

The Fauna of Strathfield Council Local Government Area: 2016



InSight Ecology
for
Strathfield Municipal Council

August 2017

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This report was prepared by InSight Ecology for, and funded by, Strathfield Municipal Council.

Recommended citation: InSight Ecology, 2017b. *The Fauna of Strathfield Council Local Government Area: 2016*. Report by InSight Ecology for Strathfield Municipal Council, Sydney.

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Photographs: Front cover – main image (top): Weeroona Road remnant from south looking north-northwest (InSight Ecology, 4/12/16); panel of birds (centre): Red-browed Finch *Neochmia temporalis* (taken in Weeroona Road remnant, 22/4/16, InSight Ecology), Eastern Yellow Robin *Eopsaltria australis* (recorded in Weeroona Road remnant 22/4/16, photo by Iestyn Taylor); Black-winged Stilt *Himantopus himantopus* foraging in Mason Park wetland (8/12/16, InSight Ecology); bottom panel: Eastern Water Skink *Eulamprus quoyii* recorded along upper Cooks River at Strathfield Golf Course (Andy Doldissen); Common Blue-tongue Skink *Tiliqua scincoides*, detected in Weeroona Road remnant (Andy Doldissen); Common Brushtail Possum *Trichosurus vulpecula* - female with pouched young photographed in Strathfield Park on 1/12/16 (InSight Ecology). Inside front cover (this page): Mason Park wetland from southeast end looking northwest showing waterbird identification sign (InSight Ecology, 19/4/16). Photographs used in this document without credits were taken by InSight Ecology.

Acknowledgements

This study was made possible by the vision, support and commitment of Mark Latham, Cathy Jones, Patrick Wong, Simon Leiva and Cameron Ross of Strathfield Council. To these people I am grateful and particularly Mark for his insights and professionalism. Strathfield Council also supported an earlier avifaunal study, by InSight Ecology in 2007-2008, in the LGA.

I am also grateful for information, knowledge and expertise provided by other Strathfield Council staff. These include Alex Mackenzie, Chavvauhn Calver (formerly with Council) and Sebastian Van der Eyk of the Bush Regeneration Team and plant nursery sections as well as Leon Limberou (Tree Management Officer) and Emily McCarthy (Weed Officer). Chavvauhn and Sebastian accompanied me on some field survey sessions as did Mark Latham. Alex, Sebastian and Chavvauhn contributed their observations of fauna in the study area while Alex, Sebastian and Leon also assisted with the identification of significant tree species. Keys were provided to access Council reserves at Davidson Street (corner of Hume Highway, Greenacre), Yarrowee Wetland and Cox's Creek Bushland Reserve. Sharifa Sharmin (GIS Officer) provided access to Council's GIS data. Stacey Kolkert supplied additional GIS mapping services to InSight Ecology for the project.

Kerrie Davies of the former Auburn City Council (now Cumberland Council) provided access to the section of Weeroona Road remnant west of Weeroona Road itself.

The superintendents of Strathfield Golf Course (Paul Keary) and Hudson Park Golf Course (Shaun Thomson) provided access to their grounds for both diurnal and nocturnal surveys. Mark Bundy and Rob Smart from Rookwood General Cemeteries Reserve Trust permitted access to the western section of Weeroona Road remnant site.

A number of interested local residents and some cyclists, particularly along the upper Cook's River reserves, provided information on the occurrence of birds and other fauna in nearby reserves, and, in some cases, their home gardens. They included Charles Pitt and family (Inveresk Park), Tom Skulander and Barbara (Chain of Ponds Reserve and Ford Park), Les Gamblin (Chain of Ponds Reserve), Suba (Edwards Park) and 11 regular lady golfers at Strathfield Golf Course.

The NSW Office of Environment and Heritage (OEH) provided InSight Ecology with licensed access to current and historical fauna data stored on BioNet (Atlas of NSW Wildlife). InSight Ecology holds a NSW Scientific Licence (No. S11505) issued by OEH.

Summary

Strathfield Council Local Government Area (LGA) is one of the oldest established urban precincts in Australia, situated in Sydney's densely populated inner-western suburbs. The suburb of Strathfield was established in 1867 following subdivision of the Redmire Estate and land grants made in the early 1800s (Jones 2005).

The indigenous vegetation of this landscape has been reduced to four small, highly isolated bushland remnants and one remnant wetland at Mason Park. These are surrounded by housing, parks, sporting fields, shops and industrial estates. There have been successive phases of street tree plantings since the late 1800s. Followed more recently by the bush regeneration of parks and public reserves these activities have created a range of habitats for a mix of indigenous and introduced bird species, some mammals, small reptiles, frogs and fish. These habitats are dispersed across five broad types of urban greenspace in the study area (Strathfield LGA) – bushland remnants, revegetated parkland, open parkland, urban neighbourhood, and wetland.

This study was commissioned by Strathfield Council to provide new data on the occurrence, relative abundance, species richness and habitat use of fauna in 39 parks, reserves and urban neighbourhoods across the LGA. This work was also undertaken to update two previous studies of fauna in Strathfield LGA, completed in 2007 and 2008. This information will help Council protect, conserve and manage fauna and their habitats in the study area. This study surveyed diurnal and nocturnal birds, mammals, frogs and reptiles present in two consecutive seasons – autumn (May) and early summer (late November-early December) 2016. About 72% of all sites surveyed in 2016 had been also surveyed in 2007-2008. Over 93 hours of surveying took place.

A total of 4,985 individuals from 94 species of fauna were recorded during the study. Most of these were birds (81 species) – 67 terrestrial species and 14 aquatic taxa. Other fauna recorded were mammals (6 species, including 3 introduced species), reptiles (3 species), amphibians (2 species) and fish (2). Over half (45 species, including 2 threatened species) of bird species recorded were of conservation significance while 9 bird species detected have been introduced.

Some very encouraging results emerged from the study, despite all the urban pressures on wildlife in this part of the innerwest. Weeroona Road remnant, situated in an electricity supply easement between Rookwood Cemetery, Strathfield Golf Course and a railway line, is the jewel in Strathfield's biodiversity crown. Old Kunzea shrubland and paperbark woodland there supported 22 conservation-significant birds, 17 of which belong to the declining woodland bird group. These include species found nowhere else in the study area and only at a small number of other sites in the innerwest - Eastern Yellow Robin, Grey Shrike-thrush, Brown Thornbill, Tawny Grassbird and Double-barred Finch. Other innerwest Sydney decliners - White-browed Scrubwren, Superb Fairy-wren and Red-browed Finch - also persist in riparian and fringing wetland revegetation at Mason Park and older plantings in the adjacent Bressington Park.

A range of recommendations are made to protect and conserve Strathfield's remnant native fauna populations. These focus on protecting, expanding and re-connecting their habitat particularly along the upper Cooks River and hopefully through to Weeroona Road and Rookwood cemetery – some of the last bits of bush left supporting these faunal 'gems' in the innerwest. Mason Park wetland is also identified for further habitat protection and restoration.

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1. Introduction

1.1 Project background

There has been widespread recognition of the need to protect, conserve and re-establish viable habitat for native fauna in cities around the world (see, for example, Pickett et al. 2011, Cardinale et al. 2012, Secretariat of the Convention on Biological Diversity 2012; Aronson et al. 2014). Most of these landscapes have been cleared of the majority of their native habitat with consequent substantial species loss and impaired ecosystem functioning (McDonald et al. 2008; Pickett et al. 2011). Cities are not ecological wastelands, however - with appropriate planning and action urban landscapes can provide habitats for a range of different fauna species, albeit often from fewer genera than intact ecosystems. Resilient, urban-adapted generalist species often dominate these communities (see, for example, InSight Ecology 2010, 2012, 2014).

New knowledge is needed to help us understand how fauna function in these complex urban ecosystems. Information on how animals use different types and configurations of planted and remnant vegetation (greenspace), whether they can successfully reproduce and what factors determine their survival and persistence is essential to help guide urban biodiversity conservation programs (Commonwealth of Australia 2005; Pickett and Cadenasso 2006; Alberti 2010; InSight Ecology 2012; Ikin et al. 2013, 2014).

In Sydney, there has been substantial investment in the rehabilitation and restoration of bushland reserves, waterways, residential streets, parks and housing estates, major transport arteries, and former industrial sites over the past 30-40 years (NSW Department of Planning 2005, 2010). However, there has been little attention paid to determining whether these activities are facilitating or hindering the movement and conservation of native fauna and their habitat in these landscapes. For example, Sydney's inner-west councils have rehabilitated and revegetated tracts of native vegetation along the Cooks River (Cooks River Foreshores Working Group 2006). Similar work has been undertaken in bushland and parkland reserves by City of Ryde and Hunter's Hill Council (see InSight Ecology 2010), City of Canada Bay Local Government Area (LGA) (InSight Ecology 2014) and the City of Willoughby LGA (InSight Ecology 2017a).

While these efforts seek to address habitat protection and rehabilitation, bushfire management, amelioration of local climate change effects, soil erosion control and water quality improvement objectives, their contribution to providing key foraging, breeding and linkage habitat for native fauna communities requires further investigation. Some progress has however been made through, for example, the Ryde/Hunter's Hill River to River Corridors Project (see InSight Ecology 2012).

In 2007-2008, a systematic survey of bird communities and their habitats was undertaken by InSight Ecology for Strathfield Municipal Council (InSight Ecology 2008). This work obtained key baseline data on bird occurrence, relative abundance, species richness and habitat use in a range of terrestrial and aquatic habitats in November 2007 and March 2008 at 26 sites across the LGA. This work was followed by a vertebrate fauna survey of 30 sites in Strathfield Council LGA (Ambrose Ecological Services Pty Ltd 2009). This project sampled mammal, bird, reptile, amphibian and fish populations in May and December 2008 across the LGA.

The current study systematically surveyed key fauna at 39 sites in Strathfield Council LGA (“the study area”) in April 2016 and November-December 2016. This provided new ecological data on particularly bird occurrence, relative abundance, species richness, and habitat utilisation in the LGA. It also enabled comparison with results achieved in the 2007-2009 studies. The results of the latest study will help Council protect, enhance, manage and monitor key fauna species, communities and their habitats across the LGA.

1.2 Objectives and outcomes

The project focuses on providing new data on bird and other fauna species’ occurrence, abundance and habitat use at bushland remnants, parks, wetlands and urban neighbourhood blocks in the study area. Specifically, this report aims to:

- Describe the occurrence, abundance and species richness of and habitat use by avifauna and other taxa recorded at surveyed sites in the study area;
- Discuss the significance of these results with reference to two previous systematic fauna studies of the LGA;
- Identify sites for priority management action and provide practical recommendations for protecting, enhancing, managing and monitoring faunal populations and communities that occur in the study area;
- Help inform, engage and educate the local community including residents, schools and Australian Catholic University in the conservation and restoration of local fauna and their habitat.

The project will help deliver a number of key outcomes for the protection and conservation of indigenous biodiversity in the study area. These include:

- New knowledge and understanding of the indigenous and introduced biodiversity of the study area and their conservation and management requirements;
- More informed decision-making through flow-on of biodiversity knowledge to assist Council’s strategic planning, sustainability action planning, bushcare, reporting, ecological impact assessment, development control and community education functions;
- Provision of new information to help engage and educate local communities in protecting, conserving and restoring habitat of indigenous fauna in the study area;
- Supply of data to enhance the quality of future applications to fund habitat restoration and rehabilitation projects along the upper Cook’s River, at Weeroona Road remnant, Mason Park wetland, and other priority action sites.

2. Methods

2.1 Literature and data review

A review of existing information on biodiversity, European and Aboriginal heritage, urban development patterns and bushland management activities in the study area was undertaken. The biodiversity component focused on two previous fauna studies undertaken in 2007 and 2008 in the LGA. Other available fauna records were inspected through the Atlas of NSW

Wildlife (BioNet) under licensed access provided by OEH, as well as Strathfield Council's Flora and Fauna Register.

2.2 Field surveying

2.2.1 Site selection and location

A total of 39 sites were selected for surveying over two seasons in the study area - autumn and early summer 2016. These were distributed throughout the LGA across five greenspace types – remnant bushland, revegetated parkland, open parkland, wetland, and urban neighbourhood. The latter category included blocks of planted vegetation in street verges and home gardens. Section 2.2.2 describes these sites according to their greenspace type. This categorisation of greenspace type conforms with approaches used in previous studies of Strathfield's fauna (InSight Ecology 2008 and Ambrose Ecological Services Pty Ltd 2009).

The current study surveyed an additional 13 sites to those surveyed in the 2007-2008 study (26 sites - see InSight Ecology 2008). This ensured conformity with sites studied in Ambrose's 2008 fauna survey (30 sites) as well as those surveyed by InSight Ecology in the 2007-2008 work. Additional sites surveyed in the current study were Cooke Park, Begnell Field, Barks Huts Reserve, Edwards Park, Prentice Reserve, Bressington Park, Wentworth Reserve, Bill Boyce Reserve, Fitzgerald Park, Pilgrim Park, Frank Zions Reserve, Boden Reserve and Yarrowee artificial wetland. Three sites were surveyed by InSight Ecology in both 2007-2008 and the current project but were not surveyed in Ambrose's 2008 fauna survey. These were Strathfield Golf Course, Ismay Reserve (including the former Homebush Bowls Club) and Southend Tennis.

The location of each of these sites was recorded using a Garmin GPSmap62s. Waypoints were recorded to identify the survey route taken and mark locations of significant bird species or bird activity or make other notes. Table 1 lists this information for each site surveyed in the study.

Table 1: Location of sites surveyed for birds and significant fauna species recorded by InSight Ecology in Strathfield Council LGA, April 19-29 and November 28-December 8, 2016. *coordinates given as decimal degrees in latitude (S = south) and longitude (E = east); based on Map Datum WGS 84 and Zone 56H of the Universal Transverse Mercator (UTM) coordinate system. UN = urban neighbourhood.

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
1	Mason Park revegetation	MPREV01	33.85518	151.07936	Yellow Thornbill, Superb Fairy-wren, New Holland Honeyeater
		MPREV02	33.85464	151.08003	Allocasuarina plantings along walking trail
		MPREV03	33.85384	151.08088	Allocasuarina plantings along walking trail
		MPREV04	33.85573	151.08295	White-browed (WB) Scrubwren @ SE end of acacia plantings
		MPREV05	33.85568	151.08258	weedy older planted hill; WB Scrubwren
		MPREV06	33.85665	151.08144	SW cnr nr powerline staunchion

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
2	Mason Park wetland	MPW01	33.85351	151.08102	W edge of mangroves
		MPW02	33.85283	151.08183	N end off trail
		MPW03	33.85293	151.08226	nr wetland signage
		MPW04	33.85347	151.08242	N lake, Chestnut Teal
		MPW05	33.85466	151.08224	S end 2 nd & smaller lake
		MPW06	33.85524	151.08307	SE edge of 2 nd lake
3	Mason Park playing fields	MPF01	33.85639	151.08095	playing field 3
		MPF02	33.85579	151.08021	playing field 3
		MPF03	33.85551	151.07975	SW cnr p/field 3
4	Bressington Park	BP01	33.85477	151.07853	SE cnr of park
		BP02	33.85408	151.07777	SW cnr nr rd junction
		BP03	33.85167	151.08096	N end nr cycleway
		BP04	33.85166	151.08139	N end weedy slope
		BP05	33.85331	151.08070	E slope nr canal
		BP06	33.85493	151.07907	SE cnr at canal
5	Wentworth Reserve	WRES01	33.85852	151.07855	NE end
		WRES02	33.85906	151.07799	S end
		WRES03	33.85839	151.07826	N end
6	Bill Boyce Reserve	BBRES01	33.86059	151.08021	W end off street
		BBRES02	33.86063	151.08109	transect midpoint
		BBRES03	33.86124	151.08156	E end
7	Ismay Reserve	IRES01	33.86170	151.08488	S end
		IRES02	33.86141	151.08551	adjac canal
		IRES03	33.86071	151.08481	transect midpoint
		IRES04	33.85970	151.08450	N end
8	Hudson Park Golf Course	HPGC01	33.86894	151.06661	nr pro-shop
		HPGC02	33.86827	151.06448	at 10 th green
		HPGC03	33.86693	151.06133	active rabbit warren
		HPGC04	33.86986	151.06393	at 4 th tee
		HPGC05	33.87402	151.06708	at 15 th tee
		HPGC06	33.87033	151.06785	at 13 th tee
		GHFF	33.87191	151.06763	1xGrey-headed Flying-fox @ 14 th tee (20/4/16)
9	Strathfield Golf Course	SGC01	33.88431	151.07317	18 th tee
		SGC02	33.88514	151.07260	practice range
		FOX1	33.88284	151.07190	2 along river (21/4/16)
		SGC03	33.88099	151.06943	3 rd green
		FOX2	33.88160	151.06702	1 along river (21/6/16)
		SGC04	33.88033	151.06435	6 th tee
		SGC05	33.88071	151.06705	Spotless Crake (21/4/16)
		RRP1	33.88089	151.06598	Red-rumped Parrot nest
		RRP2	33.88116	151.06296	Red-rumped Parrot nest
		FOX3	33.88204	151.06343	1 headed SW up river (2139, 2/12/16)
		TFROGM1	33.88229	151.06274	in ironbark (2150, 2/12/16)
		TFROGM2	33.88179	151.06227	perched, on 11 th (2210, 2/12/16)
		SGC06	33.88244	151.06129	Nutmeg Mannikin
SMALLBIRDS	33.88292	151.06172	Yellow Thornbill, White-browed Scrubwren, Superb Fairywren (2/12/16)		

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
10	Strathfield Park	SPK01	33.88388	151.08463	E end
		SPK02	33.88516	151.08258	S end – Indig. Trail
		SPK03	33.88309	151.08170	NW entrance
		BTP1	33.88527	151.08325	1xBT Possum in brushbox (1/12/16)
		RTP1	33.88525	151.08270	1xRT Possum (male in old turpentine (1/12/16)
		RTP2	33.88531	151.08258	1xRT Possum in backyard <i>Eucalyptus citriodora</i>
		BTP2	33.88509	151.08171	1xBT Possum in large <i>Ficus microcarpa var hillii</i> rows planted in late 1800s (24/4/16); 2 Grey-headed Flying-fox (1/12/16)
		RTP3	33.88403	151.08319	1x BT Possum in swamp mahogany (24/4/16)
		TFROGM	33.88363	151.08209	2X Tawny Frogmouth (1/12/16)
11	Weeroona Road remnant	WRD01	33.88288	151.06027	Eastern Yellow Robin, Double-barred Finch, Tawny Grassbird (4/12/16)
		WRD02	33.88341	151.05928	at rail-line (SW cnr)
		WRD03	33.88208	151.06107	Eastern Yellow Robin, Golden Whistler, Red-browed Finch, White-browed Scrubwren & others (22/4/16)
		WRD04	33.88237	151.06068	New Holland Honeyeater (22/4/16)
		WRD05	33.88215	151.06044	nr Rookwood Cemetery
		WRD06	33.87962	151.06203	central section of remnant adjacent Macedonian section Rookwood Cemetery
		WRD07	33.87981	151.06398	nr Weeroona Rd
		WRD08	33.87936	151.06458	trk off Weeroona Rd
		WRD09	33.87960	151.06735	central eastern part of easement
		WRD10	33.87886	151.06752	E end nr freight rail line; White-browed Scrubwren, Superb Fairy-wren (28/4/16)
		WRD11	33.87962	151.06520	burnt area (surveyed 5 Dec 2016) – Superb Fairy-wren, White-browed Scrubwren
		WRD12	33.87970	151.06793	Superb Fairy-wren in rail easement drain (5/12/16)

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
12	Airey Park	AIREYPK01	33.86835	151.07467	cricket oval
		AIREYPK02	33.86912	151.07224	lomandra along canal
		AIREYPK03	33.86893	151.07143	along canal @ childrens centre area
		AIREYPK04	33.86551	151.07462	playground
13	Melville Reserve	MELRES01	33.86932	151.06973	
		MELRES02	33.86883	151.07119	Fraser St end
14	Boden Reserve	BODRES01	33.87386	151.06964	
		BODRES02	33.87430	151.07120	E entrance
15	Fitzgerald Park	FITZPK01	33.87026	151.08229	carpark end
		FITZPK02	33.86927	151.08316	library end
16	Davidson Street remnant (cnr Hume Hwy)	DAVST01	33.88603	151.06552	ent off Davidson St
		DAVST02	33.88603	151.06386	Red Wattlebird
		DAVST03	33.88704	151.06308	W end nr Hume Hwy
17	St Anne's Reserve	STARES01	33.88849	151.07832	Ewing St end
		STARES02	33.89309	151.07678	
		STARES03	33.89468	151.07732	edge of Dean Res.
18	Prentice Reserve	PRES01	33.888435	151.078848	Wallis Ave end
		PRES02	33.888376	151.077580	cycleway end
19	Pilgrim Park	PILPK01	33.87029	151.07521	N end
		PILPK02	33.87163	151.07587	S end
20	Frank Zions Reserve	FZRES01	33.87443	151.06737	N end
		FZRES02	33.87501	151.06734	nr Centenary Drive
21	Chain of Ponds Reserve	COPRES01	33.88508	151.07504	nr Cave Rd shops
		COPRES02	33.88736	151.07767	Fitzgerald Cr bridge
22	Inveresk Park remnant	INVPK01	33.87314	151.07958	cnr Merley Rd & Dickson St
		INVPK02	33.87351	151.07981	possum box 1 in eucalypt
		INVPK03	33.87318	151.08080	
		INVPK04	33.87324	151.08059	possum box 2
		INVPK05	33.87298	151.08038	possum box 3 (in grey box)
23	Dean Reserve	DEANRES01	33.89464	151.07924	nr carpark entrance
		DEANRES02	33.89464	151.07773	lantana in reveg.
		DEANRES03	33.89738	151.08233	Yellow Thornbill in Allocasuarina
		DEANRES04	33.89728	151.08186	Yellow Thornbill, Silvereye
24	Ford Park	FORDPK01	33.89747	151.08291	nr Water St bridge
		FORDPK02	33.89653	151.08510	possum box on swamp mahogany
		FORDPK03	33.89743	151.08615	at S boundary
		FORDPK04	33.89691	151.08363	1xTawny Frogmouth (28/11/16)
25	Southend Tennis	SENDTEN01	33.89799	151.08651	
		SENDTEN02	33.89792	151.08857	SE cnr
		SENDTEN03	33.89903	151.08874	nr Punchbowl Rd
		SENDTEN04	33.89886	151.08840	Yellow Thornbill, Superb Fairy-wren
26	Maria Reserve	MARIARES01	33.89770	151.08591	
		MARIARES02	33.89792	151.08265	Water St end
		MARIARES03	33.89749	151.08459	

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
27	Elliott Reserve	ELRES01	33.89805	151.08595	nr Maria St bridge
		ELRES02	33.89900	151.08758	extensive weeds
		ELRES03	33.89919	151.08822	Yellow Thornbill, Superb Fairy-wren, Willie Wagtail
		ELRES04	33.89957	151.08869	Punchbowl Rd end
28	Bark Huts Reserve	BHUTS01	33.89838	151.08533	
		BHUTS02	33.89857	151.08348	NW cnr
		BHUTS03	33.89974	151.08524	SE cnr
29	Cooke Park	COOKE01	33.89836	151.08040	ent. off Chisholm St
		COOKE02	33.89948	151.07877	NW cnr nr Madeline St
		COOKE03	33.90027	151.08034	S end of reserve
30	Begnell Field	BEG01	33.90032	151.07817	ent off Madeline St
		BEG02	33.90112	151.07751	Bulbul, Willie Wagtail, Superb Fairy-wren
		BEG03	33.90258	151.07735	Willie Wagtail nest
		BEG04	33.90181	151.07899	
31	Edwards Park	EDWPK01	33.88990	151.08185	
		EDWPK02	33.88931	151.08265	library entrance
32	Cox's Creek Bushland Reserve remnant	CCRES01	33.90473	151.06896	entrance off Drone St
		CCRES02	33.90474	151.06793	New Holland Honeyeater group
		CCRES03	33.90516	151.06783	Yellow-faced Honeyeater flock
		CCRES04	33.90535	151.06766	Golden Whistler
		CCRES05	33.90519	151.06664	SW cnr along ck
33	Yarrowee artificial wetland	YARR01	33.88389	151.07512	at locked gate
		YARR02	33.88303	151.07428	northern corner
34	The Crescent UN	TCRES01	33.86571	151.07832	cnr Burlington & Bridge Rds
		TCRES02	33.86575	151.08208	cnr Meredith St & The Crescent
		TCRES03	33.86795	151.08109	cnr Meredith St & Abbotsford Rd
		TCRES04	33.86694	151.07780	cnr Abbotsford & Bridge Rds
35	Shortland Avenue UN	SLAND01	33.87412	151.07628	cnr Merley Rd & Francis St
		SLAND02	33.87249	151.07539	cnr Shortland Av & Francis St
		SLAND03	33.87130	151.07859	cnr Shortland Av & Dickson St
		SLAND04	33.87309	151.07938	cnr Merley Rd & Dickson St
36	Beresford Road UN	BFORD01	33.87290	151.08895	at 61 Churchill Av
		BFORD02	33.87207	151.09115	Elva St
		BFORD03	33.86971	151.09045	cnr Beresford Rd & Elva St
		BFORD04	33.87071	151.08745	cnr Homebush & Beresford Rds
		BFORD05	33.87359	151.08697	cnr Homebush Rd & Churchill Av

Site number	Site name	Waypoint	GPS coordinates*		Comments
			Latitude (S)	Longitude (E)	
37	Newton Road UN	NEWTON01	33.87843	151.07764	cnr Newton & South Streets
		NEWTON02	33.87813	151.07519	cnr Newton Rd & Bareena St
		NEWTON03	33.88096	151.07468	cnr Bareena St & Ada Av
		NEWTON04	33.88125	151.07703	cnr South St & Ada Av
38	Elwin Street UN	ELWIN01	33.87974	151.08266	cnr Chalmers Rd & Victoria St
		ELWIN02	33.88008	151.08551	cnr Chalmers Rd & Elwin St
		ELWIN03	33.87795	151.08594	cnr Elwin St & Homebush Rd
		ELWIN04	33.87752	151.08245	cnr Homebush Rd & Victoria St
39	Mintaro Avenue UN	MINT01	33.88771	151.08768	cnr Mintaro Av & Cross St
		MINT02	33.88716	151.08443	cnr Mintaro Av & Homebush Rd
		MINT03	33.88927	151.08400	cnr High St & Homebush Rd
		MINT04	33.88978	151.08727	cnr High & Cross Sts
		YFHE	33.88880	151.08748	Yellow-faced Honeyeater, cnr Cross & Long Sts (29/4/16)

2.2.2 Greenspace types

Five different types of urban greenspace were selected and surveyed for fauna in the study area. The selection of these greenspace types was undertaken through discussions with Council staff, reviewing Council plans, by field inspection, and based on InSight Ecology's previous experience working in Strathfield Council LGA. Greenspace types selected included bushland remnant, revegetated parkland, open parkland, wetland, and urban neighbourhood. Wetland also included a remnant site – Mason Park wetland. Each of these greenspace types is described below. Some sites contained more than one type of greenspace and so are listed under more than one greenspace type below, i.e. Cooke Park and Begnell Field each comprised a mix of revegetation and open playing fields. An overall total of 39 individual sites were surveyed in the study (see Figure 1).

Bushland remnant (4 sites) – Comprises small tracts of the nationally critically endangered Cooks River/Castlereagh Ironbark Forest Endangered Ecological Community [EEC] (Cox's Creek Bushland Reserve, Weeroona Road and Davidson Street) and *Kunzea ambigua* shrubland under an electricity supply easement at Weeroona Road. A small Sydney Turpentine-Ironbark Forest EEC remnant occurs at Inveresk Park, with isolated individual remnant trees (mostly Turpentine) of this EEC also occurring at Maria Reserve in Strathfield South:

- Cox's Creek Bushland Reserve, Greenacre
- Weeroona Road remnant, Rookwood
- Davidson Street (corner of Hume Highway), Greenacre
- Inveresk Park, Strathfield.

Revegetated parkland (11 sites) – contained mostly indigenous vegetation planted as strips and/or blocks, typically along Cooks River and its tributaries:

- Begnell Field, Belfield (northern and western edges abutting Cox's Creek Channel)
- Cooke Park, Belfield (northern section abutting Cox's Creek Channel)
- Maria Reserve, Belfield
- Ford Park, Strathfield South
- Elliott Reserve, Belfield
- Dean Reserve, Strathfield South
- St Anne's Reserve, Strathfield South
- Prentice Reserve, Strathfield
- Chain of Ponds Reserve, Strathfield
- Strathfield Park, Strathfield
- Mason Park, Homebush.

Open parkland (18 sites) – These sites are typically sporting or passive recreation fields containing individual planted trees and thin strips of trees and some shrubs along boundaries, also small patches of planted lomandra and some shrubs at some sites, e. g. Airey Park, Hudson Park Golf Course and Frank Zions Reserve:

- Mason Park playing fields, Homebush
- Bressington Park, Homebush
- Wentworth Reserve, Homebush
- Bill Boyce Reserve, Homebush (not surveyed in December 2016 due to WestConnex)
- Ismay Reserve, Homebush
- Fitzgerald Park, Homebush
- Airey Park, Strathfield
- Melville Reserve, Strathfield
- Pilgrim Park, Strathfield
- Hudson Park Golf Course, Strathfield (included planted strips and scattered trees)
- Frank Zions Reserve, Strathfield
- Boden Reserve, Strathfield
- Strathfield Golf Course, Strathfield (included planted strips and scattered trees)
- Edwards Park, Strathfield South
- Southend Tennis, Strathfield South
- Bark Huts Reserve, Belfield
- Begnell Field, Belfield (playing field section)
- Cooke Park, Belfield (playing field section).

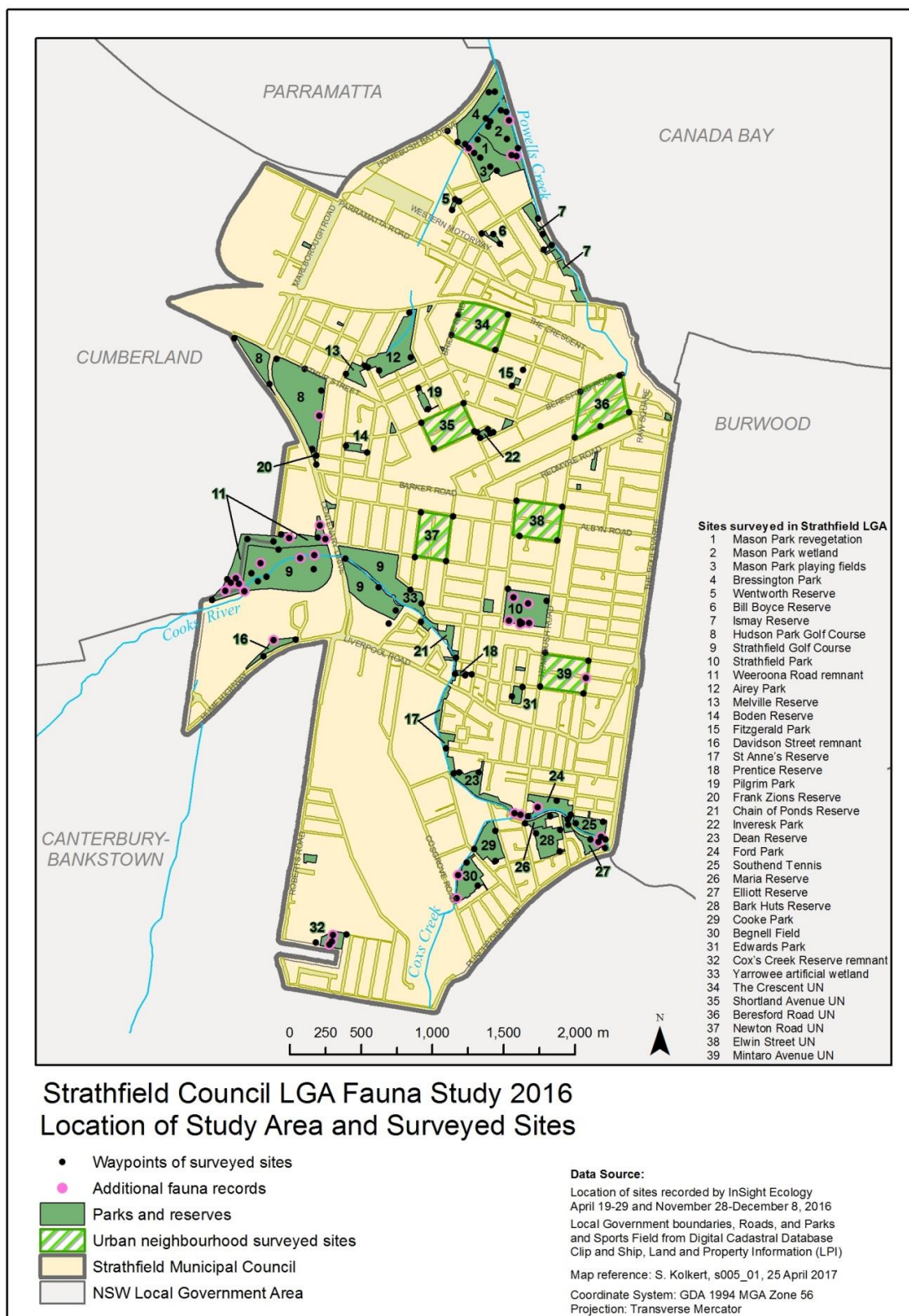
Urban neighbourhood sites (6 sites) – These are blocks of streets of planted vegetation in road verges and home gardens; each site was surveyed in the 2007-2008 avifaunal study):

- Mintaro Avenue, Strathfield
- Elwin Street, Strathfield
- Newton Road, Strathfield
- Shortland Avenue, Strathfield
- Beresford Road, Strathfield
- The Crescent, Homebush.

Wetland sites (2 sites)

- Mason Park remnant wetland, Homebush
- Yarrowee artificial wetland, Strathfield.

