

Expert Witness Statement for Delburn Wind Farm, Strzelecki Ranges, Victoria

Prepared for:

Delburn Wind Farm Pty Ltd

October 2021



Author:

Aaron Organ

DOCUMENT CONTROL

Assessment	Expert Witness Statement
Address	Delburn Wind Farm
Project number	15462
Project manager	Aaron Organ (Director / Principal Ecologist)
Report reviewer	Andrew Hill (Director / Principal Ecologist)
File name	15462_EWS_DelburnWindFarm_04102021
Client	Delburn Wind Farm Pty Ltd
Bioregion	Strzelecki Ranges and Gippsland Plain
CMA	West Gippsland
Council	Baw Baw Shire, South Gippsland Shire and Latrobe City Council

1 AUTHOR'S EXPERTISE

I am a Director and Principal Ecologist at Ecology and Heritage Partners Pty Ltd and work from 292 Mt Alexander Road, Ascot Vale, Victoria. I hold a Master of Social Science (Environment and Planning), Graduate Certificate in Applied Science (Natural Resource Management), Bachelor of Applied Science (Natural Resource Management), and an Associate Diploma in Applied Science (Natural Resource Management). I have 25 years' experience working in the environmental field, including 21 years in an environmental consultant capacity. I have previously worked as a field ecologist in East Gippsland Victoria and have worked as a ranger in Queensland and Victoria, having extensive experience in National Park and Reserve management throughout Australia. I have an extensive working knowledge of terrestrial ecology throughout Victoria and have either managed or played an important role in providing environmental advice on a large number of major infrastructure projects such as proposed pipelines, and road and rail developments, many throughout Gippsland, including throughout the Strzelecki Ranges. I have been a lead author and/or co-author for over 500 projects and have provided expert advice to a range of clients. Some of these projects include a large number of proposed wind farms in Victoria, South Australia and Tasmania, long-term ecological monitoring throughout the Illawarra escarpment New South Wales, and over 50 wind farm projects across Australia. A selection of wind farm projects that I have directly worked on (i.e. Project Manager) in Victoria include:

- Stockyard Hill Wind Farm
- Ben Moore Wind Farm
- Darlington Wind Farm
- Mortlake South Wind Farm
- Mt Mercer Wind Farm
- Ryans Corner Wind Farm
- Dollar Wind Farm
- Berrimal Wind Farm
- Inverliegh Wind Farm

Further details relating to my expertise are provided in Section 8.

2 AUTHOR'S STATEMENT

I, Aaron Organ of Ecology and Heritage Partners Pty Ltd, have prepared this Statement of Expert Evidence pertaining to the proposed Delburn Wind farm, located in the Strzelecki Ranges, Victoria. The following statement is based on the findings of a series of ecological investigations undertaken by myself and my colleagues at Ecology and Heritage Partners Pty Ltd over the past three years. I was involved in previous site assessments and was the lead author of the existing conditions report (Ecology and Heritage Partners 2019) and other reports prepared for the Project. Save where otherwise indicated I adopt the following assessments prepared for the purposes of the planning permit applications for the project as the basis of my evidence before Planning Panels Victoria:

- Biodiversity Assessment for the proposed Delburn Wind Farm, Gippsland, Victoria. Ecology and Heritage Partners 2020a.
- Biodiversity Assessment: Terminal Station Options for the Proposed Delburn Wind Farm, Gippsland, Victoria. Ecology and Heritage Partners 2021.

I have reviewed all submissions that are relevant to my area of expertise and provided a response in Section 8 of this Statement to the specific issues raised by submitters.

I can confirm the following:

- 1) There are no departures from the findings or opinions expressed in the previous detailed ecological investigations reports prepared for the planning permit applications (Ecology and Heritage Partners 2020a, 2021); and
- 2) There are no changed circumstances or assumptions since the reports were prepared, and therefore the opinions expressed in the earlier reports remain current.

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have to my knowledge been withheld from the Panel.

3 INTRODUCTION

3.1 Background

I have been instructed by White and Case on behalf of Delburn Wind Farm Pty Ltd to prepare an expert witness statement addressing the flora and fauna matters associated with the project. The proposed project is in the Strzelecki Ranges, Central Gippsland region and will include the installation of up to 33 wind turbines and associated infrastructure, primarily the wind turbine hardstands, expansion of existing roads and access tracks, construction of new access tracks, installation of underground cabling, battery storage facility, operations and maintenance centre, meteorological masts, and temporary construction hardstands and facilities throughout the study area.

The project will also involve a terminal station - whilst the Biodiversity Assessment for the terminal station considers two potential options for locating the terminal station, I am instructed that now only Option B is being pursued.

The proponent referred the project to the Minister for Planning under the *Environment Effects Act 1978* (Vic) (the 'no-EES' decision). The decision of the Minister was that an EES was not required for the proposed project, subject to several conditions including:

- The preparation of a report that would:
 - (i) predict direct and indirect impacts on native vegetation and biodiversity values in the study area (particularly in relation to Growling Grass Frog, Strzelecki Gum, and other listed flora and fauna species under the EPBC Act and FFG Act), and
 - (ii) include an assessment of alternatives and mitigation measures to avoid and minimise impact to these values;
- The preparation of a flora and fauna management plan to detail specific measures to avoid, minimise and mitigate impacts on flora and fauna during the construction and operation phase of the project.
- The design of a waterway crossing in relation to the upgrades of Nursery Track, completed to the satisfaction of the Secretary of the Department of Environment, Land, Water and Planning (DELWP) and consistent with the design guidelines specified within the Melbourne Strategic Assessment publication "Growling Grass Frog Crossing Design Standards".

All conditions have been met to the satisfaction of DELWP (Ecology and Heritage Partners 2020c, 2020d).

