

Review of Ecological Literature and Avifaunal Data

for
River to River Corridors Project



InSight Ecology

November 2010

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for

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November 2010

This is Report 1 in a series for the River to River Corridors Project - a joint initiative of the City of Ryde, Hunters Hill Council, Sydney Metropolitan Catchment Management Authority, local flora and fauna conservation organisations, Bushcare groups and residents, with funding from the NSW Environmental Trust.

Recommended citation: InSight Ecology, 2010. Review of Ecological Literature and Avifaunal Data. Report by InSight Ecology for River to River Corridors Project (City of Ryde, Sydney).

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Photographs: Front cover (from top, then left to right down panel) –Lane Cove River from footbridge at end of Magdala Road; eucalypt gully forest in Lane Cove National Park (NP) between Lane Cove River and Delhi Road; recent riparian revegetation at Riverglade Reserve, Hunters Hill; Powerful Owl *Ninox strenua*; older eucalypt forest in Lane Cove NP near site shown in second photograph above; Gladesville bridge over Parramatta River, from Betts Park at Huntleys Point. All of these photographs were taken by InSight Ecology.

Acknowledgements

I am grateful to a number of people and organisations for providing access to information on birds and their habitats in and near the study area. Some of this group also contributed helpful data and valuable local knowledge on urban bushland management, open space and recreation planning, past flora and fauna surveys, local community-based conservation projects, and wildlife corridors. They are Gith Strid-Nwulaeke (City of Ryde), Jacqui Vollmer (Hunters Hill Council), Adam Smith and Fiona Morrison (City of Ryde), Bev Debrincat and Kurtis Lindsay (Habitat Network and Ryde Hunters Hill Small Bird Project), Andrew Duffy and Rob Porter (NPWS Lane Cove National Park), Kerry Heatley (Lane Cove Council), Paul Kubiak (via Gith Strid-Nwulaewe), Cathy Merchant (Ryde-Hunters Hill Flora and Fauna Protection Society), Bernadette Murray and Jon Stiebel (Strathfield Council), Judy Pincus (Cooks River Foreshores Working Group, Strathfield Council), Ros Gibbons and Adam Ward (Ashfield Council), Daniel Connolly, Julie Ravallion and team (NSW Department of Environment Climate Change and Water, including Atlas of NSW Wildlife access), Australian Government Department of Sustainability, Environment, Water, Population and Communities (overarching biodiversity conservation strategies), Australian Museum (fauna database access), and Biosphere Environmental Consultants Pty Ltd.

I also acknowledge the value of John Martyn's perspectives and the wealth of bird knowledge I was privileged to have received from S. G. (Bill) Lane. Bill and his colleagues Keith Hindwood, Ernie Hoskin and Arnold McGill made many valuable contributions to our current-day knowledge and appreciation of bush birds in Sydney and beyond.

Finally, I am also grateful to a number of research colleagues for discussions, recently and over the years, on creating and re-connecting habitat for wildlife in urban areas. Andrew Bennett, David Lindenmayer, Amanda Rodewald and John Marzluff have been particularly helpful in this regard.

Executive summary

Urban landscapes are complex interacting systems driven by constant change and re-adjustment. The urbanisation of Sydney has removed, fragmented and substantially re-configured the spatial distribution of habitat for native plants and animals. Some of this process is still continuing in outer areas as Sydney sprawls west, north-west and south-west. As a consequence, episodes of local extinctions of biodiversity have occurred and are still happening. Species unable to move through parts of their former ranges now surrounded by a hostile matrix of housing, roads, commercial and industrial centres, and open recreational space, have become isolated within increasingly small and pressured bushland remnants.

For birds, these have been species dependent on ground and shrub cover and food and breeding resources provided by a diversity of quality habitats. In Ryde-Hunters Hill district, the extinction of bush birds such as Spotted Quail-thrush, Eastern Bristlebird, Speckled Warbler, Superb Lyrebird, Rockwarbler and White-fronted Chat – the latter a saltmarsh specialist now confined to just two small populations in Sydney – are cases in point. Other bird species appear to be currently in population decline, placing them at-risk of eventual extinction across Ryde and Hunters Hill LGAs and other areas. These include some of our iconic bush birds, treasured for their colour, call and behaviour - Eastern Yellow Robin, Grey Shrike-thrush, Eastern Whipbird, Golden Whistler, White-throated Treecreeper and Striated Thornbill, to name a few.

Our attempts to turn back the tide of these local population extinctions and declines have focused mostly on bush regeneration and revegetation projects targeting key bushland reserves, Lane Cove NP and Wallumatta NR. Despite two projects in the 1990s to create networks of local wildlife corridors, there has been no coordinated, scientifically robust effort to re-connect fragmented habitat for bushland avifauna and other taxa in the Ryde-Hunters Hill area. The current initiative, River to River Corridors Project, aims to do exactly that. Moreover, this project represents a unique opportunity to make an on-the-ground contribution to biodiversity conservation in northern Sydney and beyond.

The first step has been a review of key ecological literature on wildlife corridors in and near Ryde-Hunters Hill LGA. This has unearthed a total of 97 studies, reports, journal articles, plans, mapping projects and other work, revealing the richness of information available and commitment of local communities and organisations to preserving the area's native biodiversity. Complementing this has been a compilation of local avifaunal data stretching back 208 years to the days when Ryde was Sydney city's foodbowl. The richness and size of this dataset is extensive and indicative of the level of interest in local bird communities - 221 species, 103 of which are native bushland- and saltmarsh-dependent birds. Sadly, 20% of these species have gone locally extinct or are likely to have gone locally extinct.

Both the literature review and avifaunal data compilation components of the project form the basis of this report. They will help inform and guide future reporting, planning and implementation of the overall project. Communication and possibly collaboration with other wildlife corridor and habitat rehabilitation projects underway in suburban Sydney is recommended.

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1. Introduction

The importance of retaining and integrating viable habitat for biodiversity with human living space has been recognised worldwide (Secretariat of the Convention on Biological Diversity 2006; UNEP Convention on Biological Diversity 2007; Natural Resource Management Ministerial Council 2010). Central to this is a need to understand how biota interacts and functions in complex urban ecosystems, a task that has not yet been accomplished (McDonald et al. 2008). Knowledge of how animals utilise different types and configurations of greenspace is essential to guide ecologically sustainable urban planning and design (Commonwealth of Australia 2005; Pickett and Cadenasso 2006; Alberti 2010).

In Sydney, there has been substantial investment in the revegetation of riparian zones, 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 this work is facilitating or hindering the movement and conservation of native fauna and their habitat in these landscapes (InSight Ecology 2008). For instance, Sydney's inner-west councils have rehabilitated and revegetated several kilometres of native vegetation along the Cooks River (Cooks River Foreshores Working Group 2006). Similar work has been undertaken in the study area at Mallee Reserve and along Tarban Creek at Riverglade Reserve. While these efforts are addressing soil erosion, urban water quality management, and habitat protection and restoration objectives, their contribution to facilitating the movement and dispersal of native fauna has not been properly assessed.

This review draws together key published and unpublished literature on urban wildlife corridors and their use by avifauna in Sydney and specifically the study area (Figure 1 and Appendix 1). Relevant literature from overseas has also been included. In addition, the review collates and presents existing data on avifauna recorded in or near the study area over the past 208 years (1802-2010, Appendix 2). This is not a definitive compilation but rather one that attempts to make available, in one central place, a set of historical and recent data on birds of the study area. This provides a solid foundation for informing the planning, design, implementation and monitoring and evaluation of both proposed new corridors and associated habitat protection activities. It also provides a useful resource for other workers in this field. Together the literature review and data compilation establish the historical context and theoretical framework for the project.

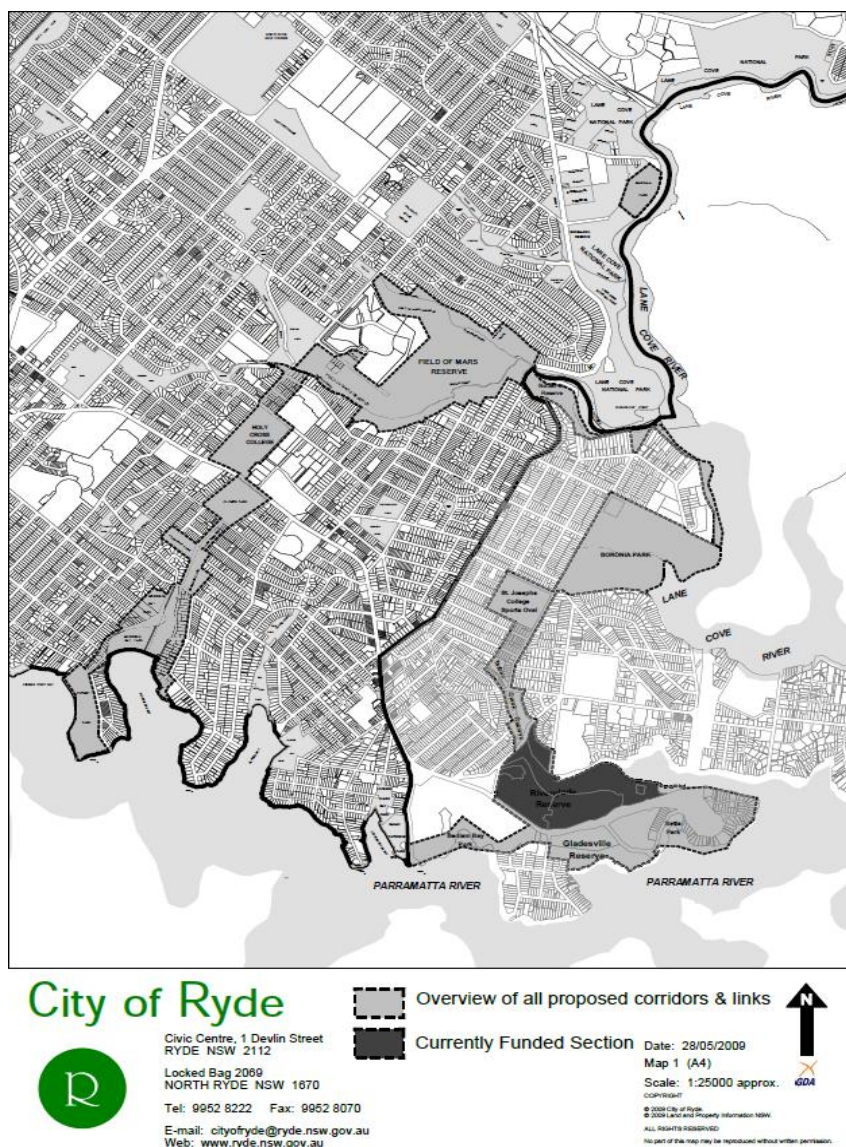
2. Methods

A range of relevant published and unpublished literature and data were sourced from council records, including those held by individual environmental monitoring, bushland management and open space planning officers employed by City of Ryde and Hunters Hill and Lane Cove Councils, Lane Cove National Park officers and stored in wildlife databases - including Atlas of NSW Wildlife, RAOU (Birds Australia) Bird Atlases I and II (Blakers et al. 1984; Barrett et al. 2003), Australian Museum Fauna Database, and Birdline NSW (via the online site www.eremaea.com). Other sources included previous studies, other projects, species lists

maintained by experienced ornithologists and botanists, scientific journals, books, government reports and websites, and avifaunal field guides. A number of consultations with council and NPWS officers, local Bushcare and conservation group representatives, and an author were held to obtain this information. Individuals records were then archived within two central documents (Appendix 1 – literature and Appendix 2 – avifaunal data) and backed up to an external hard-drive facility.

All literature and data were vetted for their accuracy and reliability before being included in this review. This resulted in the exclusion of some databases, species lists, individual bird observation records, and reports that contained information of questionable quality. Nomenclature and taxonomic order followed Christidis and Boles (2008).

Figure 1: Location of the River to River Corridors Project study area (courtesy City of Ryde)



3. Results and discussion

3.1 Literature review

A total of 97 documents relevant to the project and study area were obtained for the past 53 years (1957-2010). This period represents the main publication phase for studies of wildlife and wildlife corridors in the Sydney urban landscape and specifically in or near the study area. These documents comprise published research articles in scientific journals, natural history and ornithological books and field guides, reports of fauna and flora surveys, assessments of potential impacts on wildlife associated with new development proposals, council planning documents - bushland and open space management and site rehabilitation plans, NSW and Australian Government contributions - State of Environment reports, biodiversity conservation strategies (Department of Environment, Climate Change and Water NSW 2010), local and regional biodiversity corridor investigations, species lists and Bird Atlases I and II.

Two distinct phases of interest by authors in urban wildlife and their movement and dispersal patterns were revealed by the literature review. The first phase (1979-1999) was initiated by a 1979 descriptive treatment of the natural history, educational, and field laboratory values of the Ryde district ("Resource Book for Field Studies in the Ryde District" - Document 2, Appendix 1). This was followed in the 1980s by lists of bird species recorded by respected amateur ornithologists Ern Hoskin, Keith Hindwood and S.G. (Bill) Lane in Lane Cove National Park (NP) and Field of Mars Wildlife Refuge. The landmark community-based Bird Atlas I in which amateur and professional ornithologists censused birds in 1 degree grid cells (100 x 100 km) across Australia was also produced during this period (1984).

A succession of published research articles, fauna and flora survey reports, council bushland management plans, studies and field guides on wildlife and habitat use were produced throughout the 1990s. The 1997 State of the Environment Report by Ryde City Council (Document 20, Appendix 1) contained important long-term historical data compiled by Paul Kubiak on fauna of Ryde/Hunters Hill. This work remains an iconic contribution to our knowledge of the biodiversity of the study area (listed as a "key contribution" in Appendix 1). Also at this time, an ambitious but theoretically valuable contribution (Green Web Sydney Action Plan – Document 24, Appendix 1) was produced. Unfortunately, its recommendations for re-connecting Sydney's greenspace for biodiversity were generally not adopted or only partly taken up by a few Sydney councils such as Sutherland Shire.

The second phase (2000-2010) saw a shift from describing species present or absent and patterns of distribution to discussing underlying ecological processes and management requirements. The few relevant research papers investigated structural and functional relationships between bird species composition, habitat use, community dynamics, matrix type and quality, and landscape-scale change in suburban Sydney, Melbourne, Brisbane and Adelaide (Parsons et al. 2003, 2006; Catterall 2004; Tait et al. 2005; White et al. 2005; Garden et al. 2006; Young et al. 2007). George Hess's 2001 paper on communicating clearly about conservation corridors remains a landmark contribution to this day (Document 36, Appendix 1). However, none of these papers specifically discussed avifauna of the study area.

