



NOCTURNAL OWL MONITORING PROJECT

2024 ANNUAL REPORT

A summary and discussion of owl banding data from Rocky Point and Pedder Bay

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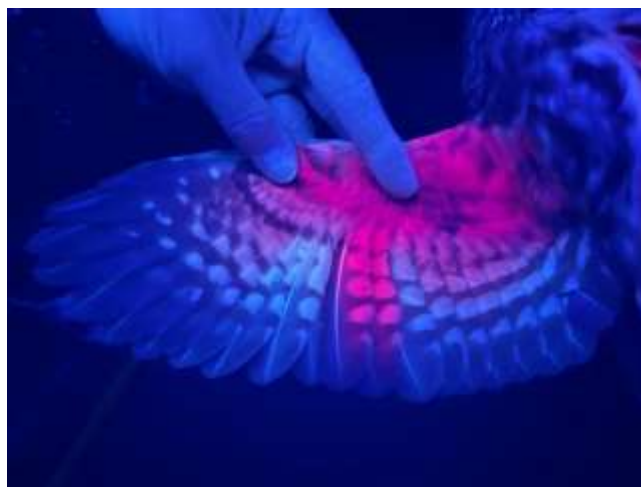
Since the inception of Northern Saw-whet Owl Migration Monitoring by Paul Levesque in 2002, thousands of volunteer hours have made the project what it is today. In 2024, 59 volunteers contributed 1894 hours to the monitoring project at Rocky Point and Pedder Bay.

Access to the Rocky Point site is provided by the Department of National Defense, including the staff at Formation Safety & Environment, the Range Control staff, and the ever-helpful Commissionaires at the gate. RPBO gratefully acknowledges the assistance of all those involved to ensure continued operation of this long-term project.

Access to the property at Pedder Bay is provided by the Pedder Bay RV Resort & Marina and we are extremely grateful to them.

Jannaca Chick and Mark Byrne served as the Banders for the project this year, and were assisted by volunteer banders Robyn Byrne, Katie McCreesh, and Ann Nightingale. A special thank you goes to Jo and Mike Motek, the Project Coordinators, Robyn Byrne, the Volunteer Coordinator, and her team, and the many volunteers who showed up every night to provide their support for the project.

All data from this project have been submitted to the Canadian Wildlife Service and the Bird Banding Laboratory of the U.S. Geological Survey.



*Figure 1. After third year Northern Saw-whet Owl wing under ultraviolet light
RPBO recapture from 2018
Photo: Jannaca Chick*

Abstract

The 2024 season marked the 22nd year of Northern Saw-whet Owl Migration Monitoring at Rocky Point Bird Observatory (RPBO). Volunteers and staff have conducted the monitoring of owl movement through the most southerly point of Vancouver Island each year since 2002, with the exception of 2007. In 2024, a total of 1252 Northern Saw-whet Owls (NSWO) were banded, and 70 owls were recaptured (not including same-night recaptures), at the Rocky Point and Pedder Bay banding stations. The recaptures included thirteen owls banded at RPBO in previous years and two foreign recaptures (i.e., banded at banding stations other than those operated by RPBO): a NSWO banded in 2023 in Cobble Hill, BC by Andy Stewart, and an owl banded at Tatlayoko Lake Bird Observatory, BC, 2023. In 2024, three of our owls were captured at other stations: two on Bainbridge Island, Washington State, and one by Andy Stewart in Cobble Hill, Vancouver Island. Rocky Point Bird Observatory has now banded a total of 15,742 Northern Saw-whet Owls in the Nocturnal Owl Monitoring Program.



*Figure 2. Long-eared Owl, banded at Rocky Point.
Photo: Mark Byrne.*

Introduction

NOCTURNAL OWL MONITORING PROJECT

The Northern Saw-whet Owl (*Aegolius acadicus*) (NSWO) is considered one of the most abundant yet difficult to observe owl species in North America.

In eastern North America there are a large number of banding stations participating in nocturnal owl monitoring as a part of Project OwlNet. Together, these stations provide data that continues to further our understanding of the post-breeding movements of NSWO. With relatively few banding stations west of the Rocky Mountains, understanding of the NSWO movements in the west is comparatively lacking (Project OwlNet n.d.).



RPBO began the Nocturnal Owl Monitoring Project in 2002. The goals of this project are to collect data on NSWO to contribute to a better understanding of the population dynamics and movements of the western populations, and to increase public awareness of conservation issues regarding owls on Vancouver Island.

STUDY AREA: ROCKY POINT AND PEDDER BAY BANDING LOCATIONS

Rocky Point

Established as an owl banding location in 2002, the Rocky Point banding station is situated at the southernmost tip of Vancouver Island, on the grounds of the Department of National Defence's Rocky Point Ammunition Depot, which is inaccessible to the public.

The owl banding net array is located southeast of the banding station and consists of eight Avinet 60mm mesh mist nets (12m x 2.6m). Since 2021, an owl net (Avinet 60mm mesh) has been erected parallel to passerine net 5 until the end of the season. Prior to 2021, the passerine net at this location was part of the owl banding net array.

The mist nets are arranged in a loose triangle around an audio lure, with five nets situated outside of the triangle (Appendix 1). All NSWO are released at one of two release boxes, one near and one far from the banding station. The location of release boxes was changed when necessary to avoid predation events by Barred Owls (BAOW).

Pedder Bay

Established as a full-time owl banding location in 2014, the Pedder Bay banding station is 4 km north-west of the Rocky Point site on property owned by the Oak Bay Marine Group north of the entrance road to the Pedder Bay RV Resort and Marina. Opening the Pedder Bay site has enabled RPBO to give more volunteers the opportunity to participate and gain owl banding and extraction experience. This site has enabled RPBO to encourage public visits to observe our project, and to educate the public about owls and our banding program.

The owl banding nets are located east of the banding station and include seven mist nets (12m x 2.6m): six owl nets (Ecotone 60mm), and one passerine net (Avinet 30mm). Since 2020, a 60mm owl net has been placed parallel to the Net 4 passerine net. Prior to 2020, the passerine net (Avinet 30mm mesh) at this location was part of the owl net array. The mist nets are arranged around an audio lure in a loose “U”-shape, with several nets radiating away from the lure (Appendix 2). After processing, all NSWOW are released in a release box close to the banding station that provides egress to a bushy area to prevent potential BAOW predation.

METHODS: BANDING PROTOCOL

The banding protocol used at both Rocky Point and Pedder Bay follows the recommendation of Project OwlNet on their website (netting Migrant Owls – the Basics). They recommend a standardized yet flexible protocol for each station, depending on the station location, predation, net orientation, weather, etc. Standardization of data and banding protocol at each station is of primary importance.

