

REPTILIA: SQUAMATA: COLUBRIDAE

RHADINAEA FLAVILATA

Catalogue of American Amphibians and Reptiles.

Walley, H.D. 1999. *Rhadinaea flavilata*.

***Rhadinaea flavilata* Cope**
Pine Woods Snake

Dromicus flavilatus Cope 1871:222. Type locality, "near Fort Macon, North Carolina." Holotype, Academy of Natural Sciences of Philadelphia (ANSP) 5583, collected by H.C. Yarrow, November 1871 (type lost).

Liophis flavilatus: Boulenger 1894:143.

Rhadinaea flavilata: Cope 1893:428.

Rhadinea flavilata: Brown 1901:88.

Leimadophis flavilatus: Stejneger and Barbour 1917:86.

Urotheca [flavilata]: Roze 1958 (by inference). See Remarks.

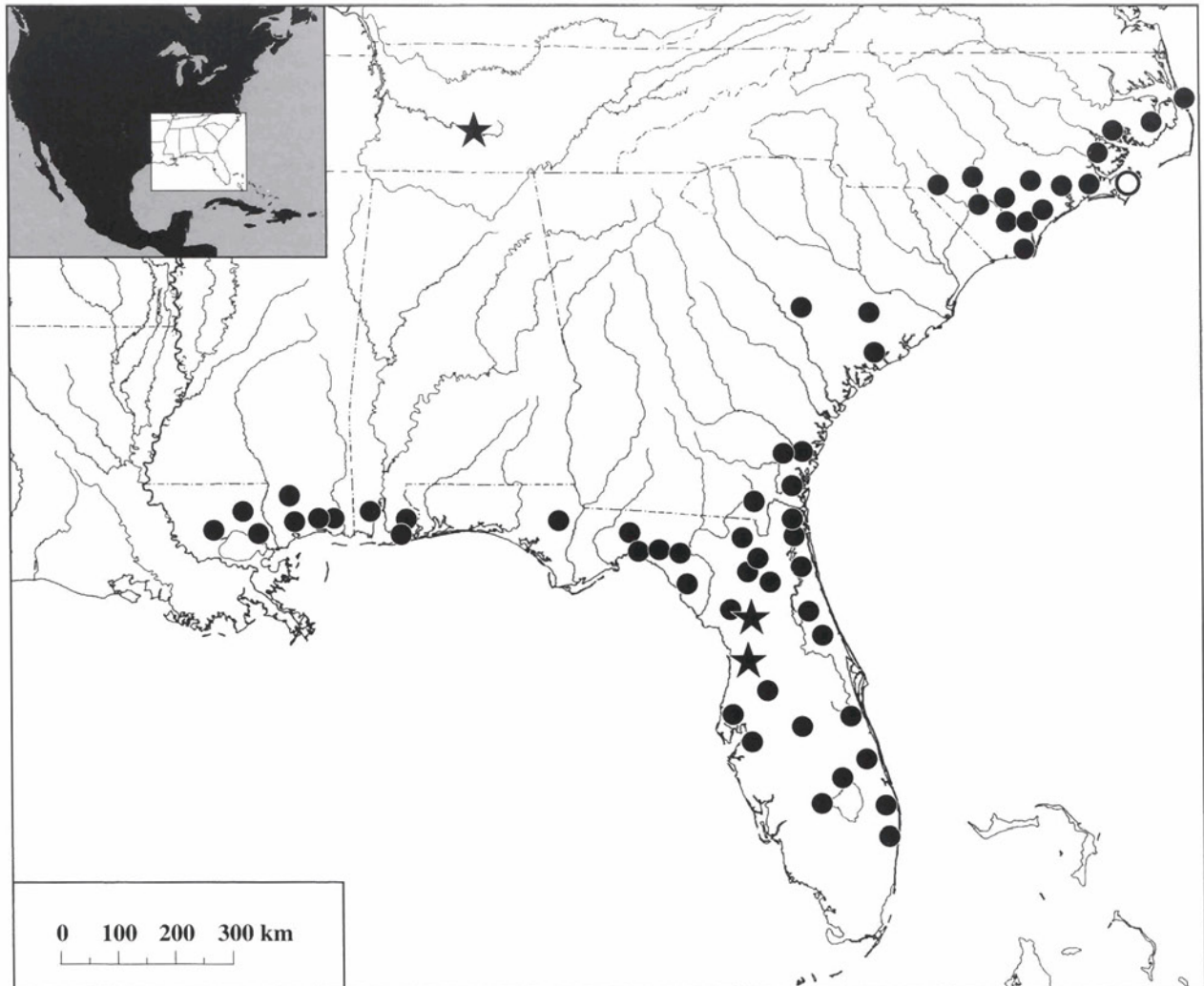
• **CONTENT.** No subspecies are recognized.

