# Species at Risk in the Classroom

*A Guidebook for Educators on the South Coast of British Columbia*

*Module 1 - Amphibians and Reptiles*

South Coast Conservation Program

South Coast Conservation Program
*Conserving and Restoring at Risk Species and Ecosystems on the BC South Coast*
www.sccp.ca



Every effort has been made to ensure content accuracy. Comments or corrections should be directed to the South Coast Conservation Program: info@sccp.ca.

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# Species at Risk in the Classroom

## *A Guidebook for Educators*

## *Module 1 - Amphibians and Reptiles*



South Coast Conservation Program

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Image: watercolour painting of Northern Red-legged Frogs by Carrielynn Victor

# Module 1 Amphibians and Reptiles

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# Introduction to Module 1

This module consists of five activities. The activities are based on the following three themes:

1. Getting to know the amphibians and reptiles at risk on the South Coast
2. Threats to amphibians and reptiles
3. Taking action to protect species at risk

# Module 1: Activity Summary

| Activity name: | Description of activity: |
|---|---|
| *Activity 1*<br>Amphibian and Reptile Who's Who | In this activity students learn about the amphibians and reptile at risk in the South Coast area. Students compare the similarities and differences between the species. |
| *Activity 2*<br>Lonely Frogs and Scared Turtles | In this activity students learn more about frogs by identifying their calls and learn how they can assist scientists in tracking frog populations. Reasons for population decline are also discussed. |
| *Activity 3*<br>Bullfrog Tag | In this activity students will learn about invasive Bullfrogs and the impact they are having on native amphibian and reptile populations. They will also learn how to limit the spread of Bullfrogs. |
| *Activity 4*<br>Home Sweet Home | In this activity students learn about the importance of habitat protection and how to create a healthy habitat. |
| *Activity 5*<br>Think Globally, Act Locally | In this activity students identify the pressures facing amphibians and reptiles, suggest possible solutions, list personal actions, and assess proposed actions on their potential effectiveness and convenience. |

# Activity 1: Amphibian and Reptile Who's Who

There are a wide variety of amphibians and reptiles (native and introduced) that call the South Coast home. There are seven frogs, six salamanders, and two turtles. That's a total of fifteen different amphibians and reptiles! Of this fifteen there are currently six species that have been identified as being at risk and requiring enhanced protection measures.

### Materials:
Species at risk factsheets (Appendix A), poster paper

### Time required:
60+ Minutes

### Audience:
Grades K - 7

Each species at risk in the South Coast is unique. They come in a variety of colours, shapes, and sizes, each with their own distinguishing features. Learning about the similarities and differences between them can help students learn basic biology, get to know species at risk, and hopefully become motivated to take action to protect them.

## Objectives:
Students will be able to:

- List the physical characteristics of amphibians and reptiles
- Compare their similarities and differences

## Procedure:
**1.** Review with students the different amphibians and one reptile at risk on the South Coast of BC. Ask students how each animal is different in their physical appearance. How are they similar? Make a chart that lists some of their similarities and differences.

**2.** For older students (grades 4 - 7): Have students choose two different amphibians and/or reptile and create a poster with information, graphics and range maps for each. They should summarize the information from the Species at Risk Fact sheets and/or do more research in the library or on the internet.

See Appendix 3 for a list of recommended websites.

**3.** Once the posters are finished, allow the students time to view the posters created by others. Have students list all the similarities and differences of the two amphibians and/or that they chose for their poster.

## Assessment:

Have students do a presentation to the class about the amphibians and/or reptiles they chose, identifying the similarities and differences.

## Extensions:

Students could present their findings to other students or other classes. Groups could combine their work to create one poster presentation or bulletin board on the amphibians and reptiles at risk on the South Coast. Other ideas could include creating three dimensional models of the different species. (Activity adapted with permission from WildBC of Habitat Conservation Trust Foundation)

Photo: Jeffrey Marsten

# Activity 2: Lonely Frogs and Scared Turtles

Scientists often refer to frogs as "bio-indicators" because they are living organisms that tell us about the health of our environment. For example, the amount of frogs present in an area can be a sign of a healthy ecosystem or a warning that something is wrong.

Amphibians make a variety of calls usually used to attract mates but their calls can also be used to startle predators or to defend their territories. One of the indicators of the amount of frogs in an area is the amount of noise they make! Students can learn more about frogs by identifying their calls and assist scientists in tracking frog populations by participating in the BC Frogwatch population monitoring program (http://www.env.gov.bc.ca/wld/frogwatch).

### Materials:
Frog Sounds (http://www.env.gov.bc.ca/wld/frogwatch/whoswho/alls/), ID cards, The Lonely Frog book (if available)

### Time required:
20-25 Minutes

### Audience:
Grades K - 7

### Objectives:
Students will be able to:

- Identify the sounds of local amphibians and reptiles
- Consider the consequences of local amphibians and reptiles going extinct

### Procedure:
**1.** Allow students to listen to frog sounds from website listed above (if possible), play them the calls for the at risk frogs from the South Coast (Oregon Spotted Frog, Northern Red-legged Frog, and Western Toad, (Pacific Tailed Frog does not call) ). If website isn't available use the sounds from the ID Cards to demonstrate (or have a student demo), have students repeat calls after you.
**2.** Ask students: what time of year, and time of day do they think that frogs look for a mate? (usually in the springtime during the evening) How do they attract a

mate? (by calling) Tell them not all amphibians and reptiles call to attract mates. Sometimes amphibians and reptiles will make a noise to scare away a predator.

