

Catalogue of American Amphibians and Reptiles.

McCranie, James R., and Chris T. McAllister. 1988. *Nerodia valida*.

***Nerodia valida* (Kennicott)**
Mexican West Coast Water Snake

R[egina]. valida Kennicott, 1860:334. Type-locality, "Durango, Mexico" [in error, precise locality unknown, see Conant, 1969]. Holotype, U. S. National Museum (USNM)1309, adult female, collector and date unknown (see Conant, 1969) (not examined by authors).

Tropidonotus validus: Cope, 1860:342.

Tropidonotus leberis Var. *validus*: Garman, 1884:143 (part).

Natrix valida: Cope, 1892:670.

N[erodia]. valida: Rossman and Eberle, 1977:42.

• **Content.** Four subspecies are recognized: *valida*, *celaeno*, *isabelleae*, and *thamnophisoides*.

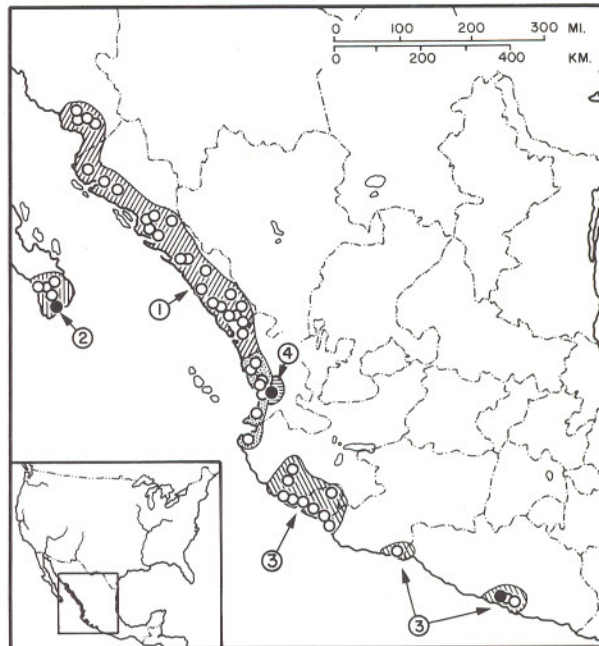
• **Definition.** A moderately sized, moderately stout (as an adult), semi-aquatic snake ranging in size from 165 mm in the smallest known newborn to about 1100 mm in the largest known specimen (adult males average significantly smaller than adult females). The head is distinctly wider than the neck and comparatively broad in mature adults. The eye width is usually less than its distance from the nostril in adults but in juveniles the two dimensions are about equal. The rostral is twice as wide as high. The internasals are longer than wide. The prefrontals are wider than long. The nasals are divided. The parietals are widest anteriorly. The mental is triangular and the posterior chin shields are longer than the anterior ones. There are 130-150 ventrals in males, 127-147 in females; 69-86 subcaudals in males, 61-78 in females; 19-21 (usually 19) keeled scale rows at midbody and usually 17 anterior to base of tail; usually 8 supralabials (occasionally 7 or 9), the 4th and 5th normally entering the orbit; usually 10 infralabials (occasionally 9 or 11); 1-2 (usually 1) preoculars; 1-4 (usually 3) postoculars; normally one anterior temporal; 2-3 temporals in secondary row; loreal single; anal divided. Teeth number 23-27 in the maxillary, 12-15 palatine, 23-31 pterygoid, and 25-30 dentary.

The dorsal coloration is variable and may be brown, chocolate brown, dark brown, olive brown, gray to olive gray, or black. Four longitudinal rows of small black or dark brown spots are usually discernable except in the darkest specimens. These rows of spots are most conspicuous on the anterior or middorsal portions of the body. A pale middorsal stripe is present in one subspecies and pale lateral stripes may be present in most subspecies.

• **Descriptions.** Conant (1969) provided the most comprehensive descriptions of scutellation, dentition, color and pattern, size and proportions, hemipenes, geographic variation, subspecific intergradation, ecology, and natural history. Conant (1946) provided an earlier detailed systematic review. Other descriptions include: chromosomes (Eberle, 1972); cranial musculature (Varkey, 1979); some aspects of skull osteology (Marx and Rabb, 1972); and visceral topography (Rossman et al., 1982).

• **Illustrations.** Conant (1969) included color illustrations. Black and white photographs and/or drawings are in Cope (1900), Conant (1946, 1961, 1969), Fischer (1879), Stebbins (1985), and Taylor (1940). Eberle (1972) illustrated the karyotypes and Varkey (1979) the cranial and vertebral myology. Habitat photos of all subspecies were provided by Conant (1969).

