

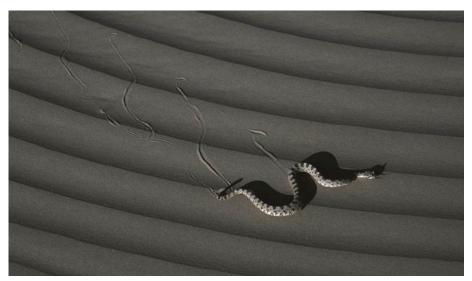


SP-20-13

Venomous Reptiles of Nevada

The buzz from a rattlesnake can signal a heart-stopping adventure to even the most experienced outdoor enthusiast.





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A Partnership of Nevada Counties, University of Nevada and U.S.D.A.

NEVADA'S REPTILES

Nevada has 53 species of snakes and lizards that share the landscape. Of these, only seven can be dangerous to people and pets. Encountering them is uncommon because of their body camouflage and secretive nature, which are among their first defenses in evading predators. Consider yourself fortunate if you do see one! As with all wildlife, treat venomous reptiles with respect.

Reptiles are ectothermic, meaning their body temperature increases or decreases in response to the surrounding environment. They are most active in the spring, summer and early fall when it's comfortable, short-sleeve weather. Reptiles usually hibernate, or brumate, during winter in response to colder temperatures. During high summer temperatures in the Mojave Desert, reptiles may estivate (a state of dormancy) underground in order to maintain vital body temperatures.

In some cases, collecting and possessing Nevada's native reptiles may not be allowed without the appropriate permit; please check with the Nevada Department of Wildlife. When keeping venomous reptiles, please also check with local (county, city, homeowners association) authorities regarding legalities. For more information on state regulations (e.g., methods of collection, species allowed, bag limits, types of permits required) please visit www.ndow.org. Always check regulations before collecting or moving species.

THE "DEADLY VENOMOUS" REPTILES

Nevada is home to six snake and one lizard (Gila monster) species that can be dangerous, possibly deadly, to people and pets. The snakes are all members of the Viper family and are considered pit vipers. They are the Sidewinder, Speckled, Panamint, Mojave, Great Basin and Western Diamondback rattlesnakes. With the exception of juveniles, most rattlesnakes encountered in Nevada are 1½ to 4 feet long. It is very important to remember that rattlesnakes do not always rattle their tails in warning, and a rattle does not always precede a strike!

General Characteristics

All rattlesnakes in Nevada have facial pits, heat-sensitive depressions, on either side of the head between the nostril and eye. These pits can detect differences in temperatures of less than 0.5 F in nearby objects which helps rattlesnakes detect prey even in complete darkness.

Compared to most non venomous snakes, rattlesnakes have broad triangular shaped heads that accommodate the venom glands and muscles controlling them (see p. 3). Pit vipers use fangs to dispense venom, which is a complex toxic compound of proteins and peptides used both to subdue prey and protect against predators. Having the ability to dispense venom using these fangs can mean life or death for rattlesnakes.

ABOUT THIS GUIDE

Maps depicting species' ranges across Nevada are used with county lines delineated for reference. Range maps are merely approximations, indicating what is known regarding each species' distribution; they are never as continuous as these maps appear, and are often spotty, isolated or "disjunct." Supplement map information with the known habitat use for each species to increase odds of an observation.

Each species is depicted with a "rattlesnake silhouette" that is relative to a 12-inch ruler.

Photos depict color and pattern differences, but other color and pattern variants likely exist. If you encounter species outside their range or with patterns not described here, safely take a photo and GPS coordinates and email them to reptiles@ndow.org or submit them on https://www.inaturalist.org/projects/reptiles-of-nevada.

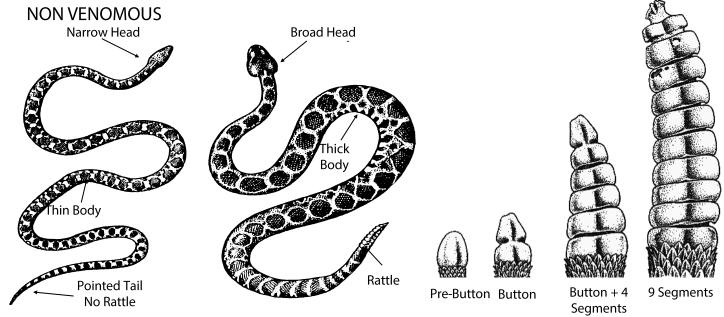


Figure 1. Venomous versus non venomous snake morphology.

