

Catalogue of American Amphibians and Reptiles.

HOLMAN, J. ALAN. 1971. *Ophisaurus ventralis*.

***Ophisaurus ventralis* (Linnaeus)**
Eastern glass lizard

Anguis ventralis Linnaeus, 1766:391. Type-locality, "Carolina," restricted to the vicinity of Charleston, South Carolina (Neill, 1949:100). Type-specimen not known to exist (see McConkey, 1954:138).

Chamaesaura ventralis: Schneider, 1801:215.

Ophisaurus ventralis: Daudin, 1803:352. First use of combination. McConkey, 1952:1. Name restricted to present concept of the species. See Remarks.

Hyalinus ventralis: Merrem, 1820:79.

Ophisaurus punctatus Cuvier, 1829:70. *Nomen nudum*.

Ophisaurus striatulus Cuvier, 1829:70. *Nomen nudum*.

Ophisaurus lineatus Gray, 1838:391. Type-locality, "North America," restricted to Charleston, South Carolina (Schmidt, 1953:37). Type-specimen not known to exist.

- CONTENT. The species is monotypic. See Remarks.

- DEFINITION. *Ophisaurus ventralis* is a large (maximum snout-vent length 292 mm, maximum total length 1082 mm) legless, serpentiform lizard with a distinct lateral fold. Scales along the lateral fold number 98 or more. The frontonasal is usually undivided, and the upper labials are separated from the orbit by the lorilabials. White markings are present on the posterior corners of the dorsal scales, never in the center of the scales. The middorsal stripe is absent in adults, and there are neither stripes nor dark pigmentation below the lateral fold. Distinct vertical white neck bars are present. In body vertebrae the angle between the posterior border of the neural spine and the longitudinal axis of the centrum is 65 to 84 degrees. Caudal vertebrae have distinct fracture planes and secondary neural spines. The angle between the anterior border of the caudal transverse process and the longitudinal axis of the centrum is 70 to 75 degrees. Palatine teeth are present. The hemipenis has a ridge the entire length of the organ along the medial side of the sulcus, and another ridge that extends about one-fourth the length of the organ on the lateral side of the sulcus.

- DESCRIPTIONS. McConkey (1954) provided the most complete, non-composite description of this species, including a detailed description of a topotype, notes on variation in color of young and adults, and data on variation in scutellation. Osteological descriptions are in Cope (1900), Auffenberg (1955), and Etheridge (1960, 1961).

- ILLUSTRATIONS. A color photograph was provided by Cochran and Goin (1970: pl. 9, fig. f). Black and white photographs are in Smith (1946: pl. 133, a and f), McConkey (1954: pl. 2), Carr and Goin (1955: pl. 52), and Pope (1955: pl. 219). Conant (1958: pl. 14) illustrated the species in color. A photograph of *O. ventralis* brooding its eggs is in Vinegar (1968). Line drawings of scutellation are in Cope (1900: fig. 88), Burt (1935: fig. 2), and McConkey (1954: fig. 1). Drawings of vertebrae are in Etheridge (1967).

