

Catalogue of American Amphibians and Reptiles.

MITCHELL, JOSEPH C. 1982. *Farancia**Farancia* Gray
Mud and rainbow snakes*Farancia* Gray, 1842:68. Type species, *Farancia drummondii* Gray, 1842 [= *F. abacura* Holbrook], by original designation.*Abastor* Gray, 1849:78. Type species, *Coluber erythrogrammus* Palisot de Beauvois (in Sonnini and Latreille), 1801 [= *Farancia erythrogramma*], by monotypy.*Callopisma* Duméril, 1853:454. Type species, *Coluber erythrogrammus* Palisot de Beauvois (in Sonnini and Latreille), 1801 [= *Farancia erythrogramma*], by subsequent designation.

- CONTENT. Two species are recognized: *F. abacura* (two subspecies) and *F. erythrogramma* (two subspecies).

- DEFINITION. A colubrid snake genus characterized by: normal head scutellation consisting of a broad rostral, followed by 1–2 internasals, two prefrontals, two supraoculars, one frontal, two parietals, a single grooved nasal, one loreal, no preoculars, two postoculars, no suboculars, usually 1 + 2 temporals, usually 7 supralabials with the third and fourth entering orbit, infralabials 7–8 with 4–5 in contact with chin shields; dorsal scales smooth except above the anal region where they may be slightly keeled, scale rows usually 21 anteriorly, 19 at midbody, and 17–18 posteriorly; ventrals 158 to 208; anal plate usually divided but occasionally single; subcaudals 31 to 55, paired; maximum total length 2057 mm; maxillary teeth equal in size; hemipenes slightly bilobed with a bifurcate sulcus spermaticus, each organ covered distally by serrate or dentate calyces, middle of organ with few to numerous subequal spines, base of organ naked. Adults are iridescent in color and of two patterns—uniformly black dorsum with dorsal encroachment of the red venter suggesting a row of ventrolateral red blotches (*F. abacura*), or three longitudinal red stripes on black dorsum, with red scales bordered by yellow laterally (*F. erythrogramma*). There is no ontogenetic pattern change. Tail tips of juveniles are sharper than those of adults. The tongue is short and slender, and the body is stout with the head and neck of equal width.

- DESCRIPTIONS. Description of color, pattern and/or scutellation of both species are in Holbrook (1838, 1842), Garman (1892), Cope (1900), Ditmars (1907, 1936, 1939), Schmidt and Davis (1941), Carr and Goin (1955), Wright and Wright (1957), Cochran and Goin (1970), Leviton (1972), and Mount (1975). Other important descriptions are those of Smith (1938) on *F. abacura* and Neill (1964a) on *F. erythrogramma*. Cope (1900) described the

hemipenes for *F. abacura* and *F. erythrogramma*. Blanchard (1931) discussed sexual dimorphism in scutellation.

- ILLUSTRATIONS. Cope (1900) provided schematic drawings of the head, midbody segment, anal region, and hemipenes of both species. Line drawings and/or black and white photos appear in Ditmars (1907, 1936, 1939), Carr (1940), Schmidt and Davis (1941), Wright and Wright (1957), and Mount (1975). Color plates or photographs are in Holbrook (1836, 1842), Cochran and Goin (1970), Leviton (1972), Mitchell (1974), Conant (1975), Gans (1975), and Behler and King (1979). Underwood (1970) illustrated visual cells. Neill (1964a) illustrated aberrant specimens of *F. abacura* and the optimum habitat for both species. Other illustrations of *F. abacura* are in Parker (1937), Smith (1938), Goldstein (1941), Davis (1948), Etheridge (1950), Smith (1961), Anderson (1965), and Barbour (1971) and of *F. erythrogramma* in Schmidt and Davis (1941), Neill (1964a) and Breen (1974).

- DISTRIBUTION. The genus ranges from Charles County, Maryland south to peninsular Florida, west to southeastern Oklahoma and eastern Texas, and north in the Mississippi River Valley to southern Illinois and southwestern Indiana.

Members of this genus are semiaquatic and inhabit coastal plain habitats ranging from swamps and rivers to springs and sandy fields near marshes (Wright and Wright, 1957; Neill, 1964a; Conant, 1975; Mount, 1975).

- FOSSIL RECORD. According to Neill (1964a), fossils of this genus cannot be identified to species. Pleistocene and/or Recent *Farancia* fossils have been found in several counties of central and northern Florida (Hay, 1917; Gilmore, 1938; Brattstrom, 1953; Auffenburg, 1963; Holman, 1959).

