

Welcome To Santa Barbara Zoo FrogWatch USA “All About Amphibians”



Review - FrogWatch Protocol

- Register a site of your choice
- Check the weather
- Grab your gear
- Visit your site at least 30 minutes after sunset
- Following the protocol, record your data for 3 minutes
- Submit your data
- Repeat!



All About Amphibians

COMING UP:

- *About frogs and toads*
- *Why amphibians are important*
- *Amphibian decline*
- *Where amphibians live*

About Amphibians

- Have gills during at least one stage of their life cycle
- Live part of their lives in the water, part on land
- Appeared on Earth ~350 million years ago and are one of the oldest vertebrate classes alive
- Three Orders:



Frogs & Toads



Newts & Salamanders



Caecilians

Anurans (a.k.a. frogs and toads)

Frogs

Smooth or slimy skin

Lay eggs in clusters

Usually live in or near water

Skinny bodies with long legs

Move in leaps and jumps



© Jason Butler

Toads

Warty, dry skin

Lay eggs in long strands

Usually live on dry land

Fat bodies with short legs

Move in short hops



R. Campbell

Anuran Calls

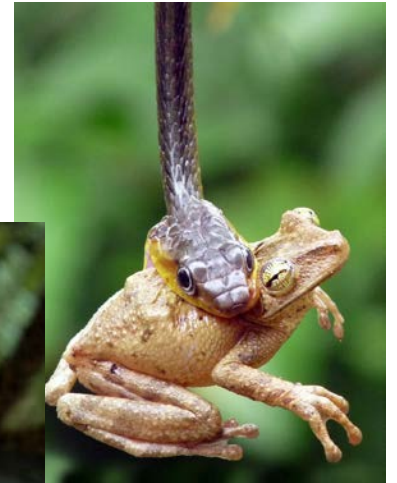
- Male anurans call to attract females
- Every species has its own call
- Calls are given for various reasons
 - Breeding
 - Territorial
 - “Let go of me”
 - Startled



© Cascade Creative Services

Frogs and Toads are Important

- Predators/prey in the ecosystem
- Pest control
- Food
- Medicine
- Education and research



EDWARD R. ELKAN : THE XENOPUS PREGNANCY TEST

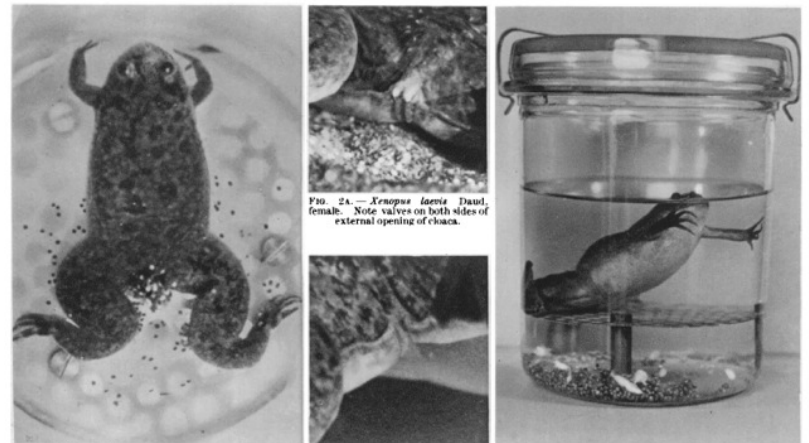


FIG. 24. — *Xenopus laevis* Daud., female. Note valves on both sides of external opening of cloaca.

