Publication date: 01/12/2023

Notice of and reasons for the Final Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to list South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Latham, 1801) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act and, as a consequence, to omit reference to Hooded Robin (south-eastern form) *Melanodryas cucullata cucullata* (Latham, 1801) from Part 3 of Schedule 1 (Vulnerable species) of the Act. Listing of Endangered species is provided for by Part 4 of the Act.

The NSW Threatened Species Scientific Committee is satisfied that South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Latham, 1801) has been duly assessed by the Commonwealth Threatened Species Scientific Committee under the Common Assessment Method (DCCEEW 2023). The acceptance of this assessment is provided for by Part 4.14 of the Act.

The NSW Threatened Species Scientific Committee accepts the assessment outcome of the Commonwealth Threatened Species Scientific Committee in its Conservation Advice for *Melanodryas cucullata cucullata* (Hooded Robin (south-eastern)) of Endangered under Criterion 1: A2bce (DCCEEW 2023).

Summary of Conservation Assessment

The South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Latham, 1801) was found to be Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Cause 4.2 1(b)2(b)(c)(e) because the species has undergone a large reduction in population size (>50%) over the last ten years (one generation = 3.0 years). This is based on an estimated decline in relative abundance across the species' range, an inferred decline in the quality of available habitat, and an inferred increase in interspecific competition and predation by introduced taxa resulting in exclusion of Hooded Robins from woodland habitats.

The NSW Threatened Species Scientific Committee has found that:

1. The South-eastern Hooded Robin *Melanodryas cucullata cucullata* (family Petroicidae) is a large Australian Robin reaching 17 cm in length. The male is strikingly marked in black and white, with a bold black hood extending down a white breast. The back is black with distinct white shoulder and wing-bar. The tail is black, with prominent white side-panels. Females and immatures are duller, with light brownish-grey upperparts, but the same striking black and white wings. Flight is short and swiftly undulating. The call is a series of descending, fading, mellow notes. The adult male is easily distinguishable, but there may be confusion between the female and young males of this species and other similar species. South-eastern Hooded Robins are distinguished by their larger size, distinctive white wing bar and different shaped tail markings ('hourglass' shaped) from other similar species. Two other subspecies of Hooded Robin are recognised: *Melanodryas cucullata melvillensis* (Tiwi

Islands, Northern Territory) and *Melanodryas cucullata picata* (northern inland) (Schodde and Mason 1999). A third subspecies from Western Australia, *Melanodryas cucullata westralensis* was recently recognised as distinct at the species level as *M. westralensis* (Christidis *et al.* 2011).

2. South-eastern Hooded Robins occur in south-eastern Australia from far south-east Queensland to the Yorke Peninsula, South Australia, intergrading with *Melanodryas cucullata picata* in the northern Murray Darling basin (Schodde & Mason 1999). The South-eastern Hooded Robin is now absent from many formerly occupied sites, particularly in the wetter areas of the south and east (Barrett *et al*. 1994; Paton *et al.* 1994; Ford *et al*. 2009).

3. The geographic distribution of the South-eastern Hooded Robin is widespread. The Extent of Occurrence (EOO) is estimated to be 1,200,000 km^2 and is based on a minimal convex polygon containing all known occurrences, the method of assessment recommended by IUCN (2022). The Area of Occupancy (AOO) is estimated to be 30,000 km^2 (range 16,000–50,000 km^2). The minimum AOO was calculated using records within 2 x 2 km grid cells, the scale recommended by IUCN (2022), but given the remoteness of much of the distribution, the AOO is thought to be at least twice that and probably substantially greater (Ford *et al.* 2021; S Garnett pers. comm. 9 Nov 2021 in DCCEEW 2023).

4. South-eastern Hooded Robins are mostly seen in pairs or small groups and are described as shy and largely sedentary. They prefer dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. They avoid woodlands with tall trees or dense tree cover but sometimes occur in tall, dense heaths with scattered open areas. While they can occur in patches as small as 2.9 ha (Montague-Drake *et al.* 2009), in agricultural landscapes they prefer larger patches greater than 10 ha (Watson *et al.* 2000) with moderately deep to deep soils (Priday 2010).

