

Catalogue of American Amphibians and Reptiles.

MECHAM, JOHN S. 1983. *Nerodia harteri*.*Nerodia harteri* (Trapido)
Harter's water snake

Natrix harteri Trapido, 1941:643. Type-locality, "rocky stretches along the Brazos River north of Palo Pinto, Palo Pinto County, Texas." Holotype, United States Nat. Mus. 110927, an adult male, collected by Philip Harter, early April 1940 (not examined by author).

Nerodia harteri: Rossman and Eberle, 1977:42. First use of combination.

• CONTENT. Two subspecies are recognized: *harteri* and *paucimaculata*.

• DEFINITION. A species of *Nerodia* characterized by relatively small size (adults rarely exceeding 900 mm total length), 21–23 dorsal scale rows, a dorsal pattern consisting of four alternating rows of dark blotches, and a venter that is unmarked except for a series of distinct to obscure small dark spots along either side. The small ventral spots, when apparent, occupy the anterolateral edges of the ventrals and subcaudals. Ground color of the dorsum is light brown to greyish brown, with the blotches a darker brown. The number of dorsal blotches is high for *Nerodia*, with 44–69 in a single row. Dorsal (paravertebral) blotches are 1–2 scales wide, and extend from the middorsum to scale rows 6–8. Blotches of the lateral row are narrower, being 1 scale wide or less. Blotches are normally arranged irregularly in checkerboard fashion, but dorsal blotches occasionally correspond in position and fuse to form transverse saddles. Dorsal pattern remains distinct throughout life. Scutellation characters include: 1 (rarely 2) preoculars; 2–3 postoculars; 8 (rarely 9) supralabials; 10 (rarely 9) infralabials; 1–2 rows of intergenials between the posterior chin shields; 1 anterior temporal; 2–3 posterior temporals; dorsal scale rows at midbody 21–23 (rarely 19 or 20); all dorsal scales carinate; ventrals 143–151; subcaudals 76–88 in males, 64–79 in females. Tail length averages 26–27% of total length in males, and 23–24% in females.

• DESCRIPTIONS. The most complete treatment of color pattern and morphology for both races is provided by Tinkle and Conant (1961). Additional original descriptions are given by Trapido (1941) and Wright and Wright (1957).

• ILLUSTRATIONS. Photographs of the hemipenis and of 10 paratypes (dorsum) of the nominate race are provided by Trapido (1941). Wright and Wright (1957) furnish photographs of this form, including head, dorsal, lateral, ventral, and subcaudal views. Tinkle and Conant (1961) provide excellent photographs of *N. h. paucimaculata* (dorsolateral, ventral views) and a photograph of the venter of the nominate form. A small colored photograph is contained in Conant (1975).

• DISTRIBUTION. The species occurs as two disjunct isolates in north-central and central Texas, respectively. One population, constituting the nominate race, is found along a short stretch of the Brazos River from Throckmorton to Somervell counties. The other population, *N. h. paucimaculata*, occupies a stretch of the upper Colorado River and its tributary, the Concho River. The association of the species with shallow, fast-flowing water and a rocky or gravel substrate has been noted by a number of workers.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Conant (1942) gives evidence based on pattern and morphology to support inclusion of *N. harteri* in the *Nerodia sipedon* species group and (1943) argues for a particularly close relationship with *N. kirtlandi*. Locality records not summarized by Tinkle and Conant (1961) are given by Tinkle and Knopf (1964), and by Wade (1968). Flury and Maxwell (1981) review the status of *N. h. paucimaculata*, and give additional localities for that subspecies. Data on young, including brood size, are given by Conant (1942) and McCallion (1944). Williams (1969), in the only study of population ecology of the species, provides data on habitat, feeding habits, population structure, growth, and movements. Additional ecological observations are given by

Trapido (1941), Wright and Wright (1957), Tinkle and Conant (1961), and Flury and Maxwell (1981). Eberle (1972), and Baker, Mengden, and Bull (1972) have described the karyotype.

• ETYMOLOGY. The name *harteri* is a patronym for Mr. Philip Harter, who collected the type specimen; *paucimaculata* (Latin, *paucis* meaning few and *macula* for spot) refers to the reduced spotting on the venter.

1. *Nerodia harteri harteri* (Trapido)

Natrix harteri Trapido, 1941:673. See species synonymy.

Natrix harteri harteri: Tinkle and Conant, 1961:37. First use of trinomial.

Nerodia harteri harteri: Collins, Huheey, Knight, and Smith, 1978:31. First use of combination.

• DEFINITION: A series of distinct dark dots are present on either side of the venter. One or two rows of intergenials are present between the posterior chin shields, the postoculars most often number 5 or less (total for both sides), and subcaudals in females average about 73 (67–79). Tan to pale orange pigment may extend down the center of the venter, becoming more intense posteriorly.

