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Texas Field Notes



Bullsnake

Pituophis catenifer sayi

In much of Texas and the American Midwest, one of our largest nonvenomous snakes can be found on warm days and summer nights. The Bullsnake is a handsome animal whose size, strength, and behavior command respect. Some of them are gentle, but when they are belligerent, Bullsnakes can be a little scary.

The Genus *Pituophis*

You may recall that animals are classified by a system, which uses two or three words to describe a particular kind of animal. The first name (the genus) refers to a group of similar animals. The second name (the species) refers to a distinct kind of animal whose members can interbreed but gener-

ally do not breed with individuals outside of that species. In some instances geographic variations can occur, and these variations within the species are called subspecies.

The name "*Pituophis*" is derived from Greek words for "pine" and "snake." The first named snake in this genus was the northern pine snake of the northeastern U.S.

Snakes within the genus *Pituophis* range from Central America to Canada, and are generally known as the Bullsnakes, pine snakes, and gopher snakes. In the U.S., most fall into one of two species: *melanoleucus* or *catenifer*. For the most part, *melanoleucus* represents the pine snakes of the eastern U.S., and *catenifer* represents the gopher snakes of the western U.S. (The Louisiana

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Bullsnake (continued)

pine snake, an endangered animal found in Louisiana and Texas, is a different species — *Pituophis ruthveni*). The Bullsnake has a long and ever-changing history of names. In Wright & Wright's two-volume Handbook of Snakes, published in 1957, the Bullsnake was *Pituophis catenifer sayi*. In Conant & Collins' most recent field guide it is *Pituophis melanoleucus sayi*. In many current texts such as Tennant & Bartlett's field guide and Werler & Dixon's new book the species is shown as *catenifer*.

Description

As mentioned above, the Bullsnake is one of our biggest snakes. Wright and Wright (1957) as well as Shaw & Campbell (1974) cite early reports of Bullsnakes reaching 9, 10, or even 12 feet in length. While those measurements are not confirmed, Shaw & Campbell believed that these snakes might once have



reached such lengths. One substantiated measurement was of a Bullsnake 8.3 feet long with a circumference of 8.4 inches. Tennant & Bartlett cite a huge Bullsnake measuring 8 feet, 6.5 inches from Wichita County, Texas. Werler & Dixon note that the average adult Bullsnake is usually between four and five feet long.

The shape and scalation of the head helps identify Bullsnakes. The head is rather tall (not flattened) and has a somewhat pointed snout. The rostral scale at the tip of the nose is higher than it is wide and a little bit raised. The bones of the snout are shaped so that the skull is more rigid than, for example, the related gopher snakes. All of this allows the Bullsnake to burrow or excavate dirt in search of the rodents that it eats. There are four

prefrontal scales (the scales on the top of the head just in front of the eyes) rather than two, which is a more common arrangement in other similar snakes. Along this row of prefrontal scales there is a very slight ridge where the snout angles slightly downward, and some (such as Tennant & Bartlett) say that this ridge, resembling the boss of a bull's horns, is where the common name "Bullsnake" originated. The head is often a tan, yellowish, or caramel color, freckled with black or dark brown.

Running down the back from the neck to the tail is a gradually changing pattern of blotches. The dark blotches are relatively small and may be dark-edged, contrasting with the straw or tan ground color. On the sides there are rows of smaller blotches that are, especially toward the neck, indistinct. Further down the back the dorsal blotches become wider and more like dark crossbars and the tail appears more or less ringed. This ringed pattern seems

a bit of a parallel with the black and white ringed tail of the western diamondback rattlesnake. The Bullsnake's aggressive-looking threat display is a further parallel, as a defensive Bullsnake often holds the forward part of the body elevated and ready to strike, while hissing in a way that strongly suggests the buzzing of a rattlesnake's rattle. Dorsal scales are strongly keeled. The belly scales are yellow to pale straw color, with varying amounts of black spots or half-moons. The scale covering the cloaca is undivided.

Food

Bullsnakes eat large numbers of rodents — rats, mice, gophers, and ground squirrels. They may also take young rabbits, and also may eat birds and their eggs. Occasionally, lizards or other snakes may be taken, but Bullsnakes primarily eat warm-blooded prey. The bulk of

the diet is burrowing rodents, and for that reason farmers and ranchers may appreciate having them on their land.