Figure 1: Location of the study area showing all sites surveyed for fauna by InSight Ecology in April and November-December 2016. Each site surveyed is indicated by a number and is listed in Table 1 which contains all waypoints recorded. Records of other fauna recorded during survey sessions are shown by pink highlighting around the relevant waypoint – details of these are provided in Section 3 of this report.



2.2.3 Survey methods

Terrestrial and some aquatic bird species and communities were surveyed at each site in the study area in autumn (19-29 April) and early summer (28 November-8 December) 2016. Birds were targeted because they were the focus of the original study (InSight Ecology 2008) and are useful indicators of the health of ecosystems and landscapes (see, e.g., InSight Ecology 2017a). Other vertebrate fauna were recorded during the avifaunal surveys and at night at selected sites. These included non-flying mammals, bats, reptiles, amphibians and fish.

The fieldwork focused on obtaining new data on bird occurrence, relative abundance and species richness, as well as patterns of habitat use and breeding activity. This work provided a basis for comparison with equivalent data obtained during the two previous systematic fauna surveys of the study area – in spring 2007 and early autumn 2008 (InSight Ecology 2008) and autumn and summer 2008 (Ambrose Ecological Services Pty Ltd 2009). Approximately 72% of the sites surveyed by InSight Ecology in 2007-2008 were re-surveyed in the current study.

A total of 84 survey sessions were completed in both autumn and early summer in the study area. This sampled a core group of 35 sites across each of the five greenspace types. Of the remaining 4 sites, three were sampled only in summer – Bark Huts Reserve, Cooke Park and Begnell Field, and one (Bill Boyce Reserve) was only surveyed in autumn, prior to its removal for inclusion in the M4 WestConnex construction zone.

Diurnally active bird species present in the early-mid morning (c. 0600-0930 hours in summer and 0700-1030 in autumn) and late afternoon (c. 1500-1730 in autumn and 1530-1900 hours in summer) periods were recorded at each site. A total of 5 additional sessions surveyed crepuscular (ie. species active at dusk) and nocturnally-active fauna species from c. 2000-2330 hours at 5 key sites over 5 nights. These included Cox's Creek Bushland Reserve, Maria Reserve/Ford Park/Elliott Reserve (surveyed as one linked system), Strathfield Park, Strathfield Golf Course and Hudson Park Golf Course. These surveys were undertaken on foot by the surveyor (A.H.) using a powerful handheld EagleTac M3C4 spotlight and headlamp along a defined area search route. Locations of fauna species were recorded by handheld GPS.

The order of surveying of the summer work was reversed from that of the previous autumn effort. That is, where possible, sites were surveyed by beginning in the south and ending in the north. In contrast, the autumn survey started in the north and finished in the south. This minimised any potential sampling bias that can be introduced when surveying the same sites in specific areas between two different seasons in the same year (see, e.g., InSight Ecology 2012, 2014).

All surveys took place during dry, calm and cool-mild/warm (12°-26°C) conditions, often with early morning dew in autumn. A total of 5 sessions were lost to poor weather. Additional sessions were scheduled and completed within each sampling window to compensate for this loss of field time.

In bushland remnants and most parkland and wetland sites the area search technique (InSight Ecology 2010, 2012, 2014, 2017a) was deployed. This involved the surveyor (A.H.) steadily walking a loop or semi-loop route in which different forward and return legs, separated where possible by a distance of at least 100 metres, were taken through the main habitats present at

each site. Single-line transects were walked in smaller or narrower sites particularly where vegetation was present only as a thin strip such as many of the revegetated park sites along the upper Cooks River.

All birds observed or heard at a site or along a line transect were recorded, including individuals using airspace above sites to forage in or commute between habitats. Care was taken not to record to the same bird twice for those observed flying or walking between different habitats. This was relevant for flocking, communally-living, or fast or very frequently moving species such as Noisy Miner, Rainbow Lorikeet, Welcome Swallow and Galah. Particular care was taken in some parkland sites where, due to the small size of the reserve, forward and return search legs occurred within 100 metres of each other. This also helped to avoid committing the same error with more sedentary species such as Common Myna, Common Starling and Australian Magpie that often forage over grassed surfaces or scavenge around shops and along footpaths.

Data recorded during the surveys included the species present, number of individuals observed, date, time and location of record, greenspace type, behaviour (ie. foraging/feeding, bathing, preening, breeding, calling, mobbing, resting, flying), use of habitat, and other relevant information such as age, species composition and condition of the main vegetation in remnants, revegetated and open parkland, weather, and bird interactions (e.g. predation, predator avoidance, mating/mate pursuits). Some sites contained 2 or 3 different types of greenspace. Birds detected at these sites were recorded by the specific greenspace type they utilised and again care was taken not to count the same bird twice in a specific survey session.

All data obtained were recorded consistent with Christidis and Boles (2008). Common bird names are mostly used within the text of this report. All observations were made by the same experienced ornithologist (A.H.) using a pair of Zeiss 10x40BTP® binoculars fixed to a Pro-Harness® chest-strap.

2.2.4 Survey effort

A total of 93.9 hours was spent systematically surveying fauna in the study area. This effort was distributed across the 84 field sessions – 41 in autumn and 43 in summer. These included both diurnal and nocturnal surveys (see Section 2.2.3).

Bushland remnants were surveyed for a total of 24.5 hours or 26.1% of the total survey effort - 14.25 hours in autumn and 10.25 hours in summer. Revegetated parkland was surveyed for 27.9 hours or 29.7% of total survey time – 11.9 hours in autumn and 16 hours in summer. The greater effort in summer reflected the addition of three sites with revegetation areas (Bark Huts Reserve, Cooke Park and Begnell Field) to the survey schedule. Open parkland accounted for 31.8% of total survey time (29.9 hours) – 17.1 hours in autumn and 12.8 in summer. This greater time spent surveying fauna in open parkland reflected the significant amount of this type of greenspace present in the LGA. Urban neighbourhood sites accounted for 8.3% (7.8 hours) of the total survey effort – 4.6 hours in autumn and 3.2 hours in summer. Wetland sites were surveyed for a total of 3.5 hours or 3.7% of total survey time – 2.1 hours in autumn and 1.3 hours in summer.

2.3 Habitat assessment and photographic records

A number of habitat attributes were noted at representative sites in each greenspace type in the study area. These included community type, main plant (canopy and understorey) species present, height of main tree species present, habitat condition, vegetation structure, bird use of habitats, estimated age and species composition of plantings, type of aquatic habitat, and extent and type of disturbance (ie. presence of weeds, feral and domestic animals, evidence of predation, level of human incursion). Attributes of landscape context were also noted for selected sites in different greenspace types, ie. distance of remnant vegetation to nearest neighbouring vegetation patch, position in the local and regional landscape, pattern of vegetation distribution, and edge type and size.

An image library was established for the project from a number of sources. A total of 5,422 photographs (50.1 GB) of birds, plant communities, plants, habitats, landscapes and management issues were taken at each surveyed site by InSight Ecology during the survey using a Nikon D3200® (Nikkor® 55-300 mm lens) digital camera. All images, data and related material were stored on a standard 500GB ATA HDD backed up to a 500GB external HDD.

2.4 Data analysis

Three key attributes of avifaunal communities were selected for basic analysis from data collected at each site in each greenspace type in the study area. These were relative abundance, species richness and habitat use. Bird community structure and use of habitat was examined qualitatively from site-specific data obtained during the study.

Survey effort was calculated by greenspace type and for each survey period as well as the overall study. Conservation significance was assessed by comparing field survey results with historical data for the study area including any listed threatened and protected species (NSW Threatened Species Conservation [TSC] Act 1995) extracts for Strathfield LGA from NSW BioNet (Atlas of NSW Wildlife) and the Australian Department of the Environment (Environment Protection and Biodiversity Conservation [EPBC] Act 1999), Strathfield Council's flora and fauna register, fauna conservation plans, and using expert avifaunal knowledge and experience. The NSW TSC Act was under review at the time of the study and has now been replaced by the Biodiversity Conservation Act (NSW) 2016.

3. Results

3.1 Fauna recorded during the current study

A total of 4,985 individuals from 94 species of fauna were recorded during the 2016 study in Strathfield Council Local Government Area. Most of these were birds (81 species) – 67 terrestrial species and 14 aquatic taxa. Other fauna recorded were mammals (6 species, including 3 introduced species), reptiles (3 species), amphibians (2 species) and fish (2) (Section 3.2). Over half (45 species, including 2 threatened species) of bird species recorded were of conservation significance (Section 3.3) while 9 bird species detected have been introduced.

The following section presents all relevant data recorded at each of the 39 sites surveyed in the 2016 study. These include date and time of survey, greenspace type, species present, number

of individuals recorded, and additional information such as the use of habitat including breeding, where detected. Photographs taken of each site and, where relevant, some of their fauna species, are included after each table. Introduced fauna species are indicated by an asterisk after their common name. Species of conservation significance are indicated in bold.

Site 1: Mason Park revegetation

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	0645-0700	Revegetated parkland	Laughing Kookaburra	1	perched
			Superb Fairy-wren	7	foraged along main trail edge
			Olive-backed Oriole	1	called in adjacent eucalypts
			Willie Wagtail	1	foraged, called
			Welcome Swallow	1	foraged
			Grey Fantail	2	foraged in 30m tall adjacent figs
			Rainbow Lorikeet	2	flewover
			Silvereye	3	foraged, called
			Red-whiskered Bulbul*	1	called, flew
			White-browed Scrubwren	2	adult pair, weedy hill at S end wetland nr waterbirds ID sign
7/12/16	0620-0705	Revegetated parkland	Willie Wagtail	1	likely nesting
			Common Myna*	18	called, nr carpark & along path S end of older plantings
			Silvereye	16	flock foraged
			Superb Fairy-wren	11	foraged, trackside sheoaks & weedy hill older planting
			Yellow Thornbill	5	in sheoaks nr canal
			Little Black Cormorant	1	in adjacent canal
			Welcome Swallow	1	foraged
			Australian Raven	4	called, perched
			Rainbow Lorikeet	2	flewover
			Red-whiskered Bulbul*	6	called nr mangroves
			Silver Gull	3	flewover
			Noisy Miner	4	incl. 2 fledgings
			Common Starling*	11	foraged
			Magpie-lark	1	foraged oval edge
			Brown Goshawk	1	adult female in weedy hill (S end of wetland) - older plantings
			Red Wattlebird	1	called, foraged
Black-faced Cuckoo-shrike	1	called			
Red-browed Finch	4	edge older planting			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					S end wetland (weedy hill)
			Little Corella	2	flewover
			White-browed Scrubwren	2	adult pair, weedy hill at S end wetland nr waterbirds ID sign
			Rock Dove*	18	flew fr S edge plantings nr Ausgrid depot
			Willie Wagtail	1	plantings edge
			Masked Lapwing	1	called

Totals: 25 species (8 conservation-significant), 136 individuals.

Plate 1: Casuarina and lomandra plantings along the main trail from the carpark provided cover and foraging habitat for Superb Fairy-wren, White-browed Scrubwren and Yellow Thornbill



Plate 2: Recent lomandra sward planted beside car park at Mason Park provided frog and insect habitat, connecting north to the main walking trail where Superb Fairy-wren was recorded.



Site 2: Mason Park remnant wetland

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	0720-0840	wetland (remnant)	Welcome Swallow	8	foraged
			Pied Currawong	1	called
			Grey Butcherbird	1	Powells Ck edge
			Noisy Miner	4	incl 3 fledgings
			Pied Cormorant	1	flewover
			Rainbow Lorikeet	4	flewover
			Common Myna*	4	foraged along path
			Pacific Black Duck	3	foraged
			Black-faced Cuckoo-shrike	1	called, flew
			Eastern Rosella	1	called
			Royal Spoonbill	1	flewover to site
			Grey Teal	32	foraged
			Chestnut Teal	16	foraged
			Little Corella	74	flock flewover

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Australian White Ibis	1	foraged
			Superb Fairy-wren	6	bred, foraged
			Black Cormorant	5	dried, preened
			Spotted Dove*	4	edge Powells Ck
			Spotted Pardalote	1	male called
			Red Wattlebird	1	fringing sheoaks
7/12/16	0710-0810	wetland (remnant)	White-faced Heron	2	foraged, mangrove
			Dusky Moorhen	1	foraged - drain
			Pacific Black Duck	2	foraged
			Common Myna*	6	foraged - edge
			Black Swan	1	foraged
			Australian White Ibis	4	foraged
			Black-winged Stilt	3	northern lake
			Superb Fairy-wren	10	mangrove edge
			Eastern Koel	1	called - Powells Ck
			Pied Cormorant	1	flewover
			Chestnut Teal	2	pair
			Silver Gull	2	foraged lake edge
			Australian Raven	1	flewover
Spotted Dove*	1	flewover			

Totals: 27 species (9 conservation-significant), 206 individuals.

Plate 3: Coastal saltmarsh (an EEC) occurs on the eastern side of the wetland and provides food for a range of invertebrates, ducks, stilts and herons.



Plate 4: Black-winged Stilt foraged in wetland shallows for invertebrates along the western side of the site on 7/12/16.



Site 3: Mason Park playing fields

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	0900-0930	open parkland, with fringing planted edges	Pied Currawong	2	as above
			Spotted Pardalote	1	male called
			Red Wattlebird	5	foraged in sheoaks
			Australian Raven	2	foraged on ovals
			Australian Magpie	1	foraged on oval
			Australian White Ibis	4	foraged edges

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
7/12/16	0835-0910	open parkland, with fringing planted edges	White-throated Needletail	12	foraged
			Noisy Miner	5	oval edge, incl 2 fledglings
			Australian Magpie	2	
			Pied Currawong	1	
			Eastern Koel	1	called
			Common Myna*	4	oval, foraged
			Australian Raven	5	foraged, oval
			Crested Pigeon	6	foraged, oval
			Yellow Thornbill	3	foraged in saltbush & Bursaria plantings
			Superb Fairy-wren	3	as above
			Willie Wagtail	1	foraged, oval
Welcome Swallow	4	foraged			

Totals: 15 species (4 conservation-significant), 62 individuals.

Plate 5: Mason Park playing fields showing older revegetation at rear and an amenities block.



Plate 6: Willie Wagtail foraged for insects in playing field grass, 7/12/16.



Site 4: Bressington Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	0940-1035	Open parkland, with planted edges	Australian Magpie	4	incl 2 juveniles
			Magpie-lark	4	lower & upper oval
			Masked Lapwing	2	
			Noisy Miner	12	incl 2 fledglings
			Red Wattlebird	2	
			Black-faced Cuckoo-shrike	1	above oval
			Silvereye	2	planted figs adjac. Homebush Bay Dr
			White-faced Heron	1	adjacent canal
			Grey Butcherbird	1	foraged
			Australian White Ibis	4	upper oval
			Superb Fairy-wren	3	N end wattles

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Common Myna*	12	sheoak N edge
			Laughing Kookaburra	2	wattle regrowth
8/12/16	0700-0810	Open parkland, with planted edges	Masked Lapwing	2	
			Australian White Ibis	8	
			Australian Magpie	2	both immatures
			Noisy Miner	8	incl 1 juvenile
			Welcome Swallow	8	
			Australasian Figbird	2	in figs & Schinus
			Rainbow Lorikeet	2	flewover
			Australian Raven	7	flewover, foraged
			Spotted Dove*	1	
			Superb Fairy-wren	10	2 groups in senna & sheoak/wattle plantings
			Silvereye	7	called, figs W side
			Common Myna*	5	
			Willie Wagtail	1	
			White-throated Needle-tail	40	hilltopping over N end & Homebush Bay Dr
			Red-browed Finch	2	foraged grassy edge
			Red-rumped Parrot	1	flew fr N end at junction of paths
Yellow Thornbill	7	called in exotic shrub at N end & figs W side			
Grey Butcherbird	1	perched			
Crested Pigeon	1	foraged on oval			
Red Wattlebird	2	in eucalypts S end			

Totals: 24 species (7 conservation-significant), 117 individuals.

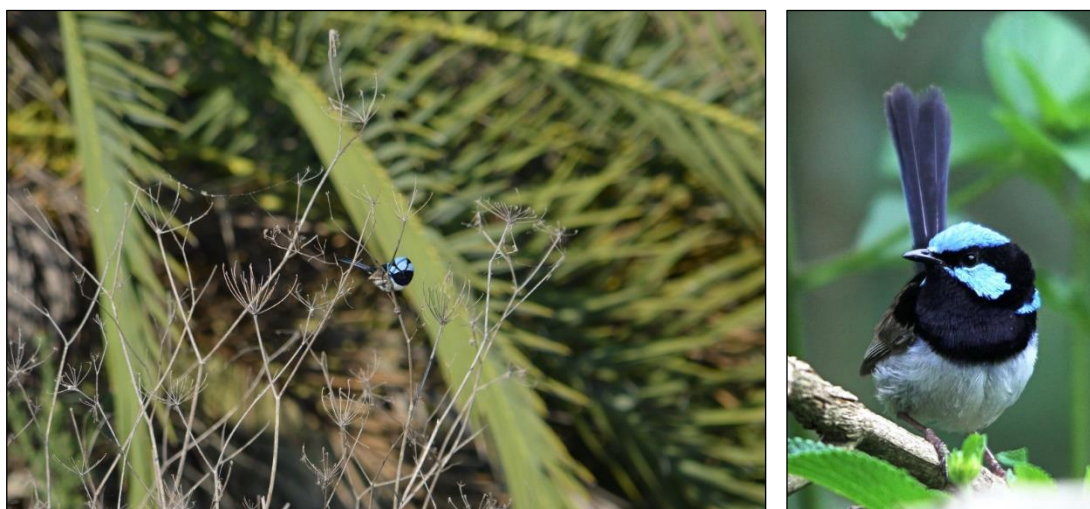
Plate 7: The northern playing field looking toward Homebush DFO along Underwood Road



Plate 8: This weedy strip along the west bank of Saleyards Creek supported Superb Fairy-wren



Plates 9 and 10: Superb Fairy-wren (adult male) foraged in a small group in exotic palms and thick kikuyu and other weeds along the northwestern edge of the site. Plate 10 - Trevor Bullock, BirdLife Australia



Site 5: Wentworth Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	1635-1645	Open parkland, with planted edges	Australian Raven	2	perched, nr nest
			Noisy Miner	5	foraged
			Pied Currawong	1	called
5/12/16	1755-1805	Open parkland, with planted edges	Noisy Miner	6	incl 3 fledglings
			Grey Butcherbird	1	immature bird
			Little Corella	1	flewover, called

Totals: 5 species, 16 individuals.

Plate 11: The tiny Wentworth Reserve supported a small number of the hardier urban bird species.



Plate 12: Older planted eucalypts were sites for possum nest boxes at the site's west end.



Site 6: Bill Boyce Reserve (surveyed in April 2016 only)

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	1650-1710	Open parkland, with planted edges	Grey Fantail	1	in adjacent M4 buffer strip
			Rainbow Lorikeet	2	flewover
			New Holland Honeyeater	2	called, foraged in flowering paperbarks in backyards
			Australian Raven	1	foraged
			Red Wattlebird	1	called
			Pied Currawong	1	perched

Totals: 6 species (2 conservation-significant), 8 individuals.

Plate 13: Bill Boyce Reserve once flanked the M4 Motorway and provided food and shelter for Grey Fantail, New Holland Honeyeater and occasionally Common Brushtail Possum.

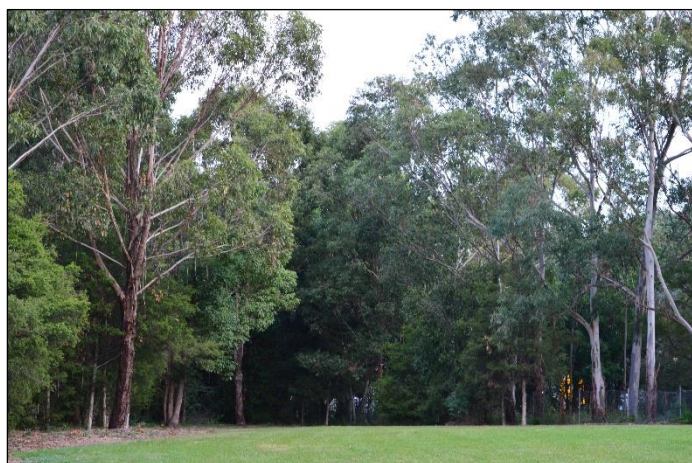


Plate 14: Older planted eucalypts once provided a green buffer to the busy M4 Motorway.



Site 7: Ismay Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
19/4/16	1715-1735	Open parkland with a central planted strip	Rainbow Lorikeet	21	flewover
			Pied Currawong	2	perched, called
			Welcome Swallow	7	foraged
			Noisy Miner	8	foraged, called
			Red Wattlebird	1	called
			Australian Magpie	2	foraged
			Striped Marsh Frog	1	called from a temporary pool at carpark edge
5/12/16	1810-1900	Open parkland, with a central	Common Myna*	10	foraged, called
			Spotted Dove*	2	foraged

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
		planted strip	Noisy Miner	6	incl. 1 fledgling
			Rainbow Lorikeet	15	foraged in bottlebrush, flew
			Australian White Ibis	3	flew over
			Welcome Swallow	2	foraged
			Laughing Kookaburra	2	called, perched
			Masked Lapwing	4	incl. 2 juveniles
			Musk Lorikeet	8	perched in backyard <i>Euc. citriodora</i>
			Magpie-lark	2	preened nr canal
			Crested Pigeon	1	foraged on old bowls club green
			Eastern Koel	1	roosted
			Red-whiskered Bulbul*	1	flew into green cestrum & privet

Totals: 18 species (1 conservation-significant), 99 individuals.

Plates 15 and 16: Ismay Reserve provides a degree of local vegetation connectivity along Powells Creek corridor through to Homebush Bay. Pacific Black Duck and Chestnut Teal were recorded in the canal's stormwater flow beyond the northern end of the site, ie. north of Pomeroy Street bridge.



Plate 17: Eastern Koel, a large raucous summer migratory cuckoo (male shown), was recorded calling in a Silky Oak *Grevillea robusta*, part of an older mixed species planted strip in the reserve, 5/12/16.



Site 8: Hudson Park Golf Course

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
20/4/16	0640-0915	Open parkland, with interfairway strips of planted trees	Crested Pigeon	11	foraged, perched
			Noisy Miner	43	mobbed Crested Pigeon @ 1 st tee, foraged @ 6 th tee, some with young
			Rainbow Lorikeet	32	called, flew, flock foraged @ 6 th tee
			Grey Butcherbird	4	called, foraged
			Galah	2	flewover
			Scaly-breasted Lorikeet	1	flewover, called
			Australian White Ibis	2	foraged on fairway
			Pied Currawong	2	perched
			Australian Magpie	3	foraged on fairway
			Eastern Koel	1	called
			Spotted Pardalote	2	foraged in planted yellow box
			Red Wattlebird	3	foraged @ 6 th tee
			Australian Raven	3	perched, called
			Magpie-lark	1	foraged @ 15 th
20/4/16	1955-2200 (night session)	Open parkland with interfairway plantings	Common Bentwing-bat	1	foraged low over 17 th fairway @ 2120
			Grey-headed Flying-fox	2	flew over 14 th headed towards Rookwood @ 2145
6/12/16	0700-0845	Open parkland with interfairway plantings	Crested Pigeon	5	foraged on oval & 13 th fairway edge
			Eastern Rosella	3	perched on top of poplars on SE side; 3 rd bird flew from sheoaks beside 13 th fairway
			Noisy Miner	35	incl. 5 fledglings, ground-foraged
			Australian White Ibis	6	flewover oval, foraged nr 14 th
			Rainbow Lorikeet	21	foraged in lemon-scented gum, flewover
			Masked Lapwing	2	foraged on 12 th & 13 th fairways
			White-throated Needletail	16	foraged & soared above 13 th
			Pied Currawong	4	called edge 14 th , 7 th , 18 th tees
		Common Myna*	1	edge 14 th green	

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Musk Lorikeet	2	flew fr sheoaks
			Grey Butcherbird	2	called nr 16th
			Torresian Crow	7	flew over new driving range
			Australian Raven	5	called nr 18 th tee, foraged nr 4 th tee
			Red Wattlebird	4	called nr pro-shop & in sheoaks @ 4th
			Superb Fairy-wren	3	foraged, called in thick canegrass along railway line fence @ 6 th tee (Rookwood to the west)
			White-browed Scrubwren	2	pair foraged in thick canegrass along railway line fence @ 6 th tee (Rookwood to the west)
			Australian Magpie	2	foraged nr 4 th tee
			Eastern Koel	1	called nr 9 th green
7/12/16	2025-2210 (night session)	Open parkland with interfairway plantings	Grey-headed Flying-fox	10	group set out to forage from large fig nr works depot @ 2027
			feral/domestic cat*	1	stalked prey nr 5 th green, ran through hole in railway fence @ 0855
			Grey-headed Flying-fox	1	flew N over 13 th tee @ 2200

Totals: 26 species (10 conservation-significant), 250 individuals.

Plate 18: Planted River She-oak *Casuarina cunninghamiana*, brushbox, eucalypts and paperbarks fringe the 11th fairway and green providing food, shelter and occasionally nest sites for Red Wattlebird, Rainbow Lorikeet, Spotted Pardalote, Grey Butcherbird, Noisy Miner and others while the mown grass surfaces were foraged over by Crested Pigeon, Eastern Rosella and Masked Lapwing (20/4/16). Two Grey-headed Flying-fox were detected flying through the site headed for figs and other food trees in Rookwood Cemetery to the immediate west (2145 hours, 20/4/16).



Plate 19: Flowering planted eucalypts along the 7th and 8th fairways in the northwestern corner of the golf course attracted Rainbow Lorikeet, Red Wattlebird and Noisy Miner, hardy birds of the Sydney urban landscape (20/4/16). A foraging Rainbow Lorikeet is indicated by the red arrow.



Plate 20: A densely vegetated northwestern corner of the site (6th tee area) along a railway reserve fence and adjacent to Rookwood Cemetery supported a pair of White-browed Scrubwren and 3 Superb Fairy-wren, 6/12/16. The inset shows an adult male White-browed Scrubwren (Neil Fifer).



Site 9: Strathfield Golf Course

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
21/4/16	0630-1100	Open parkland with planted strips of trees & some shrubs between fairways and vegetation along Cooks River	Australian Magpie	2	foraged on 15th
			Rainbow Lorikeet	51	flew, called, flock of 25 nr 18 th tee
			Spotted Pardalote	5	called, foraged – 4 birds upper Cooks R. nr 11 th tee
			Sulphur-crested Cockatoo	3	called, perched
			Eastern Rosella	3	flew over S along Cooks R. nr 2 nd green
			Australian Raven	1	called
			Welcome Swallow	4	foraged 3 rd green
			Magpie-lark	2	foraged
			Australian Wood Duck	2	adults foraged nr Cooks River; ground staff reported “lots” of foxes predating ducklings in early mornings
			Purple Swamphen	3	foraged along Cooks River
			Crested Pigeon	10	foraged, perched
			Noisy Miner	16	called, foraged, incl. 4 fledglings
Grey Butcherbird	3	called, perched			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Helmeted Guineafowl*	6	local long-time (56 yrs) resident Tony Kilborn reported guineafowl laying eggs in agapanthus nr 1 st green; also Brush-tailed Possum recently
			Rock Dove*	15	Tony Kilborn reported up to 30 birds on his roof
			Australian Raven	13	flewover fr SW, perched atop on staunchion nr 11 th
			Red Wattlebird	4	flewover nr clubhouse, called
			Galah	2	perched nr 8 th tee
			White-browed Scrubwren	5	2 pairs called + 1 juvenile bird, foraged, flew in weedy upper Cooks R. nr 11 th tee footbridge
			Red-whiskered Bulbul*	3	called along upper Cooks River, flew
			Spotted Dove*	3	called
			Superb Fairy-wren	12	called, foraged in thick senna @ 11 th tee footbridge
			Yellow Thornbill	4	called, foraged in willows W side of 11 th tee (adjacent to Weeroona Rd)
			Silvereye	16	flock foraged in willows upper Cooks R nr 11 th tee
			Nutmeg Mannikin*	6	perched in <i>Acacia longifolia</i> nr 11 th
			New Holland Honeyeater	4	foraged in flowering Melaleuca & willows nr 11 th tee
			Red-browed Finch	4	foraged edge 11 th tee nr Weeroona Rd boundary
			Brown Falcon	1	called & soared above W edge of course nr 11 th
			Yellow-faced Honeyeater	17	flock flew fr 11 th W to Rookwood
			Australian White Ibis	3	foraged @ 6 th tee

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Jacky Lizard	1	basking along upper Cooks R.
			Spotless Crane	1	adult flushed from small muddy well vegetated Cooks R. bank (waypoint 06)
			Little Pied Cormorant	1	drying nr 4 th tee fountain
			Dusky Moorhen	1	foraged in pooled section Cooks R. nr 16 th tee
			Pacific Black Duck	4	foraged in Cooks R.
21/4/16	2000-2240 (night session)	Open parkland with planted strips of trees & some shrubs between fairways and vegetation along Cooks River	Common Brushtail Possum	1	on Yarrowee wetland fence @ 2000 (nestbox nearby)
			Common Ringtail Possum	1	in eucalypt along Cooks R. nr 15 th tee @ 2015
			Southern Boobook	1	called fr. vicinity Chain of Ponds Reserve @ 2000
			Grey-headed Flying-fox	1	flewover nr 15 th @ 2025
			European Red Fox*	2	nr ladies 16 th tee along Cooks R. @ 2040
			Freshwater Eel	1	in Cooks R. nr ladies 16 th tee
			Grey-headed Flying-fox	1	flew S along 2 nd fairway @2100
			European Red Fox*	1	in grass nr swamp mahogany, ran to Cooks R. @ 2115
			Dusky Moorhen	3	roosted in Cooks R. on submerged branch
2/12/16	0730-1030	Open parkland with planted strips of trees & some shrubs between fairways and vegetation along Cooks River	Galah	2	flew east nr 15 th tee
			Masked Lapwing	5	foraged
			Crested Pigeon	11	nesting nr 13 th tee, 15 th tee
			Grey Butcherbird	1	called
			Rainbow Lorikeet	25	nestlings along Cooks R. (sheoaks), foraged in chinese butterfly tree
			Purple Swamphen	3	along upper Cooks
			Pacific Black Duck	2	foraged in river
			Noisy Miner	37	incl 8 fledglings @ 13 th , 15 th , nesting

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Helmeted Guineafowl	6	all adults, behind 13 th tee
			Australian Wood Duck	2	adult pair foraged along W bank
			Australian White Ibis	2	foraged
			Musk Lorikeet	10	preened, flew, incl. 1 fledgling
			Welcome Swallow	12	foraged, nesting under Centenary Dr bridge nr 14 th
			Rock Dove*	17	bathed in river
			Pied Currawong	4	called, perched
			Sulphur-crested Cockatoo	1	called, flew
			Australian Raven	6	likely nesting
			Laughing Kookaburra	1	foraged nr 14 th tee
			Red-rumped Parrot	15	3 prs nesting, upper Cooks R. nestboxes; 6 more birds foraged opp. 150m blue post on 11 th ; additional birds in paperbark nestbox grove
			Magpie-lark	2	foraged on fairway
			Australian Magpie	3	mobbed raven
			Spotted Pardalote	2	called
			Red-whiskered Bulbul*	4	willows nr 11 th
			White-browed Scrubwren	5	2 males, 2 females, 1 immature bird – in privet, cestrum, balloon vine patch opp. 11 th tee
			Superb Fairy-wren	4	adults & young, as for scrubwren site
			Mistletoebird	2	called, flew opp. 11 th tee
			Yellow Thornbill	2	weedy corner, as above
			Silvereeye	2	called, foraged
			Eastern Water Skink	1	basked nr Cooks R
2/12/16	2025-2305 (night session)	Open parkland with planted strips of trees and some shrubs between fairways and vegetation along Cooks River	Eastern Koel	1	called fr Cooks R. nr 15 th tee @ 2020
			Grey-headed Flying-fox	1	flew over 13 th fairway @ 2025
			Grey-headed Flying-fox	2	flew along Cooks R. @ rockwall section @ 2035
			European Red Fox*	1	nr new clubhouse construction fence @ 2050

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			European Red Fox*	1	walked along Cooks R. W of Centenary Dr to SW corner @ 2130
			Grey-headed Flying-fox	1	called nr railway fence S boundary
			Tawny Frogmouth	1	immature bird 3 m up in planted ironbark SW cnr @ 2145-50
			Tawny Frogmouth	1	adult foraged along 11 th fairway adjac. Weeroona Rd @ 2200-2210
			Tawny Frogmouth	1	adult perched on Brushbox branch N bank river beside 3 rd green @ 2240
			Grey-headed Flying-fox	1	flew over 14 th fairway @ 2245
			Grey-headed Flying-fox	1	foraged over old 3 rd & old 15 th @ 2300

Totals: 48 species (24 conservation-significant), 443 individuals.

Plate 21: The 18th fairway with planted interfairway strips of eucalypts, brushbox and callistemon



Plate 22: Male Australian Wood Duck in upper Cooks River's restored creek channel



Plate 23: A large brown grasshopper (unidentified species) foraged in the introduced *Senna pendula* and other weedy shrubs along the upper Cooks River below the 11th tee near Weeroona Road boundary.



Plates 24 and 25: A group of 6 introduced Helmeted Guineafowl (sub-adult shown in Plate 24), living most likely as escaped or released birds in the southeastern corner of the golf course and fed by Hedges Avenue residents were recorded during each survey. Nesting attempts have been made but the eggs have been most likely predated by European Red Fox, prevalent throughout the site and surrounds.

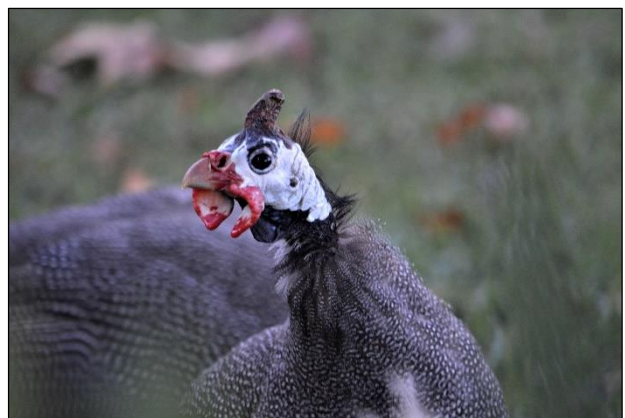


Plate 26: Rainbow Lorikeet extracted nectar from the introduced Cockspur Coraltree *Erythrina cristagalli* at the footbridge crossing of Cooks River between the second and third tees (2/12/16).