2. *Nerodia harteri paucimaculata* (Tinkle and Conant)

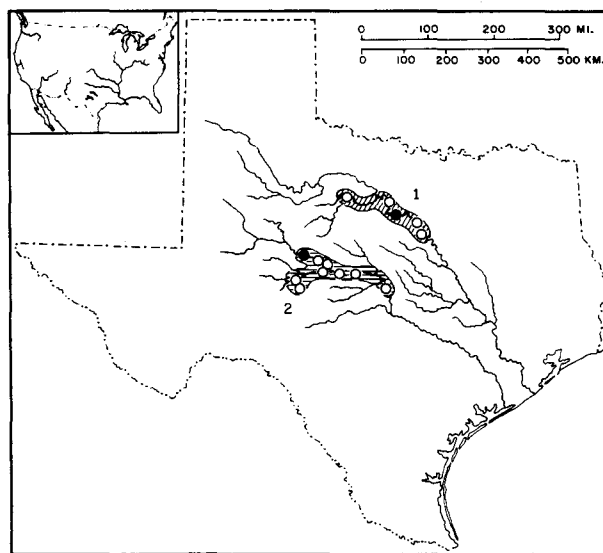
Natrix harteri paucimaculata Tinkle and Conant, 1961:34. Type-locality, "the Colorado River south of the city limits of Robert Lee, Coke County, Texas." Holotype AMNH 85542, an adult male, collected Oct. 8, 1960, by Donald W. Tinkle and Don L. McGregor (not examined by author).

Nerodia harteri paucimaculata: Collins, Huheey, Knight, and Smith, 1978:31. First use of combination.

• DEFINITION. The belly is lightly marked or immaculate; ventral spots, if present, are small and indistinct. Intergential scales between the posterior chin shields almost always occur in one row, postoculars rarely number fewer than 6 (both sides together), and subcaudals in females average about 68.5 (64–74). Ground color of the dorsum tends to be paler and more reddish than in the nominate race, and ventral pigment is pink to rose.

COMMENT

Because of its limited distribution and specialized ecology (rocky substrate, riffles), *Nerodia harteri* occupies a rather precarious position as far as long term survival is concerned. Planned new



MAP. Solid circles mark type-localities; open circles indicate other records.

impoundments could destroy much of the remaining habitat, either by interruption of normal stream flow or by flooding. As anticipated by Wade (1968), the construction of Lake Granbury on the Brazos has flooded some occupied habitat, and completion of the Robert Lee Dam on the Colorado River immediately above the type-locality of *N. h. paucimaculata* has resulted in extirpation of the once large population at this site (Brnovak, 1975, pers. obs.). Both races were placed on the state endangered list by the State of Texas in 1977. Flury and Maxwell (1981), in a detailed report on the status of *N. h. paucimaculata*, estimated its total population to consist of only 332–613 individuals. The status of the Brazos River population is currently under review by Maxwell.

LITERATURE CITED

- Baker, Robert J., Greg A. Mengden, and James J. Bull. 1972. Karyotypic studies of thirty-eight species of North American snakes. *Copeia* 1972(2):257–265.
- Brnovak, G. T. 1975. An ecological survey of the reptiles and amphibians of Coke County, Texas. M.S. thesis, Angelo State University.
- Collins, Joseph T., James E. Huheey, James L. Knight, and Hobart M. Smith. 1978. Standard common and current scientific names for North American amphibians and reptiles. *Soc. Study Amphib. Reptiles, Misc. Pub., Herp. Circ.* (7): iii + 36 p.
- Conant, Roger. 1942. Notes on the young of three recently described snakes, with comments upon their relationships. *Bull. Chicago Acad. Sci.* 6(10):193–200.
- 1943. Studies on North American water snakes. I. *Natrix kirtlandi* (Kennicott). *Amer. Midland Natur.* 29(2):313–341.
- 1975. A field guide to reptiles and amphibians of eastern and central North America. Second edition. Houghton Mifflin Co., Boston. xviii + 429 p.
- Eberle, W. Gary. 1972. Comparative chromosomal morphology of the New World natricine snake genera *Natrix* and *Regina*. *Herpetologica* 28(2):98–105.
- Flury, John W., and Terry C. Maxwell. 1981. Status and distribution of *Nerodia harteri paucimaculata*. Unpublished final report, submitted to U.S. Fish and Wildlife Service by Angelo State University. 73 p.
- McCallion, James. 1944. Notes on *Natrix harteri* in captivity. *Copeia* 1944(1):63.
- Rossman, Douglas A., and W. Gary Eberle. 1977. Partition of the genus *Natrix*, with preliminary observations on evolutionary trends in natricine snakes. *Herpetologica* 33(1):34–43.
- Tinkle, Donald W., and Roger Conant. 1961. The rediscovery of the water snake, *Natrix harteri*, in western Texas, with the description of a new subspecies. *Southwest. Natur.* 6(1): 33–44.
- , and Gary N. Knopf. 1964. Biologically significant distribution records for amphibians and reptiles in northwest Texas. *Herpetologica* 20(1):42–47.
- Trapido, Harold. 1941. A new species of *Natrix* from Texas. *Amer. Midland Natur.* 25(3):673–680.
- Wade, Virgil E. 1968. A range extension of the water snake, *Natrix harteri harteri* Trapido. *Texas J. Sci.* 20(2):194–196.
- Williams, Norman R. 1969. Population ecology of *Natrix harteri*. M.S. thesis, Texas Tech Univ. v + 51 p.
- Wright, Albert H., and Anna A. Wright. 1957. Handbook of snakes of the United States and Canada. Vol. 2. Comstock Publ. Assoc., Ithaca, New York. 565–1105 p.

JOHN S. MECHAM, TEXAS TECH UNIVERSITY, LUBBOCK, TEXAS 79409.

Primary editor for this account, Larry David Wilson.

Published 27 September 1983 and Copyright 1983 by the SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES.