5. Mitigation Measures to Reduce Risk

Mitigation involves the prevention, avoidance and/or reduction of the risk of an impact trigger occurring or continuing to occur. An '*impact trigger*' is defined in Section 6 as a threshold of impact on birds or bats that triggers an investigation and/or management response. This section outlines such measures and addresses condition of approval D4 (e).

The overall objective of mitigation measures is to ensure that the operation of FCWF does not lead to significant impacts on threatened or non-threatened birds and bats. Any future novel or new mitigation measures that are identified to be of potential benefit for birds and bats at the FCWF should be incorporated into the plan as part of adaptive management, in consultation with the OEH.

5.1. Carcass (carrion) removal program and stock forage control

Land-use and stock management below and around turbines can influence the presence and behaviour of native birds on site. Examples that could elevate bird collision rates include:

- Grain feeding can attract parrots and cockatoos; and
- Carrion and rabbits can attract raptors.

This section proposes possible mitigation measures to address these matters.

A moderate risk to Wedge-tailed Eagle has been identified for FCWF. The eagle and other raptors forage for carrion (and the fresh or decaying flesh of a dead animal) and also on small mammals and rabbits. In order to reduce the risk of raptors colliding with turbines, a regular carrion removal program will be implemented during operations, to reduce the attractiveness of the site to raptors and therefore reduce the potential for fatal collisions by this group of birds. This program will focus on an area of a minimum of 200maround turbines, where safe, feasible and practical. The procedures below will be adopted.

- A designated suitable person will be appointed (such as a wind farm employee or landowner) to perform the function of Carrion Removal Coordinator who will ensure the activities described below.
    - Monthly inspections of the wind farm site to search for any stock, introduced or native mammal and bird carcasses (to be recorded as incidental finds) that may attract raptors (e.g. kangaroos, pigs, goats, foxes, rabbits, dead stock). This search will be undertaken via vehicle and visual checks in addition to using binoculars to look for larger carcasses within 200m of each turbine.
    - Additional, opportunistic observations by operators during normal inspections and work routines and by landowners as they travel around their properties provides further opportunity to identify and report carcasses of stock or feral animals so that timely collection can be undertaken to remove them. This can be addressed by operator and landowner protocols within the operational phase environmental management plan and associated procedures.
    - Any carcasses and/or remains found that are within 200mof turbines, will be collected and disposed of as soon as possible, in a manner that will avoid attracting raptors close to turbines.

- Consult with the landowner or wind farm manager in relation to the appropriate disposal of collected carrion, to be located at least 200maway from the closest turbine.
- Wind energy facility maintenance staff and landowners will be required to notify the Carrion Removal Coordinator immediately following identification of carrion on site in between monthly searches.
- Carcass occurrence and removal will be recorded in a "management log book" maintained by FCWF asset manager or delegated representative.

- During lambing season (usually late autumn / winter) young lambs are susceptible to death. Therefore, if possible and subject to agreement of landowners, lambing will be restricted in paddocks at least 200m away from turbines, where practicable, to reduce the risk that raptors (Wedge-tailed Eagles in particular) are attracted close to the turbines.
- In order to reduce collision risks to birds, where practical and with landowner agreement, the practice of grain feeding of stock within 200mof turbines should be minimised as it could attract parrots, cockatoos or other birds to turbines, increasing collision risk.
- Any feral animal control on the wind farm site should involve the timely removal and appropriate disposal of resulting carcasses (see Biodiversity Management Plan).
- If a large active rabbit presence is observed during monitoring surveys, it may be necessary to conduct an integrated rabbit control program (to reduce site attractiveness to Wedge-tailed Eagles). Methods to control rabbits include borrow destruction, poisoning and shooting. Any rabbit control program will require cooperation and agreement from the landowners.
- An annual summary of carcass removal, based on the 'management log' will be provided in the annual monitoring reports.

The need for continuation of the carcass removal program and effort required will be assessed after one year of operation. In general, the criteria for continuation will be based on the frequency of carcass finds. For example, if carcass frequency is particularly low (e.g. one or two per quarter) outside of turbine search zones (i.e. not beneath turbines) the intense program may be discontinued or reduced considerably, subject to agreement from OEH. Alternatively, if peaks occur at specific times or locations where there are turbines with intervening periods of low numbers, the effort may be focussed on the peak periods and/or locations.

5.2. Lighting on turbines and buildings

It has long been known that sources of artificial light attract birds, as evidenced by night-migrating birds in North America and Europe. Lighting is probably the most important factor under human control that affects mortality rates of birds and bats colliding with all structures (Longcore, et al. 2008). Most bird mortality at communication towers for example, occurs in poor weather with low cloud in autumn and spring, i.e. during migration periods (Longcore, et al. 2008).

It is postulated that bright lights may temporarily blind birds, particularly those accustomed to flying at night or in low light conditions causing them to fly toward the light source and collide with the lit structure (Gauthreaux and Belser 2006). Birds may be prone to saturation of their retinas, causing temporary blindness when subjected to bright light (Beier 2006) and mortality of both birds and bats can result from collisions with lit structures. Bats are also attracted to the increased numbers of

insects that may congregate near bright light sources. Birds can also become disoriented or 'trapped' in the field of light beyond which they cannot see (Longcore *et al.* 2008).

Measures to reduce the impact of lighting include using low pressure sodium or mercury lamps with UV filters to reduce brightness. The colour of lighting may also be important. Some studies have found that red lights resulted in a lower mortality than white lights (Longcore *et al.* 2008), but more recent research on oil rigs at sea suggests that blue or green lights may result in lower mortality than red or white lights (American Bird Conservancy 2014).

For the above reasons, building lighting should be baffled and directed to avoid excessive light spillage and security lighting should be baffled to direct it towards the area requiring lighting and not skyward. This will assist in meeting the bat deterrence requirements of Project Approval Condition D4.

5.3. Raptor perch removal

Where observations by ecologists during the implementation of this plan or wind farm personnel during routine operations identify a structure or tree used regularly for perching by birds of prey within 300m of wind turbines, consideration will be given to removing this perch to reduce the level of bird activity near wind turbines. This decision will be made on the final advice of the ecologist supervising the implementation of this BBAMP.

6. Impact Triggers and Decision-Making Framework

This section identifies the circumstances that will result in notification, further investigation and additional mitigation for both threatened and non-threatened birds and bats ('impact triggers'). If an impact trigger is met, there must be an investigation into the cause of the impact, and whether the event was likely to be a one-off occurrence or occur regularly.

By way of definition, an **impact trigger** may be an unacceptable impact in itself or may lead to an unacceptable impact if it continues. The purpose of defining an impact trigger is that it results in a more detailed investigation of the project's impact on the species concerned, enabling an early response to a possible ongoing situation that may lead to an unacceptable impact.

Note that the approach developed in this section is based on that approved for numerous bird and bat monitoring programs for wind farms in both New South Wales and Victoria, and up to date feedback from regulators on the implementation of approved plans (see section 1.1 for details).

Ultimately, the wind farm owner or their appointed representative will be responsible for implementation of this BBAMP and the decision-making that goes with it, with technical support provided by the approved expert.