The only contributions that have discussed in any detail wildlife corridors in or adjoining the study area were commissioned in the 1990s. The 2006-2008 Ryde flora and fauna study produced by Biosphere Environmental Consultants Pty Ltd did, however, provide a brief treatment of the importance of maintaining and restoring bushland corridors and habitat connectivity.

The first contribution was part of the draft Ryde Bushland Reserves Plan of Management (1990 – Document 8, Appendix 1) undertaken by consultants Allan Fox and Judith Rawling. They highlighted Ryde district's geographical importance as a conduit for regional-scale fauna movement. Visionary for its time, this plan identified existing bushland "corridors" across Sydney and proposed widening and joining them by infilling gaps or breaks in vegetative cover through plantings. They suggested that physical barriers to animal movement - Parramatta River, Sydney Harbour and surrounding urban development - could be ameliorated by these interventions. They contended that this could allow animals to move from Hawkesbury River, Cowan Creek and other valleys in the north to Georges River via bushland remnants at Duck Creek, Bankstown and Salt Pan Creek, Botany Bay via Cooks River valley, and Royal NP in the south. In Ryde, the authors proposed that fauna could move along Terrys Creek, Lane Cove River and from Field of Mars Wildlife Refuge west to Denistone, Darvall and Brush Farm Parks then Galaringi Reserve in upper Dundas valley and remnants further west and north-west. A northwest corridor was mapped from Field of Mars to Wallumatta Nature Reserve, North Ryde Common, North Ryde Golf Course, Shrimptons Creek and onto Macquarie University. Other minor corridors were identified for infill, presumably block and lineal strip plantings, and street and houseyard plantings at Macquarie Park Cemetery, Macquarie Hospital and Ryde Royal Rehabilitation Centre.

The second wildlife corridor study was undertaken in Lane Cove LGA in 1995 by consultants Ian McAllan and Danie Ondinea - "Wildlife habitat corridor study for Lane Cove Council" (Document 16, Appendix 1). They identified a set of potential wildlife corridors in the LGA based on preferred habitat requirements of local fauna and preferred corridor attributes. Recommendations were made to Council for the creation of a network of local corridors running along the Sydney Harbour and Lane Cove River waterfronts from Greenwich, Longueville, Riverview to Lane Cove West and Lane Cove North and major creeks and bushland reserves - Gore Creek, Tambourine Creek/Warraroon Reserve, Tannery Creek at Burns Bay, eastern foreshore reserves at Lane Cove West, and Stringybark Creek. Detailed information was supplied on key bushland-dependent bird species of the area, strategies to protect existing fauna habitat, likely fauna movement pathways, corridor design specifications, habitat protection policies, fauna food plants, and community education and publicity material. Creation of the recommended wildlife corridors did not, however, proceed.

Recent work has focused on assessing and mapping biodiversity corridors at a broader scale. The NSW Department of Environment, Climate Change and Water (DECCW) identified and assessed a network of regional corridors and priority fauna habitats in the neighbouring Hawkesbury-Nepean River Catchment for the catchment action plan in 2006 (Document 71, Appendix 1).

In 2008, DECCW completed a rapid fauna habitat assessment of the Sydney Metropolitan CMA area (Documents 79 and 80, Appendix 1). The fauna habitat value of 50 sites across Sydney was assessed and ranked according to 10 key habitat components. These included habitat connectivity, habitat condition, below canopy structural attributes, presence of tree hollows, presence of priority fauna habitat, presence of threatened and regionally significant species, potential presence of further significant fauna, presence of feral bird species, presence of additional fauna attributes, and future prospects. Lane Cove Valley ranked among the “very high” group of sites while the neighbouring Middle Harbour Valley was placed among the “highest” group. Detailed profiles were prepared for each of the ranked sites and land management issues and threats reviewed. However, the fauna habitat value of smaller (less than 50 ha in area) patches of remnant vegetation was not investigated. The report recommended that an audit of the habitat value and local and regional connectivity importance of these small patches be undertaken. Their contribution to regional-scale conservation and ecologically sustainable land management planning could be quite substantial. Several of these remnants form the building blocks of the two proposed corridors at the centre of the current study.

Other mapping-based assessments of regional fauna habitat and connectivity values was completed in 2009 (Document 87, Appendix 1) and 2010 (Document 97, Appendix 1). In the former work, Sydney Metropolitan CMA commissioned the mapping of the distribution of regionally significant riparian corridors along major rivers and streams and Sydney Harbour foreshores. An assessment of their conservation significance was completed, priority classes assigned, and management recommendations put forward for consideration. The latter document focused on prioritising biodiversity corridors for consideration in Sydney Metropolitan CMA.

3.2 Avifaunal data compilation

A total of 221 bird species from 65 families have been recorded in or near the study area over the past 208 years (1802-2010) (Appendix 2). This includes 12 species introduced from other countries and 103 native species dependent on native grassland, woodland, forest and saltmarsh habitats – just under half of all species recorded in or near the study area. Twenty-one native species or 20.4% of these birds dependent on remnant bushland and saltmarsh habitats have become extinct (15 species) or are considered to be likely to have been extirpated (6 species) from the study area. Further investigation is needed to confirm whether this latter group of birds has disappeared from the study area. Both groups are all members of ground, shrub and canopy insectivorous, granivorous and nectarivorous foraging guilds - iconic avifauna that once characterised the district’s saltmarsh and native grasslands, heathlands, woodlands and forests.

Most of these local extinctions have occurred during earlier phases of habitat loss and fragmentation associated with the post-1940s expansion of housing, roads, industry and open space development in Ryde LGA - ie. Eastern Barn Owl, Eastern Bristlebird, White-fronted Chat, Spotted Quail-thrush. Later extinctions appear to have occurred between the 1960s and early-1990s, possibly reflecting a time lag effect since initial patch isolation, loss of breeding habitat, reduced availability of food and shelter, and predation impacts. Superb Lyrebird, Rockwarbler,

Noisy Pitta, Pheasant Coucal, Speckled Warbler, Yellow-tufted Honeyeater, Diamond Firetail and Little Grassbird have all disappeared over this period. More recent extinctions may have occurred for the tall eucalypt forest bark-foraging Crested Shrike-tit (since 2007?) and Varied Sittella (since late-1990s?) and the reedland specialist Clamorous Reed-Warbler (since late-1990s?), although these require confirmation through further targeted and repeated surveys.

Several other remnant-dependent, sedentary and often ground- or shrub-foraging bird species appear to be in serious population decline, even in larger remnants such as Field of Mars Wildlife Refuge and Boronia Park and even though they are connected to the Lane Cove River valley system. These include Common Bronzewing, Wonga Pigeon, Grey Shrike-thrush, White-throated Treecreeper, Eastern Whipbird, Eastern Yellow Robin, Golden Whistler and Striated Thornbill. Some of these species such as the Common Bronzewing may have already disappeared from these patches. In smaller, isolated bushland remnants dominated by highly resilient and aggressive species such as Noisy Miner, Common Myna, Red Wattlebird and Australian Raven such as Tarban Creek Reserve, Betts Park, and Gladesville Reserve, species such as Sacred Kingfisher, Rufous Whistler, Brown Thornbill, Grey Fantail, White-browed Scrubwren, Eastern Whipbird and Eastern Yellow Robin appear to be struggling to maintain their small and presumably 'at-risk' populations. These could be the last vestiges of Ryde/Hunters Hill's original bushland avifauna. This would confer substantial conservation significance and urgency to the protection and enhancement of these sites as part of an integrated corridor and whole-of-landscape approach.

A more detailed treatment of ecological processes and causal factors implicated in these observed patterns in extant and extinct bird communities of the study area will be presented in Report 3 - results of the October 2010 targeted bird monitoring. Other upcoming reports will consider the influence of landscape characteristics especially matrix type and condition and processes operating at larger (and smaller) scales across the study area and region to influence avian population and community dynamics, habitat, and conservation management requirements.

4. Concluding comments

Our knowledge of fauna use and movement through conduits of in-situ vegetation ('wildlife corridors') and interstitial connecting blocks of planted habitat ('stepping stones') is still limited by a lack of scientifically robust field applications. The two previous projects that attempted to do this in and near the study area have been essentially planning-level exercises based on some general principles of nature conservation and fauna movement in fragmented environments. These initiatives did not proceed to implementation. Today, we have a unique opportunity to go one better. That is, to combine advances in the theory and practice of landscape ecological science with substantial local environmental knowledge to re-connect two key wildlife corridors for declining native fauna. The wealth of avifaunal data compiled for the Ryde/Hunters Hill district over the past 200 years is a precious resource in itself. It reflects the level of commitment councils and local communities has made to protect and rehabilitate the area's iconic biodiversity and their habitat.

We also have the responsibility and opportunity to ensure that our efforts are cognisant of similar work being undertaken in other parts of the Sydney urban landscape. This review has drawn attention to some of this work in the Hawkesbury-Nepean catchment, across the Sydney Metropolitan area, and along Cooks River valley in the inner south-west. We should also be aware of current corridor planning and mapping work being undertaken by Parramatta River Catchment Group and Upper Parramatta River Catchment Trust to the immediate west and north-west of the study area. In addition, the GreenWay Sustainability Project (2010-2013), hosted by Ashfield Council, is beginning work on establishing a wildlife corridor along Hawthorne Canal and a former railway line from Iron Cove to Cooks River near Marrickville (Document 92, Appendix 1). Options for exchanging and sharing information, ideas and outcomes between our project and these initiatives should be pursued. Interaction with Lane Cove Council would also be beneficial.

Upcoming reporting for the River to River Corridors Project will use the results of this review as a foundation to frame discussion and support recommendations, particularly with respect to the bird monitoring program, social values analysis, landscape and recreation analyses, on-ground corridor planting specifications, and community education activities.

References

- Alberti, M., 2010. Maintaining ecological integrity and sustaining ecosystem function in urban areas. *Current Opinion in Environmental Sustainability* 2, 178-184.
- Barrett, G., Silcocks, A., Barry, S., Cunningham, R., and Poulter, R., 2003. The New Atlas of Australian Birds. Birds Australia (RAOU), Melbourne.
- Blakers, M., Davies, S. J. J. F., and Reilly, P. N., 1984. The Atlas of Australian Birds. Melbourne University Press.
- Catterall, C. P., 2004. Birds, garden plants and suburban bushlots: where good intentions meet unexpected outcomes. In: Urban Wildlife: More Than Meets the Eye (Eds D. Lunney & S. Burgin) pp. 21-31. Royal Zoological Society of NSW, Mosman, NSW.
- Christidis, L. and Boles, W. E., 2008. Systematics and Taxonomy of Australian Birds. CSIRO Publishing, Melbourne.
- Commonwealth of Australia, 2005. Sustainable Cities. Report of the House of Representatives Standing Committee on Environment and Heritage, Canberra.
- Cooks River Foreshores Working Group, 2006. Cooks River Foreshores Working Group Annual Report 2005-06, City of Canterbury. Available from URL: http://www.strathfield.nsw.gov.au/resources/445/CRFWG%20Annual%20Report%202005-06_low%20res.pdf
- Department of Environment, Climate Change and Water NSW and Industry and Investment NSW, 2010. Draft New South Wales Biodiversity Strategy 2010-2015. NSW Government, Sydney, November 2010. Available at: <http://www.environment.nsw.gov.au/resources/biodiversity/strategy/10821DraftBioStrat.pdf>
- Garden, J., McAlpine, C., Peterson, A., Jones, D., and Possingham, H., 2006. Review of the ecology of Australian urban fauna: A focus on spatially explicit processes. *Austral Ecology* 31, 126-148.
- InSight Ecology, 2008. Bird communities and habitats in Strathfield Local Government Area, 2007-2008. Technical report for Strathfield Council by InSight Ecology, July 2008. Available at: <http://www.strathfield.nsw.gov.au/resources/4300/Vertebrate%20Fauna%20Study%202007-2008.pdf>
- McDonald, R. I., Kareiva, P., and Forman, R. T.T., 2008. The implications of current and future urbanization for global protected areas and biodiversity conservation. *Biological Conservation* 141, 1695-1703.
- Natural Resource Management Ministerial Council, 2010. Australia's Biodiversity Conservation Strategy 2010-2030. Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available at: <http://www.environment.gov.au/biodiversity/publications/strategy-2010-30/pubs/biodiversity-strategy-2010.pdf>
- NSW Department of Planning, 2005. City of Cities: A Plan for Sydney's Future – Sydney Metropolitan Strategy. Government of NSW, Sydney.
- NSW Department of Planning, 2010. Sydney Towards 2036 - Discussion paper (March 2010) for a review of the Sydney Metropolitan Strategy, NSW Department of Planning. Available at: <http://www.metrostrategy.nsw.gov.au/Resources/SydneyTowards2036/tabid/286/language/en-AU/Default.aspx>
- Parsons, H., French, K., and Major, R. E., 2003. The influence of remnant bushland on the composition of suburban bird assemblages in Australia. *Landscape and Urban Planning* 66, 43-56.

- Parsons, H., Major, R.E., and French, K., 2006. Species interactions and habitat associations of birds inhabiting urban areas of Sydney, Australia. *Austral Ecology* 31, 217-227.
- Pickett, S.T.A. and Cadenasso, M.L., 2006. Advancing urban ecological studies: Frameworks, concepts, and results from the Baltimore Ecosystem Study. *Austral Ecology* 31, 114–125.
- Secretariat of the Convention on Biological Diversity, 2006. Global Biodiversity Outlook 2. Montreal, Quebec, Canada, 81 pp.
- Tait, C. J., Daniels, C. B., and Hill, R. S., 2005. Changes in species assemblages within the Adelaide metropolitan area, Australia, 1836-2002. *Ecological Applications* 15, 346-359.
- UNEP Convention on Biological Diversity, 2007. Cities and Biodiversity: Achieving the 2010 Biodiversity Target. Proceedings of United Nations Environment Programme Mayors' Meeting, Curitiba, Brazil, 26-28 March 2007.
- White, J. G., Antos, M. J., Fitzsimons, J. A., and Palmer G. C., 2005. Non-uniform bird assemblages in urban environments: the influence of streetscape vegetation. *Landscape and Urban Planning* 71, 123-135.
- Young, K. M., Daniels, C. B., and Johnston, G., 2007. Species of street tree is important for southern hemisphere bird trophic guilds. *Austral Ecology* 32, 541-550.

