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## NORTHWEST WILDLIFE PRESERVATION SOCIETY

### Northern Saw-Whet Owl

*Aegolius acadicus*



By Nicole Lee

The northern saw-whet owl was given its name to capture the resemblance of its call to the sharpening of a saw on a whet stone. European colonizers discovered the species in the former colony Acadia (now Nova Scotia), and this origin remains present in the Latinized name for the owl, *Aegolius acadicus*. Although, the northern saw-whet owl is also known by many other names, including Acadian owl; blind owl; Kirkland's owl; the saw-filer; the sawyer; sparrow owl; white-fronted owl; farmland owl; little nightbird; Queen Charlotte owl; and only subtly different, the whet-saw owl. Part of the genus *Aegolius*, the bird shares this similarity with just three other species: the Boreal owl, unspotted saw-whet owl, and buff-fronted owl.

*A. acadicus* inhabits a variety of forest habitats within its range and is one of the most common and widespread species of owl in North America. Instead of making its own nest, the saw-whet owl makes use of existing crevices, often choosing abandoned woodpecker holes. When a threat is present, it elongates its body to pose as a tree branch and remains still rather than fleeing, leading some people to perceive this animal as 'tame'. Like size to a robin and adorned with a complex set of markings, this owl is known for a bold white "V" present on its forehead.

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Although the species *A. acadicus* is not considered threatened, one of its two subspecies, *A. a. brooksi*, is officially recognized as endangered. Endemic and restricted to Haida Gwaii in British Columbia, Canada, only a small population remains and is continually in danger from loss of old growth forests. Its Threatened status grants the subspecies federal protection under the Species at Risk Act (SARA) and protection and recovery plans are in effect to help restore the *brooksi* population.

## Characteristics

This small owl's plumage features a complex set of markings that help it blend in with its habitat. Its upper parts are overall brown—sometimes reddish- or greyish-brown— and are streaked with white on the crown and the nape of the neck. Its back, wing and tail feathers have white spots. Noticeably lighter in colour, its under-parts are mostly white with broad brownish or reddish vertical streaks. The owl's rounded head and relatively pale face has a characteristically prominent facial disk that is bordered by brown and white radial markings that fade to white closer to their bright yellow eyes. Dark marks encircle each eye and extend from the bottom inside of each eye to the base of their dark bill. Unlike some other owl species, the saw-whet owl does not have ear tufts. Their light buff legs and feet are heavily feathered, but feathers are sparse on these creatures' toes. Their talons are a dark colour with blackish tips.

One of the smallest species of owl, measuring 17-22cm (6.7-8.6in) in length and weighing 65-151g (2.3-5.3oz), *A. acadicus* has a relatively long wingspan for its size at 42-56cm (16.5-22in). Females are about 20% larger than males in length and weight, but both sexes are identical in colouration.

Juvenile saw-whet owls lack many of the complex markings seen on adults. Their back, head, and upper chest are dark brown and free of white markings with the exception of small amounts of white on the wings and tail. Their undersides sometimes have white streaks but are generally solid tan or tawny in colour. Their dark-grey or black facial disks strongly contrast a white "V" mark on the forehead with its base between the eyes and above the bill. There is a variable amount of white on other parts of the face (below the eyes and on the sides of the bill).



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The northern saw-whet owl is sometimes confused with the slightly larger Boreal owl (~25 cm (10in) instead of 20cm (8in)). Both representatives from the genus *Aegolius*, these two owls share a similar pattern on their backs, although it is generally reddish- or greyish-brown for the saw-whet owl and deep brown for the Boreal owl. Bills are black for the saw-whet owl, but pale yellow for the Boreal owl. While the saw-whet's crown displays a pattern of white streaks, the Boreal owl counterpart is white spotting. To further set it apart, the Boreal owl also has a black outline to its face. Juveniles have dark brown under-parts instead of tan under-parts like the saw-whet owl. The distinct white "V" on the saw-whet owl is instead an "X" on the faces of juvenile Boreal owls.

Occasionally there is also confusion between the species and the northern screech owl and the northern pygmy owl. While similar in size, screech owls can be distinguished by their ear tufts and black streaks on their chests. Northern pygmy owls are smaller (~15-20cm (5.9 to 7.9in)) and have white spots on their sides, a dark face, and a relatively longer tail.

## Life Cycle

Saw-whet owls reach sexual maturity at 9 to 10 months old. The timing of mating depends somewhat on food supply (they mate earlier in years with an abundance of food), but it is generally in late March and April. During this period, a mature male will sing a mating song to lead a female to a suitable nest site. When he attracts a female, he will fly above her in circles and then land near her, bobbing and shuffling as he inches towards her. Often, the male offers the female a mouse; after she eats it, he follows with a vocalization and she flies away, only to be chased by the male—a ritual often ending in mating.

