Lentic Breeding Amphibians of Northwest Washington

Heidi K. Nichols, Intern

Skagit Land Trust Amphibian Monitoring Program

Project Objectives

- Collect data on amphibian presence, population status and associated habitats.
- Make data available for distribution to local, state agencies and researchers .
- Educate the general public about amphibians, their status and distribution in Skagit County.

Amphibian Groups

Stillwater (lentic) – ponds, lakes

Flowing water (lotic) – streams, rivers

Uplands - forest

What is an Amphibian?

- Amphibian means two lives: aquatic and terrestrial life stages.
- They have permeable skin- they breath through their skin.
- Their eggs do not have shells, but are surrounded by a jelly layer.
- They are cold-blooded
- Includes: frogs, toads, newts, salamanders and caecilians
- There are over 6,500 species and they occur on all continents except Antarctica.

Importance of Amphibians

- They play an important role in nature as both predator and prey, sustaining the delicate balance of nature.
- They eat pest insects, benefiting successful agriculture around the world and minimizing the spread of disease, including malaria.
- The skin of amphibians has substances that protect them from some microbes and viruses, offering possible medical cures for a variety of human diseases, including AIDS.
- They are excellent indicators of environmental health due to their permeable skins.
- Frogs have had a special place in various human cultures for centuries, cherished as agents of life and good luck.

Stillwater Breeding Amphibians

- eggs laid in exposed locations
- pigmented eggs
- aquatic larval stage
- no parental care
- 4 salamander species and 11 frog and toad species (2 exotic)

Pacific Tree frog (*Pseudacris regilla*)

- small size
- loud, high pitched call, loud chorus
- many color morphs: green, brown, etc.
- expanded toe tips
- dark eye stripe

Pacific Tree frog (*Pseudacris regilla*) cont.

- small packets: < 2.5 inches long
- few eggs: 10-80
- soft jelly; breaks down in 2 months
- attached to brace; often soft vegetation
- laid in cool water: laying begins at water temperatures of 6-8ºC (43-46ºF)
- Lay around end of Feb-June
- eggs tiny: 1/16 inch in diameter
- eggs indistinctly bicolored (gray above; dingy
- yellow below), developing embryos lose
- bicoloration becoming light brown

Pacific Tree frog (*Pseudacris regilla*) cont.

Northern Red-Legged Frog (*Rana aurora*)

- if spotted, irregular
- red or pink wash beneath
- reduced webbing
- slight interruption on posterior dorsolateral fold
- very fast, leaps a long way

Northern Red-Legged Frog (*Rana aurora*) (cont.)

- Northern Red-legged Frog egg masses can be hard to see even when viewed at relatively short distances

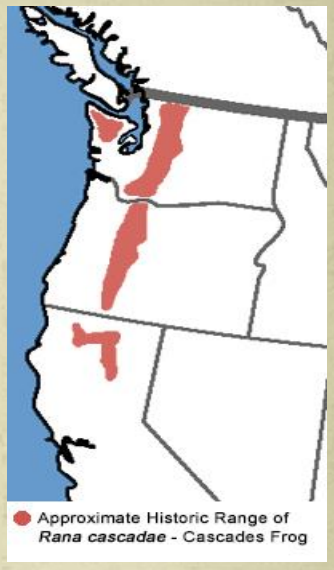
Northern Red-Legged Frog (*Rana aurora*) (cont.)

- Egg Mass:
- round
- softball-sized
- grape cluster
- appearance
- soft jelly:
- breaks down
- fairly rapidly:~2 months
- attached to a brace;
- often upright
- vegetation

- moderate egg numbers: several hundred to just over 1,000
- contains relatively large eggs: usually about 1/8 inch in diameter
- often submerged, laying begins at 6°C (43°F) water temperatures

Cascade Frog (*Rana cascadae*)

- if spotted, inky black
- spots smooth-edged
- yellow wash beneath
- complete dorsolateral folds
- occurs at higher elevations



