BIOLOGY, LEGAL STATUS, CONTROL MATERIALS, AND DIRECTIONS FOR USE

Rattlesnakes

Family: Viperidae

Fig. 1. Western rattlesnake (*Crotalus oreganus*)

Fig. 2. Southern Pacific rattlesnake (*C. helleri*)

Fig. 3. Great Basin rattlesnake (*C. lutosis*)

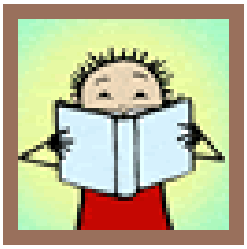
Fig. 4. Sidewinder (*C. cerastes*)

Fig. 5. Mojave rattlesnake (*C. scutulatus*)

Fig. 6. Southwestern speckled rattlesnake (*C. mitchellii*)

Fig. 7. Red diamond rattlesnake (*C. ruber*)

Fig. 8. Panamint rattlesnake (*C. stephensi*)



Introduction: The rattlesnake is a member of the pit viper family. It is the only venomous snake native to California. Nine species (Figs. 1–9) are found in various areas of the state encompassing nearly the whole state, from below sea level to about 11,000 feet. Rattlesnakes are an important part of the ecosystem, preying on rodents, birds, and other small animals; in turn certain birds prey on them.

Fig. 9. Western diamondback (*C. atrox*)

Identification: Adult rattlesnakes can approach 6 feet in length and 3 ½ inches in diameter. Rattlesnakes have a distinctive triangular shaped head that can be used to assist in identification. Gopher snakes (*Pituophis catenifer*; Fig. 10) can adjust their posture so that their head appears triangular in shape, thereby mimicking a rattlesnake. However, gopher snakes lack a rattle that is usually found on the end of the tail of rattlesnakes. The rattle is composed of interlocking horny segments. Young rattlesnakes are born with a small button that does not rattle. A new segment is formed each time the snake sheds its skin. Since segments can break off, the rattle is not a good indicator of age. Similarly, just because a snake does not have a rattle does not mean it is not a rattlesnake as the rattle may have completely broken off. Therefore, caution must be used when discerning the difference between rattlesnakes and gopher snakes.

Fig. 10. Gopher snake (*Pituophis catenifer*)

Rattlesnake detection is difficult because they are not easy to see or to locate in their hiding places. Be alert to their potential presence during warmer times of year when rattlesnakes are active in your region.

Specific species found in California include:

Western rattlesnake (Fig. 1): A medium-sized rattlesnake (30 to 44 inches long); it is the most commonly observed rattlesnake in California. The western rattlesnake is common throughout much of California, but is not found in true desert regions or in areas of the Central Valley where irrigated agriculture has eliminated its habitat. This snake has variable ground coloration, but generally exhibits dark brown or black blotches along the back and sides. It is generally the only rattlesnake found in its region.

Southern pacific rattlesnake (Fig. 2): A medium-sized rattlesnake (30 to 44 inches long). Found in southern coastal areas of California. Base color is typically brown to olive-brown. Dark brown blotches are found along the back, changing to bars closer to the tail.

Great Basin rattlesnake (Fig. 3): A medium to large rattlesnake (15 to 65 inches long, but typically 36 to 48 inches). They are generally found in the northeastern part of California, as well as in a small area east of the Sierra Nevada Mountains around Mono Lake. Base color is variable but matches the environment. Dark blotches are found along the back, usually either oval or bar-shaped; blotches are about as wide as the spaces in between. No other rattlesnake is generally found in this region.

Sidewinder (Fig. 4): The smallest rattlesnake in California (17 to 33 inches long). It is named because of its peculiar method of sideways locomotion. It is sometimes called the horned rattler because of the hornlike scales above its eyes. Found most commonly in sandy desert areas in the southeastern part of California.

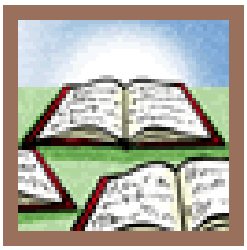
Mojave rattlesnake (Fig. 5): A medium to large rattlesnake (24 to 51 inches long) found in the Mojave Desert. This rattlesnake has black and white rings around the tail, with the black bands smaller than the white bands. Often confused with the western diamondback rattlesnake although their ranges do not generally overlap in California.

Southwestern speckled rattlesnake (Fig. 6): A medium to large rattlesnake (23 to 52 inches long) that is found primarily in rocky areas in southern deserts and along extreme southern coastal areas. Adults have a saddled pattern that may appear slightly faded. Its color generally matches the background environment.

Red diamond rattlesnake (Fig. 7): A large rattlesnake (30 to 65 inches long) found in the Colorado Desert and south coastal region. Coloration is various shades of reddish brown with black and white rings surrounding the tail. Could be confused with the western diamondback rattlesnake, but ranges do not overlap in California.

