PALING YARDS WIND FARM
FLORA & FAUNA

PURPOSE

Anderson Environmental Consultants Pty Ltd (AEC) was engaged by UFWA to assess the potential flora and fauna impacts of the project.

The original assessment by AEC was undertaken to determine the presence or potential presence within the site, particularly within the development footprint, of any threatened species, populations or endangered ecological communities as listed under the Threatened Species Conservation Act 1995 (NSW) (TSC Act) and the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (EPBC Act).

Following the preparation of AEC's report, Environmental Resources Management Australia Pty Ltd (ERM) was engaged by UFWA to undertake additional field surveys and assessments and prepare a supplementary flora and fauna impact assessment report in May 2013.

FIELD SURVEYS DETECTED THREE THREATENED FAUNA SPECIES WITHIN THE SITE. ALL THREE ARE BIRDS LISTED AS VULNERABLE UNDER THE TSC ACT: THE GANG GANG COCKATOO (CALLOCEPHALON FIMBRIATUM), SCARLET ROBIN (PETROICA BOODANG) AND FLAME ROBIN (PETROICA PHOENICEA).

KEY FINDINGS & IMPACTS

Proposed Vegetation Removal & Offsets

The extent of vegetation removal on the site required to facilitate the construction of the project infrastructure (including turbines, access tracks, crane hard stands and substations) would be small relative to the size of the site.

The project's development footprint covers a total area of 106.5 hectares. The majority of this area is exotic pasture which is predominantly used for cattle and sheep grazing. In total, 14.0 hectares of native vegetation is proposed to be removed for the project infrastructure (including the northern transmission line), with 1.4 hectares proposed to be rehabilitated. This is comprised of scattered Eucalypt trees, native grasslands and woodland areas.

An equivalent area of 31.1 hectares will be required to offset this impact (as calculated using the NSW Office of Environment and Heritage's Credit to Hectare Converter). ERM proposes that offsets will be secured on-site within areas of Box Gum Woodland, Red Stringybark Woodland, Broad-leaved Peppermint Woodland and River Oak Forest.

Field surveys detected only three threatened species within the site. All three are birds listed as vulnerable under the TSC Act: the Gang Gang Cockatoo (Callocephalon fimbriatum), Scarlet Robin (Petroica boodang) and Flame Robin (Petroica phoenicea).

Soaring birds such as raptors (including the Wedge-tailed Eagle (Aquila audax)) were also detected during the surveys and, while not a species listed as threatened under the TSC Act or the EPBC Act, are important considerations in impact assessment of wind turbines.

The AEC report concluded that:

The project is not likely to result in a significant impact on any endangered ecological community or species listed under the EPBC Act. Accordingly, the Project is not considered, for this reason, to require referral or approval under the EPBC Act.

The project is not likely to result in a significant impact on any species listed under the TSC Act. Accordingly, there is no requirement for a species impact statement to be prepared.

The further specific impacts that were considered in ERM's Flora and Fauna Impact Assessment (supplementary report) were:

- Vegetation clearance;
- Collision-related mortality and barotrauma; and
- Avoidance of habitat (specific to birds and bats).

ERM concludes that the proposed vegetation removal would not impact on the viability of ecological communities or native flora species within the site or the wider locality, as the majority of vegetation to be removed is not unique in the site or locality. The project is unlikely to impact seed dispersal, animal movements or remove habitat features that are essential to species survival.

Raptors, such as the Whistling Kite and Wedge-tailed Eagle, and owls have potential to be impacted as they spend time at similar heights to the Rotor Swept Area (RSA). ERM found that significant, population-scale collision-related mortality is not likely within the site due to the project, given the abundance and wide distribution of the species recorded flying at RSA height. No threatened bird species were recorded flying at RSA height. A Collision Risk Model (CRM) was run for the impacts on the Wedge-tailed Eagle with the avoidance rate set at 99% (as per Smales and Muir 2005). The CRM results indicate that the Wedge-tailed Eagle has a collision risk which would result in 0.052 birds per month or 0.62 birds per annum colliding with rotors once the project is operational. In general, regarding bats at the site, the proportion of bats that would be at risk of rotor collision impacts at the site was assessed as relatively low, as the species recorded are likely to be dispersed over a wide area and the sites chosen for wind farms (being exposed ridges and hilltops) are generally not optimal foraging areas for bats.

