The Amphibians of Alaska

Look Inside To See How You Can Help Us To Learn More About These Incredible Animals of the North!

Welcome to the Wrangell Ranger District of the Tongass National Forest!

As you enjoy your stay in this public guest cabin, please consider contributing to our ongoing study of frogs, toads, salamanders and newts in Alaska. Many people do not realize that we have several types of amphibians in the state or that they sometimes occur in large numbers! There are frogs in Alaska from the southern border with Canada, throughout the interior and even in the far north within Inupiaq Eskimo territory. The Tongass National forest boasts the greatest diversity of these animals in the state and his home to three species of frogs and three species of salamanders that are native (historically present) to the area!

We invite you to become **CITIZEN SCIENTISTS** to help us learn about these incredible animals on the landscape. Simply taking notes when you find frogs and salamanders in the vicinity will help us to understand what kinds are here, what times of year they are here, how many there are and how their populations are doing. When you find one of these animals, please log the information on the pages included in this binder. You may wish to take a look at the types of information we need you to fill out **BEFORE** you go out looking!

For adults and kids alike finding frogs and salamanders can be a fun activity, even on the rainy days that are so common here within the temperate rainforest. Included in this binder are pictures and information about each of the amphibians that you are most likely to encounter during your stay. When you find one please enjoy watching it and take pictures if you can but do not handle or bring them home. Removing a frog or salamander from its own home is **ILLEGAL** but it can also cause serious problems for their populations.

Though we do not require that you leave personal information behind in order to participate, we would love to be able to follow up interesting sightings if you feel comfortable leaving your contact information. Please note that your participation in no way commits you to anything further and that the results of this study are not expected to impact the management of game species.

Be careful, Be Safe, But Most Importantly, **HAVE FUN!**

This research is sponsored by the University of Alaska – Fairbanks. For more information please contact Joshua Ream at (814) 883-6629 or by email at jtream@alaska.edu.

AMPHIBIAN ESSENTIALS

Everything You Need to Know to Help Protect Alaska's Amphibians

- It is usually best to not handle the amphibians you find and just to leave them where they are. If you must pick them up however, you should be aware that their skin is delicate and permeable. Make sure that you have clean hands when you pick them up – this means NO BUG SPRAY and NO SUNSCREEN! Put them down gently after you have held them in the exact location that you found them!

- Never transport an amphibian to a new location! This can lead to the spread of diseases that kill amphibians and alter the genes of the entire population!

- When possible, clean and disinfect your boots and waders when you get home. Some amphibian diseases can be spread on footwear from site to site.

- Never keep a native amphibian as a pet. This is not only illegal but amphibians are already in peril. Each one that you take from the wild is one less that can breed and produce young.

- If you already have a native amphibian at home as a pet, do not release it into the wild! It may have picked up bacteria, fungi, and diseases that can be spread to other amphibians in the wild!

- NEVER release a purchased or won amphibian into the wild! Most of these are exotic species that do not naturally occur in Alaska. Non-native species compete for the same resources as native species and in some cases they are even aggressive toward them! This is among the greatest problems facing amphibians. Either keep them for their entire lives or find them a good home. NEVER RELEASE A PET AMPHIBIAN INTO THE WILD!

INTERESTING FACT

The local Kiksetti and Kaach.adi Clans of the Stikine Tlingit claim the frog as their major crest. It is said that traditionally it would be almost exactly six weeks from the time the first frog called in the spring that the salmon would return to the river.

NATIVE Amphibians That You May Encounter (In Order of Likelihood)

……..…….....Rough-Skinned Newt (PAGE 6)

……...……...…….Boreal Toad (PAGE 7)

…….Wood Frog (PAGE 8)

……..……..Long-Toed Salamander (PAGE 9)

…….…….Columbia Spotted Frog (PAGE 10)

…….Northwestern Salamander (PAGE 11)

NON-NATIVE Amphibians That You Might Find (But Hopefully Not!)