6.1. Threatened Species

6.1.1. Definition of Impact Trigger and Unacceptable Impact

Generally, an impact trigger is where there is evidence of death or injury to birds and/or bats by collision or other interaction with turbines. Under this program, the circumstances that define an impact trigger and unacceptable impact for threatened birds and/or bats are detailed below.

Impact Trigger for Threatened Species occurs if a threatened bird or bat species (or recognisable parts thereof) listed under the Commonwealth EPBC Act or NSW BC Act is found dead or injured under or close to a wind turbine during any mortality search or incidentally by wind farm personnel.

6.1.2. Decision Making Framework and Reporting

If a threatened species impact trigger occurs, further investigation will immediately be triggered and the decision-making framework outlined below and in Figure 4 will be followed. This section complies with Schedule D, Condition D4 (c) of the project approval.

- Immediate reporting of the occurrence of an impact trigger to FCWF's responsible manager, who will report it to the relevant statutory planner at BCD (Dubbo) within two business days of it being recorded;
- Immediate investigation (to be completed within 10 days) by an appropriately qualified ecologist to determine, if possible, the circumstances that lead to the death or injury. If the cause of death is considered to be due to turbine collision, an investigation will be undertaken to identify any particular risk behaviours that could have led to the collision and the likelihood of further occurrences will be evaluated.
- The rapid 10-day investigation will aim to provide a clear understanding of the cause of the impact, informed by on-site investigations of the occurrence of the species on the wind farm

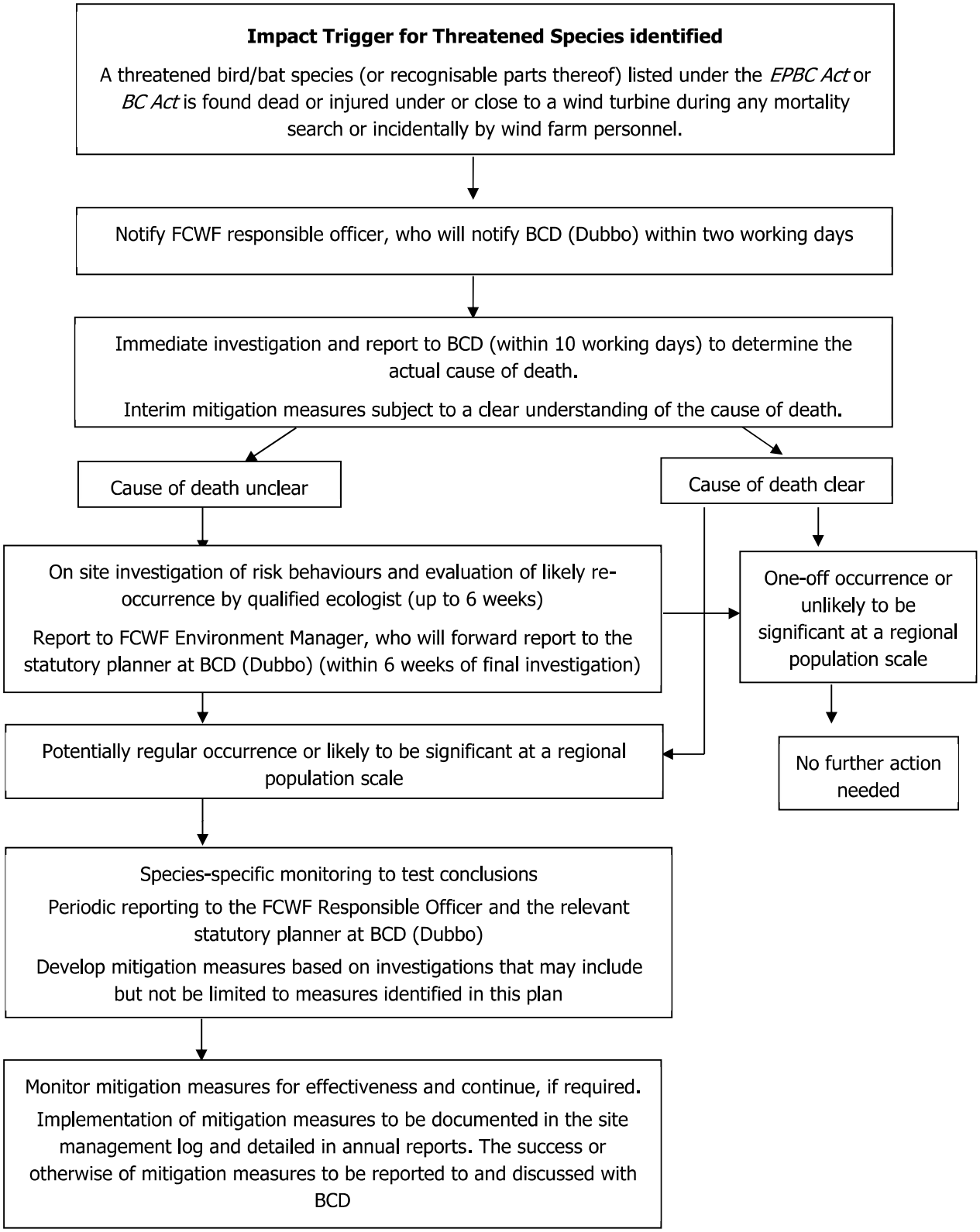
site and any risk behaviour it is displaying. This will help identify the most effective mitigation measures to be implemented with such mitigation to be implemented immediately, if required (see next point).

- If, following this investigation, the fatality is deemed to be a one-off occurrence or any potential ongoing impact is unlikely to be significant at a bioregional population scale, further action is not considered necessary. This decision will be made in consultation with BCD and will be determined based on available evidence and using a precautionary approach. Note that the successful execution of this requirement relies upon BCD providing timely and definitive input to this process.
- If the cause of the impact trigger is not clear, further on-site investigation of risk behaviours and evaluation of likely re-occurrence will be required over the following weeks. If these investigations suggest that the impact trigger was a one-off event or the ongoing risk is unlikely to be significant at a population scale, no further action would be necessary. This decision will be determined in consultation with OEH, based on available evidence.
- If the onsite investigation suggests that the impact trigger may indicate the potential for an unacceptable impact, species-specific monitoring may be required. During species-specific monitoring, periodic reports will be provided by FCWF to OEH.
- Responsive mitigation measures will be developed and, as agreed with relevant agencies, implemented in a timely manner. Examples of mitigation measures may include but are not limited to those outlined in Sections 5 and 6.3.

Any evaluation of impacts and decisions regarding mitigation measures and further investigations required will be undertaken in consultation with OEH. Any required investigation, and recommended management and supplementary mitigation measures will be documented in the project management log and detailed in annual reports, as detailed in Table 12. This log will be available for inspection by BCD or on the request of the Secretary DPIE.

It is recommended that the DPIE approved specialist for implementation of the BBAMP be responsible for advising FCWF on the implementation of this decision-making framework and, with the wind farm manager, for discussions with BCD and DPIE.

