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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).