Catalogue of American Amphibians and Reptiles.

McCRANIE, JAMES R. 1980. *Drymarchon, D. corais.*

Drymarchon Fitzinger
Indigo snake

Drymarchon Fitzinger, 1843:26. Type-species, *Coluber Corais* Daudin, 1803b (=*Coluber corais* Boie, 1827), by original designation.

Georgia Baird and Girard, 1853:92. Type-species, *Coluber Couperi* Holbrook, 1842, by original designation.

Geoptyas Steindachner, 1867:271. Type-species, *Geoptyas collaris* Steindachner, 1867, by subsequent designation.

Morenoa Dugès, 1905:517. Type-species, *Morenoa orizabensis* Dugès, 1905, by monotypy.

• CONTENT. A single species, *D. corais*, is recognized.

• DEFINITION. *Drymarchon* is a very large colubrid with a maximum known length of 2,950 mm. The dorsal scales are smooth or feebly keeled, with two apical pits, and are in 17 rows at midbody, and 14 or 15 (rarely 13 or 16) at the vent. The supralabials are usually 8 (sometimes 7 or 9) with the antepenultimate one wedge-shaped. The infralabials are usually 8 (sometimes 7, 9, or 10 on at least one side). The nasal, loreal, and preocular are all single. The postoculars are 2. The temporals are normally 2+2, but can be 2+1 or 2+3. The ventrals number 182 to 222, the subcaudals 55 to 88 (divided), with neither showing significant sexual dimorphism. The anal plate is single. The maxillary teeth number 17 or 18 and are smooth and subequal. The anterior mandibular teeth are slightly longer than the posterior ones. The hemipenis is bilobed, the proximal half naked, followed by a zone of relatively small spines, and with the distal portion having fringed calyces. The adult dorsal color is geographically variable (see subspecific definitions in the species account). Hatchlings are often marked anteriorly with poorly-defined crossbands or light speckling, coloration lost in adults.

• DESCRIPTIONS, ILLUSTRATIONS, DISTRIBUTION, FOSSIL RECORD, PERTINENT LITERATURE. See species account.

• ETYMOLOGY. *Drymarchon* is derived from the Greek words *Drymos* (meaning an oak coppice) and *archos* (meaning leader or commander), probably alluding to the large size of the members of the genus. The gender is masculine.

Drymarchon corais (Boie)
Indigo snake

Coluber reticularis Daudin, 1803a:281. Nomen nudum. See Lacépède (1789:pl. 15).

Coluber corais Daudin, 1803b:23. Nomen nudum.

Coluber corais Boie, 1827:537. Type-locality, "America." No holotype designated.

Drymarchon corais: Fitzinger, 1843:26.

Spilotes corais: Duméril, Bibron, and Duméril, 1854:222.

Compsosoma corais: Cope, 1900:858.

• CONTENT. Eight subspecies are recognized: *corais*, *couperi*, *erebennus*, *margaritae*, *melanurus*, *orizabensis*, *rubidus*, and *unicolor*. See REMARKS.

• DEFINITION. See generic definition.

• DESCRIPTIONS. Smith (1941), the most recent reviewer, recognized seven subspecies. Brock (1942) described a new subspecies (*cleofae*) which is a synonym of *D. c. rubidus* (see REMARKS). Roze (1959) described *D. margaritae*, which he later (1964) relegated to a subspecies of *D. corais*. Other descriptions of external characters of various subspecies are available in: Smith and Necker (1943), Neill (1951), Taylor (1951), Mertens (1952), Wright and Wright (1957), Zweifel (1960), Duellman (1961), Roze (1966), Hardy and McDiarmid (1969), Wilson and Hahn (1973), Dixon and Soini (1977), and Wilson and Meyer (in press). Other descriptions are: Auffenberg (1963), precaudal vertebrae; Roze (1966), hemipenis; Langebartel (1968), hyoid of *erebennus*.

• ILLUSTRATIONS. Roze (1970) and Amaral (1977) included color illustrations of *D. c. corais*. Schmidt and Inger (1957) and Leviton (1972) provided color photographs of *D. c. couperi*. Black and white illustrations of various subspecies are available in Amaral (1929), Smith and Necker (1943), Wright and Wright (1957), Carr and Goin (1959), Alvarez del Toro (1973), Conant (1975), Mount (1975), Cunha and Nascimento (1978), and Kochman (1978). Line drawings of scutellation and/or head pattern of various subspecies are available in Steindachner (1867), Bocourt (1888), Cope (1900), Roze (1966), and Conant (1975). Cope (1900) and Amaral (1929) illustrated the hemipenis. Auffenberg (1963) provided drawings of a precaudal vertebra and Goin et al. (1978) illustrated the skull. Illustrations of the chromosomes are in Becak et al. (1964) and Becak (1965).

• DISTRIBUTION. The species ranges from southern Texas on the Atlantic versant and southern Sonora, México on the Pacific, south throughout Central America and into South America to approximately northern Argentina. Disjunct populations occur in southeastern Georgia, Florida (including the lower keys), and southern Alabama. Insular records are as follows: Islas Tres Marías, Nayarit, México; Islas de la Bahía, Honduras; Isla Margarita, Venezuela; Trinidad and Tobago. *Drymarchon corais* is a highly tolerant, wide-ranging species, being found in both xeric and mesic conditions. In xeric areas, *D. corais* is more prevalant near water. The altitudinal range is 0–1,900± meters. The species is terrestrial (occasionally climbing shrubs and low trees) and is customarily diurnal (partly nocturnal in parts of range), avoiding the midday heat.

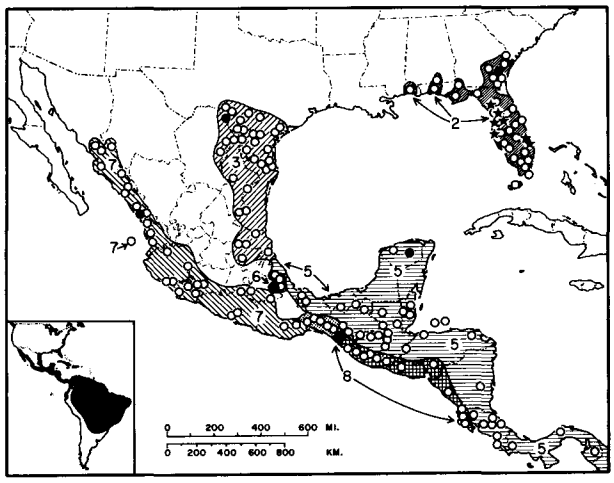
• FOSSIL RECORD. Fossils of *Drymarchon corais* are known from the Pleistocene and Holocene of Florida and early Holocene of Yucatán, México. Auffenberg (1963) reviewed the literature and listed localities for Florida, and Holman (1959, 1978) cited additional Florida localities. Langebartel (1953) recorded *D. ?corais* from Yucatán. Holman (1969) questioned a published Pleistocene record for Texas.

• PERTINENT LITERATURE. The only taxonomic reviews of this species are those of Amaral (1929) and Smith (1941). Fitch (1970) summarized the literature on reproduction and Moulis (1976), Dixon and Soini (1977), and Coote (1978) added additional data. Ecological information is presented by Ruthven (1912), Keegan (1944), Beebe (1946), Bogert and Cowles (1947), Zweifel and Norris (1955), Wright and Wright (1957), Zweifel (1960), Duellman (1963, 1965), Medem (1968), Hardy and McDiarmid (1969), Mount (1975), Moulis (1976), Dixon and Soini (1977), and Kochman (1978). Raun and Gehlbach (1972) and Smith and Smith (1976) listed the Texan and Mexican literature on the species, respectively. Gilboa (1975) listed the literature pertaining to the chromosomes.

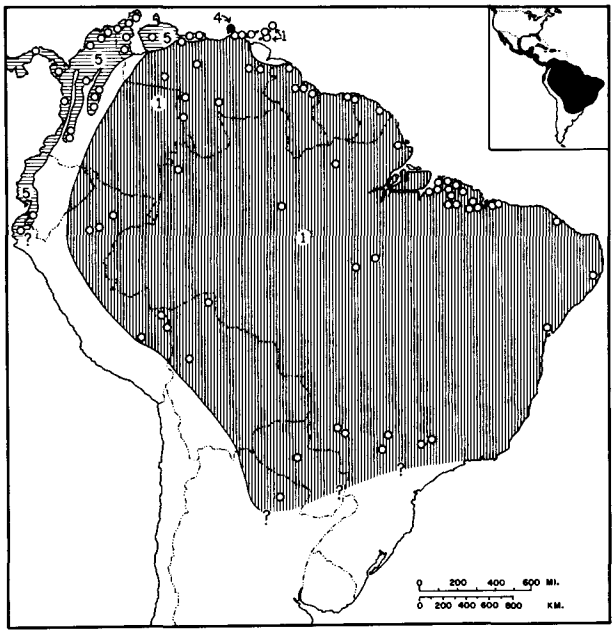
• ETYMOLOGY. The name *corais* is derived from the Greek word *corax* (meaning raven or crow) and probably refers to the anterior black coloration of some adults; *couperi* is a patronym and honors J. H. Couper, the collector of the holotype; *erebennus* is derived from the Greek word *erebus* (meaning black) and refers to the color pattern; *margaritae* refers to Isla Margarita, the type locality; *melanurus* is derived from the Greek words *melano* (meaning black) and *uro* (meaning tail) and refers to the tail color; *orizabensis* refers to Orizaba, the type locality; *rubidus* is Latin (meaning red or reddish) and refers to the anterior ventral color of some adults; *unicolor* is derived from the Latin words *uni* (meaning one) and *color* (meaning color) and refers to the color pattern.

• REMARKS. Smith (1941) defined the subspecies *rubidus* as having a uniform black dorsum and a salmon pink venter anteriorly. Duellman (1961) and Hardy and McDiarmid (1969) discussed specimens of *rubidus* that deviate from Smith's definition. There can be large areas of brown or red pigment dorsally and the anterior ventral coloration may vary from coral-red to white or gray.

Brock (1942) described the subspecies *cleofae* from the Islas Tres Marías, Nayarit, México. Brock based his description upon the higher ventral counts of the island specimens as compared to those from the adjacent mainland. Bogert and Oliver (1945), in discussing *cleofae*, argued strongly against recognizing insular races of snakes based solely upon statistical differences in ventral and subcaudal counts. Zweifel (1960), even while pointing out some minor color differences in Tres Marías material from Smith's (1941) description of the adjacent mainland race *rubidus*,



MAP 1. Distribution of *Drymarchon* in North America. Solid spots indicate type-localities, open circles mark other records, stars represent Pleistocene fossil localities.



MAP 2. Distribution of *Drymarchon* in South America. Solid spot marks an insular type-locality, open circles indicate other records. Question marks indicate uncertain range boundaries.

agreed with Bogert and Oliver (1945) and relegated *cleofae* to the synonymy of *D. c. rubidus*. Smith and Smith (1976) continued to consider *cleofae* a valid race. Considering the highly variable coloration of *rubidus* and that the use of slight differences of average numbers of ventrals is inadvisable, *D. c. cleofae* belongs in the synonymy of *D. c. rubidus*.

As pointed out by Duellman (1961) and Hardy and McDiarmid (1969), a re-evaluation of the subspecific color variations in some populations of the species is needed. Besides *D. c. rubidus*, other noticeable examples are the *melanurus* × *rubidus* intergrades of Smith (1941), and the *erebennus-melanurus-orizabensis* populations in the Veracruz-Puebla region.

1. *Drymarchon corais corais* (Boie)

Coluber corais Boie, 1827:537 (see species synonymy).
Geoptyas flaviventris Steindachner, 1867:272. Type-locality, "von Matogrosso, Cuyaba und dem Rio Vaupé." No holotype designated.
Spilotes corais xanthurus Brown, 1893:433. Type-locality unknown (not Veracruz as suggested by Brown). Syntypes, Academy Natural Sciences Philadelphia 11977 and 5300, adult females, collectors and dates unknown (neither examined by author).
[*Drymarchon corais corais*]: Stejneger, 1899:70. By inference.
Compsosoma corais corais: Cope, 1900:858.
Elaphe corais: Gomes, 1918:66.
Drymarchon corais flaviventris: Amaral, 1925:3.

• DEFINITION. Adults have a dorsum that is pale-colored posteriorly (yellowish, brownish, or orange) and dark brown or black anteriorly and a yellowish white venter. The supralabials are pale-colored and not black-edged, with the antepenultimate one in contact with an anterior temporal or lower postocular or both. The scale rows at the vent are usually 15. There are 198 to 222 ventrals and 65 to 87 subcaudals.

2. *Drymarchon corais couperi* (Holbrook)

Coluber Couperi Holbrook, 1842:75. Type-locality, "dry pine hills, south of the Alatamaha" (Altamaha River, Georgia), restricted to "Wayne County, Georgia" by Schmidt (1953). Holotype, Academy Natural Sciences Philadelphia 3937, adult male, collected by J. H. Couper, date not given (not examined by author).
Georgia Couperi: Baird and Girard, 1853:92.
Spilotes Couperi: Cope, 1860a:342.
Spilotes corais couperii: Cope, 1892:637 (part).
Compsosoma corais couperii: Cope, 1900:858 (part).
Drymarchon corais couperi: Stejneger and Barbour, 1917:84 (part).

• DEFINITION. Adults have a dorsum and venter that is uniform blue-black, except for a reddish or cream-colored suffusion on the throat, chin and sides of head. The antepenultimate supralabial is separated from the anterior temporal and lower postocular by the adjacent labials. The scale rows at the vent are usually 15. There are 184 to 195 ventrals and 63 to 70 subcaudals.

3. *Drymarchon corais erebennus* (Cope)

Spilotes erebennus Cope, 1860a:342. Type-locality, "Eagle Pass, Texas" (Cope, 1860b:564). Syntypes, U.S. National Museum 1862, a skin (Cochran, 1961), collected by A. Schott, and Academy Natural Sciences Philadelphia 3921, young adult female, collected by A. Schott, dates not given (neither examined by author).
Spilotes corais erebennus: Cope, 1875:135.
Drymarchon corais erebennus: Smith, 1941:478.
Drymarchon corais obsoletus: Schmidt and Owens, 1944:110.

• DEFINITION. Adults have a black dorsum posteriorly, becoming brownish anteriorly with some indications of a pattern of spots or bands, and a venter that is black posteriorly, becoming paler anteriorly. The subocular supralabials are black-edged with the antepenultimate one almost always contacting an anterior temporal or lower postocular or both. The scale rows at the vent are usually 14. There are 182 to 196 ventrals and 55 to 65 subcaudals.

4. *Drymarchon corais margaritae* Roze

Drymarchon margaritae Roze, 1959:1. Type-locality, "cerca de San Francisco de Macanao, Isla de Margarita, Venezuela." Holotype, Museo Historia Natural La Salle 569, adult male, collected by J. A. Roze, 18 December 1951 (not examined by author).
Drymarchon corais margaritae: Roze, 1964:222.

• DEFINITION. A subspecies described from one adult male which has a black dorsum throughout the length of the body, with irregular brownish transverse bands posteriorly and a venter that is whitish anteriorly, with blackish irregular blotches which toward the posterior portion expand gradually until the posterior ventrals and the subcaudals are black with some light spots. The scale rows at the vent are 15. The specimen has 196 ventrals and 76 subcaudals.

5. *Drymarchon corais melanurus* (Duméril, Bibron, and Duméril)

Spilotes melanurus Duméril, Bibron, and Duméril, 1854:224. Type-locality, "Mexique," restricted to "Chichen Itzá, Yu-

catán, México" by Smith and Taylor (1950). Lectotype, Muséum National Histoire Naturelle Paris 3185, collector and date unknown, designated by McCranie and Roux-Estève (1980) (not examined by author).

Geoptyas collaris Steindachner, 1867:271. Type-locality, "aus Brasilien" [in error]. No holotype designated.

Spilotes corais melanurus: Cope, 1875:135.

Coluber corais var. *melanura*: Boettger, 1898:50.

Drymarchon corais melanurus: Stejneger, 1899:70 (part).

Compsosoma corais melanurus: Cope, 1900:858.

Drymarchon corais collaris: Amaral, 1925:3.

Drymarchon corais melanocercus Smith, 1941:473. Substitute name, suppressed by International Commission . . . , 1965.

• DEFINITION. Adults have the dorsum and venter pale brown to pale gray anteriorly (with a diagonal black mark on each side of the neck), becoming black on the extreme posterior portion of body and tail. The subocular supralabials are black-edged, with the antepenultimate one in contact with an anterior temporal or lower postocular or both. The scale rows at the vent are usually 15 (on mainland specimens: those from Islas de la Bahía, Honduras have 14). There are 188 to 215 ventrals and 59 to 88 subcaudals.

6. *Drymarchon corais orizabensis* (Dugès)

Morenoa orizabensis Dugès, 1905:517. Type-locality, "d'Orizaba (État de Vera-Cruz)." Lectotype, unnumbered, in Alfredo Dugès Museum, Guanajuato, México, designated by Smith and Necker (1943:206) (not examined by author).

Drymarchon corais orizabensis: Smith, 1941:477.

• DEFINITION. Adults have a dorsum that is black the entire length of the body and a venter that is black excepting some cream or white portions anteriorly. The supralabials are mostly black, with the antepenultimate one usually contacting an anterior temporal or lower postocular or both. The scale rows at the vent are usually 15 (occasionally 14). There are 186 to 201 ventrals and 64 to 78 subcaudals.

7. *Drymarchon corais rubidus* Smith

Drymarchon corais rubidus Smith, 1941:474. Type-locality, "Rosario, Sinaloa," México. Holotype, U.S. National Museum 46430, subadult female, collected by E. W. Nelson and E. A. Goldman, 6 July 1897 (not examined by author).

Drymarchon corais cleofae Brock, 1942:249. Type-locality, "Maria Cleopha Island, Tres Marias group, Nayarit, Mexico." Holotype, Stanford Natural History Museum R9447, now in California Academy Sciences, CAS-SU R9447, adult male, collected by V. E. Brock, 24 February 1940 (not examined by author).

• DEFINITION. As presently understood, *rubidus* has a highly variable color pattern. Typical adults have a uniform black dorsum, with the subcaudal surface and the posterior one-third of the venter black, with the anterior two-thirds of the venter salmon pink or reddish buff (see REMARKS). The supralabials are black-edged posteriorly with the remainder of the supralabial area white or pink. The antepenultimate labial is in contact with an anterior temporal or lower postocular or both. The scale rows at the vent are usually 15. There are 187 to 209 ventrals and 59 to 82 subcaudals.

8. *Drymarchon corais unicolor* Smith

Drymarchon corais unicolor Smith, 1941:470. Type-locality, "La Esperanza, near Escuintla, Chiapas," México. Holotype, U.S. National Museum 110865, adult female, collected by H. M. Smith, 18 May 1940 (not examined by author).

• DEFINITION. Adults have a dorsum that is pale brown the entire length of the body, being little or no darker posteriorly than anteriorly (some adults have distinct, longitudinal, short black streaks anteriorly) and a venter that is pale brown anteriorly, becoming somewhat darker posteriorly and under the tail (but not black). The subocular supralabials are black-edged, with the antepenultimate one in contact with an anterior temporal or lower postocular or both. The scale rows at the vent are usually 15. There are 192 to 206 ventrals and 56 to 77 subcaudals.

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Primary editor for this account, Larry David Wilson.

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