

A Case of Hermaphroditism in the Ridge Tailed Monitor (*Varanus acanthurus*)

DANNY BROWN

92 Bulic Ct.

Glasshouse Mountains, Queensland, Australia, 4518

geckodan@bigpond.com

Hermaphroditism is generally considered rare amongst higher vertebrates. Herein I describe a case of hermaphroditism in a monitor lizard, *Varanus acanthurus*.

The individual lizard was part of my own private collection. It was an estimated 3 years of age and was obtained by legal wild collection from the Port Hedland area of the Pilbara in Western Australia.

It was one of 5 specimens kept in two groups (1.2 and 1.1) in large plastic tubs with a sand substrate, stacked hollow bricks for shelter and a heat lamp providing a temperature gradient of 70 °C at the basking site to 28 °C at the cool end of the enclosure. The enclosures are heated for 14 hours per day in summer and 4 hours per day in winter. This particular animal had been in my care for 5 months but had recently been placed with a new larger male (as the previous male was at least 50% smaller than her).

In appearance, this individual was considered quite large (26 cm snout to vent length [SVL], 54 cm total length [TL]) and was somewhat masculine in physical robustness. It had however, very small, blunt post cloacal spurs. Radiography was utilized in order to confirm gender and the lack of hemipenial ossifications (hemibacula) in an animal of this size suggested a female gender.

As the ambient weather conditions started to warm up, reproductive activity was observed in my 1.2 pairing so introduction of this male and female was considered appropriate. Within this 1.1 pairing, the male began to show interest in mating within hours of introduction and he was seen mounting the female on numerous occasions, but hemipenial penetration was never observed. The female appeared to submit to courtship advances and mating attempts. At that time, I had assumed that the lack of copulations may have been due to a size disparity between the two as the male was still considerably smaller (21 cm SVL, 44 cm TL) than the female and I had presumed that the male may have had difficulty grasping the neck and positioning the cloaca in such a large female. Oddly, on at least 5 occasions I noticed that the 'female' mounted the male, and I considered that this may have been due to dominance interactions.

Towards the second week of November, the male was continuing to show mating behavior but unusually was also showing considerable aggression towards the female in the form of biting, particularly about the face and forelimbs. The male was separated from the female for 1 week after a particularly aggressive attack that left the female with bleeding wounds to her forelimb. After the female's wounds had healed sufficiently, the male was returned to the enclosure and showed little immediate aggression but several attempted matings were recorded over the next 48 hours. Unfortunately, soon after, the female was found dead in the enclosure with a large wound on the back of the neck that had partially severed the dorsal aspect of the neck resulting in severe bleeding and death.

Owing to the fact that many matings had occurred, a post-mortem was performed in order to determine if there was any evidence of current or prior ovulation. This post-mortem revealed the presence of an active testicle on the right side of the body and an inactive ovary, oviduct and uterine tissue on the left (Figure 2). It was difficult to ascertain the caudal insertion of the uterine tissue as it was obscured by perirenal fat. Otherwise the gross post-mortem revealed no further abnormalities in body organs. The area in the expected vicinity of the hemipenes was dissected and revealed two normal sized hemipenes. The

hemipenal support structures (hemibacula) were present but were not ossified and firm, instead having the consistency of soft rubber (such as inner tube rubber).

It was presumed that the hermaphrodite possessed enough recognisable female characteristics (from a male monitor's perspective) to induce vigorous mating but also enough male characteristics to induce aggressive behaviour. The "female" behaved as such for most of the time but, on occasions, showed typically male behaviour such as mounting which ultimately lead to its demise.



Figure 1. The "female" *Varanus acanthurus*

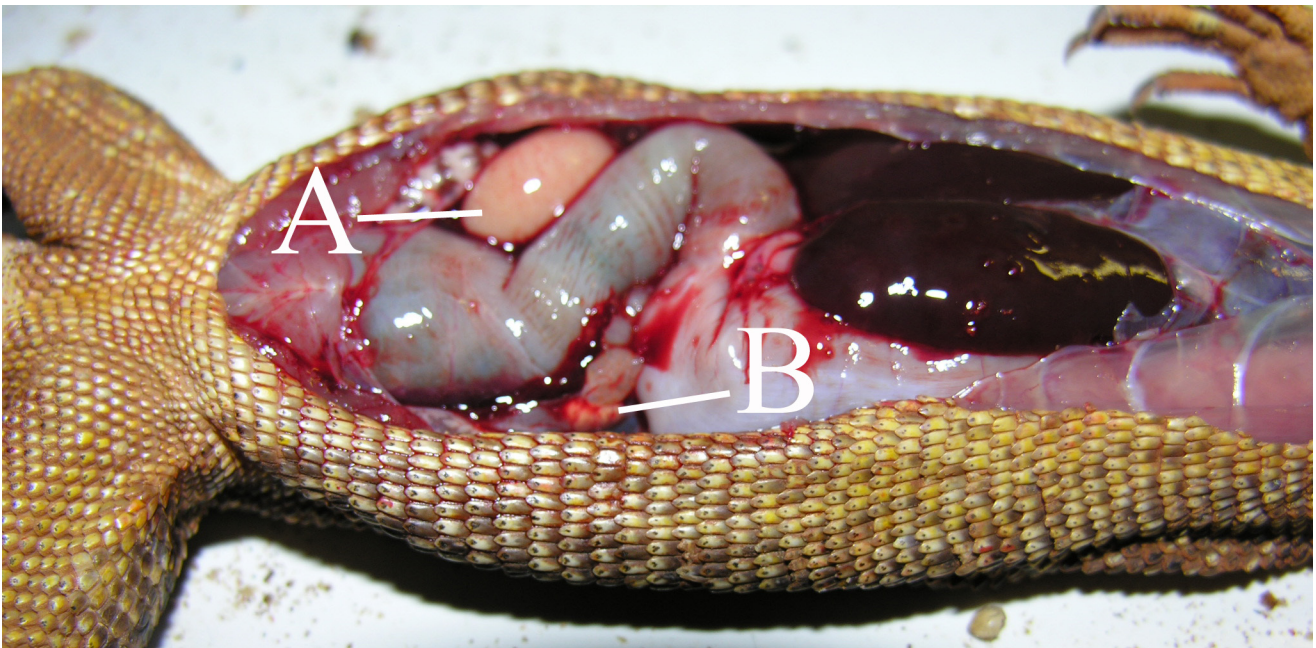


Figure 2. Post-mortem findings. Note the large pale oval testicle (A) and small pink ovary (B) with the oviduct and uterine structures trailing caudally.