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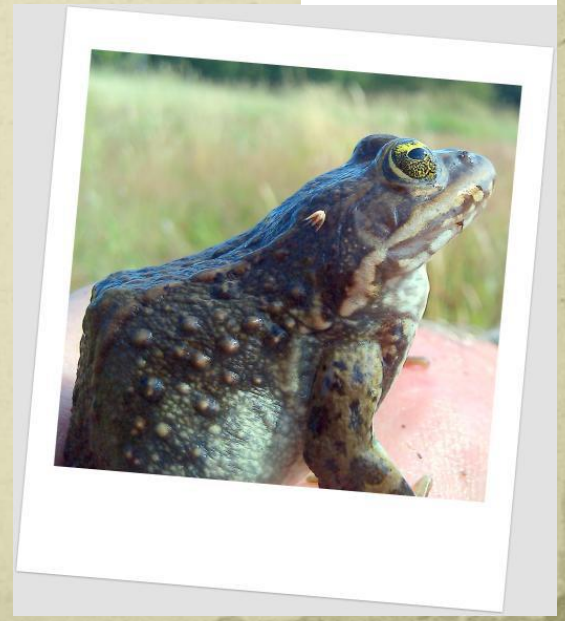
Cascade Frog (*Rana cascadae*) (cont.)

- egg masses
- unattached
- orange to grapefruit sized
- often in groups

Oregon Spotted Frog (*Rana pretiosa*)

- ragged-edge dark spots w/ light centers
- red-orange wash beneath
- fully webbing on feet
- eyes rotated at roughly 45°angles



Oregon Spotted Frog (*Rana pretiosa*) (cont.)

- ± round
- softball-sized
- grape cluster appearance
- moderately soft jelly
- no brace • masses often in groups
- laying begins at 8°C (46°F)
- laying occurs in March here
- moderate egg numbers: several hundred to over 1,000
- moderately large eggs: just under 1/8 inch in diameter
- masses usually laid in shallow water (< 6 inches deep)

Western Toad (*Anaxyrus boreas*) (*formaly Bufo*)

- large glands behind eyes
- warty upper skin
- short legs
- pale mid-dorsal stripe

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Western Toad (*Anaxyrus boreas*)(*formaly Bufo*) (cont.)

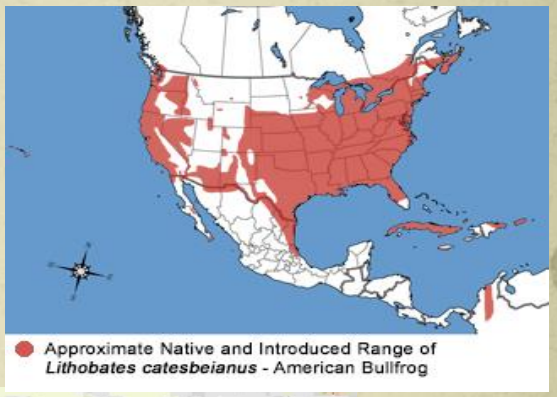
- tadpoles
- black
- slow-moving
- travels in schools

Western Toad (*Anaxyrus boreas*) (*formaly Bufo*) (cont.)

- Eggs:
- dark above
- medium- sized; 1/16 to 1/8 inch
- long, narrow strings; roughly pencil width
- soft jelly; breaks down quickly: ~1 month
- jelly catches debris
- unattached
- shallow water; < 8 inches deep
- relatively warm ~15ºC (59 F)
- lay around Mothers Day

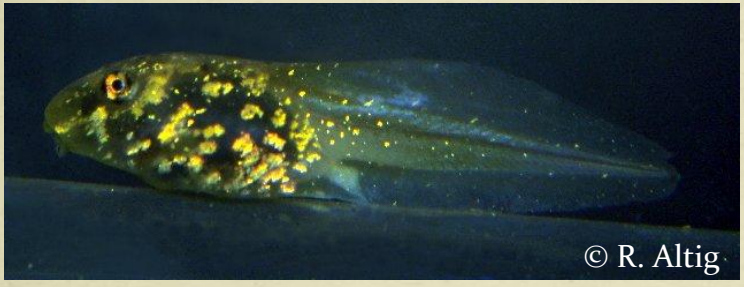
American Bullfrog (*Rana catesbeiana*)

- green present
- ears large
- large body size
- no dorsolateral folds



American Bullfrog (*Rana catesbeiana*) (cont.)

