

Herpetology

Olivia Miseroy
Regional Park Superintendent I
Wildlife and Wildflower Sanctuaries



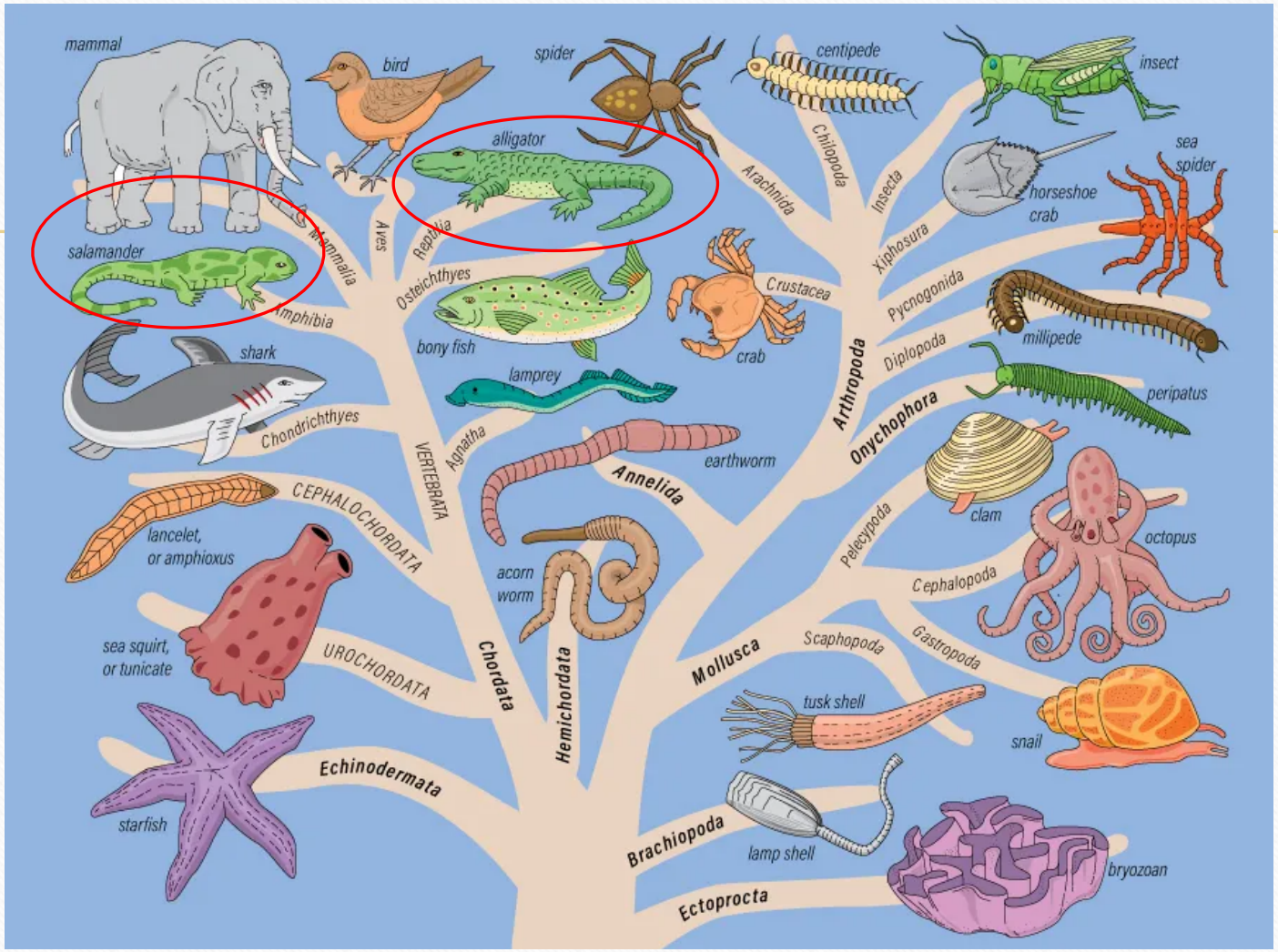

Herpetology

From Greek ἑρπετόν *herpetón*, meaning "creeping animal"

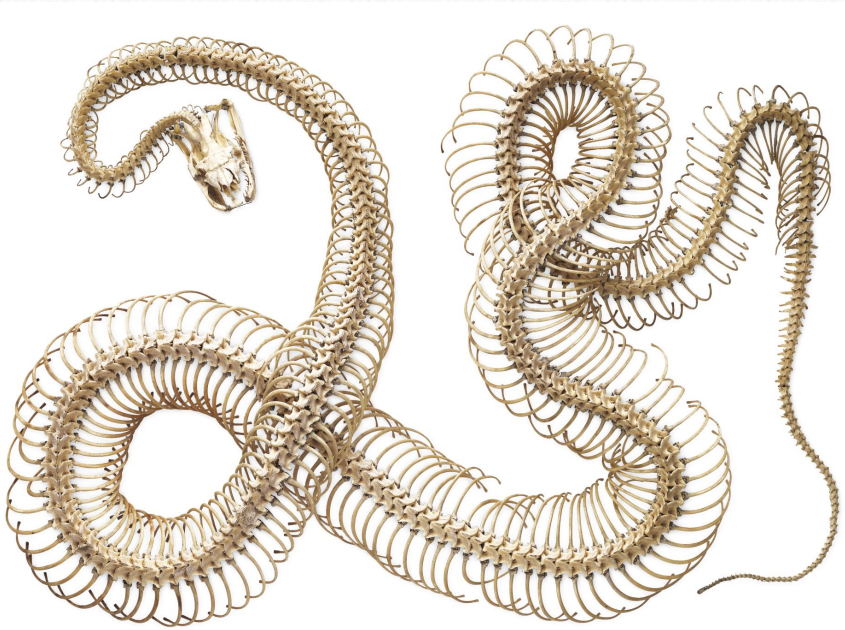
The study of

The branch of zoology concerned with the study of amphibians (including frogs, toads, salamanders, newts)) and reptiles (including snakes, lizards, turtles, terrapins, tortoises, crocodilians, and the tuataras).

Phylogeny Tree



Vertebrates



Ectothermic (Cold Blooded)

- Ectotherms can't regulate their own body temperature and rely on their surroundings to raise or lower their body temperature.
- They require less food than endotherms that need to constantly burn energy to keep their body temperature.
- This is why lizards often are seen basking on rocks in the mornings, or snakes are drawn to warm highways in the evening.

