

Snake Basics

Snakes are reptiles:

Reptiles are cold blooded, or *ectothermic*. This means that they rely on outside sources to warm or cool its body. A snake can often be observed basking in the sun, or resting on hot rocks for warmth. If a snake is too warm, it may retreat to a cooler place, like a burrow or shaded area. Because it spends less energy warming and cooling its body compared to a warm blooded, or *endothermic* animal, such as a human, it requires less food.

*Fun fact: Depending on their size, snakes at the Zoo are offered food only once a week, or once a month!

Jacobson's organ:

Snakes have a special organ called the *Jacobson's organ* that helps them smell, or “taste” the air. The Jacobson's organ is a major component of the snake's hunting ability, and is also used to detect pheromone communication from other animals.

- The Jacobson's organ is an extra olfactory organ located in the skulls of many animals, including snakes. It functions much like a nose—when the snake sticks its tongue out, it grabs molecules of air that it then transfers to the Jacobson's organ, allowing it to “taste” the air.
- Snakes do have noses, and can smell with them. The Jacobson's organ increases the amount of information taken from the snake's surroundings, allowing it to better pinpoint its prey.

Constricting prey:

Some snakes kill their prey by delivering a venomous bite. We do not have venomous snakes in the Embassy, all Embassy snakes are *constrictors*. After seizing a prey animal with its small, needle-like teeth, a constrictor will wrap its body around the prey and squeeze. This does not crush the animal; instead it prevents the prey from obtaining enough oxygen. Once the prey has suffocated, the snake will begin to consume it.

Specialized jawbones:

Unlike humans, snakes have extremely flexible tendons attaching their lower jaw to the rest of their skull, allowing them to dislocate their mandible in order to swallow relatively large food. Additionally, their chin contains flexible elastic tendons. Due to this flexibility, they can open their mandible sideways, further increasing the possible size of their food.

- Rhythmic muscular contractions help to push food down their throats and into their stomachs.
- When eating large food, a tube in their mouth will move to the side and allow for continued oxygen exchange. Without the tube, a snake eating a particularly large food item could suffocate.

California Kingsnake

Lampropeltis getelus californiae

Description:

- Size:
 - Length: 2.5 to 4 ft (76-122 cm)
- Weight: Up to 3.3 lb (1.5 kg)
- Physical description: A medium length snake with large scales on the head.
- Coloration: Typically black or brown with bands or stripes of white or cream running the entire length of their body.
 - The banded variant is much more common than the striped variant.
 - Other color variants are not uncommon throughout the snake's range, including some with zebra-like white stripes, spots, or combinations of stripes and bands.

In the Wild

Habitat and Range:

- Geographic range: Found in the southwestern U.S. and northwestern Mexico
- Habitat: Deserts and semi-deserts, brush, and deciduous and pine forests.
 - Mainly *terrestrial* (ground dwelling), but sometimes climbs into low branches and shrubs.

Diet:

- Carnivorous:
 - Prey mainly upon rodents, birds, lizards and other snakes, including venomous rattlesnakes.

Adaptations:

- Camouflage: The variations in color and pattern can break up the outline of the snake's body, which makes it less noticeable for predators.
- Venom immunity: King snakes are able to eat venomous snakes such as rattlesnakes due to their resistance to rattlesnake venom. Their resistance is owed to venom-neutralizing proteins in their blood.
 - While king snakes are mostly immune to the venom of local snakes, they display no such resistance to exotic venomous snakes.
- Defensive behavior: When threatened, this snake will coil itself into a strike posture and vibrate its tail. While it does not look like a rattle snake, this quick vibration can produce noises that sound similar to a rattle. When threatened, kingsnakes may also strike and discharge a foul-smelling musk. While this musk may serve as a defense by itself, it also likely acts as a warning to other nearby king snakes.

