



# Sapphire Wind Farm

## Third Year Annual Report on the Implementation of the Bird and Bat Adaptive Management Plan

**Prepared for SWF1  
Operations Pty Ltd**

March 2022  
Report No. 16045 (28.1)



**Nature  
Advisory**

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# 1. Introduction

Sapphire Wind Farm (SWF) is located in the Kings Plain District, 24 kilometres west of Glen Innes and 28 kilometres east of Inverell in the northern tablelands of New South Wales (NSW) (Figure 1). The wind farm currently comprises of 75 turbines and associated infrastructure. The site has been mostly cleared of its original native vegetation and is predominately being utilised for grazing.

SWF proposed a 159-turbine wind farm in the northern Tablelands of NSW in 2007. The NSW Department of Planning and Infrastructure (DPI) and the Commonwealth Department of the Environment (DotE) approved the wind farm in June 2013 and December 2014 respectively. In January 2016, Sapphire Wind Farm Pty Ltd requested a modification to the approval to reduce the number of turbines from 159 to up to 109 turbines and increase the maximum tip height to 200 metres above the ground and rotor diameter to 126 metres. The DPE and the DotE approved the Modification request in June 2016. The project completed construction in late 2018 with a refined design which involved the construction of 75 turbines at locations approved in the Modification.

Condition C6 of the NSW approval required the preparation of a Bird and Bat Adaptive Management Program (BBAMP), these requirements have been outlined in the following section. Element (d) required the proponent to identify ‘at risk’ bird and bat groups, seasons and/or areas within the project site which may attract high levels of mortality. The BBAMP was prepared by Brett Lane & Associates Pty Ltd, predecessor of Nature Advisory Pty Ltd (BL&A 2017) and approved by the Director-General of DPI.

Sapphire Wind Farm Pty Ltd engaged Nature Advisory to implement the approved Bird and Bat Adaptive Management Program (BBAMP) for the SWF. Specifically, the scope of the work included:

- Operational bird and bat carcass (mortality) monitoring program;
- Monitoring ‘at risk’ groups of birds; and
- Bird utilisation surveys.

The first phase of the monitoring program began in the partial-operational phase in July 2018 and in total comprised 31 months of monitoring and 24 months of fully operational surveys, concluding in January 2021. The findings of the second-year annual (Nature Advisory 2021) report are summarised below:

No threatened or non-threatened management triggers occurred as a result of the monitoring program. It is unlikely that the results from the monitoring program or the mortality estimates suggest a significant impact on any of the species identified as mortalities. Each is a relatively common and widespread species to farmland landscapes in NSW and other parts of Australia, and each is considered secure and not in decline. It is unlikely that SWF would have a significant impact on any populations regionally, on a state level or overall.

The report also acknowledged that WTE, nominated as an ‘at risk species’ in the BBAMP initially, was relatively more highly impacted than other bird species. As such, the report detailed a number of recommendations, based on the findings of the BBAMP 31 months implementation, for the continued implementation of the BBAMP, which are summarised below:

- The cessation of the carcass search program,
- Incidental monitoring of carcasses and feather spots continue to be reported
- Inclusion of any incidental finds in annual reporting for the first five years of operation,
- Continuation of carrion removal, limiting lambing and stock feeding close to turbines.

In line with Sapphire Wind Farm Condition C6, ongoing information collation should be included in reports submitted to the Director-General and OEH on an annual basis for the first five years of operation as outlined in Condition C6 of the Project Approval. This report comprises the third annual report, covering all monitoring activities during the third year of official operation of SWF from February 2021 to January 2022.