Nets were opened 30 minutes after sunset each night, barring poor weather (rain, excessive wind), and remained open for six hours, from 15 September 2024 to 31 October 2024. An audio lure playing the territorial call of a male Northern Saw-whet Owl was used to attract owls to the net arrays. Nets were checked every 20 minutes, unless poor weather or the presence of Barred Owls (*Strix varia*; BAOW) or other predators necessitated more frequent net checks. Whenever the presence of BAOW was detected in the net lanes, volunteers and banders remained alert to immediately extract NSWOW, and to monitor and trap BAOW. Upon extraction from the net, each NSWOW was returned to the banding station in a bird bag. The bander then banded the owl with a U.S. Geological Survey-numbered aluminum band, and recorded the following morphometric data: mass, wing chord, tail length, body condition, number of tail bars, eye colour, foot colour, and bill-tip colour (See Appendix 2). The sex of each owl was determined, if possible, using the discriminant function analysis of mass and wing chord, as established by Project OwlNet (calculated automatically in spreadsheet); an overlap range between the two sexes results in a portion of individuals being sexed as “unknown”. The age of each owl was determined based on the molt pattern in the primaries and secondaries, per the criteria outlined in the Identification Guide to North American Birds (Pyle 2022) and Project OwlNet, n.d. The molt patterns of the primary and secondary feathers of owls aged as second year or older were recorded feather-by-feather in a molt card spreadsheet.

BARRED OWL MANAGEMENT

BAOW are relatively recent inhabitants of Vancouver Island, having spread from eastern North America and establishing in November 1969. A generalist in terms of habitat preferences and prey, the BAOW is suspected to have affected other owl populations such as the Western Screech-Owl (*Megascops kennicottii*) and is a known predator of the NSW. Of all the predators of NSW observed at Rocky Point and Pedder Bay, BAOW are of the greatest concern, both for their ability to swiftly dispatch multiple NSW and for their potential ability to injure volunteers and banders. If a volunteer observed a BAOW, they alerted all other volunteers and the bander by radio. In 2024 we used fishing rod bells which were attached to the net trammel lines whenever there was a known BAOW in proximity to the net lanes and also when BAOW presence was ongoing for several nights. If a BAOW was captured in any net, volunteers restrained the owl within the net pocket until the owl could be safely extracted. Once extracted, all BAOW were transported by hand to the banding station, then restrained in a casting jacket. The BAOW were banded using a USGS-numbered aluminum lock-on band, and the following morphometric data was obtained: mass, wing chord, tail length, and molt pattern of the primaries, secondaries, and tail. Age was determined, if possible, using the molt pattern as outlined in “Aging Barred Owls in Rehabilitation Settings” by Berry (2012). Sex was determined, if possible, using the weight, wing chord, and tail length as per Pyle (2022). This year the foot pad measurement of BAOW was taken to assist in ascertaining the sex (Pyle 2022). Each BAOW was then contained for the remainder of the banding session in a large animal carrier covered with a cloth. All BAOW were released on-site, but at the end of the banding shift and away from the banding station. In 2024, we were unable to obtain the necessary permissions from the Province of British Columbia for the relocation of hatch year Barred Owls. The Wildlife Permit Office has requested further information on the normal ranges of individual Barred Owls before they will consider reinstating their permission for relocation.

BAT EXTRACTION

In 2020, RPBO established a protocol for dealing with bat extraction during the COVID-19 pandemic to prevent a potential spread of COVID-19 to the bat population. Bat kits were created and provided to both stations. Only banders wearing proper protective gloves and a mask were allowed to extract bats from nets. After removal of the bat, the net area was sprayed with a bleach formula. In 2024, six Little Brown Myotis (*Myotis lucifugus*) were caught, two at Pedder Bay and four at Rocky Point. All bats were safely extracted and released.

Results

TOTALS SUMMARY

During the 2024 Nocturnal Owl Monitoring season, a total of 1252 NSW were banded (716 at Rocky Point, 536 at Pedder Bay) over a period of 3843.91 net hours. This was our third busiest season to date. An additional 70 previously banded NSW were recaptured (39 at Rocky Point, 31 at Pedder Bay); of these 13 were banded in previous years at RPBO and 2 were foreign recaptures (i.e., banded at banding stations other than those operated by RPBO). A total of 11 Barred Owls were banded (9 at Rocky Point, 2

at Pedder Bay), plus three recaptures of BAOW banded this season, two at Rocky Point, one at Pedder Bay. We also captured and banded one American Barn Owl and one Long-eared Owl, our third and seventh respectively, at the Rocky Point station.

In 2024, eight NSWOW in total were lost to predation, four at Rocky Point and four at Pedder Bay. At Rocky Point, two owls were killed in the nets by BAOW, and one by a raccoon. One owl was injured by a BAOW and released later that night; however, a few days later it was found by the Migration Monitoring crew in poor condition; it was taken to the Wild Animal Rehabilitation Centre (Wild ARC), where it was later euthanized. One owl suffered minor injuries due to a mink predation; the owl was placed in the hospital and released later that night. At Pedder Bay, one owl was killed by BAOW predation in the net, and three by raccoon predation in the nets; one of the raccoon predations was taken to Wild ARC with injuries, but later euthanized. Of NSWOW captured, 0.64% were lost to predation (inclusive of all banded and recaptured NSWOW). The vigilance of banders and volunteers helped to reduce predation this year.

Of the 47 potential nights of banding, two nights were cancelled at both stations due to inclement weather and an additional night was closed at Rocky Point due to operations on the base. At Rocky Point there were six nights of reduced net hours, and at Pedder Bay, there were five nights of reduced net hours, due to inclement weather conditions and net replacement (deer issues). No nets were closed at Pedder Bay or Rocky Point due to BAOW predation issues.



*Figure 3. A young hatch year NSWOW, banded at Pedder Bay.
Photo: Jannaca Chick*

ROCKY POINT

- **Net Hours:** 716 Northern Saw-whet Owls were captured, not including 39 recaptures, during 2042.58 net hours and 255.42 lure hours. This represents a capture rate of 0.36 owls per net hour. A graph of owl capture rate per net is detailed below (Figure 4).

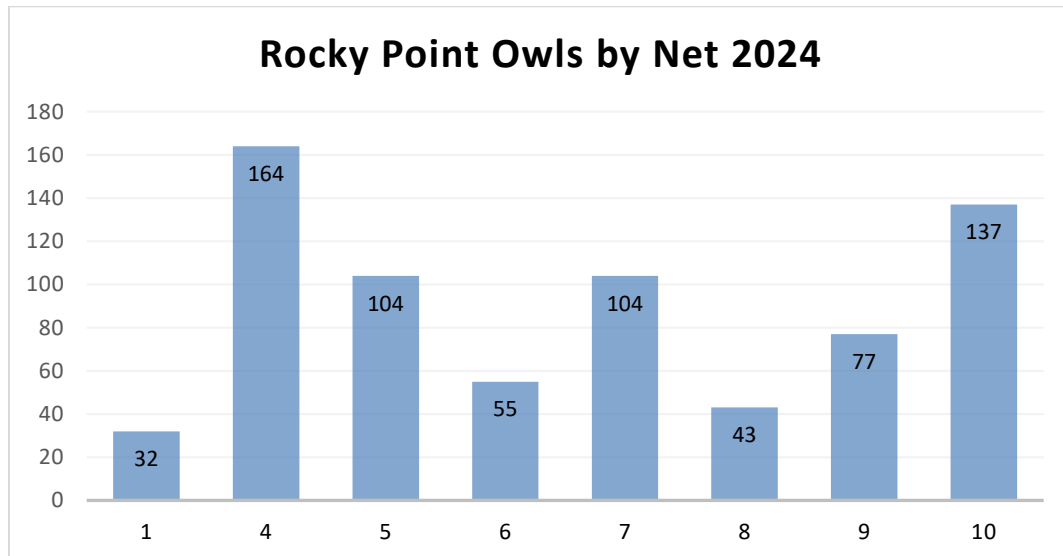


Figure 4. Rocky Point Owls by Net 2024.