ERM CONCLUDED THAT:

THE PROJECT WOULD NOT HAVE A SIGNIFICANT IMPACT ON ANY THREATENED ECOLOGICAL COMMUNITIES OR SPECIES. MEASURES HAVE BEEN PROVIDED TO MANAGE IMPACTS, INCLUDING AVOIDANCE AND MITIGATION MEASURES. AN OFFSETS PACKAGE IS PROPOSED TO BE DEVELOPED THAT WILL COMPENSATE FOR THE RESIDUAL IMPACTS TO BIODIVERSITY.

RESPONSE TO FINDINGS

Throughout the course of the project and planning process, the project design has undergone a series of amendments to take account of environmental, social and economic factors.

Many of these amendments are demonstrated in Figure 45A and 45B. The amendments related to flora and fauna features considered the following factors outlined in the table below:

TABLE 1 Avoidance measures applied to site selection

Project Feature	Original Location	Adjusted Location	Reason
Overhead transmission line	Southbound towards Crookwell 2 Substation	North-east of the PAA to the Mt Piper to Bannaby 500kV transmission line	To avoid removal or modification of a large area of remnant native vegetation
WTG: P2, P6 and P7 and their associated access tracks and crane pads	Within the Box Gum Woodland Environment Stewardship Block	Removed	To avoid removal or modification of an area of Box Gum Woodland that is being managed under the Environmental Stewardship Program
WTG P11 and their associated access tracks and crane pads	Within remnant native woodland	Removed	To reduce removal of areas of remnant native woodland
WTG: P10, P13 and P14 and their associated access tracks and crane pads	Within remnant Red Stringybark Woodland and Broad-leaved Peppermint Woodland	Closer to the edge of the remnant	To reduce removal of areas of remnant native woodland

The above avoidance measures were taken in relation to the following flora and fauna considerations:

- Areas of native vegetation, particularly those that are in good condition and / or meet the description of a Threatened or Endangered Ecological Community (TEC/EEC);
- Habitat features for native fauna, including hollow bearing trees, exposed rock and native tussock grassland; and
- Wildlife corridors.

The avoidance measures have been informed by ERM's analysis of the flora survey results and the extent to which native vegetation will be impacted by the project, as well as the results of the habitat and fauna surveys and consideration of potential fauna movements.

The project components have been sited predominantly within areas that do not support native vegetation or key habitat features.

ERM considers that the level of avoidance is appropriate to the scale of the project and the ecological features of the area.

Additional Mitigation Measures

The initial suite of mitigation measures recommended by Anderson include:

- Bat Monitoring and Habitat Tree Inspections
- Bird Monitoring and Bat Strike Monitoring
- Ecological Restoration Plan
- Erosion and Sediment Control Plan
- Native Vegetation Management Plan
- Weed Management Plan
- Bat and Avifauna Management Plan

As part of the mitigation measures, ERM recommends a series of additions to the Construction Environmental Management Plan (CEMP), Operational Environmental Management Plan (OEMP), and Bird and Bat Monitoring Plan.