• **DEFINITION.** This slender snake has iridescent scales and a reddish brown or golden brown dorsum. The head is slightly wider than the neck. Dorsal scutes are smooth (except for occasional anal ridges on some specimens) and in 17 rows (occasionally 18–19 rows behind the head). The cloacal scute is divided. Ventrals number 112–139 and subcaudals 59–83. The tail terminates in a spine. Supralabials normally number 7, with the 3rd and 4th entering the orbit, and 6th the largest (occasionally 8, with 4th and 5th entering orbit, and 7th the largest).



FIGURE 1. Adult male and female *Rhadinaea flavilata* from Choctaw Beach Quad, Walton County, Florida (photograph Suzanne L. Collins, The Center for North American Amphibians and Reptiles).

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MAP. Distribution of *Rhadinaea flavilata*. The circle marks the type locality, dots indicate other known localities, and stars mark fossil localities.

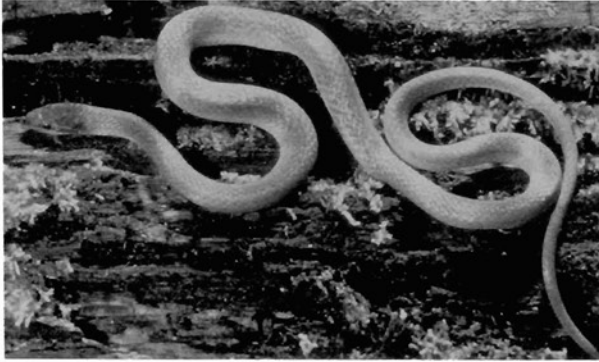


FIGURE 2. *Rhadinaea flavilata* from Carteret County, Morehead City, North Carolina (photograph by Jack Dermid).

Infralabials usually number 9, with the first five bordering the chin shields, and the 5th the largest (infralabials occasionally vary from 7–10, which corresponds with changes in position of the largest scute and number bordering the chin scutes). The first pair of infralabials meet behind the mental. Posterior chin scutes are slightly longer than the anterior pair. Temporals are typically 1+2, but these scutes, especially in row 2, are frequently divided or fused. One preocular and two postoculars are present. The loreal is as high or higher than long, rarely absent. The nasal is single, but grooved, and may appear divided. The rostral is about twice as wide as high and barely visible from above. Internasals are nearly quadrate, prefrontals nearly as long as wide, and supraoculars narrow, longer than wide. The frontal is about 1.5–2 times longer than wide, pentagonal with the apex caudad. Parietals are elongate, truncate, or slightly pointed posteriorly (Myers 1967).

• **ILLUSTRATIONS.** Color photographs and/or illustrations are found in Ashton and Ashton (1981), Behler and King (1979, 1995), Boundy (1997), Carmichael and Williams (1991), Coborn (1991), Conant (1958, 1975), Conant and Collins (1991, 1998), Dundee and Rossman (1989), Ernst and Barbour (1989), Gibbons and West (1998), Martof et al. (1980), Mount (1986), Palmer and Braswell (1995), Rossi (1992), Smith and Brodie (1982), and Tennant (1997). Black and white illustrations are in Brothers (1992), Cochran and Goin (1970), Ditmars (1907, 1939, 1948, 1951), Ernst and Barbour (1989), Haltom (1931), Myers (1967), Palmer and Braswell (1995), Powell et al. (1998), and Wright and Wright (1957). Cope (1898 [1900]) and Schmidt and Davis (1941) provided dorsal, ventral, and lateral views of the head and body. Geographic variation in labial and head pigmentation and midbody color pattern was illustrated in Myers (1967, 1974). Hemipenes were illustrated in Cope (1895, 1898 [1900]) and Myers (1974). Langebartel (1968) included a drawing of the hyoid apparatus. Auffenberg (1963) illustrated the precaudal vertebra of *Rhadinaea flavilata* from the Reddick, Pleistocene formation, and Meylan (1982) illustrated a vertebra from the Irvingtonian, early Pleistocene fauna of Florida.

• **DISTRIBUTION.** *Rhadinaea flavilata* has a narrow coastal range from the vicinity of Cape Hatteras, North Carolina south through the northern four-fifths of Florida and west to extreme eastern Louisiana. Most localities are less than 30 m above sea level, although a few approach 60 m in the Gainesville, Florida area. Cope (1896) indicated that the range was in the eastern edge of the Austroriparian subregion, not extending west of the Atlantic drainage. Brown (1904) discussed the post-glacial dispersal pattern. Telford (1965) associated *R. flavilata* with the central ridge region in Florida, which consists of sandhills and pine flatwoods with numerous shallow lakes.

The range was illustrated in Stejneger and Barbour (1917, 1923), Wright and Wright (1957), Conant (1958, 1975), Ashton and Ashton (1981), Ernst and Barbour (1989), Conant and Collins (1991, 1998), and Behler and King (1979, 1995). The species is listed in several regional guides: **Alabama** (Löding 1922, Haltom 1931, Jackson and Jackson 1970, Linzey 1979, Mount 1986), **Florida** (Cope 1877, 1888; Carr 1940; Telford 1952; Carr and Goin 1955; Telford 1965; Ashton and Ashton 1981; Carmichael and Williams 1991; Tennant 1997), **Georgia** (Martof 1956, Williamson and Moulis 1994), **Georgia and South Carolina** (Gibbons and West 1998), **Louisiana** (Dundee and Rossman 1989, Boundy 1997), **Mississippi** (Cook 1954, Lohofener and Altig 1983), **North Carolina** (Coues and Yarrow 1878, Schmidt 1916, Robertson and Tyson 1950, Funderburg 1958, White 1960, Palmer and Braswell 1995), and **Virginia and the Carolinas** (Martof et al. 1980). Engels (1942), Robertson and Tyson (1950), Jackson and Jackson (1970), and Gibbons and Coker (1978) discussed distribution on Atlantic coast barrier islands. Wilson and Porras (1983) listed *R. flavilata* as a peripheral species in southern Florida. Netting (1936) reported a Texas record from the vicinity of Clifton, in Bosque County, but Grobman (1950), Myers (1967), and Worthington (1973) felt this record was erroneous. Keys were provided by Werner (1929), Blanchard (1925), and Keiser and Wilson (1969, 1979) for Louisiana, and by Cliburn (1976) and Lohofener and Altig (1983) for Mississippi.

• **FOSSIL RECORD.** Fossil *Rhadinaea flavilata*, or material that is at least comparable to the recent form, has been recorded from four Pleistocene RanchoLabrean locales in Florida (Holman 1958, 1959, 1981, 1995; Auffenberg 1963; Gut and Ray 1963). Meylan (1982, 1984) referred vertebrae from the early Pleistocene (Irvingtonian) of Citrus County, Florida to *R. flavilata* and indicated that *Rhadinaea* had arrived in Florida by the earliest Pleistocene. Klippel and Palmalee (1982) referred material from Check Bend Cave, Maury County, Tennessee to *R. flavilata*. Holman (1995) discussed the historical biogeographic context of these fossils.

• **PERTINENT LITERATURE.** Malnate (1939) and Myers (1967, 1974) provided the most comprehensive reviews on the biology of this species. **Systematics and/or phylogenetic studies** include those of Garman (1883), Cope (1892), Dunn (1932), Bailey (1940), Myers (1974), Myers and Campbell (1981), Dowling et al. (1983), Holm and Cruz (1994), and Beltz (1995). Cadle (1984) provided albumin immunological evidence that

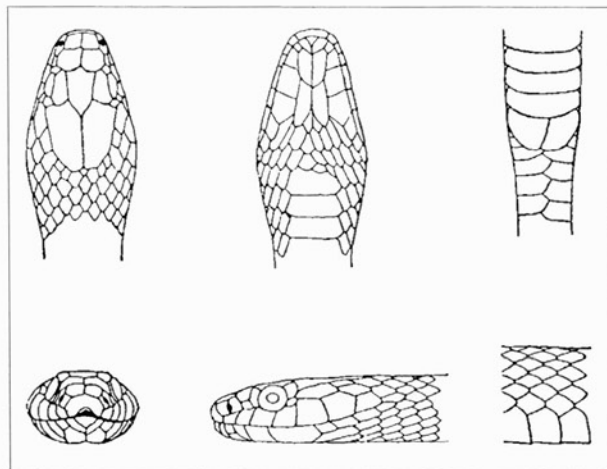


FIGURE 3. *Rhadinaea flavilata* from Volusia, Volusia County, Florida (from Cope 1898 [1900]).

