NEILL, WILFRED T. 1963. *Hemidactylium scutatum*, p. 2. *In* W. J. Riemer (ed.), Catalogue of American Amphibians and Reptiles. American Society of Ichthyologists and Herpetologists, Bethesda, Maryland.

Hemidactylium scutatum (Schlegel)
Four-toed salamander

Salam.[andra] scutata Schlegel *in* Temminck, Schlegel, & de Haan [1833-1850], 1838:119. Type-locality "Nashville, Tenn." [=Nashville, Davidson County, Tennessee]. Holotype not known to exist. Collector unknown.

Hemidactylium scutatum: Tschudi, 1838:59. Transfer of *S. scutata* Schlegel [etc.] to *Hemidactylium*.

Desmodactylus scutatus: Duméril, Bibron, & Duméril, 1854:118. Transfer of *S. scutata* Schlegel [etc.] to *Desmodactylus*.

Batrachoseps scutatus: Boulenger, 1882:59. Transfer of *S. scutata* Schlegel [etc.] to *Batrachoseps*.

Salamandra melanosticta Gibbes, 1884:89, plate 10. Type-locality "Abbeville, S. C." [=Abbeville, Abbeville County, South Carolina]. Holotype not known to exist. Collector unknown. Junior synonym of *S. scutata* Schlegel [etc.]

Desmodactylus melanostictus: Duméril, Bibron, & Duméril, 1854:119. Transfer of *S. melanosticta* Gibbes to *Desmodactylus*.

• CONTENT. No subspecies are recognized at present.

• DEFINITION. Adult females about 75, and adult males about 65 mm in total length. Costal grooves number 13 or 14. The dorsum is reddish-brown, becoming grayish laterally; the venter is bluish-white (not unpigmented), with distinct, irregular, black flecks.

• DESCRIPTIONS. Mature eggs and nesting habits have been described by Bishop (1920, 1943:309), Blanchard (1922, 1923, 1934c, 1936), Dunn (1926:196), and Wood (1953, 1955); larvae by Bishop (1920, 1943:309-310), Blanchard (1923), and Dunn (1926:47, 61); adults by Bishop (1920, 1943:306-309), and Dunn (1926:22, 31, 40, 45, 197-199).

There is need for a detailed comparison of the larvae of *Hemidactylium*, *Manculus*, and *Stereochilus*, the only plethodontids in which the larval tail fin extends onto the dorsum of the body.

• ILLUSTRATIONS. See Bishop (1920, various life history stages; 1943:fig. 87, dorsal and ventral views of adult, also female with eggs), Cochran (1961:fig. 17, female with eggs, in color), and Noble (1931:59, 92, larva and adult respectively).

• DISTRIBUTION. The range of this species is egregiously discontinuous. Distribution is fairly continuous from extreme southern Maine, extreme southern Quebec, extreme southern Ontario, and northern Wisconsin, southward to the Fall Line in North Carolina, South Carolina, Georgia, Alabama, and Tennessee; presumably disjunct populations occur in Nova Scotia, Missouri, Arkansas, Louisiana, Georgia, and Florida.

For some specific localities see Bleakney & Cook (1957, Nova Scotia), Conant (1945, "Del-Mar-Va" Peninsula), Dowling (1957, Arkansas), Fowler (1942, Maine), Logier & Toner (1961, Canada), Neill (1957a, Georgia), Stevenson (1958, Florida), Suzuki (1951, Wisconsin), and Wood (1955, Virginia). Also see localities or references in Dunn (1918:459, 1926:203-204).

A record for Charleston, South Carolina (Baird, 1849; Dunn, 1918:459) generally has been discredited but may prove valid. A record for just north of Chattahoochee, Gadsden County, Florida (Grobman, 1954: 11) is actually from Decatur County, Georgia. A record for Riceboro, Liberty County, Georgia (Cope, 1889: 132) is in error; the specimens (U.S. Natl. Mus. 4090) are *Notophthalmus*. A record of *Hemidactylium* for "Texas" (Dunn, 1918:459) has not been verified.