- **Sex:** Of the 716 Northern Saw-whet Owls banded at Rocky Point, 337 (47%) were identified as female (F), 98 (13.7%) were identified as male (M), and 281 (39.3%) were identified as unknown (U) (Figure 5).

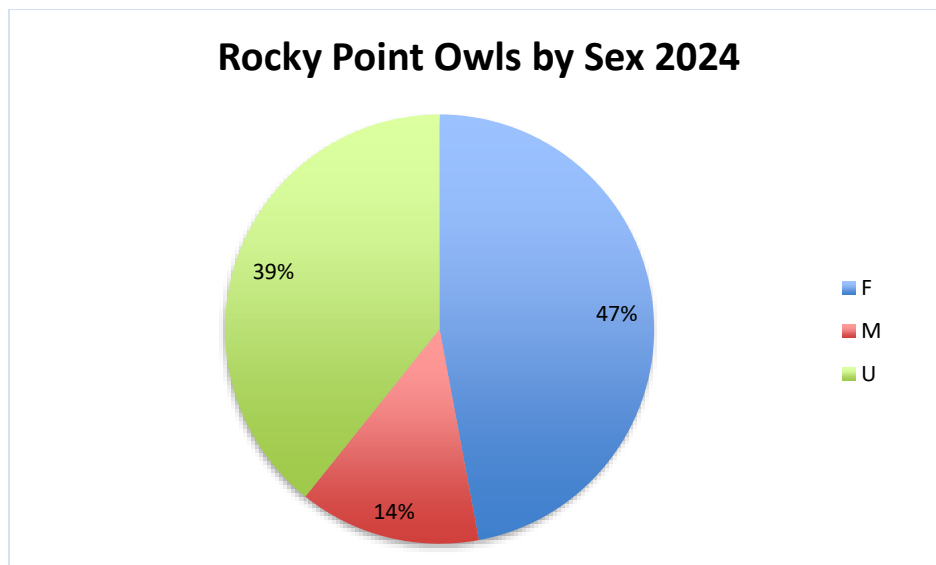


Figure 5. Rocky Point Owls by Sex 2024.

- **Age:** Of the 716 Northern Saw-whet Owls banded, 309 (43.2%) were identified as hatch year birds (HY), 317 (44.3%) as second year (SY), 11 (1.5%) as third year (TY), 60 (8.4%) as after second year (ASY), and 19 (2.6%) as after hatch year (AHY). (See Figure 6).

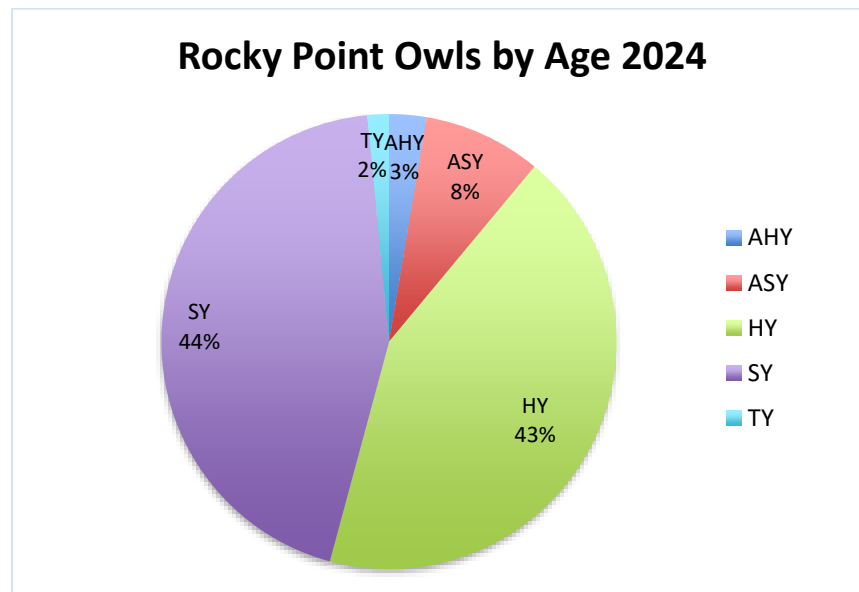


Figure 6. Rocky Point Owls by Age 2024.

- **Recaptures:** 39 previously banded NSWOW were recaptured. Of these, 4 owls were banded in previous years, and one was a foreign recapture. There were 34 same-year recaptures (18 originally banded at the Pedder Bay station, 16 banded at Rocky Point). This recapture total does not include 16 same-night captures, all from Rocky Point.

There were 4 recaptured NSWOW from previous years:

- 2 banded in 2023 at Rocky Point as HY
- 1 banded in 2023 at Rocky Point as ASY
- 1 banded in 2022 at Pedder Bay as HY

There was one foreign recapture:

- banded at Tatlayoko Lake Bird Observatory in 2023 as HY.

- **Barred Owls:** 9 BAOW were captured at Rocky Point; of these, all were aged HY. Two of these BAOW were recaptured again at Rocky Point and one was recaptured at the Pedder Bay station. One of these recaptures had lost a significant amount of weight (52.6 gm) since it was banded four days earlier. This constituted a ratio of 1 BAOW per 70 NSWOW captured (inclusive of all banded and recaptured NSWOW). The breakdown of BAOW caught in nets is net 4 (2), net 5 (3), net 8 (1), net 9 (1), net 10 (1); one was hand caught while sitting on a branch by net 10.

PEDDER BAY

- **Net Hours:** 536 NSWOW, not including 31 recaptures, were caught and banded during 1801.33 net hours and 257.33 lure hours. This represents a capture rate of 0.30 owls per net hour. A graph of owl capture rate per net is detailed below (Figure 7). Pedder Bay accounted for 43% of the season total of banded owls across both stations, which is the same percentage as last year.