Appendices

Appendix 1: Key literature on urban wildlife corridors and their use by avifauna in, near, or relevant to the River to River Corridors Project study area

Document no.	Description	Year/s	Author/Organisation	Type	Key content
1	Birds recorded in the grounds or flying over the property of E & E Hoskin, Eastwood	1957-1997	Ern Hoskin	species list	KEY CONTRIBUTION: long-term species present record for part of Ryde-Eastwood district, compiled by Ern Hoskin and provided to Paul Kubiak; also included as Table 25 in State of the Environment 1997 Report, Ryde City Council (see Document 20 below)
2	Resource Book for Field Studies in the Ryde District	1979	Association for Environmental Education (NSW)	historical reference guide	KEY CONTRIBUTION: describes bushland reserves, history and geography, community education, and fauna present in the 1970s
3	Birds of Lane Cove River State Recreation Area	1980	Ern Hoskin with Keith Hindwood for Trustees of Lane Cove River SRA	historical species list	species list and description of all birds recorded by Ern Hoskin in the reserve; highly reputable list
4	The Atlas of Australian Birds	1984	Blakers M., Davies S.J.J.F., Reilly P.N., RAOU Melb.	Bird Atlas I (book)	KEY CONTRIBUTION: the first Australian bird atlas (1977-1981)
5	Field of Mars Reserve - list of birds	1986	Ern Hoskin	species list	compiled by Ern Hoskin
6	Ecology of birds an Australian perspective, Surrey Beatty & Sons Pty Ltd, Chipping Norton NSW	1989	Hugh A. Ford	book	thorough introduction to key aspects of the biology and ecology of Australian birds and their conservation
7	Taken for granted: the bushland of Sydney and its suburbs. Benson, D.H., Howell, J., Sydney, Kangaroo Press	1990	Doug Benson & Jocelyn Howell, NSW Royal Botanic Gardens	book	KEY CONTRIBUTION: historical account of native vegetation in Ryde, Hunters Hill and other LGAs - especially chapters 3,5 & 6
8	Draft plan of management Ryde bushland reserves	1990	Allan Fox & Associates (with Judith Rawling) for Ryde Municipal Council	council plan	KEY CONTRIBUTION: council planning and management document which describes, for the first time, the significance of Ryde district as a conduit for the movement of animals across Sydney

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					region (Section 2.3); proposes linking and widening of existing greenspace corridors (Maps 28-29)
9	Biological consequences of ecosystem fragmentation: a review	1991	Saunders, D.A., Hobbs, R.J., & Margules, C.R.	published journal article in <i>Conservation Biology</i> , 5:18-32	KEY CONTRIBUTION: review of the processes and consequences of habitat fragmentation across ecosystems; landmark contribution of its day
10	Long-term changes in the relative abundances of birds in Kings Park, Perth, Western Australia	1991	Recher, H.F. & Serventy, D. L.	published journal article in <i>Conservation Biology</i> 5: 90-102	KEY CONTRIBUTION: treatment of long-term monitoring of urban remnant and parkland bird communities, including extinction pathways of core forest/woodland bird species
11	How much habitat is enough?	1991	Fahrig, L.	published journal article in <i>Biological Conservation</i> 100: 65-74.	KEY CONTRIBUTION: landmark contribution to understanding patterns, processes and management implications of habitat loss, re-creation and fragmentation across whole landscapes.
12	Riverglade Environmental Planning Study: Volume 5 Flora and Fauna Studies	1991	Anne Clements & Associates	unpublished study	council planning and management document
13	The birds of Sydney, County of Cumberland, New South Wales, 1770-1989. Surrey Beatty and Sons, Chipping Norton.	1991	Hoskin, E.S., Hindwood, K.A. & McGill, A.R. 1991.	book	KEY CONTRIBUTION: comprehensive treatment of the historical bird fauna of the region
14	The natural environment of Lane Cove	1992	Lynne McLoughlin for Lane Cove Municipal Council	published booklet	natural history account of Lane Cove LGA
15	A field guide to the bushland of the upper Lane Cove Valley	1994	John Martyn STEP Inc.	published booklet	field guide to the natural history of Lane Cove River valley upstream of De Burgh's Bridge - Darieel Larkins wrote the birds section; updated edition currently in print and due for release in early 2011 (John Martyn pers comm)
16	Wildlife habitat corridor study for Lane Cove Council	1995	Ian McAllan & Danie Ondinea	unpublished report	study of corridor values, report of field fauna surveys, and recommendations
17	Birds of the County of Cumberland - then and	1995	Alan Morris	article in NSW National Trust newsletter	historical overview of bird communities since early colonial

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	now				days in Sydney until mid-1990s
18	Land mosaics: the ecology of landscape and regions, Cambridge University Press, Cambridge.	1995	Richard T.T. Forman	book	KEY CONTRIBUTION: landmark introduction to the science and practice of landscape ecology and in relation to biological conservation in fragmented landscapes globally.
19	Buffalo Creek Catchment Plan of Management	1996	Clouston Planners for Ryde City Council	council plan	council planning and management document
20	State of the Environment 1997	1996	Ryde City Council	published report	KEY CONTRIBUTION: council reporting document to NSW Government - Appendix 1 (espec Tables 25-26 for historical bird records compiled by Paul Kubiak from Aust Museum Fauna Database and Ern Hoskin's 40-year bird records from Eastwood - see also Document 1)
21	Biological corridors: form, function and efficacy	1997	Rosenberg, D.K., Noon, B.R., Meslow E.C.	published journal article in <i>BioScience</i> 47: 677-687	KEY CONTRIBUTION: overviews the advantages and disadvantages of corridors in conserving biota and providing habitat
22	Cities as environments	1997	Botkin, D.B. & Beveridge C.E.	published journal paper in <i>Urban Ecosystems</i> 1, 3-19	Quality introductory treatment
23	Wallumatta Nature Reserve draft plan of management	1997	NSW NPWS	published plan	NPWS planning document
24	Green Web Sydney Action Plan	1997-2003	Douglas, S. & Seidlich, B. for Sydney Regional Organisation of Councils and Environment Australia (Federal Government), and later SSROC	unpublished report	An attempt to provide a strategic basis for linking Sydney's urban bushland remnants; implementation from 2001-03; not well adopted.
25	Deforestation, urbanisation and seasonality: interacting effects on a bird assemblage	1998	Catterall, C.P., Kingston, M., Park K., & Sewell, S.	published journal article in <i>Biological Conservation</i> 84, 65-81	KEY CONTRIBUTION: treatment on interaction between a range of ecological processes and threats on birds in suburban Brisbane
26	Flora surveys compilation 1978-1998 Ryde City Council	1998	Anne Clements & Associates	survey data compilation report and plant species lists	data compilation from 85 flora surveys provided by Ryde City Council - mostly plant species lists with local conservation significance in 67 parks and reserves; includes

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					Tables 1 and 3 Part A
27	Fauna survey report for Tarban Creek Bushland Reserve, Hunters Hill	1998	Dion Hobcroft	unpublished survey report	surveyed Tarban Creek bushland fauna habitats
28	Fauna survey of Boronia Park, Hunters Hill	1998-1999	Dion Hobcroft	unpublished report	report of fauna survey at Boronia Park
29	Riverglade Plan of Management	1999	Storm Consulting for Hunters Hill Council	council plan	council planning and management document
30	The state of Australia's avifauna: a personal opinion and prediction for the new millennium	1999	Recher H. F.	published journal article in <i>Australian Zoologist</i> 31, 11 - 27.	KEY CONTRIBUTION: landmark treatment of the dire state of Australia's avifauna and discussion of action needed to avert this conservation crisis.
31	Bird use of linear areas of a tropical city: implications for park connector design and management	1999	Sodhi N., Briffett C., Kong L., & Yuen B.	published journal article in <i>Landscape and Urban Planning</i> , 45: 123-130	KEY CONTRIBUTION: helpful earlier treatment of bird use of linear park in highly populated Singapore
32	Occurrence of breeding bird species in urban parks: Effects of park structure and broad-scale variables	1999	Jokimaki, J.	published journal article in <i>Urban Ecosystems</i> , 3, 21-34	Occurrence of breeding bird species in urban parks: Effects of park structure and broad-scale variables
33	Avifaunal use of wooded streets in an urban landscape	2000	Fernandez-Juricic, E.	published journal article in <i>Conservation Biology</i> , 14: 513-521	Avifaunal use of wooded streets in an urban landscape
34	Red-listed forest bird species in an urban environment - assessment of green space corridors	2000	Mortberg, U. & Wallentinus H.	published journal article in <i>Landscape and Urban Planning</i> , 50: 215-226	KEY CONTRIBUTION: assessment of role and function of greenspace corridors in suburban Stockholm.
35	Urban ecology as an interdisciplinary field: differences in the use of "urban" between the social and natural sciences	2000	McIntyre N.E., Knowles-Yanez K., & Hope D.	published journal article in <i>Urban Ecosystems</i> , 4, 5-24	Urban ecology as an interdisciplinary field: differences in the use of "urban" between the social and natural sciences
36	Communicating clearly about conservation corridors	2001	Hess, G.R. & Fischer, R.A.	published journal article in <i>Landscape and Urban Planning</i> 55: 195-208	KEY CONTRIBUTION: reviews definitional and use issues associated with corridors, functions and values, and provides recommendations for practitioners and communicators
37	Resident bird species in urban forest remnants: landscape and habitat	2001	Ulla Mortberg	published journal article in <i>Landscape Ecology</i> , 16, 193-203	KEY CONTRIBUTION: investigation of the effects of habitat loss, fragmentation and habitat quality

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	perspectives				on Stockholm urban bird communities.
38	Willoughby fauna study	2001	Arthur White	unpublished report	Survey report prepared for Willoughby City Council
39	Boronia Park Reserve - Working Plan of Management	2001	Hunters Hill Council	council plan	council planning and management document
40	Bushland management policy	2001	Hunters Hill Council	internal policy document	bushland management policy - Section 5.11 (wildlife corridors) most relevant
41	Flora and fauna of Lane Cove	2001	NSW NPWS?	unpublished species lists	lists of biodiversity recorded in Lane Cove area, authored possibly by local volunteers
42	Preliminary report, initial ecological survey, Buffalo Creek, Field of Mars Wildlife Refuge	2001	Insearch Ltd UTS for City of Ryde	unpublished flora, fauna and sedimentology survey report	Preliminary report, initial ecological survey, Buffalo Creek, Field of Mars Wildlife Refuge
43	Evaluating the effectiveness of corridors: a genetic approach	2001	Mech, S.G. & Hallett, J.G.	published journal article in <i>Conservation Biology</i> 15, 467-474	Empirical test of the effectiveness of corridors in maintaining population structure in 2 small mammal species in Washington USA forested landscapes using an early genetics approach. Found difference in response between both species.
44	Boronia Park Reserve Plan of Management	2002	Storm Consulting for Hunters Hill Council	council plan	council planning and management document
45	The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities.	2003	Mark Tozer in <i>Cunninghamia</i> , 2003, 1-75	published journal article	KEY CONTRIBUTION: detailed botanical description of native vegetation communities in and beyond study area
46	Spatial similarity of urban bird communities: a multiscale approach	2003	Jokimaki, J. & M-L	published journal article in <i>Journal of Biogeography</i> , 30, 1183-1193	comparison of similarity of winter bird communities between town centres and different housing densities in Finland to determine if urbanisation homogenises wintering bird communities
47	The influence of remnant bushland on the composition of suburban bird assemblages in	2003	Parsons, H., French, K., & Major, R.	published journal article in <i>Landscape and Urban Planning</i> , 66: 43-56	KEY CONTRIBUTION: used 1998-99 data from Cumberland Bird Observers Club to determine if birds in urban Sydney habitats differed

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	Australia				significantly from bird community composition, abundance and species richness in nearby native woodland/forest habitats; found that nearby remnant vegetation had little effect on these attributes and thus there was little overlap in use of urban and remnant habitats by most urban birds. However, caution is needed in interpretation of these results due to sampling effects and short-term nature of the study.
48	Volunteers in bird conservation: Insights from the Australian Threatened Bird Network	2003	Weston M., Fendley M., Jewell R., Satchell M., & Tzaros C.	published journal article in <i>Ecological Management and Restoration</i> 4, 205-211	survey of demography, motivation and preferences of TBN volunteers for 1996-2000
49	The new atlas of Australian Birds	2003	Barrett G.W., Silcocks A., Barry S., Cunningham R., Poulter S.	book, Birds Australia (RAOU)	KEY CONTRIBUTION: second atlas of birds (279,000 surveys) across Australia, 1998-2002
50	Plan of management for the natural systems at Buffalo Creek & The Great North Walk	2004	Hunters Hill Council	council plan	council planning and management document
51	Fauna and flora survey conducted at open space land at corner of Waterloo Road and Crimea Road, Marsfield	2004	Vanessa Keyser (Greening Australia) for the then DIPNR	unpublished survey report	report on survey undertaken June 23, 2004
52	Birds of Brush Farm Park	2004	Kevin Cliffe et al.	unpublished bird species list	list of bird species recorded in and around Brush Farm Park
53	Post-remediation assessment of the wetland	2004	AccessUTS P/L for City of Ryde	unpublished report	report on survey of wetland natural values
54	Credit or debit? Resource input changes population dynamics of city-slicker birds	2004	Shochat E.	published journal article in <i>Oikos</i> 106: 622-626	Puts forward the "credit card hypothesis" (ie. very predictable supplies of food and low predation risk for city birds allow them to "live on their credit" trading off between offspring body condition and clutch size) to suggest an explanation for very high urban bird population densities, with evolutionary implications for animals living in

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					these environments.
55	Associations of garden birds with gradients in garden habitat and local habitat	2004	Chamberlain D.E., Cannon A.R., & Toms M.P.	published journal article in <i>Ecography</i> 27, 589-600	KEY CONTRIBUTION: very useful information on urban habitat gradients in bird responses in suburban landscapes
56	Birds, garden plants and suburban bushlots: where good intentions meet unexpected outcomes	2004	Catterall C.P.	published research article in the book "Urban Wildlife: More than Meets the Eye" (eds. D. Lunney & S. Burgin) pp. 21-31, Royal Zoological Society of NSW, Mosman, NSW.	KEY CONTRIBUTION: Quality contribution to our understanding of some outcomes of conservation and garden management in urban Brisbane
57	The Kings Park avifauna: keeping birds in the city	2004	Recher H. F.	published research article in the book "Urban Wildlife: More than Meets the Eye" (eds. D. Lunney & S. Burgin) pp. 8-20, Royal Zoological Society of NSW, Mosman, NSW.	KEY CONTRIBUTION: treatment of long-term monitoring of urban remnant and parkland bird communities in Kings Park, Perth
58	Designed experiments: new approaches to studying urban ecosystems	2005	Felson A.J. & Pickett S.T.A.	published journal article in <i>Frontiers in Ecology and the Environment</i> , 3 (10): 549-556	KEY CONTRIBUTION: excellent treatment of urban ecological investigations designed as experiments for practical management outcomes
59	Effects of recreational areas on avian communities in coastal NSW parks	2005	Densmore P. & French K.	published journal article in <i>Ecological Management and Restoration</i> 6, 182-189	found that small-scale habitat clearance for picnic areas adversely affects avian assemblages
60	Changes in species assemblages within the Adelaide metropolitan area, Australia, 1836-2002	2005	Tait C.J., Daniels C.B., & Hill R.S.	published journal article in <i>Ecological Applications</i> , 15: 346-359	Found dramatic local extinctions (132 native species of plants, birds, mammals) and introductions (648 species); provided a basis for improving future conservation management
61	Use of native and exotic garden plants by suburban nectarivorous birds	2005	French K., Major R., & Hely K.	published journal article in <i>Biological Conservation</i> , 121, 545-559	KEY CONTRIBUTION: investigated use of nectar resources by 14 bird species in Sydney's Sutherland Shire; pointed to potential link between nectar surplus from native shrubs such as <i>Grevillea</i> and <i>Banksia</i> and occurrence of territories of larger, aggressive honeyeaters that exclude