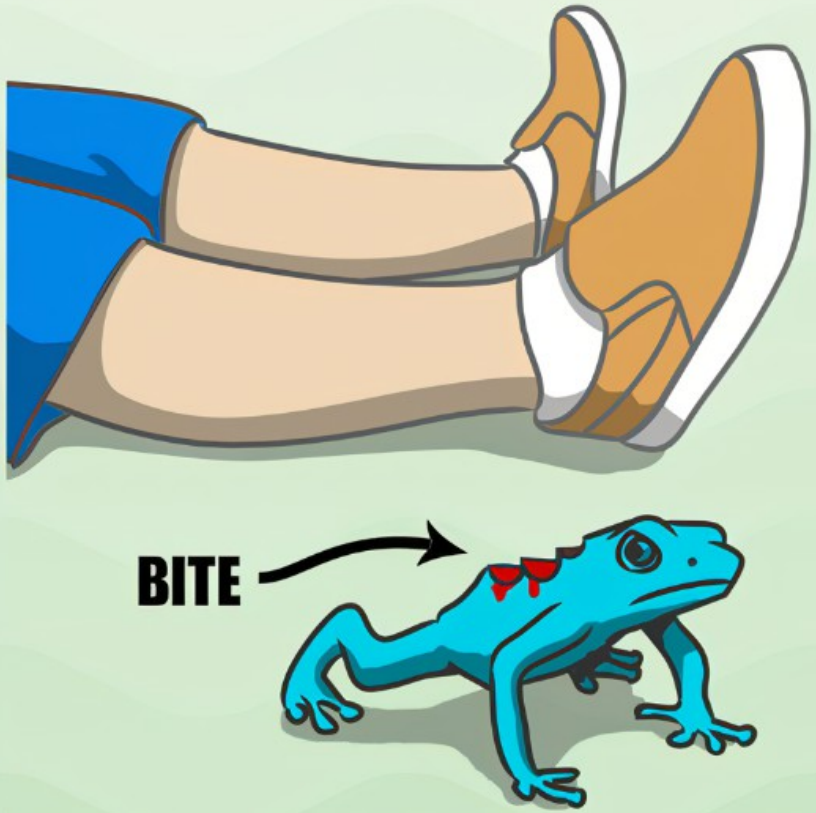
Brumation

- Brumation is to reptiles as what hibernation is to mammals.
- Colder temperatures slow down reptile's metabolism causing them to become lethargic.
- They will take shelter underground, in crock crevices, in leaf litter and sometimes other animal's burrows.
- It is not a true deep sleep, they will still eat and drink on warmer days during dormancy.
- If the temperature is too hot, they can go into a period of estivation.

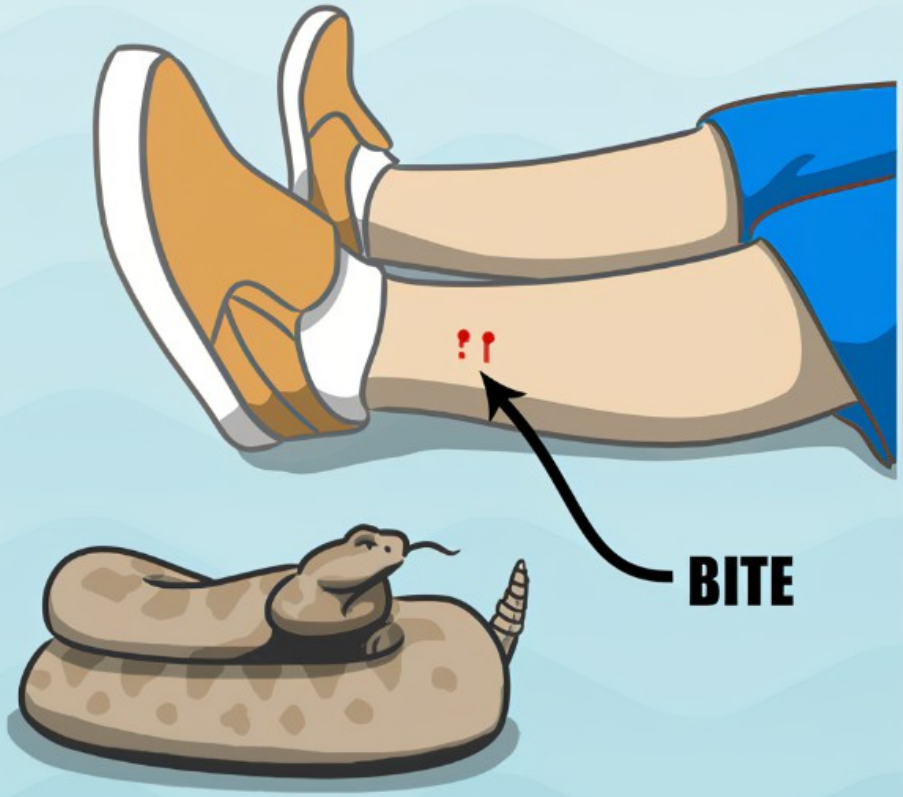
Shedding

- As reptiles and amphibians grow they shed their skin, this is part of the growing process when their old skin becomes too tight.
- Snakes usually shed their skin in one piece, like crawling out of a sock. Shedding in pieces usually only happens if there's a problem with their environment.
- Lizards usually shed in pieces, usually over the course of a few days to a week.
- Amphibians also shed but immediately eat their skin to get the nutrients and moisture from it.