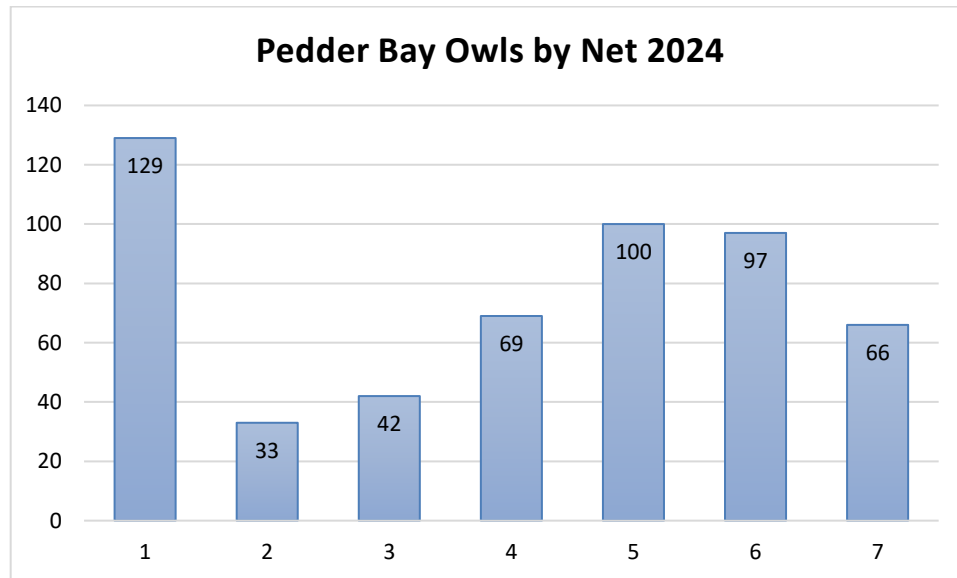


Figure 7. Pedder Bay Owls by Net 2024.

- **Sex:** Of the 536 NSWOW captured, 271 (50.6%) were female (F), 58 (10.8%) were identified as male (M), and 207 (38.6%) were unknown (U) (Figure 8).

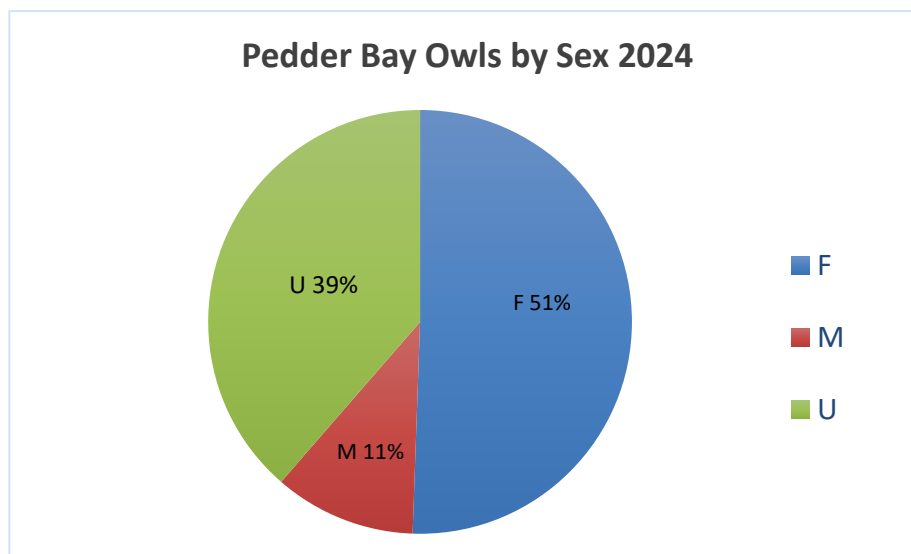


Figure 8. Pedder Bay Owls by Sex 2024.

- **Age:** Of the 536 captured, 210 (39.2%) of the owls were determined to be hatch year birds (HY), 260 (48.5%) were second year birds (SY), 15 (2.8%) were third year birds (TY), 36 (6.7%) were after-second year birds (ASY), 1 ATY (.2%), and 14 (2.6%) were after hatch year (AHY) (Figure 9).

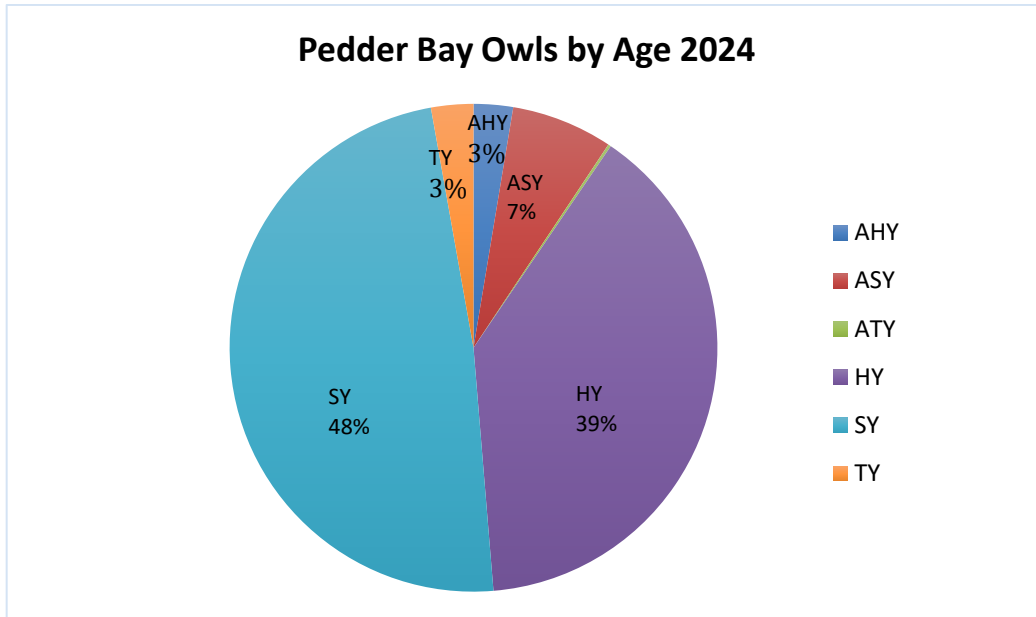


Figure 9. Pedder Bay Owls by Age 2024.

- **Recaptures:** A total of 31 previously banded NSWOW were recaptured at Pedder Bay: ten prior year recaptures including one foreign recapture, and 21 owls banded this year (16 from Rocky Point and five from Pedder Bay). There were 27 same night recaptures at the station, one of which had been banded at Rocky Point.

There were nine recaptured NSWOW from previous years:

- 3 banded in 2023 at Pedder Bay as HY
- 1 banded in 2022 at Pedder Bay as HY
- 1 banded in 2020 at Pedder Bay as HY
- 2 banded in 2023 at Rocky Point as HY
- 1 banded in 2022 at Rocky Point as ASY
- 1 banded in 2018 at Rocky Point as SY

There was 1 foreign recapture:

- Banded in 2023 at Cobble Hill by Andy Stewart as HY female.

- **Barred Owls:** Two BAOW were banded at Pedder Bay (nets 4 and 6), both aged hatch year. On 30 October, One BAOW banded at Rocky Point on 21 October was recaptured at Pedder Bay (net 2).

This constituted a ratio of one BAOW per 198 NSWO (inclusive of all banded and recaptured NSWO and BAOW).



Figure 10. Barred Owl at Pedder Bay, banders Jannaca Chick & Mark Byrne.
Photo: Joannie & Jim Challenger.