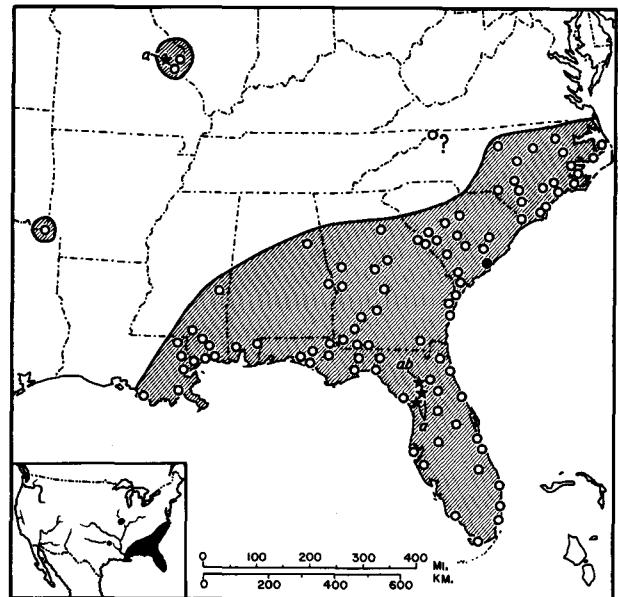
- DISTRIBUTION. *Ophisaurus ventralis* occurs mainly in the southeastern coastal plain of the United States from Atchafalaya Bay, Louisiana through southern Mississippi, Alabama, all of Florida, Georgia, South Carolina, and coastal North Carolina to Albemarle Sound. Locality records outside this general range are frequent. McConkey (1954) listed a single record from McCurtain County in extreme southeastern Oklahoma, and another from Arkansas. Webb (1970:58) suggested that further study was needed to clarify the status of *O. ventralis* in Oklahoma. McConkey (1954) also listed records from St. Louis and Jefferson County, Missouri, which Anderson (1965) considered questionable, but fossil *Ophisaurus ventralis* have recently been found near St. Louis (see Fossil Record). A

record from Ashe County, North Carolina was questioned by McConkey (1954:139).

Since the American species of *Ophisaurus* were confused until the 1950's, many data on ecological preference of *O. ventralis* are obscured in composite accounts. McConkey (1954) quoted W. T. Neill, who characterized the habitat of *Ophisaurus ventralis* in Florida, as follows: "Common in pine flatwoods, mesic hammock, borders of low hammock. . . damp grassy situations generally."

- FOSSIL RECORD. Auffenberg (1955, 1956) listed *Ophisaurus ventralis* from the Pliocene (probably Hemphillian) of Alachua County, Florida, and from the Pleistocene (probably Irvingtonian) of Alachua and Marion Counties, Florida. Holman (1958) listed the species from the Pleistocene (Wisconsin) of Citrus County, Florida, and from the Pleistocene (perhaps Illinoian) of Levy County, Florida (Holman, 1959). *Ophisaurus ventralis* is also known from the Late Pleistocene near St. Louis, Missouri (Holman, 1965).

- PERTINENT LITERATURE. The anatomy of *O. ventralis* has been studied by Hebard and Charipper (1955a, 1955b; adrenal cortex), Lynn and Walsh (1957: thyroid gland), Baird (1960; periotic labyrinth), Schmidt (1964; cochlea), and Wever (1967; tectorial membrane of the ear). Tooth counts were given by Edmund (1969). Hamilton and Pollack (1961) discussed food of *O. ventralis* in Georgia. Geographic distribution was included in papers by Freeman (1955; South Carolina), Duellman and Schwartz (1958; southern Florida), Cliburn (1959; Mississippi), Martof (1963; Sapelo Island, Georgia), and Mount and Folkerts (1968; Alabama). Neill (1950) mentioned the occurrence of *O. ventralis* in residential areas of Augusta, Georgia. Records from pocket gopher mounds in central Florida were mentioned by Funderburg and Lee (1968), and the presence of *O. ventralis* remains in a natural trap in southern Florida was noted by Hirschfeld (1969). Caudal vertebrae were described by Etheridge (1967). Hunsaker and Johnson (1959), and Hutchison and Larimer (1960) discussed physiology of the integument. Brooding was described by Noble and Mason (1933), and Vinegar (1968). A size record was given by Hudson (1948). The most comprehensive systematic work is that of McConkey (1954).



MAP. The solid symbol marks the type-locality; hollow symbols show other locality records; question mark indicates a questionable record; stars mark fossil localities (a = Pleistocene, b = Pliocene).

• **REMARKS.** For many years all United States populations of *Ophisaurus* were placed in the composite species *O. ventralis*. Boulenger (1885) recognized *O. ventralis* and a second species, *O. attenuatus*, but his arrangement was generally ignored. McConkey (1952, 1954) demonstrated that three species are involved: *O. ventralis*, *O. compressus*, and *O. attenuatus*.