The reports prepared for the Project as part of the referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and in response to the conditions associated with the Minister for Planning's 'no-EES' decision in relation to the project, include:

- Existing Ecological Conditions Report (Ecology and Heritage Partners 2019) (prepared as part of the EPBC Act referral);
- Matters of National Environmental Significance (Ecology and Heritage Partners 2020b) (prepared as part of the EPBC Act referral);
- An Environment Report (Ecology and Heritage Partners 2020c) (prepared to satisfy the conditions outlined in the Planning Minister's 'no-EES' decision for the project); and,

- Flora and Fauna Management Plan – Draft (Ecology and Heritage Partners 2020d) (prepared to satisfy the conditions outlined in the Planning Minister’s ‘no-EES’ decision for the project).

The Flora and Fauna Management Plan prepared in response to the 'no-EES' conditions is a draft and will be subject to further review by DELWP Environment (Gippsland) in light of any further requirements raised as part of the project’s assessment under the *Planning and Environment Act 1987* (Vic). The Plan is required to be finalised to the satisfaction of the Minister before any works commence.

As noted above, Ecology and Heritage Partners also prepared the following assessments for the purposes of the planning permit applications for the project:

- Biodiversity Assessment for the proposed Delburn Wind Farm, Gippsland, Victoria. Ecology and Heritage Partners 2020a.
- Biodiversity Assessment: Terminal Station Options for the Proposed Delburn Wind Farm, Gippsland, Victoria. Ecology and Heritage Partners 2021.

Additional work completed following the preparation of the Biodiversity Assessments for the planning permit applications has involved obtaining biodiversity offset quotes from DELWP accredited offset brokers and this will enable all offset requirements under the State’s *Guidelines for the removal, destruction or lopping of native vegetation* (herein referred to as the Guidelines) (Clause 52.17 of the planning schemes) for the project to be met. This will be a requirement under the planning permit conditions for the project.

3.2 Scope

I have been instructed (letter dated 17 August 2021) by White and Case to prepare an expert witness statement in compliance with PPV’s ‘Guide to Expert Evidence’, addressing:

- The findings of Ecology and Heritage Partners assessment of the Project in relation to flora and fauna matters; and
- Addressing submissions and agency responses relevant to my area of expertise.

4 METHODS

4.1 Desktop Assessment

The following biological databases and other information sources were accessed or reviewed as part of the preparation of my expert witness statement:

- The DELWP Native Vegetation Information Management (NVIM) Tool (DELWP 2020a) and the DELWP NatureKit (DELWP 2020b) for:
 - Modelled data for location risk, remnant vegetation patches, scattered trees and habitat for rare or threatened species;
 - The extent of historic and current Ecological Vegetation Classes (EVCs);
 - Previously documented flora and fauna records within the project locality;
- EVC benchmarks (DELWP 2020c) for descriptions of EVCs within the Strzelecki Ranges and Gippsland Plain bioregions;
- The Victoria Biodiversity Atlas (VBA) (DELWP 2018a), Flora Information System (FIS) (Viridans 2013a), Birdlife Australia archives, and Atlas of Victorian Wildlife (AVW) (Viridans 2013b) for previously documented flora and fauna records within the project locality;
- Birdlife Victoria archives for previous documented records of birds within the local area, including significant species (e.g. White-bellied Sea-eagle, Freckled Duck and Australasian Bittern);
- The Commonwealth Department of Agriculture, Water and Environment (DAWE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DAWE 2020);
- The online resource Planning Maps Online to ascertain current zoning and environmental overlays (DELWP 2021d);
- Aerial photography of the study area;
- Relevant environmental legislation and policies, including relevant sections of the Latrobe and South Gippsland Shire local planning scheme (i.e. Clause 52.17 – Native vegetation, planning scheme overlays).

4.2 Detailed Field Investigations

Wind Energy Facility

Desk-based and detailed field surveys were used to assess environmental conditions and identify ecological values within the project area. While a description of these investigations is provided in the Existing Conditions Report (Ecology and Heritage Partners 2019) and Biodiversity Assessment completed for the project (Ecology and Heritage Partners 2020a), a summary of the assessments undertaken and survey effort as part of the project (all undertaken by Ecology and Heritage Partners) is provided below (Table 1).

Table 1. Summary of field surveys completed within the study area as part of the detailed ecological investigations.

Category	Survey dates	Number of survey days and approximate hours
Native vegetation and Large Tree assessments, general fauna assessments	<ul style="list-style-type: none"> - 17-19 July 2018 - 18-20 March 2019 - 5-7 August 2019 - 19-20 February 2020 	11 survey days (2 surveyors), 176 hours (average 8 hour day)
Arboricultural assessment (Homewood 2020) (Appendix 5)	<ul style="list-style-type: none"> - 25-26 June 2020 and 30 June 2020 	3 survey days (2 surveyors), 48 hours (average 8 hour day),
Significant flora species surveys	<ul style="list-style-type: none"> - 12-16 November 2018 (Strzelecki Gum <i>Eucalyptus strzeleckii</i>, Matted Flax-lily <i>Dianella amoena</i> and other significant species) - 18-20 March 2019 - 5-7 August 2019 - 19-20 February 2020 (Strzelecki Gum) 	13 survey days (2 surveyors), 208 hours (average 8 hour day)
Arboreal Mammals and Forest Owl surveys	<ul style="list-style-type: none"> - 12-16 November 2018 - 2-4 October 2019 - 30-31 October 2019 and 1 November 2019 	8 nights (2 surveyors), 144 hours (average 9 hour day)
Ground-dwelling mammal surveys	<ul style="list-style-type: none"> - 12-16 November 2018 - Between 2 October 2019 and 1 November 2019 	29 days cameras were recording (15 hours to set up and pick up camera traps)
Targeted Growling Grass Frog <i>Litoria raniformis</i> surveys	<ul style="list-style-type: none"> - 12-16 November 2018 - 2-4 October 2019 	8 days and 6 nights (2 surveyors), 144 hours (average 9 hour day)
Bird Utilisation Surveys (winter and spring)	<ul style="list-style-type: none"> - 4-6 June 2019 - 11-13 June 2019 - 2-4 October 2019 - 30-31 October 2019 and 1 November 2019 - 6-8 November 2019 	15 survey days (2 surveyors), 540 hours (average 9 hour day)
Bats surveys	<ul style="list-style-type: none"> - 2 October 2019 to 1 November 2019 	29 days (15 hours Anabat set up and pick up)

A summary of the fauna survey techniques and a description of the survey methods is provided below (Table 3). Targeted surveys for significant fauna were undertaken in November 2018 and October - November 2019 to maximise the likelihood of detecting significant fauna identified as having the potential to occur within the impact area.

