early in the season and was successful at bringing one to fledging. From one to three **Bald Eagles** were seen on 18 occasions between July 19 and September 12. Between July 26 and September 22 **Northern Harrier** were spotted on seven occasions, usually singly except for two seen on September 12. Solitary **Sharp-Shinned Hawks** were observed 13 times between July 24 and September 14. August 16 brought the season's only **Northern Goshawk**. Six lone **Red-tailed Hawk** sightings occurred between July 31 and September 12. Single **Broad-winged Hawks** were seen on both August 12 and 15. **American Kestrels** were spotted on five days from August 31 to September 13, with a high of two on September 8. One to two **Merlin** were noted on 40 days between July 21 and September 21, with daily sightings from August 1 to September 1, likely a locally breeding pair. A **Peregrine Falcon** passed through on August 19.

A lone **Sora** called on September 14. **American Coots** were more common this year with from 1 to 6 seen on 12 occasions between July 19 and September 19, the high count occurring on September 15.

Sandhill Cranes were observed 25 times from July 22 to September 16, with highs of four detected on July 23, July 31, and August 31. This year there was little exposed shoreline for shorebirds. They were often detected only in flight.

The season's lone **Semipalmated Plover** was noted on August 19 and a single **Killdeer** was observed on August 4.

No **Spotted Sandpipers** were found. From one to three **Solitary Sandpipers** were observed on four occasions between July 21 and August 13. Between one and three **Greater Yellowlegs** were detected on 16 days from July 22 to September 11. On 18 dates from July 19 to August 27, one to two **Lesser Yellowlegs** were observed. **Least Sandpipers** were seen 22 times from July 25 to September 11, peaking at 4 on August 15. On five occasions between August 6 and September 18, **Pectoral Sandpipers** were noted; a flock of 8 were seen on September 6. Four **Short-billed Dowitchers** were seen on August 6. **Long-billed Dowitchers** were seen four times from September 3 to 13, with a flock of six on September 11. Unidentified dowitchers were spotted on a further five occasions from July 27 to September 15. **Wilson's Snipe** were counted on a near-daily basis throughout the season, peaking at 5 observations on August 17.

Two **Red-necked Phalaropes** were found present on August 23.

One to two **Mew Gulls** were seen on three days between July 21 and August 24. A single **Herring Gull** on July 22 was the only other gull species identified this season. There were four other gull sightings in August.

One to two **Great Horned Owl**s were heard on 13 days from Jul 28 to Sep 22. A **Boreal Owl** was heard on September 7. **Northern Saw-whet Owls** were detected on several nights in September.

From July 19 to August 20, **Common Nighthawks** were observed on 26 days, usually one to four, but peaking at 21 on July 31.

Calliope Hummingbirds were observed on eight dates spanning July 20 to August 14, with six seen on Jul 23. That same date also had a high of six **Rufous Hummingbirds**. The species was observed daily until August 17, then again on August 17 and 25. Starting August 1, all hummingbirds caught in the nets were treated as observations as there was no longer a bander possessing a hummingbird banding permit present.

From July 21 to September 20 **Belted Kingfisher** were seen on about 40 occasions, three on August 11.

Yellow-bellied Sapsuckers were observed on 7 occasions from the first day of the season until August 11, with a high of three on August 2. A single **Red-breasted Sapsucker** was seen on July 25. **Downy Woodpeckers** were observed on 44 days between July 19 and September 21, peaking at 3 individuals observed on July 24. From July 20 to September 11 with a high of two on August 19, **Hairy Woodpeckers** were detected on nine occasions. Spanning July 19 to September 23, **American Three-toed Woodpeckers** were frequently noted. Two were seen on August 11, September 10, and September 12. On 42 days between July 19 and September 19 **Northern Flickers** were observed. Both Red-shafted and Yellow-shafted were observed as well as intergrades. The high count of seven came on July 26. July 19 to September 23 **Pileated Woodpeckers** were noted on 15 occasions, with two on August 1.

The season's only **Olive-sided Flycatcher** was observed on Jul 20. Only five single **Western Wood-Pewees** were observed between July 24 and August 25. All the Empidonax flycatchers were best represented by the banding data. With only three **Yellow-bellied Flycatchers** banded this season, the one was on census on August 18 is of special note.

Solo **Cassin's Vireos** were observed on July 20, July 26, and August 11. **Warbling Vireos** were observed on 44 days until September 13, with a high of 9 observations on July 28. Single **Red-eyed Vireos** were detected on August 5 and 15.

Gray Jays were more common this year as compared to last, observed on 13 days between July 19 and September 18, with four counted present on July 20. The season's only **Steller's**

Jay came on September 8. A rare **Black-billed Magpie** was heard on September 19. **American Crows** were noted on 50 days throughout the season, peaking with a flock of 60 on August 4. **Common Raven** were seen daily (aside from August 16) in small numbers, with peaks of five on July 19 and 29.

Tree Swallows were seen on 9 days until July 30, disappearing much earlier than last year. The high of 20 was counted on July 20th. **Violet-green Swallows were** noted on four occasions from July 23-31, single birds except for a flock of 10 for the final sighting. **Northern Rough-winged Swallows** were observed on 17 dates from July 20 to August 27, peaking at 24 seen on Jul 29. From July 19 to August 10 **Bank Swallows** were seen 10 times, the largest flock being 30 on July 27. **Barn Swallows** were counted on 31 days until August 31, peaking at 30 on July 26 and August 1. The local breeding pair on the lab produced 4 young.

Black-capped Chickadees were present every day of the season, reaching a peak of 13 detections on September 15. No **Mountain Chickadees** were noted this year, but **Boreal Chickadee** numbers were up; they were recorded present on 11 days in September, with a peak of three on September 5.

September 5 also brought the high tally of eight **Red-breasted Nuthatches**, which were known to be in the area on 59 days. On the final day of the season many by the lab observed a **White-breasted Nuthatch**.

Single **Brown Creepers** were noted on August 25, 26 and 31, the same low number of detections as last year.
A **Pacific Wren** appeared for census on August 23.

No **Mountain Bluebirds** were seen this season. **Townsend's Solitaires** were observed on July 20 (one), 21 (two), and 22 (two) and then another single bird on September 15. **American Robins** were observed on 62 days through the season, with the largest count of 33 occurring on September 19. **Varied Thrush** were observed on 38 days spanning the season, the maximum of four counted on July 27.

Starting August 23 **American Pipits** were observed on 15 occasions, with a high count of 6 on both September 1 and 2.

Bohemian Waxwings bred in the area this year and were observed almost six times more than last year, with 34 occurrences until September 9, with 20 seen on July 28. **Cedar Waxwings** were also seen until September 9, on 46 occasions, with a high count of 30 on July 24.

Both **Golden-crowned Kinglets** and **Ruby-crowned Kinglets** were present through the season, their numbers increasing in late August and even more by mid-September. The banding data further illustrates this trend.

For the warblers, the numbers are most revealing when combined with the banding data, as sometimes more individuals were captured than observed in the field. However, **Northern Waterthrush** observations continued to increase this year, with records on 54 days (as compared to 27 in 2011 and 18 in 2010).

Sparrows share the same trait of being generally more apparent through the banding data, but once again **Song Sparrows** were often observed in higher numbers than in which they were banded. A high of seven individuals was observed on July 24. A **Golden-crowned Sparrow** was seen on the last day of the season. The season's high of **Lincoln's Sparrow** occurred on opening day when four were observed during census. An observed high of 15 **Dark-eyed Juncos** was tallied on September 9.

The first **Lapland Longspur** flyover was noted on August 29 and Longspurs were recorded on 6 dates until September 15, with a high of 14 on September 1.

Western Tanager observations increased this year as compared to last, being recorded on 28 days (as opposed to 17 days last year) until August 27. The observational high was six each on July 19 and 20.

Red-winged Blackbirds were observed four times this season, July 19 (2), July 26 (3), July 27 (8) and August 7 (1). **Rusty Blackbird** observations increased greatly as compared to 2011, with records on 48 days, including a flock of 14 on September 18 and September 22. Last year there were only 13 observations. Single **Brown-headed Cowbirds** were observed on 10 days until August 5.

Small numbers of **Purple Finch** were observed on 17 days until August 31, with an observed high of 6 on July 26. **Red Crossbills** were noted on 9 days until September 8, with a flock of 14 seen on August 24. **White-winged Crossbills** were tallied on 32 days (up from only six days last year), including a flock of 18 on August 26. **Pine Siskin** occurred daily, with 100 estimated present on September 9. Lastly, **Evening Grosbeak** were observed on four days, July 24 (3), July 26 (1), August 2 (3), and August 17 (1).

Other Wildlife Sightings by Jillian Johnston

Moose sightings were down this year, possibly due to the extremely high water levels. The first was seen in the water off net 28 on August 4. On August 18 a cow was seen in the southwest pond and two days later a bull was seen there. On August 23 another moose was seen in the willows of the marsh, plus one was spotted the next day. On September 15 a cow bent the far pole of net 28, then ran into the water and up onto the road before finally heading south into the marsh near net 11. Single **White-tailed Deer** were seen on August 23 and September 4, and three appeared on the bank by the parking lot on September 20.

Several **Black Bears** were seen early in the season. On the evening of July 21, one was spotted immediately behind the viewing platform. On July 22 a yearling was seen at the road near net 19. July 26 Rinchen, one of our banders, surprised a bear at net 28 and it dove through the net and climbed a tree. On August 4, Chris encountered a sow with two cubs near the outhouse, necessitating a change in the census route – the part in the bush was left until last to do, giving the bear time to move on.

In comparison to last season there were far fewer weasel sightings with one **Short-tailed Weasel** spotted crossing the road on August 16 and one **Least Weasel** near net 9 on September 16. During census on July 28 a **Mink** crossed the road past net 32. A family of **Otter** was seen in the north pond on August 18.

A family of **Beaver** consisting of two adults and two kits were observed regularly throughout the season, frequenting both the north pond and the marsh on the other side. As always, it was entertaining watching the local **Red Squirrels** squirreling away mushrooms to dry for the winter.

Coyotes were heard on August 5, September 14, and September 21, and tracks were seen on the path to net 28 in late September.

Far fewer young **Western Toads** were around in comparison to last year but adult toads were still seen nightly. Frogs were noted on occasion, including a **Wood Frog** often seen by net 9 and a **Spotted Frog** sighted on September 4. **Long-toed Salamanders** were seen on several nights including 26 August and September 8, 9, 16 and17. Several **Garter Snakes** were noted on August 19, 21, and September 6, 7, 10, 22 and 23.

Listed Bird Species Detected at Mugaha
by Sandra Kinsey

After reading our bander's report we thought it might be a good idea to include a list of all bird Species at Risk we have detected at Mugaha. This information can be accessed on BC

Species and Ecosystems Explorer. http://a100.gov.bc.ca/pub/eswp/.

SPECIES	BC rating	COSEWIC rating	SARA rating
Western Grebe	Red	C	-
Double-crested Cormorant	Blue	NAR	-
American Bittern	Blue	-	-
Broad-winged Hawk	Blue	-	-
Swainson's Hawk	Red	-	-
Upland Sandpiper	Red	-	-
Short-billed Dowitcher	Blue	-	-
Common Nighthawk	Yellow	T	T
Barn Swallow	Blue	T	T
Olive-sided Flycatcher	Blue	T	T
Bay-breasted Warbler	Red	-	-
Cape May Warbler	Red	-	-
Canada Warbler	Blue	T	T
Rusty Blackbird	Blue	SC	SC

Broad-winged Hawk, Common Nighthawk, Barn Swallow, Olive-sided Flycatcher, Cape May Warbler and Rusty Blackbird nest in the Mackenzie Forest District; Swainson's Hawk may nest in the District. The rest of the above species were documented during observations and are migrants through Mugaha. Bay-breasted, Cape May and Canada Warblers and Rusty Blackbird have been banded at Mugaha.

This fall was the first time we had Cape May Warblers.

Olive-sided Flycatchers are usually heard regularly at the station, but only one was heard this fall. Rusty Blackbirds occur in small numbers at the station with one or two pairs nesting there, others come through during migration. Barn Swallows are usually there in small numbers. This year a pair nested on the banding lab and raised 3 (maybe 4) young.

Common Nighthawk are often seen or heard during the banding season. This year was no exception.

Please refer to Appendix 8 Glossary of Listed Species Categories for more information on the rating codes.

2011 Christmas Bird Count report

by David Lambie

Christmas Bird Count what it is and how it evolved

Participants around North America go out on a count day in a given period and count birds within a designated 15-mile circle. The results of their efforts are compiled into the longest running database in ornithology, representing one hundred plus years of unbroken data on trends of early-winter bird populations.
Over a century ago it all began as a protest to the excessive slaughter of birds, the National Audubon Society's Christmas Bird Count (CBC) has become the world's largest all-volunteer bird survey to date. For further information of the history of the CBC please visit http://birds.audubon.org/christmas-bird-count.