Figure 4: Decision making framework for identifying and mitigating impacts on threatened species



6.2. Non-threatened Species

6.2.1. Definition of Impact Trigger and Unacceptable Impact

The circumstances that define an impact trigger and significant impact for non-threatened birds and/or bats under this Management Plan are detailed below. Note native species not listed as protected in the local government area, are not considered of conservation significance and therefore are not subject to adaptive management or this impact trigger. These species are Sulphur-crested Cockatoos, galahs, crows, ravens and introduced bird species. All other native bird and bat species are subject to adaptive mitigation arising from this impact trigger.

Impact Trigger for Non-threatened Species: The trigger is defined as a total of four or more bird or bat carcasses, or parts thereof, of the same species in two successive searches at the same or adjacent turbine(s) of a non-threatened species (excluding species mentioned above).

Where population numbers are known and reported by BCD or where habitat extent is known, the **definition of an unacceptable impact** on non-threatened species is any impact that is likely to reduce the viability of the population of the affected species in the bioregion.

Note that although the impact trigger does not include ravens, Sulphur-crested Cockatoos, corellas and introduced species, detected mortalities for these species will still be reported as part of the annual reporting process.

6.2.2. Decision Making Framework

In the event that an impact trigger for non-threatened species is detected the following steps will be followed:

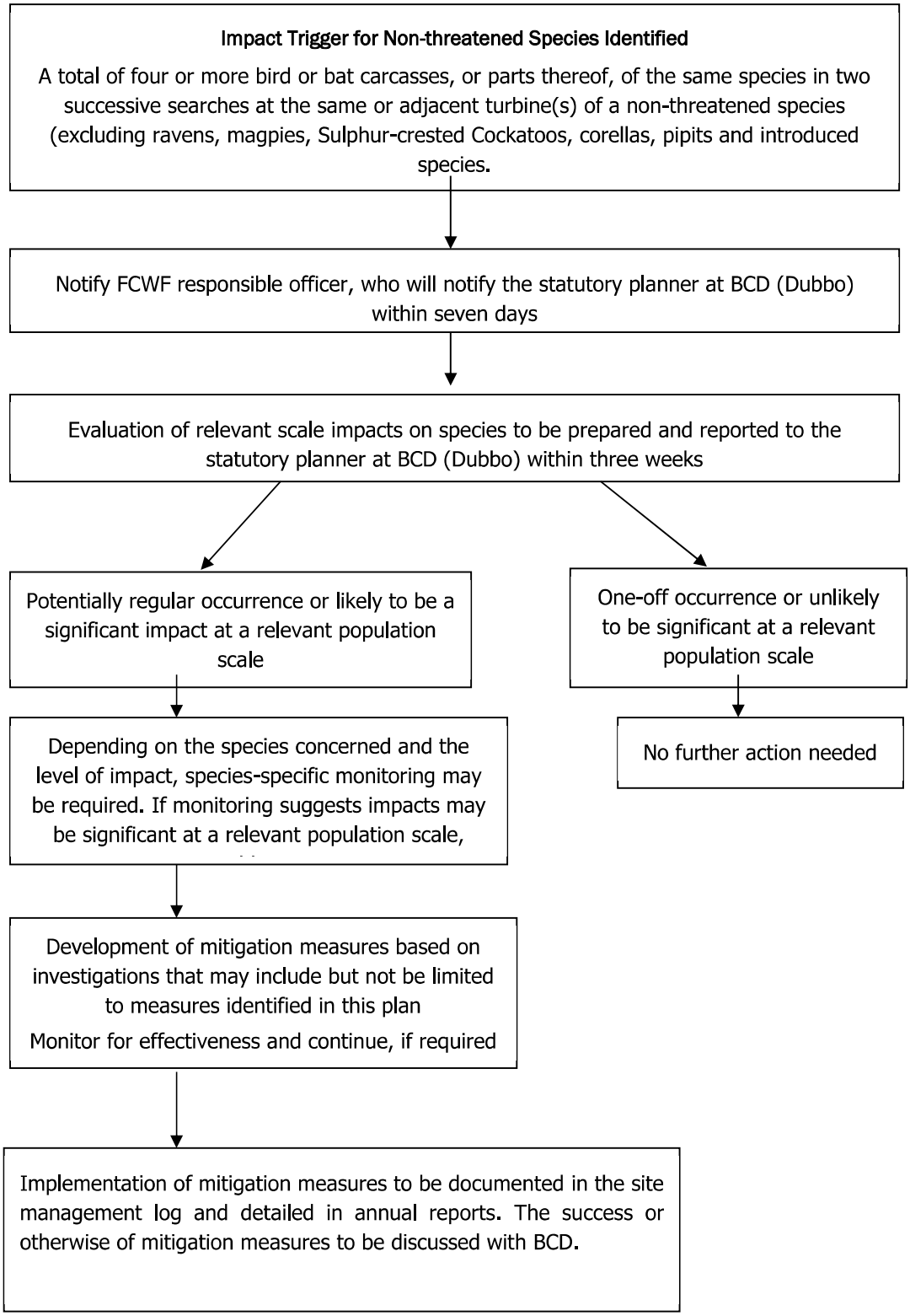
- BCD (Dubbo) will be **notified** of the impact trigger within seven days of recording the event.
- An **evaluation** of impacts to the non-threatened species' bioregional population will be undertaken.
- A **report** on the investigation will be delivered to the relevant statutory personnel at BCD (Dubbo) within three weeks.

If the evaluation indicates that the event was a one-off occurrence or is unlikely to be an unacceptable impact at a bioregional population scale for the species in question, no further action will be necessary (as outlined in Figure 4).

If the event is deemed to be a potentially regular occurrence or likely to lead to an unacceptable impact on the species in question, species-specific monitoring may be required (Figure 5). If further monitoring confirms that impacts are likely to lead to an unacceptable impact on the species, mitigation measures will be required. Potential mitigation measures are outlined in Table 11, however specific mitigation measures will be determined based on the species involved and the outcome of investigations.

Any evaluation of impacts and decisions regarding mitigation measures and further investigations required will be undertaken in consultation with BCD. Any required investigation, and recommended management and supplementary mitigation measures, will be documented in the site management logs and detailed in annual reports. This log will be available for inspection by BCD or on the request of the Secretary DPIE.

Figure 5: Decision making framework for identifying and mitigating impacts on non-threatened species



6.3. Supplementary Mitigation Measures

Supplementary mitigation measures will be implemented in consultation with BCD in the event that the investigation of an impact trigger concludes there is potential for an unacceptable impact. The purpose of supplementary mitigation measures will be to prevent the impact from continuing to occur at a scale that leads to an unacceptable impact. Specific mitigation measures will be implemented depending on the nature, cause and significance of any impact recorded and in response to the results of investigations of the event and of the species concerned on the wind farm site.

Although it is unknown what supplementary mitigation measures may be required in response to a particular situation, some hypothetical examples are provided in Table 11 below. These are examples of potential issues not considered applicable to date but describe useful and tested responses from other wind farms in addressing the issues. Should these be implemented as a management response at FCWF the response of birds and bats to these measures will be recorded.

The purpose of investigations will be to identify clearly the most relevant and effective mitigation measures.