Plates 27 and 28: Red-rumped Parrot (male shown in Plate 27) foraged for seeding grasses along fairways and between fairways mostly on the western side of the golf course around fairways 8 and 9. One pair nested in an artificial nest box installed in an old planted (introduced) Radiata Pine *Pinus radiata* (Plate 27 – male on left, female on right) while two other pairs inspected nest boxes erected in a patch of old planted paperbarks near the works depot and 5th fairway, 2/12/16.



Plate 29: Active nests of the colony breeding Welcome Swallow were detected under Centenary Drive bridge that separates the eastern from western sections of the golf course. An adult bird is shown at the nest in the centre of this image.



Plate 30: Tawny Frogmouth occurred in small numbers in planted eucalypts and brushbox at the site. This image was taken at 2200-2210 hours on 2/12/16 along the edge of the 11th fairway.



Plate 31: Spotless Crake *Porzana tabuensis* was recorded foraging along the upper Cooks River near the 4th fairway in dense weedy vegetation on 21/4/16. Image: Frankzed, commons.wikimedia.org (Creative Commons Attribution open licence).



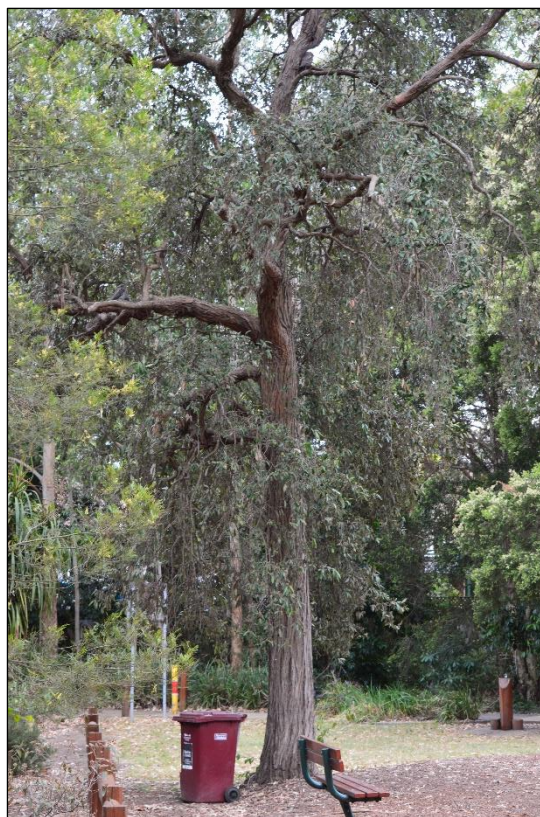
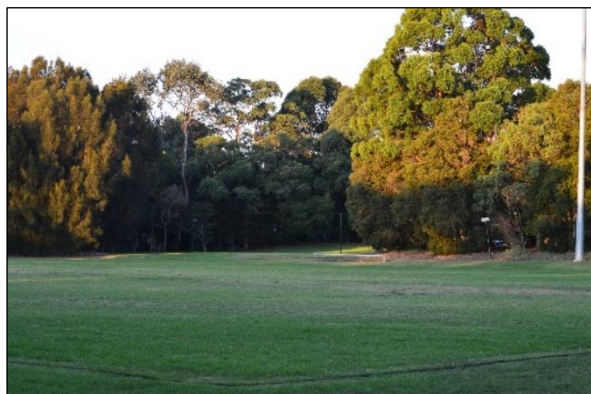
Site 10: Strathfield Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
21/4/16	1635-1735	Revegetated parkland, with open recreation areas & amenities	Rainbow Lorikeet	26	flewover, perched, foraged
			Noisy Miner	15	incl. 2 fledglings
			Grey Butcherbird	1	called
			Australian White Ibis	2	foraged
			Pied Currawong	1	called
24/4/16	2035-2220 (night session)	Revegetated parkland, with open recreation areas & amenities	Common Brushtail Possum	1	foraged outer branch of planted fig S boundary nr nestbox @ 2048
			Common Ringtail Possum	1	foraged in swamp mahogany nr amenities block @ 2115
			Grey-headed Flying-fox	1	flewover E section nr rotunda @ 2120
1/12/16	0725-0830	Revegetated parkland, with open recreation areas & amenities	Australian Magpie	7	incl. 2 immatures
			Rainbow Lorikeet	25	foraged in flowering lemon-scented gum & brushbox
			Noisy Miner	17	foraged in flowering tallowwood & chinese butterfly tree; incl. 5 fledglings

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Australian White Ibis	5	foraged on ovals
			Pied Currawong	3	mobbed cuckoos
			Channel-billed Cuckoo	2	pair mobbed by Noisy Miner, Rainbow Lorikeet & Pied Currawong in Forest Red Gum
			Welcome Swallow	4	foraged over ovals
			Eastern Koel	1	called
1/12/16	2045-2245 (night session)	Revegetated parkland, with open recreation areas & amenities	Grey-headed Flying-fox	2	foraged in outer branches of Hills Weeping Fig on S bdy @ 2050
			Common Brushtail Possum	1	foraged in Brush-box along S bdy (nestbox tree) @ 2100 (adult)
			Common Ringtail Possum	1	foraged in old turpentine foliage inside mesh-fence yard S bdy @ 2120
			Common Ringtail Possum	1	foraged in outer foliage of backyard planted lemon-scented gum @ 2125
			Grey-headed Flying-fox	1	called while foraging nr main toilet block @ 2145
			Tawny Frogmouth	2	possible pair in spotted gum nr NW bdy play area @ 2210
			Grey-headed Flying-fox	4	foraged in flowering brushbox & paperbark & fruiting lillypilly along N path @ 2220
			Black Rat*	1	foraged in Cissus groundlayer patch off main path @ 2225

Totals: 14 species (4 conservation-significant), 125 individuals.

Plates 32-34: clockwise from top left – playing field in southwest corner of Strathfield Park showing old planted eucalypts, brushbox and other vegetation around perimeters; isolated remnant Turpentine *Syncarpia glomulifera* occur along the western and northwest sides of the park; female Brushtail Possum with pouched young in an old planted fig along the southern edge (2008 hours, 1/12/16).



Site 11: Weeroona Road remnant

This site included all vegetation present under the electricity easement from the railway line beside Centenary Drive in the northeast to the Chullora rail line southwest of Strathfield Golf Course and east of Rookwood Cemetery.

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
22/4/16	0730-1000	Bushland remnant, surviving mostly as <i>Kunzea</i> & <i>Acacia</i> shrubland and paperbark woodland under 33kV electricity easement; session relates to <i>southern section</i> - connects habitats fr. Centenary Dr rail line to Chullora railway complex & Rookwood	Red-rumped Parrot	13	flew fr. golfcourse into W section of remnant then Rookwood
			Noisy Miner	6	E edge nr 11th
			Rainbow Lorikeet	10	flewover
			Musk Lorikeet	4	flewover fr Rookwood to Cooks R.
			Eastern Yellow Robin	2	likely pair, foraged in thick paperbark patch
			Yellow Thornbill	32	called, foraged, with mixed species group under cover

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
		Cemetery	White-browed Scrubwren	5	2 males, 1 female - likely bred; 2 nd pr further N
			Yellow-faced Honeyeater	12	called, flew among flowering p/barks
			Golden Whistler	3	2 immature birds, foraged in thick Kunzea & paperbark patch; 1 adult female
			Red-browed Finch	30	foraged in same dense patch, nr robins & others; flock of 26 birds bathed in small drainage line under cover
			Silvereeye	55	foraged in flowering p/barks
			Superb Fairy-wren	8	foraged as above
			New Holland Honeyeater	12	foraged in flowering p/barks
			Red-whiskered Bulbul*	2	called, foraged
			Red Wattlebird	2	called, foraged
			Grey Fantail	2	foraged with small bird group
			Grey Butcherbird	2	foraged, edge
			Mistletoebird	1	calling male
			Spotted Pardalote	2	foraged, flew
			Rufous Fantail	1	tagged small birds as above @ 0900
			Common Blackbird*	1	nr Rookwood fence
		Grey Shrike-thrush	1	location-called @ 0940 nr staunchion nr cemetery gate, N section	
28/4/16	0720-0920	Bushland remnant, surviving mostly as <i>Kunzea</i> & <i>Acacia</i> shrubland and paperbark woodland under 33kV electricity easement; session relates to <i>central and eastern sections</i> , ie. from cemetery (Macedonian part) E to substation &	Galah	2	flew to golfcourse
			Grey Butcherbird	3	foraged, perched
			Red-rumped Parrot	2	flew to golfcourse
			Rainbow Lorikeet	2	
			Noisy Miner	16	perched on powerlines, edges
			Yellow-faced Honeyeater	6	perched, flew E, someW to Rookwood
			Superb Fairy-wren	14	foraged, called, flew across Weeroona Rd into E section & nr rail line weedy patch & into golf

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
		railway line/ Centenary Dr.			course/ Cooks R. weeds
			Australian Magpie	1	perched
			Red Wattlebird	1	flew fr golfcourse
			Australian White Ibis	3	flew
			Welcome Swallow	2	foraged
			White-browed Scrubwren	2	pair nr fairy-wrens, weedy rail edges
			Crested Pigeon	3	foraged road edge
4/12/16	0700-0915	Bushland remnant - <i>southern section</i> , ie. from S rail line N to opposite 150 m blue post on 11 th fairway of golf course)	Eastern Rosella	1	flew fr 11 th fairway into remnant
			Noisy Miner	8	forays fr. 11 th into remnant
			Eastern Koel	1	male called
			Red-rumped Parrot	10	flew between golf course & Rookwood
			Rainbow Lorikeet	10	flew over
			Little Corella	8	flew to golfcourse fr. Rookwood & S rail line to remnant
			Common Blackbird*	1	adult male called & obs. nr Rookwood fence (Italian crypt area)
			Red-whiskered Bulbul*	5	called – S end nr rail line; also in 6m paperbark patch
			Grey Butcherbird	2	called, perched
			Red-browed Finch	14	flew into S end fr across rail line; also in Kunzea thicket
			Black-faced Cuckoo-shrike	2	perched nr rail line
			Willie Wagtail	1	called, foraged
			Yellow Thornbill	6	foraged in willows & Kunzea thicket
			Red Wattlebird	1	called
			Spotted Dove*	4	foraged rail edge
			Common Myna*	4	foraged rail edge
			Eastern Yellow Robin	2	territory-called, @ small track in thick Kunzea, Acacia, paperbark patch
			White-browed Scrubwren	9	1 st pair @ above site; 3 birds (2 m, 1 f) @ S rail line verge; 4 birds (incl 2 nd pair) in Kunzea

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					& paperbark thicket
			Silvereye	17	called, foraged
			Tawny Grassbird	3	2 adult males, 1 female, in Typha reedbed at small dam S end, males courtship displays
			New Holland Honeyeater	7	flew across track, foraged in bleeding heart
			Double-barred Finch	2	sunned, flew
			Channel-billed Cuckoo	4	mate pursuit in flight fr Rookwood S over rail complex
			Sulphur-crested Cockatoo	4	flewover to SE
			Superb Fairy-wren	7	foraged rail line verge (S end); also in Kunzea thicket
			Brown Thornbill	2	foraged in 6m tall paperbark, Acacia & Kunzea thicket
			Pied Currawong	1	called nr thicket
5/12/16	0720-0900	Bushland remnant – central & eastern sections	Eastern Rosella	2	flew W into Rookwood Cemetery
			Australian Magpie	1	called
			Noisy Miner	9	flew fr. golf course, incl 1 fledgling
			Spotted Dove*	1	called
			Superb Fairy-wren	8	3 males, foraged in thick Kunzea nr staunchions; pr foraged along weedy rail verge
			Rainbow Lorikeet	9	flewover
			Little Corella	4	perched then flew to golf course
			Red-rumped Parrot	5	flew in from W
			Australian Raven	4	perched atop pole
			White-browed Scrubwren	2	pair, male gave breeding territory call – thick Kunzea
			Red-browed Finch	3	in above patch
			Common Myna*	2	called, rail line
			Eastern Koel	1	called in privet
			Crested Pigeon	3	nr rail line
			Sulphur-crested Cockatoo	1	called
			Grey Butcherbird	1	adult called
			Red Wattlebird	1	called
			Common Blue-tongue Skink	1	basked

Totals: 42 species (23 conservation-significant), 460 individuals.

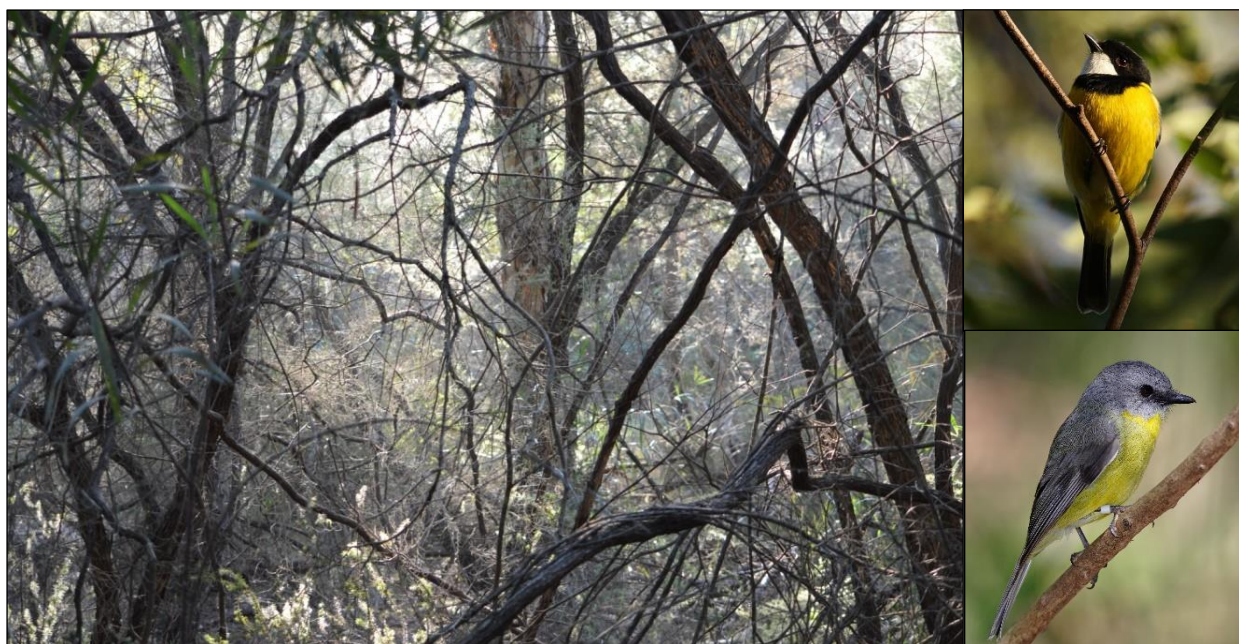
Plate 35: Weeroona Road remnant - southern section Plate 36: Phragmites rushbeds/Kunzea shrubland



Plate 37: Tawny Grassbird (circled in red), a summer migrant somewhat rare to metropolitan Sydney, was recorded breeding in *Phragmites australis* rushbeds in an old dam and adjacent remnant *Kunzea ambigua* and Melaleuca shrubland at the southern end of Weeroona Road remnant near the goods train line, 4/12/16. Inset: Tawny Grassbird (Ken Jones)



Plate 38: *Kunzea ambigua* shrubland growing in dense thickets at Weeroona Road provided cover, food and possible nest sites for a core group of woodland birds that have disappeared or are declining across Sydney. Two of these included Golden Whistler (adult male shown in the upper inset image – Aviceda, en.wikipedia.org) and Eastern Yellow Robin (lower inset image, en.wikipedia.org)



Site 12: Airey Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
23/4/16	0800-0915	Open parkland with planted trees and shrubs along Saleyards Ck & fringing Alan Davidson Oval	Crested Pigeon	12	perched on wires, foraged on oval
			Rainbow Lorikeet	44	called, foraged, flew
			Noisy Miner	23	foraged, called, incl 3 fledglings
			Australian Magpie	5	foraged on oval
			Pied Currawong	2	called, perched
			Grey Butcherbird	2	perched, foraged
			Eastern Rosella	4	flew to large fig @ ent. child centre; 2 others perched in large fig nr road
			Australian White Ibis	1	flewover
			Rock Dove*	3	flewover
			Australian Raven	8	flewover, foraged
			Common Myna*	10	foraged on grass, flew into date palm nr The Crescent
			Australasian Figbird	5	called in large fig Saleyards Ck junction with The Crescent
			Welcome Swallow	2	foraged
Magpie-lark	2	foraged on grass,			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					mobbed by Noisy Miner
6/12/16	1750-1850	Open parkland with planted trees and shrubs along Saleyards Ck & fringing Alan Davidson Oval	Australian White Ibis	34	foraged on main park area S of playground; also nesting in date palms N end, local colony
			Australian Raven	5	2 juveniles begged food fr. adult
			Pied Currawong	2	ground-foraged
			Crested Pigeon	6	foraged
			Noisy Miner	16	foraged, called, incl 2 fledglings
			Magpie-lark	1	foraged
			Welcome Swallow	1	perched
			Common Myna*	3	edge The Crescent
			Rock Dove*	7	perched
			Australian King-Parrot	1	called
Rainbow Lorikeet	7	flew over			

Totals: 16 species (2 conservation-significant), 206 individuals.

Plate 39: The northern end of Airey Park abutting The Crescent was foraged over for food scraps by Australian White Ibis, Common Myna and Australian Raven



Plate 40: Australian White Ibis have an established nesting colony in old planted palms in Airey Park near The Crescent



Plate 41: Planted eucalypts, sheoaks and camphor laurel along Saleyards Creek canal provided perches and food for Australasian Figbird, Eastern Rosella and Crested Pigeon

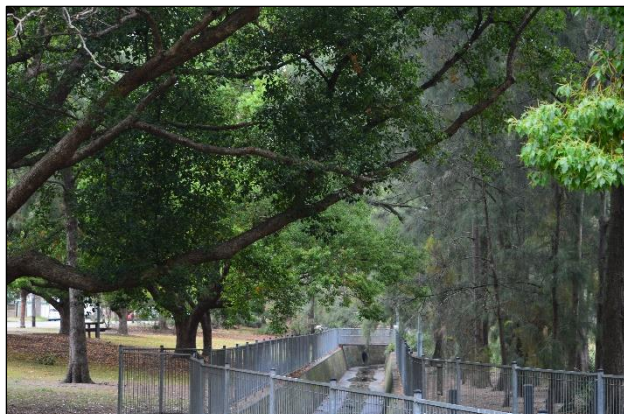


Plate 42: Artificial nest boxes for brushtail and ringtail possums provide shelter in old planted figs along Saleyards Creek canal



Site 13: Melville Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
23/4/16	0935-0950	Open parkland with old planted figs & along Saleyards Ck	Noisy Miner	4	foraged, called
			Rainbow Lorikeet	4	flewover
			Rock Dove*	2	foraged
			Little Corella	1	flewover, called
6/12/16	1855-1905	Open parkland with old planted figs & along Saleyards Ck	Noisy Miner	10	foraged, called, incl. 1 fledgling
			Crested Pigeon	1	foraged

Totals: 5 species, 22 individuals.

Plate 43: Old planted figs provide much of the canopy cover and food supply for birds such as Australasian Figbird along this section of Saleyards Creek



Plate 44: Autumn-flowering Banksia planted in Melville Reserve provided nectar for Rainbow Lorikeet & miners



Site 14: Boden Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
23/4/16	1000-1020	Open parkland with old planted eucalypts & large figs	Australian Magpie	2	foraged
			Rainbow Lorikeet	25	flewover
			Grey Butcherbird	2	called
			Noisy Miner	10	foraged, called
			Sulphur-crested Cockatoo	1	flewover
			Spotted Dove*	1	called
30/11/16	1620-1640	Open parkland with old planted eucalypts & large figs	Rainbow Lorikeet	18	flewover, flock of 12 foraging in old eucalypt
			Noisy Miner	6	foraged nr road
			Australian Magpie	1	foraged
			Australasian Figbird	2	called, foraged in large fig
			Eastern Koel	3	males (2) and female in a big fig
			Australian King-Parrot	1	male flewover

Totals: 9 species (1 conservation-significant), 72 individuals.

Plate 45: Boden Reserve is a mix of exotic and native flowering shrubs and trees



Plate 46: A row of planted River Peppermint *E. elata* (62+ yr old) in the centre of the reserve



Site 15: Fitzgerald Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
23/4/16	1030-1050	Open parkland with planted perimeter strip	Noisy Miner	8	foraged, called
			Common Myna*	2	perched on fence
			Australian Magpie	1	foraged
			Australian Raven	1	perched
			Sulphur-crested Cockatoo	2	flewover
			Pied Currawong	1	called
2/12/16	1050-1105	Open parkland with planted perimeter strip	Common Myna*	4	foraged
			Rainbow Lorikeet	5	perched, called
			Noisy Miner	2	called
			Australian Raven	1	called
			Australian Magpie	3	incl 2 immatures
			Crested Pigeon	1	foraged
Spotted Dove*	1	called			

Totals: 8 species, 32 individuals.

Plates 47 and 48: Fitzgerald Park is one of the smaller parks in the study area and is flanked by old planted eucalypts, lillypilly, brushbox and other trees. It is well used by people for recreation and attracts significant numbers of Common Myna, ravens, ibis and other species that scavenge food scraps.



Site 16: Davidson Street remnant (corner of Hume Highway, Greenacre)

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
27/4/16	0725-0850	small bushland remnant with regeneration	Galah	2	flewover
			Noisy Miner	2	called
			Rainbow Lorikeet	9	flewover
			Yellow Thornbill	6	foraged in acacia
			Red-rumped Parrot	9	foraged, flew
			Spotted Pardalote	3	called, pr courted
			Red Wattlebird	2	perched, called
			Australian Magpie	1	perched
			Grey Butcherbird	1	adult foraged
			Magpie-lark	1	called
1/12/16	0610-0710	small bushland remnant with regeneration	Red-browed Finch	3	foraged SW cnr
			Rainbow Lorikeet	14	foraged in flowering ironbark at entry gate
			Musk Lorikeet	4	foraged as above
			Noisy Miner	3	foraged
			Common Starling*	1	flewover
			Grey Butcherbird	1	called
			Welcome Swallow	1	foraged
			Common Myna*	3	foraged dry acacia area SW cnr
			Red Wattlebird	4	incl. 2 fledglings
			Yellow Thornbill	5	foraged, called
			Superb Fairy-wren	4	called nr SW cnr
			Red-whiskered Bulbul*	2	called SW cnr
			Spotted Pardalote	2	pr foraged in old acacias
			Little Corella	2	flewover
			Magpie-lark	1	foraged
Eastern Koel	2	called			
Pied Currawong	1	perched			

Totals: 20 species (6 conservation-significant), 89 individuals.

Plate 49: Individual remnant ironbarks provide insects, nectar and refuge for Red Wattlebird, Musk Lorikeet, Spotted Pardalote and others

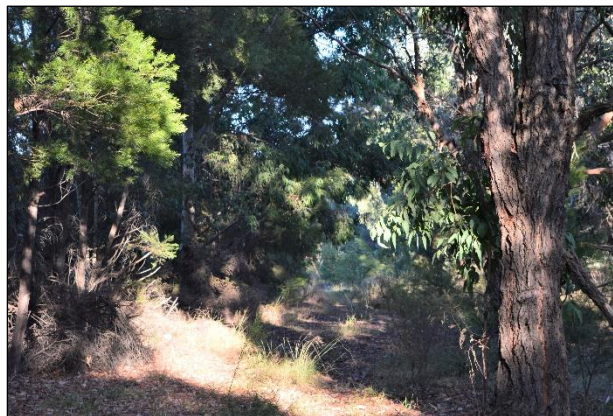


Plate 50: Revegetation of the Davidson Street remnant underway to restore the Cooks River-Castlereagh Ironbark Forest EEC at this site



Site 17: St. Anne's Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
24/4/16	0930-1030	Revegetated parkland in thin strip along east bank of Cooks River	Common Myna*	4	foraged nr path
			Crested Pigeon	5	foraged on grass
			Australian White Ibis	3	foraged
			Australian Magpie	3	incl 1 immature
			Noisy Miner	21	called, foraged in planted ironbarks; incl 3 fledglings
			New Holland Honeyeater	3	called nr Hume Highway overpass
			Pied Currawong	2	called, perched
			Welcome Swallow	2	foraged
			Australian Raven	4	foraged, called
			Spotted Dove*	3	foraged
28/11/16	1610-1635	Revegetated parkland in thin strip along east bank of Cooks River	Australian White Ibis	3	scavenged
			Australian Raven	2	perched, called
			Magpie-lark	2	flew along canal
			Australasian Figbird	1	called in fig row
			Rock Dove*	13	perched on W side of canal
			Rainbow Lorikeet	8	perched, called
			Welcome Swallow	2	perched
			Noisy Miner	19	incl. 9 fledglings
			Pied Currawong	3	foraged, called
			Grey Butcherbird	2	adult & immature
			Spotted Dove*	4	perched at sewer pumping station

Totals: 15 species (1 conservation-significant), 109 individuals.

Plate 51: An isolated remnant Tallowwood *Eucalyptus microcorys* in a Sydney Water pump station enclosure along Therry Road West and next to St Anne’s Reserve

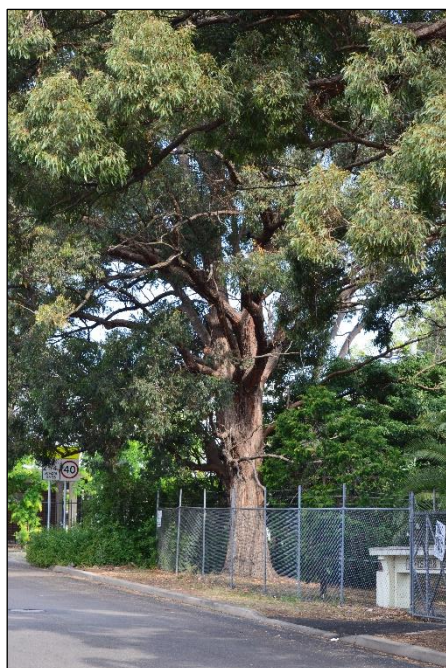


Plate 52: Older (60+ yr-old) Hill’s Weeping Fig *Ficus microcarpa* var *hillii* plantings in St Anne’s Reserve along McEncroe Street help connect vegetation canopies along the upper Cooks River and provide food for figbirds and flying-fox



Site 18: Prentice Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
24/4/16	0830-0900	Revegetated parkland (small)	Noisy Miner	5	called, foraged
			Crested Pigeon	3	foraged
			Rainbow Lorikeet	5	flew over
			Common Myna*	3	perched on fence
			Pinkeye or Freshwater Mullet	25	fry foraged in Cooks R. canal
29/11/16	1745-1805	Revegetated parkland (small)	Welcome Swallow	1	foraged
			Australian White Ibis	16	in canal water
			Magpie-lark	1	in canal water
			Noisy Miner	10	foraged, called
			Rainbow Lorikeet	9	called, flew
			Pied Currawong	1	foraged
Common Myna*	6	mown edges			

Totals: 9 species, 85 individuals.

Plates 53 and 54: Planted Sydney Blue Gum *Eucalyptus saligna*, River Sheoak *Casuarina cunninghamiana* and some ironbarks help link vegetation canopies with other plantings and isolated individual remnant eucalypts along upper Cooks River. Plate 54 (right) shows recent Brushtail Possum evidence (trunk scratches) on a Sydney Blue Gum planted along the northern edge of Prentice Reserve.



Site 19: Pilgrim Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
24/4/16	1530-1545	Open parkland with older, narrow planted perimeter	Rainbow Lorikeet	13	perched, called
			Grey Butcherbird	2	perched
			Noisy Miner	5	incl 2 fledglings
			Australian Magpie	2	foraged
30/11/16	1605-1615	Open parkland with older, narrow planted perimeter	Noisy Miner	4	incl 2 fledglings
			Rainbow Lorikeet	11	flewover
			Welcome Swallow	1	foraged
			Eastern Koel	1	called

Totals: 6 species, 39 individuals.

Plates 55 and 56: Pilgrim Park features a small recreation field surrounded by old planted trees and groundcovers with some individual remnant eucalypts, *Melaleuca decora* and other species.



Site 20: Frank Zions Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
24/4/16	1550-1615	Open parkland with planted eucalypts & lomandra centre-strip	Crested Pigeon	6	perched N end
			Noisy Miner	2	foraged in flowering ironbark
			Rainbow Lorikeet	3	foraged as above
3/12/16	1015-1035	Open parkland with planted eucalypts & saltbush strip	Noisy Miner	4	incl 1 fledgling
			Common Myna*	5	foraged in park
			Rainbow Lorikeet	4	flewover to Hudson
			Australian Magpie	1	mobbed magpie-lark
			Magpie-lark	1	foraged
			Spotted Dove*	1	called
			Musk Lorikeet	2	flewover to Hudson Park Golf Course

Totals: 8 species (1 conservation-significant), 29 individuals.

Plates 57 and 58: Frank Zions Reserve is a small, narrow area of planted ironbarks, lilyilly, acacia and groundcovers including lomandra and saltbush. It borders Hudson Park Golf Course on its northern end and Centenary Drive on its western side and includes a small picnic area/playground.



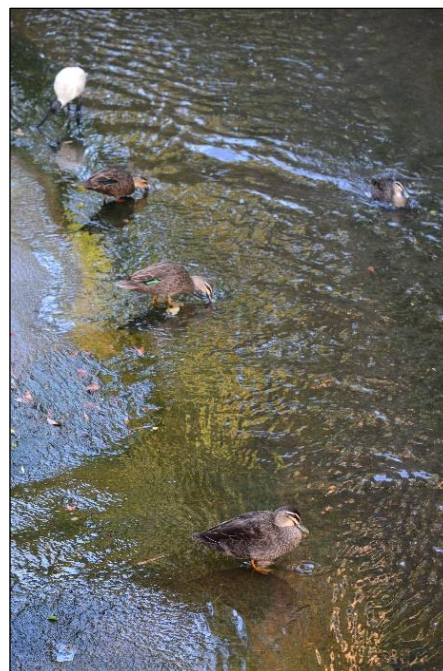
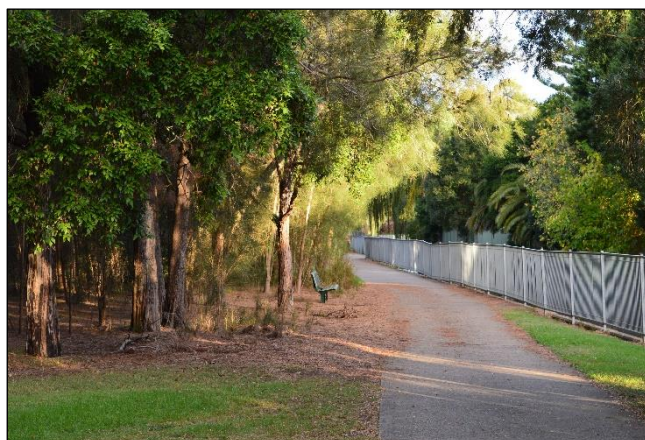
Site 21: Chain of Ponds Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
24/4/16	1625-1720	Revegetated parkland in a thin strip along Cooks River to Cave Road bridge	Common Myna*	31	scavenged on grass nr Cave Rd shops
			Noisy Miner	29	foraged in flowering paperbark nr Cave Rd shops
			Spotted Dove*	11	foraged on mown grass edges
			Australian White Ibis	6	foraged on grass, flew into canal

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Red Wattlebird	1	called
			Pacific Black Duck	14	rested in canal, incl. 2 ducklings
			Rainbow Lorikeet	3	mobbed by miners
			Welcome Swallow	2	foraged
			Dusky Moorhen	1	rested in canal
			Pied Currawong	1	perched
			Australian Raven	2	foraged, flew
3/12/16	0855-0940	Revegetated parkland in a thin strip along Cooks River to Cave Road bridge	Common Myna*	21	foraged for food scraps on grasses areas, called, perched, bathed in Cooks R. canal
			Magpie-lark	3	foraged, perched, bathed in canal, new nest in sheoak nr cnr Cave Road & Augusta Street
			Common Starling*	1	flewover canal
			Australian White Ibis	3	foraged, bathed in Cooks R. canal
			Masked Lapwing	1	foraged
			Noisy Miner	10	foraged, incl 2 adults with 3 fledglings in planted grey ironbark
			Rainbow Lorikeet	6	foraged in non-flowering bottlebrush
			Pacific Black Duck	3	flewover, bathed in canal
			Australasian Figbird	1	called
			Eastern Koel	1	male called
			Australian Raven	2	foraged, perched
			Silver Gull	1	flewover canal
			Torresian Crow	5	flewover to north
			Grey Butcherbird	1	called, Thew Res.
			Australian Magpie	1	foraged
			Sulphur-crested Cockatoo	1	flew along canal
			Spotted Dove*	1	perched
			Musk Lorikeet	4	flewover, called

Totals: 22 species (1 conservation-significant), 167 individuals.

Plates 59 and 60: Chain of Ponds Reserve contains small linear strips and some small blocks of planted sheoaks, eucalypts, lillipilly, acacia, bottlebrush and groundcovers that help link vegetation in Strathfield Golf Course with riparian habitats further south such as those occurring in St Anne’s, Dean, Maria and Elliott Reserves. Plate 60 shows Pacific Black Duck and Australian White Ibis foraging and drinking in Cooks River canal that flows through the reserve.



