

Red Hills Salamander



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The Endangered Species Act

The Endangered Species Act of 1973 (Act) recognizes that many of our nation's valuable plant and wildlife resources have been lost and that other species are close to extinction. The Act provides a means to help preserve these species and their habitat for future generations. One such species afforded protection by the Act is the Red Hills salamander (*Phaeognathus hubrichti*). The Red Hills salamander (RHS) is the only terrestrial vertebrate species that is entirely confined to Alabama. Its entire global range falls within the Red Hills region of Alabama in portions of Conecuh, Covington, Crenshaw, Butler, Monroe, and Wilcox Counties. It is the sole member of the genus *Phaeognathus*. To help protect the RHS from becoming extinct, the U.S. Fish and Wildlife Service (Service) listed the species as threatened on January 3, 1977.

Description, Biology, and Habitat

The Red Hills salamander is the official state amphibian of Alabama. It is a large, fossorial (burrowing), lungless salamander first collected in Butler County, Alabama, in 1960 by the late Leslie Hubricht. The species is distinct from other lungless salamanders because of its large size, elongated trunk, and short legs. The RHS grows to a total length of about 11 inches, its body color is dark brown with no distinct markings, and it breathes through its moist skin.

The known range of the RHS is limited to the west by the Alabama River and to the east by the Conecuh River. Within this area, habitat for the RHS consists of relatively mature, undisturbed mixed hardwood forest located on steep slopes and moist ravines of the Tallahatta and Hatchetigbee geologic formations. Here an erosion-resistant limestone layer often outcrops in ledges above bluffs and ravines, with an underlying layer of siltstones, claystones, sandstones, and clays exposed on the slopes below the limestone. The RHS inhabits burrows and fissures within these formations. Burrow entrances are small (dime to nickel sized), oval, and typically consist of smooth rounded edges. The salamanders rarely leave their burrows, and prey on invertebrates such as snails, insects, spiders, and earthworms both within and near the burrow entrance. Evidence from field and laboratory research indicates the entire RHS life cycle, including breeding, egg-laying, hatching, and larval development, may occur entirely within these burrows.

The subterranean siltstone layer retains water, which is important for maintaining the suitable moisture required by the salamander. In addition, loamy soils, deciduous leaf litter, and the forest canopy cover provide shade and moisture, which are important habitat elements to prevent the drying of the forest floor. Typical tree and shrub species found in RHS habitat include tuliptree (*Liriodendron tulipifera*), beech (*Fagus grandifolia*), mountain

laurel (*Kalmia latifolia*), oaks (*Quercus* spp.), hickories (*Carya* spp.), Florida anise (*Illicium floridanum*), and several species of magnolia (*Magnolia* spp.).

Why is the Red Hills salamander so rare?

Roughly 60,000 acres of suitable RHS habitat is thought to exist. Approximately 98% of that habitat is in private ownership, with about 60% owned by timber companies. Salamanders will not persist in areas where the tree canopy is completely removed or significantly reduced, since those areas no longer provide the shade and moisture requirements essential for RHS survival. Since RHS habitat occurs on steep slopes, it is often difficult to log. However, severe soil disturbance associated with adjacent logging, conversion of deciduous forest to pine plantation, and intensive site preparation are major threats to RHS populations. When logging occurs adjacent to RHS habitat, a small buffer can offer significant protection to the habitat elements essential to the salamander's survival.