**3.** Tell students that they are going to become a frog chorus and their job is to find their partner who is a the same kind of frog as they are. Hand out frog cards and then have students walk around saying their frog call until they find someone with the same call as them. When they find their partner they must sit down. Continue game until all students are sitting. Play game a few times allowing students to try different frog calls and search for different partners. Tell them that the Pacific Giant Salamander and the Western Painted Turtle both make noises to scare away predators. See if they can guess which animals they are when they play the game.

**4.** Discussion: What will happen if frogs can't find a partner in the spring? (The frogs will start to disappear or go extirpated and/or there will be no more frogs). Brainstorm reasons why frogs and reptiles are disappearing. Why does it matter if frogs disappear? What is the difference between an animal becoming extirpated or becoming extinct? Discuss importance of biodiversity.

## Assessment:

Assess oral responses during discussion time to check understanding of concepts.

## Extensions:

Read students The Lonely Frog book (if available). Discuss why the frog is lonely and why she has such a difficult time finding a mate. Discuss some of the threats to amphibians and reptiles on the South Coast.

## ID Cards

Print doubled-sided to ensure species name and call matches the corresponding image.

Western Toad
TWIT

Northern Red-legged Frog
STUT

Western Painted Turtle
HISS

Oregon Spotted Frog
KNOCK

Pacific Giant Salamander
GRRRRRRR

Pacific Tailed Frog
QUIET, DOES NOT CALL

# Activity 3: Bullfrog Tag

Humans aren't the only threat to local amphibians and reptiles. Invasive plants and animals are also having a big impact. The Bullfrog is a species that was introduced to BC, it is referred to as an invasive or introduced species.

Bullfrogs were introduced to BC in the 1930's and 40's by entrepreneurs who wanted to farm the frogs for their meat. Bullfrogs are much larger than our local amphibians and have large, meaty legs. However, the Bullfrog eating trend never became popular in this area and Bullfrogs were let out into the wild.

### Materials:
Large area (indoor or outdoor),
10 hula hoops

### Time required:
15-20 Minutes

### Audience:
Grades K - 7

The Bullfrog is having a very negative impact on local frog and reptile populations. It is a voracious, efficient predator that eats pretty much everything it can fit into its very large mouth! In this activity students have a chance to get active while learning about threats to species at risk at the same time.

## Objectives:
Students will be able to:

- Distinguish between the following terms: invasive/introduced species, and native species
- Identify how invasive/introduced species are causing a negative impact on native species
- Determine ways to stop the spread of invasive species

## Procedure:
**1.** Introduce the terms invasive species and native species. Invasive species: A plant or animal that does not occur naturally in an area that may be causing a negative impact on naturally occuring species. Native species: a plant or animal

that naturally occurs in an area.

**2.** Tell students that Bullfrogs are a type of frog that was introduced to this area about 50 years ago. Ask students if anyone can guess why they were introduced (people hoped to farm Bullfrogs for food but they weren't very popular). Tell students that Bullfrogs are much bigger than the native frogs. Bullfrogs have big appetites and eat lots of native adult frogs, tadpoles, and juvenile turtles.

**3.** Students will now get a chance to become frogs or (teenage turtles if they wish). Choose two students to be hungry Bullfrogs and tell the rest of the students that they will be native frogs. Tell them that they all live in a pond and have to try not get caught by the Bullfrogs. The safe zones are the lilypads (inside the hula hoops which should be spaced around the play area). The Bullfrogs cannot eat them when they are on lilypads (they can't be tagged). You can allow 1 or 2 people on a lilypad and it is a good idea to set a time limit for staying on the lilypads (10 seconds works well). If a student is tagged they become Bullfrogs and may tag (eat) other frogs. Continue the game until most of the players have been turned into Bullfrogs.

**4.** Play the game a few times, choosing 2 new players to be Bullfrogs at the start of each round.

**5.** Discussion: ask students why there were more Bullfrogs than native frogs at the end of each round. Tell students that they can help stop the spread of Bullfrogs in this area by making sure they never move frogs or frog eggs from the pond they are found in.

## Assessment:

Assess student's understanding during discussion time.

## Extensions:

Have students create bullfrog posters warning people about the dangers of moving frogs and frog eggs (spawn). Sing "I Had a Little Bullfrog" (Grades K-3).

# I Had a Little Bullfrog

**(sing to the tune of "I Had a Little Turtle")**
*Lyrics by: Olivia Carnrite*

**I had a little Bullfrog**
**His name was Slimy Jim**
**I moved him to a new pond to see how he fit in**
**He ate up all the tadpoles**
**He ate up all the flies**
**And when I took him out he had grown ten times in size**
**O Bullfrog, Bullfrog, Bullfrog**
**BC is not your home**
**Bullfrog, Bullfrog, Bullfrog**
**Please leave our frogs alone!**
**1, 2, 3 BWAAA**

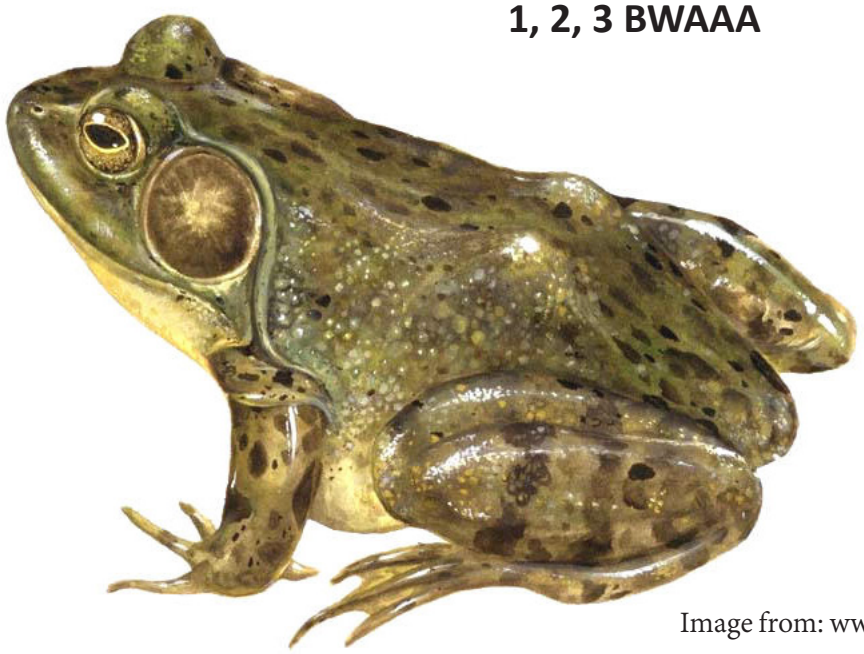


Image from: www.torontozoo.com

Photo: Pamela Zevit

# Activity 4: Home Sweet Home

Habitat loss is the biggest threat facing amphibians and reptiles. Although many species at risk are protected by provincial and federal legislation, most of this legislation stipulates that the species themselves cannot be harmed. Legislation surrounding habitat protection is not as clear.

There are many everyday actions that people of all ages can take to protect species at risk. Habitat protection is especially important. Simple activities such as eliminating pesticide and fertilizer use at home, using earth-friendly cleaners, not littering, remembering to reduce, reuse, and recycle, and conserving water can all have a big impact on the health of local amphibian and reptile populations.

### Materials:
paper, pencil crayons, markers, or crayons

### Time required:
45 Minutes

### Audience:
Grades K - 7

## Objectives:
Students will be able to identify amphibians and reptiles at risk on the South Coast of BC, their predator, and their prey.

## Procedure:
**1.** Discussion: Tell students that habitat loss is the biggest threat to amphibians and reptiles. Ask students where in their area frogs and turtles can be found? (streams by houses, next to roads, in schoolyards, wetlands, backyards). Discuss ways we can help amphibians and reptiles (protect local waterways, don't use pesticides, don't litter, don't move frogs around to different ponds, don't release turtle pets into the wild, conserve water, reduce, reuse, recycle, use rechargeable batteries). Tell students that many frogs spend a considerable amount of their time on land, hiding by day and hunting by night, often far from the water. So it is important that both amphibians and reptiles have a mix of aquatic and terrestrial (land) habitat.

**2.** Work with students to create an amphibian friendly backyard or schoolyard on a large piece of chart paper or white board. Older students may be able to skip this step and start creating their own habitats on poster board or smaller size paper. Essential ingredients include:

- moisture
- food - night light to attract insects, flowers that attract insects
- shelter - hiding places like rotting logs, large rocks, wood piles, bushes
- no pesticides - no bugs means no frogs!

**3.** Take the Frog Pledge (page 22).

## Assessment:

Check students' understanding of essential habitat components by assessing their finished habitat drawings.

## Extensions:

Have students present their habitats to the class. Students must explain why their habitat is frog-friendly. Class could vote on the most frog-friendly habitat. Turn an area of land (with permission) into a frog-friendly habitat. (Activity adapted with permission from Langley Environmental Partners Society).

# Activity 5: Think Globally, Act Locally

The challenges facing amphibians and reptiles may seem overwhelming at times but there are actions we can take as individuals that together will help relieve these pressures and educate others. There are some actions that take a big time commitment and others that take very little effort of time to accomplish. Usually we have to weigh the potential effectiveness of possible actions to determine the right steps to take. In this activity, students will consider various actions and potential outcomes to respond to many of the pressures faced by amphibians and reptiles.

### Materials:
paper, Pencil, copies of think globally, act locally chart, Frog Pledge

### Time required:
60 Minutes

### Audience:
Grades 4 - 7

## Objectives:
Students will be able to:

- Identify the pressures facing amphibians and suggest possible solutions
- List personal actions which could help alleviate some of the issues facing amphibians
- Assess proposed actions on their potential effectiveness and convenience

## Procedure:
**1.** For each pressure listed in this chart, as a class discussion or in small groups, add as many ideas as they can think of to fill in the description of the pressure and personal actions/potential solutions.
**2.** The last two columns can be filled in at the same time. Students should first evaluate the degree of personal commitment each idea would involve, rating the ideas. Easy, Medium, or Difficult.
**3.** Then students should evaluate the degree of effectiveness for each idea: Unlikely, Somewhat Likely, Very Likely.
**4.** Become a Ribbit Ranger and take the Frog Pledge (page 22)

## Assessment:

Have students compile and rank a list of environmental concerns from most to least important. Prompt students to reflect on their learning by asking questions such as:

- How did you decide the importance of the issues?
- Why might someone else rank them differently?

