



## British Columbia's Coast Region Species and Ecological Communities of Conservation Concern

### SOUTH COAST CONSERVATION PROGRAM

Protecting and Restoring at Risk species and Ecological Communities on BC's South Coast

#### SPECIES PROFILE: : Western Toad (*Anaxyrus boreas*), Family Bufonidae "true toads"

Status Global: G4 Provincial: S3S4 SARA: 1-Special Concern BC List: Blue

True toads are toothless, generally "warty" in appearance, and have a "parotoid" gland that excretes an alkaloid poison "bufotoxin" when the animal is stressed. Males possess a "Bidder's organ". Under the right conditions it becomes an active ovary and the toad, in effect, becomes female. In North America There are seven species of toads, with *A. boreas* and its subspecies *A. b. boreas* being the main form in the Pacific Northwest. The BCCDC only recognizes the species form in BC. Western Toad is also referred to as "Boreal Toad".



#### Characteristics (things to look for)

Length (snout to vent): Males 6-11 cm, Females 12.5 cm. Toads have soft, somewhat dry, bumpy skin. Adult Western Toads tend to be stout with thick forelimbs. Colour ranges from tan to light brown, grey, or greenish on top. Markings are a few dark spots

to extensive mottling, warts may be reddish. A thin, cream coloured dorsal stripe runs down the centre of the back (most prominent in mature females; may be absent or inconspicuous in juveniles), which may have reddish warts. The oval-shaped parotoid glands behind the eyes are discernable, even in recently metamorphosed toads ("toadlets"). The glands excrete a mildly toxic substance used to ward off would-be-predators. The hind feet have horny tubercles used for burrowing and are yellowish or orange in juveniles. Males are smaller with narrower head, longer forearms and dark nuptial pads on thumbs. The nuptial pads are used while grasping females during breeding in a position known as "amplexus". Males lack vocal sacs but may produce repeated chirping sounds if grasped by hand (females usually are silent or emit few chirps). Tadpoles are black or dark brown and relatively small (1.2-3 cm, 2.5-3 cm total length prior to metamorphosis). The snout is square and the eyes are set about midway between the dorsal midline and edge of the head. The tailfin is narrow compared to tadpoles of species like Northern Red-legged Frog and may be heavily speckled with gray or black.



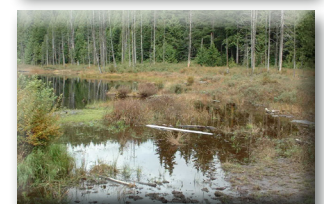
#### Looks like (Similar)

Juvenile toads ("toadlets") could be confused with the juvenile Northern Red-legged Frog or Coastal Tailed Frog, especially where distribution of these species overlaps. Western Toad tadpoles have been found associated with fast flowing streams similar to those utilized by Coastal Tailed Frog tadpoles, which can also be black and similar in size in early stages of growth. Rearing in flowing water habitats, while unusual, may reflect localized adaptations by some Western Toad populations.



#### Habitat

This species is often found in and around shallow ponds, lake margins, slow-flowing streams, marshes, bogs or fens, with adequate riparian communities. Adults utilize a wide variety of habitats, including wet and dry forest types, fields and meadows, clearcuts and aquatic sites. Roads, dikes and ditches are utilized as movement corridors, and they tend to avoid open water outside of the breeding season. This species is capable of significant overland movement between breeding ponds, upland summer ranges, and overwintering areas. Adults have been found 1 to 2 km away from breeding sites during the spring and summer. Distances of 5 km between breeding sites have been identified in some populations, with toads moving as much as 7.2 km. Open water, often vernal pools are used for breeding. All members of a local population tend to lay their eggs in the same location, which is used repeatedly from year to year. Toadlets disperse to terrestrial habitat en mass, forming large, post-metamorphic aggregations. Hibernacula can be communal, but are often individual dens dug in streambanks, under downed wood, or using burrows of other animals (e.g. rodents and moles).

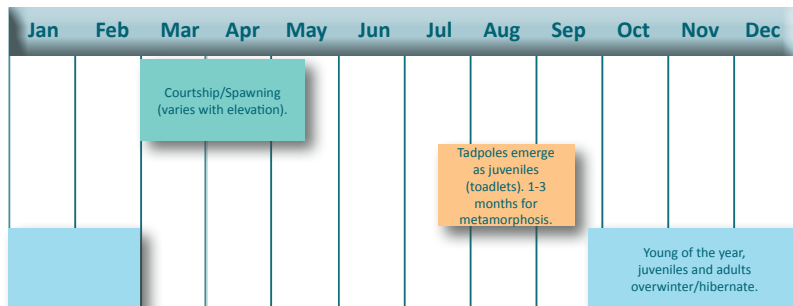


## Diet

Western Toad juveniles and adults are opportunistic predators exploiting a range of invertebrates including annelids (worms), terrestrial and aquatic insects and spiders. Small crayfish and mollusks may also be consumed. Tadpoles are herbivores, feeding on aquatic plants, detritus and algae.

