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125 & 145-175 Lawson Road, Badgerys Creek

Wildlife Hazard Assessment

Formus Property Pty Ltd

Document Tracking

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Abbreviations

Abbreviation	Description
AAWHG	Australian Aviation Wildlife Hazard Group
AAWSF	Aerotropolis Aviation Wildlife Safeguarding Framework
AEP	Annual Exceedance Probability
ALA	Atlas of Living Australia
ATM	Air Traffic Movements
ATSB	Australian Transport Safety Bureau
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
CASA	Australian Civil Aviation Safety Authority
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plan
DITRDC	former Commonwealth Department of Infrastructure, Transport, Regional Development, and Communication
DITRDCA	Cwth Department of Infrastructure, Transport, Regional Development, Communications and the Arts
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
Formus Property	Formus Property Pty Ltd
GFA	Gross Floor Area
IBRA	Interim Biogeographic Regionalisation for Australia
ICAO	International Civil Aviation Organisation
MAP	Million Annual Passengers
NASF	National Airport Safety Framework
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NWL	Normal Water Level
OSD	On-Site Detention
PCT	Plant Community Type
PMST	Protected Matters Search Tool
SEPP	State Environmental Planning Policy
SP2	Infrastructure zone under the Western Parkland City State Environmental Planning Policy
SPRAT	Commonwealth Species Profile and Threats Database
SSDA	State Significant Development Application
SSD	State Significant Development
VMP	Vegetation Management Plan
VRZ	Vegetated Riparian Zone
WMP	Waste Management Plan
WHMP	Wildlife Hazard Management Plan
WSA	Western Sydney Airport
WSI	Western Sydney International (Nancy-Bird Walton) Airport

Executive Summary

Eco Logical Australia Pty Ltd (ELA) was engaged by Formus Property Pty Ltd (Formus Property) to prepare a Wildlife Hazard Assessment to support the proposed State Significant Development Application (SSDA) for 125 & 145-175 Lawson Road, Badgerys Creek NSW (SSD-81662708). The study area is within Western Sydney Aerotropolis (WSA) and the 3 km buffer zone from the Western Sydney International (Nancy Bird Walton) Airport (WSI).

Assessment of wildlife risk to airport operations is guided by the *National Airport Safety Framework Guideline C* (NASF – C) which provides guidance to the Commonwealth, state or territory and local government decision makers and airports to reduce the risk of strikes between wildlife and aircraft by managing wildlife-attracting land uses near airports. The NASF-C framework formed the basis for the *Draft Aerotropolis Aviation Wildlife Risk Framework* (AAWSF) which applies to the development. Clause 4.19 of the *State Environmental Planning Policy (Precincts - Western Sydney Parkland City) 2021* (Western Sydney Parklands SEPP) provides controls to regulate development on land surrounding the WSI where wildlife may present a risk to the operation of the WSI. The project includes ‘relevant developments’, therefore Clause 4.19 of the SEPP applies.

This report describes the pre-development condition of the study area, identifies wildlife which pose the highest risk, and considers the balance of wildlife attraction and risk under the SSDA. The ‘Bird Risk Assessment Model for Airports and Aerodromes’ (Paton 2010) recommended by the Australian Aviation Wildlife Hazard Group (AAWHG) was utilised which assesses the probability and consequences of a strike event in relation to a species body mass, flocking and flight behaviour, abundance on or near airports and data on past wildlife strikes at airports within Sydney, or wider Australia.

The majority of the 125 identified bird and bat species were assigned a negligible or low hazard ranking (61.6% of species). However, 22 species likely to occur within the study area were assigned high hazard rankings, including species that ranked Extreme (4), Very High (4), or High (14). Mitigation and monitoring should be prioritised for the following high-risk species or groups of species:

- Flying-fox (Grey-headed Flying-fox or other species like Black Flying-fox)
- Pigeons
- Waterbirds (e.g. Ibis, Masked Lapwing, cormorants, egrets)
- Large parrots (e.g. Long-billed Corella, Galah, Sulphur Crested Cockatoo)
- Waterfowl (e.g. Black Swan and duck species)
- Gulls (Silver Gull)
- Raptors (e.g. Wedge-tailed Eagle and Little Eagle)
- Owls (e.g. Eastern Barn Owl)
- Australian Magpie
- Common Starling
- Commonly struck species such as Nankeen Kestrel, Australian Pipit and swift and swallows.

The project considers wildlife attraction in design and landscaping choices and reduces the wildlife attractiveness of the study area much as practicable. The proposed development will reduce the overall area of moderate wildlife risk land uses, replacing it with very low wildlife risk land uses. The area of high wildlife risk land uses will increase under the project due to stormwater facilities.

Mitigation measures to reduce wildlife attractiveness have been implemented wherever possible. Residual risks are to be managed through monitoring and adaptive management as necessary in

accordance with the WHMP. Should further mitigation be required based on monitoring outcomes, an adaptive management approach will be taken.

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1. Introduction

1.1. Purpose of this report

Eco Logical Australia Pty Ltd (ELA) was engaged by Formus Property Pty Ltd to prepare a Wildlife Hazard Assessment to support the proposed State Significant Development Application (SSDA) for development of 125 & 145-175 Lawson Road, Badgerys Creek NSW (SSD-81662708) (the project). The proposed SSD will be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) issued in April 2025 for the SSD-81662708.

Specifically, this report has been prepared to respond to the SEARs requirement described in Table 1 below.

Table 1: SSD-81662708 SEARs excerpt

Item	Description of Requirement
Airport Safeguarding	<p>An aviation impact assessment, including:</p> <ul style="list-style-type: none"> an assessment of the potential impact of the proposed development on the Western Sydney International (Nancy-Bird Walton) Airport operations a wildlife hazard assessment and wildlife management plan consideration of related matters in the <i>Aviation Safeguarding Guidelines – Western Sydney Aerotropolis</i> and surrounding areas, <i>State Environmental Planning Policy (Precincts - Western City Parkland) 2021</i> and the <i>National Airports Safeguarding Framework</i> (NASF), including (but not limit to) public safety, wildlife hazards, lighting, wind shear and the prescribed airspace. consideration of section 4.23 of the <i>State Environmental Planning Policy (Precincts - Western City Parkland) 2021</i>

1.2. Terms used in this report

The following key terms have been used throughout this report:

- **The project** refers to the proposed development under SSD-81662708
- **The Proponent** refers to the SSDA Applicant (Formus Property Pty Ltd)
- **Study area** is defined as 125 & 145-175 Lawson Road, Badgerys Creek NSW
- **Impact area** defines the extent of development impacts (including earthworks, infrastructure and hard landscaping such as paths).

1.3. Site description

The study area is located at 125 & 145-175 Lawson Road, Badgerys Creek NSW within the Liverpool City Council Local Government Area (LGA) and within the 3 km buffer zone from the Western Sydney International (Nancy Bird Walton) Airport (WSI). The approximate area of the study area is 83 hectares (ha) and comprises the following Lots:

- 1/-/DP226912
- 3/-/DP226912
- 4/-/DP226912
- 5/-/DP226912
- 6/-/DP226912

The study area is situated approximately 16 km south-east of the Penrith Central Business District (CBD), within the Badgerys Creek Precinct of the WSA and within the Western Sydney Aerotropolis precinct (Figure 1, Figure 2). The study area is part of the Sydney Region Growth Centres and subject to the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (Western Parkland City SEPP). The study area is zoned ENT (Enterprise) and ENZ (Environment and Recreation) under the Western Parkland City SEPP (Figure 2).

The study area is located within the Sydney Basin region under the Interim Biogeographic Regionalisation for Australia (IBRA) classification, within the Cumberland IBRA subregion. Under the NSW Mitchell landscapes classification, the study area is underlain by Cumberland Plain and Hawkesbury-Nepean Channels and Floodplains. High Biodiversity Value (HBV) areas coincide with the riparian corridor associated with Badgerys Creek along the western boundary. The study area contains an extent of the 4th order watercourse, Badgerys Creek, which runs along the western boundary of the study area.

The study area has a historical land use for agricultural purposes and comprises of exotic grassland, native vegetation, farm, wetlands/riparian areas and existing built form. Dams that were previously located within the study area have since been remediated. Four Plant Community Types (PCTs) are present within the study area in a range of conditions (ELA 2026a):

- PCT 3320 Cumberland Shale Plains Woodland (Moderate and DNG)
- PCT 3975 Southern Lower Floodplain Freshwater Wetland (Moderate)
- PCT 4023 Coastal Valleys Riparian Forest (Moderate, low and regenerating)
- PCT 4025 Cumberland Red Gum Riverflat Forest (Moderate and low)

A separate Riparian Assessment and Biodiversity Assessment has been previously completed by ELA (ELA 2026a, ELA 2026b) which describes the terrestrial habitat, aquatic habitat, and the biodiversity values of the study area in more detail.

1.4. Project description

This report has been prepared in support of a development at 125 & 145-175 Lawson Road, Badgerys Creek NSW (the study area) (SSD-81662708), including detailed approval for an Industrial Estate. The project seeks to deliver a new Industrial Estate comprising large and small format warehousing and distribution centres within Badgerys Creek.

The SSDA seeks approval for the construction of an Industrial Estate, comprising four (4) warehouse buildings with a total of 46,153.9m² of warehouse and ancillary office GFA. It will deliver a range of large and small format warehouse and distribution centres, as follows:

- Warehouse 1 has a total GFA of 40,505.5 m²
 - Warehouse GFA: 38,572.0 m²
 - Office GFA: 1,877.5 m² (plus 60m² dock office)
- Warehouse 2 has a total GFA of 1,328 m²
 - Warehouse GFA: 1,186 m²
 - Office GFA: 142 m²
- Warehouse 3 has a total GFA of 1,323m²
 - Warehouse GFA: 1,186 m²

- Office GFA: 137 m²
- Warehouse 4 has a total GFA of 2,997.4 m²
 - Warehouse GFA: 2,826.5m²
 - Office GFA: 140.9m²
- Warehouse 5 has a total GFA of 3,538.9m²
 - Warehouse GFA: 3,398 m²
 - Office GFA: 140.9 m²
- Maximum building height of 19.6 m
- Provision of 233 on-site parking spaces split across the site.
- Construction of a private internal driveway along the northern boundary of 125 Lawson Road servicing Warehouses 2-4.
- Construction of Regional Basin.
- Associated landscaping work and deep soil areas (comprising communal open space areas).
- Provision of road corridors providing an option for future delivery of local roads by the relevant roads authority.



Figure 1: Location of study area

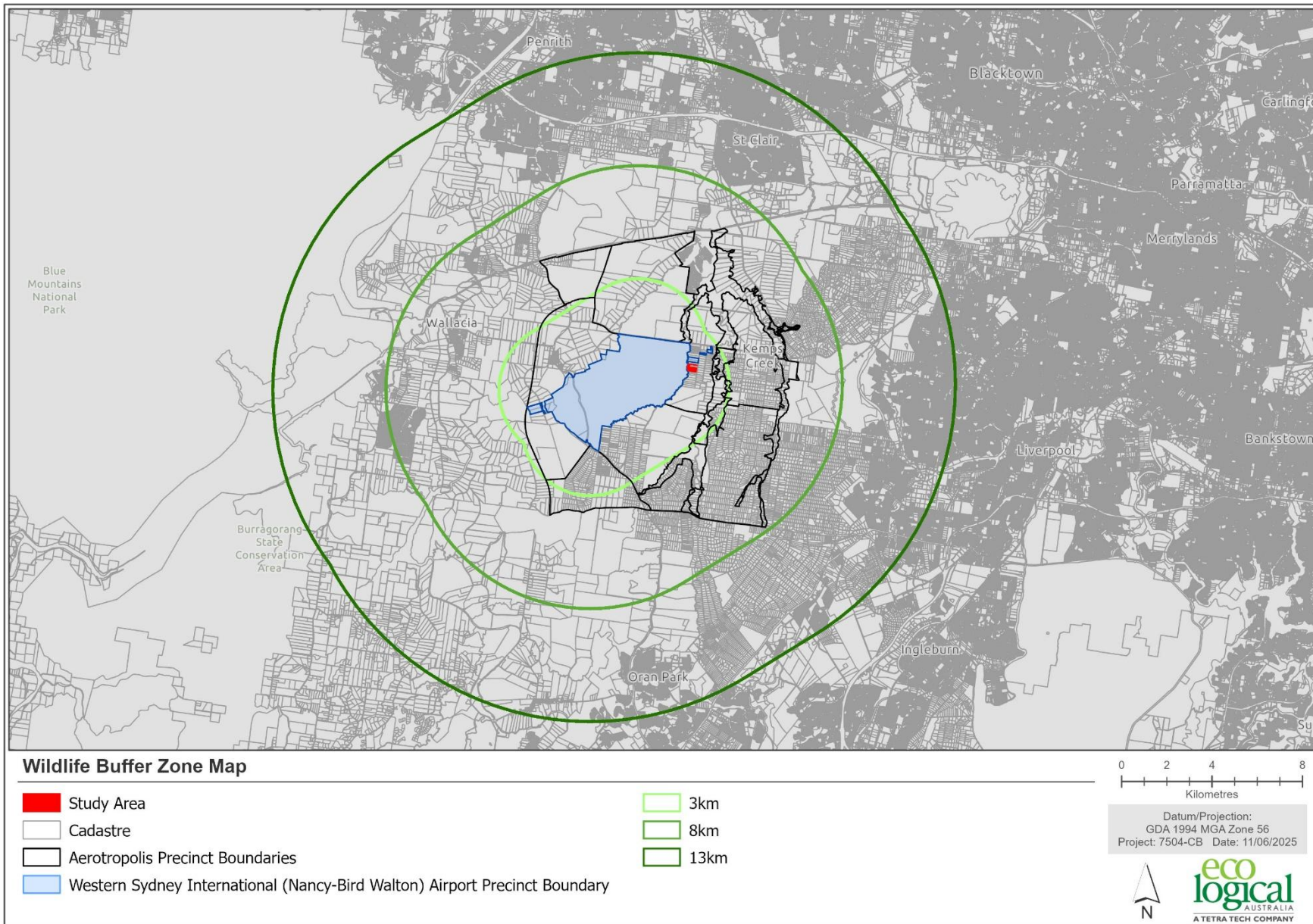


Figure 2: Western Parkland City SEPP Wildlife Buffer Zone in relation to the study area



Figure 3: Proposed Development Layout

1.5. Background context

1.5.1. Western Sydney International (Nancy-Bird Walton) Airport

The new Western Sydney International (Nancy-Bird Walton) Airport (WSI) is under construction and due to commence operations from 2026. Sydney's aviation demand is expected to double over the next 20 years, and the WSI will provide critical infrastructure to address this demand.

WSI will be a full-service airport, catering for domestic and international passengers, as well as freight services. The airport will open with a single runway and facilities to handle ten million passengers and is expected to accommodate approximately 82 million passengers annually by 2063. The airport will operate 24/7 and be curfew free, as planning has provided a 10 km buffer between the airport and suburban areas by prohibiting noise sensitive development in areas subject to aircraft noise.

The WSI Airport is the catalyst for the development of the Western Parkland City, in particular the Aerotropolis precincts. The Aerotropolis is expected to become the bustling commercial centre of the Western Parkland City providing a home for technology, science and creative industries. The proposal will contribute to the development of the city by providing commercial and industrial areas.

The *Western Sydney Airport Plan 2021*, which has been produced by the Federal Government, estimates the aircraft movements associated with the airport. The plan estimates the airport could achieve the following max capacity (per hour) with both runways operational (DITRDC 2021):

- 45 landing operations
- 58 departure operations
- 103 total Air Traffic Movements (ATM)

Initial demand forecast is expected to be modest with five million annual passengers (MAP) but is expected to increase (DITRDC 2021). This means that the risk of strike will increase during the operation of the airport and monitoring and mitigation measures should be reviewed periodically to adapt to the changing airport demand profile.

The predicted airport activity forecasts are presented in Table 2 below.

Table 2: Airport Activity Forecasts (DITRDC 2021)

	Stage 1	First runway at capacity (c. 2050)	Long Term (c. 2063)
Annual passengers (arrivals and departures) Presented in Million Annual Passengers (MAP)	10 MAP	37 MAP	82 MAP
Busy hour passengers (international and domestic)	3,300	9,500	18,700
Total annual ATM (passenger and freight)	63,000	185,000	370,000
Total busy hour ATM	21	49	85

1.5.2. Wildlife risk issues

Occurrences involving aircraft collisions with wildlife, in particular birds and bats, are the most common aviation occurrence reported to the Australian Transport Safety Bureau (ATSB). 'Bird strike' is a term that encompasses any occurrence of a bird, or bat, colliding with an aircraft. Bird strike can cause significant damage to aircrafts and in some instances can cause catastrophic crashes resulting in casualties. Bird strike is estimated to cost the global aviation industry approximately \$US3 billion

annually (ATSB 2002) and from 1912 to 2002 contributed to the death of 276 people and destroyed 108 aircrafts (Thorpe 2003). Bird strike occurs most commonly during take-off and landing.

Wildlife issues associated with land-based ground dwelling animals (primarily terrestrial mammals) are rare and have generally been effectively mitigated through the implementation of stringent security fencing around airports. Therefore, this report will focus on bird and bat strikes.

Between 2008 and 2017, there were 16,626 confirmed bird strikes in Australia reported to the ATSB (ATSB 2019). The number of reported bird strikes has increased in recent years, with 2017 having the highest on record with 1,921 bird strikes.

Nearly 40% of bird strike data recorded by the ATSB between 2008 and 2017 involved a bird of an unknown species or the bird was not identified. During this period the most commonly struck identifiable types of flying animal were galahs (801), plovers (602), bats (582), magpies (575) and flying foxes (464) (ATSB 2019). Galahs were more commonly involved in groups (ATSB, 2019). The extent of damage to aircraft in these occurrences generally corresponds to the size and number of animals struck; the larger bird the more likely it is to result in aircraft damage. Large animals or animals that occur in larger groups or flocks have the ability to destroy engines, windshields and cause significant damage to components and the aerodynamic surfaces of an aircraft such as leading-edge surfaces. However, while bird strike incidents are often fatal for the animal, aircraft damage is rare with 2 - 8% of strikes resulting in any aircraft damage internationally (Metz *et al.* 2020).

The probability of bird strike is influenced by many variables, including the specific location of the airport, specifically the availability of habitat for birds and bats near the airport. Species have different strike profiles such as the ability to avoid aircraft (Avisure 2020). The airport operations contribute to the strike risk through variables such as aircraft type, number of aircraft movements, flight paths and the time of flights (ATSB, 2019). Using this information and the study of the surrounding area, airports can generally be categorised as having a low, moderate or high overall bird strike risk.

It is generally accepted that airports with a high number of aircraft movements located in proximity to quality habitat for birds and bats have a higher probability of bird strike compared to fewer aircraft movements less optimal habitat. In addition to quality natural habitat, some man-made habitats can have high attractant properties for specific bird and bat species. Species such as the Australian White Ibis, ravens/crows, pelicans, gulls and pigeons are commonly found in large numbers in urban environments particularly around putrescible waste facilities and locations with poor waste management.

Due to the risk associated with bird strike, international and national regulations, standards and guidelines have been developed to provide a framework to reduce the impact of bird strike around airports. This report is directed by these documents as a basis for the approach to assess the wildlife risk associated with the project – and the mitigation and management measures proposed to address residual risk.

2. Planning Framework

Legal and regulatory frameworks have been developed to provide guidance on wildlife management regarding the safe operation of airports. The guiding framework in Australia is a combination of international standards and national regulations. Furthermore, planning instruments in NSW have been developed to manage the wildlife management risks associated to developments adjacent to airports.

2.1. International standards

Australia is a member state of the International Civil Aviation Organisation (ICAO), a United Nations agency that acts as the regulatory body for international aviation. As such, Australia must adhere to the rules and regulations specified by the ICAO. In the case of wildlife hazard management, *Section 9.4 of Annex 14, Volume 1, Aerodrome Design and Operation* specifies the management requirements for airports and adjacent land. The controls of this document are summarised in Table 3.

More specific guidance is provided in the *Airport Service Manual part 3, Wildlife Control and Reduction* (ICAO 2012) in relation to the management responsibilities of airport wildlife control, guidance for the implementation of wildlife management programs and details on how to assess the attractiveness of a site for wildlife.

The ICAO standards and guidelines directly inform the actions and framework established by the Australian Civil Aviation Safety Authority (CASA) for wildlife management on and adjacent to airports in Australia. Thus, making it relevant to this assessment.

Table 3: ICAO Annex 14, Volume 1, Aerodrome Design and Operation – Wildlife Hazard Management Controls

Section	Controls
9.4	The wildlife strike hazard on, or near, an aerodrome shall be addressed through: The establishment of a national procedure for recording and reporting wildlife strikes to aircraft The collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations Ongoing evaluation of the wildlife hazard by competent personnel.
9.4.3	Action shall be taken to decrease the risk associated to aircraft operations by adopting measures to minimise the likelihood of collisions between wildlife and aircrafts.
9.4.4	The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicate that they are unlikely to create conditions conducive to a wildlife hazard problem. Where elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.
9.5	Recommendation – States should give due consideration to aviation safety concerns related to land development in the vicinity of the aerodrome that may attract wildlife.

2.2. National regulations

2.2.1. Australian Civil Aviation Safety Authority

The Australian Civil Aviation Safety Authority's document, the *Manual of Standard Part 139* (MoS) stipulates the requirements for aerodrome operations and developments in Australia. The document presents methods and instructions for aerodrome operators to work with planning authorities to consider wildlife hazard management when determining applications. It also provides guidance to aerodromes and planning authorities to work with adjacent landowners to monitor and manage wildlife.

CASA's *Advisory Circular 139.C-16v1.0* (the Circular) provides further guidance for wildlife hazard management which involves influencing wildlife behaviour on or in the vicinity of an aerodrome, in order to achieve a specific goal with regards to altering behaviour, population or geographic distribution of birds or wildlife. Key elements of the Circular are:

- Preparation of Wildlife Hazard Management Plan
- Wildlife Hazard Monitoring
- Data collection, reporting and recording data on wildlife activities
- Wildlife Hazard Assessment
- Wildlife Hazard Mitigation
- Training of Wildlife Hazard Management personnel

2.2.2. National Airport Safety Framework (NASF)

In 2012 the National Airport Safety Framework (NASF) was released by the Department of Infrastructure and Transport. It is a generic framework for land use planners to incorporate into land use planning frameworks to achieve airport safety outcomes. Guideline C of the NASF, *Managing the Risk of Wildlife Strikes in the Vicinity of Airports*, provides wildlife management guidelines to landowners, planning/impact assessment professionals and determining authorities.

This document has been utilised to create Aerotropolis Aviation Wildlife Safeguarding Framework (AAWSF) which aims to safeguard WSA against wildlife hazards. It is important to note that restrictions presented in the framework does not require development applications to be refused but instead requires landowners to apply more stringent mitigation measures.

2.3. NSW Planning Framework

2.3.1. Aviation Safeguarding Guidelines – Western Sydney Aerotropolis and surrounding areas

The Aviation Safeguarding Guidelines provide a consolidated set of aviation safeguarding planning guidelines for the Western Sydney Aerotropolis (Aerotropolis). It was developed by the NSW Government with input and data from the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA); Western Sydney Airport (WSA); and other relevant stakeholders.

The purpose of the guidelines is to assist relevant planning authorities, consultants and proponents when assessing and preparing development applications which are impacted by aviation safeguarding

controls. The Guidelines also aim to protect community safety and amenity as well as safeguard the 24-hour operations of the Western Sydney International (Nancy-Bird Walton) Airport (WSI).

The guidelines can be used by relevant planning authorities to help inform land use planning decisions and by proponents to prepare applications on land impacted by aviation safeguarding controls. The Guidelines include information about managing impacts for various aviation planning constraints including aircraft noise, building windshear and turbulence, operational airspace, lighting, wildlife, wind turbines and communication, navigation, and surveillance facilities.

Of relevance to this report is *Chapter 4: Managing the risk of wildlife in the vicinity of airports* which sets out to:

- Assess developments on land surrounding Western Sydney International where wildlife may present a risk to the operation of WSI; and
- Ensure planning authorities consider wildlife management provisions when undertaking land use planning for the Aerotropolis and other airports.

Chapter 4 also describes provisions that have been incorporated into the Western Parkland City SEPP and the Aerotropolis Development Control Plan (DCP), including:

- the prohibition of certain land uses within a 3 km buffer zone;
- referral of certain development applications to WSA (accompanied by a wildlife hazard assessment and wildlife management plan incorporating mitigation and monitoring measures);
- requirement for developments within the 13 km buffer zone to be accompanied by a waste management plan; and
- appropriate landscape species being planted within these buffer zones, for areas outside of designated Parkland Priority Areas.

2.3.2. State Environmental Planning Policy (Precincts - Western Parkland City) 2021

The Western Parkland City SEPP is the primary planning instrument for regulating development around Western Sydney Airport. The study area is zoned ENT (Enterprise) and ENZ (Environment and Recreation) under the Western Parkland City SEPP.

Clause 4.19 of the Western Parkland City SEPP provides controls to regulate development on land surrounding the Airport where wildlife may present a risk to the operation of the Airport. The clause states that development consent must not be granted to relevant development on land within the 13 km Wildlife Buffer Zone, unless the consent authority has consulted with the relevant Commonwealth body and considered a written assessment of the wildlife present and the risk it poses to airport operation. Relevant development includes the following;

- agricultural produce industries
- aquaculture
- camping grounds
- eco-tourist facilities
- garden centers
- intensive livestock agriculture

- intensive plant agriculture
- livestock processing industries
- plant nurseries
- recreation facilities (major)
- **recreation facilities (outdoor)**
- sewage treatment plants
- waste or resource management facilities that consist of outdoor processing, storage or handling of organic or putrescible waste
- **water storage facilities.**

The project includes stormwater infrastructure as shown on Figure 3 which would be classified as 'water storage facilities', therefore clause 4.19 applies to the project. Clause 4.19(2), states:

(2) Development consent must not be granted to relevant development on land in the 13 km wildlife buffer zone unless the consent authority—

(a) has consulted the relevant Commonwealth body, and

(b) has considered a written assessment of the wildlife that is likely to be present on the land and the risk of the wildlife to the operation of the Airport provided by the applicant, which includes—

(i) species, size, quantity, flock behaviour and the particular times of day or year when the wildlife is likely to be present, and

(ii) whether any of the wildlife is a threatened species, and

(iii) a description of how the assessment was carried out, and

(c) is satisfied that the development will mitigate the risk of wildlife to the operation of the Airport, including, for example, measures relating to—

(i) waste management, landscaping, grass, fencing, stormwater or water areas, or

(ii) the dispersal of wildlife from the land by the removal of food or the use of spikes, wire or nets.

2.3.3. Aerotropolis Precinct Plan May 2023

The Western Parkland City SEPP allows for the preparation of Precinct Plans. The Aerotropolis Precinct Plan was developed to utilise the features of the Aerotropolis as it is today: the creeks and tributaries, undulating topography and view lines, and places of Aboriginal and European significance. The Precinct Plan will build upon these features to develop a world class city in a parkland setting, integrating urban development with city shaping infrastructure and blue-green corridors.

There are no specific objectives or requirements within the Aerotropolis Precinct Plan 2023 for wildlife hazard management for airport safeguarding, however there are several objectives and requirements that relate to the creation of potential habitat for birds and bats. These are summarised in Table 4 below.

Table 4: Objectives and requirements of the Aerotropolis Precinct Plan (DPE 2023)

Western Sydney Aerotropolis Precinct Plan – May 2023	
2.1 Objectives	<p>Selected objectives of the Precinct Plan that relate directly to wildlife risk include:</p> <p>(02) Celebrate culture by reflecting the cultural landscape and continuous connection of Aboriginal people and Country through:</p> <ul style="list-style-type: none"> <i>a. the design of the public domain;</i> <i>b. preservation and rehabilitation of the natural environment and systems;</i> <i>c. the alignment of movement networks with culturally significant spaces;</i> <i>d. the design of buildings; and</i> <i>e. keeping language alive in the naming of places.</i> <p>(03) Integrate development and the delivery of infrastructure to maintain a supply of developable land that maximises the efficiency of infrastructure investment.</p> <p>(04) Protect Airport operations, including 24-hour operations, and protect future communities from aircraft noise.</p> <p>(07) Implement a landscape-led approach to designing the Aerotropolis, utilising the blue-green grid and natural topography of the Aerotropolis as the defining elements.</p> <p>(011) Design an urban environment that responds to the climate extremes of Western Sydney and mitigates and adapts to urban heat.</p> <p>(012) Manage water in the landscape to facilitate urban cooling, improve waterway health and biodiversity and promote sustainable water use.</p> <p>(014) Reinstate and rehabilitate natural landscape connections and systems to sustain biodiversity and allow natural systems to function sustainably.</p>
4.5 Blue-Green Infrastructure Framework	<p>Objectives</p> <p>BGO1 To integrate blue and green systems across the Aerotropolis for water quality management, biodiversity and recreation.</p> <p>Requirements</p> <p>BG1 Development is to contribute to the establishment of the blue-green infrastructure framework for the Aerotropolis in accordance with Figure 5.</p>
4.5.1 Total water cycle management	<p>BGO1 Protect, maintain and/or restore waterways, riparian corridors, water bodies and other water dependent ecosystems.</p> <p>BGO2 Provide a landscape-led approach to integrated stormwater management and water sensitive urban design.</p> <p>BGO3 Establish a network of multifunctional stormwater assets that support stormwater management and contribute to broader objectives for waterway health, biodiversity, urban greening and cooling, recreation and amenity.</p>
4.5.2 Riparian Corridors	<p>BG1 Waterways and riparian corridors of Strahler Order 2 (refer to Figure 5 from the WSA Precinct Plan) and higher are to be retained and rehabilitated to a natural state (unless minor realignment can be justified), in accordance with the requirements of the <i>Guidelines for Riparian Corridors on Waterfront Land</i> published by the Department of Primary Industries (Office of Water), or other relevant guidelines adopted and in operation at the time.</p>
4.5.3 Public domain and canopy cover	<p>BG3 Tree canopy is to be provided on Sub-arterial Roads and Collector Streets shown on Figure 9 to achieve a minimum of 40% tree canopy cover at maturity, measured as a percentage of the area of the road reserve.</p>
4.5.4 Biodiversity and vegetation corridors	<p>Objectives</p> <p>BGO3 Protect areas of high biodiversity value including watercourses and riparian zones, Existing Native Vegetation and remnant vegetation and habitat of the Cumberland Plain.</p> <p>BGO4 Increase and improve landscape connectivity through conservation and restoration of native vegetation to enable plant and animal communities to survive in the long term.</p> <p>BGO5 Support long-term viability and ecological connectivity by ensuring development does not encroach on protected land and any ecological restoration program selects species that are resilient to a changing climate.</p> <p>Requirements</p> <p>BG3 Revegetation and landscaping are designed and managed to account for future climatic conditions and include climate ready species.</p>

2.3.4. Western Sydney Aerotropolis Development Control Plan 2022

Section 2.10.3 of the DCP addresses Wildlife Hazard. The objective of this part of the DCP is to safeguard the airport from incompatible development that could compromise safe operations. These objectives and benchmark solutions are provided in Table 5.