Figure 2. The development of a rattlesnake's rattle from neonate (newborn) to adult.

Rattlesnakes have a triangular head that gives way to a narrow neck, thick body and tail tipped with a series of interlocking segments making up the rattle (Figure 1). Every time a snake sheds its skin, a new segment is added. Snakes shed from one to three times a year, and sometimes rattle segments break off, which is why rattlesnakes cannot be aged by simply counting the rattle segments (Figure 2).

When not in use, fangs are folded against the roof of the mouth (Figure 3). These fangs swing down as the snake lunges forward to strike, and venom is dispensed through the fang into the prey. Fangs are not permanent; they are periodically replaced. Flexible jaws (not unhinged jaws) allow snakes to swallow their prey whole.

"Ovoviviparous" — Rattlesnakes do not hatch from eggs; they are born alive from midsummer to fall. As with many other kinds of snakes, this is accomplished by the female retaining the fertilized eggs in their bodies until the babies are fully developed and ready to be born. The ability to vibrate the tail is instinctive, but the rattle cannot be heard until juveniles shed at least three times (Figure 2).

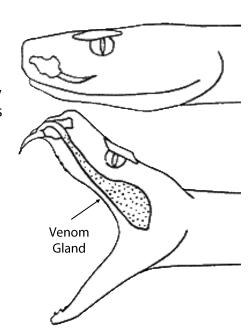
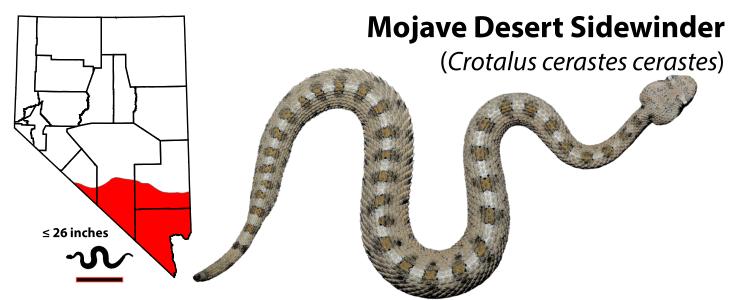


Figure 3. Fang mechanics of rattlesnakes.

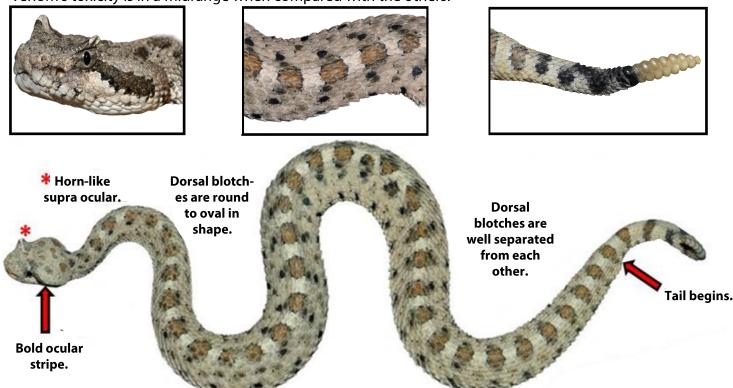
Venom — Remember, juvenile rattlesnakes should not be mistaken as harmless, as they can deliver a fully potent bite, and in some cases, toxicity may vary or change from juvenile to adult. *Size matters*. Larger species and individuals within species are capable of injecting more venom than smaller ones. Therefore, larger snakes offer a greater potential danger. Although venom toxicity does vary according to species, size and season, all of Nevada's rattlesnakes can deliver a bite that is dangerous to people and their pets. Respect reptiles, particularly venomous species, and you decrease the likelihood of envenomation.



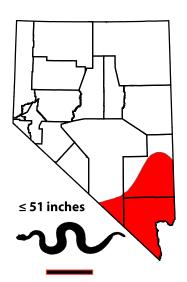
Description The Sidewinder is Nevada's smallest rattlesnake. With a horn-like scale projecting above each eye, the species was first called the "Horned Rattlesnake" by early Western settlers, and these scales still provide a relatively quick-and-easy way to identify the species. Over time, the name Sidewinder supplanted the earlier one and comes from the snake's unique mode of locomotion. While its angled, rolling-style of locomotion might have evolved as a way to more effectively move over loose sand, it is used on all other substrates as well, including paved roads.