• **Distribution.** The species ranges along the western coast of México from southern Sonora to central Guerrero. The range appears to be discontinuous with gaps (possibly the result of inadequate collecting) in northwestern Jalisco, most of coastal Colima, and all of northwestern Guerrero. On the mainland, the species occurs chiefly on the Pacific coastal plain with an upland race



Map. Solid circles mark type-localities; open circles indicate other localities. Precise type-locality of nominate subspecies unknown. Stippled patterns indicate presumed zones of intergradation.

occurring in the vicinity of Tepic, Nayarit. An isolated population occurs in the cape region of southern Baja California, ranging up into the foothills of the mountains of extreme southern Baja California. The altitudinal range for the species is from sea level to about 1200 m. The species is semi-aquatic, occurring in permanent bodies of fresh water and occasionally entering brackish water lagoons along the mainland coast.

• **Fossil Record.** None.

• **Pertinent Literature.** Conant's (1969) review included the relevant earlier literature. Additional literature includes information on: allozyme data and phylogeny (Lawson 1987); microfilarial parasites (Telford, 1964); brain proportions and sensory modalities (Wells et al., 1971); dermal permeability (Dunson, 1978); sea water tolerance (Dunson, 1980); retinal morphology (Hibbard and Lavergne, 1972); and synopsis of the literature (Smith and Smith, 1976).

• **Etymology.** The name *valida* is derived from the Latin word *validus*, meaning powerful or strong; *celaeno* (Gr., *kelainos*), means black or dark, in reference to the dorsal coloration; *isabelleae* honors Isabelle Hunt Conant, who accompanied her husband Roger when the type specimen was collected; *thamnophisoides* refers to the garter snake genus *Thamnophis*, which this subspecies resembles.

1. *Nerodia valida valida* (Kennicott)

R[egina]. valida Kennicott, 1860:334 (see species synonymy).

Tropidonotus validus validus: Cope, 1875:42 (part).

Tropidonotus quadriserialis Fischer, 1879:82. Type-locality, "Matatlan," Sinaloa, México. Holotype, Zoologisches Museum Hamburg 712, adult male, collected by W. E. Burghard in 1877 (not examined by authors).

Tropidonotus sirtalis Var. *quadriserialis*: Garman, 1884:140.

Regina quadriserialis: Cope, 1887:74.

Regina valida valida: Cope, 1887:74 (part).

Natrix valida valida: Cope, 1892:670 (part).

N[erodia]. [valida] valida: Fitch, 1981:26.

• **Definition.** A subspecies characterized by a gray to olive gray or

brown dorsal coloration, lack of pale longitudinal stripes and by a high number of ventrals. The venter is immaculate with a pale grayish brown or dull yellowish coloration. There is a single preocular (rarely 2) and 3 postoculars (rarely 1, 2, or 4). There are 136-150 (mean 141.7) ventrals in males, 132-147 (mean 140.3) in females; 70-86 (mean 77.8) subcaudals in males, 61-78 (mean 70.4) in females.

2. *Nerodia valida celaeno* (Cope)

Tropidonotus. *celaeno* Cope, 1860:341. Type-locality, "Cape St. Lucas, Lower California", revised to "San José River, Cape San Lucas, Baja California, Mexico" by Cochran, 1961:222 (also see Conant, 1969:111-113). Holotype, USNM 5281a (Conant, 1969:111), a subadult female, collected by John Xantus, 15 May 1859 (Cochran, 1961:222) (not examined by authors).

Tropidonotus. *tephropleura* Cope, 1860:341. Type-locality, "Cape St. Lucas, in Lower California." Holotype, not now known to exist (Conant, 1969:111), collected by John Xantus, date unknown.

Tropidonotus validus celaeno: Cope, 1875:42.

Tropidonotus validus tephropleura: Yarrow, 1883:133.

Regina valida celaeno: Cope, 1887:74.

Natrix valida celaeno: Cope, 1892:670.

Natrix celaeno: Van Denburgh, 1895:154.

N[erodia]. v[alida]. celaeno: Fitch, 1981:26.

• **Definition.** A subspecies characterized by lateral pale longitudinal stripes, involving the first and third rows of scales. The dorsal coloration is highly variable but primarily consists of dark and pale color phases. In the dark phase, the dorsum is very dark brown or black with little or no pattern except for pale and irregular lateral stripes. The venter is virtually uniform black or very dark brown. In the pale phase, the dorsal coloration is pale gray or brown with 75-97 (mean 86.7) dark spots in four rows similar to mainland *N. v. valida*. The venter is whitish or yellowish either immaculate or with a light washing or stippling of slightly darker pigment. There is a single preocular (rarely 2) and usually 3 postoculars (rarely 1, 2, or 4). There are 135-146 (mean 142.1) ventrals in males, 134-145 (mean 141.1) in females; 74-82 (mean 78.1) subcaudals in males, 67-75 (mean 71.0) in females.

3. *Nerodia valida isabelleae* (Conant)

Natrix valida isabelleae Conant, 1953:7. Type-locality, "Pie de la Cuesta, Laguna Coyuca, Guerrero." Holotype, American Museum of Natural History (AMNH) 73171, an adult female, collected by Roger Conant, 8 or 9 October 1949 (not examined by authors).