The DCP also has other objectives and performance measures which also relate to landscaping as shown in Table 6 below.

Table 5: Performance Outcomes of the Aerotropolis DCP Phase 2

Performance Outcome		Benchmark Solution
PO1	Development does not attract wildlife which would create a safety hazard to the operations of the Airport.	<ol style="list-style-type: none"> 1. All waste bins are designed and installed with fixed lids. 2. Any bulk waste receptacle or communal waste storage area is contained within enclosures that cannot be accessed by birds or flying foxes. 3. Any stormwater detention within the 3 km and 8 km wildlife buffer is designed to fully drain within 48 hours after a rainfall event. 4. Buildings and structures are designed to minimise the opportunity for roosting areas.
PO2	Landscaping does not attract wildlife that could create a safety hazard to the operations of the Airport.	<ol style="list-style-type: none"> 1. Refer to Appendix B for a list of suitable landscape species. 2. In areas within the 3 km wildlife buffer but outside of the Parkland Priority Areas, a report prepared by a suitability qualified and experienced ecologist is to be submitted with any application when the landscaping plan: <ol style="list-style-type: none"> a. Incorporates alternative landscape species not listed within Appendix B; b. Incorporates landscape species denoted within the landscape species list; c. Will result in more than 5 trees being planted in 1 group (group refers to touching mature canopies); and/or d. Provides a spacing between a group of 5 or more trees that is less than 100 m. 3. The ecologist report is to consider building, site, and water body design outcomes and/or landscape maintenance measures that will mitigate bird and flying fox attraction and roosting areas. <p>The study area is not located within any Priority Parkland Area, as such these considerations apply to the entire site.</p>
DCP Appendix B	<p>Appendix B: Western Sydney Aerotropolis Landscape Species List</p> <p>The species list in Table 1 does not apply to land identified as Parkland Priority Areas (Figure 2). Any alternative landscaping species and/or groupings and spacing (as specified in the DCP) outside the Western Parkland Vision Government Commitment Areas and within the 3 km wildlife buffer will require an ecologist report submitted with the landscape plan. The report will need to discuss wildlife attraction in proximity to the airport and will be subject to a merit-based assessment. The proponent will need to demonstrate suitability in relation to wildlife management and/or encroachments into operational airspace.</p> <p>Within Table 1 where an additional requirement is provided against a species that states “<i>Only within 3km wildlife buffer, where supported by ecologist report, confirming landscape design minimises wildlife attraction</i>”, this only applies to the use of those species within the 3 km buffer that are outside of the government commitment areas.</p>	
Appendix D7	<p>Applications for water storage facility must be accompanied by a Wildlife Hazard Assessment and Wildlife Management Plan. Wildlife Hazard Assessment Reports must assess the wildlife attraction risk of the land use, the design of the building and ancillary works including proposed landscaping, water facilities (incl. stormwater infrastructure), waste management, and temporary risks associated with construction activity.</p> <p>The Wildlife Management Plan must respond to the findings and recommendations of the wildlife hazard assessment.</p> <p>Where monitoring is required to be undertaken in accordance with the Management Plan, copies of the report are to be submitted to the airport lessee company within 28 days of completion.</p> <p>Landscaping within the Enterprise Zone and Agribusiness Zone must comply with Appendix B: Western Sydney Aerotropolis Landscape Species List, except where the property is subject to biodiversity certification conditions or identified as one of the key government commitments.</p>	

Table 6: Other DCP controls

Western Sydney Aerotropolis Development Control Plan – November 2022	
<p>2.3 Waterway Health and Riparian Corridors</p>	<p>01. Protect and restore native and riparian vegetation to improve the connectivity, ecological condition, and function of ecosystems.</p> <p>1. Development maintains and protects waterways in accordance with the following guidelines:</p> <p>a. Strahler Order 1 watercourses with a catchment area of less than 15 hectares can be re-constructed and /or piped, providing stormwater modelling demonstrates the pipe and street network is capable of accommodating flows up to and including the 100 year AEP storm event.</p> <p>b. Naturalised trunk drainage paths are to be provided when the contributing catchment exceeds 15 hectares or when 1% AEP overland flows cannot be safely conveyed overland as described in Australian Rainfall and Runoff – 2019.</p> <p>c. Waterways of Strahler Order 2 and higher will be maintained in a natural state, including the maintenance and restoration of riparian areas and habitat, such as fallen debris.</p> <p>d. Where a development is associated with, or will affect, a waterway of Strahler Order 2 or higher, rehabilitation will occur to return that waterway to a natural state.</p> <p>4. Retain areas of the Proteaceae shrubs for the Eastern Pygmy Possum (<i>Cercartetus nanus</i>) along or adjacent to riparian areas to improve and maintain habitat connectivity.</p> <p>5. Weeds from creeks, streams and riparian areas are removed and replaced with appropriate native planting.</p> <p>6. Locate stormwater infrastructure including pipelines and detention basins wholly on certified-urban capable land consistent with the Plan’s biodiversity consistent with the Plan’s biodiversity certification approvals. Stormwater infrastructure is not to be located within land identified as avoided or land managed as a reserve.</p>
<p>2.4 Vegetation and Biodiversity</p> <p>2.4.1 Deep Soil and Tree Canopy</p>	<p>P01. Consolidate areas of deep soil and tree canopy and provide minimum dimensions which allow for sufficient tree planting.</p> <p>Benchmark Solution:</p> <p>Tree Canopy and deep soil is provided in accordance with Table 2 of the DCP*. Applicants must also have regard for the site coverage and relevant pervious surface targets outlined in this SCP.</p> <p>Deep soil areas are to be a minimum 3 m x 3 m in dimension.</p> <p>Consolidate deep soil areas by establishing them right to abutting boundary walls and fence lines.</p> <p>Consolidate deep soil in setback areas and locate with adjoining properties.</p> <p>Other than Urban Park available under the Aerotropolis Precinct Plan, a minimum tree canopy of 45% for open space is to be achieved. Where open spaces included sports courts or fields, the 45% tree canopy shall be provided outside the space identified for the court or field area.</p> <p>Deep soil planting areas are to be de-compacted before planting with no services to be installed within these zones.</p> <p><i>*Table 2 describes for all large format industrial and light industrial lots:</i></p> <p>Minimum tree canopy target (% of site area) = 25%</p> <p>Minimum deep soil (% of site area) = 15%</p> <p>Minimum tree planting rates: For every 400sqm of site area or part thereof, at least two medium trees or one large tree are to be planted in the deep soil area.</p>
<p>2.4.2 Protection of Trees and Vegetation</p>	<p>01. Conserve and manage existing vegetation and contribute to the increase of habitat and tree canopy within the Aerotropolis.</p>

2.3.5. Conflicting objectives in the planning framework

The Aerotropolis DCP Phase 2 sets out conflicting objectives between the risk of wildlife risk to airport operations, and the requirements of landscaping and urban canopy cover including:

Provide a mix of canopy trees, shrubs, and groundcover to manage effects of urban heat and support environmentally sensitive design. (DCP Section 2.4.4 O2)

and:

Other than Urban Parks available under the Aerotropolis Precinct Plan, a minimum tree canopy of 45% for open space is to be achieved. Where open spaces include sports courts or fields, the 45% tree canopy shall be provided outside the spaces identified for the court or field area. (Section 2.4.1 PO1)

And, in direct conflict with the requirement to avoid clusters of trees and provide 100 m spacing between groups of trees of or more than 5, the DCP requires that:

Continuous tree canopy cover is achieved along both sides of the street. (Section 2.4.5 PO2)

Additionally, all large format industrial and light industrial are to achieve 25% tree canopy, including tree planting for every 400 m² of site area (or part thereof) per Table 2 of the DCP.

While urban open space and on-lot landscaping do not form part of the SSDA works, canopy targets also apply to the road and transport corridors including:

- *Provide 50% of north-south oriented streets with shade for active transit users during the hottest times of the day.*
- *Provide 80% of east-west oriented streets with shade for active transit users during the hottest times of the day.*
- *Provide for deep soil planting within the streetscape, to enable trees to reach mature heights and contribute to canopy cover.*
- *Provide landscaping within at grade car parking areas.*

(Section 2.4.5 PO3)

The DCP also aims to retain or compensate existing habitat wherever possible, such as:

Conserve and manage existing vegetation and contribute to the increase of habitat and tree canopy cover within the Aerotropolis. (Section 2.4.3 O1)

and:

The removal of the hollow bearing trees shall be offset by the installation of nesting boxes. The size of the nest box is to reflect the size and dimensions of the hollow removed. Alternatively, the tree hollow could be appropriately mounted on one of the retained trees in a manner where it will not pose a risk to life or property. (Section 2.4.3 PO3)

The Western Parkland City SEPP, Aerotropolis Precinct Plan 2023 and the Aerotropolis DCP Phase 2 do not provide a hierarchy of importance between these objectives. Therefore, these objectives are to be balanced by the design teams, with wildlife risk mitigated through design where possible. Where the risk is not eliminated, the Wildlife Hazard Management Plan (WHMP, ELA 2026a) will be followed to monitor wildlife use of the study area.

Where significant risk is identified, additional mitigation measures and monitoring may be required.

3. Wildlife Species Occurrence and Hazard Rankings

This chapter identifies bird and bat species that are found in Western Sydney, with the potential to occur within the study area, and ranks them according to their risk to airport operations. Terrestrial fauna such as kangaroos have not been assessed as airport fencing would prevent the movement of such fauna onto the airport land. The methodology for this assessment is provided in Appendix A.

3.1. Likelihood of occurrence

The desktop assessment and literature review identified 221 bird species and 17 bat species (one megabat species, 16 microbat species) that are known to occur or modelled to occur within a 5 km radius of the study area. Considering the presence of existing records, habitat requirements and known information about the study area and surrounding landscape, 125 species (109 birds, 1 megabat, 15 microbats) were determined have a moderate or high likelihood to occur within the study area. All other species were considered unlikely to occur within the study area, based on nearby records, lack of suitable habitat and level or disturbance within and near the study area. The results of the likelihood of occurrence analysis including the rationale for each species are provided in Appendix C.

3.1.1. Threatened bird and bat species

Of the species that are considered to have a potential to occur within the study area, eleven (11) are listed under either both the EPBC Act and BC Act (3 species) or the BC Act only (8 species). One species is listed under international treaties. In addition to listed threatened species, 23 species are listed as Marine (Ma) under the EPBC Act, but do not have a threatened status under either the EPBC or BC Acts. Table 7 provides a summary of all listed threatened species with potential to occur within the study area.

Table 7: Listed threatened bird and bat species with potential to occur within the study area.

Species	Common name	EPBC Act status ¹	BC Act status
BIRDS			
<i>Lathamus discolor</i>	Swift Parrot	CE, Ma	E
<i>Hieraaetus morphnoides</i>	Little Eagle		V
<i>Artamus cyanopterus</i>	Dusky Woodswallow		V
<i>Gallinago hardwickii</i>	Latham's Snipe	VU, Ma, Mi (Bonn, JAMBA, ROKAMBA)	V
BATS			
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	VU	V
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat		V
<i>Miniopterus australis</i>	Little Bent-winged Bat		V
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat		V
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle		V
<i>Myotis macropus</i>	Southern Myotis		V
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat		V

¹ EPBC Act = EX: Extinct, CE: Critically endangered, EN: Endangered, VU: Vulnerable, CD: Conservation dependent

² BC Act = EX: Extinct CE: Critically endangered, E: Endangered, V: Vulnerable

3.1.2. Birds

The desktop and literature review identified 221 bird species, of these, 109 species were determined as having a moderate or high potential to occur within the study area. The study area currently includes various habitat types which support an array of native and introduced species including open grasslands, remnant patches of native vegetation and wetland/creek line habitat. A full description of fauna habitat present within the study area is detailed in Section 4.3.

The below table shows the number of bird species within each functional group (as defined in Appendix F) that has the potential to occur within the study area. The majority of bird species include smaller songbirds/passerines, waterbirds, parrots and honeyeaters.

Table 8: Birds by functional group with the potential to occur in the study area

Functional Group	Number of species	Number of EPBC Act listed species ¹	Number of BC Act listed species
Corvids and allies	8		
Cuckoos	4		
Gulls	1		
Honeyeaters	8		
Kingfishers	3		
Nocturnal birds	3		
Parrots	10	1	1
Pigeons	3		
Rails, Crakes	3		
Raptors	9		1
Smaller Songbirds	31		
Swallows, Martins, Swifts	4		1
Waders	1	1	1
Waterbirds	14		
Waterfowl	7		
Total	109	2	4

¹ EPBC Act listed species refer to species with a threatened status under the EPBC Act and excludes species with a marine listing and no other listing.

3.1.3. Megabats

The desktop and literature review identified one megabat species (Grey-headed Flying-fox) with records within 5 km of the study area. Grey-headed Flying Fox (*Pteropus poliocephalus*) is listed as vulnerable under both the EPBC Act and BC Act. This species is common within Western Sydney and has been recently recorded in proximity the study area (BioNet 2025), however no camps were identified during recent biodiversity assessments (ELA 2026b). Eucalypts within the study area provides seasonal foraging habitat for megabat species, however foraging habitat is currently limited to the small patches of native remnant vegetation within the study area. Black Flying-fox (*Pteropus alecto*) and Little Red Flying-fox (*Pteropus scapulatus*) are likely to utilise similar foraging habitats to Grey-headed Flying-fox however are less common in Western Sydney than Grey-headed Flying-fox, and no records occur within 10 km. Considering Megabat species' can travel large distances to foraging areas (Van Dyck *et. al* 2008) and because these species may share camps with other species, it is possible that they may also pose a wildlife strike risk along with Grey-headed Flying-fox.

The closest flying-fox camp is located at Ropes Creek, approximately 13 km to the north-east of the study area and is estimated to occupy approximately 1-499 individuals of Grey-headed Flying-fox as of May 2022 (DCCEEW 2024). It is known that Grey-headed Flying-fox commute daily to foraging areas, usually within 15 km of the day roost site (Tidemann 1998). They are capable of nightly flights of up to 50 km from their roost to different feeding areas as food resources change (Eby unpubl., cited in Eby 1991). As the camp is 13 km from the study area, it is reasonable to expect this species may forage within the study area. The Ropes Creek flying-fox camp may also be occupied by Black Flying-fox (estimated between 1–499 individuals) (DCCEEW 2025). This species can fly 20 km from roost sights when foraging (Van Dyck *et. al* 2008). While not recorded within proximity to the study area it is possible that this species may also occasionally forage within the study area. The peak times of potential strikes to these species would occur at dusk, post dusk or dawn when flying foxes are departing their roosts to forage or returning to their roosts.

3.1.4. Microbats

The desktop and literature review identified a total of 16 microbat species, 15 of which were determined to have a moderate likelihood to occur within the study area. Species with potential to occur within the study area are listed below.

Table 9: Microbat species with potential to occur within the study area:

Species	Common Name
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat
<i>Miniopterus australis</i>	Little Bent-winged Bat
<i>Austronomus australis</i>	White-striped Freetail-bat
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat
<i>Ozimops ridei</i>	Eastern Free-tailed Bat
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
<i>Chalinolobus morio</i>	Chocolate Wattled Bat
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle
<i>Myotis macropus</i>	Southern Myotis
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat
<i>Scotorepens orion</i>	Eastern Broad-nosed Bat
<i>Vespadelus regulus</i>	Southern Forest Bat
<i>Vespadelus vulturnus</i>	Little Forest Bat

The above listed species occupy a variety of habitats including native forest vegetation, wetlands, and more open habitats. These species may roost in hollows and under bark of old trees such as eucalypts, ceilings or basements of buildings and disused birds' nests. Potential roosting habitats currently situated within the study area include humanmade structures and native remnant vegetation.

3.2. Common airport strike species

The most commonly struck species of identified, flying animals at Sydney Airport, Bankstown Airport and airports Australia wide (verbatim), during the 2014 to 2024 period are displayed below in Table 10, and displayed in Figure 4 and Figure 5. Data has been taken from the ATBS interactive tool accessible online.

Many of the strikes involving animals reported as ‘bats’ likely involved flying-fox, but may also include microbats. Nankeen Kestrel (*Falco cenchroides*), Magpie-lark (*Grallina cyanoleuca*), Welcome Swallow (*Hirundo neoxena*), Fairy Martin (*Petrochelidon ariel*) and Black Kite (*Milvus migrans*) were also among the highest-ranking strike species Australia wide. Similar species were recorded by Avisure in their Preliminary Western Sydney Airport Bird and Bat Strike Risk Assessment in 2016, including Masked Lapwing (*Vanellus miles*), Galah (*Eolophus roseicapilla*), Australian Magpie (*Gymnorhina tibicen*) and duck species.

Table 10: Most commonly struck identified flying animals at Sydney Airport, Bankstown Airport and All Australian Airports combined.

Most commonly struck identified flying animals	Number of strike reports (period 2014 – 2024 ATBS)
Sydney Airport	
Flying fox	142
Welcome Swallow	81
Nankeen Kestrel	65
Australian Pipit	62
Silver Gull	38
Bankstown Airport	
Magpie	19
Ibis	8
Plover	8
Bat	5
Galah	4
All Australian Airports	
Flying fox	745
Galah	739
Bat	616
Magpie	509
Plover	435

3.3. Bird and bat hazard rankings

Species from the likelihood of occurrence analysis that ranked as moderate, high, or present were considered for the hazard assessment. A total of 125 species were placed into criterion to determine their consequence score if struck, according to their body mass, flocking density and flight behaviour. This consequence score, along with a species probability score (likelihood of being involved in a strike based on historical strike data) determined the overall hazard rank for each species. Probability scores were assigned according to the percentage of reported known strikes for each species/functional group using online ATSB databases. Most species were assigned scores based on ATSB strike data for Sydney and Bankstown Airports (74 species). The remaining species were assigned scores using Australia-wide ATSB data (34 species), or if not present in either dataset species were given a low probability since there were no records of strikes (17 species). Consequence and probability scores for individual species are provided in Appendix D.

The overall hazard rank is intended to be used as a general guide to identify species that have the potential to pose the most risk for wildlife strikes. Hazard rankings for individual species in order from Extreme to Negligible can be found in Appendix E. Higher ranking species have greater probabilities of

being struck and may cause greater damage when struck. For ease of interpretation, species are discussed in terms of their functional groups, outlined in Appendix F.

The majority of the 125 identified bird and bat species were assigned a negligible or low hazard ranking (61.6% of species) (Table 11). However, 22 species likely to occur within the study area were assigned high hazard rankings, including species that ranked Extreme (4), Very High (4), or High (14) (Table 11).

The main species or groups of species of most concern when planning mitigation measures for this development due to high hazard rankings include:

- Flying-fox (Grey-headed Flying-fox or other species like Black Flying-fox)
- Pigeons
- Waterbirds (e.g. Australian White Ibis, Straw-necked Ibis, Masked Lapwing, cormorants, egrets)
- Large parrots (e.g. Long-billed Corella, Galah, Sulphur Crested Cockatoo)
- Waterfowl (e.g. Black Swan and duck species)
- Gulls (Silver Gull)
- Raptors (e.g. Wedge-tailed Eagle and Little Eagle)
- Owls (e.g. Eastern Barn Owl)
- Australian Magpie
- Common Starling

In addition to the above, commonly struck species such as Nankeen Kestrel, Australian Pipit, and swift and swallows (guild), are also of concern, despite having lower consequence scores than the above.

Grey-headed Flying-fox has been identified as the highest risk species in this assessment (Extreme) due to their relatively large size, flocking behaviour, and because flying-fox have the highest number of recorded strikes at the nearest airports, Sydney Airport and Bankstown Airport (ATSB 2018). While no flying-fox camps have been identified within the study area, camps are present in the local vicinity (DCCEEW 2025). While not recorded or modelled to occur within proximity to the subject land (and therefore not assessed in the WHA), other megabat species such as Black Flying-fox would also be considered high risk. As a precaution all megabats should be considered when monitoring or when implementing mitigation measures.

The other highest-ranking species include Australian White Ibis, Straw-necked Ibis and Rock Dove (Appendix E). These species have a high strike consequence rank due to their relatively large sizes and proclivity to form large flocks (Appendix D). They also have adapted well to urban environments and can be found in urbanised areas in high numbers. Other high priority species, listed as having a very high hazard ranking include Long-billed Corella, Black Swan, Galah and Silver Gull. These species are relatively common and have been recently recorded in the local vicinity. While Black Swan are unlikely to take residence within the wetland/creek line habitat located within the subject area, this species may occasionally utilise the habitat for foraging or fly over the subject area in passing.

Species that have highest probability of being struck within the study area according to strike statistics include Grey-headed Flying-fox, Nankeen Kestrel, Welcome Swallow and Australian Pipit. Additionally, Waterfowl (e.g. Pacific Black Duck, Australian Wood Duck, Hardhead, Chestnut Teal, Grey Teal and grebe species), Waterbirds (e.g. Masked-Lapwing, ibis and cormorants), pigeons (e.g. Rock Dove,

Spotted Turtle Dove, Crested Pigeon, Common Bronzewing), and Fairy Martin report high numbers of wildlife strikes. The Australian Magpie, Eastern Barn Owl, and Common Starling was also amongst the birds that have a high likelihood of being struck. The species with high probabilities also tend to have higher consequence scores with the exception of Australian Pipit, Nankeen Kestrel and the swift and swallow species (Appendix D). Despite having lower hazard rankings, these are some of the most commonly reported strike species Australia-wide or within the Sydney region (ATSB 2024), so should also be considered for management.

The majority of species categorised during this assessment had a low or negligible hazard rating (Table 11). Birds of least concern are smaller songbirds, honeyeaters and kingfishers which have few or no reports of strikes in the Sydney Region or Australia Wide. These species also tend to have lower consequence scores due to their smaller sizes (Appendix D). Other species of least concern include small parrots (e.g. Rosellas), small raptors (e.g. Brown Falcon, Australian Hobby and Brown Goshawk), butcherbirds, as well as species that spend most of the time on the ground like quails and rails. Waders such as snipe also have lower hazard rankings, since they are rarely reported being involved in strikes.

The 15 microbat species identified in this assessment have been assigned a low or negligible hazard ranking. Microbats generally have smaller body sizes and don't form tight flocks so the consequences of being struck have been deemed lower. However, it is recommended to keep these species in mind when implementing mitigation measures since they potentially have high probabilities of being struck in the Sydney Region. Microbats were allocated as having a medium probability of being struck, however it is possible that some microbat species could have been reported within the 'other bat' category alongside megabats within the ATSB data. This may mean their actual strike numbers could be higher.

Table 11: Summary of hazard rankings for common guilds/functional groups likely to occur within the study area

Hazard Rank	No. of Species	Proportion of Total (%)	Functional Groups																	
			Megabats	Microbats	Corvids and allies	Cuckoos	Game fowl	Honeyeaters	Kingfishers	Nocturnal birds	Parrots	Pigeons	Rails, Crakes	Raptors	Seabirds and gulls	Smaller Songbirds	Swallows, Martins, Swifts	Waders	Waterbirds	Waterfowl
Extreme	4	3.20	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-
Very High	4	3.20	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-	1
High	14	11.20	-	-	1	-	-	-	-	1	1	-	-	2	-	1	-	-	4	4
Medium	26	20.80	-	-	4	-	-	-	-	1	4	2	2	3	-	1	1	-	8	-
Low	25	20.00	-	4	2	-	-	4	1	-	3	-	1	4	-	2	1	1	-	2
Negligible	52	41.60	-	11	1	4	-	4	2	1	-	-	-	-	-	27	2	-	-	-
Total	125	100.00	1	15	8	4	0	8	3	3	10	3	3	9	1	31	4	1	14	7

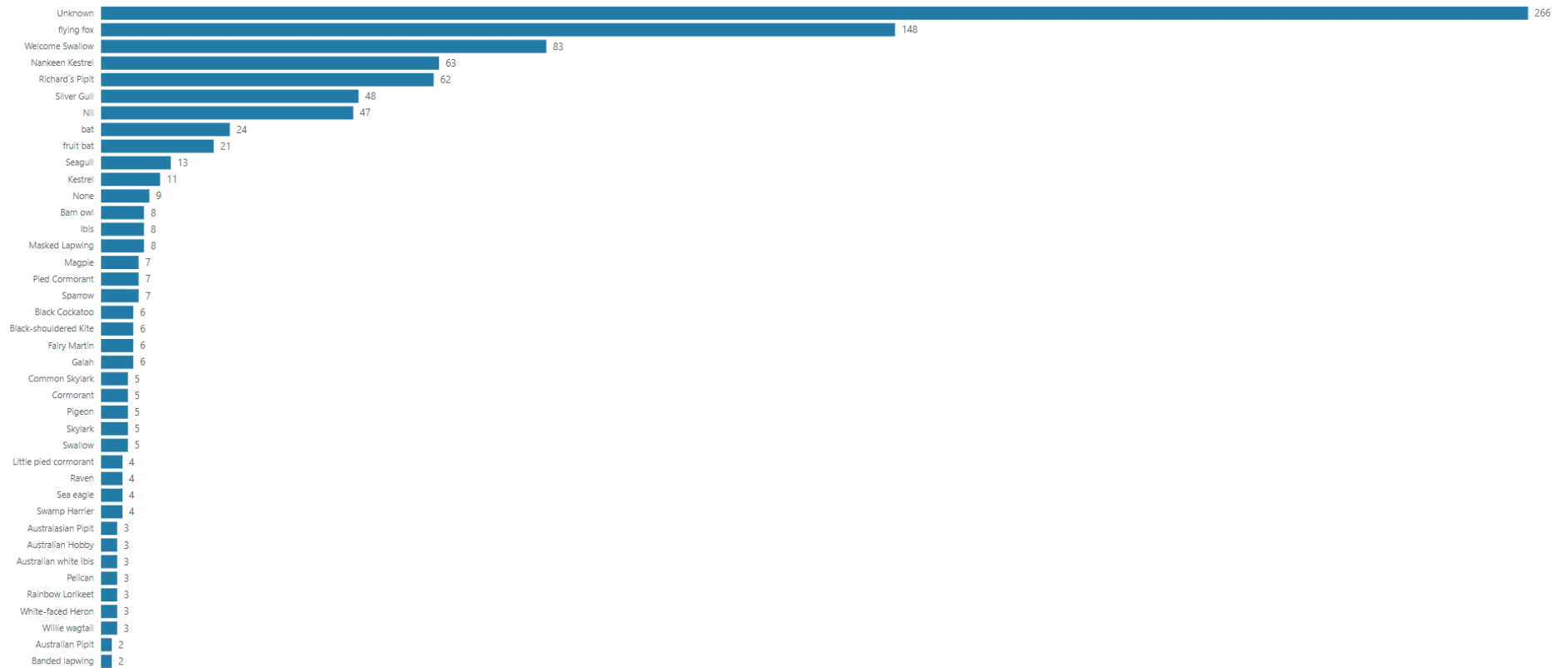


Figure 4: Bird strike by Species Recorded at Sydney Airport 2014 – 2024 (ATSB 2024)

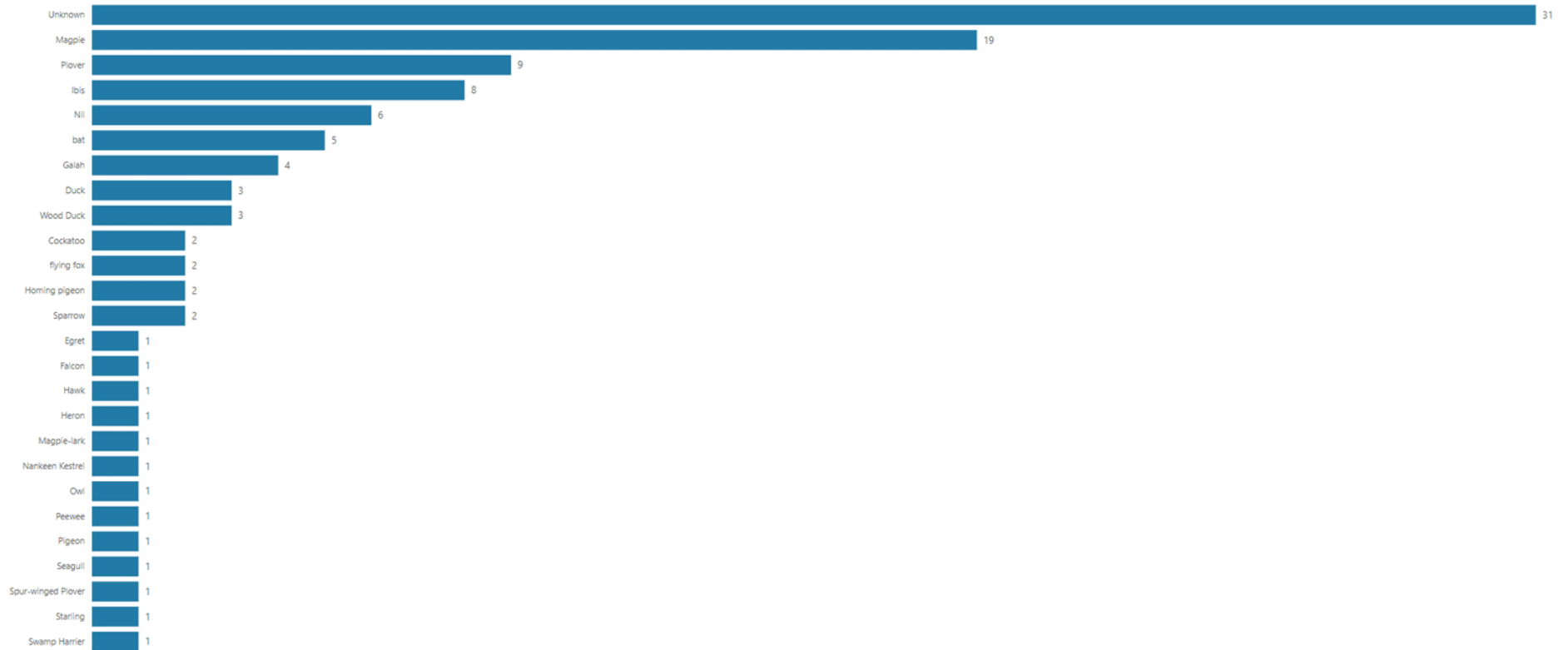


Figure 5: Bird strike by Species Recorded at Bankstown Airport 2014 – 2024 (ATSB 2024)

4. Wildlife Risk Assessment

4.1. Wildlife hazards within 3 km of Airport

The study area is within the 3 km wildlife buffer of the airport. *Technical Paper 5: Wildlife strike risk for the Western Sydney International Airport* (Avisure 2023) identified 26 off-airport hazards within 3 km of the proposed first runway. Within this area, 21 of the hazards (81%) were water bodies, mostly ponds. The remainder included a showground, agriculture and a waste recovery facility.