As per Section 4.7 of the BBAMP, the third annual report includes, but is not limited to:

- A brief description of the management prescriptions implemented and identification of any modifications made to the original management practices.
- Incidental carcass observations;
- Identification of any unacceptable impacts or impact triggers, and application of the decision-making framework and relevant adaptive management measures.
- A summary of livestock carcass removal for the purposes of predator reduction;
- Details of any landowner feral animal control programs and their timing;
- A discussion of the results, including:
  - Whether indirect impacts on bird and bat use of the site are of significance at a regional, state or national level, or if species of concern have been affected.
  - Bird risk reduction measures.
  - Any further recommendations for reducing mortality, if necessary.
  - Whether the level of mortality was unacceptable for affected listed ('at risk') species of birds or bats.
  - Recommendations for further monitoring.

This report is divided into the following sections:

**Section 3** provides the methods of the third year of monitoring.

**Section 4** presents the results of the third year of monitoring.




**Section 5** discusses the conclusions of the third year of monitoring.

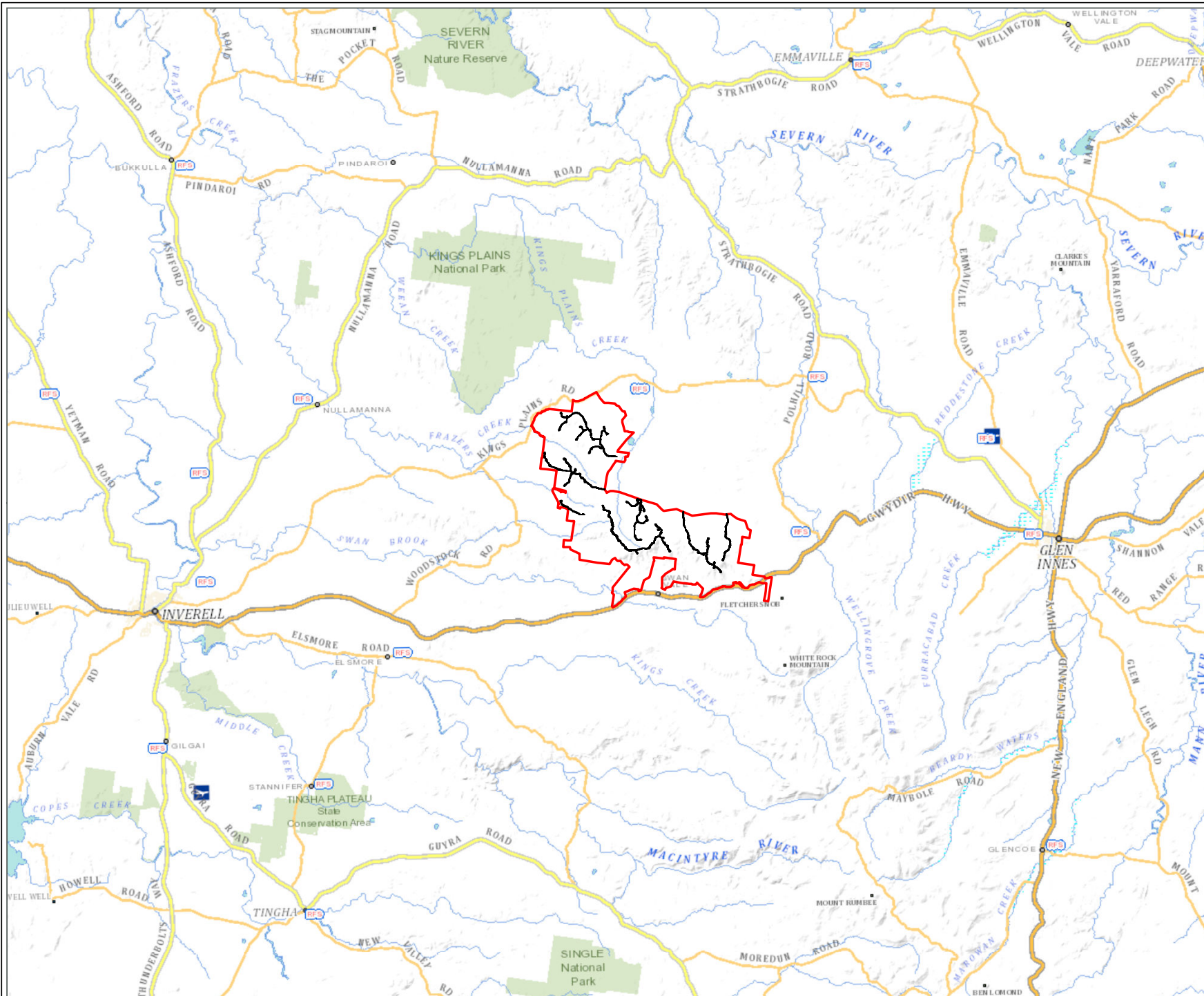
**Section 7** provides recommendations for future monitoring.