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					small birds from urban gardens
62	Non-uniform bird assemblages in urban environments: the influence of streetscape vegetation	2005	White J.G., Antos M., Fitzsimons J.A., & Palmer G.C.	published journal article in <i>Landscape and Urban Planning</i> , 71:123-135	KEY CONTRIBUTION: Surveyed bird species richness, abundance and composition in 36 sites (parks with remnant vegetation to streetscapes) in urban Melbourne. Found loss of insectivorous and nectarivorous species in transition from native to exotic streetscapes (due to habitat structure simplification and loss of diversity of food types), lower overall abundance and species richness in exotic and recently created streetscapes cf parks and native streetscapes; provided management and design recommendations to retain/increase avian biodiversity in urban landscapes.
63	The concept and utility of 'ecological thresholds' in biodiversity conservation	2005	Huggett A.J.	published journal article in <i>Biological Conservation</i> 124: 301-310.	treatment of the importance and role of ecological thresholds in understanding impacts of habitat loss and fragmentation on biota and planning for conservation management outcomes
64	Wallumedgal: An Aboriginal History of Ryde	2005	Keith Vincent Smith for City of Ryde	published historical booklet	KEY CONTRIBUTION: detailed historical account of Aboriginal life in Ryde
65	Review of the ecology of Australian urban fauna: A focus on spatially explicit processes	2006	Garden J., McAlpine, C., Peterson A., Jones D., & Possingham H.	published journal article in <i>Austral Ecology</i> 31: 126-148	KEY CONTRIBUTION: reviewed urban ecology literature and found 4 factors limiting our knowledge of urban fauna (lack of multispecies studies, absence of long-term studies, need for stronger integration of research outcomes into urban conservation management and planning)
66	Urban effects on native avifauna: a review	2006	Chace J.F. & Walsh J.J.	published journal article in <i>Landscape and Urban Planning</i> , 74, 46-69	KEY CONTRIBUTION: comprehensively reviewed urban impacts on avian populations and communities in USA, Europe, Asia and Australia (used Catterall's

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					Brisbane/SE Qld work) to identify species responsive to landscape changes and processes underpinning these responses; found demography (fecundity and survivorship) need to be examined along with community diversity and density measures across urban gradients to better understand quality of different urban habitats and variation of quality among spatial urbanization patterns within the native habitat matrix.
67	Species interactions and habitat associations of birds inhabiting urban areas of Sydney, Australia	2006	Parsons H., Major RE, & French K.	published journal article in <i>Austral Ecology</i> 31: 217-227	KEY CONTRIBUTION: investigated role of garden characteristics, interspecific aggression (especially from Noisy Miners), and human behaviour (supplementary feeding) in explaining small bird absence in suburban Sydney
68	Avifauna homogenisation by urbanisation: Analysis at different European latitudes	2006	Clergeau P., Croci S., Jokimaki J., & et al.	published journal article in <i>Biological Conservation</i> , 127, 336-344	Suggests urbanisation as cause of homogenisation of bird communities studied (in Italy, France and Finland) by decreasing abundance of ground-nesting and understorey bird species; also taxonomic homogenisation of bird communities could result from urbanisation but effects of latitude and urban habitat diversity impede generalisation.
69	Introduced birds in urban remnant vegetation: Does remnant size really matter?	2006	Antos M., Fitzsimons J., Palmer G., & White J.G.	published journal article in <i>Austral Ecology</i> 31, 254-261	Examined introduced bird species richness and abundance in small, medium and large native vegetation remnants in south/southeast Melbourne suburbs within 30 kms of CBD. Found larger remnants contained more species of introduced birds but their abundance did not vary significantly between remnants of different sizes as all remnants were equally

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					susceptible to invasion. Large remnants supported different assemblages of introduced bird species than did medium and small remnants. Recommended focus on managing habitat to make it less attractive to these species than on expensive direct control (eg. culling etc).
70	An experimental test of matrix permeability and corridor use by an endemic understory bird	2006	Castellon T.D. & Sieving K.E.	published journal article in <i>Conservation Biology</i> 20: 135-145	KEY CONTRIBUTION: High quality empirical test (translocation of 41 radiotagged birds into 3 landscape treatments) of understory bird (Chucazo Tapaculo in temperate rainforest on Chiloe Island, Chile) movement in fragmented South American rainforest landscapes. Found that open habitat constrained Chucazo dispersal but dispersal worked well through wooded corridors and shrub-dominated matrix. Recommended management/restoration of vegetation in the matrix as equally feasible options for maintaining connectivity.
71	Regional corridor assessment and priority fauna habitats	2006	NSW Department of Environment & Conservation	unpublished internal report	report on rapid biodiversity assessment of Hawksebury-Nepean Catchment including map of location of regional corridors and associated CD
72	Ryde flora and fauna study 2006	2006	Biosphere Environmental Consultants P/L for City of Ryde	unpublished technical report	comprehensive report on field surveys of 4 Ryde reserves: Brush Farm Pk, Darvall Pk, Lambert Pk, Field of Mars Reserve
73	Ryde flora and fauna study 2007	2007	Biosphere Environmental Consultants P/L for City of Ryde	unpublished technical report	comprehensive report on field surveys of 4 reserves (Terrys Ck, Kittys Ck, Buffalo Ck & Memorial Pk)
74	The field guide to the birds of Australia	2007	Graham Pizzey & Frank Knight (edited by Peter Menkhorst)	book (8 th Edition, HarperCollins)	KEY CONTRIBUTION: widely acclaimed field guide to Australian birds and habitats
75	Ryde flora and fauna study	2008	Biosphere Environmental	Unpublished technical	KEY CONTRIBUTION:

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	2008		Consultants P/L for City of Ryde	report	comprehensive report on field surveys of Ryde bushland reserves
76	North Sydney Council continuing bird survey summer 2007-08	2008	Peter & Judy Smith for North Sydney Council	unpublished	report on results of a continuing survey of the North Sydney LGA bird fauna (reputable surveyors)
77	Gladesville Reserve & Betts Park Proposed Plan of Management, Hunters Hill Council	2008	Hunters Hill Council	council plan	council planning and management document
78	Best practice guidelines for Sydney Turpentine-Ironbark Forest (STIF)	2008	NSW DECC	published technical guidelines	history and technical guidelines for bushland regeneration, fire management, monitoring & maintenance, threats of STIF
79	Rapid fauna habitat assessment of the Sydney Metropolitan CMA Area	2008	NSW DECC	published technical report	KEY CONTRIBUTION: comprehensive report on a rapid habitat assessment and GIS analysis of fauna habitats and corridors in Sydney Metro Region
80	Rapid fauna habitat assessment of the Sydney Metropolitan CMA Area: Appendix 4 - site profiles	2008	NSW DECC	published technical report	comprehensive site profiles for very high value sites, including Lane Cove River Valley
81	Sydney Harbour Foreshore & Estuarine Vegetation Mapping: Assessment, Planning and Management.	2008	NSW Maritime, Sydney Metro CMA and others	unpublished project report	reporting results of survey and mapping of Sydney Harbour vegetation including terrestrial foreshore communities
82	Forks in the road: Choices in procedures for designing wildland linkages	2008	Beier P., Majka D., & Spencer W.	published journal article in <i>Conservation Biology</i> 22, 836-851	KEY CONTRIBUTION: provides roadmap of 16 choices and assumptions in designing habitat linkages for fauna movement or gene flow of focal species between 2 or more wildland (native remnant vegetation) blocks in the USA. Recommends designing linkages to serve multiple focal species, using uncertainty analysis to illustrate potential effects of model uncertainty, modeling corridor dwellers differently from corridor passage species, and how to overcome the subjective translation

Document no.	Description	Year/s	Author/Organisation	Type	Key content
					problem (by estimating resistance to movement from observations of animal movement, genetic distances or interpatch movements).
83	Urban Tree Management Strategy: Discussion Paper	2009	City of Ryde	council planning document for discussion	strategic plan for urban tree management in line with City of Ryde's 2009-2013 Management Plan
84	Fairyland Lane Cove National Park: History, heritage and ecology	2009	The Friends of Lane Cove National Park	natural history leaflet/brochure	useful overview of the NP produced with support from CFOC and Sydney Metro CMA
85	Riverglade Reserve Plan of Management : Amended August 2009	2009	Hunters Hill Council	council plan	amendment of the original 1999 plan by Storm Consulting
86	The response of ground and bark foraging insectivorous birds across an urban-forest gradient	2009	Trollope S.T., White J. G., & Cooke R.	published journal article in <i>Landscape and Urban Planning</i> 93: 142-150	KEY CONTRIBUTION: assessed responses to urban gradient of 4 forest-dependent insectivores (Superb Fairy-wren, White-browed Scrubwren, Eastern Yellow Robin, White-throated Treecreeper) (presence or absence, call playback used + transects, total 90 sites, 10 per landscape type - forest, urban-fringe, suburban, eastern and northern Melbourne, surveyed Apr-Sept 2007). Found SFW & WBS showed strong tolerance to urbanisation while EYR & WBTC had threshold responses - decline in urban areas of the latter associated with reduced connectivity and increased patch isolation; management implications/recommendations.
87	Assessment of regionally significant riparian corridors across the Sydney Metropolitan catchment	2009	Sydney Metropolitan CMA (prepared by consultants EcoLogical Australia)	technical report	mapping (using existing data) exercise to assess significance of local riparian corridors and adjacent high conservation value vegetation in 8 CMA areas; management recommendations provided for each priority riparian corridor class
88	The native vegetation of the Sydney Metropolitan	2010	NSW DECCW	consultation draft	methods, results & discussion (Vol. 1); description and species lists of

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	Catchment Management Area, Volume 1 (Technical Report) & Volume 2 (vegetation community profiles) (Draft), DECCW, Hurstville				vegetation community profiles in Sydney Metro CMA (Vol 2)
89	Draft Biodiversity Certification Assessment Methodology	2010	NSW DECCW	web-published report	biodiversity assessment methodology for development proposals and generally
90	Maintaining ecological integrity and sustaining ecosystem function in urban areas	2010	Alberti M.	published in <i>Current Opinion in Environmental Sustainability</i> , 2: 178-184	presents a framework for linking urban patterns to ecosystem functions and discusses hypotheses based on empirical evidence
91	Biodiversity targets after 2010	2010	Mace G.M., et al	published in <i>Current Opinion in Environmental Sustainability</i> , 2: 3-8	Advocates moving from setting large difficult-to-achieve global biodiversity conservation targets to more specific smaller targets
92	Cooks River to Iron Cove GreenWay: flora and fauna literature review	2010	Ward A. for Ashfield Council and GreenWay Project partners	review published online at www.ashfield.nsw.gov.au	review of existing literature on the biodiversity of the proposed 2010-2013 GreenWay corridor in innerwest Sydney (GreenWay Sustainability Project)
93	Australia's Biodiversity Conservation Strategy 2010-2030	2010	Natural Resource Management Ministerial Council, Department of Sustainability, Environment, Water, Population and Communities, Canberra	Australian Government biodiversity conservation strategy	KEY CONTRIBUTION: overarching national strategy containing targets and priority actions for the coordinated conservation of Australia's biodiversity and their habitats; also specifies implementation priorities and monitoring and evaluation
94	Draft NSW Biodiversity Strategy 2010-2015	2010	Department of Environment, Climate Change and Water NSW and Industry and Investment NSW, Sydney, November 2010	NSW Government biodiversity conservation strategy	KEY CONTRIBUTION: provides a framework for biodiversity conservation action State-wide; details State ecosystem profiles and priorities; discusses draft Strategy targets, NRM targets and national Strategy priorities (Appendix 5); identifies Priority Areas (Appendix 7) and threatened ecological communities (Appendix 9)
95	Estuarine Vegetation Rehabilitation Plan Boronia	2010	Total Earth Care P/L (consultants) for Hunters	Ecological site rehabilitation and	Detailed description of the biophysical, cultural and

Document no.	Description	Year/s	Author/Organisation	Type	Key content
	Park and Buffalo Creek Reserve Volume 3		Hill Council – original May 2010, amended October 2010	management plan	recreational values of both of these reserves; treatment of key land management issues; provision of recommendations for bushland regeneration and site rehabilitation
96	Estuary Vegetation Rehabilitation Plan Betts Park and Gladesville Reserve	2010	Total Earth Care P/L (consultants) for Hunters Hill Council – original May 2010, amended November 2010	Ecological site rehabilitation and management plan	Detailed description of the biophysical, cultural and recreational values of both of these reserves; treatment of key land management issues; provision of recommendations for bushland regeneration and site rehabilitation including specific action plans
97	Sydney Metropolitan CMA Terrestrial Biodiversity Corridors Prioritisation	2010	Sydney Metropolitan CMA	Draft mapping and strategic conservation planning exercise	Identifies and prioritises key biodiversity corridors in Sydney Metropolitan CMA

Appendix 2: Avifauna recorded in or near the River to River Corridors Project study area, 1802-2010

Explanatory notes

This data compilation is comprehensive but not definitive. All 'candidate' data have been examined for their accuracy and reliability by Dr Andrew Huggett (InSight Ecology) before being accepted. This has resulted in the exclusion of unconfirmed records (Glossy Black-Cockatoo) and probable aviary escapees (Cockatiel, Budgerigar, Pale-headed Rosella, Red-winged Parrot, Zebra Finch). Species that have become established from aviary escapees (corellas) are included. Nomenclature and species order follows Christidis, L. and Boles, W., 2008. "Systematics and taxonomy of Australian birds", CSIRO Publishing, Melbourne.

Location: All records presented in this database have been obtained from the Ryde, Hunters Hill, Lane Cove, Willoughby, Ku-ring-gai and Hornsby Local Government Areas (ie. areas that occur within and adjoining the study area, especially Lane Cove River valley and major tributary streams). References to "Lane Cove National Park" (NP) and "Lane Cove River" are for the sections south of Delhi Road along the west bank of Lane Cove River and south of Magdala Park along the Great North Walk past Sugarloaf Hill and Buffalo Creek Reserve to Boronia Park.