## Extensions:

Ask students to look at their completed charts and determine whether there are any potential "actions" that they have done in the past, are doing currently or might want to do as a result of evaluating the effectiveness of personal activities to address certain issues. Are there any actions best taken by a group of people, such as the school environmental group?

(Activity adapted with permission from WildBC of Habitat Conservation Trust Foundation)

Image: NASA/NSSDC http://www.freeimages.co.uk/galleries/space/earth/index.htm

# Think Locally, Act Globally Chart

| Pressures facing amphibians and reptiles | Description of the pressure | Personal actions/ potential solutions | Level of Commitment: Easy, Medium, Hard | Degree of Effectiveness: Unlikely, Somewhat Likely, Very Likely |
|---|---|---|---|---|
| Loss of habitat and decrease of quality of habitat | | | | |
| Introduction of invasive/exotic species | | | | |
| Pollution | | | | |
| Ultra-violet radiation | | | | |
| Disease | | | | |

(Chart adapted with permission from WildBC of Habitat Conservation Trust Foundation)

# The Frog Pledge

Frogs are awesome

Frogs are cool

Frogs are found right by our school

Frogs share the green where we like to play

Treat frogs nice it's the _____ way!
(name of school)

(Courtesy of Lori Bartley from Metro Vancouver Parks)