Mackenzie's 19th Christmas Bird Count

Mackenzie's 19th annual Christmas Bird Count (1982, 1994-2011) was held on December 28th.

The day started and continued to be overcast with a temperature of -5°C. There had been about a half an inch of fresh snow overnight.

2011 count picked up and was the highest count (for individuals) for the past few years (2004-2010) with 923 individuals of 20 species; see **Appendix 9** for year to year detailed comparison.

2011 Christmas Bird Count (Dec. 28)	Total		
	Feeder	Field	Both
Bald Eagle		3	3
White-tailed Ptarmigan		4	4
Ruffed Grouse			**cw**
Spruce Grouse		1	1
Downy Woodpecker	1	2	3
Hairy Woodpecker		1	1
Three-toed Woodpecker		1	1
Gray Jay		6	6
Steller's Jay	11	40	51
American Crow		3	3
Common Raven	16	423	439
Black-capped Chickadee	15	36	51
Mountain Chickadee		1	1
Red-breasted Nuthatch		1	1
Brown Creeper			**cw**
American Dipper		1	1
European Starling		1	1
Bohemian Waxwing		15	15
Pine Grosbeak	17	12	29
Common Redpoll	52	92	144
Evening Grosbeak	75	50	125
House Sparrow		43	43
Total Individuals	187	736	923
Total Species	7	20	20

Thanks to all those who helped with the count: Ryan Bichon, Linnea Cross and Knut Herzog, Judy and Dieter Dittrich, David Lambie, John and Vi Lambie, Donnie and Stephanie Killam , Vida Tattrie and Ray Yeo and Jeanne Wysoski.

Mackenzie Banding (permit 10709)

by Vi Lambie

I banded birds in our backyard again this spring. The White-crowned sparrows were numerous and other birds tended to stay away from the ground trap. This year I had many more WCSP that were not the Gambel's subspecies – they were more like the Eastern White-crowned Sparrows with the dark line by the eye (photo page 26). A few others were smaller birds and the white wasn't as white, but I am not sure what subspecies they were. In total I banded 657 birds: 378 Gambel's White-crowned Sparrow, 78 White-crowned Sparrow that weren't identified to subspecies, 79 Oregon Junco, 25 Slate-colored Junco and 8 Dark-eyed Juncos that were not identified to subspecies, 34 Common Redpoll, 29 Purple Finch, 17 Evening Grosbeak, 6 Pine Siskin, 1 Lincoln Sparrow, 1 Song Sparrow and 1 Gray-crowned Rosy Finch.

This year when banding we captured a Dark-eyed Junco that was quite striking in appearance – it had a beautiful white throat patch. (photo on page 26)

In addition we captured 5 Oregon Junco that were banded in 2010 and 3 that were banded in 2011, plus 1 Purple Finch that was banded in 2011.

A Purple Finch that I banded on 14 May 2011 was found dead on a highway in Prince George on 30 May 2012. Thanks to Crystal Bonnell for reporting this to the banding office.

Bird Sightings by Vi Lambie

Note: These sightings are from records sent to Birding-Mackenzie-BCandArea@yahoogroups.com and, from records reported to us in person, by phone or email and from our own personal records.

We feel that keeping track of all our bird sightings will help us when it comes to updating our checklist. I have tried to document all the first sightings reported of a species, plus I have tried to include some of our other interesting sightings.

January 2012 **Black-capped Chickadees**, **Steller's Jays**, **Pine Grosbeaks**, **Common Redpolls**, **Evening Grosbeaks** were regular feeder visitors

8 January 2012 A **Mallard,** a swan and an **American Dipper** were observed east of the outflow at Morfee Lake.

10 January 2012 A swan was observed flying over Morfee Trailer Court.

12 January 2012 Twelve **Bohemian Waxwings** were observed on Omineca Crescent

4 Feb 2012 A **Hoary Redpoll** was at a feeder on Omineca Crescent.

13 Feb 2012 An **American Three-toed Woodpecker** observed on Lost Lake trail.

27 Feb 2012 A **Northern Goshawk** was observed **o**n Morfee Lake Road harassing the Steller's Jays .

11 March 2012 A flock of **European Starlings** were at the landfill.

13 March 2012 A **Dark-eyed Junco** was at a feeder on Carp Crescent.

21 March 2012 Two **American Robins** were seen at about 60 km on the Finlay Forest Service Road, and 2 **swans** were seen in a bay on the Nation River.

28 March 2012 A **Red-winged Blackbird** was at the Horse Barns. A pair of **Red-breasted Mergansers** was on the Pack River.

1 April 2012 The **Common Raven** was sitting on its nest at Second Beach Morfee Lake.

2 April 2012 An American Robin was on Ospika Crescent.

3 April 2012 A **Sharp-shinned Hawk** was observed on McIntyre Drive. A **Merlin** was observed on Parsnip Crescent, a flock of 8 **Canada Geese** was seen flying over Centennial, large flocks of Common Redpolls were on Kerry Crescent (~300), 90+ Evening Grosbeaks on Centennial Drive and a small (~20) mixed flock of Red-winged Blackbirds and European Starlings were on Ospika Drive and ~20 **American Crows** were seen in town. One Slate-colored Junco and two Oregon Juncos were observed on Omineca Crescent.

5 April 2012 A flock of 10 **American Robins** was in a backyard on McIntyre Crescent A **Pine Siskin** was at a feeder on Omineca with a flock of Common Redpolls and some Pine Grosbeaks.

6 April 2012 A **Townsend's Solitaire** was feeding in a berry tree (it may have been an ornamental apple tree) on Manson Crescent this morning. This may be our earliest sighting for this species.

7 April 2012 A **Northern Flicker** was heard on Morfee Lake Road. Part way down the road a couple of whistled notes that may have been a **Varied Thrush** were heard.

8 April 2012 American Crows are busy carrying nesting material. A **White-crowned Sparrow** and a couple Canada Geese were observed by the residential properties south of Mackenzie. A **Red-breasted Nuthatch** was heard in town, they had been absent most of the winter.

9 April 2012 A **Mountain Bluebird** was observed by the cement plant. A banded after second year male **Purple Finch** was at a feeder on Omineca Crescent.

10 April 2012 Six **Varied Thrushes** were observed on a property south of town.

11 April 2012 A **Tree Swallow** was at the Horse Barns. A **Violet-green Swallow** was sitting on the powerline on Centennial Drive. A **Rufous Hummingbird** was observed at a residence on Centennial Drive.

12 April 2012 Two **Gray-crowned Rosy Finches** were at a feeder on Omineca Crescent.

15 April 2012 A **Northern Harrier** was seen near the pulp mill on the Causeway Road, a **Northern Shrike** at ~2km of the Causeway Road, a **Red-tailed Hawk** near the pulp mill

and a couple **Ruby-crowned Kinglets were** feeding in the willows in the cutblock in that area. A total of 24 Townsend's Solitaire was seen - they weren't in a true flock, but were fairly close together. A flock of 30+ **Gray-crowned Rosy Finches** were in the Fish streets area.

16 Apr 16 2012 A Ruffed Grouse showed up at a feeder on McIntyre Crescent.

18 April 2012 A **Lincoln's Sparrow** was at a feeder on Omineca Crescent.

19 April 2012 A **Song Sparrow** and a Dark-eyed Junco with a white throat patch was observed in a backyard on Omineca Crescent.

21 April 2012 A **Killdeer** was heard near the pulp mill. The first **Green-winged Teal** and **American Wigeon** were there as well. **Northern Pintail** and American Wigeon were in a pond by Canfor. An **American Kestrel** was hunting near the Canfor Log yard. **Common Mergansers, Hooded Mergansers, Greater Yellowlegs** and a Bald Eagle were at Gagnon Culverts. A **House Finch** was observed on Omineca Crescent. **Northern Saw-whet Owls**, a **Long-eared Owl** and a **Wilson's Snipe** were heard on the Causeway owl route.

22 April 2012 A Killdeer was at a property south of Mackenzie.

24 April 2012 An **Audubon's Warbler** was feeding on Manson Crescent.

25 April 2012 A **Yellow-headed Blackbird** was at a property south of Mackenzie. Between the pulp mill road and the Causeway Road a flock of Gray-crowned Rosy Finches, Dark-eyed Juncos, White-crowned Sparrows, a Lincoln's Sparrow and a **Savannah Sparrow** were observed.

27 April 2012 A flock of 20+ **American Pipits** and two **Horned Larks** were observed in Mac 1 school grounds. New species for the season observed at Gagnon Culverts were 14 **Red-necked Grebes**, a **Bufflehead** and an **Osprey**.

28 April 2012 A **Hermit Thrush** was observed on Chico Road going to Mugaha Marsh.

29 April 2012 A pair of **Barrow's Goldeneye** was observed at Morfee Lake outflow.

30 April 2012 Two **Trumpeter Swans,** a **Rusty Blackbird**, 2 **American Coot** and a **Northern Shoveler** were the new species for the season that were observed at the Mugaha Marsh.

May 2012 A Yellow-headed Blackbird & Gray-crowned Rosy Finches were at feeders on Blackwater Crescent.

2 May 2012 A **Golden-crowned Sparrow** was at the Horse Barns.

3 May 2012 A **Myrtle Warbler** was observed feeding along the road by the marshy area between the cement plant and the horse corrals. A **Fox Sparrow** was heard singing at the old beaver pond on the Causeway road. A **Belted Kingfisher** was heard and observed flying near the Gagnon culverts.

5 May 12 Williston owl survey route: 8 Northern Saw-whet Owls, 1 **Boreal Owl**, 3 **Barred Owls**, and 3 **Great Horned Owls**.

8 May 2012 A **Barn Swallow** was observed at Gagnon Culverts. A Hybrid Duck was observed at the airport pond.

10 May 2012 **Northern Rough-winged Swallows**, **Bank Swallows**, Violet-green Swallows and many Tree Swallows plus a flock of 10+ **Black Terns** were flying over the marshy area south of the Y at Mugaha. A **Wilson's Warbler** and an **Orange-crowned Warbler** were feeding along the road.
A **Mourning Dove** was in a yard on Munro Crescent

Canada Goose took over Osprey nest on powerline at Gataiga Creek 14 Apr 12

Upland Sandpiper on road into Finlay Bay Campsite 24 May 12

Eurasian Collared Dove 21 May 12

Townsend's Solitaire 15 Apr 12

Gray-crowned Rosy Finches 25 Apr 12

Dark-eyed Junco with white throat patch 19 Apr 12

Townsend's Warbler 26 May 12

White-crowned Sparrow 25 Apr 12

12 May 2012 A pair of **Common Loons** was at Mugaha when MNO had its maintenance work party.

13 May 2012 A **Blue-winged Teal** and a male **Redhead** were on the airport pond. A **White-throated Sparrow** was in a yard on Omineca Crescent

14 May 2012 A **Brown-headed Cowbird** was observed south of the Horse Barns. An **American Bittern** was heard at Gataiga Creek.

17 May 2012 A **Bonaparte's Gull** was observed at Second Beach on Morfee Lake

18 May 2012 A **Hammond's Flycatcher**, **Pacific Wren**, **Solitary Sandpiper**, and a **Short-eared Owl** were observed on Tony Point Forest Service Road north of Mackenzie.

19 May 2012 Two **Yellow-bellied Sapsuckers** were observed on the trail by the golf course and a **Chipping Sparrow** was observed on Omineca Crescent. A **Western Tanager** was observed in the Twin Lakes area and a **Cassin's Vireo** was observed at Tudyah Lake Forestry Campsite. By the small stream in the cutblock by the Causeway there was a **Townsend's Warbler, Lesser Yellowlegs**, **Northern Waterthrush** and **Golden-crowned Kinglets**

21 May 2012 A **Red-breasted Sapsucker** was observed on Morfee Lake Road and a **Say's Phoebe** in the ballpark. **Tennessee Warbler**, **Least Flycatcher**, **American Redstart**, and **Swainson's Thrush** were found along the road by the old Campgrounds by Chichouyenily Creek**. Eurasian Collared-Doves** were at the Horse Barns. A male **Yellow Warbler** was observed at Gataiga Creek.

23 May 2012 A **Rose-breasted Grosbeak** was observed along the road they put in when making the fireguard around Centennial Drive. A **Warbling Vireo** was also heard.

24 May 2012 On the Parsnip West Forest Service Road (PWFSR) going north of Mackenzie two new species for the year were **Ovenbird and Blackpoll Warbler.** A **Gray Jay** with at least two fledged young and a **Hairy Woodpecker** nest with young calling from cavity were observed. On road into Finlay Bay Campsite there was an **Upland Sandpiper**.