OTHER OWLS

Although Barred Owls and other owl species are not targeted, they are occasionally captured in the nets. Other owls observed at the banding sites over the course of the project include Great Horned Owl (*Bubo virginianus*), Northern Pygmy-owl (*Glaucidium gnoma*), American Barn Owl (*Tyto furcata*), Western Screech-Owl (*Megascops kennicottii*), Short-eared Owl (*Asio flammeus*), and Long-eared Owl (*Asio otus*).

This year a HY female American Barn Owl, which had been seen perched by the front meadow the previous night, was captured and banded at Rocky Point on 18 September. On 24 October, a HY female Long-eared Owl was caught and banded at Rocky Point. Both owls were caught in net 5. To date, RPBO has banded three American Barn Owls and seven Long-eared Owls.



*Figure 11. American Barn Owl, Rocky Point.
Photo: Mark Byrne.*

Discussion

This was our third highest year in terms of owls banded since both stations have been in operation. In 2024, 44.5% of owls banded were second year birds, and 41.5% were hatch year, which indicates that there was a good survival rate of owls after last year's high of 88% HY. There does not appear to be a correlation between NSWOW numbers in western and eastern North America; reports on the Project OwlNet listserv from various eastern stations indicated an average to good year, depending on location, in terms of numbers of NSWOW captured. Interestingly, they captured a high percentage of hatch year owls. Jamie Acker who bands on Bainbridge Island, WA, did not have a busy year. However, he did recapture two of our owls, one banded this year 18 October 2024 and recaptured there on 7 November 2024, and a second owl banded 14 October 2023 which they recaptured 4 October. Interestingly, one of our owls, an AHY female, banded at Rocky Point 5 October, was taken to a wildlife rehabilitation center Sarvey Wildlife Care Center in Arlington, WA. We received news that the owl had to be euthanized on 8 November 2024 due to severe head trauma.

NSWOW are believed to have a four-year population cycle synchronized with that of deer mice, their most common prey species (Swengel and Swengel 1995). Since 2016, the pattern we are seeing does not appear to follow the four-year cycle postulated by this paper, and more study is needed to understand why this may be the case. Other environmental factors, such as weather and wildfires may have significant effects on how these owls breed, migrate, and disperse.

Figure 12 (below) shows the number of owls RPBO has banded since 2002, including HY numbers.

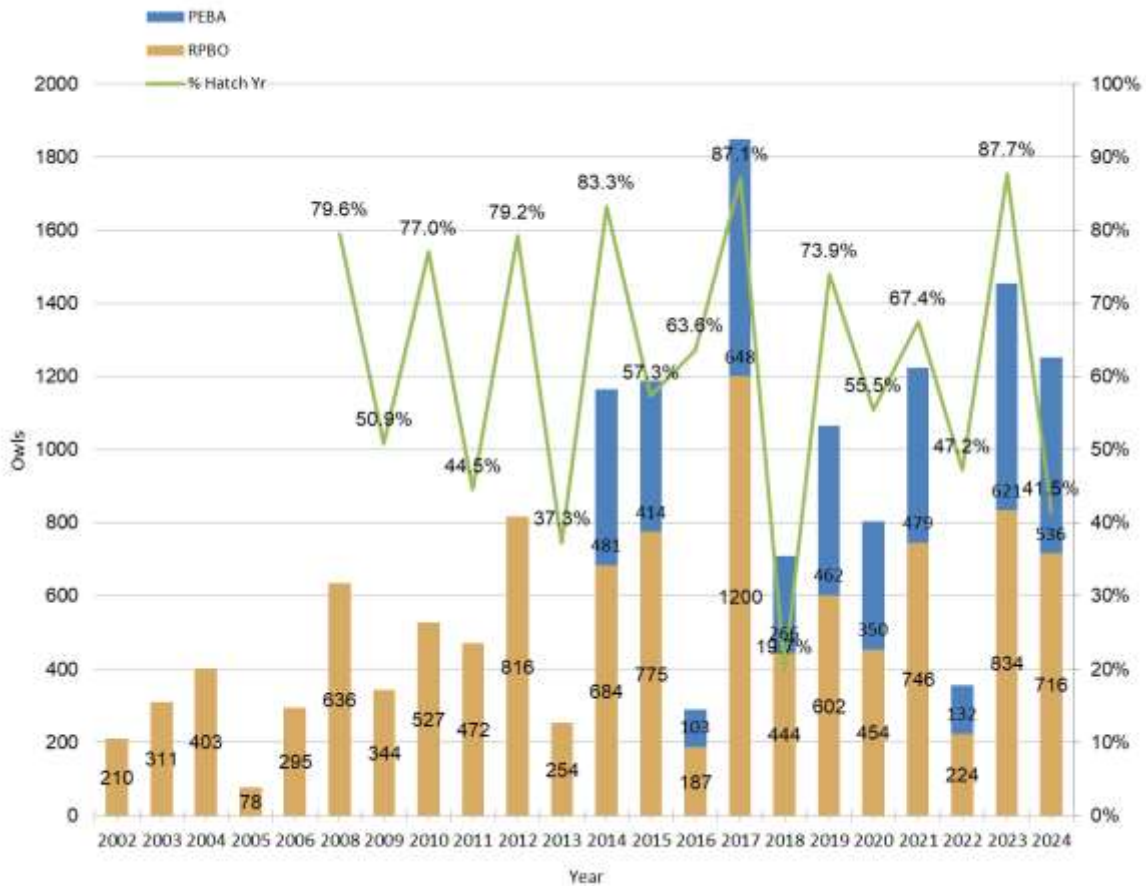


Figure 12. Owls banded by year at Rocky Point and Pedder Bay stations.

Since the Nocturnal Owl Monitoring Project began in 2002, NSWO recaptures, both at our stations and of our owls at other stations, indicate a nomadic dispersal that is clearly not well understood.

In 2024, thirteen owls banded in previous years were recaptured, along with two foreign recaptures. These inter-year recaptures suggest that fall movements, at least for some NSWO, are not nomadic or random.

More banding stations west of the Rockies would help us understand the movement patterns of NSWO. Marks and Doremus (2000) state in their paper “Are Northern Saw-whet Owls Nomadic?” that some owls exhibit the characteristics of nomadism in parts of their range.

C. E. Priestley (2008) and L. T. Priestley et al. (2010) suggest that NSWO may demonstrate a northward post-breeding dispersal before a southward migration. This suggests that some birds banded at Rocky Point and Pedder Bay may originate south of Vancouver Island.

In previous years some of our banded owls have been caught at Cobble Hill (43 kilometres north of Rocky Point). Our preliminary findings from Motus tags that were deployed on NSWOW between 2021–2022 indicate that owls banded at the two RPBO stations may move northwards before moving on to their wintering sites. Several of our tagged owls were detected at the Cowichan Estuary and Sidney Island in 2021. This indicates that NSWOW do not necessarily travel southward immediately after being banded at the RPBO stations, and that more study needs to be done to understand their movement.