The high and very high-risk contributors include Duncan Creek reservoir, ponds on Elizabeth Drive, and Kemps Creek Waste Recovery Park. Additional high and very high hazards were the Wolstonholm Avenue Pond, Western Sydney Parklands and the Lake Gillawarna Ibis Colony which are outside the 3 km radius. The ponds were all characterised as being permanent water bodies which provide habitat for waterbirds. Riparian corridors and vegetation throughout the landscape were not identified as hazards in the study (Avisure 2023).

Table 12: Hazards within 3 km of airport

Hazard type within 3 km (Avisure 2023)	Number of hazards within 3 km of runway
Ponds	17
Permanent basin	3
Duncan Creek (reservoir)	1
Billabong	1
Leppington Pastoral Company	1
Agriculture	1
Kemps Creek Resource Recovery Park	1
Luddenham Showground	1

4.2. Applying the AAWSF

To assist the establishment of the Aerotropolis Precinct Planning framework, Avisure (2020) prepared a Western Sydney Aerotropolis Draft Wildlife Management Assessment Report. The report included an Aerotropolis Aviation Safeguarding Framework (AAWSF) that is an expanded version contained in the National Airport Safeguarding Framework (NASF) Guideline C. The AAWSF categorised land uses by their wildlife risk and recommends actions for those land uses depending on whether they were existing or proposed.

Appendix B contains the AAWSF table and identifies the general land uses proposed under the project. For the purposes of this report, several land uses have been grouped where the risk and action required is similar.

Where an action is 'conditional', the AAWSF states:

it may be acceptable depending on the nature of the land use, its location relative to the WSA and other off-airport wildlife hazards, wildlife mitigation applied, particular design/operational features that exclude or deter wildlife.

Where the action required is 'mitigate', the AAWSF states:

the proposed development should be assessed by a wildlife hazard expert and potential wildlife attractants be suitably mitigated either before or after the development is approved or as a

condition of approval. Where approved, information regarding the development should be provided to the relevant airport operator and it should be included in future monitoring activity undertaken by the relevant airport operator.

4.3. Existing habitat within the study area

ELA has previously completed a biodiversity assessment and a riparian assessment within the study area which describe in detail the terrestrial and aquatic habitat values currently present within the study area (ELA 2026b, ELA 2026c). Results of these are summarised here in the context of wildlife (bird and bat) attraction.

In April 2025 ELA ecologists assessed the vegetation and biodiversity values of the study area. The project site largely consists of exotic grassland/cleared land, patches of native vegetation along Badgerys Creek, existing dwellings, and planted vegetation (both native and exotic). A small former dam with water ponding in the western portion of the study area also present (Table 13). Four Plant Community Types (PCTs) were identified within the study area in a range of conditions:

- PCT 3320 Cumberland Shale Plains Woodland (Moderate and DNG)
- PCT 3975 Southern Lower Floodplain Freshwater Wetland (Moderate)
- PCT 4023 Coastal Valleys Riparian Forest (Moderate, low and regenerating)
- PCT 4025 Cumberland Red Gum Riverflat Forest (Moderate and low)

The majority of the study area consists cleared land/exotic grassland dominated by common cosmopolitan weeds (ELA 2026b). Although not considered optimal fauna habitat, these areas still may provide potential foraging or nesting habitat for a range of native and non-native birds including starlings, magpies, ravens, cockatoos and parrots. Species including Masked Lapwing (*Vanellus miles*), Little Corella (*Cacatua sanguinea*), Galah (*Eolophus roseicapilla*), Australian Magpie (*Gymnorhina tibicen*) and Australian White Ibis (*Threskiornis molucca*) can utilise grassland to forage. Open grassland also provides habitat for smaller rodents (rabbits, mice and rats), which can in turn attract predators (e.g. raptors and owls).

Patches of native vegetation within the study area provide potential foraging and roosting habitat for many avian fauna as well as megabats and microbats. Several large mature trees were observed across the study area. Native flowering canopy species present include *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus moluccana* (Grey Box) and *Angophora floribunda* (Rough-barked Apple) (ELA 2026b) which provide foraging and perching habitat for numerous bird and bat species. Insects residing within trees, or their canopy can also further attract small to large birds or bats (Avisure 2020). These were not assessed for the presence of hollows, but if present the large mature trees on site may also provide nesting habitat for hollow-nesting species or microbats. Native shrubs identified within the project Area such as *Acacia parramattensis* (Parramatta wattle) *Melaleuca styphelioides* (Prickly-leaved Tea Tree) and *Bursaria spinosa* subsp. *spinosa* may provide habitat for small passerines. Native planted vegetation including *Eucalyptus microcorys* (tallowwood) and *Callistemon viminalis* (Weeping Bottlebrush) may also provide fauna foraging and roosting habitat.

The majority of quality fauna habitat within the study area is located within or around Badgerys Creek and associated and drainage lines and the former dam/wetland area. The riparian corridor along the western boundary of the study area comprises native vegetation (PCT 4023, PCT 4025, PCT 3320) which has the potential to provide foraging, roosting and refuge habitat for high-risk species such as megabats, parrots, waterbirds, ducks and raptors. Badgerys Creek is identified by DPI Fisheries as key

fish habitat (ELA 2026c) and may contain fish that could provide a food source for birds. Additionally large woody debris identified in the creek also provides faunal habitat. The area also has high connectivity with the broader landscape and may be used as a transport corridor for mobile bird and bat species. This vegetation offers respite for fauna in an increasingly urbanised landscape. The former dam and grassy depressions/drainage lines identified within the previous assessments may also provide foraging habitat for birds and bats. Waterlogged soils around the grassy depressions creates ideal conditions for birds such as the Australian White Ibis, Masked Lapwing and Australian Magpie to access worms and other invertebrates, as the water drives them close to the surface. Waterfowl and waterbirds may also occasionally use the small former dam and associated native vegetation (PCT 3975).

In addition to the above-described fauna habitat, previous surveys also identified several abandoned buildings which could be potential microbat roosting habitat, although preliminary inspections showed no signs of microbats.

Table 13: Existing habitat for wildlife within the study area

Habitat feature	AAWSF Land Use Type	AAWSF Risk	AAWSF action*	Area (ha)
Exotic grass / cleared land	Cattle / dairy farm	Moderate	Mitigate	12.32
Native vegetation	Conservation area - dryland	Moderate	Mitigate	1.15
Small former dam	Wetland	High	Mitigate	0.20
Waterway (Badgerys Creek)	Waterway	Moderate	Mitigate	0.03
Existing dwellings	Office Building / Car Park	Very low	Monitor	0.12
Planted vegetation	Landscaping: Parks and gardens	Moderate	Mitigate	0.05



Figure 6: Existing habitat within study area mapped by AAWSF Land Use

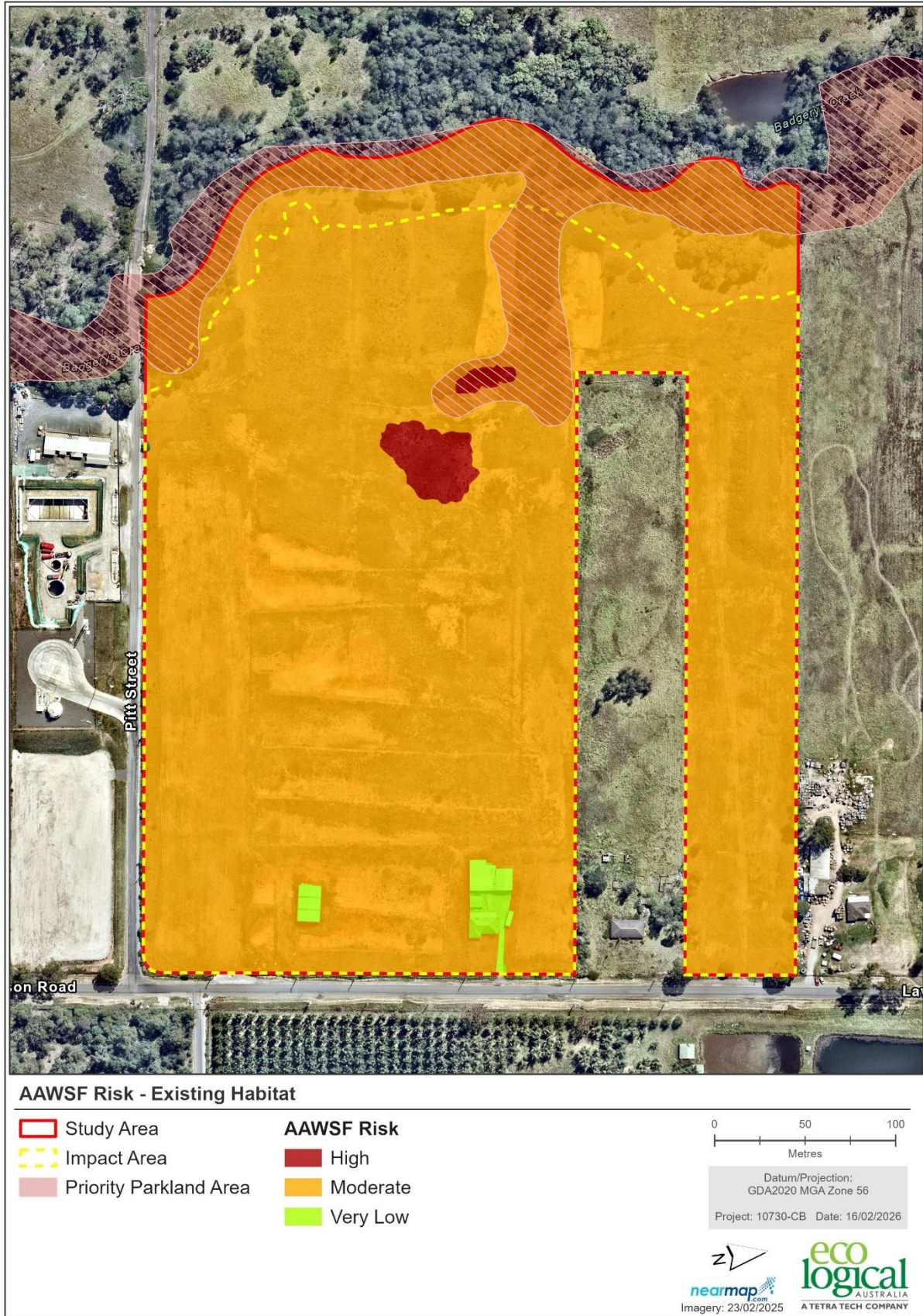


Figure 7: Existing habitat by AAWSF Wildlife Attraction Risk

4.4. Proposed habitat

The project proposes eight (8) broad land use types that could provide habitat for birds and bat species. Land uses are listed in Table 14 and include:

- Four (4) warehouse buildings and ancillary offices with a total of 46,153.9 m² GFA.
- Roads and car parks (233 on-site parking spaces split across the site).
- Sydney Water stormwater management infrastructure, in the form of:
 - two sedimentation ponds
 - two wetlands (which falls under the wetland land use type)
 - a bioretention basin (Biobasin)
 - a storage pond
- Vegetated Riparian Zone (VRZ) along Badgerys Creek, for the enhancement and restoration of the riparian corridor.
- On Lot Landscaping around areas such as:
 - Streets and transport corridors (includes street trees and verges or median strips with shrub and grass plantings).
 - Parks and gardens (includes sensory garden, sculpture and wetland educational garden).
- Urban open space/recreational spaces including an expansive flexible lawn area / amphitheatre, lawn/seating spaces, recreation and BBQ spaces, Yarning circle, pedestrian walkways/cycle loop.

Table 14 below details how each land use is categorised according to their AAWSF land use type, wildlife attraction risk and actions for proposed developments (Appendix B), and are depicted in Figure 8 and Figure 9. The below sections details specifics about each of the identified land use types.

Table 14: Proposed AAWSF land uses, risk and actions

Proposed habitat feature	AAWSF Land Use	AAWSF Risk	Action*	Area (ha)
Warehousing	Warehouse (non-food storage)	Very Low	Monitor	4.98
Roads and car parks	Car park	Very Low	Monitor	3.57
Native vegetation restoration	Landscaping: Natural area revegetation	Moderate	Mitigate	1.67
Planted vegetation	Landscaping: parks and gardens; Landscaping: streets and transport corridors	Moderate	Mitigate	1.62
Sydney Water basin system	Water retention basins	High	Conditional	0.80
Sydney Water wetland system	Wetland	High	Mitigate	0.12
Lawns / recreational areas	Urban open space	Moderate	Mitigate	0.96
Waste Area	Waste collection point (commercial)	High	Mitigate	0.01

*FOR PROPOSED DEVELOPMENTS (AAWSF SUB-AREA A – 3KM)

4.4.1. Warehouses, roads and carparks

The project includes the construction of four (4) warehouse buildings and ancillary offices with a total of 46,153.9 m² GFA, including a range of large and small format warehouse and distribution centres. Additionally, internal roads and 233 on-site parking spaces are proposed. Warehouses, roads and carparks are assigned a very low wildlife attracting risk under the AAWSF (Appendix B), and therefore no actions are required for proposed developments to mitigate wildlife risk. However, high-risk species that are adapted to urban areas such as Australian Magpie, ibis, pigeons, and starlings may become common in these developed areas. Buildings may also provide habitat for species such as pigeons, owls, microbats and swallows which can nest within roofs/eaves of buildings. Because of this, mitigation measures are recommended in these areas if high-risk species are identified to be present. Mitigation measures which will be considered include implementation of anti-bird spikes to deter species such as pigeons, swallows and owls from nesting within building structures. Proper implementation of the Waste Management Plan (WMP) (SLR 2025) is also required to reduce the attraction of high-risk species such as Australian Ibis which are known to forage in waste receptacles. Design measures to avoid wildlife hazards include waste bins which are designed and installed with fixed lids, and any bulk waste receptacle or communal waste storage areas are to be contained within enclosures that cannot be accessed by birds or flying foxes (SLR 2025).

4.4.2. Urban open space and recreational areas

The project includes the construction of open/recreation areas including:

- large flexible lawn area / amphitheatre and lawn seating spaces
- breakout/recreation seating and BBQ spaces
- central gathering area and yarning circle
- accessible pedestrian walkways/path connections/cycle loop/maintenance tracks.

Under the AAWSF, the above land uses can be categorised as urban open space. Urban open spaces have a moderate wildlife attracting risk under the AAWSF (Appendix B). Recreational/ open areas such as the ones proposed can be attractive to bird and bat species that forage within grasslands and urbanised habitats. A native lawn grass such as soft leaf buffalo grass (*Stenotaphrum secundatum*) is proposed for lawn areas as it is resilient, less invasive and low maintenance. When grasses are maintained at short lengths such as lawns, this can provide the opportunity for high-risk species such as Masked Lapwing, Little Corella, Galah, Australian Magpie, Australian White Ibis, European Starling and some waterfowl (e.g. Australian Wood Duck) the opportunity to forage. These species may also be attracted to waste receptacles and BBQ areas where organic materials may be available for foraging. Swift and swallow species also commonly occupy grassland habitats to forage on flying invertebrates.

Mitigation measures include the proper implementation of the waste management plan (SLR 2025). It is also recommended that additional mitigation measures are in place in parklands such as signage to inform the community about the issues surrounding feeding wildlife. Additional mitigation measures and adaptive management will be implemented in these areas as required upon identification of use/occupancy by high-risk bird and/or bat species.

4.4.3. On-lot Landscaping

The indicative planting strategy (Urbis 2025) proposes plantings to provide shade, form and character to create a liveable and desirable environment. Street trees and other plantings are required to

reduce the urban heat island effect and canopy cover, to support goals under the Greater Sydney Region by 2056 (Draft Greener Places Design Guide). The provision of street trees is aligned with the NSW Government’s Western City Parkland Vision and improves the aesthetics of the study area.

Proposed landscaping under the project includes:

- Canopy cluster planting (trees/large shrubs)
- Plantings of native understory within the western portion of the Project Site (Cumberland Plain Woodland Mix)
- Screening and buffer planting along the boundaries of the property and along pedestrian paths (Buffer & Shade planting mix)
- Plantings around the stormwater facilities/ wetlands (WSUD & Wetland Mix)
- Gardens (sensory garden, sculpture and wetland educational garden) (Sensory Garden Planting Mix)
- Vegetation (trees) along roads/footpaths (existing trees to be retained)

The proposed planting palette (Urbis 2025) considers existing vegetation and prioritises native species found across the Cumberland Plain were possible, while carefully selecting species that minimise wildlife attraction in areas outside the PPA. The palette also addresses bushfire risk by incorporating fire-resistant native plants such as *Waterhousia floribunda* (Weeping Lily Pilly).

Trees and large shrubs (canopy cluster planting) to be planted outside PPA areas include native species such as *Waterhousia floribunda* (Weeping Lily Pilly), *Allocasuarina littoralis* (Black She-oak), *Casuarina Glauca* (Swamp She-oak), *Geijera Parviflora* (Wilga), *Acacia binervia* (Coast Wattle), *Acacia decurrens* (Black/Green Wattle) and *Acacia parramattensis* (Sydney Green Wattle). These trees will be planted in clusters of a maximum of four individual trees, with an average of 2 - 6 m gap between clusters.

The understory will be planted with an array of native shrubs, sedges and herbs depending on the location (Urbis 2025). Areas to the west of the Project Site will be planted with a Cumberland Plain Woodland mix which includes species such as *Bursaria spinosa* (Blackthorn), *Dodonea viscosa* (Native Hop Bush), *Indigofera australis* (Australian Indigo), *Carex appressa* (Tall Sedge), *Lomandra Longifolia* (Common Mat Rush), and *Themeda australis* (Kangaroo Grass). Along the borders of the Project Site/the sides of the warehouses, a Buffer & Shade planting mix will be used for the understory. This mix includes shrubs such as *Correa alba* (White Correa) and *Westringia fruticosa* (Coastal Rosemary) and other herbs and rushes. Areas around the stormwater facilities also has a separate planting palette (WSUD & Wetland Mix) which includes common sedges, rushes and herbs found in wetland environments including *Carex appressa* (Tall Sedge), *Juncus usitatus* (Common Rush), *Lomandra longifolia* (Common Mat Rush), *Dianella longifolia* (Flax Lily), and *Viola hederacea* (Native Violet). Small gardens around the stormwater facility also is proposed (e.g. sensory gardens) which include native shrubs and herbs (Sensory Garden Planting Mix). The riparian corridor around Badgerys Creek will be subject to its own Vegetation Management Plan (VMP), as discussed in the below section.

Landscaping of street trees, parks and gardens has a moderate wildlife attracting risk under the AAWSF (Appendix B). Mitigation measures for these areas include selecting native low-risk trees and other plants species from the Western Sydney Aerotropolis DCP, Appendix B. Selected species include low-risk native trees, shrubs and grasses, except for within Parkland Priority Areas and the riparian corridor. The landscape design also has a combined target canopy cover of 17.3%, and trees will be planted in clusters of no more than four with spacing of at least 2 m between each cluster (in accordance with the DCP 2.10.3).

Planting low-risk species from Appendix B of the DCP will reduce the attractiveness to wildlife, however, this will not completely eliminate the wildlife risk. High-risk species such as Grey-headed Flying Fox, Long-billed Corella, Galah and Sulphur-crested Cockatoo may be attracted to flowering eucalyptus such as Grey Box proposed in the landscape design. Other high-risk species such as Australian Magpie and Common Starling may still occupy these spaces. Ongoing monitoring of these areas are recommended to identify if any high-risk species are present and whether additional mitigation measures are required to be implemented.

4.4.4. Vegetated Riparian Zone (VRZ)- Badgerys Creek riparian corridor

The project proposes to revegetate and restore the vegetated riparian zone (VRZ) along Badgerys Creek to be consistent with the Aerotropolis DCP objective of restoring waterways. The Badgerys Creek VRZ is largely within the Parkland Priority Area, High Biodiversity Value under the Western Parkland SEPP. The VRZ areas will be managed under a Vegetation Management Plan (VMP) (ELA 2026d). The VMP outlines areas to be revegetation as part of works and covers a five-year maintenance period plus the achievement of a performance criteria. The VMP strategy is to maintain and enhance native species cover and integrity in the riparian corridor by assisting natural regeneration through active restoration actions such as treating weed species and reintroducing native species (as plant or seed) (ELA 2026d).

The VMP has included the following three management zones to be implemented which have been designed to incorporate natural regeneration and rehabilitation of the study area:

- Zone 1: Cumberland Plain Woodland – Regeneration (0.45 ha)
- Zone 2: Swamp Oak and Cumberland River-flat Forest – Regeneration (1.16 ha)
- Zone 3: Cumberland Plain Woodland – Revegetation (0.48 ha)

The VMP details the species of plants to be used and benchmark planting densities for each VMP management zone (ELA 2026d). The VMP area will also retain all native vegetation, as required by the Western Parkland City SEPP. Within the VRZ, outside of the Priority Parkland Areas, restrictions on species selection and landscape design apply, whereby the following trigger an ecologist's assessment:

- Use of species not listed in Appendix B of the DCP
- Use of landscape species denoted within the landscape species list
- More than 5 trees planted in 1 group (meaning mature touching canopy)
- Provides for spacing between a group of 5 or more trees that is less than 100 m

Restoration of native vegetation communities within the VMP area will likely increase wildlife attraction, as revegetation efforts will improve upon existing foraging, roosting, and nesting habitat for bird and bat species. Wildlife that may be attracted include high-risk species. It is important to note that revegetation and restoration of these areas will be a process over many years, as flora species will be planted as tube stock. Wildlife attraction will increase as plants mature and wildlife attraction will also alter over time, with a change in the fauna species composition at different stages of restoration. This gives opportunity for monitoring programs and adaptive management to be implemented to identify risks early on and implement changes as necessary. Other than minimising restoration density outside of the of the VRZ and Parkland Priority Areas, no additional mitigation measures are proposed to be implemented within these areas. The VMP area will be subject to ongoing monitoring and adaptive management as required and in accordance with the WHMP (ELA 2026a).

4.4.5. Sydney Water stormwater infrastructure and wetland system

Within the western portion of the study area, four types of stormwater infrastructure are proposed, along with a catch drain (Urbis 2025). The infrastructure proposed in sequential order of receiving (and processing) stormwater, and a description of their characteristics, are:

- Two sediment ponds - 2 m in depth, typically remains filled with water (NWL – 49.1 m), will be pumped approximately every 5 years to remove accumulated sediment.
- Two wetlands - 0.4 m depth, will remain filled with water (NWL – 49.1 m).
- Bioretention basin (Bio-basin) - to fill and hold water during rainfall events for < 24 hours and to remain dry after rainfall and between rainfall events.
- Storage pond - 2 m in depth, to remain filled with water (NWL 48.55m).

These facilities are designed to manage stormwater runoff and water flow across the study area and minimise flood risks. Stormwater treatment facilities are considered under the AAWSF to have a high wildlife attracting risk, and therefore mitigation measures should be incorporated into their design.

Open bodies of freshwater are considered to have an inherent high attracting quality to wildlife as it provides resources and habitat for drinking, foraging, resting, and breeding. The type of habitat available may vary depending upon rainfall, evaporation, and drainage, that is, habitat can range from pooling, shallow through to deep water. The proposed sediment ponds, wetlands and storage pond will hold water over long periods, whereas the bio-retention basins are designed to hold water for a few hours after rainfall (< 24 hrs).

All stormwater facilities are designed in accordance with the Sydney Water guidelines (Sydney Water, v2022-1.0), which include wildlife mitigation measures such as an edge with macrophyte treatment of 2.4 m, reduced wetland edge vegetation width, vertical edges instead of slopes, stepped sandstone logs used to avoid gentle grades into the waterbody and a maximum water depth of 30 cm. This also has the benefit of maintaining an easily negotiated slope for public safety.

The Sydney Water guidelines were prepared with multiple objectives relating to sustainability of assets, health and wellbeing, connecting with country, waterway health, social amenity and the wildlife strike objective to ‘*minimise wildlife strike hazard from Western Sydney Airport*’ and acknowledge (p.12):

‘The Stormwater infrastructure are potential risks to airport operation, and significant thought and consultation has been undertaken to provide design guidance and guidelines to minimise any increase to wildlife risks. These measures include design elements to minimise attraction of problematic species, careful plant palette selection and management protocol.’

Key design considerations within this scheme to reduce the risk of bird strike include avoiding placement of bird prey habitat features in banks and bunds (e.g. logs, rocky features), avoiding open water or deep-water zones, and avoiding the creation of migratory bird wading habitat (e.g. clay pans and/or beaching).

Also incorporated into the stormwater basin design is an elevated timber boardwalk/platform and landscaping (WSUD & Wetland mix) (Urbis 2025). As discussed in section 4.4.3, all plant species outside the PPA are to be selected from Appendix B of the DCP as part of an approved species planting list, with no high-risk tree species selected for the Sydney Water acquisition land to avoid contributing further to wildlife attraction. Some plant species within the approved species planting list are “subject

to monitoring and/or maintenance plan to ensure potential for wildlife attraction is managed” as per the DCP. These species include:

- *Carex appressa* (Tall Sedge)
- *Dianella longifolia* (Flax Lily)
- *Juncus usitatus* (Common Rush)
- *Lomandra longifolia* (Common Mat Rush)

The design aspects of the stormwater facilities will mitigate against wildlife attractiveness as far as practicable, however these areas are still considered to be attractive to wildlife. Other than the bioretention basin which will drain within 24 hours, all other stormwater facilities hold water for long periods, providing foraging, drinking and refuge habitat for high-risk species. The facilities may be utilised by waterfowl, waterbirds, waders, rails, and arial feeders such as swallows and microbats. The infrastructure may also attract prey species such as frogs and reptiles.

The stormwater infrastructure will be subject to monitoring and adaptive management. Further mitigation can be adopted based on future monitoring and assessment, should high risk wildlife species occupy the study area in hazardous numbers and/or behaviours.

4.4.6. Waste Collection Points (Commercial)

The project includes the construction of a small, designated waste collection points located externally towards the north of the warehouse and office built form. Although only occupying a small area, it will feature discrete and common wildlife attractants, such as food and shelter, and therefore present a concentrated wildlife bird strike hazard. These areas are rated High risk with the AAWSF proposed development action for mitigation; as such, the proposal is subject mitigation measures under the implementation of the Waste Management Plan (WMP) (SLR 2025).

The WMP aims to implement measures to minimise the attractiveness of waste collection points and waste receptacles associated with the warehouses. Some waste storage area management practices included in the WMP are as follow:

- All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the study area.
- Waste containers and storage areas are to be kept clean and in a good state of repair. The storage spaces should include consideration for applicable weather protection measures.
- In accordance with better practice waste management, areas designated for waste storage should:
 - Allow unimpeded access by site personnel and waste disposal contractors.
 - Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation.
 - Allow sufficient space for the storage of garden waste and other waste materials onsite.
 - Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation.



Figure 8: Proposed habitat by AAWSF Land Use



Figure 9: Proposed AAWSF Wildlife Attraction Risk

4.5. Comparison of habitat availability

Table 15 below summarises the habitat availability to wildlife pre-development and under the project. The concept plan areas are based on best available designs with assumptions around landscaping as described above.