Data sources: 1 = Atlas of NSW Wildlife (custodian: Department of Environment, Climate Change and Water NSW) 2 = Australian Museum Fauna Database 3 = Bird Atlas (custodian: Birds Australia, Melbourne) - Atlas I: Blakers M., Davies S.J.J.F., Reilly P.N., 1984. "The Atlas of Australian Birds", RAOU and Atlas II: Barrett G.W., Silcocks A., Barry S., Cunningham R., Poulter R., 2003. "The New Atlas of Australian Birds", RAOU 4 = Ryde Flora and Fauna Study 2006-08 (Biosphere Environmental Consultants Pty Ltd – referenced as "Biosphere") 5 = Ern Hoskin's 1957-1997 record of bird observations from his Eastwood property (made available by Paul Kubiak via Gith Strid-Nwulaekwe; Paul also provided historical bird data compilations from Ryde City Council's State of Environment Report 1997) 6 = Ryde Hunters Hill Small Bird Project and other quality local observer-based data (hosted on www.eremaea.com & via Birdline NSW; access and data provided by Bev Debrincat and Kurtis Lindsay) 7 = records of other local surveys and studies, ie. Ern Hoskin (1980, 1986), Dion Hobcroft's surveys of Boronia Park & Tarban Creek (1998-99), City of Ryde and Hunters Hill Council bushland reserve/park plans of management (1990-2009, provided by Gith Strid-Nwulaekwe and Jacqui Vollmer); Kevin Cliffe et al's (2004) "Birds of Brush Farm Park" list; various reports, species lists and studies undertaken in Lane Cove LGA (access and copies provided by Kerry Heatley, Lane Cove Council); species lists and reports provided by Andrew Duffy (NPWS Lane Cove NP); InSight Ecology bird survey (October 2010) of Ryde and Hunters Hill LGAs for the River to River Corridors Project.

Reliability weighting: 1 = high (accepted as expert-derived) 2 = moderate (accepted as experienced field observer-derived) 3 = low (debatable but rare so warrants inclusion with caution)

Conservation status (legal): E1 = endangered (under NSW Threatened Species Conservation Act 1995, Schedule 1, Part 1) EP= part of an Endangered Population (under NSW Threatened Species Conservation Act 1995) V = vulnerable (under NSW Threatened Species Conservation Act 1995, Schedule 2) P = protected (under NSW National Parks and Wildlife Act 1974) UP = unprotected RS = regionally significant LS = locally significant IMBA = international migratory bird agreements currently held between the Governments of Australia, Japan, China, and the Republic of Korea

Probability of occurrence: 1 = known to occur in study area 2 = likely to occur in study area 3 = less likely to occur in study area 4 = likely or known to be extinct in study area 5 = further investigation is required to confirm presence/absence from study area

* = species introduced from other countries. Common names of birds shown in bold within the table below are species representative of native grassland/forest/woodland-dependent assemblages and one saltmarsh specialist that were present prior to intensive urbanisation in Ryde-Hunters Hill district (ie. post-1945 – Shearer & Jenkins 1979). Comments on species that have decreased or increased nationally are based on Bird Atlas I compared with Bird Atlas II change maps for the Sydney Basin Bioregion (Barrett GW, et al 2003).

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
1	Australian Brush-turkey	<i>Alectura lathamii</i>	1989-2010	Field of Mars Wildlife Refuge (FOM), Lane Cove NP, Buffalo Creek Reserve, Brush Farm Park	3, 6, 7	1	P	1	Increasing in abundance in past 7 years in Sydney's northern suburbs
2	Brown Quail	<i>Coturnix ypsilophora</i>	29/4/1933-1989	Willoughby (1933); Lane Cove River	2, 3	2	P	2 & 5	uncommon/rare (urban habitats); confirm presence
3	Black Swan	<i>Cygnus atratus</i>	1888-2007	Gladesville (1888), Lane Cove River	2, 3	1	P	1	occasional visitor
4	Australian Wood Duck	<i>Chenonetta jubata</i>	1980-2010	Tarban Creek, Lane Cove River	3, 6, 7	1	P	1	urban adaptee; has increased nationally
5	Cotton Pygmy-geese	<i>Nettapus coromandelianus</i>	pre-1997	Lane Cove NP	1	2	E1	3	vagrant during inland drought
6	Northern Mallard *	<i>Anas platyrhynchos</i>	1980-2010	Ryde-Hunters Hill	1, 7	1	U	1	hybridises with Pacific Black Duck
7	Grey Teal	<i>Anas gracilis</i>	1970-2010	Lane Cove River	1, 3	1	P	1	less common
8	Chestnut Teal	<i>Anas castanea</i>	1980-2010	FOM, Lane Cove River	1, 3, 10	1	P	1	urban adaptee; has increased nationally
9	Pacific Black Duck	<i>Anas superciliosa</i>	1970-2010	FOM, Lane Cove River, Buffalo Creek	1, 3, 10	1	P	1	urban adaptee
10	Hardhead	<i>Aythya australis</i>	1986-2001	FOM	1, 3, 7	1	P	1	rare visitor
11	Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	1977-2001	FOM, Tarban Creek	1	1	P	1	less common
12	Rock Dove *	<i>Columba livia</i>	1950-2010	urban parks, streets, rooftops	1-7	1	U	1	ubiquitous, introduced in early 1800s and from aviary releases
13	White-headed Pigeon	<i>Columba leucomela</i>	1977-2010	Lane Cove River, Boronia Park, Tarban Creek, Brush Farm Park (2004)	1, 2, 7	1	P	1	seasonal visitor (privet disperser)
14	Spotted Dove *	<i>Streptopelia chinensis</i>	1935-2010	Chatswood (1935) most sites (not in larger forest patches)	1-7	1	U	1	ubiquitous, introduced from Asia in 1860s, pest species in cities
15	Brown Cuckoo-Dove	<i>Macropygia amboinensis</i>	1977-2010	Lane Cove River sites; Darvall Park, Barton	1, 2, 3, 4	1	P, RS	1	moist forest specialist,

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				Reserve (Buffalo Creek), Pidding Park (Biosphere 2006-07)					important seed disperser
16	Emerald Dove	<i>Chalcophaps indica</i>	1996, 2001, 2004	Lane Cove NP gullies, Brush Farm Park (2004)	2, 3, 7	1	P, RS	1	uncommon/ vagrant moist forest specialist
17	Common Bronzewing	<i>Phaps chalcoptera</i>	1977-2010	Lane Cove NP, FOM, Brush Farm Park	1, 2, 3, 4, 7	1	P, RS	1	rare (urban); has increased nationally
18	Brush Bronzewing	<i>Phaps elegans</i>	pre-1980	Lane Cove NP	7	1	P, RS	4	requires dense forest and shrub cover; rare earlier record from Lane Cove NP north (Hoskin 1980); presumed extinct in study area
19	Crested Pigeon	<i>Ocyphaps lophotes</i>	1890-2010	most sites	1-7	1	P	1	ubiquitous; has increased nationally
20	Bar-shouldered Dove	<i>Geopelia humeralis</i>	1970-1980	Lane Cove NP, FOM	1, 7	1	P, RS	5	Hoskin (1980)
21	Wonga Pigeon	<i>Leucosarcia picata</i>	1977-2008	Lane Cove NP, Boronia Creek	1, 2, 3	1	P, RS	1	rare (urban)
22	Superb Fruit-Dove	<i>Ptilinopus superbus</i>	pre-2002	Lane Cove NP	6	2	V	2	Birdline NSW; uncommon
23	Rose-crowned Fruit-Dove	<i>Ptilinopus regina</i>	pre-1997	Lane Cove NP	6	2	V	2	Birdline NSW; uncommon
24	Topknot Pigeon	<i>Lopholaimus antarcticus</i>	1996, 1999	Lane Cove NP	3	1	P, RS	2	Uncommon
25	Tawny Frogmouth	<i>Podargus strigoides</i>	1977-2010	Lane Cove NP, FOM, Boronia Park, Brush Farm Park, Riverglade Reserve & Tarban Creek	1, 2, 3, 4, 7	1	P, LS	1	forest-dependent nocturnal species that can also utilise urban parks and reserves
26	Australian Owlet-nightjar	<i>Aegotheles cristatus</i>	2/7/1899-2010	Hunters Hill (1899), Chatswood (1925), Lane Cove NP, FOM, Brush Farm Park	2, 3, 4	1	P, LS	1	Brush Farm Park (Biosphere 2006)
27	White-throated Needletail	<i>Hirundapus caudacutus</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Tarban Creek & Riverglade Reserve	1, 2, 3, 5, 6, 7	1	P, IMBA (all 3)	1	intercontinental migratory swift; has decreased nationally

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
28	Fork-tailed Swift	<i>Apus pacificus</i>	1977-2010	as above	1, 2, 3	1	P, IMBA (all 3)	1	intercontinental migratory swift
29	Australasian Darter	<i>Anhinga novaehollandiae</i>	1960-2008	Buffalo Creek, Lane Cove River, Riverglade Reserve	1, 3, 7	1	P	1	diving aquatic bird in fresh or brackish water
30	Little Pied Cormorant	<i>Microcarbo melanoleucos</i>	1920-2010	Buffalo Creek, Lane Cove River	1, 2, 3	1	P	1	diving aquatic bird in fresh and salt water
31	Great Cormorant	<i>Phalacrocorax carbo</i>	1991-1999	Lane Cove River, Riverglade Reserve	1, 7	1	P	1	diving aquatic bird in fresh and salt water
32	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	1920-2010	Buffalo Creek, Lane Cove River	1, 2	1	P	1	diving aquatic bird in fresh and salt water
33	Pied Cormorant	<i>Phalacrocorax varius</i>	1895-2010	Buffalo Creek, Lane Cove River	1, 2, 3	1	P	1	diving aquatic bird in fresh and salt water
34	Australian Pelican	<i>Pelecanus conspicillatus</i>	1820-2010	Lane Cove River, Parramatta River	1, 2	1	P	1	iconic fishing bird
35	Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	1999	Lane Cove River fringe	1	2	E1	3	rare vagrant to river margins
36	Australasian Bittern	<i>Botaurus poiciloptilus</i>	1991	Lane Cove River and tributaries	1	2	V	3	rare visitor along creek/river margins
37	Black Bittern	<i>Ixobrychus flavicollis</i>	1981, 1986, 2008	Lane Cove NP, FOM	1, 7	1	V	1	Lane Cove NP carpark (Karina Hanemann pers obs, 6/8/2008)
38	White-necked Heron	<i>Ardea pacifica</i>	pre-2006	Lane Cove NP	3	1	P	1	uncommon, tall stalking bird of fields, creeks, dam margins
39	Eastern Great Egret	<i>Ardea modesta</i>	1902-2010	Lane Cove River, Riverglade Reserve	1, 2, 3	1	P, IMBA (Japan, China)	1	wading piscivore
40	Intermediate Egret	<i>Ardea intermedia</i>	1998-2002	Lane Cove NP	3	1	P	1	wading piscivore
41	Cattle Egret	<i>Ardea ibis</i>	1977-2010	Lane Cove NP, Boronia Park	1, 3	1	P, IMBA (Japan, China)	1	forages in wet pastures and fields, dams
42	Striated Heron	<i>Butorides striata</i>	1986, 2002	FOM, Lane Cove River	1, 7	1	P	1	skulking mangrove specialist

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
43	White-faced Heron	<i>Egretta novaehollandiae</i>	1902-2010	most sites incl urban	1, 3, 4, 6, 7	1	P	1	tall stalking bird in fields, water margins
44	Little Egret	<i>Egretta garzetta</i>	1998-2002	Lane Cove River edges	1, 2, 3	1	P	1	wading piscivore
45	Nankeen Night-Heron	<i>Nycticorax caledonicus</i>	1902-2006	Chatswood (1902), Lane Cove NP/River; FOM (Biosphere 2006)	1, 2, 4	1	P	1	most recent record from FOM (Biosphere, spring 2006)
46	Australian White Ibis	<i>Threskiornis molucca</i>	1977-2010	most sites incl urban	1-7	1	P	1	rapid urban expansion since 1990s; nests in suburban parks and gardens where date palms occur
47	Straw-necked Ibis	<i>Threskiornis spinicollis</i>	1977-2006	Lane Cove River edges, Brush Farm Park (2004)	3, 7	1	P	1	Infrequent visitor
48	Royal Spoonbill	<i>Platalea regia</i>	1980-2002	Lane Cove River mudflats	1	1	P, LS	1	uncommon visitor
49	Yellow-billed Spoonbill	<i>Platalea flavipes</i>	1977-2002	Lane Cove River mudflats	1	1	P, LS	1	uncommon visitor; has decreased nationally
50	Eastern Osprey	<i>Pandion cristatus</i>	1977-2002	Lane Cove River	3	1	V	1	occasional visitor, requires large trees for nesting and dead branches for perching and processing captured fish
51	Black-shouldered Kite	<i>Elanus axillaris</i>	1958-2010	most sites (not urban)	1-7	1	P	1	grassy/open area forager
52	Pacific Baza	<i>Aviceda subcristata</i>	1998-2002	FOM, Buffalo Creek, Boronia Park	1, 3	1	P, RS	1	forest-dependent raptor
53	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	1957-2004	Lane Cove NP (2004), Eastwood (flyover), Riverglade Reserve (1998)	1, 5, 7	1	P, RS, IMBA (China)	1	occasional; 9/3/2004 incidental at Sugarloaf Pt (E.Magarey)
54	Whistling Kite	<i>Haliastur sphenurus</i>	2002	Lane Cove NP	3	2	P	1	infrequent visitor; has decreased