- PERTINENT LITERATURE. Smith (1938) reviewed the systematic status and history of the genus and variation in *F. abacura*. Neill (1964a) discussed the relationships of the two species, provided photographs of preferred habitats, and summarized the natural history and zoogeography of *F. erythrogramma*. Blanchard (1931) discussed sexual dimorphism. Baird (1970) studied the internal ear and Dessauer (1967) mentioned plasma enzymes. Fitch (1970) summarized reproductive characteristics. Neill (1958) discussed occurrence in salt water habitats and (1964b) mentioned nesting habits. Other references discuss aspects of habitat, food and feeding behavior, and seasonal activity of both species (Ditmars, 1912; Wright and Bishop, 1915; Corrington, 1929; Gilmore and Cochran, 1930; Carr, 1940; Carr and Goin, 1955; Freeman, 1955; Oliver, 1955; Wright and Wright, 1957; Smith, 1961; Anderson, 1965; Sanders, 1966; Barbour, 1971; Musick, 1972; Mount, 1975; Gibbons, 1977; Gibbons and Patterson, 1978). Taub (1967) studied the histology of Duvernoy's gland. Willard (1977) described constricting behavior and Carpenter and Ferguson (1978) summarized known stereotypic behaviors. Russ (1973) analyzed the status of both species in Virginia.

- REMARKS. The species of this genus are referred to in the Hoop Snake and Stinging Snake myths (Brimley, 1909; Schmidt, 1925; Cochran, 1954; Oliver, 1955).

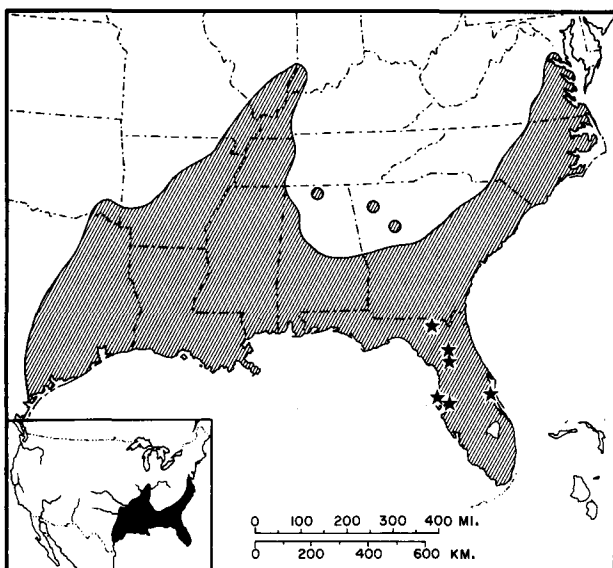
• KEY TO SPECIES.

One internasal; eight infralabials; uniform black to purplish gray dorsally; pink to red venter with two rows of dark spots which are connected to dorsal pigment; ventral color extends as segregate blotches to about scale row 3 *F. abacura*.
Two internasals; seven infralabials; three longitudinal red stripes on black dorsum, red venter with two lateral rows of black spots and usually a shortened midventral row, yellow on scale rows 1–2 *F. erythrogramma* (293).

- ETYMOLOGY. The generic name *Farancia* is New Latin and is a coined name; its reference is unknown.

LITERATURE CITED

- Anderson, Paul. 1965. The reptiles of Missouri. Univ. Missouri Press, Columbia. xxiii + 330 p.
Auffenburg, Walter. 1963. The fossil snakes of Florida. Tulane Stud. Zool. 10(3):131–216.
Baird, Irvin L. 1970. The anatomy of the reptilian ear, p. 193–275. In Carl Gans and Thomas S. Parsons (eds.), *Biology of the Reptilia*, vol. 2. Morphology B. Academic Press, London and New York.



MAP. Shaded area indicates composite range of both species. Stars indicate Pleistocene and/or Recent fossil localities.

