

Venomous Snakes in Iraq

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By Dean Alessandrini

Of all the hazards of living and serving in Iraq, dealing with venomous snakes may be the least discussed. Six species of dangerously venomous snakes are native to Iraq. These snakes are all fascinating creatures that are well equipped to deal with a harsh environment. People inhabiting their environment must be prepared to deal with them.

Venomous snakes in Iraq.

As a former zookeeper at Kentucky Reptile Zoo, I have had the opportunity to work with and photograph these venomous snake species, many of which are rare in U.S. collections. It is my hope that this article will provide a useful reference to service people in Iraq and their families at home on how to avoid a dangerous snakebite, as well as provide interesting information on the snakes themselves for all readers.

Snake Behavior and Human Encounters

Although Iraq includes desert, mountains and grasslands, its venomous snakes are primarily desert-dwelling, nocturnal or crepuscular (active at dawn or dusk) species. Daylight activity is relatively rare and usually confined to cooler times of the year. Rain also plays an important role in the activity and behavior of desert-dwelling snakes. Snakes often become active during and immediately following desert rains, especially at night. In the heat of the day, desert snakes are usually either underground, or within or under cover (mammal burrows, shrubs, rocks and rock formations).

Like all snakes, these animals would prefer to avoid confrontations with humans. They are generally not a threat to humans unless they are actually touched or stepped on. With this in mind, almost all bites are preventable.

In reference to the war on terror, Major General Rick Lynch, the chief U.S. military spokesman in Baghdad, said, "You've got to think like the Enemy." As a life-long herper, I refuse to compare snakes to the enemy. I will, however, take Major General Lynch's advice in this context by simply altering the quote to say, "You've got to think like the Snake."

Instincts drive snakes to act in the manner that will best ensure survival. Think of it as a hierarchy of needs that determines their behavior.

Understanding Snakes' Needs

The following information details the three most important basic needs of desert snakes — needs that dictate their behavior. When we understand what drives the animals' behavior, measures can be taken to effectively minimize venomous snakebite.

Security: Normally, a snake has no motive to harm a human. If it feels threatened, however, all bets are off. Therefore, it is always unwise to put a snake into a situation that causes fear.

Troops in Iraq are composed of many young men and women, often eager to engage in exciting activities. Even during times of war, there is plenty of down-time, and during these periods, few activities may be available to assuage the adrenaline-fix needs of young soldiers. Some may turn to native wildlife such as snakes as a source of "recreational adventure" (and understandably so, in the opinion of a field-herping junkie like me). These activities, though, can lead to envenomation.

According to Tom Harkins of the U.S. Army Center for Health Promotion and Preventive Medicine, 85 percent of snakebites to U.S. troops during Operation Desert Storm were a direct result of "turning to serpents for entertainment." A wild snake that is touched by a human will react as if its life is in jeopardy. After all, any other creature that grabs a snake would be doing so with the intent of making a meal of it.

It is always unwise to handle venomous snakes if you are inexperienced. Simply eliminating horseplay with snakes will prevent the vast majority of venomous snakebites.

Thermoregulation: All snakes are ectothermic. In order to control body temperature, they must move in and out of warm and cool places. In the desert, cool retreats from the blistering heat may be difficult to come by.

Manmade sources of shade, such as tents, equipment and building materials, are ideal hiding places for desert snakes. Minimizing the amount of cluttered materials and objects that provide dark, tight hiding places will reduce snake encounters. Any building materials such as sheets of wood, rolls of cloth, etc. that have been sitting for more than a few hours should be “flipped” with the handle of a shovel or broom before being moved, as bites often occur as a result of moving such things bare-handed. Remember that your objective should not be to kill snakes.

Food: Several Iraq species rely on ambush-hunting techniques while buried near the surface of the sand. For this reason, when walking in the desert, one should always wear boots or thick shoes and keep ankles and lower legs covered. Otherwise, there’s a risk of being bitten on the lower extremities because a snake that is tread upon will bite.

Preferred prey items include rodents, ground-dwelling or nestling birds, and lizards. These animals are in turn attracted to human quarters because of possible food and shelter. For this reason, it is important to keep areas in and near human dwellings clear of unnecessary debris and food.

Species Identification

Five of the six species of venomous snakes that are known to naturally occur in Iraq are in the family Viperidae (vipers). The sixth species is a member of the family Elapidae (cobras).

In this article, “venomous” refers to species that are venomous “to a degree of medical significance.” It will not include any of the mildly venomous, rear-fanged species that are generally agreed to be harmless to humans.

The desert horned viper (*Cerastes cerastes*) is a common resident of the Iraqi desert. This specimen is the one that bit the author’s friend, Kentucky Reptile Zoo Director Jim Harrison, resulting in the partial amputation of one of his fingers.