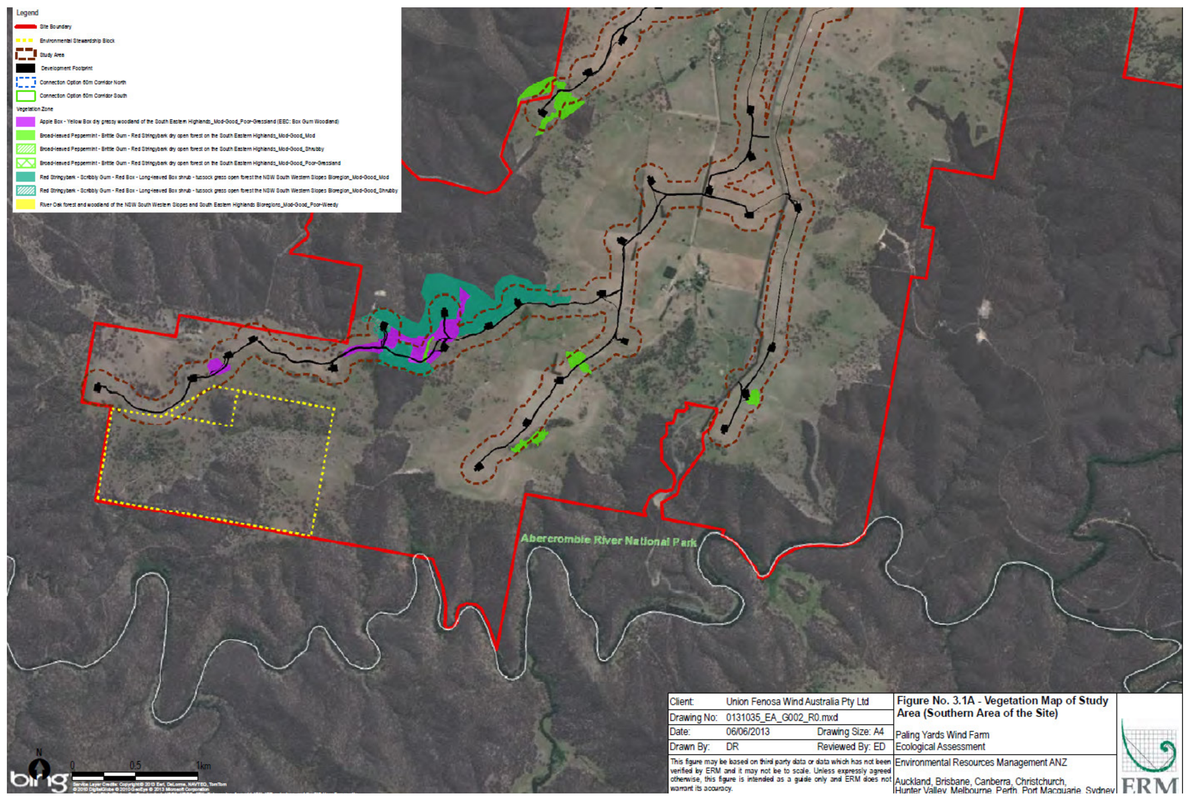

FIGURE 45A Vegetation Map of Study Area (Southern Area of Site)

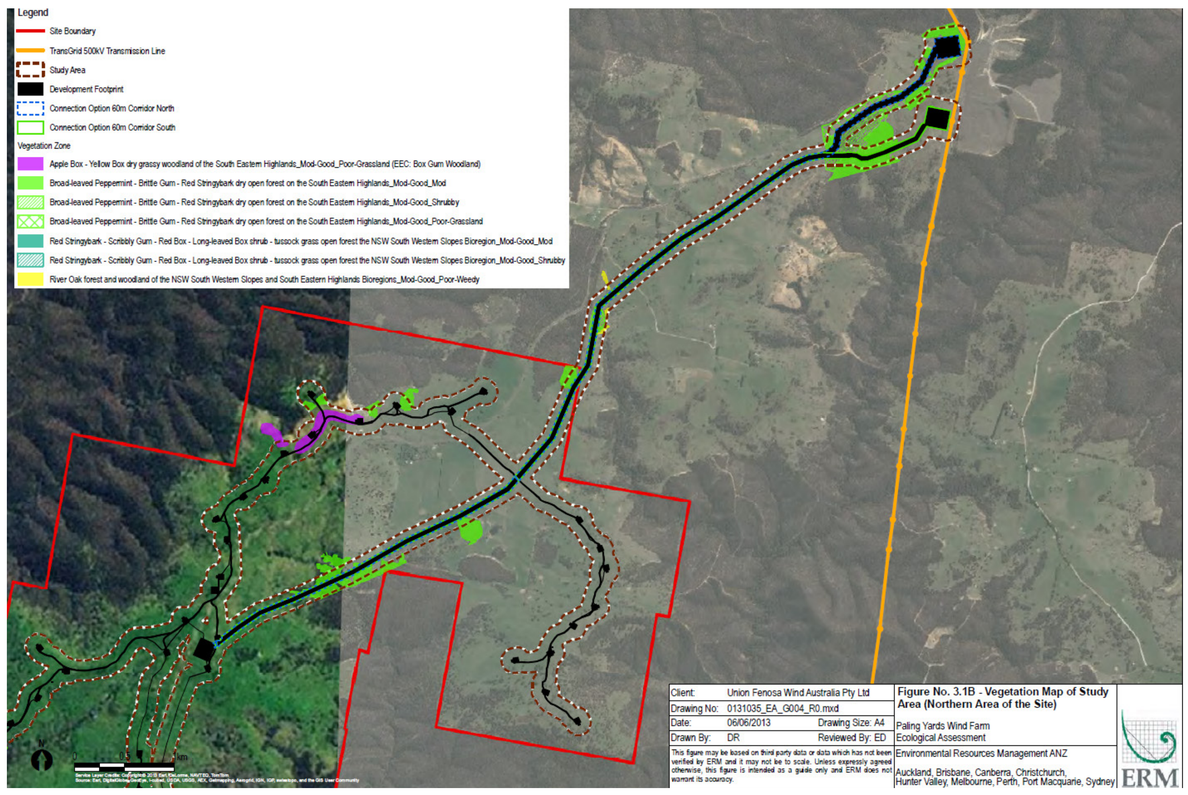

FIGURE 45B Vegetation Map of Study Area (Northern Area of Site)