This report was developed by a team from Nature Advisory, comprising Kaitlyn Spooner (Zoologist), Jackson Clerke (Zoologist and Project Manager), and Bernard O'Callaghan (Director).

**Figure 1: Locality map**

**Project:** Sapphire Wind Farm BBAMP  
**Client:** CWP Renewables Pty Ltd  
**Date:** 23/03/2020

-  Study area
-  Turbines
-  Access tracks



N



Kilometers  
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## 2. Methods

### 2.1. Incidental carcass finds

Any carcasses or feather spots found by wind farm personnel are to be recorded on a datasheet, photographed and stored in the freezer on the wind farm site in line with the BBAMP. This data can then be provided to Nature Advisory remotely to identify, if required.

This approach will continue to provide some indication of on-going impacts to birds and bats at the wind farm, particularly for the WTE which is easily identifiable and visible from a distance. Data on incidental monitoring is tabulated annually.

### 2.2. Carrion removal program

As WTE (and some other raptors) forage for carrion, a regular carrion removal program has been implemented to reduce the attractiveness of the site to raptors and therefore reduce the potential for fatal collisions. This program consists of a designated Carrion Removal Coordinator conducting monthly inspections of the wind farm site for any carcasses that may attract raptors (e.g., kangaroos, pigs, rabbits, dead stock). Any carcasses or remains found within 200 m of turbines, whether during searches by the Carrion Removal Coordinator or incidental finds, are collected and disposed of as soon as possible in a manner that will avoid attracting raptors close to turbines. Carcass occurrence and removal is recorded in a 'management log book' maintained by the SWF asset manager.

### 2.3. Lambing restriction and grain feeding control

Consultations with landholders are to be held to request that lambing and grain feeding be restricted in the vicinity of turbines if possible.

### 2.4. Pest control

If a large active rabbit presence is observed, subject to landholder approval, an integrated rabbit control program to reduce site attractiveness to WTE is completed. Methods to control rabbits include burrow destruction and shooting. Any rabbit control program will require cooperation and agreement from the landowner.

## 3. Results

All results of the monitoring requirements were provided to Nature Advisory by SWF.

### 3.1. Incidental carcass finds

One incidental carcass find was made by SWF staff. The details are provided in the Table 1.

**Table 1: Incidental finds by SWF staff during year 3 of BBAMP implementation**

Date	Time	Species	Turbine	Distance (metres)	Bearing (degrees)	Notes
8/12/21	14:30	Wedge-Tailed Eagle	T4	10m	180	NE wind (8m/s) in previous 24hrs, very old carcass, >3 weeks.

### 3.2. Carrion removal program

Observations of carrion around turbines was reviewed during monthly inspections of project site. Consultation occurred as per the BBAMP.

### 3.3. Lambing and grain restriction

Lambing was requested to be restricted and was undertaken at landholder discretion.

Higher rainfall occurred during the area during Year 3 which resulted in higher feed availability therefore limited grain feeding was observed throughout the project site.

### 3.4. Pest control

No pest control was required to be undertaken in conjunction with landholders. Any pest control undertaken was done so at landholder discretion as part of their normal operations.

## 4. Conclusions

The single WTE mortality detected by SWF staff during December 2021 is indicative of the low, albeit continuing impacts on the species. The results provided to date do not indicate an increase of impacts of the species at SWF or a significant one.

Recommendations for a continued monitoring program into Year 4 are provided below.



## 5. Recommendations

CWP Renewables received a response to the Second Annual Report from the Biodiversity and Conservation Division (BCD) on the 20<sup>th</sup> July 2021 putting forward a number of additional mitigation measures and monitoring suggestions. A subsequent meeting was held between BCD, CWP Renewables and Nature Advisory to discuss these further.

The result of the discussion was that additional mitigation measures to further reduce ongoing risk to bird and bat species at SWF be considered and revised methods for the ongoing BBAMP implementation be proposed.

The following sections outline the revised monitoring program designed to specifically target impacts to WTE and assess the effectiveness of such mitigation measures.

### 5.1. Carcass searches

Data collected by Nature Advisory during scavenger trials across many wind farms in New South Wales (NSW) and Victoria, in addition to targeted WTE scavenging trials at a wind farm in NSW, show that WTE are not typically scavenged, with the vast majority of WTE carcasses remaining in situ until they completely dispose (Nature Advisory unpub. data).

Carcass monitoring will be completed at all SWF turbines every six months (or twice a year) in accordance with the search protocol outlined in Section 4.4.2 of the BBAMP. During the initial post-construction carcass monitoring program, carcass searches were conducted at 18 turbines. The revised carcass search program will see the inner and outer zone of all 75 turbines at SWF searched with no follow up pulse searches completed.

One search will aim to take place in the months following the breeding period (generally Oct-Dec) after the young have fledged. Juveniles tend to disperse during this time and may be at higher risk of collision than adults. The second search will take place six months after the first.

During the period between the formal carcass searches, incidental carcass monitoring will continue to take place by wind farm personnel with any bird or bat carcasses identified reported and recorded in accordance with Section 4.4.5 of the BBAMP.

### 5.2. WTE incidental monitoring and nest monitoring

In addition to the revised carcass search regime, at the commencement of the revised operational monitoring program, a nest search will be completed at SWF to identify any potential WTE nests inside the project area. The nests identified during this search will be recorded and monitored on an annual basis during October to December to record breeding activity and utilisation. The intention of this monitoring is to monitor utilisation for breeding purposes and utilisation in general.

Incidental monitoring of WTE flight paths will be undertaken during any site visit by ecologists. Observations will contribute to monitoring site usage and WTE numbers.

Increased or decreased breeding activity or site utilisation may provide additional insight into the impacts on WTE and effectiveness of mitigation measures. These findings will be included in reporting

### 5.3. Reporting

Findings of the revised monitoring program will be reported in annual reporting and recommendations for amendments to the plan or further measures will be made in conjunction with BCD.

#### 5.4. Revised risk reduction measures

The following provides amendments and improvements to Section 5 of the BBAMP mitigation measures to improve the implementation of measures and enable assessment and review in annual reporting. The aim of the revised program is to track implementation of mitigation measures at SWF and their outcomes and then assess this against the findings of the revised monitoring program and potential impacts on WTE throughout the operation of SWF.

Land-use and stock management below and around turbines can influence the presence and behaviour of native birds on site. Examples include:

- Grain feeding can be an “attractant” for parrots; and
- Carrion and rabbits can be an “attractant” to raptors in the area.

Thus, this section proposes possible mitigation measures to address these matters.

