The Herpetological Bulletin 176, 2026: 22–24
SHORT COMMUNICATION

https://doi.org/10.33256/hb176.2224

Indirect evidence for diet and prey handling behaviour in Brosset's lizard-fingered gecko *Saurodactylus brosseti*

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Brosset's lizard-fingered gecko *Saurodactylus brosseti* is a small terrestrial gecko found in arid habitats in south-west Morocco (del Mármol et al., 2019). Although it can be abundant locally there is surprisingly little known about its biology and natural history (Schleich et al., 1996; del Mármol et al., 2019). The species is often found under rocks during the day which provides a more stable microclimate and so helps to regulate temperature and humidity (Schleich et al., 1996; Meek, 2008). Schleich et al. (1996) reported that the diet consists of small insects and spiders which are ambushed, including relatively large prey, but it is unclear what (if any) field data this is based on. Meek (2008) suggested that scorpions of the genus *Buthus* might prey on *S. brosseti*, which were never found under the same rocks but were present under other rocks in the local area. Here we describe observations which provide new information on the dietary ecology of this gecko species.

On 25 April 2025 at 14:47 h AJNA found an adult *S. brosseti* (sensu stricto; Berrilli et al., 2025) under a rock near Agadir (30.43039° N, -9.49076° W, WGS84). The gecko was found surrounded by pedipalp 'claws' and part of the metasoma including the telson (with the aculeus/stinger) of a *Buthus mardochei* scorpion (Fig. 1A), with no sign of the remainder of the scorpion. The gecko appeared to be suffering the effects of a neurotoxic envenomation consistent with what would be expected from a scorpion sting (Stockmann & Ythier, 2010), i.e. limp and unresponsive with the only movement being a regular gaping of the mouth (Fig. 1B). The following day, 26 April 2025 at 16:22 h, another adult *S. brosseti* (Fig. 2A) ran out from under a rock lifted by AJNA in the same area (30.43032° N, -9.48968° W, WGS84). Underneath this rock additional pedipalps and metasomas of *B. mardochei* individuals were found. During searches in this area over the two days we found many individuals of both live *B. mardochei* (Fig. 2B) and *S. brosseti* under rocks, but never did they occur together under a single rock.

Scorpions are often considered dangerous prey (sensu Forbes, 1989) because they have painful and sometimes lethal defensive venoms and/or powerful claws (Castilla et al., 2008). Many different animals eat scorpions, including mammals (Rowe & Rowe, 2006; Thornton & McAuliffe, 2006), lizards (Castilla et al., 2008), spiders (Gonzaga et al., 2022) and snakes (Gripshover et al., 2024), but these usually have special methods of handling such prey to avoid getting stung. This often includes removal of stings and pincers which may be discarded uneaten (Begg et al., 2003; Thornton & McAuliffe, 2006). Several lizard species, including *Coleonyx variegatus* (western banded gecko) in North America, have been documented to attack scorpions more vigorously than other prey, with rapid lunges and

Figure 1. *Saurodactylus brosseti* association with the scorpion *Buthus mardochei* - **A.** Found under a rock surrounded by pedipalp 'claws' and metasoma (including the sting) of the scorpion, **B.** The gecko was unresponsive and apparently unable to move beyond some weak twitches and a repetitive and slow gaping of the mouth, such that when picked up it simply remained positioned as it was placed

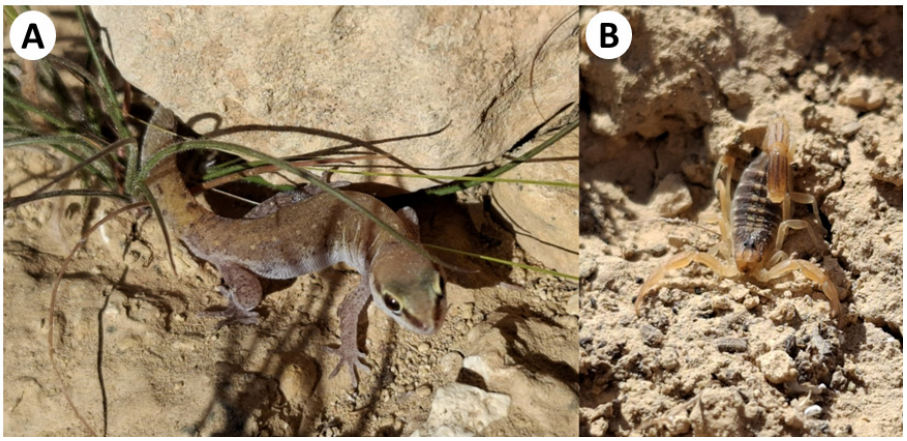

Figure 2. Portraits of the gecko *Saurodactylus brosseti* and scorpion *Buthus mardochei* - **A.** This gecko ran from under a rock we lifted, the rock also covered multiple pedipalp 'claws' and metasoma parts (always including the aculeus/sting) of *B. mardochei*, **B.** *B mardochei* was a common resident of the area, this individual was found under a rock within 2 metres of the gecko shown in **A.**

shaking which may incapacitate or dismember the scorpions quickly (Whitford et al., 2022). Some *Ptyodactylus* geckos in the Middle East are resistant to the venom of *Leiurus quinquestriatus hebraeus* (deathstalker scorpion) but still try to avoid stings by careful prey handling behaviour (Zlotkin et al., 2003). However, other gecko species from the same genus may succumb quickly to the venom, so that even closely related species may differ in their ability to predate scorpions (Zlotkin et al., 2003).

Our observations strongly suggest that *S. brosseti* feed on *B. mardochei* and are therefore able to prey on dangerous buthid scorpions which are known to be aggressive and to have a toxic venom (Stockmann & Ythier, 2010). Interestingly, this reverses the suggestion by Meek (2008) that the lack of co-occurrence of these geckos and *Buthus* scorpions under a single shelter was due to the scorpions feeding on the geckos. It may instead be the opposite reason that the geckos are regular predators on the scorpions. This, alongside the suggestion that the ability to eat relatively large prey may be an adaptation to resource-poor arid environments (Schleich et al., 1996) and the ability to feed on dangerous prey that might be subject to less competition, may help these geckos maintain high local abundance in arid environments (del Mármol et al., 2019). Nevertheless, they do seem to suffer negative effects of envenomation, and we were unable to confirm whether or not the first gecko recovered from its apparent envenomation. The occurrence of dismembered scorpion body parts within *S. brosseti* shelters suggests that these geckos likely use similar handling behaviours of dangerous prey as are used by other scorpion-feeding lizards. Although we did not directly witness such prey handling techniques in our observations, other lizard species have been shown to incapacitate or dismember scorpions with aggressive shaking of the prey, often against objects or the ground, before consumption (O'Connell & Formanowicz, 1998; Whitford et al., 2022). Our field observations add new, albeit indirect, evidence on the diet and handling of dangerous prey in *S. brosseti*, and as such contribute to the currently sparse knowledge on the natural history of this species.

ACKNOWLEDGEMENTS

We thank Wolfgang Wüster for providing access to key literature that was not readily available to us.

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Accepted: 25 August 2025