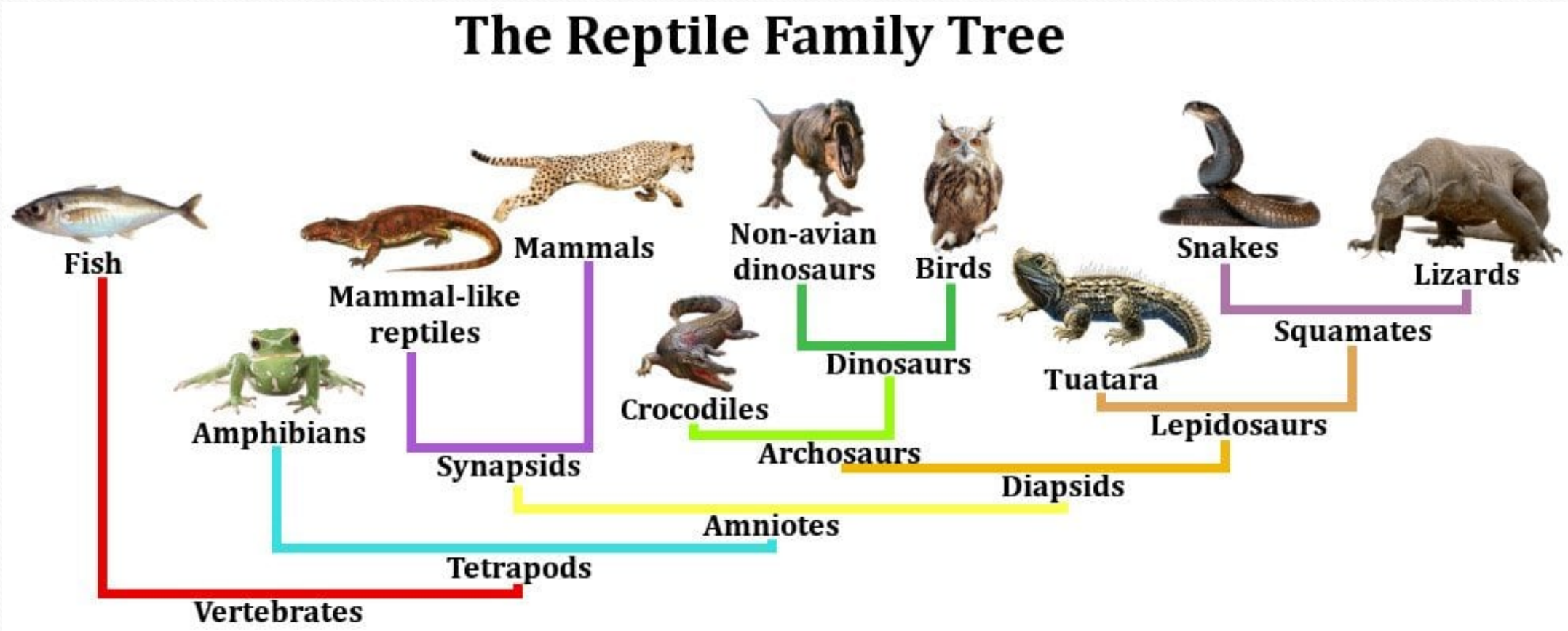
POISONOUS



VENOMOUS



The Reptile Family Tree



Taxonomy

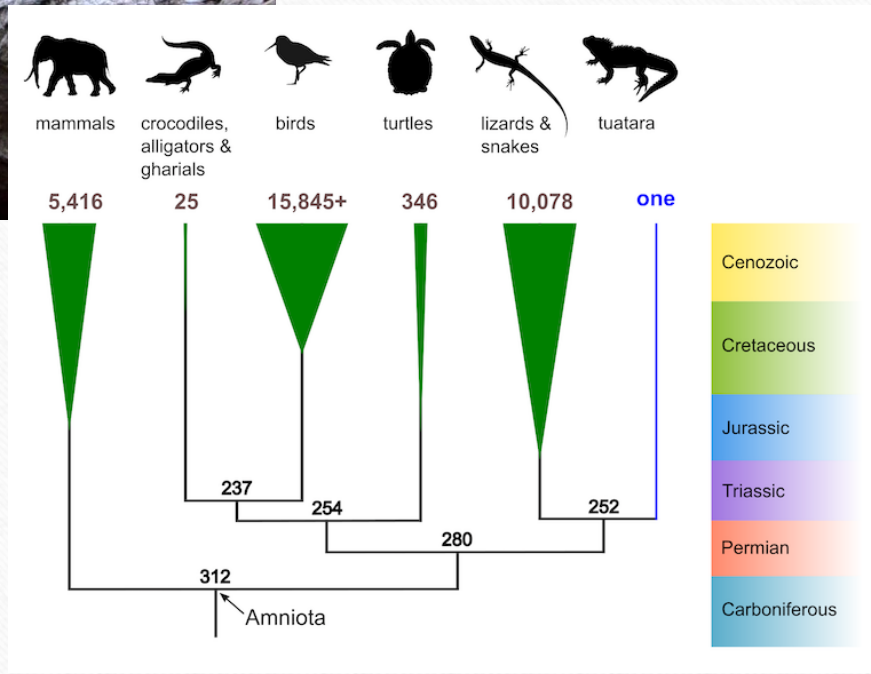
- Animals (Kingdom Animalia)
  - Chordates (Phylum Chordata)
    - Vertebrates (Subphylum Vertebrata)
      - Reptiles (Class Reptilia)
        - Snakes and Lizards (Order Squamata)
          - Lizards (Suborder Sauria)
            - Phrynosomatid Lizards (Family Phrynosomatidae)
              - Sceloporine Lizards (Subfamily Sceloporinae)
                - Spiny Lizards (Genus *Sceloporus*)
                  - **Western Fence Lizard** (***Sceloporus occidentalis***)
                    - All subspecies added to the database
                    - Info
                    - Island Fence Lizard (*Sceloporus occidentalis* ssp. *becki*)
                    - San Joaquin Fence Lizard (*Sceloporus occidentalis* ssp. *biseriatus*)
                    - Coast Range Fence Lizard (*Sceloporus occidentalis* ssp. *bocourtii*)
                    - Great Basin Fence Lizard (*Sceloporus occidentalis* ssp. *longipes*)
                    - Northwestern Fence Lizard (*Sceloporus occidentalis* ssp. *occidentalis*)
                    - Sierra Fence Lizard (*Sceloporus occidentalis* ssp. *taylori*)

Crocodilians

- Been around since the time of the dinosaurs.
- Contains: alligators, crocodiles, caimans and gharials
- Ectotherms (cold-blooded)
- Very large
- No visible ears but excellent hearing
- Carnivores

