

RATTLESNAKES

Integrated Pest Management Around the Home and Landscape

The rattlesnake is California's only native venomous snake. Six species are found in various areas of the state from below sea level to about 11,000 feet. Their size may vary, but adults can reach 6 feet in length. Rattlesnakes are an important part of the ecosystem, feeding on rodents, birds, and other small animals.

Rattlesnakes have a distinctive, triangular head shape, which is a key characteristic in their identification. Non-poisonous snakes in California do not have this obvious characteristic. A less reliable identifying feature is the rattle. The rattle is on the end of the tail and is composed of interlocking horny segments. Young rattlesnakes are born with a small rattle or button. A new segment is formed each time the skin is shed, which may occur several times each year. The size of the rattle is not a good indicator of age, however, because the terminal segments are often broken off on older snakes. Because they can be broken off, the lack of a rattle does not mean the snake is not a rattler. Some nonpoisonous snakes have coloration similar to that of rattlesnakes. The characteristic that most readily signifies a rattlesnake is its triangular-shaped head.

The largest and most common rattlesnake in California is the western diamondback (*Crotalus atrox*) (Fig. 1), found primarily in Imperial, Riverside, and San Bernardino counties from sea level to 7,000 feet. It is probably the most dangerous rattlesnake in California because of its size and aggressive disposition. The sidewinder (*C. cerastes*) is the smallest rattlesnake and is so

named because of its peculiar method of sideways locomotion. The sidewinder is sometimes called the horned rattler because of the hornlike scales above its eyes. It is most commonly found in sandy desert areas from below sea level to 6,000 feet. The Mojave rattlesnake (*C. scutulatus*) range includes the desert and foothills of southeastern California from sea level to high elevations. Speckled rattlesnakes (*C. mitchellii*) are found throughout Baja California and up the coast approximately to Los Angeles, overlapping with the red diamond rattlesnake (*C. ruber*) in most of this area. It also overlaps much of the sidewinder's range in the southeastern desert area. The red diamond rattlesnake is found in Baja California and in southwestern California below Los Angeles.

BIOLOGY AND BEHAVIOR

Most rattlesnakes forage for prey in or near brushy or tall grass areas, 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 nearby. The snake strikes with two large fangs that inject venom. This subdues the prey, which is then swallowed whole. Rattlesnakes feed on carrion less frequently.

When inactive, most rattlesnakes seek cover in crevices of rocks, under surface objects, beneath dense vegetation, and in rodent burrows. In some areas, rattlesnakes hibernate for several months in the crevices of rock accumulations. Unlike most reptiles, rattlesnakes give birth to live young. Young snakes require protection and are likely to be

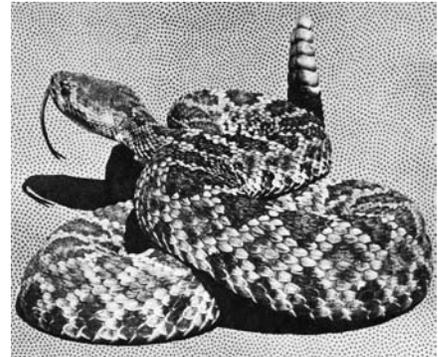
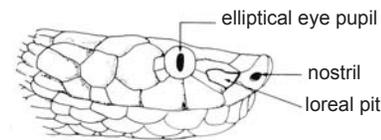


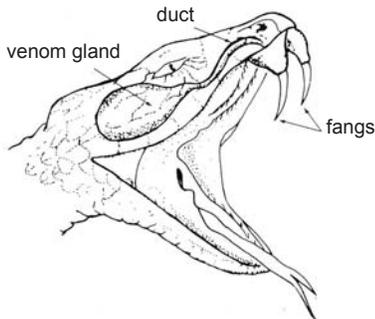
Figure 1. Western diamondback rattlesnake.

born in abandoned rodent burrows, rock crevices, or in other secluded places.