Table 3. Summary of fauna survey techniques and total survey effort.

Survey technique	Target species	Sites	Survey effort
Habitat assessments and incidental observations of fauna	Southern Brown Bandicoot <i>Isoodon obesulus obesulus</i> , Greater Glider <i>Petauroides Volans</i> , Powerful Owl, Sooty Owl Masked Owl and Growling Grass Frog.	Within suitable habitats across the entire the study area.	Eight separate survey periods between 17 July 2018 and 20 February 2020.
Spotlighting – arboreal mammals and forest owls	Greater Glider, Koala <i>Phascolarctos cinereus</i> , Powerful Owl, Sooty Owl and Masked Owl.	Spotlighting transects undertaken in suitable forested habitats across the study area.	Four nights of spotlighting (12-16 November 2018). Two nights of surveys (2-4 October 2019). Two nights spotlighting (30-31 October 2019 and 1 November 2019).
Nocturnal call playback	Koala, Powerful Owl, Sooty Owl and Masked Owl.	Call playback occurred at beginning of spotlighting transects in suitable forested habitats across the study area.	Four nights of spotlighting (12-16 November 2018). Two nights of surveys (2-4 October 2019). Two nights spotlighting (30-31 October 2019 and 1 November 2019).
Bat detectors	Common Bent-wing Bat	Four sites (three within and one outside the study area) in a selection of habitat types.	Bat detectors deployed 2-4 October 2019 and retrieved 1 November 2019.
Motion detecting cameras to detect ground-dwelling mammals	Significant mammal species principally Southern Brown Bandicoot.	Five sites at selected native vegetation remnants within the study area. 12 sites in total (11 within the study area and one south of the study area).	Four nights of motion detecting camera surveys (12-16 November 2018). Cameras deployed 2-4 October 2019 and retrieved 1 November 2019.
Targeted Growling Grass Frog surveys - Diurnal and nocturnal call playback and active searching. Spotlighting at potentially suitable waterbodies	Growling Grass Frog	At least 13 waterbodies across the study area that are known to (e.g. Luxford Pond), or that have potential to support Growling Grass Frog.	Four nights of survey (12-16 November 2018). Two nights of surveys (2-4 October 2019).

Given the size of the study area and the type and extent of the proposed development (i.e. only a very small proportion of the study area is proposed to be disturbed), vegetation surveys and targeted surveys primarily focused in areas within or adjacent to the infrastructure layout. However, surveyors also undertook a broad ecological assessment (i.e. not detailed vegetation mapping or habitat hectares assessments) outside of the infrastructure layout.

All fieldwork was carried out under the appropriate licences, including a Research Permit (10008283) and Scientific Procedures Fieldwork Licence (SPFL 20005) issued by DELWP under the *Wildlife Act 1975*, and an Animal Research permit issued by the Wildlife and Small Institutions Animal Ethics Committee (22.13).

Vegetation assessments, targeted surveys for significant flora and fauna species, and impact assessments were undertaken in accordance with the relevant Commonwealth and State survey guidelines and policies (e.g. DSE 2004; DEWHA 2009, 2010a, 2010b; DoE 2013; SEWPac 2011; BirdLife 2017; DELWP 2017).

The study area location is provided in Figure 1 of the detailed investigations report (Ecology and Heritage Partners 2020a).

Terminal Station

Consistent with the assessments for the wind energy facility, the desk-based and detailed field surveys were used to assess environmental conditions and identify ecological values within the project area. On 16 September 2020, areas within the study area (footprint of the two proposed Terminal Station options, located on either side of Varys Track) that were outside of the proposed Delburn Wind Farm footprint were assessed by a qualified ecologist. Where native vegetation was identified a habitat hectare assessment was undertaken following methods described in the Vegetation Quality Assessment Manual (DSE 2004).

The study area location is provided in Figure 1 of the detailed ecological investigations report (Ecology and Heritage Partners 2021).

5 RESULTS

5.1 Wind Energy Facility

The key ecological values recorded during the field assessments conducted by Ecology and Heritage Partners between 2018 and 2020 are summarised below (Table 4). Detailed results of the ecological values within the study area are outlined within the detailed ecological investigations report (Ecology and Heritage Partners 2020a; 2021). The locations of Ecological Vegetation Classes (EVCs) (Figure 2), species survey locations (Figure 7) and previously documented significant species records (Figures 9 - 10) are also provided in the report (Ecology and Heritage Partners 2020a).

Table 4. Key ecological values within the project area (Ecology and Heritage Partners 2020a).