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
									nationally
55	Brown Goshawk	<i>Accipiter fasciatus</i>	1935-2010	Hunters Hill (1935), Lane Cove NP, FOM, Eastwood, Brush Farm Park, Riverglade Reserve & Tarban Creek	1, 2, 6, 7	1	P, LS	1	forest-dependent raptor; has increased nationally
56	Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>	1957-2007	Lane Cove NP, FOM, Eastwood	7	1	P, LS	1	forest-dependent raptor
57	Grey Goshawk	<i>Accipiter novaehollandiae</i>	8/3/1972-2010	Gladesville (1972), Brush Farm Park, Lane Cove NP	2, 3, 7	1	P, RS	1	forest-dependent raptor
58	Swamp Harrier	<i>Circus approximans</i>	1977-1996	Lane Cove NP	3	1	P, LS	1	Uncommon
59	Wedge-tailed Eagle	<i>Aquila audax</i>	1977-1998	Lane Cove NP	3	1	P, RS	1	rare visitor; has decreased nationally
60	Little Eagle	<i>Hieraaetus morphnoides</i>	1996	Lane Cove NP	3	1	V	1	rare visitor
61	Nankeen Kestrel	<i>Falco cenchroides</i>	1957-2010	FOM, Lane Cove NP, Riverglade Reserve, Eastwood, Brush Farm Park	3, 5, 7	1	P	1	open field forager; has decreased nationally
62	Brown Falcon	<i>Falco berigora</i>	1957-1998	Lane Cove NP, Eastwood	1, 2, 3, 5	1	P, RS	1	rare in urban forest
63	Australian Hobby	<i>Falco longipennis</i>	1957-2002	Lane Cove NP, Eastwood	1, 2, 3, 5	1	P, LS	1	Uncommon
64	Peregrine Falcon	<i>Falco peregrinus</i>	1957-2002, 2004	FOM, Lane Cove NP, Eastwood, Brush Farm Park (2004)	1, 3, 5, 7	1	P, RS	1	rare visitor and decliner
65	Purple Swamphen	<i>Porphyrio porphyrio</i>	1985-2010	FOM, Lane Cove River	1, 2, 3, 4	1	P	1	riparian/wet area-associated
66	Buff-banded Rail	<i>Gallirallus philippensis</i>	1977-2002	Lane Cove River	1	1	P, RS	1	river/forest margins
67	Dusky Moorhen	<i>Gallinula tenebrosa</i>	1977-2010	Lane Cove River, FOM, Betts Park	1	1	P	1	resident, dispersive
68	Eurasian Coot	<i>Fulica atra</i>	1980-2010	Buffalo Creek, Lane Cove River, FOM	1,3,4,6,7	1	P	1	nomadic, dispersive
69	Black-winged Stilt	<i>Himantopus himantopus</i>	1998-2002	Lane Cove River	1, 3	1	P	1	occasional visitor, big disperser (inland to coast)
70	Pacific Golden Plover	<i>Pluvialis fulva</i>	1997	Lane Cove River,	1	1	P, IMBA	1	intercontinental

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				Parramatta River			(South Korea)		migratory wader (IMW), rare visitor
71	Black-fronted Dotterel	<i>Elseya melanops</i>	1996	Lane Cove River	3	1	P	1	occasional visitor
72	Masked Lapwing	<i>Vanellus miles</i>	1957-2010	Lane Cove NP, urban parks & ovals	1-7	1	P	1	breeding resident
73	Latham's Snipe	<i>Gallinago hardwickii</i>	pre-2006	Lane Cove NP	1	2	P, IMBA (all 3)	2	intercontinental migratory species, prefers dense grass cover
74	Black-tailed Godwit	<i>Limosa limosa</i>	pre-2008	Lane Cove River	1	2	V, IMBA (all 3)	2	intercontinental migratory wader (IMW), vulnerable in NSW
75	Bar-tailed Godwit	<i>Limosa lapponica</i>	2008	FOM, Morrisons Bay Park	4, 6	2	P, IMBA (all 3)	2	IMW
76	Little Curlew	<i>Numenius minutus</i>	pre-2008	Lane Cove River	1	2	P, IMBA (all 3)	2	IMW, seasonal migrant
77	Whimbrel	<i>Numenius phaeopus</i>	1977-2008	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, potentially along Parramatta River foreshores
78	Eastern Curlew	<i>Numenius madagascariensis</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, potentially along Parramatta River foreshores
79	Common Sandpiper	<i>Actitis hypoleucos</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
80	Common Greenshank	<i>Tringa nebularia</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
81	Marsh Sandpiper	<i>Tringa stagnatilis</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
82	Wood Sandpiper	<i>Tringa glareola</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
83	Red-necked Stint	<i>Calidris ruficollis</i>	1977-2010	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
84	Curlew Sandpiper	<i>Calidris ferruginea</i>	pre-2008	Lane Cove River	1	1	P, IMBA (all 3)	1	IMW, seasonal migrant, rare
85	Painted Button-quail	<i>Turnix varius</i>	pre-1980, pre-2008	Lane Cove NP, Boronia Park	1, 7	1	P, RS	4/5	Hoskin (1980) rare in Lane Cove NP; possibly extinct in study area or confirm

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
86	Common Tern	<i>Sterna hirundo</i>	1977-1998	Lane Cove NP, Riverglade Reserve	1, 7	2	P, IMBA (all 3)	2	intercontinental migratory species, uncommon
87	Crested Tern	<i>Thalasseus bergii</i>	1977-2008	Lane Cove River	3	1	P, IMBA (Japan)	1	intercontinental migratory species with domestic population as well
88	Silver Gull	<i>Chroicocephalus novaehollandiae</i>	1977-2010	Lane Cove River & some urban sites	1, 3	1	P	1	scavenger from coastal districts
89	Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>	1977-2010	Lane Cove NP, FOM, Tarban Creek	1, 2, 3, 4, 6, 7	1	P	1	also forage on exotic pine fruit
90	Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	1977-2008	Lane Cove NP	1, 3, 7	1	V	1	forest-dependent
91	Galah	<i>Eolophus roseicapillus</i>	1820-2010	all sites incl urban	1-7	1	P	1	ubiquitous, urban adaptee; has increased nationally
92	Long-billed Corella	<i>Cacatua tenuirostris</i>	1990-2010	open sites incl urban	1, 3, 4, 6, 7	1	P	1	established local population from aviary escapees
93	Little Corella	<i>Cacatua sanguinea</i>	1957-2010	open sites incl urban	1-7	1	P	1	wild population established from aviary escapees; has increased nationally
94	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	1802-2010	1-7	1-7	1	P	1	local population enhanced by aviary escapees/releases; has increased nationally
95	Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	1790-2010	1-7	1-7	1	P	1	urban adaptee in nectar-rich park and garden shrubs and trees; has increased nationally
96	Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>	1850-2010	Lane Cove NP, FOM	1, 2, 3, 4	1	P	1	less observed than Rainbow
97	Musk Lorikeet	<i>Glossopsitta concinna</i>	1820-2010	Lane Cove NP	1, 3	1	P	1	forest-dependent
98	Little Lorikeet	<i>Glossopsitta pusilla</i>	1820-2010	Lane Cove NP	1, 3	1	P	1	forest-dependent
99	Australian King-Parrot	<i>Alisterus scapularis</i>	1820-2010	most sites incl urban parks near remnants	1-7	1	P	1	recorded in some urban parks near forest patches

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
100	Crimson Rosella	<i>Platycercus elegans</i>	1850-2010	FOM, Lane Cove NP, Tarban Creek Bushland Reserve, Mallee Reserve	1, 2, 3, 4, 6, 7	1	P	1	forest-dependent, can radiate out into bush reserves
101	Eastern Rosella	<i>Platycercus eximius</i>	1820-2010	most sites	1-7	1	P	1	also in urban parks, ovals
102	Swift Parrot	<i>Lathamus discolor</i>	1958, 1977, 2002	FOM, Lane Cove NP, Eastwood	3, 6	1	E1 (NSW & national)	1 & 5	rare winter visitor, several 1958 records (Hoskin 1980, 1991); confirm presence
103	Red-rumped Parrot	<i>Psephotus haematonotus</i>	1957-1980s	Eastwood	5	2	P, RS	5	Confirm presence, possible aviary escapees?
104	Pheasant Coucal	<i>Centropus phasianinus</i>	pre-1990	Lane Cove NP	1	1	P, RS	5	rank grassland-dependent; possibly extirpated in 1990s?; confirm presence
105	Eastern Koel	<i>Eudynamys orientalis</i>	1820-2010	most sites incl urban blocks	1-7	1	P	1	urban adaptee
106	Channel-billed Cuckoo	<i>Scythrops novaehollandiae</i>	1820-2010	most sites, occasionally urban blocks	1-7	1	P	1	often as flyovers; summer breeding migrant
107	Horsfield's Bronze-Cuckoo	<i>Chalcites basalis</i>	1933-2010	Eastwood (1933), FOM, Lane Cove NP, Boronia Park	1, 2, 3, 5, 6	1	P	1	summer breeding migrant; has increased nationally
108	Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>	5/10/1891, 14/9/1906, 1957-2010	Eastwood (1891), Chatswood (1906), FOM, Lane Cove NP, Boronia Park, Tarban Creek	1, 2, 3, 5, 6, 7	1	P	1	summer breeding migrant
109	Pallid Cuckoo	<i>Cacomantis pallidus</i>	5/10/1891, 1892, 1957-2010	Eastwood (1891), Hunters Hill (1892), FOM, Lane Cove NP, Boronia Park	2, 3, 7	1	P	2	summer breeding migrant
110	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	3/10/1898-2010	Chatswood Gully (1898), FOM, Lane Cove NP, Boronia Park, Gladesville	1-7	1	P	1	nomadic, present in winter and summer

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				Reserve					
111	Brush Cuckoo	<i>Cacomantis variolosus</i>	16/12/1893, 28/1/1908, 24/3/1979	1893 (Eastwood), Chatswood (1908), North Ryde (1979), Lane Cove NP	2, 3, 7	1	P	5	rare summer migrant; confirm presence
112	Oriental Cuckoo	<i>Cuculus optatus</i>	11/4/1984	Marsfield	2, 3	3	P, IMBA (all 3)	5	confirm presence (historical record, likely of bird passing through on migration)
113	Powerful Owl	<i>Ninox strenua</i>	1920-2010	FOM, Lane Cove NP, Boronia Park, possibly Tarban Creek, Brush Farm Park	1, 2, 3, 4, 6, 7	1	V	1	Increasing numbers since ca 2000, linked to flying-fox and ringtail possum abundance
114	Barking Owl	<i>Ninox connivens</i>	pre-2001, 2004 (Brush Farm Park)	Lane Cove NP, Brush Farm Park	7	2	V	1 & 5	iconic owl requiring large territories to forage over, privilege to have in bushy urban areas; continue monitoring presence
115	Southern Boobook	<i>Ninox novaeseelandiae</i>	1980-2008	FOM, Lane Cove NP, Boronia Park	1, 3, 7	1	P, LS	1	forest-dependent owl; has decreased nationally
116	Eastern Barn Owl	<i>Tyto javanica</i>	1945, 1957-1986	West Ryde (1945), Eastwood, Lane Cove NP	1, 2, 3, 5, 7	1	P, RS	4	Museum specimen taken West Ryde (1945); presumed extinct in study area
117	Azure Kingfisher	<i>Ceyx azureus</i>	1893-2010	Gladesville (1893), FOM, Lane Cove NP, Boronia Park, Tarban Ck	1, 2, 3, 7	1	P	2	species associated with forested, thickly-vegetated riparian zones
118	Laughing Kookaburra	<i>Dacelo novaeguineae</i>	1802-2010	FOM, Lane Cove NP, Boronia Park, Tarban Creek, urban sites	1-7	1	P	1	ubiquitous, nests in old termite mounds in trees; urban adaptee (benefited by supplementay feeding)

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
119	Sacred Kingfisher	<i>Todiramphus sanctus</i>	15/11/1906, 1957-2010	Chatswood (1906), FOM, Lane Cove NP, Boronia Park, Tarban Creek, Brush Farm Park	1, 3, 4, 5, 6, 7	1	P	1	nests in hollows and old tree termite mounds, characteristic call
120	Rainbow Bee-eater	<i>Merops ornatus</i>	1977-2006	Lane Cove NP	3	3	P, RS	5	summer breeding migrant from the north; confirm presence in summer
121	Dollarbird	<i>Eurystomus orientalis</i>	1977-2010	Lane Cove NP, Boronia Park, FOM, Tarban Creek, Gladesville Reserve, Brush Farm Park	1-7	1	P	1	summer breeding migrant from the north; breeding where patches of hollow-bearing Blackbutt and Sydney Peppermint occur
122	Noisy Pitta	<i>Pitta versicolor</i>	pre-2001	Lane Cove NP	3, 7	2	P, RS	5	ground-foraging wet forest specialist requiring extensive tracts of quality gully forest; potentially extinct in study area – confirm presence; last record referenced by Arthur White (Willoughby bird survey 2001)
123	Superb Lyrebird	<i>Menura novaehollandiae</i>	1896-1981?	Lane Cove NP	1, 2	1	P, RS	5	moist gully forest-dependent, threatened by predation by cats and foxes and road mortality; locally extirpated around 1981? (confirm)
124	White-throated	<i>Cormobates</i>	23/10/1898,	Chatswood (1898),	1, 2, 3, 7	1	P, LS	1	forest-dependent

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
	Treecreeper	<i>leucophaea</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Boronia Park, Tarban Creek, Brush Farm Park					hollow-nester
125	Green Catbird	<i>Ailuroedus crassirostris</i>	1986, 1998	Lane Cove NP	3	2	P, RS	5	confirm presence, important rainforest seed disperser
126	Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>	2001, 2004, 2008	Lane Cove NP, FOM, Brush Farm Park	3, 6, 7	1	P, LS	1	important rainforest seed-disperser
127	Superb Fairy-wren	<i>Malurus cyaneus</i>	1/10/1904, 1957-2010	Chatswood (1904), Eastwood, FOM, Lane Cove NP, Brush Farm Park, Boronia Park, Tarban Creek, Betts Park, Bedlam Bay Park, Gladesville Reserve, urban gardens	1-7	1	P, LS	1 & 5	urban adaptee, ground-cover-dependent, likely corridor-responsive; continue monitoring population dynamics
128	Variegated Fairy-wren	<i>Malurus lamberti</i>	21/1/1909, 1977-2010	Chatswood (1909), FOM, Mallee Reserve, Betts Park, Boronia Park, Lane Cove NP, Tarban Creek, Riverglade Reserve	1, 2, 3, 6, 7	1	P, LS	1 & 5	ground-cover-dependent, responsive to provision of corridors and 'stepping stones'; continue monitoring isolated populations
129	Eastern Bristlebird	<i>Dasyornis brachypterus</i>	pre-1960	Lane Cove NP	7	2	E1 (NSW & nationally)	4	ground-frequenting, dense heathland/shrubland specialist requiring extensive tracts of undisturbed cover; last record was prior to 1960, extinct in study area
130	Rockwarbler	<i>Origma solitaria</i>	1898 & 14/9/1899,	Chatswood Gully (1898-1899), Lane	1, 2, 7	1	P, RS	4	ground-frequenting sandstone shelf

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
			pre-1981	Cove NP					specialist requiring extensive tracts of undisturbed, unburnt forest; last record was 1981, presumed extinct in study area
131	White-browed Scrubwren	<i>Sericornis frontalis</i>	1898-2010	Eastwood, Lane Cove NP, FOM, Buffalo Creek, Brush Farm Park, Boronia Park, Kobada Park, Betts Park, Tarban Creek, Riverglade Reserve, Gladesville Reserve, Bedlam Bay Park, Mallee Reserve	1, 2, 3, 4, 5, 6, 7	1	P, LS	1 & 5	groundcover and possibly corridor (or 'stepping stone')-dependent; member of core group of surviving forest insectivores; some degree of urban adaptation where dense groundcover still occurs including lantana and exotic vines; continue monitoring isolated populations
132	Large-billed Scrubwren	<i>Sericornis magnirosta</i>	pre-2000	FOM, Lane Cove NP	3, 6	1	P, RS	5	confirm presence, abundance, breeding status
133	Speckled Warbler	<i>Chthonicola sagittata</i>	1892-1977	Eastwood (1892), Beecroft, Epping	2, 3	1	V	4	Last record 29/6/1977; large-scale clearance of this species' grassy woodland habitat on ridges and slopes for housing and roads would have extirpated this species in study area
134	Weebill	<i>Smicrornis brevirostris</i>	1957-1977?	Eastwood	7	1	P	5	has increased nationally yet not detected recently in study area thus