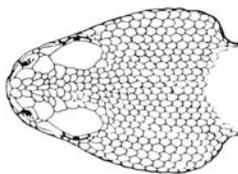
Rattlesnakes are among the group of snakes called pit vipers because of the small pits on each side of the head between the eye and nostril (Fig. 2). These pits are temperature-sensitive structures that assist the snake in finding prey, even in total darkness. The nostrils and tongue also detect the odors of prey. Rattlesnakes have the most highly developed venom system of all snakes. The venom is produced in glands behind the eyes, and then flows through ducts to the hollow fangs. Normally the fangs fold back against the roof of the mouth, but when the snake strikes, the fangs are pivoted forward to inject venom. The snake can control the amount of venom ejected from either or both fangs. Even after its death, a rattlesnake can still inject venom for an hour or more by reflex action. Caution, therefore, is advised when handling what appears to be a dead snake.



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



Rattlesnake venom injection system.



Rattlesnake head. Note the triangular shape.

Figure 2. Distinguishing features of pit vipers.

Snake Bites

In the United States, about 800 rattlesnake bites are reported annually. While seldom fatal, bites are extremely painful and can lead to severe medical trauma. It is important to never handle rattlesnakes, not even dead ones.

Those who enjoy hiking should determine first whether rattlesnakes are found in that area and under what conditions they might be encountered; however, rattlesnakes may be very sparse or nonexistent in some parts of their range. In addition, they can sometimes be transported into areas outside their normal range, either by humans or by natural mechanisms such as flowing water. If rattlesnakes are in the area, they will most likely be hidden in rock crevices, under logs, in heavy brush, or in other areas where they are protected, including tall grass, but they can also be found on roads, paths, and

What do I do for initial first aid?

Because most Californians live in rattlesnake country, a snakebite emergency plan should be developed before it is needed. If you are less than one hour from the nearest emergency room, initial treatment is relatively simple:

- Try to calm the victim.
- Gently wash the area with soap and water.
- Apply a cold, wet cloth over the bite.
- Transport victim to the nearest emergency facility for further treatment.

What should NOT be done after a rattlesnake bite?

Several DON'Ts are very important to remember:

- DON'T apply a tourniquet.
- DON'T pack the bite area in ice.
- DON'T cut the wound with a knife or razor.
- DON'T use your mouth to suck out the venom.
- DON'T let the victim drink alcohol.
- DON'T apply electric shock.

**Call: 1-800-222-1222
any time, any place in California
(California Poison Control System)**

other areas where cover is limited. Be careful when moving brush, wood, logs, or other debris. In rattlesnake country, be alert when kneeling down to work in the garden and watch where you step. Since rattlesnakes are often well camouflaged and wait quietly for prey, they can be difficult to see. In the wild, rattlesnakes should be left alone as they present little potential hazard. However, rattlesnakes around the home or garden are not acceptable to most people. Fortunately, there are ways to minimize the potential hazards.

LEGAL STATUS

The six species of rattlesnakes found in California are not considered endangered or threatened. The California Department of Fish and Game Code classifies rattlesnakes as native reptiles. California residents can take rattlesnakes on private lands in any legal manner without a license or permit.

MANAGEMENT

Rattlesnakes add to the diversity of our wildlife and are important members of our ecosystem; and should be left alone whenever possible, especially in wildland areas. Nonpoisonous snakes should be left alone wherever found.

Because of the danger rattlesnakes pose to people, pets, and domestic animals, it can be necessary to exclude or remove them from around homes and gardens.

Detection

It is difficult to detect rattlesnakes because they are not easy to see or to locate in their hiding places. Be alert to the potential for their presence during the time of year when rattlesnakes are generally active in your region. If rattlesnakes become exceptionally numerous in an area, sightings by neighbors may alert you to expect a problem. Snake populations may fluctuate from year to year; this is thought to be related in part to the availability of prey. Some animals, such as peacocks, turkeys, and dogs, can be good sentinels for detecting rattlesnakes. If your dog behaves in an unusual manner, such as excessively barking or whining, it would be wise to investigate for the presence of a snake. A veterinarian should immediately attend to dogs or domestic animals bitten by a rattlesnake. If you have a snake-proof fence, be sure to check its integrity prior to the time when snakes become active in the late winter or early spring. Remember that keeping the rodent population in and around your yard under control is an excellent way to discourage snakes of all kinds.

