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A new species of Velvet Gecko (*Oedura*: Diplodactylidae) from the limestone ranges of the southern Kimberley, Western Australia

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Abstract

We describe a new species of large *Oedura* from the Oscar Range on the southern edge of the Kimberley Craton in north-western Australia. *Oedura murrumanu* **sp. nov.** can be distinguished from all congeners by the combination of large size (snout-vent length to 103 mm), moderately long and slightly swollen tail, tiny scales on the dorsum, fringe of laterally expanded lamellae on each digit, and 6–7 paired distal subdigital lamellae on the fourth toe. The new species is the first endemic vertebrate known from the limestone ranges of the southern Kimberley; however, this area remains poorly surveyed and further research (particularly wet season surveys and genetic analyses) is required to better characterise regional biodiversity values.

Key words: Australian Monsoonal Tropics, endemism, lizard, mesic refigia, Oscar Range, saxacoline

Introduction

The Kimberley region of north-west Australia is characterised geologically by an array of ancient and highly weathered exposed rock formations (Tyler *et al.* 2012; Pepper & Keogh 2014). One distinctive and discrete geological feature of this region is a fringe of exposed fossilized Devonian limestone reefs that form a broken chain around much of the southern and eastern edge of the Kimberley Craton (Tyler 2011; Tyler *et al.* 2012). In the south-west Kimberley the exposed portion of these limestone deposits form the Oscar and Napier Ranges. These low (<100 m above the surrounding plains) and narrow ranges (generally less than a few km wide) are isolated from other ranges of exposed rock in the Kimberley by flat low-lying plains. While they are home to a diverse radiation of micro-endemic Camaenid snails (Solem 1985; Cameron 1992), no endemic vertebrates are currently recognised from this area.

Australian Velvet Geckos (genus *Oedura*) are moderate to large geckos (snout-vent length [SVL] 69–113 mm) with a continuous distribution spanning much of northern and eastern Australia, with further isolates in the arid zone (Pilbara, Central Ranges and Flinders Ranges) (Oliver *et al.* 2012a, 2014; Wilson & Swan 2013). Two endemic species of *Oedura* are currently recognized from the Kimberley region: *O. gracilis* King, 1984 and *O. filicipoda* King, 1984. The former occurs over most of the Kimberley plateau and extends into the far north-west Northern Territory, while the latter is restricted to the deeply dissected sandstone plateaus of the relatively high rainfall zone of the north-west Kimberley (from the Mitchell Plateau in the north to the Artesian Range to the south; Fig. 1) (Atlas of Living Australia 2013).

For nearly a decade, an additional distinctive *Oedura* has been known from the Oscar Range of the south-west Kimberley (G. Gaikhorst, M. Kearney, B. Stewart, pers. comm.), however, no specimens have been available for taxonomic study. During recent fieldwork in the south-west Kimberley we were able to collect a small series of this form to assess if it is distinctive from other recognised *Oedura*, especially *O. filicipoda* which it resembles.

We found the Oscar Range form to be morphologically and genetically distinctive from all other *Oedura*

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APPENDIX 1. Comparative material examined.

Oedura filicipoda (n = 7). Western Australia. WAM R60685, WAM R83707–8 (holotype and paratypes)—Camp Creek, Mitchell Plateau (14.83°S, 125.83); WAM R86897—11 km SE Mount Daglish (16.38°S, 124.98°E); WAM R167805—Surveyor's Pool (14.67°S, 125.73°E); WAM R138874—4.1 km S Donkin's Hill (14.99°S, 125.51°E); WAM R171552—Prince Regent Nature Reserve (15.76°S, 125.26°E).

