

REPTILIA: SQUAMATA: SERPENTES: COLUBRIDAE **THAMNOPHIS BRACHYSTOMA**

Catalogue of American Amphibians and Reptiles.

BOTHNER, RICHARD C. 1976. *Thamnophis brachystoma*.***Thamnophis brachystoma* (Cope)**
Short-headed garter snake*Eutaenia brachystoma* Cope, 1892:964. Type-locality "... near Franklin, Venango County, Pennsylvania, on the Alleghany River." Holotype, Acad. Natur. Sci. Philadelphia 10751, male, collected by Anna M. Brown about 1892 (examined by author).*Eutaenia sirtalis sirtalis*: Brown, 1901:28.*Thamnophis butleri*: Ruthven, in Stone, 1906:165. See also Ruthven, 1908:89.*Thamnophis radix butleri*: Bishop, 1927:16.*Thamnophis brachystoma*: Smith, 1945:149.*Thamnophis radix brachystoma*: Smith, 1949:297.

- CONTENT. No subspecies are recognized.

- DEFINITION. A small garter snake 254–559 mm in total length with the head not distinct from the neck. The dorsal scales are usually in 17-17-17 rows, occasionally 17-19-17 (as in holotype) or 17-17-15. The supralabials are usually 6 in number, rarely 7 or 9. The infralabials usually number 7 or 8, occasionally 9. The preoculars are 1, occasionally 2; the postoculars are 2 or 3. The ventrals in 112 males number 134–144 (mean 139), in 33 females 131–140 (mean 136); caudals in 98 males number 63–75 (mean 69), in 32 females 53–64 (mean 59). Data on ventrals and caudals are from Barton (1956). The lateral stripes are 2 scale rows wide and occupy scale rows 2 and 3 anteriorly, rarely the upper half of 2, 3 and the lower half of 4.

- DIAGNOSIS. There are no absolute meristic characteristics that can be used to separate *T. brachystoma* from *T. s. sirtalis*. *T. brachystoma* is not found in mature forest although it may make slight incursions into the forest edge. It prefers open herbaceous areas. *T. s. sirtalis* is much more catholic in its habitat preferences, being found in forest as well as field. *T. brachystoma* is a more gracile snake than *T. s. sirtalis* with the head being no wider (or very slightly wider) than the neck. The stripes on *T. brachystoma* tend to be bordered by very fine black lines. There are no double rows of alternating black spots between the stripes as are so often seen in *T. s. sirtalis*.

- DESCRIPTIONS. Wright and Wright (1957) discussed the coloration and external morphology of this species. However, they used the scale counts of Smith (1949), the accuracy of which were questioned by Barton (1956) who presented a detailed statistical study of this animal.

- ILLUSTRATIONS. A figure showing the scalation and shape of the head of the holotype appeared in Cope (1892). Wright and Wright (1957) presented a series of photographs of this species, and Conant (1975) a colored illustration.

- DISTRIBUTION. *Thamnophis brachystoma* occurs in the upper Allegheny River drainage north (upstream) of its confluence with the Clarion River. Wright and Wright (1957) mentioned Harold H. Axtell's discovery, in 1947, of 64 specimens in the Susquehanna drainage (Horseheads, New York). This locality is represented by the easternmost questioned symbol on the map. According to Wright and Wright (1957), Axtell first considered this an introduced population but later regarded the population as subspecifically distinct. However, a formal taxonomic change has not been proposed. I have been unable to examine Axtell's specimens and, in the absence of subsequent collections, I consider them to stem from an introduction. The snake has never, to my knowledge, been found there since. Conant (1975) mentions the introduction and establishment of this form at Pittsburgh and apparently also in Butler and Erie Counties, Pennsylvania.

These snakes have been collected at elevations from 900–2400 feet. They prefer more or less open, herbaceous fields and scarcely penetrate into wooded areas.

- FOSSIL RECORD. None.