Lifespan:

- Typically around 20 years (Median Life Expectancy data unavailable)

Ecosystem relationships:

California Kingsnake

Lampropeltis getelus californiae

- Predators: Birds of prey such as hawks and eagles, coyotes, raccoons, foxes, bobcats, and other king snakes.
- Role/niche: Because rattlesnakes can be extremely dangerous, they can function as an apex predator. However, king snakes are able to prey on rattlesnakes, and in turn can be eaten by animals that are unable to consume rattlesnakes, which increases energy turnover in the ecosystem.
 - Also function as a control on their other prey species, including rodents.

Reproduction:

- Breeding season: Typically breed in late spring and summer
- Behavior: Females lay eggs in rotting wood or beneath rocks and logs, where conditions are warm and relatively humid
- Incubation: Eggs hatch after 2 to 3 months
- Clutch size: Typically 3 to 13 eggs
- Maturation: Each hatchling is only a few inches long at hatching, and looks like a miniature version of the adult.

Activity:

- May be diurnal, crepuscular, or nocturnal.
 - Activity depends on the daytime temperatures and which part of the range the individual inhabits.
 - More southerly individuals will be largely nocturnal during the hottest parts of the year, while northern individuals will be most active during the day during cooler parts of the year.

Other “fun facts”:

- Kingsnake diversity: Kingsnakes are all part of the genus *Lampropeltis*, which is found only in the Americas and also includes milk snakes. All members engage in the habit of eating other snakes, including venomous species, or cannibalizing their own.
 - The California kingsnake is a subspecies of the common kingsnake. The various subspecies vary considerably in size and color, but are all genetically similar, and are all found in the lower 2/3 of the U.S. and northern Mexico.
- Name: The kingsnake’s common name is a reference to the fact that it will eat other snakes, making it “king” of them all. The king cobra has its common name for the same reason. The genus name *Lampropeltis* comes from the Greek “*lampros*,” meaning “radiant,” and “*pelta*,” meaning “small shields.” *Getula* is derived from the Getulian peoples of Morocco. Getulian culture frequently features the chain-like pattern found on the eastern subspecies.

Conservation Status and Threats:

- IUCN listed as Least Concern
 - Species has a very large range with stable populations throughout its habitat.

California Kingsnake

Lampropeltis getulus californiae

- Not listed on CITES
- Threats:
 - Like many snakes, killing the animal out of fear or retribution may be a threat. However, the benefit of this snake consuming more venomous species such as rattlesnakes is well recognized, and this animal is generally tolerated throughout its range.
 - This animal may be caught for the pet trade. However, they are widely bred in captivity, and capture of wild specimens is likely a small concern.

At the Zoo

Elvis is a female who hatched in 2010 and was purchased from a breeder as a juvenile in 2011.

What We Can Do

- Make environmentally responsible lifestyle decisions to help conserve habitat – conserve energy, reduce litter and pollution
- Make sure you know the origin of the products you buy – opt for fake leather over snake skin products
 - All of our shopping choices can have an impact on the environment and wildlife so when available opt for recycled and local products
 - Research responsible companies that do not use animal based products or testing
- Do your research before buying a pet
 - Make sure you are not purchasing a wild-caught individual – captive-bred species are often easy to find
 - Make sure you know how to properly care for any animal before you decide to buy it as a pet
 - Some things to consider include adequate housing, diet, temperature requirements, and lifespan
 - Some pets also require a lot of time and money to be properly cared for

Additional Resources and References:

- San Diego Zoo: <http://www.sandiegozoo.org/animalbytes/t-kingsnake.html>
- Oakland Zoo: [http://www.oaklandzoo.org/California King Snake.php](http://www.oaklandzoo.org/California_King_Snake.php)
- IUCN: <http://www.iucnredlist.org/details/63828/0>
- Weinstein, et al. <http://www.dtic.mil/dtic/tr/fulltext/u2/a269704.pdf>
- http://www.virginiaherpetologicalsociety.com/reptiles/snakes/eastern-kingsnake/eastern_kingsnake.php
- Markel, Ronald G. *Kingsnakes and Milk Snakes*. Neptune City, NJ: T.F.H. Publications, 1990.
- Shaw, Charles E., and Sheldon Campbell. *Snakes of the American West*. New York: Knopf,