

# The Southern Hognose Snake in Alabama, does it still exist?

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**A**labama has the distinction of being the most **biodiverse** state in eastern North America, but also leads eastern states in the **number** of its species that have become extinct. Some species have become extirpated from the state (but still occur in other locations), and many other species are considered "imperiled" and at risk of becoming extinct in the near future. Most people are aware of **well-publicized** extinctions, such as the passenger pigeon, Carolina parakeet, and ivory-billed woodpecker. But few people take notice when less glamorous species are threatened. One of these is the southern hognose snake (*Heterodon simus*), which once occurred in the state but may now be extirpated. Biologists have not recorded a specimen in Alabama for over 30 years, and it has become rare throughout most of its range (which once extended from Mississippi to North Carolina).

There are actually two species of hognose snake reported from Alabama, the eastern hognose snake (*Heterodon platyrhinos*) and the southern hognose snake. Although similar, with the same upturned snout for digging, they can be distinguished by several distinctive characteristics. The southern hognose snake has a more sharply upturned snout, the underside of the tail about the same color as the belly, and the two prefrontal scales (on the top of the head between the eyes and the nostrils) separated by small scales (not in contact as in the eastern hognose snake). The eastern hognose snake has a melanistic or solid black phase, but this phase is never present in the southern hognose snake. In addition, the underside of the tail of the eastern hognose is conspicuously lighter than the belly color. The southern



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hognose snake is also much smaller, averaging about 35-50 cm (15-20 inches), but reaching a maximum length of about 60 cm (or about 2 ft). The eastern hognose snake is usually about 60-90 cm (or 2-3 ft). The eastern hognose snake is fairly common and occurs throughout the state, usually occupying **sandy**, upland forested areas where it feeds primarily upon toads.

The original range of the southern hognose snake in **Alabama** included two **disjunct** areas—the lower coastal plain area including the counties of Choctaw, Clarke, Mobile, Baldwin, Escambia, Covington, and Dale; and a narrow band in the central part of the **state** extending from Calhoun County to Shelby County, and questionable records from Autauga and Tuscaloosa counties. It has **been** considered **semi-fossorial**, spending most of its time underground where it feeds almost exclusively on toads. Thus it appears to be restricted primarily to sandy soils where it can burrow **using** its sharply upturned snout.

Hognose snakes are well-known for their distinctive and bizarre defensive behavior, which has earned them the alternative names of "spreading adder" or "puff adder". Being stout-bodied and **slow-moving**, a hognose snake **will** not try to escape when threatened by a predator, or human, but will puff up its **body** by taking in extra air, expand its neck cobra-fashion, and begin to hiss by expelling air (actually few snakes are capable of hissing, in spite of popular thought). The snake will also make a show of striking in the direction of its threat, but the strikes are more like clumsy hops, and are usually performed with mouth closed! The snakes generally can not be induced to bite even if **repeatedly** harassed. The function of this threat display is to make the hognose snake appear harmful or dangerous, and induce the predator to leave it alone. If the predator is still present after several minutes of such behavior, the hognose snake will revert to its secondary mode of defensive



Eastern Indigo Snake

Longleaf Pine

Pine Snake

The eastern indigo snake and pine snake, which share the range and habitat of the southern hognose snake, have also become rare in Alabama. The decline of these three species across the southeastern Coastal Plain has been attributed to several factors, but one factor stands above all—habitat loss and degradation. Some 97% of the natural vegetation associated with the longleaf pine dominated uplands (includes xeric, pine-scrub oak sandhills) has been lost.

behavior. It will roll over onto its back, begin to writhe with mouth open and tongue hanging out as if in agony, and appear to be dying. It will then go limp and lie still, apparently lifeless. The function of this “playing possum” behavior is to convince a predator that the “dead” snake would not make a suitable meal. After a short time with no further disturbance or apparent threat, the snake will slowly raise its head, roll over, and begin to crawl away. If threatened or disturbed at this stage, the snake will quickly roll over again and play dead. In fact, the “dead” snake can be revealed as a fake by turning it right-side-up, at which the snake will roll back over, since a dead snake should obvi-

ously be lying on its back!

So these harmless and entertaining snakes are an interesting part of Alabama's biota, and yet have suffered greatly from habitat destruction, road mortality, indiscriminant killing by snake-haters, or excessive collecting by snake enthusiasts. Two other snakes that share the range and habitat of the southern hognose snake have also become rare in Alabama, eastern indigo snake (*Drymarchon couperi* Holbrook) and pine snake (black [*Pituophis melanoleucus lodingi* Blanchard] and Florida [*P. m. mugitus*] subspecies). The decline of these three species across the southeastern Coastal Plain has been attributed to several factors, but one factor stands above all—habitat

loss and degradation. Some 97% of the natural vegetation associated with the longleaf pine dominated uplands (includes xeric, pine-scrub oak sandhills) has been lost. This is habitat considered critical to the occurrence of all three species. These losses are attributed to intensive silviculture practices, conversion of diverse pinelands to monoculture pine plantations, conversion to croplands, expansion of cities and townships, increased roadways (and roadway mortality); and the absence of fire. The southern hognose snake seems to have suffered the most, possibly because of its slow escape response and strict habitat requirements. Another negative factor that has been suggested is predation on eggs and young by the imported fire ants (*Solenopsis invicta*). Their spread throughout the southeast seems to be correlated with declines in populations of several ground-nesting species. (See “Fire Ants have a New Enemy” on page 22 for more information.)

Although the southern hognose snake may no longer occur in Alabama, its fossorial habits make it rarely encountered even where it has been relatively common. Consequently the potential still exists that individuals may eventually be found, especially in remaining natural areas within its former range, such as Conecuh National Forest. Anyone finding a southern hognose snake in Alabama is asked to document its occurrence with a photograph (or specimen if found already dead), and report the sighting to the Alabama Natural Heritage Program (334-834-4519).



The eastern hognose snake is fairly common and occurs throughout the state, usually occupying sandy, upland forested areas where it feeds primarily upon toads.



The eastern hognose snake (above) and the southern hognose snake will “play dead” if they feel threatened. Note the contrasting light color under the tail of this eastern hognose snake which is not characteristic of the southern hognose snake.