Contrary to folklore, there is no single method such as “look for the diamond-shaped head” to effectively distinguish venomous species from nonvenomous species. Iraqi snakes are no exception. When referring to a fixed geographic region, however, certain common characteristics can sometimes be used to come to a reasonable conclusion. The best practice is to learn to identify each venomous species of the particular region, always assuming that the snake is venomous if you cannot make a positive I.D.

The Vipers

Iraq’s viper species are a fascinating group. Some have hornlike appendages that break the surface of the sand as the animal lies in rest, and a couple species create a unique rasping sound by rubbing together their keeled scales.

All five vipers are primarily nocturnal or crepuscular, spending the daytime in hiding and (when hungry) the nighttime actively prowling or buried just below the sand waiting to ambush prey. Sidewinding is the preferred method of locomotion, which enables snakes to glide across smooth and sometimes scorching sand, while minimizing their surface area that comes into contact with it.

Iraq’s vipers are thick bodied, with large, broad, triangular heads, elliptical pupils and heavily keeled scales. With one exception, they are all relatively small species (usually under 3 feet in total length), but their bites pack a punch!

Venoms from these snakes are composed primarily of hemotoxins (poisons that destroy red blood cells and body tissues) and contain numerous other toxins as well. For instance, the saw-scaled viper appears to have approximately equal components of hemotoxins and neurotoxins (neurotoxins affect the neurological functions of the body). Envenomation symptoms of a viper bite are generally characterized by intense pain and swelling in the area of the bite, internal bleeding and tissue destruction.

The following are the viper species known to occur in Iraq.

Saw-Scaled Viper (*Echis carinatus*)

Range and preferred habitats: Found throughout the southern deserts, in both sandy and rocky terrain.

General description: The smallest of Iraq’s vipers, the saw-scaled viper rarely exceeds 2 feet and averages only about 18 to 20 inches. It is highly variable in color and pattern. Typically it has a brown or tan ground color, although it may also be gray or reddish. The snake’s dorsum has one to three rows of dark blotches with light centers. The snake may be striped or display a wave pattern on the sides.

Iraq's only native cobra, the desert cobra or "desert blacksnake" (*Walterinnesia aegyptia*) is a solid, glossy black elapid that rarely, if ever, hoods up. Perhaps the most reliable way to quickly distinguish the saw-scale from other vipers in Iraq is the presence of the characteristic arrow-shaped marking on the top of the head.

Characteristics: The fiery little saw-scale is blamed for more deaths annually than any other species in the world. The bite of this snake has been known to cause massive internal hemorrhaging and bleeding from all bodily orifices (not a snake to mess around with).

The saw-scale's claim to fame is its unique method of conveying that it means business. When threatened, it forms its body into a crescent, and the scales are wound across one another in a continuous, undulating motion. The result is a chilling rasping noise that sounds like the wind blowing.

Primarily nocturnal, *Echis carinatus* has been known to be found under rocks during the day. Food consists of lizards, small rodents, scorpions and amphibians.

Desert Horned Viper (*Cerastes cerastes*)

Range and preferred habitats: Throughout the southern deserts, primarily in sandy terrain.

General description: The desert horned viper is a thick-bodied snake that averages approximately 20 inches and rarely exceeds 2 feet in length. Typically a smooth, bony horn extends above each eye, although one or both may be absent. Ground color is variable from light gray and brown to yellowish. Dark blotches extend the length of the back.

Characteristics: The desert horned viper is a burrowing, sand-dwelling species. Although not as aggressive or lethal as the saw-scale, the desert horned viper is nonetheless a common and potentially dangerous resident of the Iraqi desert. It also sometimes exhibits scale-rasping behavior similar to *E. carinatus*.

This snake is fond of loose sand, and it can disappear into the sand in a matter of seconds. When buried, only the eyes, nostrils and horns remain above the surface. Sidewinding is its preferred method of movement. Foraging occurs chiefly at night, and prey consists of lizards and small rodents.

Bites from the desert horned viper show hemotoxic effects and have great tissue-damaging qualities. Jim Harrison, the director of Kentucky Reptile Zoo, lost the top digit of a finger due to tissue destruction resulting from the bite of a desert horned viper. Necrosis resulting from the envenomation resulted in the onset of gangrene, and a partial amputation was ultimately required.

Lebetine Viper (*Macrovipera lebetina*)

Range and preferred habitats: Semi-arid regions throughout the country with the exception of the southwestern quadrant. This species prefers regions where some vegetation exists and may therefore inhabit regions of permanent human occupancy.

