

Pantherophis obsoletus



Scientific Classification

Kingdom:	Anamalia
Phylum:	Cordata
Class:	Reptilia
Order:	Squamata
Suborder:	Serpentes
Family:	Colubridae
Genus:	Pantherophis
Subgenus:	<i>P. obsoletus</i>

Binomial Name

Pantherophis obsoletus
(Say in James, 1823)

Synonyms

- *Coluber obsoletus*
Say, 1823
- *Elaphis holbrookii*
A.M.C. Dumeril & Bibron, 1854
- *Scotophis obsoletus*
— Kennicott, 1860
- *Elaphis obsoletus*
— Garman, 1883
- *Elaphe obsoleta*
— Stejneger & Barbour, 1917
- *Pantherophis obsoletus*
— Utiger et al., 2002
- *Pituophis obsoletus*
— Burbrink & Lawson, 2007
- *Scotophis obsoletus*
— Collins & Taggart, 2008
- *Pantherophis obsoletus*
— Pyron & Burbrink, 2009

Pantherophis obsoletus – also known as the **western rat snake**, **black rat snake**, **pilot black snake**, or simply **black snake**^[3] – is a non-venomous species of [Colubridae](#) found in central [North America](#). No [subspecies](#) are currently recognized.^[4] Its color variations include the **Texas ratsnake**.^[2]

Geographic range

Pantherophis obsoletus is found west of the [Mississippi River](#), from eastern and southern [Iowa](#) southward through [Missouri](#) and [Arkansas](#) to western [Louisiana](#), westward to eastern [Texas](#), northward through [Oklahoma](#) and eastern [Kansas](#) to southeastern [Nebraska](#).^[5]

Aside from the usual variety that is black or has patches of black on a lighter background, color variations include the Texas rat snake, a brown-to-black variant, often with tinges of orange or red, that can be found in southern Oklahoma, Texas, and Louisiana.

Habitat

Rat snakes live in a variety of habitats; some overlap each other. Rat snakes are excellent climbers and spend time in trees. They live in habitats ranging from a rocky hillside to flat farmland.^[6]

Preferred habitat

It prefers heavily wooded areas and is known for having excellent climbing ability, including the ability to climb the trunk of large mature trees without the aid of branches. This snake is a competent swimmer. During winter it hibernates in dens, often with [copperheads](#) and [timber rattlesnakes](#). This association gave rise to one of its common names, pilot black snake, and the superstition that this nonvenomous species led the venomous ones to the den.

Description



A black rat snake, Chatham County, [North Carolina](#)

Adults of *Pantherophis obsoletus* can become quite large, with a reported typical total length (including tail) of 106.5–183 cm (3 ft 6 in–6 ft 0 in).^{[7][8]} They are the largest snake found in [Canada](#). The record total length is 256.5 cm (8 ft 5 in),^[9] making it (officially) the longest snake

in [North America](#).^[8] Unofficially, indigo snakes (*Drymarchon couperi*) are known to exceed them, and one wild-caught pine snake (*Pituophis melanoleucus*), with a portion of its tail missing, measured 111 inches (2.8 m).^[citation needed] The body mass of this rat snake can range up to 0.5 to 2.2 kg (1.1 to 4.9 lb) in adults, although most adults are on the smaller end of this scale, per herpetology research sites, with weights most commonly between 0.77 and 1 kg (1.7 and 2.2 lb).^{[10][11][12]}

Juveniles are strongly patterned with brown blotches on a gray background (like miniature fox snakes: *P. gloydi*, *P. ramspotti*, and *P. vulpinus*). Darkening occurs rapidly as they grow. Adults are glossy black above with

white lips, chin, and throat. Sometimes traces of the "obsolete" juvenile pattern are still discernible in the skin between the scales, especially when stretched after a heavy meal.^{[13][14]}

Common names

Other common names include: black chicken snake, black coluber, chicken snake, mountain black snake, mountain pilot snake, pilot, rat snake, rusty black snake, scaly black snake, cow snake, *schwartzte Schlange*, sleepy John, and white-throated racer.^[3]