Site 22: Inveresk Park

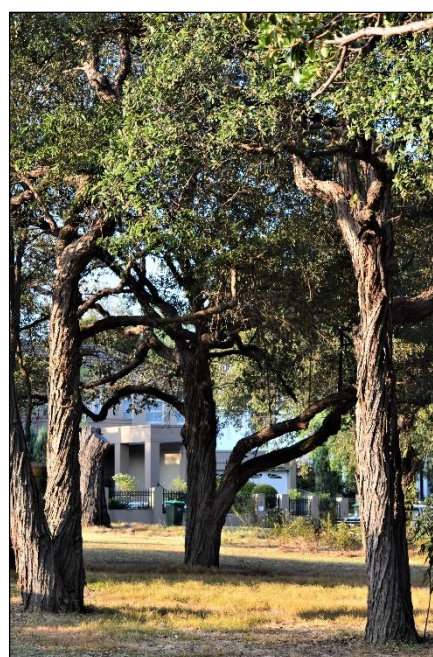
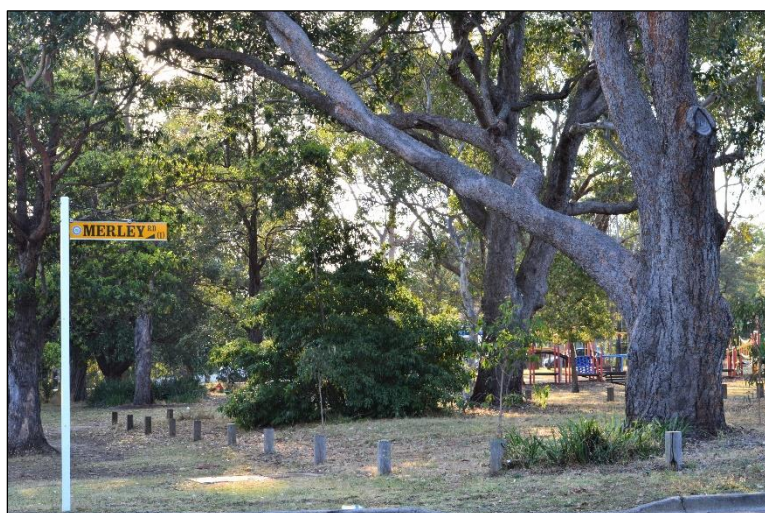
Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	0635-0735	Remnant turpentine-ironbark forest (STIF EEC) with mown small recreation areas and patch plantings of eucalypts, <i>Themeda triandra</i> , <i>Acacia longifolia</i> , <i>Bursaria spinosa</i> & <i>Microlaena stipoides</i>	Rainbow Lorikeet	24	flewover, foraged in planted flowering swamp mahogany
			Noisy Miner	17	foraged, mobbed lorikeets
			Australian Magpie	2	adult & juvenile
			Australian White Ibis	1	foraged
			Musk Lorikeet	5	flewover, called
			Sulphur-crested Cockatoo	1	flewover
			Grey Butcherbird	1	perched, called
3/12/16	1815-1845	Remnant turpentine-ironbark forest (STIF EEC) with mown small recreation areas and patch plantings of eucalypts, <i>Themeda triandra</i> , <i>Acacia longifolia</i> , <i>Bursaria spinosa</i> & <i>Microlaena stipoides</i>	Rainbow Lorikeet	8	foraged in flowering planted <i>Eucalyptus citriodora</i> at E end
			Musk Lorikeet	7	foraged in flowering planted <i>Eucalyptus citriodora</i> at E end
			Noisy Miner	5	incl. 1 fledgling, foraged, called
			Sulphur-crested Cockatoo	2	nesting in remnant <i>Eucalyptus</i>

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					<i>moluccana</i> (Grey Box) nr Merley Rd
			Australian White Ibis	2	flewover
			Australian Magpie	2	foraged
			Little Corella	2	called, flewover

Totals: 8 (1 conservation-significant), 79 individuals.

Note: A local resident Charles Pitt and family have recently recorded Tawny Frogmouth, Galah, Australian King-Parrot, Eastern Rosella (nested 5 years ago), Australian Wood Duck (attempt to nest every year), and a flock of 30 Yellow-tailed Black-Cockatoo (Jan. 2016) in Inveresk Park. Charles' mother has recently observed 3-4 Superb Fairy-wren in her Broughton Road garden.

Plates 61 and 62: Inveresk Park supports one of the last remaining remnants of Sydney Turpentine-Ironbark Forest in innerwestern Sydney and is an Endangered Ecological Community (EEC). Isolated individual *Eucalyptus longifolia* (Woollybutt), *E. moluccana* (Grey Box), *E. fibrosa* (Broad-leaved Ironbark) *E. globoidea* (White Stringybark) and Turpentine (see Plate 62) provide nest hollows for cockatoos, parrots and lorikeets and nectar for some honeyeaters, mainly Noisy Miner and Red Wattlebird.



Site 23: Dean Reserve

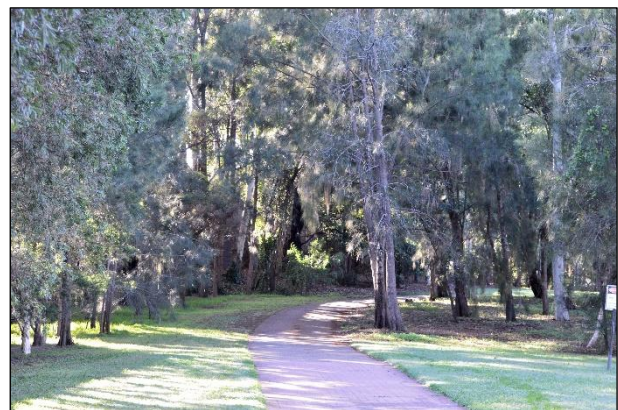
Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	0755-0905	Revegetated parkland with open recreation areas including a modern playground/exercise apparatus and amenities block	Noisy Miner	23	foraged, called, incl 6 fledglings
			Rainbow Lorikeet	10	foraged, called
			Australian Raven	2	perched, sunned
			Pied Currawong	1	perched
			Grey Butcherbird	1	foraged, called
			Welcome Swallow	2	foraged

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Little Corella	3	flewover
			Australian White Ibis	1	flewover
			Crested Pigeon	15	foraged, play area, sunned on grass
			Rock Dove*	18	foraged, perched/roosted under Water St bridge
			Spotted Dove*	1	called
			Common Myna*	10	foraged, called Cooks R canal & nr batching plant
			Common Starling*	1	flewover
			Magpie-lark	1	foraged
			Eastern Rosella	1	perched, flew W across canal & weedy river bank
			Red Wattlebird	2	called, foraged
			Yellow Thornbill	4	called, foraged in 10m tall planted bottlebrush just N of Water St bridge
			Yellow-faced Honeyeater	8	flewover fr S along reserve, headed N along Cooks R. canal
28/11/16	1640-1740	Revegetated parkland with open recreation areas including a modern playground/exercise apparatus and amenities block	Noisy Miner	25	called, foraged, incl 8 fledglings
			Crested Pigeon	2	foraged
			Pied Currawong	1	perched, called
			Australian Raven	5	scavenged food scraps in building site W bank Cooks R., flew back into reserve
			Masked Lapwing	1	foraged in Cooks R. canal
			Rainbow Lorikeet	28	foraged in flowering <i>E. citriodora</i> , flew
			Magpie-lark	3	bathed in Cooks R. canal
			Common Myna*	8	foraged, flew, called to & from new building site on W bank
			Spotted Dove*	5	rested, preened
			Yellow Thornbill	4	foraged in planted sheoak & bottlebrush just N Water St bridge
			Silvereye	1	with Yellow Thornbill group
			Australian Magpie	1	foraged

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Red Wattlebird	1	mobbed thornbills in bottlebrush
			Rock Dove*	2	flewover

Totals: 21 species (3 conservation-significant), 191 individuals.

Plates 63-65: Dean Reserve contains a mix of 15-20+ year-old planted eucalypts, sheoaks, paperbarks, bottlebrush and thick beds of lomandra, dianella, kangaroo grass and other groundcovers, interspersed with mown grassed areas for public recreation and a walk/cycleway along Cooks River. They provide habitat for common hardy birds but also some locally significant species such as Yellow Thornbill (see Plate 65 – taken near Water Street bridge), Yellow-faced Honeyeater and Eastern Rosella, and Superb Fairy-wren which was recorded at the site in the 2007-2008 survey but not in the current study.

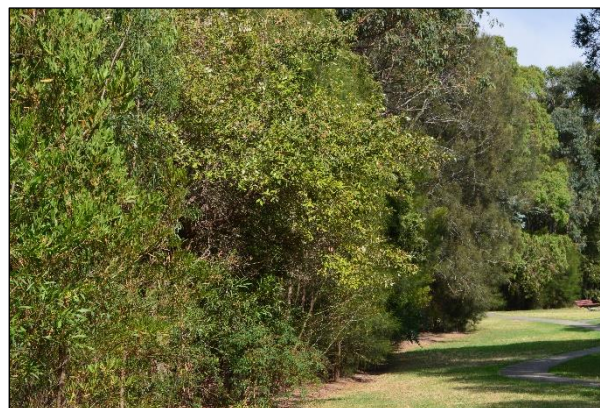


Site 24: Ford Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	0910-0940	Revegetated parkland along the northern bank of Cooks River, interspersed with mown grass areas, picnic facilities and an amenities block	Red Wattlebird	4	foraged in flowering paperbark S side of Water St
			Noisy Miner	11	foraged, fed 2 fledglings
			Rainbow Lorikeet	4	flew over
			Australian Magpie	2	foraged
			Black-faced Cuckoo-shrike	1	called, along Cooks R. canal in sheoaks
			Spotted Dove*	2	perched along Cooks R. canal
27/4/16	2230-2330 (night session)	As above	Grey-headed Flying-fox	2	foraged, called, flew in fruiting figs along N bank Cooks R. canal @ 2255
			Common Brush-tail Possum	1	in river sheoak on N bank of Cooks R. canal @ 2245
28/11/16	0810-0930	Revegetated parkland along the northern bank of Cooks River, interspersed with mown grass areas, picnic facilities and an amenities block	Noisy Miner	19	called, foraged, incl 7 fledglings
			Red Wattlebird	4	foraged, called
			Spotted Dove*	3	foraged, called
			Eastern Koel	1	male called
			Rainbow Lorikeet	7	foraged, called
			Grey Butcherbird	2	foraged, called
			Common Myna*	4	foraged, flew
			Crested Pigeon	1	sun-bathed
Suphur-crested Cockatoo	1	called, flew			
28/11/16	2100-2200 (night session)	As above	Tawny Frogmouth	2	Called fr upper slope dead branch; second bird returned call nearby

Totals: 14 species (4 conservation-significant), 71 individuals.

Plates 66-68: Established plantings of river sheoak, eucalyptus, fig, acacia, melaleuca, leptospermum and other species have created dense belts of habitat for birds that move along riparian corridors such as Yellow Thornbill. Tawny Frogmouth (Plate 68 – taken in Ford Park, 28/11/16) also foraged there.



Site 25: Southend Tennis

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	0950-1050	Open parkland with tennis courts, walk/cycleway, planted sheoak, eucalyptus, paperbark, callistemon in thin strip along Cooks R.; connects with Ford Park, Elliott Reserve & Maria Reserve	Noisy Miner	7	foraged, called, incl 2 fledglings
			Australian Raven	4	flewover, foraged
			Magpie-lark	2	foraged, called
			Rainbow Lorikeet	9	flewover
			Grey Butcherbird	1	foraged
			Yellow-faced Honeyeater	18	autumnal dispersal - flew along Cooks R. from S to NW & into & out of Ford Park to the NW

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Sulphur-crested Cockatoo	1	called
			Red Wattlebird	1	foraged
			Superb Fairy-wren	6	group crossed fr Elliott Reserve into Southend Tennis plantings
			Spotted Dove*	5	called, fed in resident's seed trays beside trail nr Punchbowl Rd
			Common Myna*	1	called, foraged
			Welcome Swallow	4	foraged, called
			Yellow Thornbill	5	called, foraged in riparian sheoaks – using thse strips to move along Cooks R. canal
			New Holland Honeyeater	1	called, foraged
29/11/16	1635-1735	Open parkland with tennis courts, walk/cycleway, planted sheoak, eucalyptus, paperbark, callistemon in thin strip along Cooks R.; connects with Ford Park, Elliott Reserve & Maria Reserve	Noisy Miner	9	called, foraged, incl 3 fledglings
			Rainbow Lorikeet	6	flewover
			Spotted Dove*	4	called, drank in Cooks R. canal
			Common Myna*	7	foraged on grass, fed in resident's seed tray trailside
			Common Starling*	5	foraged mown grass area
			Superb Fairy-wren	2	called E bank Cooks R. below Courts 10 & 11
			Red Wattlebird	2	called in sheoaks along Cooks R. below Court 11
			Sulphur-crested Cockatoo	1	flewover
			Little Corella	4	flewover, fed at resident's seed tray nr Punchbowl Rd
			Long-billed Corella	1	fed at resident's seed tray nr Punchbowl Rd
			Welcome Swallow	2	foraged
			Black-faced Cuckoo-shrike	1	called, flewover
			Magpie-lark	2	perched on canal railing
			Australian Magpie	4	2 adult, 2 juveniles
			Yellow Thornbill	4	flew between this site & Elliott Res, in planted sheoak

Totals: 19 species (5 conservation-significant), 119 individuals.

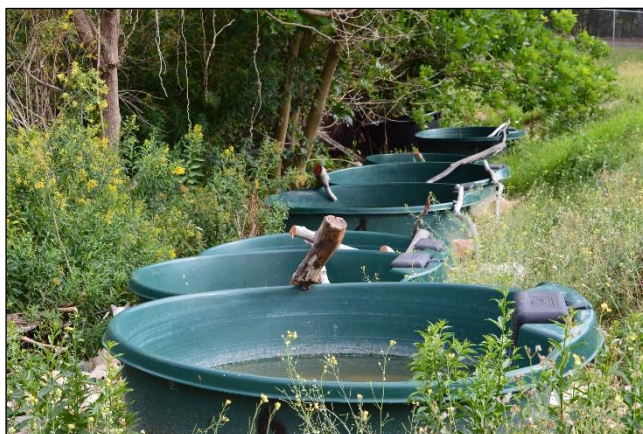
Plates 69-70: Southend Tennis provides a revegetated link along Cooks River that, together with the adjacent Elliott Reserve, enables bird species such as Yellow Thornbill, Yellow-faced Honeyeater and Superb Fairy-wren to access Maria and Dean Reserves, Ford Park and other reserves along Cooks River.



Plates 71 and 72: Artificial feeding stations such as this one installed at the rear of a property just north of Punchbowl Road bridge and at the southeastern end of the site attracted a mix of exotic (Plate 71 – Spotted Dove, 25/4/16) and native (Plate 72 – Sulphur-crested Cockatoo and Little Corella, 29/11/16) bird species. Supplementary feeding can encourage these species to focus their daily foraging activity in the local area, with potentially damaging impact on buildings in the case of Sulphur-crested Cockatoo.



Plates 73 and 74: Installation of artificial pond habitat (Plate 73, taken 29/11/16) for the endangered Green and Golden Bell Frog *Litoria aurea* (Plate 74, courtesy Australian Museum) in a fenced enclosure at the southern end of the site attempts to help reintroduce breeding populations of this species along the margins of Cooks River. This species was not recorded during the current study but local historical records exist, especially at Cox's Creek Bushland Reserve.



Site 26: Maria Reserve

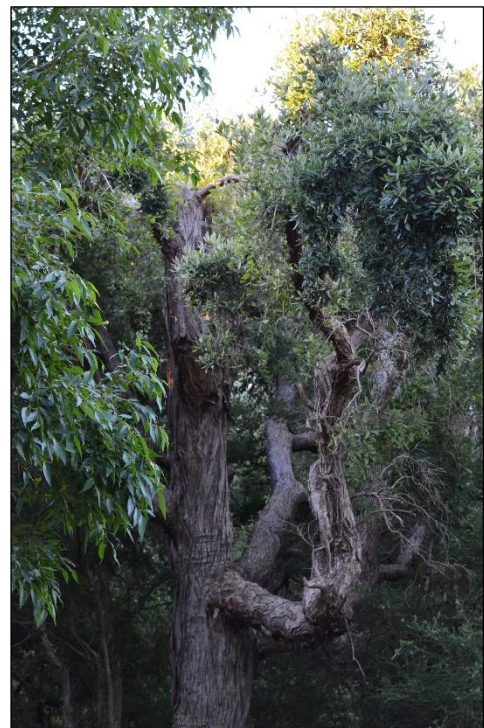
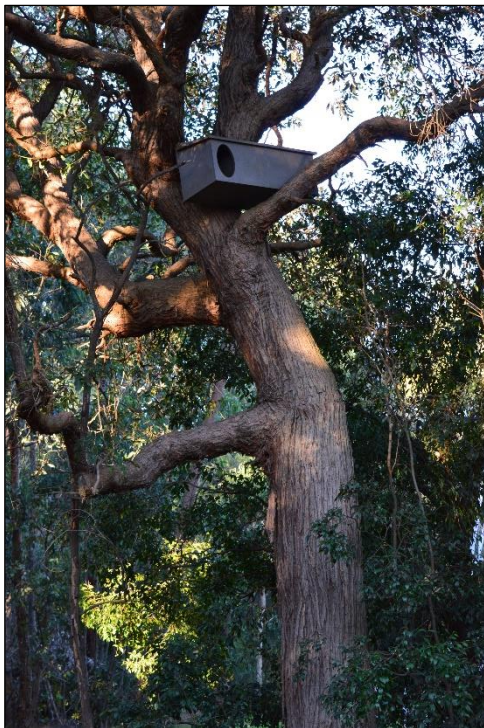
Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
27/4/16	1600-1650	Revegetated parkland with remnant turpentine and ironbark (members of STIF EEC) under and near a major powerline; walking trail and small playground nr Water St end; included Cooks River canal	Noisy Miner	8	foraged, called
			Red Wattlebird	12	called, flew to Ford Park, foraged in flowering planted eucalypts
			Little Corella	25	flock flewover to S
			Spotted Pardalote	1	called in remnant ironbark
			Rainbow Lorikeet	9	called, perched
			Pied Currawong	2	called
			Spotted Dove*	3	perched, foraged
			Australasian Figbird	3	flewover nr canal, sunned atop sheoak
			Common Myna*	2	foraged
			Welcome Swallow	2	foraged, called
			Crested Pigeon	2	foraged grass area
28/11/16	0555-0755	Revegetated parkland with remnant turpentine and ironbark (members of STIF EEC) under and near a major powerline; walking trail and small playground nr Water St end; included Cooks River canal	Noisy Miner	24	foraged, called, incl 7 fledglings
			Little Wattlebird	1	foraged, called
			Tawny Frogmouth	1	perched at day roost nr pruned brushbox under powerline
			Common Myna*	13	foraged on grass & bathed in canal & nr Water St bridge
			Red Wattlebird	5	foraged, called, incl 1 fledgling
			Magpie-lark	5	bathed in Cooks R. canal, preened in reserve
			Grey Butcherbird	1	perched, flew
			Australian White Ibis	1	foraged
			Crested Pigeon	3	foraged
			Spotted Dove*	2	called, foraged
			Eastern Koel	2	male called, female nearby
			Pacific Black Duck	2	foraged in Cooks R. canal
			Willie Wagtail	1	foraged nr Water St bridge end
			Pied Currawong	5	called, flew, also Water St bridge
			Australian Raven	3	perched, called
			Silvereye	3	flewover, called
			Australasian Figbird	1	foraged in fruiting pittosporum
Rainbow Lorikeet	2	called, perched			
White-faced Heron	1	flew fr Cooks R. canal nr Water St			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					bridge
			Little Corella	2	flew over site
			Silver Gull	2	bathed in canal
			Rock Dove*	6	bathed, drank, preened in canal
			Laughing Kookaburra	2	perched nr Water St bridge
			Common Starling*	12	perched, foraged mown grass area nr Water St bridge
28/11/16	2200-2235 (night session)	as above	Grey-headed Flying-fox	1	flew across canal nr Maria St bridge
			Grey-headed Flying-fox	2	foraged, called in large planted fig nr N end Elliott St
			Masked Lapwing	1	called

Totals: 28 species (6 conservation-significant), 173 individuals.

Notes: Chavvauhn Calver (Strathfield Council) recorded Superb Fairy-wren in Maria Reserve on 3/11/16, shortly before the summer survey. This species was not detected at this site during the current study but would be expected to occur. Also, the autumn nocturnal survey of Maria Reserve on 27/4/16 did not detect any native fauna species.

Plates 75 and 76: Maria Reserve supports some magnificent remnant turpentine and ironbark trees (see Plate 75 with Common Brushtail Possum box installed in an old turpentine) and provides important habitat connectivity for birds, possums and fish along upper Cooks River. Management of native vegetation under the existing electricity easement will need to be improved to adequately protect remnant trees of the Sydney Turpentine-Ironbark EEC (Plate 76) and their fauna.



Site 27: Elliott Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
27/4/16	1655-1730	Revegetated parkland with mown open recreation areas (dog leash-free) & older river sheoak, eucalyptus, paperbark & lomandra plantings (c. 20 yr-old, by Men of the Trees) & weeds along W bank of Cooks River	Willie Wagtail	2	foraged, called nr powerline staunchion along riverbank
			Silvereye	3	as above
			Superb Fairy-wren	4	called, foraged, roosted in dense weedy understorey & plantings of <i>Melaleuca styphelioides</i> and river sheoak
			Yellow Thornbill	5	called, roosted in above site nr Superb Fairy-wren
			Red Wattlebird	5	foraged, called, roosted in sheoak
			Crested Pigeon	2	foraged, open grass area
			Rainbow Lorikeet	9	flew, called
			Welcome Swallow	12	hawked insects over mown grass
			Spotted Pardalote	1	called, foraged
			Golden Whistler	1	sub-adult male called, foraged in thick paperbark plantings
			White-faced Heron	1	foraged in Cooks R. canal below Maria St bridge
			Pied Currawong	1	called, flew
			Rock Dove*	45	flock flew over site headed toward Punchbowl Rd
Noisy Miner	7	foraged, called			
30/11/16	0855-0955	Revegetated parkland with mown open recreation areas (dog leash-free) & older river sheoak, eucalyptus, paperbark & lomandra plantings (c. 20 yr-old, by Men of the Trees) & weeds along W bank of Cooks River	Common Blackbird*	1	called, W bank, opp. Southend Tennis Court &
			Crested Pigeon	1	foraged mown grass
			Red Wattlebird	9	foraged along riverbank sheoaks; 2 adults fed 1 recent fledgling in paperbark; also mate pursuits in pruned section
			Rainbow Lorikeet	12	foraged, called in flowering backyard <i>E. citriodora</i> then

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					flew over site
			Yellow Thornbill	2	foraged nr new frog ponds
			Magpie-lark	2	foraged grass area
			Pied Currawong	1	called, perched
			Superb Fairy-wren	4	foraged in thick weedy layer under powerline
			Silvereye	4	as above
			Rufous Fantail	1	called, foraged in thick privet patch
			Red-whiskered Bulbul*	1	called 20m NW Men of Trees sign
			Common Myna*	2	foraged open grassy area
			Rock Dove*	1	as above
			Noisy Miner	6	foraged on mown grass area & river-bank plantings
			Common Starling*	6	foraged open area
			Spotted Dove*	4	foraged on grass
			Australian Raven	1	flewover
			Welcome Swallow	2	foraged over bank plantings
			Willie Wagtail	1	called, foraged open grassed area
28/11/16	2135-2155 (night session)	as above	Grey-headed Flying-fox	1	called, foraged in fig nr Punchbowl Road

Total: 23 species (7 conservation-significant), 160 individuals.

Notes: The autumn nocturnal survey session conducted in Elliott Reserve on 27/4/16 detected no species of native nocturnally-active fauna. Auditory detection was impeded by high traffic noise along Punchbowl Road and tennis playing under floodlights at Southend Tennis courts. One Southern Boobook was reported from the front yard of 3 Victory Avenue Belfield, near the reserve in early April 2016 (Emily McCarthy, Strathfield Council).

Plates 77 and 78: Elliott Reserve contains an established strip of native plantings that help connect habitat for birds and flying-fox facilitating their movement along the upper Cooks River corridor.



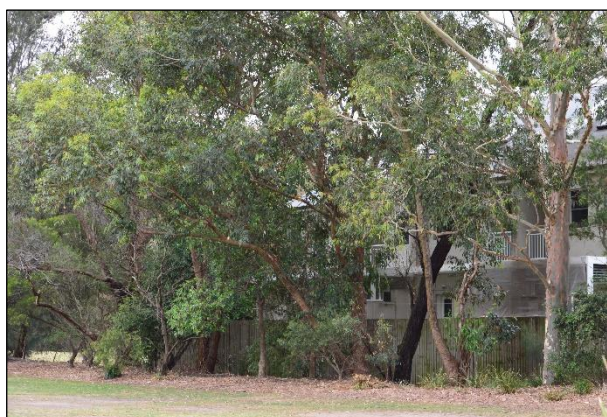
Site 28: Bark Huts Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
30/11/16	1000-1025	Open parkland including two playing fields, playground and amenities block; features a narrow planted perimeter of mostly established eucalypts, bottlebrush and lomandra beds	Crested Pigeon	8	foraged on oval
			Australian White Ibis	2	foraged on oval
			Noisy Miner	15	foraged in planted eucalypts around oval, incl. 5 young
			Australian Magpie	2	foraged on mown oval
			Grey Butcherbird	2	called, foraged in planted eucalypts
			Rainbow Lorikeet	7	foraged in flowering lemon-scented gum
			Red Wattlebird	1	called fr S end

Totals: 7 species, 37 individuals.

Note: This site was surveyed only in summer 2016.

Plates 79 and 80: Bark Huts Reserve contains mostly open parkland dedicated to sports and other recreation. A narrow perimeter of established planted eucalypts, bottlebrush and other species also occur. Regular watering of a turf wicket section in the middle of the main oval attracts hardy species such as Crested Pigeon, Australian Magpie and Noisy Miner.



Site 29: Cooke Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
29/11/16	0825-0945	Open parkland with playing field, skate-park, playground, amenities block and planted perimeters incl. block planting along weedy Cox's Creek Channel	Noisy Miner	17	foraged, flew, called, incl 4 fledglings
			Rainbow Lorikeet	4	foraged, called, ate Green Cestrum fruit & nectar along weedy Cox's Creek Channel

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Grey Butcherbird	2	adult & juvenile
			Common Myna*	3	perched on rail
			Spotted Dove*	2	sunned, channel edge
			Rock Dove*	2	drank fr channel
			Crested Pigeon	3	foraged on oval, one bathed in channel
			Australian Magpie	3	foraged on oval
			Australian White Ibis	1	foraged on oval
			Galah	2	flewover S end oval
			Willie Wagtail	1	mobbed raven, nested nearby
			Australian Raven	2	perched, foraged
			Long-billed Corella	2	dug corms fr W side oval grass

Totals: 13 species (2 conservation-significant), 44 individuals.

Note: Cooke Park was only surveyed in summer 2016.

Plates 81 and 82: Cooke Park has a large open recreation area with a hill planted to eucalypts, acacia, paperbark and sheoak along its northern edge adjoining Cox's Creek Channel fringed by lantana, green cestrum, privet and other woody weeds (Plate 82). These provide a narrow but thick movement corridor to Cooks River for Superb Fairy-wren, Red-whiskered Bulbul and Silvereye.



Site 30: Begnell Field

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
29/11/16	0955-1115	Open parkland with oval, amenities block and established eucalypt, sheoak and melaleuca plantings along NW	Spotted Dove*	6	called, foraged
			Common Starling*	7	foraged on oval
			Crested Pigeon	6	foraged on oval
			Rainbow Lorikeet	6	flewover fr channel, fed on green cestrum nectar

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
		side abutting Cox's Creek Channel & SW to Cosgrove Rd	Willie Wagtail	4	territory called, nested in planted river sheoak NW end abutting channel; obs. feeding 2 recent fledglings
			Red Wattlebird	4	called, foraged NW planted area
			Superb Fairy-wren	6	foraged, called in green cestrum & lantana along channel; male obs. with insect for nearby fledgling/nestling; 2 nd pair foraged in thick planted area nr Cosgrove Rd
			Rock Dove*	3	foraged on oval
			Welcome Swallow	2	foraged over oval
			Red-whiskered Bulbul*	1	called in upper channel weeds
			Pied Currawong	1	called
			Australian Raven	2	foraged roadside
			Common Myna*	6	foraged, called
			Australian Magpie	1	foraged on oval
			Australian White Ibis	2	foraged on oval
			Silvereye	4	called, flew along weedy channel
			Noisy Miner	10	foraged, called, incl 2 fledglings
			Nankeen Kestrel	1	foraged above NW section and grassed area
			Magpie-lark	2	called, foraged in mown area
		House Sparrow*	3	called (male, 2 females), bathed in channel opp. NW plantings	

Totals: 20 species (3 conservation-significant), 77 individuals.

Note: Begnell Field was surveyed once only, in summer 2016.

Plates 83 and 84: Revegetation along the northern/northwestern section of Begnell Field provides an important habitat linkage role in Strathfield’s southern landscape (Plate 83), mostly for open nesting and/or cover-dependent birds of the understorey such as Superb Fairy-wren, Red-whiskered Bulbul and Willie Wagtail. Cats inhabiting Cox’s Creek Channel that adjoins this revegetation (Plate 84, circled in red) pose a serious threat to the survival and reproductive success of these birds and require culling.



Site 31: Edwards Park

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
27/4/16	0930-1000	Open parkland with established planted areas of eucalypts, lomandra, paperbark & sheoak; includes oval, playground, library and amenities	Australian White Ibis	14	group scavenged food scraps E side of oval
			Sulphur-crested Cockatoo	5	foraged on oval
			Crested Pigeon	4	foraged S end oval
			Noisy Miner	9	scavenged breadcrumbs, incl 2 fledglings
			Australian Raven	1	flewover
			Rainbow Lorikeet	4	foraged, flew
			Australian Magpie	2	foraged on oval
			Rock Dove*	2	flewover
			Grey Butcherbird	1	called
28/11/16	1825-1900	Open parkland with established planted areas of eucalypts, lomandra, paperbark & sheoak; includes oval, playground, library and amenities	Crested Pigeon	8	foraged on oval
			Rainbow Lorikeet	2	flewover, foraged on flowering Jacaranda
			Pied Currawong	1	called
			Australian White Ibis	10	foraged on street verge & park edge
			Australian Magpie	2	adult & immature
			Noisy Miner	9	foraged - grassed rotunda area
			Little Corella	4	foraged, flew
			Galah	3	adults fed fledgling
Welcome Swallow	2	foraged			

Totals: 13 species (1 conservation-significant), 83 individuals.

Note: A local resident Suba advised that he had sighted 4 Tawny Frogmouth (2 adults with 2 fledglings) in Edwards Park in October 2016. He suspected they had flown from Strathfield Park.

Plates 85 and 86: Edwards Park is a small park surrounded by housing near Liverpool Road. Established plantings of lemon-scented gum, other eucalypts, sheoaks and paperbarks provide roost and nest sites for a group of hardy birds while the heavily used oval area supports scavengers such as Australian White Ibis and Crested Pigeon (shown eating discarded bread slices in Plate 86).



Site 32: Cox's Creek Bushland Reserve

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
26/4/17	0700-0950	Bushland remnant surrounded by industrial and residential land use; features Cooks River-Castlereagh Ironbark Forest EEC	Silvereye	22	flock foraged in flowering <i>Melaleuca decora</i>
			New Holland Honeyeater	25	foraged, called in flowering <i>M. decora</i> & broad-leaved ironbark; also in NW cnr sunned/preened
			Welcome Swallow	4	foraged
			Australian Raven	5	perched, called
			Brown Goshawk	1	mobbed by ravens
			Red Wattlebird	9	foraged, flew
			Spotted Pardalote	4	called, foraged in broad-leaved ironbark, paperbarks
			Grey Butcherbird	1	called
			Australian Magpie	2	perched
			Common Starling*	2	called, perched
			Superb Fairy-wren	7	foraged on lower bark surfaces, second group foraged along creek
			Noisy Miner	2	flew in fr street
			Little Corella	35	flock flew over
Yellow-faced Honeyeater	24	foraged in flowering			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					paperbarks & broad-leaved ironbark, incl flock of 20 perched then flew SW
			Golden Whistler	2	immature males foraged in broad-leaved ironbark
			Spotted Dove*	2	flushed fr bathing in weedy creek
			Sulphur-crested Cockatoo	1	flewover
30/11/16	0700-0840	Bushland remnant surrounded by industrial and residential land use; features Cooks River-Castlereagh Ironbark Forest EEC	Superb Fairy-wren	9	foraged along thick weedy creek nr entrance gate
			Willie Wagtail	2	foraged, perched
			Red Wattlebird	3	foraged in old paperbarks
			Grey Butcherbird	2	called
			Silvereye	24	foraged, flew, move along creek
			Australian Raven	2	perched, flew
			Pied Currawong	1	called
			Spotted Dove*	4	perched in paperbark thicket NW corner
			Rainbow Lorikeet	4	flewover
			Common Myna*	3	N boundary area
			Spotted Pardalote	2	called NW cnr
			Nankeen Kestrel	1	perched atop adjacent factory roof NW cnr
			Rock Dove*	2	flewover
			Sulphur-crested Cockatoo	1	flewover
			New Holland Honeyeater	9	called & foraged along ck espec. in flowering Cockspur Coraltree
			Welcome Swallow	3	foraged
			Australian White Ibis	1	flewover
			Garden Sunskink	1	sunned, S end
			Noisy Miner	1	called, E edge
			Torresian Crow	17	flew out of site, headed NE
30/11/16	2030-2200 (night session)	as above	Grey-headed Flying-fox	2	flewover headed E @ 2030, called @2100 upstream
			Striped Marsh Frog	2	called in creek

Totals: 25 species (9 conservation-significant), 244 individuals.

Note: The threatened Powerful Owl *Ninox strenua* has been previously recorded as roosting in Cox's Creek Bushland Reserve (DECC 2008) but was not detected during the current study. Also, historical records exist for the threatened Green and Golden Bell Frog *Litoria aurea* in the

reserve and habitat restoration works (artificial ponds and fencing) had been undertaken (DECC 2008, NSW BioNet database). However, no individuals of this species were recorded in the current study. Also, the nocturnal survey on 26/4/16 did not detect any native fauna species.