• **ETYMOLOGY.** The name *ventralis* is from the Latin *venter* (= belly), probably in reference to the snake-like locomotion of *Ophisaurus ventralis*.

LITERATURE CITED

- Anderson, Paul. 1965. The reptiles of Missouri. Univ. Missouri Press, Columbia. xxiii + 330 p.
- Auffenberg, Walter. 1955. Glass lizards (*Ophisaurus*) in the Pleistocene and Pliocene of Florida. *Herpetologica* 11(2): 133-136.
- 1956. Additional records of Pleistocene lizards from Florida. *Quart. J. Florida Acad. Sci.* 19(2-3):157-167.
- Baird, I. L. 1960. A survey of the periotic labyrinth in some representative recent reptiles. *Univ. Kansas Sci. Bull.* 41(9):891-981.
- Boulenger, G. A. 1885. Catalogue of the lizards in the British Museum (Natural History). Second edition. London. Vol. 2, xiii + 497 p.
- Burt, Charles E. 1935. A key to the lizards of the United States and Canada. *Trans. Kansas Acad. Sci.* 38:255-305.
- Carr, A. F., and Coleman J. Goin. 1955. Guide to the reptiles, amphibians, and freshwater fishes of Florida. Univ. Florida Press, Gainesville. ix + 341 p.
- Cliburn, J. W. 1959. The distribution of some Mississippi lizards. *Amer. Midland Nat.* 61(2):414-418.
- Cochran, Doris M., and Coleman J. Goin. 1970. The new field book of reptiles and amphibians. G. P. Putnam's Sons, New York. xxii + 359 p.
- Conant, Roger. 1958. A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian. Houghton Mifflin Co., Boston. xv + 366 p.
- Cope, Edward D. 1900. The crocodylians, lizards, and snakes of North America. *Ann. Rept. U. S. Natl. Mus. for 1898:* 153-1270.
- Cuvier, G. L. C. F. D. 1829. *Le regne animal. . . nouvelle edition.* Paris. Vol. 2.
- Daudin, F. M. 1803. *Histoire naturelle generale et particuliere des reptiles.* F. Dufart, Paris. Vol. 7, 436 p.
- Duellman, William E., and Albert Schwartz. 1958. Amphibians and reptiles of southern Florida. *Bull. Florida State Mus.* 3(5):181-324.
- Edmund, A. G. 1969. Dentition. *In Biology of the Reptilia*, Carl Gans, ed. Academic Press, London. Vol. 1:117-200.
- Etheridge, Richard. 1960. The slender glass lizard, *Ophisaurus attenuatus*, from the Pleistocene (Illinoian Glacial) of Oklahoma. *Copeia* 1960(1):46-47.
- 1961. Late Cenozoic glass lizards (*Ophisaurus*) from the southern Great Plains. *Herpetologica* 17(3):179-186.
- 1967. Lizard caudal vertebrae. *Copeia* 1967(4):699-721.
- Freeman, Harry W. 1955. The amphibians and reptiles of the Savannah River Project Area. Part 3. Crocodylia, Sauria and Serpentes. *Univ. South Carolina Publ.*, ser. 3, 1(5):275-291.
- Funderburg, John B. and David S. Lee. 1968. The amphibian and reptile fauna of pocket gopher (*Geomys*) mounds in central Florida. *J. Herpetology* 1(1-4):99-100.
- Gray, J. E. 1838. Catalogue of the slender-tongued saurians, with descriptions of many new genera and species. Part 2. *Ann. Mag. Nat. Hist.* (1) 1(5):388-394.
- Hamilton, W. J., Jr., and Joseph A. Pollack. 1961. The food of some lizards from Fort Benning, Georgia. *Herpetologica* 17(2):99-106.
- Hebard, William B., and Harry A. Charipper. 1955a. Historical evidence of saurian phylogeny. *Copeia* 1955(4): 305-307.