25 May 2012 A **Magnolia Warbler** was observed on the trail by the "Frog pond". A **Calliope Hummingbird** was observed at Mugaha Marsh.
27 May 2012 A **Red-eyed Vireo** was heard at the Horse Barns, and across from the Horse Barns a **Spotted Sandpiper** and **MacGillivray's Warbler** were observed. Going north on the PWFSR a **Western Wood-Pewee** was heard and at the Sewage Lagoons there was a **Sora**. Just north of Alexander Mackenzie Landing there was a **Black-billed Magpie**. Going in to Mugaha there was a **Clay-colored Sparrow**, at Mugaha a **Dusky Flycatcher** and at Gataiga a **Common Yellowthroat**.

28 May 2012 An **Eurasian Collared-Dove** was observed at Tudyah Lake Forestry Campsite.

30 May 2012 Johnny Pierre from Tsay Key took a photo of a **Yellow-headed Blackbird** at Fort Grahame.

Last week of May –At Tudyah Lake Forestry Campsite a couple new species for the year **Black-backed Woodpecker** and **Common Nighthawk.**

31 May 2012 On the road that goes east of Dieter's an **Alder Flycatcher** was heard.

3 June 2012 **Common Nighthawk** was heard at Mugaha. There were earlier reports of this species by the Horse Barns, but I do not have the date.

4 June 2012 A **Lazuli Bunting** was coming to a feeder in McLeod Lake this week and one showed up at a feeder in Gantahaz subdivision.
8 June 2012 **Cedar Waxwings** were observed south of the Y at Mugaha. A Dark-eyed Junco brought its young into a yard on Centennial Drive.

9 June 2012 3 **Whimbrel** were seen at airport. That week Eurasian Collared-Doves were observed at Mugaha and a Short-eared Owl was observed south of Mugaha in the cutblocks.

20 June 2012 An **Olive-sided Flycatcher** was at Rocky Marsh
13 July 2012 **Broad Winged Hawk** in atlas square 10DG80

23 September 2012 A **White-breasted Nuthatch** was at Mugaha Marsh.

3 October 2012 A **Townsend's Solitaire**, 16 American Robins, 1 Junco and 6 Yellow-rumped Warblers were in a yard on Omineca Crescent.

8 October 2012 A flock of 70+ **Scoters** on Williston Lake out from the old airstrip that is near Finlay Bay – probably Surf Scoters. A White-throated Sparrow was observed near Kimta Creek.

9 October 2012 A **Yellow-rumped Warbler** was in an oak tree on Omineca Crescent.

18 October 2012 A **Black-billed Magpie** was at Mugaha Marsh and another was at 9 ½ km of the Parsnip West Forest Service Road.

19 October 2012 A **Mountain Chickadee** and **White-breasted Nuthatch** at feeder on McIntyre Drive.

20 October 2012 A **Short-eared Owl** was observed in the industrial area.

21 October 2012 18 **Trumpeter Swans** flew over Mackenzie.

23 October 2012 The **Eurasian Collared-Doves** are still at the Horse Barns.

24 October 2012 A small flock of **American Robins** were observed in Mackenzie.

25 October 2012 **Tundra Swans** were flying over at Mugaha. A Black-capped Chickadee, a Pine Grosbeak, a Gray Jay and Common Ravens were at the marsh.

29 October 2012 Three **Gray-crowned Rosy Finches**, 2 Slate-colored Juncos, a flock of Evening Grosbeaks and a couple **Common Redpolls** visited a feeder on Omineca Crescent.

31 October 2012 A flow of 200+ Bohemian Waxwings visited a Mountain Ash tree in a backyard on McIntyre Drive. An **American Robin** was with the flock of Waxwings.
A **Sharp-shinned Hawk** was out by the old barge landing near the pulp mill, a **Red-tailed Hawk** was observed at the Gagnon Culverts**,** 14 **Trumpeter Swans** flew over; and 2 **Lapland Longspurs** were near the railway crossing on the Causeway Road.

The last week of October a **Short-eared Owl** was observed daily at the properties south of Mackenzie.

1 November 2012 Eleven **Mallards** were on the stream at the outflow from Morfee Lake; 5 Scaup were on Morfee Lake at the old float plane base.

People who contributed sightings:
Ryan Bichon, Sheila Chisholm and her son, Linnea Cross & Knut Herzog, Dieter Dittrich, David Lambie, John A. Lambie, Ethan Lambie, John & Vi Lambie, Stephanie Killam, Erik Olson, Rick Shymanski, Aaron Snively, Vida Tattrie and Ray Yeo.

Species↓ Year→	1995 11 Aug - 24 Sep	1996 5 Aug 28 Sep	1997 26 Jul - 26 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1995 - 2012	code
Northern Harrier		1																	1	NOHA
Sharp-shinned Hawk		7	1	1	2	2	1	4			2	3		2	2	4	1	2	34	SSHA
Cooper's Hawk				1															1	COHA
American Kestrel		1				1										1			3	AMKE
Merlin					1			1	1				1						4	MERL
Sora			1											1					2	SORA
Solitary Sandpiper		1																	1	SOSA
Western Sandpiper		1	1																2	WESA
Wilson's Snipe		5	3					4		1	1	1	4		1		1	3	24	WISN
Belted Kingfisher											1		1		1		1		4	BEKI
Yellow-bellied Sapsucker		2	1	5	2			5	1	15	4	9	4	2	5	7	13	6	81	YBSA
Red-naped Sapsucker								1											1	RNSA
Red-breasted Sapsucker		1	2	1	2	1	1		4	5			2	3			1		23	RBSA
Hybrid Sapsucker	1		3	6		1					7	5	3	6	3		1		36	HYSA
Downy Woodpecker		1	1	2	6	18	19		17	8	5	9	16	18	7	7	13	11	158	DOWO
Hairy Woodpecker		1		2	1	2	1	2	9	1		3	2		1	1		1	27	HAWO
American Three-toed Woodpecker									1	1			2			1			5	TTWO
Yellow-shafted Flicker			3	1	1				1		3			1		1		1	12	YSFL
Northern Flicker Intergrade			1	1	3	1			2	1		1	1	3			1		15	FLIN
Red-shafted Flicker		1		1	2	1	1		1										7	RSFL
Northern Flickers		1	4	3	6	2	1		4	1	3	1	1	4		1	1	1	34	*NOFL*
Olive-sided Flycatcher			2											1			1		4	OSFL
Western Wood-Pewee	1	2	13	9	2	2		2	1	11	10	5	10	16	1	1	1		87	WEWP
Yellow-bellied Flycatcher	1	4	7	4	3	5	4	3	6	3	7	3	1	2	2	3	3	3	64	YBFL
Alder Flycatcher	23	87	138	93	77	99	75	52	110	192	179	32	119	50	55	54	55	49	1539	ALFL
Traill's Flycatcher															1				1	TRFL
Least Flycatcher	13	28	102	97	118	77	74	68	67	46	67	90	88	91	104	82	84	95	1391	LEFL
Hammond's Flycatcher	13	25	57	41	51	67	74	64	69	52	52	47	43	35	60	73	41	31	895	HAFL
Dusky Flycatcher	5	18	35	24	31	17	26	17	41	38	34	20	13	26	25	39	31	19	459	DUFL
Pacific-slope Flycatcher					2	1				1			6			1			11	PSFL
Western Flycatcher		1	8	2	1			1	4	1					1				19	WEFL
Say's Phoebe				1															1	SAPH
Ash-throated Flycatcher														1					1	ATFL

Species↓ Year→	1995 11 Aug - 24 Sep	1996 5 Aug 28 Sep	1997 26 Jul - 26 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1995 - 2012	code
Eastern Kingbird		5		3					6					3	3				20	EAKI
Northern Shrike												1							1	NSHR
Solitary Vireo	2	6	10	14			1	3		7	6	4	3	1	4	4		1	66	SOVI
Cassin's Vireo				4	5	1	5		5	15	4	3		4	2	4		3	55	CAVI
Blue-headed Vireo				1	4	1				2	4		1	2					15	BHVI
Warbling Vireo	13	51	61	76	77	49	25	35	33	44	63	40	59	26	80	48	68	43	891	WAVI
Philadelphia Vireo						1													1	PHVI
Red-eyed Vireo		3	7	5	3	5	8	11	8	6	3	1		1		1		2	64	REVI
Gray Jay	2	2	4	1			2											1	12	GRAJ
Steller's Jay					1					1							1		3	STJA
Black-billed Magpie				1															1	BBMA
Tree Swallow			3	2		3					3			1					12	TRES
Violet-green Swalllow											1								1	VGSW
Northern Rough-winged Swallow			1											1				4	6	NRWS
Bank Swallow			2	1															3	BANS
Barn Swallow			9	4		2					3	1		1			2	2	24	BARS
Black-capped Chickadee	17	18	16	92	20	101	33	22	64	76	14	23	24	71	18	33	28	31	701	BCCH
Hybrid Chickadee													1	2					3	HYCH
Mountain Chickadee														1					1	MOCH
Chestnut-backed Chickadee				1						1				4					6	CBCH
Boreal Chickadee		2	2			6				1		1			2	1	1	3	19	BOCH
Red-breasted Nuthatch		8	9	12	20	7	19	9	6	13		3	1	32	4	10	4	12	169	RBNU
Brown Creeper	4		1	2	1	1	1	2	5	4	1	5	3	4		1	2		37	BRCR
Pacific Wren/Winter Wren								1	1			1	1	1		1			6	WIWR
Golden-crowned Kinglet	3	15	19	123	55	62	50	49	102	60	55	74	38	113	35	96	51	88	1088	GCKI
Ruby-crowned Kinglet	263	317	201	406	187	216	298	433	377	385	340	610	283	327	263	345	284	346	5881	RCKI
Mountain Bluebird																	2		2	MOBL
Townsend's Solitaire		1						1									1		3	TOSO
Gray-cheeked Thrush		1		2	1	4		3	2		1	1	1		2	3	5	4	30	GCTH
Swainson's Thrush	39	54	82	62	86	87	87	123	124	61	111	67	145	99	119	124	190	187	1847	SWTH
Hermit Thrush	10	8	8	14	15	10	14	23	18	13	17	13	21	25	19	24	28	16	296	HETH
American Robin	3	6	17	31	18	10	1	30	19	9	12	7	17	10	19	18	44	14	285	AMRO
Varied Thrush	1	4	1	2	3	1	2		12	3	2	2		4	1	2	4	2	46	VATH

Species↓ Year→	1995 11 Aug - 24 Sep	1996 5 Aug 28 Sep	1997 26 Jul - 26 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1995 - 2012	code
American Pipit																2			2	AMPI
Bohemian Waxwing					1					1		2						2	6	BOWA
Cedar Waxwing		6	19	3	9	3		4	4	18	2	13	27	13	27	33	21	29	231	CEDW
Lapland Longspur			1			1													2	LALO
Ovenbird	7	2	3	4	4	6	6	3	13	8	8	4	7	7	2	1	5	5	95	OVEN
Northern Waterthrush	17	274	379	156	151	65	89	404	411	142	276	106	328	179	119	29	89	431	3645	NOWA
Black and White Warbler			1																1	BAWW
Tennessee Warbler	3	2	13	20	13	2	26	40	42	14	16	33	7	6	16	14	131	118	516	TEWA
Orange-crowned Warbler	67	88	73	149	111	121	105	175	68	124	149	206	124	139	163	179	177	301	2519	OCWA
MacGillivray's Warbler	1	20	27	31	31	17	27	33	31	20	34	31	23	19	32	16	14	21	428	MGWA
Mourning Warbler							1												1	MOWA
Common Yellowthroat	48	65	169	153	58	46	101	151	181	101	139	257	177	119	151	89	55	184	2244	COYE
American Redstart	56	253	480	216	283	169	408	436	343	184	275	269	276	347	186	138	160	296	4775	AMRE
Cape May Warbler																		3	3	CMWA
Magnolia Warbler	19	55	66	48	48	30	67	106	70	64	84	89	82	92	93	81	75	112	1281	MAWA
Bay-breasted Warbler														1					1	BBWA
Yellow Warbler	17	110	156	144	93	64	75	127	151	80	93	96	150	166	67	70	131	168	1958	YEWA
Blackpoll Warbler	7	16	21	35	16	22	37	46	30	29	17	46	34	20	24	18	12	57	487	BLPW
Western Palm Warbler														1					1	WPWA
Myrtle Warbler	13	36	30	52	19	4	31	32	3	8	36	18	4	26	38	4	24	7	385	MYWA
Audubon's Warbler	42	29	32	51	54	20	28	33	30	18	33	52	17	27	44	10	96	171	787	AUWA
Unknown Yellow-rumped Warbler	18	3	6	64	108	14	55	110	78	19	73	236	106	60	22	57	58	237	1324	UYRW
Yellow-rumped Warblers	*73*	*68*	*68*	*167*	*181*	*38*	*114*	*175*	*111*	*45*	*142*	*306*	*127*	*113*	*104*	*71*	*178*	*415*	*2496*	*YRWA*
Townsend's Warbler	17	3	13	14	12	20	42	11	5	3	11	34	12	13	7	12	16	41	286	TOWA
Canada Warbler										1									1	CAWA
Wilson's Warbler	58	77	88	107	58	168	89	86	90	162	101	100	121	87	65	80	43	53	1633	WIWA
American Tree Sparrow	10	14	36	22	2	6	2	4	3	6	9	13	10	1	1	18			157	ATSP
Chipping Sparrow	2	11	7	16	18	49	19	10	15	12	4	11	11	13	4	26	15	18	261	CHSP
Clay-colored Sparrow		1	2	1						3			2	1	1	22	9	1	43	CCSP
Brewer's Sparrow			1	1	1					1			1			1			6	BRSP
Vesper Sparrow						1													1	VESP
Savannah Sparrow	3	21	30	46	25	35	23	11	4	16	11	23	14	14	15	73	36	20	420	SAVS
Fox Sparrow	3	6	5	4	3	11	2	7	4	4	6	4	10	6	4	12	4	6	101	FOSP