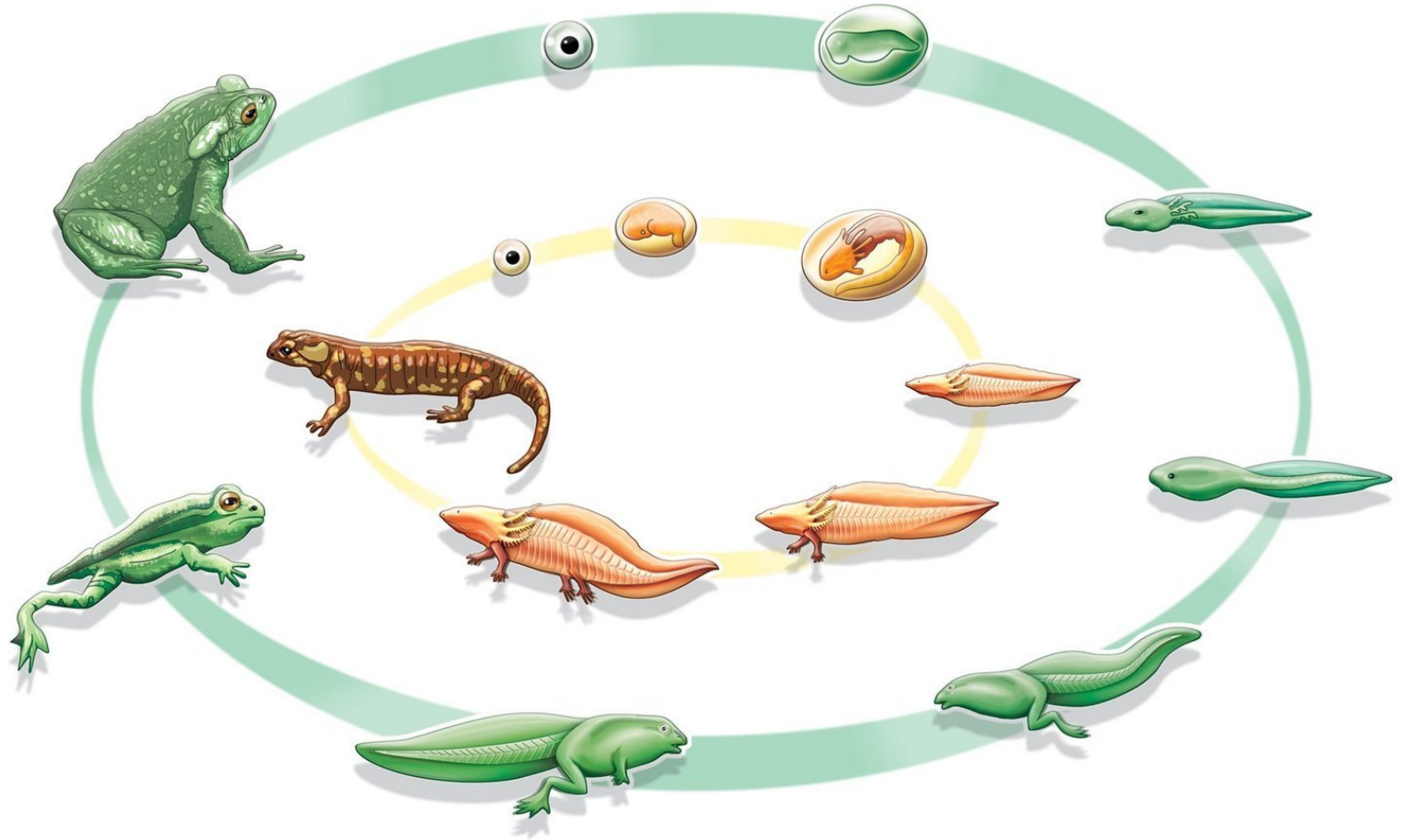
Tuatara

- Looks like a lizard but is part of their own separate group.
- Closest relatives are an extinct group that lived alongside dinosaurs.
- Has a third eye known as a "parietal eye" on the top of their heads.
- Native to New Zealand
- Nocturnal
- Second row of upper teeth.



What makes an animal an amphibian?

- Amphibians are vertebrates.
- Their skin is smooth and slimy.
- Amphibians are ectotherms (cold-blooded).
- They have a complex life cycle (larval and adult stages).
- Amphibians breath through their skin, as well as their lungs in some cases.
- Many species of amphibians vocalize.



Newts and Salamanders

- Type of amphibian that has a “lizard-like” appearance.
- Both adults and young have tails.
- No claws on hands or feet.
- Newts are a type of salamander that typically spend more time on land and have bumpy skin
- Salamanders have different ways of breathing, some keep gills their whole life, some develop lungs, others don’t have either and breathe through their skin.
- Some salamanders spend their larval stage in their egg and only emerge as small adults.
- Carnivorous, feeding mostly on slow moving invertebrates.

California Newt

Taricha torosa

Photo: Grigory Heaton

- Can secrete the potent neurotoxin tetrodotoxin, which is hundreds of times more toxic than cyanide. It is strong enough to kill most vertebrates including humans
- Some Garter snakes have over time developed a genetic resistance to the toxin. This has created an evolutionary arms race with the newts becoming more poisonous than would typically be needed to deter predators.
- Has a larval stage

★ Not observed in Placerita Canyon

California Newt

Taricha torosa

Larval stage

Defense posture showing bright yellow underside

★ Not observed in Placerita Canyon

Arboreal Salamander

Aneides lugubris

Photo: Nicholas Hess

- Live in oak woodlands and usually are only found after rain.
- Do not have lungs and instead breathe through their skin, they require high humidity for respiration.
- Some have been found 59ft high in trees
- Semi-prehensile tail aids in climbing
- Have a powerful bite for their size
- No larval stage, young emerge from eggs as mini adults

★ A few observations in Placerita Canyon

Arboreal Salamander

Aneides lugubris

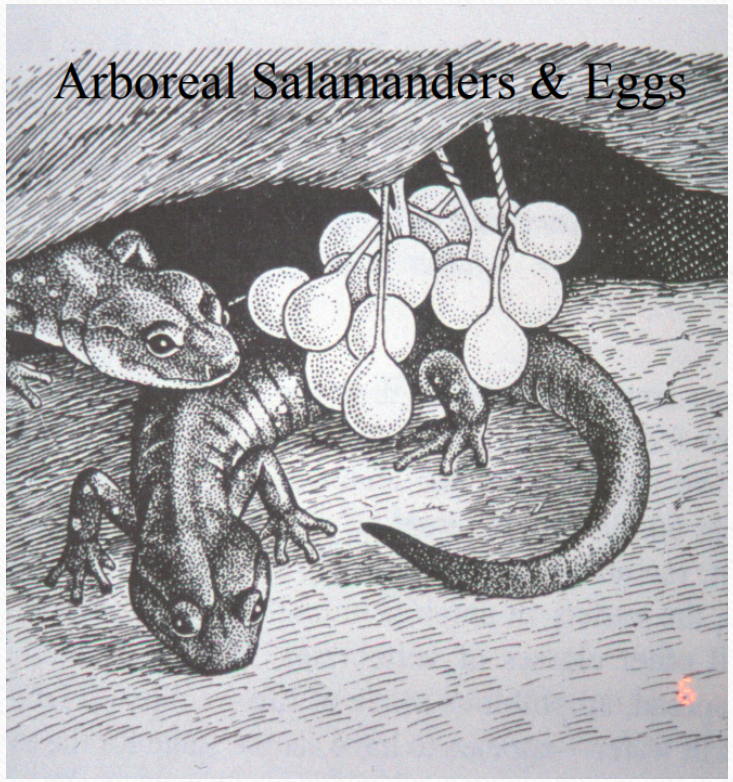


Photo: André Giraldi

★ A few observations in Placerita Canyon

Black-bellied Slender Salamander

Batrachoseps nigriventris

Photo: Brandon Troth

- Small and worm-like, live in leaf litter
- Do not have lungs and instead breathe through their skin, they require high humidity for respiration.
- No larval stage, young emerge from eggs as mini adults
- 4 Toes on front and hind feet, a characteristic of the Slender Salamander Group

