

Timber Rattlesnake (*Crotalus horridus*) Swims the Mississippi River

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The Timber Rattlesnake (*Crotalus horridus*) is widely but sporadically distributed throughout much of the southeastern United States (Trauth et al. 2004, Conant and Collins 1991). Numerous life history studies have been conducted on the species, addressing topics that include reproduction, migration, and movement (e.g., Palmer et al. 1995, Trauth et al. 2004); however, reports of swimming behavior are few. Walker (1963) observed an individual swimming across a lake in Jackson Parish, Louisiana. Viosca (1944) commented that the Mississippi River and its floodplain provide a potential barrier for east-west movement for various amphibians and reptiles; however, the Mississippi River itself might prove to be an excellent corridor for dispersal.



BRADLEY LEWIS

A Timber Rattlesnake swimming and floating with the currents of the Mississippi River approximately 300 m from land.

On 19 July 2002, while working on the Mississippi River just south of Vicksburg, Mississippi at River Kilometer 685.6 (RM 426), our field crew and I observed a Timber Rattlesnake swimming across the river presumably from Madison Parish, Louisiana to Warren County, Mississippi. The stream width where the swimming rattlesnake was observed was 750 m, and the water temperature was 29.5 °C. The snake was over halfway across the river and approximately 300 m from the nearest shore. It looked to be in excellent condition and appeared quite capable of completing its journey across the river.

Interestingly, Dr. David Biedenharn (USACE Coastal and Hydraulics Laboratory, ERDC; pers. comm.) also observed a Timber Rattlesnake swimming the Mississippi River in the Vicksburg area during the summer, although the event took place several years ago. In addition, while working on the Alabama River during late summer 2004, I observed Timber Rattlesnakes on two separate occasions swimming the river near Camden, Alabama. These observations provide support for the contention that large rivers are not a major barrier to Timber Rattlesnake dispersal.

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WILLIAM LANCASTER

The author and a Timber Rattlesnake that had been swimming across the Mississippi River from Madison Parish, Louisiana to Warren County, Mississippi.



BRADLEY LEWIS

A Timber Rattlesnake swimming the Alabama River, Camden County, Alabama in 2004.

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A Defensive Display by a Smooth Earth Snake (*Virginia valeriae*)

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The Smooth Earth Snake (*Virginia valeriae*) is a small (maximum size 393 mm) and ubiquitous natricine snake of the southeastern United States. Whereas many large natricine snakes will display defensively when unable to retreat, gaping, vibrating the tail, and striking at would-be predators, these behaviors are less commonly observed in small snakes, possibly due to their non-threatening and inconsequential effect on large predators. Both *Virginia valeriae* and Red-bellied Snakes (*Storeria occipitomaculata*) are known instead to exhibit “lip-curling,” an unusual and elaborate exhibition of the maxillary teeth, which is hypothesized to constitute an agonistic display targeted at smaller predators and a delivery agent for Duvernoy’s gland secretions (do Amaral 1999, Conant 1951).

At 1100 h on 24 July 2008, we observed a defensive display in an adult *V. valeriae* while photographing the animal in suburban deciduous woodlands near the site where it was captured at night two days earlier. The snake had been moving across the paved walkway of a private residence in Wake County, North Carolina at 0015 h after a light rain and was held for later photography due to poor light conditions during the intervening two days. Immediately upon being removed from its temporary container and placed under light restraint, the snake faced us and gaped in a striking position, but did not strike. This behavior continued for approximately 30 sec, after which the snake changed its behavior and instead attempted to escape for approximately 2 min. The initial escape behavior was then followed by approximately 2 min of gaping, slight neck-flaring, and actual striking before

the snake resorted entirely to escape and burrowing behaviors, which it continued as we photographed it for almost 20 min despite being removed from hospitable burrowing habitat and placed on a firm, open surface.

This account of defensive behavior in *V. valeriae* is strikingly similar to that of Todd (2008) for an individual from Barnwell County, South Carolina. In both instances, the behavior might have been an atypical display by a highly agitated individual or it could be a trait that is more common than previously thought. Other defensive behaviors documented for *V. valeriae* include writhing violently, spraying musk, voiding feces, feigning death (Ernst and Ernst 2003), and loop-knotting the body to prevent ingestion (Yeatman 1983).

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A Smooth Earth Snake (*Virginia valeriae*) exhibiting a prolonged defensive display (see text).