Plates 87 and 88: Cox's Creek Reserve conserves one of the last remaining patches of Cooks River-Castlereagh Ironbark Forest (an EEC) in Sydney's innerwest which, together with old stands of *Melaleuca decora* (Plate 87) provide shelter and food for a group of conservation-significant birds and bats. The reserve is small and suffers from stormwater pollution from surrounding industrial and residential areas, incursion by cats and a high weed burden. It is a site that badly needs restoration action supported, if possible, by surrounding industry and local residents.



Plate 89: Golden Whistler is a member of a group of declining woodland birds in Sydney. Two immature males were recorded in Cox's Creek Bushland Reserve on 26/4/16, most likely moving through on their autumnal dispersal. This image shows one of these birds – note light brown on its wing feathers.



Site 33: Yarrowee artificial wetland

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
28/4/16	1015-1045	Artificial wetland, fully fenced and locked, adjacent to Strathfield Golf Course	Noisy Miner	3	perched on fence with 1 fledgling
			Rainbow Lorikeet	4	called, flew over
			Australian Magpie	2	foraged
			Welcome Swallow	2	foraged
			Striped Marsh Frog	2	called
			Peron's Tree Frog	1	called
8/12/16	0855-0915	Artificial wetland, fully fenced and locked, adjacent to Strathfield Golf Course	Striped Marsh Frog	3	called
			Noisy Miner	2	flew over
			Australian Magpie	2	flew over
			Rainbow Lorikeet	1	flowering bottlebrush along E edge

Totals: 6 species, 22 individuals.

Plates 90 and 91: Yarrowee artificial wetland was built to provide off-stream aquatic habitat for fauna, particularly the threatened Green and Golden Bell Frog. Although the wetland was mostly dry during the current study and no bell frogs were detected, it provided habitat for a small number of hardy birds, some frogs and insects. A nest box installed on a paperbark nearby was utilised by Common Brushtail Possum (Plate 91, taken on 21/4/16 at the site at the start of night surveying in Strathfield Golf Course and thus not also counted for the Yarrowee site).



Site 34: The Crescent urban neighbourhood

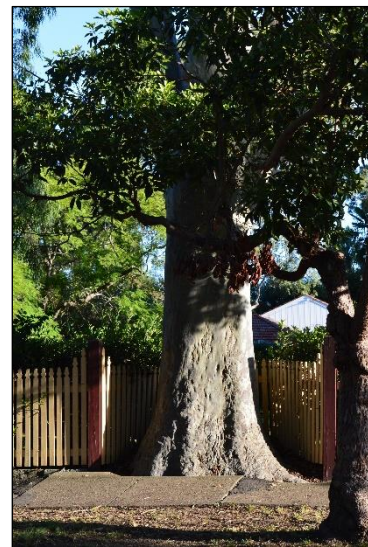
Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	1510-1615	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges	Rainbow Lorikeet	54	flew into backyard old (c. 35 m tall) planted lemon-scented gum; pr dug nest chamber in old date palm @ front 61 The Crescent; others fed on fruiting honey locust rear

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					89 Abbotsford Rd
			Australian Raven	11	perched in upper branch of planted Bunya Pine front yard of Homebush Boys High School, 7 flew fr trainline into The Crescent
			Noisy Miner	8	foraged in fr yards & in flowering <i>Calothamnus</i> (Meredith St)
			Pied Currawong	1	called
			Australian Magpie	2	foraged, Abbotsford Rd
			Australian White Ibis	4	at long-established nest site in old date palm, Homebush Uniting Church grounds, Meredith St (first surveyed in 2007-08)
			Spotted Dove*	2	foraged, street verge
			Crested Pigeon	8	perched on wires
			Red Wattlebird	1	foraged fr yard Abbotsford Rd
7/12/16	0925-0955	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges	Australian Raven	3	foraged along Burlington Rd verge & old school roof Bridge St
			Common Myna*	8	1 carried food to nest direction at Bridge Rd, 2 others along rail verge; Abbotsford Rd house eaves; Homebush Boys High roof
			Noisy Miner	22	perched in date palm 61 The Crescent; incl 5 fledglings; foraged in flowering lemon-scented gum Abbotsford Rd houses
			Rainbow Lorikeet	16	flew over, in rear yd lemon-scented gum Meredith Rd
			Eastern Koel	1	male called in rail verge
			Australian White Ibis	2	sat on 2 nests in

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
					date palm, Homebush Uniting Church
			Spotted Dove*	1	foraged
			Pied Currawong	1	called

Totals: 11 species, 145 individuals.

Plates 92 and 93: Some planted trees at the site are about 100 years old. Plate 92 shows two large Lemon-scented Gum *Eucalyptus citriodora* that have planted in the front yard of the former Underwood estate of 1878 at 72-76 Abbotsford Road (Strathfield Municipal Council 1995) and now tower over brushbox planted in the street verge. Plate 93 shows an old planted *E. citriodora* in Abbotsford Road verge and fenced around on the landholder's side.



Plates 94 and 95: Old planted date palms provided suitable nest sites for Rainbow Lorikeet (Plate 94, taken 25/4/16 at 61 The Crescent) and Australian White Ibis (Plate 95, taken 25/4/16, Homebush Uniting Church, Meredith Street). Ibis were first surveyed nesting in these palms in 2007-08 (InSight Ecology 2008).



Site 35: Shortland Avenue urban neighbourhood

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
25/4/16	1625-1720	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties along Merley Road	Rainbow Lorikeet	69	flew, called, foraged, mobbed goshawk
			Crested Pigeon	3	foraged in road verge (Francis St)
			Noisy Miner	13	foraged, called
			Common Myna*	10	foraged footpath nr St Patrick's
			Spotted Dove*	6	foraged, perched
			Australian Magpie	5	foraged fr yards
			Eastern Rosella	1	flewover fr E to W @ Shortland Av roundabout
			Brown Goshawk	1	mobbed by 30+ Rainbow Lorikeet in squadrons flying E to W over roundabout
3/12/16	0810-0845	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties along Merley Road	Australian Raven	1	flewover
			Pied Currawong	1	called
			Noisy Miner	16	called, foraged incl 3 fledglings
			Australian Raven	1	called
			Common Myna*	14	foraged, called in Dickson St palm & Merley Rd & Dickson St houses
			Australian White Ibis	4	flewover to E & foraged front lawn Hydebrae St
			Rainbow Lorikeet	24	foraged, called in backyard flowering eucalypts, Forest Red Gum & flowering brushbox verge
			Crested Pigeon	2	street verge
			Musk Lorikeet	10	foraged in fr yd flowering <i>E. citriodora</i> ; also 5 foraged in remnant Forest Red Gum <i>E. tereticornis</i> @ 33 Merley Rd
			Spotted Dove*	5	called, perched
			Magpie-lark	1	foraged mown grass St Patrick's
			Australian Magpie	1	called

Totals: 13 species (3 conservation-significant), 188 individuals.

Plates 96 and 97: Shortland Avenue site contained ample brushbox planted in street verges and a mix of some isolated remnant eucalypts mostly in rear yards, exotic hedges and shrubs in front yard gardens.



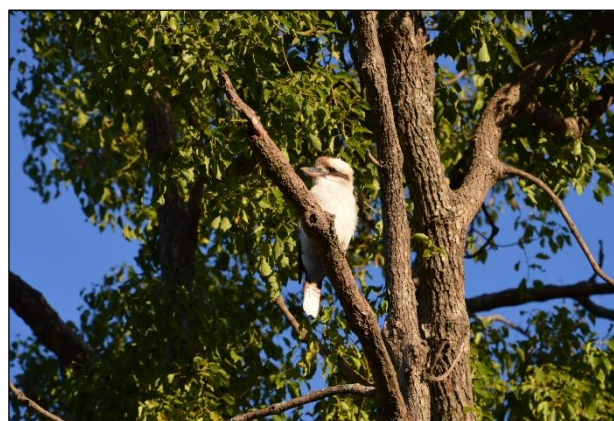
Site 36: Beresford Road urban neighbourhood

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
26/4/16	1600-1645	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges including old planted eucalypts in backyards; close to Strathfield Square shops; includes Beresford Rd apartment blocks	Rainbow Lorikeet	37	foraged rear yd eucalypts, flewover
			Common Myna*	10	Churchill Av road verge & roofs
			Australian White Ibis	5	nested date palm rear 67 Churchill Av, fr yd foraged
			Spotted Dove	2	foraged footpath
			Australian Raven	1	flewover Elva St
			Little Corella	10	flewover, perched
			Noisy Miner	6	foraged, called Laker Memorial Garden
			Pied Currawong	4	scavenged on apt balcony, Albert Rd verge
			Rock Dove*	13	foraged footpath, perched rooftop
7/12/16	1010-1045	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges including old planted eucalypts in backyards; close to Strathfield Square shops; includes	Laughing Kookaburra	1	perched @ front Korean Uniting Church along Homebush Rd
			Australian Magpie	2	adult & juvenile
			Australian Raven	6	adults + fledgling, scavenged discarded meat pattie on Beresford Rd footpath; birds & old nests in tall eucalypt 62 Homebush Rd
			Noisy Miner	14	foraged in flowering street

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
		Beresford Rd apartment blocks			verge brushbox & fr yd shrubs, incl 2 fledglings
			Rock Dove*	13	perched roofs cnr Homebush Rd & Beresford Rd, Churchill Av
			Rainbow Lorikeet	12	foraged, called, in flowering fr yd <i>E.ficifolia</i> (Elva St)
			Common Myna*	10	Homebush Road, Churchill Av, Elva St verge & roofs
			Australian Pelican	2	flewover high above Churchill Av, came from Strathfield CBD direction
			Australian White Ibis	1	foraged Churchill Av street verge
			Pied Currawong	2	called
			Australian Magpie	2	called in large eucalypt
			Crested Pigeon	1	perched rooftop nr Laker Garden
			Grey Butcherbird	1	called

Totals: 14 species (2 conservation-significant), 155 individuals.

Plates 98 and 99: Beresford Road urban neighbourhood is a diverse mix of old established English-style front gardens, individual planted or occasionally remnant large remnant eucalypts, planted brushbox road verges, apartment blocks, churches and the busy Homebush Road. Proximity to Strathfield CBD shops and trainline provides ready food sources for Common Myna, Australian Raven and white ibis.



Site 37: Newton Road urban neighbourhood

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
26/4/16	1655-1725	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties	Rainbow Lorikeet	62	perched in South St brushbox in verge, roosted, foraged in red-flowering ironbark cnr Bareena St & Ada Avenue
			Noisy Miner	14	foraged in verge brushbox & ironbark, mobbed
			Australian Magpie	5	perched – antenna, foraged Bareena St verge
			Australian Raven	1	perched
			Australian White Ibis	2	flewover
			Crested Pigeon	2	foraged mown verge Bareena St
6/12/16	0950-1015	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties	Noisy Miner	15	foraged incl 7 fledglings, in flowering lemon-scented gum & grevilleas
			Rainbow Lorikeet	13	flewover, foraged in brushbox verge, <i>E. citriodora</i> backyard trees
			Common Myna*	2	called Bareena St
			Crested Pigeon	2	perched - antenna
			Spotted Dove*	2	perched on wires
			Australian Magpie	1	rested on lawn
			Australian Raven	2	mobbed by miner
			Australian White Ibis	1	flewover
			Grey Butcherbird	2	called in backyard eucalypts

Totals: 8 species, 126 individuals.

Plates 100 and 101: The Newton Road site features old planted brushbox street verges, a mix of exotic and native shrubs in frontyards and old planted and some remnant eucalypts in backyards.



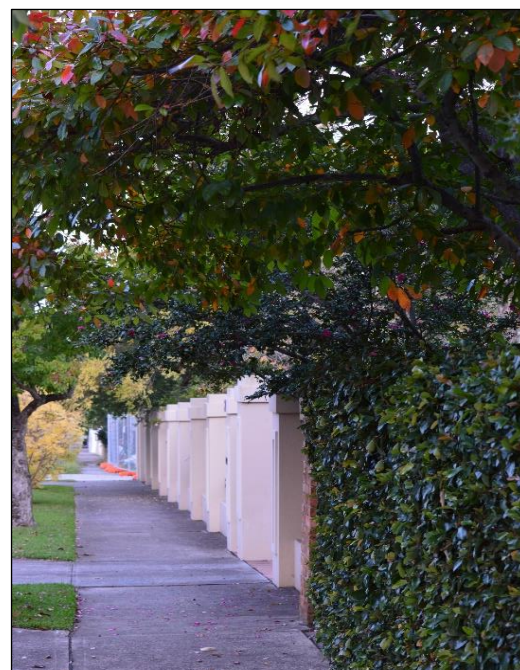
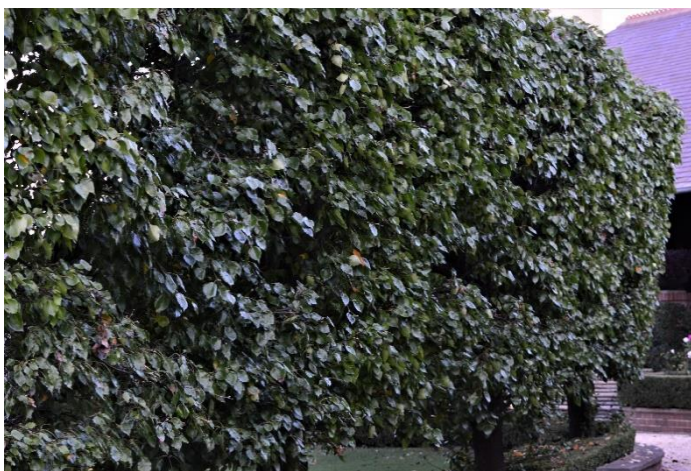
Site 38: Elwin Street urban neighbourhood

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
28/4/16	1650-1710	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties	Spotted Dove*	3	foraged, called
			Pied Currawong	2	foraged, called
			Red-whiskered Bulbul*	2	flew, called rear of house cnr Victoria St & Summit Pl.
			Rainbow Lorikeet	20	flewover to likely night roosts
			Red Wattlebird	2	hawked insects fr street verge brushbox
			Australian White Ibis	1	flewover
			Grey Butcherbird	1	perched
			New Holland Honeyeater	1	called & obs. atop exotic tree rear 14 Elwin St
6/12/16	0855-0940	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included isolated remnant eucalypts in some properties	Australian Magpie	1	perched
			Silvereye	6	called in deodar & backyard exotic shrubs @ 17 Victoria St, 83 Albyn Rd (frontyd) & flowering bottlebrush in frontyard 113 Homebush rd
			Red Wattlebird	6	foraged, called; 2 obs. in remnant white stringybark @ 114 Homebush Rd next to Montessori Academy
			Australian Magpie	2	flewover, foraged
			Noisy Miner	14	foraged in flowering brushbox verge & <i>E. citriodora</i> @ Chalmers St School, incl 1 fledgling, also in Homebush Rd brushbox verge
			Rainbow Lorikeet	21	flewover, foraged in flowering <i>E. citriodora</i> @ Chalmers Road School & brushbox Albyn Rd & 113 Homebush Rd bottlebrush in front garden
Pied Currawong	1	called			

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
			Red-whiskered Bulbul*	2	called in backyard 5 Victoria St; 2 nd bird called rear @ 79 & 81 Albyn Rd
			Common Blackbird*	5	called fr 0900 in backyards behind N side Victoria St (fr No. 7 to cnr Homebush Rd) & E side Homebush Rd (likely 2 males, 1 female); 4 th bird (male) obs. foraging on mown lawn screened by dense <i>Buxus sempervirens</i> hedge, frontyard 79 Albyn Rd; 5 th bird (calling male) in thick shrubs and hedges rear 122 Homebush Rd
			Australian White Ibis	8	flew over; 7 birds obs. at 5 nests in established colony in date palm @ 113 Homebush Rd
			Common Myna*	9	foraged in street – 75 & 77 Albyn Rd; obs. carrying nest material to house eave @ 76 Albyn; also Chalmers Rd & Homebush Rd verge
			Spotted Dove*	5	foraged, called, on rooftops
			Magpie-lark	1	foraged
			Torresian Crow	2	allopreened in tall <i>E. citriodora</i> rear 72 Albyn Rd

Totals: 15 species, 115 individuals.

Plates 102-106 (clockwise from top left for first three images): Established brushbox street verges (Plate 102 – Victoria Street), individual remnant eucalypts in some front and back yards (Plate 103 – Tallowwood *Eucalyptus microcorys* at 114 Homebush Road and listed on the Significant Tree Register – Strathfield Municipal Council 1995) and dense screening hedges of exotic shrubs such as English Box *Buxus sempervirens*, *Photinia robusta*, Orange Jessamine *Murraya paniculata* and other species (Plates 104 & 106) are distinctive features of Elwin Street urban neighbourhood site. Small numbers of the introduced and once more widespread (in innerwest Sydney) Common Blackbird *Turdus merula* (Plate 105, courtesy Charles J. Sharp, commons.wikimedia.org) were recorded behind these thick protective hedges, particularly in Victoria Street, Albyn Road and Elwin Street.

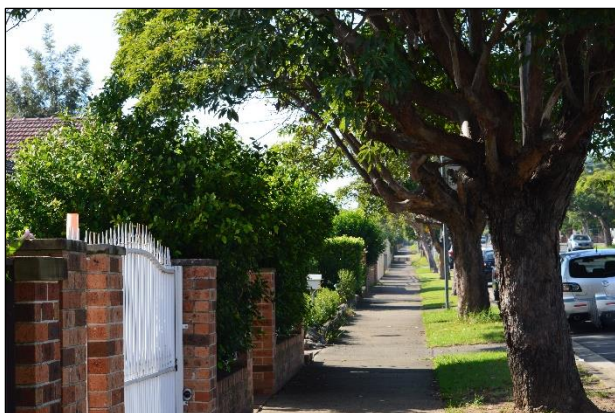


Site 39: Mintaro Avenue urban neighbourhood

Date	Time	Greenspace type	Fauna species	Number of individuals	Notes
29/4/16	0850-0950	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included older planted eucalypts in the backyards of some properties	Spotted Dove*	3	called, foraged, perched - antenna
			Red Wattlebird	3	foraged, called, appear to hold territories c. 100 m apart
			Yellow-faced Honeyeater	1	called in street verge brushbox & front yard wattle, flew – opp cnr Cross & Long Sts
			Noisy Miner	10	foraged, called
			Australian Magpie	1	foraged
			Rainbow Lorikeet	12	foraged in planted flowering ironbark
			Common Myna*	9	foraged along street paths, perched rooftops; 2 obs. at potential nest site entrance in a damaged tiled roof @ 69 Mintaro Av
			Australian Raven	1	flewover
			Sulphur-crested Cockatoo	1	flewover, called
28/11/16	1755-1820	Urban neighbourhood block of planted exotic and native vegetation in home gardens and street verges; included older planted eucalypts in the backyards of some properties	Spotted Dove*	5	called, foraged, likely breeding in exotic cypress in front yards
			Australian Raven	4	flewover
			Rainbow Lorikeet	33	foraged, called in flowering street verge brushbox
			Common Myna*	24	called, perched, foraged, carried food to nest, higher numbers along High St near shop & school
			Pied Currawong	1	called
			Silver Gull	1	flewover
			Noisy Miner	8	foraged, called, incl 4 fledglings
			Crested Pigeon	1	perched - antenna
			Red Wattlebird	1	called – Cross St
			Eastern Koel	1	male called
			Australasian Figbird	1	female perched on wires, Cross St
			Scaly-breasted Lorikeet	3	flewover nr Long St cnr

Totals: 15 species (2 conservation-significant), 124 individuals.

Plates 107 and 108: Mintaro Avenue urban neighbourhood site supported mostly hardy, urban-adapted bird species that foraged and, in some cases, nested in street verge brushbox (Plate 107), older eucalypts planted in the backyards of properties and in house roofs. Concentrations of the exotic pest Common Myna were detected near a school and shop and 2 birds inspected a potential nest site in the roof of a house in Mintaro Avenue (Plate 108). This species requires control and, if possible, eradication.



3.2 Fauna recorded during previous studies

3.2.1 Overview

Systematic studies of faunal populations and communities present in Strathfield Council LGA have been undertaken by two ecological consultants. The first, by Dr Andrew Huggett of InSight Ecology, surveyed 25 sites across the LGA in late spring 2007 and the same 25 sites plus one additional site (Davidson Street remnant) in early autumn 2008, for avifauna. All of these sites were re-surveyed by InSight Ecology in the current study, with the addition of 13 more sites. Thus, a total of 39 sites were surveyed in the current study.

The second study was undertaken by Dr Stephen Ambrose of Ambrose Ecological Services Pty Ltd in autumn and early summer 2008. This work surveyed 30 sites across the LGA for all vertebrate fauna taxa present. All but three of these sites (Matthews Park, Coronation Reserve and Freshwater Park) were also surveyed in the current study.

Both studies surveyed bushland remnant, wetland remnant (Mason Park wetland), revegetated parkland and open parkland habitats. Urban neighbourhood sites were surveyed only by InSight Ecology in 2007-2008 and 2016 and the same six sites were sampled in both these periods. Some contrasts between the results of both studies are provided in Section 3.2.3.

3.2.2 The 2007-2008 study (InSight Ecology 2008)

A total of 2,659 individual birds from 48 species was recorded in the 2007-2008 study (InSight Ecology 2008). Approximately 20% more birds were recorded in autumn than in early summer. This was due to a substantial increase in the number of birds recorded in revegetated parkland habitats in autumn relative to spring. Bushland remnants were similar in the number of birds and bird species recorded in both seasons.

Across all sites, the most abundant bird species recorded were Noisy Miner, Rainbow Lorikeet and the introduced Spotted Dove and Common Myna. Hardy, urban-adapted ground granivores, omnivores and ground insectivores comprised the most of the bird communities

sampled. A small group of woodland birds that have been declining or have disappeared from innerwestern Sydney bushland remnants were the least abundant birds surveyed. They included very small numbers of White-browed Scrubwren, Yellow Thornbill and Superb Fairy-wren. These were detected mainly in remnants at Weeroona Road, Mason Park and in older revegetation along some upper Cooks River reserves. Small numbers of fairy-wrens persisted in a few old Strathfield home gardens with dense hedges that provided refuge from cats and potentially nest sites away from the aggressive and over-abundant Noisy Miner.

The study made a number of recommendations to protect small bushland birds and conserve, enhance and re-connect their habitat, especially along the upper Cooks River reserves and at Mason Park. These put forward a set of overarching and specific recommendations based on improving the plight of declining small bush birds in the study area. Key actions to help achieve this included protecting bush and wetland remnants, particularly Weeroona Road and Mason Park, reducing or eradicating feral animal and plant incursions such as foxes and cats, managing the Noisy Miner threat, improving habitat condition and complexity in revegetated parkland, increasing habitat connectivity along Cooks River, improving local community education and participation in fauna-friendly Bushcare, developing a biodiversity conservation strategy for the LGA, and monitoring wildlife response to revegetation, habitat restoration and threat mitigation actions over time.

3.2.3 The 2008 study (Ambrose Ecological Services Pty Ltd 2009)

This study provided separate totals of the relative abundance and diversity of vertebrate fauna species recorded in each different type of greenspace and specific park and reserve across the LGA. In Mason Park wetland and surrounding plantings 67 species were recorded in summer and 32 in autumn (Ambrose Ecological Services Pty Ltd 2009). The Mason Park playing fields and surrounding revegetation supported 22 species in summer and 16 species in autumn.

Bushland remnants provided important habitat for a range of different fauna taxa. Cox's Creek Bushland Reserve recorded 27 species including 3 threatened Green and Golden Bell Frog in December 2008. This species was not recorded by InSight Ecology in 2016. Also, White-browed Scrubwren was reported from this reserve in 2008 but were not detected in the 2016 study, due possibly to their predation by cat and fox in the intervening period. The Weeroona Road remnant provided habitat for 24 fauna species in the 2008 study – 16 birds, 6 mammals (5 were introduced) and one reptile. In contrast, the 2008 study found 42 species present at this site – 41 birds including several declining woodland and shrubland species and one reptile. Surveying in the Davidson Street remnant in the 2008 study did not detect Superb Fairy-wren, Red-browed Finch, Red-rumped Parrot, Spotted Pardalote, Yellow Thornbill or Musk Lorikeet – all birds of local conservation significance that were detected in the 2016 study.

Revegetated parkland sites accounted for 51 species of fauna across both summer and autumn surveys. These included 28 birds – included Sacred Kingfisher (not detected in 2016) and Southern Boobook, 11 mammals – included Sugar Glider (not detected in 2016) but were mostly exotic rodents, cat and fox, 6 reptiles, 5 amphibians and one fish.

Open parkland sites supported 26 species in autumn and 41 species in summer 2008. These included more Common Brushtail Possum and Common Ringtail Possum than were recorded in 2016 when only 5 of the former and 4 of the latter were recorded. However, the lack of

nocturnal work in Airey Park in 2016 possibly accounted for some of this disparity between the 2008 and 2016 results for these species. Smaller parkland sites such as Wentworth Reserve, Fitzgerald Park and Edwards Park surveyed in 2008 did not contain many fauna species and this outcome was mostly supported by the 2016 work in these reserves.

General recommendations presented in this study supported and added to those put forward in the 2007-2008 report by InSight Ecology. Emphasis was placed on the need to improve the habitat value of existing reserves including the appropriate use of artificial nestboxes for different native fauna species and the provision of artificial ground shelters for ground-inhabiting taxa such as reptiles and small mammals. Other recommendations sought to improve bushland connectivity, undertake staged bush regeneration targeting specific sites, strategically revegetate including buffer planting of habitat edges, create new habitat (if/where possible) principally tall heath, native grassland and wetland, control feral species and domestic animals in reserves, reduce street and backyard light penetration into reserves, provide basins for frogs as has occurred in Cox's Creek Bushland Reserve, Elliott Reserve, Southend Tennis and Davidson Street remnant, provide fallen logs and rocks as substrate for small reptiles, improve community education, and undertake monitoring of human use of reserves and their fauna over time.

A set of specific recommendations were also provided (see Ambrose Ecological Services Pty Ltd 2009 for a detailed discussion). In short, these addressed the need for a sustainability management plan (termed a biodiversity conservation strategy by InSight Ecology in 2008), provision of artificial shelter sites for parrots, possums and microchiropteran bats, restoration of three sites that were degraded at the time of the 2008 study but have since been rehabilitated either fully or in part as resources have permitted – Mason Park wetland, Mason Park car park and Bressington Park, creation of new habitat and a bird hide at Mason Park wetland, repeat fauna monitoring every 5 years or earlier if required, and development of a fauna database. A flora and fauna register has since been established by Strathfield Council.

3.3 Species of conservation significance

The current study detected a total of 46 fauna species of local, regional, NSW, national or international conservation significance. These included 41 terrestrial and aquatic birds, 4 mammals and 1 reptile. Two of the mammal species are listed as threatened under NSW Threatened Species Conservation Act 1995 (recently replaced by NSW Biodiversity Conservation Act 2016). There are Grey-headed Flying-fox and Common Bentwing-bat (Plates 109 and 110).

Most of these bird species are members of a group of small woodland birds that are declining in number and range or have been extirpated from bushland remnants in the inner and mid-western suburbs of Sydney. These species were recorded either in Weeroona Road remnant, Strathfield Golf Course, Mason Park wetland and fringing revegetation, or in a set of Cooks River reserves – Maria Reserve, Ford Park, Elliott Reserve and Southend Tennis. Another species, White-throated Needletail, is an intercontinental migrant, listed under migratory bird protection agreements between the governments of Australia, China (CAMBA), Japan (JAMBA), and Republic of South Korea (ROKAMBA). Plates 111-120 show some of these species, as well as Common Blue-tongue Skink and Common Ringtail Possum.

Plates 109 and 110: Two threatened (Vulnerable in NSW) fauna species were recorded in the 2016 study. The Grey-headed Flying-fox (left, shown at a camp in Sydney's Royal Botanic Gardens) was detected at Strathfield Golf Course, Hudson Park Golf Course, Strathfield Park, Ford Park, Maria Reserve, Elliott Reserve and Cox's Creek Bushland Reserve (Mike Lehmann, commons.wikimedia.org). The Common Bentwing-bat was recorded in Hudson Park Golf Course (Australian Museum, G.B. Baker/Nature Focus).



Plates 111-118: Remnant *Kunzea ambigua* shrubland and *Melaleuca decora*/*M. styphelioides* woodland at Weeroona Road supported members of a group of declining or locally extinct woodland birds of urban Sydney. These were (from top down then L to R) Eastern Yellow Robin (2 birds, breeding status unknown, photo Iestyn Taylor), White-browed Scrubwren (breeding – 3 pairs with juveniles, total 11 birds, adult male shown in Weeroona Road remnant, 4/12/16, InSight Ecology), Brown Thornbill (2 birds, breeding status unknown, J. J. Harrison, commons.wikimedia.org), Double-barred Finch (2 birds on 4/12/16, a nationally declining species, Glen Fergus, commons.wikimedia.org), Red-browed Finch (breeding – one of the few larger populations [30 birds] in the inner/midwest, InSight Ecology taken at site), Southern Boobook (Strathfield Golf Course, 21/4/16, A. Lumitzer, birdsinbackyards.net), Grey Shrike-thrush (single bird, 22/4/16, adult female, Iestyn Taylor), Golden Whistler (22/4/16, InSight Ecology).







Plates 119 and 120: Two other species of local conservation significance – Common Blue-tongue Skink (left, Andy Doldissen) and Common Ringtail Possum (right, InSight Ecology) were also recorded in the study at Strathfield Golf Course (both species) and Strathfield Park (Common Ringtail Possum only).



3.4 Faunal habitats and their use

A range of different types of habitat were utilised by fauna in the study area. These occurred in small isolated bushland remnants including Sydney Turpentine-Ironbark Forest (STIF) and Cooks River-Castlereagh Ironbark Forest (CRCIF) EECs, patches of mangrove forest and saltmarsh at Mason Park wetland, revegetation in parkland which were mostly lineal strips or small blocks in parks, golf courses, adjacent to trainlines and roads, and flanking Cooks River and its tributaries, open parkland – golf course greens and fairways, sporting fields and passive recreation areas, and urban neighbourhoods – street verges, home gardens and buildings (mostly houses and shops).

3.4.1 Bushland remnant habitats

Bushland remnants were represented by 4 small, isolated patches located in the central western and southern parts of the LGA. These include a 1.3 km long by 40-130 m wide lineal strip of remnant *Kunzea ambigua* shrubland, *Melaleuca decora*/*M. styphelioides* woodland and isolated CRCIF EEC trees along an electricity supply easement at Weeroona Road adjacent to Rookwood Cemetery and near Chullora railway complex, Davidson Street at the corner of Hume Highway at Greenacre which contained individuals trees of the CRCIF EEC, Cox's Creek Bushland Reserve (CRCIF) at Greenacre and Inveresk Park in Strathfield. The latter is a small park set aside for passive recreation but which supports several ironbark, Grey Box, White Stringybark, Woollybutt and Turpentine trees belonging to the STIF EEC. Individual remnant Turpentine and Broad-leaved Ironbark trees also occur at Maria Reserve. Other isolated individual remnant indigenous trees occur in some backyards of urban neighbourhood blocks in Strathfield, Homebush and Belfield. These are listed in Strathfield Council's Significant Tree Register (see

Strathfield Municipal Council 1995). These remnants provided foraging, roosting, shelter/refuge and breeding habitat for a suite of indigenous resident and migratory bird species, many of which have declined markedly or have gone extinct from inner-western Sydney.

Habitat and microhabitat types that occurred in bushland remnant sites and the main fauna species that utilised them included:

- Airspace above remnants, used by birds to forage for insects and perform courtship displays - Welcome Swallow, Black-faced Cuckoo-shrike and the intercontinental migrant White-throated Needletail;
- Canopy and shrub foliage and flowers, branches, trunks and bark providing insects, nectar, seed, fruit and exudates and nest, roost and refuge sites – Common Ringtail Possum, Grey-headed Flying-fox, Common Bentwing-bat, Southern Boobook (a nationally declining species – BirdLife Australia 2015), Tawny Frogmouth, Sulphur-crested Cockatoo, Rainbow Lorikeet, Musk Lorikeet, Scaly-breasted Lorikeet, Australian King-Parrot, Eastern Koel, Laughing Kookaburra, Superb Fairy-wren, White-browed Scrubwren, Yellow Thornbill, Brown Thornbill, Golden Whistler, Eastern Yellow Robin, New Holland Honeyeater, Yellow-faced Honeyeater, Noisy Miner, Red Wattlebird, Australasian Figbird, Grey Butcherbird, Pied Currawong, Grey Shrike-thrush, Grey Fantail, Rufous Fantail, Australian Raven, Silvereye, Welcome Swallow and the introduced Common Blackbird and Red-whiskered Bulbul;
- Tree hollows including branches and trunks and standing dead trees (stags), used as observation and rest perches, roosts and/or nest sites – Pied Cormorant, Rainbow Lorikeet, Musk Lorikeet, Australian King-Parrot, Eastern Rosella, Australian Wood Duck, Laughing Kookaburra, Grey Butcherbird, Pied Currawong, Australian Raven and Welcome Swallow;
- Ground cover shrubs, grasses, sedges, rushland, reedbeds and herbs providing insects, nectar, seed, fruit and exudates and cover/refuge and nest sites – Red-browed Finch, Double-barred Finch (a nationally declining species – BirdLife Australia 2015), the introduced and rare (in Sydney) Nutmeg Mannikin, Tawny Grassbird, White-faced Heron, Australian White Ibis, Galah, Eastern Rosella, Superb Fairy-wren, White-browed Scrubwren, Noisy Miner, Willie Wagtail, Australian Raven and Magpie-lark;
- Earthen banks, bare ground and exposed muddy sites – Spotted Pardalote (nest burrows in earthen banks), Magpie-lark and Welcome Swallow (mud-nesters);
- Fallen logs, rocks, seeds, fruits, insects, bark, soil and leaf litter – food and cover for small ground-foraging insectivores – White-browed Scrubwren and Superb Fairy-wren and small reptiles including Common Blue-tongue Skink;
- Small water bodies within remnants including natural pools and artificial ponds – Striped Marsh Frog, Eastern Water Skink, White-faced Heron, Australian White Ibis, Pacific Black Duck, Dusky Moorhen and Magpie-lark.