Table 15: Comparison of existing and proposed habitat

Habitat feature	AAWSF land use type	AAWSF risk rating	AAWSF Action for proposed development	Existing habitat (ha)	Proposed habitat (ha)	Change (ha)	Mitigation proposed under SSDA
VERY LOW RISK							
Buildings	Existing dwellings, Office Building, Warehouses (non-food storage)	Very low	Monitor	0.13	5.15	+ 5.02	Waste management Plan (SLR Consulting Australia 2025). Bird spikes (will be considered in design) Information signage (will be considered in design) Monitoring and adaptive management will be employed if required.
Roads, hardstand	Car park	Very Low	Monitor	-	3.55	+ 3.55	No mitigation actions proposed. Monitoring and adaptive management will be employed if required.
MODERATE RISK							
Exotic grassland	Cattle/dairy farm	Moderate	Mitigate	12.32	-	- 12.32	Nil as all areas of exotic grassland will be replaced by other land use types.
Patches of Native vegetation	Conservation area – dryland Landscaping: Natural area revegetation	Moderate	Mitigate	1.15	1.67	+ 0.52	Revegetation will follow a vegetation management plan (VMP) developed by ELA. Mitigation measures will be implemented under the WHMP (ELA 2026).
Landscaping (per Urbis 2025)	Landscaping: parks and gardens; Landscaping: streets and transport corridors	Moderate	Mitigate	0.05	1.62	+ 1.57	Plant species have been entirely selected from Appendix B of the Aerotropolis DCP Phase 2 (Urbis 2025). Additional design mitigations include planting trees in clusters (≤ 4 trees in one cluster with at least 2 m space between each cluster) and having a reduced canopy cover target (17.3%) in accordance with the DCP 2.10.3. Monitoring and adaptive management will be employed to identify and apply further mitigation if required.

Habitat feature	AAWSF land use type	AAWSF risk rating	AAWSF Action for proposed development	Existing habitat (ha)	Proposed habitat (ha)	Change (ha)	Mitigation proposed under SSDA
Lawns / recreational areas	Urban open space	Moderate	Mitigate	-	0.96	+ 0.96	A waste management Plan (SLR Consulting Australia 2025) will be implemented to reduced wildlife attractiveness of recreational areas and around waste receptacles near warehouses. Bird spikes (will be considered in design) Information signage (will be considered in design) Monitoring and adaptive management will be employed to identify and apply further mitigation if required.
HIGH RISK							
Sydney Water basin system	Water retention basins	High	Conditional	-	0.80	+ 0.80	Plant species to be used in and around stormwater infrastructure have been selected from Appendix B of the Aerotropolis DCP. The design is in accordance with the draft <i>Stormwater Scheme Infrastructure Design Guidelines</i> (Sydney Water, v2022-1.0), which minimize wildlife attraction. Monitoring and adaptive management will be employed to identify and apply further mitigation if required.
Wetland systems (Sydney Water) / wetlands	Wetland	High	Conditional	0.20	0.12	- 0.08	Plant species to be used in and around stormwater infrastructure have been selected from Appendix B of the Aerotropolis DCP. The design is in accordance with the draft <i>Stormwater Scheme Infrastructure Design Guidelines</i> (Sydney Water, v2022-1.0), which minimize wildlife attraction. Monitoring and adaptive management will be employed to identify and apply further mitigation if required.
Waste area	Waste collection point (commercial)	High	Mitigate	-	0.01	+ 0.01	A waste management Plan (SLR Consulting Australia 2025) will be implemented to reduced wildlife attractiveness of waste collection points and around waste receptacles near warehouses. Waste collection information signage (will be considered in design). Monitoring and adaptive management will be employed to identify and apply further mitigation if required.

4.6. Comparison of risk profile

Table 16 and Figure 10 below present the balance of wildlife risk ratings according to AAWSF land use for the pre-development and compare that with ratings under the development.

Under the project, the total areas of moderate wildlife risk land uses are expected to reduce by 68.3% (reduction of 9.26 ha), and the total areas of very low wildlife risk land uses are expected to increase significantly (+ 8.59 ha). This change is largely due to the proposed development of warehouses and roads which will replace existing exotic grass / cleared land.

An increase in high wildlife risk land uses are expected under the project (+ 0.73 ha). This increase is unavoidable due to the requirement of the installation of Sydney Water stormwater facilities. All stormwater facilities are designed in accordance with the Sydney Water guidelines (Sydney Water, v2022-1.0) which include wildlife mitigation measures to reduce wildlife attraction (as discussed in Section 4.4.5). Plant species around the basins will also be entirely selected from Appendix B of the DCP.

The project will reduce wildlife habitat attractiveness of the study area as far as practicable, however there is an increase in high wildlife risk land uses due to the requirement of stormwater facilities as part of the development. A large percentage of the study area will be covered by very low risk land uses under the project. High wildlife risk land uses such as stormwater facilities and wetlands will be subject to design mitigations to reduce wildlife risks as much as practicable. It should be noted that multiple farm dams (considered high wildlife attracting land uses) have previously been dewatered from the Project Site and therefore the reduction of this habitat is not considered within this assessment. Monitoring and adaptive management measures implemented as required, in accordance with a Wildlife Hazard Management Plan (WHMP) (ELA 2025a).

Table 16: Overall change in risk profile

AAWSF Risk rating	Existing Risk (ha)	Proposed Risk (ha)	Change in Risk (ha)
High	0.20	0.93	+0.73
Moderate	13.55	4.29	- 9.26
Very low	0.12	8.71	+ 8.59

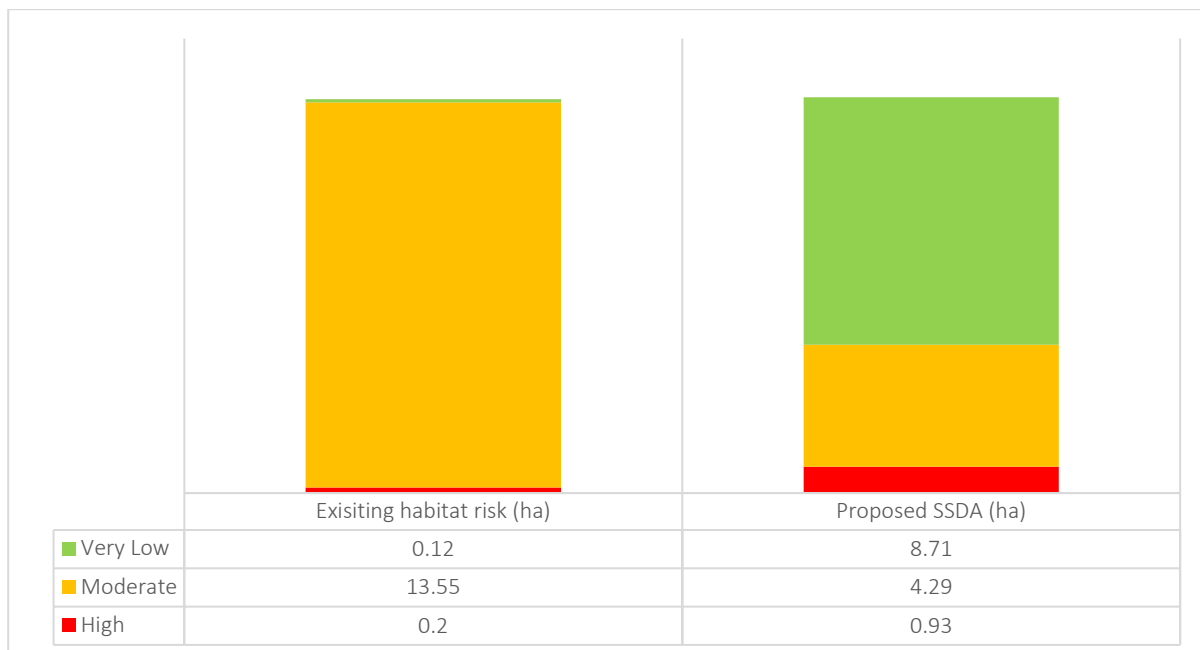


Figure 10: Change in risk profile according to AAWSF risk ratings

4.7. Further mitigation and management actions

A separate Wildlife Hazard Management Plan (WHMP) has been prepared by ELA in conjunction with this WHA, which outlines recommended management actions (ELA 2026a). The WHMP includes passive management actions, a trigger, response and action plan, and a regular monitoring regime specific to the study area (ELA 2026a). If these management actions are deemed insufficient, further mitigation measures may be considered.

Chapter 8 of the *Air Services Manual – Part 3 Wildlife Hazard Management* (ICAO 2020) identifies the following potential methods for wildlife management at aerodromes. If monitoring of the study area identifies significant airport operations risk, further mitigation may be required and should be targeted to the species of concern, noting that some methods below may not be effective for the target species over the long term. The above document acknowledges that lethal control is also an option but should only be considered as a last resort and where absolutely necessary after consultation with Western Sydney Airport.

Caution must be exercised in considering some of the methods below, as they can cause harm and distress to native species, disturbance to the general public or interference with Airport operations.

The *Air Services Manual – Part 3 Wildlife Hazard Management* (ICAO 2020) also identifies further methods such as the use of trained falcons and dogs, drones and non-lethal projectiles, however these are not deemed suitable or feasible for this development.

Table 17: Examples of further mitigation measures (ICAO 2020)

Measure	Examples
Habitat modification and exclusion techniques	<p>Habitat modification or exclusion techniques are more effective than the below repellent and harassment techniques, however these will not rid an area of all hazardous wildlife so should be used in combination with the repellent/harassment techniques under the guidance of an experienced ecologist.</p> <ul style="list-style-type: none"> Habitat modification: Removal of food, shelter and water sources. Modification of habitat such as grass length, netting over smaller waterbodies, anti-perching spikes for buildings, fencing.

Measure	Examples
	<ul style="list-style-type: none"> ● Capture and relocation: relocating birds to another area e.g. relocation breeding populations of waterfowl. ●
Audio repellents	<ul style="list-style-type: none"> ● Propane cannons: produces a shotgun-sounding blast that scares birds. This should only be used sparingly when birds are in specific areas as scaring birds may create extra hazard and in addition to birds over time habituating to the sound, some gregarious species are only scared off for a minimum period of time (e.g.: may reoccur within hours). ● Distress-call and electronic noise generation systems: recorded distress calls are broadcasted from mounted speakers. This will only be effective with associated reinforcement to provide added fear or stress. Similar issues with gregarious species and habituating as with the propellant method. ● Shell crackers and other pyrotechnics: projectiles fired that provide auditory blasts or screams as well as smoke and flashing lights to frighten birds. To be used in combination with other harassment techniques. This has safety concerns to airport operations so is not recommended in this case. some gregarious species are only scared off for a minimum period of time (e.g., may reoccur within hours).
Visual repellents	<ul style="list-style-type: none"> ● Scarecrows and similar: includes hawk effigies/silhouettes, eye-spot balloons, flags, reflective tapes and mounts of fake predators designed to move in the wind and dead birds posed in a "death pose". These methods are not suitable long-term solutions as birds get habituated. Laser projectors: handheld laser projectors projecting a red or green beam has been previously successful at disperse birds in Europe. Use near airports needs caution.
Chemical repellents	<ul style="list-style-type: none"> ● Only chemical repellents registered and approved by the proper national, regional and local authorities should be used. Caution should be taken, along with consultation with Ecologists is recommended if this method is considered. Toxic bait or other chemical repellents may have implications on native fauna. Examples include: ● Perches (polybutene's): applying sticky liquid or past formualars on perching surfaces that make birds uncomfortable, causing them to perch or roost elsewhere. ● Turf feeding (anthraquinone, methyl anthranilate): chemical sprays applied to turf (grasses) that deter birds from grazing due to aversive tastes/slight illnesses developed post ingestion. ● Water (methyl anthranilate): chemical applied to standing water to repel birds from drinking and bathing. ● Frightening agent (Avitrol [4-Aminopyridine]): Bait that causes reactions of distress symptoms and calls, which frightens other birds in the flock. This bait is toxic and primarily used at airports for pigeon control around buildings.

5. Consistency with NSW Planning Framework

The following table describes the consistency of the Concept Plan with the Western Parkland City SEPP and the Aerotropolis DCP Phase 2 controls.

Table 18: Consistency with s. 4.19 Wildlife Hazards of the SEPP (Precincts – Western Parkland City) 2021

Clause	Response
<p>(1) <i>The objective of this section is to regulate development on land surrounding the Airport where wildlife may present a risk to the operation of the Airport.</i></p>	
<p>(2) Development consent must not be granted to relevant development on land in the 13 km wildlife buffer zone unless the consent authority—</p> <p>(b) <i>has considered a written assessment of the wildlife that is likely to be present on the land and the risk of the wildlife to the operation of the Airport provided by the applicant, which includes—</i></p> <p>(i) <i>species, size, quantity, flock behaviour and the particular times of day or year when the wildlife is likely to be present, and</i></p> <p>(ii) <i>whether any of the wildlife is a threatened species, and</i></p> <p>(iii) <i>a description of how the assessment was carried out, and</i></p>	<p>This report identifies the risk of certain land use types/habitat elements in Section 4.3 and Section 4.4 in the context of wildlife attraction.</p> <p>This report describes the bird and bat species likely to utilise the study area, including listed species under state and commonwealth legislation, in Section 3. A likelihood of occurrence assessment has been completed for bird and bat species within 5 km of the study area, provided in Appendix C.</p> <p>A total of 11 species listed under Commonwealth EPBC Act or NSW Biodiversity Conservation Act were identified to have a potential to occur within the study area.</p> <p>Species Identified in the likelihood of occurrence assessment were assessed using the ‘Bird Risk Assessment Model for Airports and Aerodromes’ (Paton 2010) to determine their overall wildlife strike risk. Australian Transport Safety Bureau (ATSB) strike data was used for this assessment. The methodology for identifying species with greatest risk to operation of the airport is described in Appendix A. This method considers a species size, flocking behaviour, flight patterns and available statistics on the reported number of strikes.</p>
<p>(c) <i>is satisfied that the development will mitigate the risk of wildlife to the operation of the Airport, including, for example, measures relating to—</i></p> <p>(i) <i>waste management, landscaping, grass, fencing, stormwater or water areas, or</i></p> <p>(ii) <i>the dispersal of wildlife from the land by the removal of food or the use of spikes, wire or nets</i></p>	<p>The proposed development will reduce the overall area (ha) of moderate wildlife risk land uses (exotic grassland), replacing it with very low wildlife risk land uses (warehouses, offices, roads). The area (ha) of high wildlife risk land uses will be increased under the project (due to the development of required stormwater facilities), however this is unavoidable. These facilities are a consequence of meeting requirements set out in the DCP and agencies responsible for regulating stormwater management. As this is land use is considered likely to attract wildlife, it is subject to design mitigation measures to reduce attractiveness as far as practicable.</p> <p>Stormwater facilities are to be designed in accordance with the draft Stormwater Scheme Infrastructure Design Guidelines (Sydney Water, v2022-1.0), which minimize wildlife attraction. However, provision of water storage facilities and wetlands will provide habitat for species that pose a risk to airport operations. Mitigation measures are described in Section 4.4.</p> <p>As per the landscape design (Urbis 2025), landscape species are to be entirely selected from Appendix B of the DCP as part of the approved species planting list. The majority of species selected are low risk, with higher-risk native flowering trees comprising less than a third of the plant selection and carefully placed within Parkland Priority Areas only. Some species selected require further monitoring/maintenance as specified in the DCP.</p> <p>A waste management plan will be implemented which minimizes wildlife attraction e.g. by installing bins with fixed lids (SLR Consulting Australia 2025).</p> <p>The Developmental Plan aims to balance competing objectives and provide mitigation measures where possible to reduce the risk of wildlife affecting airport operations.</p>
<p>(3) <i>Despite subsection (2), development for the following purposes is prohibited on land in the 3km wildlife buffer zone—</i></p> <p>(a) <i>livestock processing industries</i></p> <p>(b) <i>turf farming</i></p>	<p>The Developmental Plan does not provide for these land uses.</p>

Clause	Response
<i>(c) waste or resource management facilities that consist of outdoor processing, storage or handling of organic or putrescible waste.</i>	

Table 19: Consistency with Aerotropolis DCP Phase 2 (November 2022)

Clause	Response
<p>1. Refer to Appendix B for a list of suitable landscape species.</p>	<p>As per the landscape design (Urbis 2025), landscape species are to be entirely selected from Appendix B of the DCP as part of the approved species planting list. The majority of species selected are low risk, with higher-risk native flowering trees comprising less than a third of the plant selection and carefully placed within Parkland Priority Areas only. Some species selected require further monitoring/maintenance as specified in the DCP.</p> <p>Despite majority plantings being selected from Appendix B of the DCP, there are some species selected that are attractive to high risk wildlife species due to their production of flowers/nectar/fruits.</p> <p>Nine (9) selected species in the planting schedule have the following additional requirement within the DCP for areas outside the Parkland Priority Areas:</p> <p><i>“Subject to monitoring and/or maintenance plan to ensure potential for wildlife attraction is managed”</i></p> <p>Land use types with moderate-high wildlife attractiveness will be subject to monitoring and adaptive management in case high-risk fauna species are identified in problematic numbers or behaviours which may pose a risk to airport operations, for the life of the project. Details of this are contained within the Wildlife Hazard Management Plan (ELA, 2026a).</p> <p>Four (4) species with the below requirement are proposed:</p> <p><i>“Only within 3 km wildlife buffer, where supported by ecologist report, confirming landscape design minimises wildlife attraction”</i></p> <p>As these species will be planted within the Parkland Priority Areas only, the above requirement does not apply.</p> <p>Based on overall landscaping design, this report concludes that landscape design reduces wildlife habitat attractiveness of the study area as far as practicable. Design mitigations include spacing of canopy to ensure no connected corridors or clusters, and ongoing monitoring and adaptive management if necessary.</p>
<p>2. In areas within the 3 km wildlife buffer but outside of the Parkland Priority Areas, a report prepared by a suitability qualified and experienced ecologist is to be submitted with any application when the landscaping plan:</p> <p>a. Incorporates alternative landscape species not listed within Appendix B;</p> <p>b. Incorporates landscape species denoted within the landscape species list;</p> <p>c. Will result in more than 5 trees being planted in 1 group (group refers to touching mature canopies); and/or</p> <p>d. Provides a spacing between a group of 5 or more trees that is less than 100 m.</p>	<p>The Project Site is located within the Badgerys Creek Precinct of the Western Sydney Aerotropolis (WSA), within the 3 km wildlife buffer, and partly falls within a Parkland Priority area (e.g. along Badgerys Creek).</p> <p>a) The plant selection under the landscape plan (Urbis 2025) is aligned with Appendix B of the DCP, with denoted (*) higher risk native species addressed through design mitigations and assessment of overall risk profile.</p> <p>b) A total of nine (9) species within the landscape schedule (Urbis 2025) are denoted within Appendix B with additional requirements and will be planted outside Parkland Priority Areas. While these species have wildlife attracting qualities, the project is thought to reduce wildlife attractiveness risk profile within the study area compared to existing conditions and will be subject to monitoring and adaptive management where required. This assessment concludes that plantings of these higher-risk species will not pose an unacceptable risk.</p> <p>c) The landscape design proposes to plant trees in clusters of no more than four individual trees, with spacing of at least 2 m between each cluster outside the PPA.</p> <p>d) Spacing between tree clusters are proposed to be 2 m and groups are no more than 4 trees in any one cluster.</p>
<p>3. The ecologist report is to consider building, site, and water body design outcomes and/or landscape maintenance</p>	<p>This wildlife hazard assessment report considers the land use types and landscaping design proposed under the project, which includes stormwater facilities (water body designs). Stormwater facilities are to be designed in</p>

Clause	Response
<p><i>measures that will mitigate bird and flying fox attraction and roosting areas</i></p>	<p>accordance with the draft Stormwater Scheme Infrastructure Design Guidelines (Sydney Water, v2022-1.0), which minimize wildlife attraction. Landscaping designs also incorporate measures to reduce wildlife attraction, while adhering to other requirements within the DCP such as:</p> <p style="padding-left: 40px;"><i>2.1 Celebrating culture by reflecting the cultural landscape and continuous connection of Aboriginal people and country through preservation and rehabilitation of the natural environment;</i></p> <p style="padding-left: 40px;"><i>4.5.3 Public domain and canopy cover;</i></p> <p style="padding-left: 40px;"><i>2.4.2 Conserve and manage existing vegetation and contribute to the increase of habitat and tree canopy within the Aerotropolis).</i></p> <p>Mitigation measures proposed reduce wildlife hazard risks, however the risk is not entirely eliminated. Areas around the stormwater facilities and landscaping (revegetation + gardens) may still be attractive to wildlife. It is recommended that a monitoring program is implemented, and an adaptive management approach be adopted in case high-risk species are identified. Details of this are covered in the Wildlife Hazard Management Plan (ELA, 2026a).</p>

6. Conclusion

This Wildlife Hazard Assessment (WHA) has been prepared in support of the State Significant Development (SSD) SSD-81662708, located at 125 & 145-175 Lawson Road, Badgerys Creek NSW. This report was prepared to consider the risk of wildlife to safe Airport operations.

A total of 125 bird and bat species were determined as having the potential to occur within the study area, including eleven (11) species listed under either both the EPBC Act and BC Act (3 species) or the BC Act only (8 species). One species is listed under international treaties. All 125 species identified were assessed using the *'Bird Risk Assessment Model for Airports and Aerodromes'* (Paton 2010) to determine their overall wildlife strike risk. Australian Transport Safety Bureau (ATSB) strike data was used for this assessment.

Most species with the potential to occur within the study area have a negligible or low wildlife hazard ranking (61.6% of species) and are not considered to present risks to the WSI. However, 22 high-risk species needed to be considered for mitigation and monitoring. The wildlife risk assessment determined that the highest risk strike species relevant to this development are Megabats (Grey-headed flying-fox), Pigeons (Rock Dove) and Ibis (Australian White Ibis, Straw-necked Ibis) (see Appendix E). Other megabats such as Black Flying-fox should also be considered, as although they are not recorded within proximity to the study area, they are capable of traversing large distances when foraging and may share camps with Grey-headed Flying-fox.

Mitigation of the attraction of above listed high-risk groups/species have been considered during the design of landscaping and stormwater aspects of the project. The proposed development will reduce the overall area (ha) of moderate wildlife risk land uses (exotic grassland), replacing it with very low wildlife risk land uses (warehouses, offices, roads). The area (ha) of high wildlife risk land uses will be increased under the project (due to the development of required stormwater facilities), however this is unavoidable due to the requirement for stormwater infrastructure, and waterbodies (including water storage facilities and wetlands) having a high-risk rating. Mitigation measures to reduce wildlife attractiveness have been implemented wherever possible. Residual risks are to be managed through monitoring and adaptive management as necessary, in accordance with the WHMP (ELA 2026a).

It is recommended that the study area will be monitored regularly to assess the usage by high or moderate risk bird and bat species, in accordance with the WHMP (ELA 2026a). This is especially important due to the increase in high wildlife attracting land uses under the Project. If additional mitigation measures are required, an adaptive management approach will be taken. This WHA, along with the associated WHMP (ELA 2026a) should be revised as required (e.g. for detailed design or to respond to other significant changes in landscaping, basin design or mitigation approach).

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Appendix A Methodology for wildlife risk rating

A1 Desktop and literature review

A desktop assessment was undertaken by ELA which involved a review of biodiversity databases to inform the potential bird and bat species that may occur within and in the proximity of the study area. The following sources were consulted during the assessment:

- BioNet (Atlas of NSW Wildlife) search for all species that have been previously recorded within or around the study area (5 km radius) (NSW DCCEEW 2025)
- EPBC Act Protected Matters Search Tool (PMST) for Matters of National Environmental Significance using a radius of 5 km around the Study Area (DCCEEW 2025)
- Atlas of Living Australia (ALA)
- Commonwealth Species Profile and Threats Database (SPRAT) (DCCEEW 2025)
- NSW Threatened Species Profiles (NSW DCCEEW 2025)
- eBird. 2021. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Accessed May 2025 from <http://www.ebird.org>.
- BirdLife Australia 2024. Birddata. Accessed May 2025 from <https://birddata.birdlife.org.au/home>.
- BirdLife Australia 2024. *Handbook of Australian, New Zealand and Antarctic Birds* (HANZAB) Taxonomic Structure. Available at <https://hanzab.birdlife.org.au/hanzab-taxonomic-structure/>

In addition to the database and literature searches, the following documents were reviewed to inform the desktop study and understand the existing wildlife populations in the locality:

- Eco Logical Australia Pty Ltd (ELA). 2026b. *125 & 145-175 Lawson Road, Badgerys Creek NSW – Biodiversity Assessment*, Prepared for Formus Property Pty Ltd.'
- Eco Logical Australia Pty Ltd (ELA). 2026c. *125 & 145-175 Lawson Road, Badgerys Creek NSW – Riparian Assessment*, Prepared for Formus Property Pty Ltd.'
- Bird Risk Assessment Model for Airports and Aerodromes (Paton, 2010)
- Western Sydney Aerotropolis Draft Wildlife Management Assessment Report (Avisure 2020)
- Western Sydney Airport Preliminary Bird and Bat Strike Risk Assessment (Avisure 2016)
- Australian aviation wildlife strike statistics 2008 – 2017 (ATSB 2019)
- ATSB National Aviation Occurrence Database – last accessed 12 September 2024

A2 Likelihood of occurrence

Based on the results of the desktop review, the likelihood of occurrence was determined for bird and bat species found within and in the surrounds of the study area. Likelihood of occurrence is a

determination of the potential for species to be present and make significant use of the study area. Species were ranked as having either no, low, medium, or high likelihood of occurrence, or as being present, by accessing information contained in public biological datasets (e.g. past records and species distribution models), considering species habitat requirements (including surrounding habitat connectivity), and information from previous reports (ELA 2026a, 2026b). Species ranked as medium, high or present were investigated in further detail for their Hazard Rank (see below). The determinations of a species likelihood provided are not absolute; rather, they represent a species’ potential to occur in the study area.

A3 Bird and bat hazard assessment

This Wildlife Hazard Assessment utilises the ‘Bird Risk Assessment Model for Airports and Aerodromes’ (Paton, 2010) recommended by the AAWHG to assess the relative risk of wildlife strikes posed by species identified as being present or having a medium – high likelihood of occurring from the likelihood of occurrence analysis. This risk assessment is based on information available at the time of the assessment and previous knowledge of bird and bat strike issues at other airports. These results may be refined with further information.

The intention of Paton’s risk assessment model is to identify the more hazardous species, and aid in hazard reduction programs. The Paton method assesses the probability and consequences of a strike event in relation to a species body mass, flocking characteristics, flight behaviour, abundance on or near an airport and data on past wildlife strikes at an airport. Both quantitative and qualitative data of abundances and strikes can be used to rank the probability of a species being involved in a strike. This flexibility enables airports with limited data to generate a risk ranking by species. The methodology used in this report for determining the consequence and probability scores are outlined in the following sections.

Paton’s method is intended to be specifically for birds, but for this assessment both birds and bats were assessed using this method. A dedicated risk assessment for bats is currently under development, and the AAWHG currently recommends following other methods such as Paton’s method in the interim (AAWHG 2014). The same logic when assigning scores can be applied for bats (e.g. large megabats that flock together would have similar consequences to large flocking birds). Microbats can be considered in a similar way to swifts, swallows and martins, which are of a similar size and also feed on the wing over bodies of water and in the air.

The outcome of a bird and bat risk assessment is a probability X consequence matrix as shown in Table 20 below. The species found to exhibit the highest probability of being involved in a strike and potentially result in the greatest damage (consequence) to aircraft are then listed as an ‘extreme’ or ‘very high’ risk species in the upper left-hand boxes of the matrix.

Table 20: Probability x consequence matrix for assessing the severity of bird hazards at airports and for assigning an overall Hazard Rank

Consequence of a strike	Probability/Likelihood of a strike			
	Very High	High	Medium	Low
Extreme	extreme	extreme	very high	high
Very high	very high	high	high	medium
High	high	high	medium	medium

Medium	medium	medium	low	low
Low	low	low	negligible	negligible
Very low	negligible	negligible	negligible	negligible

A4 Consequence score

Damage caused to an aircraft by a wildlife strike will depend on the body mass of the species (which determines the force of the impact), flock density (the number of individuals that may be struck in one instance), and the flight behaviour of a species. Species that fly slowly, erratically or have meandering flight paths take longer to clear airspace used by aircrafts, which may lead to longer delays, and are more likely to be struck than birds which fly rapidly and directly throughout their habitats.

Paton's (2010) model uses a simple scoring system to place species into one of:

- Six categories of body mass
- Three categories of flocking behaviour (flocking density).
- Three categories of flight behaviour – the additional category of 'Nocturnal flight activity' has been added to the standard criteria.

Table 21: Criterion for assigning species a consequence score, which estimates the level of damage to occur if involved in a wildlife strike

a) Six body mass criteria for indicative species that may be involved in a wildlife strike and their respective body mass scores.

Body Mass	Examples	Body Mass Score
< 20 g	Welcome Swallow	1
21-50 g	House Sparrow, Eurasian Skylark	2
51-200g	Common Starling, Magpie-lark, Nankeen Kestrel	4
201-1000g	Rock Dove, Galah, Silver Gull, Australian Magpie, Masked Lapwing, small ducks	8
1-5 kg	White Ibis, Straw-necked Ibis, large ducks	16
>5kg	Australian Pelican, Cape Barren Goose	32

b) Three flocking density criteria for indicative species that may be involved in a wildlife strike and their respective flock scores.

Flock Density	Examples	Flock Score
Usually solitary or widely spaced	Nankeen Kestrel, Eurasian Skylark	1
Often in loose flocks	Australian Magpie, Little Raven, Magpie-lark, Welcome Swallow, Silver Gull	2
Often in tight flock	House Sparrow, Galah, Little Corella, lorikeets, ducks, ibis	4

c) Three flight behaviour criteria for indicative species that may be involved in a wildlife strike and respective flight scores.

Flight Behaviour	Examples	Flight Score
Rapid direct	Little Raven, Australian Magpie, ducks, ibis	1
Slow, meandering, erratic, hovering, manoeuvrable	Nankeen Kestrel, Galah, Common Starling, Welcome Swallow, Magpie-lark, Silver Gull, Australian Pelican, Masked Lapwing	2
Nocturnal flight activity	Bats, owls, Tawny Frogmouth, Australian Owlet-nightjar	2

The scores for each criterion are then multiplied to calculate a consequence score, which provides a consequence category for each species (Table 22). Information used to place birds into each category were collected from *Appendix 1: Bird Species Scores* of Paton’s 2010 Assessment model and *The Australian Bird Guide Revised Edition* (Menkhorst et al 2019).

