Pacific Treefrog (*Pseudacris regilla*)

Description

The scientific name for the Pacific Treefrog is *Pseudacris regilla*. The Greek genus name components include pseudes, which means *false,* and akris, which means *locust.* This genus name refers to the repeated trill of Pacific Treefrogs, which is like the call of a locust. *Regilla* is the Latin species name and means *regal* or *splendid*, in reference to the frog's distinct eye stripes (Figure 1). It is also known as the Pacific Chorus Frog because of its vocal repertoire, including its distinct mating choruses.

Figure 1: Pacific Treefrog
Dan Dzurisin*, "Pacific Tree Frog (Pseudacris regilla)," January 21, 2007 via Flickr, CC BY-NC-ND 4.0*

The Pacific Treefrog is an amphibian and a member of the Hylidae family, a wide-ranging family of frogs commonly referred to as "tree frogs and their allies". Amphibians are cold-blooded vertebrates, with an aquatic gill-breathing larval stage (Figure 2) typically followed by a terrestrial lung-breathing adult stage (Figure 1). The treefrog has internal gills as a tadpole and also breathes through its skin. When they turn into adult frogs they lose their gills and grow lungs, but also breathe through their skin both on land and in water. On the refuge, bullfrogs, toads, salamanders and rough-skinned newts are the treefrog's closest relatives.

Pacific Treefrogs grow to about 2 inches long. Females are slightly larger than males, a feature common to many frogs. The Pacific Treefrog has a dark "mask" (Figure 1) or eye stripe extending from the nostrils through the eye as far as the shoulder. Another distinguishing feature is the rounded toepad at the end of each toe. These sticky pads allow these frogs to climb on plants with great agility. Although Pacific Treefrogs are good climbers, they usually stay close to the ground. The Pacific Treefrog is the only frog within its geographic range with both the mask and toepads.

Figure 2: Pacific Treefrog Tadpole
TJ Gehling, "Showing a little leg," April 30, 2016 via Flickr, CC BY 4.0

Coloration on their backs includes shades of green, tan, red, grey, brown or black. One of its most fascinating characteristics is its ability to change color. The Pacific Treefrog changes color based, in part, on air temperature and humidity (green at low temperatures to brown at higher temperatures) and, in part, on background. The color change serves as camouflage, reducing the likelihood that the treefrog will become a meal for a predator. Scientists continue to investigate possible other color change benefits, including temperature regulation.

Diet and Feeding Behavior

Adult Pacific Treefrogs are carnivores and usually feed at night on a wide variety of spiders, snails, isopods such as roly-polies, and insects. Adults capture their prey by extending their tongues. The tongue is coated by a sticky secretion that traps the prey, along with nearby debris or dirt. Adults typically swallow prey whole.

Predation and Defense

Predators of adult Pacific Treefrogs include garter snakes, other frog species such as the American Bullfrog, salamanders and newts, birds such as egrets and herons, fish, and mammals such as raccoons and skunks. Tadpoles are eaten by dragonfly larvae, diving beetles, fish, salamander larvae, bullfrogs, garter snakes and birds.

The adult's primary defense against predators is to jump into water or remain motionless, which is most effective if the frog blends in with its environment. To blend in, the color of the Pacific Treefrog's upper surface seasonally varies from shades of brown to shades of green. They tend to stay in habitats that have coloring similar to their bodies. During spring and summer, when green foliage is abundant, they tend to be greenish in color; in fall and winter, they tend to be shades of brown.

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Reproduction

Figure 3: Male Pacific Treefrog Vocal Sac *Greg Schechter, "Pacific Treefrog," July 8, 2013 via Flickr, CC BY 4.0*

In the Northwest, the Pacific Treefrogs typically breeds from January to April in slow-moving or still water. Breeding times depend largely on local conditions, with some populations breeding as early as November and as late as June. During the breeding season, the male frogs call in large numbers. They call by forcing air over their vocal chords and into their vocal pouches on their lower jaw (Figure 3). Generally, a single male starts to call, which is followed by other males, thus creating a "chorus". Females are attracted to males based on their calls and their throat color.

