

Eastern hognose snake



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Kingdom:	Animalia
Phylum:	Chordata
Class:	Reptilia
Order:	Squamata
Suborder:	Serpentes
Family:	Colubridae
Genus:	Heterodon
Species:	<i>H. platirhinos</i>

The **eastern hog-nosed snake**^[4] (*Heterodon platirhinos*), is a [species](#) of mildly [venomous rear-fanged snake](#) in the [family Colubridae](#). The venom is specifically adapted to [amphibian](#) prey and is harmless to humans. However, some people may have an allergic reaction, and experience local swelling and other symptoms. The species is [endemic](#) to North America.^[5] There are no [subspecies](#) that are recognized as being valid.^[4] This species prefers habitats with sandy soils and

a combination of grass fields and forest edges.^[6] They come in many different colorations and have the identifiable upturned "snout".^[7] They can be found in captivity but are a relatively difficult species to keep due to a specialized diet of toads. As with other *Heterodon* species, they have a distinctive threat reaction of first bluffing by striking with a closed mouth and then pretending to die if this fails to deter the threat.

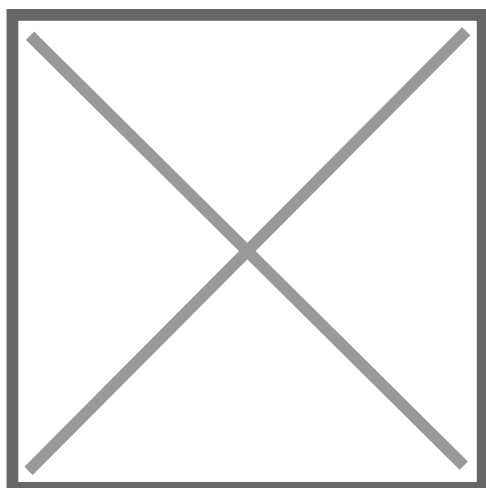
Geographic range

H. platirhinos has a wide geographical range from the central United States to the east coast. In the northern parts of the range, it can be found in southern Ontario, southern New Hampshire, Minnesota, Wisconsin, and Massachusetts.^[8] Going west the snake can be found in Texas and Kansas. The southern part of the range then goes down into southern Florida.^[9] Populations start to dwindle as the species reaches the northern range.^[10]

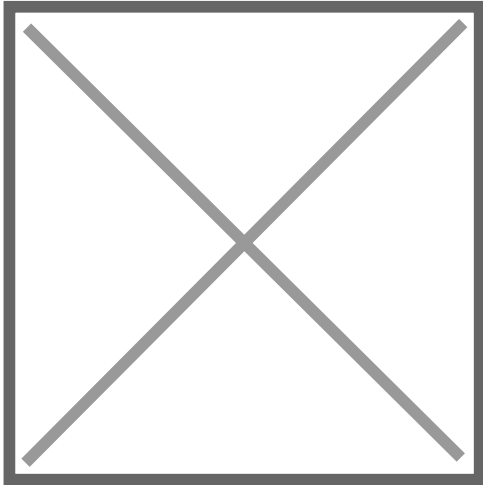
Habitat

Studies have shown that *H. platirhinos* prefers upland sandy pine-forests, old-fields and forest edges.^[11] Like most of the genus *Heterodon*, the Eastern Hognose Snake prefers dry conditions with loose soil for burrowing purposes.^[12] These loose soils are preferable habitat components for nesting and egg laying.^[13] Barrier beach and dune ecosystems appear to contain some of the highest densities of *Heterodon platirhinos* because of abundant prey (primarily anurans from the genera *Anaxyrus*).^[14] At the northern end of their range, they have been found to prefer developed lands as their desired habitat followed by mixed forests dominated by hemlock trees.^[15] Based on a study in Canada, the average home range size is about 40 hectares.^[11] Their habitats include southeastern and midwestern woodlands, tall-grassland prairies, and grassy or cultivated fields along woodland edges.^{[16][7]} Their habitat range tends to increase with grass and leaf litter.^[17]