……..…Pacific Chorus Frog (PAGE 12)

……..…….Red-legged Frog (PAGE 13)

……....Bull Frog (PAGE 14)

Rough Skinned Newt (*Taricha granulosa*)



Adults: 13.3-20cm (5-25 in) long (total length – nose to tip of tale). "Rough" look to skin (except for breeding male), orange / yellow on underside, does not have clearly visible grooves along body like the northwestern and long-toed salamander.

Eggs: Laid singly, eggs are in large single gelatinous envelope, large capsular chamber; they are usually attached to vegetation in slow-moving streams or still water; usually hard to find, sometimes attached between parts of vegetation.

Larvae: Reach 7.5cm (3 in); Trunk has two rows of spots that run the length of body (in some cases form light stripe)

FACTS

- The most aquatic newt! This animal is found in spruce and hemlock forests around ponds or lakes, muskegs, and slow moving streams that have large amounts of vegetation. In Alaska they often inhabit coastal forests.
- These animals are diurnal – they are most active during the day!
- The metamorphosis from larvae to adult is thought to take two years in Alaska.
- They will often lift their head and tail when they feel threatened.
- Among the most notable characteristics in adults is the red / orange belly.
- Though they are safe to handle, be sure to wash your hands afterward and NEVER eat them! They are extremely toxic and in fact, among the most toxic animals alive!

Boreal Toad (*Anaxyrus boreas*)

Adults: 6-12.5cm (2.5-5in long from snout to vent. Has many warts; usually gray, brown or green; noticeable paratoid glands (bumps behind eyes); usually has conspicuous white stripe down middle of back (not present or as conspicuous in recently morphed young). The thumb base in males is dark and enlarged.

Eggs: Females lay strands of up to 12,000 eggs in single file; multiple females may lay overlapping strands of eggs. They are frequently wrapped around vegetation and in shallow water.

Tadpoles: Tadpoles are dark brown or black. They hatch in about 10 days, and swarm in dense groups (sometimes numbering in the millions) in the warmest and most shallow waters they can find.

FACTS

- This animal is found in grasslands and woodlands near freshwater (breeds in ponds, lakes, streams, rainy pools); Most often in open areas. Found in coastal forests.
- These toads are terrestrial as adults and can be found in a wide range of elevations!
- The Boreal Toad is often referred to as the Western Toad but is distinguished by its northern range.
- They are most active during the day and their voice is a “soft birdlike clucking”
- The toads eat worms, slugs and insects, but will also eat larger animals when possible.
- The “Paratoid Glands” behind the eyes, in conjunction with the warts on their backs, secrete a bitter toxin that repels most attackers.

Wood Frog (*Lithobates sylvaticus*)

Adults: 3.1-8.1cm (1.25-3.25 in) from snout to vent. Have dark "eye mask" that is flanked by a white or cream jaw stripe. Smooth skin. Some individuals have light stripe along spine. Underside is white or cream. They have dorsolateral ridges – two raised lines running down their back. The thumb base of males is dark and enlarged.

Eggs: Laid in 6.2-15cm (2.5-6 in) firm clusters, 100-3000 eggs per cluster (780 average), in shallow ponds, lakes or slow moving streams, near surface either floating freely or attached to vegetation, many clusters often located in close proximity.

Tadpoles: Tadpoles are 5 cm (2 in) long; uniformly dark underside, high dorsal fin, few markings on fins, dark body, dusky color with green sheen, underside cream color with hints of pink.

FACTS

- Wood Frogs can be found far from water, in open forest, grassland, tundra and muskeg!
- The Wood Frog is most easily recognized by its "robber mask." This black band stretched past both eyes to the eardrums.
- They are the most widespread of Alaska Amphibians and are even expected to occur on the North Slope, north of the Brooks Range!
- They turn from eggs to tadpoles to adults rapidly and freeze almost solid in the winter allowing them to survive at high latitudes!
- They produce a natural anti-freeze to keep the inside of their cells from freezing in the winter!
- Their voice is a "rapidly repeating ducklike staccato." They are often confused for ducks!