Species↓ Year→	1995 11 Aug - 24 Sep	1996 5 Aug 28 Sep	1997 26 Jul - 26 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1995 - 2012	code
Song Sparrow	18	13	25	17	16	28	29	17	54	29	27	41	35	19	40	17	15	32	472	SOSP
Lincoln's Sparrow	17	19	33	20	57	53	51	11	38	48	24	66	39	18	38	23	66	30	651	LISP
Swamp Sparrow	3	2	3	11	2	5	3	2	5	3	1	13	2	3	2	2	3	1	66	SWSP
White-throated Sparrow	6	8	4	9	8	4	9	6	18	10	12	22	24	13	17	27	78	108	383	WTSP
Harris's Sparrow		1																	1	HASP
White-crowned Sparrow	27	43	22			1			7					1	1	7	2	19	130	WCSP
Gambel's White-crowned Sparrow				31	31	56	59	52	10	34	26	41	32	17	37	31	64	49	570	GWCS
White-crowned Sparrows	*27*	*43*	*22*	*31*	*31*	*57*	*59*	*52*	*17*	*34*	*26*	*41*	*32*	*18*	*38*	*38*	*66*	*68*	*700*	*WCSP*
Golden-crowned Sparrow				2				1				1	1	1	2	1	1		10	GCSP
Slate-colored Junco	6	1	9	5	4	7				7	2	1	3	2	2	1	5	1	56	SCJU
Oregon Junco	70	82	79	57	74	70	43	75	33	57	144	164	44	16	39	60	134	55	1295	ORJU
Unidentified Dark-eyed Junco	11	12	26	31	100	63	36	24	78	22	47	75	59	18	20	66	33	64	786	UDEJ
Dark-eyed Juncos	*87*	*95*	*114*	*93*	*178*	*140*	*79*	*99*	*111*	*86*	*193*	*240*	*106*	*36*	*61*	*127*	*172*	*120*	*2137*	*DEJU*
Western Tanager	4	6	11	26	10	6	1	12	29	16	10	12	15	9	31	7	15	9	229	WETA
Rose-breasted Grosbeak														1					1	RBGR
Red-winged Blackbird						2			1	2				2	1				8	RWBL
Rusty Blackbird	3	1	5	8	4	1			2	4	2	8	8	6	4	1	1	2	60	RUBL
Common Grackle								1											1	COGR
Brown-headed Blackbird			2	4	1	1	2	1	3	3		1	1	3	5	1		3	31	BHCO
Purple Finch		3	5	7	4	4	2		2	1	2	5	6		3	1	2	9	56	PUFI
White-winged Crossbill					8								5						13	WWCR
Pine Siskin	14	95	85	1305	295	210	54	2	373	37	72	6	360	72	37	16	171	45	3249	PISI
Evening Grosbeak													1						1	EVGR
Total Number of Individuals	1001	2066	2799	4021	2533	2247	2344	3002	3346	2388	2758	3184	3092	2549	2200	2236	2724	3688	48178	total
Total Number of Species	44	64	67	68	61	63	51	56	59	64	56	60	63	69	59	62	59	58	108	# species
net hours	1851.5	3368	3979.5	4393.8	4314.8	3991.7	4326	4598	3709	4239.5	4396.5	4442.5	4256	4476.8	4727.9	4794.8	4325	4494.25	74685.55	net hrs

In 1995, 1996 and 1997 the seasons were shorter and the number of nets was less than the standard 12 nets we use now. In 2001 we did not band from Aug 18-21 and Aug 25-28 due to hiring new personnel; we had 13 nets all season that year. Any non-standard banding birds recaptured in Standard Banding were counted in the totals as per station protocol. In 1995, 1996 and 1997 totals include a small number of birds captured in a ground trap during the standard banding period. Hummingbirds banded in 2005, 2006, 2007, 2008, 2009 and 2012 are not counted in standard banding totals as not all banders band hummingbird and some years we did not band any that we captured.

Species	1994 25-26 Aug., 11-12 Sep.	1998 (5 nets) 16 May - 23 May	1995 11 Aug 24 Sep	1996 5 Aug. - 28 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep.	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep.	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1994 - 2012	Codes
Sharp-shinned Hawk		1																		1	SSHA
American Kestrel					5															5	AMKE
Killdeer					1															1	KILL
Solitary Sandpiper															1					1	SOSA
Semipalmated Sandpiper							2													2	SESA
Least Sandpiper					1		5								1					7	LESA
Pectoral Sandpiper											2									2	PESA
Wilson's Snipe					6		2													8	WISN
Boreal Owl										2	11		1					1		15	BOOW
Northern Saw-whet Owl			17	1	1	2	1		29	84	53	8	106	50	2			7	39	400	NSWO
Calliope Hummingbird												4	2	3	3	11	1			24	CAHU
Rufous Hummingbird												4	5	4	9	21	4		4	51	RUHU
Belted Kingfisher		2																	2	4	BEKI
Red-breasted Sapsucker	1																			1	RBSA
Downy Woodpecker								1												1	DOWO
Yellow-shafted Flicker					1															1	YSFL
Alder Flycatcher	2	1					1	1												5	ALFL
Least Flycatcher	5	5			2		1	2												15	LEFL
Hammond's Flycatcher	3				2		11	1												17	HAFL
Dusky Flycatcher	1	2			1	1	1													6	DUFL
Solitary Vireo					1															1	SOVI
Cassin's Vireo							1													1	CAVI
Blue-headed Vireo							1													1	BHVI
Warbling Vireo		2			2			1												5	WAVI
Tree Swallow		1					1													2	TRES
Bank Swallow							2													2	BANS
Barn Swallow															4					4	BARS
Black-capped Chickadee	6						9													15	BCCH
Golden-crowned Kinglet	2																			2	GCKI
Ruby-crowned Kinglet	50				6		15	1	1											73	RCKI
Mountain Bluebird					1															1	MOBL
Swainson's Thrush	3	4			1		2	1												11	SWTH
Hermit Thrush	3				1		2													6	HETH
American Robin		21					2													23	AMRO
Varied Thrush	1						1													2	VATH
American Pipit							14													14	AMPI

Birds Banded at Mugaha Marsh in Non-standard Banding 1994-2012

Species	1994 25-26 Aug., 11-12 Sep.	1998 (5 nets) 16 May - 23 May	1995 11 Aug 24 Sep	1996 5 Aug. - 28 Sep	1998 21 Jul - 20 Sep	1999 19 Jul - 19 Sep.	2000 23 Jul - 24 Sep	2001 22 Jul - 23 Sep.	2002 21 Jul - 22 Sep	2003 20 Jul - 21 Sep	2004 20 Jul - 22 Sep	2005 19 Jul - 22 Sep	2006 18 Jul - 23 Sep	2007 19 Jul - 23 Sep	2008 19 Jul - 23 Sep	2009 19 Jul - 23 Sep	2010 17 Jul - 23 Sep	2011 19 Jul - 23 Sep	2012 19 Jul - 23 Sep	Total 1994 - 2012	Codes
Cedar Waxwing						1		2												3	CEDW
Northern Waterthrush	1	13																		14	NOWA
Tennessee Warbler					1		1	1												3	TEWA
Orange-crowned Warbler	9	5			1		11	1												27	OCWA
MacGillivray's Warbler		1						1												2	MGWA
Common Yellowthroat	6	8					4													18	COYE
American Redstart	4	6					10	29												49	AMRE
Magnolia Warbler	2	1					3													6	MAWA
Yellow Warbler	1	6			1		2													10	YEWA
Blackpoll Warbler	2	1			5															8	BLPW
Yellow-rumped Warbler					3		4													7	UYRW
Myrtle Warbler	3	4			7		2	1												17	MYWA
Audubon's Warbler	12	13			3		1		1											30	AUWA
Total Yellow-rumped Warblers	*15*	*17*			*13*		*7*	*1*	*1*											*54*	*YRWA*
Townsend's Warbler	5				1		2													8	TOWA
Wilson's Warbler	5	28			1		18													52	WIWA
Savannah Sparrow	2	2			2		1													7	SAVS
Fox Sparrow	1																			1	FOSP
Song Sparrow	2	3					4	1												10	SOSP
Lincoln's Sparrow	4	4					10													18	LISP
Swamp Sparrow	2						1													3	SWSP
White-throated Sparrow							1													1	WTSP
White-crowned Sparrow	4																			4	WCSP
Gambel's White-crowned Sparrow					3		8													11	GWCS
Slate-colored Junco	1																			1	SCJU
Oregon Junco	4				8		1	2												15	ORJU
Unidentified Dark-eyed Junco	2																			2	UDEJ
Total Dark-eyed Junco	*7*				*8*		*1*	*2*												*18*	*DEJU*
Red-winged Blackbird		5			1															6	RWBL
Rusty Blackbird		1			1		2													4	RUBL
Brown-headed Cowbird		2					1													3	BHCO
Purple Finch		9																		9	PUFI
Common Redpoll							1													1	CORE
Pine Siskin	1	5			25			9												40	PISI
Total Number of Individuals	150	156	17	1	95	4	162	55	31	86	66	16	114	57	20	32	5	8	45	1120	Total
Total Number of Species	28	26	1	1	27	3	38	16	3	2	3	3	4	3	6	2	2	2	3	61	# Species

Fall 2012 Standard Banding Totals at Mugaha Marsh				
Species↓ Date→	**July**	**August**	**Sept.**	**Total**
Sharp-shinned Hawk	1	1		2
Wilson's Snipe		2	1	3
Yellow-bellied Sapsucker	5	1		6
Downy Woodpecker	8	3		11
Hairy Woodpecker		1		1
Yellow-shafted Flicker	1			1
Yellow-bellied Flycatcher		3		3
Alder Flycatcher	10	37	2	49
Least Flycatcher	38	55	2	95
Hammond's Flycatcher	3	27	1	31
Dusky Flycatcher	2	15	2	19
Solitary Vireo	1			1
Cassin's Vireo		1	2	3
Warbling Vireo	8	29	6	43
Red-eyed Vireo		2		2
Gray Jay		1		1
Northern Rough-winged Swallow	4			4
Barn Swallow	2			2
Black-capped Chickadee	7	11	13	31
Boreal Chickadee			3	3
Red-breasted Nuthatch		3	9	12
Golden-crowned Kinglet		10	78	88
Ruby-crowned Kinglet	18	57	271	346
Gray-cheeked Thrush	2	1	1	4
Swainson's Thrush	79	96	12	187
Hermit Thrush	5	3	8	16
American Robin	14			14
Varied Thrush	1	1		2
Bohemian Waxwing	1	1		2
Cedar Waxwing	14	15		29
Ovenbird	4	1		5
Northern Waterthrush	143	276	12	431
Tennessee Warbler	26	77	15	118
Orange-crowned Warbler	23	150	128	301
MacGillivray's Warbler	1	17	3	21
Common Yellowthroat	24	65	95	184
American Redstart	69	213	14	296
Cape May Warbler	1	1	1	3

