

Lygodactylus conraui (Cameroon or Conrau's dwarf gecko): Use of edificarian habitat and anthropochory in Benin

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On 7 February 2014, GRM observed and photographed an adult *Lygodactylus* sp. (Fig. 1) on the outside wall of a building of the research station of the International Institute of Tropical Agriculture (IITA) and Africa Rice Center (AfricaRice) in Godomey, Cotonou, Benin (6.42°N 2.33°E). This or another adult was again observed in the same place on 10 February and 14 March. On the first of these two later dates, it was seen in close proximity to a phenotypically rather different individual (Fig. 2). The first animal was originally tentatively identified (by GRM) as *L. grotei* Sternfeld, 1911 on the basis of colouration, and this was 'confirmed' by owners of pet *Lygodactylus* in Europe; subsequently, however, all photographed individuals have been identified as within the natural phenotypic variation of *L. conraui* Tornier, 1902 in West Africa (J.-F. Trape, personal communication).

Lygodactylus conraui is widespread from Sierra Leone to Cameroon in dense forest areas (Trape et al., 2012) and may also occur in Equatorial Guinea (Bauer et al., 2006). Although considered a forest species (Bauer et al., 2006), Trape et al. (2012) say "it is sometimes locally abundant in anthropogenic environments – especially in Accra, Ghana – where it can be found in large numbers in gardens, plantations and on various constructions". The species first appeared in and around residences in Cotonou (Les Cocotiers area, 6.21°N 2.23°E) in the late 1990s (GG personal observation), and has apparently become established in and around at least two office buildings at the IITA–AfricaRice campus.



Figure 1. *L. conraui*, IITA–AfricaRice research complex, February 2014.

Meanwhile, *L. conraui* has also been recorded (by GG) on *Acacia auriculiformis* A.Cunn. ex Benth., 1842 in an area used for car-parking adjacent to one of the offices where the species has taken up residence at IITA–AfricaRice. Thus, the species is not restricted to the buildings once it takes up residence there.

One of us (GG) has observed *L. conraui* several times on his car during the journey between his residence and the research station. The surprising behaviour was that the geckos did not seem to be particularly concerned about being on a moving object. They did not attempt to leave the car and remained 'calm' during short bursts of speed; they always arrived safely at the research station. Thus, at least for short distances, anthropochory (dispersal via human intervention, albeit unwittingly) may be a practical mode of dispersal for this species.

This anthropochory is of particular interest given the history of the IITA–AfricaRice site. The first buildings of the research station were built by IITA in Godomey in the 1980s, when Godomey was very much an isolated area of farmland well outside of the city of Cotonou. The first staff moved in in 1987 when there was just one house and a water-pumping station between the research station and the nearest main road (a little over 2 km away). Since that time, like so many other African cities, Cotonou has expanded considerably and engulfed a good number of outlying 'villages', which are now effectively quartiers of 'Greater Cotonou'. By about 1991, the



Figure 2. *L. conraui*, IITA–AfricaRice research complex, February 2014.

main access road to the station was half built up and local urbanisation was complete by the mid-2000s. It is perhaps surprising that the dwarf gecko has apparently moved from the city to the research station (assuming that ad-hoc observations are to be believed) rather than the other way around. But then, Godomey has not been forested for many decades.

Very young offspring of *L. conraui* have been observed inside GG's house, indicating that this species can both breed within houses and find enough food there to survive. Although we have been unable to find reports of any studies on the natural diet of this species, Trape et al. (2012) state that it feeds on small insects; moreover, both *L. chobiensis* FitzSimmons, 1932 and *L. capensis* (A. Smith, 1849) feed almost entirely on arthropods in Kafue Flats, "a maze of swampy channels and lagoons" (Wikipedia contributors, 2014), Zambia (Simbotwe, 1983). The most abundant food source inside GG's house is ants (Hymenoptera: Formicidae). At this site, the dwarf gecko species cohabits with house gecko (*Hemidactylus* sp., most likely *H. angulatus* Hallowell, 1852, *H. albivertebralis* Trape & Böhme, 2012 or *H. mabouia* (Moreau de Jonnes, 1818), but potentially *H. albituberculatus* Trape, 2012 or *H. fasciatus* Gray, 1842; see Trape et al., 2012; Bauer et al., 2006). *Hemidactylus* is a potential predator of *L. conraui*: although *Hemidactylus* typically prey almost entirely on arthropods (e.g. Avery, 1980; Rocha & Anjos, 2007), *H. frenatus* is known to practise cannibalism (Galina-Tessaro et al., 1999); whether this is simply cashing in on an abundant food source or protection of hunting territory against conspecifics is not known. Either way, from cannibalism it is only a short step to predation on a smaller similar species, especially given the size difference between *Hemidactylus* and *L. conraui* (the former full-grown snout-to-vent 6–19 cm depending on species; the latter just 4 cm, and a small fraction of that as neonate; Trape et al., 2012). The fact that the two species can coexist sympatrically confined in the same building suggests that they exhibit niche partitioning. It seems likely that partitioning is involved because (typical of their respective genera) *L. conraui* is definitively diurnal (under normal conditions), whereas *Hemidactylus* is exclusively nocturnal. This requires further investigation.

There is a question as to why a forest species is present in the Dahomey gap, an area known to lack any continuous forest cover as compared to the remaining countries where it occurs (Neuenschwander et al., 2011). Whether the adaptation to edificarian habitat is comparatively more often observed in Benin than in countries with a higher prevalence of dense forest areas would perhaps be worth pursuing.

ACKNOWLEDGEMENTS

We thank Jean-François Trape for reviewing all the photographs and confirming that the geckos were all within the phenotypic range of *L. conraui*. We also thank Simon Chater, Peter Neuenschwander and two anonymous reviewers for commenting on earlier drafts of this paper.

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Accepted: 1 February 2015