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Conserving South Carolina's At-Risk Species:

Species facing threats to their survival

Southern hognose snake (*Heterodon simus*)



Southern hognose snake/Savannah River Ecology Lab

Description

Southern hognose snakes are fairly small, heavy-bodied snakes that reach about 24 inches in length. Female southern hognose snakes are larger than males and the young resemble miniature adults. Southern hognose snakes are gray, tan, or reddish in color with a series of dark brown blotches down the center of the back and alternating smaller blotches along the sides. Unlike the eastern hognose snake (*Heterodon platirhinos*), they are never solid black. In southern hognose snakes, the underside of the tail is the same color as the belly. In eastern hognose snakes, the underside of the tail is lighter than the belly. Hognose snakes are easily distinguished from most snakes in the southeast region by their pointed, upturned snouts. Southern hognose snakes have more sharply-upturned snouts than eastern hognose snakes.

Southern hognose snakes often put on threat displays when confronted by predators. Those threat displays include neck spreading and hissing, earning them other commonly used names such as puff adders or spreading adders. Eventually, they play dead, rolling on their backs and opening

their mouths. Despite these threat displays, they rarely bite. Southern hognose snakes are active strictly by day and are often seen on warm mornings in the spring and fall. They are highly fossorial (living underground) and are most often encountered crossing roads that pass through sandy habitats.

Hognose snakes feed almost exclusively on toads, although they will occasionally consume other prey. They are equipped with two features for subduing their prey; enlarged teeth in the back of their mouths called rear fangs and Duvernoy's glands, specialized glands that secrete toxic saliva.

During winter months, these snakes are rarely seen above ground. They emerge from underground in early spring. Mating occurs as late as June. From late July through August, females will lay anywhere from 6 - 14 eggs in sandy soil or in

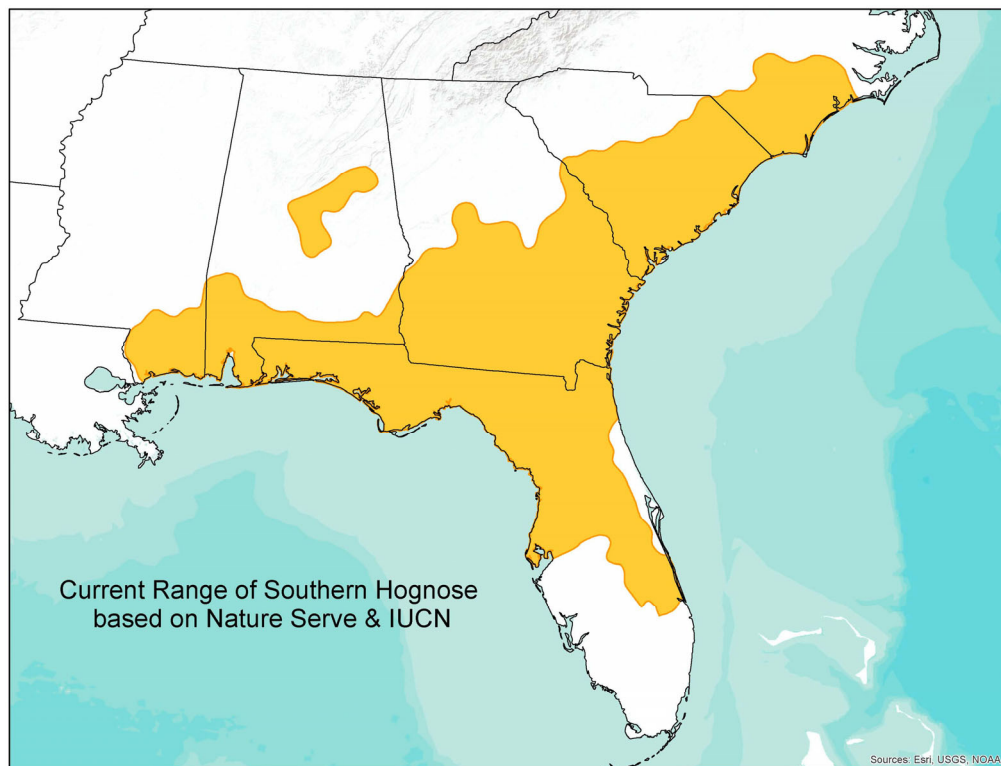
logs. Hatching occurs from September through October. Adults and neonates will forage extensively from October through November as the snakes prepare for winter months underground.

