



A publication by:

## NORTHWEST WILDLIFE PRESERVATION SOCIETY

### Loons

Common Loon *Gavia immer* (Great Northern Diver)

Yellow-billed Loon *Gavia adamsii* (White-billed Diver)

Pacific Loon *Gavia pacifica*

Arctic Loon *Gavia arctica* (Black-throated Diver)

Red-throated Loon *Gavia stellata* (Red-throated Diver)



Photo credit: Environment Canada

Familiar to Canadians as the animal gracing the dollar coin, loons are diving birds that spend most of their lives in water. The word 'loon' is a derivation of a Scandinavian word that refers to a lame or clumsy person, and refers to the loon's awkward gait on land. In Britain, loons are known instead as divers. Loons can dive down to 80 m (over 260 ft) and stay beneath the surface for up to a minute.

The loons are among the oldest living bird species. Of the five species listed here, the common loon (illustrated) is the most prevalent right across Canada, and the Arctic loon is the only one which does not have a breeding ground in Canada (it breeds in Scandinavia and Russia). Loons are known especially for their distinctive calls, which are named *tremolo*, *wail*, *hoot*, and *yodel*.

Like many other animals, their numbers and breeding grounds have been threatened by human activity in the last 150 years, including habitat degradation, acid rain, fishing lines and lead sinkers, and lakeside recreation.

### Characteristics

At 70 cm to 90 cm (28–35 in.) in length, and 2.5 kg to 7 kg (6–15 lb.) in weight, loons are smaller than geese, but larger than ducks. Males tend to be larger than females, but both sexes otherwise look the same.

Loons have two plumages, winter and summer. In the winter, all loons have grey feathers with white bellies, throats and wing linings. Bills are muted grey, and eyes are reddish-brown. Markings are much less visible in the winter than in the summer. Immature loons tend to look like adults in winter plumage, regardless of season. The different species of loons are most readily distinguished by the summer plumage of the adults.

The loons depicted on the Canadian dollar coin are common loons in summer plumage. They are black with white markings on the back and wings. Their bellies and underwings are white, and characteristic short white vertical stripes form a band around their necks like a necklace. Common loons have black bills in the summer, and striking red eyes.

**Yellow-billed Loons** look very similar to common loons. The defining characteristic is their white or yellow bills. Yellow-billed loons also tend to be larger than common loons, and their necklaces have broader white stripes.

**Arctic Loons and Pacific Loons** have similar summer plumage, and they used to be considered the same species. From the base of their necks to their tails, Arctic loons and Pacific loons look similar to common loons. The heads of Arctic loons and Pacific loons are charcoal grey, becoming lighter towards the back of the head, and down the hind neck. Their black throats are bordered by several thin white stripes at the sides, and by short thin white stripes at the top. The throats of Pacific loons have a purple sheen, while Arctic loons are either jet-black or black with an iridescent green sheen.

**Red-throated Loons** are named for the red triangular patch on their throats. The sides and front of their necks are slate grey, and vertical black and white stripes run down the back of their heads and necks. The feathers on their wings are dark grey with white lining, and their bellies are white.

## Habitat

Loons spend most of their lives in the water. They gather in groups at sea in the winter, and migrate to freshwater nesting sites in the spring. Loons prefer lakes with islands, and tend to nest at the same site every year. It is rare to have more than one breeding pair at a single lake, unless the lake is large, with abundant food.

Of the five species of loons, only Arctic loons do not breed in Canada. Arctic loons breed in Scandinavia and Russia. Common loons breed along the coast of Greenland, and throughout Canada and the northern United States, approximately between the 47th parallel and the treeline. Pacific loons are found in the eastern tip of Russia, and in North America from Alaska to Hudson Bay. The summer sites of yellow-billed loons tend to be just north of the treeline in North America and Russia. Nesting sites of red-throated loons have a circumpolar distribution (within a certain radius around the North Pole) reaching south to about the 60th parallel.

## Life Cycle

Loons return to their nesting sites as soon as the ice melts from the lakes in the spring. They are loyal to their nests, though if breeding is unsuccessful, they may attempt to breed with another mate. When a male attracts a mate, he brings her to the nesting site, and they build the nest out of available materials, such as grasses or twigs. If these are unavailable, the female will lay the eggs directly onto a depression in the ground. Nests are built on land as close to the water as possible and surrounding grasses provide a measure of protection from predators.

Females typically lay two eggs per clutch. Both parents take turns incubating the eggs, which are olive green and speckled with brown. Greyish black chicks hatch after 28–30 days, and they are ready to swim as soon as their down is dried. After the first foray into the water, chicks rarely return to the nest. Parents often carry the chicks on their backs to protect them from predators and to keep them warm.



Photo credit: Environment Canada

Parents feed their young a variety of food, including snails, small fish, crayfish, minnows, and some aquatic plants. Chicks learn to dive after 8 weeks, and by 11 or 12 weeks, chicks catch most of their own food. They can fly and are independent by migration time in the fall. They do not acquire their adult summer plumage until 3 or 4 years, at which time they are sexually mature and can breed. Loons can live up to 30 years.

## Behaviour

Loons are known for their calls. Some have likened them to maniacal laughter while others have christened them as the song of the wild. Loons are most vocal during breeding season, and there are four distinct calls: *tremolo*, *wail*, *hoot* and *yodel*. The tremolo sounds like a crazy laugh, and can mean a variety of things, from alarm or worry to greeting. The wail is a haunting long call used for social interactions. The hoot is a one-note call used mainly to locate family members. The yodel is a territorial call given only by males. Yodels are distinct to individual birds, and may be used for identification purposes.

