

COASTAL TAILED FROG (American Bell Toad, American Discoglossoid Toad, American Ribbed Toad, Bell's Toad, Pacific Tailed Frog, Tailed Frog)

ASCAPHUS TRUEI (STEJNEGER, 1899)

NATURAL HISTORY SUMMARY BY JAX ROBINSON

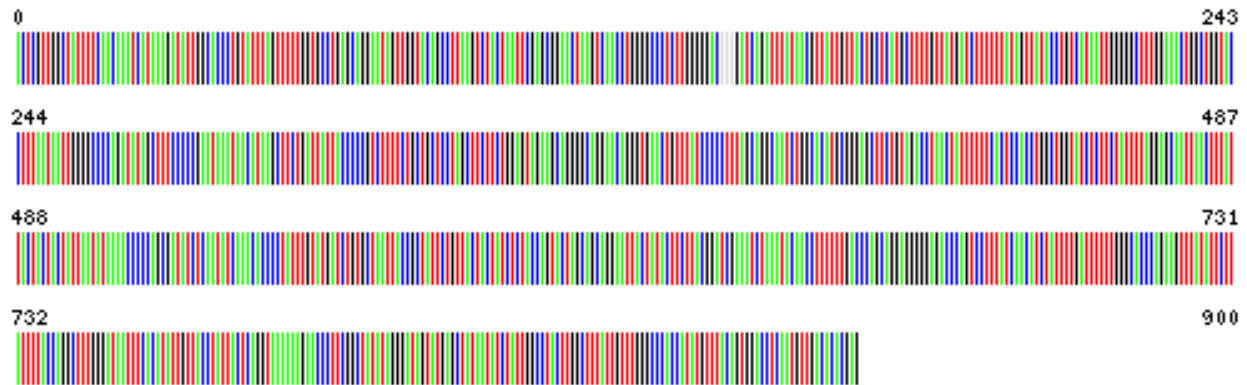


Figure 1. [Ascaphus truei DNA Barcode](#) - Barcode of Life Database - BOLD Systems (Ratnasingham and Hebert 2007)

Classification

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Ascaphidae

Genus: *Ascaphus*

Species: *A. truei*

Description

Ascaphus truei, the Coastal Tailed Frog, gets its general name from its extension of the male cloaca, resembling a tail (Neilson et al. 2001). The tail is found specifically in males as its function is to deposit the sperm directly into the female during breeding, thus increasing reproductive success (Frost et al. 2008). Since the sperm is deposited directly on the eggs, it does not get lost within their fast-flowing water habitats. This form of internal fertilization is found strictly within Coastal Tailed Frogs. These frogs favor fast moving streams and have adapted to their harsh environmental conditions. By reducing the size of their lungs, they can control their buoyancy and the keratinization on the undersides of their toes helps to provide a better grip in the fast waters (Neilson et al.

2001). They are also known to have many more vertebrae and freely moveable ribs. Even though they differ from the frog family in some aspects, they do share the same coloration as most, being a darker brown to an olive green, and in having rough skin (Neilson et al. 2001). They also commonly have an obvious stripe running along their axis from head to tail and a distinct triangular shape to their head (Frost et al. 2008).

Distribution

Coastal Tailed Frogs are found primarily within the Cascade Mountains and Pacific coastal areas of North America, from British Columbia, Canada, to northwestern California (Neilson et al. 2001). There has been an unusual recent decline in their population and fluctuations in their habitat conditions (Neilson et al. 2001; IUCN SSC Amphibian Specialist Group 2015). *Ascaphus truei*'s [range map](#) is available at IUCN SSC Amphibian Specialist Group 2015.

Diet

The adult and juvenile forms of the Coastal Tailed Frog are foragers that usually search for food during the later hours of the day (Neilson et al. 2001). As tadpoles, they usually base forage when predators are least likely to be present. Adults are primarily generalist carnivores, specifically insectivores that feed on terrestrial non-insect arthropods, mollusks, conifer pollen, and zooplankton (Frost et al. 2008). Their predators include: garter snakes (*Thamnophis*), Cope's Giant Salamander (*Dicamptodon copei*), sculpins (Cottidae), and dippers (Cinclidae).