Species Diversity	A diverse assemblage of plants and animals, with 65 flora species and 111 fauna species recorded during 2018-2020 surveys conducted by Ecology and Heritage Partners.
Remnant Vegetation	<p>A total of 241.04 hectares of mapped native vegetation (excluding scattered trees) was mapped within the study area. In addition, 46.96 hectares of modelled Current Wetlands is also within the study area.</p> <p>Mapped native vegetation is represented by seven EVCs of the Strzelecki Ranges bioregion:</p> <ul style="list-style-type: none"> - Aquatic Herbland (EVC 653) – 0.69 ha - Damp Forest (EVC 29) – 65.62 ha - Herb-rich Foothill Forest (EVC 23) – 115.00 ha - Lowland Forest (EVC 16) – 44.53 ha - Swamp Scrub (EVC 53) – 0.11 ha - Swampy Woodland (EVC 937) – 14.34 ha - Tall Marsh (EVC 821) – 0.75 ha <p>379 large trees in patches (excluding Strzelecki Gum) were recorded in or adjacent to the impact area.</p> <p>81 large scattered trees and 41 small scattered trees (excluding Strzelecki Gums) were recorded.</p> <p>A total of 146 Strzelecki Gums (including 14 large scattered trees) were identified. All impacts to Strzelecki Gum have been avoided through design refinements.</p> <p>The area of native vegetation likely to be directly impacted by the proposed wind farm is 5.669 hectares and 20 large trees. The total impact [accounting for direct native vegetation loss and 15-metre buffer to accommodate the Tree Protection Zones (TPZs) for large trees in patches] is 12.344 hectares and 49 large trees.</p>
Wetlands	<p>The Corner Inlet Ramsar site is located approximately 35 kilometres south of the study area (downstream).</p> <p>The Gippsland Lakes Ramsar site is located approximately 80 kilometres east of the study area (downstream).</p>
Significant Ecological Communities	No national or State significant ecological communities occur within the study area.
Significant Flora Species	<p>The known occurrence of one nationally significant flora species within the study area:</p> <ul style="list-style-type: none"> - Strzelecki Gum <i>Eucalyptus strzeleckii</i> - No additional state significant flora species were recorded - FFG Act Protected Flora: Acacia species, including <i>Acacia mearnsii</i> were recorded in the study area
Significant Fauna Species	<p>The known occurrence of one nationally significant fauna species recorded within the study area:</p> <ul style="list-style-type: none"> - Growling Grass Frog <p>Non-threatened species of community interest within the study area include:</p> <ul style="list-style-type: none"> - Koala <i>Phascolarctos cinereus</i>; - Wedge-tailed Eagle <i>Aquila audax</i>; and - Yellow-tailed Black-Cockatoo <i>Calyptorhynchus funereus</i>.

5.1.1 Bird Utilisation Surveys

Seventy-four (74) bird species were recorded, consisting of 1,947 individuals, during the fixed point bird counts. No national or state significant species were recorded within the study area. Only 1.1% of bird species were in the Rotor Swept Area (RSA), including Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*, Little or Australian Raven, Common Bronzewing *Phaps chalcoptera* and Pied Currawong *Strepera graculina*. All species observed within the Rotor Swept Area were common birds and not listed as threatened on DELWP's Advisory list or listed under the EPBC Act or FFG Act. No birds recorded during the bird utilisation surveys, or recorded during the detailed field surveys are defined as 'species of interest' as outlined in Lumsden *et al.* (2019).

Table 5. Summary of birds recorded at the varying flight heights.

Flight Height	# of birds	% of birds
Height not recorded (heard only)	833	41.9%
Ground (0-1 metres)	193	9.7%
Below RSA (1-40m)	941	47.3%
RSA (40-250m)	22	1.1%
Above RSA (>250m)	0	0.0%

Note: While the minimum RSA in the planning permit application is 40 metres, with the models actually under consideration the lowest is 70 metres. This change means that there are expected to be a comparatively lower risk of turbine collision by birds given that a vast majority of observed and expected bird flights are below RSA.

While not observed at RSA height, Wedge-tailed Eagles *Aquila audax* were recorded within the study area and are likely to fly at and above RSA when foraging. Large parrots, including Gang Gang Cockatoo *Callocephalon fimbriatum* and Sulphur-crested Cockatoos *Cacatua galerita*, whilst recorded below RSA, may also fly in the RSA as they move daily between roosts and feeding areas.

5.1.2 Bat Surveys

Five native bat species (all common in the local area) were detected during the Anabat surveys, including White-striped Freetail Bat, Eastern False Pipistrelle *Falsistrellus tasmaniensis*, Gould's Wattled Bat, Chocolate Wattled Bat and Little Forest Bat. With the exception of White-striped Freetail Bat, which is known to regularly fly within Rotor Swept Area, the remainder are expected to forage at lower heights around vegetation and waterbodies. No significant species (e.g. Grey-headed Flying-fox *Pteropus poliocephalus*, Large Bent-wing Bat or Yellow-bellied Sheath-tail-Bat *Saccolaimus flaviventris*) were detected within, or adjacent to the study area.

5.1.3 Forest Owls

None of the targeted owls were detected during nocturnal surveys and active searches. There is a moderate to high likelihood that Powerful Owl uses native vegetation within the study area for foraging and roosting activities, although the other owl species are less likely to occupy habitat within the study area.

5.1.4 Ground-dwelling Fauna and Arboreal Mammals

Incidental records of common bird and mammal species were recorded during field assessments. While targeted surveys for Greater Glider were undertaken in potentially suitable habitat, under suitable survey conditions (warm, still nights, with no rain, fog or bright moonlight), the species was not recorded within the study area.

5.1.5 Growling Grass Frog Surveys

Two Growling Grass Frogs were observed during nocturnal surveys on 14 November 2018 near a small pool/creepline in the centre of the study area. A large chorus of Growling Grass Frog was also heard on 2 October 2019 at Luxford Pond.

5.2 Terminal Station

Several common State 'protected' flora species (not State significant species) were recorded during the site assessment, including Slender Greenhood *Pterostylis foliata* Common Cassinia *Cassinia aculeata* and Snowy Daisy-bush *Olearia lirata*.

Based on the modified nature of the study area, landscape context, the proximity of previous records and the results of targeted species surveys undertaken as part of the Delburn Wind Farm ecological investigations, State-listed and nationally significant flora and fauna species are considered unlikely to occur within the study area due to the high levels of disturbance and absence of suitable habitat and/ or important habitat features.