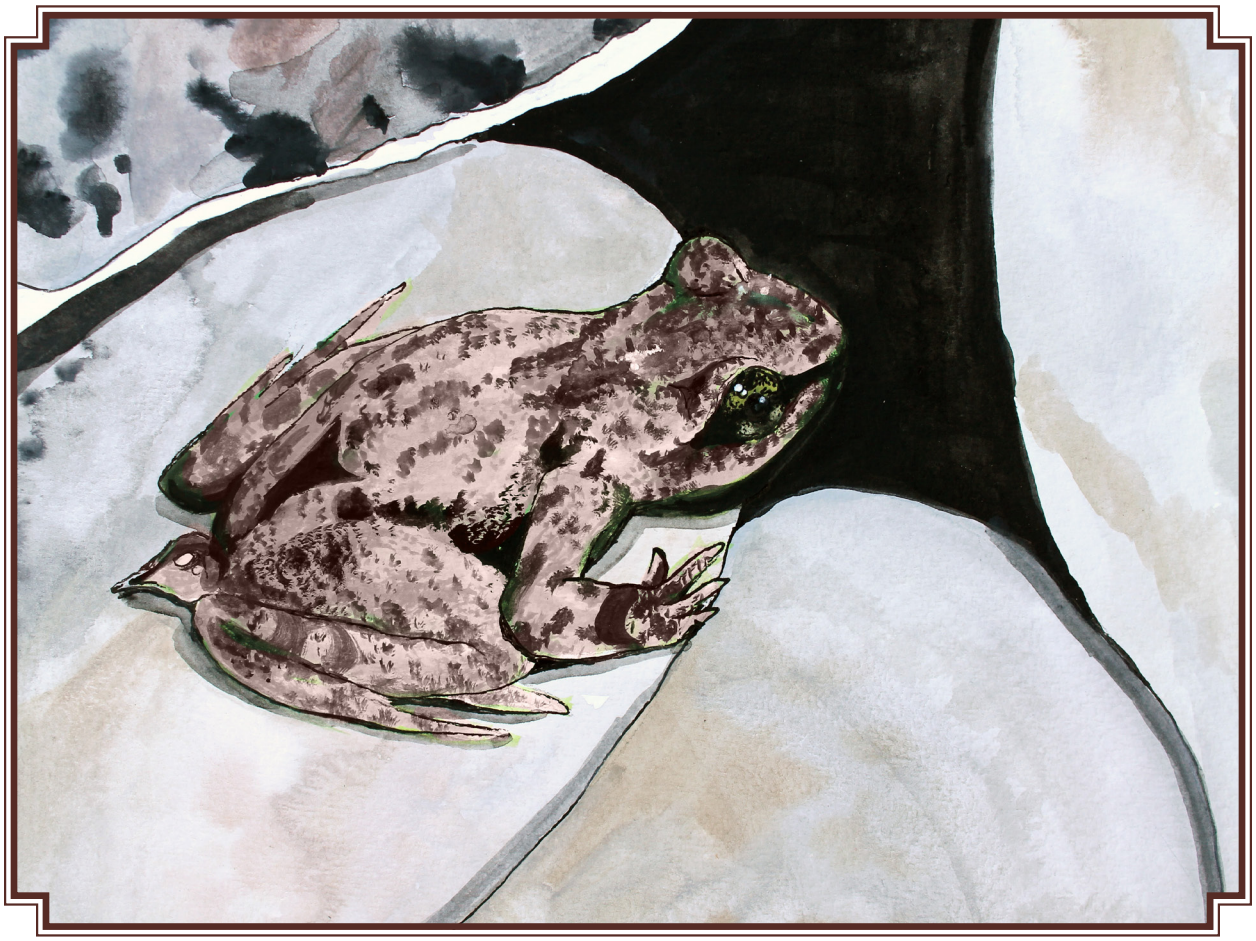


Image: watercolour painting of a Pacific Tailed Frog by Carrielynn Victor

# Appendices

1 Species at Risk Factsheets

2 Curriculum Connections

3 Resources for Species at Risk Education

Image: watercolour painting of an Oregon Spotted Frog by Carrielynn Victor

# Appendix

## 1 Species at Risk Factsheets

# Species at Risk Factsheet

## Pacific Tailed Frog

*(Ascaphus truei)*

**Appearance:** A small frog, adults are most often tan or brown coloured but some may be green, red, or even black. They have grainy looking skin, vertical pupils, and no external tympanum (the round shape that looks like an ear seen on other frogs). They have flat, wide toes on their hind feet which are distinctive from other frogs. The most interesting part of a tailed frog is its "tail" for which it is named. Only males of this species have a "tail" which is actually an appendage used for fertilizing eggs inside female tailed frogs. Tailed frog tadpoles have very big sucker- like mouths.

**Body size:** 2.2 to 5.1 cm (females larger)

**Favourite Foods:** Tadpoles eat algae, small insects and pollen grains. Adult frogs eat small insects, snails, and other invertebrates. They are unable to use their tongues to catch their meals like other frogs do because of the way their tongues are attached in their mouths.

They must sit and wait patiently for food to come to them and then use their mouths to gobble up their meal.

**Range/distribution:** Pacific Tailed Frogs are found in mountainous areas along the Coast of BC.

**Mating Call:** tailed frogs do not call, they are considered voiceless.

**COSEWIC Status:** Special Concern
**BC Status:** Blue List

**Biology:** Tailed frogs spend up to four years metamorphosing into adults, which is the main reason they need year-round access to stream habitats. These frogs do not become sexually mature for approximately three years after completing metamorphosis. Tailed frogs mate in the fall in streams, with females only mating every second year. Females then wait to lay their eggs until the summer. Eggs are attached to underwater stones in quiet areas of streams until tadpoles emerge about six weeks later.

**Habitat:** These frogs need cool, fast-flowing streams surrounded by mature forests to thrive. Adult tailed frogs have also been found in wet sites away from streams in surrounding forests.

**Threats:** Human activities, deforestation in particular, are the primary threats to tailed frogs. Deforestation close to stream habitat can cause poor water quality, stream warming from lack of tree cover, and change the flow of water in the stream.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/frogs/tailed.htm) and SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Ascaphus_truei.pdf)

**Fun Fact** - Tailed frogs are considered to be the most primitive frog in the world. They are also one of the longest lived frogs in the world - living from 15 - 20 years!

# Species at Risk Factsheet

## Pacific Giant Salamander

*(Diacamptodon tenebrosus)*

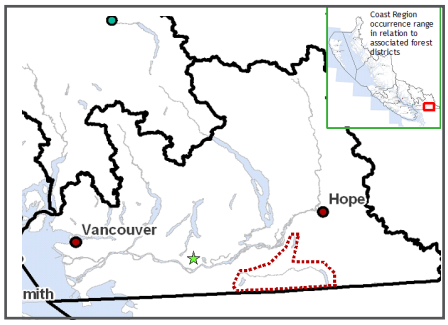
**Appearance:** When fully grown this is the largest salamander in BC. Adults have a stout body, with a large head and bulky legs. They have smooth skin that can be a dark brown to dark grey with a distinctive dark mottling (in most cases) that covers their upper body. The underside of the salamander is a pale grey or cream colour. Salamander larvae are totally aquatic and resemble tadpoles at first until they develop bushy reddish-brown gills.

**Body size:** 30 - 35 cm including the tail

**Favourite Foods:** These "giant" amphibians have big appetites! They eat insects, slugs, snails, worms, shrews, mice, and other amphibians. Larval salamanders eat anything they can catch including aquatic insects, small fish, tadpoles,and other larval salamanders.

**Range/distribution:** Pacific Giant Salamanders have a very limited range in BC. The entire Canadian

population lives within the Chilliwack River valley with some in adjacent watersheds. A small population has recently been discovered in Mission near the Stave watershed.




**Call:** Salamanders do not call to attract mates.

**COSEWIC Status:** Threatened
**BC Status:** Red List, Identified Wildlife

**Biology:** Despite their size Pacific Giant Salamanders are elusive creatures. In their terrestrial form they spend most of their time hiding under logs and rocks, only coming out at night to search for food. They are believed to breed between May and October, laying 135 - 200 eggs in underwater nests. Female salamanders are believed to tend their nests for approximately 6 months until the eggs hatch. Some Pacific Giant Salamanders stay in an aquatic form retaining many features of their larval stage (these are called neotenes) while others become terrestrial losing their gills and developing lungs.

**Habitat:** These giant amphibians need mature forests with lots of woody debris on the forest floor to hide under. Terrestrial forms also need access to cool mountain streams. The larvae and neotenes live in cool, clear, fast-flowing creeks and streams. the streams need to have pool areas and places for the salamanders to hide such as sand, boulders, logs and overhanging banks.

