

A NEW SPECIES OF *DIPLODACTYLUS* (REPTILIA:GEKKONIDAE) FROM THE ALLIGATOR RIVERS REGION, NORTHERN TERRITORY

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Summary

KING, M., BRAITHWAITE, R. W. & WOMBEY, J. C. (1982). A new species of *Diplodactylus* (Reptilia:Gekkonidae) from the Alligator Rivers Region, Northern Territory. *Trans. R. Soc. S. Aust.* **106**(1), 15-18, 30 June, 1982.

A previously undetected diplodactyline gekko which lives in a specialized habitat in Northern Australia is here described as *Diplodactylus occultus* sp. nov. Details of chromosome morphology and habitat are provided.

KEY WORDS: Reptilia, Gekkonidae, *Diplodactylus*, New species, Chromosome morphology, habitat.

Introduction

The Alligator Rivers Region of tropical northern Australia has received considerable attention from biologists over the past decade. The climate of this region is extreme, being characterized by an intense monsoonal wet season of about four months duration (December-March), followed by a dry season with almost no rain. The mean annual rainfall is approximately 1300 mm. The area is also geographically diverse, consisting of a heavily dissected and uplifted sandstone plateau which terminates at an escarpment on the edge of an extensive coastal plain (over 100 km wide). A series of sandstone massifs also occur as outliers of the plateau on the plain. A series of large rivers arise in the sandstone country and cut across the coastal plain, which is itself composed of a series of soil and vegetational zones (Story *et al.* 1969). The higher areas between the rivers and associated flood plains are largely covered with low woodland.

Recent biological surveys have shown that a number of vertebrate species are endemic to this region, many being restricted in their distribution to the escarpment and its outliers. Amongst the reptiles, *Python oenpelliensis* Gow, *Ctenotus arnhemensis* Storr, and a series of gekkonids (*Pseudothecadactylus lindneri* Cogger, *Gehyra pamela* King, and an undescribed *Oedura*) occur on the Arnhem Land escarpment.

The present paper describes a new species of ground-dwelling diplodactyline gekko recently collected in the woodlands of the West Alligator-Wildman Rivers area during the CSIRO Kakadu faunal survey.

Materials and Methods

Three specimens of the undescribed *Diplodactylus* species were found at two localities. They have been deposited in the CSIRO Australian Wildlife Collection, Canberra.

Measurements were made using micrometer adjusted callipers and a steel rule. Two specimens were analysed chromosomally using the techniques described by King & Rofe (1976).

Diplodactylus occultus sp. nov.

Holotype: CSIRO Australian Wildlife Collection, R3436, an adult male collected on 11.viii.1981 by R. W. Braithwaite at 12°34'05"S, 132°18'30"E, Alligator Rivers Region, Northern Territory.

Paratypes: R3437, an immature male collected with the holotype by R. W. Braithwaite; R3363, an adult male collected at 12°40'30"S, 132°00'00"E Alligator Rivers Region, N.T. on 14.x.1980 by R. W. Braithwaite.

Diagnosis: A small, relatively erect, terrestrial gekko with a long, thin body and a tapered, round tail. Limbs are of moderate length with long thin toes. The deep, short-snouted head and body have a very characteristic colour pattern (Fig. 1a).

Diplodactylus occultus sp. nov. is most similar in its morphological characteristics to the species of the *D. stenodactylus* complex (*sensu* Kluge 1967). This complex includes *D. stenodactylus* Boulenger, *D. maini* Kluge, *D. damaeus* (Lucas & Frost), *D. alboguttatus* Werner, *D. squarrosus* Kluge, *D. fulleri* Storr and *D. wombeyi* Storr. *D. occultus* is distin-

