

Catalogue of American Amphibians and Reptiles.

HIGHTON, RICHARD. 1986. *Plethodon websteri*.

***Plethodon websteri* Highton  
Southern zigzag salamander**

*Plethodon websteri* Highton, 1979:32. Type-locality, "0.6 km east, 0.9 km south of Howelton, Etowah County, Alabama." Holotype, National Museum of Natural History (USNM) 204814, an adult male, collected on 7 January 1976, by Scott Bunting, Richard Highton, Mark Kielek and Allan Larson.

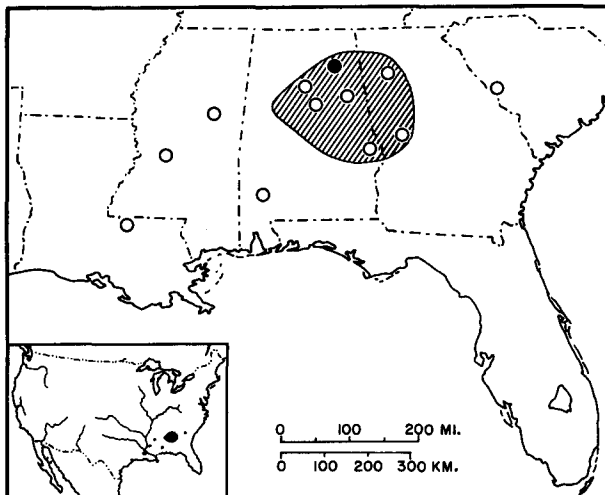
• CONTENT. No subspecies are recognized.

• DEFINITION AND DIAGNOSIS. *Plethodon websteri* is a member of the *P. welleri* group of eastern *Plethodon* as defined morphologically by Highton (1962) and biochemically by Highton and Larson (1979). Although this species is very distinct genetically from *P. dorsalis*, with which it was formerly confused, there are no published diagnostic morphological characters which may be used to distinguish the two species. However, in a morphometric study by Wake and Highton in progress, discriminant function analysis has produced evidence of consistent morphological differences between the two species. Both species are polymorphic in dorsal color pattern, occurring in two color morphs, a striped morph with an irregular "zigzag" red or yellow dorsal stripe and an unstriped morph with a dark brown dorsum that has only tiny white spots and brassy flecks. Often the unstriped morph has scattered red pigment on the dorsum and in some individuals there is sufficient red pigment to produce a faint outline of the zigzag stripe. In some populations one or the other color morph may be rare and there are sometimes intermediate individuals. The sides are usually spotted with yellow or white pigment and the belly has patches of red, white and black pigmentation. The modal number of trunk vertebrae is usually 19, as in *P. dorsalis*, but in populations from McCormick County, South Carolina, the modal number is 20. In *P. welleri*, the only other member of the group, the modal number is 17. Adults range from 30–45 mm (body) and 69–82 mm (total) length.

• DESCRIPTIONS. Highton (1979) described the type specimen. Harrison (1969) and Martof et al. (1980) described South Carolina specimens.

• ILLUSTRATIONS. A color photograph is in Martof et al. (1980) and a black and white photograph, identified as a *P. dorsalis*, but likely a *P. websteri* on the basis of the locality, is in Mount (1975).

• DISTRIBUTION. *Plethodon websteri* occurs in west-central Georgia and central Alabama. Apparently isolated populations are known from McCormick County, South Carolina, and from the Coastal Plain of Clarke County, Alabama, Hinds and Winston counties, Mississippi, and West Feliciana Parish, Louisiana. The identity of animals from all of the localities indicated on the map has been



MAP. The solid circle shows the type-locality. Hollow circles indicate other records that have been verified by electrophoretic analysis of proteins.

confirmed by protein comparisons although the Louisiana record is still a tentative identification (because of poor condition of its tissues for protein studies). Other records from central Alabama and west-central Georgia in Mount (1975) and Highton (1962) are also presumably of this species.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. An electrophoretic analysis of geographic protein variation in the *Plethodon welleri* group by Larson and Highton (1978) indicated the existence and the distribution of *P. websteri*. Highton and Larson (1979) compared electrophoretic variation in 29 proteins of *P. websteri* with that in all 25 other species of the genus *Plethodon* recognized at that time. Its albumin was compared immunologically to several other species of *Plethodon* in Maxson et al. (1979) and Maxson et al. (1984). Larson et al. (1984) estimated gene flow among populations. Larson (1984) estimated the time of divergence between *P. websteri* and *P. dorsalis* based on a time-calibration of protein divergence. Wake (1981) discussed the large amount of genetic divergence between *P. websteri* and *P. dorsalis* in light of the very small amount of morphological divergence.

The life history of *P. websteri* in South Carolina was studied by Semlitsch and West (1983), and Camp and Bozeman (1981) reported on food habits. Highton (1985) determined the width of a contact zone between *P. websteri* and *P. dorsalis* in Jefferson County, Alabama. A photograph of the habitat in Clarke County, Alabama, is in Blaney and Relyea (1967).

• ETYMOLOGY. *P. websteri* is a patronym honoring the late T. Preston Webster who first discovered that the South Carolina and southern Alabama populations are different genetically from *P. dorsalis*.

COMMENT

The similarity of *P. websteri* and *P. dorsalis* is remarkable and they were never suspected to be distinct until biochemical data proved that they share only a very small proportion of their electrophoretically-resolved protein variants. The two are parapatric in distribution with only about a 1 km overlap zone in Jefferson County, Alabama. For the purposes of identification, most *P. dorsalis* from in and near the contact zone are of the unstriped morph and most *P. websteri* are of the striped morph. Both species are often polymorphic for color morph in allopatric portions of their ranges. No F<sub>1</sub> hybrids or other evidence of introgression have been found in the overlap zone.

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