GEKKONIDAE

Afrogecko porphyreus
(Daudin 1802)
Marbled African Leaf-Toed Gecko

REPRODUCTION

E. HESTER, A. SCHAEFER & A. M. BAUER

Afrogecko porphyreus is distributed widely in temperate regions of South Africa, especially in the Western Cape (Branch 1998, 2014) and is generally the most commonly encountered species of gecko along the south coast of South Africa, especially in edificarian habitats, where they may take advantage of artificial lighting that attracts prey (Branch 1998; Perry et al. 2008). Oviposition in this species occurs chiefly in summer months (Branch & Hanekom 1987) and, as in most gekkonids, clutch size is two. In natural habitats eggs may be laid under stones (FitzSimons 1943), in rotting tree stumps (Branch & Hanekom 1987), under tree bark, in rock cracks (Branch 1998) or in other protected areas. However, in commensal situations, eggs may be laid in any protected location, including amongst rubbish (Branch 1998). We report on an amusing case of an oviposition site at Storms River Village, Western Cape Province (33°58'15" S, 23°53'00" E) in an anthropogenic environment. In February 2017 one of the authors (EH) removed a beaded-wire chameleon (total length approximately 30 cm, of which the tail was half) that had been hanging beneath a pergola at a private residence. The body of the wire lizard was found to contain the shells of three hatched eggs, two near the center of the body and one near its tail base (Fig. 1). Egg size was within the range of 7.0–8.0 X 8.7–11.0 mm previously reported for *A. porphyreus* (FitzSimons 1943; Branch & Bauer 1995; Branch 1998) but out of range for the smaller *Lygodactylus capensis* and larger *Hemidactylus mabouia*, the only other climbing geckos occurring in the area, and both introduced. The spacing of wires on the underside of the lizard would have likely admitted the body of the female only at the larger gaps. The wire lizard provided an ideal oviposition site as the eggs were not visible from the dorsal side, were protected from predators and were exposed to good airflow. Whether one female laid all three eggs (presumably as parts of more than one clutch) or the eggs were those of more than one female is unknown, as communal egg-laying is common in the species (FitzSimons 1943; Branch & Hanekom 1987; Branch 1998).

REFERENCES

BRANCH, W. R. 1998. *Field Guide to the Snakes and other Reptiles of Southern Africa*. Third Edition. Struik Publishers: Cape Town.

BRANCH, W.R. 2014. *Afrogecko porphyreus*. P. 100 in BATES, M.F., BRANCH, W.R., BAUER, A.M., BURGER, M., MARAIS, J., ALEXANDER, G.J. & DE VILLIERS, M.S. (eds). 2014. *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. Suricata 1*. South African National Biodiversity Institute, Pretoria.

BRANCH, W.R. & BAUER, A.M. 1995. Herpetofauna of the Little Karoo, Western Cape, South Africa with notes on life history and taxonomy. *Herpetological Natural History* 3 (1):47-89.

BRANCH, W.R. & HANEKOM, N. 1987. The herpetofauna of the Tsitsikamma Coast and Forest National Parks. *Koedoe* 30: 49-60.

FITZSIMONS, V.F. 1943. The lizards of South Africa. *Memoirs of the Transvaal Museum* 1: i-xv + 1-528 pp., pls. I–XXIV, 1 folding map.

PERRY, G., BUCHANAN, B.W., FISHER, R.N., SALMON, M. & WISE, S.E. 2008. Effects of artificial night lighting on amphibians and reptiles in urban environments. Pp. 239-256 in MITCHELL, J.C., JUNG BROWN, R.E. & BARTHOLOMEW, B. (eds.) *Urban Herpetology*. Herpetological Conservation 3. Society for the Study of Amphibians and Reptiles, Salt Lake City.

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Figure 1. Ventral view of body and anterior portion of tail of wire lizard in which three hatched *Afrogecko porphyreus* eggs were found at Storms River Village.

LACERTIDAE

Latastia longicaudata
(Reuss, 1834)
Common long-tailed Lizard

DIET

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On 31 March 2017, during a survey of the fauna and flora of the Sibiloi National park,

an adult *Latastia longicaudata* (Reuss, 1834) was observed swallowing a highly venomous scorpion *Parabuthus liosoma* (Ehrenberg, 1828) in bushy vegetation along a dry riverbed about 22 km inland of the eastern shore of Lake Turkana, Marsabit County, northern Kenya (N 4° 0'5.69"; E 36°24'41.49"; 460 m a.s.l).