In the event that turbine shutdown as a mitigation approach is considered necessary by DPIE, it will be based on specific advice from BCD and agreed with Flyers Creek Wind Farm Pty Ltd (the Proponent). Turbine shutdown should be considered as a last resort, once all mitigation options are exhausted. This information should include, but not be limited to:

- Ongoing acceptable impacts, including the level of risk to the species' bioregional population viability and the overall population, where known;
- The findings of detailed investigations undertaken in response to the impact trigger, focussing on the species' use of the immediate area around affected turbines;
- Clear scope for on-going monitoring to identify triggers for turbine shut-down;
- Agreed triggers for turbine shutdown and restart; and
- Reporting and consultation arrangements.

6.4. Specific management objectives, activities, timing and performance criteria

Table 12 summarises specific management objectives, activities, timing and performance criteria for the implementation of this BBAMP. It can be used for monitoring and reporting on the implementation of this plan.

Table 11: Supplementary mitigation measures in the event of an unacceptable impact trigger occurring

Hypothetical cause of impact	Mitigation Measure[2]	Likelihood of impact continuing following mitigation	Time to implementation
Foraging source identified that attracts threatened species and "at risk" species to impact areas	Consider the use of acoustics (ie. loud music/irregular noise) to discourage birds from foraging in this location where such noise would not impact neighbours	Low	Implement as soon as possible.
	Encourage species into alternative areas outside of the wind farm boundary, where available, through the use of social attraction techniques offsite (decoys and audio playback systems)		Implement according to agreed plan
Farming practice attracts threatened species to risky areas (e.g. grain feeding of stock)	Investigate whether farming practice is a contributing factor and if so, subject to landowner agreement relocate farming further from turbines to reduce risk	Low	Immediately
Wind/rain/fog causing low visibility	If low visibility at the site is identified as an issue, carcass searches may be repeated during periods of low visibility to measure mortality rates. Temporary shutdown of those turbines found to cause the problem may be necessary during periods of extreme low visibility – to be implemented only in the event that threatened species are experiencing unacceptable impacts.	Low	Immediately low visibility is identified as the cause of unacceptable impacts on threatened species.
Attraction to lights on the wind farm site	Except where otherwise required by CASA, avoid high intensity lighting within the wind farm site (e.g. use of light hoods) or switch off lighting temporarily while species is on or near the wind farm site. Additional measures include: • Synchronise any flashing lights, • Use red rather than white or yellow lights, or • Remove lights, where practicable • All other lights switched off except when needed for service work	Low	If lights can be switched off, this should occur immediately. Alternative measures should be implemented as soon as practicable after recording the impact trigger.
Attraction to small dams on site	Subject to landowner agreement, fill in dam and provide alternative stock watering arrangements	Low	Implement as soon as possible after recording the impact trigger if the dam is the cause of the problem.
Nest site close to turbine	Discourage nesting close to turbines	Low	Prior to breeding season.
Perching/foraging close to turbines	Minimise perching opportunities near turbines	Low	Implement according to agreed plan

[2] Note that the mitigation measures in this table are examples of what may be possible. Ultimately, the chosen mitigation measure will be identified as part of the impact-trigger investigations shown in Figures 5 and 6, and may not include any of these examples if they are not relevant.

Table 12: Specific management objectives (including relevant consent condition from Schedule D), activities, timing and performance criteria

Management objectives	Management activities and controls	Timing	Performance criteria for measuring success of methods	Completed (yes/no)
Baseline surveys D4 (b)	Obtaining pre-construction baseline bird and bat utilisation data	Pre-construction • Bird survey complete • Bat survey complete	• Bird utilisation surveys (point count and transect surveys) undertaken as described in this BBAMP in the first year of operation • Bat utilisation surveys undertaken as described in this BBAMP.	
	Obtaining operational phase bird and bat mortality data	Operational phase	• As per results of the mortality monitoring in this BBAMP.	
Mortality monitoring D4 (b)	All turbines to be searched each month to a radius of 100 metres in accordance with the inner- and outer zone search protocol for a period of 24 months, following which the need for further surveys will be reviewed based on the results of the first two years of monitoring.	Operational phase monthly until end of 24 months	• Operational phase mortality surveys undertaken monthly at at least 19 turbines for at least two years, with a review after the first years to determine if a change in the methodology is required and a review after two years to determine, in consultation with BCD whether further carcass monitoring is required.	
	Calculating annual mortality of birds and bats per turbine based on operational phase repetition of monitoring activities. Mortality estimates should include correction factors from scavenger and detector efficiency trials.	Operational phase at the end of the first two years of mortality monitoring	• Scavenger and detector efficiency trials undertaken • Estimates of mortality for birds and bats made after full year of monitoring	
Annual Reports D4 (f)	Preparation of Annual Reports to be submitted to Secretary and BCD for the first five years after the completion of a year's monitoring activities.	Operational phase– after years one and two.	• Annual reports for the first five years delivered within two months of completion of yearly monitoring. • Annual reports to include (but not be limited to) results of monitoring surveys for that year, any impact triggers or unacceptable impacts identified, mitigation measures implemented, application of the decision-making framework and recommendations for the following year. • Further annual reports upon agreement	
Mitigation measures to reduce risk D4 (e)	Carrion removal program - stock and kangaroo carcasses will be removed from within 200 metres of wind turbines on a monthly basis and disposed of.	During operation	• Carcasses removed • Activity recorded in management log book • Increase frequency of stock and kangaroo carcass removal and disposal if required • All mitigation actions recorded in a project site management log.	
	Subject to landowner agreement, restrict lambing to paddocks at least 200m from turbines.		• No increase in raptor mortality during lambing season	
	Subject to landowner agreement, stock will not be fed grain underneath turbines		• No increase in bird mortality due to grain underneath turbines	
Mitigation measures to reduce risk D4 (e)	Pest control program - Implement rabbit control if the carrion removal program suggests rabbit carcasses are an issue, subject to landowner agreement	During operation	• Monitor effectiveness of rabbit control and, where bird mortality is clearly related to rabbit numbers, increase the effectiveness of rabbit control	
	Habitat improvement or protection to encourage animals to use habitats away from turbines.	During operation	Protection of offset site located in woodland habitat.	
	Minimising external lighting. There are only low levels of lighting on the wind farm during operation.		If mortality at turbines near light sources significantly exceeds that of activity at unlit turbines, type and duration of lighting will need to be reviewed, subject to security and OH&S limitations.	
	Remove permanent lights on buildings and sub-stations to avoid light spillage and visibility from above.			
	Baffle security lighting to avoid light spillage and visibility from above, consistent with the requirements of consent schedule D, condition D4.			
	Use of deterrents – Where required, overhead powerlines should have marker balls and/or flags where they cross waterways		No incidental records of bird mortality from power line collision around waterways.	

7. References

AusWEA (2005) Wind Farms and Birds: Interim Standards for Risk Assessment, prepared by Brett Lane & Associates Pty Ltd and Aria Environmental Pty Ltd for AusWEA

American Bird Conservancy 2014, http://www.abcbirds.org/newsandreports/stories/080319_oil.html Accessed 25th January 2014.

Arnett EB, Erickson WP, Kerns J and Horn J 2005. Relationships between bats and wind turbines in Pennsylvania and West Virginia: An assessment of fatality search protocols, patterns of fatality, and behavioural interactions with wind turbines. A final report submitted to the Bats and Wind Energy Cooperative. Bat Conservation International. Austin, Texas, USA.