Habitat Most common in the valleys of the southern counties, the Sidewinder can also be found in foothills of mountains such as those bordering the Colorado and Virgin Rivers. It primarily inhabits valleys and alluvial fans.

Noteworthy The Sidewinder, due to its relatively small size, is Nevada's least dangerous rattlesnake, meaning that the average Sidewinder has less venom available than the other species, although its venom's toxicity is in a midrange when compared with the others.



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Northern Mojave Rattlesnake

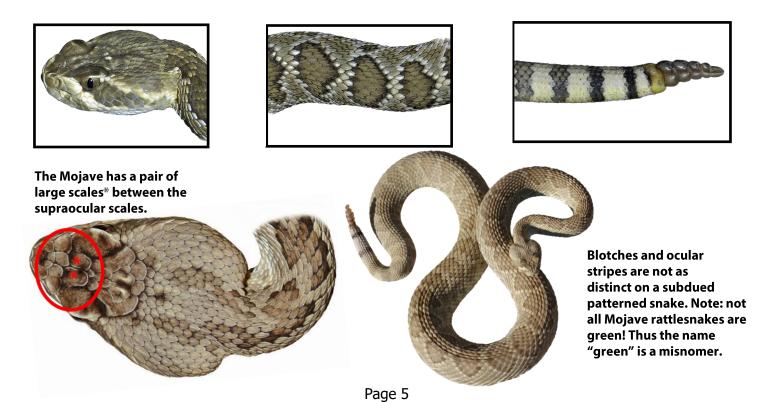
(Crotalus scutulatus scutulatus)

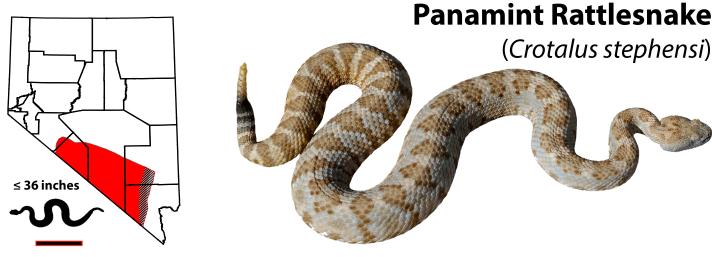


Description The Mojave (aka "Mojave Green") is a midrange-sized snake. It is well known that its venom is more toxic than any other North American rattlesnake species. Although many specimens of this snake in southern Nevada do have a greenish or olive-green overall appearance, it should be noted that they can be brownish or grayish in coloration as well. The pattern of the Mojave is similar to the Diamondback (p. 9), but its markings are usually more distinct, especially on the head. The Mojave's tail exhibits a pattern of dark and light cross-banding that is similar to the Diamondback's, however, a closer look reveals that the banding on the Mojave's tail is usually charcoal- and light-grayish rather than the bold black and white of the Diamondback's. Also, the dark bands on a Mojave's tail are usually narrower than the light bands, whereas a Diamondback's are more equivalent in width on average.

Habitat The Mojave is found throughout the Mojave Desert of Southern Nevada and mainly inhabits valleys and alluvial fans. It is common in Creosote-bush scrubland and Joshua Tree woodland deserts.

Noteworthy Folklore holds that it's an aggressive snake, prone to attack, even chases people. However, herpetologists refute that claim, holding that the Mojave is no more likely than any other species to be aggressive. Like all of the others, it will defend itself if provoked.

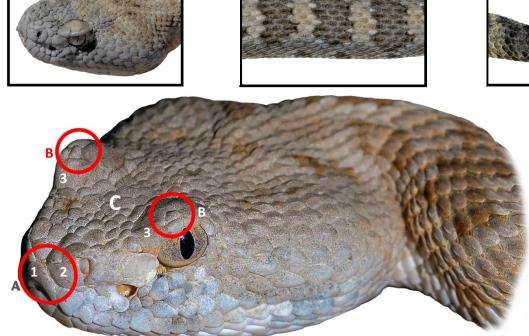




Description The Panamint attains a relatively small size. Named for the Panamint Mountains where it was first described, it was thought to be a subspecies of the Speckled Rattlesnake, based on appearance. The Panamint's pattern exhibits less speckling than that of the Speckled (p. 6) and, as a result, its dorsal blotches are more distinct. Panamints lack internasal and pre-rostral scales, but have creased supraocculars. They vary in color (red/pink to gray) and may have a bluish-gray mask below their eyes.