Table 22: Consequence score categories and descriptions.

Consequence Category	Consequence Score	Description of Consequence
Extreme	64-128	Aircraft subject to catastrophic damage and cannot maintain controlled flight. Substantial/serious incidents, accidents and damage caused by wildlife strike such as fatal or serious injuries, substantial aircraft damage or structural failures (engine failure, cracked or broken windshields), destruction or damage to property, emergency evacuations, emergency descents, forced landings, diversions/returns.
Very high	32	Aircraft subject to significant damage and ability to operate safely is compromised. Serious incidents and damage caused by wildlife strike such as serious injuries, precautionary descents, precautionary landings.
High	16	Aircraft subject to damage and ability to operate safely is compromised. Incidents and damage caused by wildlife strike such as dents or puncture holes to the aircraft skin, damage to wind shields or surrounding structures, damage to main rotor blades, tail rotor blades or landing gear.
Medium	8	Aircraft subject to damage however can maintain safe operations.
Low	4	Aircraft subject to minor damage however can maintain safe operations. Minor incidents and damage caused by wildlife strike. Minor incidents and damage caused by wildlife strike.
Very low	1-2	Aircraft misses the species, or strikes the species but is undamaged and can maintain safe operations. Minor incidents and damage caused by wildlife strike.

A5 Probability score

Paton’s model outlines two main methods to estimate the probability of a species being involved in a strike. One is to use the abundances of species at an airport (the more abundant species are more likely to be involved in a strike), and the other is by using the numbers of historical strikes. Since there are few data or estimates of bird abundances for airports, this assessment utilises wildlife strike data.

The AAWSF indicates that WSA is to provide a species risk assessment to proponents undertaking wildlife management assessments. However, due the airport not yet being constructed this assessment has not been completed and species data has not been captured. Therefore, existing data from the ATSB database for Sydney Airport and Bankstown Airport has been utilised to understand common strike species for this report. This data has been used as they are the closest airports to WSA. Data from the ATSB database for strike species Australia wide was also collected to supplement data collected from Sydney Airport and Bankstown Airport.

Strike data was compiled from the ATSB web-based interactive tool, which displays the number of reported birds strikes by species and location from 2008-2017 (ATSB, 2019). Data from Sydney and Bankstown airport were combined to analyse which species are most commonly struck in the area. The majority of bird strike data recorded by the ATSB involved a bird of an unknown/unidentified species. This is because pilots often don’t have an opportunity to see a bird before striking it, don’t have the ability to correctly identify a bird to species or the bird is unidentifiable due to the impact. For the purpose of this assessment, these unknown species were removed from the dataset. Species which were listed multiple times under different common names were consolidated (e.g. Seagull and Silver Gull).

To streamline the assessment, species have been combined into 19 guilds or ‘functional groups’, since the data from the ATSB website often used general terms like “Duck”, “Pigeon”, “Owl”, “Parrot” and “Eagle”. Some species examples of each functional group used in this assessment can be found in Appendix F. Data for individual species were used where possible, but for instances like “Duck” all duck species in this list were assigned the higher probability score or the “Duck” score to take a conservative approach.

The percentage of all known bird strikes for each species/functional group for both airports were calculated, and each species was placed into the below criteria (Table 23). Not all species could be assigned a probability score from the combined dataset of Sydney and Bankstown airports since there were no records for particular species/functional group at these locations. Instead, these species were assigned a score with supplementary data for Australia wide historical strikes. Supplementary data was used since common strike species/functional group were identified during the likelihood of occurrence that weren’t reported in the surrounding airports strike data, however, should be considered since they are commonly reported strike species Australia wide. Where no records for a species or group of species were found in any data set, species were assigned the lowest probability score (as they are not reported being struck).

Table 23: Criterion for assigning a species a probability score, which estimates the likelihood of a species being involved in a wildlife strike

Relative Frequency (% all strikes at airport)	Apparent Frequency	Probability Category
> 5%	Often	Very High
1-5%	Some	High
0.1-1%	Occasional	Medium
< 0.1%	Rare/None	Low

A6 Limitations

It is important to take note of the limitations of the ATSB data collected. ATSB data is collected through mandatory occurrence reporting requirements of the Transport Safety Investigation Act 2003 and associated Regulations from the aviation industry. Only confirmed bird strikes are included, and suspected or near misses with birds are not reported. Data quality and consistency are dependent on what is reported. It is unclear on which individuals are involved in the identification of species, it could be from an onsite ecologist, or someone untrained in bird identification. In addition to this, strike data may not provide the best estimate of the likelihood of a strike and is a reactive approach in that species are only identified after one or more strikes. The probability scores gained in this assessment can only provide a general estimation/guide on the probabilities of each species being struck. Caution should be taken in its interpretation.

Misidentification of species or grouping of species within broader common names or groups within the ATSB data, may also result in inaccuracies with the hazard rankings. Until further research is undertaken on specific species and their relative bird strike numbers, a conservative approach has been adopted.

In addition to this, there is recent evidence to suggest that some bird species have shifting distributions, with very likely links to changing climates. Some species, such as Pacific Baza (*Aviceda subcristata*) and Pied Butcherbird (*Cracticus nigrogularis*), have undergone significant southward range expansions (Silcocks and Sanderson 2007). Species such as White-breasted Woodswallow (*Artamus leucorhynchus*) and Brahminy Kite (*Haliastur indus*) have also been reported outside of their usual distribution and further down the eastern coastal regions around Sydney and

Wollongong (eBird 2025). While these species (except for Pied Butcherbird) are not been included within this hazard assessment given their lack of records, it is likely that they, among others, may need to be included in future.

Appendix B Aerotropolis Wildlife Safeguarding Framework (AAWSF)

The Aerotropolis Aviation Wildlife Safeguarding Framework (AAWSF) provides guidance on assessing and managing wildlife risk. The AAWSF was adapted by Avisure (2020) from the National Airports Safeguarding Framework (NASF) to respond specifically to the land uses and planning framework of the Western Sydney Aerotropolis.

Green boxes are relevant land uses included in the project, sub-area (i.e. 3 km wildlife buffer area) and required action.

Land Use ¹²	Standard Instrument Definition	Wildlife Attraction Risk	Western Sydney Aerotropolis: Actions for Existing Developments					Western Sydney Aerotropolis: Actions for Proposed Developments / Changes to Existing Developments				
			3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)	3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)
			Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2		Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	(Area C)
Agriculture												
Abattoir	Livestock processing industry	Very High	Mitigate	Mitigate	Mitigate	Mitigate	Mitigate	Incompatible	Incompatible	Mitigate	Mitigate	Mitigate
Turf farm	Intensive plant agriculture	Very High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Incompatible	Incompatible	Mitigate	Monitor	Monitor
Piggery	Intensive livestock agriculture	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Orchard	Intensive plant agriculture	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Fish processing /packing plant	Livestock processing industry	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Aquaculture	Aquaculture	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Farm dam	Water storage facility	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Crops (e.g. wheat, grains, rice, legumes)	Agriculture	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Grain storage	Storage Premises (or ancillary)	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Cattle /dairy farm	Intensive livestock agriculture	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Poultry farm	Intensive livestock agriculture	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Plant nursery	Plant nursery	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Viticulture	Viticulture	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Market farms and gardens	Garden Centre	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Forestry	Forestry	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Horticulture	Horticulture	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Conservation and Natural Areas												
Wildlife sanctuary - wetland	Environmental protection works	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Conservation area - wetland	Environmental protection works	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Wildlife breeding/roosting	Environmental protection works	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Flying-fox camp	N/A – dependent on geographical context of camp	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Wetland	Wetland	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Wildlife sanctuary - dryland	Environmental protection works	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Conservation area - dryland	Environmental protection works	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Waterway (e.g. creeks, rivers)	Waterway	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Natural areas	Environmental facility or environmental protection works	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Recreation												
Showground	Recreation facility (outdoor) or (major)	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Fish cleaning facilities	N/A	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Public feeding of wildlife	N/A	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor

Land Use ¹²	Standard Instrument Definition	Wildlife Attraction Risk	Western Sydney Aerotropolis: Actions for Existing Developments					Western Sydney Aerotropolis: Actions for Proposed Developments / Changes to Existing Developments				
			3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)	3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)
			Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	(Area C)	Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	(Area C)
Urban open space (e.g. cycleways, green areas, pedestrian walkways)	Recreational area	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Racetrack / horse riding school	Recreation facility (outdoor)	Moderate	Mitigate	Monitor	Monitor	Monitor	Monitor	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Golf course	Recreation facility (outdoor)	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Sports facility (tennis, bowls, etc)	Recreation facility (outdoor)	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Sports fields	Recreation area	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Park / Playground	Recreation area	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Picnic / camping ground	Camping ground	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Water sport facilities	Recreational facility (outdoor)	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Boat ramps	Boat ramp	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Recreational fishing areas	N/A	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Commercial												
Food processing	Agricultural produce industry or Livestock processing industry	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Fast food / drive-in / outdoor restaurant	Food and drink premises	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Earthworks	N/A - only during construction of other uses	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Warehouse (food storage)	Warehouse and distribution centre	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Shopping centre	Retail premises	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Marina	Marina	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Zoo	Animal boarding or training establishment	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Markets	Market	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Construction	N/A - only as ancillary to other purposes	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Office building	Office premises	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Hotel / motel	Hotel / motel	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Car park	Car park	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Cinemas	Entertainment facilities	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Warehouse (non-food storage)	Warehouse and distribution centre or Storage premises	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Petrol station	Service station	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Public transport facility	N/A	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Aerospace industry	N/A	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
School/university	Educational establishment	Very Low	Monitor	No Action	No Action	No Action	No Action	Monitor	No Action	No Action	No Action	No Action
Utilities												
Organic waste facility - open	Waste or resource management facility	Very High	Mitigate	Mitigate	Mitigate	Mitigate	Mitigate	Incompatible	Incompatible	Mitigate	Mitigate	Mitigate
Putrescible waste facility - landfill - open	Waste disposal facility	Very High	Mitigate	Mitigate	Mitigate	Mitigate	Mitigate	Incompatible	Incompatible	Mitigate	Mitigate	Mitigate
Putrescible waste facility - transfer station - open	Waste or resource transfer station	Very High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Incompatible	Incompatible	Mitigate	Monitor	Monitor
Sewage / wastewater treatment facility	Sewage treatment plant	High	Mitigate	Mitigate	Mitigate	Mitigate	Mitigate	Conditional	Conditional	Mitigate	Mitigate	Mitigate
Water retention basins	Water storage facility	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor

12 Land Use	Standard Instrument Definition	Wildlife Attraction Risk	Western Sydney Aerotropolis: Actions for Existing Developments					Western Sydney Aerotropolis: Actions for Proposed Developments / Changes to Existing Developments				
			3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)	3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)
			Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	(Area C)	Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	(Area C)
Waste collection points (commercial)	N/A	High	Mitigate	Mitigate	Mitigate	Monitor	Monitor	Conditional	Mitigate	Mitigate	Monitor	Monitor
Organic waste facility - enclosed	Waste or resource management facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Putrescible waste facility - landfill - enclosed	Waste disposal facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Putrescible waste facility - transfer station - enclosed	Waste or resource transfer station	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Non-putrescible waste facility - landfill	Waste disposal facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Dams	Water storage facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Stormwater drains	Water storage facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Non-putrescible waste facility - transfer station	Waste or resource transfer station	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Potable water treatment facility	Resource recovery facility	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Stormwater management facilities	Water storage facility	Low	Monitor	Monitor	Monitor	No Action	No Action	Mitigate	Monitor	Mitigate	No Action	No Action
Landscaping and Vegetation												
Landscaping: parks and gardens	Recreation area	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: natural area revegetation	Environmental protection works	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: streets and transport corridors	Road	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: roads and motorways	Road	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: rooftop gardens	N/A	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor	Mitigate	Monitor	Mitigate	Monitor	Monitor

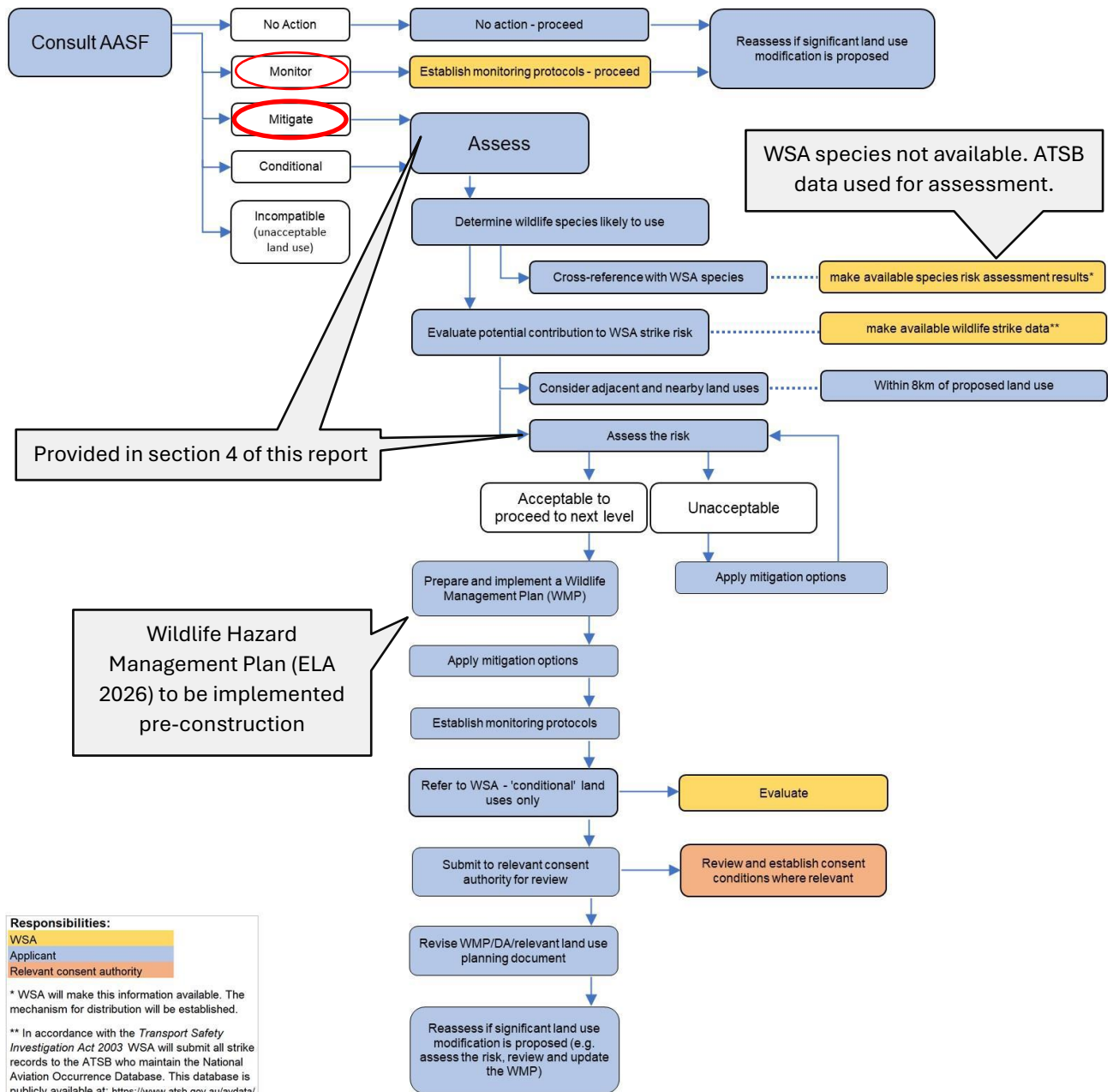


Figure 11: Markup showing how the wildlife hazard assessment process (Avisure 2020) has been addressed

Appendix C Likelihood of Occurrence Assessment

C1 Terms used

Likelihood of Occurrence	BC Act Status	EPBC Act Status
<p>Present: Known resident of the study area based on site observations, recent database records (i.e. within last ten years) or expert advice.</p> <p>High: Recent records of the species in the local vicinity (i.e. within the last 10 years); and/or, the study area contains high quality or critical/ preferred habitat.</p> <p>Moderate: Previous records of the species in the local vicinity; and/or, the study area contains moderate quality or seasonal habitat.</p> <p>Low: Limited previous records of the species in the local vicinity; and/or, the study area contains habitat the species may use opportunistically or en-route to areas of preferred habitat.</p> <p>None: No suitable habitat and/or outside species range.</p>	<p>EX: Extinct</p> <p>CE: Critically endangered</p> <p>E: Endangered</p> <p>V: Vulnerable</p>	<p>EX: Extinct</p> <p>CE: Critically endangered</p> <p>EN: Endangered</p> <p>VU: Vulnerable</p> <p>CD: Conservation dependent</p>

C2 Likelihood of Occurrence – Birds

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Corvids and allies	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	Ma		178	11/07/2023	BioNet	Widespread and common. Outside the breeding season, large family groups and flocks of up to a hundred birds form. The Black-faced Cuckoo-shrike is found in almost any wooded habitat, with the exception of rainforests. It is also familiar in many suburbs, where birds are often seen perched on overhead wires or television aerials.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Corvids and allies	<i>Coracina papuensis</i>	White-bellied Cuckoo-shrike	Ma		1	19/09/2017	BioNet	Savanna, woodlands, Eucalyptus forests, riparian forest, rainforest, littoral forest, river redgum bushland, mangroves, open grasslands, coconut plantations, farmlands, and suburban gardens.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest/farmland habitat is present within the study area.
Corvids and allies	<i>Corcorax melanorhamphos</i>	White-winged Chough			39	22/09/2022	BioNet	Found in open forests and woodlands. They tend to prefer the wetter areas, with lots of leaf-litter, for	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								feeding, and available mud for nest building.		woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Corvids and allies	<i>Corvus coronoides</i>	Australian Raven			329	2/08/2024	BioNet	Found in all habitat types including: Wetland, Coastal, Heathland, Forest, Woodland, Rainforest. Not found in the more arid areas of Western Australia and wet tropics of Queensland.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek
Corvids and allies	<i>Corvus mellori</i>	Little Raven	Ma		2	5/08/2019	BioNet	Scrub, agricultural areas, grazing pasture, woodlands to treeless plains, coasts, and suburbs.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Corvids and allies	<i>Cracticus nigrogularis</i>	Pied Butcherbird			7	24/06/2020	BioNet	Drier forests and woodlands and often approaches parks and houses.	High	This is a common species in urban and agricultural areas. Suitable woodland/forest habitat exists within the study area.
Corvids and allies	<i>Cracticus torquatus</i>	Grey Butcherbird			154	7/09/2022	BioNet	Found in a range of wooded habitats, including suburban areas. In inland areas, the birds tend to favour the denser forests.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										habitat exists within the study area, particularly beside Badgerys Creek.
Corvids and allies	<i>Gymnorhina tibicen</i>	Australian Magpie			277	21/08/2024	BioNet	Found wherever there is a combination of trees and adjacent open areas, including parks and playing fields. They are absent only from the densest forests and arid deserts. Heathland, Woodland, Coastal, Island, Urban, Grassland.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Corvids and allies	<i>Strepera graculina</i>	Pied Currawong			42	16/11/2023	BioNet	Wet and dry sclerophyll forests, rural and semi-urban environments throughout eastern Australia.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Cuckoos	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	Ma		18	5/08/2019	BioNet	Temperate forests, subtropical or tropical mangrove forests, subtropical or tropical moist montane forests, paddocks, orchards and gardens.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek. Host species likely to occur within the study area.
Cuckoos	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	Ma		16	25/10/2018	BioNet	Many wooded habitats (such as open and dry woodland and	Moderate	Recently recorded within 5 km of the study area. Some suitable

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								forest) with a range of understoreys from grasses to shrubs or heath. Sometimes found near clearings and in recently logged or burnt forests. Found in farmland with some trees, orchards, vineyards and urban parks and gardens.		woodland/forest habitat exists within the study area, particularly beside Badgerys Creek. Host species likely to occur within the study area.
Cuckoos	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	Ma		5	30/09/2018	BioNet	A range of wooded habitats from lightly wooded to rainforest, usually in the tree canopy. It is mostly found in eucalypt areas.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek. Host species likely to occur within the study area.
Cuckoos	<i>Chalcites osculans</i>	Black-eared Cuckoo	Ma		N/A	N/A	PMST	Occurs in open woodland and shrubland and is often found in vegetation along creekbeds. Occurs with their principal hosts, the Speckled Warbler and Redthroat.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek. Host species not recorded in the surrounding areas.
Cuckoos	<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	Mi (CAMBA, JAMBA, ROKAMBA)		N/A	N/A	PMST	Inhabits forests, occurring in coniferous, deciduous and mixed forest.	None	Not recorded within 5 km of the study area, limited suitable forest habitat is present within the study area.
Cuckoos	<i>Eudynamys orientalis</i>	Eastern Koel			5	25/12/2016	BioNet	Common Koels are found in tall forests	Low	Few recent records within 5 km of the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								and are common in suburban areas.		Limited suitable woodland/forest habitat is present within the study area. This species prefers tall forest habitats.
Cuckoos	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	Ma		29	25/10/2018	BioNet	It is found in Australia, Christmas Island, Indonesia, New Zealand, and Papua New Guinea. Its natural habitats are subtropical or tropical dry forests and subtropical or tropical mangrove forests.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek. Host species likely to occur within the study area.
Cuckoos	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	Ma		1	25/10/2018	BioNet	Found in tall open forests, usually where host species occur. The Channel-billed Cuckoo lays its eggs in the nests of the Australian Magpie, <i>Gymnorhina tibicen</i> , the Pied Currawong, <i>Strepera graculina</i> and members of the crow family (Corvidae).	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Game fowl	<i>Coturnix pectoralis</i>	Stubble Quail	Ma		1	18/05/2006	BioNet	Lives in the grasslands and shrublands of temperate regions, usually in well-watered areas, but will move into arid areas after floods or rain. It prefers tall, dense vegetation, especially grasslands,	Low	Few records exist within 5 km of the study area from over 10 years ago. No suitable habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								but will use lower vegetation.		
Game fowl	<i>Gallus gallus</i>	Red Junglefowl			1	30/09/2018	BioNet	Red junglefowl prefer disturbed habitats and edges, both natural and human-created.	Low	Few recent records within 5 km of the study area. Limited suitable habitat is present within the study area.
Game fowl	<i>Pavo cristatus</i>	Indian Peafowl			2	15/01/2022	BioNet	It is found in moist and dry-deciduous forests, but can adapt to live in cultivated regions and around human habitations and is usually found where water is available.	Low	Few recent records within 5 km of the study area. Limited suitable forest habitat is present within the study area.
Game fowl	<i>Synoicus ypsilophora</i>	Brown Quail			4	30/09/2018	BioNet	Agricultural areas, wet grasslands, shrublands, spinifex savannah, and freshwater wetlands.	Low	Few recent records within 5 km of the study area. Limited suitable grassland/wetland habitat is present within the study area.
Seabirds and gulls	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	Ma		1	13/06/2019	BioNet	The Silver Gull is found at virtually any watered habitat and is rarely seen far from land. Birds flock in high numbers around fishing boats as these leave or return to the coast, but seldom venture far out to sea.	Moderate	Few recent records within 5 km of the study area. Potential suitable habitat exists within the study area.
Honeyeaters	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill			9	12/04/2021	BioNet	Heath, forest and woodland.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										exists within the study area, particularly beside Badgerys Creek.
Honeyeaters	<i>Anthochaera carunculata</i>	Red Wattlebird			34	22/09/2022	BioNet	Forests, woodlands and gardens.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Honeyeaters	<i>Anthochaera chrysoptera</i>	Little Wattlebird			7	17/11/2015	BioNet	Prefers the drier and often scrubby, habitats, such as banksia heaths, forests, woodlands and urban parks and gardens.	High	This is a common species in urban and agricultural areas. Suitable woodland/forest habitat exists within the study area.
Honeyeaters	<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	N/A	N/A	PMST	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions. Eucalypt woodland and open	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of <i>Casuarina cunninghamiana</i> (River Oak).		
Honeyeaters	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater			57	25/10/2018	BioNet	Found in open forests and woodlands, often near water and wetlands. It uses ridges, sand dunes, valleys and rivers when migrating. It is often found in urban areas, including in remnant bushland, as well as parks and gardens.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Honeyeaters	<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater			1	17/11/2021	BioNet	Open forests, woodlands, mangroves and coastal heathlands close to water in tropical, sub-tropical and wetter temperate zones.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Honeyeaters	<i>Grantiella picta</i>	Painted Honeyeater	VU	V	N/A	N/A	PMST	Prefers forest/woodland, riparian woodlands of black box and river red gum, box-ironbark-yellow gum woodlands with mistletoe a high number of mature	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								trees. Also occurs in acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens.		
Honeyeaters	<i>Lichenostomus melanops</i>	Helmeted Honeyeater, Yellow-tufted Honeyeater	CR		1	9/08/2007	BioNet	Found in open dry forests and woodlands dominated by eucalypts, and often near water. They sometimes visit gardens. The endangered Helmeted Honeyeater (subspecies <i>L. m. cassidix</i>) is confined to narrow patches of tall forest along streams or in swamps.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable habitat exists within the study area within riparian vegetation along Badgerys Creek.
Honeyeaters	<i>Manorina melanocephala</i>	Noisy Miner			301	21/08/2024	BioNet	Found in woodlands and open forests. They have also become well adapted to suburban situations and are a common sight in parks and gardens.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Honeyeaters	<i>Manorina melanophrys</i>	Bell Miner			26	6/05/2019	BioNet	Found mainly in open eucalypt forests and woodlands with a dense shrubby understorey.	Low	Recently recorded within 5 km of the study area. However, there is limited suitable open forest/woodland with a

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										dense understory within the study area.
Honeyeaters	<i>Meliphaga lewinii</i>	Lewin's Honeyeater			1	28/07/2002	BioNet	Prefers the wetter parts of eastern Australia, from northern Queensland to central Victoria. Found in both rainforest and wet sclerophyll forest, and often wanders into more open woodland. It is a common bird, and its call is often heard in these areas.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable habitat exists within the study area. This species prefers wetter forest habitats.
Honeyeaters	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater			7	18/05/2006	BioNet	Prefers open eucalypt forests and woodlands in all but the most arid zones and from the coast to subalpine areas. It is sometimes seen in parks and gardens.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable woodland/forest habitat exists within the study area.
Honeyeaters	<i>Melithreptus lunatus</i>	White-naped Honeyeater			6	30/09/2018	BioNet	Found in open forests and woodlands, mainly in the temperate zone, and rarely in drier areas. Found in urban gardens, commonly visiting nectar feeders in areas near forests.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Honeyeaters	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater			18	19/09/2017	BioNet	Open forests and woodlands with a sparse understorey, especially around wetlands, and	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								sometimes in rainforests. It can be seen in urban areas in flowering plants of streets, parks and gardens.		area, particularly beside Badgerys Creek.
Honeyeaters	<i>Nesoptilotis leucotis</i>	White-eared Honeyeater			4	27/06/2009	BioNet	Forests, woodlands, heathlands, mallee and dry inland scrublands. A Eucalyptus canopy, rough bark and a shrub layer are the most important requirements for white-eared honeyeaters.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable woodland/forest habitat exists within the study area.
Honeyeaters	<i>Philemon corniculatus</i>	Noisy Friarbird			19	12/04/2021	BioNet	Dry forests and eucalypt woodlands, as well as coastal scrub, heathlands and around wetlands and wet forests, and is found in most climate zones, extending into arid areas along rivers.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Honeyeaters	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater			2	24/06/2020	BioNet	Common in heath, forests, woodland and gardens, mainly where grevilleas and banksias are found. It is inquisitive and approaches humans. It also mixes with other types of honeyeaters.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Honeyeaters	<i>Ptilotula fusca</i>	Fuscous Honeyeater			2	30/09/2018	BioNet	Open dry eucalypt forests and woodlands with shrubby or open grassy understorey. Sometimes found on farms with remnant forest patches and sometimes seen in gardens.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Honeyeaters	<i>Ptilotula penicillata</i>	White-plumed Honeyeater			93	1/05/2024	BioNet	Found in open forests and woodlands, often near water and wetlands. It is scarce or absent in arid regions unless water artificially supplied (e.g. water troughs for stock). Its overall distribution is linked to River Red Gums.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Kingfishers	<i>Ceyx azureus</i>	Azure Kingfisher			11	19/09/2017	BioNet	Never far from water, preferring freshwater rivers and creeks as well as billabongs, lakes, swamps and dams, usually in shady overhanging vegetation. It is sometimes seen in parks on rivers, as well as duck or goldfish ponds in urban areas.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Kingfishers	<i>Dacelo novaeguineae</i>	Laughing Kookaburra			71	9/03/2024	BioNet	Forests, open woodlands, or on the edges of plains.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Kingfishers	<i>Todiramphus sanctus</i>	Sacred Kingfisher	Ma		18	10/02/2023	BioNet	Inhabits woodlands, mangroves and paperbark forests, tall open eucalypt forest and melaleuca forest.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Large flightless birds	<i>Dromaius novaehollandiae</i>	Emu			4	17/02/2017	BioNet	Emus live in various habitats across Australia both inland and near the coast. They are most common in areas of savannah woodland and sclerophyll forest, and least common in heavily populated districts and arid areas.	Low	Few recent records within 5 km of the study area. Limited suitable habitat is present within the study area.
Nocturnal birds	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar			3	1/09/2023	BioNet	Any tree-studded area where there are suitable hollows, although open areas are also visited. During the day it roosts in hollow branches and tree trunks. The birds form permanent bonds, and pairs occupy the same territory throughout the year.	Moderate	Few recent records within 5 km of the study area, however this is a cryptic species and potential foraging/nesting habitat exists within the study area within the native remnant vegetation.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Nocturnal birds	<i>Ninox novaeseelandiae</i>	Southern Boobook	Ma		2	30/09/2018	BioNet	A variety of habitats from dense forest to open desert, including woodlands, rural, heath and urban habitats.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Nocturnal birds	<i>Podargus strigoides</i>	Tawny Frogmouth			39	2/11/2023	BioNet	Forests and woodlands, scrub and heathland vegetation, savannahs, and urban areas. Rarely seen in heavy rainforests and treeless deserts. Seen in large numbers in areas populated with many river gums and casuarinas, and can be found along river courses if these areas are timbered.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Nocturnal birds	<i>Tyto javanica</i>	Eastern Barn Owl			6	1/05/2023	BioNet	Open, often arid (dry) country, such as farms, heath and lightly-wooded forest.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Alisterus scapularis</i>	Australian King-Parrot			2	12/06/2024	BioNet	Rainforests or wet sclerophyll forests.	Low	Few records within 5 km of the study area. Suitable rainforest/wet forest habitat is not present within the study area.
Parrots	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo			71	20/03/2024	BioNet	A variety of timbered habitats and are common around human settlements. The birds stay in the	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								same area all year round.		Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Cacatua sanguinea</i>	Little Corella			43	2/08/2024	BioNet	Often form large flocks, especially along watercourses and where seeding grasses are found.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Cacatua tenuirostris</i>	Long-billed Corella			38	21/04/2022	BioNet	Grassy woodlands and grasslands, including pasture and crops, as well as parks in urban areas.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	EN	E	N/A	N/A	PMST	Gang-gang Cockatoos primarily occur within the temperate eucalypt forests and woodlands of mainland south-east Australia. The species is an altitudinal migrant. During summer months, Gang-gang Cockatoos primarily inhabit	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								mature, wet sclerophyll forests, typically dominated by eucalypts. During winter months, Gang-gang Cockatoos tend to range beyond montane forests to inhabit woodland assemblages at lower, drier altitudes		
Parrots	<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	VU	V	1	27/03/2023	BioNet, PMST	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Parrots	<i>Eolophus roseicapilla</i>	Galah			137	2/08/2024	BioNet	Found in large flocks in a variety of timbered habitats, usually near water.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Glossopsitta concinna</i>	Musk Lorikeet			3	11/07/2023	BioNet	Found in tall, open, dry forest and woodlands, dominated by eucalypts and are	Moderate	Few recent records within 5 km of the study area. Potential suitable woodland/forest habitat