Showing "kinked" threatened posture

Behavior

When not fully grown, rat snakes are subject to predation by many animals, including other snakes. Once they attain maturity, they are readily preyed on by humans, as well as [mammalian carnivores](#) (including the [American mink](#), which weighs no more than an adult rat snake) and large [birds of prey](#) (especially [red-tailed hawks](#)).^[15] When startled, they may freeze and wrinkle themselves into a series of kinks. If they feel further threatened, they may flee quickly or [tail vibrate](#) (potentially a form of [mimicry](#), which makes them sound like [rattlesnakes](#)). They are also capable of producing a foul-smelling musk, which they will release onto predators if picked up. They spread the musk with their tails in hopes of deterring the threat.^[16] When cornered or provoked, black snakes are known to stand their ground and can become aggressive. Counterattacks on large birds of prey, often committed by large snakes in excess of 150 cm (59 in) in length, have resulted in violent prolonged struggles. Utilizing its infamous agility and the great strength of its muscular coils, the black rat snake is sometimes able to overwhelm and kill formidable avian predators such as [red-tailed hawks](#), [great horned owls](#) and [red-shouldered hawks](#), though in many cases the bird is able to kill the snake and both combatants may even die.^{[17][18]}

Feeding



Raiding a [bluebirdbirdhouse](#)

This species is a [constrictor](#), meaning it suffocates its [prey](#), coiling around small animals and tightening its grip until they can no longer draw breath, before eating them. Though they will often consume [mice](#), [voles](#), and [rats](#),

western rat snakes are far from specialists at this kind of prey and will readily consume any small vertebrate they can catch. Other prey opportunistically eaten by this species can include other [snakes](#) (including both those of their own and other species), [frogs](#), [lizards](#), [chipmunks](#), [squirrels](#), juvenile [rabbits](#), juvenile [opossums](#), [songbirds](#), and bird eggs.^[13] One snake was observed to consume an entire clutch of [mallard](#) eggs.^[15] Cavity-nesting bird species are seemingly especially prevalent in this snake's diet. The rat snake has been noted as perhaps the top predator at [purple martin](#) colonies as a single large snake will readily consume a number of eggs, hatchlings, and adults each summer. Several rat snake repelling methods have been offered to those putting up martin houses, but most are mixed in success.^[19]

Reproduction



Mating while climbing a tree

Mating takes place in late May and early June. The male snake wraps its tail around the female with their vents nearly touching. The male then everts one of its sex organs, a [hemipenis](#), into the female sex organ, [cloaca](#). The mating lasts a few minutes to a few hours. After five weeks, the female lays about 12 to 20 [eggs](#), which are 36–60 mm (1.4–2.4 in) long by 20–26.5 mm (0.79–1.04 in) wide. The eggs hatch about 65 to 70 days later in late August to early October.^[20] The hatchlings are 28–41 cm (11–16 in) in total length,^[3] and they look like miniature fox snakes.^[13]

Taxonomy

This species has previously been placed (and is still placed by many) in the genus *Elaphe*, as *Elaphe obsoleta*. However, Utiger et al. found that *Elaphe* is broadly construed as [paraphyletic](#), and placed this species in the genus *Pantherophis*.^[21] In addition, because *Pantherophis* is masculine, the [specific epithet](#) becomes the masculine *obsoletus*.^[22] The split of *Pantherophis* from *Elaphe* has been further confirmed by additional phylogenetic studies.^{[23][24]}

In 2001, Burbrink suggested this species be divided into three species based on geographic patterns of mitochondrial DNA diversity. He assigned new common names and resurrected old scientific names, resulting in the following combinations: eastern ratsnake (*Elaphe alleghaniensis*, now [Pantherophis alleghaniensis](#)), central ratsnake (*Elaphe spiloides*, now [Pantherophis spiloides](#)), and western rat snake (*Elaphe obsoleta*, now *Pantherophis obsoletus*). However, these three species are not morphologically distinct and overlap in all examined morphological characters.^[25] More recent investigations have indicated *P. alleghaniensis* and *P. spiloides* interbreed freely in Ontario.^[26]

In 2008, Collins and Taggart^[27] resurrected the genus *Scotophis* for Burbrink's three taxa (*i.e.*, *Scotophis alleghaniensis*, *Scotophis spiloides*, and *Scotophis obsoletus*) in response to the findings of Burbrink and Lawson, 2007.^[23] The justification for this nomenclatural change has been removed by more recent research.^[24]

In captivity

Western rat snakes are popular as pets. Their size, calm temperament, and ease of care contribute to this popularity and they also occur in many mutations such as [leucistic](#), [albino](#), and [scaleless](#). They enjoy hiding and burrowing which is usually accommodated with a loose substrate (such as [aspen wood](#) shavings or newspaper) and one or more hide boxes. Captive rat snakes are generally fed killed or stunned mice because captive-bred mice reduce the risk of exposing the snake to pathogens or live prey-induced injuries.