

NOTES ON PLETHODON OUACHITAE IN OKLAHOMA

Jeffrey Howard Black

Department of Biology, Oklahoma Baptist University, Shawnee, Oklahoma, and Stovall Museum of Science and History, University of Oklahoma, Norman, Oklahoma

The Ouachita salamander, *Plethodon ouachitae*, was first collected on Rich Mountain, east of Page, in LeFlore County, Oklahoma, in 1933. A later specimen was named and described from Rich Mountain in Polk County, Arkansas, by Dunn and Heinze (1). Bishop (2), Grobman (3), and Pope and Pope (4) have discussed the occurrence of this salamander in Oklahoma. Dundee (5) listed the Ouachita salamander from McCurtain County, but Blair and Lindsay (6) consider his specimen to be *Plethodon glutinosus*. The only substantial work on *P. ouachitae* in Oklahoma has been that of Blair and Lindsay (6), who described several variants and added new locality records.

The purpose of this paper is to present some information on the natural history of *P. ouachitae* and report the occurrence of this salamander in the cave habitat.

During 1973, observations were made on *P. ouachitae* on the Winding Stair range, east of Talihina, LeFlore County, Oklahoma. Geologically the Winding Stair range consists of sedimentary rocks of the Mississippian period belonging to the Jackfork group (7). This range is a high linear ridge composed mostly of thick, resistant sandstones and characterized by major east-west trending synclines, thrust faults, and local areas of intense and complex deformation. Ridge crests are covered by colluvium, talus debris, and heavy vegetative overgrowth.

P. ouachitae is a woodland salamander on the Winding Stair range, where it lives under rotting logs and other wood remnants, and, primarily, under pieces of sandstone on the heavily overgrown talus slopes. These salamanders occurred more commonly on talus slopes which faced northwesterly. Two to eight salamanders could occasionally be found under a single piece of sandstone and in some areas they were very numerous. They are hard to capture before they retreat to lower levels through a series of tunnels in the soil or crevices between

the sandstone talus. During dry weather, salamanders are more difficult to find; they, apparently, retreat deeper into the ground or within the talus slopes. After rains salamanders can be observed moving actively throughout their habitat even during the daylight hours.

Over 1100 ft of cave passage have been mapped on the Winding Stair range. These caves are surprisingly large for sandstone caves. Probably they were formed by gravity slides; they contain dangerous drops, holes, and unstable areas. Considerable water runs through them after sudden rains. These caves appear to be in the upper part of the Wildhorse Mountain group of the Jackfork group, as evidenced by visible iron oxide in the interior sandstone and worm trails on sandstone outside the cave (7).

Salamanders were found outside cave entrances and frequently ran into the caves. Although found throughout the caves, they were most common within the first 50 ft or in twilight zones. Their cave habitat included the floor, crevices, ledges, and walls. They could run rapidly and actually jumped from walls and ledges to the ground to escape capture. Cave temperatures ranged from 12.4 to 14.8 C, with salamander activity occurring at all temperatures. In the entrance of one cave, a small juvenile, less than 7 mm snout-vent length, was collected as it crawled through damp leaves in the entrance. Pope and Pope (4) reported the absence of young individuals in populations in the Rich Mountains of Arkansas. Other than this single specimen from the cave entrance, no other individuals of such small size were found even though juveniles of 30 mm snout-vent length or larger were common. The Ouachita salamander would be ecologically classified as a troglone in these sandstone caves, according to terminology defined by the author (8).

Dunn and Heinze (1) and Pope and Pope (4) reported that many specimens

of *P. ouachitae* were heavily infested with mites under the skin. This was also true of the majority of salamanders in my collections; small, red, raised areas occurred all over the body, but were most common on the sides, legs, and feet.

There appear to be no published data on food of the Ouachita salamander in Oklahoma. I have analyzed the stomach contents of seven salamanders taken inside the caves and the stomach contents of five salamanders taken outside the caves on 23 November 1973. Two salamanders had

empty stomachs and over half the others contained debris and plant material, e.g., seeds, twigs, grass, and sandstone particles. There were no significant differences in the diets of salamanders collected within the caves and those outside the cave environment. Salamanders, apparently, move freely between the terrestrial and subterranean environments. All food items are pooled in Table 1. My stomach analyses indicated that *P. ouachitae* feeds primarily on invertebrates associated with its microhabitat, and ingests much debris with its prey.

TABLE 1. *Organisms found in stomach contents of 12 specimens of P. ouachitae.*

	Number ^a	Frequency ^b
Annelida	1	1
Chilopoda	2	2
Acarina (mites)	27	5
Hemiptera	1	1
Orthoptera	1	1
Coleoptera adults	5	4
Coleoptera larvae	1	1
Hymenoptera	2	2

^a Total number of organisms recovered from 12 stomachs.

^b Number of stomachs containing the organism.

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