Within a single breeding season, these owls are generally monogamous. However, if prey is abundant and it is still early in the breeding season, a female may take a second mate. In some regions, these owls are thought to be nomadic or even migratory. The extent to which saw-whet owls move around likely influences pair bonds; in areas where there is little movement, the bond between a pair may be maintained from year to year, but where they are migratory, it is less likely these owls ever return to the same mate or nesting site.

Nesting takes place in abandoned woodpecker cavities (usually those made by northern flickers or pileated woodpeckers), other natural cavities or in manmade nest boxes. The parents do not add additional material to the nests, which are typically found 4 to 6m off the ground and are used by the species between March and July.

Clutch size can range from 3-10 eggs, but the average is 5-6 eggs, typically laid at a frequency of one egg every two days. These eggs are white and on average 30 X 25mm in size. Young owlets, are born covered in white down, with their eyes closed and are generally helpless.

The nesting period lasts at least 18 days after hatching, for a total period of about 28 days. During this brooding period, the female rarely leaves the nest, except to take one or two brief excursions each night to defecate and expel a pellet. While the female is bound to the nest, the male will defend the nest and bring food.

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Fledging takes place around 4 to 5 weeks after hatching, although the young continued to be fed and nurtured for a least an additional month (often 6-8 weeks past fledging), the responsibility of the male and sometimes the female; the female may stay or if prey is abundant and it is still early in the breeding season, she may leave the nest to find another mate and brood more chicks.

At 10 to 13 weeks old, the owlets are fully independent. Offspring remain in their natal territory for some time before they venture elsewhere. Females typically leave at 1-2 years, whereas males leave at 2-4 years.

Despite the care given by at least one of their parents until they are independent, the reality is that only 40% of saw-whet owl chicks make it past their first year. For older owls, the mortality rate is about 50%. These owls generally live up to 5 years in the wild but have been recorded living up to 10 years. In captivity, the lifespan has been as long as 17 years.

## Habitat

The northern saw-whet owl lives in temperate forest and woodland habitats and is amenable to living among a variety of vegetation types and elevations. This covers coniferous, deciduous, and mixed forests; and even riparian woodlands in shrub steppe habitats. The bird is found more frequently at moderate elevations and less so at low elevations.

For breeding and nesting purposes, this owl seems to choose areas near water, preferring riparian habitats, with a tendency to favour relatively mature forests.

For roosting, the saw-whet prefers dense cover. This can be provided by relatively young cedars, spruces, and pines, to name a few. Commonly, trees are chosen to be along the edge of a woodlot to allow variety in hunting environments. In the daytime, the owl roosts on low-lying branches. It has been observed within a single season that these owls return to the same tree day after day, the site marked by a pile of feces. The species is only found in urban areas during migration.

The saw-whet owl is native to North America and one of the most common and widespread owl species on the continent. Its breeding range extends across the southern portion of Canada, from Nova Scotia to British Columbia. Along the West Coast, it runs along the Rocky Mountains, from southern Alaska to California and even into northern Mexico.

Their winter non-breeding range includes much of the breeding range, but a portion of the population migrates south to the central United States and to a lesser extent the eastern United States, overall covering most of North America.

Migration patterns for this species are quite varied. In the west, the saw-whet owl is often resident in its breeding range. In northern and eastern populations, the saw-whet owl undertakes more extensive travel southward; with juvenile birds more likely to migrate and move further south than adults. Fall migration takes place from September to December and the Spring movement from March to June. Instead of changing latitude for the winter, some southern populations choose instead to change altitude by moving down slope. Individuals in the Canadian prairies have been observed to employ different movement strategies influenced by the presence of appropriate forest habitat.

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The saw-whet owl's diet consists mainly of small mammals, primarily deer mice, and to a lesser extent, other types of mice, voles, shrews, squirrels, chipmunks and bats. Occasionally, they will eat small birds such as sparrows, swallows, wrens, chickadees, and kinglets; and sometimes even larger birds like the Northern cardinal, rock dove and the pygmy owl. Insects like grasshoppers and beetles can also occasionally find a way into the saw-whet owl's diet.

Hunting takes place at night, from just after dusk until just before dawn. They employ a sit-and-wait tactic for hunting, using branches or fence posts alongside open area as perches while they scan for prey. Like other owls, the saw-whet owl is well-equipped to hunt in the dark with eyes well suited for low light vision. However, to locate prey, they are more reliant on their exceptional sense of hearing. They have strong feet each with four sharp talons for gripping and capturing prey.