July 2012 Standard Banding Totals																
Codes	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	Total	**Codes**
SSHA											1			1	SSHA
WISN															WISN
YBSA	1	1	1		1				1					5	YBSA
DOWO	3					1	1				2		1	8	DOWO
HAWO															HAWO
YSFL								1						1	YSFL
YBFL															YBFL
ALFL	3			1	1	2	1				1	1		10	ALFL
LEFL		3	1	4	1	5	7	5	3	2	4		3	38	LEFL
HAFL		1					1			1				3	HAFL
DUFL					1						1			2	DUFL
SOVI								1						1	SOVI
CAVI															CAVI
WAVI	1				1	1				5				8	WAVI
REVI															REVI
GRJA															GRJA
NRWS								2			2			4	NRWS
BARS							1	1						2	BARS
BCCH		1			4			1				1		7	BCCH
BOCH															BOCH
RBNU															RBNU
GOKI															GOKI
RCKI	1		3	3		1	3	1		2	1	3		18	RCKI
GCTH					1					1				2	GCTH
SWTH	15	7	4	4	6	2	7	4	1	14	6	8	1	79	SWTH
HETH		2			1					2				5	HETH
AMRO	5				1			6		1		1		14	AMRO
VATH				1										1	VATH
BOWA					1									1	BOWA
CEDW	2		2		2	4				3	1			14	CEDW
OVEN				1			1	1	1					4	OVEN
NOWA	9	11	13	10	9	6	8	17	6	15	9	15	15	143	NOWA
TEWA	4	2			2	3	1		3	6	3	1	1	26	TEWA
OCWA	3	2	3	4	2	2	2	1		3		1		23	OCWA
MGWA							1							1	MGWA
COYE	2	2	3	2	3	2	3	1		3	3			24	COYE
AMRE	5	1	6	5	9	7	7	5	1	8	4	9	2	69	AMRE
CMWA												1		1	CMWA

2012 Standard Banding Totals at Mugaha Marsh				
Species↓ Date→	**July**	**August**	**Sept.**	**Total**
Magnolia Warbler	11	95	6	112
Yellow Warbler	52	102	14	168
Blackpoll Warbler	13	36	8	57
Myrtle Warbler	1	1	5	7
Audubon's Warbler	2	83	86	171
Unknown Yellow-rumped Warbler	11	30	196	237
Townsend's Warbler		36	5	41
Wilson's Warbler	2	41	10	53
Chipping Sparrow	12	5	1	18
Clay-colored Sparrow	1			1
Savannah Sparrow		9	11	20
Fox Sparrow	1	1	4	6
Song Sparrow	17	11	4	32
Lincoln's Sparrow	14	10	6	30
Swamp Sparow			1	1
White-throated Sparrow	39	39	30	108
White-crowned Sparrow	7	35	26	68
Slate-coloured Junco		1		1
Oregon Junco	2	10	43	55
Unidentified Dark-eyed Junco	22	15	27	64
Western Tanager	6	3		9
Rusty Blackbird			2	2
Brown-headed Cowbird	1	2		3
Purple Finch	9			9
Pine Siskin	34	4	7	45
Total Individuals	772	1745	1171	3688
# Species	46	49	39	58
Net hours	796	2148.75	1549.5	4494.25
Birds Per Net Hour	0.9698	0.8121	0.7557	0.8206

July 2012 Standard Banding Totals																	
Codes	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
MAWA				1				3	1	2		1	3	11	MAWA
YEWA	9	2	1	2	4	2	3	9	2	5	5	7	1	52	YEWA
BLPW			2	1		1	2	1		2	2	1	1	13	BLPW
MYWA					1									1	MYWA
AUWA	1			1										2	AUWA
UYRW	2			3			1	1		4				11	UYRW
TOWA															TOWA
WIWA											1	1		2	WIWA
CHSP	3			1	3		1			1	3			12	CHSP
CCSP					1									1	CCSP
SAVS															SAVS
FOSP										1				1	FOSP
SOSP	3	1			3	1	4			1	1	1	2	17	SOSP
LISP	3	2		2	1	1	1		2	1	1			14	LISP
SWSP															SWSP
WTSP	4	1		4	3	2		1		8	11	4	1	39	WTSP
WCSP	1	1	1		1		2					1		7	WCSP
SCJU															SCJU
ORJU	1					1								2	ORJU
UDEJ	6	2		4	2	3				4		1		22	UDEJ
WETA		3	1	1	1									6	WETA
RUBL															RUBL
BHCO			1											1	BHCO
PUFI	2	2				1	2	1		1				9	PUFI
PISI	3			3		21		2		4		1		34	PISI
Total	92	47	42	58	66	69	60	65	21	100	62	59	31	772	Total
Species	22	19	14	20	26	19	22	20	10	25	20	19	11	46	# species
net hrs	60	60	49.5	66	66	66	72	53	22	66	72	72	72	796	net hrs
Birds/nethr	1.5	0.8	0.8	0.9	1	1	0.8	1.2	1	1.5	0.9	0.8	0.4	0.9698	Birds/nethr

Fall 2012 Non-standard Banding (owls and hummingbirds)				
Species↓ Date→	**July**	**August**	**Sept.**	**Total**
Northern Saw-whet Owl			39	39
Rufous Hummingbird	4			4
Calliope Hummingbird	2			2

July 2012 Non-standard Banding															
Codes	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
NSWO															NSWO
RUHU								1	1	1			1	4	RUHU
CAHU										1		1		2	CAHU

August 2012 Standard Banding Totals																																
Codes	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
SSHA																	1															1	SSHA
WISN																	1														1	2	WISN
YBSA		1																														1	YBSA
DOWO																												3				3	DOWO
HAWO																					1											1	HAWO
YSFL																																	YSFL
YBFL													1		1											1						3	YBFL
ALFL					1	1	2	1	1	1	1		2		1	3	1	1	1				2	4	1		1	3	2	6	1	37	ALFL
LEFL	2	2	3	8	4	2	1		4	6		4	1	1	2			1	1	3	1	1		1	2	2		1	1	1		55	LEFL
HAFL			2	2	2	2		1			1	1	1	1		1	2	1	1		2	2		1	1			1	2			27	HAFL
DUFL		1			1		1		1							1			1	1			1	1		1		1		3	1	15	DUFL
SOVI																																	SOVI
CAVI																					1											1	CAVI
WAVI			3		2	2					1		1	1			1	1	3		1	2		1	1	2	1	2	2	1	1	29	WAVI
REVI		1													1																	2	REVI
GRJA																					1											1	GRJA
NRWS																																	NRWS
BARS																																	BARS
BCCH		1							1	6												1				1		1				11	BCCH
BOCH																																	BOCH
RBNU															1						1				1							3	RBNU
GOKI																				1	5							2	2			10	GOKI
RCKI	2	1		1	2	1	1			1	1	1	1	3	3	1	1	2	1	1	3	1	2	3	3	2	2	5	7	4	1	57	RCKI
GCTH																														1		1	GCTH
SWTH	5	4	3	3	4	5	5	2	2	3	2	1	3	3	1	3	3	5	4	6	4		6	3	6	2		1	3	4		96	SWTH
HETH																			1	1						1						3	HETH
AMRO																																	AMRO
VATH																				1												1	VATH
BOWA						1																										1	BOWA
CEDW		3									3		2								1	3					2		1			15	CEDW
OVEN																										1						1	OVEN
NOWA	10	9	8	8	10	12	9	13	10	9	16	21	20	15	13	7	8	8	3	10	7	4	3	5	7	8	12	2	1	2	6	276	NOWA
TEWA		4	3		2		4	1	5	5	2	1	5	14	3			2	1	4	4			1	7	1	5	1	1	1		77	TEWA
OCWA	1	4	2	1	4	2	4	1	4	7	1	2	4	7		1	1	8	4	11	9	6	4	7	19	6	3	6	7	12	2	150	OCWA
MGWA		1			1		1	1		1	2	1		1					1	2		1	1	1			2					17	MGWA
COYE				1	1				1			1	1	2			4	2	2	2	2	3	2		4	7	5	2	7	7	9	65	COYE
AMRE		14	9	13	10	7	7	5	16	14	15	3	8	29	2	2	4	4	7	8	3	4	2	2	9	5	3	3		4	1	213	AMRE
CMWA																													1			1	CMWA

August 2012 Standard Banding Totals

Codes	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total	Codes
MAWA	1	4	3	1	8	7	3	1	9	5	5	2	5	5	2	7	2	4	1	1	5	1	3	2		2	3	1			2	95	MAWA
YEWA	1	4	1		6	6	5	3	6	2	2	1	9	3	1	2	7	4	5	8	4	4		2	6	2	2		1	4	1	102	YEWA
BLPW			2		1	1			1	1			2	1	1	3	1	3	1	3		4	1	1	2	2	2	1	1		1	36	BLPW
MYWA																				1												1	MYWA
AUWA					1					1	1	1		2		2	1	2	1	2	13	8	2	4	2	7	9	12	2	5	5	83	AUWA
UYRW	1				1		1	1						2									1	1			3	6	2	9	2	30	UYRW
TOWA							1			1	1			2	1		1			3	8	4	1	2	4	2			5			36	TOWA
WIWA	1				2		1		1	1	2	1		3	3	4				1	1		4	1	2	3	4	1	2		3	41	WIWA
CHSP		1																									1	1		1	1	5	CHSP
CCSP																																	CCSP
SAVS													1		1						1				1		1		1	2	1	9	SAVS
FOSP															1																	1	FOSP
SOSP				2	1	1							1		2			1			1									1	1	11	SOSP
LISP				1				1							2		1		1		1					3						10	LISP
SWSP																																	SWSP
WTSP			1	2			2	1	2		1				3	1	3		1		2		1		1	10	2		3	2	1	39	WTSP
WCSP											1	2								2			2			9	5	1	6		7	35	WCSP
SCJU																											1					1	SCJU
ORJU																		1	1								4	1	1		2	10	ORJU
UDEJ	1	1	2															2	5		1								1		2	15	UDEJ
WETA																		1			2											3	WETA
RUBL																																	RUBL
BHCO	1				1																											2	BHCO
PUFI																																	PUFI
PISI								1				1	1			1																4	PISI
Total	26	56	42	43	65	50	48	33	64	64	58	44	69	95	45	39	43	53	47	72	85	49	38	43	79	80	73	58	62	70	52	1745	Total
# Species	11	17	13	12	20	14	16	14	15	16	18	16	19	17	20	15	18	18	21	20	26	16	16	18	19	23	20	22	22	18	20	49	Species
net hrs	52.8	72	72	72	72	72	72	36	72	72	72	72	72	72	72	72	72	72	72	72	72	67.5	65	66	72	72	72	72	61.5	72	72	2149	net hrs
Birds/ net hr	0.5	0.8	0.6	0.6	0.9	0.7	0.7	0.9	0.9	0.9	0.8	0.6	1.0	1.3	0.6	0.5	0.6	0.7	0.7	1.0	1.2	0.7	0.6	0.7	1.1	1.1	1.0	0.8	1.0	1.0	0.7	0.812	Birds/ net hr

August 2012 Non-standard Banding

Codes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total	Codes
NSWO																																	NSWO
RUHU																																	RUHU
CAHU																																	CAHU

September 2012 Standard Banding Totals																									
Species↓ Date→	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	Total	**Codes**
Sharp-shinned Hawk																									SSHA
Wilson's Snipe			1																					1	WISN
Yellow-bellied Sapsucker																									YBSA
Downy Woodpecker																									DOWO
Hairy Woodpecker																									HAWO
Yellow-shafted Flicker																									YSFL
Yellow-bellied Flycatcher																									YBFL
Alder Flycatcher		2																						2	ALFL
Least Flycatcher	1							1																2	LEFL
Hammond's Flycatcher								1																1	HAFL
Dusky Flycatcher		1	1																					2	DUFL
Solitary Vireo																									SOVI
Cassin's Vireo				1					1															2	CAVI
Warbling Vireo	1	3						1					1											6	WAVI
Red-eyed Vireo																									REVI
Gray Jay																									GRJA
Northern Rough-winged Swallow																									NRWS
Barn Swallow																									BARS
Black-capped Chickadee						1	4		1	3					1				2	1				13	BCCH
Boreal Chickadee		1							1		1													3	BOCH
Red-breasted Nuthatch	1	2	3		2								1											9	RBNU
Golden-crowned Kinglet		2	1			3	1	6	1	5	13		1	11	17	7	1	4	1		2	2		78	GOKI
Ruby-crowned Kinglet	7	6	13	4	13	7	17	17	12	40	17		25	8	10	14	11	5	7	5	11	8	14	271	RCKI
Gray-cheeked Thrush														1										1	GCTH
Swainson's Thrush		3	1	1	2	1		2		2														12	SWTH
Hermit Thrush							2				2			1	1					1			1	8	HETH
American Robin																									AMRO
Varied Thrush																									VATH
Bohemian Waxwing																									BOWA
Cedar Waxwing																									CEDW
Ovenbird																									OVEN
Northern Waterthrush	2		2	2	1	1	1			1	1		1											12	NOWA
Tennessee Warbler		1	1		1	2	1			2	1		6											15	TEWA
Orange-crowned Warbler	8	4	17	9	11	8	11	5	10	20	8		10		3						2		2	128	OCWA
MacGillivray's Warbler			1	1				1																3	MGWA
Common Yellowthroat	1	3	14	4	3	8	4	7	6	5	5		6		2	2	2	2	5	4	2	3	7	95	COYE
American Redstart		4	1	1		3	1	1	1		1		1											14	AMRE