Habitat and Ecology

The preferred habitat for the Coastal Tailed Frog includes freshwater fast moving streams enclosed by terrestrial land, usually humid forests with open habitat (Neilson et al. 2001). The water from the streams usually comes from the mountains, filled with many substrates and has a rather cool temperature. These frogs require a specific forest habitat with canopy cover, high in humidity and of an older age (Frost et al. 2008). Coastal Tailed Frogs are mostly aquatic animals laying their eggs under stones within streams. They are commonly found in sympatry with Cope's Giant Salamander (*Dicamptodon copei*) and torrent salamanders (Rhyacotritonidae) (Neilson et al. 2001).

Reproduction and Lifecycle

The Coastal Tailed Frog differs in its reproduction method from other frogs. It is the only frog species known to reproduce by internal fertilization and has strong sexual dimorphism between sexes (Frost et al. 2008). Males have black sharp patches on the medial surfaces of their thighs to latch onto the females during copulation, making it possible for them to stay together in their fast-moving environment (Neilson et al. 2001). Their eggs are deposited with strings onto large rocks (to help them stay attached into one area instead of getting lost or damaged when floating down the stream). The typical Coastal Tailed Frog clutch size is 28 to 96 eggs (low relative to many other frogs) and takes three to six weeks to hatch (Neilson et al. 2001). The larval stage of metamorphosis hatch around September and spend at least one winter in the stream. (Frost et al., 2008). Depending on the habitat, it can take one to three years for the Coastal Tailed Frog to reach metamorphosis, taking longer within the mountain inland regions as compared to the coastal regions (Neilson et al. 2001).

Conservation Status

In 2015, the International Union for Conservation of Nature (IUCN) Red List of Threatened Species listed the Coastal Tailed Frog as a species of “Least concern” (IUCN SSC Amphibian Specialist Group 2015). In California, it is a protected species, of “Special concern” (Frost et al. 2008). The Coastal Tailed Frog is commonly distributed within national parks and wilderness areas. A major threat is their sensitivity to habitat fluctuation, especially when construction, logging or road building distorts its ecosystems (Neilson et al. 2001). Construction creates water pollution and sedimentation build up, making it harder for the Coastal Tailed Frog to access resources and increasing its susceptibility to disease (Frost et al. 2008). The water temperatures within this area also increase with siltation and can cause pH level fluctuations that threaten the resources they need to live (Neilson et al. 2001).

Cultural Significance

Coastal Tailed Frogs are good ecological indicators of habitat change or global warming. They are very sensitive to environmental fluctuations, so any alteration within their habitat is a good assessment for humans to see what is going on in that particular area (Neilson

et al. 2001). As dominant herbivores within stream habitats, both juvenile and adult forms serve important roles alongside other aquatic and terrestrial predators and prey which, if lost, would disrupt habitat life cycles and food chains (Neilson et al. 2001).

Specimen Specific Detail

The Coastal Tailed Frog (*A. truei*) specimen from the [Burton Ostenson Museum of Natural History](#) at Pacific Lutheran University was collected on the north side of Lake Cushman, Washington, in Mason County, specifically 12.8 miles from highway 101, on March 12, 1959. There was no collector listed on the bottle, but it might have been donated by an outside professor who helped with research. The time period during which this specimen was collected included that when Alaska was accepted into the United States as the 50th state.

Literature Cited

- Frost, D. R., R. W. McDiarmid, and J. R. Mendelson, III. 2008. Anura: Frogs. Crother, B. I. ed., Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence in Our Understanding. Herpetological Circular No. 37: 2–12.
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- Neilson, M. K. Lohman, J. Sullivan. 2001. Phylogeography of the tailed frog (*Ascaphus truei*): Implications for the biogeography of the Pacific Northwest. *Evolution* 55 (1): 147-160.
- Ratnasingham S. and P. D. N. Hebert. 2007. bold: The Barcode of Life Data System (<http://www.barcodinglife.org>). *Molecular Ecology Notes*. 2007;7(3):355-364. doi:10.1111/j.1471-8286.2007.01678.x.