During the breeding season, males are territorial. The territory size is about 30 square inches. When a rival male frog enters a male's established territory, fights of butting and wrestling often take place. Fights typically end with one frog forcing the other's front legs over its vocal sacs, causing them to deflate.

Females lay their eggs in small ponds or puddles, often near twigs or leaves for protection. One female will lay between 450 to 800 eggs in clutches of 5 to 70 eggs. Eggs hatch in three to four weeks and the jelly-like substance surrounding each egg sustains the larvae for the first two to three days. Tadpoles then swim to shallow waters and eat nearly any food item to include algae, bacteria, and floating vegetative debris. When tadpoles reach three months of age, they metamorphose into froglets (Figure 4) and then frogs. Pacific Treefrogs reach sexual maturity in 1 to 2 years and live about 5 years.

Figure 4: Treefrog Froglet Dawn Ellner*, "Frogpole," April 18, 2008 via Flickr, CC BY 4.0*

Distribution and Habitat

The Pacific Treefrog is the most common frog in the Pacific Northwest and is found throughout Oregon. They occur in a variety of habitats to include forests, mountains, and dessert steppe. They live in cool, moist retreats such as piles of debris, dense vegetation, rock or log crevices, mammal burrows, artificial drains, building basements, and other protected places.

Pacific Treefrogs extend across a broad elevation range, from sea level to over 11,000 feet. They are tolerant of rapid changes in weather and varying climatic conditions and remain active down to about 40˚ F. During the cold season, they hibernate in burrows of small animals or in dense vegetation.

Conservation

Over the last two decades, scientists became alarmed by the rapid pace of amphibian declines and extinctions. While the Pacific Treefrog has remained abundant over most of its range, there are population declines in some areas. These localized declines are due to the introduction of new species, such as fish and bullfrogs, as well as habitat destruction.

Humans also take their toll on treefrogs in the form of cats, children, lawn mowers and vehicles. The loss of wetlands, the clearing of upland areas, and pesticides negatively affect treefrogs.

Fun Facts

- A group of frogs is called an army.
- The distinctive call of this frog is known around the world – the "ribbit" that Hollywood uses in all of its films as the "standard" frog call is actually the call of the Pacific Treefrog!
- Pacific Treefrogs were one of the few vertebrates (animals with backbones) to survive in the 150,000-acre blast zone during the 1980 eruption of Mount St. Helens. Individuals that were underground were spared.
- What tadpole is that? Pacific Treefrog and bullfrog tadpoles have internal gills while newts and salamanders have external gills visible to the pond study visitors at the refuge.

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Resources

Pseudacris regilla Northern Pacific Treefrog: http://animaldiversity.org/accounts/Pseudacris_regilla/

Amphibiaweb – Hyliola regilla: http://amphibiaweb.org/cgi/amphib_query?where-genus=Hyliola&where-species=regilla&rel-genus=equals&rel-species=equals

Oregon Department of Fish and Wildlife:
http://www.dfw.state.or.us/wildlife/living_with/docs/LWW_Pacific_Treefrog_final.pdf and
http://www.dfw.state.or.us/conservationstrategy/frogs.asp

Scientific and Common Names of the Reptiles and Amphibians of North America: http://ebeltz.net/herps/etymain.html

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

Wikipedia – Pacific tree frog: https://en.wikipedia.org/wiki/Pacific_tree_frog

Washington Nature Mapping Animal Facts: http://naturemappingfoundation.org/natmap/facts/pacific_treefrog_712.html

Mister-toad.com – Natural History of the Pacific Chorus Frog Pseudacris regilla: http://www.mister-toad.com/PacificTreeFrog.html

Animal Spot – Pacific Tree Frog: http://www.animalspot.net/pacific-tree-frog.html

Instructions for referencing Creative Commons work: http://www.learnerstogether.net/home/2009/3/11/how-to-use-and-cite-creative-commons-resources.html

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Greg Schechter, "Pacific Treefrog", July 8, 2013 via Flickr, CC BY 4.0