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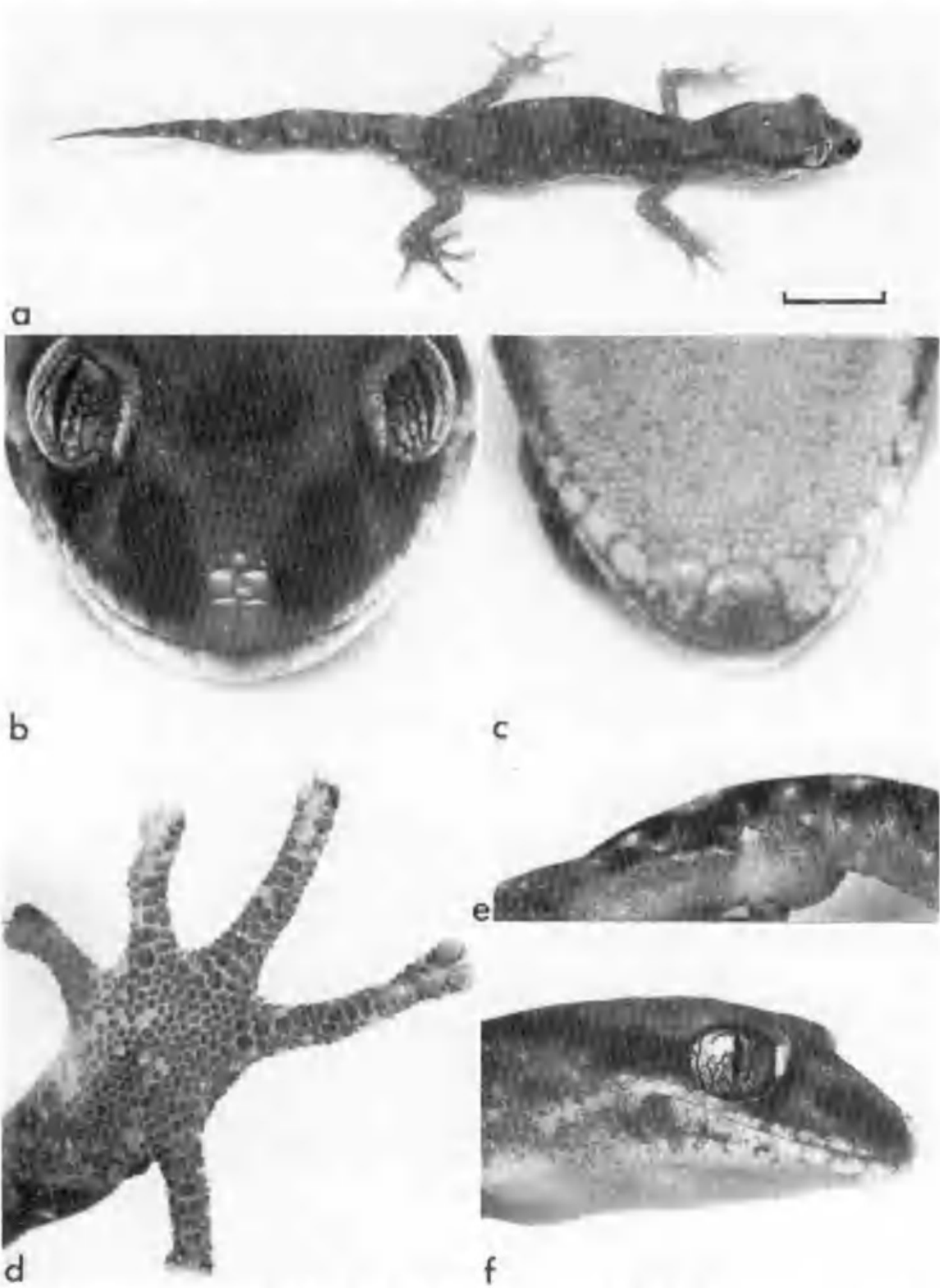


Fig. 1. *Diplodactylus occultus* holotype. a, Dorso-lateral view showing characteristic markings. Bar scale = 1 cm. b, Face showing markings and scalation. c, Chin showing scalation. d, Right hind foot showing characteristic subdigital scalation. e, Lateral view showing three white postanal tubercles. f, Lateral view of head showing scalation and markings.

guished from the above by its unusual back pattern and colouration. It is also distinguished by its subdigital lamellae which are generally rectangular following two moderately dilated subapical plates. Other *stenodactylus* group species generally have small granular subdigital lamellae.

Description of Holotype: Head 6.6 mm wide, 5.5 mm deep and 9.7 mm from tip of the snout to anterior margin of ear opening. Snout 4.1 mm long from tip of rostral scale to anterior margin of orbit. Nostrils separated by two large internasals. Each nostril surrounded by first labial, internasal, a supranasal and five small round posterior nasals. Rostral scale not in contact with nasal aperture; oblong (1.6 mm wide, 0.8 mm high) and divided by a distinct median groove (Fig. 1b). Two large internasals surmounted by large median supranasal and two and three smaller supranasals. Ten distinct supralabials and 10 infralabials on each edge of mouth. Mental scale large, rounded and spade shaped (1.8 mm wide, 1.5 mm long) (Fig. 1c). First infralabial directly adjacent to mental much larger than remaining infralabials (Fig. 1f). Three small, round postmental scales. Interorbital scale count, including scales on top of eyelid 41.