Habitat Found in southwestern Nevada, the Panamint most commonly occurs in mountains and foothills. Because the Panamint and Speckled rattlesnakes are similar in appearance, using their respective ranges (see maps) as a guide may prove helpful when distinguishing the species. The two species appear to be separated by the Las Vegas Valley, although overlap between the two species may occur (hatched black on map). The Panamint occurs north of Interstate 15 and west of U.S. Route 93 toward California.

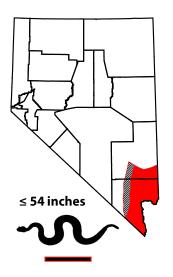
Noteworthy Although its venom is not as well studied as Nevada's other rattlesnakes, its size and close relationship to the Speckled indicate that the Panamint is also a potentially dangerous snake.



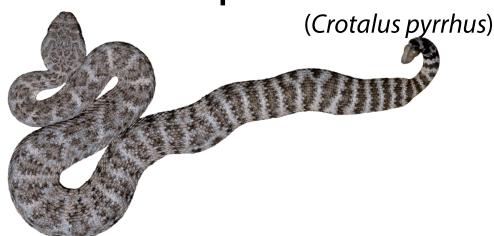


- 1. Rostral
- 2. Prenasal
- 3. Supraoculars
- A. There are no scales between the rostral and prenasal scales.
- B. There are distinct creases of sutures on the supraocular scales.
- C. Rows of small scales between the supraoculars = not a Mojave.

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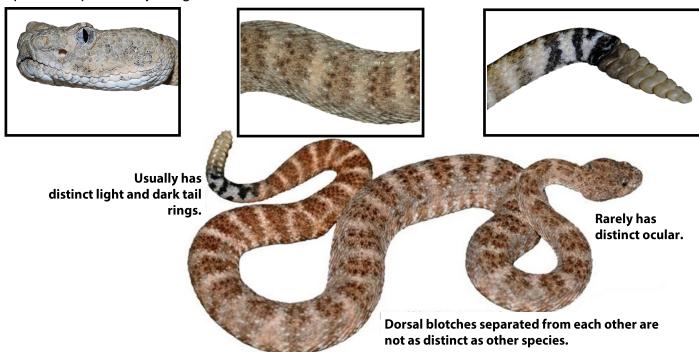
Southwestern Speckled Rattlesnake

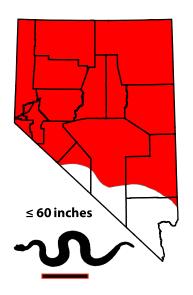


Description The Speckled is slightly larger than its close relative, the Panamint (p. 5). The Speckled is aptly named, with profuse small speckling defining its dorsal pattern. This speckled pattern can be over a varied background color based on the geology the snake inhabits. Populations are known to include various shades of light to dark gray or brown, orange to reddish, even bluish. Many of those in Nevada that are overall a shade of gray or brown have a wash of orangish color over parts of the head or body. Like the Diamondback, the Speckled has a series of black and light-gray or white bands on its tail. Unlike the Diamondback, however, these bands are relatively narrow and irregular, and they occupy only the last half or so of the tail.

Habitat The Speckled occurs in southeastern Nevada, south of Interstate 15 in Clark County and to the east of U.S. Route 93 toward Utah in Clark and Lincoln Counties. For a person adventuring in or among the canyons and mountains of southern Clark County, especially the ranges bordering the Colorado River, this is the species that is most likely to be seen. Overlap between the Panamint and Speckled may occur (hatched black on map).

Noteworthy Its length, large average head size, and venom ranking of above average in toxicity make the Speckled a potentially dangerous snake.



