Yukon Amphibians

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All photographs by Brian Slough except as follows: Doug Collister, pp.14 and 15; Government of Yukon, pp. 11 and 20 (top); Lee Mennell, pp. 5 (centre), 18 (bottom) and 20 (bottom); Mark Thompson, pp. 16 and 17 (centre).

"Frog" p. 7 by Keith Wolfe Smarch; all other illustrations by Lee Mennell.

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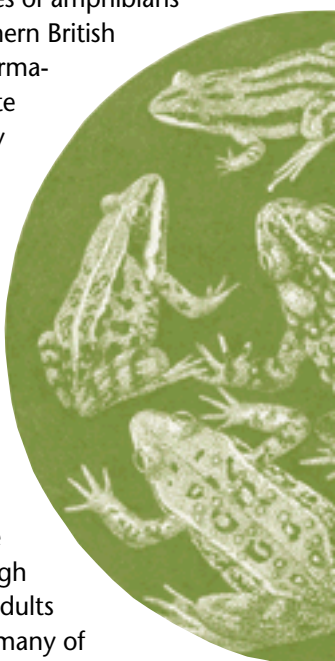
A Guide to Yukon Amphibians

How many kids aren't thrilled at the sight of a frog? Even in the North, amphibians intrigue and inspire both children and adults. This booklet will help you view and identify all five species of amphibians known to the Yukon and northern British Columbia. It also includes information on how you can contribute to science and conservation by reporting your sightings.



If you're willing to get a little wet, amphibians can offer exciting viewing possibilities. As their name suggests (*amphi* for "both" and *bios* for "life"), amphibians lead a double life, living both in and out of water. Most amphibians lay their eggs in water, and the young become tadpoles that "breathe" through gills and swim with fins. The adults then move to land, although many of them remain in damp places so they don't dry out. Although most species have lungs, they also "breathe" oxygen through their moist skin and the lining of their mouths. Amphibians do not drink water; instead they absorb it through their skin. They are extremely sensitive to pollution and changes in their environment.

Risks to amphibians

Of the world's 5,743 amphibian species, 1,856 — almost one third — are considered threatened with extinction. Others have recently become extinct. Perhaps because amphibians live on the edge between water and land, they are exceptionally vulnerable to pollution and environmental changes, including those caused by humans. Because of this, they play a special role in our environment, and tracking their populations can help us detect larger environmental problems.

Western toads, wood frogs and Columbia spotted frogs are abundant in the wetlands near Bennett, B.C.

In Canada, as in other places, amphibians face many challenges, including loss and fragmentation of habitat, ozone depletion (which increases UV-B radiation, affecting egg hatching), emerging infectious diseases, chemical contaminants, and exotic species such as introduced game fish. Although population declines have not been observed in the Yukon, western toad population declines are suspected in southeast Alaska. Deformed wood frogs have been found in south-central Alaska. Deformities can be caused by agricultural chemicals, parasites or the effect of UV radiation on the immune system.

Ways of Life

In the north, frogs and toads hibernate in winter. With the warmth of spring, they emerge and migrate to traditional breeding ponds. Male frogs call to attract mates in a lively chorus; male toads search for their mates by smell. Both frogs and toads mate and lay eggs in the water. The eggs and young are then left to fend for themselves.

Columbia spotted frog eggs

Eggs develop rapidly in the short northern summer. They hatch into tadpoles that swim well and eat mostly plants. Wood frogs, the most common northern species, complete this cycle in 7-12 weeks, faster than any other North American frog. Toad tadpoles forage in schools; when wounded they release chemicals to warn of danger.

Western toad tadpoles

Over several weeks the tadpoles transform into air-breathing, land-dwelling adults that feed on insects and other small creatures during the day. They mature in late summer, just in time to prepare for hibernation and freeze-up.

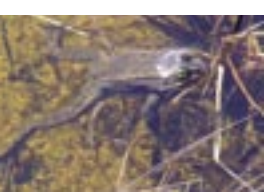
Juvenile amphibians, like this western toad, are smaller and often less distinctive in appearance than adults.

Cold-blooded in a cold climate

Frogs, toads and salamanders are cold-blooded. Unlike humans, they cannot generate enough of their own heat to stay warm. In the North, gaining warmth from the environment isn't easy! The Yukon's extremely cold winters, short cool summers, scarce hibernation sites and lack of snow cover for insulation have kept amphibians away.