Long-toed Salamander (*Ambystoma macrodactylum*)



Adults: 5.0 – 8.1cm (2.2-3.3 in) from snout to vent. They are dark to black above and have a yellow dorsal stripe running from their head back almost to the tip of the tail. Usually have a white or silver flecking on their sides as well. Often with distinctive grooves along their sides.

Eggs: Laid singly and in masses (highly variable). May be attached to vegetation, underside of logs or laid unattached on bare sediments. Masses typically contain 10-20 eggs but smaller or larger clusters are common.

Larvae: May be hard to distinguish from Northwestern Salamander. Above are two larval stages (the bottom being an older individual). Notice no line of spots like the Rough-skinned Newt!

FACTS

- Long-toed salamanders are found in a variety of habitats but usually not very far from a water source.
- Adults spend most of their lives underground except when migrating to and from breeding sites!
- They are thought to be poor burrowers and may generally depend on underground spaces between rocks, roots, rotting wood and tunnels built by other animals.
- While active on the surface in the spring they seek refuge under decaying logs, bark, rocks and other structures to maintain moisture.
- Adults are terrestrial and almost exclusively nocturnal.
- A long 4th toe on the rear feet gives this salamander species its name.

Columbia Spotted Frog (*Rana luteiventris*)

Adults: 4.4-1-cm (1.75-4in) long from snout to vent. They are larger than the Wood Frog, lack the mask and have a salmon or red color on their undersides. Have somewhat bumpy skin, relatively short hind legs and vary from light to dark brown above with a scattering of large black spots often with light centers. There is a light stripe on the upper jaw and the eyes are upturned.

Eggs: Laid in masses of 7.5-20cm (2-8in) diameter containing 150-2000 eggs, usually in shallow water floating freely on surface among vegetation. Eggs usually deposited immediately after ice melt (mid April along the Stikine).

Tadpoles: Tadpoles are 7.5-10cm (3-4in) long with dark and gold flecks, underside has bronze sheen, dorsal fin begins at tail body junction, forms arch.

FACTS

- Seldom found away from permanent rivers, lakes, ponds, muskegs, or streams; often in vegetation surrounding bodies of water. Coastal forests.
- Males call on warm, clear days from above and rarely under water. Their voice is a short series of low pitched, quiet grunts and drones.
- Distinguished from the introduced Red-legged Frog by its shorter legs, greater tow webbing, rougher skin, upturned rather than out-turned eyes, shorter jaw stripe, and lack of mottling on the groin.
- They have been found 100 m above the valley floor of the Stikine River in a muskeg pond.
- They commonly overwinter underwater in mud and under stream banks!

Northwestern Salamander (*Ambystoma gracile*)



Adults: 20-22cm (7-8.7in) total length from nose to tip of tale. Gray/brown color, smooth skin, costal grooves evident, large paratoid glands behind eyes, back may have flecks of green or yellow. Males become darker than females during the breeding season.

Eggs: Laid in clusters of 30-270 eggs (often 60 – 140), masses usually 5-15.2cm (2-6in) in diameter, masses sometimes have green color from algae, attached to vegetation, submerged trees in slow moving streams, ponds or lakes (usually permanent.

Larvae: 7.5-15cm (3-6in) long, body is brown, olive green or light yellow on top, sides are blotched (sooty) with yellow spots, glandular strip on tail fin

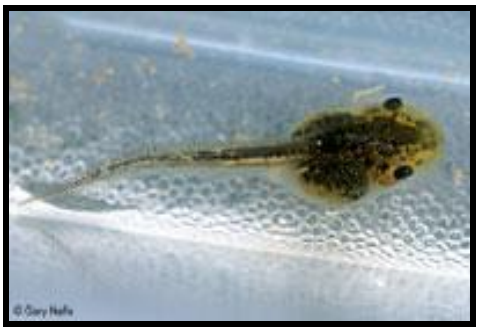
FACTS

- Northwestern Salamanders are found in coastal forests, next to freshwater (ponds, lakes, muskegs); under logs or rocks.
- Adults are terrestrial and primarily live underground!
- They are usually active on the surface only during rains and migrations to their aquatic breeding sites.
- They can be found from sea level to tree line!
- Some adults may remain neotenic meaning they remain aquatic with gills for their entire lives.
- The distribution and status of this species in Alaska is unknown and in need of study.