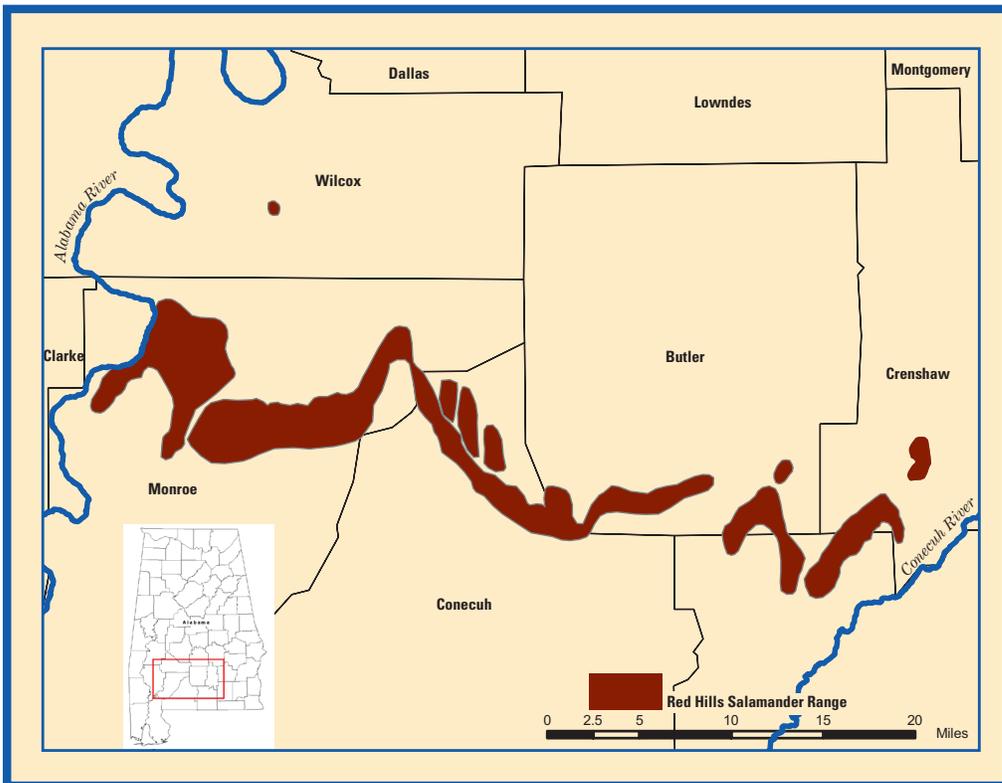


photo: Jim Godwin

Red Hills salamander habitat (above) and burrow entrance (below).



photo: Kristin Bakkegard



Approximate known range of the Red Hills salamander (corresponds to the Tallahatta and Hatchetigbee geological formations between the Alabama and Conecuh rivers).

What is being done to protect the salamander?

Several notable recovery efforts have been undertaken for the salamander in the last few years, including:

- The Alabama Department of Conservation and Natural Resources (ADCNR) purchased over 4,300 acres containing high quality RHS habitat in Monroe County, Alabama, using funds from their Forever Wild Program and the U.S. Fish and Wildlife Service’s Section 6 Grant Program. Some of this land will also benefit the public by providing outdoor recreational opportunities such as hunting, hiking, and bird watching.
- Representatives from the Service, ADCNR, Alabama Natural Heritage Program, the Nature Conservancy, and others, formed a *Phaeognathus* working group in 2006 to identify conservation needs for the species. This group meets yearly at the annual Alabama Partners in Amphibian and Reptile Conservation meeting to discuss current and future activities related to RHS recovery.

- The Service continues to partner with timber operators and owners in the Red Hills area to promote recovery of the species. Several timber operators, after consulting with the Service, have modified their timber harvest so that impacts to the salamander would not occur.

Habitat Conservation Planning

Several timber companies and private landowners have developed habitat conservation plans (HCPs) to reduce impacts from logging activities in RHS habitat and to help improve the status of the species. While 17,875 acres of RHS habitat are protected through HCPs, these plans expire when land changes ownership unless the new owner accepts the terms of the original permit. Land ownership for much of the area under HCPs has changed during the duration of the plans due to changes in economic forces. Fortunately for the salamander, many new landowners have agreed to the terms of the existing habitat conservation plans and associated incidental take permits. The Service is always available to assist landowners who are interested in developing new HCPs or transferring existing HCPs to help conserve the species.

What you can do to help

- Consider selling or donating your land to ADCNR or a non-governmental agency such as the Nature Conservancy.
- Place your land in a conservation easement, which will protect the landscape as well as provide financial rewards and continued use of your property.
- Enter into a Habitat Conservation Plan with the Service to help protect both your land and the salamander.
- Develop a conservation bank to help off-set impacts from adjacent landowners.
- Sign a Safe Harbor Agreement to help recover the salamander without incurring additional regulatory burdens.
- Be concerned about the quality of forestland in your area. If you have any questions about management of land on or near salamander habitat, call the Service at 251/441 5181.
- Become knowledgeable about the plants and animals in your area and share that knowledge with others.
- Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems.

Wild lands and the plant and animal life that inhabit them are impacted by our actions. These unique natural places, with their diversity of life, can benefit from and be enjoyed by all of us. With our help, they can be here for future generations.

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