A moderate risk to WTE has been identified for SWF. The WTE and other raptors forage for carrion (dead and decaying flesh of an animal) and also on small mammals, rabbits etc. In order to reduce the risk of raptors colliding with turbines, a formalised carrion monitoring and removal program will be implemented during operations, to reduce the attractiveness of the site to raptors (specifically WTE) and therefore reduce the potential for fatal collisions by this group of birds. This program will focus on an area of a minimum of 200 metres around turbines, where safe, feasible and practical. The procedures below will be adopted:

- The SWF Site Manager has been appointed to perform the function of Carrion Removal Coordinator who will undertake the activities described below. In the event the SWF Site Manager is not available, an alternative suitable person will be appointed to undertake this function.
  - 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., kangaroo, pigs, goats, foxes, rabbits, dead stock). This search will be undertaken via vehicle and visual checks in addition to using binoculars to look for large carcasses within 200 metres of each turbine. Results from inspections will be documented and the following information collected each month:
    - Date of inspection,
    - Person undertaking the inspection,
    - Any carrion identified and location (e.g., Turbine ID),
    - Any carrion still present from previous inspection,
    - Action taken (e.g., consultation with landholders or removal of carrion)
    - Pest animal activity or presence,
    - Lambing activity (when applicable),
    - Any incidental observations by landowners or SWF staff.
  - 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 address by operator and landowner protocols and information included in monthly inspection data

- Any carcasses and/or remains found that are within 200 metres of turbines, will be collected and disposed of as soon as possible, in a manner that will avoid attracting raptors close to turbines. If a carcass is not removed, it's visibility during the next monthly inspection should be recorded.
  - Consult with landowner or wind farm staff in relation to the appropriate disposal of collected carrion, to be located at least 200 metres away from the closest turbine. Results of consultations will be logged and the locations of any carrion dumps active or planned noted. This can be assessed against any potential WTE mortality locations.
  - Carcass occurrence and removal will be recorded in monthly inspection records maintained by SWF Project Manager.
- 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 200 metres away from turbines, where practicable, to reduce the risk that raptors (WTE in particular) are attracted close to the turbines.
  - A consultation log with landholders will be maintained and used to inform ongoing success of mitigation measures. Consultation will be had with landholders requesting that they keep lambing to paddocks without access to turbines where possible. Actual locations of lambing activity will be recorded during monthly inspections to map actual land use activity during operation. This can be compared with any potential WTE mortality identified during carcass searches.
  - In order to reduce collision risks to birds, where practical and with landowner agreement, the practice of grain feeding of stock within 200 metres of turbines should be minimised as it could cause draw additional parrots and other birds to the site.
  - Any feral animal control on the wind farm site should involve the removal and appropriate disposal of resulting carcasses in a timely manner.
  - If a large active presence of rabbits is observed during monthly inspections near turbines, subject to landholder approval, an integrated rabbit control program (to reduce site attractiveness to WTE) will be completed within 200 metres of turbines. Methods to control rabbits include burrow destruction and shooting. Any rabbit control program will require cooperation and agreement from the landowner.
  - Monthly inspection data, actual land use and land holder consultations covering the information requirements above, will be reported on in accordance with the BBAMP reporting requirements and provided to BCD covering 12 months of implementation from the date of the approval of this addendum.

Using the information collected above, the efficacy of the mitigation measures implemented will be assessed. This will include assessment against; carrion occurrence rates, removal requests and actual removal undertaken and actual land use (lambing and carrion dump locations) using WTE carcass search data and site utilisation data.

The program will be reviewed in accordance with the BBAMP reporting requirements. If, for example, WTE mortality increases when compared to the initial 24-month operational monitoring period, then the need for continuation or refinement or additional mitigation measures will be discussed, in consultation with BCD/DPIE.

## 6. References

Brett Lane & Associates (BL&A) 2017, *Sapphire Wind Farm Bird and Bat Adaptive Management Program* – Report No. 16045 (3.3), Brett Lane & Associates Pty Ltd, Hawthorn East, consultant report prepared for CWP Renewables Pty Ltd.

Nature Advisory, 2021. Second Year Annual Report of the Implementation of the Bird and Bat Adaptive Management Plan. Prepared for SWF1 Operations Pty Ltd. June 2021. Report No. 16045 (26.1).