In a single sitting, they will typically eat only half of a prey item and swallow it whole, saving the other half to eat later. When prey is plentiful, they will kill up to six mice at a time, and instead of eating them right away, will cache them for the tougher winter months. When they decide to eat from their cached source, they will defrost stored food items by brooding them as they would their eggs during nesting season. If food is abundant, they may choose to eat only the head of their meal, discarding the rest. After swallowed, the indigestible portions (i.e. bones, fur and feathers) are compressed by the digestive tract and the owl expels them in the form of a compact, 2.5cm (1in) pellet, regurgitating one or two a day.

## Behaviour

Northern saw-whet owls produce a number of different vocalizations which are almost strictly nocturnal. When alarmed, they make a "skiew" sound that closely resembles the sound made when sharpening a saw on a whetstone – how the species got its name! In a territorial manner, they expel a series of short notes, and in a defensive manner, they snap their beaks. During mating season, the males' primary courtship call is a whistled "hoop"; this can occur as frequently as 1.5 notes per second and may last for several hours without break. Females respond with a "swEE". In wooded areas, calls can carry about 300m (980ft), and over water, 1km (0.62mi).

When threatened, the northern saw-whet owl will elongate its body and cover the front of itself with one wing to mimic a tree branch.

These animals are solitary creatures except during the breeding season.

Flight is silent, as with other owls. However, for *A. acadicus*, it is also rapid and undulating, similar to the flight of a woodpecker.

Nocturnal creatures, they are most active at dusk and right before dawn, roosting on tree branches at other times of the day.

## Threats

Natural threats to saw-whet owls include predation by larger owls, hawks and martens; as well as competition for nest cavity resources with Boreal owls, starlings, and squirrels.

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As the northern saw-whet owl is a common bird in North America, the species is not considered to be threatened, receiving from the International Union for Conservation of Nature (IUCN) a species status of 'Least Concern'.

However, a small subset of the population endemic to Haida Gwaii, an archipelago part of Vancouver Island in British Columbia – the *A. a. brooksi* subspecies – is given the designation 'Threatened' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Investigation into the *brooksi* subspecies' health revealed that although the population met criterion to be classified as 'Endangered' (small population size and projected loss of old growth habitat), those details were balanced by the large number of protected areas existing for the owls. *A. a. brooksi* can also be found under the federal Species at Risk Act (SARA) listed as Threatened, meaning that protection and recovery plans are in effect. Provincially, it is placed on the Blue List indicating a conservation status of 'Special Concern' (formerly vulnerable).

Human activities can also pose threats to these owls. Logging of old growth forests and removal of vegetation for the paper and timber industries can compromise nesting sites. Changes in anthropogenic land use may result in the overlap of human inhabited areas and migration corridors, introducing the possibility of unnatural encounters. Land, air, and water pollution from human activities may also be threatening. Fortunately though, the northern saw-whet owl has remained healthy (with the exception of the *A. a. brooksi* subset). Other raptors face similar potential threats from human activity, but not all other species' populations remain as healthy as the saw-whet's. Within the family Strigidae, to which the northern saw-whet belongs, at least 12 species are considered endangered.

## What We Can Do To Help

Preservation of the northern saw-whet owl population requires continued integrity of their natural habitat, including areas used during nesting, post-fledging, and foraging. As nesting individuals tend to choose forested sites in close proximity to water, maintenance of wetland habitats (i.e. not filling in or draining them) is important. Particularly the *brooksi* subspecies endemic to Haida Gwaii, BC, would benefit from protection of old growth forests.

Measures have already been implemented to protect and restore this subspecies of Special Concern. Gwaii Haanas National Park protects these owls from hunting, trafficking, and possession under the Canadian National Parks Act; under Appendix II of the Convention on International Trade in Endangered Species (CITES), there are controls placed on the international trade of specimens.

Habitat protection would be aided by better understanding the species. This could include learning more about migratory tendencies or lack thereof in specific areas, and the minimum area of critical habitat, as well as its distribution, required to sustain a stable population through the entirety of the owls' natural range. Increasing the amount of data on population trends would also help form more accurate profiles for different populations of the species.

Be respectful when in the presence of these creatures in the wild; unnecessary noise and contact can cause stress to the animals, compromising their health. Volunteering with and supporting organizations like Northwest Wildlife Preservation Society will help introduce more people to these and other wildlife species, hopefully fostering respect, a necessary first step in inspiring a desire to preserve these fascinating creatures.

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## Other Interesting Facts

Owl pellets are about 2.5cm (1in) long and contain a mixture of fur, bones, and teeth, things that the owl cannot digest. Owl digestion is much weaker than that of related vultures, who have very strong digestion of consumed items.