Artificial nest boxes have been installed for possums, microchiropteran bats and hollow-nesting birds in Cox's Creek Bushland Reserve, Weeroona Road remnant and Inveresk Park in 2013.

3.4.2 Revegetated parkland habitats and connectivity

The study area supported a mix of revegetated parkland habitats of different ages, structure, spatial configuration and, to a degree, floristic composition. The most common type surveyed was a mix of River Sheoak *Casuarina cunninghamiana*, White Feather Honeymyrtle *Melaleuca*

decora, Prickly-leaved Paperbark *M. styphelioides*, Broad-leaved Paperbark *M. quinquenervia*, various eucalyptus species, callistemon and Spiny-headed Mat-rush *Lomandra longifolia*, Kangaroo Grass *Themeda triandra* and Blue Flax-lily *Dianella caerulea* usually planted as often narrow strips along Cooks River canal and as small to medium-sized blocks in parkland, e.g. at Dean Reserve, Begnell Field, Southend Tennis, Ford Park, Strathfield Golf Course and Strathfield Park.

Older (12-40+ year-old) and wider (20 m+) lineal plantings offered a broader range of habitats and microhabitats for birds and other fauna in the study area, especially small insectivorous passerines, than did younger (3-8 year-old) and narrower (5-15 m) plantings. These more established plantings provided ground, shrub and canopy layers and thus a greater selection of perches, foraging microhabitat such as decorticated bark, leaf rolls and fallen debris, roost/refuge sites, and a wider diversity of suitable nest sites. These occurred at Strathfield Park, Chain of Ponds Reserve, Dean Reserve, St Anne's Reserve, Begnell Field, Ford Park, Elliott Reserve and Southend Tennis. However, extensive recent pruning of these plantings under an Ausgrid powerline in Elliott Reserve, Maria Reserve and Southend Tennis has substantially reduced the amount and connectivity of this revegetation for foliage-foraging and cover-dependent fauna such as Yellow Thornbill, Grey Fantail, Superb Fairy-wren and Common Brushtail and Common Ringtail Possums.

In contrast, younger indigenous plantings comprised fewer foraging, roosting and breeding opportunities for native fauna and often consisted of only one canopy layer and some ground cover such as clumps of *Lomandra longifolia*. They occurred at Bressington Park (western and southern perimeters), Inveresk Park and Edwards Park.

The strategic location of revegetation sites in parks and reserves also provided a degree of habitat connectivity along Cooks River, Saleyards Creek and Cox's Creek Channel. These plantings also enhanced the size of Maria Reserve with STIF remnant trees and older plantings occurring in Ford Park and Dean Reserve. This appeared to allow some shrub and groundcover-dependent small woodland birds - Superb Fairy-wren, Yellow Thornbill, Golden Whistler, Grey Fantail and Red-browed Finch - to move between previously disjunct parts of their home ranges using these habitat 'stepping stones' (see also InSight Ecology 2008). The small bird movement corridor along Cooks River from Southend Tennis and Elliott Reserve to Ford Park and Maria Reserve and then onto Strathfield Golf Course and Weeroona Road remnant was a good example of this important role of strategic revegetation in the study area. A shorter distance habitat link, along the weedy but densely vegetated Cox's Creek Channel, may be allowing a local population of Superb Fairy-wren to survive despite high cat presence and move between older plantings at Begnell Field, Cooke Park and Maria Reserve and Ford Park.

Habitat and microhabitat types that occurred in revegetated parkland sites and the main bird and other fauna species that utilised them were:

- Airspace above revegetation, used by birds to forage for insects and perform courtship displays - Welcome Swallow and Black-faced Cuckoo-shrike;
- Canopy and shrub foliage and flowers, branches, trunks and bark providing insects, nectar, seed, fruit, exudates, roost and refuge sites and, in older planted sites, potential nest sites – Crested Pigeon, Tawny Frogmouth, Sulphur-crested Cockatoo, Long-billed Corella, Rainbow Lorikeet, Musk Lorikeet, Australian King-Parrot, Eastern Rosella, Eastern Koel, Laughing Kookaburra, Superb Fairy-wren, White-browed Scrubwren

(western end of Strathfield Park and Mason Park revegetation), Yellow Thornbill, Noisy Miner, Little Wattlebird, Red Wattlebird, Yellow-faced Honeyeater, New Holland Honeyeater, Australasian Figbird, Grey Butcherbird, Australian Magpie, Pied Currawong, Australian Raven, Silvereye, Welcome Swallow and Common Myna;

- Dead outer tree branches in older plantings, used mostly as observation and rest perches and roosts, and some hollows in older planted eucalypts – Australian White Ibis, Galah, Little Corella, Sulphur-crested Cockatoo, Rainbow Lorikeet, Musk Lorikeet, Eastern Rosella, Laughing Kookaburra, Black-faced Cuckoo-shrike, Australasian Figbird, Grey Butcherbird, Pied Currawong, Australian Raven, Magpie-lark and Welcome Swallow;
- Ground cover shrubs, grasses, sedges and herbs providing insects, nectar, seed, fruit and exudates and refuge – White-faced Heron, Australian White Ibis, Superb Fairy-wren, White-browed Scrubwren, Australian Magpie, Willie Wagtail, Australian Raven, Magpie-lark and Common Myna;
- Earthen banks and exposed muddy sites – Magpie-lark and Welcome Swallow collect mud for nest material;
- Fallen branches, insects, seeds, fruits, bark, soil and leaf litter, especially in older plantings – food and cover habitat for small ground-foraging insectivores – White-browed Scrubwren and Superb Fairy-wren;
- Bare ground and weedy open areas within and beside revegetation, foraged in by four exotic species - Spotted Dove, Rock Dove, Common Starling and Common Myna, Crested Pigeon, Australian White Ibis, Noisy Miner, Australian Magpie, Willie Wagtail and Australian Raven.

Artificial nest boxes have been installed for possums, hollow-nesting birds and microchiropteran bats in Maria Reserve, Ford Park, Elliott Reserve, St Anne's Reserve, Strathfield Park and Mason Park wetland in 2013.

3.4.3 Open parkland habitats

Open parkland habitats for fauna were structurally simpler than their revegetated counterparts. They included airspace, grassed open areas – usually sporting fields, golf courses and passive recreation sites, built structures within open parkland such as playgrounds, picnic amenities and tall wire netting screens at golf courses, and isolated individual or single rows of planted trees around park perimeters, along paths, drainage lines or between golf course fairways. These habitats occurred at 18 parks and reserves in the study area (Table 1). These included two golf courses – Strathfield and Hudson Park, medium to large playing fields at Mason Park, Bressington Park, Airey Park Cooke Park and Begnell Field, smaller ovals at Bark Huts Reserve, Edwards Park, Pilgrim Park and Fitzgerald Park, and small local passive recreation areas with children's playgrounds at Ismay Reserve, Wentworth Reserve, Frank Zions Reserve and Boden Reserve.

Birds that used these habitats were a mix of native and introduced species able to forage, roost, shelter and/or successfully breed in these more open environments. Thus, they were relatively resilient to frequent disturbance by humans, dogs, golf buggies and grounds maintenance vehicles. At Strathfield Golf Course, the number of most bird species were probably lower during the summer survey than in the autumn work due to major works being undertaken to re-build fairways and greens west of Centenary Drive.

Grassed open areas particularly ovals and golf course fairways, greens and the 'rough' between fairways ('inter-fairways') were the domain of native cockatoos and parrots. Three species of cockatoo foraged for corms (tubers) on golf course fairways and greens and/or fed on the fruit of planted eucalypts, figs and some exotic trees and shrubs in the inter-fairways. These were Little Corella, Sulphur-crested Cockatoo and, less frequently than expected, Galah.

Three parrot species - Eastern Rosella, Red-rumped Parrot and Australian King-Parrot - were recorded in low numbers in the study. Both of these species and the Galah have probably suffered a loss of population size under competition for nest hollows and food by Rainbow Lorikeet, Sulphur-crested Cockatoo and Little Corella.

A suite of other species foraged, roosted or nested in open mown grassed areas and their unmown or less-mown verges. These were Australian Wood Duck, the introduced Rock Dove, Spotted Dove, Common Starling, Common Myna and a small feral flock of Helmeted Guineafowl at Strathfield Golf Course, Crested Pigeon, Australian White Ibis, Masked Lapwing, , Noisy Miner, Grey Butcherbird, Australian Magpie, Willie Wagtail, Australian Raven and Magpie-lark.

Built structures within open parkland such as playgrounds, picnic amenities and tall wire netting screens at golf courses were also used by some avifauna. These were Australian White Ibis, Crested Pigeon, Sulphur-crested Cockatoo, Laughing Kookaburra, Noisy Miner, Australian Magpie, Willie Wagtail, Australian Raven, Magpie-lark, Welcome Swallow and Common Myna.

Artificial nest boxes have been installed for hollow-nesting birds, microchiropteran bats and possums in 2013 in Airey Park and Hudson Park Golf Course. The management of Strathfield Golf Course has also been installing nest boxes along Cooks River and in inter-fairways from 2005-2015 (P. Keary pers. Comm.).

3.4.4 Urban neighbourhood habitats

Urban neighbourhood sites offered a range of different habitats for birds to forage in, perch, roost and, in some cases, breed. These habitats included sealed surfaces - roads, streets, gutters, footpaths, mown and vegetated street verges - with Brush Box *Lophostemon confertus* (4-18 m tall and often multi-coppiced from regular pruning), Broad-leaved Paperbark *Melaleuca quinquenervia* and Crimson Bottlebrush *Callistemon citrinus* as the most common native street verge plantings, urban structures - houses, fences, roof-mounted antennae, powerlines and streetlight poles, and home gardens. The latter featured a mix of introduced and native shrubs with dense foliage and nectar-rich flowers to 3 m tall and often planted as hedges, e.g. oleander, English Box *Buxus sempervirens*, gardenia, Orange Jessamine *Murraya paniculata*, privet, camellia, hibiscus, magnolia, *Photinia robusta*, rose, Bird of Paradise *Strelitzia reginae*, grevillea, melaleuca and tea-tree and trees such as eucalypts, paperbarks, *Acmena* and *Syzygium* species (lilly pillies), she-oak, fig, Silky Oak *Grevillea robusta*, jacaranda, poplar, date palm, cypress, maple and liquidambar to 25 m tall in the front and rear yards of homes.

Old remnant and planted (60-100+ year-old) individual eucalypts, *Melaleuca decora*, Bunya Pine and various palms occurred in the front and rear yards and occasionally street verges of each urban neighbourhood (UN) site surveyed in the project. These were Abbotsford Road, Meredith Street and Bridge Road in The Crescent urban neighbourhood (UN), Churchill Street, Albert

Road and Homebush Road (Beresford Road UN), Victoria Street, Chalmers Road, Elwin Street and Homebush Road (Elwin Street UN), Merley Road and Dickson Street (Shortland Avenue UN), Newton Road, South Street and Ada Avenue (Newton Road UN), and Mintaro Avenue, Long Street and High Street (Mintaro Avenue UN). Many of these trees are listed in both volumes of Strathfield Council's Significant Tree Register (Strathfield Municipal Council 1995).

Birds of urban neighbourhoods were the hardiest and most versatile avifauna of the study area, able to exploit foraging and nesting opportunities provided by humans and their buildings. They included a cohort of resident and migratory species that are mostly common in other Sydney suburbs (see InSight Ecology 2006, 2008, 2012, 2014, 2016, 2017a). These were introduced and native ground granivores - Rock Dove, Spotted Dove, Crested Pigeon, Galah, Little Corella and Sulphur-crested Cockatoo, nectarivores – Rainbow Lorikeet and Musk Lorikeet, a migratory nest parasite Eastern Koel, an aerial insectivore – Welcome Swallow, a ground insectivores - Australian Magpie and Common Blackbird, nectarivores/insectivores – Yellow-faced Honeyeater, Noisy Miner and Red Wattlebird, a frugivore Australasian Figbird, a carnivore Grey Butcherbird, and three omnivores – Common Myna, Australian Raven and Pied Currawong. The latter two species are notorious predators of the nestlings of bush birds. Pied Currawong has been implicated in the decline of small bush birds in Sydney (see, e.g., Major et al. 1996). Supplementary feeding by residents may help account for the presence of Grey Butcherbird at some of these sites.

3.4.5 Aquatic habitats

Aquatic habitats present in the study area occurred at Mason Park remnant wetland – saltmarsh, mangrove forest, mudflats, open water and overhanging tree branches, along Cooks River canal and its major tributaries, and in recently-installed artificial frog ponds in Southend Tennis (fenced), Elliott Reserve (unfenced but well screened by vegetation) and Davidson Street remnant (perimeter-fenced). These are large plastic pots designed to provide potential habitat for Green and Golden Bell Frog *Litoria aurea* and other frog species. Older cement ponds for *L. aurea* have been overgrown and were dry at the time of the current study in Cox's Creek Bushland Reserve.

Birds that foraged in or over, perched and or dried on, and sometimes nested in these habitats were a diverse mix of resident, dispersive/nomadic and migratory species. They included:

- Four duck species – Australian Wood Duck, Grey Teal, Chestnut Teal and Pacific Black Duck;
- Open water diving birds – four species of cormorant;
- One large species that foraged by grazing algae and aquatic vegetation up to one metre under water (Black Swan);
- White-faced Heron and Australian White Ibis foraged around the edges of the larger lagoon at Mason Park wetland;
- Small numbers of Dusky Moorhen, Purple Swamphen and one Spotless Crake foraged on mown grass, small dams and in rank vegetation along upper Cooks River at Strathfield Golf Course;
- Single birds of two wading shorebird species – the seasonally dispersive or nomadic Black-winged Stilt and Royal Spoonbill – foraged in shallow muddy water at Mason Park wetland. No intercontinental migratory waders were detected at Mason Park wetland during the early summer survey – drought conditions affected shorebird numbers along

the NSW east coast during that time and habitat quality and food supplies were likely to have been substantially reduced; also there was an absence of a tidal flush to the Mason Park wetland in both survey periods of the current study;

- Other species were Masked Lapwing and Silver Gull while several terrestrial species also foraged in or perched/rested near aquatic habitat – Australian Magpie, Noisy Miner, Red Wattlebird, Willie Wagtail, Australian Raven, Magpie-lark, Welcome Swallow, Common Starling and Common Myna.

4. Discussion

4.1 Avifaunal assemblages of Strathfield LGA: patterns and processes

4.1.1 Bird responses to landscape and habitat changes in Sydney

Over the past 229 years much of Sydney's indigenous vegetation cover has been systematically removed for urban development to now accommodate just over 5 million people (Australian Bureau of Statistics 2016). All that remains are usually small pockets of highly fragmented bushland that are experiencing further decline in habitat condition and loss of native understorey and ground-foraging bird, mammal, reptile and frog species under sustained predation pressure from cat, fox, dog and other birds, competition from aggressive, over-abundant species such as Noisy Miner, and removal or disturbance of habitat by humans.

Today's pattern of habitat distribution, size, connectivity and condition in Strathfield LGA generally reflects this broad-scale process of change to the configuration, composition and connectivity of habitats across the Sydney region. It is a process characteristic of the impact of broad-scale landscape change on biodiversity across cities in Australia (e.g. Perth - Recher and Serventy 1991; How and Dell 2000; Adelaide - Tait et al. 2005; Melbourne - van der Ree 2004, White et al. 2005; Sydney - Benson and Howell 1990, 1995; Flannery 1999; Brisbane - Garden et al. 2006) and worldwide (see Secretariat of the Convention on Biological Diversity 2012).

In contrast with this landscape-scale process of extensive habitat loss, fragmentation and modification, there have been episodes of revegetation, mostly on publicly owned land over at least the past three decades in Sydney. At the local and regional scale, this has introduced an array of indigenous and exotic vegetation into this landscape. Coupled with earlier plantings along streets, on private properties and in parks, these activities have shaped the type, amount, quality and condition of habitats available to birds and other fauna. In effect, there has been an incremental transformation of this landscape, especially in Sydney's inner-west, south and north-west, from one of mainly sealed surfaces with minimal vegetation cover to a complex mosaic of ribbons, patches and conduits of green interwoven with Sydney's characteristic 'red-roof suburbia'.

Bird assemblages have responded to these changes over time by either adapting, colonising (or re-colonising) or disappearing from habitats in this landscape. A cohort of medium to large-bodied indigenous and introduced birds dominates the native and exotic vegetation planted in parks, along streets, and in the front and rear yards of houses across the study area and other districts. These are opportunistic, resilient/highly adaptable and often aggressive species that survive, reproduce, and have ultimately colonised these urban habitats. The native species

typically include Noisy Miner, Rainbow Lorikeet, Red Wattlebird, Crested Pigeon, Australian Raven, Australian Magpie, Magpie-lark, Grey Butcherbird and Pied Currawong. The introduced species are ground-foraging granivores - Spotted Dove and Rock Dove and the ubiquitous omnivores - Common Myna and Common Starling.

In Strathfield LGA, two other introduced species – the frugivore Red-whiskered Bulbul and ground insectivore Common Blackbird have persisted in low numbers. Common Blackbird numbers have fallen substantially in Sydney, probably due to predation of eggs by Pied Currawong and nestlings by Grey Butcherbird and predation of both adults and young by cats. Bulebuls tend to patchily occur in small populations in suburban Sydney, usually where abundant supplies of fruit of introduced species such as privet and lantana are available but also lillypilly (InSight Ecology 2012, 2017a). A seventh introduced bird species in the current study was House Sparrow (3 birds) at Begnell Field. Numbers of this species have declined in Sydney's parks and reserves but remained fairly stable around areas of high food supply such as shops and access to suitable nest sites, often in the eaves of older houses (InSight Ecology 2014). Strong competition for nests and food with Common Myna, aggression and food competition from Noisy Miner, and predation by rats and cats are factors implicated in the decline of the House Sparrow in suburban Sydney. Two other introduced bird species were also recorded in the study area, both at Strathfield Golf Course – a feral population of 6 Helmeted Guineafowl and 6 Nutmeg Mannikin (a finch).

Bird assemblages of Strathfield's bushland remnants are therefore residual populations of what were once, prior to intensive urbanisation, much richer woodland and forest bird communities. They comprise a mix of resident, nomadic and migratory/dispersive species confined mostly to the upper Cooks River corridor of revegetated parks and reserves. This includes Strathfield Golf Course and the adjacent Weeroona Road remnant which connects with other high conservation value remnant native vegetation at Rookwood Cemetery and Chullora rail complex.

Weeroona Road remnant is the jewel in Strathfield's biodiversity crown, supporting 22 conservation-significant fauna species, 17 of which belong to the declining woodland bird group. These include species found nowhere else in the study area and only at few other sites in inner and mid-western Sydney - Eastern Yellow Robin, Grey Shrike-thrush, Mistletoebird, Brown Thornbill, Tawny Grassbird and Double-barred Finch. Other decliners - White-browed Scrubwren, Superb Fairy-wren and Red-browed Finch - also persist in riparian and fringing wetland revegetation at Mason Park and older plantings in the adjacent Bressington Park. It is likely that all three of these species bred at these sites during the current study.

Together these remnants in Strathfield and the adjoining Cumberland and Canterbury-Bankstown LGAs provide some of the last remaining habitats for Sydney's declining woodland birds. The conservation significance of this cannot be over-emphasised (see Section 5).

4.1.2 The Noisy Miner conquest

The most abundant and successful of the native urban-adapted birds in Strathfield LGA are the Noisy Miner and Rainbow Lorikeet, followed by Little Corella, Welcome Swallow and Australasian Figbird. The Noisy Miner is a colony-living honeyeater that aggressively protects food sources and breeding territories, repelling intruders and competitors through mobbing behaviour. This species has rapidly colonised almost all forms of urban greenspace and their

habitats across Sydney over the past 18 years (see Higgins et al. 2001; Parsons et al. 2003, 2006; French et al. 2005). In doing so, Noisy Miners may have either pushed out other species or taken over habitat niches vacated by species during earlier rounds of extirpation. The aggressive exclusion of birds from potential woodland and forest habitat by over-abundant Noisy Miners is now listed as a key threatening process to the health of woodland birds and their habitat under the EPBC Act 1999 and the former NSW Threatened Species Conservation Act 1995 (replaced by NSW Biodiversity Conservation Act 2016).

In the study area, species that may have been adversely affected by the Noisy Miner include smaller honeyeaters such as Yellow-faced Honeyeater, Eastern Spinebill and New Holland Honeyeater, small shrub and canopy-foraging insectivores – Yellow Thornbill, Spotted Pardalote, Grey Fantail and Golden Whistler and the once-common introduced House Sparrow and Common Blackbird. It is also feasible that the relatively low numbers of Willie Wagtail recorded in the study may reflect these combined pressures of competition from Noisy Miners and predation by avian and mammalian carnivores, although further work would be needed to confirm this. The Willie Wagtail is an indigenous, open-nesting, ground-foraging insectivore usually considered to be resilient and relatively well adapted to urban life.

Habitats offering open canopies, nectar-rich plants such as grevillea, banksia, callistemon, strelitzia and camellia, dense foliage supplying nest sites and insects such as eucalypts, paperbark, camellia and brush box, supplementary food and water supplies - often from home gardens and parks, and plenty of edge habitat have contributed to the success of the Noisy Miner in Sydney and other highly urbanised landscapes such as Melbourne (see, e.g., White et al. 2005) and Brisbane (see Catterall 2004; Garden et al. 2006). Where these conditions are less favourable or unsuitable such as in the dense *Kunzea ambigua* and *Hakea teretifolia* remnant shrubland of Weeroona Road Noisy Miner was not recorded, their presence confined to the edge of this site. Restoration of habitat for bush birds and other fauna should, if possible, utilise this knowledge of Noisy Miner ecology in urban environments (see Section 5).

The cosmopolitan diet of the Noisy Miner in suburban Sydney which includes grain-based food scraps available from outdoor café tables, rubbish bins and footpaths is another adaptive advantage this species has over other honeyeaters, especially during times when nectar is less available or of lower quality. Consequently, Noisy Miners are able to directly compete for food with the introduced Common Myna and Common Starling, although nest site preferences differ markedly between these species. Co-existence rather than exclusion, however, seems the more likely long-term outcome for these three species in the Sydney urban landscape.

In these ways, Noisy Miners may be viewed as potential ‘engineers’ of structural change in Sydney’s urban bird communities. Their ability to readily and frequently breed (up to 3-4 clutches in a season that can commence in late August and finish in early May) in and thus rapidly colonise urban habitats, broaden their diet and adapt their foraging strategy, and potentially displace other indigenous and exotic species has established the Noisy Miner, together with the Rainbow Lorikeet, as the dominant bird species in suburban Sydney. This has important implications for the strategic conservation management of other avifauna and their habitat in Strathfield and other LGAs across suburban Sydney (see Section 5).

4.1.3 Comparison between bird communities surveyed in 2007-08 and 2016

Some differences in the occurrence, species composition and habitat use of Strathfield's bird communities were evident between the first (2007-2008) and current (2016) studies by InSight Ecology. These were mostly due to more intensive field surveying in the 2016 study - 39 sites surveyed for a total of 93.9 hours in 2016 compared with 26 sites surveyed for a total of 30.5 hours in 2007-2008. The main differences are outlined below. A more detailed analysis could be possible by mining the site occurrence, abundance, species richness and habitat use data for these studies. However, this was beyond the scope and funding of the current project.

- An increased number of small to medium-sized native woodland/forest and grassland birds detected in 2016 relative to 2007-2008. Many of these belonged to the declining woodland bird group of suburban Sydney. Most were present in small numbers and some were confirmed to be breeding in Weeroona Road remnant, Strathfield Golf Course planting, Mason Park revegetation and Begnell Field plantings. Highlight species were Eastern Yellow Robin, Grey Shrike-thrush, Double-barred Finch, Red-browed Finch, Superb Fairy-wren, White-browed Scrubwren, Golden Whistler, Brown Thornbill, Yellow Thornbill, Rufous Fantail, Yellow-faced Honeyeater, Eastern Rosella, Red-rumped Parrot and Tawny Grassbird;
- Lack of detection of Superb Fairy-wren in urban neighbourhood (UN) sites in 2016, although 3-4 individuals were reliably reported recently from a Broughton Road home garden, close to Shortland Avenue and The Crescent UN sites. In 2007-2008, this species was recorded by InSight Ecology foraging and calling breeding territories in old established home gardens in Abbotsford Road which occur in The Crescent UN site;
- Continued co-dominance of urban bird communities by Noisy Miner and Rainbow Lorikeet, with a cohort of other hardy native and introduced species present in most parkland and urban neighbourhood sites;
- Continued and probably increased number of larger predatory native birds in UN, open parkland and smaller revegetated parkland sites, particularly Pied Currawong, Grey Butcherbird and Australian Raven, in 2016;
- Detection of 4 additional introduced bird species in 2016 (all present in low numbers) that were not detected in 2007-2008 – Nutmeg Mannikin (Strathfield Golf Course), House Sparrow (Begnell Field), Common Blackbird (in home gardens in Elwin Street UN) and Helmeted Guineafowl (Strathfield Golf Course);
- Low detection of raptors in 2016 including owls and diurnal raptors;
- Greater detection of mammalian predators along Cooks River reserves and Strathfield Golf Course, namely European Red Fox and cat, in 2016;
- Absence of intercontinental migratory wading birds from Mason Park wetland in summer 2016 which was a time of drought and reduced wader numbers at many wetlands along the Australian east coast;
- Reduced detection of arboreal mammals in 2016 – Common Ringtail Possum and Common Brushtail Possum. Small numbers of Common Brushtail Possum were detected in older revegetation at Strathfield Park, Strathfield Golf Course and Ford Park. Common Ringtail Possum was only recorded in Strathfield Park;
- Growth of revegetation surveyed in 2007-08 provided denser habitats to discourage Noisy Miner, Spotted Dove, Common Myna and Australian Raven incursion while

increasing the number of suitable nest, foraging and shelter sites for small woodland/forest birds at Ford Park, Dean Reserve and Mason Park plantings.

4.2 Urban greenspace as fauna habitat in Strathfield LGA

The ecological values and functional roles of bush remnants, revegetated parkland and urban neighbourhood habitats for native fauna were discussed in detail in the report of the first avifaunal study (see InSight Ecology 2008). This information continues to apply to the study area today and provides the framework for targeting on-ground conservation actions (Section 4.3).

4.3 Conservation targets – focusing action on the ground

A fundamental cornerstone of best-practice ecosystem management involves identifying and protecting, through strategic intervention, species, communities and habitats of conservation significance. Realistic targets need to be set and adequate resources committed to implement these actions on the ground. Ongoing monitoring is a core, although often neglected, part of this work. Several opportunities exist to enhance current programs and implement new actions to protect indigenous fauna communities and their habitats in Strathfield LGA. A key group to focus these efforts on is native woodland and forest birds many of which have declined markedly in Australian urban landscapes over the past two decades (see, e.g., Recher and Serventy 1991; Sewell and Catterall 1998; Barrett et al. 2003; Parsons et al. 2006; InSight Ecology 2012). Other fauna species with a range of sensitivities to the loss of habitat condition and connectivity would also be benefited by these actions.

Bushland remnants at Weeroona Road, Cox's Creek Bushland Reserve, Davidson Street and Inveresk Park require ongoing habitat protection, creation and enhancement to retain and improve their biodiversity values. Key target activities at these sites are the reduction of the weed burden in remnants but undertaken using a patch-mosaic approach so as to maintain a supply of dense ground and shrub layers for cover-dependent species such as White-browed Scrubwren and Superb Fairy-wren and protect basking sites for Common Blue-tongue Skink and small reptiles, planting of suitable shrub and ground cover vegetation under strips and patches of eucalypts where possible at Strathfield Golf Course, structured block ('stepping stone') and lineal ('habitat linkage') plantings to increase habitat connectivity between the southern and northern reserves along the upper Cooks River, and improved control of mammalian predators principally European Red Fox, cat and Black Rat.

The strategic revegetation of parkland is another activity that could help improve the quality, connectivity and functional value of native fauna habitats in the study area. Here the emphasis is on actions to improve the structural complexity and floristic diversity of local indigenous plantings (including denser plantings), widening revegetation strips to reduce the amount of edge habitat for Noisy Miner and possibly reduce predation levels, and filling gaps between plantings to improve local habitat connectivity. Some of this work is already underway at Maria Reserve Bushcare site and have been completed at Dean Reserve, Mason Park and Bressington Park (western perimeter). Opportunities exist for these strategic plantings to occur at Ford Park, Strathfield Park Golf Course (western section after completion of course re-construction works) and Ismay Reserve along Powells Creek.

Conservation actions in urban neighbourhood and open parkland habitats should complement those undertaken in adjoining revegetated parkland and remnant bushland. Key actions could include planting new native ground covers, shrubs and small trees as habitat for small birds such as Superb Fairy-wren and other native fauna in home gardens, adopting other wildlife-friendly practices in home gardens including providing rocks and small logs as lizard and skink habitat, responsibly managing pet cats and dogs, e.g. curfewing and bell-collaring cats and using leashes to prevent dogs from chasing waterbirds and other wildlife in parks, avoiding feeding native birds and reducing home garden and park watering points such as leaking taps and dog dishes – key haunts of Noisy Miner, and sharing of knowledge and ideas with other residents and councils trying to protect and create urban wildlife habitat. An effective community education and engagement program is essential prior to undertaking these actions in the LGA. Existing avenues could include extending Council’s Bushcare program to other reserves (e.g. Begnell Field, Cooke Park to Maria Reserve linkage, Weeroona Road remnant, Strathfield Golf Course and Mason Park) and strengthening links with community-based initiatives such as WIRES.

A high priority action to improve aquatic habitat for shorebirds and other waders at Mason Park wetland, listed on the Register of the National Estate (Wetlands), is to restore tidal flush to the lagoon system. This would help improve the quality and hopefully quantity of food supplies in the lagoons but would require care to maintain availability of mudflat roost sites for waders. Exclusion of dogs from the site through new signage, a dog exclusion fence along the walkway/cycleway on the wetland’s eastern edge and enforcement would also help improve this habitat for shorebirds and waterbirds. Establishing a new Bushcare site at Mason Park wetland and fringing revegetation would help implement and maintain these actions over time.

5. Recommendations

5.1 Overview

This section provides a set of practical recommendations to help protect and conserve indigenous fauna and their habitat in Strathfield LGA. These are based on the results of the 2016 study and both previous faunal studies, the latter of which are reproduced in full in Appendices 1 and 2. Included in Appendix 1, the study conducted by InSight Ecology, is information on the current status of these recommendations and any associated comments. These relate to whether the recommended actions have been achieved, partly achieved, or have not been achieved since 2008. Implicit in this review is whether or not there has been a noticeable improvement, no change, or deterioration in the functional value of habitat for indigenous fauna in Strathfield’s parks and reserves over this period.

In the following sections, emphasis is placed on improving the ecological structure and function of remnant bushland, revegetated parkland, urban neighbourhood and aquatic habitats for native fauna across the LGA. Protecting and enhancing existing habitat, improving habitat condition, increasing habitat connectivity, rehabilitating degraded habitat, reducing threats and managing threatening processes, implementing effective monitoring and repeat surveying, and improving community engagement, education and participation are key recommended actions.

5.2 Specific actions

A suite of specific prioritised actions are recommended for implementation in the study area. These recognise the need for cost-effective, practical and achievable interventions in an operating environment often constrained by limited resources and competing demands. External funds may be required to implement some of these actions.

Each action includes a recommended priority for implementation to assist in planning and targeting implementation on the ground. Priority 1 is the highest level, requiring urgent action (as soon as possible and within the next 12 months), Priority 2 requires action within the next 1-2 years, and Priority 3 is action needed with the medium-longer term (3+ years).

5.2.1 Develop a Strathfield LGA biodiversity conservation plan

Priority 1

This plan should:

- Apply to all biodiversity and their habitat contained in Council's bushland reserves, parks and Hudson Park Golf Course. Close liaison with the management of Strathfield Golf Course is recommended to ensure the plan can also protect biodiversity on this property.
- Integrate with existing Council policies and programs already in place to protect native biodiversity in the LGA. These include, for example, Strathfield LEP 2012 and Strathfield 2025 Community Strategic Plan.
- Conform with other biodiversity conservation strategies in place, e.g. Australia's Biodiversity Conservation Strategy 2010-2030 and NSW Biodiversity Conservation Investment Strategy 2016.
- Be prepared by an experienced ecological consultant working closely with key Council staff.
- Apply to all relevant issues and activities likely to impact on biodiversity and their habitats in the LGA. These should include but are not limited to protection of bushland remnants, individual remnant trees in parks, reserves and private property, removal and pruning of remnant native trees, shrub, grasses and other groundcovers, especially under powerline easements and in Sydney Turpentine-Ironbark Forest and Cooks River-Castlereagh Ironbark Forest EECs in the LGA, reduction of European Red Fox numbers in upper Cooks River reserves and Strathfield Golf Course via professional shooting and den fumigation, control of domestic pets and feral animals to mitigate threats to native fauna and flora, development proposals and impact assessment and mitigation, pollution reduction including from street lighting, bushfire management, bush regeneration and revegetation including for habitat connectivity and mitigation of the Noisy Miner threatening process, community education and participation, and mapping and monitoring of threatened and declining faunal and floral taxa.
- Be reviewed bi-annually and amended/updated as required to reflect new knowledge and advances in biodiversity conservation and bushland restoration practices. Review of the plan should take into account changes in relevant legislation and improved approaches and methods to control and manage feral animal species.