Owls were also captured and banded during Migration Monitoring at both stations this year. Rocky Point captured and banded two NSWOW and three BAOW. One BAOW banded on the night of 7 October was recaptured on three separate occasions during the day by the Migration team. They also recaptured one NSWOW that was in poor condition; it was taken to Wild ARC and was later euthanized. Pedder Bay recaptured one NSWOW on 18 October, which had been banded at Rocky Point on 10 October. A BAOW banded at Rocky Point 21 October was recaptured at Pedder Bay on the night of 30 October.

Of the two stations, Rocky Point continues to capture a higher number of NSWOW, although Pedder Bay caught a higher percentage than usual this year, but the same percentage as 2023 (43%). There are a number of banded NSWOW moving between the two stations as evidenced every year by our inter-station recaptures, sometimes in the same night. This year, there were 55 same year recaptures: 35 at Rocky Point (18 owls banded at Pedder Bay, 16 at Rocky Point), and Pedder Bay recaptured 31 owls (16 banded at Rocky Point, five at Pedder Bay).

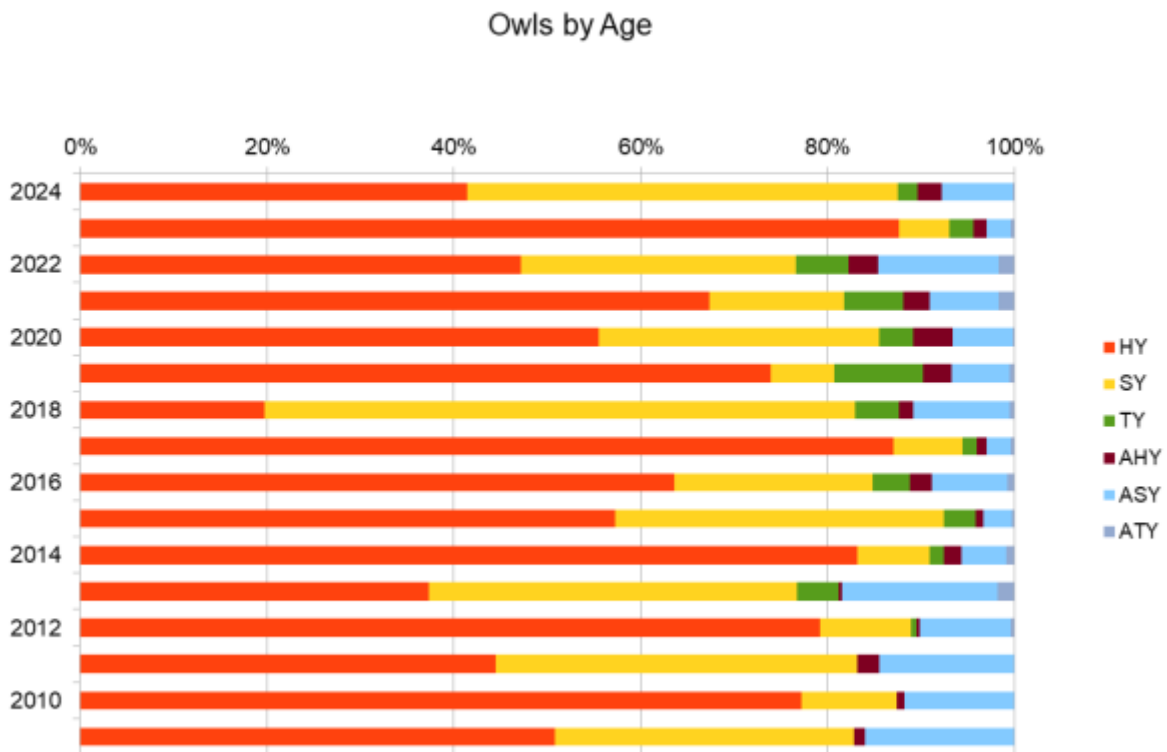


Figure 13. The age fluctuation of NSWOW banded by RPBO from 2008 to 2024.

VISITORS

For the past few years RPBO has offered free tickets to the public through EventBrite. In 2024 there were 498 visitors to the Pedder Bay station, the highest number of visitors to date. Due to the steady number of owls this season, almost all the visitors saw owls being banded and processed. Groups of six to eight people attended for approximately one-hour periods. Visits were initially offered on four nights a week (Friday to Monday). Partway through the season we increased the visits, adding a one-hour slot at 20:30 from Tuesday through Thursday. We had a visitor liaison position on most nights; they assisted the banding team by greeting and managing the visitors. The Pedder Bay station provides a valuable opportunity to educate the public about our work with NSWO. It has proven to be very popular, with many of the same people returning year after year.

This year some of our visitors included: staff members of Madrone Environmental Services, Inc. (Tania Tripp), a Girl Guides group (Katie McCreesh), ornithologist Jamie Dunning from the UK, students from Vancouver Island University, staff from Habitat Conservation Trust Fund, CBC radio host Jason D'Souza and his wife, participants in RPBO's Be A Better Birder Owl Workshop, a VARC bander and volunteer, campers from the Pedder Bay RV campground, the Metchosin Foundation, staff from Power To Be, Metchosin Muse, and other local media representatives. Visitors have an option to donate to RPBO either in cash or by QR code at the station, and online through PayPal and Canada Helps. We received many kind words of appreciation for the work we do from visitors this year, both in person and by message.

We hosted a total of 27 DND visitors on three nights to the Rocky Point station. These visitors included Capt(N) Kevin Whiteside (CFB Esquimalt Base Commander) and family, Capt(N) Alex Koolman (Commander Canadian Submarine Force) and family, Capt(N) Peter Sproule and family, LCdr Sarah Roberge (RCN Environment Officer) and family, Capt(N) Patchell (Deputy Commander Canadian Pacific Fleet Pacific) and family, Cdr Patrick Larose (Deputy Commander Submarine Readiness) and family, and Officer Satter. All the visitors were able to see owls being processed. In 2025, DND should be contacted well ahead of time, so that visits can be set up during the first two weeks of October.

POWER TO BE: OWL BANDING DEMONSTRATION

On 13 November 2024, we held an owl banding demonstration (non-standard banding) for a Power To Be group that included seven adults and thirteen children, aged 7-11. In 2023, we hosted an owl banding demonstration for this group at the same time of year. We set up 4 mist nets in an "X" formation with the audio lure placed in the middle of the net formation. The nets were located close to the roundhouse where we hosted the group. Robyn Byrne, Jannaca Chick and Ann Nightingale arrived at 15:30 to set up the nets and banding station. The group was there from 17:00 – 18:30 p.m. We talked about special owl characteristics, answered their questions, and took the group to the mist nets to show them how owls are captured for banding. The group heard two Great Horned Owls and saw a Barred Owl perched near the nets. We caught and banded one NSWO, a hatch year male, at 18:10. After the group left, we closed operations at 19:15. We received this feedback from Mitch Spendelow, Power To Be Program Facilitator:

“Thank you, Jannaca, we absolutely love spending time with you! It is such a unique opportunity for both kiddos and adults to interact with flying critters AND to have the interpretation too. We greatly appreciate your time and any future chances we get to program with you, we'll gladly take!”