- large larvae khaki green with black spots
- may take 2-4 years to metamorphose



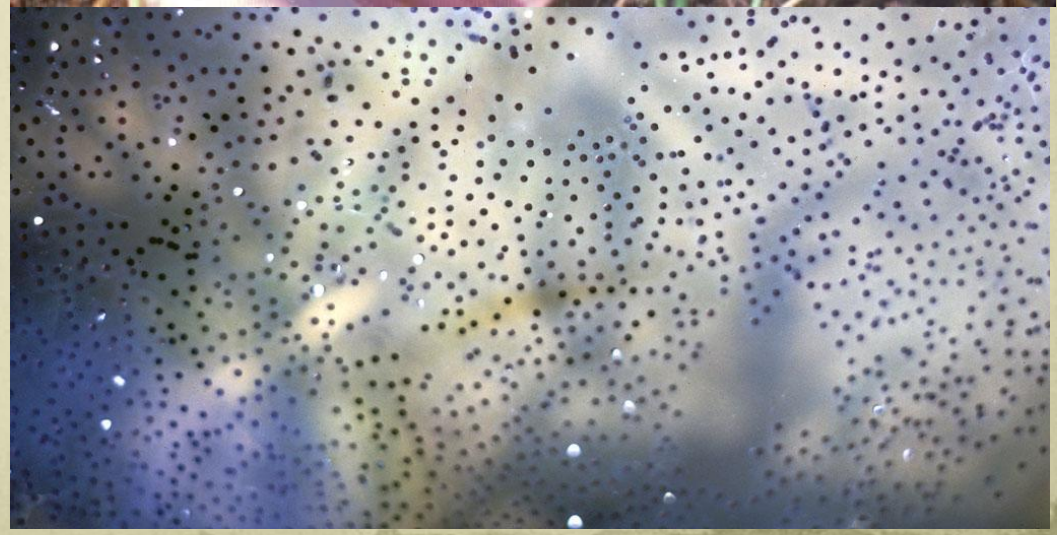
small larva

medium larva

large multi-season larva

American Bullfrog (*Rana catesbeiana*) (cont.)

- Egg mass:
- a surface film with tiny eggs
- draped over/around aquatic vegetation
- may be entangled at the surface among vegetation may settle on underlying vegetation

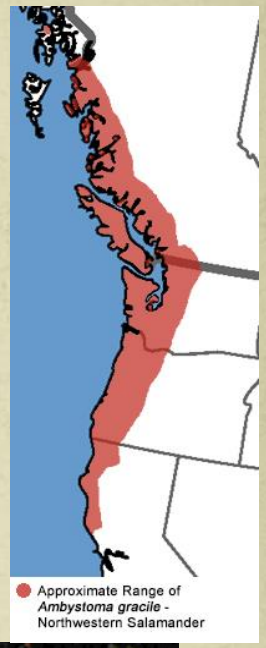


Green Frog (Rana clamitans) (cont.)

- green present
- large body size, smaller than bullfrog
- dorsolateral folds present
- a surface film with tiny eggs
- draped over/around aquatic vegetation
- similar to bullfrogs, but smaller mass

Northwestern Salamander (*Ambystoma gracile*)

- large
- brown
- adults rarely seen
- defensive posture milky toxin
- poison glands Found in ponds, wetlands that remain wet all year, sloughs and lakes
- larvae up to 6 inches long



Northwestern Salamander (*Ambystoma gracile*) (cont.)