**Threats:** This species is very sensitive to human activities. Habitat loss particularly deforestation and alteration of steam habitat and quality pose the greatest risk.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/salamanders/giant.htm) and SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Dicamptodon_tenebrosis.pdf)

**Fun Fact** - One of the few salamander species who can vocalize - Pacific Giants may "growl" or "chirp" when threatened.

# Species at Risk Factsheet

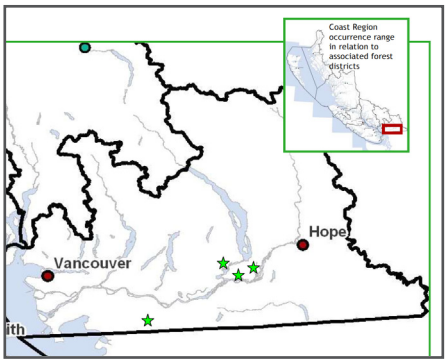
## Oregon Spotted Frog
*(Rana pretiosa)*

**Appearance:** This is a medium-sized frog. Adults can be reddish-brown to tan or olive with light centred black spots. Juveniles are usually olive green or light brown. They have a light-coloured stripe that goes from the upper lip to the shoulder. The underside of the Oregon Spotted Frog's hind legs turns a rusty-orange colour instead of the bright red of Northern Red-legged Frogs. They have eyes that appear to be turned upward and the males have a "nuptial pad" on their thumbs to assist in gripping females during breeding. Tadpoles have tails that are twice the length of their bodies.

**Body size: 6 - 9 cm**

**Favourite Foods:** Adults mostly eat beetles, flies, spiders, and other invertebrates. They sit and wait for their meal, jump towards their prey and trap it with their long, sticky tongues. Tadpoles eat algae.

**Range/distribution:** This frog is endangered in BC and was thought to be extirpated in the province until four small distinct populations were found in the Fraser Valley. The entire population in BC is believed to contain only 300 breeding adults. The Oregon Spotted Frog can also be found in the US, in Washington and Oregon, but populations are declining in these areas as well.




**Call:** Short, fast clicks that can be mimicked by clicking your tongue on the roof of your mouth.

**COSEWIC Status:** Endangered
**BC Status:** Red List

**Biology:** These frogs are mostly aquatic and will dive to the bottom of their watery homes when startled. Males assemble in breeding ponds in early spring where they call day and night to attract a mate. Female frogs lay their eggs in large communal egg masses of 700-1500 eggs. Tadpoles appear from 10 to 21 days later and take four months to metamorphose. Their eggs are very fragile and have high mortality rates. The frogs that survive the egg and juvenile stage can take up to 6 years to reach maturity. There lifespan is estimated at eight years.

**Habitat:** Oregon Spotted Frogs are mostly aquatic so they need year round access to large permanent bodies of water such as shallow lakes and warm-water marshes. The side channels of wetlands, sloughs, and other temporary pools are also significant habitats.

**Threats:** Habitat loss due to development, agricultural land conversion, and alterations to marshlands are the main reason for Oregon Spotted Frog population decline in the South Coast and the Pacific Northwest.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/frogs/oregon-spotted.htm), SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Rana_pretiosa.pdf) and Wildlife Preservation Canada (http://wildlifepreservation.ca/species-in-need/canadian-species/oregon-spotted-frog/)

**Fun Fact** - Oregon Spotted Frogs will eat baby toads ("toadlets"). Toads are usually an unappealing meal due to having glands that produce a mildly toxic substance.

# Species at Risk Factsheet

## Western Toad

*(Anaxyrus boreas)*

**Appearance:** The Western Toad has a stocky build, and short, powerful legs. Toads have dry, warty skin and a characteristic oval-shaped gland behind their eyes called a parotoid gland (this gland emits a mildly toxic substance). Adults can be brown, green, or tan and usually have a light stripe down their backs. Their hind feet have thorny projections that are used for burrowing. Adult males possess dark coloured nuptial pads on their thumbs. Adults have gold flecked eyes with horizontal, oval pupils.

**Body size:** 6 - 12.5 cm

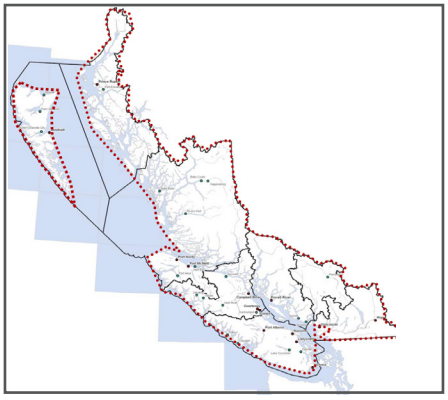
**Favourite Foods:** Western Toads eat a large variety of food including flying insects, ants, beetles, sowbugs, crayfish, spiders, centipedes, slugs, and earthworms. Tadpoles eat mostly algae .