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								usually found in the canopy. They are also seen in suburban areas, parks and street trees. They roost or loaf in tall trees away from their feeding sites.		exists within the study area.
Parrots	<i>Lathamus discolor</i>	Swift Parrot	CE, Ma	E	2	26/03/2019	BioNet, PMST	Non-breeding winter migrant. Prefers dry forest and woodland, particularly box-ironbark forest in central and NE Victoria, and eucalyptus sp. within greater Melbourne . Feeds on nectar and lerps of winter flowering eucalyptus including Grey Box (<i>Eucalyptus microcarpa</i>), Red Ironbark (<i>Eucalyptus tricarpa</i>), Mugga Ironbark (<i>Eucalyptus sideroxylon</i>) (far north-east Victoria), Yellow Gum (<i>Eucalyptus leucoxylon</i>) and White Box (<i>Eucalyptus albens</i>).	Moderate	Few recent records within 5 km of the study area. Potential suitable woodland/forest habitat exists within the study area.
Parrots	<i>Neophema chrysostoma</i>	Blue-winged Parrot	Vu, Ma	V	N/A	N/A	PMST	Occurs in range of habitats from coastal, sub-coastal, and inland areas, through to semi-arid zones.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								Throughout their range they favour grasslands and grassy woodlands, and are found near wetlands both by the coast and in semi-arid zones. Can also be found in altered environments like airfields, golf courses, and paddocks		vegetation along Badgerys Creek and the exotic grasslands.
Parrots	<i>Nymphicus hollandicus</i>	Cockatiel			1	30/04/1996	BioNet	The Cockatiel is seen in pairs or small flocks, in most types of open country, usually near water. It is common throughout its range, especially in the north and the more arid inland areas.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable habitat exists within the study area.
Parrots	<i>Parvipsitta pusilla</i>	Little Lorikeet		V	1	19/09/2017	BioNet	Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								viable populations of the species.		
Parrots	<i>Platycercus elegans</i>	Crimson Rosella			2	9/05/2006	BioNet	The Crimson Rosella is commonly associated with tall eucalypt and wetter forests.	Low	A common species in Western Sydney, although few records exist within 5 km of the study area, from over 10 years ago. Limited suitable foraging habitat exists within the study area.
Parrots	<i>Platycercus eximius</i>	Eastern Rosella			81	5/08/2019	BioNet	Found in open woodlands, grasslands, farmlands and remnant bushland. Often found in urban habitats such as parks, gardens and golf courses.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Psephotus haematonotus</i>	Red-rumped Parrot			217	2/08/2024	BioNet	Found in open grasslands or lightly timbered plains, as well as along watercourses and in mallee farmlands with access to water.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet			1	24/06/2020	BioNet	Lives in lowland eucalypt forests and woodlands but also occurs in heathlands and well-treed urban	Moderate	Few recent records within 5 km of the study area. Potential suitable woodland/forest habitat

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								areas, including parks and gardens.		exists within the study area.
Parrots	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet			48	21/08/2024	BioNet	The Rainbow Lorikeet is found in a wide range of treed habitats including rainforest and woodlands, as well as in well-treed urban areas.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Parrots	<i>Zanda funerea</i>	Yellow-tailed Black-Cockatoo			11	19/09/2017	BioNet	Native temperate forests, while also being ubiquitous in pine plantations, and occasionally in urban areas, as long as there is a plentiful food supply.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Pigeons	<i>Columba livia</i>	Rock Dove			83	21/08/2024	BioNet	Prefers open agricultural areas.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Pigeons	<i>Geopelia humeralis</i>	Bar-shouldered Dove			1	21/05/2014	BioNet	Woodland with a grassy understorey and in nearby open areas, usually near water. They are also often found in	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable woodland habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								mangroves and are frequently seen in urban areas.		
Pigeons	<i>Geopelia placida</i>	Peaceful Dove			4	12/08/2008	BioNet	Open dry woodland with a grassy understorey and the edges of rainforest. In drier areas, they are often in woodland beside rivers, pandanus and vine thickets. They feed on the ground and roost in trees.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable woodland/grassland habitat exists within the study area.
Pigeons	<i>Lopholaimus antarcticus</i>	Topknot Pigeon			2	9/12/2022	BioNet	The Topknot Pigeon is found in rainforests and nearby wet forests and woodlands, especially along moist sheltered gullies. It can also be found in drier forests and will fly across open areas to feed in rainforests or disturbed areas such as remnant forest patches, cleared farmlands, exotic trees and shrubs, particularly Camphor Laurel and privet. It is very rarely seen in suburban areas, but will forage on the outskirts of urban areas if Camphor	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								Laurel and other fruits are available.		
Pigeons	<i>Ocyphaps lophotes</i>	Crested Pigeon			204	1/05/2024	BioNet	The Crested Pigeon is found in lightly wooded grasslands in both rural and urban areas. It is usually found in the vicinity of water, as it has to drink every day, and is absent from the denser forests. Woodland, Urban, Grassland.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Pigeons	<i>Spilopelia chinensis</i>	Spotted Turtle-Dove			276	6/07/2021	BioNet	A range of habitats including woodland, scrub, farmland and habitation. Found in streets, parks, gardens, agricultural areas, and tropical scrubs in diverse locations throughout eastern Australia and around the cities and major towns across southern Australia.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Rails, Crakes	<i>Fulica atra</i>	Eurasian Coot			120	6/07/2021	BioNet	Common in suitably vegetated lagoons and swamps. Birds are less common in the north and in the drier regions.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Rails, Crakes	<i>Gallinula tenebrosa</i>	Dusky Moorhen			210	15/05/2024	BioNet	Wetland habitats, with a preference for freshwater marshes and swamps, and are rarely found far from these areas except when foraging in nearby vegetation.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.
Rails, Crakes	<i>Porphyrio porphyrio</i>	Purple Swamphen	Ma		161	21/10/2023	BioNet	Found around freshwater swamps, streams and marshes.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.
Rails, Crakes	<i>Porzana pusilla</i>	Baillon's Crake	Ma		2	25/10/2018	BioNet	Wetland and swamp areas with dense vegetation.	Low	Few recent records within 5 km of the study area. Limited suitable wetland habitat is present within the study area.
Raptors	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk			9	6/01/2023	BioNet	The Collared Sparrowhawk is found in woodlands and forests of tropical and temperate Australia.	Moderate	Few recent records within 5 km of the study area. Potential suitable woodland/forest habitat exists within the study area.
Raptors	<i>Accipiter fasciatus</i>	Brown Goshawk	Ma		24	24/06/2020	BioNet	Timbered habitats. Eucalypt forests and woodlands, as well as farmland and urban areas.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										when traversing the landscape.
Raptors	<i>Accipiter novaehollandiae</i>	Grey Goshawk			3	17/11/2015	BioNet	Most forest types, especially tall closed forests, including rainforests.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest habitat is present within the study area.
Raptors	<i>Aquila audax</i>	Wedge-tailed Eagle			8	11/01/2023	BioNet	From sea level to alpine regions in the mountains, but prefers wooded and forested land and open country, generally avoiding rainforest and coastal heaths. Wedge-tailed Eagles build their nest in a prominent location with a good view of the surrounding countryside. It may be built in either a live or dead tree, but usually the tallest one in the territory.	Moderate	Few recent records within 5 km of the study area. Potential suitable foraging habitat exists within the study area.
Raptors	<i>Aviceda subcristata</i>	Pacific Baza			2	30/09/2018	BioNet	Tropical and subtropical woodlands and forest and sometimes grasslands, farmlands and urban areas. They prefer well-watered areas.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest or grassland habitat is present within the study area.
Raptors	<i>Circus approximans</i>	Swamp Harrier	Ma		1	27/01/2002	BioNet	Terrestrial wetlands and open country of tropical and	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								temperate Australia and New Zealand. It is mainly seen in fresh or salt wetlands, often in deep swamps with emergent reeds and over open water.		suitable foraging habitat exists within the study area.
Raptors	<i>Circus assimilis</i>	Spotted Harrier		V	1	19/09/2017	BioNet	Open grasslands, open woodland including acacia and mallee, inland riparian woodland, grassland and shrubland. It can be most commonly found in native grassland however it is also seen in agricultural land and inland wetlands for the purpose of foraging.	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest or grassland habitat is present within the study area.
Raptors	<i>Elanus axillaris</i>	Black-shouldered Kite			66	15/05/2024	BioNet	Treed grasslands and on farms, along roads, and in vacant waste lands of urban and coastal areas.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area when traversing the landscape.
Raptors	<i>Erythrotriorchis radiatus</i>	Red Goshawk	EN	E	N/A	N/A	PMST	Inhabiting tropical and warm-temperate woodlands and forests, the Red Goshawk prefers areas with a mosaic of	Low	Not recorded within 5 km of the study area. Limited suitable woodland habitat is present within the study area within riparian

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								vegetation types, often near wetlands. They often occur at the boundary between two vegetation types, and often favour forests or woodlands dominated by eucalypts or paperbarks. They avoid very dense or very open habitats.		vegetation along Badgerys Creek.
Raptors	<i>Falco berigora</i>	Brown Falcon			23	25/10/2018	BioNet	Found in all but the densest forests and is locally common throughout its range. The preferred habitat is open grassland and agricultural areas, with scattered trees or structures such as telegraph poles which it uses for perching.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area when traversing the landscape.
Raptors	<i>Falco cenchroides cenchroides</i>	Nankeen Kestrel	Ma		48	15/07/2024	BioNet	Preferred habitats are lightly wooded areas and open agricultural regions and tend to be absent from dense forests. The Nankeen Kestrel's success as a bird of prey can be largely contributed to its tolerance for a wide variety of habitats and its ability to feed on a variety of	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								foods and nest in a range of sites.		
Raptors	<i>Falco hypoleucos</i>	Grey Falcon	VU	V	N/A	N/A	PMST	Primarily occurs inland in arid areas but can occur elsewhere in Australia. Prefers lightly timbered woodland and Acaica scrub.	None	Not recorded within 5 km of the study area, limited/no suitable habitat is present within the study area. The study area falls outside this species usual distribution.
Raptors	<i>Falco longipennis</i>	Australian Hobby			12	6/03/2019	BioNet	Woodlands, forests, and open country in tropics. Most common in lightly timbered woodlands.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area when traversing the landscape.
Raptors	<i>Falco peregrinus</i>	Peregrine Falcon			5	21/12/2003	BioNet	Found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites, and prefers coastal and inland cliffs or open woodlands near water, and may even be found nesting on high city buildings.	Moderate	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable foraging habitat exists within the study area.
Raptors	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Ma	V	20	11/04/2022	BioNet, PMST	Occurs on beaches and estuaries, inland	Low	Recently recorded within 5 km of the study area,

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								wetlands, lakes, reservoirs, saltmarsh, major inland streams and adjacent terrestrial habitats.		however limited suitable foraging habitat is present within the study area. It is possible that this species could fly over in passing however this is not considered likely.
Raptors	<i>Haliastur sphenurus</i>	Whistling Kite	Ma		15	6/03/2018	BioNet	Woodlands, open country and particularly wetlands. It is also common around farmland, vineyards and anywhere where carrion (dead animals) can be found. Prefers tall trees for nesting.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area when traversing the landscape.
Raptors	<i>Hieraetus morphnoides</i>	Little Eagle		V	19	1/11/2021	BioNet	Widespread species. Occurs primarily in wooded farmland and dry woodlands.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/farmland habitat exists within the study area. This species may occasionally forage or fly over the study area when traversing the landscape.
Raptors	<i>Lophoictinia isura</i>	Square-tailed Kite		V	1	19/09/2017	BioNet	Widespread across Victoria. Occurs in primarily in open forest and woodland but will also forage in adjacent open areas such as roadside clearings, farmland and logged areas. Occasionally occurs in	Low	Few recent records within 5 km of the study area. Limited suitable woodland/forest or grassland habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								mallee, heathland, low shrublands and grasslands.		
Raptors	<i>Pandion haliaetus</i>	Osprey	Ma, Mi (Bonn)		N/A	N/A	PMST	Marine bird. It inhabits rocky shorelines, islands, reefs, mouths of large rivers, lagoons and lakes.	None	Not recorded within 5 km of the study area, no suitable habitat is present within the study area. This is a marine species more likely to occur in coastal/marine habitats.
Seabirds and gulls	<i>Pterodroma cervicalis</i>	White-necked Petrel	Ma		N/A	N/A	PMST	Pelagic bird. Open seas of the south-west Pacific. Subtropical or tropical seasonally wet or flooded lowland grassland (for breeding) and open seas (for foraging).	None	Not recorded within 5 km of the study area, no suitable habitat is present within the study area. This is a marine species more likely to occur in coastal/marine habitats.
Seabirds and gulls	<i>Sterna striata</i>	White-fronted Tern	Ma		N/A	N/A	PMST	Occurs in coastal seas and exposed rocky coasts, often with islands or stacks; sometimes roosts on sandy beaches of sheltered coasts.	None	Not recorded within 5 km of the study area, no suitable habitat is present within the study area. This is a marine species more likely to occur in coastal/marine habitats.
Smaller Songbirds	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			76	25/10/2018	BioNet	On the ground in open habitats, such as woodlands, forests, shrublands and grasslands with some trees. It is also common in agricultural lands, along watercourses, beside roads and in parks and gardens. It is found in most	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								climatic zones, but only sparse in tropics, arid zone and east of the Great Dividing Range.		
Smaller Songbirds	<i>Acanthiza lineata</i>	Striated Thornbill			35	15/07/2024	BioNet	Open forests and woodlands, mainly those dominated by eucalypts, with a well-developed understorey. Sometimes seen in parks and gardens, preferring areas that are more than ten years old. Also common in agricultural areas, particularly in areas with remnant patches or tree corridors near forests or woodlands.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Acanthiza nana</i>	Yellow Thornbill			193	12/04/2021	BioNet	Open forests, woodlands and shrublands which are dominated by Casuarinas, Acacias or paperbarks rather than eucalypts.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Acanthiza pusilla</i>	Brown Thornbill			21	5/08/2019	BioNet	Dense shrubby habitats including wet and dry forests, woodlands, shrublands,	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								heathlands and rainforests, as well as along watercourses, mainly in the temperate and sub-tropical zones.		Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Acanthiza reguloides</i>	Buff-rumped Thornbill			5	10/01/2008	BioNet	Open forests and woodlands with an open or sparse understory. It is often found in the foothills of ranges but its range can extend from the coast to high sub-alpine areas.	Low	Few records exist within 5 km of the study area from over 10 years ago. Some suitable foraging habitat exists within the study area.
Smaller Songbirds	<i>Acridotheres tristis</i>	Common Myna			320	21/08/2024	BioNet	Open woodland, cultivation and around habitation.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Acrocephalus australis</i>	Australian Reed-Warbler	Ma		58	1/05/2024	BioNet	Prefers dense vegetation alongside water, especially thick reed beds, as well as tall crops, bamboo thickets and lantana.	Low	Recently recorded within 5 km of the study area, however this species requires wetland habitat with denser vegetation.
Smaller Songbirds	<i>Alauda arvensis</i>	Eurasian Skylark			2	22/02/2006	BioNet	Cultivated grasslands and crops, wastelands and coastal dunes.	Moderate	Few records exist within 5 km of the study area from over 10 years ago. Some suitable foraging habitat

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										exists within the study area.
Smaller Songbirds	<i>Anthus novaeseelandiae</i>	Australian Pipit	Ma		24	25/10/2018	BioNet	Open country, in a range of habitat types from saltmarshes to dry shrublands and open woodland clearings.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Aphelocephala leucopsis</i>	Southern Whiteface	VU	V	N/A	N/A	PMST	The southern whiteface is endemic to Australia and typically inhabits arid open woodlands with a shrubby or grassy understory, as well as grass plains throughout much of the continent south. Not present in Tasmania or in coastal areas of the mainland, this species prefers Acacia woodlands, particularly those dominated by mulga and drought-resistant chenopod shrub species, including saltbush and bluebush. They are considered sedentary; however, atlas records indicate that individuals may move into wetter areas outside of their	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek. This species prefers acacia woodlands.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								normal range during drought years.		
Smaller Songbirds	<i>Carduelis carduelis</i>	European Goldfinch			31	21/08/2011	BioNet	Found in settled areas, farmlands and weedy areas such as roadsides, railway lands and industrial wasteland. They are often seen in gardens and parks. Particularly associated with patches of Scotch Thistle.	Moderate	Recorded within 5 km of the study area, however no recent records. Potential foraging habitat exists within the study area.
Smaller Songbirds	<i>Chloris chloris</i>	European Greenfinch			1	23/02/2012	BioNet	Greenfinches inhabit forests, woodland edges, farmland hedges, plantations, gardens with relatively thick vegetation, and parks. The European greenfinch feeds on a great variety of seeds, berries, fruit, buds, flowers and some arthropods. It forages in trees and bushes, and also on the ground. Woodland edges, farmland hedges and gardens with relatively thick vegetation are favoured for breeding.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland/grassland habitat exists within the study area.
Smaller Songbirds	<i>Cisticola exilis</i>	Golden-headed Cisticola			72	25/02/2022	BioNet	Sub-coastal areas, wetlands, swamp margins, wet grasslands, rivers, and	Low	Recently recorded within 5 km of the study area, however this species requires wetland or

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								irrigated farmland. It prefers tangled vegetation close to the ground, but breeding males may be seen singing from tall weeds or other shrubs.		grassland habitat with denser ground vegetation.
Smaller Songbirds	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	VU	V	N/A	N/A	PMST	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.
Smaller Songbirds	<i>Colluricincla harmonica</i>	Grey Shrike-thrush			106	24/06/2020	BioNet	Found in forests and woodlands. It is a common and familiar bird, although some decrease in numbers has been noted around human habitation, particularly in the west of its range.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Cormobates leucophaea</i>	White-throated Treecreeper			17	30/09/2018	BioNet	Prefers forests, including rainforests,	Low	Few recent records within 5 km of the study area,

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								woodlands and timbered river areas. Rarely seen on the ground, it lives in permanent territories.		limited suitable woodland habitat is present within the study area.
Smaller Songbirds	<i>Daphoenositta chrysoptera</i>	Varied Sittella		V	35	7/02/2013	BioNet	Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Low	Records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Dicaeum hirundinaceum</i>	Mistletoebird			33	30/09/2018	BioNet	Found wherever mistletoe grows and is important in the dispersal of this plant species.	Low	Few recent records within 5 km of the study area, limited suitable woodland habitat is present within the study area. Mistletoe not present within the study area.
Smaller Songbirds	<i>Eopsaltria australis</i>	Eastern Yellow Robin			84	5/08/2019	BioNet	Wide range of habitats, from dry woodlands to rainforests. They are	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								also common in parks and gardens.		within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Eurystomus orientalis</i>	Dollarbird	Ma		9	25/10/2018	BioNet	Inhabits open wooded areas, normally with mature, hollow-bearing trees suitable for nesting.	Low	Few recent records within 5 km of the study area, limited suitable woodland habitat is present within the study area.
Smaller Songbirds	<i>Falcunculus frontatus frontatus</i>	Eastern Shrike-tit			19	14/05/2015	BioNet	The Crested Shrike-tit is found in eucalypt forests and woodlands, forested gullies and along rivers in drier areas. It can also be found in rainforests. It is sometimes seen in parks and gardens, on farms with scattered trees, and on pine plantations.	Low	Few recent records within 5 km of the study area, limited suitable woodland habitat is present within the study area.
Smaller Songbirds	<i>Gerygone mouki</i>	Brown Gerygone			4	28/06/2007	BioNet	Coastal and mountain rainforest, wet gullies and mangroves.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Gerygone olivacea</i>	White-throated Gerygone			44	19/09/2017	BioNet	Temperate forests and subtropical or tropical moist lowland forests.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Smaller Songbirds	<i>Grallina cyanoleuca</i>	Magpie-lark	Ma		354	2/08/2024	BioNet	In almost any habitat except rainforests and the driest deserts and are familiar urban birds.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Lalage sueurii</i>	White-winged Triller			15	19/09/2017	BioNet	Open woodlands and forest, tree-lined waterways in semi-arid regions and the nearby scrub. This is mainly lightly timbered country with an open shrub layer and grassy ground-cover.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Lonchura punctulata</i>	Nutmeg Mannikin			15	24/04/2005	BioNet	Lives in reeds, grasses and especially in the crops around farms. It is also often around disturbed areas and vacant blocks.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable grassland habitat exists within the study area.
Smaller Songbirds	<i>Malurus cyaneus</i>	Superb Fairy-wren			258	1/11/2023	BioNet	Open eucalypt woodland forests of south-eastern Australia. It inhabits dense understorey, and is usually seen in pairs or small groups. Also adapted to urban parks and gardens,	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								and exotic weeds such as lantana.		study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Malurus lamberti</i>	Variiegated Fairy-wren			1	30/09/2018	BioNet	Found in forest, woodland and shrub land habitats.	Low	Few recent records within 5 km of the study area, limited suitable woodland/grassland habitat is present within the study area.
Smaller Songbirds	<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	EN	E	N/A	N/A	PMST	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.
Smaller Songbirds	<i>Merops ornatus</i>	Rainbow Bee-eater	Ma		N/A	N/A	PMST	Widespread within Australia, although southern populations migrate north from February and return in September. Often occurs in open forest, woodlands and shrublands near water. May also occur in wooded farmland, quarries and orchards.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.
Smaller Songbirds	<i>Microeca fascinans</i>	Jacky Winter			4	15/08/2008	BioNet	Jacky Winters prefer open woodland with an open shrub layer	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								and a lot of bare ground. They are often seen in farmland and parks		suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Monarcha melanopsis</i>	Black-faced Monarch	Ma		1	27/02/2006	BioNet, PMST	Inhabits rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, parks and gardens.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Motacilla flava</i>	Yellow Wagtail	Ma, Mi (CAMBA, JAMBA, ROKAMBA)		N/A	N/A	PMST	Non breeding migratory species. Occurs in grassland habitat subject to inundation.	Low	Not recorded within 5 km of the study area. Limited suitable woodland habitat is present within the study area. The study area falls outside this species usual distribution.
Smaller Songbirds	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Ma		2	13/01/2004	BioNet, PMST	Prefers tall wetter Eucalypt-dominated forests, especially near wetlands, watercourses, and heavily-vegetated gullies.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Myiagra inquieta</i>	Restless Flycatcher			38	19/09/2017	BioNet	Found in open forests and woodlands and is frequently seen in farmland.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Myiagra rubecula</i>	Leaden Flycatcher			3	17/04/2008	BioNet	Found in tall and medium open forests, mainly in coastal	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								areas, preferring drier habitats than the Satin Flycatcher.		suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Neochmia temporalis</i>	Red-browed Finch			105	7/09/2022	BioNet	Grassy areas interspersed with dense understorey vegetation, often along creek lines.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Oriolus sagittatus</i>	Olive-backed Oriole			31	25/10/2018	BioNet	Forests, woodlands and rainforests, as well as well-treed urban areas, particularly parks and golf courses.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Pachycephala pectoralis</i>	Golden Whistler			73	24/06/2020	BioNet	Found in almost any wooded habitat, from rainforest to mallee, but prefers the denser areas. Occasionally it visits parks and orchards.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Pachycephala rufiventris</i>	Rufous Whistler			73	5/08/2019	BioNet	Forests, woodlands and shrublands, with a shrubby understorey. Is also found in gardens and farmland with some trees, and	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								in remnant bushland patches.		Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Pardalotus punctatus</i>	Spotted Pardalote			73	25/10/2018	BioNet	The Spotted Pardalote is mostly found in eucalypt forests and woodlands but occurs in parks and gardens with well-established eucalypt canopy.	High	Recently recorded within 5 km of the study area. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Pardalotus striatus</i>	Striated Pardalote			48	25/10/2018	BioNet	Found in almost any habitat with trees or shrubs, but favour eucalypt forests and woodlands.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Passer domesticus</i>	House Sparrow			195	30/09/2018	BioNet	Occurs in and around human habitation, as well as cultivated areas and some wooded country.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Passer montanus</i>	Eurasian Tree Sparrow			1	24/06/2020	BioNet	Inhabits farms, lightly wooded areas (especially with hedgerows and bushes), villages, parks with ornamental plantings, and reedbeds along	Low	Few recent records within 5 km of the study area, limited suitable woodland/grassland habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								lakeshores. They nest in crevices in old buildings, light fixtures, fence posts.		
Smaller Songbirds	<i>Petroica boodang</i>	Scarlet Robin		V	1	22/11/1998	BioNet	Open forests and woodlands. During winter, it will visit more open habitats such as grasslands and will be seen in farmland and urban parks and gardens at this time.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Petroica phoenicea</i>	Flame Robin	Ma	V	2	13/01/2004	BioNet	Prefers clearings or areas with open understoreys. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Petroica rosea</i>	Rose Robin			16	17/04/2008	BioNet	Prefers wet forest and rainforest habitats during spring and summer, moving into drier, more open habitats during autumn and winter.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Poodytes gramineus</i>	Little Grassbird			5	25/10/2018	BioNet	Dense wetland vegetation, sedges, reeds and rank grass. It also uses shrubs	Low	Recently recorded within 5 km of the study area, however this species

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								such as lignum, saltmarsh and low mangroves.		requires wetland habitat with denser vegetation.
Smaller Songbirds	<i>Psophodes olivaceus</i>	Eastern Whipbird			4	5/04/2004	BioNet	Wet habitats, including rainforest, eucalypt forest and dense scrub near watercourses, in dense vegetation near the ground.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul			33	5/08/2019	BioNet	Bulbuls are common in urban areas, where they inhabit parks, gardens and along creeks.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Pycnoptilus floccosus</i>	Pilotbird	VU	V	N/A	N/A	PMST	Pilotbirds are endemic to south-east Australia. Upland Pilotbirds occur above 600m in the Brindabella Ranges in the Australian Capital Territory, and in the Snowy Mountains in New South Wales and north-east Victoria (Higgins & Peter 2002; Loyn et al. 2021). Lowland Pilotbirds occur in forests from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to	None	Not recorded within 5 km of the study area, limited suitable forest habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								Dandenong near Melbourne (Higgins & Peter 2002; Loyn et al. 2021).		
Smaller Songbirds	<i>Pyrholaemus sagittatus</i>	Speckled Warbler		V	1	9/03/1993	BioNet	Occurs in dry eucalypt forests and woodlands with a rocky gully, ridges, sparse shrubs and a grassy understory.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.
Smaller Songbirds	<i>Rhipidura albiscapa</i>	Grey Fantail			158	12/04/2021	BioNet	Most treed habitats and urban parks.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Rhipidura leucophrys</i>	Willie Wagtail			311	1/05/2024	BioNet	A wide variety of habitats, but avoids densely forested areas such as rainforest. It prefers semi-open woodland or grassland with scattered trees, often near wetlands or bodies of water.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Rhipidura rufifrons</i>	Rufous Fantail	Ma		2	27/02/2006	BioNet, PMST	Found in south and central Victoria in wet sclerophyll forests, subtropical and temperate rainforests. It sometimes inhabits	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable forest/woodland habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								drier sclerophyll forests and woodlands.		
Smaller Songbirds	<i>Sericornis frontalis</i>	White-browed Scrubwren			13	30/09/2018	BioNet	The White-browed Scrubwren lives in rainforest, open forest, woodland and heaths. It is usually seen in pairs, low down in the thick vegetation.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Smicrornis brevirostris</i>	Weebill			128	25/10/2018	BioNet	The Weebill inhabits almost any wooded area, with the exception of the wettest forests, but favours open eucalypt forests. It spends most of its time in the canopy, in pairs or small groups. The birds stay in the same area throughout the year.	Moderate	Numerous records within 5 km of the study area. Potential forest/woodland habitat exists within the study area such as native vegetation along Badgerys Creek.
Smaller Songbirds	<i>Stagonopleura guttata</i>	Diamond Firetail	VU	V	1	27/03/2012	BioNet, PMST	Found throughout south-eastern mainland Australia. Inhabits grassy eucalypt woodlands, open forest, mallee, Natural Temperate Grassland, secondary derived grassland, riparian areas and lightly wooded farmland.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable grassland/ open woodland habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Smaller Songbirds	<i>Stizoptera bichenovii</i>	Double-barred Finch			70	24/06/2020	BioNet	Found in dry savannah, tropical (lowland) dry grassland and shrubland habitats.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Sturnus vulgaris</i>	Common Starling			267	30/06/2023	BioNet	Once a common bird of European deciduous woodlands (now in more rural and urban areas).	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Taeniopygia guttata</i>	Zebra Finch			2	27/02/2001	BioNet	Zebra Finches are most commonly found in the drier areas of Australia, living year round in social flocks of up to 100 or more birds. They can be found in a variety of habitats, mainly dry wooded grasslands, bordering watercourses.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable dry grassland habitat exists within the study area.
Smaller Songbirds	<i>Turdus merula</i>	Eurasian Blackbird			43	21/11/2023	BioNet	The Common Blackbird is most often found in urban	High	Numerous records for this species exist within 5 km of the study area. This is a