Sensitive to the Environment

Anurans serve as indicators of wetland health

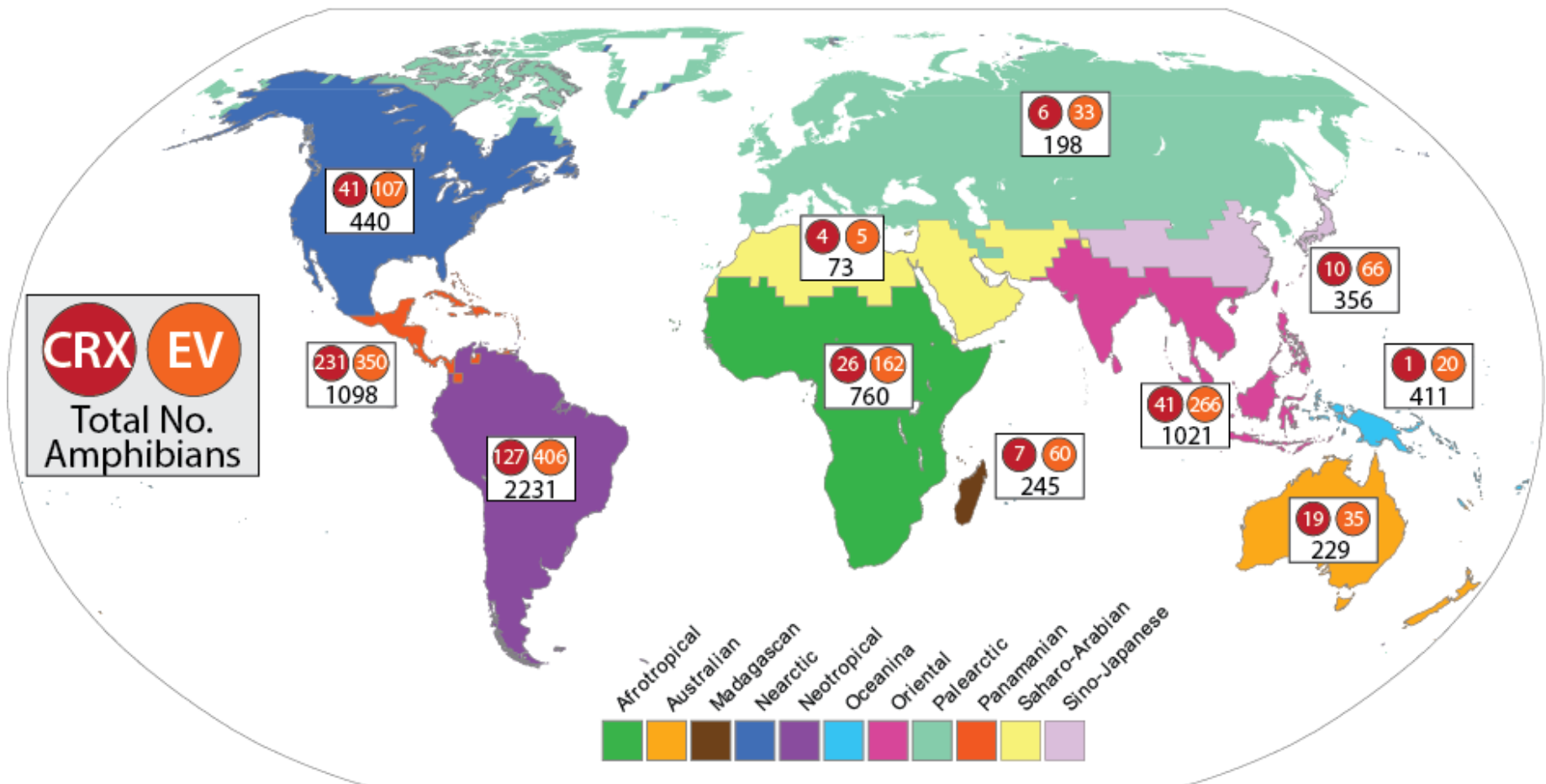
- Permeable skin transfers oxygen and moisture, but also allows chemicals to enter their bodies
- Life cycle includes time both in the water and on land, increasing exposure to all types of pollutants



“Canary in the Coal Mine”