RPBO had considered utilising the PTOB property as a fundraising possibility for public owl banding this fall and we received permission from PTOB to do so. However, we were unable to organize the event with sufficient success and opted to cancel. With further consideration, we may consider doing this in the future. Access to the property provides RPBO an opportunity to monitor the area’s owl population, as well as provide a venue to host people in an exclusive setting.

THE CUTEST OWL OF 2024 CONTEST

This year we held our first ever contest for the Cutest Owl of the 2024 season. The banders chose 10 photos of some of their favourite owls for the contest, including names and a short description for each one. The general public, RPBO followers, and visitors to the station this year, were invited, via social media and email, to vote for their favourite on our website. The contest was launched on 9 November and the result of the voting was announced on 18 November. The winner was Grace, and runners up were Tiny Tim and Peek-a-Hoo. RPBO will be offering merchandise with photos of Grace in the Zazzle store on our website (<https://rpbo.org/rpbo-shop/>). All ten owls will be added to the “Adopt an Owl” program. Since this contest generated a lot of interest and was such a success, it is recommended that RPBO hold a yearly owl contest.



*Figure 14. Grace, Cutest Owl of 2024. hatch year female banded at Rocky Point.
Photo: Jannaca Chick.*

Conclusion and Recommendations

As one of a very few NSWOW banding locations west of the Rockies, RPBO contributes valuable data toward understanding the fall migration movements of western populations of NSWOW. It is recommended that RPBO continue with the Nocturnal Owl Monitoring Project in 2025. Understanding the geographic origins of the owls captured at Rocky Point and Pedder Bay, via isotope analysis, breeding location monitoring, nestling banding, and use of a wildlife tracking system, would provide valuable insight to the post-breeding movements of NSWOW which are poorly understood.

MOTUS

This year we did not extend the Motus pilot project that was initiated in 2021 and continued in 2022. We continued to receive data from some of our 2022 Motus owls in 2023 and 2024. One 2022 Motus owl (#339) was first detected in Nisqually, WA, in November 2022, shortly after being tagged. In March and April of 2023, it pinged in the lower mainland of BC and later in Northeastern BC in May 2023 (see map below). In April 2024, there were two possible detections in Montana of owls #329 and #331. A poster on our Motus project “Movement Behaviour of Northern Saw-whet Owls in coastal British Columbia” was presented at the International Bird Observatory Conference (IBOC) in October 2023 in Veracruz, Mexico by Jannaca Chick. For more information on this project please visit our website (<https://rpbo.org/what-we-do/monitoring-projects-1/motus-project/>) (https://rpbo.org/wp-content/uploads/2022/12/nswow_2022_both.pdf). We are hoping for a broader Motus collaboration with other stations in BC in the future. This project could potentially provide important data concerning the movement and dispersal of both NSWOW and BAOW. A description of this proposed project is below:

Short Project Description

We seek to further the understanding of the movements and habitat use of Northern Saw-whet and Barred Owls in BC through tracking individuals using Motus and GPS tags. Northern Saw-whet Owls are one of North America’s most poorly known migratory birds while Barred Owls are a species that has colonised western North America through assistance by human-induced land-use change and are having a profound impact on threatened species in the region.

Conservation Issue

Northern Saw-whet Owls (*Aegolius acadicus*) are one of the most common and widespread owls in North America. Although they have been studied across their range, relatively little is known about their movement patterns and seasonal behaviour, especially in the west (Rasmussen et al. 2020). In light of this, there is a growing interest among ornithologists and movement ecologists in using the Motus network to study this species across their range (Motus 2022a). Despite their listing as “Least Concern”, it is important to understand and identify critical stopover sites, migratory corridors, and key wintering sites for the long-term preservation of this status, in line with many conservation groups’ motive to “keep common birds common” (PIF 2017, Rasmussen et al. 2020).

In 2024, RPBO had applied for a grant to Habitat Conservation Trust Foundation (HCTF) to expand the Motus project, however our application was denied. It is recommended that RPBO continue to pursue funding sources to support this project.

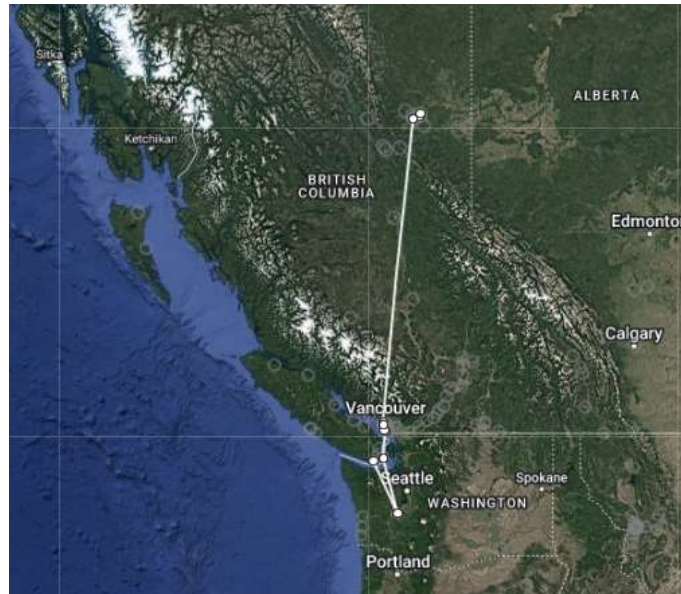


Figure 15. Map of Motus Owl #339 detections, 2022-2023.

MOLT DOCUMENTATION

During the 2024 season, we continued to photo-document NSWOW molt patterns in a consistent manner, with the goal of creating a database of wing/molt photographs. Photographs of interesting and unusual molt patterns were usually uploaded each night to a special folder on the RPBO Google Drive. These data should be organized as a reference guide for banders and aspiring banders, as well as promoting a further understanding of molt strategy in older owls. While NSWOW have been studied extensively in eastern North America, no in-depth study of western NSWOW has been done. RPBO has more than sufficient data to conduct such a study.

NOCTURNAL OWL MONITORING PROJECT DATA

It is unknown how many owls are not captured due to our standard protocol of banding for a 6-hour period. For many years we have considered extending banding hours to include the entire night when owl movement is at its peak. That way we might be able to ascertain if we are missing a significant number of owls, both unbanded and previously banded. Although last year we did extend one night of banding, this year we did not find an opportunity. This is something to consider in the future, provided we have enough volunteers and banders to do so.

The immense amount of NSWOW data collected by RPBO for the past 20 years needs to be analyzed and documented. It is recommended that efforts be made to write up our banding and recapture results. There are two papers currently being prepared, one providing an overview of the entirety of the project and one focussing on recaptures of previously banded owls.

Project OwlNet recommends that operators review and standardize their protocol from year to year to maximize the value of data for long-term monitoring. It is recommended that we review and revise our protocol as necessary on a yearly basis.

NET SUBSTITUTION

We have substituted an owl net for the passerine net at Net 4 at Pedder Bay since 2020. In 2021 we made the same change at Net 5 at Rocky Point, placing an owl net in this location for the entire season. Although the data is still insufficient to determine conclusively whether this net change is influencing the capture rate of NSW0 at Rocky Point and Pedder Bay, a two-tailed Welch's t-test on the Pedder Bay data currently shows no significant effect ($p=0.851$). It is recommended that we continue this practice going forward. We should test the data for at least five years to determine if the change in nets needs to be considered during data analysis.

