

VALENTINE, BARRY D. 1964. *Desmognathus ocoee*, p. 7. In W. J. Riener (ed.), Catalogue of American Amphibians and Reptiles. American Society of Ichthyologists and Herpetologists, Kensington, Maryland.

Desmognathus ocoee Nicholls
Cliffside salamander

Desmognathus ocoee Nicholls, 1949:127. Type-locality, "Ship's Prow Rock, in Ocoee Gorge, beside U. S. Highway 64, nine miles [14.4 km] airline west of Ducktown, in Polk County, Tennessee." Holotype, U. S. Natl. Mus. 128007, formerly J. C. Nicholls 1001, collected by J. C. Nicholls, Jr., 14 November 1948.

Desmognathus perlapsus Neill, 1950:1. Type-locality, "a rocky outcropping on the western wall of Tallulah Gorge, near the town of Tallulah Falls, Rabun County, Georgia." Neill (p. 6) gives explicit directions for reaching the actual site. Huheey (in a letter) states the site is in Habersham rather than Rabun County. Holotype, E. R. Allen—W. T. Neill 14150, collected by W. T. Neill, 4 August 1950. *D. perlapsus* made junior synonym of *D. ocoee* by Valentine, 1961.

• CONTENT. No subspecies are recognized, but see COMMENT.

• DEFINITION. A *Desmognathus* with a maximum snout-vent (to posterior border) length of less than 50 mm; sexual maturity at 23-31 mm; 3-4½ intercostal spaces between the toes of adpressed limbs in specimens with a snout-vent length between 30-45 mm; a tail weakly or not keeled; a dorsal body pattern of two rows of alternating or paired pale, dark-bordered spots. Large adult males are without vomerine teeth, with a mental gland that is small, apical, astride the dentary, and projecting into an emargination of the upper lip, with jaws strongly sinuate in lateral view, and with the mandible toothless posteriorly.

• DESCRIPTIONS. Nicholls (1949) gives a detailed description of the color and pattern of adult topotypic *D. ocoee*, but is less informative on morphological variation. Neill (1950) gives a careful description of the holotype of *D. perlapsus* and brief notes on variation of other specimens. Eaton (1954) discusses size and color variation of topotypic *D. perlapsus* stating that his material shows greater variation than Neill's. Blair (1957:228-229) and Conant (1958:225) give brief descriptions of *D. ocoee* and *D. perlapsus*, mostly of color. Valentine (1961) discusses variation in size, head proportions, limb length, prevomerine and "parasphenoid" teeth, color, and number of dorsal spots.

Juveniles have pairs of opposite or alternating pale spots on each side of the middorsal line. Normally, any tendency for the spots to fuse is best developed in adults. Larvae have not been described, but hatchlings should resemble the late embryo illustrated by Eaton (1954).

Brief descriptions of eggs are given by Neill (1950) and Eaton (1954).

• ILLUSTRATIONS. Valentine (1961) has a photograph of eight topotypes (specimens no. 1-8), eight specimens (9-16) from 0.4 miles east of the type-locality, and eight specimens (17-24) from 3.5 miles east of the type-locality. Neill (1950) has drawings of dorsal, lateral, and ventral views of the holotype of *D. perlapsus*. Eaton (1954) has a drawing of an 11-mm *D. perlapsus* embryo that appears almost ready to hatch. Conant (1958) has a drawing of a dorsal view of *D. perlapsus*. Neither egg envelopes nor larvae of any stage have been described or illustrated adequately.

• DISTRIBUTION. The species occurs in the extreme southern Blue Ridge and adjacent Piedmont Physiographic Provinces of North (and ?South) Carolina, Tennessee, and Georgia, and an isolated population exists in the Cumberland Plateau of extreme northeastern Alabama. It is recorded only where there are deep cracks in vertical rock faces, wet with seepage, at elevations up to 4,400 feet. A summary of the distribution is given by Valentine (1961). Since then, Huheey

(in a letter) mentions specimens collected by himself and Brandon from Tennessee, Monroe County, 0.3 miles west of Panther Creek, on the Tellico River Road.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Nicholls (1950) discusses the species of salamanders found near the type-locality, and (1953) describes the habits and behavior of *D. ocoee*. The relationship of *D. ocoee* to other *Desmognathus* is discussed by Nicholls (1949, closest to *D. ochrophaeus carolinensis*), Neill (1950, closer to *D. fuscus fuscus* than to *D. o. carolinensis*), Eaton (1954, closest to *D. o. carolinensis*), and Valentine (1961, between *D. f. fuscus* and *D. o. carolinensis*, but closer to the latter). Egg counts are given by Nicholls (1949, ovarian eggs in 3 females, 8, 11, and 14), Neill (1950, clutches of 10, 11, and 12), Eaton (1954, a single clutch of 7), and Eaton & Eaton (1956, a single clutch of about 19 eggs). A review of the variation and distribution of *D. ocoee* is given by Valentine (1961).

• ETYMOLOGY. The species was named for its type-locality, the Ocoee River Gorge in Tennessee. Neill (1950) states that *perlapsus* "means 'slipping through' or 'gliding through,' in allusion to the way these salamanders slip through one's grasp or through crevices in the rocks upon which they dwell." Nicholls (1953) comments on the same sliding motion of the species.

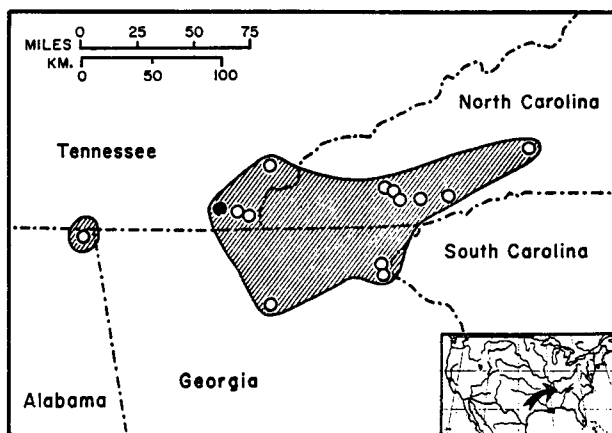
The vernacular name for *D. ocoee* was Ocoee salamander, and for *D. perlapsus* was cliffside salamander. Since the names are now synonymous, I suggest cliffside salamander as the more appropriate.

COMMENT

The classification and status of *D. ocoee* are not settled. Valentine thinks that *D. ocoee* and *D. carolinensis* Dunn are, respectively, low- and high-altitude races of a single species, and that neither is conspecific with *D. ochrophaeus* Cope. Other workers consider all three conspecific, still others think that each is a valid species. At present, no argument is adequately documented. Final allocation of *D. ocoee* rests on the degree of relationship between *D. carolinensis* and *D. ochrophaeus* as well as on the relationship of *D. ocoee* to each of these species.

Martof & Rose (1963) published an extended discussion of local and geographic variation in some Tennessee, North Carolina, South Carolina, and Georgia populations of the *Desmognathus ochrophaeus* complex. They agree that *D. perlapsus* and *D. ocoee* are synonyms; in fact, they maintain that *D. ocoee*, *perlapsus*, *carolinensis*, and *ochrophaeus* are simply *Desmognathus ochrophaeus*. They think that variation within this complex is so great that recognition of subspecies is impractical.

Desmognathus ochrophaeus (*sensu lato* as described by Martof & Rose, and including *D. ocoee*), exhibits considerable variation among populations. These differ in such features as size, proportions, tail shape, tooth



MAP. The solid dot marks the type-locality. Hollow dots mark most other known localities.

counts, color, and pattern. Within some populations variation is slight; others exhibit extensive variation. Further investigation of this problem should consider the presence of two distinct kinds of larvae, the presence of different chromosome morphologies, the presence of different chromatographic patterns, and the presence in at least one locality of two distinct and sympatric species of *ochrophaeus*-like salamanders.

LITERATURE CITED

- Blair, Albert P. 1957. Amphibians, pp. 211-271, figs. 1-75. In W. Frank Blair, Albert P. Blair, Pierce Brodkorb, Fred R. Cagle, & George A. Moore. Vertebrates of the United States. McGraw-Hill Book Co., New York.
- Conant, Roger. 1958. A field guide to reptiles and amphibians [etc.]. Houghton Mifflin Co., Boston. xviii + 366 pp.
- Eaton, Theodore H., Jr. 1954. *Desmognathus perlap-sus* Neill in North Carolina. *Herpetologica*, 10:41-43, fig. 1.
- Eaton, Theodore H., Jr., & George T. Eaton. 1956. A new locality for the green salamander and wood frog in North Carolina. *Herpetologica*, 12:312.
- Martof, Bernard S., & Francis L. Rose. 1963. Geographic variation in southern populations of *Desmognathus ochrophaeus*. *Amer. Midland Nat.*, 69: 376-425.
- Neill, Wilfred T. 1950. A new species of salamander, genus *Desmognathus*, from Georgia. *Publ. Res. Div. Ross Allen's Reptile Inst.*, 1(1):1-6, fig. 1.
- Nicholls, Jesse C., Jr. 1949. A new salamander of the genus *Desmognathus* from east Tennessee. *Jour. Tennessee Acad. Sci.*, 24(2):127-129.
- 1950. Notes on salamanders associated with *Desmognathus ocoee* Nicholls. *Ibid.*, 25(4):310-314.
- 1953. Observations on the habits of the salamander *Desmognathus ocoee* Nicholls. *Ibid.*, 28(2):118-120.
- Valentine, Barry D. 1961. Variation and distribution of *Desmognathus ocoee* Nicholls (Amphibia: Plethodontidae). *Copeia*, 1961:315-322, figs. 1-4, table 1.
- B. D. VALENTINE, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.
- Issued 15 September 1964. Publication is supported by National Science Foundation grant G24231. © American Society of Ichthyologists and Herpetologists 1964.