September 2012 Standard Banding Totals																									
Species↓ Date→	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	Total	**Codes**
Cape May Warbler																							1	1	CMWA
Magnolia Warbler		1	1		1		1		1				1											6	MAWA
Yellow Warbler	2	7	2	1						2														14	YEWA
Blackpoll Warbler		2	3		2		1																	8	BLPW
Myrtle Warbler			1	1					1	2														5	MYWA
Audubon's Warbler	2	4	18	7	5	2	7	3	3	5	3		5	4	2		1	2	1	2	3	4	3	86	AUWA
Unknown Yellow-rumped Warbler	4	9	32	11	3	8	9	6	2	12	14		19	12	2		3	10	6	9	13	4	8	196	UYRW
Townsend's Warbler				1							2		1			1								5	TOWA
Wilson's Warbler	2	4	1				2						1											10	WIWA
Chipping Sparrow			1																					1	CHSP
Clay-colored Sparrow																									CCSP
Savannah Sparrow	2	1	2		2	1							1					1					1	11	SAVS
Fox Sparrow					1						1									1		1		4	FOSP
Song Sparrow			1												1					2				4	SOSP
Lincoln's Sparrow				1				1		2					1			1						6	LISP
Swamp Sparow			1																					1	SWSP
White-throated Sparrow		1	5		8		9	1			2			1			1		2					30	WTSP
White-crowned Sparrow	1	1	3		2	2	4	1	3	3	1			1	1			1	1				1	26	WCSP
Slate-coloured Junco																									SCJU
Oregon Junco	1			1	2		3	1	4	2	4		2		9		7	3			4			43	ORJU
Unidentified Dark-eyed Junco			2		1	1	2	2	1		1			1	5		2	2	2			2	3	27	UDEJ
Western Tanager																									WETA
Rusty Blackbird					1								1											2	RUBL
Brown-headed Cowbird																									BHCO
Purple Finch																									PUFI
Pine Siskin					1				1				2						1	2				7	PISI
Total Individuals	35	62	129	46	62	48	80	57	49	106	77	0	85	40	55	24	28	31	28	27	37	24	41	1171	Total
Species Totals	12	19	24	13	17	13	16	14	13	13	15	0	16	8	11	4	6	8	9	8	6	6	9	39	# Species
Net Hour	72	64	72	72	72	72	72	72	72	70.5	67	0	72	70	66	69	64	72	72	72	72	72	72	1549.5	net hrs
Birds / Net hour	0.5	1	1.8	0.6	0.9	0.7	1.1	0.8	0.7	1.5	1.1	0	1.2	0.6	0.8	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.6	0.7557	Birds/ net hr

September 2012 Non-standard Banding Totals																									
Species↓ Date→	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**		Codes
Northern Saw-whet Owl				3			1	2					4	5	7		2	8		4	3			39	NSWO
Rufous Hummingbird																									RUHU
Calliope Hummingbird																									CAHU

Returns				
Species	**July**	**Aug**	**Sept**	**Total**
Downy Woodpecker	1			1
Least Flycatcher	1			1
Warbling Vireo	2			2
Black-capped Chickadee	1	1		2
Ruby-crowned Kinglet		2		2
Swainson's Thrush	3			3
Northern Waterthrush	2			2
Orange-crowned Warbler	1	1	4	6
Common Yellowthroat	1			1
American Redstart	8		1	9
Magnolia Warbler	1			1
Yellow Warbler	3	1		4
Song Sparrow	3	2		5
Lincoln's Sparrow	1			1
Total	28	7	5	40

July Returns															
Codes	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
DOWO								1						1	DOWO
LEFL			1											1	LEFL
WAVI	1						1							2	WAVI
BCCH					1									1	BCCH
RCKI															RCKI
SWTH	1	1		1										3	SWTH
NOWA				2										2	NOWA
OCWA			1											1	OCWA
COYE					1									1	COYE
AMRE		1	1	1	1			2		1	1			8	AMRE
MAWA									1					1	MAWA
YEWA	1				1				1					3	YEWA
SOSP	1				1						1			3	SOSP
LISP									1					1	LISP
Total	4	2	3	4	5		1	3	3	1	2			28	Total

August 2012 Returns																															
Codes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
DOWO																																	DOWO
LEFL																																	LEFL
WAVI																																	WAVI
BCCH													1																			1	BCCH
RCKI					1												1															2	RCKI
SWTH																																	SWTH
NOWA																																	NOWA
OCWA																										1						1	OCWA
COYE																																	COYE
AMRE																																	AMRE
MAWA																																	MAWA
YEWA																			1													1	YEWA
SOSP												1																	1			2	SOSP
LISP																																	LISP
Total					1							1	1				1		1							1			1			7	Total

September 2012 Returns																									
Species	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**Total**	**Codes**
Downy Woodpecker																									DOWO
Least Flycatcher																									LEFL
Warbling Vireo																									WAVI
Black-capped Chickadee																									BCCH
Ruby-crowned Kinglet																									RCKI
Swainson's Thrush																									SWTH
Northern Waterthrush																									NOWA
Orange-crowned Warbler	1		1			1				1														4	OCWA
Common Yellowthroat																									COYE
American Redstart	1																							1	AMRE
Magnolia Warbler																									MAWA
Yellow Warbler																									YEWA
Song Sparrow																									SOSP
Lincoln's Sparrow																									LISP
Total	2		1			1				1														5	Total

Fall 2012 Repeats				
Species	**July**	**Aug**	**Sept**	**Total**
Yellow-bellied Sapsucker		1		1
Downy Woodpecker	2	1	2	5
Alder Flycatcher		2		2
Least Flycatcher		1		1
Hammond's Flycatcher		1		1
Warbling Vireo	1	3		4
Black-capped Chickadee		10	12	22
Red-breasted Nuthatch			1	
Golden-crowned Kinglet			3	
Ruby-crowned Kinglet		7	16	23
Gray-cheeked Thrush	1	2		3
Swainson's Thrush	10	3		13
Hermit Thrush		1	1	2
Cedar Waxwing	2	6		8
Northern Waterthrush	29	64	7	100
Tennessee Warbler		7	2	9
Orange-crowned Warbler	2	17	9	28
Common Yellowthroat	6	9	17	32
American Redstart	11	15	2	28
Magnolia Warbler	1	5		6
Yellow Warbler	10	11	1	22
Blackpoll Warbler		6	2	8
Audubon's Warbler	2		3	5
Unknown Yellow-rumped Warbler		1	1	2
Wilson's Warbler		1		1
Chipping Sparrow			1	1
Song Sparrow	5	2	1	8
Lincoln's Sparrow	1	2		3
White-throated Sparrow	1	5	6	12
White-crowned Sparrow	5	1	2	8
Gambel's White-crowned Sparrow		2	2	4
Oregon Junco		2	4	6
Unidentified Dark-eyed Junco	3			3
Western Tanager	1			1
Purple Finch	1			1
Total	94	188	95	377

July 2012 Repeats															
Codes	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
YBSA															YBSA
DOWO		1						1						2	DOWO
ALFL															ALFL
LEFL															LEFL
HAFL															HAFL
WAVI						1								1	WAVI
BCCH															BCCH
RBNU															RBNU
GCKI															GCKI
RCKI															RCKI
GCTH										1				1	GCTH
SWTH				1	1	2		1		2	2	1		10	SWTH
HETH															HETH
CEDW				1			1							2	CEDW
NOWA		2	1	4	2	1	3	3		3	3	3	4	29	NOWA
TEWA															TEWA
OCWA									1		1			2	OCWA
COYE		1				1	1			1			2	6	COYE
AMRE					3		4	2					2	11	AMRE
MAWA												1		1	MAWA
YEWA			1	1		2	2	1				2	1	10	YEWA
BLPW															BLPW
AUWA					1					1				2	AUWA
UYRW															UYRW
WIWA															WIWA
CHSP															CHSP
SOSP		1					1				2		1	5	SOSP
LISP								1						1	LISP
WTSP												1		1	WTSP
WCSP						2	1	1				1		5	WCSP
GWCS															GWCS
ORJU															ORJU
UDEJ		1		1	1									3	UDEJ
WETA						1								1	WETA
PUFI								1						1	PUFI
Total		6	2	8	8	10	13	11	1	8	8	9	10	94	Total

August 2012 Repeats																															
Codes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**Total**	**Codes**
YBSA			1																													1	YBSA
DOWO																												1				1	DOWO
ALFL														1			1															2	ALFL
LEFL					1																											1	LEFL
HAFL																										1						1	HAFL
WAVI									1					1															1			3	WAVI
BCCH		1									2			2								1			1			2	1			10	BCCH
RBNU																																	RBNU
GCKI																																	GCKI
RCKI											1							1			1	1	1						2			7	RCKI
GCTH						1								1																		2	GCTH
SWTH	1												1	1																		3	SWTH
HETH																										1						1	HETH
CEDW				1	1		1						1									1							1		6	CEDW
NOWA	2	3	3	4	1	1	2	4	5	3	2	1	4	3	3	1	3	4	6	2		2	1		1	1	1	1				64	NOWA
TEWA			1		1			1	1					1	1			1														7	TEWA
OCWA	1		1	1				2	1	1	2		2			1			1	1	2							1				17	OCWA
COYE					2								1						2						1	1	1			1			9	COYE
AMRE		3		2		1	1			2	2								1				1		1			1				15	AMRE
MAWA			1				1	1		1						1																5	MAWA
YEWA	1					1		1			1		1	1						2				1			1			1		11	YEWA
BLPW											1						1			1					1	1		1				6	BLPW
AUWA																																	AUWA
UYRW																												1				1	UYRW
WIWA																									1							1	WIWA
CHSP																																	CHSP
SOSP	1														1																	2	SOSP
LISP		1																												1		2	LISP
WTSP					1					1						1	1								1							5	WTSP
WCSP							1																									1	WCSP
GWCS																										1			1			2	GWCS
ORJU																				1											1	2	ORJU
UDEJ																																	UDEJ
WETA																																	WETA
PUFI																																	PUFI
Total	6	8	7	8	7	4	6	9	8	8	11	1	10	11	5	4	6	6	10	7	3	5	3	1	7	6	3	8	5	4	1	188	Total

September 2012 Repeats																									
Species	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**Total**	**Codes**
Yellow-bellied Sapsucker																									YBSA
Downy Woodpecker							1																1	2	DOWO
Alder Flycatcher																									ALFL
Least Flycatcher																									LEFL
Hammond's Flycatcher																									HAFL
Warbling Vireo																									WAVI
Black-capped Chickadee									2		1		3	1	2			1			2			12	BCCH
Red-breasted Nuthatch							1																	1	RBNU
Golden-crowned Kinglet											2							1						3	GCKI
Ruby-crowned Kinglet				1				1	1	2	2		3	2	1	1	1	1						16	RCKI
Gray-cheeked Thrush																									GCTH
Swainson's Thrush																									SWTH
Hermit Thrush															1									1	HETH
Cedar Waxwing																									CEDW
Northern Waterthrush		1			1				1	1			1		1		1							7	NOWA
Tennessee Warbler								1			1													2	TEWA
Orange-crowned Warbler	1				1			1		3	1		1	1										9	OCWA
Common Yellowthroat		1	1			2	1	1	3	2			1	2						1			2	17	COYE
American Redstart									1	1														2	AMRE
Magnolia Warbler																									MAWA
Yellow Warbler			1																					1	YEWA
Blackpoll Warbler				1		1																		2	BLPW
Audubon's Warbler						1				1			1											3	AUWA
Unknown Yellow-rumped Warbler														1										1	UYRW
Wilson's Warbler																									WIWA
Chipping Sparrow	1																							1	CHSP
Song Sparrow								1																1	SOSP
Lincoln's Sparrow																									LISP
White-throated Sparrow			1		1			1	1											1			1	6	WTSP
White-crowned Sparrow											2													2	WCSP
Gambel's White-crowned Sparrow									1		1													2	GWCS
Oregon Junco	1												1				2							4	ORJU
Unidentified Dark-eyed Junco																									UDEJ
Western Tanager																									WETA
Purple Finch																									PUFI
Total	3	2	3	2	3	4	3	6	10	10	10		11	7	5	1	4	3		2	2		4	95	Total

