

AMPHIBIA: CAUDATA: AMPHIUMIDAE

AMPHIUMA PHOLETER

Catalogue of American Amphibians and Reptiles.

Means, D. Bruce. 1996. *Amphiuma pholeter*.

***Amphiuma pholeter* Neill**
One-toed Amphiuma

Amphiuma pholeter Neill, 1964:62. Type-locality, "4.5 miles NE by E Rosewood, Levy County, Florida." Holotype, University of Florida/Florida Museum of Natural History (UF) 17655 (originally WTN US 2675), adult male (271 mm TL), collected 8 September 1950 by Wilfred T. Neill and E. Ross Allen (examined by author); paratypes: UF 7755-1 collected 1/2 mile W Capps, Jefferson County, Florida on 3 February 1956 by William J. Riemer; MCZ-A-56946 (originally UF 7755-2, same collection data as for UF 7755-1); UF 573 collected "Liberty County, Florida" on 11 April 1935 by Archie F. Carr; WTN US 2676 (location of specimen unknown) collected 6 miles NE by E Rosewood, Levy County, Florida on 8 September 1950 by Wilfred T. Neill and E. Ross Allen.

• **Content.** No subspecies have been described.

• **Definition.** *Amphiuma pholeter* is a small amphiumid salamander exhibiting no sexual dimorphism in body size, metamorphosed individuals averaging 218.3 mm total length (range 89.3-314.2 mm) (Means, unpubl. ms.). The entire body and tail is uniformly dark reddish brown in color. The head is indistinct from the pencil-like body, which does not taper until past the vent, which is located about 3/4 the total length of the individual. This species is unique among salamanders in possessing two pairs of minute, single-toed legs. Males and females are indistinguishable externally except with magnified examination of the longitudinal vent, the interior of which is papillose in males. Also, the flesh surrounding the male vent is swollen somewhat because of secretory glands lining the interior of the cloacal opening. A small oval gill opening is located on each side of the neck, but no external gills are present. The lidless eyes are flush with the skin of the head. The tail is slightly flattened laterally. Larvae have not been found.

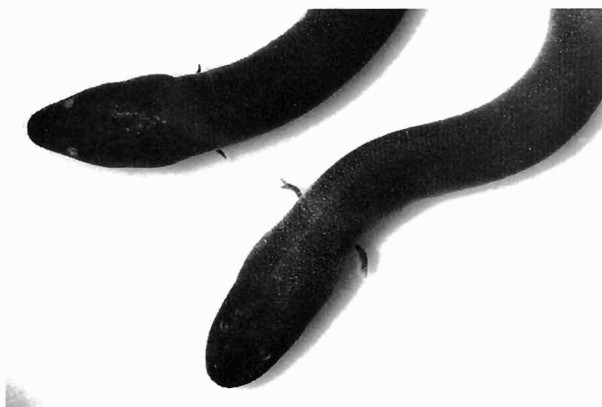
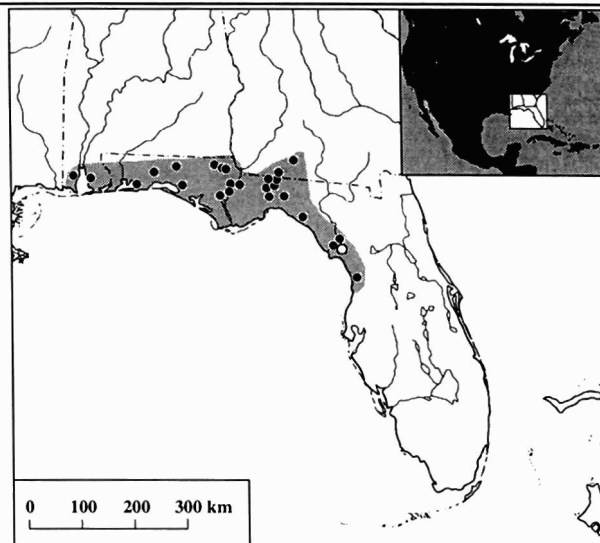


Figure. Adult *Amphiuma pholeter* (top) and a juvenile *A. means* (bottom), both taken on 18 November 1971 from a mucky stream 0.9 mi E Pine Hill Church, Grady County, Georgia (field no. DBM-1623, housed in the collections of the Coastal Plains Institute). Note the one-toed limbs and more pointed snout of *A. pholeter*. Photograph by author.