Northern saw-whet owls are one of 15 owl species in British Columbia.

While a mother saw-whet owl broods her nestlings, she takes care to keep the nest cavity clean. About 18 days after her owlets hatch, she instead spends the nights in another cavity, leaving dirt to accumulate around her chicks. When they leave the nest one-and-a-half to two weeks later, the nest cavity can be found covered with a thick coating of feces, pellets, and rotting prey remains.

## Where & when to view the animal.

Throughout much of North America, this small, common owl can be found roosting in the winter time particularly in small dense conifers, sometimes even in some parks and gardens. If you see a saw-whet owl, do not approach too closely to avoid causing unnecessary stress for the animal.

Locally, northern saw-whet owls inhabit such parks as the Reifel Bird Sanctuary in Ladner and Maplewood Flats Conservation Area in North Vancouver.

## Bibliography

### Web Resources:

BC's Coast Region: Species & Ecosystems of Conservation Concern: Northern Saw-whet Owl, *brooksi* subspecies (*Aegolius acadicus brooksi*) – description plus a focus on conservation and management objectives, including specific actions to be taken:

[http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Aegolius\\_acadicus\\_brooksi.pdf](http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Aegolius_acadicus_brooksi.pdf)

Journal of Ornithology. The numerical response of breeding Northern Saw-whet Owls *Aegolius acadicus* suggests nomadism. April 2010, Volume 151, Issue 2, pp 499-506. Bowman, J., Badzinski, D.B. and R.J. Brooks – this paper shares evidence for a nomadic strategy in Ontario saw-whet owls:

<http://link.springer.com/article/10.1007%2Fs10336-009-0482-3?LI=true>

Journal of Raptor Research. Encounters of Northern Saw-Whet Owls (*Aegolius acadicus*) from Banding Stations in Alberta and Saskatchewan, Canada – a good example of how a banding station can help us understand more about bird ecology; this paper describes the different movement strategies employed by saw-whets in the area (partial migrants, sometimes overwinter, nomadism, etc.):

<http://www.bioone.org/doi/abs/10.3356/JRR-09-25.1>

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Migration Research Foundation Inc 2002-2013 C. Research: Northern Saw-whet Owl (*Aegolius acadicus*) – an overall profile of the species profile.

<http://www.migrationresearch.org/research/sawwhet/profile.html>

Owl Pages website: Northern Saw-whet Owl. Page compiled by Deane P. Lewis. Last updated Aug 12 2012 – a general overview of the species including a range map:

<http://www.owlpages.com/owls.php?genus=Aegolius&species=acadicus>

Owling.com. A Reference for North and Central American Owl: Northern Saw-whet Owls – Very briefly describes the appearance of adults and of juveniles. Provide links to photo galleries, field notes, and audio recordings: [http://www.owling.com/Northern\\_Saw-whet.htm](http://www.owling.com/Northern_Saw-whet.htm)

-a more detailed description for the owl:

[http://www.owling.com/Saw-whet\\_nh.htm](http://www.owling.com/Saw-whet_nh.htm)

The Cornell Lab of Ornithology website. All About Birds: Northern Saw-whet Owl – includes a good overview of the species, including a range map, details about owlets and the nesting period, and outlines how to distinguish between similar species:

[http://www.allaboutbirds.org/guide/Northern\\_Saw-whet\\_Owl/id](http://www.allaboutbirds.org/guide/Northern_Saw-whet_Owl/id)

The Aviary at Owling.com: Northern Saw-whet Owl – a good overall description plus details about predation by and of the species: <http://aviary.owls.com/owls/saw-whet-owl.html>

Three Rivers Avian Centre (TRAC) website. Species Spotlight: Northern Saw-whet Owl – a good overall description of the saw-whet owl (and other bird species):

<http://tracwv.org/spotlite.html>

“Queen Charlotte” Northern Saw-whet Owl (*Aegolius acadicus brooksi*). Original prepared by R.J. Cannings – includes a detailed account of the *brooksi* subspecies in Haida Gwaii (formerly the Queen Charlotte Islands) written in 2004 (note: this is prior to their designation as Endangered by the Committee on the Status of Endangered Wildlife in Canada):

[http://www.env.gov.bc.ca/wld/frpa/iwms/documents/Birds/b\\_queencharlottenorthersawwhetowl.pdf](http://www.env.gov.bc.ca/wld/frpa/iwms/documents/Birds/b_queencharlottenorthersawwhetowl.pdf)

Woodland Park Zoo (Washington, USA) website: Northern Saw-whet owl (*Aegolius acadicus*) – a good overall description for the species, plus some zoo specifics:

<http://www.zoo.org/page.aspx?pid=1852#.UUnwMhesiSo>

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