- Barbour, Roger. 1971. Amphibians and reptiles of Kentucky. Univ. of Kentucky Press, Lexington. x + 334 p.
- Behler, John L., and F. Wayne King. 1979. The Audubon Society field guide to North American reptiles and amphibians. Alfred A. Knopf, New York. 719 p.
- Blanchard, Frank N. 1931. Secondary sex characters of certain snakes. Bull. Antivenin Inst. Amer. 4(4):95-104.
- Brattstrom, Bayard H. 1953. Records of Pleistocene reptiles and amphibians from Florida. Quart. J. Florida Acad. Sci. 16(4):243-248.
- Breen, John F. 1974. Encyclopedia of reptiles and amphibians. T. F. H. Publ., Inc., Neptune City, New Jersey. 576 p.
- Brimley, Clement S. 1909. Some notes on the zoology of Lake Ellis, Craven County, North Carolina, with special reference to herpetology. Proc. Biol. Soc. Washington 22:129-138.
- Carpenter, Charles C., and Gary W. Ferguson. 1978. Variation and evolution of stereotyped behavior in reptiles, p. 335-354. In Carl Gans and Donald W. Tinkle (eds.), Biology of the Reptilia, vol. 7. Ecology and behavior A. Academic Press, London, New York, and San Francisco.
- Carr, Archie F., Jr. 1940. A contribution to the herpetology of Florida. Univ. Florida Publ. Biol. Sci. Ser. 3(1):1-118.
- , and C. J. Goin. 1955. Guide to the reptiles, amphibians and freshwater fishes of Florida. Univ. Florida Press, Gainesville. ix + 341 p.
- Cochran, Doris M. 1954. Our snake friends and foes. Nat. Geogr. Mag. 106(3):334-364.
- , 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. 1975. A field guide to reptiles and amphibians of eastern and central North America. Second edition. Houghton Mifflin Co., Boston. xviii + 429 p.
- Cope, Edward D. 1900. The crocodilians, lizards and snakes of North America. Rep. United States Nat. Mus. 1898:153-1294.
- Corrington, Julian P. 1929. Herpetology of the Columbia, South Carolina, region. Copeia (172):58-83.
- Davis, D. D. 1948. Flash display of aposematic colors in *Farancia* and other snakes. Copeia 1948(3):208-211.
- Dessauer, Herbert C. 1967. Molecular approach to the taxonomy of colubrid snakes. Herpetologica. 23(2):148-155.
- Ditmars, Raymond L. 1907. The reptile book. Doubleday, Page and Co., New York. xxxii + 472 p.
- 1912. The feeding habits of serpents. Zoologica 1(11):197-238.
- 1936. The reptiles of North America. Doubleday, Doran and Co., Garden City, New York. xvi + 476 p.
- 1939. A field book of North American snakes. Doubleday, Doran and Co., Garden City, New York. xii + 305 p.
- Duméril, André M. C. 1853. Prodrome de la classification des reptiles ophidiens. Mem. Acad. Sci. Inst. France 23:399-536.
- Etheridge, Richard. 1950. Color variants in snakes from the southeastern United States. Copeia 1950(4):321.
- Fitch, Henry S. 1970. Reproductive cycles in lizards and snakes. Univ. Kansas Mus. Natur. Hist. Misc. Publ. (52):1-247.
- Freeman, Harry W. 1955. The amphibia and reptiles of the Savannah River Project Area. 2. Chelonia. 3. Crocodilia, Sauria and Serpentes. Univ. South Carolina Publ. Biol. 1(5):275-291.
- Gans, Carl. 1975. Reptiles of the world. Bantam Books, New York. 159 p.
- Garman, Harrison. 1892. A synopsis of the reptiles and amphibians of Illinois. Bull. Illinois St. Lab. Natur. Hist. 3(13):215-385.
- Gibbons, J. Whitfield. 1977. Snakes of the Savannah River Plant with information about snakebite prevention and treatment. Savannah River Oper.-NERP-1. 26 p.
- , and K. K. Patterson. 1978. The reptiles and amphibians of the Savannah River Plant. Savannah River Oper.-NERP-2. 24 p.
- Gilmore, Charles W. 1938. Fossil snakes of North America. Geol. Soc. Amer., Spec. Pap. (9):1-96.
- , and Doris M. Cochran. 1930. Cold-blooded vertebrates. Smithsonian Sci. Ser. 8(2-3):160-359.
- Goldstein, R. C. 1941. Notes on the mud snake in Florida. Copeia 1941(1):49-50.
- Gray, John E. 1842. Zoological miscellany. London.