Habitat

This snake is able to take advantage of a variety of relatively dry, open habitats. Prairies and fields with mesquite or other scrubby growth are typical places where Bullsnakes can be found. In our area of north Texas, Bullsnakes are still seen fairly commonly in a part of Grand Prairie just to the west of Joe Pool Lake, and they have been seen in old pastureland with mesquite growth. In 1999, Steve Campbell and I found a juvenile on the banks of a large prairie stream at the western edge of Fort Worth, and in

1996 I found another juvenile female on Hwy. 157 in southern Johnson Co. In 2000 I saw an adult DOR (dead on road) in Crowley. The surrounding habitat for all three of those snakes would be old fields and pastureland or disturbed prairie.

Bullsnakes are found at a variety of elevations, from sea level to elevations up to 9000 feet in the Guadalupe Mountains. In south Texas they may be found in the thorn scrub, and in the Edwards Plateau they are found on rocky hillsides as well as fields. North of Texas, Bullsnakes inhabit prairies, plains, and other open habitat up through the central U.S. and into southwestern Canada.

Any large snake whose life history includes prowling about in the open during the day and getting onto roadways can count on trouble from humans. In *Snakes of the American West*, Shaw and Campbell cite a report dating from 1907 that described city-dwellers driving out into the country and running over the closely related gopher snake. The report went on to say: "it seems a wonder that there are any gopher snakes whatever left. It is very evident that snakes are far less common than they used to be twenty years ago; at the same time gophers and ground squirrels are in many districts more of a pest than ever before; and the reason is obvious." (p. 108) Tennant & Bartlett show the Bullsnake as being one of the commonest large snakes in the U.S. This snake may benefit from some degree of cultivation of fields, which may be associated with more rodents. Bullsnakes also may make use of trash piles for shelter. However, it is open to question whether Bullsnake populations can persist in areas where there are many people.



lower jaw of snakes. In front of the glottis is an appendage termed the epiglottis; this intensifies the sound of an angry exhalation in the same fashion as a bit of pasteboard held in front of one's lips and blown upon forcibly. The snake employs the organ to intimidate an enemy. Taking a deep inhalation, it half opens its mouth and emits the breath with a noise that may be heard for fifty feet or more. To complete a hostile air to its antics it usually strikes at the offending object while giving voice to its anger. As the snake's head darts forward the reptile utters a sound that might rival the plunging of a piece of hot metal into water. The appearance of one of these snakes in a rage is sufficient to excite respect in the mind of a person not acquainted with it. (p. 212)

Behavior

Probably the most striking thing about the Bullsnake's behavior is its manner of defending itself. A disturbed Bullsnake looks angry — no, more than angry, it looks furious as it fills its body with air and lifts its head and forebody off the ground in a position ready to strike. Its mouth gapes open and the black tongue may hang from its mouth. The overall shape of the face, with the relatively small eye and the scale just above it looking like a glowering eyebrow, adds to the effect (even though the snake's face cannot change to express emotion and the effect is only our own interpretation). The famous herpetologist Raymond Ditmars, who published a number of influential books in the early part of the 20th century, very colorfully described the hissing which pine, bull, and gopher snakes use defensively:

This sound is produced by an arrangement of the glottis, which is the air opening, tubelike in form, attached to the

On the other hand, some Bullsnakes allow themselves to be handled without protest and some are very calm in temperament. This appears to be, at least partly, dependent on what the individual snake is "born with." Some are fairly calm even after being collected from the wild, while other captive-bred Bullsnakes may remain defensive even after regular handling.

Reproduction

Bullsnakes are egg laying. Mating occurs soon after emerging from hibernation, and about two months later a female in the wild may lay from 3 to 22 eggs (Werler & Dixon, 2000). At a little over two inches long, these are among the largest eggs laid by any snake in North America. Incubation is reported to take 50 to 80 days, and hatchlings emerge in August or September. These hatchlings are generally over a foot long and may be nearly twenty inches in length.

(continued)

Bullsnake (continued)

Notes

In some respects these can be wonderful snakes to keep in captivity. They are quite handsome and there is a satisfying feel to their large, muscular coils. Almost all of them eat readily, including hatchlings which can eat fuzzy mice right away. They are hardy animals that may live a long time; Slavens reports a record of a Bullsnake living more than 28 years in captivity.

Bullsnake detractors cite their voracious appetites (it can get expensive, tossing rats to these eating machines!) and amazing ability to produce large amounts of very fragrant excrement. An active Bullsnake may even paint portions of the cage with feces as it moves about. A good-natured Bullsnake may more than make up for these drawbacks, but a bad-tempered one is no fun to live with at all!

References and Further Reading

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