BARRED OWLS

Barred Owls were once again a threat to NSW0 throughout most of the 2024 season. It should be noted that BAOW were heard and seen many nights at both stations. The majority of BAOW seen and heard are at the Rocky Point station, and often, after one was captured, another one appeared shortly thereafter in the net lanes. This year two NSW0 were lost to predation by BAOW at Rocky Point and one at Pedder Bay. On 29 October, the remains of a NSW0, including a banded leg, were found at Pedder Bay. This mort was a BAOW predation. A BAOW had come to know the location of the release box at the end of the season. At that point, the release box was moved to a sheltered location by passerine net 11. Implementation of preventative measures have greatly reduced predation events in the past several years. Volunteers remained near or in the net lanes whenever predators were present.

A "scarecrow" was created by Ann Nightingale in 2023 for Rocky Point as a BAOW deterrent. It was used on several nights in 2024 and appeared to be a partially effective deterrent again this year. It was placed between either net 5 and 8 or beside nets 1, 4 and 10. This figure resembled a person standing with a headlamp and radio, to simulate a presence in the net lanes. BAOW are less likely to attack NSW0 in the nets if a person is there; however, it was not always enough of a deterrent.

In October 2023, Mike Motek purchased fishing rod bells to attach to the trammel lines on mist nets as an owl alert. This idea originated from Marion Clement of the Bird Conservancy of the Rockies. When an owl hits a net, the bells jingle and can be heard at the station, alerting personnel that something has hit a net. This worked very well last year, and use of the bells was continued in 2024. The bells were used judiciously so as not to accustom BAOW to the sound and associate it with the presence of NSW0 in the nets. The bells were attached whenever there was a known BAOW in proximity to the net lanes and when BAOW presence was ongoing for several nights, particularly toward the end of the season. On the nights when the presence of BAOW was an ongoing threat, the bells were placed on the nets at net opening, and volunteers and banders extracted NSW0 immediately to prevent predation. The use of the bells was documented in our nightly log. It is recommended that the use of these bells be continued. No nets were closed at Rocky Point or Pedder Bay due to BAOW predation this year.

In 2024, 11 Barred Owls were banded. Additional data of BAOW population densities and post-breeding dispersal direction and distance are necessary to understand their population in the area, and their continued impact on small owl species and other prey. In fact, understanding how Vancouver Island Barred Owls breed, disperse, and establish territories could have significant conservation implications for the conservation of the Spotted Owl in BC, Washington State and beyond, where Barred Owls are culled. Given the number of BAOW that Rocky Point may band in the future, an opportunity exists to study this owl species concurrently with Northern Saw-whet Owl migration study, depending on funding. Putting tracking devices on BAOW could be efficacious in understanding their range and dispersal. RPBO should continue tracking the age and molt of older BAOW, documenting this through photographs and the use of molt cards, with the goal of producing a study when enough material has been collected and an analysis done. According to Pyle (2002), more study is needed on the molt strategy of Barred Owls.

RACCOONS AND MINK

Raccoon predation was an issue at both stations in 2024. There were 3 predations at Pedder Bay and one at Rocky Point. There was also a mink predation at Rocky Point. These animals have not been an issue for the past few years. Banders and volunteers made efforts to prevent attacks, however raccoons are extremely stealthy and able to locate owls in the nets even when people are in the net lanes. The bells are an asset to volunteers and banders, enabling them to promptly extract owls from the nets when any predators are in the area. Toy water guns were purchased and used to deter both raccoons and BAOW. It is recommended that the bells and water guns be used going forward. Volunteers and banders need to remain alert to the presence of any predators at all times.

DEER AND MIST NETS

Most years we experience an issue with deer at night as they are unable to see the mist nets. As a result, they often create holes in or destroy our nets, especially once rutting season starts. This year proved to be more problematic than the past few years. A buck took down four nets at Pedder Bay in one night in a matter of minutes. The deer usually enter the net lanes from the hill behind net 5. The next day, a monofilament fishing line with orange flagging tape was put up behind net 5 to deter them. This seemed to work well for the rest of the season. This fishing line needs to be judiciously placed, to avoid inadvertent falls or injuries to our volunteers. It is recommended that this be continued going forward. At Rocky Point net 5 is often subject to deer issues, however there is no location where a deterrent monofilament line could be placed.

PROJECT OWLNET WORKING GROUP

In November 2023, Ann Nightingale was invited to join a working group for a project headed by Project OwlNet (<https://www.projectowl.net/org/>) and the Bird Conservancy of the Rockies (<https://www.birdconservancy.org/>). She is participating in this working group and providing regular updates by email and/or by reports to the RPBO Board. This is an exciting opportunity for RPBO, as an important western owl banding station, to be involved with the foremost owl researchers in North

America. The collaboration could potentially lead to use of our NSWOW banding data. The principals are Marion Clement (Bird Conservancy of the Rockies), David Brinker (Project OwlNet), Other invitees to the working group are Geoff Holroyd (Beaverhill Bird Observatory, Alberta), Andy Brown (Lambs Knoll, Maryland), Scott Weidensaul (Project OwlNet, King's Gap, Pennsylvania), Mitchell Pruitt (University of Arkansas), Glenn Proudfoot (Vassar College, New York), Michael R. Avara (University of Illinois, Urbana-Champaign). This working group is investigating ways to archive and standardize owl project data. Ann Nightingale and Mike Motek are providing input to that group.

VISITORS AND THE VISITOR LIAISON POSITION

The banders would like to see a registered Zoom meeting for people interested in the Visitor Liaison position prior to the start of the season. Visitor protocol can be outlined and understood by volunteers before the season begins. It is recommended that one individual take on the position of coordinating the EventBrite visits, or whatever visitor platform we decide to use going forward. It is helpful for the banders to know how many visitors to expect each night. How the visits are to be scheduled and managed should be set up before the season begins. If we continue to use EventBrite, then banders and volunteers need to better understand how it functions.

RPBO OWL TECHNIQUES

This season we made some owl extraction videos to assist Jayshaun Talbert, graduate student at Oregon State University, who started up a new NSWOW banding project in Western Oregon this fall. These videos were aimed at assisting the understanding of owl extraction techniques. RPBO has a wealth of knowledge and experience regarding owl banding techniques. It is recommended that these training videos be made available on our website.



*Figure 16. DND visitors to the Rocky Point banding station.
Photo: Robyn Byrne.*

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Appendix 1. 2024 Owl net lanes at Rocky Point site.



Appendix 2. 2024 Owl net lanes at Pedder Bay site.



Appendix 3. Criteria for eye colour, foot pad colour and bill-tip colour.

Eye colour chart (Benjamin Moore Classic Color paint sample chips: 315/Oxford Gold, 322/Abstracta, 329/Golden Orchards, 336/Bold Yellow).



Foot pad colour: yellow or flesh.

Bill-tip colour: white or black.