Amphibian Decline

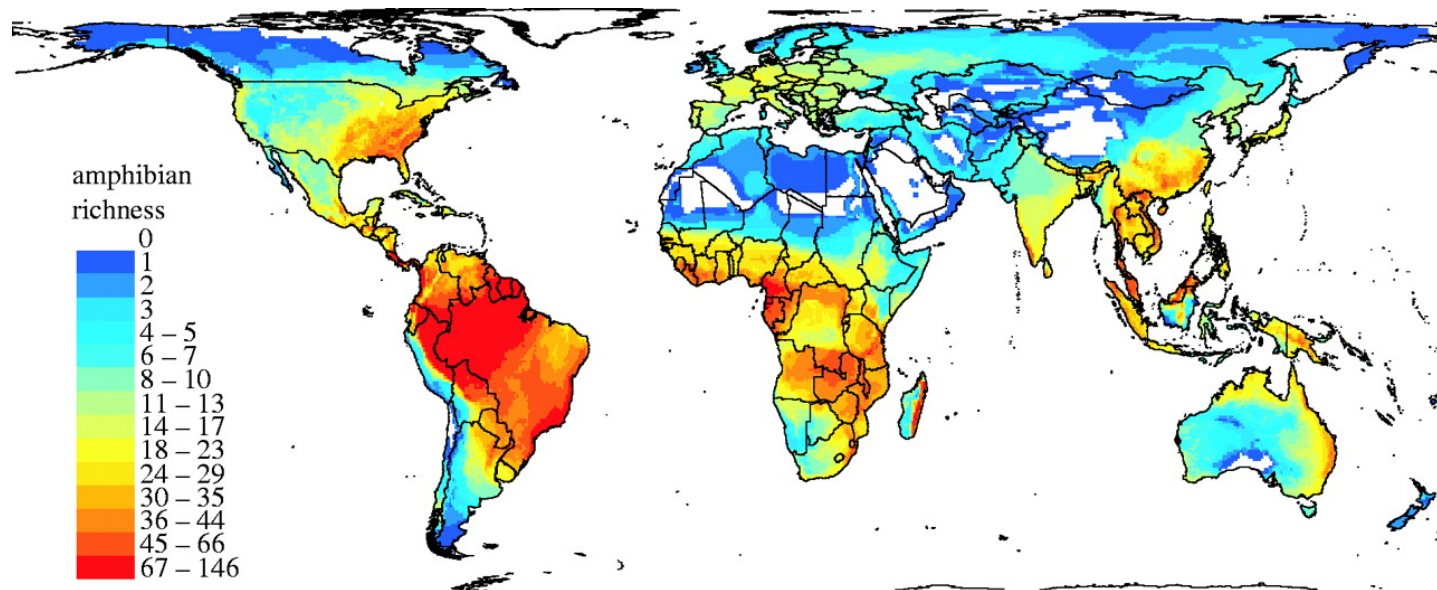


Amphibian Decline

32% amphibians are threatened worldwide and 43% have populations that are declining...

...compared to 13% of birds, 21% of fish and reptiles, 23% of mammals, and 30% of invertebrates

But amphibians might be more endangered than we thought!



Primary Causes of Amphibian Decline

- Habitat loss and fragmentation
- Pollutants
- Introduction of non-native, invasive species
- Climate disruption
- Disease



Where Amphibians Live: Wetlands

- Wetlands are defined by three characteristics:
 - ☐ The presence of plants that are known to grow in saturated conditions
 - ☐ Soils that lack oxygen
 - ☐ Water at or near the ground's surface during some part of the growing season
- Wetlands support more species of plants and animals than any other type of habitat in California.
- Wetlands are critical habitat and breeding grounds for many species of amphibians.



Your Local Frogs and Toads

COMING UP:

- *9 toad-ally cool species found in Santa Barbara County*
- *Natural history information and calls for each species*

African Clawed Frog (*Xenopus laevis*)



African Clawed Frog
© John H. Tashjian

African Clawed Frog (*Xenopus laevis*)

- **Size:** 2-3 3/4"
- **Nocturnal**, and mainly aquatic.
- **Carnivorous** creatures, they eat anything they are able to catch or that lands in front of them.
- **Habitat:** Warm, stagnant grassland ponds & slow-moving permanent streams, ponds and marshes. Ponds are usually devoid of higher plant vegetation and are covered by algae.



African Clawed Frog (*Xenopus laevis*)

- **Range:** Introduced from Africa into California - Orange and San Diego counties.



African Clawed Frog (*Xenopus laevis*)

- **Voice:** Despite absence of vocal sacs, males give a loud, rattling croak while swimming.



Bullfrog

(*Lithobates catesbeianus*)



Bullfrog

(Lithobates catesbeianus)