Vegetation within the study area did not meet the condition thresholds that define any significant ecological communities.

Locations of EVCs (Figure 2) and previously documented significant species records (Figures 3 - 4) are provided in the detailed ecological investigations report (Ecology and Heritage Partners 2021).

6 PROJECT IMPACTS

Impacts on ecological values within the study area and mitigation measures are discussed in the Biodiversity Assessment reports (Ecology and Heritage Partners 2020a, 2021). A brief summary of the impacts and mitigation measures is provided below.

6.1 Direct Impacts

Direct impacts of the project include:

- Loss of native vegetation and habitat removal. The proposed wind energy facility will impact 12.344 hectares of native vegetation, including 49 large trees. The terminal station will impact a further 1.657 hectares of native vegetation under Option B;
- Potential for direct fauna mortality (resulting from either habitat disturbance/ removal and fauna straying into construction area, as well as bird and bat collision with the wind turbines);
- Loss of hollow-bearing trees;
- Removal/ disturbance to range of terrestrial and aquatic habitats; and
- Noise pollution

6.2 Indirect Impacts

Potential indirect impacts of the project include:

- Habitat fragmentation and edge effects;
- Impacts to aquatic habitat, including changes in water quality and sedimentation; and
- Introduction of noxious and environmental weeds, pest animals and diseases.

6.3 Residual Impacts

Following the implementation of avoid and minimise measures (see Section 7 below) as part of the design, construction and operation of the wind energy facility, the following residual impacts are likely to occur within the surveyed sections of the project footprint:

- A total of 12.344 hectares of native vegetation is proposed to be impacted (5.669 hectares direct impact) for the wind energy facility, and 1.657 hectares for the terminal station (Option B);
- Direct loss of 20 large trees and an indirect loss of 29 large trees, including approximately 27 hollow-bearing trees for the wind energy facility and an additional four trees proposed to be impacted associated with the terminal station (Option B);
- Temporary disturbance to habitat and fauna movement during construction works, temporary increase in risk of direct mortalities due to culvert upgrade and additional vehicle and machinery traffic.

6.4 Other Considerations

6.4.1 Significant Flora Species

Strzelecki Gum were recorded at various locations within the study area. The impact area will avoid all Strzelecki Gum, including the Tree Protection Zones (TPZs). The project is not considered to have a significant impact on the species.

There is a low likelihood that the proposed development would impact any national or State significant flora species.

6.4.2 Significant Fauna Species

Growling Grass Frog were recorded at three locations within the study area: Luxford Pond, Wetland Site E and Clarks Road. The impact area will avoid all known Growling Grass Frog habitat, with the exception of a proposed road widening at Nursery Track (south of Clarks Road). No Growling Grass Frog were recorded adjacent to the Nursery Track creek crossing. However, Growling Grass Frog are likely to use the wetland habitat as they disperse north from Luxford Pond to Clarks Road (Luxford Pond was identified as supporting an important breeding population of Growling Grass Frog). The proposed road widening at Nursery Track is not considered to have a significant impact to the species. A Construction Environmental Management Plan is recommended to adequately manage potential impacts to Growling Grass Frog habitat.

There is a low likelihood that the proposed development would impact any other national or State significant fauna species.

6.4.3 Ecological Communities

No national or State significant ecological communities were recorded within the study area, and as such, the proposed development is not expected to impact any listed ecological communities.

7 IMPACT AVOIDANCE AND MINIMISATION

As outlined in the Guidelines (DELWP 2017) a project should be designed to take into consideration the three-step approach, which is:

- Avoid environmental impacts;
- Minimise impacts; and,
- Where impacts cannot be avoided or minimised, compensate for the residual impacts using other mitigation measures such as offsets.

These principles have been followed, where possible, for the project.

7.1 Avoidance and Minimisation

Wind Energy Facility

As outlined in the previous Biodiversity Assessment report (Ecology and Heritage Partners 2020a), under the original infrastructure layout (Layout v1.5) that comprised 53 turbines, a total of 64.455 hectares of native vegetation (including 201 large trees) was calculated as potentially being impacted.

Additionally, while Strzelecki Gum is present throughout the project area, potential impacts from works associated with the construction of the windfarm (including road widening and underground cable installation) have been managed by design changes to completely avoid both direct and indirect impacts to Strzelecki Gum trees (e.g. impacts to the root zone).

Except for the road widening at Nursery Track where there is proposed to be localised disturbance that will be managed, the infrastructure layout (Layout v3.5) avoids all known and potential Growling Grass Frog habitat. This has been achieved by altering the development footprint to avoid road crossings that are in close proximity to Growling Grass Frog habitat. The development footprint sought to widen an existing dirt road intersecting the northern reaches of Luxford Pond at one of three potential locations; Clarks Road, Nursery Track or the unnamed existing road in between these two roads. Nursery Track was selected as the preferred crossing, as it completely avoids all Strzelecki Gum. Although Nursery Track crosses the creek and the northern reaches of the Luxford Pond wetland, the expansion of the existing dirt road is not likely to impact the resident Growling Grass Frog population. The development footprint also includes the widening of the dirt road to the east of wetland Site E, but the proposed road widening will not directly impact the wetland.

Terminal Station

It is not possible to avoid all impacts to native vegetation due to the engineering and road safety standards required to facilitate acceptable access and egress into the study area. The proposed terminal station (Option B) is located west of Varys Track, and detailed measures to avoid and minimise impacts to ecological values associated with the terminal station have been described in the Biodiversity Assessment (Ecology and Heritage Partners 2021).

7.2 Mitigation Measures

Mitigation measures including mitigation at the planning level and specific mitigation measures and protocols to avoid and minimise impacts on ecological values within the study area are detailed in the Biodiversity Assessments (Ecology and Heritage Partners 2020a, 2021).