Beier, P 2006. Effects of artificial night lighting on terrestrial mammals. Pp 19-42 In "Ecological Consequences of Artificial Night Lighting". (Rich, C. and T. Longcore, eds.). Island Press. Washington, D.C.

Brett Lane and Associates 2009, Bald Hills Wind Farm, Bat and Avifauna Management Plan, Report No. 9067 (2.0), September 2009.

Brett Lane & Associates 2011a, Capital Wind Farm, Bird and Bat Adaptive Management Program, Report No. 9142 (1.2) approved in Dec 2009 and revised in 2010 and 2011. Prepared for Renewable Power Ventures Ltd (now Infigen).

Brett Lane & Associates 2011b, Mt Gellibrand Wind Farm, Bird and Avifauna Management Plan, prepared for Acciona Energy Oceania Ltd, Report No. 8229 (4.13), approved December 2011.

Brett Lane & Associates 2011c, Woodlawn Wind Farm, Bird and Bat Adaptive Management Program, prepared for Infigen Energy Ltd, Report No. 11035 (1.4), October 2011.

Brett Lane & Associates 2012a, Hawkesdale Wind Farm, Bird and Avifauna Management Plan, prepared for Union Fenosa Wind Australia Ltd, Report No.9067 (2.4), February 2012.

Brett Lane and Associates 2012b, Mount Mercer Wind Farm, Bat and Avifauna Management Plan, Report No. 8076 (2.8), approved September 2012.

Brett Lane & Associates 2012c, Mortlake South Wind Farm, Bird and Avifauna Management Plan, prepared for Acciona Energy Oceania Ltd, Report No.12020 (1.16), approved December 2012.

Brett Lane & Associates 2012d, Ryan Corner Wind Farm, Bird and Avifauna Management Plan, prepared for Union Fenosa Wind Australia Ltd, Report No.9067 (4.4), February 2012.

Brett Lane & Associates 2013a, Berrybank Wind Farm, Flora and Fauna Management Plan, Report No. 7152 (10.8) approved in August 2013. Prepared for Berrybank Development Ltd.

Brett Lane & Associates 2013b, Crowlands Wind Farm, Bird and Bat Management Plan, prepared for Pacific Hydro, Report No. 11176 (1.10), April 2013.

Brett Lane & Associates 2013c, Lal Lal Wind Farm, Bird and Bat Management Plan, prepared for WestWind Energy Ltd, Report No. 6150 (5.0), February 2013.

Brett Lane & Associates 2014, Taralga Wind Farm, Construction Environmental Management Plan, Report No. 8129 (1.12). Prepared for CBD Energy, January 2014.

Brett Lane & Associates 2016, White Rock Wind Farm Stage 1, Bird and Bat Adaptive Management Program, 2016 Report No. 15009 Report (2.6). Prepared for White Rock Wind Farm, July 2016.

Brett Lane & Associates 2019a, Pre-construction Bird Utilisation Surveys – Flyers Creek Wind Farm - Report No. 18090 Report (3.0). Prepared for Flyers Creek WF Pty Ltd December 2018.

Brett Lane & Associates 2019b, Targeted Superb Parrot Surveys – Flyers Creek Wind Farm - Report No. 18090 Report (2.0). Prepared for Flyers Creek WF Pty Ltd December 2019.

Brunner, H, Loyd, JW and Coman, BJ 1975. Fox scat analysis in a forest park in south-eastern Australia, *Australian Wildlife Research*, 2: 147-154.

Catling, PC 1988. Similarities and contrasts in the diets of foxes, *Vulpes vulpes*, and cats, *Felis catus*, relative to fluctuating prey populations and drought, *Australian Wildlife Research,* 15: 307-317.

Churchill, S. 2008. Australia Bats. Jacana Books, New South Wales.

Clean Energy Council (CEC) 2013. Best Practice Guidelines for Implementation of Wind Energy Projects in Australia. Clean Energy Council, Australia.

Debus S 2017, Australasian Eagle and Eagle-like Birds, CSIRO Publishing, Clayton South, Victoria.

Department of the Environment and Energy (DoEE) 2018a, EPBC Act Protected Matters Search Tool, Commonwealth Department of the Environment, viewed 8th January 2018, http://www.environment.gov.au.

Department of the Environment and Energy (DoEE) 2018b, Species Profile and Threats Database, Commonwealth Department of the Environment, viewed 8th January 2018, http://www.environment.gov.au.

Department of the Environment (DoE) 2018, National Flying Fox monitoring viewer, Commonwealth Department of the Environment, viewed 8th January 2018, http://www.environment.gov.au.

Depart of the Environment, Water, Heritage and the Arts (DEWHA) 2008. EPBC Act Policy Statement 2.3. Wind Farm Industry. Depart of the Environment, Water, Heritage and the Arts.

Ferguson-Lees, J & Christie, DA 2001, *Raptors of the World*, Christopher Helm Publishers.

Garnett S, Szabo JK & Dutson G 2011, *Action Plan for Australian Birds 2010*, Birds Australia/CSIRO Publishing, Collingwood, Victoria.

Gauthreaux Jr., S A & Belser C G 2006. Effects of artificial night lighting on migrating birds. Pp 67–93. In "Ecological Consequences of Artificial Night Lighting". (Rich, C. and T. Longcore, eds.). Island Press. Washington, D.C.

Greg Richards and Associates (GRA) 2010, An Assessment of the Bat Fauna at the Proposed Flyers Creek Wind Farm, NSW. Prepared for Aurecon Australia Pty Ltd.

Higgins, PJ (ed) 1999, *Handbook of Australian, New Zealand and Antarctic Birds, Volume 4: Parrots to Dollarbird*, Oxford University Press, Melbourne.

Higgins, PJ & Davies, SJJF (eds) 1996, *Handbook of Australian, New Zealand & Antarctic Birds,* Volume 3 Snipe to Pigeons, Oxford University Press, Melbourne.

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

Higgins, PJ, Peter, JM & Cowling, SJ (eds) 2006, *Handbook of Australian, New Zealand and Antarctic Birds*, Volume 7: Boatbill to Starlings, Oxford University Press, Melbourne.

Higgins, PJ, Peter, JM & Steele, WK (eds) 2001, *Handbook of Australian, New Zealand and Antarctic Birds, Volume 5: Tyrant-flycatchers to Chats*, Oxford University Press, Melbourne.

Hull, C L & Muir, S, 2010, Search areas for monitoring bird and bat carcasses at wind farms using a Monte-Carlo method. Austr. J. Env. Management 17:77-87.

Hull, C L, E M Stark, Peruzzo, C and Sims, C C, 2013, Avian collisions and two wind farms in Tasmania, Australia. NZ J Zool 40:47-62

Kennedy, SJ & Tzaros, CL 2005, Foraging ecology of the Swift Parrot *Lathamus discolor* in the Box-ironbark forests and woodlands of Victoria, *Pacific Conservation Biology* 11, 158 – 173.Marchant, S & Higgins, PJ (eds) 1993, *Handbook of Australian, New Zealand and Antarctic Birds, Volume 2, Raptors to Lapwings*, Oxford University Press, Melbourne.

Kevin Mills & Associates (KMA) 2011. Flora and Fauna Assessment, Flyers Creek Wind Farm, Shire of Blayney, Central Tablelands, New South Wales. Prepared for Aurecon Australia Pty Limited, Sydney, April

Longcore, T, Rich, C & Gauthreaux Jr., S 2008, Height, guy wires, and steady-burning lights increase hazard of communication towers to nocturnal migrants: A review and meta-analysis, *The Auk*, 125(2): 485-492.

Marchant, S & Higgins, PJ (eds) 1990, *Handbook of Australian, New Zealand and Antarctic Birds, Volume 1, Ratites to Ducks*, Oxford University Press, Melbourne.

Marchant, S & Higgins, PJ (eds) 1993, *Handbook of Australian, New Zealand and Antarctic Birds, Volume 2, Raptors to Lapwings*, Oxford University Press, Melbourne.

Menkhorst, P, Rogers D, Clarke R, Davies J, Marsack P & Franklin K 2017, The Australian Bird Guide, CSIRO Publishing, Collingwood, Victoria.

Molsher RL, Gifford EJ, McIlroy JC 2000, "Temporal, spatial and individual variation in the diet of red foxes (Vulpes vulpes) in central New South Wales", Wildlife Research 27, 593–601.

Office of Environment and Heritage (OEH) 2018a, NSW BioNet, NSW Office of Environment and Heritage, viewed 31st October 2018, http://www.bionet.nsw.gov.au

Office of Environment and Heritage (OEH) 2018b, Threatened species profile search, viewed 31st October 2018, http://www.environment.nsw.gov.au

Pizzey, G & Knight, F 2003, *Graham Pizzey & Frank Knight: The Field Guide to the Birds of Australia*, HarperCollins Publishers, Australia.

Rollason, V, Fisk, G, Haines, P 2010, *Applying the ISO31000 Risk Assessment Framework to Coastal Zone Management,* Proceedings of the 20th NSW Coastal Management Conference.

Soderquist, TR, Lowe, KW, Loyn, RH & Price R 2002, 'Habitat quality in Powerful Owl (*Ninox strenua*) territories in the Box-Ironbark forest of Victoria, Australia.' In, I Newton, R Kavanagh, J Olsen and I Taylor (eds), *Ecology and Conservation of Owls,* CSIRO Publishing, Melbourne, pp. 91-99.

Tarburton, M 2014, *Status of the White-throated Needletail Hirundapus caudacutus in Australia: Evidence for a marked decline*, Australian Field Ornithology, Vol 31, 3, 122-140.

Wetlands International 2018, "Waterbird Population Estimates", wpe.wetlands.org viewed 10th Jan 2018.

Appendix 1: Letter from Biodiversity and Conservation Division on adequacy of BBAMP (17 December 2019)

Our ref: DOC19/1017668
Your ref: SSD-08_0252

Ms Megan Richardson
Development Manager
Infigen Energy
megan.richardson@infigenenergy.com

Dear Megan

Flyers Creek Wind Farm - Bird & Bat Adaptive Management Plan

Thank you for your email dated 27 November 2019 to the Biodiversity and Conservation Division (BCD) of the Department of Planning, Industry and Environment (DPIE) seeking comment on the Bird and Bat Adaptive Management Plan (BBAMP) for the Flyers Creek Wind Farm.

BCD is satisfied that the document adequately addresses the project's development consent and the broader requirements to monitor, manage and mitigate impacts relating to impacts on birds and bats at the Flyers Creek Wind Farm.

BCD has some minor comments, provided in **Attachment A**.

If you require any further information regarding this matter, please contact David Geering, Senior Conservation Planning Officer, via david.geering@environment.nsw.gov.au or 6883 5335.

Yours sincerely

17 December 2019

Debbie Love
Acting Director North West
Biodiversity and Conservation Division

cc: Natasha Homsey – Environmental Assessment Officer, Resource Assessments

BCD review of Flyers Creek Wind Farm Bird and Bat Adaptive Management Plan (BBAMP)

1. OEH is now BCD

It is noted that the BBAMP makes consistent reference to OEH. OEH is now the Biodiversity and Conservation Division (BCD) of the Department of Planning, Industry and Environment. Section 6 of the BBAMP also references OEH (Orange) as the relevant planning office. This should be BCD Dubbo. It is noted that Figure 5 correctly references Dubbo while Figure 4 references Orange.

Recommendation

1. All references to OEH should be updated to BCD and Dubbo recorded as the relevant planning office for Flyers Creek Wind Farm.

2. A permit under the *National Parks and Wildlife Act 1974* is not required

In November 2017 the *Threatened Species Conservation Act 1995* and parts of the *National Parkes and Wildlife Act 1974* were repealed and replaced by elements in the *Biodiversity Conservation Act 2016* (BC Act).

Under section 2.8 (1)(a) of the BC Act, planning approvals under the *Environmental Planning and Assessment Act 1979* provide a defence for activities that are necessary for carrying out development in accordance with the relevant approval.

As the possession of the carcasses, or injured wildlife, is required by the development approval associated with the wind farm (i.e. as prescribed in the approved BBAMP), an additional defence (in the form of a BC licence) is not required. The previous defence under the *National Parks and Wildlife Act 1974* was limited to harm, whereas the defence under the BC Act now also includes possession.

Recommendation

2. Reference to the requirement to obtain a permit to handle and keep native wildlife can be removed from the BBAMP.

3. The list of bird species not listed as protected should be reviewed

Section 6.2.1 lists the species not subject to adaptive management or the impact trigger for non-threatened species. Australian magpie and Australasian pipit are protected in NSW and should not be excluded.

Recommendation

3. References to the Australian magpie and Australasian pipit should be removed from Section 6.2.1.

4. Unacceptable impact levels need to be clarified

Section 6 of the BBAMP includes definitions of unacceptable impact on threatened and non-threatened species.

For threatened species the unacceptable impact is defined as "*Where population numbers are not known, an unacceptable impact is more than three carcasses found of one threatened species over a two-month period*".

It is noted that a definition for unacceptable impact for threatened species is not provided in the BBAMPs for Bodangora and Crudine Wind Farms, but rather once an impact trigger has been met a process is initiated to consider and define acceptable impacts for particular species. This approach has been endorsed by BCD previously and we recommend the same approach is adopted in this BBAMP.

Recommendation

4. A definition for unacceptable impact for threatened species be removed from the BBAMP.

Appendix 2: Appointment of qualified expert for BBAMP implementation

Department of Planning, Housing & Infrastructure

Our ref: MP08_0252-PA-54

Nick Vavladellis
Ibderola
Flyer Creek Wind Farm Pty Ltd
Via email

24/06/2025

Subject: Flyers Creek Wind (MP08_0252) - Endorsement of Bird and Bat Specialist

Dear Mr. Vavladellis,

I refer to your letter dated 30 May 2025 (MP08_0252-PA-54) requesting the Secretary's approval of suitably qualified and experienced person/s to prepare the Bird and Bat Adaptive Management Program in accordance with Condition D4 of Schedule D.

The Department has reviewed the nomination and information you have provided and is satisfied that Mr Mick Callan from Habitat Innovation and Management is suitably qualified and experienced.