© Paul Crump, Houston Zoo



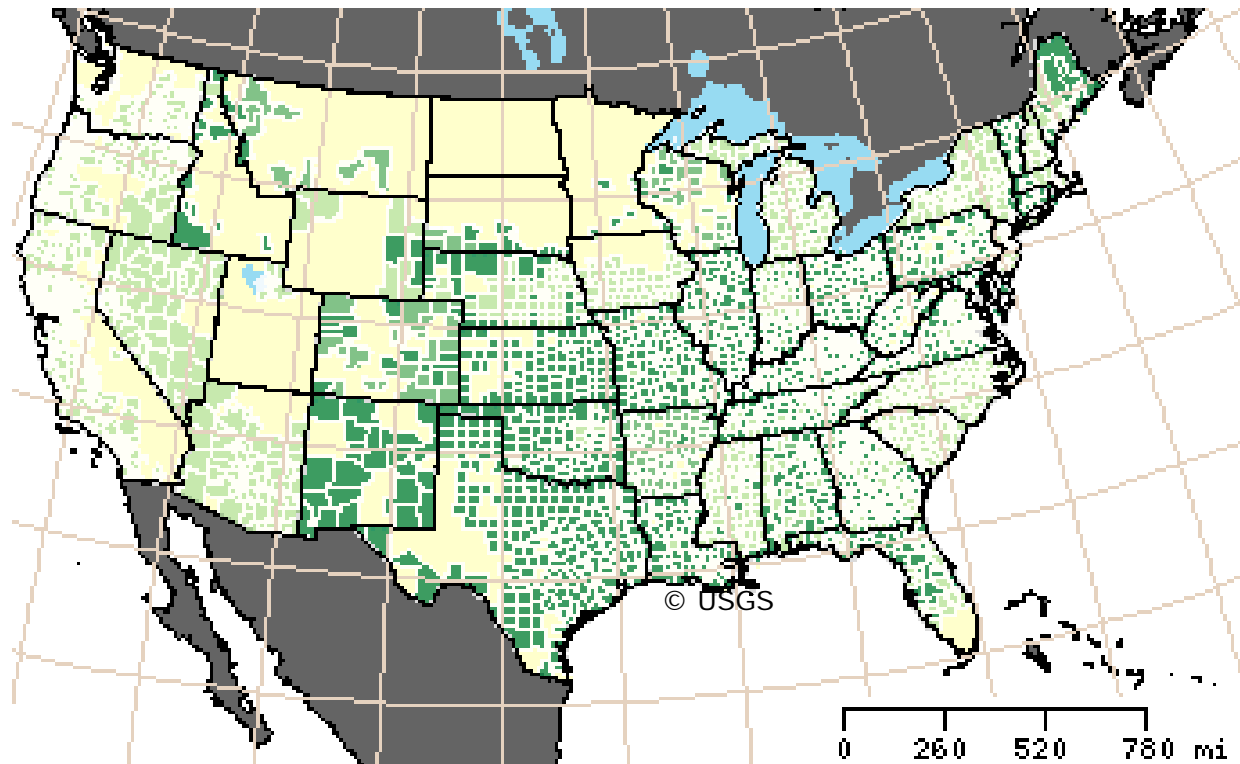
© Jim Harding, MSU

- **Size:** 3 – 8 inches.
- **The largest frog in North America.**
- **Diet:** Large specimens have been known to catch and swallow small birds and young snakes
- **Habitat:** Ponds, lakes, slow-moving streams with vegetation. (Must be large enough to avoid crowding). Usually found on the bank at water's edge. When frightened, the bullfrog is likely to flee into nearby vegetation.

Bullfrog

(*Lithobates catesbeianus*)

**Range: East, Extensively
introduced in the West.**



Bullfrog

(Lithobates catesbeianus)

**Voice: Deep-pitched
“jug o’rum” call can be
heard for more than a
quarter mile on quiet
mornings.**



Arroyo Toad (*Anaxyrus californicus*)



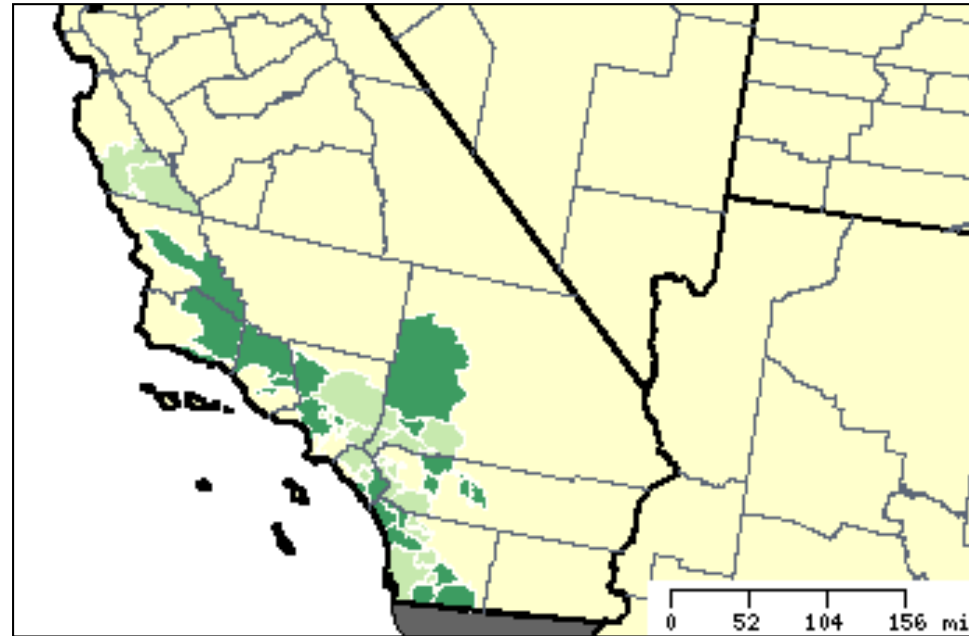
Arroyo Toad (*Anaxyrus californicus*)

