

Catalogue of American Amphibians and Reptiles.

HIGHTON, RICHARD. 1986. *Plethodon kentucki*.

***Plethodon kentucki* Mittleman
Cumberland Plateau woodland salamander**

Plethodon kentucki Mittleman, 1951:105. Type-locality, "Pine Mountain, Harlan County, Kentucky, about 2000 feet." Holotype, National Museum of Natural History (USNM) 129937 (formerly Cincinnati Natural History Society 1521A), an adult male, collected August 1933 by W. Cornett (examined by author).

Plethodon jordani kentucki: Schmidt, 1953:37.

Plethodon glutinosus glutinosus: Clay, Case and Cunningham, 1955:65.

• CONTENT. No subspecies are recognized.

• DEFINITION AND DIAGNOSIS. *Plethodon kentucki* is a member of the *P. glutinosus* group of eastern *Plethodon* as defined biochemically by Highton and Larson (1979). It is a black salamander with small dorsal and larger lateral white spots, very similar in appearance to *P. glutinosus*, but differs from sympatric *P. glutinosus* by its smaller adult size, lighter chin, smaller and less brassy-colored dorsal white spots and the presence of larger mental glands in mature males during the breeding season. *P. kentucki* is geographically variable in the above color characters and many individuals are extremely difficult to distinguish from sympatric *P. glutinosus* without an electrophoretic (Highton and MacGregor, 1983) or immunological (Maha et al., 1983) comparison of their proteins. Some *P. glutinosus* from outside the range of *P. kentucki* are very difficult to distinguish from the latter as are preserved specimens of all the other species of the *P. glutinosus* group. Living *P. kentucki* have much less brassy pigmentation in the dorsal white spots than *P. aureolus*, the Winding Stair Mountain variant of *P. ouachitae* and *P. caddoensis*, and are smaller and lack the red spots on the legs often present in *P. teyahalee*. *P. kentucki* differs from *P. yonahlossee* in lacking the chestnut red dorsal stripe; from *P. jordani* by the presence of dorsal spotting and by lacking the red pigmentation present on the legs and cheeks of some populations of the latter species; from *P. fourchensis* in having smaller dorsal

spots; and from the Rich Mountain variant of *P. ouachitae* by having much less dorsal brassy flecking and no red pigmentation. The Kiamichi Mountain variant of *P. ouachitae* and *P. kentucki* are very similar in appearance. As in other members of the *P. glutinosus* group, the usual number of trunk vertebrae is 17. Adults range from 44–79 mm (body) and 98–168 mm (total) length.

• DESCRIPTIONS. Mittleman (1951) described the type series. Clay et al. (1955) compared Mittleman's type series of *P. kentucki* with *P. glutinosus* using the same morphological characters he used to diagnose the species. Highton and MacGregor (1983) provided information on distinguishing features.

• ILLUSTRATIONS. Black and white photographs of adults are in Highton and MacGregor (1983) and a color photograph is in MacGregor (1983).

• DISTRIBUTION. *Plethodon kentucki* occurs in the Cumberland Plateau of eastern Kentucky, northeastern Tennessee, southwestern Virginia and in West Virginia west of the New and Kanawha rivers.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Mittleman (1951) described the species but Clay et al. (1955) were unable to differentiate the type series morphologically from *P. glutinosus* using Mittleman's diagnostic characters. An electrophoretic analysis of variation in 22 proteins by Highton and MacGregor (1983) and albumin immunological differentiation by Maha et al. (1983) proved the validity of the species as genetically distinct from other related species. Larson (1984) estimated the time of divergence between *P. kentucki* and *P. glutinosus* based on a time-calibration of protein divergence. Dawley (1984, in press a, b) studied the recognition of individual, sex and species odors.

• ETYMOLOGY. The species is named for the state of Kentucky.

COMMENT

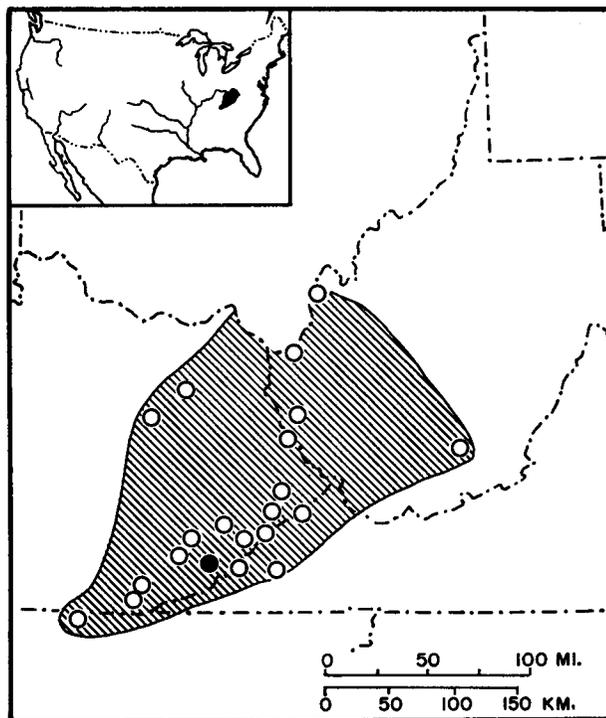
A careful morphometric analysis of variation in this and all other species of the *P. glutinosus* group is badly needed to try to discover ways of distinguishing preserved museum specimens. At the present time, without biochemical data, only geography and educated guesswork may be used to identify the many sibling species of this group.

Highton and MacGregor (1983) found a large amount of protein divergence between eastern and western populations of *P. kentucki* and further studies of geographic genetic variation in the species are needed.

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LITERATURE CITED

- Clay, William M., Roberta Buckhardt Case, and Robert Cunningham. 1955. On the taxonomic status of the slimy salamander, *Plethodon glutinosus* (Green), in southeastern Kentucky. *Trans. Kentucky Acad. Sci.* 16(3):57–65.
- Dawley, Ellen M. 1984. Chemical communication and pre-mating isolating mechanisms in the *Plethodon glutinosus* and *P. jordani* species complex. Ph.D. Thesis, Univ. Conn. viii + 125 p.
- *In press, a.* Behavioral isolating mechanisms in sympatric terrestrial salamanders. *Herpetologica*.
- *In press, b.* Evolution of chemical signals as a pre-mating isolating mechanism in a complex of terrestrial salamanders. *In David Duvall (ed.), Chemical signals in vertebrates.* IV. Plenum Press.
- Highton, Richard, and Allan Larson. 1979. The genetic relationships of the salamanders of the genus *Plethodon*. *Syst. Zool.* 28(4):579–599.
- , and John R. MacGregor. 1983. *Plethodon kentucki* Mittleman: a valid species of Cumberland Plateau woodland salamander. *Herpetologica* 39(3):189–200.
- Larson, Allan. 1984. Neontological inferences of evolutionary pattern and process in the salamander family Plethodontidae. *Evol. Biol.* 17:119–217.
- MacGregor, John R. 1983. The rare ones. *Kentucky Happy Hunting Ground*, March–April, 1983:20–25.
- Maha, George C., Linda R. Maxson, and Richard Highton. 1983. Immunological evidence for the validity of *Plethodon kentucki*. *J. Herpetol.* 17(4):398–400.
- Mittleman, Myron B. 1951. *American Caudata.* VII. Two new



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

salamanders of the genus *Plethodon*. *Herpetologica* 7(3):105-112.

Schmidt, Karl P. 1953. A check list of North American amphibians and reptiles. Sixth Ed. Amer. Soc. Ichthyol. Herpetol. viii + 280 p.

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