5. South-eastern Hooded Robins tend to forage on insects and small lizards taken from the ground (Antos *et al.* 2008). Birds hunt for invertebrates by ‘perch and pounce’ in grassy clearings where rocks and fallen timber litter the ground (Sullivan 1993).

6. South-eastern Hooded Robins generally form monogamous pairs and occupy territories up to 10 ha during the breeding season (between July and November) and up to 30 ha non-breeding season (OEH 2022, DCCEEW 2023). Birds usually return to the same breeding site where they typically rear several broods each season. Nests comprise small, neat cups of bark and grasses bound with webs, and are situated in a tree fork or crevice, from less than 1 m to 5 m above the ground (Fitri and Ford 2003a, 2003b; Higgins and Peter 2002). A clutch size of two is typical. The incubation period is 14 days and only the female broods the eggs. Both sexes defend the nests with displays of injury-feigning, tumbling across the ground (Bird *et al.* 2020).

7. There are currently estimated to be 68,000 (range 36,000 - 113,000) mature South-eastern Hooded Robins, with a declining trend (Ford *et al.* 2021). The

population estimate is the product of the three measures of AOO and the average density of birds in 2 ha 20 min surveys in which counts were undertaken (1.8 birds/2 ha; SD 1.1, 1327 plots) (Ford *et al.* 2021). South-eastern Hooded Robins tend to persist only in substantial areas of remnant habitat, so it is assumed that, if they are present at all, there must have been at least 20 ha of suitable habitat within the 2 x 2 grid cell where they were observed (Ford *et al.* 2021).

8. Based on reporting rate data, it is inferred that the South-eastern Hooded Robin population has undergone a significant reduction in size (>50%) over 10 years (one generation = three years) (Ford *et al.* 2021). While there is no dedicated range-wide monitoring, the subspecies is still sufficiently common that reporting rate trends are likely to reflect changes in abundance (Ford *et al.* 2021). Across the range from 2000–2018, reporting rates from 2 ha 20 min surveys and 500 m radius area searches declined by 65% and 63% respectively (1999–2008: declines of 14% and 55%; 2009–2018: declines of 51% and 49%). In southern NSW, abundance declined by 66% from 2002– 2015 (Lindenmayer *et al.* 2018) and in north-east NSW reporting rates at 41 sites declined from 52% in 1977–1980 to 13% in 2004–2006 (Gosper and Gosper 2016), with zero recordings in 2020 (Gosper pers. comm. in Ford *et al.* 2021). Additionally, numbers of this subspecies have been declining in agricultural landscapes for many decades (Robinson 1993; Robinson and Traill 1996; Reid 1999; Olsen *et al.* 2005) and the reporting rate declined by 41% in NSW between the 1977–1981 and 1998–2002 BirdLife Australia Atlases, with no variation between bioregions (Barrett *et al.* 2007).

9. The declining population of South-eastern Hooded Robins is suspected to be the result of major, ongoing threats, specifically habitat fragmentation caused by land clearing for large scale agriculture, and increased mortality and decreased reproductive success from extreme weather events from climate change (DCCEEW 2023). Other threats, that may contribute to population decline include; habitat degradation from domestic livestock grazing, competition from Noisy Miners *Manorina melanocephala*, and predation by feral cats *Felis catus* and foxes *Vulpes vulpes*.

10. Ongoing impacts of habitat fragmentation and land clearing for agriculture is a major, almost certain threat to the South-eastern Hooded Robin. Since European settlement, over 80% of woodlands in south-east Australia have been cleared (Bradshaw 2012). Remaining remnants are generally isolated and small, and often below the critical size needed to sustain healthy populations of many bird species (Olsen *et al.* 2005). Additionally, as habitats become increasingly fragmented due to clearing, native birds become more vulnerable to other threats, such as predation and destructive fires, and may lose the ability to recolonise once-suitable habitat (Olsen *et al.* 2005). Also, as habitat with richer soils tend to have been cleared for agriculture, the remaining areas may not produce prey of sufficient quantity or quality to support Robin populations (Watson 2011; Razeng and Watson 2015). “Clearing of native vegetation” is listed as a Key Threatening Process under the Act.

