

PHELSUMA STANDINGI: NOTES ON CAPTIVE REPRODUCTION

PAUL HOSKISSON

87 Gordon Drive, Liverpool, Merseyside, L14 7PX

INTRODUCTION

Standing's gecko, is the largest living species in the Genus *Phelsuma*, only *Phelsuma madagascariensis grandis* can equal the adult length but is not nearly as thick set. *Phelsuma standingi* has recently received interest from conservation groups who have acknowledged the population declines in this species, due mainly to charcoal burners destroying vital habitat in south-western Madagascar (McKeown, 1993).

The main reason for these notes is to provide my experiences with *P. standingi* to other herpetologists who may be lucky enough to possess stocks of this species, in a hope that a viable captive population can be established with a view to ensuring survival of this species. The formation of a studbook for Standing's Day Gecko is currently being compiled by Edinburgh Zoo in order to help ensure their survival.

DESCRIPTION

Phelsuma standingi was described in 1913 by Methuen & Hewitt. Loveridge (1942), reviews the description which appears to be of a juvenile specimen as he makes references to the dark transverse barring which is characteristic of young specimens. The paratype Loveridge reviews has a total length of 149 mm (88+61 mm) which also indicates a juvenile/sub-adult specimen, although he comments on the appearance of a regenerated tail.

Juvenile colouration consists of a lime green head which is patterned with brown reticulations, the dorsal surface of the torso is grey with dark brown transverse bars. The tail has blue bars on a blue/grey background. Adult colouration is not as spectacular as the juveniles; again the head is green, marked with brown, the bars on the torso fade with age, the tail remains blue/grey in colour. The ventral surface is whitish with spotting present around the chin/throat region. Maximum adult size is around 280 mm, most specimens being around 240-250 mm region. Hatchlings are reported by Zimmermann (1984) to be 66 mm total length.

This species can be very nervous in captivity, therefore plenty of shelters should be provided for specimens. This species can also be very aggressive to members of its own species, so sexual pairs should only be housed together in my experience.

Phelsuma standingi occurs in south western Madagascar. There are five localities given by Glaw & Vences (1994), one of which (Maroamalona) coincides with the type specimen collection, the other localities being Bas-Fiherenana, N. Foliara, Ifaty, and north east Sakaraha. The status of wild populations is yet to be assessed but it is hoped to be studied in the near future (Blake, 1994).

HOUSING

Adult pairs of this taxon are housed in 100 H x 50 L x 50 W glass fronted wooden vivaria. They are provided with access to Tru-Lite, full spectrum bulbs at all times and are maintained at temperatures of around 30°C as a daytime high temperature dropping to 20°C at night.

SEX DETERMINATION

P. standingi has in some cases proved to be a problematic taxon to sex, both gender showing varying degrees of secondary sexual characteristics.

Endolymphatic (chalk) sacs of females which in many *Phelsuma spp* provide a fairly good indication of the sex of an individual, are in *P. standingi*, obscured by the large jowls. Femoral pores, probably the best secondary sexual characteristic for assigning an individual to a sexual group in most species of Day Gecko are very variable in this taxon, varying from present to completely absent and any degree between these two extremes. Yellowing around the cloacal region is a very good indicative feature, present in males of many of the larger *Phelsuma* species, again may be present or absent in *P. standingi*. Hemipenial bulges present in males are also a good indicator of sex, although this characteristic may be obscured if a specimen is particularly well fed.

As can be seen from the above notes *P. standingi* can be difficult to assign to a sexual group, this is especially so with juveniles, although with some experience the task becomes easier.

COPULATORY BEHAVIOUR

The observation of copulatory behaviour in this taxon is difficult to observe due to their nervous disposition. I have observed mating behaviour on two occasions, and a summary is provided below.

Copulation in this species, in my observations, is initiated by the male, by his movement towards the female. The approach by the male is slow and deliberate. As he nears the female his movements become jerky and side to side head movement occurs. If the female is receptive this side to side head movement is mirrored by her after which she will remain motionless. The male then moves close enough to lick her flanks and tastes her cloaca. The male then aligns himself alongside her and her neck is gripped. The grip lasts until copulation has ceased. The matings observed by myself lasted up to eighteen minutes.

STIMULUS

The stimulus for breeding in *P. standingi* appears to be a cooling period; this usually lasts around three months in my vivaria. This cooling period consists of a day time high (DTH) temperature of 25°C (usually lower) and a night time low (NTL) temperature at 15°C. These temperatures may seem a little extreme but in my experience copulation does not occur at significantly higher temperatures. McKeown (1993) states that night time drops in temperature are the main stimulus for breeding in this species. More extensive work needs to be carried out to provide conclusive evidence that the night time drop is the stimulus, as in the past reproduction in this species has been rather "hit and miss".



Plate 1. Typical clutch of eggs laid as a pair. Note egg with indentation, which hatched perfectly well. 18 mm diameter. No additional moisture is required during incubation.



Plate 2. Neonate *P. standingi*

EGG PRODUCTION

After the resumption of normal day/night temperature cycles (DTH 30°C: NTL 18°C) the first clutch of two eggs is laid within one month and each subsequent clutch about every 21 days. The eggs are removed from the parents and incubated in a crude incubator maintaining the eggs between 26 and 30°C. The reason for this fluctuation is to allow a more natural incubation for the eggs and comparisons of my hatchling data and that reported by Zimmermann (1983), whose eggs were incubated at a constant 30°C, show an average 1.5 cm increase in neonate size. Incubation times at the above temperatures average 77 days.

CARE OF NEONATES

Upon hatching, the neonates are transferred to ventilated plastic cages furnished with a folded piece of tissue and are maintained at the same temperatures as the adults. During their first 10 days of life they do not respond to live prey, but instead prefer to lick fruit. After the first week or so they begin to accept live prey such as *Drosophila*, *Aceta*, and *Galleria*. Growth in the first 4 months is very rapid after which it slows down until adult size and maturity are reached at around 18 to 24 months.

The use of vitamin supplements is particularly important at this critical stage of development and a regime of 2 out of every 3 feeds dusted with vitamins (Nutrobal, Vetark) has proved to be adequate. A problem which has been observed in *P. standingi*, as well as in other large *Phelsuma* is the large deposits of fat at the base of the tail without sufficient pelvic calcification, thus when the gecko adopts their usual head down, vertical position the tail is unable to be supported and falls at right angles to the body. The author has never encountered this problem with his own animals, and believes this to be due to overfeeding, especially of fatty foods to young and sub-adult geckos without proper care towards vitaminisation of food. The access of the specimens to U.V. light in the form of full-spectrum bulbs should also eliminate calcium metabolism disorders such as rickets.

COMMENT

Communications with various herpetologists have indicated that this taxon can be problematic in its propagation and I hope that these notes can be of assistance to other herpetologists experiencing problems and any correspondence regarding this species is welcomed by myself.

REFERENCES

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