Consequently, I can advise that the Secretary approves the appointment Mr Mick Callan to prepare the Bird and Bat Adaptive Management Program. If you wish to discuss the matter further, please contact Scotney Moore on 02 9274 6342.

Yours sincerely

Nicole Brewer
Director
Energy Assessments

As nominee of the Planning Secretary

Appendix 3: Threatened Bird and Bat Species likelihood of occurrence at the Flyers Creek Wind Farm

Common Name	Scientific Name	BC Act	EPBC Act	Habitat	Number of records	Likelihood of occurrence
Bird Species						
Australasian Bittern	Botaurus poiciloptilus	E	E	Terrestrial wetlands, including a range of wetland types but prefers permanent water bodies with tall dense vegetation, particularly those dominated by sedges, rush, reeds or cutting grass (Marchant & Higgins 1990).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Australian Painted Snipe	*Rostratula australis*	E	CE	Generally, inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum *Muehlenbeckia* or canegrass or sometimes tea-tree (*Melaleuca*). Sometimes utilises areas that are lined with trees, or that have some scattered fallen or washed-up timber.	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Barking Owl	*Ninox connivens*	V		Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas (OEH 2018b)	None	**Potential to occur -** suitable habitat exists on site, though a lack of records in the region makes a low likelihood
Black Falcon	*Falco subniger*	V		Mostly occurs in the western plains and in the drier lowland parts of NSW; widespread but sparse across northern and eastern mainland Australia (Marchant and Higgins 1993; Menkhorst et al. 2017).	1	**Potential to occur** - a record exists within the search region from 2003 (OEH 2018a)
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	V		In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts. Moves quickly from tree to tree, foraging rapidly along outer twigs, underside of branches and trunks, probing for insects (OEH 2018).	2	**Potential to occur** - records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Black-faced Monarch	*Monarcha melanopsis*		M (Bonn)	Rainforests, eucalypt woodlands, coastal scrub and damp gullies (Higgins et al. 2006).	None	**Unlikely to occur** - some suitable habitat occurs but a lack of records in the search region makes it unlikley to occur
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	V		Woodlands dominated by eucalyptus, especially Stringybarks or other rough-barked eucalypts usually with open grassy understorey (Higgins et al. 2001)	29	**Likely to occur** - many records within the search region (KMA 2011, OEH 2018a). Suitable habitat occurs on site.
Curlew Sandpiper	*Calidris ferruginea*	E	CE, M (Bonn, CAMBA, JAMBA, ROKAMBA)	Inhabits wide range of coastal or inland wetlands with varying levels of salinity; mainly muddy margins or rocky shores of wetlands (Higgins & Davies 1996).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Diamond Firetail	*Stagonopleura guttata*	V		Found in woodlands, dry open forests and lightly timbered farmland where it feeds on native grasses (Higgins et al. 2006). Regularly found in farmland around wind turbines in southern NSW (BL&A unpublished data).	6	**Confirmed** on site (KMA 2011) and search region (OEH 2018a)

Common Name	Scientific Name	BC Act	EPBC Act	Habitat	Number of records	Likelihood of occurrence
Dusky Woodswallow	*Artamus cyanopterus cyanopterus*	V*		Dry open sclerophyll forests and woodlands, usually dominated by eucalypts. Often found on the edges or in clearings of forest and woodland and sometimes recorded in shrubland and heathland and other various modified landscapes (Higgins *et al* 2006).	16	**Confirmed** on site (KMA 2011), record from search region (OEH 2018a)
Eastern Curlew	*Numenius madagascariensis*		CE, M (Bonn, CAMBA, JAMBA, ROKAMBA)	Inhabits sheltered coasts, especially estuaries, embayment, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats, often with beds of sea grass (Higgins & Davies 1996).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Flame Robin	*Petroica phoenicea*	V		Breeds in forests in south-eastern Australia, usually in the hills or high-country. Migrates in autumn to lower altitudes and more open habitat such as farmlands, plains and some urban areas (Higgins and Peter 2002).	3	**Likely to occur** - recorded in nearby Cadia (KMA 2011), records exist in seach region (OEH 2018a). Suitable habitat occurs on site.
Fork-tailed Swift	*Apus pacificus*		M (CAMBA, JAMBA, ROKAMBA)	The species can occur in wet sclerophyll forest but mainly prefers open forest or plains. It is almost exclusively aerial and feeds up to hundreds on metres above the ground, but can feed among open forest canopy. The species breeds internationally and seldom roosts in trees and is unlikely to be impacted by the development (Higgins et al 2006).	None	**Potential to occur -** species may fly over area occasionally
Gang-gang Cockatoo	*Callocephalon fimbriatum*	V		Occurs in forest along the coast and ranges from the Hunter Valley of NSW to south-west Victoria; moves to lower altitudes in autumn-winter (Higgins 1999). In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands,particularly box-gum and box-ironbark assemblages (OEH 2018a).	9	**Likely to occur** - records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	V		In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Flight is laborious so birds prefer to hop to the top of a tree and glide down to the next one. Birds are generally unable to cross large open areas (OEH 2018a)	8	**Potential to occur -** records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Hooded Robin (south-eastern form)	*Melanodryas cucullata cucullata*	V		Occur mostly in lightly timbered habitats such as dry woodlands with an open shrubby understorey, sparse grasses and patches of bare ground and leaf-litter, with scattered dead and fallen timber for foraging perches (Higgins and Peter 2002).	5	**Potential to occur -** records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Little Eagle	*Hieraaetus morphnoides*	V		Over wooded and forested lands and open country of Aust. Range extending into arid zone. Most abundant in open forest and woodland.	1	**Confirmed** on site (KMA 2011)
Little Lorikeet	*Glossopsitta pusilla*	V		Mainly dry, open sclerophyll forests and woodlands, usually dominated by Eucalyptus. Often near waterbodies such as creeks, lakes and swamps. Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species (OEH 2018a)	1	**Potential to occur -** records exist within the search region (OEH 2018a). Sub-optimal habitat occurs on site.
Malleefowl	*Leipoa ocellata*	E	V	Mainly in semi-arid zones (200–450 mm rainfall), but in higher rainfall area of heath and mallee-heath; rarely arid zones. Associated with mallee, particularly floristically rich tall dense mallee of higher rainfall areas (Marchant & Higgins 1993).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)