Like other waterfowl, loons have a large oil sac at the base of their tails. Loons regularly preen to coat their feathers with the waterproof oil, allowing them to stay insulated from the cold water.

Loons are specially adapted to diving. They can dive for up to a minute and to depths of 80m. They have many marrow-filled bones, which make them denser than most other birds. Just before a dive, they will force air from between their feathers, and from their air sacs to become less buoyant. During a dive, oxygen is used only by the heart and central nervous system. Muscles switch to anaerobic respiration to reduce the amount of air needed, thereby increasing dive time, and reducing buoyancy.

Loons are also able to tolerate higher levels of carbon dioxide in their blood, which allows them to take fewer breaths. Their bodies are streamlined to reduce drag. Their legs are placed far back, allowing them to propel through the water. Their relatively small wings (1m to 1.4m wingspan) are held close to the body and are useful for making sharp turns. Loons also have a transparent eyelid that helps them see underwater by acting as a second lens and refracting light. They will often peer underwater for prey before quickly diving in a single motion.

Adult loons prefer fish to other food, but they do eat crayfish, frogs, snails, salamanders and leeches, and occasionally aquatic plants as well.

Some of the adaptations that make loons excellent divers make them ungainly in other situations. With their legs positioned so far back, loons are awkward on land. Their relatively small wings and dense bones make take-off difficult. A high wing curvature helps to create more lift, but loons need to run along the surface of water, flapping their wings to generate enough lift to become airborne.



Photo credit: Environment Canada

Depending on wind conditions, they may run for several hundred metres before take-off. Once in the air, they must continually beat their wings to stay aloft. During migrations, they fly at an average speed of 120 km/h (75 mph), and beat their wings about 4 times a second. Landings are often described as barely-controlled crashes into the water.

## Threats

Adult loons are rarely eaten by other animals, though they do fall prey to bald eagles. In the water, chicks are susceptible to turtles and carnivorous fish, but they are somewhat protected when riding on their parents' backs. Skunks, raccoons, and foxes are known to raid nests.

Various human activities are detrimental to loons. Habitat loss and disturbance reduce breeding success. Loons will often abandon eggs if they are too disturbed. Near lakes used by humans, populations of nest raiders such as raccoons and gulls have increased because of the lure of human garbage, resulting in higher loon offspring mortality.

Acid rain reduces fish stocks in lakes, causing starvation. Acid rain also leaches mercury and other toxic metals from rocks and soils into the water. From there, the metals enter the food chain and are accumulated in the fat of top predators like loons. When the fat stores are used, mercury may flood the animals' systems, causing death.

Loons have no teeth, and so they swallow pebbles into their gizzards, where food is ground into smaller pieces. Lead sinkers are sometimes swallowed with the pebbles, causing lead poisoning. There is enough lead in one sinker to kill a loon.

Another hazard related to fishing is errant fishing lines that can wrap around a loon and injure or choke it. Loons sometimes also ingest fish that have hooks within them. Because loons swallow their food whole, some dead loons have been found with fishhooks in their bodies.

Loons are protected by federal law and may not be hunted or harmed. In recent years, their breeding success rates have been cause for concern, even though the adult loon population is not classified as endangered.

## Other Interesting Facts

- Loons have a transparent third eyelid that helps them see underwater by acting as a second lens and refracting light. They will often peer underwater for prey before quickly diving in a single motion.
- Most birds shed and replace individual flight feathers on a continual basis. Loons, however, are too heavy to afford to lose even a few of their flight feathers. Instead, they undergo a molt of all of their flight feathers in midwinter, and are completely flightless in those few weeks as the feathers grow back.

## What We Can Do To Help

- Loons are sensitive to disturbances, so humans should respect that and admire loons from afar.
- Take care to prevent chemical spills into lakes.

- Maintain fishing equipment in good condition to reduce breakages.
- At the lakeside and cottage, respect the habitat of the loon. Activities like fishing and speed-boating can be hazardous to them.
- For dozens of ideas about how to get involved in wildlife preservation, go to the Action and Awareness page of Hinterland Who's Who at <http://www.hww.ca/hww.asp?id=43&pid=3>

## Bibliography

### Book Resources

Dennis, Roy, *Loons*. Stillwater, Minnesota: Voyageur Press, 1993.

Dregni, Michael (ed.), *Loons: Song of the Wild*. Vancouver: Raincoast Books, 1996.

### Web Resources

Canadian Lakes Loon Survey

<http://www.bsc-eoc.org/loonfact.html>

*Project of Bird Studies Canada, a non-government, non-profit organization, depending mainly on volunteers. Publishes BirdWatch Canada newsletter and a survey kit.*

Canadian Wildlife Service

Hinterland Who's Who

<http://www.hww.ca/hww2.asp?pid=1&cid=7&id=53>

*Excellent, very comprehensive resource on all aspects of loons. Includes photos and range maps. Education-oriented website.*

\*Environment Canada - Canadian Wildlife service

<http://www.ns.ec.gc.ca/wildlife/loons/index.html>

*Very good overview, including photos, audio of loon calls, and mercury threats*

Nature of New England

<http://www.nenature.com/CommonLoon.htm>

*Good for range maps, identifications tips and audio of loon calls.*