11. The increased likelihood of extreme events from climate change is a major, almost certain threat to the South-eastern Hooded Robin. Closely related species such as the Jacky Winter *Microeca facinans* have been found to be vulnerable to extreme heatwaves that overwhelm their physiological limits and reduce reproductive fitness (Sharpe *et al.* 2019; Sharpe *et al.* 2021) and so the co-occurring South-eastern Hooded Robin is considered similarly vulnerable to such change (DCCEEW 2023). Since 1950, the number of record hot days (above 35 °C) across Australia has more than doubled and the mean temperature has increased by about 1.4 °C since 1910 (BOM and CSIRO 2020; IPCC 2021). Heatwaves are also lasting longer, reaching more extreme maximum temperatures, and occurring more frequently over many regions of Australia (Perkins-Kirkpatrick *et al.* 2016; Evans *et al.* 2017; Herold *et al*. 2018; BOM and CSIRO 2020). “Anthropogenic climate change” is listed as a Key Threatening Process under the Act.

12. Native tree and shrub seedlings and grassy woodland groundcover species are highly susceptible to domestic stock grazing. Many woodland remnants in poor condition lack native plant diversity and therefore have low habitat value for woodland birds (Seddon *et al.* 2003). Unlike native herbivores, most domestic stock are hard-hoofed and cause significantly more damage to soil structure from compaction, and damage to native plants by trampling (Willson and Bignall 2009). A reduction or removal of understorey habitat (e.g., native shrubs, herbs and grasses) can reduce foraging and nesting sites, reduce shelter, and subsequently increase the risk of predation for birds requiring complex ground layers such as the South-eastern Hooded Robin (Olsen *et al.* 2005).

13. The Noisy Miner *Manorina melanocephala* is a native species that often aggressively excludes other small woodland birds from remnants they occupy (Willson and Bignall 2009). Noisy miners have benefited from landscape-scale clearing and fragmentation. (Westgate et al 2021). They typically dominate open Eucalypt woodland remnants on farms, in tree corridors and clumps of paddock trees, especially those lacking a shrubby understorey (Crates *et al.* 2018), and so can contribute to exclusion of South-eastern Hooded Robins from smaller patches of remaining woodland habitat. “Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)” is is listed as a Key Threatening Process under the Act.

14. Woodland bird species that nest or forage on the ground are particularly vulnerable to predation by cats and foxes, including South-eastern Hooded Robins (Olsen *et al*. 2005; Commonwealth of Australia 2008a, 2008b, 2015a, 2015b; Woinarski *et al.* 2017). The threat of cats is also amplified by bushfires as they take advantage of recently burnt areas (McGregor *et al*. 2016), as they prefer to hunt in open habitats (McGregor *et al.* 2015). “Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)” and “Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)” are listed as Key Threatening Processes under the Act.

15. South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Latham, 1801) is not eligible to be listed as a Critically endangered species.

16. South-eastern Hooded Robin *Melanodryas cucullata cucullata* (Latham, 1801) is eligible to be listed as an Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing a high risk of extinction in Australia in the near future as determined in accordance with the following criteria as prescribed by the *Biodiversity Conservation Regulation 2017*:

Assessment against *Biodiversity Conservation Regulation* 2017 criteria
The Clauses used for assessment are listed below for reference.

Overall Assessment Outcome: Endangered under Cause 4.2 1(b)2(b)(c)(e)

Clause 4.2 – Reduction in population size of species
(Equivalent to IUCN criterion A)
Assessment Outcome: Endangered under Cause 4.2 1(b)2(b)(c)(e)

(1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:			
	(a)	for critically endangered species	a very large reduction in population size, or
	(b)	for endangered species	a large reduction in population size, or
	(c)	for vulnerable species	a moderate reduction in population size.
(2) - The determination of that criteria is to be based on any of the following:			
	(a)	direct observation,	
	(b)	an index of abundance appropriate to the taxon,	
	(c)	a decline in the geographic distribution or habitat quality,	
	(d)	the actual or potential levels of exploitation of the species,	
	(e)	the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.	

Clause 4.3 – Restricted geographic distribution of species and other conditions
(Equivalent to IUCN criterion B)
Assessment Outcome: Not met.

