First Record of Intraspecific Oophagy in the common Leaf-tailed Gecko *Uroplatus fimbriatus* (SCHNEIDER, 1797)

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Oophagy is a specific behaviour that occurs in a large variety of predatory and opportunistic species in the animal kingdom (Denoël & Demars, 2008). Oophagy is the act of consuming the eggs or the undeveloped foetuses of a prey species. This behaviour can be broken down into two more specific types of which both can be observed readily within reptiles. The first of these is interspecific oophagy which is defined as the predation of eggs of another species (Michell & Groves, 1993). Examples of this within reptiles are snakes of the genus *Dasypeltis*, which have evolved to feed exclusively on the eggs of birds (Gartner & Greene, 2008). The second branch is intraspecific oophagy and is described as the consumption of the eggs and embryos from the same species, including a female's own eggs and embryos (Michell & Groves, 1993). Intraspecific oophagy is technically cannibalism (Miaud, 1993) with the behaviour being recorded in a number of species within Gekkonidae but not yet within the genus *Uroplatus*. We present the first evidence for this behaviour which was observed in a captive female during the June of 2015.

The female *Uroplatus fimbriatus* (SCHNEIDER, 1797) was approximately 4 years of age at the time of the incident being reported. At the time of observation she was housed with her mate, of a similar age. The geckos were fed twice a week during November-February and five times a week at other times of the year. This was a staple diet of gut-loaded 5th instar locusts and brown crickets, dusted with Vetark Nutrabol with the diet being supplemented with extra calcium (a pinch or two) during the summer months. The vivarium was a clear acrylic set-up designed for arboreal species with a cork bark panel on the back, with minimal ventilation to maintain a high level of humidity. The vivarium itself was approximately 76 cm by 76cm being 122 cm tall. Internally the décor consisted of 5 cm deep coarse orchid bark and sphagnum moss substrate, used to help maintain humidity. Vertical, diagonal and horizontal cork branches with varying diameters were fixed in place as climbing apparatus. Artificial foliage was also added to increase the surface area for activity and provided cover to minimise stress, when walking past.

There was no water bowl; instead geckos were misted every morning and evening with lukewarm water allowing them to drink naturally from surfaces within the vivarium. To maintain the abiotic environmental conditions a 'Reptile radiator' was mounted on the enclosure ceiling which was controlled with a 'Habistat pulse proportional thermostat'. The basking spot (at the top of the vivarium) was maintained at 86-88 °F and the cold spot (in line with the lowest perch) maintained at 75 °F were both monitored with digital thermometers. Finally, a 2% UVB tube light was used and controlled during a defined

photoperiod set on a 12 hour light cycle. A night time drop in temperature was to 65 °F Fahrenheit for 4 months between November and February. During this period humidity was reduced by misting geckos only once in the evening, skipping the morning routine. The 12 hour light cycle was maintained but overall there was a reduction in ambient light through the reptile room windows.

The pair has successfully bred in the past with 2-3 clutches of viable eggs being obtained for 3 years before the incident, although none of these eggs made it through the incubation period. The pair failed to successfully breed again after the clutch mentioned in this report was laid. The female unexpectedly dropped a pair of eggs whilst a Zoo Med Reptibator Egg Incubator was being prepared as it was not known that the female was due to lay imminently. The eggs were dropped away from the nesting area that had been specifically added to the enclosure for the female's use. The nesting area was made from a medium sized Tupperware container (30 cm long, 30 cm wide and 20 cm deep) with hole cut into lid, acting as an entry point. This was positioned at the back of the vivarium to give the female some security when it came time to laying. The container was filled 15 cm deep with damp vermiculate with a thin layer of moss on top. The moss was used as an indicator that the egg laying medium had been disturbed, alerting the breeder that eggs may have been laid at a glance. This set-up had been used on numerous previous occasions and the female readily deposited her eggs within the nesting container.

It took between 30 and 45 minutes for the first of the eggs to disappear, after they had been laid. After returning to collect the eggs, the second of the eggs was in the mouth of the female. The two eggs of which the female consumed were likely to be fertile as both were bright in colour and not misshapen, indicating that they were not 'slugs'. There were no changes in the husbandry of the geckos between any of the times that the female successfully laid eggs; the pair also had minimal levels of disturbance. The act of ingesting infertile eggs has commonly been reported within reptiles (Michell & Groves, 1993). The infertile eggs of *U. fimbriatus* are often attached to a tree or simply dropped to the ground (Svatek & van Duin, 2001), which is the behaviour expected if the eggs were indeed infertile.

In the all-female gecko species *Lepidodactylus lugubris*, individuals have been observed consuming their own eggs after they have been disturbed (Michell & Groves, 1993). This is unlikely to be the case in this incident as the animals were not disturbed until after the Zoo Med Reptibator Egg Incubator had been assembled. In other species of gecko, females consume their infertile eggs in order to provide themselves with energy and minerals (Perry & Brandeis, 1992). Again, this is unlikely to have been the contributing factor which led to the unusual observation as the female was well fed and calcium was supplemented within the diet. Intraspecific oophagy can take place as an unusual form of parental care when performed by females on their own eggs (Michell & Groves, 1993).

There are multiple hypotheses attempting to explain intraspecific oophagy, each helping to explain different circumstances (Michell & Groves, 1993). Some of these have stood up to scrutiny, for example, captive females of several species of *Phelsuma* ingested their own eggs after they were damaged experimentally (Osadnik, 1984). Interestingly, brooding

captive females of the prairie skink (*Eumeces septentrionalis*) have been observed ingesting introduced rotten eggs or eggs that have been swabbed with the contents of a rotten egg (Somma, 1989). These observations may suggest that the behaviour is driven by the need of the brooding females to avoid predation by removing the rotten eggs so the scent does not encourage predators to the female, or to help keep nesting sites clean and free from disease. In other species, however, the behaviour may be linked to a dietary deficiency of calcium or other nutrients that females are able to reabsorb by consuming eggs she has laid. There is the possibility of interplay between these factors which may cause the behaviour to be exhibited in other species (Michell & Groves, 1993).

It may never be known why the *U. fimbriatus* female mentioned in this report consumed her own eggs, but maybe future reports will help to shed light on the mechanisms of the behaviour.

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