

Paroedura picta in southern Madagascar: diet and predation by the introduced *Hemidactylus frenatus*

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Paroedura Günther, 1879 is a genus of nocturnal geckos (Gekkonidae) endemic to Madagascar and the Comoro islands; sixteen species are currently recognised (Jackman et al., 2008), although several undescribed forms are known (Glaw and Vences, 2007). *Paroedura picta* (Peters, 1854) is a little-studied terrestrial gecko restricted to dry southern and southwestern Madagascar, with a snout-vent length (SVL) up to 90 mm and total length (TL) up to 155 mm (Glaw and Vences, 2007). It is tolerant of forest degradation and occurs in a range of habitat types, including urban areas (Gardner and Jasper, 2009). Although it has been studied in captivity where it is fed a range of live invertebrate prey and newborn mice (Brillet, 1986), little is known about its diet in nature. Here we present two observations of *P. picta* behaviour from an urban house in Toliara (23°21.0 S, 043°40.8 E), capital of Atsimo-Andrefana region, to contribute to our understanding of the natural history of the species.

On 11.11.2009 at 21:18, we observed an adult *P. picta* (TL approx. 130 mm) preying a large centipede (Myriapoda: Scolopendromorpha: family, genus and species unidentified) (Fig. 1). We did not observe the capture, but found the gecko when the prey item had been largely ingested, head-first: from the moment of our first observation (Fig. 1), the gecko required a further 13 minutes to completely swallow the centipede. We estimate that the centipede had approximately the same TL as the gecko, and it is noteworthy that centipedes are capable of giving a venomous bite. Our observations, therefore, provide the first evidence that *P. picta* is capable of subduing large and potentially dangerous prey in nature.

On 02.05.2011 at 19:35 we witnessed an adult *Hemidactylus frenatus* Duméril & Bibron, 1836 (TL approx. 120 mm) preying a juvenile *P. picta* (TL approx. 50 mm). We did not observe the capture, but found the animals at a height of approximately 10 cm on a wooden table leg; the prey animal had been grasped by the head, but ingestion had not commenced. We observed the geckos for about three seconds before, in attempting to move furniture that was obstructing our view, we disturbed the *Hemidactylus* which consequently released its prey which fled to shelter. As *P. picta* is one of the most terrestrial members of its genus (Glaw and Vences, 2007) and rarely, if ever, climbs, we assume the *H. frenatus* to have descended either to the floor or the base of the table leg to make the capture.

Hemidactylus frenatus has been introduced worldwide and now has the largest non-native range of its genus (Cole, Jones and Harris, 2005); it is almost certainly an introduced species to Madagascar (Vences et al., 2004). On several islands to which it has been introduced it is known to have displaced indigenous geckos by competitive exclusion (Case, Bolger and Petren, 1994; Perry et al., 1998; Cole, Jones and Harris, 2005). It is an active forager and generalist predator of arthropods (reviewed in Hoskin, 2011), but has been recorded preying the eggs, hatchlings and juveniles of other gecko species (Bolger and Case, 1992; Case, Bolger and Petren, 1994; Brown et al., 2002; Dame and Petren 2006). Such predation events, however, are thought to be rare in nature (Newberry and Jones, 2007).

Little is known about the conservation impacts of Madagascar's introduced herpetofauna (Raselimanana and Vences, 2003), and only few interactions between indigenous and introduced species have been noted. While the endemic gecko *Phelsuma kochi* has been recorded preying *Hemidactylus sp.* in the northwest of the country (Garcia and Vences, 2002), our observations, to the best of our knowledge, represent the first record of predation by an introduced reptile on an endemic Malagasy reptile. Although *Hemidactylus frenatus* is capable of invading natural habitats in Australia and the

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Figure 1. Adult *Paroedura picta* with partially ingested centipede.

Pacific (reviewed in Hoskin, 2011), it appears to be a strict human commensal in southern Madagascar and, unlike its congener *H. mercatorius*, does not appear to occur in forests (C. Gardner unpublished data). Given the differences in habitat preferences and foraging substrate of the two species, predation of *H. frenatus* on *P. picta* is likely to have a negligible effect on local populations of the latter.

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