Very little is known about the feeding behaviour of *L. longicaudata* and its selection of prey. In general, this species' diet is reported to consist of insects and other arthropods (Spawls et al. 2002). The only empirical study known to us on diet of *L. longicaudata* was conducted in central Kenya (Isiolo District) during the dry season (July, August) of 1987 (Hardy & Crnkovic 2006). Here, stomach analyses revealed that 96% of prey items consumed by *L. longicaudata* (N = 7) were termites and another 0.7% were ants (the rest comprised Orthoptera, Coleoptera larvae (Scarabaeidae) and more Hymenoptera (wasps); Hardy & Crnkovic 2006).

Lizards and scorpions have been reported to be involved in cross predation, meaning they belong to taxa eating each other over the course of ontogenetic development (McCormick & Polis 1982). Lizards may even form important parts of the diet of scorpions, particularly in arid regions (Castilla et al. 2009). McCormick & Polis (1982) reported nine different lizard genera (both diurnal and nocturnal) that get preyed on by scorpions of the families *Scorpionidae* and *Buthidae*. On the other hand, it was shown in a review, that for example 12 species of gekkonid lizards had up to 15% scorpions in their diet volume (Polis et al. 1981). For the Sinai Fan-fingered gecko (*Ptyodactylus guttatus* Heyden, 1827), it was shown not only that they preyed upon the highly toxic Israeli yellow scorpion *Leiurus quinquestriatus hebraeus* (Birula, 1908), but also they appeared to be physiologically tolerant towards its venom as opposed to the allopatric *Ptyodactylus puiseuxi* Boutan, 1893 (Zlotkin et al. 2003). Lizards of the family Lacertidae both occasionally eat and get eaten by scorpions (Pianka et al. 1979, Huey et al. 2001, Castilla et al. 2008, 2009, Edwards et al. 2013). One Kalahari lacertid, *Nucras tessellata* (Smith, 1838) may be specialized in feeding on scorpions, at least during certain periods of the year (Huey & Pianka 1981, van der Meer et al. 2010, Edwards et al. 2013). In extremely arid or otherwise depauperate environments with limited arthropod prey, scorpions may form an important prey source to lizards given that they are large and considered to be energetically rich prey (Pianka, 1986). It may well be that as a result of the current ongoing drought in northern Kenya, *L. longicaudata* was forced to scavenge for alternative, highly nutritious prey items such as scorpions.

When we detected the *L. longicaudata* individual with the scorpion that day at 3.30 pm in the arid savannah of Sibiloi National Park, the scorpion was already missing its head and most of its legs (Fig. 1A). We cannot be sure if the lizard killed the scorpion and already removed the legs or if the scorpion was found dead and subsequently devoured. Studies on *Parabuthus liosoma* from Isiolo (Kenya) have shown that this species carefully ponders before using the stinger, and stinger use decreases depending on the resistance and size of the opponent (Rein 1993). It may well be that *L. longicaudata* was able to overpower the scorpion. In any case, despite the remarkable size of the scorpion, in the end the lizard managed to swallow its remains (Figs. 1B-D). Whether *L. longicaudata* is able to kill a live *Parabuthus liosoma* remains to be confirmed.

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Figure 1 A-D: *Latastia longicaudata* with *Parabuthus liosoma* shortly after we discovered it (A), handling and re-arranging the scorpion (B, C) and finally swallowing it (D).

REFERENCES

CASTILLA, A.M., HERREL, A., & GOSÁ, A. 2008. Mainland versus island differences in behaviour of *Podarcis* lizards confronted with dangerous prey: the scorpion *Buthus occitanus*. *Journal of Natural History* 42: 2331-2342.

CASTILLA, A.M., HERREL, A., & GOSÁ, A. 2009. Predation by scorpions (*Buthus occitanus*) on *Podarcis atrata* from the Columbretes Islands. *Munibe* 57: 299-302.

EDWARDS, S., TOLLEY, K.A., VANHOOYDONCK, B., MEASEY, G.J., & HERREL, A. 2013. Is dietary niche breadth linked to morphology and performance in Sandveld lizards *Nucras* (Sauria: Lacertidae)?. *Biological Journal of the Linnean Society* 110: 674-688.

HARDY, L.M. & CRNKOVIC, A.C. 2006. Diet of Amphibians and reptiles from the Engare Ondare River Region of Central Kenya, during the dry season. *African Journal of Herpetology* 55: 143-159.