Range

Southern hognose snakes were historically found in the Coastal Plain of the eastern United States from southern North Carolina to southern Mississippi and in most parts of Florida. Now, they are only found in scattered locations in South Carolina, North Carolina, Georgia, and Florida. Although both species of hognose snake in the Southeast prefer sandy areas, southern hognose snakes are found almost exclusively in sandhill, pine flatwood, and coastal dune habitats, and in the sand ridges of central Florida. Because of their fossorial habits, hognose snakes sometimes persist in suburban or agricultural areas with sandy soils.



Southern hognose snake (Heterodon simus); Photo credit: Kevin Enge, Florida Fish and Wildlife Conservation Commission; Flickr—Creative Commons.



Southern hognose (*Heterodon simus*) range map, U.S. Fish and Wildlife Service, July 2018.

Habitat

Southern hognose snakes can be found in the same habitat types that support gopher tortoise populations. Being both fossorial and cryptic, they spend a good portion of their lives using underground shelters such as stump holes, rodent burrows, root channels or gopher tortoise burrows. The longleaf pine habitat provides open canopies with abundant stump holes, some created when pine trees are blown over by storms or killed by lightning.

Threats

Loss of longleaf pine habitat, urban sprawl, habitat fragmentation and conversion are the main stressors affecting the species. Introduced fire ants have also been implicated in the decline of southern hognose snakes, along with impacts from other non-native species. Additionally, their secretive habits hampers study of their ecology and population dynamics.

Management/Protection Needs

Protect upland habitat utilized by the species. Maintain open characteristics of habitat through use of prescribed fire and encourage restoration of large tracts of longleaf and wiregrass ecosystem, managed on long rotations with large stumps remaining after harvest for underground refugia

and hibernation sites. Determine the root cause of the decline of southern hognose snakes (e.g.—effects of fire ants on populations). Continue to inventory and monitor known populations. Continued outreach and education on the species is also encouraged.

Status

Southern hognose snakes have declined in recent years and are of conservation concern throughout their range. They have not been found in Alabama or Mississippi since the 1970's and are restricted to scattered locations in the states where they still occur. NatureServe's last review of the species was conducted in 2014, yielding a Rounded Global Status of G2 (Imperiled) for the species. The U.S. Fish and Wildlife Service was petitioned to list the species in July 2012 and published a substantial 90-day finding in September 2015 indicating listing may be warranted. The Service is currently conducting a Species Status Assessment on the southern hognose snake.

Species Status Assessment

The Species Status Assessment (SSA) framework, developed by the Service, is used to deliver foundational science that

informs all Endangered Species Act (ESA) decisions. It begins with a compilation of the best available information on the species (taxonomy, life history, and habitat) and its ecological needs, based on how environmental factors are understood to act on the species and its habitat. Next, the SSA describes the current condition of the species' habitat and demographics, and the probable explanations for past and ongoing changes in abundance and distribution within the species' ecological settings. Lastly, the SSA forecasts the species' response to probable future scenarios of environmental conditions and conservation efforts. Overall, the assessment utilizes the conservation biology principles of resiliency, redundancy, and representation (collectively known as the "3Rs") as a lens to evaluate the current and future condition of the species. An SSA Report, developed by the Service and peer-reviewed, will then be utilized to inform any listing decision on the species. The Service anticipates finalizing an SSA Report on the southern hognose snake in 2019.

References

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Contact

U.S. Fish & Wildlife Service
South Carolina Field Office
843/727-4707
melanie_old@fws.gov