- 1849. Catalogue of the specimens of snakes in the collection of the British Museum, London. xv + 125 p.
- Hay, Oliver P. 1917. Vertebrata mostly from stratum No. 3 at Vero, Florida; together with descriptions of a new species. Ann. Rep. Florida Geol. Surv. 9:43-68.
- Holbrook, John E. 1838. North American herpetology; or a description of the reptiles inhabiting the United States. Vol. 1. First edition. J. Dobson and Son, Philadelphia, vi + 120 p.
- 1842. North American herpetology; or a description of the reptiles inhabiting the United States. Second edition. Vol. 3. J. Dobson, Philadelphia. ii, 7-128 p.
- Holman, J. Alan. 1959. A Pleistocene herpetofauna near Orange Lake, Florida. Herpetologica 15(3):121-125.
- Leviton, Alan. 1972. Reptiles and amphibians of North America. Doubleday and Co., New York. 252 p.
- Mitchell, J. C. 1974. The snakes of Virginia, Part II: Harmless snakes that benefit man. Virginia Wildlife 35(4):12-15.
- Mount, Robert H. 1975. The reptiles and amphibians of Alabama. Auburn Univ., Agr. Exp. Sta., Auburn, Alabama. vii + 347 p.
- Musick, J. A. 1972. Herptiles of the Maryland and Virginia coastal plain, p. 213-242. In Marvin L. Wass et al. (eds.), A checklist of the biota of lower Chesapeake Bay. Virginia Inst. Mar. Sci. Spec. Sci. Rep. (65):x + 290.
- Neill, Wilfred T. 1958. The occurrence of amphibians and reptiles in saltwater areas, and a bibliography. Bull. Marine Sci. Gulf and Caribbean 8(1):1-97.
- 1964a. Taxonomy, natural history and zoogeography of the rainbow snake, *Farancia erytrogramma* (Palisot de Beauvois). Amer. Midland Natur. 71(2):257-295.
- 1964b. Viviparity in snakes: some ecological and zoogeographic considerations. Amer. Natur. 98(898):35-55.
- Oliver, James A. 1955. The natural history of North American amphibians and reptiles. D. Van Nostrand Co., Inc. Princeton, New Jersey. ix + 359 p.
- Parker, Malcolm V. 1937. Some amphibians and reptiles from Reelfoot Lake. J. Tennessee Acad. Sci. 12(1):60-86.
- Russ, W. P. 1973. The rare and endangered terrestrial vertebrates of Virginia. M.S. thesis, Virginia Polytechnic Inst. and St. Univ., Blacksburg. 338 p.
- Sanders, A. E. 1966. The reptiles of Columbia, S. C. and vicinity. Columbia Sci. Mus. Quart. 1966:1-36.
- Schmidt, Karl P. 1925. The hoop snake story, with some theories of its origin. Natur. Hist. 25(1):76-80.
- , and D. D. Davis. 1941. Field book of snakes of the United States and Canada. G. P. Putnam's Sons, New York. xiii + 365 p.
- Smith, H. M. 1938. A review of the snake genus *Farancia*. Copeia 1938(3):110-117.
- Smith, Philip W. 1961. The amphibians and reptiles of Illinois. Illinois Natur. Hist. Surv. Bull. 28(1):1-298.
- Sonnini de Manoncourt, C. N. S., and P. A. Latreille. 1801. Histoire naturelle des reptiles, avec figures dessinées d'après nature. Chez Deterville, Paris, Vol. 3. 335 p.
- Taub, Aaron M. 1967. Comparative histological studies on Duvernoy's gland of colubrid snakes. Bull. Amer. Mus. Natur. Hist. 138(1):1-50.
- Underwood, Garth. 1970. The eye, p. 1-97. In Carl Gans and Thomas S. Parsons (eds.), Biology of the Reptilia, vol. 2. Morphology B. Academic Press, London and New York.
- Willard, D. E. 1977. Constricting methods of snakes. Copeia 1977(2):379-382.
- Wright, Albert H., and Sherman C. Bishop. 1915. Snakes, p. 139-192. In A biological reconnaissance of the Okefinokee Swamp in Georgia. Proc. Acad. Natur. Sci., Philadelphia, 67, pt. I. 92 p.
- , and Anna A. Wright. 1957. Handbook of snakes of the United States and Canada. Comstock Publ. Assoc., Ithaca, New York. 2 vols. xxvii + 1105 p.

JOSEPH C. MITCHELL, UNIVERSITY OF RICHMOND, RICHMOND, VIRGINIA 23173.

Primary editor for this account, Larry David Wilson.

Published 11 February 1982 and Copyright 1982 by the SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES.