

SMITHSONIAN MISCELLANEOUS COLLECTIONS

VOLUME 101, NUMBER 2

A NEW SALAMANDER OF THE GENUS
GYRINOPHILUS FROM THE SOUTHERN
APPALACHIANS

(WITH ONE PLATE)

BY

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(PUBLICATION 3638)

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A NEW SALAMANDER OF THE GENUS *GYRINOPHILUS*
FROM THE SOUTHERN APPALACHIANS

BY M. B. MITTLEMAN,
*Ohio University*¹

AND

HARRY G. M. JOPSON,
*Bridgewater College*²

(WITH ONE PLATE)

Some few years ago the junior author chanced upon a single salamander of the genus *Gyrinophilus* while collecting in a small stream near Caesars Head, S. C., which could not be assigned to any known species in the genus. Discussion with Dr. E. R. Dunn, and an examination of the specimen by him, disclosed that it might possibly represent an undescribed form. However, no further specimens could be obtained until E. B. Chamberlin of the Charleston Museum kindly lent the junior author a single adult *Gyrinophilus* which he had collected at Rocky Bottom, Pickens County, S. C., and which is plainly referable to the same form as the Caesars Head specimen. In view of the paucity of material, it was deemed best to withhold description of the animal until such a time as further specimens might appear.

In the course of a revision of the genus *Gyrinophilus*, the senior author accidentally chanced upon the same form, represented in the collection of the United States National Museum by the Caesars Head specimen. Since additional material has become available, and with it a more accurate picture of the variation and distribution of the animal, the following description and notes are offered pending the publication by the senior author of a paper dealing with the entire genus.

¹ Contribution No. 23, from the Department of Zoology, Ohio University, Athens, Ohio.

² Contribution from the Department of Biology, Bridgewater College, Bridgewater, Va.

GYRINOPHILUS DUNNI, new species

PLATE I

Gyrinophilus porphyriticus dunnii STEJNEGER, Rep. U. S. Nat. Mus. for 1937, p. 30 (*nomen nudem*).

Type.—U.S.N.M. No. 113230 (Mittleman Coll. No. 382), female, collected on the campus of Clemson College, Clemson, Pickens County, S. C., 700 feet altitude, by Arnold Grobman, April 8, 1941.

Paratypes.—U.S.N.M. No. 102440, Caesars Head, Greenville County, S. C., 3,000 feet; U.S.N.M. No. 102441, larva, Rabun Gap, Rabun County, Ga., 2,300 feet; U.S.N.M. No. 68168, Jefferson City, Jefferson County, Tenn., 1,250 feet; U.S.N.M. No. 68820, Indian Cave, near Jefferson City, Jefferson County, Tenn., 1,200 feet; Three Springs, near Russellville, Hawkins County, Tenn., 1,350 feet; Charleston Museum No. 35.141.12, Rocky Bottom, Pickens County, S. C., 2,000 feet; Charleston Museum No. 28.144.4, larva, Greenville, Greenville County, S. C., 1,000 feet; Sherman C. Bishop collection, one specimen from Sunburst, Haywood County, N. C., 3,400 feet; North Carolina State Museum No. 4905, Cane River, Yancey County, N. C., 3,000 feet; North Carolina State Museum No. 7594, Clemson College, Pickens County, S. C., 700 feet; North Carolina State Museum No. 7198, Cowee Mountains, between Jackson and Macon Counties, N. C., 3,000 feet; M. B. Mittleman collection Nos. 383-4, Clemson College, Pickens County, S. C., 700 feet; Clemson College Division Ent. and Zool. Nos. 36 and 58, Clemson College, Pickens County, S. C., 700 feet; Clemson College Division Ent. and Zool. No. 105, Walhalla, Oconee County, S. C., 1,000 feet.

Diagnosis.—A *Gyrinophilus* which is red in life, with numerous tiny black dorsal flecks on head, limbs, body, and tail; throat pale, without dark reticulations; venter usually immaculate, or else with a few very small, dark flecks; canthus rostralis with a white orbitolabial line which is heavily bordered with black beneath, and imperfectly bordered with black above; vomerines meeting the parasphenoids at an acute angle; maximum size less than 160 mm. (average total length of type series, 125 mm.).

Description of type.—Costal grooves 18 (including one axillary and two inguinal branches); 7 coastal grooves between appressed toes; head width 13.62 percent of length from snout to vent; head length 14.20 percent of length from snout to vent; eye slightly shorter than the distance from its anterior angle to the nostril; snout swollen, a small tubercle at lower end of nasolabial groove; canthus rostralis prominent; outline of jaw sinuous in its lateral aspect; angle of jaw

posterior to the posterior angle of eye; both eyelids fitting under a fold of skin at their posterior angle; a groove extending posteriorly from the eye almost to the gular fold, but intercepted by a small intervening fold; limbs well developed; fingers 3-2-4-1, in order of length, barely webbed at base; toes 3-4-2-5-1, in order of length, first toe half webbed, other toes very slightly webbed at base; vent grooved; tail shorter than head and body, much compressed, keeled prominently except on the basal portion; vomerine teeth 8-8 in series, commencing about half their length beyond the outer border of the inner nares, and curved anteriorly to become confluent with the parasphenoids at an acute angle; parasphenoids extending posteriorly beyond the rictus of the jaws for a distance equal to half their length, and separated their entire length by a distance approximately equal to half the length of a vomerine series; coloration in life, reddish, with thickly scattered minute brown flecks; coloration in alcohol, yellowish tan above, with brown flecks; the narrow, white orbitolabial line of canthus rostralis bordered heavily beneath with blackish, imperfectly lined above with same; dorsal flecks of body assuming the vague outlines of chevrons; labial region with numerous heavy, black bars, which tend to form reticulations; venter of head, limbs, body, and tail immaculate, except for a very few tiny flecks; heavy flecking of dorsum abruptly diminishing on the lateral areas, to become almost completely absent on the ventrolateral surfaces. Measurements: Total length, 136 mm.; snout to gular fold, 17 mm.; head width, 12.5 mm.; snout to anus, 82.5 mm.; tail, 53.5 mm.

Distribution.—The southern Appalachian uplift below 3,500 feet, in North Carolina, South Carolina, Tennessee, and Georgia.

Remarks.—The range of *G. dumni* may possibly extend as far south as northern Jackson County, Ala.; Dunn (1926, p. 266) includes a record for "*Gyrinophilus porphyriticus*" from Sand Mountain, recorded by Holt, which is within the expected range of the new species.

The new form is considered a species rather than a subspecies because of the lack of what may be considered intermediate material between *dumni* and *danielsi*. Although this intergradation will probably be shown to exist some day, we prefer the binomial in view of the absence of the critical specimens. Certain specimens are extant from higher localities (above 3,500 feet) in North Carolina that are not referable to *dumni* nor to *danielsi*; these specimens may ultimately be shown to be either an undescribed form or intergrades between *dumni* and *danielsi*. Similar-appearing specimens from

Tennessee have been referred to by King (1939, p. 554) as *danielsi* × *duryi*. We do not agree with these conclusions, and a future paper by the senior author will deal more thoroughly with these forms. Undoubtedly, however, *dunni* is commoner in collections than present records would indicate; numerous specimens are undoubtedly extant under the name *Gyrinophilus p. danielsi*.

The principal variation observed in available specimens is in the distribution of the dorsal flecks. These vary from very tiny, close-set flecks, which grossly present an irrorated appearance, to somewhat larger spots. In no case, however, do these marks approach the size of those found in *danielsi*, nor is there ever the coalescence of markings in *dunni* that so frequently appears in *danielsi*. Occasional examples of *dunni* tend to have the dorsal markings arranged so as to present the appearance of short series of chevrons. Typically, there is a heavily barred or reticulated labial region, but a few specimens show only a lightly spotted or flecked surface. There are often a few very tiny spots or flecks widely distributed on the venter, but in no case is the ventral surface so heavily suffused with markings as it is in *danielsi*; indeed, it is generally immaculate. Costal grooves between appressed toes vary from 4 to 8, average 6.2. The angle of the vomerines with the parasphenoids is occasionally as acute as 45°, but never as obtuse as 90°. Available specimens tend to show that *dunni* is a considerably smaller animal than *danielsi*; as stated previously, the type series averages 125 mm. in total length of body plus tail. Only two specimens are larger than the type, both of these being 160 mm. in total length. Other than these, the type series, which is composed of sexually mature individuals, varies from 100 to 136 mm.

