

## Catalogue of American Amphibians and Reptiles.

MECHAM, JOHN S. 1968. *Notophthalmus meridionalis*.*Notophthalmus meridionalis* (Cope)  
Southern newt

- Diemictylus miniatus meridionalis* Cope, 1880:30. Type-locality "Matamoras, Mexico . . . tributaries of the Medina River and southward"; restricted to "Matamoras, Tamaulipas," by Smith and Taylor (1948:15). The only specimen specifically referred to by Cope in the original description was one "sent to the Smithsonian Institution from Matamoras." No catalogue number was given, and the specimen cannot now be located. Acad. Nat. Sci. Philadelphia 1104-1106 from Helotes, Texas, and ANSP 15977 from San Diego, Texas, are catalogued as types.
- Molge meridionalis*: Boulenger, 1888:24. Transfer of *meridionalis* to *Molge* and elevation to species rank.
- Diemictylus viridescens meridionalis*: Cope, 1889:211. Substitution of *viridescens* for *miniatus*.
- Diemictylus meridionalis*: Strecker, 1908:48. Elevation of *meridionalis* to species rank.
- Notophthalmus meridionalis*: Stejneger and Barbour, 1917:7. Substitution of *Notophthalmus* for *Diemictylus*.
- Triturus meridionalis*: Dunn, 1918:452. Transfer of *meridionalis* to *Triturus*.
- Diemictylus meridionalis*: Wolterstorff, 1925:293. Transfer of *meridionalis* to *Diemictylus*, with justified emendation of the generic name.

• CONTENT. Two subspecies are recognized: *meridionalis* and *kallerti*.

• DEFINITION. A species of *Notophthalmus* with a total length of 71-110 mm and a snout-vent length of 35-57 mm in the adult. Body proportions vary from moderately slender to stocky. The long diameter of the eye is distinctly less than the distance from the anterior angle of the eye to the nostril. The vomeropalatine tooth rows originate anteriorly, between, or immediately posterior to the internal nares. Hedonic pores are elongate, 3-3 in the male, but absent in the female. In breeding males the toes of the hind limbs have black horny tips, but dark horny ridges on the under surface of the thigh typical of other species are absent. Parallel ridges bordering the vent may show some dark cornification in breeding females. The skin is finely granular. The venter is deep yellow to orange, and the dorsum is olive to grey brown or dull brown. All surfaces are covered with small to large black spots that may be indistinguishable on the back if the ground color is dark. The presence of an eft stage has not been established; neoteny is unknown.

• DESCRIPTIONS. Mecham (1968) describes in detail morphological and pattern differences between *N. m. meridionalis* and *N. m. kallerti*. Wolterstorff (1930) provides a good description of the morphology and coloration of adult *N. m. kallerti*, and Reese and Firschein (1950) describe the larva and newly metamorphosed young of this form. Bishop (1943) treats the morphology and coloration of adult *N. m. meridionalis* in detail, and Conant (1958) and Blair (1957) give brief descriptions of adults.