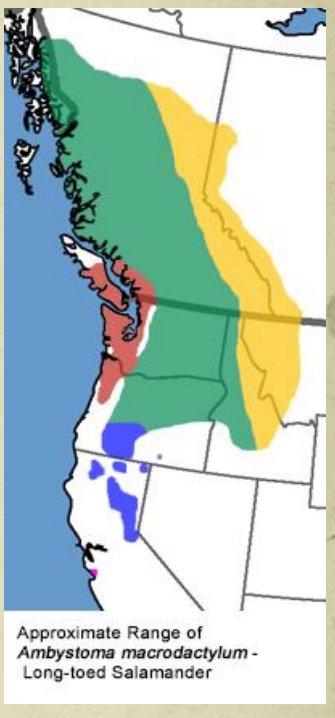
- round mass
- orange- to grapefruit-sized
- firm jelly; lasts 7-10 months
- capsules indistinct
- brace present; usually stick
- in water 5-6ºC (41-43ºF)
- early embryo color smoky gray or brown
- early embryos capsules lack algae

Northwestern Salamander (*Ambystoma gracile*) (cont.)

- recently laid egg masses not scalloped
- jelly very clear
- egg masses w/ all embryos hatched have green capsules in a clear jelly matrix
- old egg mass jelly often' accumulate dirt and debris on the surface

Long-Toed Salamander (*Ambystoma macrodactylum*)

- mid-dorsal stripe
- 4th hind-limb toes long
- gold, yellow, or green
- irregular or broken



Long-Toed Salamander (*Ambystoma macrodactylum*) (cont.)

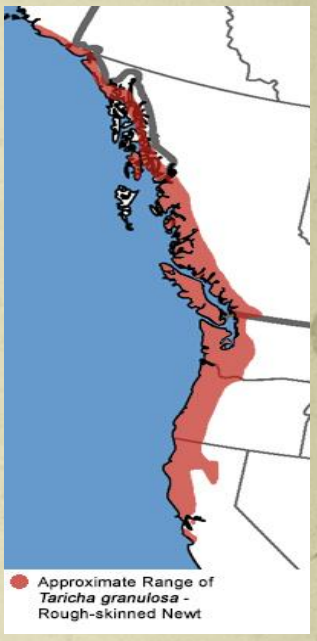
- small packets: < 2 inches long
- few eggs: 1-25
- soft jelly; breaks down in 2 months
- attached to brace; often soft vegetation
- laid in cool water: laying begins at water temperatures of 5-6ºC (41-43ºF)
- eggs moderate sized: between 1/16 and 1/8 inch in diameter
- eggs distinctly bicolored (brown above; white below) when young
- developing embryos lose bicoloration becoming light brown

Long-Toed Salamander (*Ambystoma macrodactylum*) (cont.)