Dunn (1926, p. 271) has postulated that *danielsi* is probably more primitive than *porphyriticus*, and to this we add the hypothesis that *dunni* is mostly likely parental to *danielsi*. It would seem that *danielsi* has arisen from the more widespread, generalized *dunni* stock, and has become differentiated in its ecological niche, which, judging by the large size and robust form attained, has proved to be a favorable one.

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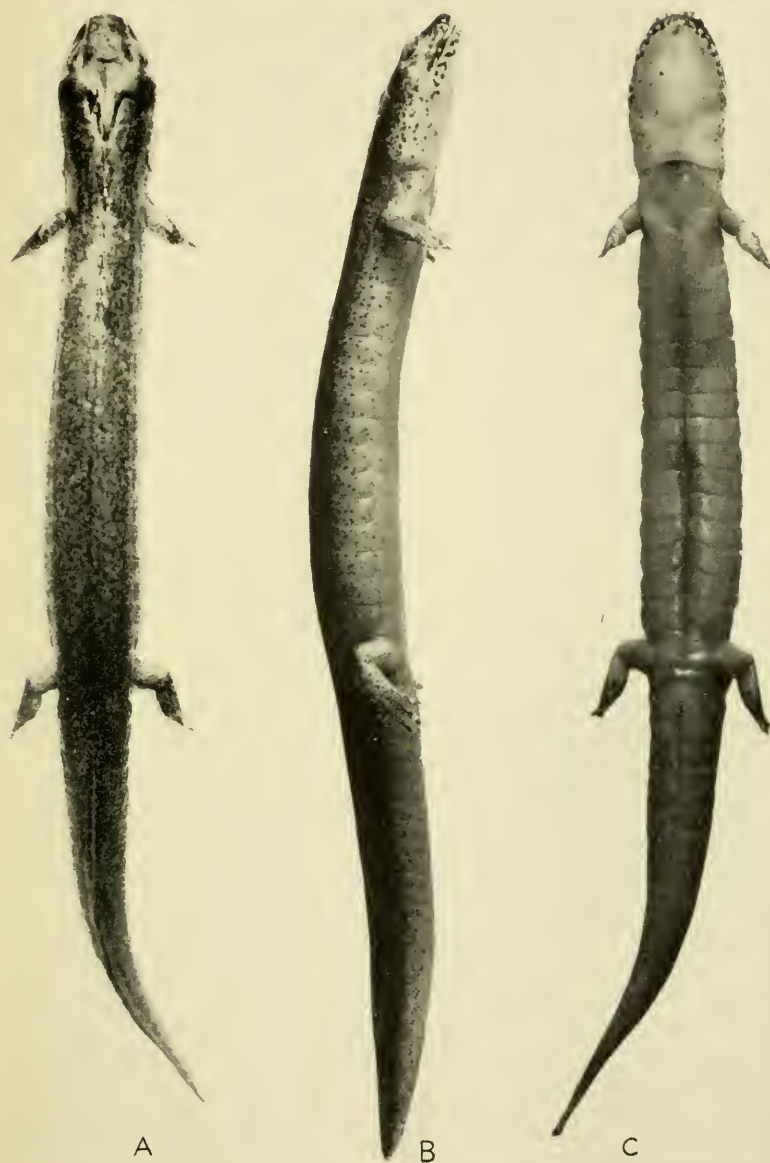
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GYRINOPHILUS DUNNI, SP. NOV.

Type.—U.S.N.M. No. 113230 (Mittleman Coll. No. 382), female, Clemson College, Clemson, Pickens County, S. C., 700 feet. *A*, dorsal view; *B*, lateral view; *C*, ventral view. Actual length, snout to anus, 82.5 mm.