Appendix 6 Species captured in each net at Mackenzie Nature Observatory's banding station at Mugaha Marsh, Mackenzie, BC (new birds only, this does not include recaptures) page 1 of 2

Species↓ Net→	9	11	12	17	19	20	21	22	25	26	28	32	no #	Total
Sharp-shinned Hawk									1	1				2
Wilson's Snipe	1		1					1						3
Yellow-shafted Flicker	1													1
Yellow-bellied Sapsucker	4		1						1					6
Hairy Woodpecker											1			1
Downy Woodpecker		1	1		2	2			2	2	1			11
Yellow-bellied Flycatcher					1		1					1		3
Alder Flycatcher	2	5	3		6	4	6	9	5	5		4		49
Least Flycatcher	4	6	5	7	8	5	6	10	6	9	2	27		95
Hammond's Flycatcher	7		4	2	2	2		1	2	3		8		31
Dusky Flycatcher		2	2	1		1	1	2	3			7		19
Cassins Vireo			1				1		1					3
Solitary Vireo		1												1
Red-eyed Vireo						1				1				2
Warbling Vireo	2	3		1	11	2	2	2	1	5		14		43
Gray Jay			1											1
Northern Rough-winged Swallow		3	1											4
Barn Swallow		2												2
Red-breasted Nuthatch	1	1	1		1	1			3	1		3		12
Black-capped Chickadee		6	4		3	1	1	2	1	5	2	6		31
Boreal Chickadee			1						1	1				3
Golden-crowned Kinglet	1	1	1	2	2	4	6	4	25	18		24		88
Ruby-crowned Kinglet	17	20	16	12	37	23	20	12	43	20		126		346
Swainson's Thrush	24	1	2	19	13	19	11	13	20	23	16	26		187
Gray-cheeked Thrush					1		1			1		1		4
Hermit Thrush	4			2		3		2	1	2	1	1		16
American Robin				1	1				1	7		4		14
Varied Thrush			1	1										2
Bohemian Waxwing										2				2
Cedar Waxwing		1	1	2			2	1	1	8		13		29
Ovenbird	3			1	1									5
Northern Waterthrush	39	21	43	100	24	38	60	44	9	15	34	4		431
Tennessee Warbler	8	9	2	17	16	14	4	5	8	10	2	22	1	118
Orange-crowned Warbler	4	28	18	30	19	19	21	17	28	15	6	96		301
MacGillivray's Warbler	2				3	1	2	3	4	2		4		21
Common Yellowthroat	6	22	55	6	20	11	17	19	6	9	5	8		184
American Redstart	32	8	9	36	35	18	20	33	17	18	11	59		296
Cape May Warbler								1		1		1		3
Magnolia Warbler	11	2		7	10	19	10	14	12	4	4	19		112
Yellow Warbler	3	20	5	14	15	3	25	27	10	12	3	31		168
Blackpoll Warbler	5	2	2	11	6	8	5	8	1	4		5		57
Myrtle Warbler	1	1	1	3					1					7
Audubon's Warbler	18	25	2	35	3	1	3		41	12		31		171
Unknown Yellow-rumped Warbler	22	40	11	43	10	10	5	3	32	17		44		237
Townsend's Warbler	1	2		1	2	2	2		10	4		17		41
Wilson's Warbler	2	2	1	2	2	6	4	8	3	6	2	15		53
Chipping Sparrow		5	1	1	1		2		5	1		2		18
Savannah Sparrow		3	9	2	1	1	1				2	1		20
Clay-colored Sparrow						1								1
Fox Sparrow						1			2			3		6

Appendix 6 Species captured in each net at Mackenzie Nature Observatory's banding station at Mugaha Marsh, Mackenzie, BC (new birds only, this does not include recaptures) page 2 of 2

Species↓ Net→	9	11	12	17	19	20	21	22	25	26	28	32	no #	Total
Song Sparrow		2	10		2	1	1		6	5		5		32
Lincoln's Sparrow		1	4	3	4	2	2	1	1	6		6		30
Swamp Sparow			1											1
White-throated Sparrow				1	1	3	3	2	3	10	1	84		108
White-crowned Sparrow			1		2	2			2	1		11		19
Gambel's White-crowned Sparrow		1	3		3		6	2	4	3		27		49
Slate-coloured Junco												1		1
Oregon Junco	5	1	3	1		1	2	1	11	4	4	22		55
Unidentified Dark-eyed Junco	7	1	2	3	1	1	2	3	11	8	1	24		64
Western Tanager				1		1		2	1	1		3		9
Rusty Blackbird				1		1								2
Brown-headed Cowbird	1		1	1										3
Purple Finch				1		3		1	1	2		1		9
Pine Siskin	25	5				2	1		3	7		2		45
# Individuals	272	265	243	388	288	258	277	275	375	317	126	845	1	3930
# Species	28	32	35	32	33	37	32	30	40	40	17	39	1	58
# Net Hours	383.4	319.9	381.9	383.9	377.2	377.2	380.7	380.7	383.9	382.9	360.7	381.9		4494.3
Birds Per Net Hour	0.71	0.83	0.64	1.01	0.76	0.68	0.73	0.72	0.98	0.83	0.35	2.21		0.8745

Band Number	Species	Age	Sex	Date	Net	Time	Bander
1651-13518	Lincoln's Sparrow	AHY	M	20/07/2011	11	5:30	JH
		AHY	U	27/07/2012	12	5:30	AR
1931-27208	Song Sparrow	AHY	M	22/07/2008	12	6:00	SJJ
		AHY	U	17/09/2008	26	7:15	JH
		ASY	M	20/07/2009	3	7:30	KMB
		ASY	M	23/07/2010	11	5:30	JEB
		AHY	M	12/08/2012	25	7:30	CAS
1931-27434	Song Sparrow	ASY	M	21/07/2009	4	8:30	KMB
		ASY	M	22/07/2009	11	7:00	KMB
		ASY	U	17/07/2010	17	8:30	DWL
		ASY	M	19/07/2011	9	10:30	CC
		ASY	M	21/07/2011	4	7:00	CC
		AHY	M	19/07/2012	12	5:30	RB
1931-27482	Song Sparrow	ASY	M	31/07/2009	4	10:45	LC
		ASY	M	05/08/2009	11	7:45	MH
		AHY	M	23/07/2012	22	6:00	CAS
		AHY	M	25/07/2012	19	7:30	AR
1931-27702	Song Sparrow	ASY	M	19/07/2010	11	9:30	JEB
		AHY	U	09/09/2010	4	9:00	JH
		ASY	M	29/07/2012	12	8:00	CAS
2291-30094	Swainson's Thrush	SY	F	19/07/2011	20	9:00	JH
		AHY	U	26/08/2011	21	9:30	JJ
		AHY	U	20/07/2012	26	8:00	RB
2291-30103	Swainson's Thrush	AHY	F	20/07/2011	22	6:30	JH
		AHY	F	24/07/2011	21	10:00	CC
		AHY	F	26/07/2011	22	8:00	CC
		AHY	U	29/07/2011	21	5:45	JH
		AHY	U	13/08/2011	21	6:00	JH
		AHY	U	22/07/2012	17	5:30	RB
		AHY	U	29/07/2012	20	11:00	AR
2291-30193	Swainson's Thrush	HY	U	31/07/2011	17	9:45	CC
		SY	F	19/07/2012	20	8:30	VL
2291-30206	Song Sparrow	AHY	F	03/08/2011	3	6:45	JH
		AHY	F	29/08/2012	12	7:30	RB
2291-30497	Downy Woodpecker	HY	M	13/09/2011	3	9:30	JJ
		AHY	M	26/07/2012	25	11:00	AR
2321-09318	Northern Waterthrush	AHY	F	17/07/2010	22	10:00	JEB
		AHY	F	21/07/2010	17	7:00	JEB
		AHY	U	21/08/2010	19	10:45	JH
		AHY	F	22/07/2012	21	11:00	RB
2321-09328	Northern Waterthrush	ASY	U	19/07/2010	3	11:00	JEB
		AHY	U	22/07/2012	28	8:30	RB
		AHY	U	24/07/2012	19	7:30	RB
		AHY	U	18/08/2012	22	7:45	CAS
		AHY	U	19/08/2012	22	9:45	JJ
		AHY	U	25/08/2012	21	7:00	RB

Band Number	Species	Age	Sex	Date	Net	Time	Bander
2321-09352	Warbling Vireo	AHY	F	29/07/2010	22	9:15	JH
		AHY	F	01/08/2011	21	8:45	JH
		AHY	F	25/07/2012	32	6:00	AR
2330-74416	Yellow Warbler	ASY	M	27/07/2006	17	8:30	CAR
		AHY	M	03/08/2006	21	6:45	JPJ
		AHY	M	01/09/2006	12	7:15	JPJ
		AHY	M	24/08/2007	25	12:00	JJ
		ASY	M	19/07/2010	19	7:00	JEB
		ASY	M	21/07/2011	12	9:00	CC
		ASY	M	02/08/2011	22	10:45	JH
		AHY	M	19/08/2012	17	10:45	JJ
2410-28700	American Redstart	SY	M	21/07/2007	21	5:30	JJ
		SY	M	24/07/2007	21	6:00	JJ
		SY	M	27/07/2007	20	9:00	MF
		AHY	M	06/08/2007	19	9:45	JJ
		ASY	M	01/08/2008	26	6:15	SJJ
		ASY	M	13/08/2008	21	8:30	JEB
		ASY	M	18/08/2008	22	8:45	JEB
		AHY	M	22/08/2008	17	9:30	VL
		AHY	M	23/08/2008	21	11:30	VL
		AHY	M	27/08/2008	20	12:15	KMB
		ASY	M	20/07/2009	21	9:30	KMB
		ASY	M	03/08/2009	21	7:15	JH
		ASY	M	20/07/2010	19	6:00	JEB
		ASY	M	22/07/2010	22	6:00	JEB
		ASY	M	24/07/2010	19	6:30	JH
		ASY	M	26/07/2010	21	6:00	JEB
		ASY	M	29/07/2010	19	7:30	JH
		ASY	M	30/07/2010	19	10:45	JEB
		AHY	M	01/09/2011	20	6:45	JJ
		AHY	M	07/09/2011	21	12:15	JJ
		AHY	M	28/07/2012	21	11:00	AR
		AHY	M	11/08/2012	20	9:00	VL
2410-28708	Yellow Warbler	AHY	M	21/07/2007	11	9:30	JPJ
		AHY	M	27/07/2007	11	11:15	JJ
		AHY	M	28/07/2007	9	11:00	JPJ
		AHY	M	13/08/2007	11	9:00	JJ
		AHY	M	15/08/2007	12	7:15	JPJ
		AHY	M	15/08/2008	11	10:00	SJJ
		AHY	M	17/08/2008	11	6:45	SJJ
		AHY	M	23/07/2012	26	7:00	CAS
		AHY	M	20/08/2012	21	10:15	CAS
2490-44896	Common Yellowthroat	AHY	M	27/07/2009	11	10:00	JPJ
		AHY	M	22/07/2011	11	11:00	CC
		AHY	M	23/07/2012	17	9:00	DWL
2520-31749	American Redstart	ASY	M	19/07/2008	9	6:00	SJJ
		ASY	M	21/07/2012	20	9:50	RB
		ASY	M	23/07/2012	19	6:30	CAS