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
									confirm presence; known to forage in eucalypt revegetation
135	Brown Gerygone	<i>Gerygone mouki</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Buffalo Creek, Boronia Creek, Riverglade Reserve	1, 3, 4, 6, 7	1	P, LS	1	member of core forest-dependent species; can forage in 10 yr old+ revegetation
136	White-throated Gerygone	<i>Gerygone albogularis</i>	5/9/1906, 1957-2010	Chatswood (1906), Eastwood, Lane Cove NP, FOM, Boronia Creek, Tarban Creek	1, 2, 3, 5, 7	1	P	1	less-detected summer migrant, forages upper canopy of eucalypt forests
137	Striated Thornbill	<i>Acanthiza lineata</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Boronia Creek, Tarban Creek (1998); Buffalo Creek, Darvall Park, Lambert Park, Terrys Creek, Brush Farm Park (Biosphere 2006-07)	1, 3, 4, 5, 6, 7	1	P, LS	1	population census needed to determine possible decline in abundance in study area
138	Yellow Thornbill	<i>Acanthiza nana</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Boronia Creek, Buffalo Creek; Darvall Park, Brush Farm Park, Terrys Creek (Biosphere 2006-07)	1, 2, 3, 4, 5, 6, 7	1	P, LS	1	has increased nationally; shrub-dependent, forages in acacia etc revegetation, often along streams
139	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	5/8/1899, ca 1980	Eastwood (1899), edges of Lane Cove NP	2, 7	2	P, RS	5	noted as rare (Hoskin 1980); confirm presence (likely extinct) – not recorded by Biosphere (2006-08) or InSight Ecology (2010)
140	Buff-rumped Thornbill	<i>Acanthiza reguloides</i>	1892	Eastwood (1892), Brush Farm Park	2, 7	2	P, LS	5	uncommon forest insectivore

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				(2004)					associated with open stringybark forest/woodland; recorded in Brush Farm Park recently; confirm presence
141	Brown Thornbill	<i>Acanthiza pusilla</i>	30/8/1898, 1957-2010	Chatswood(1898), Eastwood, FOM, Lane Cove NP, Boronia Park, Tarban Creek; Darvall Park, Brush Farm Park, Terrys Creek reserves, Kobada Park, ELS Hall Park, Glades Bay Park, Denistone Park, Boobajool Reserve (Biosphere 2006-08)	1, 2, 3, 4, 6, 7	1	P	1	appears to have disappeared from smaller isolated remnants (e.g. Tarban Ck, Riverglade, Betts Park, Gladesville Reserve, Bedlam Bay Park, Mallee Reserve) but small 1-3 individuals each still present in bush reserves connected or close to Lane Cove NP and tributaries
142	Spotted Pardalote	<i>Pardalotus punctatus</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Boronia Park, Brush Farm Park, Tarban Creek, Gladesville Reserve, some urban treed parks near forest patches	1, 2, 3, 4, 5, 6, 7	1	P	1	often absent from or present only as individuals in smaller, isolated remnants
143	Striated Pardalote	<i>Pardalotus striatus</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Boronia Pk	1, 2, 3, 5, 7	1	P, LS	1	possibly declining
144	Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	3/10/1898, 1921-2010	Chatswood Gully (1898), Eastwood, FOM, Lane Cove NP, Boronia Park, Tarban Creek, Riverglade Reserve, Brush Farm Park, some urban gardens near forest	1, 2, 3, 4, 5, 6, 7	1	R	1	autumn-winter dispersal from highlands to study area, males and females often maintain separated geographic ranges during winter with

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				patches					mostly males recorded in lowland habitats
145	Lewin's Honeyeater	<i>Meliphaga lewinii</i>	15/10/1898-2010	Chatswood (1898), Lane Cove NP, FOM; Darvall Park, Terrys Creek & Brush Farm Park (Biosphere 2006-07); Tarban Creek (1998)	2, 3, 4, 6, 7	1	P, LS	5	moist gully forest honeyeater; confirm presence, abundance and breeding status in study area – not detected during 2010 survey
146	Yellow-faced Honeyeater	<i>Meliphaga chrysops</i>	12/9/1896, 1957-2010	Chatswood (1896), Eastwood, FOM, Lane Cove NP, Boronia Park, Gladesville Reserve, Brush Farm Park, Tarban Creek	1, 2, 3, 4, 5, 6, 7	1	P	1	still present in pairs and small groups; autumn migration to north coast NSW & SE Qld
147	White-eared Honeyeater	<i>Lichenostomus leucotis</i>	ca 1980	FOM, Lane Cove NP	1, 7	2	P	5	questionable record; investigate further (likely extinct or confused with Lewins Honeyeater)
148	Yellow-tufted Honeyeater	<i>Lichenostomus melanops</i>	1892, 1894, 2/8/1897, 20/11/1898, 1957-ca 1980s	Eastwood (1892-1897), Chatswood (1898), Lane Cove NP	1, 3, 5	1	P (declining)	5	once bred in Lane Cove NP – last records here ca 1980s; requires tall eucalypt forest with shrub layer; confirm presence but likely extinct in study area
149	Fuscous Honeyeater	<i>Lichenostomus fuscus</i>	1957-1990s?	Eastwood, FOM	1, 5	1	P	5	recorded as a winter visitor; confirm presence
150	White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Boronia Park; Darvall Park, Terrys Creek & Brush Farm Park (Biosphere 2006); Tarban Creek	1, 3, 5, 7	1	P	2	has increased nationally; locally nomadic tracking flowering eucalypts; also uses 10 yr-old revegetation at

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				(1998)					Sydney Olympic Park
151	Bell Miner	<i>Manorina melanophrys</i>	1977-1990	Lane Cove NP	1	2	P	5	confirm current presence
152	Noisy Miner	<i>Manorina melanocephala</i>	1957-2010 (rapid expansion into urban Sydney in 1960-1970s)	all sites except those with thick shrub layers	1-7	1	P	1	aggressive invasive native species implicated in the decline and disappearance of small passerines from forest remnants; urban adaptee, has taken over most habitats except forest with dense shrub layers; requires strategic management actions including replacement of nectar-rich park and garden shrubs with other species, dense planting of the understorey and reduction of watering points
153	Little Wattlebird	<i>Anthochaera chrysoptera</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Tarban Creek, Riverglade Reserve, Brush Farm Park	1, 3, 4, 5, 6, 7	1	P	1	can co-occur with Red Wattlebird but less common in urban gardens
154	Regent Honeyeater	<i>Anthochaera phrygia</i>	22/8/1897, 25/5/1946, 20/6/1976	Eastwood (1897), Lane Cove (1946), North Ryde (1976)	1, 2	2	E1 (NSW & national)	5	associated with flowering of ironbark species; can move long distances between eucalypt patches; 1946 record by Keith Hindwood;

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
									confirm presence
155	Red Wattlebird	<i>Anthochaera carunculata</i>	1957-2010	most sites incl urban parks and gardens	1-7	1	P	1	has increased nationally; urban adaptee, attracted to nectar-rich gardens, co-dominant with Noisy Miner in urban gardens
156	White-fronted Chat	<i>Epthianura albifrons</i>	10/9/1898, 12/9/1899, 1906, 29/9/1907, ca 1957	Chatswood (1898 & 1899), Beecroft (1906 & 1907), Eastwood (ca 1957); formerly Morrisons Bay saltmarsh, other isolated former saltmarsh pockets along Parramatta River	2, 3, 5	1	P, 36% population decline nationally (1980-2000), nominated Vulnerable species (Sept. 2010)	4	moist ground/& saltmarsh-affiliated; removal of this habitat extirpated this species in study area by or before 1960s; only 2 remaining populations in Sydney (10-20 birds each – Towra Point & Homebush Bay)
157	Scarlet Honeyeater	<i>Myzomela sanguinolenta</i>	2/1/1893, 6/9 & 15/9/1901, 1906, 1980-2010	Eastwood (1893), Chatswood & Roseville (1901), Hunters Hill (1906), Lane Cove NP, FOM, Boronia Park, Brush Farm Park	1, 2, 3, 6, 7	1	P	1	blossom-nomad, forages canopy foliage mostly
158	Brown Honeyeater	<i>Lichmera indistincta</i>	1980-2010	Lane Cove NP	1, 3	1	P	2	locally nomadic forest and coastal Banksia honeyeater
159	New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Tarban Creek, Brush Farm Park, Tyagarah Park	1, 3, 4, 5, 6, 7	1	P	1	partial urban adaptee foraging on nectar-rich garden and parkland shrubs (e.g. grevillea and callistemon)
160	White-cheeked Honeyeater	<i>Phylidonyris niger</i>	1957-2010	Eastwood, Lane Cove NP, FOM, Tarban Creek, some urban	1, 3, 4, 5, 6, 7	1	P	1	partial urban adaptee foraging in street verge and

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				gardens					home garden grevilleas, etc
161	Black-chinned Honeyeater	<i>Melithreptus gularis</i>	1957-1999	Eastwood, Lane Cove NP	3, 7	1	P	5	nectar-nomad, confirm presence
162	Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	1891, 15/8/1906, 1980-2005	Hunters Hill (1891), Chatswood (1906), Lane Cove NP	2, 3, 7	1	P	1	nectar-nomad or part-migratory
163	White-naped Honeyeater	<i>Melithreptus lunatus</i>	7/9/1898, 1957-2010	Chatswood (1898), Eastwood, Lane Cove NP, FOM, Boronia Park, Riverglade Reserve & Tarban Creek Bushland Reserve; can occur in parks near forest patches	1, 2, 3, 4, 5, 6, 7	1	P	1	migrates to SE Qld & NSW north coast Apr/May
164	Noisy Friarbird	<i>Philemon corniculatus</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Boronia Park, Brush Farm Park, Tarban Creek	1, 3, 4, 5, 6, 7	1	P	1	nectar-nomad; has increased nationally
165	Spotted Quail-thrush	<i>Cinclosoma punctatum</i>	1892, 1914	Eastwood (1892), Normanhurst (1914)	2	1	P, declining in NSW, should be near-threatened nationally	4	drier woodland/ forest ground forager; removal of much of this species' habitat on the ridges and slopes for housing would have extirpated this species in study area by probably 1940s or before
166	Eastern Whipbird	<i>Psophodes olivaceus</i>	14/9/1898-2010	Chatswood (1898), FOM, Lane Cove NP, Boronia Park; Marsfield Park, Denistone Park, Terrys Creek, Denistone Park (Biosphere 2007-08),	1, 2, 3, 4, 6, 7	1	P, LS	1	appears absent from isolated southern reserves (Betts, Gladesville, Bedlam Bay, Mallee); confirm abundance in reserves near Lane

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				Brush Farm Park (Cliffe 2004); Tarban Creek (1998)					Cove NP & along Terrys Creek
167	Varied Sittella	<i>Daphoenositta chrysoptera</i>	1891-92, 3/9/1904, until late 1980s/ early 1990s?	Hunters Hill (1891), Eastwood (1892), Chatswood (1904), FOM, Lane Cove NP (still present in FOM 1986 – Hoskin 1986)	1, 2, 3, 7	2	V	4	forages in bark of older eucalypt forest; declining population size reported by Hoskin (1980); likely extirpated in study area around late 1980s or early 1990s – not recorded by Biosphere (2006-08) or InSight Ecology (2010)
168	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	1957-2010	Eastwood, FOM, Lane Cove NP, Buffalo Creek, Boronia Park, Tarban Creek, Riverglade Reserve, urban parks and gardens	1-7	1	P	1	common in open habitats across the study area, on powerlines, poles and fences
169	Cicadabird	<i>Coracina tenuirostris</i>	1980-2008	Lane Cove NP, FOM, Brush Farm Park	3, 7	1	P, LS	2	spring/ summer migrant
170	White-winged Triller	<i>Lalage sueurii</i>	1898 & 1899, 1900, 1901, 1980-2005	Chatswood (1898 & 1901), Roseville (1899), Meadowbank (1900 & 1980), Chatswood (1901), Lane Cove NP, FOM	2, 3, 7	1	P, RS	3	rare summer migrant; has decreased nationally
171	Crested Shrike-tit	<i>Falcunculus frontatus</i>	1891, 1892, 18/11/1909, 5/1/1968, 2006-2007	Eastwood (1891, 1892, ca 1957), Chatswood (1909), North Ryde (1968), Lane Cove NP, FOM; Brush Farm Park, Darvall Park, Pembroke Park	1, 2, 3, 4, 5, 7	1	P, RS & nationally Vulnerable	5	recorded by Biosphere (2006-07) but not by InSight Ecology (2010); confirm presence & abundance (possibly recently extirpated or still

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				(Biosphere2006-07)					present in very low numbers in study area)
172	Golden Whistler	<i>Pachycephala pectoralis</i>	11/9/1899-2010	Chatswood (1899), Eastwood, Ryde, Hunters Hill, Gladesville FOM, Lane Cove NP, Tarban Creek, Boronia Park, Brush Farm Park (Cliffe, 2004), Darvall Park, Pidding Park, Barton Reserve	1-7	1	P, LS	1	forest/ woodland-dependent passerine; possible recent decline in abundance locally; usually not recorded in smaller, isolated bushland reserves
173	Rufous Whistler	<i>Pachycephala rufiventris</i>	20/10/1898-2010	Chatswood (1898); FOM, Lane Cove NP, Boronia Park, Brush Farm Park, Lambert Park, Darvall Park, Tarban Creek, Boobajool Reserve, Denistone Park, Kobada Park	1-7	1	P, LS	1	forest/ woodland-dependent passerine, low densities nearer to urban reserves; appears more resilient than Golden Whistler occurring in smaller remnants further from core forest habitat although still with some connectivity
174	Grey Shrike-thrush	<i>Colluricincla megarrhyncha</i>	10/10/1902-2007	Chatswood (1902), Eastwood, Lane Cove NP, FOM; Marsfield Park, Kobada Park, all 6 Terrys Creek reserves, Buffalo Creek (Barton Reserve) (Biosphere 2007-08); Tarban Creek Bushland Reserve (1998 – by	1, 2, 3, 4, 5, 7	1	P, LS	1 & 5	forest and woodland-dependent passerine; has decreased nationally and was not recorded during 2010 survey; recently recorded only in reserves closer or partly-