The nonbreeding adult lives under stones, logs, wood slabs, leaf litter, or moss in beech and maple, yellow birch and maple, and other hardwood forests, less often in coniferous woods; but the larval life is spent in pools, bogs, or slow bog streams with an abundance of sphagnum, other mosses, hepatics, and sedges. Therefore the distribution is limited to areas that provide both habitats in close proximity.

See Conant (1960), Neill (1957b), and Smith (1957) on the possible biogeographic significance of the disjunct populations.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. This is one of the best studied of all plethodontids. In addition to the references above, at least 110 other papers deal wholly or in part with the species. Only a few of these can be cited here. See Blanchard (1933a, spermatophores and mating season; 1933b, natural history; 1934a, late autumn collecting and hibernation; 1934b, spring migration; 1934d, dates of oviposition; 1935, sex ratio), Blanchard & Blanchard (1931, size groups), Branin (1935, courtship and extraseasonal ovulation), Dieckmann (1927, cloaca and spermatheca), Grant (1955, territoriality), and Walton ([?1947], parasites).

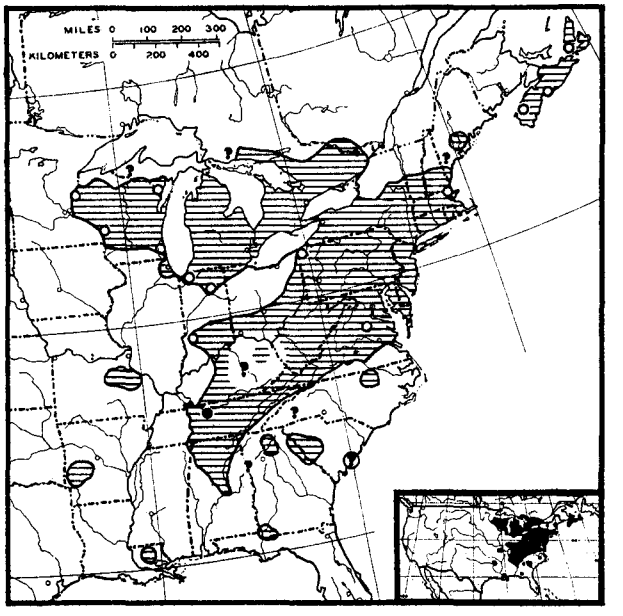
The papers of Bishop and of Blanchard collectively provide a well-rounded account of the species.

• NOMENCLATURAL HISTORY. Schlegel's specific name *scutata* has been generally used since its proposal, and most often in the combination *Hemidactylium scutatum*. Gibbes's specific name *melanosticta* has rarely appeared in the literature.

• REMARKS. Tschudi's 1838 preprint has been confused with his 1840 journal article. Tschudi's description of *Hemidactylium scutatum*, and Schlegel's of *Salam. scutata*, both appeared probably in September 1838. However, Tschudi, in a letter written no later than August 1837 (printed in Leonard & Bronn's Neues Jahrbuch für Mineralogie, etc., 1837, pt. 5, Sept., pp. 545-547), indicates that he had already seen (perhaps in proof?) the work in which Schlegel's description appeared (part III of the "Reptilia" volume of the Fauna Japonica). Thus Tschudi in 1838 was not erecting the specific name *scutatum*, but was merely transferring Schlegel's *S. scutata* to the new genus *Hemidactylium*.

Cope (1869:99) gave the following reference: "*Salamandra scutata* Schlegel, Mus. Leyden Abbildungen, t. 40, f. 4, 6, 1837." This implies a usage of the name earlier than that in the Fauna Japonica. However, the aforesaid Abbildung actually appeared in 1839.

• ETYMOLOGY. The specific name *scutatum* signifies "covered with shieldlike plates," from Latin *scutatus*,



MAP. The solid circle marks the type-locality. Hollow circles represent other selected localities. The encircled question mark indicates a doubtful locality. Other question marks indicate unknown distributional boundaries. After Goode Base Map 202, © University of Chicago 1937.

"armed with a shield" (Latin *scutum*, "a shield"). The salamander's costal grooves produce a superficial resemblance to overlapping plates.

Comment

The existence of subspeciation has not been reported. Georgia specimens have relatively large black spots on the venter, as compared with more northerly material.

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