These measures range from planning level design to avoid impacts on native vegetation to specific measures for each ecological value potentially impacted by the wind energy facility. A Bat and Avifauna Management Plan (BAM Plan) may also need to be prepared as part of a planning permit condition and implemented prior to any construction activities.

Residual impacts after the implementation of measures to avoid and minimise impacts on ecological values, will be offset in accordance with the State's native vegetation Guidelines (DELWP 2017). The required offsets are detailed within the Biodiversity Assessment reports (Ecology and Heritage Partners 2020a, 2021).

8 PUBLIC SUBMISSIONS AND AUTHORITY / AGENCY RESPONSES

The key biodiversity concerns raised within the public submissions are summarised below, and I have grouped these as best as possible in relevant themes and have responded accordingly (Table 6). I have read DELWP Referral Authority responses (RR03, RR04, RR05, RR06) and no specific concerns have been raised by the Department. The conditions proposed in these responses are appropriate and reasonable, and the comments relating to the BAM Plan and offset adjustments should be considered in drafting the conditions. The CEMP will deal with general matters associated with the construction of the project, while the final Flora and Fauna Management Plan will include specific measures associated with the protection and management of native vegetation, terrestrial flora and fauna species and communities, watercourses, and for the control of pest weeds and animals.

There does appear to be an error in the utility installation referral response (RR05), where it incorrectly states the hectares of native vegetation requiring removal under the permit to be 10.592 hectares (i.e. uses the Wind Energy Facility area for Latrobe rather than the Terminal Station impact area).

Table 6. Key issues raised in the public submissions.

Submission No.	Ecological Issue	Response	Relevant Report and Section
<p>1, 5, 17, 21, 32, 35, 44, 66, 67, 71, 73, 76, 77, 82, 84, 87, 95, 99, 103, 109, 237, 328, 346, 348, 350, 351; 357, 359, 362, 387, 389, 391, 398, 400, 401, 405, 411, 415, 417, 443, 441, 451, 460, 461, 471; 475, 486; 487, 490, 504, 509, 513, 516; 521, 529, 535; 543, 550, 552, 562, 566, 570, 588, 592, 614, 619, 623, 627, 631, 637; 713</p>	<p>Risk of avifauna mortality due to collision with wind turbines (fauna commonly cited included Wedge-tailed Eagle, White-bellied Sea-eagle, other raptors, Powerful Owl, Yellow-bellied Black Cockatoo, microbats, and migratory shorebirds).</p> <p>Loss of breeding or hunting grounds for raptors and owls.</p>	<p>The impact of increased bird mortality as a result of collision with wind turbines will affect different species in different ways. The majority of observations made during the point counts were of individuals that were either on the ground or flying below the Rotor Swept Area (RSA). All birds observed during the current point count surveys are common birds in south-eastern Australia. Further, it cannot be assumed that all birds observed within the study area will collide with the wind turbines, as birds are known to adapt their behaviour in the presence of wind turbines to avoid an obstacle, such as a wind turbine, in their flight path (Farfan <i>et al.</i> 2009).</p> <p>Wedge-tailed Eagle, White-bellied Sea-Eagle and Other Raptors</p> <p>No raptors were observed flying in the RSA. However, several raptors species were observed in or near the study area, including Black-shouldered Kite <i>Elanus axillaris</i>, Wedge-tailed Eagle and Nankeen Kestrel <i>Falco cenchroides</i>. Wedge-tailed Eagles are likely to fly at and above RSA when foraging. Based on the results of the bird utilisation surveys, the proposed wind farm footprint may be located within the territory of at least one pair of Wedge-tailed Eagles. However, whilst the project presents some risk to Wedge-tailed Eagle (i.e. mortality from turbine strike) the project is not located in an area of high usage by species. As such, it is highly unlikely that the project will result in a significant impact to Wedge-tailed Eagle or for any other raptor species.</p> <p>Powerful Owl</p> <p>No owls were detected during targeted surveys, however there is moderate to high likelihood that they frequent the study area. Individuals may fly over the study area, typically below the RSA (i.e. through native vegetation) and therefore the project presents a very low risk to any Powerful Owls using the site for breeding, foraging and/or dispersal.</p> <p>Cockatoos and Parrots</p> <p>Large parrots, including Gang Gang Cockatoo <i>Callocephalon fimbriatum</i> and Sulphur-crested Cockatoos <i>Cacatua galerita</i>, whilst recorded below RSA, may also fly in the RSA as they move daily between roosts and feeding areas. An investigation by Biosis (2020) into flight behaviour of Red-tailed Black Cockatoos documented 1001 observations of the species and 3639 individual flights. The majority of flights were below the RSA proposed for the wind farm and as such indicated a very low probability of impact with wind turbines.</p>	<p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 3.2, Section 6.5 – 6.6)</p>

Submission No.	Ecological Issue	Response	Relevant Report and Section
		<p>A similar pattern of behaviour would be expected in the Yellow-tailed Black Cockatoo, which further suggests a low likelihood of collision with wind turbines.</p> <p>Waterbirds and Migratory Shorebirds</p> <p>No significant wetlands are present in or near the study area, however waterbird species recorded during point count surveys – such as White-faced Heron <i>Egretta novaehollandiae</i> – may fly in the RSA when moving between habitat areas. The study area was driven extensively and very few waterbirds likely to fly in the RSA were identified flying overhead.</p> <p>Previous avoidance studies at operating wind farms have shown that migratory shorebirds generally demonstrate a high degree of wind turbine avoidance behaviour. An example of directly observed avoidance rates (i.e. observations of birds passing through a wind turbine array, but avoiding collision) at an operating wind farm include:</p> <ul style="list-style-type: none"> • 99% - migrating birds, Holland (both diurnal and nocturnal data) (Winkelman 1992a); • 97.5% - waterfowl and waders, Holland (Winkelman 1992b, 1994); and, • 87% - waterfowl and waders at night, Holland (Winkelman 1990). <p>In addition, the calculated avoidance rates (i.e. recorded fatalities compared with measured utilisation rates) at an overseas operating wind farm documented a 99% avoidance rate for waterfowl, waders, cormorants, UK (Percival 2001). This is consistent with other avoidance studies conducted in Australia.</p> <p>As such, any migratory shorebirds (e.g. Latham’s Snipe) flights over the study area during migration are expected to be well above the rotor swept area, while any flights (again low numbers of birds) across the study area are likely to be localised between the few wet depressions within the study area and suitable wetlands outside of the study area. The overall risk of direct (turbine strike) or indirect impacts to waterbirds and migratory shorebirds associated with the project is low.</p> <p>Monitoring of Impacts to Avifauna and Bats</p> <p>Some minor changes in local distribution and abundance of these species may be expected as a consequence of ongoing operation of the turbines, and although these impacts are not predicted to be significant, post</p>	