Pacific Chorus Frog (*Pseudacris regilla*) - INTRODUCED

Adults: 2-5cm (1-2.2in) long. Color varies from bright green to bronze to brown, as well as shades in between. These frogs can change the color of their skin depending on the temperature and humidity. A dark eye stripe runs from the tip of the nose to the shoulder. The tip of each toe has a round, sticky toe pad. Belly is white and unmarked.

Eggs: Laid in masses that are usually attached to underwater vegetation. The eggmass is small (less than 4cm) and round and the eggs are enclosed in a thin layer of jelly. Eggs number from 12-60.



Tadpoles: Greenish grey and flecked with fold markings. Viewed from above, the eyes extend to the outline of the head. The Red-legged Grog tadpole appears similar but with inset eyes.

FACTS

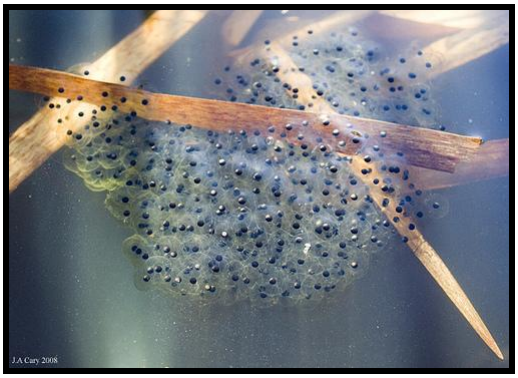
- This animal is found in a variety of habitats from pristine mountainous areas to farmland. Primarily a ground dweller in low vegetation close to water.
- Adults move to shallow pools and ponds to breed in early spring but will wander away to forage in low bushes and trees for insects.
- The round pads at the tips of their toes stick to minute irregularities, enabling these frogs to climb almost any surface. They are the only frogs that will have these in Alaska.

- The two-note male mating call is repeated continuously and amplified by large round vocal sacs inflated beneath the chin. For being so small they are quite loud!

Red-legged Frog (*Rana aurora*) - INTRODUCED



Adults: Stout, medium to large frog measuring up to 13.6cm (5.4in). The head is broader than long and the snout rounded. The light jaw stripe usually ends at the shoulder and the eyes look to the side. Hind legs are long, belly is reddish-brown to grey and the dorsal folds are distinct. Bold cream to yellow and black (or red) mottling in the groin, underside of the hind legs and lower abdomen are translucent red (yellowish in young animals.

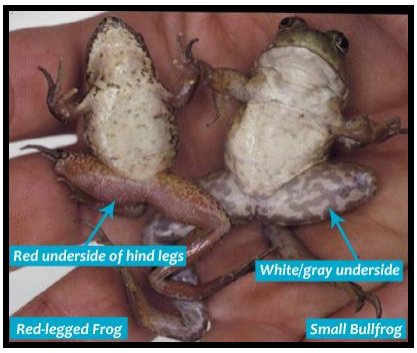


Eggs: Large-sized eggs, averaging about 3mm in diameter are laid in soft, grapefruit to cantaloupe sized mass, usually attached to submerged sticks and vegetation in the deepest water available.

Tadpoles: Stubby with a high dorsal fin. The mouth has three tooth rows on top and four on the bottom (need microscope). The larger tadpoles are dark brown with black splashed on the tail.

FACTS

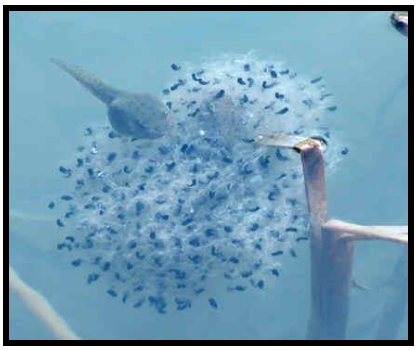
- This frog occurs in meadows, woodlands, and forests but is usually found in or near ponds, marshes and streams. It prefers ground cover and aquatic or overhanging vegetation.
- The species was introduced by a schoolteacher at Freshwater Bay on Chichagof Island near Hoonah in 1982 / 1983. No records elsewhere, YET!
- Male mating call is a weak stuttering "uduh-uh-uh-rowr" lasting 1-3 seconds with the throat enlarging at the sides. Usually call at night while submerged.
- Noting the underside of rear legs is the a good way to distinguish from a young Bull Frog. Rear legs longer than Columbia Spotted Frog.