The geographic distribution of the species is:			
	(a)	for critically endangered species	very highly restricted, or
	(b)	for endangered species	highly restricted, or
	(c)	for vulnerable species	moderately restricted.
and at least 2 of the following 3 conditions apply:			
	(d)	the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations,	
	(e)	there is a projected or continuing decline in any of the following:	
		(i)	an index of abundance appropriate to the taxon,

		(ii)	the geographic distribution of the species,
		(iii)	habitat area, extent or quality,
		(iv)	the number of locations in which the species occurs or of populations of the species.
	(f)	extreme fluctuations occur in any of the following:	
		(i)	an index of abundance appropriate to the taxon,
		(ii)	the geographic distribution of the species,
		(iii)	the number of locations in which the species occur or of populations of the species.

Clause 4.4 – Low numbers of mature individuals of species and other conditions
(Equivalent to IUCN criterion Clause C)
Assessment Outcome: Not met.

The estimated total number of mature individuals of the species is:						
	(a)	for critically endangered species				very low, or
	(b)	for endangered species				low, or
	(c)	for vulnerable species				moderately low.
and either of the following 2 conditions apply:						
	(d)	a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species):				
		(i)	for critically endangered species			very large, or
		(ii)	for endangered species			large, or
		(iii)	for vulnerable species			moderate,
	(e)	both of the following apply:				
		(i)	a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and			
		(ii)	at least one of the following applies:			
			(A)	the number of individuals in each population of the species is:		
				(I)	for critically endangered species	extremely low, or
				(II)	for endangered species	very low, or
				(III)	for vulnerable species	low,
			(B)	all or nearly all mature individuals of the species occur within one population,		
			(C)	extreme fluctuations occur in an index of abundance appropriate to the species.		

Clause 4.5 – Low total numbers of mature individuals of species
(Equivalent to IUCN criterion D)
Assessment Outcome: Not met.

The total number of mature individuals of the species is:			
	(a)	for critically endangered species	extremely low, or
	(b)	for endangered species	very low, or
	(c)	for vulnerable species	low.

Clause 4.6 – Quantitative analysis of extinction probability
(Equivalent to IUCN criterion E)
Assessment Outcome: Not met.

The probability of extinction of the species is estimated to be:			
	(a)	for critically endangered species	extremely high, or
	(b)	for endangered species	very high, or
	(c)	for vulnerable species	high.

Clause 4.7 – Very highly restricted geographic distribution of species– vulnerable species
(Equivalent to IUCN criterion D2)
Assessment Outcome: Not met.

For vulnerable species,	the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period.

Senior Professor Kristine French
Chairperson
NSW Threatened Species Scientific Committee

Supporting Documentation:

DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2023). Conservation Advice for *Melanodryas cucullata cucullata* (hooded robin (south-eastern)). Department of Climate Change, Energy, the Environment and Water, Canberra, Australia.

References:

Antos MJ, Bennett AF, White JG (2008). Where exactly do ground-foraging woodland birds forage? Foraging sites and microhabitat selection in temperate woodlands of southern Australia. *Emu* **108**, 201–211.

Barrett G, Ford HA, Recher HF (1994). Conservation of woodland birds in a fragmented rural landscape. *Pacific Conservation Biology* **1**, 245–256.

Barrett GW, Silcocks AF, Cunningham R, Oliver D, Weston MA, Baker J (2007). Comparison of atlas data to determine the conservation status of bird species in New South Wales, with an emphasis on woodland-dependent species. *Australian Zoologist* **34**, 37–77.

Bird JP, Martin R, Akçakaya HR, Gilroy J, Burfield IJ, Garnett ST, Symes A, Taylor J, Şekercioğlu ÇH, Butchart SHM (2020). Generation lengths of the world's birds and their implications for extinction risk. *Conservation Biology* **34**, 1252–1261.

BOM (Bureau of Meteorology) and CSIRO (2020). State of the Climate 2020 Report. Australian Bureau of Meteorology and CSIRO, Commonwealth of Australia. URL: http://www.bom.gov.au/state-of-the-climate/ (Accessed 29 June 2023).