Northern amphibians survive the winter by hibernating underground, under ponds or under leaf litter beneath a blanket of snow. While most amphibians freeze to death if cooled below minus 1 or 2° C, wood frogs and boreal Chorus frogs can survive temperatures as low as minus 12° C. They produce glucose in the liver, which acts as an antifreeze and prevents the cells from bursting. The heart stops beating, the fluid between the cells freezes, and the frogs look frozen solid. Yet they emerge, safe and sound, in spring.

Frogs, toads and salamanders take full advantage of the warmth of spring and summer. Their eggs are large and dark to absorb heat, and are submerged in warmer shallow water, below the surface, which might freeze. Tadpoles bask in the sun in the shallows, while adult frogs and toads bask on land or in shallow water in the heat of the day. Some amphibians that are nocturnal in warmer climates prefer the brightest part of the day in the North.



Myth and legend

With their large eyes, eerie sounds and ability to survive both in and out of water, amphibians — especially frogs — have always intrigued humans. They inhabit a secret world we can only imagine. In many parts of the world these creatures are seen as messengers of spring and good news and a source of wisdom, knowledge and healing.

For several Yukon First Nations, frogs are animal shamans, capable of healing when their "hands" are placed on the ailing part of a person's body. Frogs can also be guardian spirits, like the frog helper that appeared to Skookum Jim *(Keish)* after he rescued a frog trapped in a deep hole. Skookum Jim later dreamed of a frog, which showed him a gold-tipped walking stick and told him he would find his fortune downriver. In 1896, after travelling down the Yukon River to Dawson, Skookum Jim was one of the first people to discover gold in the Klondike.

Frogs are important to First Nations in southern Yukon and northern B.C. A frog is the crest emblem for three Inland Tlingit clans in this region: the Ishkaahittan *of Carcross and the* Ishketaan *of Teslin and Atlin.*

Wood Frog *(Rana sylvatica)*

HABITAT: varied (forests, meadows, muskegs); adults found away from water
SIZE: up to 60 mm
LIFESPAN: up to 4 years

The wood frog is the most common and widespread amphibian in the Yukon. It is found farther north than any other amphibian in North America: at least as far north as Frog Lake, or *Ney Khwi Vun*, on the Old Crow Flats in the Yukon. It inhabits forests, meadows, and muskegs.

Globular baseball-sized egg masses are often attached to sticks or plants. Tadpoles have a high pointed tail fin that extends forward. Tail is one and a half times body length.

Wood frogs vary greatly in colour. They can be brown, tan, or grey to pinkish. Most have a dark eye mask, white jaw stripe and creamy white underside, and some have a light-coloured stripe running down the middle of the back. Adults range up to 60 mm in length. They congregate to breed in clear, shallow ponds from late April through June — listen for their choruses of duck-like quacks.

They lay their eggs in globular masses, which are submerged and often attached to sticks or plants.

Distribution of the Wood Frog

Females may lay their eggs near one another. Tadpoles *(see photo p.21)* are brown or green above with a creamy belly. They can reach up to 50 mm in length and transform before freeze-up, when they are 6–12 weeks old.

The wood frog thrives in the north because it grows quickly and can tolerate cold. Eggs, tadpoles and adults can function at lower temperatures than any other amphibian. It has the fastest rate of development — from egg to tadpole — of any North American frog at any temperature. Its northern adaptations also include cannibalism just before hibernation when insects become scarce.

Wood Frogs vary in colour. This one is lighter than usual and has no eye patch.

It hibernates for up to six months in a winter resting chamber that it digs in leaf litter on the forest floor. With snow providing additional insulation, it survives the winter inside its cozy hollow. It emerges and begins breeding in April through June, as soon as temperatures rise above freezing during the day and before all pond ice has melted.

Columbia Spotted Frog
(Rana luteiventris)

HABITAT: permanent ponds, riparian habitats of lakes, beaver and muskeg ponds, river channels and streams
SIZE: up to 80 mm
LIFESPAN: 9–12 years

There have been few sightings of the Columbia spotted frog in northern B.C. and southeastern Alaska. In the Yukon it is known to inhabit wetlands on the West Arm of Bennett Lake near Carcross *(see photos, p. 4 and 23)*, and in the Hyland River-Irons Creek Lake area east of Watson Lake.

