



U.S. Fish & Wildlife Service
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THE FLATWOODS SALAMANDER: GENERAL BACKGROUND

Status:

The flatwoods salamander (*Ambystoma cingulatum*) is listed as threatened under the Endangered Species Act (ESA) of 1973 (as amended).¹ The primary threat to this species is loss of both its wetland and upland forested habitat.

Description:

The flatwoods salamander is medium-sized, reaching an adult length of 5 inches (13 centimeters). Body color ranges from silvery gray to black, with the back heavily mottled with a variable gray cross-band pattern. The underside is plain gray with faint creamy blotches. The head is small and equal to the neck in diameter.² Adults are most easily confused with the slimy salamander (*Plethodon grobmani*), small-mouth salamander (*Ambystoma texanum*), or Mabee's salamander (*Ambystoma mabeei*).

Larvae are long and slender, with broad heads, slim legs, and bushy gills. They have a distinct striped body pattern with wide longitudinal lines. The head has a distinctive dark brown stripe passing through the eye from the nostril to the gills. Other *Ambystoma* larvae with a similar appearance include Mabee's salamander and the mole salamander (*A. talpoideum*). Unlike Mabee's salamander, the lateral stripes of the flatwoods salamander are continuous. The mole salamander is distinguishable by its dark mid-ventral stripe and crossbands.³

Habitat and Occurrence:

The flatwoods salamander inhabits moist soil of longleaf pine (*Pinus palustris*) and slash pine (*P. elliottii*) flatwoods of the southeastern coastal plain in Florida, Georgia, and South Carolina. Not all flatwoods are appropriate habitat; the flatwoods salamander only occurs at sites with the seasonal ponds they require for breeding. These flatwoods are usually fire-maintained and rich in groundcover, providing abundant invertebrates as a food source. The flatwoods salamander lives underground in burrows for most of the year, except during the breeding season. Burrows may be enlarged crayfish burrows, or they may dig their own. Adults can be difficult to locate.

Populations have been documented from the Florida panhandle east to Jacksonville, and in southwest Georgia, and the coastal counties of Georgia and South Carolina. While historically occurring in Alabama, none have been observed since 1981. In Florida, thirty-six populations are currently known to exist. The Florida populations comprise 71% of the known populations of the flatwoods salamander throughout their range. Half of these populations are on public lands at Eglin Air Force Base and the Apalachicola National Forest. The Florida counties with documented recent breeding sites (after 1990) include: Baker, Calhoun, Franklin, Holmes, Jackson, Jefferson, Liberty, Okaloosa, Santa Rosa, Walton, and Washington counties. Additional counties with historical occurrence are Alachua, Bradford, Duval, and Marion counties.

Breeding Sites:

The breeding season extends from October to January. Adults surface and migrate to breeding sites during periods of rain and cool temperatures. Breeding sites are low-lying areas which form ephemeral ponds during the wet season. These ponds are small and shallow, with an open canopy, typically under 4 acres and less than 15 inches deep. Vegetation along the edge is dominated by sedges, rushes, wiregrasses, and panic grasses, with trees and shrubs growing both in and around the pond. Eggs may be laid singly or in clumps, and are attached to dry vegetation. As pond water levels rise with continued rain, the developing eggs become inundated and

begin to hatch. The larval period lasts from 11 to 18 weeks. Larvae metamorphose into adults in March and April. Successful reproduction and larval development are highly dependent on rainfall and weather patterns.

Impacts of Listing on Federal Actions:

Activities on Federal lands which may impact the flatwoods salamander are actions that compact the soil and/or alter the hydrology of the wetland breeding sites by ditching or draining. Under Section 7 (a)(2) of the ESA, Federal agencies are required to evaluate their actions with respect to listed species.

Impacts of Listing on Private Lands:

Flatwoods salamanders are uncommon on private lands. Sites where they do occur are frequently managed for timber. When silviculture is managed to duplicate natural ecological processes, such as seasonal burning and selective harvest, it is compatible with the habitat needs of the flatwoods salamander. With planning, private landowners can manage their lands to avoid actions detrimental to the flatwoods salamander, considered "take" under Section 9 of the ESA. Habitat conservation plans can also be developed to allow the continuance of lawful activities while permitting limited incidental take as a result of those activities. Also, Safe Harbor plans can be developed to increase populations of the flatwoods salamander without precluding future land management options.

Detrimental Actions:

Some examples of actions that could negatively impact the flatwoods salamander include:

- * destruction or alteration of wetlands used as breeding sites
- * destruction or alteration of suitable habitat within a 450 m (1476 ft) radius of a known breeding pond
- * unauthorized collecting, handling or harassing flatwoods salamanders
- * possessing, selling, transporting, or shipping illegally taken flatwoods salamanders
- * discharging or dumping toxic chemicals, silt, and other pollutants into habitats supporting the species
- * use of pesticides or herbicides in a manner not in accordance with label restrictions

References Cited

1. U.S. Fish & Wildlife Service. April 1, 1999. Endangered and Threatened Wildlife and Plants; Final Rule to List the Flatwoods Salamander as a Threatened Species. Federal Register 62(241): 15691-15704.
2. Ashton, R.E., Jr. and P.S. Ashton. 1988. Handbook of Reptiles and Amphibians of Florida, Part Three, The Amphibians, Windward Publications, Incorporated.
3. Palis, J. G. 1997. Species Profile: Flatwoods Salamander (*Ambystoma cingulatum*) on Military Installations in the Southeastern United States, Technical Report SERDP-97-6. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

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