Submission No.	Ecological Issue	Response	Relevant Report and Section
		<p>construction monitoring (as outlined in a Bat and Avifauna Management Plan, if required) will be established to further assess the impact of the project on bird species and populations.</p>	
<p>1, 44, 76, 87, 283, 331, 350, 358, 398, 454, 492, 503, 531, 627, 631</p>	<p>Loss of wildlife corridors providing connectivity for native fauna to disperse between suitable habitat (including the Strzelecki – Alpine Biolink).</p>	<p>Areas of native vegetation in the project area do not constitute a wildlife corridor as such (i.e. not contiguous with larger areas of habitat in the local area). However, they are likely to act as a means of connectivity, providing habitat and facilitating the movement of species throughout the landscape. The project area therefore contributes to the role that remnant native vegetation in the local area has in conserving fauna. Although there will be loss of habitat associated with the project, with 12.344 hectares to be impacted, this is dispersed over the extent of the project area and predominantly comprises the widening of roadsides where a small proportion of the vegetation and available habitat is proposed to be impacted. In addition, the proposed development is not expected to impact any aquatic systems that will impact habitat connectivity.</p> <p>The integrity of the Strzelecki – Alpine Biolink will not be affected by the native vegetation removal proposed for the project.</p>	
<p>1, 21, 411, 484, 490, 492, 623, 631</p>	<p>Impacts to Strzelecki Gum.</p>	<p>While Strzelecki Gum is present throughout the project area, potential impacts from works associated with the construction of the windfarm, including road widening and underground cable installation, have been managed by design changes to completely avoid both direct and indirect impacts (e.g. impacts to the root zone) to Strzelecki Gum. As such, the project will not result in a significant impact to Strzelecki Gum.</p> <p>In the event of incidental findings of Strzelecki Gum during construction works, the proponent will implement a contingency protocol, which will be included in the Construction Environmental Management Plan (CEMP). This will describe in detail the processes for identifying potential Strzelecki Gums, marking out No Go zones in accordance with advice from a qualified arborist, and how to avoid impacts to any additional trees identified.</p> <p>Furthermore, native vegetation removal triggers requirements for Species Habitat Units for Strzelecki Gum [i.e. offsets under the State’s native vegetation Guidelines (Clause 52.17)]. A suitable offset site has been identified adjacent to the project area that currently supports a large population of Strzelecki Gum. If required, offsets can be secured which will result in the protection and management of the area in perpetuity.</p>	<p>Section 6.4.1 in this Statement</p> <p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 3.3, Section 8.1, Appendix 2.3)</p>
<p>87, 92, 164, 237, 255, 351; 398, 405, 437, 443,</p>	<p>Concerns about adequacy and validity of ecological assessment, particularly</p>	<p>As outlined in Section 2 of the detailed ecological investigations report (Ecology and Heritage Partners 2020a; 2021), terrestrial and aquatic surveys were undertaken over several days, seasons and years, and throughout various habitat types across the project area (i.e. to account for ecological spatiality and temporality).</p>	<p>See methods survey types and extent in Section 4.1 and 4.2 in this Statement</p>

Submission No.	Ecological Issue	Response	Relevant Report and Section
446, 454, 480, 503, 509, 516; 531, 535; 637; 713	<p>regarding extent of survey time allocated for bird surveys and detecting threatened species within the study area.</p> <p>More mitigation measures required.</p> <p>Concerns that results were diminished or minimised.</p>	<p>Relevant external agencies were consulted (i.e. DELWP) and the survey effort is consistent with that undertaken for other wind farms across Australia. As such, the ecological data are adequate to document the existing ecological conditions within the project area. Targeted surveys for significant flora and fauna species (i.e. species listed under the EPBC act and/or FFG Act) were undertaken in accordance with the minimum survey requirements for species, including several significant species listed under the EPBC Act. All areas supporting native vegetation were assessed, and fauna habitat assessments (including large tree and hollow-bearing tree assessments) were undertaken across all habitats to assess the type, extent, and quality of habitat across the project area, and to document the fauna species using these habitats. Furthermore, it was determined by the Minister that an Environmental Effects Statement is not required for the project as potential impacts are predicted to be localised and are not likely to impact significant species. In order to satisfy the conditions of the 'no-EES' decision, additional work was completed for ecological values where required, and was completed to the satisfaction of DELWP. There were no issues regarding adequacy of surveys or particular issues regarding ecological impacts raised in any of DELWP's four referral responses (i.e. RR03, RR04, RR05, RR06).</p> <p>Detailed information on documented bird records was undertaken during the desktop assessment. A comprehensive list of bird species recorded during the detailed site surveys is provided in Appendix 3.1 of the detailed ecological investigations report. The bird utilisation surveys were designed to comply with the guidelines described in AusWEA – Wind Farms and Birds: Interim Standards for Risk Assessment (2005). The total number of point counts was determined based on both the habitat conditions of the study area and the number of turbines proposed, in addition to any existing data that has already been collected (e.g. detailed significant species data). Bird point count survey locations were distributed fairly evenly across the study area and capture a representative sample of vegetation and habitat type. Given the majority of the study area is eucalypt and pine forest, most bird point count survey locations are situated in forested areas. This may be a factor in the low number of birds observed in the RSA, with birds predominantly moving between canopy trees at no greater than canopy height. As such, this is not a limitation of the survey results but rather supports the point that collision risk associated with the project in this location is considered low.</p> <p>Although 8 x 20-minute diurnal bird surveys were completed at eight assessed primary survey sites across the project area in winter and spring 2019, general observations (incidental sightings) throughout the entire survey period (i.e. over multiple seasons and years) were undertaken to obtain a detailed bird list for the project area. As such, outside of the primary survey sites, hundreds of hours of incidental observation hours were undertaken over all seasons across multiple years. Despite extensive bird surveys undertaken across</p>	<p>See impact avoidance and minimisation measured outlined in Section 7 in this Statement</p> <p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 2)</p> <p>Biodiversity Assessment: Terminal stations options for the proposed Delburn Wind Farm (Section 2)</p>