Habitat Modification

One of the best ways to discourage rattlesnakes from inhabiting gardens and homes is to remove suitable hiding places. Heavy brush, tall grass, rocks, logs, rotten stumps, lumber piles, and other places of cover should be cleaned up. Keep weeds mowed close to the ground or hoe them out completely. Since snakes often come to an area in search of prey, eliminating rodent populations, especially ground squirrels, meadow voles, deer mice, rats, and house mice, is an important step in making the habitat less attractive for

What can be done to prevent a bite?

Hands, feet, and ankles are the most common sites for rattlesnake bites. Using some common sense rules can prevent most snakebites.

- Never go barefoot or wear sandals when walking in the rough. Always wear hiking boots.
- Always stay on paths. Avoid tall grass, weeds, and heavy underbrush where snakes may be present.
- Use a walking stick when hiking. If you come across a snake, it can strike the stick instead of you.
- Always look for concealed snakes before picking up rocks, sticks, or firewood.
- Always check carefully around stumps or logs before sitting.
- When climbing, always look before putting your hands in a new location. Snakes can climb walls, trees, and rocks and are frequently found at high altitudes.
- Never grab what appear to be sticks or branches while swimming; rattlesnakes are excellent swimmers.
- Baby rattlesnakes are poisonous! They can and do bite. Leave them alone.
- Never hike alone. Always have a buddy to help in case of an emergency. Learn basic life-saving skills.
- Never handle freshly killed snakes. You may still be bitten.
- Never tease a snake to see how far it can strike. You can be several feet from the snake and still be within striking distance.
- Don't keep rattlesnakes as pets. The majority of rattlesnake bites occur when people tease or play with their "pet" rattlesnake.
- Teach children to respect snakes and to leave snakes alone. Curious children who pick up snakes are frequently bitten.
- Always give snakes the right of way!

snakes. Rattlesnakes cannot dig burrows but frequently use those dug by rodents. After controlling the rodents, fill in all burrows with soil or sod and pack down firmly.

Exclusion

Rattlesnakes may seek refuge beneath buildings. If there is a gap or opening, they will enter and inhabit a building, just as house mice do. Sealing all cracks and other openings greater than ¼ inch can prevent them from entering. Gaps beneath garage doors are often large enough to permit snakes to enter, especially young ones. In summer, rattlesnakes may be attracted to cool and/or damp places, such as beneath buildings and in basements. Access doors on crawl spaces should be inspected carefully for breaks or gaps. Use caution if you must crawl under a house or other building. Hot tub or swimming pool pump enclosures may provide cover if they are not well sealed. The dampness associated with ornamental water fountains, pools, and fishponds may also make the surrounding area attractive to snakes.

Fences

Snakes can be excluded from an area by installing a snake-proof fence. While expensive, fences are often necessary for children's play areas. Be sure to make gates tight fitting and keep vegetation and debris from collecting around the fence. Snakes can climb accumulated vegetation and gain access to the top of the fence. Check the fence frequently to be sure it has not been damaged in any way.

Repellents

Over the years various 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. Despite what you

may hear, there are no plants that repel snakes. Currently several commercially available chemical snake repellents are on the market, but they have not proven to be sufficiently effective to warrant recommendation.

Other Control Methods

Remember, if left alone, a snake is likely to move on to another area. If necessary, rattlesnakes may be killed with a shovel or club. Rattlesnakes are capable of striking fast, so caution is important. They can also be killed by shooting if it is allowed by local regulation. If you don't want to kill the snake yet want it removed, it is best to call a professional pest or wildlife control operator who specializes in snake removal. The county agricultural commissioner or Cooperative Extension office may be able to direct you to professionals who remove rattlesnakes. Remember, most rattlesnake bites occur when inexperienced people try to pick up or move a rattlesnake.

Several predators feed on rattlesnakes including the king snake, which swallows them whole. Unfortunately, the number of rattlers eaten by predators is insignificant in reducing the problem you might encounter around your home or garden.

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For more information contact the University of California Cooperative Extension or agricultural commissioner's office in your county. See your phone book for addresses and phone numbers.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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