Band Number	Species	Age	Sex	Date	Net	Time	Bander
2520-33383	American Redstart	SY	F	30/07/2010	20	7:45	JH
		AHY	F	26/07/2012	19	5:30	AR
2520-33753	Ruby-crowned Kinglet	HY	M	22/08/2010	19	9:30	JH
		AHY	M	17/08/2012	22	8:45	JJ
		AHY	M	18/08/2012	22	6:45	JJ
		AHY	M	21/08/2012	19	6:45	RB
		AHY	M	22/08/2012	20	12:00	JJ
		AHY	M	29/08/2012	19	9:30	JJ
		AHY	M	16/09/2012	22	10:45	JJ
2520-33821	American Redstart	AHY	F	27/08/2010	25	13:30	JH
		AHY	F	01/09/2012	32	8:45	CAS
2550-52266	Orange-crowned Warbler	HY	U	20/07/2011	17	6:00	JH
		HY	M	22/08/2011	22	6:45	JJ
		AHY	M	01/09/2012	17	7:45	JJ
2550-52272	American Redstart	AHY	F	21/07/2011	22	6:00	JH
		AHY	F	06/09/2011	21	6:45	JH
		AHY	F	20/07/2012	20	6:00	RB
		AHY	F	28/08/2012	21	6:30	JJ
2550-52281	Orange-crowned Warbler	SY	M	22/07/2011	21	6:00	JH
		AHY	U	12/08/2011	22	6:30	JH
		AHY	U	19/08/2011	19	6:15	JJ
		AHY	U	26/08/2012	28	7:30	CAS
2550-52290	Yellow Warbler	SY	F	23/07/2011	26	7:30	JH
		SY	F	24/07/2011	3	5:30	JH
		AHY	F	29/07/2011	3	10:15	CC
		AHY	F	02/08/2011	11	9:15	JJ
		AHY	F	27/07/2012	11	6:30	AR
2550-52303	Least Flycatcher	HY	U	24/07/2011	17	10:30	JH
		AHY	F	21/07/2012	25	9:15	CAS
2550-52304	American Redstart	AHY	F	25/07/2011	20	5:30	CC
		AHY	F	27/07/2011	19	5:45	JH
		AHY	F	29/07/2012	17	10:30	CAS
2550-52328	American Redstart	AHY	F	26/07/2011	25	9:00	CC
		AHY	F	25/08/2011	32	12:00	JJ
		AHY	F	30/08/2011	32	11:30	JJ
		AHY	F	31/08/2011	32	9:45	JH
		AHY	F	23/07/2012	9	11:00	RB
2550-52391	American Redstart	AHY	M	30/07/2011	20	11:15	JH
		AHY	F	26/07/2012	11	8:30	AR
2550-52511	Ruby-crowned Kinglet	AHY	M	07/08/2011	21	10:00	JJ
		AHY	M	28/08/2011	25	11:00	VL
		AHY	M	16/09/2011	26	9:15	JJ
		AHY	M	05/08/2012	25	7:15	RB
		AHY	M	17/09/2012	17	10:45	JJ
2550-52561	Magnolia Warbler	HY	U	09/08/2011	19	7:00	JH
		AHY	F	27/07/2012	19	6:30	CAS

Band Number	Species	Age	Sex	Date	Net	Time	Bander
2550-52814	American Redstart	AHY	M	01/09/2011	32	7:15	JJ
		ASY	M	22/07/2012	32	8:30	CAS
		ASY	M	02/08/2012	32	10:15	RB
		ASY	M	04/08/2012	26	5:45	RB
2580-24109	Black-capped Chickadee	HY	U	26/07/2011	26	5:30	JH
		HY	U	28/07/2011	22	10:45	CC
		HY	U	02/08/2011	19	10:15	JH
		HY	U	13/08/2011	19	8:00	JH
		HY	U	29/08/2011	26	9:30	JH
		HY	U	08/09/2011	21	7:00	JJ
		HY	U	19/09/2011	12	9:45	VL
		AHY	U	23/07/2012	22	7:12	DWL
2580-24122	Orange-crowned Warbler	HY	U	26/07/2011	4	7:30	CC
		HY	U	27/07/2011	12	9:45	JH
		HY	U	30/07/2011	12	7:45	JH
		AHY	M	06/09/2012	25	11:45	CAS
2580-24130	Warbling Vireo	AHY	F	26/07/2011	9	10:00	JH
		AHY	U	19/07/2012	26	7:00	RB
2580-24170	Yellow Warbler	HY	U	29/07/2011	17	5:45	CC
		AHY	M	19/07/2012	12	7:00	RB
		AHY	M	21/07/2012	32	11:00	DWL
		AHY	M	27/08/2012	32	8:30	RB
2580-24616	Orange-crowned Warbler	HY	U	18/08/2011	11	8:15	JJ
		SY	F	21/07/2012	32	11:00	DWL
2580-24630	Orange-crowned Warbler	HY	M	19/08/2011	20	8:45	JJ
		AHY	M	03/09/2012	32	10:45	CAS
2580-24850	Orange-crowned Warbler	AHY	M	04/09/2011	19	8:15	JJ
		AHY	M	10/09/2012	20	10:30	CAS
2580-24942	Black-capped Chickadee	AHY	U	13/09/2011	26	9:30	JJ
		AHY	U	12/08/2012	9	8:00	CAS
		AHY	U	22/08/2012	32	8:00	JJ
		AHY	U	18/09/2012	25	8:45	RB

Banders : AR – Amélie Rousseau, CAS – Chris Sukha, CC – Christine Croton, DWL – David Lambie, JEB – James Bradley, JH – Julian Hudson, JJ – Jillian Johnston, JPJ – Jukka Jantunen, KMB – Ken Burton, LC – Linnea Cross, MF – Martina Frey, MH – Mark Habdas, RB – Rinchen Boardman, SJJ – Stefan Jungkind, VL – Vi Lambie

Appendix 8. Glossary of Listed Species Categories

B.C. List Status

Species are assigned to provincial lists depending on their Provincial Conservation Status. The lists are as follows:

Red: Includes any indigenous species or subspecies that have, or are candidates for, Extirpated, Endangered, or Threatened status in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.

Blue: Includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia. Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened.

Yellow: Includes species that are apparently secure and not at risk of extinction. Yellow-listed species may have red- or blue-listed subspecies.

COSEWIC

COSEWIC (Committee On the Status of Endangered Species In Canada) ranks have the following meanings:
T = THREATENED: A species that is likely to become endangered if limiting factors are not reversed.
SC = SPECIAL CONCERN: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.
NAR = NOT AT RISK: A species that has been evaluated and found to be not at risk. .
C = CANDIDATE: A species that is on the short-list for upcoming assessment.

SARA Status
SARA (Species At Risk Act) status codes have the following meanings:

T = THREATENED: A species that is likely to become endangered if limiting factors are not reversed.
SC = SPECIAL CONCERN: A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.

Year	1982	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		
Count Date		**Dec-17**	**Dec-16**	**(Jan 4)**	**(Jan 3)**	**Dec-20**	**Dec-19**	**Dec-19**	**Dec-29**	**Dec-15**	**Dec-20**	**Dec-18**	**Dec-18**	**Dec-17**	**Dec-29**	**Dec-20**	**Dec-20**	**Dec-27**	**Dec-28**		
Temp. in F°	40°F	18°F	9°F	18°F	-4°F	0°F	14°F	14°F	-0.4°F	35.6°F	35.6°F	33.0°F	15.0°F	10.0°F	12.0°F	-13.0°F	5.0°F	23.0°F	23.0°F		
Species Temp. in C°	4°C	-8°C	-13°C	-8°C	-20°C	-18°C	-10°C	-10°C	-18°C	2°C	2°C	1°C	-9°C	-12°C	-11°C	-25°C	-15°C	-5°C	-5°C	**Total**	**Species**
Mallard					2					48		**cw** (2)								50	MALL
Green-winged Teal					2															2	AGWT
Golden Eagle					1															1	GOEA
Bald Eagle		1				**cw** (1)		2	3	2	1	2	2	1	3	2	1	2	3	25	BAEA
Northern Goshawk											1	1								2	NOGO
Rough-legged Hawk											1									1	RLHA
Willow Ptarmigan						7						10								17	WIPT
White-tailed Ptarmigan			8			**cw** (1)													4	12	WTPT
Ruffed Grouse		**cw** (1)		2	3	2		**cw** (6)	2	2	5	3	1	7	1	1		2	**cw** (1)	31	RUGR
Spruce Grouse		**cw** (1)			**cw** (1)							1				1			1	3	SPGR
Great Horned Owl											1									1	GHOW
Northern Hawk Owl												1								1	NHOW
Northern Pygmy Owl				1								1								2	NOPO
Great Gray Owl			1					**cw** (1)												1	GGOW
Downy Woodpecker		6	1	2	3	7	5	4	11	9	10	5	5	4	1	7	4	5	3	92	DOWO
Hairy Woodpecker	1	12	6	6	7	4	3	3	7	4	8	3	4	2	5	5	2	3	1	86	HAWO
Three-toed Woodpecker		7	5	1	1			2	1	**cw** (1)	6		2	1		1	1		1	29	TTWO
Black-backed Woodpecker				1				2								1				4	BBWO
Pileated Woodpecker											**cw** (1)		**cw** (1)							0	PIWO
Gray Jay	6	10	22	5	4	9	2	10	9	4	11	2	5	**cw** (1)		1		**cw** (1)	**6**	106	GRAJ
Steller's Jay	8	95	94	41	74	68	21	60	77	50	59	44	32	22	17	11	13	24	51	861	STJA
Blue Jay												1		1						2	BLJA
Black-billed Magpie		1	2		**cw** (1)	8	2	4	1	2	2	2	1		3	**cw** (2)		1		29	BBMA
American Crow	3		4		6	8	3		8	16	4	3	1	3		4	5	6	3	77	AMCR
Common Raven	72	273	337	227	399	212	192	366	245	305	224	121	125	35	208	177	178	265	439	4400	CORA
Black-capped Chickadee	31	101	102	82	63	103	71	61	78	84	121	91	52	53	29	39	19	74	51	1305	BCCH
Chestnut-backed Chickadee												1				1				2	CBCH
Mountain Chickadee	9		1						9	3		2				1	1		1	27	MOCH
Boreal Chickadee									1	5	1							5		12	BOCH
Red-breasted Nuthatch	28	8	51	8	21	5	9	7	52	11	41	3	14	10	5	2	8	2	1	286	RBNU
White-breasted Nuthatch												1			**cw** (1)					1	WBNU
Brown Creeper										3	1			1					**cw** (1)	5	BRCR
Winter Wren				3																3	WIWR
American Dipper	1	2	1	1	1	4		1		1	1	2	1		**cw** (1)	1	1	1	1	20	AMDI
Golden-crowned Kinglet		2			2															4	GCKI
Northern Shrike			2	1					1			1			**cw** (1)					5	NSHR

Year	1982	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		
Count Date		**Dec-17**	**Dec-16**	**(Jan 4)**	**(Jan 3)**	**Dec-20**	**Dec-19**	**Dec-19**	**Dec-29**	**Dec-15**	**Dec-20**	**Dec-18**	**Dec-18**	**Dec-17**	**Dec-29**	**Dec-20**	**Dec-20**	**Dec-27**	**Dec-28**		
Temp. in F°	40°F	18°F	9°F	18°F	-4°F	0°F	14°F	14°F	-0.4°F	35.6°F	35.6°F	33.0°F	15.0°F	10.0°F	12.0°F	-13.0°F	5.0°F	23.0°F	23.0°F		
Species Temp. in C°	4°C	-8°C	-13°C	-8°C	-20°C	-18°C	-10°C	-10°C	-18°C	2°C	2°C	1°C	-9°C	-12°C	-11°C	-25°C	-15°C	-5°C	-5°C	**Total**	**Species**
European Starling	6		9		27	2	10	10	23	23	59	32		cw	2				1	204	EUST
Bohemian Waxwing						5	16			**cw** (9)	1		94	cw	10			9	15	150	BOWA
White-throated Sparrow			1																	1	WTSP
Unidentified Dark-eyed Junco		1	6	13	1	3	1		5		3	5		8						46	UDEJ
Oregon Junco												2		7						9	ORJU
Slate-colored Junco							1			2		1		7						11	SCJU
Snow Bunting			12	**cw** (1)		39						**cw** (5)	**cw** (25)				1			52	SNBU
Red-winged Blackbird						**cw** (2)				1	3									4	RWBK
Western Meadowlark										1										1	WEME
Rusty Blackbird							1													1	RUBL
Pine Grosbeak	24	49	311	60	82	115	29	24	156	39	140	42	27	193	84	43	30	32	29	1509	PIGR
Purple Finch						1				1										2	PUFI
White-winged Crossbill			29		7				6		33		7		**cw** (10)					82	WWCR
Red Crossbill					6						555		**cw** (7)							561	RECR
Hoary Redpoll						4														4	HORE
Common Redpoll							384	6	598	171	259	136	80	278	199	7	89	104	144	2455	CORE
Pine Siskin	9					74			7	4		2	50	22	3	3	45			219	PISI
Evening Grosbeaks		142	159	4	484	27	680	81	602	22	251	**cw** (9)	24	90	235	105	92	1	125	3124	EVGR
House Sparrow	35	392	498	42	64	164	339	8	58	181	269	79	15	70	21	25	6	28	43	2337	HOSP
Hawk species			**cw** (1)																		
Redpoll Species	175	108	859	319	164	929														2554	
Grosbeak species									6											6	
Total Individuals	2434	37899	39561	2825	3397	39929	40285	39534	41203	40639	42087	40978	41257	41887	42279	42210	42662	43131	43857	538403	
Total Species	17	21	28	22	26	26	21	21	27	30	32	32	24	22	20	25	21	21	24	53	
Total Species included CW	17	23	28	23	28	29	21	23	27	32	33	35	27	25	24	26				54	

NOTE: CW = Count week (3 days before and 3 days after count day)