- PERTINENT LITERATURE. The best and most recent comprehensive work on this taxon appeared in Wright and Wright (1957). Stewart (1961) discussed the abundance of this snake on the Allegheny Indian Reservation and vicinity. Bishop (1927) contributed the first New York State record for this species. Hassler (1932) described a specimen from Cattaraugus County, New

York. Swanson (1952) gave some collecting information and mentioned some birth dates, litter sizes, and total length ranges of the neonates from Venango County, Pennsylvania. He also discussed habitat preferences and predators. Richmond (1952) discussed the range of *T. brachystoma* and its restriction to the Allegheny High Plateau. Klingener (1957) reported a marking study of this snake and Asplund (1963) described some ecological factors relating to its distribution. Bothner (1963) described a hibernaculum of *T. brachystoma*. Wozinak and Bothner (1966) made some ecological comparisons, primarily those concerning food preferences and habitat selection, between *T. brachystoma* and *T. sirtalis*. Pisani (1967) contributed some notes on the courtship and mating of this species. Pisani and Bothner (1970) discussed the annual reproductive cycle of *T. brachystoma*.

- NOMENCLATURE HISTORY. This species was first described by Cope (1892) as *Eutaenia brachystoma* from a single specimen. Brown (1901) considered the holotype "... a dwarfed *E. sirtalis sirtalis*." Ruthven is cited in Stone (1906) as considering this form "identical with *T. butleri*," and again in 1908 Ruthven opined that "they represent dwarfed specimens of *butleri*." Smith (1945) considered *butleri* and *brachystoma* to be two distinct species, but later (1949) reversed himself and treated both forms as subspecies of *Thamnophis radix*. In 1950 Conant reviewed the complex and after critically questioning Smith's contributions concluded that *T. brachystoma* and *T. butleri* are distinct (although related) species. Barton (1956) gave a detailed statistical study of *T. brachystoma* and also criticized Smith's work. He agreed with Conant's contention that *T. brachystoma* is a distinct species.

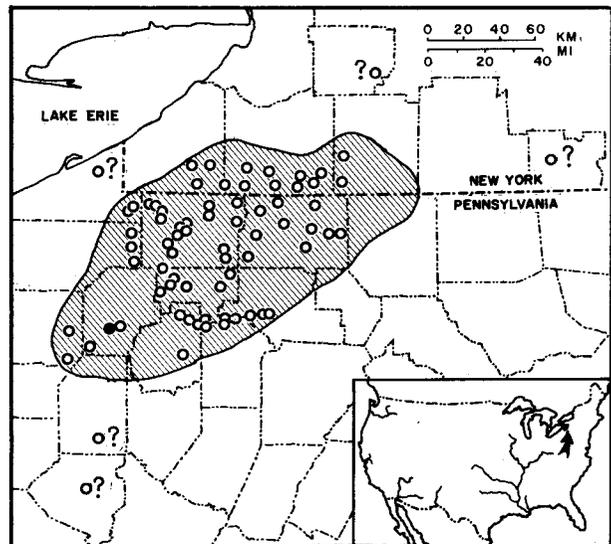
- ETYMOLOGY. The specific name is from the Greek *brachys*, meaning "short" and *stoma*, meaning "mouth."

COMMENT

Until about 1962 *T. brachystoma* was "unbelievably abundant right up to the edge of its range" (Conant, 1950). Conversely, *T. sirtalis* was scarce within the range of *T. brachystoma* (Asplund, 1963). Since then the population density of *T. brachystoma* has suffered a drastic decline while at the same time the population of *T. sirtalis* has burgeoned (personal observation). As of this writing I consider *T. sirtalis* to be easily as common as *T. brachystoma*, at least in the northern part of the latter snake's range. The reasons for this change need investigating.

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MAP. Solid spot indicates type-locality; circles mark other localities within the inferred total range (outlined and cross-hatched). Circles with question marks represent possible introductions (see text).

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RICHARD C. BOTHNER, SAINT BONAVENTURE UNIVERSITY, SAINT BONAVENTURE, NEW YORK 14778.

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