Body (snout-vent length 40 mm). There are 135 rows of scales around body. Dorsal scales round and granular, ventral scales flatter and slightly larger.

Limbs relatively long; right forelimb 14.1 mm and right fourth finger length 2.7 mm; right hindlimb 17.7 mm and right fourth toe length 3.7 mm. Toes terminate in claw lodged between two moderately expanded apical plates. Apical plates on fourth toe followed by three pairs small round subdigital lamellae and by nine larger rectangular subdigital lamellae (Fig. 1d).

Two distinct postanal tubercles on each side of tail base, directly behind hind legs (Fig. 1e). Tail thin, round in section, 34 mm long and tapers to point.

Colouration and dorsal pattern distinctive in life. Face and top of head reddish-brown. Supraocular scales forming cyclid cream coloured as is rostral, both internasals and median supranasal scales. Dark brown patches on either side of face and reddish brown line from nostril to each orbit. Dark brown bar extends from posterior margin of orbit, through ear area, and in are around back of head to other side (Fig. 1f). This dark colour borders reddish-brown top of head. Supralabials and infralabials white as is throat and abdomen (Fig. 1f). Dorsal surface of body has four large and roughly square light brown areas spaced along back. Each of these lighter areas separated by a band of dark brown which forms background colour. A number of distinct white spots scattered along sides, back legs and tail. Tail and legs mottled red-brown and dark brown (Fig. 1a).

TABLE 1. Summary of the morphometric characteristics of *Diplodactylus* sp. nov.

Character	R3363	R3436 holotype	R3437
Snout-vent length (mm)	41.0	40.0	32.0
Tail length (mm)	32.0	34.0	31.5
Right hind limb length (mm)	18.5	17.7	14.5
Right 4th toe length (mm)	4.2	3.7	3.5
Right front limb length (mm)	14.3	14.1	10.5
Right 4th finger length (mm)	3.3	2.7	2.6
Head length (mm)	10.3	9.7	7.7
Head depth (mm)	5.7	5.5	4.4
Head width (mm)	8.0	6.6	5.6
Snout length (mm)	5.0	4.1	3.4
Eye diameter (mm)	2.9	2.7	2.7
Rostral width (mm)	2.0	1.6	1.7
Rostral height (mm)	1.0	0.8	0.7
Mental width (mm)	1.5	1.8	1.5
Mental length (mm)	1.5	1.5	1.2
Number of postanal tubercles	2, 1	2, 2	1, 1
Number of interorbitals	41	41	42
Number of midbody scales	133	135	136
Number of supralabials	11	10	10
Number of infralabials	13	10	10
Number of subdigital lamellae	15	12	14

Variation: Variation in measurements between the three male specimens of *D. occultus* is shown in Table 1. But for relative size, the three specimens are very similar in their scalation and general morphology. One of the few differences in scalation is seen in the scales surrounding the nostril in R3437. In this specimen the rostral makes contact with the nasal aperture, so that the nostril is surrounded by the first supralabial, rostral internasal, supranasal and six posterior nasals.

Preanal pores were not observed in any of the specimens.

The colouration and back pattern is relatively similar. In R3363 there are four distinct and roughly square red-brown patches down the back, whereas there are five such patches in R3437 and four (two of which have coalesced) in the holotype.

Chromosomes: The two specimens of *D. occultus* karyotyped had $2n = 38$ all acrocentric chromosomes present. The karyotype exhibited a gradual diminution in size from the largest to the smallest elements. This chromosome morphology is characteristic of most *Diplodactylus* species and is believed to be the ancestral state in this group (King 1977, 1981). Members of the *stenodactylus* species complex to which this form is closely

allied also share this characteristic chromosome morphology (King unpublished data).

Etymology: The specific name is the Latin adjective *occultus*, meaning hidden or secretive and alludes to the species' use of a micro-habitat with a dense understory.

Distribution and Habitat

The vegetation of both localities is mixed *Eucalyptus* woodland. The first is west of the Wildman River with vegetation in four strata: 22.9% projective foliage cover at 8 m, 1.5% at 5 m, 2.9% at 1.5 m, and 55.5% at 0.5 m, in March 1981. The second locality is on Kapalga Station (CSIRO Research Station) and the vegetation structure was again in four strata: 3.6% projective foliage cover at 12 m, 1.8% at 6 m, 33.0% at 3 m, and 44.5% at 1 m. At both localities the specimens were encountered in situations where they were concealed under grass cover and abundant litter.

Acknowledgments

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