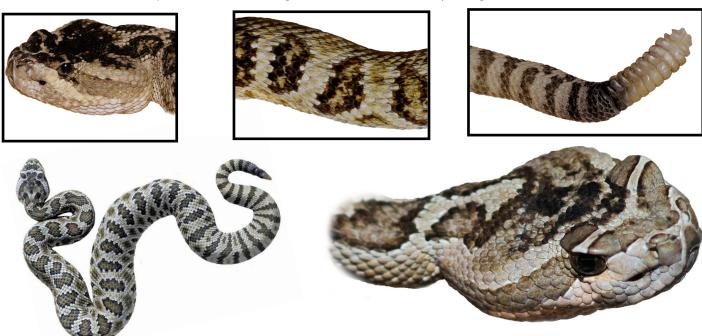




Description The Great Basin is second only to the Diamondback (p. 9) in Nevada regarding average adult length. The blotched markings along its back are somewhat rounded, rather than angular or diamond-like in shape. They are usually well separated from each other, with darker scales accentuating the blotches or "diamonds" along its dorsal side. On its tail are light and dark bands, but not the distinctly black (or dark-gray) and white (or light-gray) "coon-tail" as seen in the Diamondback, Mojave, Speckled and Panamint rattlesnakes. Its coloration is variable, but consists of primarily browns and grays. Facial stripes can be faint to pronounced.

Habitat The Great Basin is a habitat generalist and widely distributed over the western United States. The Great Basin is the only rattlesnake inhabiting the northern two-thirds of the state. In a few areas in the southernmost portion of its Nevada range, it may co-occur with other rattlesnake species. For the vast expanse of Nevada north of Caliente in the east and Tonopah in the west, the Great Basin is the only rattlesnake you might encounter. Although it may venture further south in places, these are likely found in higher elevation and disjunct locations. It is common across sagebrush and rocky hillsides.

Noteworthy The Great Basin venom is less toxic than a few Nevada rattlesnake species, but more toxic than others (see chart p. 12). Due to its large size, it is still relatively dangerous.

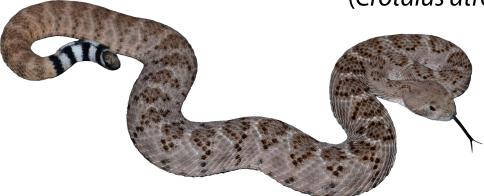


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≤ 72 inches

Western Diamondback Rattlesnake

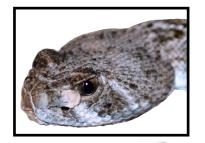
(Crotalus atrox)

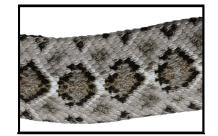


Description The Western Diamondback is Nevada's largest rattlesnake species, with the smallest distributional footprint in the state. Given the shape of this snake's dorsal blotches, it is aptly named. Unfortunately, virtually every rattlesnake species in the state can be said to have a "diamond-like" pattern. The result of this naming has been misidentification of other rattlesnake species (e.g., Great Basin [p. 8]) far beyond the species range. The most useful clues to identifying this species come from its limited range in Nevada and from the boldly banded black and white tail that earns it the nickname "coon-tail rattler." While other rattlesnake species in Nevada have contrasting black and white bands on their tails, none are as bold and obvious as the Diamondback's.

Habitat It is found with regularity only in the extreme southern tip of Clark County along the Colorado River corridor from the Laughlin area north to Cottonwood Cove. Potential observations have been made from as far west as Interstate 15 and as far north as the Boulder Beach area of Lake Mead.

Noteworthy The Diamondback is one of Nevada's two most dangerous rattlesnakes due to its size and large venom capacity.

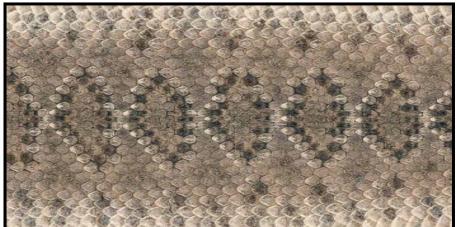


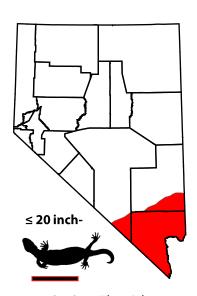




With the exception of the Mojave rattlesnake, all Nevada rattlesnakes have rows of small scales between the supraocular scales, like the Western Diamondback.









Description The Gila Monster is the largest and only venomous lizard in the United States. Coloration is black and salmon to orange mottling with four to five irregular broken chain-like bands. Gila Monsters have bumpy skin (osteoderms – small bones embedded in skin) covering their entire body and generally have black faces with pink or orange intermixed. Venom, mixed with saliva, is delivered along grooved teeth in the lower jaw as the lizard chews with a vice-like grip. Other reptiles that are often confused with Gila Monsters include the Chuckwalla and Western Banded Gecko (see p. 11), but both lack beaded skin.