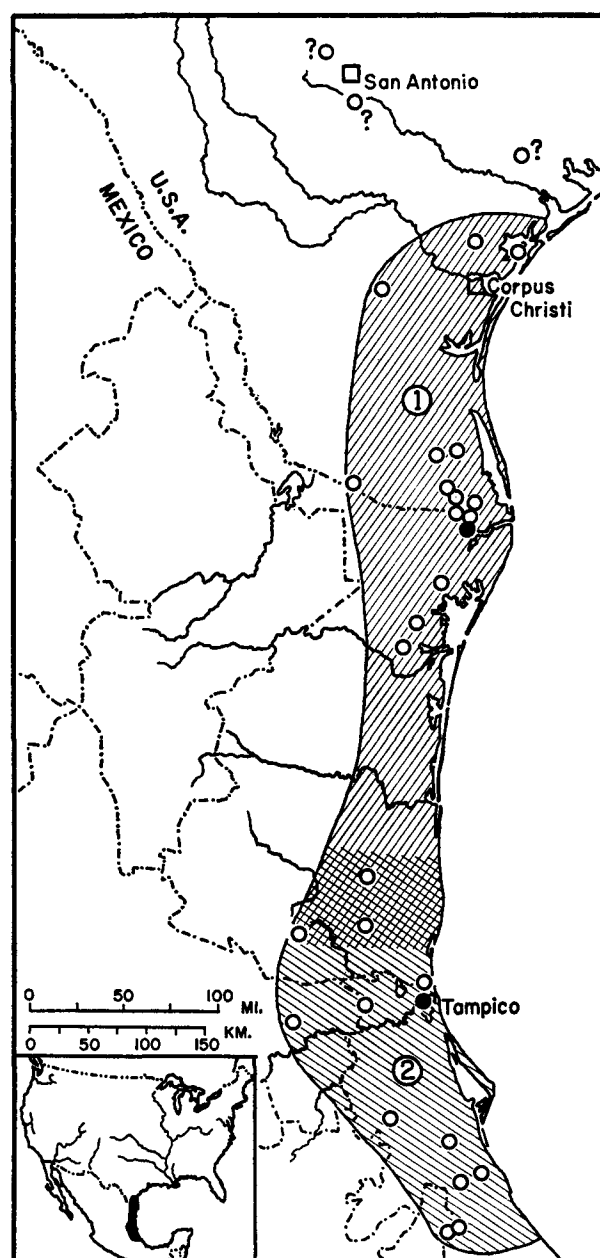
A description of the larva of *N. m. meridionalis* based on a series of preserved specimens (total length 45-75 mm) from northern Tamaulipas is as follows: the dorsum is greyish brown, darker in the smallest specimens, and the venter is pale buff. Specimens less than 50 mm in total length have no dark spotting but are clouded ventrally with dark pigment that tends to form a diffuse midventral band. With increase in size the ventral pigment becomes concentrated into numerous small dark spots, and larger dark spots appear on the dorsum. These are particularly numerous on the lower sides, and are largest on the tail. All larvae possess lateral and ventrolateral rows of fine light dots on the sides. Diffuse longitudinal bars are faintly visible on the sides of the head.

• ILLUSTRATIONS. Bishop (1943) furnishes an excellent colored plate of an adult female *N. m. meridionalis* and two photographs of a mature female. Conant (1958) provides a small colored photograph and Cope (1889) furnishes diagrams of the head, mouth, and feet. The only illustrations of *N. m. kallerti* are given by Wolterstorff (1930), who includes an outline drawing of the general body form, a drawing of

the cloaca of the female, and a naturalistic sketch of the adult (sex not given).

• DISTRIBUTION. The species is found on the coastal plain of Texas south of the San Antonio River, and southward along the eastern coast of Mexico to northern Puebla and Vera Cruz. *Notophthalmus m. meridionalis* occupies the portion of the range in Texas, and the northern half of Tamaulipas. Old records from Bexar County, Texas, are regarded as questionable by Brown (1950), and a record from Victoria County, Texas (Strecker, 1908), may be based on misidentified *N. viridescens*. *Notophthalmus m. kallerti* occurs south of *N. m. meridionalis* and intergrades with it in south-central Tamaulipas (Mecham, 1968:121).

Adults, juveniles, and larvae occur in permanent and temporary ponds, roadside ditches, and quiet pools of small streams, where they usually are associated with abundant submerged vegetation, particularly *Chara*. The species is



MAP. The solid symbol marks the type-locality; hollow symbols indicate other known localities. Overlap of shading patterns indicates area of intergradation. Dubious records are questioned (see text).

largely confined to the coastal plain, but has been recorded at over 610 m (2000 feet) in the foothills of the Sierra Madre Oriental, Puebla, and 800 m (2650 feet) in the Sierra de Tamaulipas.

• Fossil Record. None.