Oedura gracilis (n = 52). Western Australia. WAM R108641—10 km SE Warmun (17.12°S, 128.25°E); WAM R100186—2.5 km N Face Point, Carson Escarpment (14.84°S, 126.82°E); WAM R138891—4.1 km S Donkin's Hill (14.99°S, 125.51°E); WAM R138878—4.1 km S Donkin's Hill (15.00°S, 125.50°E); WAM R168565–6—Augustus Island (15.35°S, 124.53°E); WAM R171204—Augustus Island (15.39°S, 124.59°E); WAM R171205—Augustus Island (15.35°S, 124.53°E); WAM R168903–4—Bigge Island (14.60°S, 125.12°E); WAM R168564—Boongaree Island (15.10°S, 125.20°E); WAM R103127—Purnululu National Park (17.43°S, 128.40°E); WAM R166107–8—Doongan Station (15.38°S, 126.30°E); WAM R172903–4—Doongan Station (15.20°S, 125.90°E); WAM R172865–71—Ellenbrae Station (15.98°S, 127.05°E); WAM R164908–10—Kater's Island (14.46°S, 125.52°E); WAM R168739—Kater's Island (14.47°S, 125.53°E); WAM R171751—King Edward River (14.89°S, 126.20°E); WAM R114396—Koolan Island (16.15°S, 123.75°E); WAM R171670—Lachlan Island (16.62°S, 123.47°E); WAM R171671–3—Long Island (16.56°S, 123.36°E); WAM R106213—Manning Gorge (16.67°S, 125.95°E); WAM R151005—Mount Nyulasy (16.75°S, 128.29°E); WAM R171677—NW Molema Island (16.26°S, 123.82°E); WAM R156728—Oscar Range (17.64°S, 125.17°E); WAM R168057—Prince Regent River Nature Reserve (15.75°S, 125.37°E); WAM R152718—Purnululu National Park (17.39°S, 128.26°E); WAM R156724–5—Purnululu National Park (17.40°S, 128.41°E); WAM R168454, WAM R168463—Sir Graham Moore Island (13.88°S, 126.57°E); WAM R151963, WAM R151980—South West Osborn Island (14.35°S, 125.95°E; WAM R164863–4—South West Osborn Island (14.37°S, 125.94°E); WAM R171668–9, WAM R171675—Storr Island (15.95°S, 124.56°E); WAM R171674—Sunday Island (16.43°S, 123.18°E); WAM R172341—Theda Station (14.81°S, 126.51°E).

Oedura marmorata (n = 31). Western Australia. WAM R165150—1.5 km NNW Python Pool (21.32°S, 117.23°E); WAM R129595, WAM R129622—120 km NW Newman (22.92°S, 118.88°E); WAM R129635—120KM NW Newman (22.92°S, 119.02°E); WAM R52852—12 km E Tallering Peak (28.10°S, 115.75°E); WAM R84365–6—17 km NNE Anketell Homestead (27.90°S, 118.95°E); WAM R87544—30KM SSW Glenburgh homestead (24.68°S, 115.00°E); WAM R160074—32.5 km ESE Meentheena Outcamp (21.33°S, 120.75°E); WAM R146593–4—40 km SE Pouyouwuncubban (22.15°S, 119.02°E); WAM R160066—58 km ESE Meentheema Outcamp (21.32°S, 121.00°E); WAM R84004—6 km N Mount Magnet (28.03°S, 117.85°E); WAM R105965, WAM R106289—7 km N Mount Magnet (28.00°S, 117.88°E); WAM R132626—Burrup Peninsula (20.60°S, 116.81°E); WAM R119991—Hope Downs (23.01°S, 119.10); WAM R119993—Hope Downs (23.00°S, 119.12°E); WAM R135369, WAM R135445—Mt Brockman (22.31°S, 117.32°E); WAM R154783—Mt Brockman (23.31°S, 119.89°E); WAM R157504, WAM R157508, WAM R157516—Packsaddle Range (22.92°S, 118.89°E); WAM R132296—Ulongunna Rock (27.12°S, 117.23°E); WAM R119086—Virgin Springs, Carnarvon Range (25.10°S, 120.72°E); WAM R154796—Walga Rock (27.40°S, 117.47°E); WAM R154797—Walga Rock (27.40°S, 117.47°E); WAM R157595—West Angelas (23.19°S, 118.86°E); WAM R97012—Woolgerong Rock (27.40°S, 117.38°E); WAM R119837—Yandicoogina (22.72°S, 119.02°E).