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								areas and surrounding localities but has successfully moved into bushland habitats. It is often seen in orchards, vineyards and gardens, as well as along roadsides and in parks.		common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Smaller Songbirds	<i>Zosterops lateralis</i>	Silvereye	Ma		98	25/10/2018	BioNet	Silvereyes may occur in almost any wooded habitat, especially commercial orchards and urban parks and gardens. Urban, Woodland, Forest.	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.
Swallows, Martins, Swifts	<i>Apus pacificus</i>	Fork-tailed Swift	Ma, Mi (CAMBA, JAMBA, ROKAMBA)		N/A	N/A	PMST	Primarily an aerial species which forages in flight and may occasionally land. Listed migratory marine species. The Fork-tailed Swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher.	Low	Not recorded within 5 km of the study area. Limited suitable foraging habitat is present within the study area within riparian vegetation along Badgerys Creek.
Swallows, Martins, Swifts	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow		V	34	19/09/2017	BioNet	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of	Moderate	Recently recorded within 5 km of the study area. Some suitable woodland/forest habitat exists within the study area, particularly beside Badgerys Creek.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range.		
Swallows, Martins, Swifts	<i>Artamus personatus</i>	Masked Woodswallow			1	25/10/2018	BioNet	Mainly inhabits open forests and woodlands usually dominated by eucalypts or acacias. They are also found in lightly timbered pastoral country, orchards and vineyards and sometimes along watercourses.	Low	Few recent records within 5 km of the study area, limited suitable woodland/grassland habitat is present within the study area.
Swallows, Martins, Swifts	<i>Artamus superciliosus</i>	White-browed Woodswallow			2	25/10/2018	BioNet	Eucalypt, sheoak and Acacia woodland, including mallee, and adjacent open areas including grassland with scattered trees	Low	Few recent records within 5 km of the study area, limited suitable woodland/grassland

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								or shrubs. In agricultural landscapes it prefers healthy woodland patches with low disturbance and little grazing		habitat is present within the study area.
Swallows, Martins, Swifts	<i>Hirundapus caudacutus</i>	White-throated Needletail	Vu, Ma, Mi (CAMBA, JAMBA, ROKAMBA)	V	2	5/02/2005	BioNet, PMST	Migratory and usually seen in eastern Australia from October to April. Breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. More common in coastal areas, less so inland.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable foraging habitat exists within the study area.
Swallows, Martins, Swifts	<i>Hirundo neoxena</i>	Welcome Swallow	Ma		258	22/09/2022	BioNet	Welcome Swallows visit a wide variety of habitats with the exception of the more heavily forested regions and drier inland areas. Woodland, Wetland, Urban, Grassland, Coastal, Desert.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Swallows, Martins, Swifts	<i>Hirundo rustica</i>	Barn Swallow	Ma, Mi (CAMBA, JAMBA, ROKAMBA)		1	25/06/2021	BioNet	Open country in coastal lowlands, often near water, towns and cities. Birds are often sighted perched on overhead wires and also in or	Low	Few recent records within 5 km of the study area, limited suitable habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								over freshwater wetlands, paperbark Melaleuca woodland, mesophyll shrub thickets and tussock grassland.		
Swallows, Martins, Swifts	<i>Petrochelidon ariel</i>	Fairy Martin			66	25/02/2022	BioNet	Open country near water, and is usually seen near its nest sites, on cliffs, culverts or bridges.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest/grassland habitat exists within the study area, particularly beside Badgerys Creek.
Swallows, Martins, Swifts	<i>Petrochelidon nigricans</i>	Tree Martin	Ma		7	8/01/2022	BioNet	Found in the air above a range of habitats ranging from open grassed areas to forests, especially near wetlands, but they are also found in urban areas.	Moderate	Few recent records within 5 km of the study area. Potential suitable grassland/woodland/forest habitat exists within the study area.
Waders	<i>Actitis hypoleucos</i>	Common Sandpiper	Ma, Mi (CAMBA, JAMBA, ROKAMBA)		N/A	N/A	PMST	Summer migrant. In NSW, widespread along coastline and also occurs in many areas inland. Coastal wetlands and some inland wetlands, especially muddy margins or rocky shores. Also estuaries and deltas, lakes, pools, billabongs,	None	Not recorded within 5 km of the study area, limited/no suitable habitat is present within the study area. This species is more commonly found in coastal environments.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								reservoirs, dams and claypans, mangroves.		
Waders	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	VU, Ma, Mi (Bonn, CAMBA, JAMBA, ROKAMBA)		2	25/02/2022	BioNet, PMST	Widespread in most regions of Victoria, especially in coastal areas. Inhabits shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Low	Few recent records within 5 km of the study area, limited suitable wetland habitat is present within the study area. This species is more often found in coastal environments.
Waders	<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, Ma, Mi (Bonn, CAMBA, JAMBA, ROKAMBA)	CE	N/A	N/A	PMST	Non breeding migratory species that occurs primarily on intertidal mudflats of estuaries, lagoons, mangroves, and less often on beaches, rocky shores and around lakes, dams. Can also occur on suitable inland habitats in the Kerang area, Mildura, and western districts.	None	Not recorded within 5 km of the study area, limited/no suitable habitat is present within the study area. This species is more commonly found in coastal environments.
Waders	<i>Calidris melanotos</i>	Pectoral Sandpiper	Ma, Mi (JAMBA, ROKAMBA)		N/A	N/A	PMST	Non breeding migratory species that prefers shallow fresh to saline wetlands with open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. Also occurs in swamps, saltmarshes,	None	Not recorded within 5 km of the study area, limited/no suitable wetland habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								lakes and inundated grasslands.		
Waders	<i>Charadrius bicinctus</i>	Double-banded Plover	Ma, Mi (Bonn)		1	15/12/2020	BioNet	Beaches, grassed edges of open wetlands and intertidal mudflats.	Low	Few recent records within 5 km of the study area, limited suitable wetland habitat is present within the study area.
Waders	<i>Euseyornis melanops</i>	Black-fronted Dotterel			16	14/12/2022	BioNet	Found in the shallow margins of wetlands, lakes, rivers, sewage farms, storm drains and marshes. It is normally always near freshwater and is not often seen on the coast.	Low	Recently recorded within 5 km of the study area, however limited suitable wetland habitat is present within the study area.
Waders	<i>Erythrogonys cinctus</i>	Red-kneed Dotterel			3	25/10/2018	BioNet	Red-kneed Dotterels are found in wetlands, lagoons and swamplands, preferring fresh water and areas prone to flooding.	Low	Few recent records within 5 km of the study area, and limited suitable wetland habitat is present within the study area.
Waders	<i>Gallinago hardwickii</i>	Latham's Snipe	VU, Ma, Mi (Bonn, JAMBA, ROKAMBA)	V	6	25/02/2022	BioNet, PMST	Non-breeding migratory species that occurs in freshwater wetlands with low dense vegetation on or near the coast. Preferred wetland vegetation includes sedges, grasses, lignum, reeds and rushes. Also occurs in saltmarsh and creek edges on migration, drainage ditches along	Moderate	Few recent records within 5 km of the study area. Potential suitable wetland habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								roadsides and railways, crops and pasture.		
Waders	<i>Himantopus himantopus</i>	Black-winged Stilt	Ma		48	25/02/2022	BioNet	Marshes, shallow lakes and ponds.	Low	Recently recorded within 5 km of the study area, however limited suitable wetland habitat is present within the study area.
Waders	<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	CR, Ma, Mi (Bonn, CAMBA, JAMBA, ROKAMBA)	CE	N/A	N/A	PMST	Non-breeding migrant. Occurs in sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Also occurs in saltmarsh and on mudflats fringed by mangroves, and sometimes within the mangroves	None	Not recorded within 5 km of the study area, limited/no suitable habitat is present within the study area. This species is more commonly found in coastal environments.
Waders	<i>Porzana tabuensis</i>	Spotless Crake	Ma		1	19/09/2017	BioNet	Spotless crakes are freshwater wetland birds. Their preferred habitat is wetland and swamp areas that contain dense vegetation in which to build their nests from.	Low	Few recent records within 5 km of the study area, and limited suitable wetland habitat is present within the study area. This species prefers areas with denser vegetation.
Waders	<i>Rostratula australis</i>	Australian Painted Snipe	EN, Ma	E	N/A	N/A	PMST	Occurs in shallow fresh or brackish wetlands with permanent or semi-permanent water, cover of adjacent	Low	Not recorded within 5 km of the study area. Limited suitable wetland habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								grasses and muddy edges. Also occurs in waterlogged grassland, sewage ponds and dams.		
Waders	<i>Tringa nebularia</i>	Common Greenshank, Greenshank	EN, Ma, Mi (CAMBA, JAMBA, ROKAMBA)	E	N/A	N/A	PMST	Prefers sheltered coastal habitats with large mudflats and saltmarsh, mangroves or seagrass. Can occur inland, in estuaries and mudflats, mangrove swamps and lagoons, billabongs, swamps, sewage farms and flooded crops.	None	Not recorded within 5 km of the study area, limited/no suitable habitat is present within the study area. This species is more commonly found in coastal environments.
Waders	<i>Tringa stagnatilis</i>	Marsh Sandpiper	Ma, Mi (CAMBA, JAMBA, ROKAMBA)		1	27/05/2002	BioNet	Prefers shallow freshwater and brackish wetlands, rivers, water meadows, sewage farms, drains, lagoons, and swamps. Most records are found in Port Phillip Bay, but also in Gippsland.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area.
Waders	<i>Vanellus tricolor</i>	Banded Lapwing			1	26/06/1998	BioNet	Banded Lapwings prefer open, short grasslands such as heavily grazed paddocks, agricultural lands and saline herblands in dry and semi-arid regions.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable grassland/wetland habitat exists within the study area.
Waterbirds	<i>Anhinga novaehollandiae</i>	Australasian Darter			39	7/09/2022	BioNet	Wetlands and sheltered coastal	Moderate	Recently recorded within 5 km of the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								waters, mainly in the Tropics and Subtropics. It prefers smooth, open waters, for feeding, with tree trunks, branches, stumps or posts fringing the water, for resting and drying its wings.		Potential habitat exists within the study area such as the wetland or creekline.
Waterbirds	<i>Ardea alba modesta</i>	Eastern Great Egret	Ma		66	30/09/2018	BioNet	Prefers shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands. Great Egrets can be seen alone or in small flocks, often with other egret species, and roost at night in groups.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.
Waterbirds	<i>Ardea intermedia</i>	Intermediate Egret	Ma		19	30/09/2018	BioNet	Like most egret species, associates with all types of water bodies including wet fields and usually flocks with other egrets.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.
Waterbirds	<i>Ardea pacifica</i>	White-necked Heron			11	25/10/2018	BioNet	Sometimes seen in tidal areas, most are found in shallow fresh waters, including farm dams, flooded pastures, claypans, and even roadside ditches.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Waterbirds	<i>Botaurus poiciloptilus</i>	Australasian Bittern	EN	E	1	28/08/2009	BioNet, PMST	Found over most of NSW except for the far north-west. Permanent freshwater wetlands with tall, dense vegetation, particularly Typha sp. (bullrushes) and Eleocharis sp. (spikerushes).	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area. This species prefers wetland areas with denser vegetation.
Waterbirds	<i>Bubulcus ibis</i>	Cattle Egret	Ma		130	25/02/2022	BioNet, PMST	Occurs in grasslands, woodlands and terrestrial wetlands, often occurring in association with farm animals, particularly cattle. It roosts in trees and ground vegetation near lakes and swamps.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland/grassland habitat exists within the study area.
Waterbirds	<i>Egretta garzetta</i>	Little Egret	Ma		14	25/10/2018	BioNet	Shores of lakes, rivers, canals, ponds, lagoons, marshes and flooded land, prefers open locations to dense cover. On the coast it inhabits mangrove areas, swamps, mudflats, sandy beaches and reefs.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.
Waterbirds	<i>Egretta novaehollandiae</i>	White-faced Heron			144	15/07/2024	BioNet	Found anywhere where there is water, from tidal mudflats and coastal reefs to moist grasslands and gardens.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										Suitable wetland/grassland habitat exists within the study area.
Waterbirds	<i>Ixobrychus dubius</i>	Australian Little Bittern			1	30/10/2000	BioNet	Diverse freshwater habitats, mainly where tall rushes, reeds, Typha (cumbungi), shrub thickets or other dense cover is inundated by at least 30cm of water. It can be found in vast swamps, but unlike the Australasian Bittern, it often inhabits small patches of dense wetland vegetation such as Typha along drains or in small urban lakes.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area. This species prefers wetland areas with denser vegetation.
Waterbirds	<i>Ixobrychus flavicollis</i>	Black Bittern		V	1	20/02/2000	BioNet	Roost and nest in trees, and are found in tree-lined wetlands and in mangroves.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area. This species prefers wetland areas with denser vegetation.
Waterbirds	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant			131	25/10/2018	BioNet	Fresh or salt water. It is often seen in large flocks on open waterways and on the coast. On inland streams and dams, however, it is often solitary. The Little	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								Pied Cormorant mixes readily with the similar sized Little Black Cormorant.		exists within the study area.
Waterbirds	<i>Pelecanus conspicillatus</i>	Australian Pelican	Ma		52	25/10/2018	BioNet	Pelicans are widespread on freshwater, estuarine and marine wetlands and waterways including lakes, swamps, rivers, coastal islands and shores.	Low	Recently recorded within 5 km of the study area, however limited suitable wetland habitat is present within the study area.
Waterbirds	<i>Phalacrocorax carbo</i>	Great Cormorant			28	25/10/2018	BioNet	In spite of its preference for extensive areas of permanent freshwater, the Great Cormorant is not confined to these and is often observed on coastal inlets and estuaries.	Low	Recently recorded within 5 km of the study area, however limited suitable wetland habitat is present within the study area.
Waterbirds	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant			113	25/10/2018	BioNet	Found in freshwater wetlands, but will sometimes be found on sheltered coastal waters, and can use relatively small, deep water bodies. It is strongly aquatic, seldom being seen on dry land, but is often seen resting on rocks, jetties and other perches in water.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Waterbirds	<i>Phalacrocorax varius</i>	Pied Cormorant			4	19/09/2017	BioNet	The Pied Cormorant is found in marine habitats (almost exclusively so in Western Australia), including estuaries, harbours and bays. It is also found in mangroves and on large inland wetlands in eastern Australia.	Low	Few recent records within 5 km of the study area, and limited suitable wetland habitat is present within the study area.
Waterbirds	<i>Platalea flavipes</i>	Yellow-billed Spoonbill			45	25/02/2022	BioNet	Shallows of freshwater wetlands, dams, lagoons and swamps, and sometimes in dry pastures, but rarely uses saltwater wetlands. It can use much smaller areas of water than the Royal Spoonbill.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.
Waterbirds	<i>Platalea regia</i>	Royal Spoonbill			47	25/02/2022	BioNet	The Royal Spoonbill is found in shallow freshwater and saltwater wetlands, intertidal mud flats and wet grasslands. Both permanent and temporary inland waters are used when available in the arid zone. Will also use artificial wetlands such as sewage lagoons, saltfields, dams and reservoirs.	Moderate	Recently recorded within 5 km of the study area. Potential habitat exists within the study area such as the wetland/grasslands or creekline.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Waterbirds	<i>Threskiornis moluccus</i>	Australian White Ibis	Ma		103	21/08/2024	BioNet	Observed in all but the driest habitats. Preferred habitats include swamps, lagoons, floodplains and grasslands, but it has also become a successful inhabitant of urban parks, gardens and tidal mudflats.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland/grassland habitat exists within the study area.
Waterbirds	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	Ma		133	15/07/2024	BioNet	The Straw-necked Ibis prefers wet and dry grasslands, pastures, croplands and swamp or lagoon margins. It is rarely found on coastal shores, mudflats or mangroves and is generally less adaptable than the Australian White Ibis.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland/grassland habitat exists within the study area.
Waterbirds	<i>Vanellus miles</i>	Masked Lapwing			211	2/08/2024	BioNet	Inhabits marshes, mudflats, beaches and grasslands. It is often seen in urban areas. Where this bird is used to human presence, it may tolerate close proximity; otherwise it is very wary of people, and seldom allows close approach.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland/grassland habitat exists within the study area.
Waterfowl	<i>Anas castanea</i>	Chestnut Teal			91	25/02/2022	BioNet	Wetlands and estuaries in coastal	High	Numerous records for this species exist within 5 km

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								regions, and is one of the few ducks able to tolerate high salinity waters, although it still needs fresh water for drinking. It will also use open freshwater lakes, reservoirs and sewage ponds during dry seasons.		of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.
Waterfowl	<i>Anas gracilis</i>	Grey Teal			130	25/02/2022	BioNet	Common in all sheltered watered areas. These include fresh, brackish and salt water, and the birds can be found on the smallest area of water in the driest of areas. The most favoured habitat type is timbered pools and river systems of the inland areas, where these birds can be found in quite large numbers.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.
Waterfowl	<i>Anas platyrhynchos</i>	Mallard			5	7/03/2015	BioNet	Habitats include wetlands, grasslands and crops, as well as sheltered estuaries and marine habitats. It prefers still, shallow water with abundant plant life and is most often found on artificial lakes, ponds	Low	Few recent records within 5 km of the study area, and limited suitable wetland habitat is present within the study area.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								and wetlands in urban and farm areas.		
Waterfowl	<i>Anas rhynchos</i>	Australasian Shoveler			8	25/02/2022	BioNet	The Australasian Shoveler is found in all kinds of wetlands, preferring large undisturbed heavily vegetated freshwater swamps. It is also found on open waters and occasionally along the coast.	Low	Few recent records within 5 km of the study area. Limited suitable wetland habitat exists within the study area. This species prefers larger, less disturbed wetlands.
Waterfowl	<i>Anas superciliosa</i>	Pacific Black Duck			246	15/07/2024	BioNet	Freshwater, intertidal habitats.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable grassland/wetland habitat exists within the study area.
Waterfowl	<i>Aythya australis</i>	Hardhead			105	25/10/2018	BioNet	Prefers open freshwater swamps and wetlands and occasionally in sheltered estuaries. They are rarely seen on land and tend to roost on low branches and stumps near the water. They prefer deep, fresh open water and densely vegetated wetlands for breeding.	Low	Recently recorded within 5 km of the study area, however limited suitable wetland habitat is present within the study area. This species prefers larger, deeper open freshwater wetlands/swamps with dense vegetation.
Waterfowl	<i>Biziura lobata</i>	Musk Duck	Ma		1	23/04/2000	BioNet	Prefers deep fresh open water and	Low	Few records exist within 5 km of the study area from

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								densely vegetated wetlands and swamps. Occasionally found in estuaries and bays.		over 10 years ago. Limited suitable wetland habitat exists within the study area. This species prefers larger and deeper bodies of open water.
Waterfowl	<i>Chenonetta jubata</i>	Australian Wood Duck			222	15/07/2024	BioNet	Found in grasslands, open woodlands, wetlands, flooded pastures and along the coast in inlets and bays. It is also common on farmland with dams, as well as around rice fields, sewage ponds and in urban parks.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable grassland/wetland habitat exists within the study area.
Waterfowl	<i>Cygnus atratus</i>	Black Swan			102	29/06/2024	BioNet	Common in the wetlands of southwestern and eastern Australia and adjacent coastal islands.	Moderate	Numerous records within 5 km of the study area. Potential poor-moderate quality habitat exists within the study area along Badgerys Creek. This typically is found in larger bodies of open water.
Waterfowl	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck			1	25/02/2022	BioNet	Areas near water. It prefers shallow, temporary waters, however, open wetlands support large flocks. It is a highly dispersive and nomadic species.	Low	Few recent records within 5 km of the study area, and limited suitable wetland habitat is present within the study area.
Waterfowl	<i>Oxyura australis</i>	Blue-billed Duck		V	1	12/06/2019	BioNet	Prefers deep permanent well vegetated freshwater swamps, large dams,	Low	Few records exist within 5 km of the study area, and limited suitable wetland habitat is present within

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								lakes and open waters. Important breeding sites are primarily in south-west Victoria but also at a few sites in Port Phillip, north-east Victoria, Gippsland and north-west Victoria.		the study area. This species prefers larger, deeper open freshwater wetlands/swamps with dense vegetation.
Waterfowl	<i>Podiceps cristatus</i>	Great Crested Grebe			5	31/12/2013	BioNet	Vegetated areas of freshwater lakes. Favours large deep open bodies of freshwater. Most commonly found inhabiting rivers, lagoons, lakes, swamps, reservoirs, saltfields, estuaries and bays.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area. This species prefers larger and deeper bodies of open water.
Waterfowl	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe			9	25/10/2018	BioNet	Found in freshwater ponds or small waterways.	Moderate	Few recent records exist within 5 km of the study area. Potential habitat exists within the study area such as wetland areas and Badgerys Creek.
Waterfowl	<i>Stictonetta naevosa</i>	Freckled Duck		V	2	25/10/2018	BioNet	Prefers permanent fresh water swamps and creeks with heavy growth of cumbungi (bullrushes), lignum or tea-tree. During drier times, the Freckled Duck moves from ephemeral (not permanent) breeding	Low	Few records exist within 5 km of the study area, and limited suitable wetland habitat is present within the study area. This species prefers larger, deeper open freshwater wetlands/swamps with dense vegetation.

Functional group	Scientific name	Common name	EPBC Act status	BC Act status	Records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								swamps to more permanent waters such as lakes, reservoirs, farm dams and sewerage ponds. They generally rest in dense cover.		
Waterfowl	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe			188	8/02/2023	BioNet	Freshwater ponds or small waterways.	High	Numerous records for this species exist within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable wetland habitat exists within the study area.
Waterfowl	<i>Tadorna tadornoides</i>	Australian Shelduck			2	28/03/1999	BioNet	The Australian Shelduck can be found in south western and south eastern parts of Australia. It is a vagrant (only occasionally seen) north to the Kimberley region of Western Australia and in Central Australia. The Australian Shelduck prefers fresh waters and if in saltwater habitat, needs to be within easy reach of fresh water.	Low	Few records exist within 5 km of the study area from over 10 years ago. Limited suitable wetland habitat exists within the study area.

C3 Likelihood of Occurrence – Bats

Functional group	Scientific name	Common name	EPBC Act	BC Act	Number records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Megabats	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	VU	V	18	6/11/2022	BioNet, PMST	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roost near water in stands of native vegetation such as mangrove, rainforest, Melaleuca, Casuarina or introduced trees.	High	Recently recorded within 5 km of the study area. This is a common species in urban and agricultural areas within Western Sydney. Suitable woodland/forest habitat exists within the study area which may provide appropriate foraging habitat. This species can travel large distances from their camps to foraging areas (usually within 15 km). Ropes Creek Flying-fox camp is located within 15 km of the study area.
Microbats	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat		V	1	30/09/2018	BioNet	A wide-ranging species found across northern and eastern Australia. In the most southerly part of its range it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. This species roosts singly or in groups of six in tree hollows and buildings. In treeless areas they may utilise mammal burrows. They forage in most habitats with and without trees and are defensive of aerial territory.	Moderate	Few recent records exist within 5 km of the study area, however potential foraging/roosting habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act	BC Act	Number records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Microbats	<i>Miniopterus australis</i>	Little Bent-winged Bat		V	5	9/07/2021	BioNet	Found in the east coast and ranges of Australia from Cape York in Queensland to Wollongong in NSW. Occupies moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. They roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Austronomus australis</i>	White-striped Freetail-bat			10	9/07/2021	BioNet	Woodland and urban areas. Roosts in hollows in old trees and under loose bark, in dead stumps and the ceilings of buildings. Up to several hundred bats live together in a colony.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat		V	8	8/07/2021	BioNet	The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW. Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.

Functional group	Scientific name	Common name	EPBC Act	BC Act	Number records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
Microbats	<i>Ozimops ridei</i>	Eastern Free-tailed Bat			8	17/02/2020	BioNet	Roosts in sheltered places during the day such as inside Eucalyptus tree hollows or in buildings. Often forages near habitat edges.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat	EN	EN	N/A	N/A	PMST	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features.	None	Not recorded within 5 km of the study area, limited suitable woodland habitat is present within the study area. No suitable roosting habitat is present within the study area.
Microbats	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			19	9/07/2021	BioNet	Roost in hollows in old trees, occasionally in ceilings or basements of buildings. They roost together in colonies of around 30 bats, sometimes smaller and other times larger.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Chalinolobus morio</i>	Chocolate Wattled Bat			8	24/06/2020	BioNet	Roost mainly in hollows in old trees, as well as disused birds' nests. They roost in caves in the Nullarbor area of South Australia. They roost together in colonies of 20 to a few hundred bats.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle		V	2	17/02/2020	BioNet	Prefers moist habitats, with trees taller than 20 m.	Moderate	Few recent records within 5 km of the study area, however recently recorded in

Functional group	Scientific name	Common name	EPBC Act	BC Act	Number records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
										land adjacent to Elizabeth Dr, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Myotis macropus</i>	Southern Myotis		V	14	25/02/2022	BioNet	Found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat			14	30/11/2022	BioNet	Roosts in hollows and fissures in old trees, under bark, in old fairy marten nests, and in occasionally in caves. They often roost in ceilings, hollow walls, unused roller doors and canvas awnings in suburban and inner-city areas. They prefer hollows of big old eucalypts for nursery colonies.	Moderate	Few recent records within 5 km of the study area, however recently recorded along Badgerys Creek Rd, west of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat			4	22/12/2020	BioNet	Sclerophyll forests and woodland, including forest remnants. Roosts under loose bark or in tree hollows, sometimes buildings, in colonies of up	Moderate	Few recent records within 5 km of the study area, however recently recorded along Clifton Ave, north-east of the study area. Potential

Functional group	Scientific name	Common name	EPBC Act	BC Act	Number records	Last recorded	Source	Habitat requirements	Likelihood	Rationale
								to 25 individuals. The abandoned nests of birds are also utilised as roosts.		foraging/roosting habitat exists within the study area.
Microbats	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat		V	6	9/07/2021	BioNet	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat			4	9/07/2021	BioNet	Roosts in the hollows in old trees but also occasionally buildings. They have been recorded from tree hollows some 7 metres above the ground.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr, north-east of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Vespadelus regulus</i>	Southern Forest Bat			5	9/07/2021	BioNet	Southern Forest Bats roost in hollows in old trees and under the bark of trees. They roost together in small groups and often share their roosts with Lesser Long-eared Bats.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr, north-east of the study area. Potential foraging/roosting habitat exists within the study area.
Microbats	<i>Vespadelus vulturnus</i>	Little Forest Bat			12	9/07/2021	BioNet	Little Forest Bats roost in hollows in old trees, buildings, and timber stacks. Up to 50 bats roost together in a colony. Some bats have been seen sharing a nest with possums.	Moderate	Few recent records within 5 km of the study area, however recently recorded in land adjacent to Elizabeth Dr/Badgerys Creek, north of the study area. Potential foraging/roosting habitat exists within the study area.

Appendix D Consequence and Probability Scores by Species

D1 Consequence scores, terms and key

Mass	Mass Score	Flock Spacing	Flock Score	Flight Behaviour	Flight Score	Consequence Category	Consequence Score (Mass Score x Flock Score x Flight Score)
< 20g	1	Usually solitary or widely spaced	1	Rapid direct	1	Extreme	64-128
21-50g	2	Loose flocks	2	Slow, meandering, erratic, hovering, manoeuvrable	2	Very High	32
51-200g	4	Tight flocks	4	Nocturnal flight activity	2	High	16
201-1000g	8					Medium	8
1-5kg	16					Low	4
> 5kg	32					Very Low	1-2

D2 Probability scores, terms and key

Probability Category	Relative frequency (% of all known strikes at airport) *	Apparent frequency of strikes
Very High	>5%	often
High	1-5%	some
Medium	0.1-1%	occasional
Low	<0.1%	rare/none

*Relative frequency was calculated with combined ATSB data for known bird strikes at Sydney and Bankstown Airports, or from Australia wide data where information on specific species/functional group were absent. Species that used Australia wide data are noted in a separate column below.

