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Nectarivory in the Rockwarbler *Origma solitaria*

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Abstract. The Rockwarbler *Origma solitaria* is restricted to the sedimentary-rock formations around the Sydney region of New South Wales and, like other species in the Acanthizidae, is mainly insectivorous, although its diet is considered poorly known. Here we report on two observations of nectarivory, a food source not previously reported for this species. They involved Rockwarblers feeding at flowers of Heath-leaved Banksia *Banksia ericifolia* at two locations.

Introduction

The Rockwarbler *Origma solitaria* is restricted to the sedimentary-rock formations around the Sydney region of New South Wales. Part of the Acanthizidae family with thornbills, scrubwrens, gerygones and whitefaces, it is the only member of the genus *Origma*. Like other Acanthizidae, it is mainly insectivorous. Its main prey items include spiders, beetles, ants, wasps and caterpillars (Hindwood 1926; Barker & Vestjens 1990; Higgins & Peter 2002; Gregory 2007). The Rockwarbler is predominantly terrestrial, typically foraging on or near the ground. It probes for invertebrates around and under rock surfaces, in crevices, or among leaf-litter and ground vegetation, and only occasionally from bark surfaces and leaves of shrubs (McGill 1970). Plant material forms a minor part of the diet, with seeds from monocotyledons (Liliaceae, Poaceae) and dicotyledons (Chenopodiaceae, Fabaceae, Myrtaceae) recorded as food items (Barker & Vestjens 1990). Other items consumed include grit, bread crumbs and butter (Higgins & Peter 2002).

The diet and foraging behaviour of the Rockwarbler are poorly known (Higgins & Peter 2002). Here we describe two observations of nectarivory. Although any new information on diet and foraging is valuable, the observations of nectar-feeding are particularly interesting, representing a previously unreported food; despite an extensive literature search, we found no reports of Rockwarblers foraging for nectar.

Observations

On 7 August 2012 at 0830 h, CP was watching a Rockwarbler foraging along the sandstone rock shelves at the top of Wentworth Falls waterfall [33°43'41.3"S, 150°22'28.7"E; elevation 805 m above sea-level (asl)] in the Blue Mountains, New South Wales. After a few minutes, the bird flew into a small Heath-leaved Banksia *Banksia ericifolia* shrub, moved directly to a half-opened inflorescence and inserted its bill in several places. CP was close enough to see its bill and throat moving continuously as if the bird was drinking nectar, rather than taking insects.

After it flew off, the inflorescence was checked and the flowers were found to contain copious quantities of nectar.

On 5 August 2013 at c. 0800 h, CP was driving along the track behind the old Queen Victoria Hospital on Kings Tableland (33°46'10.6"S, 150°22'30.8"E; 800 m asl) when two Rockwarblers were observed foraging on the ground along the edge of the track. One of them flew into a flowering Heath-leaved Banksia and proceeded to insert its bill repeatedly into an inflorescence as if it was feeding on nectar rather than insects.

Discussion

The Rockwarbler, like other members of the Acanthizidae, feeds primarily on invertebrates (Barker & Vestjens 1990; Gregory 2007). Although nectarivory has not previously been reported for this species, it has for other members of the family (Ford *et al.* 1979; Higgins & Peter 2002; Gregory 2007). For example, Barker & Vestjens (1990) noted nectar from grasstrees *Xanthorrhoea* sp. in the diet of the Striated Thornbill *Acanthiza lineata* and Brown Thornbill *A. pusilla*. Further, Cooper (1976) described two observations, several days apart, of a Brown Thornbill hopping up the flower spike of an Austral Grasstree *Xanthorrhoea australis* and inserting its beak into flowers for several seconds at a time. Both Brown and Striated Thornbills (especially the latter) also took nectar during winter from flowers of Mountain Correa *Correa lawrenceana*, a low shrub in wet eucalypt forest in Victoria (Loyn 1985). Striated and Buff-rumped Thornbills *A. reguloides* have been observed feeding on extrafloral nectar (i.e. nectar produced outside flowers) in Golden Wattle *Acacia pycnantha* (Vanstone & Paton 1998), and Striated Thornbills often take extrafloral nectar from Sunshine Wattle *A. terminalis* (R. Loyn pers. comm.). The Western Thornbill *A. inornata* is considered to take nectar regularly (Gregory 2007), perhaps taking advantage of the extraordinarily rich and profuse flowering resources in south-western Australia where it occurs. It has been recorded visiting the flowers of *Grevillea goodii* (Brown *et al.* 1997). The Striated Thornbill has also been observed obtaining nectar from *Grevillea* species elsewhere (McCulloch 1977), as well as Flame Heath *Astroloma conostephioides* (Wheal 1996).

Of the 41 species of Acanthizidae occurring in Australia, just four (all from the genus *Acanthiza*: Striated, Brown, Buff-rumped and Western Thornbills) have been recorded to take nectar. These species are considered unspecialised nectar-feeders (Ford *et al.* 1979; Wheal 1996), although some (e.g. Striated Thornbill) show evidence of a brush-tipped tongue which may be conducive to nectar-feeding (McCulloch 1975). Several observers have noted that thornbills can damage flowers by creating holes in the bases of flowers to access nectar (e.g. McCulloch 1977; Loyn 1985).

Ford *et al.* (1979) suggested that birds such as thornbills and other general insectivores, including shrike-thrushes *Colluricincla* spp., opportunistically take nectar when available from plants such as *Banksia* and *Eucalyptus*. Opportunistic nectarivory (i.e. the consumption of nectar by species for which it is not normally part of the diet) has been reported many times for birds, including in Australia (Franklin 1999). The importance of nectar in the diet of the Rockwarbler, and other Acanthizidae, is unknown. Plant genera such as *Banksia*, *Grevillea*, *Correa*, and others provide copious amounts of nectar when flowering, but this food resource is typically dominated by honeyeaters (Meliphagidae) and lorikeets (Psittaculidae) (Ford & Paton 1986). Opportunistic nectarivory has been considered more prevalent where specialist nectarivores are lacking (e.g. some islands: see Rodriguez-Rodriguez & Valido 2008), or when nectar is abundant (Ford & Paton 1985), and is likely to occur most commonly where bird-pollinated plants dominate. Franklin (1999) showed that opportunistic nectarivory was prominent in the highly seasonal monsoonal tropics of northern Australia, involving a diversity of species (but none from the Acanthizidae). It is likely that the observations described in the present paper are of Rockwarblers engaging in opportunistic nectarivory, given that nectar has not previously been documented as part of this species' diet, and the scant records in general of nectarivory in the Acanthizidae.

This and other recent observations (e.g. Frith 2009; De Geest & Franklin 2018; Fitzsimons 2019) add to knowledge of Australian passerine species occasionally accessing nectar.

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