Eggs are laid in floating globular masses. The tadpole's fin terminates behind the spiracle (breathing hole) and its tail is twice body length.

The Columbia spotted frog is more aquatic than the wood frog and prefers permanent ponds up to treeline. It may forage on land by day and loves to bask in the sun, but generally remains near the shore or in the water. Adults can forage underwater on insects, other invertebrates and even their own tadpoles.

The Columbia spotted frog is much larger than the wood frog. Small bumps and dark irregular spots

Distribution of the Columbia Spotted Frog

with light centres are scattered on its olive, tan, light brown or dark brown skin. It has a light-coloured jaw stripe. The creamy underside is salmon or red near the hind limbs, and mottled with grey elsewhere *(see photo p. 20)*. Northern Columbia spotted frogs have shorter legs than their southern counterparts, possibly to conserve heat and moisture.

The Columbia spotted frog breeds communally in shallow flooded margins of ponds in spring, often on one or two sunny days in May. The males call from above or below the water surface in a short series of quiet, low-pitched grunts. The large eggs are laid in soft-ball-size globular masses *(see p. 5)*, often floating in shallow water. Although the eggs hatch in about a week, a short summer may force tadpoles to overwinter. Tadpoles have dark backs flecked with gold and iridescent bronze bellies. They reach 60–70 mm in length and transform into froglets about 25 mm long.

Juvenile Columbia spotted frog

The Columbia spotted frog hibernates under water. Unlike the wood frog, it cannot survive freezing, so the shallow ponds it inhabits must be covered with ice and a thick layer of snow. When the snow melts in the spring and floods pond edges, the Columbia spotted frog uses these areas as breeding sites.

Western Toad *(Bufo boreas)*

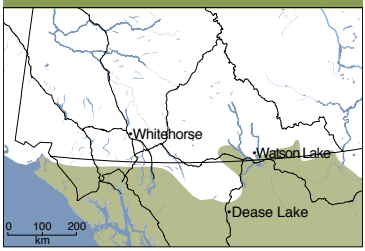
HABITAT: river and stream backwaters, lakeshores, ponds; adults found away from water
SIZE: up to 125 mm
LIFESPAN: 9–11 years

Also known as the boreal toad, the western toad is found throughout most of northern B.C. *(see photo, p.4)* but seems to be confined to the Liard Basin in the Yukon. It prefers damp conditions but can be found in meadows or forests quite far from water. Nocturnal farther south, the western toad is active during daylight hours in the north.

The western toad is chunky, with short legs, numerous warts and prominent parotid glands at the back of the head. The back is green, brown or grey, covered with reddish warts surrounded by dark blotches. A light stripe runs down the middle of the back, and the belly is white with dark mottling. A grey pelvic patch in the groin area can absorb water from the ground. Many predators, such as owls, gulls, ravens, mink, bears and foxes, will eat adult toads despite the foul-tasting and toxic secretions of their parotid glands and warts.

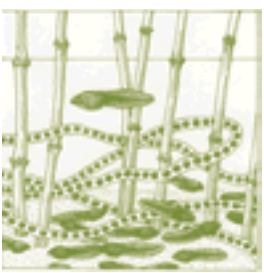
Western toads hibernate, often communally, in burrows up to 1.3 m underground. They are limited to areas where the snow's insulating cover permits safe hibernation. In the north they

Distribution of the Western Toad



can be abundant around geothermal springs. They have been found at the Coal River Springs, a spring at the Meister River, and at the Atlin Warm Springs.

Western toads breed in spring in the shallow water of ponds or stream backwaters with sandy bottoms. The male's call during breeding is not meant to attract mates. The peeping sound they make is a "release" call made when grasped by other males. The females lay eggs, up to several thousand in a clutch, in long strings entangled with submerged vegetation. The eggs hatch in about a week and metamorphosis is complete in another six to eight weeks. Toad tadpoles are black on top, lighter underneath, and 25–30 mm in length *(see photo p.5)*. They forage in large schools and are able to recognize siblings. Faster-growing tadpoles release a substance that slows the growth of smaller tadpoles and results in waves of 12-mm toadlets. This usually occurs in July and August, although the western toads at the Atlin Warm Springs begin breeding in February and March. The first toadlets emerge in early April.