5.2.2 Weerona Road bushland remnant and declining woodland birds

Priority 1: This remnant is of the highest priority for action in the LGA to properly protect and conserve its native fauna and habitat (see Figure 2 below). Specific actions include:

- Work with Cumberland Council and Ausgrid to ensure an E2 Environmental Conservation zoning (or similar zone or protective conservation management mechanism) is applied to the entire remnant as shown in Figure 2. This needs to be maintained over time.
- Work with Cumberland Council, Ausgrid, RailCorp, and Rookwood General Cemeteries Reserve Trust to bush-regenerate, revegetate and re-connect, particularly in the fragmented eastern section that connects to habitat along the railway easement, sections of Kunzea, acacia, paperbark and allocasuarina habitat in the remnant. This will require the formation of a local community-based Bushcare group and collaboration with existing Council bushcare teams. Potential exists for this collaboration in the upper Cooks River catchment.
- Review all existing fauna and flora studies and data relating to the remnant and its adjoining vegetation linkages, including in Rookwood Cemetery, Chullora railway complex and Strathfield Golf Course. Determine the need for followup systematic surveys in the remnant and adjoining habitats.
- Develop a monitoring program to assess the value of the remnant as both stopover habitat for migratory birds, breeding habitat for resident birds, their ongoing conservation management requirements (especially for threatened and declining species), and value for other faunal groups such as reptiles and amphibians. This could require separate funding to be sought and won.
- Work with Cumberland Council, RailCorp, and Rookwood General Cemeteries Reserve Trust to implement a targeted predator reduction and removal project. The impetus for this has been established through the tracking work of the Foxscan Project but needs to be applied to on the ground control action to reduce the impact of European Red Fox on native vertebrate fauna in the remnant and along the Cooks River fox movement corridor.
- A similar effort is needed for mitigating threats posed by cats in the remnant. This could feasibly involve the use of professional shooters/trappers in this area which is located away from adjoining residential land use.

Figure 2: Weeroona Road remnant (image: Google earth 2015)



5.2.3 Other areas of conservation significance and habitat connectivity

Priority 2

Three other areas are recommended for priority action to protect and improve their faunal habitat value and condition in the study area. They are Strathfield Golf Course, Elliott Reserve-Maria Reserve-Ford Park-Coxs Creek Channel (along parts of Cooke Park and Begnell Field), and Mason Park. Each of these areas have equal priority for intervention, following the top priority work needed at Weeroona Road bushland remnant.

Based on the results of the current study, specific recommended actions for these focus areas include:

- Reduce the fox and feral/domestic cat threat in each area through targeted fox control measures involving location and destruction of dens and their fox occupants and local community education to collar, curfew and better manage domestic cat ingress into these parks and reserves during day and night.
- Work more closely with Ausgrid and their contractors such as Asplundh Pty Ltd to protect Cooks River-Castlereagh Ironbark EEC in Maria Reserve and generally reduce their impact on small bird habitat elsewhere such as in Elliott Reserve and Ford Park.
- Increase the amount and connectivity of understorey shrubs and groundcover vegetation planted along Cooks River and Coxs Creek Channel to improve local habitat linkages for the breeding, movement and dispersal of White-browed Scrubwren, Superb Fairy-wren, Red-browed Finch, Yellow Thornbill, Grey Fantail and, potentially over time, Brown Thornbill, Rufous Fantail and Golden Whistler.
- Ensure existing weedy zones such as along Coxs Creek Channel at Begnell Field and Cooke Park and Cooks River main channel at Elliott Reserve are stage-removed and replaced with indigenous groundcovers and shrubs so that there is adequate cover for small insectivores and reptiles throughout the bush regeneration cycle.
- Densify the shrub layer of riparian zones and, where possible, lower slopes and small ridges such as at Maria Reserve and Ford Park to reduce the attractiveness of these habitats for Noisy Miner.
- Improve community awareness and engagement in the bushcare program along the Cooks River, particularly focusing effort on Maria Reserve-Ford Park-Elliott Reserve and the adjoining Cooke Park-Begnell Field areas. Investigate building on past and current Bushcare and fauna conservation achievements at Maria Reserve as well as encourage the formation of a new group (and potentially back to Strathfield Golf Course along upper Cooks River). Also, a Bushcare group for Weeroona Road remnant is highly recommended. Potential exists for utilising the “social hook” value of bringing back small bush birds in this landscape through grass-roots local community participation should be pursued and funded. This could involve community members assisting in future followup bird monitoring along this area (see also Section 5.2.5).
- Pursue options for enabling adequate tidal influence at Mason Park Wetland, a site listed on the Register of the National Estate (Wetlands) for its migratory bird and other conservation values. There is a need to improve tidal flush, roosting site quality and overall foraging quality for waterbirds. Suggest formation of a local community wetland care/bushcare group for Mason Park wetland and its fringing revegetation areas. Further aquatic bird monitoring is also a priority across seasons and years (dry and wet stanzas in the climatic cycle).

5.2.4 Strategic revegetation, new habitat creation and habitat restoration

Priority 2

Specific actions recommended for creating new fauna habitat, linking existing planted and remnant habitat along Cooks River and Cox's Creek Channel, increasing structural complexity, width and density of new planted habitat, as well as other recommendations presented under 'Revegetated parkland', 'Re-birding the upper Cooks River', and 'Managing the Noisy Miner threat' in InSight Ecology (2008) should be adopted, where possible/feasible, in the LGA.

5.2.5 Community engagement, education and participation

Priorities 1- 3 (ongoing)

Actively encourage 16 local schools to support and participate in programs and projects to protect, increase and restore habitat for native biodiversity in the LGA. Focus should be on developing and delivering a schools program to assist in biodiversity plantings in the key Cooks River reserves (Maria Reserve, Ford Park, Elliott Reserve, Southend Tennis, Begnell Field and Cooke Park) and Strathfield Golf Course, at Mason Park wetland and revegetation area, and at Bressington Park. This program could also potentially include student and staff assistance in biodiversity monitoring on individual school properties and at the above parks and reserves closest to each school. Schools include Strathfield Girls High School (HS), Strathfield South HS, Homebush Boys HS, St Patrick's College Strathfield, Meriden College, Santa Sabina College, Trinity Grammar Preparatory School, Australian International Academy, Homebush Public School (PS), Homebush West PS, Strathfield South PS, Marie Bashir PS, Chalmers Road PS, St Anne's Catholic School, St Martha's Catholic School, and Retaval School at Belfield. Some of this work has recently been commenced in the LGA through Council's Sustainability Team.

The potential for working with Australian Catholic University (ACU) to develop undergraduate (Honours) and postgraduate research projects relevant to biodiversity conservation and habitat restoration in the study area should be investigated, in consultation with an experienced ecologist. If scope exists, work together to help design and implement one or two initial projects that investigate specific questions of importance to Council's knowledge and management of greenspace for beneficial biodiversity outcomes. This could include studying the survival and reproductive success of declining woodland birds at Weeroona Road remnant with implications for management especially of the electricity easement and improved fox control, the performance of revegetation as functional fauna habitat, or conservation management interventions to improve the value of Mason Park wetland for avifauna, especially migratory waders.

Engagement with local residents and recreational user groups should also be increased. Opportunities for achieving this could be through re-vitalising the Bushcare network discussed previously, using local residents working with an experienced ecologist to assist in fauna monitoring projects, and working with ACU students in biodiversity conservation projects. One possible project that local volunteers could assist in would be to determine the number, movement and breeding dynamics of Common Ringtail Possum and Common Brushtail Possum present in reserves with and without artificial nestboxes and feeding stations. A similar project would be to help determine the use of artificial nestboxes by Red-rumped Parrot and Eastern

Rosella and their management requirements at Strathfield Golf Course and other sites. Utilisation of existing information dissemination avenues such as Strathfield Weekly eNews and Council's website among the local community should continue.

5.2.6 Fauna-friendly actions in urban neighbourhoods

Priority 3

Specific actions recommended to bring back small native birds to home gardens and street verges and control introduced birds in InSight Ecology (2008) and provide ground (logs, rocks, etc.) habitat for reptiles and frogs, and encourage community care of nearby bushland areas in Ambrose Ecological Services Pty Ltd (2009) should be adopted, where possible/feasible, in the LGA.

5.2.7 Monitoring and repeat surveying

Priority 2

Three systematic fauna surveys have now been conducted in Strathfield LGA, producing a wealth of baseline data on abundance, species richness and habitat use. These should be repeated every 2-3 years, to sample changes in faunal populations and communities as planted habitat grows and ages and to monitor trends of population decline or recovery (especially breeding dynamics), particularly in the key fauna groups including declining woodland birds, waterbirds and shorebirds at Mason Park wetland, small reptiles, frogs and arboreal mammals. These data should be contributed to Strathfield's Flora and Fauna Register and NSW Wildlife Atlas (BioNet).

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Appendices

Appendix 1: Recommendations of InSight Ecology (2008)

Overview

The success of any plan for protecting and managing biodiversity or other natural assets depends on three key factors – its scientific robustness, achievability, and endorsement and participation by people living in the subject landscape. So it follows that recommendations for conserving the biodiversity of Strathfield LGA should also satisfy these criteria.

The recommendations below provide a detailed set of ‘guideposts’ to help protect and manage birds and their habitats in Strathfield LGA over the long-term. While they are informed by the results of this pilot study and previous work undertaken in Sydney’s western suburbs, their scientific basis is in the principles and practices of landscape ecology and biological conservation in highly fragmented urban environments. These include the creation and maintenance of habitat connectivity across property, LGA, catchment and regional (landscape) scales, protection and restoration of habitat condition, improvement of structural complexity and floristic diversity, mitigation of threats (including invasive and predatory species), and community education including promotion of small bird-friendly private garden management practices. Application of these elements will help improve the ecological function, structural complexity and floristic diversity of urban greenspace for birds in the study area.

The recommendations are divided into a set of overarching actions and then into specific actions relevant to each sampled greenspace type or key issue. Prioritising the implementation of these actions lies in the overarching need to urgently address the plight of declining small bird species in the study area. Most of the actions below provide the modus operandi for achieving this goal, with none more important than engaging the hearts, minds and hands of the local community.

Note: The status of each recommended action has been provided below together with any relevant comments, following completion of the 2016 fauna study. This indicates whether the action has been achieved, partly achieved or not achieved since the 2007 and 2008 fauna studies were undertaken and the original recommendations made. Achievement of the action means that there has been a noticeable improvement in the functional value of faunal habitat surveyed in the study area. Part-achievement refers to a degree of achievement of the action and thus some improvement of faunal habitat value has occurred but more work is needed (some of which may be planned or occurring already and is on-going). Actions that have not been achieved are also indicated, together with any comments that will assist in implementing them over the next planning cycle, ie. 1-5 years. A loss of functional value of habitat for native fauna has often occurred at sites where there has been a lack of achievement of actions recommended in 2007-2008.

Overarching actions

1. Address the plight of declining small bird species across the study area. Facilitate this through local community support (see point 5 below) to actively manage the Noisy Miner threat, protect and rehabilitate bush remnants, fortify revegetated parkland along upper Cooks

River as bird habitat, and connect, if possible, bush remnants, riparian parkland, other parkland, and urban neighbourhood vegetation via a network of corridors and 'stepping stones' (see below).

Status and comments: Partly achieved but significant further work is needed. Habitat for small native bird species has been protected in reserves with understorey and groundcover components such as Weeroona Road remnant, Davidson Street remnant, Cox's Creek Bushland Reserve, Mason Park, Dean Reserve and parts of Maria Reserve, Ford Park, Elliott Reserve, Cooke Park and Begnell Field but needs to be established and/or rehabilitated at Bressington Park, Strathfield Golf Course (riparian linkage), Elliott Reserve (after damage/removal by vegetation management contractors along an electricity supply easement), and Southend Tennis. Foraging and refuge habitat for small birds such as Superb Fairy-wren and White-browed Scrubwren continues to be removed or degraded on privately owned land such as weedy vegetation along the industrialised west bank of Cooks River opposite St Anne's Reserve and Dean Reserve. In fact, neither of these species were recorded at this site in the 2016 work – Superb Fairy-wren was present in the 2007-08 surveys due mostly to the retention of this vegetation along the western bank of Cooks River canal at that time. The Noisy Miner threat continues unabated as does the incursion of introduced mammalian predators (European Red Fox, cat and Black Rat) into the upper Cooks River reserves.

2. Promote the perception of Strathfield's greenspace as part of a larger interconnected system. This emphasises the importance of understanding how animals, plants and people interact within a landscape that is influenced by what happens around it.

Status: Part-achieved and on-going, integration into the proposed biodiversity conservation plan is recommended.

3. Equipped with this landscape-level approach to biodiversity conservation management, develop new and strengthen existing links with adjoining councils. Strathfield Council has the opportunity to exchange its knowledge and experience of bush regeneration, riparian restoration, and community engagement with other councils, especially Auburn, Canterbury, Bankstown, and Burwood. The future of Weeroona Road and Cox's Creek bush remnants might depend on these links.

Status and comments: While some informal links such as knowledge and data exchange may exist between individual Council officers and their colleagues in some of these neighbouring councils which now are Canterbury-Bankstown, Cumberland, Parramatta, Canada Bay and Burwood, there is scope to move from partial achievement to full achievement of this action in the future. Mechanisms for doing this could include, for example, a joint-Council project on protecting and restoring Weeroona Road remnant for declining woodland birds.

4. Review council's biodiversity strategy and planning framework to ensure it is consistent with current principles and practices of landscape ecology and biodiversity conservation in urban environments. Focus on existing bush revegetation and biodiversity management activities along riparian zones and in parks, public gardens and streetscapes to improve the ecological function and structural complexity of greenspace for birds and possibly other fauna. Management plans for all parks should be included in this process. The preparation of the

biodiversity conservation plan should be undertaken by an experienced ecologist working closely with Council's Sustainability and Bushcare teams and other key stakeholders.

Status: Not achieved, remains the highest recommended priority for action in the LGA.

5. Stimulate community interest, support and participation in the protection and management of birds and their habitats in the study area. Key aspects include provision of appropriate knowledge and skills, capacity-building for individual and collective action to arrest the decline of small birds, small bird-friendly management of private gardens, understanding and managing the Noisy Miner threat, and targeting local iconic small bird species and potential linkages for conservation.

Status and comments: Part-achieved but much work is still needed, particularly in developing opportunities for the local community to assist in protecting and improving habitat for small native birds and hollow-dependent fauna including possums, small reptiles and owls. Key sites that should be targeted are Weeroona Road remnant, Cox's Creek Bushland Reserve, Strathfield Golf Course, Mason Park and the Cooks River and Cox's Creek Channel reserves. Cox's Creek Bushland Reserve needs a concerted bush regeneration effort to remove extensive weed infestations along Cox's Creek, replace or remove old Green and Golden Bell Frog ponds and fences, and reduce the number of cats in the reserve, particularly at night. This will require education of adjoining landholders to implement night and morning (dusk to 10 am) cat curfews and install netted cat runs. Trapping of feral cats should also be implemented as several individuals were detected throughout Cox's Creek Reserve during nocturnal surveys in the 2016 study.

6. Consider developing and implementing a communication plan for bird conservation, in partnership with qualified and experienced ornithologists, local community groups, and Birds Australia. This should utilise existing media and community networks including the *Inner West Weekly* (and regional newspapers), Council's website, Strathfield Bushcare, and the Birds in Backyards Program.

Status: Not achieved – should be incorporated into the proposed Strathfield Council biodiversity conservation plan.

7. Ensure all biodiversity conservation and restoration activities in Strathfield LGA are properly monitored and their progress evaluated and reported over time against best-practice standards and targets.

Status and comments: Achieved. Council's funding of the 2016 fauna study in the LGA monitored both faunal populations present (focusing on birds) and their use of habitat using best-practice standards and methods at 39 sites across the LGA. It also reviewed the restoration of remnant and planted habitat for positive biodiversity outcomes. There is scope, however, for more focus on other vertebrate fauna groups such as reptiles and amphibians in future monitoring efforts.

8. Encourage the undertaking of further studies of the biodiversity of the study area, including Stage 2 of this project - an assessment of the performance of urban greenspace in facilitating bird movement and habitat use, especially of declining small birds. Data on population

dynamics (i.e. reproductive success, recruitment, dispersal, survivorship and viability) and private garden use by these species are also important to obtain.

Status and comments: Not achieved. The Stage 2 proposal did not proceed. Individual initiatives such as the installation of artificial pond habitat for the threatened Green and Golden Bell Frog have occurred recently at Southend Tennis, Elliott Reserve and Davidson Street remnant. The proposed biodiversity conservation plan would include a component for future biodiversity studies in the LGA, in potential collaboration with Australian Catholic University and the various schools.

Specific actions

Bush remnants

1. Protect bush remnants by mitigating impacts on habitat condition and bird populations present. Particular attention should be given to the control of feral and domestic animals (foxes, cats, dogs, rabbits/hares – warren ripping and trapping may be needed at Weerona Road and Cox’s Creek), reduction of edge effects through best-practice weed and fire management, exclusion of human access and associated impacts (rubbish-dumping, pet-dumping, wildfire), maintenance of existing fences and gates, and liaison with other land management authorities. Auburn Council should be encouraged to protect the swamp paperbark TEC at Weerona Road west which is threatened by Energy Australia’s powerline maintenance proposal.

Status: Partly achieved although much work remains, particularly at Weeroona Road remnant, Cox’s Creek Bushland Reserve, Mason Park wetland and along the upper Cooks River reserves including Strathfield Golf Course.

2. Explore opportunities for connecting bush remnants with riparian restoration and parkland revegetation projects being conducted along the Cooks River by the Cooks River Foreshores Working Group (CRFWG) (see below).

Status: Some of this has been considered through meetings with Cooks River Alliance in recent years. This is a recommended action that has been addressed under Sections 5.2.3 and 5.2.4 of the current study.

3. If possible, increase the size of remnants through stratified planting of local provenance species, taking care to avoid increasing the angularity of the remnant so as not to unnecessarily impede bird movement. Determine if ex-industrial land along the west bank of upper Cooks River can be acquired or excluded from future re-development and if so, bush regenerate to eventually establish new habitat, especially for small birds (see below).

Status and comments: Partly achieved – through the increase of the width of some plantings, using local provenance species, at Mason Park revegetation, Hudson Park Golf Course, Dean Reserve and Ford Park. Unfortunately, there has been a post-2008 loss of the weedy vegetation that supported a small population of Superb Fairy-wren along the western bank of Cooks River canal opposite Dean Reserve.

4. Raise community awareness and support for habitat restoration and rehabilitation programs in bush remnants and adjoining parkland. Consider introducing an “Adopt-a-Bush-Remnant” program in Strathfield LGA giving local residents the opportunity to directly contribute to the conservation and ongoing management of remnants. Community participation in the local “Adopt-a-Park” and Green and Golden Bell Frog projects could be a catalyst for this initiative.

Status and comments: Partly achieved through ongoing and recent projects engaging local residents at, for example, Southend Tennis where Green and Golden Bell Frog ponds have been recently installed behind fencing and a community event held. Also, existing sustainability initiatives in the LGA are engaging local community members. Potential for more work exists.

Revegetated parkland

1. Increase the structural complexity and floristic diversity of revegetated parkland habitats by planting different layers of indigenous vegetation of local provenance (i.e. native grasses and sedges, rock and log ground cover, low and mid-level shrubs, tree and tall shrub canopies). Each layer should contain a range of different plant species to provide a more diverse suite of foraging options for birds. The creation of wider (preferably to 50-60 m), more continuous tracts of this vegetation with a denser understorey (preferably to 75-80% projective foliage cover) will help exclude Noisy Miners while providing key foraging, roosting/refuge and breeding habitat for small birds.

Status and comments: Partly achieved in some parks such as Ford Park, Elliott Reserve, Begnell Field, Dean Reserve, Airey Park (along Salesyards Creek canal), Strathfield Park, Strathfield Golf Course and Mason Park. Planted strips of 50-60 m wide are generally difficult to achieve due to the relatively small size of parks in the LGA. Planted blocks of 20-40 m width have been more achievable such as at Dean Reserve, Begnell Field, Cooke Park and Strathfield Park.

2. In existing planted areas, progressively replace senescing shrubs and trees such as wattles, grevilleas and callistemons with local native grasses, shrubs, trees and some vines. Preference should be given to species that do not produce copious amounts of nectar and have smaller floral tubes thus restricting Noisy Miner access.

Status and comments: Achieved at several sites, particularly Dean Reserve, Ford Park, Elliott Reserve, Mason Park plantings and Inveresk Park. Ongoing at other sites and needs focusing on in rehabilitation of existing riparian plantings and progressive replacement of weedy areas at Strathfield Golf Course.

3. When planning and establishing new areas of revegetation introduce patchiness to ensure that a mosaic of different types of microhabitat are available for use, especially by small birds (see Parsons et al. 2006). These could include bark and rock substrates, dense foliage at different heights, different species of local native flowering plants (not cultivars), fallen logs, and leaf litter.

Comments and status: The provision of ground log, rock and leaf litter substrates has not factored strongly in revegetation projects to date and thus this action has not been fully achieved in the LGA. Some exceptions exist, however, at Strathfield Park, Dean Reserve, Maria Reserve and Yarrowee artificial wetland where log, rock and grass habitat has been emplaced

or established. More attention to this is needed in future revegetation projects in the LGA. In contrast, dense foliage at different heights and a diverse mix of local plant species have been established in several reserves, notably Dean Reserve, Ford Park, Mason Park plantings, Strathfield Park, and parts of Cooke Park and Begnell Field.

4. Review existing revegetation policies, plans and programs to ensure the above actions are incorporated, where possible, into proposed strategies and on-ground work programs. Implementation should be staged in accordance with availability of resources and operational priorities.

Status: Partly achieved through Council's ongoing Bushcare work and sustainability planning. Improved results should occur when the proposed biodiversity conservation plan is developed and implemented in the LGA.

5. Consider the inclusion of the above actions in council's bush regeneration and parkland revegetation training modules for field staff (or develop new modules to include these actions).

Status: Partly achieved, ongoing review recommended.

6. Publicise the implementation of these actions as part of council's community information and education program. This may provide opportunities for the local community to participate in strategic revegetation projects, centred around council's "Adopt-a-Park" program.

Status: Likely to be an ongoing action needed.

Re-birding the upper Cooks River

1. Ensure council's (and any other organisation's) revegetation activities along the Cooks River are planned and implemented to improve structural complexity (including ground cover of greater quantity and diversity of growth form and height), increase patch connectivity, reduce the amount of edge habitat, and discourage Noisy Miner use (see below).

Status: Partly achieved and on-going as Council revegetation projects are planned and implemented over time.

2. Existing revegetation patches along and adjacent to Cooks River should be joined and increased in width to a minimum of 80 m and their understorey component made denser (to 75-80% projective foliage cover) wherever possible so as to improve bird movement, reduce edge effects, and establish core interior habitat free from Noisy Miners.

Status and comments: Not achieved. Opportunities on Council-owned land are not readily available to plant native vegetation in wide enough strips along Cooks River and its tributary streams in order to connect existing revegetation patches. However, work has progressed since 2007-08 within individual parks and reserves to link and/or enhance native habitat plantings. These are evident at Dean Reserve, Mason Park and Ford Park.

3. New plantings should also be at least 80 m wide, comprise a dense (75-80% projective foliage cover) understorey component, be structurally complex and floristically diverse, and

generally linear, elliptical or oblong in shape, avoiding sharp corners or angles. Highly angular patches may impede bird movement or force small birds to cross open gaps thus increasing their chance of being predated by Grey Butcherbird, Pied Currawong, raptors or cats.

Status and comments: As for Action 2 above comments. New plantings along Saleyards Creek canal at Bressington Park and along Cooks River at Strathfield Golf Course are needed to provide suitable foraging habitat and refuge for small birds such as Superb Fairy-wren, White-browed Scrubwren and Red-browed Finch.

4. Monitor bird use and maintain the condition over time of these linked plantings, paying particular attention to water pollution control, weed invasion, incursion by Noisy Miners, predatory species (carnivorous birds and mammals) and humans and their pets, foraging and breeding activity, and the need for infill plantings. Exclusion fencing may be required in some areas.

Status: Achieved through completion of the 2016 fauna study.

5. Buffer existing and new riparian plantings with local native vegetation to protect core linkages and waterways from wind, pollutants, soil erosion and Noisy Miner incursion. This is particularly important along parts of the river where site constraints may prevent new or existing plantings reaching a minimum width of 80 m.

Status and comments: Partly achieved but not to the 80 m minimum width prescription because of insufficient space within park sites which also cater for human recreation. Buffering of riparian plantings has occurred since 2007-08 at Mason Park, Airey Park, Prentice Reserve, Chain of Ponds Reserve, Dean Reserve and Ford Park.

6. Engage and negotiate with other land holders, especially industry and Sydney Water along the western bank of Cooks River and providers of service infrastructure (i.e. Energy Australia, State Rail Authority, Roads and Traffic Authority and Telstra), to support and assist in strategic habitat restoration and corridor protection works. Existing riparian restoration support from Strathfield Golf Course should be continued. The western bank of Cooks River requires intervention to protect and enhance habitat for a population of Superb Fairy-wren (see below). CRFWG and Sydney Metropolitan Catchment Management Authority (SMCMA) could help facilitate these negotiations.

Status and comments: Not achieved, although recent discussions have taken place between Council and some organisations such as Ausgrid and others since 2007-08. The STIF EEC present in Maria Reserve and the excessive pruning of old remnant turpentine and planted river oak trees under the electricity supply easement by Ausgrid's contractor Asplundh Pty Ltd on 28 November 2016 (and as reported by Council's officer at the time Chavvauhn Calver who was present during the fauna survey on that day) is an example of the urgent need to ensure improved vegetation management practices are agreed upon, enshrined in policy and clearly specified in field operating manuals, and implemented by these organisations and their contractors working in Council reserves and parks across the LGA.

7. Promote community awareness of, and participation in, the protection and long-term maintenance of these linkages, as part of new and existing initiatives such as CRFWG, Sydney

Green Web, 'Adopt-a-Park' (could be expanded to 'Adopt-a-Corridor'), and threatened species such as the Green and Golden Bell Frog. A new project called 'SOS (Save Our Small birds)' could be developed in partnership with local community groups and other councils.

Comments and status: Some progress has been achieved with potential with more as new programs and projects are developed and implemented in the LGA. A recent example has been the installation of fencing and artificial ponds for the threatened Green and Golden Bell Frog and an accompanying local community education event at Southend Tennis.

Managing the Noisy Miner threat

1. Promote the understanding of the biology and ecology of this species, especially its habitat preferences and interactions with other bird species. Become familiar with the history of the Noisy Miner conquest of Sydney's suburban greenspace, especially contributing factors at the landscape and local levels. Access research (available online) conducted on this species in Sydney and Melbourne.
2. Use this knowledge to manipulate the characteristics of the Noisy Miner's preferred habitat, especially in parkland, riparian zones and urban neighbourhoods. Pay particular attention to increasing the structural complexity, density (increase the understorey density of plantings to 75-80% projective foliage cover) and canopy floristic diversity of planted stands, widening and lengthening existing plantings to a minimum of 80 m to reduce edge effects and provide core interior habitat for small birds, connecting existing small blocks of planted native vegetation to create closed and continuous canopies, replacing grevillea and callistemon cultivars with local native species that produce less nectar and/or have smaller floral tubes preventing or minimising access by Noisy Miners (e.g. Native Fuchsia *Epacris longifolia*), increasing the diversity of native plants in streetscapes to reduce the number of brush box which provide ideal Noisy Miner nest sites, and encouraging small bird-friendly management of private gardens (see also French et al. 2005; Parsons et al. 2006).
3. Encourage studies of the impact of Noisy Miners on other bird species and their habitat in Strathfield LGA. If results demonstrate that Noisy Miners are adversely affecting the breeding and persistence of especially small native birds and their use of habitat consider introducing a trial ethical culling program. This will require prior community education, licensing from NSW DECC (NPWS Division), a professional contractor, and ideally the cooperation of adjoining councils. Funding for this work could be obtained through the NSW Environmental Trust and other avenues.
4. Engage the support and participation of the local community to understand and help manage the Noisy Miner threat. This will involve educating residents in the selection and planting of small bird-friendly native plants, planting densely-foliaged garden habitat to help establish a network of corridors, buffers, and 'stepping stones' for small birds, reducing water sources in areas heavily infested by Noisy Miners, and minimising food scraps along streets and in yards.
5. Promote monitoring of Noisy Miner populations at selected sites in urban neighbourhoods and open and revegetated parkland in the study area. Focus on their abundance, reproductive success, survivorship, interaction with other colonies, nest site selection and habitat use. This will complement impact-related studies recommended in Action 3 above.

Comments and status: While post-2008 revegetation efforts at some sites (Dean Reserve, Ford Park and Elliott Reserve) have aimed to increase vegetation structural complexity to help

discourage Noisy Miners, the reality has been that most parks and reserves in the LGA are too small to manipulate their revegetation to reduce numbers of this species. Thus, this set of actions recommended in 2008 has not been achieved nor would be likely to be achieved given this species' current dominance across all urban Sydney landscapes. There is, however, potential for a university research study to be undertaken of the Noisy Miner in Strathfield LGA with the aim of developing ways to mitigate their impact on small bird populations still present in the area.

Bringing back the small birds to urban neighbourhoods

1. Equip local residents and community groups with knowledge and skills to encourage small birds back into private gardens and streetscapes. Key enabling tools include information sessions, workshops/field days, bird surveys, and advice on plant selection, garden design, maintenance of existing local indigenous vegetation, creation of local indigenous replacement habitat before removing weeds, management of Noisy Miners, helping to establish 'stepping stones' and urban wildlife corridors, use of habitat buffers, supplementary feeding, cat management, and monitoring and reduction of watering points. Cats should be kept indoors or in a commercially available outdoor cat enclosure (bell collars and night curfews are not sufficient). Each of these components has potential to be a separate education module. The Birds in Backyards Program has helpful information to assist with these tasks.
2. Manage the Noisy Miner threat as recommended above.
3. Identify gaps in suitable indigenous vegetation cover across the urban landscape and if possible, using local community and government support, attempt to join these to create a broad corridor across the LGA. This would comprise a network of private garden and streetscape vegetation for small birds with the goal of facilitating their movement through the urban matrix and providing habitat. Some of the building blocks for this are already in place - revegetated parkland along Cooks River to Melville Reserve and Airey Park and onto Mason Park via existing and planned reserves along Powells Creek and the mosaic of dense shrubby private garden vegetation (see Action 5 below). At a regional scale, this will connect with potential wildlife corridors being created by CRFWG councils and community organisations along the lower Cooks River, the Cooks River to Iron Cove Greenway Project, and along Wolli Creek/Bardwell Valley (Wolli Creek Preservation Society and local schools).
4. White-browed Scrubwren: Protect the small, highly isolated populations of this species and their habitat at Weerona Road bush remnant and Mason Park revegetated parkland. Promote the expansion of these populations through implementation of Action 1 above. **This should be the highest immediate priority for bird conservation in the study area.** The Weerona Road remnant needs urgent protection from proposed powerline easement clearing (and other threats) and bush regeneration in the weedy eastern section near the railway line. Care is needed here not to remove weeds before replacement local indigenous habitat is established. No habitat restoration work should occur during this species' breeding season (June-December) since the introduced shrubs and grasses currently provide important cover and nest sites for scrubwrens. This species appears to be more sensitive to local urban impacts than the Superb Fairy-wren. It also requires a higher density of ground and low shrub cover for foraging, nesting and refuge (Huggett 2000). Thus, the first step should be to improve the condition and increase the area of its preferred dense shrub and grass habitat at Weerona Road and Mason Park, as well as reducing key threats, especially predation by cats, habitat clearance, and disturbance. The next step would be to link these sites with new and existing ones containing suitable scrubwren habitat along Cooks River. Then, attention can be given to attempting to facilitate

scrubwren movement through private gardens (re-designed to offer suitable ground and shrub cover), as part of the cross-LGA corridor proposed in Actions 3, 5 and 6.

5. Superb Fairy-wren: Protect existing isolated populations of this species and their habitat and promote their expansion and movement across the LGA through implementation of Actions 1-3 above. Priority should be given to encouraging the creation of a corridor that connects riparian habitat along upper Cooks River with Powells Creek and Mason Park via street vegetation and private gardens at the Newton Road, Elwin Street, Shortland Avenue, and The Crescent neighbourhoods and planted indigenous vegetation at Melville Reserve and Airey Park. There may also be other urban precincts in the LGA where this species occurs. These should be surveyed and included in the proposed corridor or network of corridors. This will require a staged, science-informed and community-based approach undertaken over the long-term (10 years+). The potential for community engagement in this work should be significant, given the iconic value of this species, especially in urban landscapes.

6. Yellow Thornbill: Protect and promote the progressive expansion of the existing preferred habitat of this species in the study area. This will involve focusing first on implementing Actions 1 and 2 above and connecting existing gaps in medium and tall shrub cover along the Cooks River. The use of a diverse range of plant species including acacia, paperbark, leptospermum, and allocasuarina would provide suitable foraging, shelter and nesting habitat for Yellow Thornbill populations. The next step would be to encourage the establishment of a Cooks River to Mason Park corridor using re-designed private garden and possibly street verge vegetation, as recommended in Actions 3 and 5 above.

7. Monitoring and evaluation: Promote monitoring of the population dynamics (abundance, reproductive success, survivorship, viability and interactions with other species), nest site selection and habitat use (especially movement) of White-browed Scrubwren and Superb Fairy-wren colonies at selected sites across the proposed cross-LGA corridor, including Weerona Road bush remnant, Cooks River riparian zone, Mason Park, and key intervening urban neighbourhood sites (see Action 5). This is essential to better understand the ecology and biology of these species and to evaluate/review the impact of corridor establishment and streetscape and private garden management practices on these small birds.

8. Ensure that appropriate communication of these efforts occurs throughout local and regional communities. If needs be, review the biodiversity conservation communication strategy for Strathfield LGA. Dedicate space on council's website and provide other opportunities for the broader community to become aware of, and involved in, these initiatives.

