

Catalogue of American Amphibians and Reptiles.

SCHÄTTI, BEAT, AND LARRY DAVID WILSON. 1986. *Coluber*.***Coluber* Linnaeus
Holarctic Racers***Coluber* Linnaeus, 1758:216. Type-species, *Coluber constrictor* Linnaeus, 1758, by subsequent designation.*Scoliophis* Davis et al., 1817:44. Type-species, *Scoliophis atlanticus* Davis et al., 1817 [= *Coluber constrictor*], by monotypy.*Hemorrhhois* Boie, 1826:982. Type-species, *Coluber hippocrepis* Linnaeus, 1758, by monotypy.*Periops* Wagler, 1830:189. Type-species, *Coluber hippocrepis* Linnaeus, 1758, by subsequent designation.*Eremiophis* Fitzinger, 1843:25. Type-species, *Coluber trabalis* Boie, 1827 [= *Coluber caspius*], by original designation.*Hierophis* Fitzinger, 1843:26. Type-species, *Coluber viridiflavus* Lacépède, 1789, by original designation.*Bascanion* Baird and Girard, 1853:93. Type-species, *Coluber constrictor* Linnaeus, 1758, by original designation.*Platyceps* Blyth, 1860:114. Type-species, *Platyceps subfasciatus* Blyth, 1860 [= *Coluber ventromaculatus*], by monotypy.*Dolichophis* Gistel, in *Blicke Leb. Natur Mensch.*, 1868:155. Type-species, *Coluber caspius* Gmelin, 1789, by monotypy.*Acanthocalyx* Cope, 1895:204. Type-species, *Coluber ventromaculatus* Gray, 1834, by original designation.*Tylanthera* Cope, 1895:205. Type-species, *Coluber florulentus* Geoffroy, 1827, by monotypy.

• CONTENT. Thirty-four extant species are recognized: *algirus* (2 subspecies), *bholanathi*, *brevis* (2 subspecies), *caspius*, *constrictor* (11 subspecies), *cypriensis*, *dorri*, *elegantissimus*, *florulentus*, *gemonensis* (2 subspecies), *gracilis*, *hippocrepis* (2 subspecies), *insulanus*, *jugularis*, *karelini* (2 subspecies), *keniensis*, *najadum* (2 subspecies), *nummifer*, *ravergieri*, *rhodorachis* (2 subspecies), *rogersi*, *rubriceps*, *schmidti*, *scortecci*, *sinai*, *smithi*, *socotrae*, *somalicus*, *spinalis*, *taylori*, *thomasi*, *variabilis*, *ventromaculatus*, and *viridiflavus*. The fossil species are: *beggiattoii*, *cadurci*, *freybergi*, *hungaricus*, *plioagellus*, and *robertmertensi*.

• DEFINITION. A colubrid snake genus with normal head scutellation consisting of a normal rostral followed by two internasals, two prefrontals, two supraoculars, a single frontal, and two parietals. The lateral head scutellation consists of a divided nasal, 1 to 3 loreals, 1 to 4 preoculars (including suboculars), 1 to 3 postoculars, usually 1 + 2 to 3 + 3 temporals, normally 7 to 11 supralabials with none, the 3rd and 4th, 4th and 5th, 5th, or 5th and 6th entering the orbit. The infralabials normally number 8 to 11, with $3\frac{1}{2} = 4$ to 5 in contact with the anterior chin shields. The dorsal scales are smooth (two species have weak keels on the scales), with 1 or 2 apical pits, and are arranged in 13 to 27 rows on the neck, 15 to 33 rows at midbody, and 11 to 19 rows at the vent. Dorsal scale reduction is variable, characterized by the presence or absence of vertebral reductions, increase or lack thereof in number of dorsal scale rows behind the neck, and alternation or lack thereof in the site of reduction between high and low levels on the body. Ventrals range from 153 to 262. The anal plate is entire or divided. Subcaudals are paired, and range from 75 to 150. Maximum total length is about 2800 mm, and the tail length/total length ratio ranges from 0.200 to 0.320. Dentition is diacranterian or syncranterian. The hemipenis is simple or bilobed with a single sulcus spermaticus. The distal portion is calyculate or spinose. The proximal portion is spinose, sometimes with enlarged basal spines (except in *C. bholanathi*).

• DESCRIPTIONS. The most detailed descriptions of the extant species are in the following works: *algirus*—Bons (1962), Kramer and Schnurrenberger (1963); *bholanathi*—Sharma (1976); *brevis*—Parker (1949), Lanza (1963); *caspius*—Werner (1938), Muller (1939), Baran (1976); *constrictor*—Auffenberg (1955), Wilson (1966, 1970, 1978), Fitch et al. (1981), Greene (1984); *cypriensis*—Schatti (1985); *dorri*—Villiers (1975), Joger (1981); *elegantissimus*—Flower (1933), Marx (1968); *florulentus*—Parker (1949), Bons (1962), Kramer and Schnurrenberger (1963); *gemonensis*—Werner (1938), Wettstein (1953), Mertens (1968); *gracilis*—Smith (1943), Charpurey (1954); *hippocrepis*—Bons (1962), Kramer and Schnurrenberger (1963); *insulanus*—Mertens

(1965); *jugularis*—Muller (1939), Wettstein (1953), Baran (1976); *karelini*—Leviton and Anderson (1961), Minton (1966), Mertens (1969); *keniensis*—Parker (1932); *najadum*—Werner (1938), Wettstein (1953), Baran (1976), Schneider (1979); *nummifer*—Schatti and Agasian (1985); *ravergieri*—Terentev and Cernov (1949), Basoglu and Baran (1980), Bannikov et al. (1977); *rhodorachis*—Smith (1943), Parker (1949), Lanza (1963), Minton (1966), Mertens (1969); *rogersi*—Flower (1933), Kramer and Schnurrenberger (1963); *rubriceps*—Mertens (1940), Baran (1976), Obst (1981); *schmidti*—Muller (1939), Mertens (1952), Baran (1976); *scortecci*—Lanza (1963); *sinai*—Schmidt and Marx (1956), Marx (1968); *smithi*—Parker (1949); *socotrae*—Parker (1949); *somalicus*—Parker (1949), Lanza (1963); *spinalis*—Pope (1935), Bannikov et al. (1977); *taylori*—Parker (1949), Lanza (1963); *thomasi*—Parker (1931), Arnold (1980); *variabilis*—Boulenger (1905), Parker (1931); *ventromaculatus*—Smith (1943), Minton (1966), Mertens (1969); *viridiflavus*—Angel (1946), Arnold and Burton (1978). Descriptions of fossil species are: *beggiattoii*—Zigno (1890), Mlynarski (1961), Rage (1974); *cadurci*—Rage (1974), *freybergi*—Brunner (1954); *hungaricus*—Bolkay (1913), Szunyogh (1932); *plioagellus*—Wilson (1968); *robertmertensi*—Mlynarski (1964).

• ILLUSTRATIONS. Most of the species are illustrated, as follows: *algirus*—Bons (1962), Arnold and Burton (1978); *bholanathi*—Sharma (1976); *brevis*—Boulenger (1895b); *caspius*—Trutnau (1975), Arnold and Burton (1978); *constrictor*—Stebbins (1966), Conant (1975); *cypriensis*—Schatti (1985); *dorri*—Joger (1981); *elegantissimus*—Gunther (1878); *florulentus*—Pitman (1974), Kramer and Schnurrenberger (1963); *gemonensis*—Mertens (1968), Trutnau (1975), Arnold and Burton (1978); *gracilis*—Charpurey (1954); *hippocrepis*—Bons (1962), Trutnau (1975), Arnold and Burton (1978); *insulanus*—Mertens (1965); *jugularis*—Anderson—Werner (1938), Arnold and Burton (1978); *nummifer*—Anderson (1898), Trutnau (1975); *ravergieri*—Bannikov et al. (1977); *rhodorachis*—Minton (1966), Werner (1971); *rogersi*—Werner (1971); *rubriceps*—Trutnau (1975), Obst (1981); *schmidti*—Bannikov et al. (1977); *scortecci*—Lanza (1963); *sinai*—Schmidt and Marx (1956), Marx (1968); *smithi*—Boulenger (1895a); *socotrae*—Gunther (1881); *somalicus*—Lanza (1963); *spinalis*—Bannikov et al. (1977); *taylori*—Parker (1949); *thomasi*—Arnold (1980); *ventromaculatus*—Minton (1966); *viridiflavus*—Trutnau (1975), Arnold and Burton (1978). No illustrations are available for *C. keniensis* and *C. variabilis*. Fossil species are illustrated as follows: *beggiattoii*—Zigno (1890); *cadurci*—Rage (1974); *freybergi*—Brunner (1954); *hungaricus*—Bolkay (1913); *plioagellus*—Wilson (1968); *robertmertensi*—Mlynarski (1964).

• DISTRIBUTION. Members of the genus occur throughout most of North America and discontinuously across the Atlantic versant of Mexico to northern Guatemala and Belize. In Europe the genus ranges from Belgium, France and the Iberian Peninsula eastward through southern Europe and southwestern U.S.S.R. to the Caucasus and Transcaucasian region as far as and beyond Lake Balkash. The range continues through Afghanistan, West Pakistan, the western Himalayas, and the northwestern and central portions of India. In eastern Asia one member of the genus occurs in the Mongolian Republic, in northern China, and Korea. The genus also occurs in the eastern Mediterranean from Asiatic Turkey, south through the Middle East, including the Arabian Peninsula, and Africa north of the Equator.

• FOSSIL RECORD. Many of the *Coluber* sp. described by paleontologists belong to other genera or even other families of snakes (Mlynarski, 1961). Fossil records of *C. constrictor* from the Pliocene to the Holocene have been summarized by Wilson (1978), Holman (1981), and Meylan (1982). Other fossil records are as follows: *beggiattoii*—upper Eocene of Italy (Mlynarski, 1961; Rage, 1974); *cadurci*—middle Oligocene of southwestern France (Rage, 1974); *freybergi*—Riss-Wurm interglacial of West Germany (Brunner, 1954); *gemonensis*—middle Pleistocene of Austria (Rabeder, 1977); *hungaricus*—unknown formation (upper Miocene?) in Hungary (Bolkay, 1913); *jugularis*—upper Pliocene of West Germany (Heller, 1936); *plioagellus*—late Pliocene of Kansas (Wilson, 1968); *robertmertensi*—upper Pliocene of Poland (Mlynarski, 1964); *viridiflavus*—middle Pleistocene of Austria (Rabeder, 1977), upper Pliocene of West Germany (Heller, 1936), and an unknown



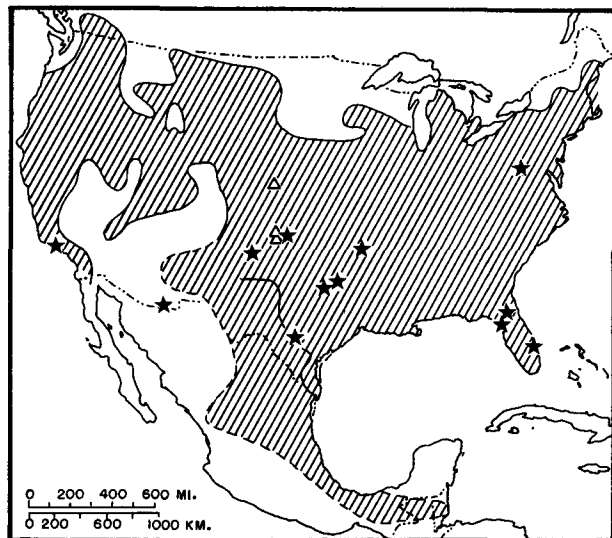
MAP 1. Distribution of the genus *Coluber*. Dots indicate disjunct range.

and an unknown age from Rumania (Szunyoghy, 1932); *C. sp.*— Miocene (?) of Morocco (Hoffstetter, 1962).

● PERTINENT LITERATURE. Little comprehensive work at the generic level has been accomplished. The most helpful contributions are those of Ortenburger (1928), Bogert (1940), Inger and Clark (1943), Smith (1943), Bogert and Oliver (1945), Terentev and Cernov (1949), Parker (1949), Lanza (1963), Minton (1966), Wilson (1967, 1970), Mertens (1969), and Baran (1976).

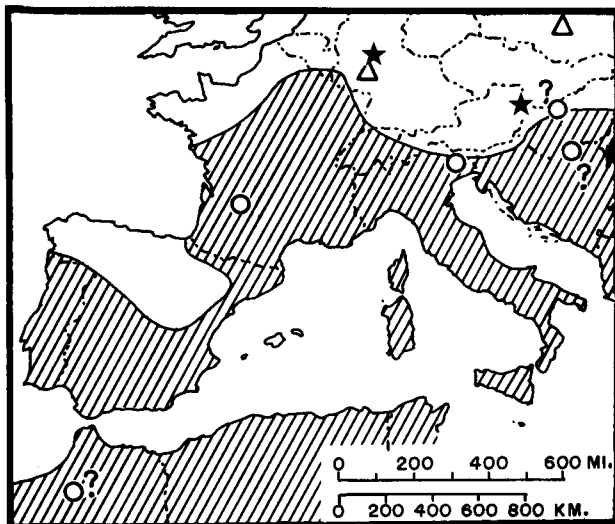
● KEY TO SPECIES.

- 1. Scale rows at midbody in 15 rows 2
Scale rows at midbody in more than 15 rows 3
- 2. Color pattern with black crossbars *thomasi*
Color pattern without black crossbars *somalicus*
- 3. Scale rows at midbody in 17 or 19 rows 4
Scale rows at midbody in more than 19 rows 25
- 4. Scale rows at midbody in 17 rows 5
Scale rows at midbody in 19 rows 10
- 5. Color pattern with black crossbars *sinai*
Color pattern without black crossbars 6
- 6. 9 supralabials *brevis boschisi*
7 or 8 supralabials 7
- 7. Color pattern with black-bordered yellow middorsal stripe
..... *spinalis*
Color pattern without vertebral stripe 8
- 8. More than 200 ventrals and 120 subcaudals *cypriensis*
Fewer than 200 ventrals and 120 subcaudals 9
- 9. Dorsal scales reduce to 13 at vent *variabilis*
Dorsal scales reduce to 15 at vent *constrictor*
- 10. 8 supralabials 11
9 or more supralabials 19
- 11. Color pattern with black crossbars *elegantissimus*
Color pattern without black crossbars 12
- 12. Single apical pit; coloration more or less uniform except for neck region, which may bear ocellae, becoming smaller in size posteriorly 13
Two apical pits; color pattern not as above 14



MAP 2. New World fossil records of the genus *Coluber*. Triangles indicate Pliocene, stars Pleistocene records. Shaded areas represent present distribution.

- 13. Black stripe (mask) from tip of snout to angle of mouth; color band present, followed by ocellae and dark spots along neck *rubriceps*
Mask and collar band lacking *najadum*
- 14. Color pattern with black blotches on yellow ground color, sometimes uniformly olive, locally entirely black; western Europe eastward to Istria *viridiflavus*
Color pattern not as above, but some melanism evident; Istria, southern Balkans, Asia Minor, Near and Middle East 15
- 15. Ventrals 167–186; dorsal scales always narrowly pale-edged; no melanism; only in Europe *g. gemonensis*
More than 185 ventrals; dorsal scales usually not narrowly pale-edged; melanism in adults frequent; Europe to Middle East 16
- 16. Ventrals 196–213; size usually not exceeding 1.1 meters; only island of Gyaros (northern Cyclades)
..... *gemonensis gyarosensis*
Ventrals 185 to 220; may attain more than 2.5 meters ... 17
- 17. Ground color in adults grey-brown to brown-orange, dorsal scales with pale brown stripe along midline *caspius*
Adults melanistic or brick red 18
- 18. Ventrals 185 to 207, subcaudals 80–100; adults brick red, melanism rare *schmidti*
Ventrals 189 to 220, subcaudals 99–128; adults uniformly black (subadults brownish), throat and belly sometimes salmon red *jugularis*
- 19. Supralabials not in contact with orbit *insulanus*
One or two supralabials in contact with orbit 20
- 20. Fewer than 185 ventrals *brevis brevis*
More than 185 ventrals 21
- 21. One supralabial in contact with orbit *karelini*
Two supralabials in contact with orbit 22
- 22. Hemipenis without spines; color pattern of dorsal spots
..... *bholanathi*
Hemipenis spinose; color pattern generally of transverse blotches or bars 23
- 23. Longitudinal nuchal stripe present *ventromaculatus*
No longitudinal nuchal stripe 24
- 24. Fewer than 208 ventrals; ventrals and subcaudals fewer than 310 *rogersi*
More than 208 ventrals; ventrals and subcaudals more than 315 *rhodorachis*
- 25. 9 supralabials 26
10 supralabials 34
- 26. Two supralabials in contact with orbit 27
No or one supralabial in contact with orbit 32
- 27. Scale rows at midbody 25; anal plate entire *keniensis*
Scale rows at midbody 21 to 23; anal plate divided 28
- 28. Two preoculars present, in addition to subocular(s); dorsal scales faintly or obtusely keeled *ravergieri*
Preocular single; dorsal scales smooth 29
- 29. Ventrals 206 to 228; subcaudals 118 to 127; yellowish to reddish above, with a series of large brown spots edged with black on anterior part of body; India *gracilis*
Ventrals 175 to 228; subcaudals 81 to 104; color pattern not as above; Africa north of equator 30
- 30. Ventrals 180 to 200; subcaudals 81 to 90; ratio of width of rostral shield to its height less than 1.25; rostral height more than 1.9 times length of internasal suture; hemipenis extending to seventh or eighth subcaudal; Somalia only
..... *taylori*
Ventrals 175 to 228; subcaudals 82 to 104; ratio of rostral width/height more than 1.25; rostral height less than 1.8



MAP 3. Old World fossil records of the genus *Coluber*. Circles indicate Eocene or Oligocene records. Question marks indicate records of uncertain age; other symbols as in Map 2. Shaded areas represent present distribution.

- times length of internasal suture; hemipenis extending to 10th to 13th subcaudal _____ 31
31. Ventrals in males 192-214, in females 204 to 228; head pattern consists of symmetrical markings; 21 to 23 (rarely 25) scale rows at midbody _____ *florulentus*
Ventrals in males 175 to 181, in females 191 to 213; head pattern consists basically of a dark blotch below eye and dark bar across temple; 21 scale rows at midbody _____ *smithi*
32. Ventrals 195 to 216; usually 2 preoculars in addition to subocular(s); dorsal scales faintly keeled _____ *nummifer*
Ventrals 214 to 247; normally 1 preocular in addition to suboculars; dorsal scales smooth _____ 33
33. Scale rows at midbody 23 to 25; ventrals 214 to 231; subcaudals 87 to 117; single supralabial entering orbit; head pattern with more or less distinct transverse bar or dark blotch on nape _____ *algiurus*
Scale rows at midbody 23 to 29; ventrals 214 to 247; subcaudals 80 to 112; specimens with 23 scale rows (subspecies *intermedius*) with single supralabial in contact with orbit, otherwise usually no contact; head pattern essentially horseshoe-shaped _____ *hippocrepis*
34. Scale rows at midbody 23 _____ *socotrae*
More than 25 scale rows at midbody _____ 35
35. Scale rows at midbody 27 to 29; no distinct dorsal pattern _____ *scortecci*
Scale rows at midbody 29 to 33; dorsal pattern of butterfly-shaped markings _____ *dorri*

● ETYMOLOGY. The name *Coluber* is Latin, means "serpent" or "snake," and is masculine in gender.

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Primary editor for this account, Stephen G. Tilley

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