



# Combat Activity in Green Keelbacks (*Rhabdophis plumbicolor*)

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In central India, the Green Keelback, *Rhabdophis plumbicolor* (Cantor 1839), commonly occurs around human settlements and farms (Khaire 2021). Although observations of breeding in this species have been recorded in this subregion (Whitaker and Captain 2004; Whitaker 2006), few natural history data have been recorded and detailed life history studies are lacking.

At 2146 h on 18 September 2021, SDK observed unusual behavior in a *R. plumbicolor* in Bale, Solapur, India (17.6990 E, 75.8792 N), after the occupants of a house in an urban residential area with low vegetation had sighted two snakes (both about 75 cm in total length) in their front yard and had asked local snake rescuers to take the snakes away. When the rescuer arrived, a crowd was laughing at the snakes but had not disturbed them in any other way. The snakes had entwined their tails and raised the front thirds of their bodies to face each other in a typical combat ritual posture (Fig. 1A). One individual was trying to dominate the other by tightening its coils and pushing the opponent’s head to the ground (Fig. 1B–C), an action that was loud enough to hear, and one or both snakes were hissing throughout the ritual. As more of their bodies became intertwined, the individual who was pushing the other’s head attempted to bite its opponent. Soon after, the second individual bit the neck of its rival (Fig. 1D).

The first snake kept tightening its coils and both were attempting to bite the other’s neck, which led to them repeatedly rotating their bodies. They uncoiled and released their

bites when both snakes were obviously injured, leaving the site with evidence of blood. The entire scrimmage lasted about 95 minutes.

To the best of our knowledge, this is the first photographic documentation of combat between two male Green Keelbacks. Three explanations have been suggested for such combat behavior: acquisition of resources such as food, defense of territory, or gaining a reproductive advantage (Carpenter and Gillingham 1977; Gillingham et al. 1983). Although territoriality can occur in snakes (Webb et al. 2015), biting usually is not involved in such rituals (Lillywhite 2014). The most likely explanation of the apparent combat behavior was to gain reproductive access to a nearby female, especially since this observation occurred during the breeding season in August and September (Whitaker and Captain 2004).

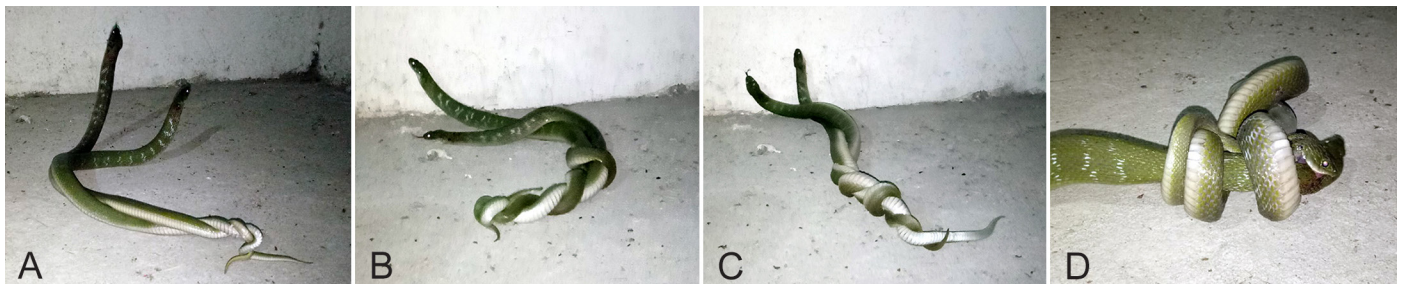
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**Figure 1.** Combat between two male Green Keelbacks (*Rhabdophis plumbicolor*): Initial position of the snakes exhibiting typical combat posture (A); one individual trying to dominate the other (B–C) and biting the neck of its rival (D). Photographs by Suresh D. Kshirsagar.

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