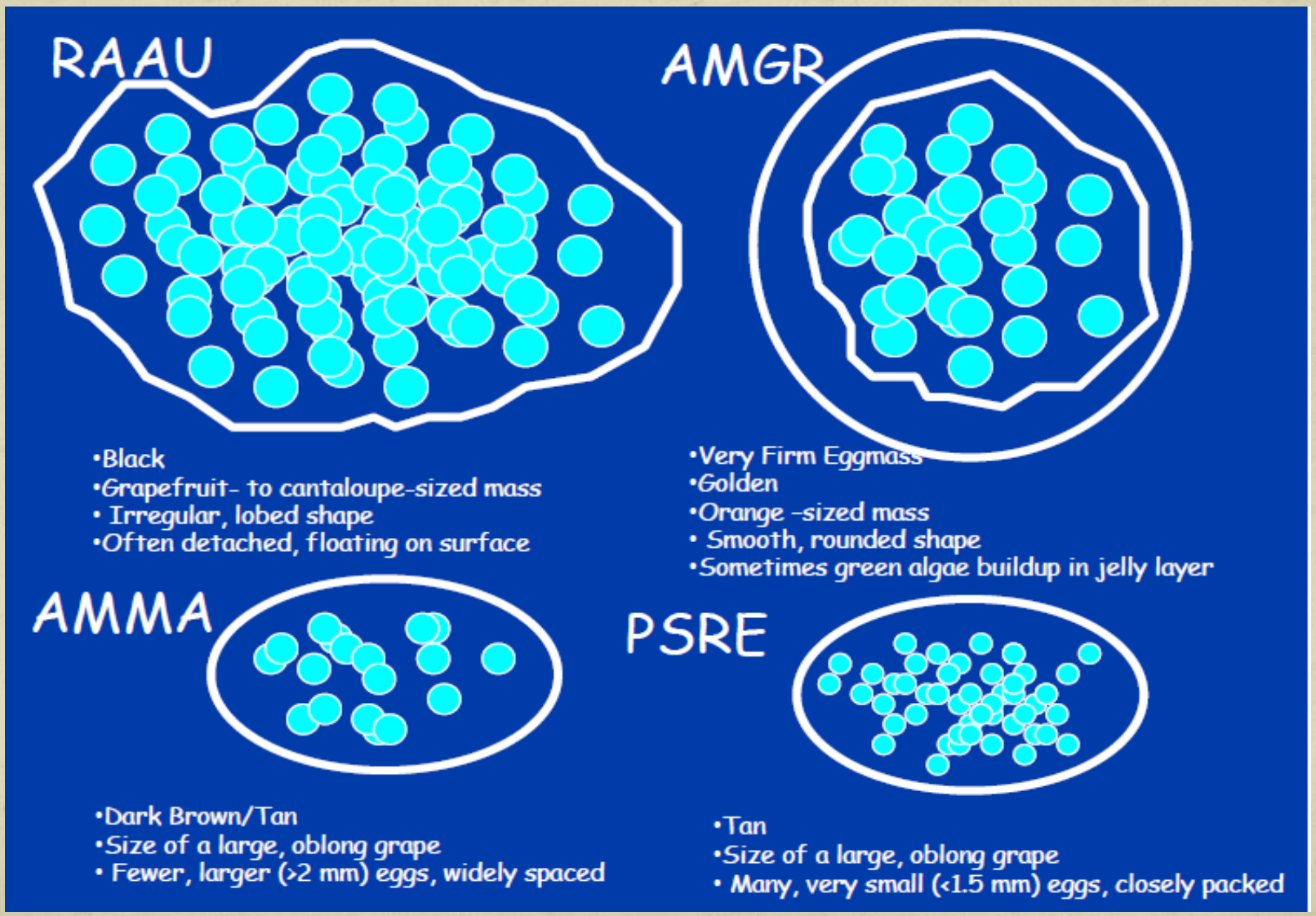
- sometimes single eggs or small groups of eggs are laid close to one another

Rough-Skinned Newt (Taricha granulosa)

- brown above, orange beneath
- skin thick
- granular or smooth (season or sex)
- toxin glands
- diverse permanent aquatic habitats
- tolerates significant disturbance
- Eggs:
- laid singly
- concealed in submerged vegetation
- brown above, orange or cream beneath



Egg Mass Shapes and Sizes



Equipment

- Chest waders
- Hip waders
- Life vest
- Walking stick
- Monitoring Kit Contents:
  - Field Binder – Clipboard, I.D. cards, Site map, Data sheets, Pencils, Emergency contact info., First aid kit, Hand sanitizer, Ziploc bags,
  - Polarized sunglasses, Duct tape
  - Spray bottle with bleach solution
- Recommend wide brimmed hat or umbrella

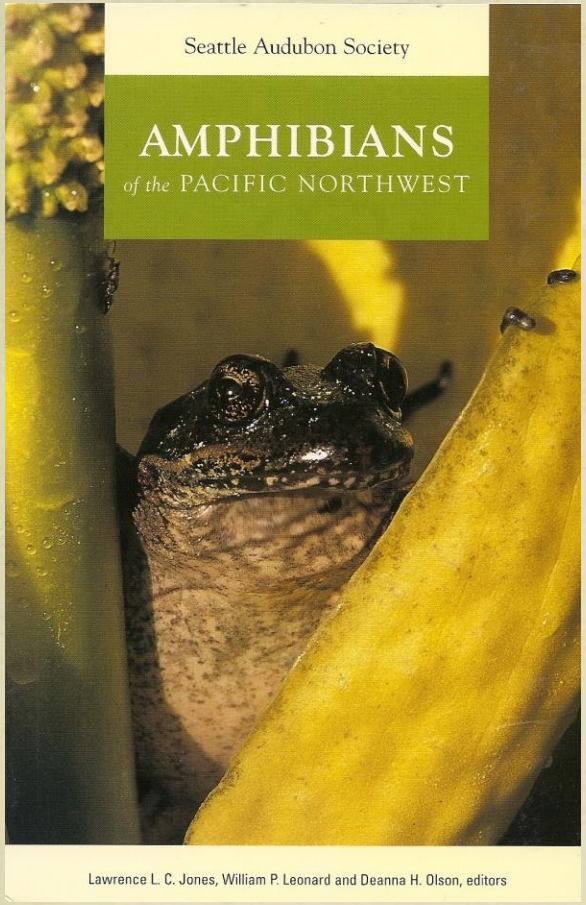
Health and Safety

- Do not handle animals unless you need to.
- Make sure your hands are free of any chemicals (insect repellent, sun screen, etc).
- Keep your hands wet when handling.
- Do not eat anything until you have washed your hands if you handle animals.
- Do not remove or detach egg masses from brace or water.
- Follow boot cleaning instructions between site visits.
- Ware a personal flotation device (PFD)

Cleaning Waders and Equipment

- It is important to thoroughly clean your footwear between sites to reduce the potential for disease or pathogen transmission.
- After using footwear, knock off as much mud / organic debris as possible. If footwear is still muddy, dunk them in your site's pond to rinse off the remaining mud (if safe to do so).
- If there is mud caked in the crevices of your footwear, at home in a sink, scrub the waders with a brush or sponge dedicated to this purpose and rinse the footwear till they're clean.
- Make a 10% bleach solution in a spray bottle (9 parts water, 1 part bleach).
- Saturate the outside of the footwear and the inside of the plastic bag by spraying on the 10% bleach solution.
- Let items sit for 10 minutes, then rinse in a sink (not outside with a hose to avoid cross contaminating your yard).
- Let items dry. Your hip waders are now clean enough to monitor at another site!

Amphibian Guide Books



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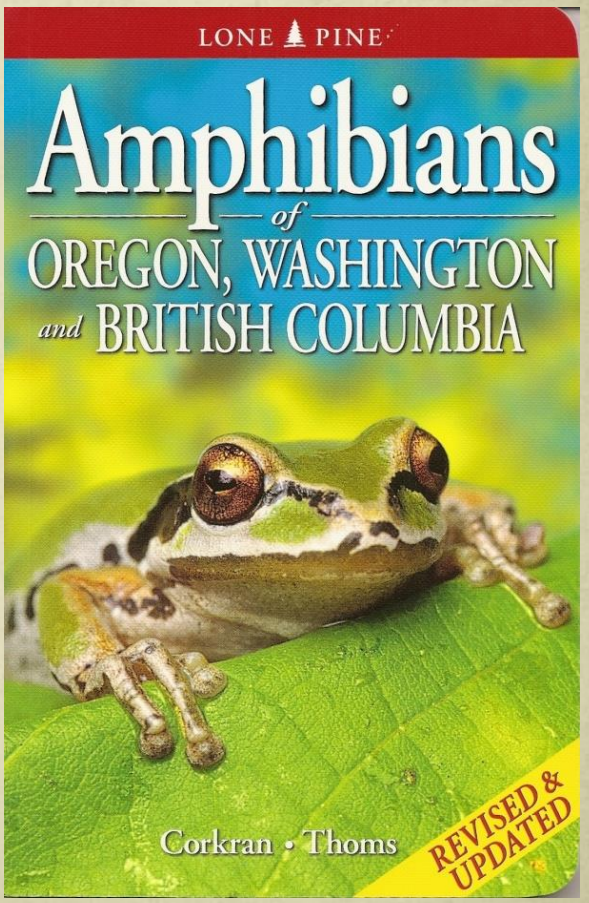

Corkran & Thoms. 2006. Amphibians of Oregon, Washington and British Columbia Lone Pine Press.

Contact Information

Skagit Land Trust

Project Managers: Lisa Miller and Regina Wandler
Address: 1020 S. 3rd St, Mount Vernon WA

Phone: 360-428-7878

Email:

- volunteer@skagitlandtrust.org
- lisam@skagitlandtrust.org
- reginaw@skagitlandtrust.org
- Skagit Land Trust's Website: www.skagitlandtrust.org

- Partner Reference Website: www.whatfrogs.org