Bradshaw C (2012). Little left to lose: Deforestation and forest degradation in Australia since European colonization. *Journal of Plant Ecology* **5**, 109–120.

Christidis L, Irestedt M, Rowe D, Boles WE, Norman JA (2011). Mitochondrial and nuclear DNA phylogenies reveal a complex evolutionary history in the Australian robins (Passeriformes: Petroicidae). *Molecular Phylogenetics and Evolution* **61**: 726–738.

Commonwealth of Australia (2008a) Background document: Threat abatement plan for predation by European red fox. (Department of the Environment: Canberra).

Commonwealth of Australia (2008b) Threat abatement plan for predation by European red fox. (Department of the Environment: Canberra).

Commonwealth of Australia (2015a) Background document: Threat abatement plan for predation by feral cats. (Department of the Environment: Canberra).

Commonwealth of Australia (2015b) Threat abatement plan for predation by feral cats. (Department of the Environment: Canberra).

Crates R, McDonald PG, Melton CB, Maron M, Ingwersen D, Mowat E, Breckenridge M, Murphy L, Heinsohn R (2023). Towards effective management of an overabundant native bird: The noisy miner. *Conservation Science and Practice*, **5(2)**, e12875.

DCCEEW (Department of Climate Change, Energy, the Environment and Water) (2023). Conservation Advice for *Melanodryas cucullata cucullata* (hooded robin (south-eastern)). Department of Climate Change, Energy, the Environment and Water, Canberra, Australia.

Evans JP, Argueso D, Olson R, Di Luca A (2017). Bias-corrected regional climate projections of extreme rainfall in south-east Australia. *Theoretical and Applied Climatology* **130**, 1085–1098.

Fitri L, Ford HA (2003a). Breeding biology of Hooded Robins Melanodryas cucullata in New England. *Corella* **27**, 68–74.

Fitri L, Ford HA (2003b). Foraging behaviour of Hooded Robins Melanodryas cucullata in the Northern Tablelands of New South Wales. *Corella* **27**, 61–67.

Ford HA, Walters JR, Cooper CB, Debus SJS, Doerr VAJ (2009). Extinction debt or habitat change? Ongoing losses of woodland birds in north-eastern New South Wales, Australia. *Biological Conservation* **142**, 3182–3190.

Ford HA, Oliver D, Loyn RH, Barnes MD, Tulloch AIT, Garnett ST (2021). South-eastern Hooded Robin *Melanodryas cucullata cucullata*. In 'The Action Plan for Australian Birds 2020.' (CSIRO Publishing: Melbourne).

Gosper DG, Gosper CR (2016). Diurnal birds in the Bungawalbin Creek catchment, northern New South Wales, with a focus on spatial and temporal changes in reporting rates of declining woodland birds. *Corella* **40**, 1–12.

Herold N, Ekström M, Kala J, Goldie J, Evans JP (2018). Australian climate extremes in the 21st century according to a regional climate model ensemble: Implications for health and agriculture. *Weather and Climate Extremes* **20**, 54–68.

Higgins PJ, Peter JM (Eds) (2002). Volume 6: Pardalotes to Shrike-thrushes. In 'Handbook of Australian, New Zealand and Antarctic Birds.' (Oxford University Press: Melbourne).

IPCC (Intergovernmental Panel on Climate Change) (2021). Regional fact sheet – Australasia. In 'Sixth Assessment Report Working Group I – The Physical Science Basis'. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Australasia.pdf (Accessed 2 May 2023).

IUCN Standards and Petitions Subcommittee (2022). Guidelines for Using the IUCN Red List Categories and Criteria. Version 15.1 (July 2022). Standards and Petitions Committee of the IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.

Lindenmayer DB, Lane PW, Westgate MJ, Scheele BC, Foster C, Sato C, Ikin K, Crane M, Michael D, Florance D, Barton PS (2018). Tests of predictions associated with temporal changes in Australian bird populations. *Biological Conservation* **222**, 212–221.

McGregor HW, Legge S, Jones ME, Johnson CN (2015). Feral Cats Are Better Killers in Open Habitats, Revealed by Animal-Borne Video. *PLoS ONE* **10(8)**, e0133915.