HUEY, R.B., & PIANKA, E.R. 1981. Ecological consequences of foraging mode. *Ecology* 62: 991-999.

HUEY, R.B., PIANKA, E.R., & VITT, L.J. 2001. How often do lizards "run on empty"?. *Ecology* 82: 1-7.

MCCORMICK, S.J. & POLIS, G.A. 1982. Arthropods that prey on vertebrates. *Biological Reviews* 57: 29-58.

PIANKA, E.R. 1986. *Ecology and natural history of desert lizards*. Princeton University Press, New Jersey, USA, 208 pp.

PIANKA, E.R., HUEY, R.B. & LAWLOR, L.R. 1979. Niche segregation in desert lizards. Pp. 67-115. In: HORN, D. J., MITCHELL, R. & STAIRS, G. R. (Eds.), *Analysis of ecological systems*. Ohio State University Press, Columbus, Ohio, USA.

POLIS, G.A., SISSOM, W.D. & MCCORMICK S.J. 1981. Predators of scorpions: field data and a review. *Journal of Arid Environments* 4: 309-326.

REIN, J. 1993. Sting use in two species of *Parabuthus* scorpions (Buthidae). *The Journal of Arachnology* 21: 60-63.

SPAWLS, S., HOWELL, K., DREWES, R. & ASHE, J. 2002. *A field guide to the Reptiles of East Africa. Kenya, Tanzania, Uganda, Rwanda, and Burundi*. Princeton University Press, Princeton, New Jersey, 543 pp.

VAN DER MEER, M.H., WHITING, M.J. & BRANCH, W.R. 2010. Ecology of Southern African Sandveld Lizards (Lacertidae, *Nucras*). *Copeia* 2010: 568-577.

ZLOTKIN, E., MILMAN, T., SION, G. & WERNER, Y.L. 2003. Predatory behaviour of gekkonid lizards, *Ptyodactylus* spp., towards the scorpion *Leiurus quinquestriatus hebraeus*, and their tolerance of its venom. *Journal of Natural History* 37: 641-646.

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TESTUDINIDAE

Homopus signatus
Gmelin, 1789
Speckled Padloper

TWO-EGG CLUTCHING

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On 23 september 2015, I received a male and female Speckled Padloper, imported from South Africa for the conservation-breeding programme of the Homopus Research Foundation. This couple was acclimated from southern to northern hemisphere conditions at my location (Belgium). At the time of import, both animals were fully grown, the female weighed 200 g (SCL 107.3 mm, SH 47.5 mm and SW 81.8 mm) and the male 99 g (SCL 92.0 mm, SH 34.5 mm and SW 63.2 mm). Fully grown speckled padlopers will only grow further at a very slow rate. On 22 October 2015, the female of this single-egg producing species (e.g., Loehr et al., 2011) laid her first egg in captivity. The egg weighed 16.7 g and measured 35.5 by 28.1 mm. The egg was buried at shallow depth, at a site that was partly covered by foliage from a plastic plant. Body mass of the female was 238 g on 22 November 2015, 223 g on 26 December 2015 and 230 g on 21 February 2016.

I frequently observed mating behavior from December to April in 2015-2017. Additional single egg clutches were discovered at the same egg-laying site on 20 May 2016 (egg buried and weighing 13.2 g), 16 June 2016 and 16 January 2017 (egg buried, probably laid several days before it was discovered, weighing 16.7 g and measuring 35.7 by 28.6 mm). The egg-laying site was checked on 20 February 2017, but no eggs were found.

On 23 February 2017, a two-egg clutch was discovered at the egg-laying site. Both egg were only partly buried. The female was sitting next to the egg-laying site and appeared exhausted. She moved very little when picked up and weighed 212 g. One egg weighed 15.5 g and measured 35.4 by 26.9 mm. The second egg weighed 14.0 g and measured 31.7 by 27.8 mm. Both eggs appeared fresh, the egg-shells were still moist and the eggs still had their pinkish egg-shell coloration. When candled, both eggs showed that the egg yolk had not set. On 27 February, both eggs had developed a clear, broad white band (approximately 1.5 cm in width), indicating that they were developing. On 3 March, candling revealed that the egg yolks in both eggs had set and by 14 March blood vessels had developed in both eggs.

All published information on reproduction in Speckled Padlopers reports single-egg clutches, with the exception of two cases where a small, marbled-sized egg was