- **Size: $1 \frac{4}{5}$ - $3 \frac{2}{5}$ " (4.6 - 8.6 cm).**
- **Federally Endangered**
- **Habitat: Fragile sandy stream sides and streams that have not been heavily silted**



Arroyo Toad (*Anaxyrus californicus*)

- **Range: Endemic to California and northern Baja California. Ranges west of the desert in coastal areas from the upper Salinas River system in San Luis Obispo County to northwestern Baja California.**



Arroyo Toad

(Anaxyrus californicus)

- **Voice:** Fast musical trill, about 10 seconds, rising in pitch, and ending abruptly.



California Chorus Frog or California Tree Frog (*Pseudacris cadaverina*)



© USGS – Chris Brown

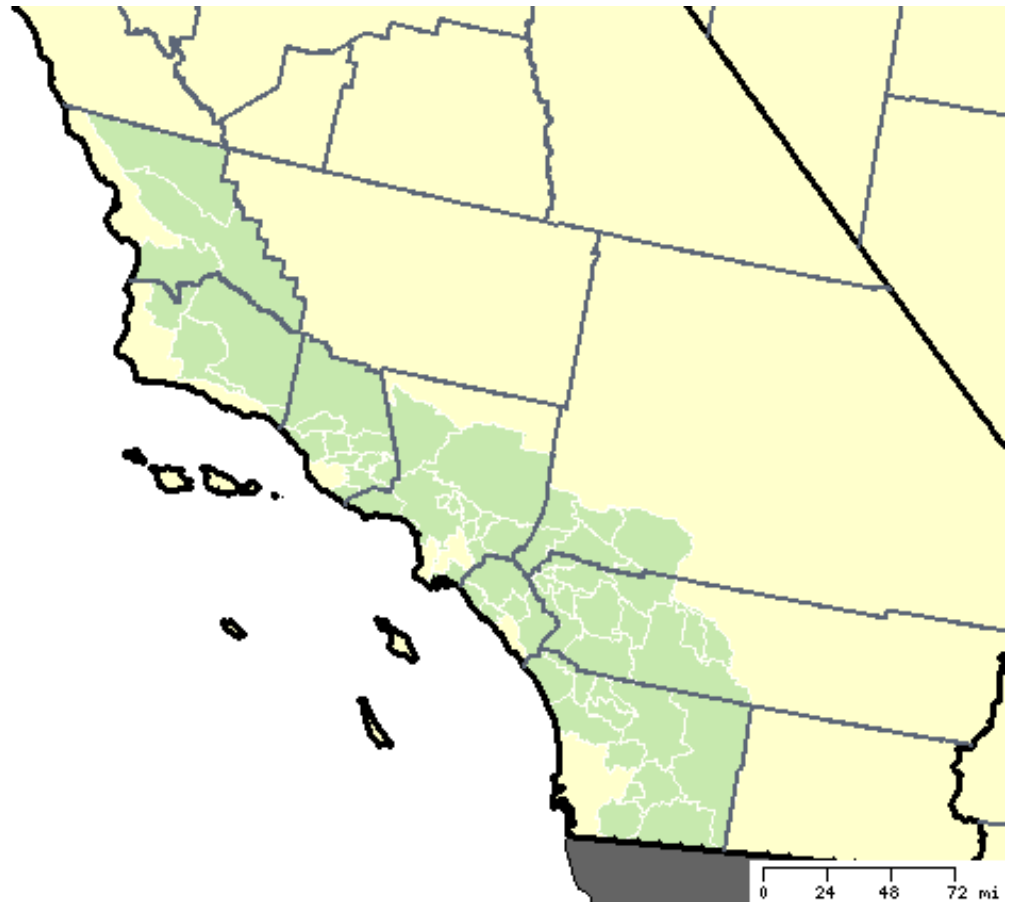
California Chorus Frog (*Pseudacris cadaverina*)

- Size: 1 - 2 inches
- Primarily nocturnal
- Dark spots on skin
- Habitat: Near slow moving streams; prefer rocky habitats and shallows



California Chorus Frog (*Pseudacris cadaverina*)

- **Range:
Southwestern
California**



California Chorus Frog (*Pseudacris cadaverina*)

- **Voice:** An abrupt low-pitched quack.
- **Males usually call while sitting in the water, often at the base of a rock.**



California Red-legged Frog (*Rana draytonii*)



California Red-legged Frog

(Rana draytonii)

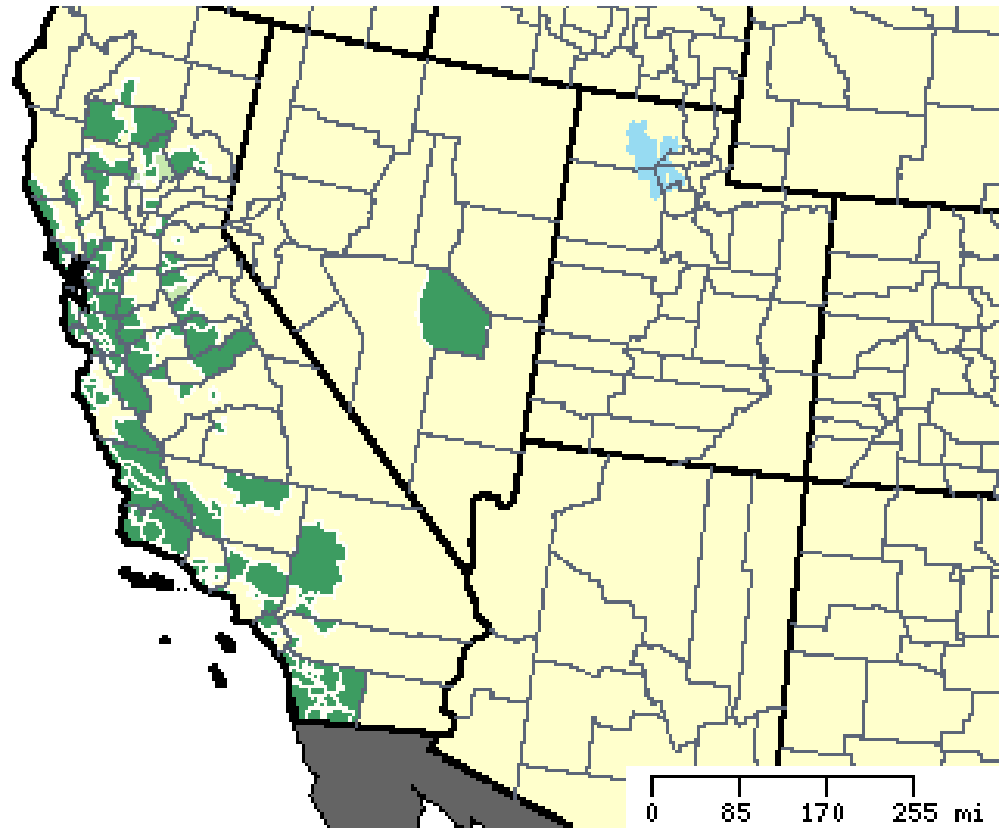


- **Size: 1 ½ - 5 inches**
- **The largest native frog in the western United States**
- **Habitat: Adults need dense vegetation alongside slow moving or still water.**
- **Federally Threatened**



California Red-legged Frog (*Rana draytonii*)

Range: Historically throughout Central Valley and Sierra Nevada foothills; south to Baja California.



© USGS

California Red-legged Frog

(Rana draytonii)

Voice: Series of weak throaty notes, rather harsh, lasting 2-3 seconds.



Foothill Yellow-legged Frog (*Rana boylii*)



Foothill Yellow-legged Frog (*Rana boylii*)

- Size: 2-3 1/4" (5.1-8 cm)
- They have a pungent, musky odor.
- Primarily diurnal.
- This is the only frog in the high Sierra, from 6,000-12,000' (1,800-3,600 m). In the south it occurs from 1,200-7,500' (365-2,300 m)



Foothill Yellow-legged Frog

(Rana boylei)

- **Range:** The Sierra Nevada Mountains of California and extreme W Nevada. Separate population in the San Gabriel, San Bernardino, San Jacinto and Palomar mountains of S California.



Foothill Yellow-legged Frog

(Rana boylii)

- **Voice:** A faint one-note low-pitched, raspy series of 4 - 6 notes per second, with grunts, oinks and rattling.