Habitat The Gila Monster is known only to occur in the Mojave portion of southern Nevada, commonly inhabiting rocky outcrops, foothills and tallus/scree crock debris slopes.

Noteworthy The lizard is protected by state laws in all U.S. states (Arizona, New Mexico, California, Nevada, and Utah) in which it resides because it is unique in terms of North American lizards and is reasonably uncommon. It can spend up to 95% of its life underground. No mortalities have been documented. As nest predators, they are less effective at envenoming prey (see p. 14).

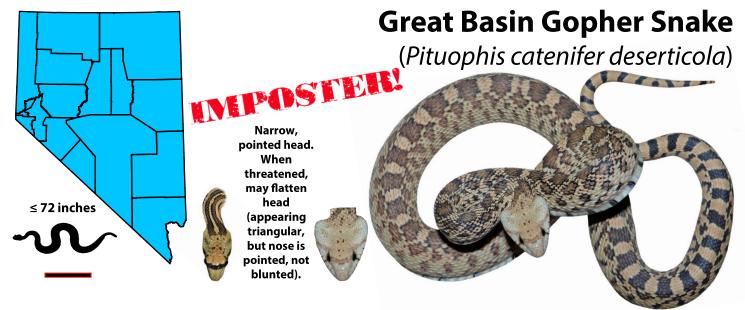












The Gopher Snake is a large snake found throughout Nevada and is nonvenomous. The snake mimics a rattlesnake by flattening its head to a triangular-like shape and inflating its body to appear larger. It can imitate the sound of a rattle by vibrating its tail in dry grass, leaves or loose gravel, or by hissing.



Adult Banded Geckos are generally very small in size (under 6 inches). They typically have pink feet, slender bodies and pink nonforked tongues (used to moisten their eyes). Geckos also have relatively transparent skin on the ventral side.



Chuckwallas do not have bumpy or beaded skin and have mostly dark heads. Juveniles are commonly banded, but tails are dramatically tapered.

RELATIVE DANGER INDEX FOR NEVADA'S RATTLESNAKE SPECIES

Toxicity and quantity of venom combined are used to rank relative danger index.

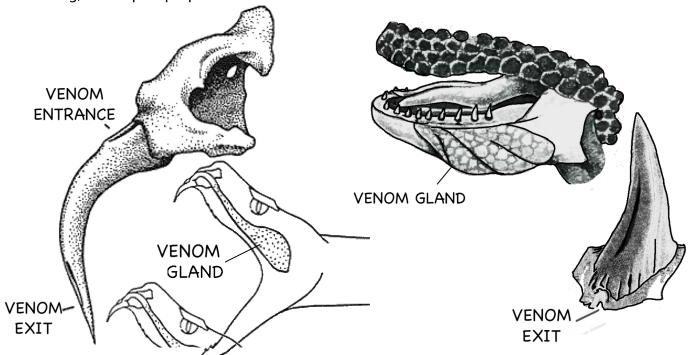
Adults of a species are more dangerous than juveniles of same species.

Snake Size Longest to Shortest	Venom Yield Most to Least	Venom Toxicity Highest to Lowest	Fatality Potential Most to Least
1. Diamondback	1. Diamondback	1. Mojave	1. Mojave
2. Great Basin	2. Speckled	2. Speckled	2. Diamondback
3. Mojave	3. Great Basin	3. Sidewinder	3. Speckled
4. Speckled	4. Mojave	4. Great Basin	4. Great Basin
5. Panamint	5. Panamint*	5. Panamint*	5. Panamint*
6. Sidewinder	6. Sidewinder	6. Diamondback	6. Sidewinder

^{*}Panamint venom toxicity & yield are little known.

Variation in venom toxicity exists within the species, population and even individual snake.

This index is based on <u>averages</u> observed for each species. Relative toxicity is taken from studies using intra -peritoneal injections of venom in mice. **Caution:** Listing of toxicity and fatality potential are <u>approximations</u>; it is important to note all rattlesnake bites are potentially dangerous, perhaps even lifethreatening, and require proper and immediate medical attention.

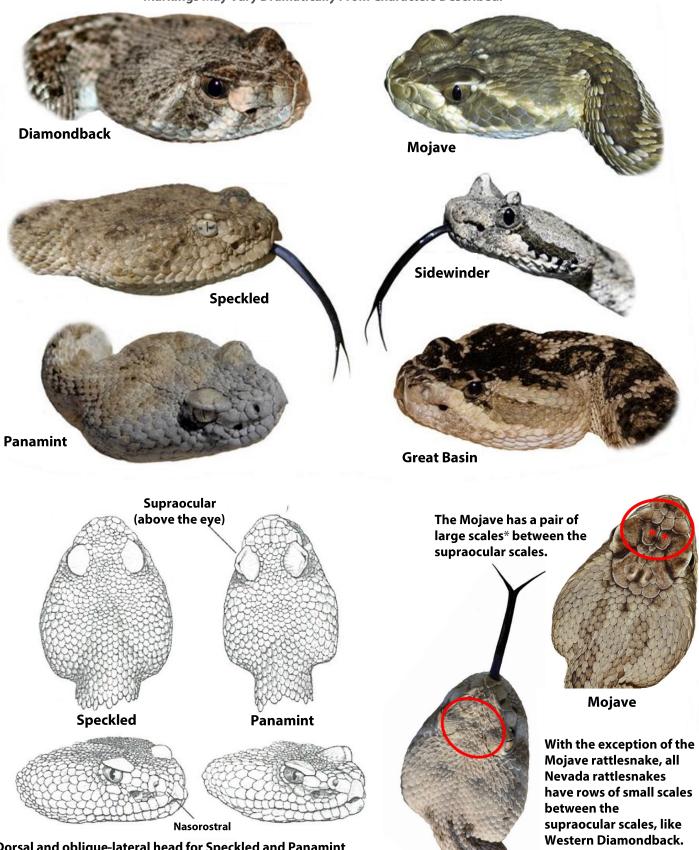


The method of venom delivery greatly influences venom effectiveness. Rattlesnakes (depicted on the left) deliver venom through hypodermic-like hollow teeth, complete with associated venom glands and compressor musculature on the roof of their mouth. In contrast, Gila Monsters (depicted on the right) deliver venom through ducts located in the lower jaw, which drain near grooved teeth; venom mixes with saliva and enters the prey via chewing action of the grooved lower teeth.

HEAD PATTERNS

Note: Relative size of head is not to scale.

Markings May Vary Dramatically From Characters Described.



Dorsal and oblique-lateral head for Speckled and Panamint rattlesnakes, depicting the presence of small scales (nasorostrals) between the prenasals and rostral in Speckled and the creased supraoculars in Panamint rattlesnakes.

W. Diamondback

MID-BODY AND DORSAL BLOTCH PATTERNS

Note: Relative size of body is not to scale.

Markings May Vary Dramatically From Characters Described



Diamondback Rattlesnake Dorsal Blotches

- Hexagonal or diamond-like shape
 - Light outer border
 - Broken, darker inner border
 - Center with a few dark spots
- Not well separated, outer border may touch at mid-line



Great Basin Rattlesnake Dorsal Blotches

- Elliptical, oval or hexagonal shape
- Outlined with a wide, irregular dark border
 - Well separated, with scales between blotches matching coloration of snake's sides



Mojave Rattlesnake Dorsal Blotches

- Hexagonal or diamond-like shape
 - Broken, lighter outer border
- Well-defined, dark inner border
 - Center lacks dark spots
- Not well separated, outer border may touch at mid-line



Speckled Rattlesnake Dorsal Blotches

- Less distinct than other species
- Widened hexagon, diamond or hour-glass shape
 - Irregular borders
- Light and dark scales mixed



Panamint Rattlesnake Dorsal Blotches

- More distinct than Speckled, but less distinct than others
 - Hexagonal or rhomboid shape
- Irregular borders of light and dark scales mixed
- Well separated, with unspeckled, lighter scales between



Sidewinder Dorsal Blotches

- Round to oval shape
- Medium to dark brown color
 - Thin, dark borders
 - Well separated
 - Light area between

TAIL PATTERNS

Note: Relative size of tail is not to scale.

Markings May Vary Dramatically From Characters Described.



Diamondback Rattlesnake Tail Pattern

- Bold contrast between rings, generally black and white
- Black/white rings cover most of tail and are seemingly equal in length



Speckled Rattlesnake Tail Pattern

- Interspaces between black/darkbrown rings are whitish/light-gray
- Black to dark/gray rings on last 1/4—1/2 of tail



Great Basin Rattlesnake Tail Pattern

- Dark bands with lighter interspaces (not black/white)
- End of tail and basal rattle segment are dark brown/black coloration of snake's sides



Mojave Rattlesnake Tail Pattern

- Light interspaces usually whitish/light-gray but may be yellow/greenish
- Black/dark-brown rings cover most of tail and are narrower than light interspaces



Panamint Rattlesnake Tail Pattern

- Interspaces between black/darkgray rings usually NOT whitish/lightgray (generally matches body color or side coloration of snake)
- Black to dark-gray rings usually on last 1/4 of tail



Sidewinder Dorsal Blotches

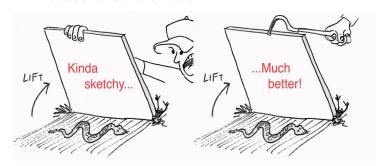
- Interspaces between markings are tan/gray
- Black/dark-brown spots/rings on last 1/3—1/2 of tail

ENVEMOMATION PREVENTION

The best way to avoid trouble with venomous reptiles is to be aware of your surroundings and observe some safety rules. Too often, bites result from deliberate harassment of reptiles. Avoid disturbing, removing or killing venomous reptiles. If a venomous reptile is seen in an area where it poses a direct threat to human safety, call the Nevada Department of Wildlife's urban wildlife hotline at 702-668-3551. Do not handle dead venomous reptiles; reflex action may persist up to 24 hours after death, and a serious bite can still be inflicted.

- Learn how to identify venomous reptiles.
- Use caution when hiking. Determine safety from a distance before placing hands or feet atop or among rocks or crevices; or before entering abandoned dwellings, caves or mines.
- Check under your car on hot days, in case a reptile is seeking shade.
- Check where you are going to step before getting in or out of your boat.
- Supervise your children's activities and teach them not to play with any snakes they find.
 Have them report any snakes they see to an adult.

- Keep snoopy pets on a leash and consider snake avoidance training for your dog.
- Choose open campsites and always carry a flashlight when walking at night.
- Lift rocks, wood or other potential cover sites so they are between you and the possible rattlesnake underneath.



FIRST AID (IF BITTEN)

The primary goal is to seek emergency medical treatment immediately. If you believe you have been bitten by a venomous reptile, do not wait for symptoms to show. The severity of snakebite is determined by several factors, including the patient's underlying health conditions and body volume, time to treatment/administration, species of snake, amount of venom, and depth of initial wound. Even within one species of snake, the toxic severity can differ by size, age, population and season.

- 1. <u>If possible, call 911 immediately</u>. If you can't call 911 due to lack of reception, then proceed as indicated below and call 911 as soon as possible.
- 2. <u>Immobilize the patient and keep the wound at or below heart level</u>. Gravity can quicken the spread of the venom if the wound is above the heart. <u>DO NOT use tourniquet, cut and suction, electroshock or ice on the wound</u>.
- 3. <u>Calm the patient</u>. A rapid pulse from panic or anxiety circulates venom more quickly.
- 4. Watch the patient for any unusual reactions. Remove all jewelry in anticipation of swelling.
- 5. <u>Transport the patient to a medical facility immediately</u>. If it is necessary to walk, do so slowly and rest frequently.

Remember that a venomous bite does **not mean certain death**. Annually **only one-tenth of 1%** of venomous bites result in death nationwide. Timely medical treatment simplifies recovery. This also applies to pets.

Suggested References:

Beck, D. 2004. Gila Monsters in Our Midst. Thomas Weiwandt Brochure Publication. St. George, UT.

Ernst, C.H. 1992. Venomous Reptiles of North America. Smithsonian Institution. Washington, D.C.

Ivanyi, C. and R. Lizotte. 2003. *Venomous Critters of the Southwest*. Getgo Guides, Arizona-Sonora Desert Museum. Tucson, AZ.

Parker, J.M. and S. Brito. 2013. Reptiles & Amphibians of the Mojave Desert, Snell Press. Las Vegas, NV.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*, 3rd Edition. The Peterson Field Guide Series, Houghton Mifflin Company. New York, NY.

Wagner R. and M. Wagner. 2005. *Tread Lightly: Venomous and Poisonous Animals of the Southwest*. Rio Nuevo Publishers. Tucson, AZ.

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