Bead-like eggs are laid in long strings around vegetation. Tadpoles congregate in large schools along pond margins.

Boreal Chorus Frog
(Pseudacris maculata)

Habitat: lakes, ponds, temporary shallow pools, roadside ditches; adults found away from water
Size: 20–40 mm
Lifespan: 3 years

The boreal chorus frog is the smallest amphibian found in the Yukon and Northern British Columbia. Common east of the continental divide, the boreal chorus frog is found in the Liard and Peace River basins in B.C. and reaches the Yukon along the La Biche River. It inhabits damp grassy or wooded areas, but is seldom seen since it spends most of the summer underground. Boreal chorus frogs hibernate underground and, like the wood frog, can tolerate some freezing.

The boreal chorus frog is small — 20 to 40 mm long — with a long body and short legs. It is grey, brown or green with three irregular stripes down the back and dark stripes on the sides, extending from the nose to the groin. The belly is white, yellow or olive, with few, if any, dark markings.

Eggs are laid in small clumps 25 mm across and attached to submerged plants. Tadpoles are dark olive to black and silver with a coppery sheen below.

Distribution of the Boreal Chorus Frog

Boreal chorus frogs begin breeding in early spring, before the snow and ice have melted, and continue breeding into June. They will breed in almost any body of water, shallow or deep. In the La Biche Valley they have been heard calling from roadside ponds and ditches. The male's call is a rising "kreeeeeep", similar to the sound created by stroking the teeth of a plastic comb. Eggs are laid in small clumps 25 mm across and attached to submerged plants. They hatch within two weeks and the young frogs emerge in another two months.

Boreal chorus frogs vary in skin colour and pattern. This southern individual is preparing to ambush a grasshopper.

Tadpoles are dark olive to black and silver with a coppery sheen below. They have widely spaced eyes and a tail fin that extends along the back. They reach a length of 30 mm before transforming into froglets 7–12 mm long.

Long-toed Salamander *(Ambystoma macrodactylum)*

HABITAT: damp forests near shallow, fishless ponds
SIZE: up to 170 mm
LIFESPAN: unknown

The long-toed salamander has been found in the Stikine and Taku watersheds in northwestern B.C. and southeastern Alaska, including the Telegraph Creek area and the Taku and Nakina rivers. The long-toed salamander prefers damp areas at forest margins, and enters the water only to breed. It hides under rocks, rotten logs or leaf litter *(see photo, below)* and emerges during rainy periods. It hibernates underground, often communally.

The colour of the long-toed salamander is dark greenish-grey, brown or black. It has a prominent light green, yellow or tan stripe running down its back, and white or silver flecks on its sides. It is grey underneath and measures up to 150 mm long.

Salamanders mate in spring when ice still covers permanent shallow ponds. Eggs are laid singly, or, more often, in small clumps attached to underwater vegetation.

Distribution of the Long-toed Salamander

The eggs hatch in two to three weeks, but in the short northern summer of the north the larvae may be forced to overwinter. The larvae are grey or light brown with dark brown or black flecks and a silvery belly. They reach 70 mm in length before transforming to adults.

The dorsal stripe may be a continuous line or a series of fused or separate spots. Local long-toed salamanders usually have a yellow to tan stripe of fused spots, with separate spots on the head.

Eggs are laid singly or in small clumps on submerged plants or debris or loose on the bottom. The larvae are grey to light brown with dark brown or black flecks and a silvery belly.

Other species to watch for

These species have not yet been recorded in our area but may occur:

Roughskin Newt *(Taricha granulosa)*

This newt is common in coastal Alaska. It measures up to 19 cm long, with a rough, dark-brown back and a bright orange belly. It breeds in spring in shallow ponds, bogs and swamps. It can be found near permanent ponds, brackish water, and in open mixed coastal forests with lots of leaf litter and deadfall. Adults may also live in water.

Northwestern Salamander *(Ambystoma gracile)*

These large chunky salamanders are usually dark brown, grey or black on the back and lighter brown on the belly. They may have dark or yellow specks on their back. They inhabit coastal forests in extreme southeastern Alaska but are very rare at this northern limit of their range. Gilled adults (neotenics) may reach 26 cm in length; terrestrial adults, 23 cm. Look for them under rocks, boards and logs near ponds.