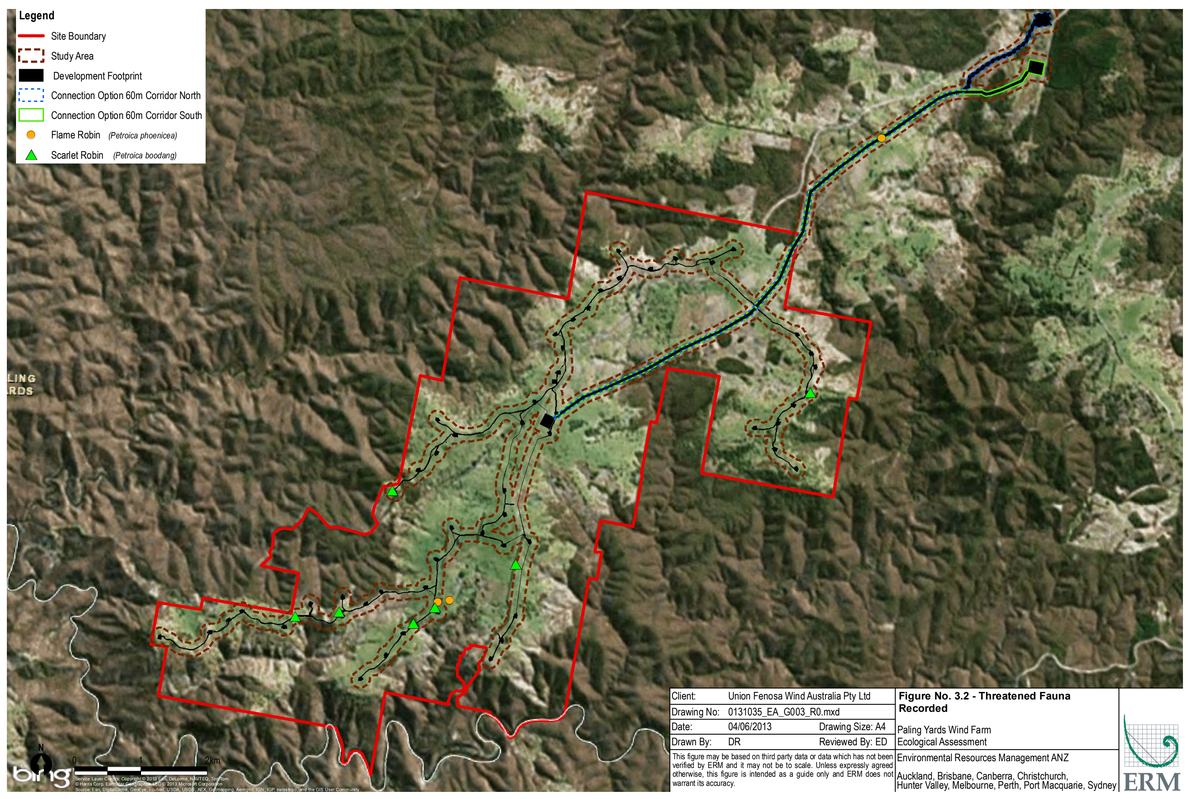

FIGURE 50 Threatened Fauna Species Record Locations

THE PROPOSED CLEARING OF 14HA OF NATIVE VEGETATION WILL BE OFFSET BY 31.1 EQUIVALENT HECTARES AS PART OF THE PROJECT.

They also recommend the preparation of an Ecological Restoration Plan. Further, ERM recommends that UFWA:

- select the southern sub-option for the northern transmission line as this option would minimise clearing of native vegetation; and
- develop an offset package in accordance with the Principles for the use of biodiversity offsets in NSW.

As mentioned above, the proposed clearing of 14ha of native vegetation will be offset by 31.1 equivalent hectares as part of the project.

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