Common Name	Scientific Name	BC Act	EPBC Act	Habitat	Number of records	Likelihood of occurrence
Painted Honeyeater	*Grantiella picta*	V	V	Inhabits box-ironbark forests and woodlands and mainly feeds on the fruits of mistletoe. Strongly associated with mistletoe around the margins of open forests and woodlands. Occurs at few localities (Higgins et al. 2001).	None	**Potential to occur -** suitable habitat exists on site, though a lack of records in the region makes a low likelihood
Powerful Owl	*Ninox strenua*	V		Open and tall wet sclerophyll forests with sheltered gullies and old growth forest with dense understorey. They are also found in dry forests with box and ironbark eucalypts and River Red Gum. Large old trees with hollows are required by this species for nesting (Higgins 1999).	None	**Potential to occur -** suitable habitat exists on site, though a lack of records in the region makes a low likelihood
Regent Honeyeater	*Anthochaera phrygia*	CE	CE	Inhabits dry box-ironbark eucalypt forests near rivers and creeks on inland slopes of the Great Dividing Range. It could also occur in small remnant patches or in mature trees in farmland or partly cleared agricultural land (Higgins et al. 2001).	None	**Potential to occur -** suitable habitat exists on site, though a lack of records in the region makes a low likelihood
Rufous Fantail	*Rhipidura rufifrons*		M (Bonn)	Primarily found in dense, moist habitats. Less often present in dry sclerophyll forests and woodlands (Higgins et al. 2006).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Satin Flycatcher	*Myiagra cyanoleuca*		M (Bonn)	Tall forests and woodlands in wetter habitats but not in rainforest (Higgins et al. 2006).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)
Scarlet Robin	*Petroica boodang*	V		Eucalypt woodlands forest with open understorey (Higgins and Peter 2002).	4	**Potential to occur -** records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Speckled Warbler	*Chthonicola sagittata*	V		Inhabits dry eucalypt forests and woodlands, especially those with box-ironbark eucalypt associations. It is also found in River Red Gum woodlands. The species is uncommon; populations have declined since the 1980s. (Higgins and Peter 2002; Tzaros 2005).	8	**Potential to occur -** records exist within the search region (OEH 2018a). Suitable habitat occurs on site.
Superb Parrot	*Polytelis swainsonii*	V	V	Occupies open riverine and box-gum woodlands of the inland slopes and southern Riverina of New South Wales and north-central Victoria. Breeding occurs in large eucalypts with hollows in the Riverina and south-west slopes regions; a proportion of the population moves north in autumn-winter (Higgins 1999; OEH 2017b).	7	**Confirmed** on site (KMA 2011)
Swift Parrot	*Lathamus discolor*	E	CE	In NSW it is a non-breeding autumn-winter visitor from its breeding grounds in Tasmania. Prefers a narrow range of eucalypts including Boxes, Ironbarks, Blakely's Red-gum, Swamp Mahogany, Blackbutt, Red Bloodwood and Spotted Gum (Higgins 1999; OEH 2017b). It spends winter mostly inland of the Great Dividing Range but some years reaches the coast (Higgins 1999; Kennedy and Tzaros 2005).	None	**Potential to occur -** suitable habitat exists on site, though a lack of records in the region makes a low likelihood
Varied Sittella	*Daphoenositta chrysoptera*	V		Eucalypt woodland and forest with a shrubby and/or grassy understorey (Higgins and Peter 2002).	33	**Confirmed** on site (KMA 2011)
White-throated Needletail	*Hirundapus caudacutus*		Vulnerable & M (CAMBA, JAMBA, ROCAMBA)	Aerial, over all habitats, but probably more over wooded areas, including open forest and rainforest. Often over heathland and less often above treeless areas such as grassland and swamps or farmland (Higgins 1999).	2	**Likely to occur** - Records exist from Cadia within the search region, though no numbers provided (OEH 2018a)
Yellow Wagtail	*Motacilla flava*		M (CAMBA, JAMBA, ROCAMBA)	Extremely uncommon migrant. Mostly occurs in well-watered open grasslands on the fringes of wetlands. Roosts in mangroves and other dense vegetation (DotE 2015).	None	**Unlikely to occur** - lack of suitable habitat (KMA 2011)

Common Name	Scientific Name	BC Act	EPBC Act	Habitat	Number of records	Likelihood of occurrence
Bat Species						
Corben's Long-eared Bat	*Nyctophilus corbeni*	V	V	Inhabits a variety of vegetation types, including mallee, bulloke Allocasuarina leuhmanni and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark. Slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground (OEH 2018b)	None	**Potential to occur -** not recorded, no records in region, but suitable habitat exists
Eastern Bentwing Bat	*Miniopterus schreibersii oceanensis*	V		Roosts in caves and similar artificial structures such as mineshafts and road culverts. Disperses over a range of habitats at night and may feed at considerable height (Churchill 2008).	1195	**Potential to occur** - not recorded on site (GRA 2010) but many records exist from the search region (OEH 2018a)
Grey-headed Flying-fox	*Pteropus poliocephalus*	V	V	Brisbane, Newcastle, Sydney and Melbourne are occupied continuously. Elsewhere, during spring, they are uncommon south of Nowra and widespread in other areas of their range. Roosts in aggregations of various sizes on exposed branches. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban. A roost was surveyed in Orange, 30kms to the north of FCWF, in 2017 and held between 500-2,499 individuals.	None	**Potential to occur** - no records exist in the search region, however a camp occurs 30km to the north which is within the nightly foraging range of the species (DoEE 2018b).
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	V	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. This species probably forages for small, flying insects below the forest canopy. (OEH 2018b)	1	**Potential to occur** - record exists within the search region (OEH 2018a)
Southern Myotis	*Myotis macropus*	V		Roosts in caves, mines, tree hollows, aqueduct tunnels and under bridges and in dense vegetation in the vicinity of bodies of slow-flowing or still water (including estuaries), forages along creeks, rivers and lakes within a variety of vegetation communities (Menkhorst 1995). Forage over streams and pools catching insects and small fish by raking their feet across the water surface (OEH 2018b)	122	**Potential to occur** - records exist within the search region (OEH 2018a). Sub optimal habitat on site
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	V		Known to occur from urban, agricultural semi-arid and tall wet forest habitats (Menkhorst 1995). Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country (OEH 2018b).	1	**Confirmed** on site (GRA 2011)

Notes: BC = threatened species status under the BC Act: CE = critically endangered; E = endangered; V = vulnerable; * = Preliminary Determination by the NSW Scientific Committee; **EPBC**= threatened species status under EPBC Act: CE = critically endangered; E = endangered; V = vulnerable; M = listed migratory taxa; Bonn = Bonn Convention - Convention on the Conservation of Migratory Species of Wild; CAMBA - China- Australia Migratory Birds Agreement; JAMBA - Japan-Australia Migratory Birds Agreement; ROKAMBA - Republic of Korea Australia Migratory Birds Agreement.

Appendix 4: Carcass Search Data Sheet

FLYERS CREEK WIND FARM - BIRD AND BAT MORTALITY MONITORING PROGRAM CARCASS SEARCH DATA-SHEET*				
Please fill out all details above the heavy line for each site searched All details below the line are required if a carcass is found **Do not move a carcass until the details below have been completed**				
Flyers Creek WF				
Date:				
Start Time:				
Finish Time:				
Turbine Number:				
Wind direction and strength in preceding 24 hours:				
Any unusual weather conditions in last 48 hours?				
Distance of Carcass from Tower(m):				
Bearing of Carcass from Tower (deg):				
Preliminary Species Identification:				
Photo Taken**	Yes / No			
Signs of injury:				
How old is carcass estimated to be (tick category):	**<24 hrs**	**1-3 days**	**> 3 days**	**Other**
Other Notes (ie. sex/age of bird, substrate and vegetation at site of find):				
Post Find Actions: Place carcass in sealable plastic bag then wrap it in newspaper then in a second plastic bag with a copy of this data-sheet and take to freezer at site office.				
* One form should be completed for each carcass found				
** Please attach photo to this form				