**Range/distribution:** Western Toads have a wide range in BC.

**Call:** twittering sound usually made if grasped by another male or a predator.

**COSEWIC Status:** Special Concern
**BC Status:** Blue List, Identified Wildlife

**Biology:** Adult Western Toads gather at breeding ponds in early spring. Females lay eggs in long ribbons (vs clusters like frogs do), and tadpoles hatch quickly (3 to 12 days depending on water temperature). By summer's end tadpoles transform into toadlets that migrate by the hundreds or thousands away from the water into moist grasslands or forests. Adults also leave breeding areas after breeding has occurred, staying in warm, moist areas. Adults are mostly nocturnal and spend a large portion of the year (from November to April depending on the temperature) hibernating.



**Habitat:** Western Toads need three distinct habitats: breeding ponds, upland summer habitats and overwintering areas. They have large territories of up to 7 km wide. They prefer breeding ponds with shallow, sandy bottoms. Their summer habitats can be forests or grasslands but they prefer moist areas with lots of places to burrow. They usually overwinter in underground burrows.

**Threats:** Due to the migration patterns of adults and toadlets they are very susceptible to habitat loss. Road building on migration routes and loss of forest and wetland habitats are starting to have a negative impact on toad populations, particularly in heavily populated South Coast areas.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/frogs/western-toad.htm) and SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Anaxyrus_boreas.pdf)

**Fun Fact** - All male toads have a "Bidder's organ" that allows them to develop an ovary and in effect become female under the right conditions. Just like the male dinosaurs in the movie Jurassic Park!

# Species at Risk Factsheet

## Western Painted Turtle

*(Chrysemys picta)* Population 1

**Appearance:** The carapace (upper shell) of adults is smooth, olive-green to dark brown. The head, neck, legs, and tail, have yellow stripes "painted" on them. The plastron (bottom shell) is red or orange usually with a black and yellow branching pattern. Males have very long claws and thicker tails than females.

**Body size:** Hatchlings 2-2.5 cm, Juveniles 10 cm, Mature adults 25 cm.

**Favourite Foods:** Young turtles are voracious carnivores, eating tadpoles, frogs, a variety of insects, and snails. As turtles mature they snack on plant matter as well, including algae and aquatic plants.

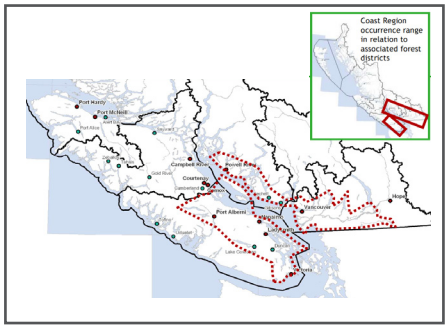
**Range/distribution:** The Western Painted Turtle is separated into 2 different populations in BC. population 1 is in the South Coast region and population 2 is located in the southern interior.

**Call:** Turtles do not call and lack vocal chords; however, they have

been known to make hissing noises when scared.

**COSEWIC Status:** Endangered
**BC Status:** Red List

**Biology:** The Western Painted Turtle is the only native freshwater turtle left in BC. Eggs and juvenile turtles face very high mortality rates due to predators seeking out the shallow, underground nests. Adults do not reach maturity until 4 -5 years for males and 7 - 9 years for females. Painted turtles begin their courtship in May. Females




can lay 6-18 oval shaped eggs. Hatchlings emerge from eggs in September but young turtles stay hidden in their nests until the following Spring.

**Habitat:** Western Painted Turtles live in and around the edges of shallow lakes, ponds, ditches, and slow-moving streams. "Painters" need areas for nesting, feeding, basking, shelter from predators, and hibernation. Nesting habitat is usually a patch of bare, dry soil that is south-facing and within 150 metres from aquatic habitats.

**Threats: Like** Western Toads, Western Painted Turtles need several different types of habitat to thrive. Draining and filling of wetlands and road building next to key habitat areas are major threats to this species. Invasive grasses are limiting the availability of nesting sites. Turtles can be accidently killed by people who are fishing.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/frogs/red-legged.htm) and SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Chrysemys_picta_pop1.pdf)

**Fun Fact** - A turtle egg develops through the summer months and warmer nests create more female turtles than cooler nests which produce more male turtles.

# Species at Risk Factsheet

## Northern Red-legged Frog

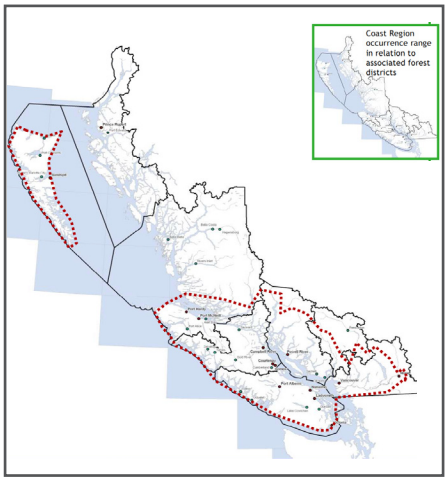
*(Rana aurora)*

**Appearance:** Northern Red-legged Frogs come in a wide range of colours and patterns depending on the time of year, age, and geographic location. Their skin can be anywhere from tan, olive and grey, to reddish-brown on the tops of their bodies with the back and sides having differing amounts of small dark flecks. They also have a dark eye mask and gold coloured eyes. As these frogs mature the reddish colour they are named for becomes more prominent along the underside of their bodies and particularly on their hind legs.

