

USE OF NATIVE CHERRY (*EXOCARPOS APHYLLUS*) (FAM: SANTALACEAE) BY BIRDS IN THE GREAT WESTERN WOODLANDS, WESTERN AUSTRALIA

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ABSTRACT

From August to October, 2003–2008, we recorded 18 species of birds foraging on native cherry (*Exocarpos aphyllus*) in the Great Western Woodlands (GWW) of Western Australia. Thirteen species took berries and 12 species foraged for invertebrates on foliage and bark, including five species that took no fruit. *E. aphyllus* is an important food resource for birds in the GWW in late winter and spring.

INTRODUCTION

The Great Western Woodlands (GWW), encompassing more than 12.5 million ha on the eastern edge of the Western Australian wheatbelt, is the largest and least disturbed of Australia's temperate woodlands, and may be the last woodland in southern Australia with intact

ecosystems (Recher *et al.* 2007). From August to October, 2003–2008, we recorded 89 species of birds in GWW study plots near Norseman (~32° 00' S; 121° 30' E), Widgiemooltha (~32° 30' S; 121° 00' E), and Yellowdine (~31° 15' S; 121° 30' E) and collected foraging data on 66 species. We report here on the utilization of one species of native cherry, *Exocarpos aphyllus*, Leafless Ballart, sometimes called Leafless Cherry or Naked Lady (Mitchell

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and Wilcox 1998), which we observed being used by foraging birds. Leafless Cherry is a small bush (up to 4 m) with short, stiff, branches that appear leafless, but green, with the leaves reduced to scales (Hobbs 1986; Mitchell and Wilcox 1998). The plant is adapted to a semi-arid climate and produces fruit that matures as red berries about 3 mm long in clusters up to 4 cm in length in late winter or early spring. The plant is used by foraging birds in the Great Western Woodlands of Western Australia in two ways: (1) they use the plant as a foraging substrate when feeding on arthropods and (2) they eat the fruit.

METHODS AND RESULTS

Recher and Davis (1998, 2002) describe the procedures followed in recording avian foraging data in eucalypt woodlands, but briefly, we recorded up to five prey attacks for each bird seen, starting with the second attack observed. This included birds feeding on fruit. All of our work in the GWW was in ungrazed woodlands dominated by a variety of eucalypts, including Salmon Gum *Eucalyptus salmonophloia*, Yorrell *E. yilgarnensis*, Dundas Blackbutt *E. dundasii*, Red Morrell *E. longicornis*, Goldfield's Blackbutt *E. lesouefii*, Gimlet *E. salubris*, Merrit *E. flocktoniae*, and various mallee eucalypts. In all instances, the shrub layer and understorey was intact, despite many of sites

having been logged during the first half of the 20th Century (Recher *et al.* 2007).

From 2003–2008, 18 species of birds were recorded foraging on *Exocarpos aphyllus*, including 12 species that took ripe (red) berries, and one that took both unripe (green) and ripe berries (Table 1). Six of these species, Black-faced Cuckoo-shrike (*Coracina novaehollandiae*), Golden Whistler (*Pachycephala pectoralis*), Grey Currawong (*Strepera versicolor*), Spiny-cheeked Honeyeater (*Acanthagenys rufogularis*), Yellow-throated Miner (*Manorina flavigula*, and Red Wattlebird (*Anthochaera carunculata*), took only berries when foraging in *E. aphyllus*. The Red Wattlebird was only represented by a single foraging observation. Other species that foraged predominately on berries (of all foraging observations on *E. aphyllus*) were: Dusky Woodswallow (*Artamus cyanopterus*), Port Lincoln Parrot (*Platyercus zonarius zonarius*), Gilbert's Whistler (*Pachycephala inornata*), Yellow-plumed Honeyeater (*Lichenostomus ornatus*), and Grey Shrike-thrush (*Colluricincla harmonica*). Gilbert's Whistler was the only species in the GWW observed eating green berries, although HFR recorded Spiny-cheeked Honeyeaters and Regent Parrots (*Polytelis anthopeplus*) feeding on green *E. aphyllus* berries at Mt Gibson Station on the mulga-eucalypt line, approximately 270 km northwest of our nearest sites.

Gilbert's Whistlers forage routinely on *E. aphyllus* fruit, even when the berries are green. They also appear to return repeatedly to secure fruit as it approaches ripeness, with foraging individuals and pairs moving directly to plants with ripening fruit and passing by others where the fruit is less developed. Most species picked and swallowed the fruit whole, while Chestnut-rumped Thornbill (*Acanthiza uropygialis*) and Inland Thornbill (*A. apicalis*) probed the berries with their beak and ate the pulp. In mulga habitats, we have observed both these thornbills and Yellow-rumped Thornbill (*A. chrysorrhoa*) feed on the ripe berries of Ruby Saltbush (*Enchylaena tomentosa*) in the same way. Both thornbills and Gilbert's Whistler also foraged extensively in *Exocarpos aphyllus* for arthropods (Table 1).

Twelve species used *E. aphyllus* foliage and bark as foraging substrates, including five species, Blue-breasted Fairy-wren (*Malurus pulcherrimus*), Redthroat (*Sericornis brunneus*), Silvereye (*Zosterops lateralis*), Weebill (*Smicrornis brevirostris*), and White-browed Babbler (*Pomatostomus superciliosus*), that took no fruit (Table 1). For several species, including those just listed, the percent of total foraging observations on *E. aphyllus* was low (5 % or less) (Table 1). By contrast, Black-faced Cuckoo-shrike, Gilbert's Whistler, and Grey Currawong had a relatively high frequency of use of *E. aphyllus* (16–29 % of total observations) (Table 1).