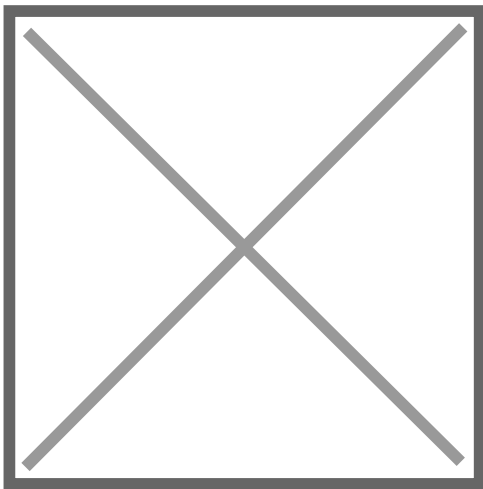
Description and etymology



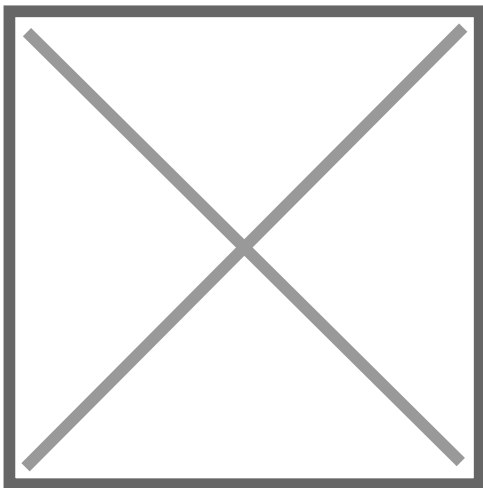
North Carolina specimen



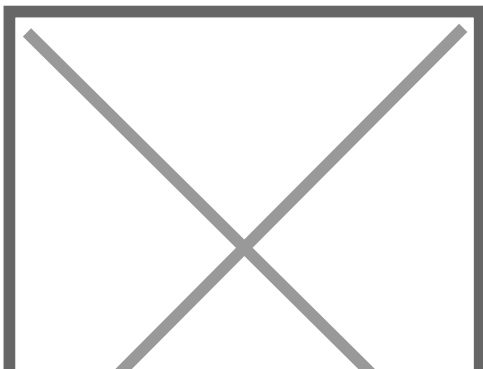
Florida specimen



Closeup of the head of *H. platirhinos*



Cape Cod, Massachusetts, specimen



H. platirhinos playing dead.

The [generic name](#) *Heterodon* is derived from the Greek words *heteros* meaning "different" and *odon* meaning "tooth". The [specific name](#) *platirhinos* is derived from the Greek words *platys* meaning "broad or flat" and *rhinos* meaning "snout".^[18] This species of snake is described as being quite stout-bodied.^[19] The color pattern of this snake is extremely variable. It can be red, green, orange, brown, gray to black, or any combination thereof depending on locality. [Dorsally](#), it can be blotched, checkered, or patternless. The belly tends to be a solid gray, yellow, or cream-colored. In this species the underside of the tail is lighter than the belly.^[20] The most distinguishing feature is the upturned snout, used for digging in sandy soils.^[7] The average adult *H. platirhinos* measures 71 cm (28 in) in total length (including tail), with females being larger than males. The maximum recorded total length is 116 cm (46 in).^[21]

Behavior

The Eastern hognose is a [diurnal](#) species.^[7] It is typically most active during April–September after coming out of hibernation. Because there is such a wide range the snake is found there is variation in the population's climates which can cause the period of activity to change. In northern climates, hibernation comes earlier and begins late September–October whereas in southern climates, the snake might not retreat until November. There have been some recorded to still be active between December–February in Florida and along the Gulf Coast.^[6] If the temperature reaches or drops below 19 degrees Celsius, hibernation will begin for the snake. This [hibernation](#) period takes place alone in burrows either dug by the snake or already made mammal burrows. To burrow, a snake forces its head into the soil then moves its head back and forth. For hibernation, these burrows will reach depths of 25 centimeters or more.^[7]

Defensive behavior

When the eastern hognose snake is threatened, the neck is flattened and the head is raised off the ground, like a [cobra](#). It also hisses and will strike with its mouth closed, but it does not attempt to bite— a behavior known as "bluffing".^[22] The result can be likened to a high speed head-butt. If this threat display does not work to deter a would-be [predator](#), an eastern hognose snake will often roll onto its back and play dead, going so far as to emit a foul [musk](#) from its [cloaca](#) and let its tongue hang out of its [mouth](#).^{[20][23][24]} One individual was observed playing dead for 45 minutes before reanimating and moving away.^[25] This death-feigning behavior was also observed often in water habitats.^[26]

Feeding

The eastern hognose snake feeds extensively on [amphibians](#), and has a particular fondness for [toads](#). This snake has resistance to the [toxins](#) toads secrete. This immunity is thought to come from enlarged [adrenal glands](#) which [secrete](#) large amounts of [hormones](#) to counteract the toads' powerful skin [poisons](#). At the rear of each upper jaw, it has enlarged teeth, which are neither hollow nor grooved, with which it punctures and deflates toads to be able to swallow them whole.^{[21][23][27]} It will also consume other amphibians, such as [frogs](#) and [salamanders](#). Like all other snakes, they eat their prey whole.^[22] Because it is a toad feeding specialist, its venom is adapted to be effective against toads and has not been found to be harmful to humans.^[28]