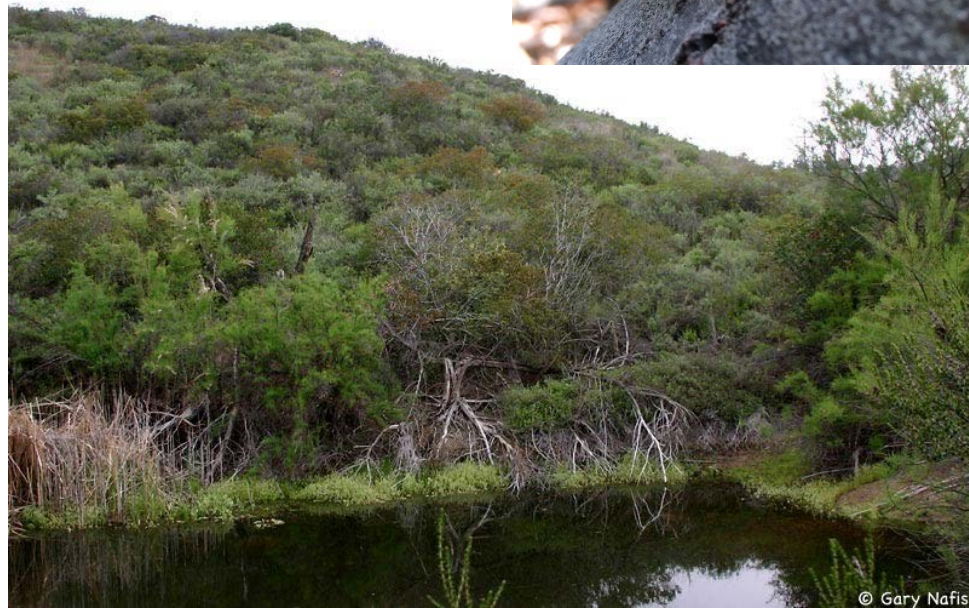
Baja California Chorus Frog (*Pseudacris hypochondriaca*)



Baja California Chorus Frog (*Pseudacris hypochondriaca*)



- **Size:** $\frac{3}{4}$ -2 inches
- **Black stripe through eye and usually a dark triangle between the eyes.**
- **Habitat:** On the ground, among shrubs and grass, close to water



Baja California Chorus Frog (*Pseudacris hypochondriaca*)

Range: From British Columbia to Baja California; east to Montana, Idaho, and Nevada



Baja California Chorus Frog (*Pseudacris hypochondriaca*)

Voice: A high-pitched, 2-part musical note.



Western Spadefoot (*Spea hammondi*)



Photo by Stephanie Herrera at Bitter Creek NWR

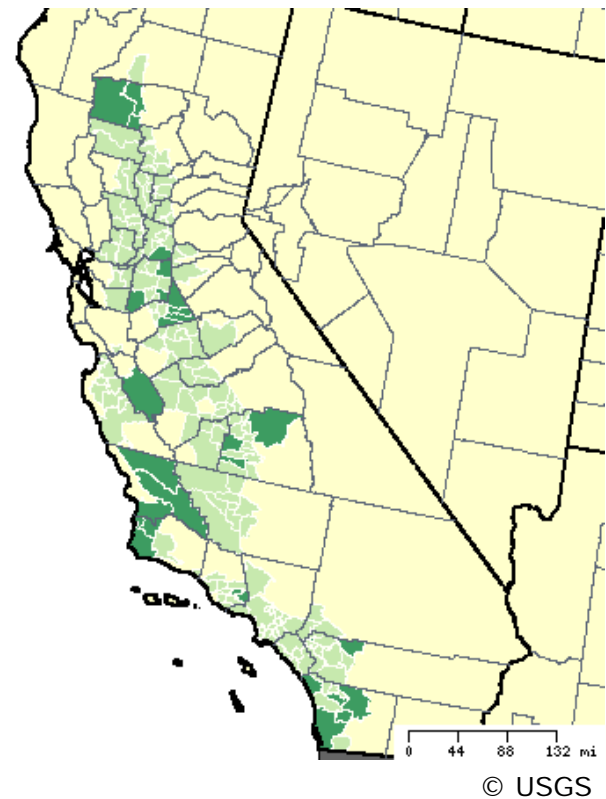
Western Spadefoot (*Spea hammondi*)

- **Size: 1.5 – 3 inches**
- **Known for gold colored cat's eye.**
- **Secretions smell like peanut butter and can cause sneezing and/or itching.**
- **Habitat: Can be found in a range of habitats from open areas to floodplains and grasslands. Needs vernal pools for breeding.**



Western Spadefoot (*Spea hammondi*)

- Range:
Sporadic populations
throughout California



Western Spadefoot (*Spea hammondi*)

- **Voice:** A very quick snore. Males call in groups while sitting on the surface of the water.