DISCUSSION

Forde (1986) reported use of *Exocarpos* spp. fruit by 22 species of birds in southern Australia, including Black-faced Cuckoo-shrike, Spiny-cheeked Honeyeater, Red Wattlebird, and Dusky Woodswallow, species also reported here feeding on *E. aphyllus* berries. Hobbs (1986) reported Black-faced Cuckoo-shrike, Gilbert's Whistler, Spiny-cheeked Honeyeater, Dusky Woodswallow, and three other species, White-winged Triller (*Lalage sueurii*), Rufous Whistler (*Pachycephala rufiventris*), and Singing Honeyeater (*Lichenostomus virescens*), not recorded by us, taking *E. aphyllus* berries in southwestern New South Wales. Cleland *et al.* (1918) and Gosper (1999) reported Black-faced Cuckoo-shrike taking fruit of *E. cupressiformis* in New South Wales and Victoria, while McClymont (1902) reported Grey (Clinking or Hill Crow-shrike) Currawong (*Strepera versicolor arguta*) taking *E. cupressiformis* fruit in Tasmania. In Western Australia, Gilbert's Whistler (Morgan *et al.* 1926) and Port Lincoln Parrot (Storr 1986) have been previously reported feeding on *E. aphyllus* berries. We could find no reference to taking fruit of any *Exocarpos* species for Regent Parrot, Yellow-throated Miner, Yellow-plumed Honeyeater, Inland Thornbill, Chestnut-rumped Thornbill, Golden Whistler, or Grey Shrike-thrush.

Exocarpos spp. and their fruit are

Table 1. Use of *Exocarpos aphyllus* by birds in the Great Western Woodlands of Western Australia 2003–2008.

SPECIES	TOTAL OBS.	TOTAL EXOCARPOS	% ON EXOCARPOS	EXOCARPOS			% FRUIT
				FOLIAGE	BARK	FRUIT	
Blue-breasted Fairy-wren	42	1	2.4	1	0	0	0
Black-faced Cuckoo-shrike	220	36	16.4	0	0	36	100
Chestnut-rumped Thornbill	837	114	13.6	76	5	33	28.9
Dusky Woodswallow	1019	57	5.6	2	0	55	96.5
Gilbert's Whistler	256	49	19.1	10	3	36	73.5
Golden Whistler	86	6	7.0	0	0	6	100
Grey Currawong	31	9	29.0	0	0	9	100
Grey Shrike-thrush	259	9	3.5	0	4	5	55.6
Inland Thornbill	1395	135	9.7	104	13	18	13.3
Port Lincoln Parrot	658	80	12.2	15	0	65	81.2
Red Wattlebird	1873	1	<0.01	0	0	1	100
Redthroat	754	9	1.2	8	1	0	0
Silvereye	95	5	5.3	5	0	0	0
Spiny-cheeked Honeyeater	380	16	4.2	0	0	16	100
Weebill	2199	13	0.6	11	2	0	0
White-browed Babbler	1549	4	0.3	4	0	0	0
Yellow-throated Miner	277	10	3.6	0	0	10	100
Yellow-plumed Honeyeater	4331	9	0.2	4	0	5	55.6

an important food resource and foraging substrate for birds. In southwestern Australia, *E. aphyllus* is particularly important because it comes into fruit in late winter and spring (Hobbs 1986), often when few *Eucalyptus* spp. are in flower and insect abundances are low. Most of our observations of Dusky Woodswallow, Black-faced Cuckoo-shrike, and Port Lincoln Parrots taking *E. aphyllus* fruit were in September, 2005 at Yellowdine, during several days of cold, windy weather when other foraging by these birds was restricted by weather conditions. Under these conditions *E. aphyllus* fruit was of particular importance to the woodswallows and cuckoo-shrikes, which normally forage on arthropods taken in flight or from canopy foliage (Recher and Davis 1998, 2002; unpubl.).

E. aphyllus was especially abundant and ripe at Yellowdine in 2005, and less so since, suggesting the possibility of a drought effect, as rainfall in the GWW since 2005 has been below average, or a periodicity of fruit production. The high frequency of use of *E. aphyllus* fruit by Black-faced Cuckoo-shrikes can be attributed to events in 2005 and the fact that we have relatively few foraging observations for cuckoo-shrikes (<250) overall, because the frequency of prey attacks is low (unpubl.). This also applies to our observations of Grey Currawong, so a few birds feeding on fruit can easily

distort observations. We also have relatively few observations of foraging by Gilbert's Whistler (~250) (Table 1). However, for this species, feeding on *E. aphyllus* fruit is not restricted to poor weather or a few occasions, but occurs regularly at all sites where *E. aphyllus* fruit is present. This should not, however, diminish the importance of *E. aphyllus* fruit as a food resource for woodland birds. Because of its likely importance as a food source to a variety of woodland birds, *E. aphyllus* needs to be managed and conserved in respect to any fire or vegetation management programs that may be adopted for the GWW. It is not grazed by stock (Mitchell and Wilcox 1998) and may be a particularly important resource for insectivorous and frugivorous birds in pastoral areas.

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