



Love Bite: A Courtship Trait in the South Indian Rock Agama (*Psammophilus dorsalis*)

Anbazhagan Abinesh¹ and C.S. Vishnu²

¹Centre for Ecological Sciences, Indian Institute of Science, Bangalore-560012

²Wildlife Institute of India, Dehradun-248001

(vishnusreedharannair@gmail.com; <https://orcid.org/0000-0001-8686-0922>)

Social communication in animals is signalled by various visual, tactile, auditory, and chemical cues (Carpenter 1967; Wells 1977; Erlinge et al. 1982; Payne 1983). These signals have functions in the social and spatial organization of populations; however, sequential events in courtship and mating behavior in agamids have rarely been studied (Carpenter et al. 1970; Brattstrom 1971; Pandav et al. 2007). Males of the South Indian Rock Agama (*Psammophilus dorsalis*) have a dynamic physiological color-changing ability, adjusting colors and patterns for communication. They can quickly express intense colors, which differ from the neutral phase and are specific to social contexts. The separate bands on the males can shift rapidly from yellow to red on the dorsum and between orange and black on the sides (Batabyal and Thaker 2017). During courtship and aggression, the color pattern of the male *P. dorsalis* can be entirely different (Batabyal and Thaker 2017).

Some lizards are known to express unusual courtship traits such as neck bites or head bites during the courtship period. The Southern Alligator Lizard (*Elgaria multicarinata*) was reported to display unusual courtship behavior, in which the male firmly grips the female’s head with its jaws for hours (McMillan 2021). Likewise, other anguid lizard species are also known to exhibit similar male-biased sexual traits (Vestal 1940; Svihla 1942; Vitt 1973). However, many lizards show a mate-holding behavior in which the male grips a fold of skin by the neck or any other part of the female body. Few observations of similar behavior of this mating posture are available in the literature, with the first-ever observation of this behavior being observed in the Northern Alligator Lizard (*Gerrhonotus coeruleus*) (Vestal 1940).

Psammophilus dorsalis (Peninsular Rock Agama or South Indian Rock Agama) is distributed in various parts of India; Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, Bihar, and Madhya Pradesh (Uetz et al. 2022). *Psammophilus dorsalis* has been listed under the Least Concern category of the IUCN Red List (Radder et al. 2013). At 1359 h on

24 March 2022, we observed a male *P. dorsalis* biting on a female’s neck by the skin fold (Fig. 1) at Kotagiri, Nilgiris (11.394922 N, 76.845880 E, 1,523 m elevation). The male had visible courtship colors on display, the dorsal region being flame orange from the head to the end of the tail, while the lateral color was black. After six minutes, the female came near the male on a concrete wall; the male’s jaw clenched onto the female’s neck. The activity lasted for four minutes, but due to the photographer’s presence, the lizards returned to their respective hiding places. This is the first observation of a neck bite behavior observed in *P. dorsalis*.

Deodhar and Isvaran (2017) have reported that *Psammophilus dorsalis* exhibits a strict seasonality in its breeding behavior, which lasts from May to September. Typically, male *P. dorsalis* develop conspicuous physiological colors from April to August, which become dull at the end of the breeding season (Radder et al. 2005). Males of *P. dorsalis* display red dorsal with black lateral coloration during courtship,



Fig. 1. Neck biting during the courtship of South Indian Rock Agama (*Psammophilus dorsalis*). Photograph by R. Manoj

which could indicate male quality to females (Batabyal and Thaker 2017).

Neck bite behavior could be an evolutionary trait in lizard families, as the behavior represents mate guarding, a demonstration of endurance and strength in males, and is related to other unknown aspects of reproductive biology (Nguyen 2018). The neck bite by the skin fold has been observed in *Calotes versicolor* during a mating instance from India (Pandav et al. 2007). Likewise, Mandawala et al. (2023) reported a neck bite event during a mating scenario of *Otocryptis nigrisigma* in Sri Lanka. This observation of neck bite behavior in *P.dorsalis* while the male is displaying courtship colors is an additional behavioral trait for this species that could be considered as a demonstration of male strength to the female. This note thus demonstrates that observing and conducting more studies on the behavioral aspects of Agamid lizards may offer new findings that are instrumental to understanding lizard biology.

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