- 1955b. A comparative study of the morphology and histochemistry of the reptilian adrenal gland. *Zoologica (New York)* 40(10):101-123.
- Hirschfeld, Sue E. 1969. Vertebrate fauna of Nichol's Hammock, a natural trap. *Quart. J. Florida Acad. Sci.* 31(3): 177-189.
- Holman, J. Alan. 1958. The Pleistocene herpetofauna of Saber-tooth Cave, Citrus County, Florida. *Copeia* 1958(4): 276-280.
- 1959. Amphibians and reptiles from the Pleistocene (Illinoian) of Williston, Florida. *Copeia* 1959(2):96-102.
- 1965. A late Pleistocene herpetofauna from Missouri. *Trans. Illinois State Acad. Sci.* 58(3):190-194.
- Hudson, R. G. 1948. Maximum length of the glass lizard. *Herpetologica* 4(6):224.
- Hunsaker, Don, II, and Clifford Johnson. 1959. Internal pigmentation and ultraviolet transmission of the integument in amphibians and reptiles. *Copeia* 1959(4):311-315.
- Hutchison, Victor H., and James L. Larimer. 1960. Reflectivity of the integuments of some lizards from different habitats. *Ecology* 41(1):199-209.
- Linnaeus, Carolus. 1766. *Systema naturae. Editio duodecima.* Stockholm. 532 p.
- Lynn, W. G. and G. A. Walsh. 1957. The morphology of the thyroid gland in the Lacertilia. *Herpetologica* 13(3): 157-162.
- Martof, Bernard S. 1963. Some observations on the herpetofauna of Sapelo Island, Georgia. *Herpetologica* 19(1): 70-72.
- McConkey, Edwin H. 1952. A new subspecies of *Ophisaurus attenuatus*, with a key to the North American forms. *Nat. Hist. Misc. (Chicago)* (102):1-2.
- 1954. A systematic study of the North American lizards of the genus *Ophisaurus*. *Amer. Midland Nat.* 51(1): 133-171.
- Merrem, Blasius. 1820. *Tentamen systematis amphibiorum.* Johann Christian Krieger, Marburg. xv + 191 p.
- Mount, Robert H., and George W. Folkerts. 1968. Distribution of some Alabama reptiles and amphibians. *Herpetologica* 24(3):259-262.
- Neill, Wilfred T. 1950. Reptiles and amphibians in urban areas of Georgia. *Herpetologica* 6(2):113-116.
- Noble, G. K., and E. R. Mason. 1933. Experiments on the brooding habits of the lizards *Eumeces* and *Ophisaurus*. *Amer. Mus. Novitates* (619):1-29.
- Pope, Clifford H. 1955. *The reptile world.* Alfred A. Knopf Co., New York. xxvi + 325 + xiii p.
- Schmidt, Karl P. 1953. A check list of North American amphibians and reptiles. Sixth edition. *Publ. Amer. Soc. Ichthyol. Herpetol.*, Chicago. viii + 280 p.
- Schmidt, Robert S. 1964. Phylogenetic significance of lizard cochlea. *Copeia* 1964(3):542-549.
- Schneider, Johann G. 1801. *Historiae amphibiorum naturalis et literariae. Fasciculus secundus.* Formann, Jena. vi + 374 p.
- Smith, Hobart M. 1946. *Handbook of lizards: Lizards of the United States and of Canada.* Comstock Publ. Co., Ithaca, New York. xxi + 557 p.
- Vinegar, A. 1968. Brooding of the eastern glass lizard, *Ophisaurus ventralis*. *Bull. So. California Acad. Sci.* 67(1):65-68.
- Webb, R. G. 1970. *Reptiles of Oklahoma.* Univ. Oklahoma Press, Norman. xi + 370 p.
- Wever, E. G. 1967. The tectorial membrane of the lizard ear: Species variations. *J. Morph.* 123(4):355-372.

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Primary editor for this account, Clarence J. McCoy.

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