Photo: Jordan Rhodes at Stoneview Nature Center

★ Possibly in Placerita Canyon

Monterey Ensatina

Ensatina eschsoholtzii eschsoholtzii

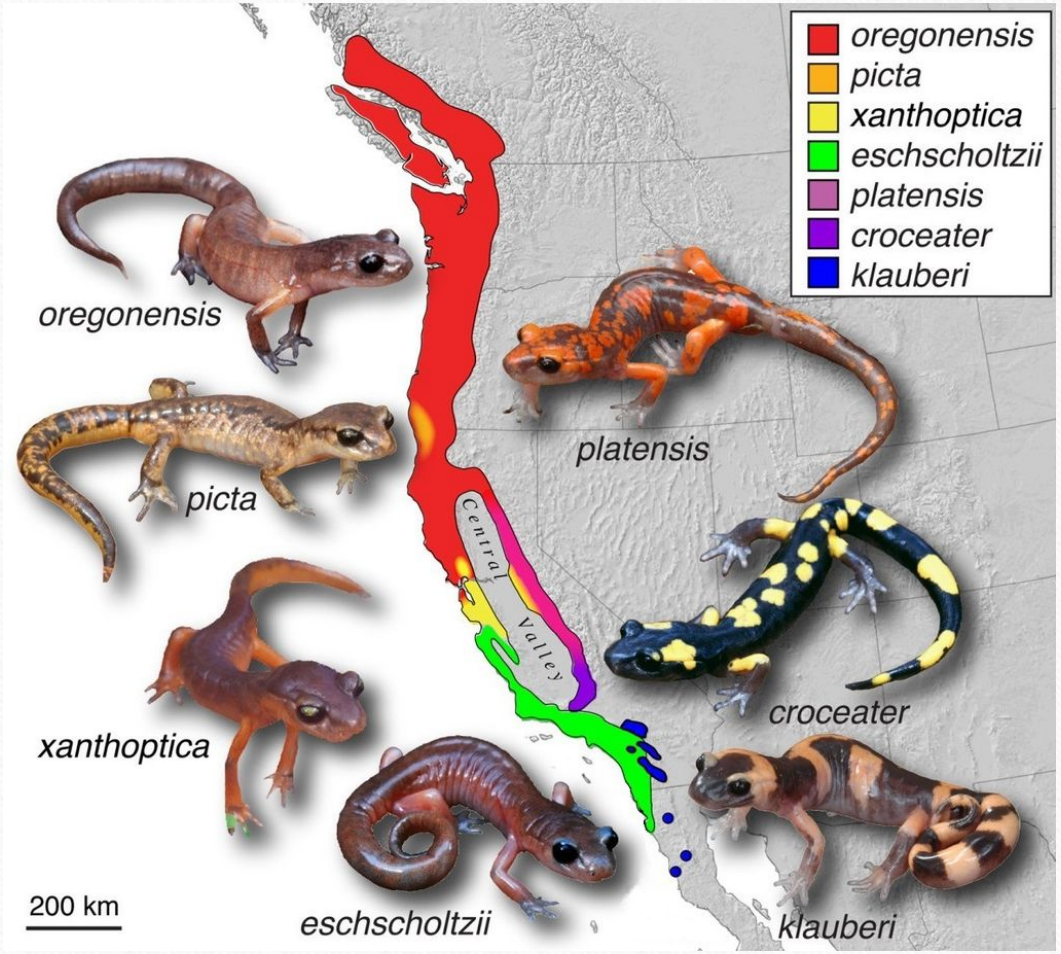
Photo: Max Roberts

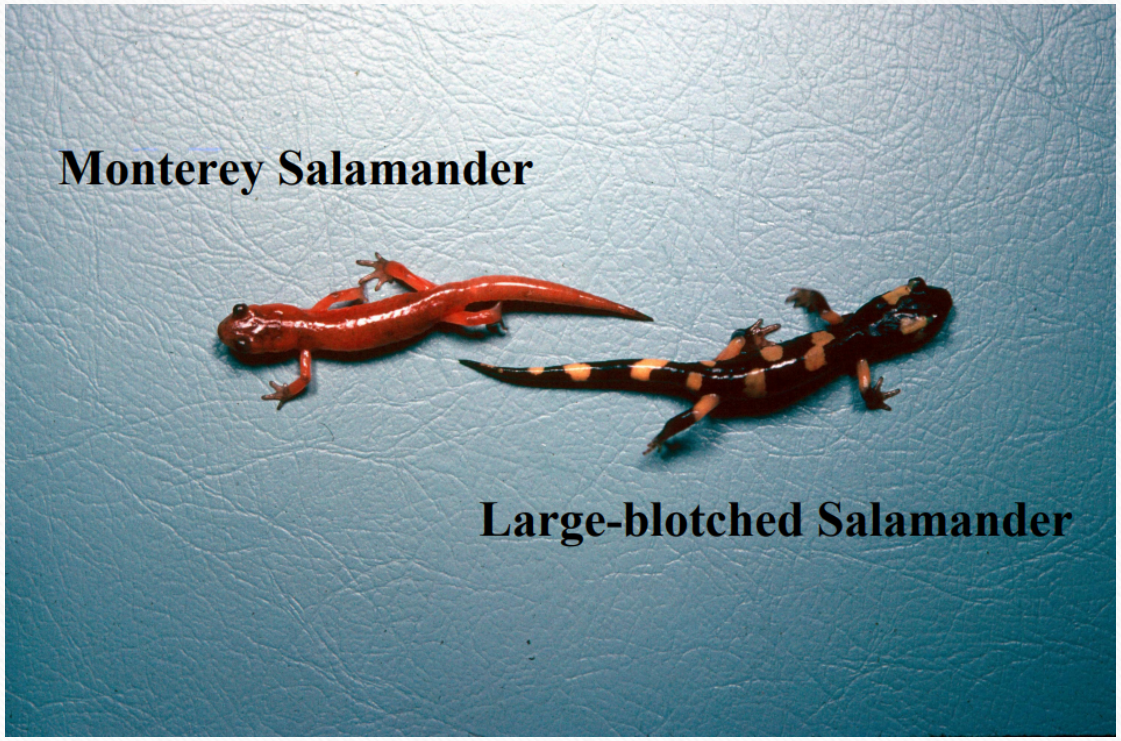
- Do not have lungs and instead breathe through their skin, they require high humidity for respiration.
- No larval stage, young emerge from eggs as mini adults.
- Multiple subspecies that greatly vary in appearance.

★ Seen once in Placerita Canyon

Monterey Ensatina

Ensatina eschsoholtzii eschsoholtzii





★ Seen once in Placerita Canyon

Frogs and Toads

- More likely to live near water.
- Most have elongated hind legs for swimming and leaping.
- No tail, unless they're in their larval stage.
- Larvae are called tadpoles or pollywogs.
- Webbed toes.
- Externally fertilize their eggs

Baja California Tree Frog

Pseudacris hypochondriaca

Photo: William Mason

Photo: Brandon Troth

- Also called the Pacific Chorus Frog and Pacific Tree Frog
- 3/4in to 2in size
- Has rounded toe pads, a characteristic of treefrogs to enable climbing
- Can be a variety of colors and patterns from greens, browns, spotted and spotless. But always has the dark "mask" stripe across its eyes.
- Its call is the stereotypical, loud, two-part "kreck-ek" or "ribbit" most commonly used on Hollywood movie soundtracks regardless of the locality depicted in the movie

★ Common in springtime at Placerita Canyon

Baja California Tree Frog

Pseudacris hypochondriaca

Egg Cluster

Photo: Jorge H. Valdez

Tadpole

Photo: Andrea Kreuzhage

Almost a Frog

Photo: emeneme on iNaturalist

★ Common in springtime at Placerita Canyon

Baja California Tree Frog

Pseudacris hypochondriaca

Photo: William Mason

- Common in springtime at Placerita Canyon

Western Toad

Anaxyrus boreas

Photo: Olivia Miseroy

- Most common toad in Southern California
- 2in – 5in as an adult
- Rough skin with rust colored warts on dark blotches.
- Always have a yellow stripe down their back.
- Toxic parotoid glands behind their eyes, if a predator picks them up they will get a foul taste in their mouth.
- Crawl rather than hop.
- Will pee when picked up.
- Do not give humans warts.