• PERTINENT LITERATURE. Mecham (1968) discusses geographic variation and the relationship between *meridionalis* and *kallerti* and includes some information on life history. Reese and Firschein (1950) compare characters of the two forms, and summarize locality records for *N. m. kallerti*. Wolterstorff (1931) compares *kallerti* with other members of the genus. Bishop (1943) gives a comprehensive account of *N. m. meridionalis* and cites all prior references. A description of breeding habits given by Strecker (1922) and quoted by Bishop (1943) is almost certainly based on misidentified *N. viridescens*.

• ETYMOLOGY. The name *meridionalis* is Latin, meaning southern, and refers to the southerly distribution of the species. The name *kallerti* is a patronym for Dr. Kallert of Hamburg, who supplied the original specimens to the describer.

# 1. *Notophthalmus meridionalis meridionalis* (Cope) Black-spotted newt

*Diemictylus miniatulus meridionalis* Cope. See species account. *Notophthalmus viridescens meridionalis*: Herre, 1936:196. *N. m. meridionalis* treated as a subspecies of *N. viridescens*. *Notophthalmus meridionalis meridionalis*: Mecham, 1968:121. New combination.

• DEFINITION. This heavy-bodied, stocky newt has a total length of 82–110 mm and a snout-vent length of 42–57 mm in the adult. The sides of the head are parallel behind the orbits in females, but diverge slightly in some males. Head width is 73–86 per cent of the head length. Cranial ridges are low and indistinct. Coloration is bright orange to yellow-orange below, light blue-green on the sides, and light olive-green on the back. The venter, sides, and dorsum are covered with moderate to large black spots. Irregular, diffuse yellow spots are scattered over the dorsum. Narrow irregular and often broken yellow lines extend dorsolaterally from the snout to the base of the tail; occasional individuals are marked middorsally by an indistinct brown or russet stripe. Some diffuse white pigment may be present on the lower side. Larval characters are given under DESCRIPTIONS.

# 2. *Notophthalmus meridionalis kallerti* (Wolterstorff) Mexican newt

*Diemictylus kallerti* Wolterstorff, 1930:147. Type-locality, "Angeblich Tampico-Mexico. Wahrscheinlich aus dem gebirgigen Hinterland." Holotype Mus. Magdeburg N. V. 44/29 Ex. Nr. 1, a female; original collector and exact date of collection not given. Apparently the type was destroyed during World War II.

*Diemictylus kallerti*: Wolterstorff, 1931:13. Justified emendation of the generic name.

*T. (riturus) kallerti*: Smith, 1934:407. Transfer of *D. kallerti* to *Triturus*.

*Notophthalmus viridescens kallerti*: Herre, 1936:196. Transfer of *D. kallerti* to *Notophthalmus* with reduction to a subspecies of *N. viridescens*.

*Notophthalmus kallerti*: Smith, 1953:98. Elevation to species rank.

*Notophthalmus meridionalis kallerti*: Mecham, 1968:121. New combination.

• DEFINITION. The total length of the adult is 71–107 mm and the snout-vent length is 35–48 mm. The body is moderately slender, not stocky. The sides of the head are nearly parallel behind the eyes; the head width is 68–76 per cent of the head length. Cranial ridges are low but distinct. Ground color is deep yellow, grey brown to dull brown above, with a narrow diffuse line of dirty white along the lower side. Numerous small black spots occur on all surfaces but are indistinct on the back because of the dark ground color. Small, irregular, diffuse gold spots are scattered over the dorsum. Dorsolateral light lines are lacking. Larvae are green to greyish above, pale below. Small individuals are immaculate below, lack dark spotting, and have lateral rows of light dots. Larger larvae show some development of

dark dots, sparser and smaller on the venter than on the dorsum. The lateral row of light dots tends to become obscure with age.

## COMMENT

*Notophthalmus meridionalis* is quite distinctive in its characters, and most workers have followed Boulenger (1888) in treating the form as a species separate from *N. viridescens*. There is a remote possibility that intermediates exist in the zone of contact between the two forms in southeastern Texas, but apparent sympatry has been found (Mecham, 1968). Studies on internal characters (such as skeleton and reproductive glands) might help clarify the relationships between the two species. More information is also needed on the life history of the two subspecies of *N. meridionalis*. The eggs, early development, and mating behavior have not been described.

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