Western Toad (*Anaxyrus boreas*)



Walter Siegmund

Western Toad

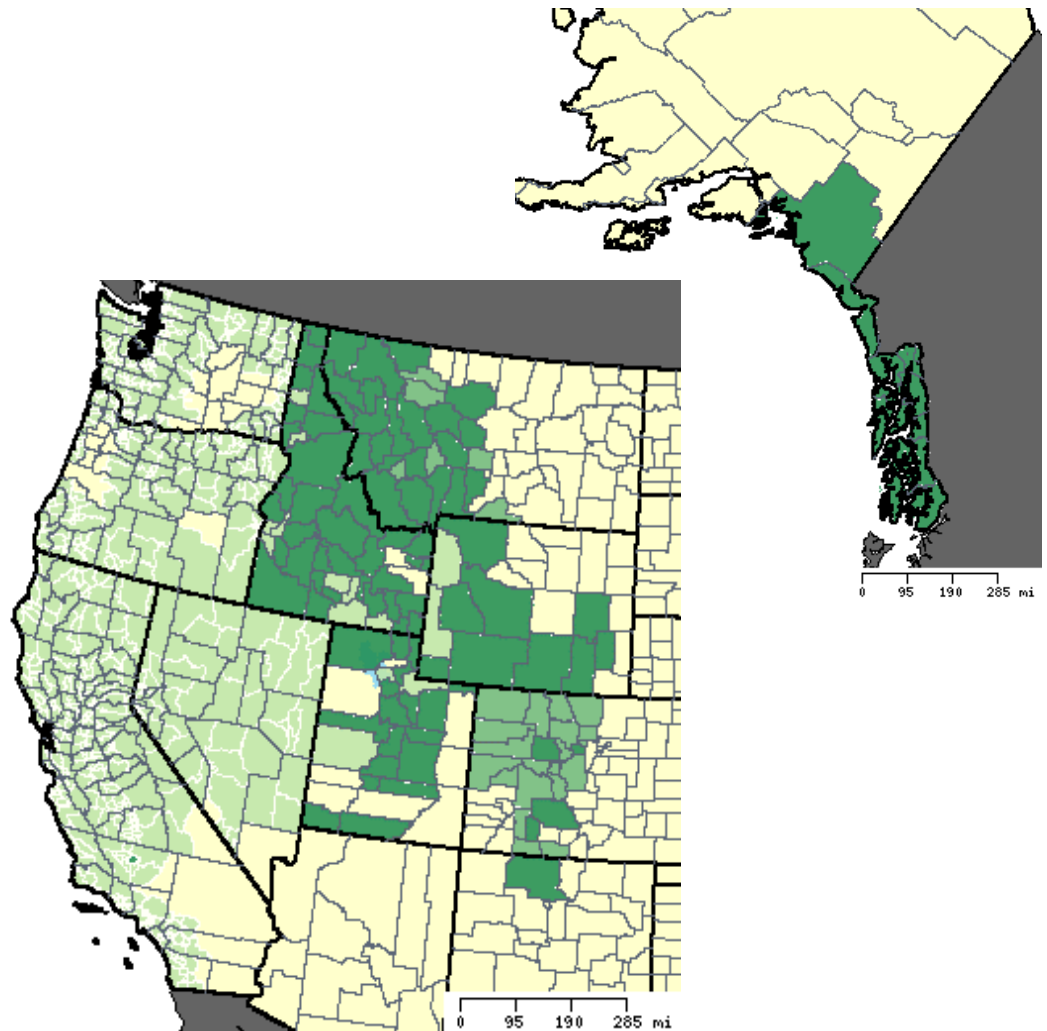
(Anaxyrus boreas)

- **Size: 2 – 6 inches**
- **Habitat: Varies throughout life cycle. However, prefers damp places and spends much time underground in holes or abandoned burrows**
- **When handled, adults often vocalize, making a sound like a peeping chick while struggling.**



Western Toad (*Anaxyrus boreas*)

- **Range:** Southern Alaska and West Coast; through Colorado and Wyoming
- **Fairly common**



Western Toad

(Anaxyrus boreas)

- **Voice: Light peep or chirp sound.
Missing a vocal sac**



Resources

- Santa Barbara Zoo Frog Watch chapter page
 - <https://www.sbzoo.org/frogwatch-usa/>
 - Questions? Email frogwatch@sbzoo.org
- AZA Frog Watch USA
 - <https://www.aza.org/frogwatch>
- iNaturalist App – various projects
 - Thomas Fire Plant and Wildlife Recovery Observations
 - RASCals
 - Wildlife of Santa Barbara County, CA
 - Ventura County Biodiversity Watch



Questions???