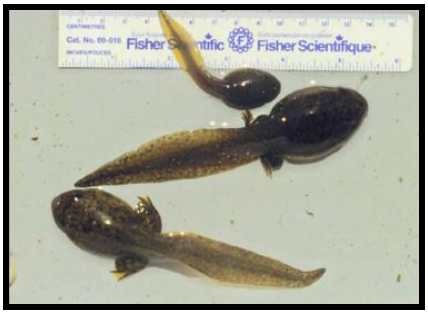
Bullfrog (*Lithobates catesbeianus*) - INTRODUCED



Adults: Very large frog up to 20cm long. Brownish green in color with grey bellies. Males have bright yellow throats during the mating season. Distinctive large tympanic membranes (ear drums) appearing as large circles on sides of head behind eyes. Skin fold wrapped around ear drum and not continuing down back.



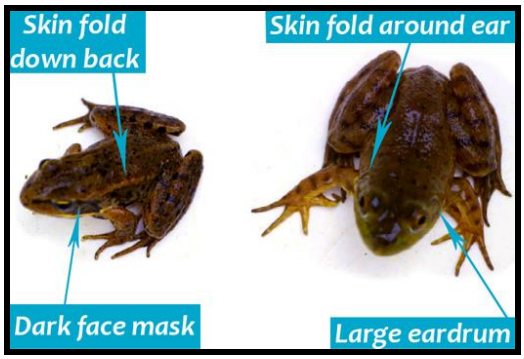
Eggs: Laid in masses that can contain up to 20,000 eggs. The whole mass is large (up to 1m X 1m), flat and floats close to surface of the water or is draped on submerged vegetation. Individual eggs are jet black, the size of mustard seeds.



Tadpoles: Much larger than tadpoles of other frog species (up to 15cm long). Tend to have same coloration as adults. Arrowhead shaped body with dorsal fin that begins behind body.

FACTS

- Bullfrogs prefer warm, weedy, permanent ponds and lakes though they are sometimes found in small ditches and along slow moving streams.
- Adults bask on the surface or on shore but always remain close to the water!
- They are voracious predators and will eat other frogs, tadpoles and their eggs. They've even been known to eat small mammals and birds!
- Young Bullfrogs can sometimes be confused with the adult Red-legged frog. Make a positive ID!



LEFT: Red-legged Frog; RIGHT: Bullfrog

CITIZEN SCIENTIST OBSERVATION LOG

(Example Page – Please use forms in binder)

Please contribute your citizen science observations here. Fill the form out as best you can and be as descriptive as possible. Use a new observation form for each species. We would GREATLY appreciate the submission of digital photographs. Try to take one of the top of the animal, the bottom and a wider view of the habitat. These should be emailed to jtream@alaska.edu. If you do not feel comfortable providing contact information on this form you may also email it to the above address. Please take a card from the binder.

NAME _____ DATE_____ TIME_____ AM / PM

PHONE _____ EMAIL _____

WHERE DO YOU RESIDE FOR MOST OF THE YEAR (CITY / STATE)?_____

Species (Check One)									
Rough-skinned Newt	Boreal Toad	Long-toed Salamander	Wood Frog	Columbia Spotted Frog	Northwestern Salamander	Pacific Chorus Frog	Red-legged Frog	Bullfrog	Other

Life Stage (Check One)			
Adult	Juvenile	Tadpole / Larvae	Eggs

Sex (Check One)		
Male	Female	Unknown

WEATHER

Clouds (Circle one): Cloudy Partly Cloudy No Clouds Overcast

Precipitation (Circle one): Snow Heavy Rain Light Rain No Precipitation

Wind (Circle one): Strong Wind Light Wind No Wind

Approximate number of individuals seen _____ Do you plan to submit photographs? _____