Panamint rattlesnake (Fig. 8): A medium to large rattlesnake (23 to 52 inches long) found in rocky areas in the northern and eastern Mojave Desert. The panamint rattlesnake exhibits a saddled pattern that often appears faded. Its color is variable, matching the background color of its environment.

Western diamondback rattlesnake (Fig. 9): The largest rattlesnake (30 to 90 inches long) in California. It is found primarily in Imperial, Riverside, and San Bernardino Counties from sea level to 7,000 feet. This rattlesnake has black and white rings around the tail, with rings equivalent in width. It is probably the most dangerous rattlesnake in California because of its size and defensive disposition.



Legal Status: California Department of Fish and Game Code classifies rattlesnakes as native reptiles. None of the nine species of rattlesnakes found in California are considered endangered or threatened. California residents can take rattlesnakes on private lands in any legal manner without a license or permit, although a bag limit of two applies. The red diamond rattlesnake (*C. ruber*) is the only rattlesnake prohibited by state wildlife regulation from being taken or killed.

Damage: Rattlesnakes can pose a danger to people, pets, and domestic animals. In the United States, about 1,000 venomous snake bites are reported annually, although typically fewer than 4 people die from these bites in a given year. Although seldom fatal, bites can be extremely painful and can lead to severe tissue loss and medical trauma. It is important to never handle rattlesnakes, not even dead ones.

Range: Range maps for the nine species are found here:

Western Rattlesnake
Southern Pacific Rattlesnake
Great Basin Rattlesnake
Sidewinder
Mojave Rattlesnake
Southwestern Speckled Rattlesnake
Red Diamond Rattlesnake
Panamint Rattlesnake
Western Diamondback Rattlesnake

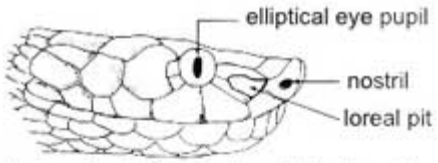
The range maps provide a general indication of where rattlesnakes can occur in California. However, rattlesnakes may be very sparse or nonexistent in some parts of their range; alternatively they can sometimes be found outside their normal range, transported there by humans or natural mechanisms such as flowing water.

Habitat: Rattlesnakes can be found hidden in rock crevices, under logs, in heavy brush, or in other areas where they are protected, including tall grass. They can also be found on roads, paths, and other areas where cover is limited. Be careful when moving brush, logs, or other debris.

In known rattlesnake areas, be alert when kneeling down to work in the garden and watch where you step. Rattlesnakes are often well camouflaged and wait quietly for their prey. In the wild, rattlesnakes should be left alone.

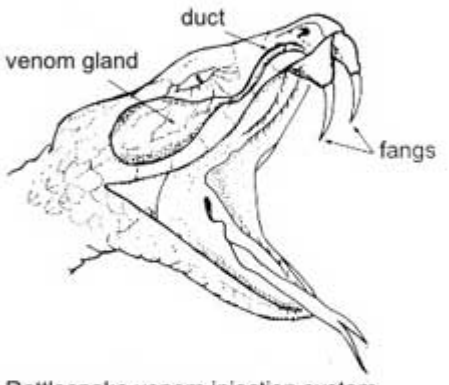
Biology: Most rattlesnakes forage for prey in or near brush, areas of tall grass, rock outcrops, rodent burrows, around and under surface objects, and sometimes in the open. Adults eat live prey, primarily rodents; the young take mostly lizards and young rodents.

To catch their prey, rattlesnakes, wait until the animal is near. The snake strikes with two large fangs that inject toxic venom to subdue the prey. The snake then swallows the dead animal whole. Rattlesnakes will feed on carrion when no other food is available.



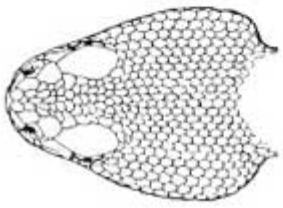
Pit viper head showing the elliptical pupil and location of the loreal pit.

When inactive, rattlesnakes tend to seek cover in the crevices of rocks, in rodent burrows, or under surface objects. In some areas, rattlesnakes hibernate for several months in crevices in rock accumulations. Unlike most reptiles, rattlesnakes give birth to live young. Young rattlesnakes require protection and are likely to be born in abandoned rodent burrows, rock crevices, or other secluded places.



Rattlesnake venom injection system.

Rattlesnakes are included in the pit viper family because they have small pits on each side of the head between the eye and nostril. These pits are temperature sensitive organs which allow the rattlesnake to detect prey, even in total darkness. The nostrils and tongue also detect the odors of prey. Rattlesnakes have the most highly developed venom delivery system of all snakes. The snake can control the amount of venom injected from either or both fangs. Even after its death, a rattlesnake can still, by reflex action, inject venom for an hour or more. Caution is therefore advised when handling what appears to be a dead snake.



Rattlesnake head. Note the triangular shape.

Damage Prevention and Control Methods

Rattlesnakes add to our wildlife diversity and are important members of our ecosystem. They should be left alone whenever possible, especially in wildland areas. However, it may be necessary to remove or exclude them from human or pet populated areas to eliminate snake-bite hazards.

Exclusion: Rattlesnakes may seek refuge beneath open buildings. Wherever there is a gap or opening they can enter and inhabit a building, just as house mice do. Sealing all cracks and other openings greater than ¼ inch can prevent this. Gaps beneath garage doors are often large enough to permit snakes to enter, especially young ones. In the summer, rattlesnakes may be

attracted to cool or damp places, such as beneath buildings and in basements. Access doors on crawl holes should be inspected carefully for breaks or gaps. Use caution if you must crawl under a house or other buildings. Pump enclosures for hot tubs or swimming pools may provide cover if not well sealed. The dampness associated with ornamental water fountains, pools, and fishponds may also make the surrounding area attractive to snakes.

Snake-proof fencing can be used to exclude rattlesnakes from designated areas. While expensive, this is often necessary in children's play areas. The fencing must be tight. If wire mesh is used, it should be ¼-inch mesh and about 3 feet high. Bury the bottom 3 or 4 inches or bend outward 3 or more inches of the base of the wire to discourage other animals from digging under the fence. Place the support stakes on the inside and install a gate that is tight-fitting at the sides and bottom, equipped with a self-closing spring. The benefit of the fence will be lost if wood, junk, or thick vegetation accumulates against the outside of the fence. Ensure gates fit tightly and keep debris and vegetation from collecting around the fence. Snakes can climb accumulated vegetation and gain access to the top of the fence. Check the fence frequently to ensure it has not been damaged in any way.

Habitat Modification: An excellent way to discourage rattlesnakes around gardens and homes is to remove suitable hiding places. Heavy brush, tall grass, rocks, logs, rotten stumps, lumber piles, and other cover should be cleaned up. Keep weeds mowed close to the ground or remove them. Since snakes often come to an area seeking prey, eliminating ground squirrels, rats, meadow voles, deer mice, and house mice is an important step in modifying habitat to make it less attractive for snakes. Rattlesnakes cannot dig burrows but do frequently inhabit those dug by rodents, especially ground squirrels. After rodent control, fill in existing burrows with rocks, soil, and sod and pack down firmly.

Frightening: No known methods.

Fumigants: None.

Repellents: Over the years, a number of home remedies have been suggested to repel snakes, such as placing a horsehair rope around your sleeping bag or sprinkling sulfur dust or scattering mothballs around the area to be protected. Unfortunately, none of these work. Additionally, despite what you hear, no plants repel snakes. Currently, several commercially available chemical snake repellents are on the market. They have not proved sufficiently effective to warrant their recommendation.

Toxic Bait: None registered.

Trapping: Not recommended. Consult a professional pest or wildlife control operator who specializes in snake removal.

Other: Some animals such as peacocks, turkeys, and dogs can be good sentinels for detecting rattlesnakes. If your dog behaves in unusual manner, such as excessive barking or whining, it would be wise to investigate for the possible presence of a snake.

REFERENCES AND ADDITIONAL READING

California Herps. 2015. California Herps homepage. http://www.californiaherps.com/index.html. Accessed 9 April 2015.

Howard, W.E. 1994. Rattlesnakes. Pages F21–F26 *in* S.E. Hygnstrom, R.M. Timm, and G.E. Larson, editors. Prevention and Control of Wildlife Damage. University of Nebraska Cooperative Extension, U.S. Dept. of Agriculture, and Great Plains Agricultural Council, Washington D.C.

Salmon, T. P., D. A. Whisson, and R. E. Marsh. 2006. Wildlife pest control around gardens and homes. Second edition. University of California, Division of Agriculture and Natural Resources, Oakland, CA, Publication 21385.

Todd, B. 2014. Pest Notes: Rattlesnakes. University of California Statewide Integrated Pest Management Program, Division of Agriculture and Natural Resources, Publication 74119.

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*Chapter last updated: 12 January, 2016***

Suggested citation:

Baldwin, R.A., and R. Meinerz. 2015. Rattlesnakes. Pages 424–429 *in* Vertebrate Pest Control Handbook, R.A. Baldwin, editor. Sixth edition. California Department of Food and Agriculture, Sacramento, CA. http://www.vpcrac.org/files/5213/9050/2051/rattlesnakes.pdf

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