Status and comments: Some progress has been made since 2008 but overall this set of actions remain only partly achieved. Progress has been made in school education, some local community events such as Southend Tennis (Green and Golden Bell Frog work), and Council revegetation efforts to densify parts of Dean Reserve, Mason Park, Ford Park, Strathfield Park, Maria Reserve and Elliott Reserve. Key actions still requiring implementation are cat management education and promotion or provision/loan of cat runs to residents adjacent to Ford Park, Cox's Creek Bushland Reserve, Strathfield Park, Begnell Field, Cooke Park, Maria Reserve and Elliott Reserve, fox control - den detection and fumigation in combination with culling of resident and roaming individuals by baiting and/or professional shooters on Strathfield Golf Course, Rookwood Cemetery and Chullora/Enfield railway land where several dens are likely (shooting has been undertaken successfully at Yarralla Estate in City of Canada Bay recently), protection and restoration of small declining bird habitat at Weeroona Road as previously discussed, ongoing monitoring with assistance from local residents if possible, and

strategic revegetation to mitigate the Noisy Miner threat. Also, other small native birds have been detected in the 2016 surveys (particularly in Weeroona Road remnant and as discussed in Sections 3, 4 and 5 of this report) and also require protection and habitat conservation – Red-browed Finch, Double-barred Finch, Eastern Yellow Robin, Golden Whistler, Rufous Fantail, Grey Fantail, Brown Thornbill, Grey Shrike-thrush, Black-faced Cuckoo-shrike and Tawny Grassbird. The recommendation to establish a cross-LGA corridor of suitable planted patches of native vegetation including across privately owned land was valuable in theory but difficult to achieve in practice. Thus, this recommended action could be simply encouraged via the proposed biodiversity conservation plan’s community education and engagement component, as well as other initiatives.

Introduced birds

1. Increase the structural complexity and thus density of urban greenspace utilised by introduced bird species in the study area. This will make bush remnants, revegetated parkland, open parkland and urban neighbourhood habitats less attractive, especially for breeding, to Spotted Dove, Common Myna, Common Starling and Rock Dove. Discouraging the use of introduced cypress (e.g. pencil pines) in gardens will help reduce the number of nest sites favoured by Spotted Dove. Reducing the amount of mown grassed areas and promoting the use of local indigenous plant species will also help to make urban habitats less attractive to introduced birds.
2. Direct control of Common Myna and Common Starling numbers may need to be considered at some urban neighbourhood and open parkland sites. Physical removal of Common Myna nest sites in the eaves and roof spaces of buildings and ethical culling of this species have been successfully conducted by professional contractors in Waverley LGA and in some Brisbane suburbs.
3. Enlist the support and cooperation of the local and regional community to help in reduce the amount and type of litter left in picnic areas, along footpaths and walking trails, and on ovals in the LGA. This will help reduce food sources for especially Spotted Dove and Common Myna.
4. Promote community awareness and understanding of issues associated with nest box use in urban areas. Alternatively, the use of nest boxes with smaller holes, different designs and hung from variable heights and/or locations may help exclude Common Myna and aggressive indigenous species such as Rainbow Lorikeet and Galah.
5. Similarly, promote community awareness and understanding of issues concerning the supplementary feeding of birds in urban habitats. This can concentrate substantial numbers of introduced granivores and omnivores in small areas and potentially reduce the attractiveness and quality of garden habitats for small native birds. If feeding is sustained on properties adjacent to a bush remnant it may, over time, lead to the establishment of breeding colonies of Common Starling, Common Myna or Spotted Dove in or along the edges of the remnant. This can lower the quality of habitats for small native birds in the actual remnant, potentially reducing their survival prospects. Feeding of meat scraps can attract predatory native species such as Grey Butcherbird and Pied Currawong which if sustained can also make garden habitats less attractive to small birds.

Status and comments: This set of actions has not been achieved in the LGA. Effective progress to achieve a reduction in the number of introduced birds in Strathfield LGA will require the allocation of resources to community education initiatives and projects as well as to Council’s own activities in reserves and parks such as rubbish removal and enforcing dog and cat control.

Work needs to focus on educating and enlisting the support of local residents, schools and sporting groups about the problems associated with supplementary feeding and leaving food scraps in parks (noting that a resident operating a large bird feeding station near Southend Tennis site's southern end has been recently approached by Council but still remains active), selection of tree and shrub species that do not provide nesting opportunities for Spotted Dove, deployment of Common Myna trap cages to reduce their number (available through a NSW government-funded cage loan system), removing nests and closing off access to nest sites used by Common Myna and Common Starling in house roofs and eaves, leashing of dogs being walked in reserves and parks where faunal habitat is being established and small birds occur, and supporting the monitoring and protection of nest boxes for possums and less common (in Sydney's innerwest) hollow-nesting birds such as Eastern Rosella, Australian King-Parrot and Red-rumped Parrot.

Mason Park wetland

1. Implementation of actions contained in the plan of management for Mason Park (Strathfield Council 2008) should be high priority. These provide a coordinated, comprehensive mechanism for protecting and managing the wetland ecosystem in perpetuity.
2. Actions to adequately protect and improve habitat quality for birds include improving the quality of water entering the wetland, undertaking restoration of degraded tracts of mudflat and saltmarsh at the southern end, excluding human and dog access to areas undergoing rehabilitation and to open water and debris islands used for nesting by Black-winged Stilt, and upgrading signage to increase community awareness and support of habitat protection and restoration activities. Human and dog access to rehabilitated areas may need to be permanently prevented by fencing.
3. Establish new or strengthen existing links with Sydney Olympic Park Authority to ensure that latest advances in urban wetland protection and management are available for application in Mason Park. This views Mason Park wetland as part of a larger interconnected urban wetland ecosystem that includes the Homebush Bay complex. This approach should also be applied to the protection and management of revegetated dryland habitats at Mason Park which are situated upstream of extensive remnant mangroves and planted bushland at Bicentennial Park.
4. Promote monitoring and evaluation of the effectiveness of habitat restoration and management activities undertaken at Mason Park wetland over time. This will help ensure adequate protection of migratory and resident bird species and optimise the use of scarce on-ground resources.
5. Continue to promote Mason Park wetland and dryland habitats as an educational and scientific resource for the local and regional community, including schools and universities. Encourage community involvement in the on-going protection and conservation management of the biodiversity of Mason Park.

Comments and status: Some progress has been made in protecting and enhancing faunal habitat at Mason Park wetland and its fringing revegetated zone since 2008, particularly with establishing and maintaining structurally complex vegetation in the planted area. However, revision of Council's 2008 management plan for Mason Park is recommended, particularly in the light of the results of this study. One area of urgent action needed is to address the current lack of adequate tidal flush reaching the lagoons in the wetland system via the Powells Creek piping. Adequate natural supply of water is needed to provide invertebrate food and suitable tidally-influenced foraging substrate for wading shorebirds and other aquatic fauna. These were

notably absent (wading birds other than one Black-winged Stilt and Royal Spoonbill) or present in low numbers (Chestnut and Grey Teal) during the 2016 surveys. An investigation into how this can be done is a recommended management priority. Improved control of human, dog and possibly fox access to the wetland system is also needed, with exclusion fencing a potential intervention.

Note that this is a verbatim extract of the original report, presented here for ease of reading and reference.

4.1 OVERVIEW

The present chapter provides recommendations for future projects and/or programs to protect and, where possible, increase biodiversity in the Strathfield LGA.

4.2 GENERAL RECOMMENDATIONS

4.2.1 Conserving Biodiversity Through Protecting Habitats

The bushland reserves and parklands of the Strathfield LGA serve a dual, sometimes conflicting, role: they provide valuable recreation areas to the local residents by breaking up a continuous residential urban area (i.e. provision of “green space”), and they provide a conservation area for native flora and fauna. If conservation is the primary aim of these reserves and parklands, it is important to identify what to conserve.

The Strathfield LGA is a highly modified landscape. Therefore, should the aims of conserving native fauna and their habitats be to bring back fauna species and habitat quality that existed in the Strathfield LGA prior to European settlement, or should we aim to conserve as many fauna species and their habitats as possible?

Conserving existing habitats is easier to achieve, because so few habitats are represented and the area of natural or semi-natural habitat available for native fauna in the Strathfield LGA is relatively small and surrounded by an urban landscape. For instance, many of the bushland remnants that occur in the Strathfield LGA are associated with Cooks River, Cox’s Creek, Powell’s Creek, Saleyards Creek and Boundary Creek. These areas have been conserved largely because they are unsuitable for residential or industrial development because of the tendency for them to be flood-prone. Consequently, Sydney Turpentine-Ironbark Forest is the major habitat represented in many reserves and parklands, with Cooks River/Castlereagh Ironbark Forest occurring only in Cox’s Bushland Reserve and other wetland vegetation occurring only around the Mason Park wetlands.

Key fauna habitats that need to be protected and conserved in the Strathfield LGA are all remnant dry sclerophyll forest (Turpentine-Ironbark Forest), wet sclerophyll forest and heath (Cooks River/Castlereagh Ironbark Forest), riparian vegetation (e.g. within Freshwater Park), and aquatic habitats and their associated vegetation (freshwater ponds and creeks, saltmarsh, mangroves and tidal estuarine areas).

The aim of conserving as many native fauna species is a fine ideal, but wildlife management is often complex and fraught with difficulty.

First, the amount of land available for conservation purposes is limited in the Strathfield LGA. Therefore, if a reserve or parkland is to be altered to create new habitat, then the existing

habitat will be lost and not replaced elsewhere. It is also easier and cheaper to conserve existing habitats, rather than create new ones.

Secondly, each fauna species has different habitat requirements, and the conservation of one species is often done at the expense of another. For instance, the creation of mangrove habitats as spawning nurseries for fish and aquatic invertebrates, and nesting and foraging habitat for terrestrial bird species, in wetland areas can reduce the availability of foraging and roosting habitat for migratory shorebirds and waterfowl.

Thirdly, habitat requirements of native fauna are often poorly understood and may vary from year-to-year, depending on changing weather conditions, and the availability of nectar and seed. For instance, reserves and parklands in the Strathfield LGA may function as wildlife corridors for migratory and nomadic bird species in search of concentrated nectar, seed or insect food sources in some years, may be the sources of such concentrated food requirements in other years and so serve primarily as foraging and nesting habitat.

If new habitats are to be created in the Strathfield LGA, they should be in areas of bushland that have been so badly degraded that they no longer represent the original habitat. Many of the urban neighbourhood parklands fall into this category, where the only remnant habitat (if present) is provided by remnant and planted canopy trees. Fauna habitats that could be recreated in the parks and reserves of Strathfield include: mid-canopy shrublands; native grasslands; ephemeral freshwater habitats; and wet and dry heath.

All of these habitats are likely to have occurred in the Strathfield LGA prior to European settlement. Some seed and juvenile plant stock required to create these habitats would need to be sourced from neighbouring LGAs because parent plants no longer occur in the Strathfield LGA.

4.2.2 Improving Habitat Value of Existing Reserves

The existing parklands and reserves in the Strathfield LGA suffer from a loss of native wildlife. In many cases this is due to predation by introduced predators (foxes, cats, dogs and rats), a significant increase in the abundance in native predators (e.g. Pied Currawongs), and increased competition for resources by introduced species (e.g. Common Mynahs and Common Starlings) and native species (e.g. Noisy Miners).

Predation is linked to a lack of shelter sites for native fauna in parklands and reserves. Dead trees, fallen logs and branches, and rocks usually provide the best shelter habitat, along with understorey plants. In many of the Strathfield LGA's bushland reserves and larger parklands, the plant understorey is still present or has been recreated as part of the parkland landscaping, but the logs and fallen timber are absent. In some cases, they have been removed as part of a program of reducing fuel for bushfires. In other situations, they may have been removed because they look messy and do not conform with the landscape plans of the parks and reserves. Dead trees also have the potential of falling over or shedding large limbs, thus posing a risk of injury to humans and damage to property.

Removal of ground shelters is one of the major causes of the disappearance of native fauna from small urban reserves. Given the conflicting demands on reserves and parklands, it is

probable that fallen timber and branches will not be permitted to accumulate there. However, it is possible to provide non-combustible and unobtrusive artificial ground shelters in the reserves and parklands for use by ground-dwelling vertebrates (e.g. reptiles and small mammals).

Where possible, hollow-bearing trees should be retained because they are important as nesting, roosting and shelter habitat for a broad-range of hollow-dependent birds (e.g. parrots, cockatoos, owls and many passerines), mammals (arboreal mammals and microchiropteran bats), reptiles and amphibians.

Artificial nest boxes are also used widely in areas where there is a shortage of natural tree hollows. Each fauna species has specific requirements for their use of hollows (e.g. size of hollow, size of entrance, orientation and height of the hollow, position of hollow in relation to tree canopy and perches, ease at which the entrance can be reached, etc). Gibbons & Lindenmayer (2002) provide some information of the specific tree hollow requirements of individual fauna species, and Franks & Franks (2003) present nest box designs that are suitable for some fauna groups. However, Strathfield Council must consult with a suitably-qualified and experienced ecologist about where, what and how many nest boxes should be used in a particular reserve or parkland to ensure that the right boxes are used for target species, and that the risk of competition for these nest boxes from introduced species (e.g. Common Mynahs and Common Starlings) and non-target native species, and predation of nest-box contents, are minimised or avoided.

4.2.3 Connectivity of Bushland Areas

As the residential and industrial areas of the Strathfield LGA were developed, many bushland remnants became smaller and more isolated. The isolation of bushland area makes them even more susceptible to urban impacts and biota loss. An aim in the conservation of bushland area, and hence fauna habitat, should be to increase the connectivity of these sites.

Some of the bushland reserves and parklands (e.g. most of the neighbourhood urban parklands, Cox's Creek Reserve and Strathfield Park) are totally isolated from other bushland or landscaped areas. This isolation reduces significantly the capacity of long-term survival of many native fauna species within the Strathfield LGA because of their inability to disperse to suitable habitat areas. Conversely, the reserve and parkland structure along Cooks River and its tributaries does provide some capacity for migratory and dispersive species to move north-south through the Strathfield LGA, but there is limited capacity to move through the LGA in other directions.

Corridors between reserves and parklands can be created through the provision of suitable habitat outside these areas. This can be achieved in two ways:

Sympathetic tree planting. Native trees that provide habitat value (either as dense canopy, food or nesting sites) should be used instead of ornamental or totally decorative trees. As most of the reserves contain woodland, the types of trees that would serve this purpose include Turpentine (*Syncarpia glomulifera*), Sydney Red Gum (*Angophora costata*), Grey Gum (*Eucalyptus punctata*) and Scribbly Gum (*Eucalyptus haemastoma*). This has been achieved to some extent in some streetscapes of Strathfield (where there are fewer parks compared with

other areas of the Strathfield LGA), but is largely absent in the industrial areas and older residential areas of the LGA.

Sympathetic backyard planting. Residents and business-owners who occur in areas between reserves and parklands should be encouraged by Strathfield Council to plant trees and shrubs that are suitable in creating green corridors. The Council could provide seedlings for these constituents or offer some other incentive for residents who actively convert their gardens or landscaped areas into sympathetic habitat.

It is important to note that, where possible, garden landscapes should ideally contain native ground-cover, shrubs and understorey, as well as canopy trees. This will help facilitate the dispersal of a broad range of fauna species through the LGA, as well as provide refuge from aggressive competitors (e.g. Noisy Miners and Common Mynahs) and potential predators.

4.2.4 Bush Regeneration

Strathfield Council has undertaken an active bush regeneration program in the LGA and the positive impact of this work on native wildlife is obvious in a number of reserves (e.g. Cox's Creek Reserve, Mason Park wetlands, Ford Park, Maria Reserve, Elliott Reserve and Strathfield Park).

Bush regeneration is preferred to replanting in areas where there is a sufficient seed bank in the soil to allow the endemic plants to grow and develop under the prevailing conditions. Plant communities that establish by themselves, after the removal of weeds and introduced plants, are more capable of surviving in the long-term than deliberately planted species, thus increasing the chance of creating suitable fauna habitat for the long-term.

The disadvantage of bush regeneration practices is that it is a slow and time-consuming process. The gradual replacement of unwanted plants by native species is a sequential process and the results of this change are not immediately obvious. Consequently, bush care officers and nearby residents are often tempted to speed up the process by removing all unwanted plants at once and/or planting trees and shrubs rather than allowing natural regeneration. Such actions can cause soil erosion, contamination of waterways, wetlands and neighbouring bushland areas, a temporary (but sudden) lack of essential habitat for native fauna, and further colonisation of habitat by weeds. In worst-case scenarios, this could cause local extinctions of fauna populations (e.g. some reptile populations, small passerines, small mammals and amphibians) which are unable to disperse to other areas because of the geographical isolation of the reserve or parkland.

Therefore, bush regeneration should be staggered and only affect relatively small areas at a time. Bush regeneration teams must have a plan of what areas are to be regenerated, how long these areas should be left to recover and what follow-up works are likely to be required. Ideally, these teams should constantly switch their efforts between and within reserves and parklands to create the optimum bush regeneration outcomes.

4.2.5 Controlled Re-planting

Although bush regeneration is the preferred means of creating fauna habitat in reserves and parklands, it may be necessary to landscape areas through replanting, especially when native plants cannot naturally re-establish themselves. Replanting is most often used to quickly cover an area that is bare or has been cleared, create a buffer zone around bushland areas, create habitats that have been lost from an area, or replace non-breeding or diseased endemic plants (through seed collection and propagation).

This approach has been adopted in many of the Strathfield LGAs larger parks and reserves and have been variously successful in providing habitat for native fauna and spectacularly successful in providing an aesthetic environment for humans.

4.2.6 Buffer Planting of Habitat Edges

The edges of habitats suffer from weed invasion, human damage and illegal rubbish dumping, mowing and slashing, herbicide and other contaminant runoff, nutrient-rich stormwater and wind and soil erosion. These factors remove fragile native plant species, open up habitats to further weed infestation, soil erosion, and soil and water contamination.

Many of the bushland reserves in the Strathfield LGA contain woodland with an open understorey. The wide spacing of the ground plants make it easy for weeds to become established and eventually become the dominant ground-cover. Buffer planting by hardy, native, non-invasive plants can provide a buffer to the bushland. A buffer zone of tall, dense shrubs such as *Kunzea*, *Hakea*, *Melaleuca* and *Grevillea* species (locally native species, not cultivars or hybrids) can reduce greatly the weed seed load entering the reserves and parklands and provide a physical barrier containing environmentally-sensitive plants.

4.2.7 Creating Habitats

Creating new habitats within the Strathfield LGA would be difficult because of the lack of suitable land. However, if land was made available to the Council for the purposes of conservation, then it is preferable to create the following fauna habitats that are likely to have existed in the LGA prior to European settlement:

Tall heath. A small *Kunzea* heath remnant does occur along the power line easement alongside the Strathfield Golf Course, on Weerona Road, Rookwood, but is not protected from being cleared. This habitat type is important for birds that inhabit dense undergrowth (e.g. Superb Fairy-wrens, White-browed Scrubwrens and Brown Thornbills), reptiles and ground-dwelling mammals.

Native grasslands. Remnant grasslands have largely disappeared from the Strathfield LGA because of past clearing and invasion of some of these areas by exotic grasses. This habitat type is important for small seed-eating birds (e.g. Red-browed Finches, Crested Pigeons) and reptiles (e.g. grass skinks).

Wetlands. Since its establishment, Mason Park wetland has become an important habitat for migratory shorebirds, waterfowl and other aquatic wildlife, and is particularly important as part

of the Homebush Bay wetland ecosystem. It has clearly demonstrated that the creation of a wetland, if properly designed and managed environmentally, can increase biodiversity of the Strathfield LGA.

4.2.8 Feral Species Control

Bandicoots and native rodents are conspicuous in their absence from the Strathfield LGA. The apparent diversity and richness of reptile species is also very low. In the absence of grounddwelling native mammals, introduced rats and the House Mouse have become the dominant terrestrial mammals within reserves and parklands of the LGA.

While the disappearance of native ground-dwelling mammals and some reptiles may be in part due to habitat clearance, fragmentation and degradation, it is likely that past heavy predation by foxes, cats and dogs have also had a significant impact.

In the present study, a fox was detected at night at the Mason Park Wetlands and fox scats were detected in bushland areas of Elliott Reserve, but no fox dens were found.

Foxes will never be eradicated from bushland reserves but their numbers can be culled. In other Sydney LGAs, efforts to control foxes have been most successful when fox dens are targeted. Dens are located and, during the day when the foxes are inside, are sealed and cyanide pellets released inside the den. Cyanide works quickly and death is very rapid. The dens are left sealed for several days during which residual cyanide is broken down and rendered inactive. The den is then filled in.

By making dens the focus of the fox control program, foxes are not being replaced by the next generation. Vagrant foxes will still be present and these should be culled through a baiting program. Urban foxes are often attracted to food scraps; therefore, the general community should be encouraged to adequately dispose of food scraps left in outside areas, including uneaten pet food.

4.2.9 Control of Domestic Animals in Reserves

Cats are able to hunt birds and mammals effectively, especially under the cover of darkness at night. Many cats that were observed in reserves and parklands during the present study appeared to be domesticated rather than feral cats. Therefore, residents that live close to these areas must be encouraged by Strathfield Council to keep their cats inside at night. Several councils in Australia make cat runs available to residents, which allow cats to exercise while being contained within garden environments.

Roaming or uncontrolled dogs disturb wildlife and their constant presence in reserves can cause native animals to abandon these areas. Dogs are known to kill some wildlife species and it is likely that they have contributed to the decline in the abundance of Blue-tongued Lizards in some urban areas of Sydney. Dogs should be excluded from the following areas of the Strathfield LGA if native wildlife is to be protected from disturbance and mauling:

All areas of the Mason Park wetland, including surrounding bushland and landscape areas and pedestrian/cycle pathways. All areas of Maria Reserve and Ford Park, and bushland areas of Elliott Reserve; and All areas of Cox's Creek Reserve.

A scheme whereby dog-owners can take dogs into other parklands and reserves needs to be prepared by Strathfield Council and advertised to constituents.

4.2.10 Compost Heaps as Habitats

Compost heaps, particularly those left by bush regeneration teams and covered with black plastic sheeting, are often used by small skinks and geckoes for shelter and as foraging habitat. Instead of removing the green wastes, it may be more beneficial to ensure that there are always a few compost mounds available in each reserve or parkland, especially over the winter months, because the decaying material generates its own heat that can help small vertebrates, especially reptiles, to thermoregulate.

4.2.11 Street and Backyard Lighting

Many bushland animals are nocturnal and street and backyard lighting can affect their behaviour. Most nocturnal vertebrates avoid street- and backyard-lit areas. Light pollution can force owls and Ring-tailed Possums to abandon bushland reserves. In contrast, Tawny Frogmouths and Masked Lapwings can benefit from light pollution by being concealed in the shadows and preying on moths that are drawn to the light.

Street lighting should not be aimed into the reserves and parklands. Shielding on the back of street lights greatly reduces the amount of light entering bushland or landscaped areas. Where pathways cross parklands (e.g. Maria Reserve, Mason Park Wetland and Strathfield Park), lighting should be directed downwards to minimise light penetration into the rest of the parkland. Where possible, those reserves that do not have lighting should not have lighting introduced.

Residences that back onto bushland areas should not have backyard spotlights pointing into reserves and parklands. A single backyard spotlight can dislocate fauna for 50 metres either side of the light source. In the present study, a Southern Boobook was observed avoiding parts of Maria Reserve where there was light pollution from backyards of neighbouring residences. Strathfield Council needs to advise occupants of residences that are adjacent to reserves and parklands to direct spotlights away from these areas and to turn their backyard lights off when not in use.

4.2.12 Stormwater Overflow Areas

Many stormwater systems overflow into the Parramatta River and bushland reserves (e.g. Freshwater Park). Often the discharge from these systems is short-lived but dynamic. To reduce the erosional effects of these rapid discharges of stormwater, concrete troughs and basins have been created to disrupt the energy of the water. These structures could easily be modified to also provide habitat for frogs.

A concrete basin, off-centre to the main flow, would cater for the more generalist frog species. After heavy rain, the basin would fill and retain water for many weeks. Fringing plants need to be established around the ponds to help frogs avoid predators. These ponds would also serve as drinking and bathing stations for other species, such as bush birds.

4.2.13 Fallen Timber and Rocks

As mentioned in Section 4.2.2, fallen timber is usually removed from parklands and reserves of the Strathfield LGA because it looks messy or poses a fire risk. This deprives many animal species of shelter and foraging habitat. Fallen timber could still be removed from the edges of bushland and landscaped areas, but not taken out of larger areas that are hidden from public view. Fallen timber can also be used to create timber stacks or wood rows in areas where they do not constitute a fire hazard.

Rocks substrates are also valuable basking and foraging substrates for small reptiles, such as skinks and geckoes. Sandstone rocks have been added to landscaped areas of Strathfield Park and this approach should be considered in other landscaped parks within the LGA. This bushland rock must not be sourced from other bushland areas of the Strathfield LGA.

4.2.14 Community Care of Bushland Areas – Publication Education Campaign

The health and longevity of reserves and parklands is often dependent on community interest and support. Without it, Council finances will be redirected to other purposes. Accordingly, low-level education campaigns need to be maintained to make residents aware of the conservation value of bushland, wetlands and appropriately-landscaped areas. Local conservation groups need to be encouraged to work with Council in protecting these areas. Community awareness programs have been developed by Strathfield Council, but need to be further developed.

As part of this campaign, residents should be educated about the need to provide suitable garden habitats for native species, especially bird species, rather than feeding them with artificial feeding stations. For instance, provision of food for birds (e.g. commercial seed mixes, raw meat, dog food and honey/sugar water) attracts aggressive bird species to gardens (e.g. Pied Currawongs, Laughing Kookaburras, Australian Magpies, Rainbow Lorikeets, Noisy Miners and Common Mynahs). These competitively exclude other bird species from gardens, as well as increasing predatory pressure on small passerines. Concentrations of birds at artificial food sources can also lead to the spread of wildlife diseases and parasites, and malnourishment of individual birds. Planting of locally-native plant species in gardens and landscaped areas that provide a range of food sources, e.g. nectar, seeds and fruits, and habitat for insects, is more effective in attracting native wildlife to the garden and neighbourhood parks, than is the provision of artificial food sources.

4.2.15 Monitoring the Use of Parklands and Reserves

It is difficult to obtain information about the level of use of each reserve and parkland. This information would be useful because it would provide a quantitative measure for assessing the resilience of bushland, landscaped and wetland areas. Such information will become increasingly important as the population density of the Strathfield LGA increases in the future. A census of the public use of parklands and reserves would consist of monitoring pedestrian

and bicycle traffic along pathways, and the use of picnic and other recreational areas. Knowledge of the level of visitation of reserves will help planners to rationalise the use of these public lands.

The present fauna survey and the bird survey conducted by InSight Ecology (2008) have provided snapshots of the state of the fauna in the Strathfield LGA. It is likely that the distribution and relative abundance of species will change over time, and the changes may not be predictable. However, this study has provided a set of base figures with which subsequent fauna studies can be compared. As the methods in the present study are repeatable, any changes in the fauna detected by future studies are likely to reflect real changes in the biota and not merely sampling bias in the survey.

The fauna survey should be repeated every five years. However, the next survey should be sooner if it is believed that major environmental changes (e.g. major bushfires, pollution of wetlands or creeks, large-scale clearing of native vegetation, wildlife disease) have occurred.

4.3 SPECIFIC RECOMMENDATIONS

4.3.1 Recommendations of Previous Fauna Studies

InSight Ecology (2008) provided a comprehensive set of recommendations for the protection of native bird species, and for the protection and enhancement of their habitats, in the Strathfield LGA. The present study supports all of these recommendations because their implementation will not just help conserve locally native bird species and their habitats, but all locally-native fauna species and their habitats.

These recommendations are not reproduced in the present report in the interests of brevity and should be obtained directly from InSight Ecology (2008). Additional specific recommendations are presented in Section 4.3 of the present report.

4.3.2 Develop a Strathfield LGA Sustainability Management Plan

The Sustainability Management Plan (SMP) should cover all parks and reserves that contain native bushland, wetlands and creeks and waterways. The SMP should identify existing vegetation communities and fauna habitats, especially those of threatened, migratory, regionally-rare and locally-rare fauna species. The SMP should develop a strategy for protecting existing habitats and, where possible, restore lost habitats (e.g. soil-contaminated areas of Bressington Park). Bushland restoration and management needs to continue in bushland reserves and around Mason Park Wetland and the SMP should identify where and when areas are to be subjected to bushland regeneration work, so that the works do not result in displacing native fauna from those areas. The co-ordination of these works means that regeneration and vegetation management sites do not overlap and do not become a major disturbance impact in the park or reserve. The SMP should identify areas where buffer plantings are required and recommend suitable species; at present buffer strips are required around the edges of Bressington Park, north of Mason Park wetland and along the eastern edge of the bushland in Elliott Park. The SMP should develop a program of feral animal control, especially foxes and cats. The control plan should integrate activities between reserves and between adjoining LGAs. The SMP should develop a policy for the control of domestic animals

in the bushland reserves, wetland areas and landscaped parklands. This may include dog and cat exclusion zones and the capacity to trap and remove free-roaming animals in the reserves at night. Information signs and educational brochures about the impact of dogs, dog scent and droppings on native fauna may be required to explain to residents why these actions have been taken. The SMP should review all stormwater sites in bushland and landscaped areas in parklands and reserves and recommend measures to reduce erosion and improve water quality in the parks, creeks and wetlands. The SMP should address issues relating to street and house lighting that affects the reserves. In particular, backyard spotlights or other excessive lighting that impacts on bushland areas should be brought to the attention of residents who neighbour these reserves. If necessary, screen planting, either in the reserve or neighbouring property, may be required to reduce light pollution in particular areas. The SMP should develop a plan for promotion and planting of street trees, and residential and business property trees, to create or develop fauna corridors, especially in industrial and older residential areas of the Strathfield LGA. The SMP should expand on the already relatively successful means of involving community groups in the maintenance and protection of bushland and wetland areas.

4.3.3 Provision of Artificial Shelter Sites

Nest boxes for parrots, possums and microchiropteran bats are required in all the significant parks and reserves (Mason Park Wetlands, Cox's Creek Reserve, Dean Reserve, St Anne's Reserve, Ford Park, Maria Reserve, Elliott Reserve, Strathfield Park and bushland areas of Hudson Park Golf Course). Ground cover items such as logs and timber stacks could be created in areas around the Mason Park wetland, and in Cox's Creek Reserve, Dean Reserve, Maria Reserve, Elliott Reserve, where they are not likely to become a target for arsonists or become an undesirable feature in the reserve. Covered compost heaps are recommended to be added or retained in all parklands and reserves in areas away from regular public use. Sandstone rock piles can be created in landscaped areas of parks where ground cover is sparse.

4.3.4 Restoration of Degraded Areas

Bressington Park. The northern and eastern perimeter areas of this park are highly degraded and are in need of habitat restoration.

Bushland along the northern boundary is highly infested with weeds, particularly weedy vines, that have invaded the park from the adjoining RTA road reserve. Past dumping of fill along that boundary has facilitated dense infestations of other weed species and exotic grasses. These weeds need to be removed and the understorey needs to be bush regenerated by appropriately-qualified and experienced bush regenerators. If possible, the bushland corridor should be widened to provide a more effective wildlife corridor with the roadside vegetation along the southern side of Homebush Bay Drive.

The eastern boundary area of Bressington Park is overgrown with exotic grasses and shrubby weeds. This area has not been managed for environmental or landscaping purposes because it is likely to contain contaminated soils and fill. A management plan for the containment, removal and appropriate disposal of the contaminants from this area should be developed by Strathfield Council. Once the contaminants have been removed, the Council should bush-regenerate this area to create a fauna habitat link between the Homebush Bay Drive roadside reserve and Mason Park wetland vegetation.

Mason Park Car Park. A narrow corridor of casuarinas (single-tree width) occurs along the concrete drainage line, along the northern boundary of the existing car park. This vegetation has little or no value as a wildlife corridor because it is too narrow and has little habitat diversity. Strathfield Council should consider widening this vegetative corridor and adding greater structural and native floristic diversity to it as part of its works upgrade of the carpark. This may assist in the movement of native fauna, particularly bird species to move between landscaped areas of Bressington and Mason Parks.

Mason Park Wetlands. Mangroves are migrating into the southern area of the Mason Park wetlands and potentially threaten the status of the salt marsh in the area. Salt marshes provide important foraging habitat for a range of bird species, particularly migratory shorebirds, and loafing and roosting habitat for other waterbirds. The current Vegetation Management Plan for the wetland should be updated and implemented to control the spread of mangroves into environmentally-sensitive areas of the wetland.

The northern bank of the Mason Park Wetlands is heavily infested with exotic grasses and shrubby weeds. Even though this provides actual habitat for Latham's Snipe, a listed migratory species under the EPBC Act, the exotic plants threaten the overall ecological integrity of the wetland. It is recommended that a staged removal of exotic plants/planting of locally native aquatic grasses, rushes and sedges be implemented in this area. This will still provide habitat for Latham's Snipe, as well as providing potential foraging habitat for rails, crakes and frogs.

4.3.5 Habitat Creation

Restore native grass areas in uncleared woodland areas of Hudson Public Golf Course. This will provide foraging habitat for grass seed-eating birds (e.g. Red-browed Finches, Red-rumped Parrots and Crested Pigeons) and shelter for small skinks.

Remove exotic grasses and weeds from Inveresk Park and replace with locally-native grass species, to improve this locally-significant isolated remnant of Turpentine Ironbark Forest as habitat for native fauna.

4.3.6 Bird Hide at Mason Park Wetland

Mason Park Wetland is regionally-important as habitat for native waterbirds (waterfowl, migratory shorebirds, and resident wading birds). It is also important in educating the public about wetland ecology and as a recreational area for bird-watchers. There is potential of establishing a bird hide, similar in design to the one at the Waterbird Refuge in Sydney Olympic Park, to be located at the northern end of the Mason Park Wetlands. Bird hides allow observers to study birds on wetlands without significant disturbances to the birds. This will assist in the closer observation of wetland birds and, thus further assess the importance of the wetland as bird habitat, as well as provide educational and further recreational opportunities for nature-loving members of the public.

4.3.7 Repeat Fauna Study

The Fauna Study should be repeated in five years time, earlier if significant changes or impacts occur in bushland, wetland or major creeks before then.

4.3.8 Establishment of Fauna Database

Strathfield Council needs to further develop a digital fauna database that will allow it to make informed decisions for future management issues in important habitat areas within the LGA. The database should have two components: a general database that records all opportunistic sightings made by Council staff and the Council's constituents, and a scientifically-based database based on systematic surveys of fauna communities within each parkland and reserve. The data from these surveys should be entered into the database in a manner that allows statistically-valid comparisons between sites and between years.