Describe the exact location _____

Describe the habitat _____

Coordinates if Possible: Latitude _____ Longitude _____ Altitude_____

What was the animal(s) doing? _____

How sure are you that you made a positive identification? _____

Additional Notes:

SOURCES

We would like to thank the following sources for use of their photographs and for species information:

Rough-Skinned Newt

http://www.sonoma.edu/preserves/galbreath/aboutgalbreath.shtml

http://www.wildherps.com/species/T.granulosa.html

http://www.californiaherps.com/identification/salamandersid/newts.html

Boreal Toad

http://www.nps.gov/labe/naturescience/amphibians.htm

http://www.californiaherps.com/frogs/pages/b.b.boreas.sounds.html

http://web.uvic.ca/bullfrogs/page3toad.htm

Wood Frog

http://www.michigan.gov/dnr/wildlife_and_habitat/wildlife_species/herps/frogs_toads/wood+frog+(rana+sylvatica)

http://magickcanoe.com/blog/2006/04/12/the-wood-frogs-are-back/

http://magickcanoe.com/blog/2006/04/16/wood-frog-eggs-update-1/

http://www.virginiaherpetologicalsociety.com/identification-keys/id-keys-frogs/Lithobates-Rana.html

http://weblogs.dailypress.com/news/science/dead_rise/2010/03/nsu_study_finds_pharmaceutical.html

http://dnr.wi.gov/eek/critter/amphibian/wood.htm

http://www.vernalpool.org/BSW/woodfrog/slides/010-WF-tad.htm

Long-toed Salamander

http://www.californiaherps.com/noncal/northwest/nwsalamanders/pages/a.m.columbianum.html

http://www.flickr.com/photos/31038542@N02/3427855956/

http://www.npwrc.usgs.gov/resource/herps/amphibid/species/ambymac.htm

http://www1.dnr.wa.gov/nhp/refdesk/herp/html/4amma.html

http://www.alaskaherps.info/

Columbia Spotted Frog

http://www.wildherps.com/species/R.luteiventris.html

http://www.enature.com/fieldguides/enlarged.asp?imageID=19041

http://www.alaskaherps.info/

http://www.fs.fed.us/r4/amphibians/columbiaspottedfrog.htm

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Northwestern Salamander

http://www.fs.fed.us/r6/centraloregon/wildlife/species/reptiles-amphibians/salamanders.shtml

http://amphibiaweb.org/declines/UV-B.html

http://www.amphibiainfo.com/gallery/caudata/ambystomatidae/ambystoma/gracile/

http://www.wildherps.com/species/A.gracile.html

http://www.alaskaherps.info/

Pacific Chorus Frog

http://www.netstate.com/states/symb/amphibians/wa_pacific_chorus_frog.htm

http://www.californiaherps.com/frogs/pages/p.regilla.html

http://calphotos.berkeley.edu/cgi/img_query?enlarge=0000+0000+0210+1561

http://web.uvic.ca/bullfrogs/page3chorus.htm

Red-legged Frog

http://www.nps.gov/goga/naturescience/amphibians.htm

http://www.wildlifebc.org/index.php?pageid=1

http://web.uvic.ca/bullfrogs/page3.htm

http://www.alaskaherps.info/

Bullfrog

http://linwoodlab.pbworks.com/w/page/17657602/Bull-Frog

http://www.nps.gov/prsf/naturescience/bullfrog.htm

http://web.uvic.ca/bullfrogs/page4.htm

http://www.brunswick.k12.me.us/jas/pod2/Bennoch/bullfrog/process/life_cycle/index.htm#Tadpole

http://www.bullfrogs.com/Bullfrog-Tadpoles.html

http://web.uvic.ca/bullfrogs/page4nathist.htm

SPECIAL THANKS TO THE UNITED STATES FOREST SERVICE FOR ALLOWING THIS STUDY!