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Taxonomic assessment of *Diporiphora* (Reptilia: Agamidae) dragon lizards from the western arid zone of Australia

PAUL DOUGHTY^{1,3}, LUKE KEALLEY¹ & JANE MELVILLE²

¹Department of Terrestrial Zoology, Western Australian Museum, 49 Kew St, Welshpool, Western Australia, Australia.

²Department of Sciences, GPO Box 666, Museum Victoria, Melbourne, Victoria, Australia

³Corresponding author email: Paul.Doughty@museum.wa.gov.au

Abstract

Members of the genus *Diporiphora* are slender perching agamid lizards from Australasia, with a conservative morphology and some outstanding taxonomic issues. Here we assess morphological variation in the morphologically similar *D. pindan*, *D. valens*, and *D. winneckeii* from the western deserts of Australia. A reassessment of morphological differences that included the presence or absence of a gular fold, revealed *D. pindan* to be much more widely distributed than previously thought, occurring as far south as the northern Pilbara and east to the Tanami Desert. Examination of *D. valens* specimens revealed a north-south split within the Pilbara, with specimens conspecific with the types from the Hamersley Range in the southern Pilbara, whereas recently collected specimens from the Chichester and Roebourne regions in the northern Pilbara differ morphologically, and are described as a new species. Examination of the type of *D. winneckeii* and topotypic material indicates that populations referable to this species are confined to the eastern arid zone. The isolated far western population of '*D. winneckeii*' from the Carnarvon Basin differs in morphology from the eastern arid zone *D. winneckeii* and is described as a new species. The western arid zone '*D. winneckeii*' is also morphologically distinctive from the eastern arid zone *D. winneckeii* and is described as a new species. We also redescribe *D. pindan*, *D. valens*, and *D. winneckeii*, and return *Caimanops amphiboluroides* to *Diporiphora* based on the results of previous genetic studies.

Key words: *Caimanops amphiboluroides*, *Diporiphora adductus* sp. nov., *Diporiphora paraconvergens* sp. nov., *Diporiphora pindan*, *Diporiphora valens*, *Diporiphora vesus* sp. nov., *Diporiphora winneckeii*, Great Sandy Desert, morphology, Pilbara, Tanami

Introduction

Lizards of the genus *Diporiphora* are a moderately diverse group of 16 endemic Australian dragons in the family Agamidae. They are slender-bodied and usually perch on low-lying cane grass, Spinifex clumps, shrubs and on the branches of slender, low trees (Greer 1989; Wilson & Swan 2011). By the end of the 19th century, there had been four nominal species described that are still currently recognized: *D. australis* (Steindachner), *D. bilineata* Gray, *D. bennettii* Gray, and *D. winneckeii* Lucas & Frost. No further species were described until *D. reginae* by Glauert in 1959, followed by many more in the 1970s, especially by G.M. Storr who described nine species (Storr 1974, 1979). No other species of *Diporiphora* have been described for over 30 years since then until *D. phaeospinosa* by Edwards and Melville (2011), who also transferred *Amphibolurus nobbi* Witten to *Diporiphora*.

Taxonomic problems, however, remain within the genus. *Diporiphora* are conservative in their morphology, and do not often vary appreciably in overall appearance. Workers have traditionally used scalation related characters such as the gular, scapular, and post-auricular folds, orientation of the dorsal scales, the number of pores, and pattern and coloration to diagnose species. Recently, Smith *et al.* (2011) used genetic data to identify several lineages within the nominal taxa *D. bilineata* and *D. magna* Storr, indicating the possible presence of multiple cryptic taxa with highly conserved morphology and making species identifications difficult.

In this study, we carried out a morphological examination of *Diporiphora* from the Australian arid zone, focusing on *D. pindan* Storr, *D. valens* Storr, and *D. winneckeii*. These three species were previously regarded as a