Map. Range of *Amphiuma pholeter*: the circle marks the type locality, dots represent other localities from which specimens are known.

• **Diagnosis.** The One-toed Amphiuma differs from its congeners, *Amphiuma means* and *A. tridactylum*, by the possession of one toe per leg as opposed to two or three toes in the other species. Also, *A. pholeter* does not exceed a maximum length of about 30 cm (Means, unpubl. ms.), whereas Conant and Collins (1991) record *A. means* and *A. tridactylum* as reaching 105 cm or more. Adpressed forelimbs do not reach the gill cleft in *A. pholeter*, but exceed it in the other two species (Neill, 1964; Stevenson, 1967). The head of *A. pholeter* is conical, with the tip of the snout rounded rather than slightly depressed as in *A. means* and *A. tridactylum*.

• **Descriptions.** Neill's (1964) original description was based on five specimens from Florida. Stevenson (1967) compared two additional specimens with Neill's published description. Means (1977, 1978, 1986, 1992, unpubl. ms.) described the species generally, both from the literature and a series of more than 200 specimens he collected during the period, 1969-1992. Other descriptions are found in Behler and King (1979), Ashton and Ashton (1988), and Conant and Collins (1991).

• **Illustrations.** Color photographs of adults appear in Means (1986) and Ashton and Ashton (1988). Means (1977) published a black and white photograph of the head and anterior body of an adult, showing the one-toed forelimbs, alongside a juvenile of *A. means* for close comparison. A black-and-white photograph of an entire adult appears in Means (1978), and a close-up of the head and neck showing neuromast organs is found in Lanza et al. (1992). Line drawings comparing *A. pholeter* with *A. means* appear in Ashton and Ashton (1988). Means (unpubl. ms.) included a black and white photograph of two albinos found in the wild.

• **Distribution.** *Amphiuma pholeter* is confined to the eastern Gulf Coastal Plain of the southeastern United States, from the vicinity of Mobile Bay, Alabama (Carey, 1984, 1985) to Levy and Hernando counties on the upper west coast of peninsular Florida (Paul Moler, pers. comm.). The species is not yet known from the Escambia or Suwannee river drainage systems, but records occur in drainages on both sides of these two large river

valleys. *Amphiuma pholeter* appears not to range more than 50-75 miles inland from the coast; only two localities are known in southern Georgia in the upper Ochlockonee River basin (Means, 1977).

• **Fossil Record.** None.

• **Pertinent Literature.** Information on geographic distribution appeared in Neill (1964), Stevenson (1967, 1976), Means (1977, unpubl. ms.), Seehorn (1982), and Carey (1984, 1985). The atlas, cranial bones, and an atlas-mandibular ligament were described by Means (1972, unpubl. ms.). Physical properties of the unique muck habitat of 13 localities in Florida and Georgia were analyzed by Means (1977). Variation among five specimens from three localities and comparative aspects of the gross external morphology of *A. pholeter* with *A. means* are included in Neill (1964). Morphology, life history, habitat, potential predators, behavior during drought and cold, specialized or unique characteristics of *A. pholeter*, its rare (Florida) and poorly known (Alabama) status, and recommendations for the conservation of the species were reviewed by Means (1978, 1986, 1992). Allozymes, genetic variability, and systematics were discussed in an electrophoretic study by Karlin and Means (1994). Body, tail, and limb size, costal groove counts, morphology of the skin, cranial osteology, number of vertebrae, ovarian egg counts, food and feeding habits, predators and parasites, vertebrate habitat associates, habitat conditions, and natural history observations were discussed in Means (unpubl. ms.). Biogeography was discussed by Neill (1964) and Means (1977, unpubl. ms.).

• **Etymology.** "Pholeter is a Greek word signifying 'one who hides in a den.' An appropriate English name would be 'one-toed amphiuma'" (Neill, 1964).

• **Comment.** Much remains to be discovered about the biology and geographic distribution of this secretive muck dweller. Neither eggs nor larvae have been found in the field.

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