

# Probable commensalism between the Grey Fantail and the Western Gerygone: a Western Australian observation

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## INTRODUCTION

Commensalism, an interaction between two species in which one benefits and the other experiences no net positive or negative impact, is known to occur in many classes in the animal kingdom but is surprisingly little studied (Mathis and Bronstein 2020). Birds are known to engage in commensal relationships, with commonly cited examples including those involving association with non-avian taxa, such as humans, other mammals, reptiles and fish. However, bird-bird interactions between two or more different species are also known to occur.

One of the most common forms of commensalism among birds is mixed-species flocking, where one bird species, often termed the ‘leader’, disturbs insects or other prey and thus makes it easier for another bird species, termed the ‘follower’, to catch this prey (Sridhar *et al.* 2009). A relatively recent review found that in general birds characterized as followers tend to be smaller and more likely to be insectivorous than species that are less likely to engage in mixed-species flocking (Sridhar *et al.* 2009). There are multiple Australian examples of relationships such as these, including those between Brown Thornbills *Acanthiza pusilla* (follower) and Common Blackbirds *Turdus merula* (leader) (Peter 2008) and between Hoary-headed Grebes *Poliiocephalus poliocephalus* (follower) and Hardheads *Aythya australis* (leader) (Roderick and Newman 2013). The Superb Lyrebird *Menura novaehollandiae* is a ground-feeding invertebrate consumer that is also often followed by small, insectivorous birds, including Eastern Yellow Robins *Eopsaltria australis*, Scrubwrens *Sericornis* spp. and Pilotbirds *Pycnoptilus floccosus*, that eat prey that it disturbs (Smith 1995).

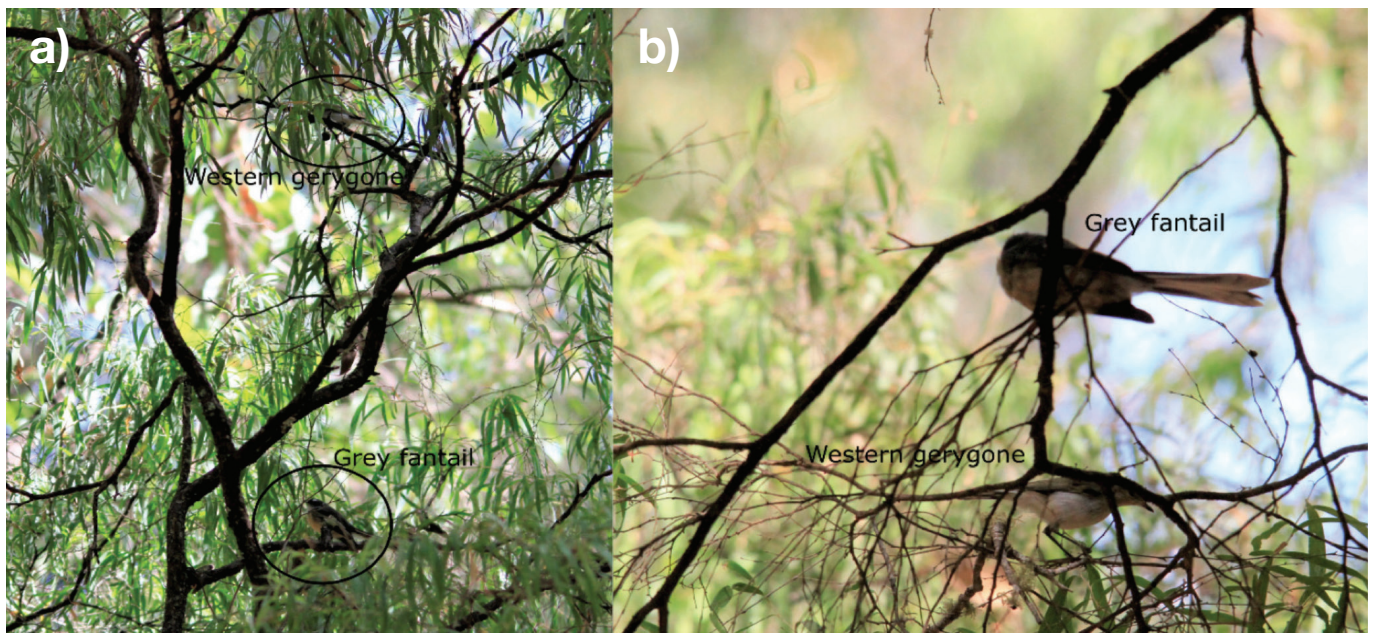
Interactions of this sort have also been observed in multiple subspecies of Grey Fantail *Rhipidura albiscapa*, a small (14-17 cm), mostly insectivorous flycatcher, well known for forming associations with other animals, including birds. For example, Kyte (2019) observed *Rhipidura albiscapa alisteri* eating flying insects disturbed by White-throated Treecreepers *Cormobates leucophaea* in New South Wales, a behaviour that had also been recorded by Cameron (1985), with the White-throated Treecreeper and the Brown Gerygone *Gerygone mouki* acting