McGregor HW, Legge S, Jones ME, Johnson CN (2016). Extraterritorial hunting expeditions to intense fire scars by feral cats. *Scientific Reports* **6**, 22559.

Montague-Drake RM, Lindenmayer DB, Cunningham RB (2009). Factors affecting site occupancy by woodland bird species of conservation concern. *Biological Conservation* **142**, 2896–2903.

OEH (Office of Environment and Heritage) (2022). Hooded Robin (south-eastern form) – profile. URL: https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10519 (Accessed 29 June 2023).

Olsen, P, Weston M, Tzaros C, Silcocks A (2005). The state of Australia's birds 2005. *Wingspan* **15(4)**, supplementary document.

Paton DC, Carpenter G, Sinclair RG (1994). A second bird atlas of the Adelaide region. Part 1: Changes in the distribution of birds: 1974–75 vs 1984–85. *South Australian Ornithologist* **31**, 151–193.

Perkins-Kirkpatrick SE, White CJ, Alexander LV, Argüeso D, Boschat G, Cowan T, Evans JP, Ekström M, Oliver ECJ, Phatak A, Purich A (2016). Natural Hazards: Heatwaves. *Climatic Change* **131(1)**, 101–114.

Priday SD (2010) Beyond the 'woody remnant' paradigm in conservation of woodland birds: habitat requirements of the Hooded Robin (*Melanodryas cucullata cucullata*). *Emu* **110**, 118– 124.

Razeng E, Watson DM (2015). Nutritional composition of the preferred prey of insectivorous birds: popularity reflects quality. *Journal of Avian Biology* **46**, 89–96.

Reid JRW (1999). Threatened and declining birds in the New South Wales Sheep-Wheat Belt: I. Diagnosis, characteristics and management. Consultancy report to NSW National Parks and Wildlife Service. (CSIRO Sustainable Ecosystems: Canberra).

Robinson D (1993). Vale Toolern Vale: the loss of our woodland birds. *Wingspan* **3**, 1–4.

Robinson D, Traill BJ (1996). 'Conserving Woodland Birds in the Wheat and Sheep Belts of Southern Australia.' (Royal Australasian Ornithologists Union: Melbourne).

Schodde R, Mason IJ (1999). 'The Directory of Australian Birds: Passerines.' (CSIRO Publishing: Melbourne).

Seddon J, Briggs SV, Doyle SJ (2003). Relationships between bird species and characteristics of woodland remnants in central New South Wales. *Pacific Conservation Biology* **9**, 95-119.

Sharpe LL, Bayter C, Gardner JL (2021). Too hot to handle? Behavioural plasticity during incubation in a small, Australian passerine. *Journal of Thermal Biology* **98**, 102921.

Sharpe LL, Cale B, Gardner JL (2019). Weighing the cost: the impact of serial heatwaves on body mass in a small Australian passerine. *Journal of Avian Biology*, e02355.

Sullivan D (1993). The breeding and non–breeding behaviour of the Hooded Robin *Melanodryas cucullata* in Canberra, 1990–1991. *Australian Bird Watcher* **15**, 99–107.

Watson DM, Mac Nally RC, Bennett AF (2000). The avifauna of remnant Buloke (Allocasuarina luehmanni) woodlands in western Victoria. *Pacific Conservation Biology* **6**, 46–60.

Watson DM (2011). A productivity-based explanation for woodland bird declines: poorer soils yield less food. *Emu* **111**, 10– 18.

Westgate, M.J., Crane, M., Florance, D. and Lindenmayer, D.B., 2021. Synergistic impacts of aggressive species on small birds in a fragmented landscape. *Journal of Applied Ecology*, *58*(4), pp.825–835.

Willson A, Bignall J (2009). 'Regional recovery plan for threatened species and ecological communities of Adelaide and the Mount Lofty Ranges, South Australia.' (Department for Environment and Heritage: South Australia)

Woinarski JC, Woolley LA, Garnett ST, Legge SM, Murphy BP, Lawes MJ, Comer S, Dickman CR, Doherty TS, Edwards G, Nankivill A (2017). Compilation and traits of Australian bird species killed by cats. *Biological Conservation* **216**, 1–9.