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				local residents via Dion Hobcroft)					connected to Lane Cove valley (Marsfield & Kobada Parks - Biosphere 2008; Buffalo Creek & Terrys Creek Reserves -Biosphere 2007); confirm presence and abundance
175	Australasian Figbird	<i>Sphecotheres vieilloti</i>	1957-2010	Eastwood, FOM; Brush Farm Park and Darvall Park (Biosphere 2006-07); Tarban Creek (1998)	1, 2, 3, 4, 5, 6, 7	1	P	1	important seed disperser, seasonal (summer) presence, tracking availability of fruit
176	Olive-backed Oriole	<i>Oriolus sagittatus</i>	1957-2010	Eastwood, Brush Farm Park, Pembroke Park, Martin Reserve, FOM, Darvall Park (Biosphere 2006-07); Tarban Creek (1998)	1, 3, 4, 5, 6, 7	1	P	1	important seed disperser, seasonal (summer) presence, tracking availability of fruit
177	Masked Woodswallow	<i>Artamus personatus</i>	Oct 1907	Ryde	2	1	P	3	rare incidental record
178	White-browed Woodswallow	<i>Artamus leucorhynchus</i>	2/11/1940, 1957-1997	Ryde (1940), Eastwood	2, 5	1	P	1	uncommon visitor
179	Dusky Woodswallow	<i>Artamus cyanopterus</i>	1/12/1898, 1957-2007	Chatswood (1898), Eastwood, Lane Cove NP, Buffalo Creek, FOM (Biosphere 2006-07)	2, 3, 4, 5	1	P	1	uncommon visitor; has decreased nationally
180	Grey Butcherbird	<i>Cracticus torquatus</i>	1896-2010	most sites, incl small reserves and urban blocks	1-7	1	P	1	has increased nationally; urban adaptee, encouraged by supplementary feeding
181	Pied Butcherbird	<i>Cracticus nigrogularis</i>	1977-2005	Ryde LGA	1, 3	1	P	1	uncommon, incidental
182	Australian Magpie	<i>Cracticus tibicen</i>	1809-2010	most sites incl urban	1-7	1	P	1	ubiquitous

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
183	Pied Currawong	<i>Strepera graculina</i>	1809-2010	most parks, gardens, small reserves and forest	1-7	1	P	1	predator of nestling and fledgling birds and other fauna; noted autumn-winter influx; urban adaptee
184	Spangled Drongo	<i>Dicrurus bracteatus</i>	1957-2008	Eastwood, Lane Cove NP, FOM, Boronia Park, Brush Farm	1, 2, 3, 5, 7	1	P	1	warm season breeding migrant
185	Rufous Fantail	<i>Rhipidura rufifrons</i>	1894-2010	Eastwood, Lane Cove NP, FOM, Buffalo Park, Boronia Park; Terrys & Kittys Creek reserves (Biosphere 2007), Brush Farm Park (Cliffe 2004)	1, 2, 3, 4, 5, 6, 7	1	P, LS	1	warm season breeding migrant; moist forest-dependent and prefers continuous forest or larger patches
186	Grey Fantail	<i>Rhipidura albiscapa</i>	1899-2010	Eastwood, Lane Cove NP, Pidding Park, Putney Park, Brush Farm Park, several small bush reserves (Biosphere 2006-08)	1-7	1	P, LS	1	resident, present in smaller reserves with understorey and near larger/linked forest patches
187	Willie Wagtail	<i>Rhipidura leucophrys</i>	28/9/1898-2010	Archer Street Chatswood (1898), most parks, small reserves, home gardens	1-7	1	P	1	ubiquitous in open habitats; population dynamics warrant monitoring under predation and Noisy Miner pressure
188	Australian Raven	<i>Corvus coronoides</i>	1957-2010	most sites incl urban blocks	1-7	1	P	1	predator of other birds, urban adaptee
189	Leadend Flycatcher	<i>Myiagra rubecula</i>	14/11/1900, 19/10/1909, 1957-2010	Archer Street Chatswood (1900 & 1909), Eastwood, FOM, Boronia Park, Lane Cove NP, Brush Farm Park	1, 2, 3, 5, 7	1	P, LS	1	has decreased nationally; warm season breeding migrant; forages in understorey along sandstone slopes not dense forested gullies
190	Satin Flycatcher	<i>Myiagra cyanoleuca</i>	4/12/1908,	Chatswood (1908),	1, 2, 3, 5,	1	P, LS	5	warm season

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
			1957-2004	Eastwood, Lane Cove NP, FOM, Brush Farm Park (2004)	7				migrant, older records from Lane Cove NP & FOM; confirm current presence
191	Restless Flycatcher	<i>Myiagra inquieta</i>	19/11/1898, 1977-1984	Eastwood (1898), Lane Cove NP	1, 2, 3	1	P, RS	5	cool season nomad/part-migrant, older records from Lane Cove NP; confirm presence
192	Black-faced Monarch	<i>Monarcha melanopsis</i>	1957-2010	Lane Cove NP, FOM, Boronia Park; Brush Farm Park & Darvall Park (Biosphere 2006)	1, 2, 3, 4, 5, 6, 7	1	P, LS	1	summer breeding migrant; dense moist gullies and adjacent/ nearby bush reserves, requires good connectivity
193	Spectacled Monarch	<i>Symposiarchus trivirgatus</i>	1977-1998	Lane Cove NP	1, 2, 3	1	P, RS	5	rarer summer breeding migrant; dense moist understorey-dependent; only in larger, well connected forest patches; confirm presence
194	Magpie-lark	<i>Grallina cyanoleuca</i>	1809-2010	most sites incl urban	1-7	1	P	1	open spaces, urban adaptee
195	Jacky Winter	<i>Microeca fascinans</i>	22/8/1898, 22/10/1908, 1980, 2004, 2006-2007	Chatswood (1898, 1908), Lane Cove NP (Hoskin 1980); Brush Farm Park (2004), Darvall Park & FOM (Biosphere 2006); Terrys Creek (Forrester & Lucknow Parks), Pidding Park & Kittys Creek (Portius	2, 3, 4, 5, 7	1 (Hoskin), 2 (Biosphere)	P, RS	5	spring-summer visitor, dispersive in autumn-winter; forages in open woodland and paddocks; patchily distributed, uncommon and has decreased 20% nationally; recorded by Hoskin (1980) &

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				Park) (Biosphere 2007)					Biosphere (2006-07) but not in October 2010 survey; confirm presence & abundance
196	Scarlet Robin	<i>Petroica boodang</i>	prior to 1997	Lane Cove River valley	1	2	V	5	has decreased nationally; only recorded prior to 1997; winter vagrant moving from forest to more open lowland areas; confirm presence
197	Rose Robin	<i>Petroica rosea</i>	1892-2008	Eastwood, Lane Cove NP; Brush Farm Park (also Cliffe 2004) & Darvall Park (Biosphere 2006-07)	1, 3, 4, 5, 7	1	P, RS	2 & 5	autumn-winter migrant; earlier record from Hoskin (1980) and recent records by Biosphere (2006-08); confirm autumnal presence
198	Eastern Yellow Robin	<i>Eopsaltria australis</i>	4/10/1907-2010	Chatswood (1907), FOM, Lane Cove NP, Boronia Park, Tarban Creek Bushland Reserve (Hobcroft 1998), Betts Park (2010); Brush Farm Park (Cliffe 2004); Boobajool Reserve, Terrys Creek (Forrester Park) & Pidding Park (Buffalo Creek) (Biosphere 2007-08)	1, 2, 3, 4, 6, 7	1	P, RS	1 & 5	Lane Cove NP and FOM remain this species' core areas; currently isolated in small patches of sometimes unconnected remnant forest; continue monitoring to determine population size and structure, inter-patch movement, breeding success, and management priorities
199	Eurasian Skylark *	<i>Alauda arvensis</i>	1913, 1978-	West Pennant Hills	2	1	U	4	cultivated field-

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
			79	(1913), Epping (1978-79)					foraging insectivore, nomadic and part-migratory, introduced in 1850s from UK; presumed extinct in study area
200	Golden-headed Cisticola	<i>Cisticola exilis</i>	1977-2006	Buffalo Creek, FOM, Tarban Creek; Ivanhoe Reserve (Terrys Creek), Darvall Park & Brush Farm Park (Biosphere 2006-07)	3, 4, 7	1	P, RS	5	reed/rushland specialist; much of this species' core habitat (e.g. at North Ryde and Epping – Hoskin 1980, 1991) has been removed; confirm presence and abundance
201	Clamorous Reed-Warbler	<i>Acrocephalus australis</i>	pre-1981, 1998-1999	Buffalo Creek, FOM, Riverglade Reserve & Tarban Creek Bushland Reserve (1998-99)	3, 7	2	P, RS	5	summer breeding migrant or partial migrant – reedland specialist (much has been removed); confirm presence (last recorded 1999 – Dion Hobcroft surveys)
202	Little Grassbird	<i>Megalurus gramineus</i>	1980-81 (Homebush Bay - 1899)	Epping (1980), Pennant Hills (1981)	3	1	P, RS	4	last recorded in study area 1981; presumed extinct in study area
203	Rufous Songlark	<i>Cincloramphus mathewsi</i>	1970s	only record was a pair near Northern Suburbs Crematorium (Hoskin 1980)	7	1	P, RS	4	uncommon summer migrant; much of preferred grassland habitat has been removed; possibly extinct in study area
204	Silvereye	<i>Zosterops lateralis</i>	29/10/1899, 1957-2010	Chatswood (1899), most sites incl urban parks and home gardens with fruit	1-7	1	P	1	frugivore attracted by home garden fruiting shrubs and weeds e.g. lantana

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
205	Welcome Swallow	<i>Hirundo neoxena</i>	1957-2010	most sites incl urban parks, streets and home gardens	1-7	1	P	1	aerial insectivore common in airspace above all habitats
206	Fairy Martin	<i>Petrochelidon ariel</i>	1977-2009	FOM, Lane Cove NP	1, 2, 3, 6	1	P	1	aerial insectivore, often forages with Welcome Swallow, builds mud nests; breeding summer migrant form the north
207	Tree Martin	<i>Petrochelidon nigricans</i>	1977-2004	Lane Cove NP	3	1	P	1	hollow-nesting aerial insectivore, summer breeding migrant
208	Red-whiskered Bulbul *	<i>Pycnonotus jocosus</i>	ca 1880s-2010	Lane Cove NP, FOM, Boronia Park, Tarban Creek, Riverglade Reserve, Bedlam Bay Park, Mallee Reserve (2010); several urban blocks and other urban parks and reserves incl Pidding Park, Brush Farm Park, Boobajool Reserve, Morrisons Bay Park (Biosphere 2006-08)	1, 2, 3, 4, 5, 6, 7	1	U	1	present in small, possibly stable numbers, assisted by privet and other fruit availability along urban streams, parks, forest edges and home gardens
209	Common Blackbird *	<i>Turdus merula</i>	ca 1860s-2004	FOM, Lane Cove NP, Brush Farm Park (2004), Tarban Creek & Riverglade Reserve	1, 2, 3, 6, 7	2	U	5	numbers across Sydney appear to be waning, confirm current presence – not recorded in 2010 survey
210	Common Starling *	<i>Sturnus vulgaris</i>	ca 1860s-2010	most urban parks and blocks	1-7	1	U	1	ubiquitous in urban habitats especially parks, open space
211	Common Myna *	<i>Sturnus tristis</i>	ca 1860s-2010	urban parks, ovals, gardens, streets	1-7	1	U	1	ubiquitous in urban habitats, possibly out-competed

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
									House Sparrow
212	Mistletoebird	<i>Dicaeum hirundinaceum</i>	1892-2009	Eastwood & Hunters Hill (1892), Ryde (1908), Lane Cove NP, FOM, Pidding Park	1, 2, 3, 5, 6, 7	1	P	1	nomadic, tracking mistletoe and other fruits
213	Double-barred Finch	<i>Taeniopygia bichenovii</i>	1980, 2004	Lane Cove NP (1980), Brush Farm Park (2004)	7	1	P, RS	1 & 5	nomadic, tracking seasonal availability of seeding grasses; much of its preferred grassland habitat has been removed; confirm presence, devise conservation strategy
214	Red-browed Finch	<i>Neochmia temporalis</i>	1957-2010	most urban parks & bush reserves, FOM, Lane Cove NP, Tarban Creek, Gladesville Reserve, Putney Park, Riverglade Reserve	1-7	1	P	1	benefited by proliferation of seeding exotic grasses in suburban lawns, ovals/parks and bush reserves
215	Diamond Firetail	<i>Stagonopleura guttata</i>	pre-1983	Lane Cove NP	7	1	V	4	last records early-mid 1980s (Hoskin 1980); extinct in study area
216	Nutmeg Mannikin *	<i>Lonchura punctulata</i>	1955, 1980s, 1996	West Pennant Hills (1955), Eastwood (1957-80s), FOM & Lane Cove NP (open areas – 1980s), North Ryde (1996)	1, 2, 3, 7	1	U	4	wild populations established from aviary escapees/releases; possibly extirpated in study area by late 1990s or prior
217	Chestnut-breasted Mannikin	<i>Lonchura castaneothorax</i>	1977-2006	Lambert Park, Brush Farm Park (Biosphere2006)	3, 4	1	P, LS	5	limited preferred habitat (rank grass) remaining; confirm seasonal presence
218	House Sparrow *	<i>Passer domesticus</i>	ca 1860s-2008	Aitchandar Park, Glades Bay Park, Denistone Park, Marsfield Park,	1, 3, 4, 5, 6, 7	1	U	1	decreased nationally - may reflect increased food competition

Record no.	Common name	Scientific name	Date	Location	Data source	Reliability weighting	Conservation status	Probability of occurrence	Comments
				(Biosphere 2008), Darvall Park, Lambert Park & FOM (Biosphere2006); Tarban Creek & Riverglade Reserve (Hobcroft 1998)					from exotic and native species and loss of house-based nesting sites such as eaves with modern house design
219	Australasian Pipit	<i>Anthus novaeseelandiae</i>	ca 1957-2007	Eastwood, Burrows Park Ryde (Biosphere 2007)	4, 5	1	P, RS	5	has decreased nationally; much of the pipit's preferred native herbfield and grassland habitat has been removed in study area; recorded in one site in study area in 2007 but not 2010 surveys; confirm presence & devise conservation strategy
220	European Goldfinch *	<i>Carduelis carduelis</i>	ca 1860s-2008?	Eastwood, North Ryde, FOM	1, 3, 5, 6, 7	1	U	5	decreased nationally; confirm presence and seasonal abundance
221	Common Greenfinch *	<i>Chloris chloris</i>	ca 1860s-1980s?	FOM (1986)	7	1	U	4	not recorded in 2006-08 or 2010 surveys; presumed extinct in study area