D3 Consequence and probability scores

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Corvids and allies	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	51-200g	4	1	1	4	Low	<0.1%	Low	Y	
Aves	Corvids and allies	<i>Corcorax melanorhamphos</i>	White-winged Chough	201-1000g	8	4	1	32	Very high	<0.1%	Low		Y
Aves	Corvids and allies	<i>Corvus coronoides</i>	Australian Raven	201-1000g	8	2	1	16	High	0.1-1%	Medium		
Aves	Corvids and allies	<i>Corvus mellori</i>	Little Raven	201-1000g	8	2	1	16	High	0.1-1%	Medium		
Aves	Corvids and allies	<i>Cracticus nigrogularis</i>	Pied Butcherbird	201-1000g	8	1	1	8	Medium	<0.1%	Low	Y	
Aves	Corvids and allies	<i>Cracticus torquatus</i>	Grey Butcherbird	201-1000g	8	1	1	8	Medium	<0.1%	Low	Y	
Aves	Corvids and allies	<i>Gymnorhina tibicen</i>	Australian Magpie	201-1000g	8	2	1	16	High	1-5%	High		
Aves	Corvids and allies	<i>Strepera graculina</i>	Pied Currawong	201-1000g	8	2	1	16	High	<0.1%	Low	Y	
Aves	Cuckoos	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	51-200g	4	1	1	4	Low	0.1-1%	Medium		
Aves	Cuckoos	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	21-50g	2	1	1	2	Very low	0.1-1%	Medium		
Aves	Cuckoos	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	21-50g	2	1	1	2	Very low	0.1-1%	Medium		
Aves	Cuckoos	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	51-200g	4	1	1	4	Low	0.1-1%	Medium		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Seabirds and gulls	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	201-1000g	8	2	2	32	Very high	>5%	Very High		
Aves	Honeyeaters	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	< 20g	1	2	1	2	Very low	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Anthochaera carunculata</i>	Red Wattlebird	51-200g	4	2	1	8	Medium	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Anthochaera chrysoptera</i>	Little Wattlebird	51-200g	4	2	1	8	Medium	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	< 20g	1	2	1	2	Very low	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Manorina melanocephala</i>	Noisy Miner	51-200g	4	2	1	8	Medium	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	< 20g	1	2	1	2	Very low	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Philemon corniculatus</i>	Noisy Friarbird	51-200g	4	2	1	8	Medium	<0.1%	Low	Y	
Aves	Honeyeaters	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	< 20g	1	2	1	2	Very low	<0.1%	Low	Y	
Aves	Kingfishers	<i>Ceyx azureus</i>	Azure Kingfisher	21-50g	2	1	1	2	Very low	<0.1%	Low	Y	
Aves	Kingfishers	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	201-1000g	8	1	1	8	Medium	0.1-1%	Medium	Y	
Aves	Kingfishers	<i>Todiramphus sanctus</i>	Sacred Kingfisher	21-50g	2	1	1	2	Very low	<0.1%	Low	Y	
Aves	Nocturnal birds	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	21-50g	2	1	2	4	Low	0.1-1%	Medium		
Aves	Nocturnal birds	<i>Podargus strigoides</i>	Tawny Frogmouth	201-1000g	8	1	2	16	High	0.1-1%	Medium		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Nocturnal birds	<i>Tyto javanica</i>	Eastern Barn Owl	201-1000g	8	1	2	16	High	1-5%	High		
Aves	Parrots	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	201-1000g	8	2	2	32	Very high	0.1-1%	Medium		
Aves	Parrots	<i>Cacatua sanguinea</i>	Little Corella	201-1000g	8	2	1	16	High	0.1-1%	Medium		
Aves	Parrots	<i>Cacatua tenuirostris</i>	Long-billed Corella	201-1000g	8	4	2	64	Extreme	0.1-1%	Medium		
Aves	Parrots	<i>Eolophus roseicapilla</i>	Galah	201-1000g	8	4	2	64	Extreme	0.1-1%	Medium		
Aves	Parrots	<i>Glossopsitta concinna</i>	Musk Lorikeet	51-200g	4	4	1	16	High	<0.1%	Low	Y	
Aves	Parrots	<i>Lathamus discolor</i>	Swift Parrot	51-200g	4	2	1	8	Medium	0.1-1%	Medium	Y	
Aves	Parrots	<i>Platycercus eximius</i>	Eastern Rosella	51-200g	4	2	1	8	Medium	<0.1%	Low	Y	
Aves	Parrots	<i>Psephotus haematonotus</i>	Red-rumped Parrot	51-200g	4	2	1	8	Medium	0.1-1%	Medium	Y	
Aves	Parrots	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	51-200g	4	4	1	16	High	0.1-1%	Medium		
Aves	Parrots	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	51-200g	4	4	1	16	High	0.1-1%	Medium	Y	
Aves	Pigeons	<i>Columba livia</i>	Rock Dove	201-1000g	8	4	2	64	Extreme	1-5%	High		
Aves	Pigeons	<i>Ocyphaps lophotes</i>	Crested Pigeon	201-1000g	8	1	1	8	Medium	1-5%	High		
Aves	Pigeons	<i>Spilopelia chinensis</i>	Spotted Turtle-Dove	51-200g	4	2	1	8	Medium	1-5%	High		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Rails, Crakes	<i>Fulica atra</i>	Eurasian Coot	201-1000g	8	2	1	16	High	<0.1%	Low	Y	
Aves	Rails, Crakes	<i>Gallinula tenebrosa</i>	Dusky Moorhen	201-1000g	8	1	1	8	Medium	<0.1%	Low	Y	
Aves	Rails, Crakes	<i>Porphyrio porphyrio</i>	Purple Swamphen	1-5kg	16	1	1	16	High	<0.1%	Low	Y	
Aves	Raptors	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	201-1000g	8	1	1	8	Medium	0.1-1%	Medium		
Aves	Raptors	<i>Accipiter fasciatus</i>	Brown Goshawk	201-1000g	8	1	1	8	Medium	0.1-1%	Medium	Y	
Aves	Raptors	<i>Aquila audax</i>	Wedge-tailed Eagle	1-5kg	16	1	2	32	Very high	0.1-1%	Medium		
Aves	Raptors	<i>Elanus axillaris</i>	Black-shouldered Kite	201-1000g	8	1	2	16	High	0.1-1%	Medium		
Aves	Raptors	<i>Falco berigora</i>	Brown Falcon	201-1000g	8	1	1	8	Medium	0.1-1%	Medium		
Aves	Raptors	<i>Falco cenchroides cenchroides</i>	Nankeen Kestrel	51-200g	4	1	2	8	Medium	>5%	Very High		
Aves	Raptors	<i>Falco longipennis</i>	Australian Hobby	201-1000g	8	1	1	8	Medium	0.1-1%	Medium		
Aves	Raptors	<i>Haliastur sphenurus</i>	Whistling Kite	201-1000g	8	1	2	16	High	0.1-1%	Medium		
Aves	Raptors	<i>Hieraetus morphnoides</i>	Little Eagle	1-5kg	16	1	2	32	Very high	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	< 20g	1	2	1	2	Very low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Acanthiza lineata</i>	Striated Thornbill	< 20g	1	2	1	2	Very low	<0.1%	Low		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Smaller Songbirds	<i>Acanthiza nana</i>	Yellow Thornbill	< 20g	1	2	1	2	Very low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Acanthiza pusilla</i>	Brown Thornbill	< 20g	1	2	1	2	Very low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Acridotheres tristis</i>	Common Myna	51-200g	4	2	1	8	Medium	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Alauda arvensis</i>	Eurasian Skylark	21-50g	2	1	2	4	Low	0.1-1%	Medium	Y	
Aves	Smaller Songbirds	<i>Anthus novaeseelandiae</i>	Australian Pipit	21-50g	2	1	1	2	Very low	>5%	Very High		
Aves	Smaller Songbirds	<i>Carduelis carduelis</i>	European Goldfinch	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	51-200g	4	1	1	4	Low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Eopsaltria australis</i>	Eastern Yellow Robin	21-50g	2	1	1	2	Very low	<0.1%	Low	Y	
Aves	Smaller Songbirds	<i>Gerygone olivacea</i>	White-throated Gerygone	< 20g	1	2	1	2	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Grallina cyanoleuca</i>	Magpie-lark	51-200g	4	2	2	16	High	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Lalage sueurii</i>	White-winged Triller	21-50g	2	2	1	4	Low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Malurus cyaneus</i>	Superb Fairy-wren	< 20g	1	2	1	2	Very low	<0.1%	Low	Y	
Aves	Smaller Songbirds	<i>Myiagra inquieta</i>	Restless Flycatcher	21-50g	2	1	2	4	Low	<0.1%	Low	Y	
Aves	Smaller Songbirds	<i>Neochmia temporalis</i>	Red-browed Finch	< 20g	1	4	1	4	Low	0.1-1%	Medium		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Smaller Songbirds	<i>Oriolus sagittatus</i>	Olive-backed Oriole	51-200g	4	1	1	4	Low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Pachycephala pectoralis</i>	Golden Whistler	21-50g	2	1	1	2	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Pachycephala rufiventris</i>	Rufous Whistler	21-50g	2	1	1	2	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Pardalotus punctatus</i>	Spotted Pardalote	< 20g	1	1	1	1	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Pardalotus striatus</i>	Striated Pardalote	< 20g	1	1	1	1	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Passer domesticus</i>	House Sparrow	21-50g	2	4	1	8	Medium	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	21-50g	2	2	1	4	Low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Rhipidura albiscapa</i>	Grey Fantail	< 20g	1	1	2	2	Very low	<0.1%	Low		Y
Aves	Smaller Songbirds	<i>Rhipidura leucophrys</i>	Willie Wagtail	< 20g	1	1	1	1	Very low	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Sericornis frontalis</i>	White-browed Scrubwren	< 20g	1	2	1	2	Very low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Smicronis brevirostris</i>	Weebill	< 20g	1	2	1	2	Very low	<0.1%	Low		
Aves	Smaller Songbirds	<i>Stizoptera bichenovii</i>	Double-barred Finch	< 20g	1	4	1	4	Low	0.1-1%	Medium		
Aves	Smaller Songbirds	<i>Sturnus vulgaris</i>	Common Starling	51-200g	4	4	1	16	High	1-5%	High		
Aves	Smaller Songbirds	<i>Turdus merula</i>	Eurasian Blackbird	51-200g	4	1	1	4	Low	<0.1%	Low	Y	

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Smaller Songbirds	<i>Zosterops lateralis</i>	Silvereye	< 20g	1	2	1	2	Very low	<0.1%	Low		Y
Aves	Swallows, Martins, Swifts	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	21-50g	2	2	1	4	Low	<0.1%	Low		Y
Aves	Swallows, Martins, Swifts	<i>Hirundo neoxena</i>	Welcome Swallow	21-50g	2	2	2	8	Medium	>5%	Very High		
Aves	Swallows, Martins, Swifts	<i>Petrochelidon ariel</i>	Fairy Martin	< 20g	1	2	2	4	Low	1-5%	High		
Aves	Swallows, Martins, Swifts	<i>Petrochelidon nigricans</i>	Tree Martin	< 20g	1	2	2	4	Low	0.1-1%	Medium	Y	
Aves	Waders	<i>Gallinago hardwickii</i>	Latham's Snipe	51-200g	4	2	1	8	Medium	<0.1%	Low		Y
Aves	Waterbirds	<i>Anhinga novaehollandiae</i>	Australasian Darter	1-5kg	16	1	1	16	High	0.1-1%	Medium	Y	
Aves	Waterbirds	<i>Ardea alba modesta</i>	Eastern Great Egret	201-1000g	8	1	2	16	High	0.1-1%	Medium	Y	
Aves	Waterbirds	<i>Ardea intermedia</i>	Intermediate Egret	201-1000g	8	1	2	16	High	0.1-1%	Medium	Y	
Aves	Waterbirds	<i>Ardea pacifica</i>	White-necked Heron	201-1000g	8	1	2	16	High	0.1-1%	Medium		
Aves	Waterbirds	<i>Bubulcus ibis</i>	Cattle Egret	201-1000g	8	2	2	32	Very high	0.1-1%	Medium		
Aves	Waterbirds	<i>Egretta garzetta</i>	Little Egret	201-1000g	8	1	2	16	High	0.1-1%	Medium		
Aves	Waterbirds	<i>Egretta novaehollandiae</i>	White-faced Heron	201-1000g	8	1	2	16	High	0.1-1%	Medium		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Aves	Waterbirds	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	1-5kg	16	1	1	16	High	1-5%	High		
Aves	Waterbirds	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	1-5kg	16	1	1	16	High	1-5%	High		
Aves	Waterbirds	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	1-5kg	16	2	1	32	Very high	<0.1%	Low		Y
Aves	Waterbirds	<i>Platalea regia</i>	Royal Spoonbill	1-5kg	16	2	1	32	Very high	<0.1%	Low		Y
Aves	Waterbirds	<i>Threskiornis moluccus</i>	Australian White Ibis	1-5kg	16	4	1	64	Extreme	1-5%	High		
Aves	Waterbirds	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	1-5kg	16	4	1	64	Extreme	1-5%	High		
Aves	Waterbirds	<i>Vanellus miles</i>	Masked Lapwing	201-1000g	8	2	2	32	Very high	1-5%	High		
Aves	Waterfowl	<i>Anas castanea</i>	Chestnut Teal	201-1000g	8	4	1	32	Very high	1-5%	High		
Aves	Waterfowl	<i>Anas gracilis</i>	Grey Teal	201-1000g	8	4	1	32	Very high	1-5%	High		
Aves	Waterfowl	<i>Anas superciliosa</i>	Pacific Black Duck	201-1000g	8	4	1	32	Very high	1-5%	High		
Aves	Waterfowl	<i>Chenonetta jubata</i>	Australian Wood Duck	201-1000g	8	4	1	32	Very high	1-5%	High		
Aves	Waterfowl	<i>Cygnus atratus</i>	Black Swan	> 5kg	32	4	1	128	Extreme	0.1-1%	Medium		
Aves	Waterfowl	<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	201-1000g	8	1	1	8	Medium	<0.1%	Low		Y
Aves	Waterfowl	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	201-1000g	8	1	1	8	Medium	<0.1%	Low		Y
Bats	Megabats	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	1-5kg	16	4	2	128	Extreme	>5%	Very High		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Bats	Microbats	<i>Austronomus australis</i>	White-striped Freetail-bat	21-50g	2	2	2	8	Medium	0.1-1%	Medium		
Bats	Microbats	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	21-50g	2	2	2	8	Medium	<0.1%	Low	Y	
Bats	Microbats	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Miniopterus australis</i>	Little Bent-winged Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Myotis macropus</i>	Southern Myotis	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Ozimops ridei</i>	Eastern Free-tailed Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	21-50g	2	2	2	8	Medium	0.1-1%	Medium		
Bats	Microbats	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	21-50g	2	2	2	8	Medium	0.1-1%	Medium		
Bats	Microbats	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		
Bats	Microbats	<i>Vespadelus regulus</i>	Southern Forest Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		

Taxon	Functional Group	Species	Common Name	Mass	Mass Score	Flock Score	Flight Score	Consequence Score (Mass x Flock x Flight)	Consequence rank	Relative freq.	Prob. rank	Probability determined by Australia-wide data?	Number strikes recorded
Bats	Microbats	<i>Vespadelus vulturnus</i>	Little Forest Bat	< 20g	1	2	2	4	Low	0.1-1%	Medium		

Appendix E Hazard Rankings by Species

Functional Group	Species	Common name	Likelihood of occurrence	Consequence rank	Probability rank	Hazard rank
Megabats	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	High	Extreme	Very High	Extreme
Pigeons	<i>Columba livia</i>	Rock Dove	High	Extreme	High	Extreme
Waterbirds	<i>Threskiornis moluccus</i>	Australian White Ibis	High	Extreme	High	Extreme
Waterbirds	<i>Threskiornis spinicollis</i>	Straw-necked Ibis	High	Extreme	High	Extreme
Parrots	<i>Cacatua tenuirostris</i>	Long-billed Corella	High	Extreme	Medium	Very High
Waterfowl	<i>Cygnus atratus</i>	Black Swan	Moderate	Extreme	Medium	Very High
Parrots	<i>Eolophus roseicapilla</i>	Galah	High	Extreme	Medium	Very High
Seabirds and gulls	<i>Chroicocephalus novaehollandiae</i>	Silver Gull	Moderate	Very high	Very High	Very High
Waterfowl	<i>Anas castanea</i>	Chestnut Teal	High	Very high	High	High
Waterfowl	<i>Anas gracilis</i>	Grey Teal	High	Very high	High	High
Waterfowl	<i>Anas superciliosa</i>	Pacific Black Duck	High	Very high	High	High
Waterfowl	<i>Chenonetta jubata</i>	Australian Wood Duck	High	Very high	High	High
Waterbirds	<i>Vanellus miles</i>	Masked Lapwing	High	Very high	High	High
Raptors	<i>Aquila audax</i>	Wedge-tailed Eagle	Moderate	Very high	Medium	High
Waterbirds	<i>Bubulcus ibis</i>	Cattle Egret	High	Very high	Medium	High
Parrots	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	High	Very high	Medium	High
Raptors	<i>Hieraetus morphnoides</i>	Little Eagle	Moderate	Very high	Medium	High
Corvids and allies	<i>Gymnorhina tibicen</i>	Australian Magpie	High	High	High	High
Waterbirds	<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	High	High	High	High
Waterbirds	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	Moderate	High	High	High
Smaller Songbirds	<i>Sturnus vulgaris</i>	Common Starling	High	High	High	High
Nocturnal birds	<i>Tyto javanica</i>	Eastern Barn Owl	Moderate	High	High	High
Corvids and allies	<i>Corcorax melanorhamphos</i>	White-winged Chough	High	Very high	Low	Medium
Waterbirds	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	Moderate	Very high	Low	Medium
Waterbirds	<i>Platalea regia</i>	Royal Spoonbill	Moderate	Very high	Low	Medium

Functional Group	Species	Common name	Likelihood of occurrence	Consequence rank	Probability rank	Hazard rank
Waterbirds	<i>Anhinga novaehollandiae</i>	Australasian Darter	Moderate	High	Medium	Medium
Waterbirds	<i>Ardea alba modesta</i>	Eastern Great Egret	Moderate	High	Medium	Medium
Waterbirds	<i>Ardea intermedia</i>	Intermediate Egret	Moderate	High	Medium	Medium
Waterbirds	<i>Ardea pacifica</i>	White-necked Heron	Moderate	High	Medium	Medium
Parrots	<i>Cacatua sanguinea</i>	Little Corella	High	High	Medium	Medium
Corvids and allies	<i>Corvus coronoides</i>	Australian Raven	High	High	Medium	Medium
Corvids and allies	<i>Corvus mellori</i>	Little Raven	High	High	Medium	Medium
Waterbirds	<i>Egretta garzetta</i>	Little Egret	Moderate	High	Medium	Medium
Waterbirds	<i>Egretta novaehollandiae</i>	White-faced Heron	High	High	Medium	Medium
Raptors	<i>Elanus axillaris</i>	Black-shouldered Kite	Moderate	High	Medium	Medium
Smaller Songbirds	<i>Grallina cyanoleuca</i>	Magpie-lark	High	High	Medium	Medium
Raptors	<i>Haliastur sphenurus</i>	Whistling Kite	Moderate	High	Medium	Medium
Nocturnal birds	<i>Podargus strigoides</i>	Tawny Frogmouth	Moderate	High	Medium	Medium
Parrots	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	Moderate	High	Medium	Medium
Parrots	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	High	High	Medium	Medium
Rails, Crakes	<i>Fulica atra</i>	Eurasian Coot	High	High	Low	Medium
Parrots	<i>Glossopsitta concinna</i>	Musk Lorikeet	Moderate	High	Low	Medium
Rails, Crakes	<i>Porphyrio porphyrio</i>	Purple Swamphen	High	High	Low	Medium
Corvids and allies	<i>Strepera graculina</i>	Pied Currawong	High	High	Low	Medium
Raptors	<i>Falco cenchroides cenchroides</i>	Nankeen Kestrel	High	Medium	Very High	Medium
Swallows, Martins, Swifts	<i>Hirundo neoxena</i>	Welcome Swallow	High	Medium	Very High	Medium
Pigeons	<i>Ocyphaps lophotes</i>	Crested Pigeon	High	Medium	High	Medium
Pigeons	<i>Spilopelia chinensis</i>	Spotted Turtle-Dove	High	Medium	High	Medium
Raptors	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Moderate	Medium	Medium	Low
Raptors	<i>Accipiter fasciatus</i>	Brown Goshawk	Moderate	Medium	Medium	Low
Smaller Songbirds	<i>Acridotheres tristis</i>	Common Myna	High	Medium	Medium	Low

Functional Group	Species	Common name	Likelihood of occurrence	Consequence rank	Probability rank	Hazard rank
Microbats	<i>Austronomus australis</i>	White-striped Freetail-bat	Moderate	Medium	Medium	Low
Kingfishers	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	High	Medium	Medium	Low
Raptors	<i>Falco berigora</i>	Brown Falcon	Moderate	Medium	Medium	Low
Raptors	<i>Falco longipennis</i>	Australian Hobby	Moderate	Medium	Medium	Low
Parrots	<i>Lathamus discolor</i>	Swift Parrot	Moderate	Medium	Medium	Low
Smaller Songbirds	<i>Passer domesticus</i>	House Sparrow	High	Medium	Medium	Low
Parrots	<i>Psephotus haematonotus</i>	Red-rumped Parrot	High	Medium	Medium	Low
Microbats	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	Moderate	Medium	Medium	Low
Microbats	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Moderate	Medium	Medium	Low
Honeyeaters	<i>Anthochaera carunculata</i>	Red Wattlebird	High	Medium	Low	Low
Honeyeaters	<i>Anthochaera chrysoptera</i>	Little Wattlebird	High	Medium	Low	Low
Corvids and allies	<i>Cracticus nigrogularis</i>	Pied Butcherbird	High	Medium	Low	Low
Corvids and allies	<i>Cracticus torquatus</i>	Grey Butcherbird	High	Medium	Low	Low
Microbats	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Moderate	Medium	Low	Low
Waders	<i>Gallinago hardwickii</i>	Latham's Snipe	Moderate	Medium	Low	Low
Rails, Crakes	<i>Gallinula tenebrosa</i>	Dusky Moorhen	High	Medium	Low	Low
Honeyeaters	<i>Manorina melanocephala</i>	Noisy Miner	High	Medium	Low	Low
Honeyeaters	<i>Philemon corniculatus</i>	Noisy Friarbird	Moderate	Medium	Low	Low
Parrots	<i>Platycercus eximius</i>	Eastern Rosella	High	Medium	Low	Low
Waterfowl	<i>Poloiocephalus poloiocephalus</i>	Hoary-headed Grebe	Moderate	Medium	Low	Low
Waterfowl	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	High	Medium	Low	Low
Swallows, Martins, Swifts	<i>Petrochelidon ariel</i>	Fairy Martin	High	Low	High	Low
Nocturnal birds	<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	Moderate	Low	Medium	Negligible
Smaller Songbirds	<i>Alauda arvensis</i>	Eurasian Skylark	Moderate	Low	Medium	Negligible
Cuckoos	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	Moderate	Low	Medium	Negligible
Smaller Songbirds	<i>Carduelis carduelis</i>	European Goldfinch	Moderate	Low	Medium	Negligible

Functional Group	Species	Common name	Likelihood of occurrence	Consequence rank	Probability rank	Hazard rank
Microbats	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	Moderate	Low	Medium	Negligible
Cuckoos	<i>Heteroscenes pallidus</i>	Pallid Cuckoo	Moderate	Low	Medium	Negligible
Microbats	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Miniopterus australis</i>	Little Bent-winged Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Myotis macropus</i>	Southern Myotis	Moderate	Low	Medium	Negligible
Smaller Songbirds	<i>Neochmia temporalis</i>	Red-browed Finch	High	Low	Medium	Negligible
Microbats	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Ozimops ridei</i>	Eastern Free-tailed Bat	Moderate	Low	Medium	Negligible
Swallows, Martins, Swifts	<i>Petrochelidon nigricans</i>	Tree Martin	Moderate	Low	Medium	Negligible
Microbats	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	Moderate	Low	Medium	Negligible
Smaller Songbirds	<i>Stizoptera bichenovii</i>	Double-barred Finch	High	Low	Medium	Negligible
Microbats	<i>Vespadelus regulus</i>	Southern Forest Bat	Moderate	Low	Medium	Negligible
Microbats	<i>Vespadelus vulturnus</i>	Little Forest Bat	Moderate	Low	Medium	Negligible
Swallows, Martins, Swifts	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Moderate	Low	Low	Negligible
Smaller Songbirds	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	High	Low	Low	Negligible
Corvids and allies	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	High	Low	Low	Negligible
Smaller Songbirds	<i>Lalage sueurii</i>	White-winged Triller	Moderate	Low	Low	Negligible
Smaller Songbirds	<i>Myiagra inquieta</i>	Restless Flycatcher	Moderate	Low	Low	Negligible
Smaller Songbirds	<i>Oriolus sagittatus</i>	Olive-backed Oriole	Moderate	Low	Low	Negligible
Smaller Songbirds	<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul	Moderate	Low	Low	Negligible
Smaller Songbirds	<i>Turdus merula</i>	Eurasian Blackbird	High	Low	Low	Negligible
Smaller Songbirds	<i>Anthus novaeseelandiae</i>	Australian Pipit	Moderate	Very low	Very High	Negligible
Cuckoos	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	Moderate	Very low	Medium	Negligible
Cuckoos	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	Moderate	Very low	Medium	Negligible

Functional Group	Species	Common name	Likelihood of occurrence	Consequence rank	Probability rank	Hazard rank
Smaller Songbirds	<i>Rhipidura leucophrys</i>	Willie Wagtail	High	Very low	Medium	Negligible
Smaller Songbirds	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Acanthiza lineata</i>	Striated Thornbill	High	Very low	Low	Negligible
Smaller Songbirds	<i>Acanthiza nana</i>	Yellow Thornbill	High	Very low	Low	Negligible
Smaller Songbirds	<i>Acanthiza pusilla</i>	Brown Thornbill	High	Very low	Low	Negligible
Honeyeaters	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	Moderate	Very low	Low	Negligible
Honeyeaters	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	High	Very low	Low	Negligible
Kingfishers	<i>Ceyx azureus</i>	Azure Kingfisher	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Eopsaltria australis</i>	Eastern Yellow Robin	High	Very low	Low	Negligible
Smaller Songbirds	<i>Gerygone olivacea</i>	White-throated Gerygone	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Malurus cyaneus</i>	Superb Fairy-wren	High	Very low	Low	Negligible
Honeyeaters	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Pachycephala pectoralis</i>	Golden Whistler	High	Very low	Low	Negligible
Smaller Songbirds	<i>Pachycephala rufiventris</i>	Rufous Whistler	High	Very low	Low	Negligible
Smaller Songbirds	<i>Pardalotus punctatus</i>	Spotted Pardalote	High	Very low	Low	Negligible
Smaller Songbirds	<i>Pardalotus striatus</i>	Striated Pardalote	Moderate	Very low	Low	Negligible
Honeyeaters	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	High	Very low	Low	Negligible
Smaller Songbirds	<i>Rhipidura albiscapa</i>	Grey Fantail	High	Very low	Low	Negligible
Smaller Songbirds	<i>Sericornis frontalis</i>	White-browed Scrubwren	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Smicronis brevirostris</i>	Weebill	Moderate	Very low	Low	Negligible
Kingfishers	<i>Todiramphus sanctus</i>	Sacred Kingfisher	Moderate	Very low	Low	Negligible
Smaller Songbirds	<i>Zosterops lateralis</i>	Silvereye	Moderate	Very low	Low	Negligible

Appendix F Functional Group Categories

Functional Group	Example species
Corvids and allies	Australian Magpie, White-winged Chough, Ravens, Currawongs, Butcherbirds, Cuckoo-shrikes.
Cuckoos	Fan-tailed Cuckoo, Horsfield's Bronze-Cuckoo, Black-eared Cuckoo, Eastern Koel, Pallid Cuckoo, Channel-billed Cuckoo.
Game fowl	Australian Brush-turkey, Junglefowl, Quails, Button-quails
Honeyeaters	Noisy Miner, Noisy Friarbird, Wattlebirds, Spinebills, other honeyeaters.
Kingfishers	Kookaburra, Sacred Kingfisher, Azure Kingfisher.
Nocturnal birds	Eastern Barn Owl, Southern Boobook, Tawny Frogmouth, other nightjars
Parrots	Galah, Cockatiel, Budgerigar, Cockatoos, Corellas, Lorikeets, Rosellas, other Parrots such as Swift Parrot.
Pigeons	Rock Dove, Peaceful Dove, Bar-shouldered Dove, Wonga Pigeon, Crested Pigeon, Spotted Turtle-Dove, Common Bronzewing.
Rails, crakes	Coots, Moorhens, Swampheens, Crakes.
Raptors	Wedge-tailed Eagle, other Eagles, Goshawks, Kites, Falcons, Kestrels, Hobbies.
Seabirds and gulls	Silver gull, Osprey, Terns, Petrels
Smaller songbirds	Fairy-wrens, Thornbills, Gerygones, Scrubwrens, Weebills, Treecreepers, Pipits, Whistlers, Robins, Starlings, Silvereyes, Pardalotes, Finches, Sparrows.
Swallows, martins, swifts	Welcome Swallow, Fairy Martin, Tree Martin, Fork-tailed Swift, White-throated Needletail, Wood swallows.
Waders	Snipe, Dotterel, Stilts, Plovers, Sandpipers, Curlews.
Waterbirds	Ibis, Herons, Egrets, Bitterns, Snipes, Darters, Pelicans, Cormorants, Spoonbills.
Waterfowl	Ducks, Grebes, Swans.
Megabats	Grey-headed Flying-fox, Little Red Flying-fox, Black Flying-fox.
Microbats	Little Forest Bat, Free-tailed Bats, Long-eared Bats, Wattled Bats.