Reproduction

Eastern hognose snakes mate in early April and May. Both the male and female snakes are known to have multiple mates during this season. The act of copulation can last for up to 3 days.^[29] Occasionally, a second breeding period occurs around September and October. Rather than fertilizing a new egg clutch at this time, females will instead store sperm until the spring months for use.^[7] Males will follow the pheromone trails left behind by females on the move.^{[7][6]} Some females have been observed traveling past viable nesting conditions in order to reach communal nesting sites.^[30] Eggs might be laid in small soil depressions, mammal burrows, or under rocks depending on the region.^[29] The female may even dig the burrow herself, often choosing open and grassy areas with few herbs or shrubs because these areas get more sunlight, because the warm temperatures it provides are needed for the proper development of the eggs.^[31] The females, which lay 8–40 eggs (average about 25) in June or early July, do not take care of the eggs or young. The eggs, which measure about 33 mm × 23 mm (1+1/3 in × 1 in), hatch after about 60 days, from late July to September. The hatchlings are about 16.5–21 cm (6.5–8.3 in) long.^[24] They have an average nest temperature of 23–26 °C (73–79 °F) incubating for an average of 49–63 days.^[13] Some parental care is shown by the female such as nest and young guarding through hissing and chasing.^[32] Typically, males reach maturity at about 40 cm (16 in) [SVL](#) which can take up to 18–24 months. Females, however, reach maturity at about 45 cm (18 in) SVL, taking up to 21 months.^{[7][6]}

Venom

Heterodon platirhinos is a mildly venomous species where the effects are not deadly to humans.^[16] *Heterodon* means "different tooth", which refers to the enlarged teeth at the rear of the upper jaw. These teeth inject a mild amphibian-specific [venom](#) into prey. The fangs receive the venom from the snake's [Duvernoy's gland](#).^[33] Bitten humans who are allergic to the saliva have been known to experience local swelling, burning, discoloration, and bleeding from the wounds, but no human deaths have been documented.^[6]

Predators

There are many predators of the Eastern hognose snake. These include: tarantulas, other snakes, crows, red-tailed hawks, barred owls, raccoons, Virginia opossums, foxes, and humans.[\[7\]](#)[\[6\]](#)

Human impact

Humans cause pollution and pesticide poisoning, habitat destruction, vehicular deaths, and intentionally hunt the snake.[\[7\]](#)[\[6\]](#) Further studies have shown that other effects humans have on the mortality of *H. platirhinos* come from roads. Laura E. Robson and Gabriel Blouin-Demers conducted a study and found that the Eastern hognose snake avoids crossing paved roads, increasing the isolation of populations. The snakes will cross unpaved roads but face higher mortality from vehicle collisions.[\[34\]](#)

Captivity

The hognose snake is an intermediate level reptile to keep and lives between 10-15 years in captivity. Typically, mice and rats are used to feed most snakes in captivity. With hognose being a toad specialist species, it can be tricky to get them to eat frozen thawed mice. Scenting the food with toad or lizard is a trick used amongst hobbyists to entice the snake. Being a solitary species, snakes are kept individually unless it is for intentional breeding. Due to their burrowing nature, hognose snakes require suitable substrate depth to retain this natural instinct.[\[35\]](#)

Conservation status

This species, *H. platirhinos*, is classified as Least Concern (LC) on the [IUCN Red List of Threatened Species](#) (Year assessed: 2007).[\[36\]](#) However, it is a species of increasing conservation concern, especially in the northeastern part of its range.[\[37\]](#)[\[38\]](#)[\[39\]](#)[\[40\]](#) Of the five states in the northeast U.S. where the eastern hognose snake occurs, it currently has "listed" conservation status in four (Connecticut, New Hampshire, New York, and Rhode Island).[\[41\]](#) Noted declines are believed to be the result of direct anthropogenic pressures including habitat loss and fragmentation, road mortality, [environmental degradation](#), and intentional killing.[\[6\]](#)[\[42\]](#) Some of this [habitat fragmentation](#) may be due to eastern hognose snakes having a reluctance to cross paved roads.[\[43\]](#) In the Eastern United States, pitch pine-scrub oak barrens are an imperiled disturbance-dependent community that has declined substantially due to wildfires that have threatened vertebrates such as the eastern hognose snake.[\[44\]](#)