★ Seen frequently in Placerita Canyon

Western Toad

Anaxyrus boreas

Photo: Jonathan Numer

Photo: Jonathan Numer

Photo: William Mason

★ Seen frequently in Placerita Canyon

California Treefrog

Pseudacris cadaverina

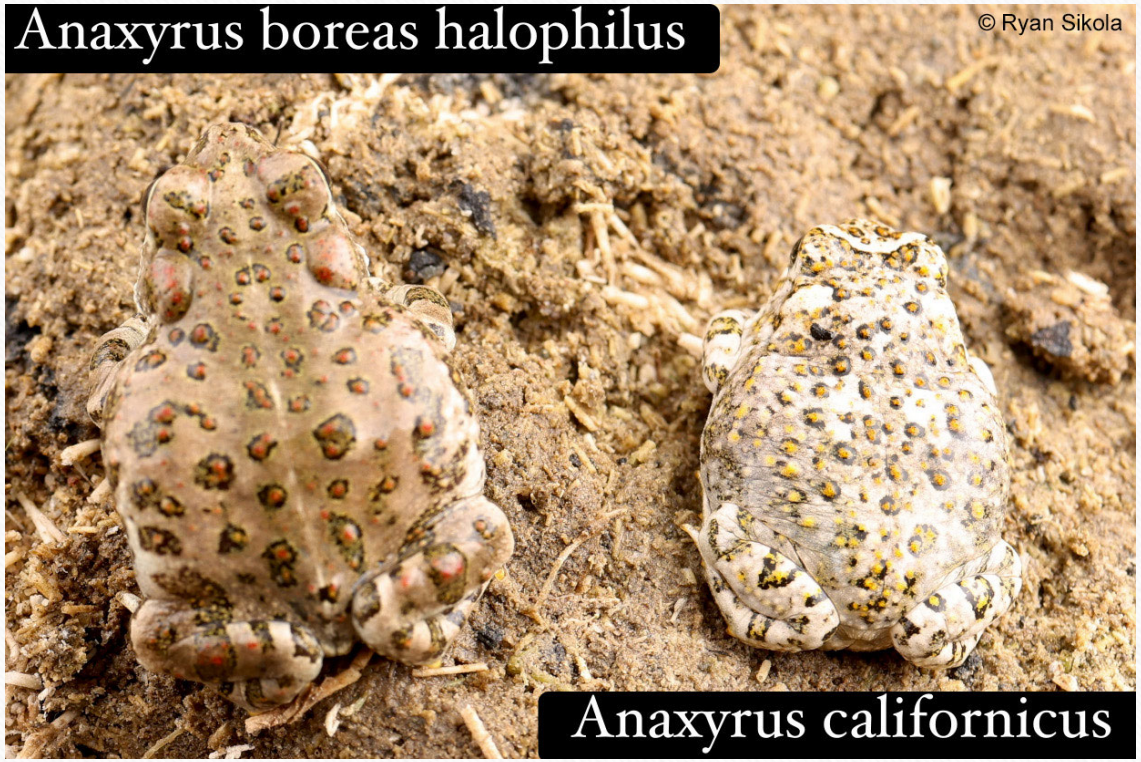
- 3/4in to 2in size
- Has rounded toe pads, a characteristic of treefrogs to enable climbing
- Usually colored to match their habitat
- Some juveniles will have a faint mask like the Baja California Tree Frog

★ Not recorded at Placerita Canyon

All Photos: Jonathan Numer

Arroyo Toad

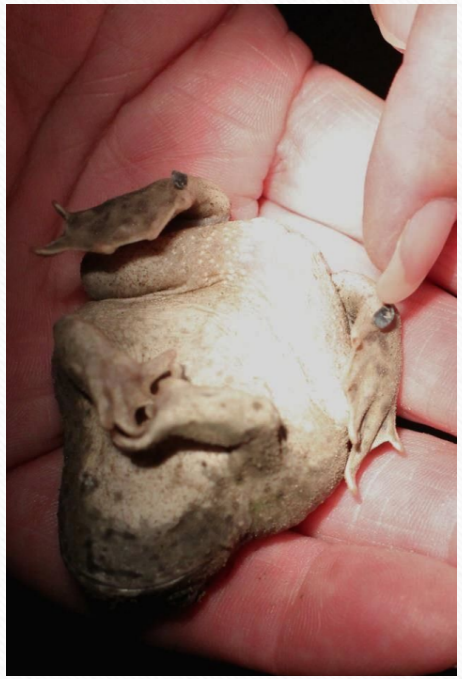
Anaxyrus Californicus



★ Not in Placerita Canyon

Western Spadefoot

Spea hammondii



- Near Threatened
- Often lay their eggs in small puddles that will soon dry up, this causes very fast metamorphosis.
- Fertilized eggs can emerge as tadpoles in at little as 15 hours and tadpoles can become toads in 12-14 days.

★ Not in Placerita Canyon

American BullFrog

Lithobates catesbeianus

Photo: JL Mackey

- Invasive species in California.
- Has a voracious appetite and will eat anything that will fit in its mouth.
- Adults can be 3in – 8in long
- Has a large tympanic membrane behind the eyes
- Responsible for causing destruction to many native species, causing some to become threatened and endangered.
- Tadpoles are huge and can take years to turn into frogs.

Photo: Nicolas Lou

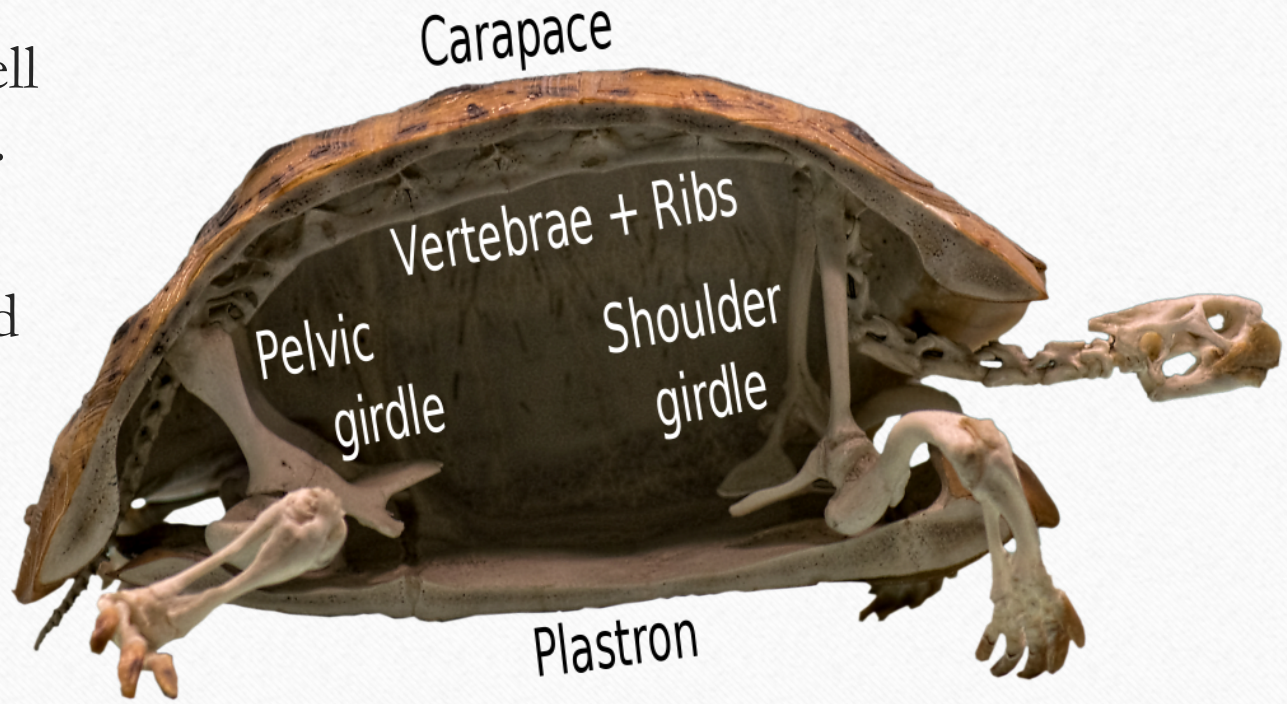
★ Hopefully not in Placerita Canyon

What makes an animal a reptile?