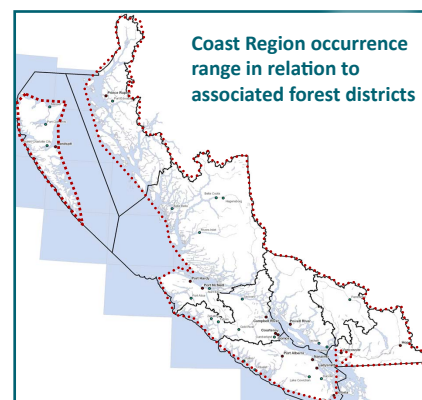
## Life Cycle

Sexually mature between 2-6 years; females may reproduce only every 1-3 years, possibly only once in their lifetime, males may breed more than once per year. Females lay up to 12,000 eggs, usually in shallow water typically 15 cm deep, usually no deeper than 30 cm. The warmth of shallow water increases the rate at which eggs develop. Spawning in shallow water with vegetative matter may also reduce potential predation on eggs by fish. Eggs are black, about 1.5 to 1.8 mm diameter, and are laid in long strings of “jelly” in rows of two (sometimes three). Adult Western Toads can live 9 to 11 years (up to 35 years recorded in captivity).



## Range

Elevation: Sea level up to 3660 m. Western Toad is found from the east slope of the Rocky Mountains to the Pacific Ocean and from northern Baja California to Alaska and the Yukon. This species is widely distributed throughout the Coast Region including coastal islands. While many frog species are confined to lower elevations, Western Toad can be found at elevations above the snow line. Several major toad migration events (usually juveniles in conjunction with road conflicts), have been documented in the Fraser Lowlands of the South Coast (Ryder Lake area in Chilliwack, Stokkes Pitt in Surrey/Langley) as well as on Vancouver Island (Pup Creek north of Courtenay on the Island Highway). Historically this species was much more common throughout the Lower Mainland's Metro Vancouver Region as well as the Capital Regional District on Southeast Vancouver Island. Recent declines may also be occurring on Haida Gwaii.



## Threats

- Habitat loss and alteration due to urbanization and forest activities. Distribution coincides with areas undergoing rapid development. Breeding, egg-laying, tadpole development, and toadlet metamorphosis and dispersal can all be highly communal compared to other native amphibian species. Subsequently any impacts can effect an entire breeding cohort.
- Extirpation of local populations due to fragmentation or alteration of habitat connectivity between breeding areas and upland seasonal nonbreeding habitat.
- Alteration of microclimate regimes and hydrological regimes in riparian and upland forest areas used for dispersal, foraging and overwintering due to forestry and other resource extractive activities.
- Vehicle mortality and population fragmentation due to roadways that cut through core habitat areas, or migration corridors that lack appropriately sighted exclusion fencing and amphibian or wildlife passage structures. Road surveys for live and dead amphibians indicated average mortality rate of Western Toad to 54% in Chilliwack area.
- Increased predation and competition through augmentation or stocking of sport fish (e.g. trout), and introduction of non-native fish species, especially into non-fish bearing amphibian breeding sites.
- Cumulative impacts from disease. In particular Chytridiomycosis caused by the chytrid fungus *Batrachochytrium dendrobatidis* and linked to dramatic population declines of amphibian species in western North America. It has been found to occur widely in Coast Region populations of Western Toad.
- Direct mortality or sub-lethal impacts from fertilizer and pesticide applications in urban and agricultural areas as well as for silviculture management.
- Alteration of wetland habitat from vegetation and hydrology shifts from climate change.

## Conservation/ Management

Apply conservation and management objectives as set-out in the “Best management practices for amphibians and reptiles in urban and rural environments in British Columbia”. Integrate complementary objectives, recommendations and assessment methods found in “COSEWIC assessment and status report on the western toad *Bufo boreas* in Canada” and “Research priorities for the management of the Western Toad, *Bufo boreas* in British Columbia.” Inventory and monitoring resources include standardized methods (Resource Information Standards Committee) # 37 Inventory methods for pondbreeding amphibians and Painted Turtle (Version 2.0), “Measuring and monitoring biological diversity - Standard methods for amphibians”, “Suitability of amphibians and reptiles for translocation”. For further details on conservation and management objectives for this species, please consult the above noted resources, references provided or contact provincial and federal agencies.

*This species is listed under the Federal Species At Risk Act (SARA) and is subject to protections and prohibitions under the BC Wildlife Act. Habitat for this species may also be governed under provincial and federal regulations including the Fish Protection Act and Federal Fisheries Act as well as Regional and local municipal bylaws.*

## Sources

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Every effort has been made to ensure content accuracy. Comments or corrections should be directed to the South Coast Conservation Program: [info@sccp.ca](mailto:info@sccp.ca). Content updated November 2015.

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