as leaders. Similar behaviour has been noted between *Rhipidura albiscapa albiscapa* and Scrubwrens *Acanthornis magna* in Tasmania (Newman pers. comm. in Kyte 2019). Commensalism has also been observed in other members of the fantail genus, suggesting that these behaviours may be innate in this taxon. For example, McLean (1989) recorded similar behaviour in the New Zealand Fantail *Rhipidura fuliginosa* and Cameron (1975) in the Rufous Fantail *Rhipidura rufifrons*. Indeed, observations of such associations in this genus date back as far as Gould (1865), who noted that the largest Australian fantail, the Willie Wagtail *Rhipidura leucophrys*, had established a commensal relationship with cattle (as a source of insects) soon after pastoralism was introduced to Australia. Here, we present the first published observation of such apparently commensal behaviour by the south-west Australian subspecies of the Grey Fantail, *Rhipidura albiscapa preissi* acting as a follower of the Western Gerygone *Gerygone fusca*.

## OBSERVATIONS

Observations were made on 11 and 12 February 2023 in Wellington National Park (33.3205° S, 115.9803° E), southwest Western Australia, on and around the banks of the Preston River near the Honeymoon Pool camping and day use area. Vegetation in the area comprises Jarrah-Marri forests, with an overstorey mainly of Jarrah *Eucalyptus marginata*, Marri *Corymbia calophylla*, Tuart *E. gomphocephala* and Peppermint *Agonis flexuosa*. The understorey was relatively sparse and observations were made from clear ground beneath a high canopy. It was in the canopy that Grey Fantails were repeatedly observed to closely ‘shadow’ a small passerine, the Western Gerygone. This behaviour was sustained and observed in >10 different sets of birds.

Typically the foraging Western Gerygone involved would jump and flutter between the ends of branches (Fig.1). In some instances it displayed a distinct wing-fluttering behaviour, quickly beating its wings but seemingly not as part of locomotion, as it would walk or hop slowly rather than fly while performing this activity. The Western Gerygones involved were vocalising while moving through the canopy. They would generally fly a couple of metres away when the fantails came within 20-50 cm.



**Figure 1.** a) and b) show some photographic examples of a Grey Fantail and Western Gerygone foraging in close proximity in the canopy of a Peppermint tree. The Grey Fantail would often perch below the gerygone as shown in a).

The Grey Fantails involved were also vocalising while following the gerygones. They would generally follow at a lower level in the canopy. In some cases, a single fantail would appear to follow a single gerygone or a pair, but there were some instances in which two fantails followed a single gerygone. The fantails typically maintained a distance of  $< 2$  m from the foraging gerygone, usually perching on branches below the gerygone in the intervals between flying to apparently catch insects presumably disturbed by the gerygone in the air. Each observation of the interactions between the Western Gerygone and the fantails continued for at least 5 minutes before the birds travelled out of sight.

## DISCUSSION

Understanding and documenting behaviours such as commensalism is helpful in understanding how bird communities function and the interdependencies among species. Our observation of apparent commensalism in *Rhipidura albiscapa preissi*, combined with previous records for other *Rhipidura* subspecies (Cameron 1985; Kyte 2019), conform with broader descriptions of commensalism in the literature. Our observations align with the finding that ‘follower’ birds in presumed bird-bird commensal relationships are typically smaller and more likely to be insectivores than co-habiting species that do not engage in this behaviour (Sridhar *et al.* 2009). The Grey Fantails in our observations, however, were observed following a leader that was much smaller than they were and also insectivorous, raising the question of whether the two species were occupying a broadly similar niche but eating different insects or insects of different sizes.

Grey Fantails consume insects and other invertebrates, often catching insects in flight by chasing them from the edge of foliage at all levels in the canopy. They are considered to use two general foraging techniques. The first method is ‘static searching’ or ‘sally-snatching’, where a fantail occupies a perch

and watches for aerial prey which it then snatches from the air before returning to the perch to consume the item. The second method is known as ‘progressive searching’, where a fantail moves through vegetation searching for insect prey which it captures by gleaning; the movement of the searching fantail also flushes out hidden prey which are pursued and consumed (McLean 1989).

Western Gerygones generally forage individually or in pairs high up in the canopy, pecking at insects and other invertebrates in the outer foliage while perching or fluttering in the air (Keast and Recher 1997). We observed that Western Gerygones frequently exhibited a wing-fluttering behaviour, which was similar to breeding displays noted by Gill (1983) in the closely related Grey Warbler *Gerygone igata*. However, it is probable that the gerygones were using this fluttering behaviour because it maximised the flushing of insects, which would incidentally increase the potential benefits for the following Grey Fantail. By following the gerygones, the fantails could spend more time static searching than progressive searching, which would be more energetically efficient.

Our observations add weight to the idea that these commensal behaviours are likely to be widespread in the Grey Fantail, rather than idiosyncratic in certain populations. Whilst we have suggested that commensalism is the best description of the observed interactions between the Grey Fantail and the Western Gerygone, further research is certainly required to confirm this absolutely, as mutualism is also a possible explanation if the Western Gerygone is obtaining some benefit from the interaction, such as a reduced predation risk through proximity to a larger bird species.

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