- Reptiles are vertebrates. They have backbones.
- Their bodies are completely covered with scales.
- They are cold-blooded.
- Reptiles produce shelled eggs or bear live young.
- All species fertilize eggs internally.
- All species of reptiles have at least one lung.

Turtles and Tortoises

- Have a special developed shell that contains their backbone.
- No teeth
- Have lungs that are protected within their shell.
- Omnivores
- Very long-lived



Turtle

- Tend to be more aquatic
- Large, domed shell
- Limbs are flatter and sometimes webbed
- Omnivores

Tortoise

- Lives exclusively on land
- Flatter, more streamlined shell
- Hind limbs are “elephant-like”
- Herbivores

Western Pond Turtle

Actinemys marmorata

Photo: Jonathan Hakim

- Listed as Vulnerable in California primarily due to loss of habitat.
- Males have a pale yellow throat as adults.
- Most of the ponds they inhabit dry up in the summer and fall. They can spend upward of 200 days outside of water.
- Omnivores but juveniles are primarily carnivorous.
- Can live 50+ years in the wild

★ Not in Placerita Canyon, except for animal ambassadors

Pond Slider

Trachemys scripta

Photo: Anna Ewing CDFW

- Invasive species in California primarily from negligent pet owners.
- Displace native turtles and eat native wildlife.
- Most common turtle seen in Los Angeles

★ Not in Placerita Canyon

Mojave Desert Tortoise

Gopherus agassizii

Photo: San Dimas Canyon Nature Center

Photo: Jonathan Numer

- Critically Endangered primarily due to habitat loss.
- Only native tortoise in Los Angeles County.
- Lives 50-80+ years.
- Once in captivity, they cannot be returned to the wild due to upper respiratory tract disease found in captive populations.

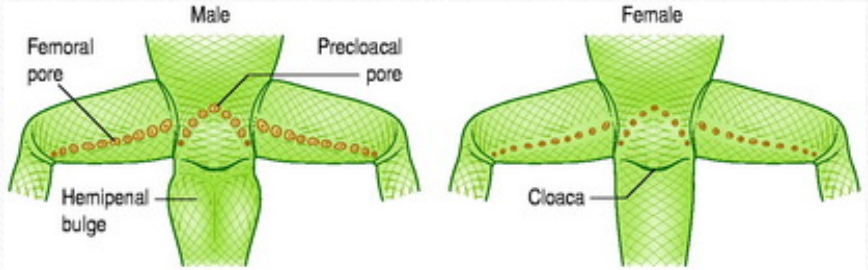
★ Not in Placerita Canyon, except for animal ambassadors

Lizards

- Largest group of reptiles with 6,000 species
- Covered in scales
- Four legs with claws*
- Moveable eyelids*
- External ears
- Long tails that can sometimes detach to escape predators

Cloacas – A Multipurpose Orifice

- Used for excreting feces and urates.
- Also used for reproduction.



Western Fence Lizard

Sceloporus occidentalis

Photo: Olivia Miseroy

- Most common lizard in Los Angeles County
- Also called "Blue Bellies" because males have bright blue undersides.
- Males bob their heads and do push-ups to defend their territory.
- Hang out on rocks, fences, trees and buildings.
- A protein in their blood kills the bacterium that causes Lyme disease, ticks that previously feed on Fence Lizards can't spread the disease to humans.

★ Common at Placerita Canyon

Western Side-blotched Lizard

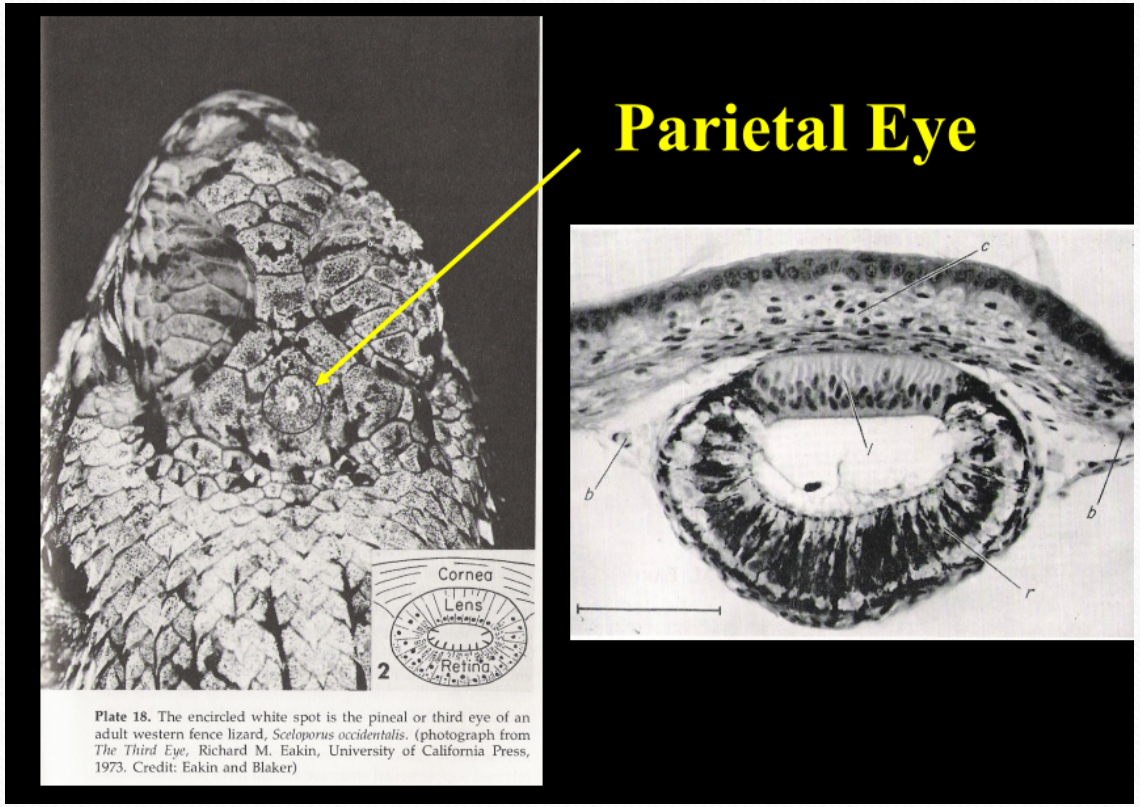
Uta stansburiana elegans

Photo: Jonathan Numer

- Second common lizard in Los Angeles County
- Named for the black splotch behind their forelegs. Females are striped and drab in color.
- Males can have blue flecks on their backs and yellow or orange throats.
- Often seen along trails.
- Throat color in males determines social hierarchy and breeding rights.

