## Catalogue of American Amphibians and Reptiles.

Price, Robert M. 1990. *Bogertophis rosaliae.*

# *Bogertophis rosaliae* (Mocquard)
# Santa Rosalía Snake

*Coluber rosaliae* Mocquard, 1899: 321. Type-locality, "Santa Rosalia, Distrito Sur, Baja California." Holotype, Mus. Hist. Natur. Paris 92-438, a female collected by M. Leon Diguet, date of collection unknown (not examined by author).
*Elaphe rosaliae:* Stejneger and Barbour, 1917:84.

• **Content.** No subspecies are recognized.

• **Definition.** A moderately large (maximum total length over 1500 mm) constricting snake, fairly stout at midbody, and tapering noticeably toward either end. The tail is fairly short, up to 19% of the total length. The neck is slender and the head broad and flat dorsally, with a rounded snout, distinct angular canthal region, and massive temporal area. There are 1+2 oculars, 10-11 supralabials, 12-15 infralabials (usually 13), and a distinct row of 3 to 6 lorilabial scales. The ventrals range from 276 to 287, the anal scute is divided, and the paired subcaudals range from 83 to 94. The dorsal scales seem quite small when compared with size of the snake and the dark skin between scales is usually visible, accentuating the alignment of the dorsal rows. The dorsal scale count of approximately 29+(31 to 35)+21 is increased or reduced by the addition or loss of mid-lateral scale rows, and the overall reduction may be rather irregular. The overall reduction of the fourth known specimen is 33+31+29+31+33+31+29+27+25+23+21 (Dowling, 1957). Only 5 or fewer vertebral scale rows are keeled. The dorsal scales have two small rounded apical pits. The adult dorsal coloration is uniform carrot red to yellow-orange; juveniles are lighter and often have narrow cream or yellow middorsal and lateral streaks on the body. The ventral surface is immaculate cream yellow and the head is patternless. The microdermatoglyphic pattern is strioreticulate with indistinct vertical pleats. There are 19-21 maxillary teeth. The hemipenis is small (8-10 subcaudals in length) and closely resembles that of *Pituophis*. The proximal third of the organ has spinules scattered over an otherwise smooth surface. The middle half is covered with 12 to 17 irregular rows of spines, most of which are connected by a series of low membranes which run obliquely and give a spiral appearance. The spines disappear distally, leaving two to six rows of low, papillate, irregularly hexagonal calyces. The lips of the sulcus spermaticus are not conspicuously raised, and are ornamented with small spines in the middle area and calyces distally. The karyotype (2n = 38) is very rare in colubrids (Mengden, in litt.).

• **Diagnosis.** *Bogertophis rosaliae* may be distinguished from its congener by its carrot-red coloration and lack of distinct, dark H-shaped blotches.

• **Descriptions.** Linsdale (1932) described the scutellation, coloration, and localities for the second and third known specimens. Dowling (1957) provided a comprehensive description, including variation in scutellation, hemipenial morphology, coloration, skeletal features, and a range map. Ottley and Jacobsen (1983) described the living coloration (particularly of juveniles), and provided some information on scutellation and the natural history, including periods and times of activity. Dowling and Price (1988) summarized the known taxonomic information on the species, including scutellation, hemipenial morphology, karyology, dorsal scale microdermatoglyphics, and geographical range.

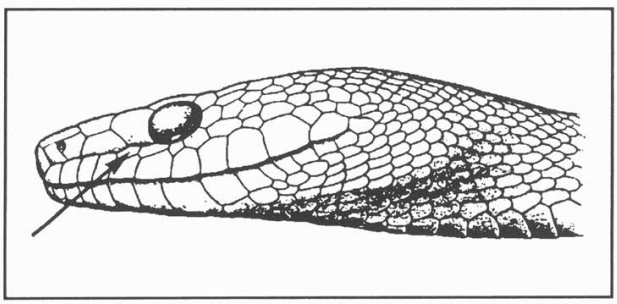
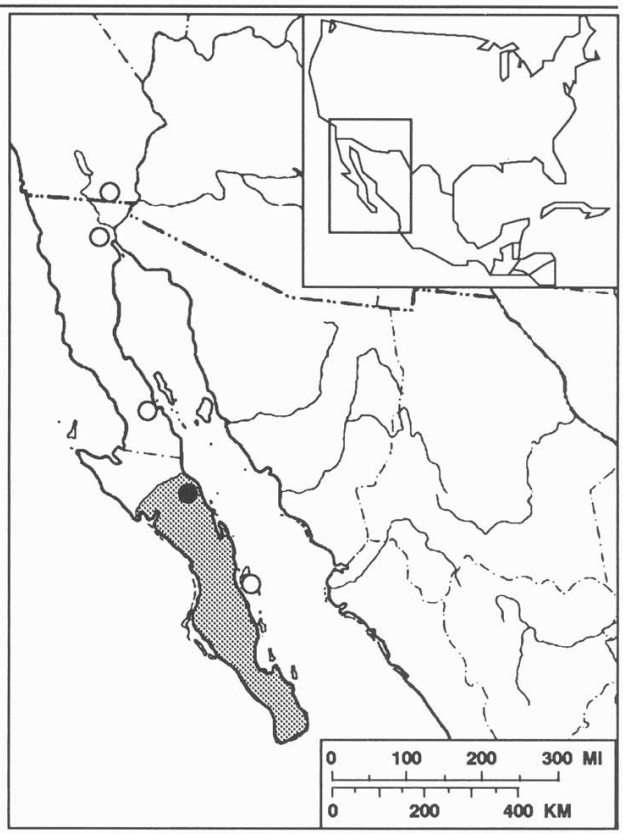