Amphibian Field Data Form

Name _____

Address _____

City/Town _____ Prov./Territory _____

Country _____

Postal Code _____ Phone _____

E-mail _____

Species _____

Location _____

Map sheet (if known) _____

UTM Coordinates (if known) _____

Date _____ Time _____

Habitat (pond, lake, stream, river, meadow, etc.):

_____

Did you see ____ or hear ____ the amphibians?

What life stage did you observe? (eggs, tadpoles, larvae, froglets/toadlets, adults):

_____

Numbers seen or heard: _____

Comments (description of specimen, diagram, map, etc.):

_____

_____

_____

Can I take amphibians home?

The underside of a Columbia spotted frog, showing the red lower abdomen and hind legs.

If you would like to collect amphibians in the Yukon, you may need a permit from federal and territorial government agencies. If you must handle amphibians for identification, do so as little as possible. Release them where they were captured as soon as they have been identified and studied. Do not move them to different ponds. Do not keep them as pets. Insect repellent on your hands can harm amphibians, which breathe through their skin. If you suspect illegal activity related to amphibians or other wildlife, please call the Turn in Poachers (T.I.P.S.) hotline at 1-800-661-0525.

What you can do

The Canadian Amphibian and Reptile Conservation Network (CARCNET) is devoted to conserving Canada's native species of amphibians and reptiles in perpetuity.

You can help us expand our knowledge of their distribution in the Yukon and northern B.C. by copying and completing the data form each time you see or go looking for amphibians. Send your completed form, with photographs if possible, to one of the contacts on page 22.

Useful Resources

Corkran, C.C. and C. Thoms. 1996. *Amphibians of Oregon, Washington and British Columbia: A Field Identification Guide*. Edmonton: Lone Pine Publishing.

Global Amphibian Assessment (GAA). Available online at www.globalamphibians.org.

MacDonald, S.O. 2003. *The Amphibians and Reptiles of Alaska: A Field Handbook*. Juneau: U.S. Fish and Wildlife Service. Available online at www.alaskaherps.info.

Matsuda, B.M., D.M. Green and P.T. Gregory. 2006. *Amphibians and Reptiles of British Columbia.* Royal BC Museum Handbook. Victoria: Royal BC Museum.

Russell, A.P. and A.M. Bauer. 2000. *The Amphibians and Reptiles of Alberta: A Field Guide and Primer of Boreal Herpetology*. 2nd edition. Calgary: University of Calgary Press.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. 3rd edition. Peterson Field Guide Series. New York: Houghton Mifflin.

Wood frog tadpole

Further information, data forms and additional brochures are available though these organisations:

CARCNET: Yukon Coordinator
35 Cronkhite Road, Whitehorse, YT Y1A 5S9
(867) 668-3295
slough@northwestel.net
www.carcnet.ca

Box 2703, Whitehorse, YT Y1A 2C6
(867) 667-3684
NatureServe@gov.yk.ca

Mile 91780 Alaska Hwy, Whitehorse, YT Y1A 5B7
(867) 667-3931
pam.sinclair@ec.gc.ca

Become a FrogWatch Yukon Volunteer Observer
Sign on at www.frogwatch.ca/english/frogwatch/yt/

Wildlife Viewing Program
Box 2703, Whitehorse, YT Y1A 2C6
(867) 667-8291; Fax (867) 393-6263
wildlife.viewing@gov.yk.ca
www.environmentyukon.gov.yk.ca/viewing

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

COSEWIC determines the national status of wild Canadian species and subspecies that are suspected of being at risk of extinction or extirpation. COSEWIC uses a process based on science and aboriginal or community knowledge to assess species at risk.

Because of their restricted ranges, the ***Columbia spotted frog*** *and the* ***boreal chorus frog*** *may be at conservation risk in the Yukon.*

COSEWIC has designated the ***western toad*** *as a species of "Special Concern" because of local population declines and losses in south-coastal British Columbia, although the species remains widespread and locally abundant elsewhere in its range. It is relatively intolerant of urban expansion, conversion of habitat for agricultural use, non-native predators and competitors, and disease. In the Yukon the few known isolated occurrences make it a "Sensitive" species. Population declines are suspected in southeast Alaska.*

Habitat of the Columbia spotted frog near Fraser, B.C.

For free distribution only

Yukon
Environment

www.environmentyukon.gov.yk.ca/viewing