showed *Rhadinaea flavilata* is related to *Coniophanes fissidens*. Wright and Wright (1957) summarized much of the literature on ecology, and most of the papers cited in the distribution section above contain some ecological information. Further **ecological and distributional data** are in Yarrow (1882), Brimley (1910), Schmidt (1916), Löding (1922), Allen (1932), Van Hyning (1933), Netting (1936), Robertson and Tyson (1950), Goin and Goin (1953), Smith and List (1955), Brode and Allison (1958), Funderburg (1958), Cliburn (1959), White (1960), Jackson and Jackson (1970), Palmer and Stephan (1972), Seehorn (1982), Jackson (1983), Gottlieb (1984), Obst et al. (1988), Young (1988), Beane and Alford (1989), Reichling and Louton (1989), Beane (1990), Gibbons and Semlitsch (1991), Brothers (1992), Godwin (1992), Palis (1992), Irwin et al. (1993), Enge (1994), Nelson et al. (1994), Williamson and Moulis (1994), Holman (1995), Whiteman et al. (1995), and Wood (1998). Effects of fire on ecology in Florida sandhill communities were discussed by Mushinsky (1985). Cliburn and Jackson (1974) listed *R. flavilata* as rare and endangered in Mississippi. Other works are listed by topic: **biogeographic studies** (Telford 1965, Gibbons and Coker 1978, Lohoefer and Altig 1983, Mushinsky 1985), **bibliographies** (Enge and Dodd 1986, 1992; Florida), **position of prezygophy-seal accessory process** (Whistler and Wright 1989).

Studies of **reproduction and sexual dimorphism** include the following: **eggs and clutch size** (Allen 1939, Telford 1952, Funderburg 1958, Fitch 1970), **hemipenes** (Cope 1895, 1898 [1900], Myers 1974), **effects of environment on ovulation** (Jackson and Franz 1981), **sexual dimorphism** (Blanchard 1932, Clark 1967, Myers 1967, Fitch 1981, King 1989). **Defense mechanisms** are discussed by Brode and Allison (1958) and Greene (1988). Myers (1967) and Henderson (1984) described **tail injuries and tail loss**. Neill (1963) commented on **polychromatism in dorsal coloration**. General **food habits and feeding behavior** have been summarized by Malnate (1939), Neill (1954), Myers (1967) and Palmer and Braswell (1995). **Prey items** were listed by Allen (1939), Brode and Allison (1958), Funderburg (1958), and Allen (1939). Campbell and Stickel (1939), Malnate (1939), Neill (1954), Funderburg (1958), and Myers (1967) reported on food items consumed in captivity. **Plant and animal associations** were described by Engels (1942), Goin and Goin (1953), and Myers (1967).

Osteology and/or dentition were described by Dunn (1932), Edmund (1969), Marx and Rabb (1972), and Myers (1974). Neill (1954), Willard (1967) and McKinistry (1978) described the **maxillary teeth**, Taub (1967) and Rodríguez-Robles (1994) described **venom and Duvernoy's gland secretions**, and Kroll (1975), Neill (1954), and Willard (1967) described **salivary secretions**.

Requirements for **captive maintenance** can be found in Obst et al. (1988) and Rossi (1992). Telford (1961) and Myers (1967) reported two widespread polymastiginid flagellates from a specimen from Alachua County, Florida. The same specimen also harbored *Acanthamoeba* sp., a normally free-living soil amoeba, along with *Entamoeba* sp. Snider and Bowler (1992) listed a **longevity record**.

• **REMARKS.** Dunn (1957) and Roze (1958) relegated *Rhadinaea* Cope (1863) to the synonymy of *Urotheca* Bibron (1843). This nomenclatural change had not been followed until Savage and Crother (1989) revived *Urotheca* for those species previously placed in the *lateristriga* group of the genus *Rhadinaea* and the coral snake mimics referred to the genus *Pliocercus*.

• **ETYMOLOGY.** The name *flavilata* is derived from the Latin *flavus* (golden color) and *latus* (broad or expansive, full or rich), in reference to the dorsal color.

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