N[erodia]. v[alida]. isabelleae: Fitch, 1981:26.

• **Definition.** A subspecies characterized by a brown or chocolate brown dorsum, a pale stripe on the first two or three rows of dorsal scales on each side, a low number of ventral scutes, and a slightly higher mean number of subcaudals. The venter gradually changes from a dull yellow on the anterior portion to a pale pinkish posteriorly. There are usually four rows of dark spots on the dorsum, each spot occupying only the anterior edge of any one scale. There is a single preocular and 3 postoculars. There are 131-137 (mean 134.0) ventrals in males, 130-138 (mean 133.7) in females; 76-81 (mean 78.3) subcaudals in males, 68-76 (mean 72.4) in females.

4. *Nerodia valida thamnophisoides* (Conant)

Natrix valida thamnophisoides Conant, 1961:2. Type-locality, "along the Río San Cayetano (Río de Tepic on some maps and also known locally as the Río Mololoa), approximately 3 1/2 miles southeast of Tepic, Nayarit, Mexico." Holotype, AMNH 84091, an adult female, collected by Roger Conant, 3 or 4 July 1959 (not examined by authors).

N[erodia]. v[alida]. thamnophisoides: Fitch, 1981:26.

• **Definition.** A subspecies characterized by a prominent pale

middorsal stripe and a pale area on the first two or three rows of scales which gives the effect of a pale lateral stripe on each side of the body. The dorsal coloration varies from brown to olive brown and the venter is usually pale yellow with no darkening. There is a single preocular (rarely 2) and 3 postoculars (rarely 2 or 4). There are 130-140 (mean 135.3) ventrals in males, 127-139 (mean 133.6) in females; 69-80 (mean 74.3) subcaudals in males, 65-73 (mean 68.7) in females.

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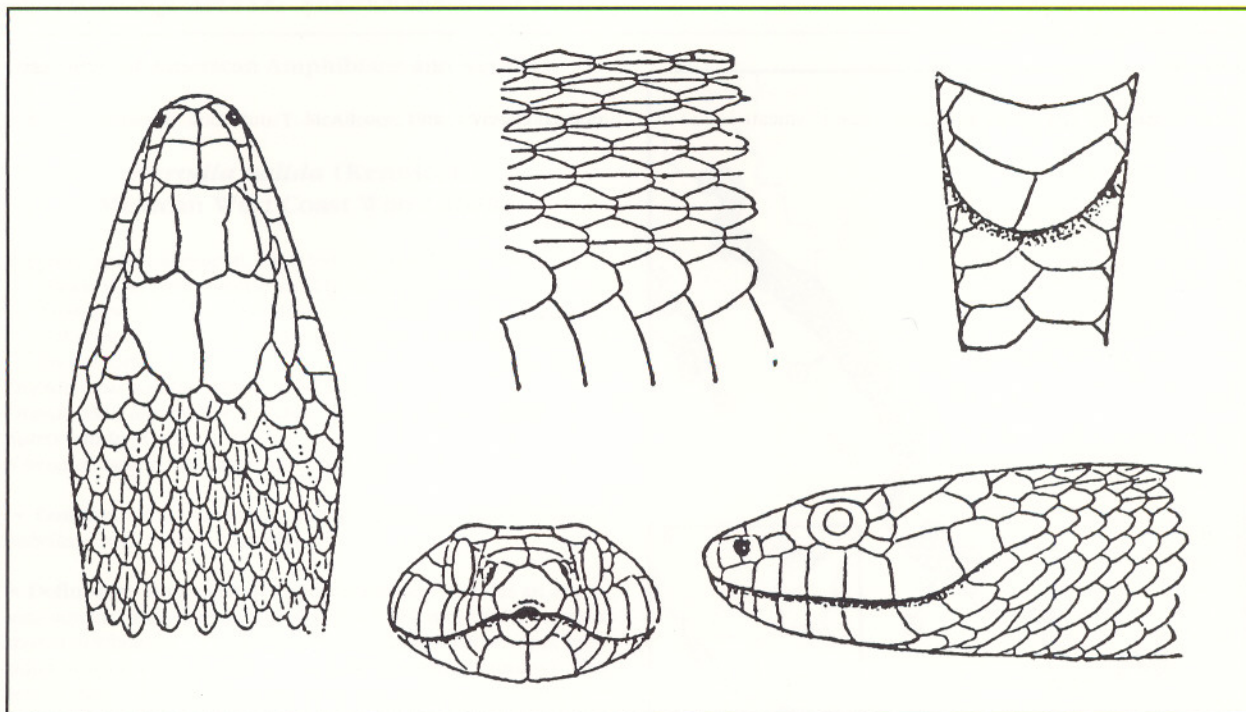


Figure 1. *Nerodia valida celaeno*, (x 1.5), from Cape region of Baja California; from Cope (1900).

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- Published 15 June 1988 and Copyright ©1988 by the Society for the Study of Amphibians and Reptiles.