★ Common at Placerita Canyon

Parietal Eye



- The parietal eye is a photosensory organ connected to the pineal body, active in triggering hormone production (including reproduction) and thermoregulation. It is sensitive to changes in light and dark, it does not form images, having only a rudimentary retina and lens. It is visible as an opalescent gray spot on the top of some lizard's heads; also referred to as "pineal eye" or "third eye."

Western Whiptail

Aspidoscelis tigris

Photo: Olivia Miseroy

- Larger lizard, length including the tail can reach 12in.
- Seen on the ground, often in leaf litter searching for arthropod prey.
- Creep around, moving very jerky, flicking their tongue.
- Will move very fast when threatened.

★ Common at Placerita Canyon

Alligator Lizard

Elgaria multicarinata

Photo: Jonathan Numer

- Larger lizard, length including the tail can reach 12in.
- Their long bodies, tiny legs and fast movement can make them look like a snake at first.
- Commonly seen in natural and urban areas.
- Quick to break off its tail in an escape.
- Back and belly scales are renforced by bone like alligators giving them their name.
- They also pack quite the bite.

★ Sometimes seen in Placerita Canyon

Blainville's Horned Lizard

Phrynosoma blainvillii

Photo: Olivia Miseroy

- Also called the Coast Horned Lizard
- Flat, covered in spikes, blends in with their habitat very well
- Will run short distances, easiest way to spot them.
- Will puff up in defense.
- Sometimes know to shoot blood out of their eyes to deter predators.
- Only eat harvester ants, invasive ants displacing their prey is responsible for their dwindling numbers.

★ Sometimes seen in Placerita Canyon

Western Skink

Plestiodon skiltonianus

Photo: William Mason

- Small lizard, 7 inches long including tail.
- Juveniles have bright blue tails, used to distract predators if they have to drop it and escape.
- Live under logs and amongst leaf litter.
- Females will guard their eggs and young.

★ Sometimes seen in Placerita Canyon

San Diegan Legless Lizard

Anniella stebbinsi

Photo: William Mason

- A lizard, not a snake because it has eyelids
- Can detach its tail, a characteristic of lizards and not snakes.
- Live underground, in leaf litter and sand areas. Most active at night.

★ Sometimes seen in Placerita Canyon

Snakes

- Over 3000 different species
- Covered in scales
- No legs
- No eyelids
- No external ears
- Most lay eggs but some will retain the eggs in their bodies and give live birth.
- Excellent sense of smell, they use their forked tongue and Jacobson's organ to process scent particles in the air.

Gopher Snake

Pituophis catenifer

Photo: Sarah Brewer

Photo: Jonathan Numer

- 15in – 6ft in length.
- Common snake across LA County in many different habitats.
- Eats primarily mammals but will eat reptiles, eggs and young birds.
- When threatened it will shake its tail, hiss and flatten its head.
- Most commonly mistaken as a rattlesnake.

★ Common at Placerita Canyon

California King Snake

Lampropeltis californiae

Photo: Olivia Miseroy

- 12in – 4ft in length
- Relatively common throughout Southern California.
- Will shake their tail when nervous.
- Called the "King" snake because they will eat anything that fits in their mouth including venomous snakes.
- The strongest constrictor proportionate to their body size.

★ Fairly common in Placerita Canyon


© Chris DeGroof

California Mountain King Snake

Lampropeltis multifasciata

Photo: William Mason

- 7in – 3.5ft in length.
- Found at higher elevations near streams and canyons.
- Similar eating habits to the California Kingsnake.
- Color similar to venomous coral snakes which are not found in California.
- Rhyme "Red touches yellow kills a fellow, red touches black you're ok Jack!"

★ Sometimes seen in Placerita Canyon

Striped Racer

Masticophis lateralis

Photo: Mickey Long

- 13in – 48in in length, very thin.
- Incredibly fast, usually all you will see is a black tail darting into a bush.
- Primary prey is lizards, which is why they need to be so quick.
- Not a constrictor, they grab their prey and just fight it down.
- Sometimes they will hold their head up a few inches off the ground to get a higher vantage point.

★ Common in Placerita Canyon

Red Coachwhip

Masticophis flagellum

Photo: Andre J. Loures

- 13in – 5ft in length
- Juveniles are brown/orange and become redder/pinker as they grow.
- Not a constrictor, they grab their prey and just fight it down.
- Sometimes they will hold their head up a few inches off the ground to get a higher vantage point.

★ Common in Placerita Canyon

Ring-necked Snake

Diadophis punctatus

Photo: Mickey Long

- 11in – 16in in length.
- Secretive and found hiding under rocks, logs, boards and leaf litter.
- Feeds primarily on small amphibians and some invertebrates.
- Mildly venomous, has rear fangs and too small to bite humans.
- In defense it will show its red underbelly and corkscrew its tail.

★ Sometimes seen in Placerita Canyon

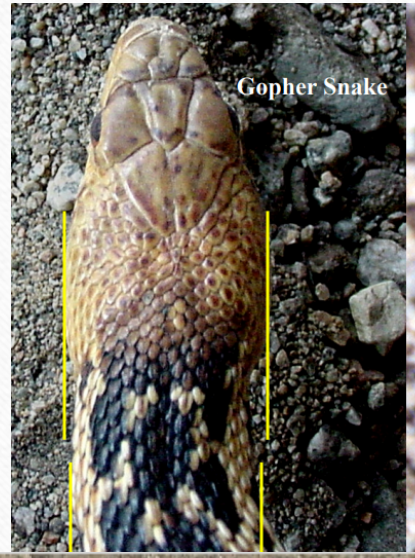
Southern Pacific Rattlesnake

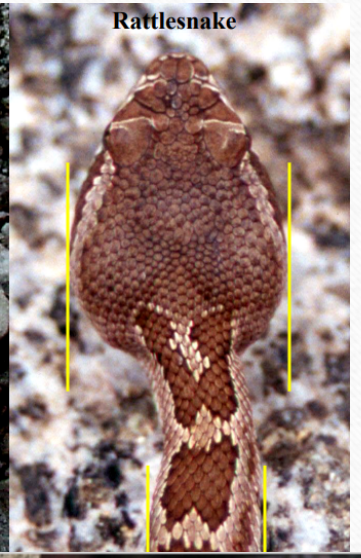
Crotalus oreganus helleri

Photo: Olivia Miseroy

- 11in – 4ft in length.
- Rattlesnakes are the only venomous snakes in California that are potentially dangerous to humans.
- Thick, heavy bodied snake with triangular shaped head and rattle on tail.
- The rattle is made up of segments of dead skin, a new segment is added every time the snake molts.
- They are "pit vipers" and have pits on the front of their faces to detect heat.

★ Commonly seen in Placerita Canyon


Gopher Snake


Rattlesnake


Gopher Snake


Pacific
Rattlesnake

Why are Reptiles Important?

- Some are indicator species of environmental problems
- Medical research
- They prey on pests and keep
- They are a food source for many animals, including humans.
- Cultural impact

Resources

California Herps
https://californiaherps.com/

Dr. Earyn McGee #Findthatlizard
Afro_herper on Instagram and Twitter

iNaturalist

Want to know what kind of reptile or amphibian you found? Post it to iNaturalist!
@fowlivia