**Body size:** 4-8 cm, females up to 10 cm

**Favourite Foods:** Adult frogs eat a large variety of insects and other invertebrates. Tadpoles eat green algae found in their aquatic homes.

**Range/distribution:** These frogs are big travelers and have the widest distribution of any frog family. In BC, they are found west of the Cascades, Vancouver Island and have been introduced to Haida Gwaii. Their range extends south to California.




**COSEWIC Status:** Special Concern
**BC Status:** Blue List, Identified Wildlife

**Biology:** These frogs generally hibernate from mid October to mid February. Breeding season occurs from February to April. Eggs hatch and become tadpoles over 11-14 weeks beginning in May and finishing in September. Red-legged frogs have very tough eggs. The eggs are able to survive temperatures as low as 4°C and as high as 21°C, this is the largest temperature range for any North American frog.

**Call:** males emit a faint stuttering sound from up to 1 metre under water.

**Habitat:** They are found in and around shallow ponds, around the edges of lakes, in slow-moving streams and in wetlands. Adult red-legged frogs can travel very far into the forested areas that surround their watery breeding habitats.

**Threats:** The biggest threat to this species is the loss of wetland habitat due to urban development. Red-legged frogs are also affected by forestry activities. Bullfrogs prey on red-Legged frog adults and tadpoles. Fertilizer and pesticide runoff can cause mortality and deformities in local populations.

Information for the factsheet was compiled from: The BC Frogwatch Program (http://www.env.gov.bc.ca/wld/frogwatch/publications/factsheets/frogs/red-legged.htm) and SCCP Factsheets (http://www.geog.ubc.ca/biodiversity/factsheets/pdf/Rana_aurora.pdf)

**Fun Fact** - Northern Red-legged Frogs were once so abundant that they were harvested in the tens of thousands as a food source in the US Pacific North West until the late 1800's.

# Appendix

## 2 Curriculum Connections

The following is a list of some of the BC Prescribed Learning Outcomes that are met by the activities in this guidebook. It is expected that students will:

### Grade K.

- Use the five senses to make observations [Processes and Skills of Science
- Describe features of local plants and animals [Life Science: Characteristics of Living Things]
- Compare common animals [Life Science: Characteristics of Living Things]

### Grade 1.

- Classify objects, events, and organisms [Processes and Skills of Science
- Describe the basic needs of local plants and animals [Life Science: Needs of
- Living Things]
- Describe how the basic needs of plants and animals are met in their environment
- [Life Science: Needs of Living Things]

### Grade 2.

- Classify familiar animals according to similarities and differences in appearance, behaviour, and life cycles [Life Science: Animal Growth and Change]
- Describe ways in which animals are important to other living things and the environment [Life Science: Animal Growth and Changes]
- Explain why air, water, and soil are important for living things [Earth and Space Science: Air, Water, and Soil]

## Grade 3:

- Classify familiar animals according to their similarities and differences in appearance, behaviour and life cycles [Life Science: Animal Growth and Changes]
- Explain why air, water, and soil are important for living things [Earth and Space Science: Air, Water, and Soil]

## Grade 4:

- Ask questions that foster investigations and explorations relevant to the content [Processes and Skills of Science]
- Compare the structures and behaviours of local animals and plants in different habitats and communities [Life Science: Habitats and Communities]
- Determine how personal choices and actions have environmental consequences [Life Science: Habitats and Communities]

## Grade 5:

- Describe potential environmental impacts of using BC's living and non-living resources [Earth and Space Science: Renewable and Non-renewable Resources]

## Grade 6:

- Analyse how different organisms adapt to their environments [Life Science: Diversity of Life]

## Grade 7:

- Describe organisms in terms of their roles as part of interconnected food webs, populations, communities, and ecosystems [Life Science: Ecosystems]
- Determine the limiting factors, biotic and abiotic, for local ecosystems [Life Science: Ecosystems]
- Evaluate human impacts on local ecosystems [Life Science: Ecosystems]

# Appendix

# 3 Resources for Species at Risk Education

## Additional Resources

### Amphibian, Reptile and Wetland Activites

Brie Stewart Koval, Terra. "The Frog Files." Ecological Monitoring and Assesment Network Coordination Office.
http://www.naturewatch.ca/english/frogwatch/curriculum/junior_guide_k6.pdf
MacDonald, Neala.

"Amphibial Pursuits: Frogwatch Teachers' Guide to Frogs as Indicators of Ecosystem Health." © 2002 Nature Canada. www.naturecanada.ca

"Turtle Conservation Curriculum." © 2013 Adopt-A-Pond - The Toronto Zoo.
www.torontozoo.com/adoptapond

"Wetland Curriculum Resource." © 2013 Adopt-A-Pond - The Toronto Zoo.
www.torontozoo.com/adoptapond

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B.C. Frogwatch Program. http://www.env.gov.bc.ca/wld/frogwatch/

Oregon Spotted Frog. Wildlife Preservation Canada. http://wildlifepreservation.ca/species-in-need/canadian-species/oregon-spotted-frog/

South Coast Conservation Program. www.sccp.ca

WildBC of Habitat Conservation Trust Foundation. wildbc.org