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Taxonomic consequences of cryptic speciation in the Golden Whistler *Pachycephala pectoralis* complex in mainland southern Australia

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Introduction

The Golden Whistler (Aves: Passeriformes: Pachycephalidae) *Pachycephala pectoralis sensu lato* has long played a key role in the development of the theory of allopatric speciation (Mayr 1932a, b; Mayr 1942; Galbraith 1956). The *P. pectoralis* species complex formerly comprised 60–70 nominal subspecies and so had a distribution spanning the Indo-Pacific (Boles 2007). More recent taxonomic treatments consider the complex as multiple species-level taxa largely circumscribed by geography (Dickinson and Christidis 2014; Gill and Donsker 2014). In Australia, the endemic species *P. pectoralis sensu stricto* is sympatric with the closely related Mangrove Golden Whistler *P. melanura*. However, as the latter's English name suggests, *P. melanura* is closely tied to mangroves in Australia, southeast New Guinea, and islets in the Bismarck Archipelago. Diagnostic plumage traits separating the two species are subtle: males of *P. melanura* have more extensively black tails and a greyer upper surface to the remiges, and females are usually yellower ventrally. All *Pachycephala* species, especially those in the *P. pectoralis-melanura* species complex, have recently become the focus of DNA sequence-based studies (Jønsson *et al.* 2008, 2014; Andersen *et al*. 2014). Data from most populations have now been analysed phylogenetically to better understand relationships and thus the history of evolution and speciation processes within and between both species. This has also been used in studies of the group's historical biogeography to provide information as to the age of taxa and their spread across oceanic archipelagos and continents (Jønsson *et al.* 2014). Here we discuss the taxonomic implications of a result that has emerged consistently and independently in these studies, concerning the systematics of the southern Australian populations in south-eastern and south-western Australia, both of which have been ascribed to *P. p. fuliginosa* since Galbraith (1956), and we show that the name *P. occidentalis* Ramsay, 1878 is available for the western population and should be used for it.

Cryptic diversity in *Pachycephala pectoralis fuliginosa*

Taxonomic treatments of morphological variation in Australian populations of *P. pectoralis* (Galbraith 1956; Ford 1971, 1987; Schodde & Mason 1999; Higgins & Peter 2002; Johnstone & Storr 2004; Boles 2007) have typically recognized the single subspecies *P. p. fuliginosa* for two geographically isolated populations in southern Australia. One population is confined to south-western Western Australia, while the other occurs in drier parts of south-eastern Australia west of the Great Dividing Range, from the easternmost Great Victoria Desert and Eyre Peninsula east through the South Australian gulf region and Kangaroo Island to the Murray River mallee lands as far as western Victoria (Figure 1). The two populations are separated by Nullarbor Plateau and sand deserts further inland to central Australia. Weak phenotypic differentiation between the eastern and western populations has led some authors to suggest that their taxonomic separation may be warranted (Mayr 1954; see Schodde & Mason 1999 for details) and subtle differences between the two populations can be seen in both sexes. For example, adult males of western and eastern populations differ consistently in the tone of the grey in the tail and the proportional width of the black terminal tail – lighter and narrower in western birds. Further, females and post-juvenal males differ subtly

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