**Figure 1.** Head of *Bogertophis rosaliae* . Arrow indicates lorilabial scale row. Courtesy of Herndon G. Dowling.




**Map.** Distribution of *Bogertophis rosaliae.* Shaded area represents the approximate range, solid circle represents the type-locality, open circles indicate presumed isolated populations.

• **Illustrations.** As this species has been very rare until recent successful captive breedings, it has seldom been illustrated. Dowling (1957) provided a sketch of the head and the dissected hemipenis. Ottley and Jacobsen (1983) presented color photographs of juveniles and a subadult. Dowling and Price (1988) included microdermatoglyphic photographs and a head illustration.

• **Distribution and Biology.** The species is limited to peninsular Baja California and some of its small coastal islands, with a single record from the United States in Imperial County, California, and several from non-peninsular Baja California del Norte, including Guadalupe Canyon, some 55 km south of Mexicali (Hunsaker, 1965), and inland of Bahia de los Angeles (John R. Ottley, personal communication). There are several coastal localities in the literature, including the towns of Santa Rosalia and Mulege (Dowling, 1957; Ottley and Jacobsen, 1983), and Isla Danzante (Murphy and Ottley, 1984). These areas are characterized by arid thorn forest consisting of mesquite, palo blanco, and creosote. The species has been found in San Ignacio and Comondu in deep barrancas near large springs and a heavy growth of introduced date palms. A San Bartolo specimen found on a stony hillside close to a dry sandy wash was in reasonable proximity to spring water and heavy vegetation. Hunsaker (1965) observed two specimens crawling in direct sunlight in Guadalupe Canyon in March of 1963. Guadalupe Canyon is an oasis in an extremely arid region with several natural springs and a heavy growth of palms and palo verde. Elevational range has not been well reported, although the species has been found near sea level and at elevations of approximately 1000 feet (Guadalupe Canyon reaches

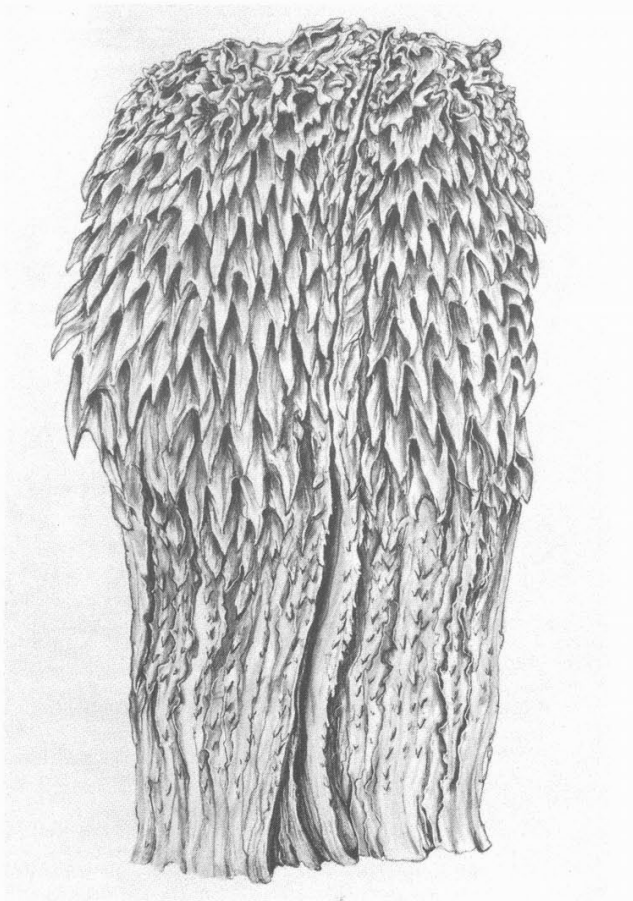


**Figure 2.** Everted hemipenis of *Bogertophis rosaliae*. Courtesy of Herndon G. Dowling.

an elevation of over 5000 feet).

Based on scant locality data, *Bogertophis rosaliae* seems to be common in otherwise dry areas with natural springs. The Guadalupe Canyon specimens likely represent a relict population confined to a small area supplied by several hot and cool springs.

The habits and habitat of this species are still poorly known because of a dearth of specimens. Dowling (1957) originally doubted the type locality because of its extreme aridity, but subsequent specimens have been found in Santa Rosalia. The species apparently can live in very xeric to moderately mesic habitats, and its season and hours of activity may be influenced by its locality. The specimens found in March, 1963 by Hunsaker (1965) were active in direct sunlight in the afternoon, and the specimen found by J. R. Slevin on July 19, 1919 was collected in mid-morning in an apparently dry open area (but not far from a permanent spring and vegetation). Considering these data and the relatively small eye size of *Bogertophis rosaliae*, diurnal activity appears to be reasonably common, although 5 of 7 specimens in the the collection of the California Academy of Sciences taken from April to October were found after dark, and recent specimens collected in the summer months were taken from 21:30 hours to midnight. Such data indicate that the species is largely nocturnal, but not entirely so, and may be active during daylight hours when conditions are favorable.

Degenhardt and and Degenhardt (1965) explained the parasitism of *B. subocularis* by the hard tick *Aponomma elaphensis*. Similar parasitism of *B. rosaliae*, particularly in captivity cannot be ruled out, as the tick can survive but not reproduce on several *Elaphe*.

The habits and food preferences of this species are known only from captive specimens. Kamuran Tepedelen (pers. comm.) has observed copulation in late April, after a twelve week hibernation period at 55 ºC. Both females observed in captivity stopped feeding immediately after copulation and did not resume taking rodents until after egg laying, some nine weeks later. Whether the species practices double constriction, as does *B. subocularis*, is not known.

• **Fossil Record.** None.

• **Pertinent Literature.** The basic systematic literature is noted above. Van Denburgh and Slevin (1921) described the second known specimen and its scutellation. Van Denbergh (1922) gave a short description. Schmidt (1925) remarked on the probable relationship between this species and *Bogertophis subocularis*. Smith (1941) speculated on the coloration of juveniles. Hunsaker (1965) commented on the diurnal nature and habitat of the species and described the scutellation of a specimen from Baja California del Norte. Price (1981) speculated on the possible relationships of *Bogertophis rosaliae*. The species has been listed in a number of summary works, keys, and checklists, including those of Stejneger and Barbour (1917), Nelson (1921), Werner (1929), Ditmars (1940), Smith and Taylor (1945, 1950), Dowling (1952), Murphy and Ottley (1984), and Stebbins (1985).

• **Remarks.** Based on karyology, scale microdermatoglyphics, and its close relationship to *B. subocularis*, which by albumin immune distancing last shared a common ancestor with North American *Elaphe* some 13-14 million years ago (Dowling and Price, 1988), *Bogertophis rosaliae* should not be considered a rat snake.

• **Etymology.** The name *rosaliae* is derived from Santa Rosalía, the type locality.

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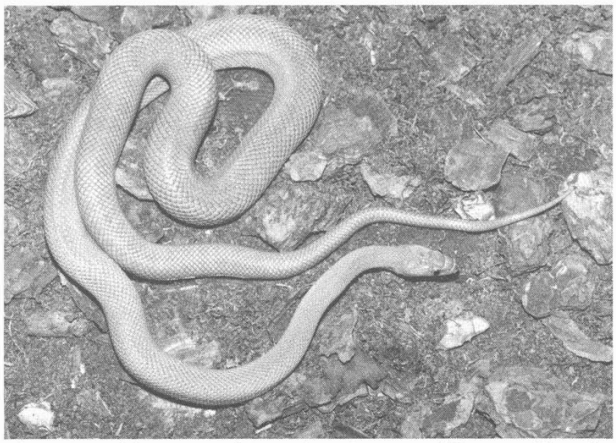

**Figure 3.** Adult *Bogertophis rosaliae*. Courtesy of Kamuran Tepedelen.

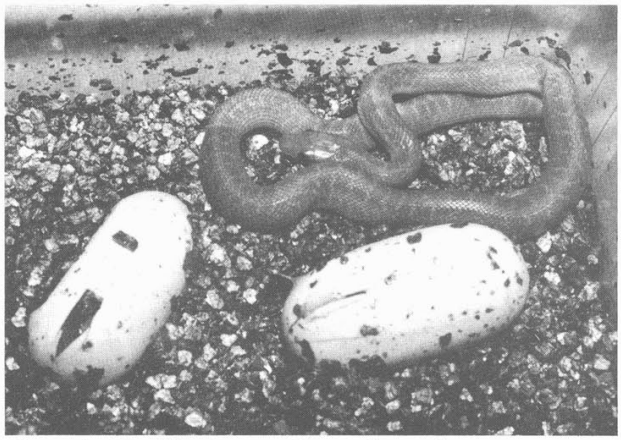

**Figure 4.** Hatchling *Bogertophis rosaliae* and eggs. Courtesy of Kamuran Tepedelen.

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