General description: Also known as the Levantine or blunt-nosed viper, *Macrovipera lebetina* is a large and attractive species that can reach lengths in excess of 6 feet. In addition to its large size, the species is characterized by its large, triangular head that has no horns and is normally unmarked. The head is probably the best feature to quickly distinguish this snake in Iraq. Ground color is variable. Often, the species takes on an attractive mottled blend of colors ranging from pale gray to tan, to brown or even pink, with dorsal spotting that sometimes forms bars.

Characteristics: This species is primarily nocturnal or crepuscular. Usually considered slow and lethargic, some specimens have been known to break out of a slothful pose to strike aggressively. This behavior is often associated with the animal being threatened, especially at night when they are most alert.

This viper is capable of delivering a high dosage of venom with primarily hemotoxic effects. The bite quickly causes pain, swelling and tissue damage. Rodents and birds are the preferred prey.

Field's Sand Viper (*Pseudocerastes persicus fieldi*) Persian Horned Viper (*P. p. persicus*)

Range and preferred habitats: Two subspecies occur in Iraq. The Field's sand viper occurs in western Iraq, and the Persian sand viper is found in the eastern and central portions of the country. Both subspecies prefer semi-arid conditions with combinations of sandy and rocky terrain.

General description: *Pseudocerastes persicus* is a stout-bodied species with a wide, flat head that is clearly set off from the body. A single horn protrudes above each eye. The horns of this species are thicker than those of the desert horned viper and are composed of tiny scales, unlike the smooth thornlike horns of *Cerastes cerastes*. Average length is about 2 feet long, however it has been known to reach lengths of up to 42 inches.

Ground color may be beige, yellowish brown, gray or bluish gray. Rows of pale blotches are usually present, but some individuals take on an almost unicolor light brown or gray appearance. The tail tip is usually jet black.

Characteristics: *Pseudocerastes persicus* is a heavy and slow-moving species. Typically nocturnal or crepuscular, it may sometimes be found resting in shrubs during daylight hours. Bites seem to be relatively infrequent. When they do occur, symptoms display a nasty blend of hemotoxic and neurotoxic effects.

Kurdistan Viper (*Vipera raddei kurdistanica*)

Range and preferred habitats: In Iraq, this species is known to occur only in a small region of the northeast. The Kurdistan viper is a montane species that prefers rocky slopes in higher elevations (4,000 feet plus).

General description: This species is gray or grayish brown with a row of orange to yellowish spots along the back, often forming a zigzag pattern. Average lengths measure 2 to 3 feet, and a shieldlike scale protrusion extends over each eye.

Characteristics: The Kurdistan viper's venom is primarily hemotoxic. Because of the montane habitats preferred by this species, encounters with humans are rare. Food includes rodents and birds.

The Cobra

The desert cobra, or "desert blacksnake," is the only species of the family Elapidae occurring naturally in Iraq. That being said, non-native cobra species from throughout the Middle East are sometimes imported for showman activities and could potentially be encountered in Iraq.

Cobras are known for their short, fixed front fangs and their active, alert and intelligent nature. Bites from cobras have a primarily neurotoxic effect on humans, and many are potentially fatal without quick treatment.

Desert Cobra (*Walterinnesia aegyptia*)

Range and preferred habitats: The desert cobra is widespread, but may be absent from extreme northern Iraq. Like most cobras, the desert cobra will utilize almost all habitats and is attracted to areas occupied by humans due to shelter and rodent possibilities.

General description: A solid, glossy black snake with a medium build, this species bears a striking resemblance to several harmless American colubrid snakes, especially the black milk snake. Adult desert cobras are usually between 3 and 4 feet in length. The head is rounded and barely set off from the neck. This snake appears to rarely, if ever, display the typical "hooding" cobra defense mechanism. Distinguish this snake by its smooth scales and solid, glossy black, polished appearance.

Characteristics: This is a fast-moving, alert snake. Although cobras will not seek out confrontation, if cornered or harassed, they will not hesitate to bite and inject venom. When confronted, this species is likely to bite without hooding and from either a coiled or relaxed posture. The strike may occur very quickly and from any direction.

Cobras are not typically picky about prey, and will consume anything from birds and rodents to lizards, other snakes and eggs.

Last Bites of Information

Avoiding bites is much easier than treating them. Dressing properly, eliminating clutter and resisting the temptation to participate in horseplay with snakes will eliminate well over 80 percent of bites.

If a bite occurs, be prepared. Understand the symptoms of envenomation and how best to get treatment. If companions are bitten, treat them as if they were in shock. Remind them that even severe bites are treatable with antivenom.



Antivenom is the only treatment for snakebite, and it must be administered by a professional. Know where to go and get there as fast as you can. Above all, remain calm and act swiftly. More information for military personnel and their families is available through the U.S. Army Center for Health Promotion & Preventive Medicine.