Submission No.	Ecological Issue	Response	Relevant Report and Section
		<p>the project area there is the potential that a small number of additional bird species may occupy habitats within the study area as residents, or visitors on a frequent or infrequent basis.</p> <p>In summary, the ecological surveys and results presented in the Biodiversity Assessment reports are adequate to assess the impacts of the project on flora and fauna species and ecological communities, and to suitably inform appropriate mitigation measures to minimise residual impacts from the project. Indeed, this conclusion is supported by input from DELWP to date, including their referral responses.</p>	
<p>21, 29, 350, 351, 381, 382, 385, 398, 405, 451, 456, 488, 484, 516, 519, 522, 532, 534, 535, 564, 570, 577, 592, 595, 623, 627; 713</p>	<p>Impacts to Growling Grass Frog (including concern that insufficient efforts were made to detect populations and identify suitable habitat within the development area, the potential effect of road widening, and reduction in waterbody connectivity and dispersal capacity).</p>	<p>All areas of suitable and potentially suitable habitat across the study area (including at locations where disturbance is proposed) were surveyed. A habitat assessment at drainage lines and free-standing waterbodies (e.g. dams) was undertaken across the entire study area to determine the presence, or otherwise, of potentially suitable habitat (breeding and terrestrial habitat) for Growling Grass Frog. After these habitat assessments were completed targeted surveys (diurnal and nocturnal surveys) were undertaken at or in the vicinity of all potentially suitable habitats across the study area (e.g. Luxford Pond, the drainage line along Clarks Road, and along a section of Stony Creek in the southern portion of the study area), and in areas directly adjacent to the study area.</p> <p>The survey was conducted with reference to the prescribed methods detailed in the following guidelines:</p> <ul style="list-style-type: none"> • Significant Impact Guidelines for the Vulnerable Growling Grass Frog (<i>Litoria raniformis</i>) EPBC Act Policy Statement 3.14 (DEWHA 2009); and • Commonwealth Survey Guidelines for Australia's Threatened Frogs (DEWHA 2010). <p>Surveys were completed to the satisfaction of DELWP and no additional surveys were required according to the conditions described by the Minister in the Statement of Decision regarding the EES. Based on the detailed targeted surveys and the fact that no important or limiting habitat for this vulnerable species will be directly or indirectly impacted by the proposed development, the project will not trigger the significant impact thresholds for this species.</p> <p>There is no suitable breeding habitat for the species along the shallow and ephemeral drainage lines across the study area, with the majority of the areas intersected for the proposed development either dry or containing waterbodies not suitable for Growling Grass Frog to breed (e.g. primarily flanked and shaded by an overstorey or tall trees and shrubs). Small numbers of frogs may traverse the study area on occasions</p>	<p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 2.6.1.3, Section 3.3, Section 8.1)</p>

Submission No.	Ecological Issue	Response	Relevant Report and Section
		<p>within 200-500 metres of open waterbodies (dams) where the species was detected during the targeted surveys</p> <p>Except for the road widening at Nursery Track where there is proposed to be localised disturbance that will be managed (i.e. underpass structure, management of sedimentation and runoff), the infrastructure layout avoids all known and potential Growling Grass Frog habitat. As such, waterbody connectivity and dispersal capacity will not be impacted by the proposed work. Furthermore, the preparation of a Construction Environment Management Plan will provide a high level of confidence that any indirect impacts (e.g. sedimentation, deterioration of water quality) will be managed during the construction phase of the project.</p>	
<p>5, 11, 21, 29, 50, 68, 87, 99, 237, 346, 349, 350, 358, 370, 381, 385, 390, 391, 398, 400, 401, 402, 405, 415, 432, 437, 442, 446, 456, 461, 475, 484, 487, 490, 503, 504, 509, 513, 519, 521, 522, 528, 531, 532, 534, 543, 552, 562, 564, 566 577, 588, 595, 619, 623, 637</p>	<p>Impacts to the Strzelecki Koala (particularly effects of habitat loss, and indirect effects such as hazards posed by increased road traffic, noise pollution, and vibration). Many expressed concerns that further habitat removal would exacerbate the habitat loss incurred through the 2009 Black Saturday bushfires and Delburn Complex fires in the region.</p>	<p>Impacts to Koala are not expected, as the area of native vegetation proposed to be removed is primarily restricted to the existing tracks or cleared areas (i.e. pine plantations) and does not intersect any larger forest patches) where a higher density of Koala is expected. It is understood that the National Koala Conservation and Management Strategy 2009 – 2014 (DEWHA 2009b) will be referred to during the final planning stages of the proposed wind farm. Furthermore, it is understood that removal of native vegetation within the study area will be conducted by HVP contractors and therefore HVP’s Koala Protocols will apply. Measures will be implemented to avoid direct impacts to individual Koalas that may be residing within the project area prior to vegetation disturbance. It is also important note that during construction vehicle and machinery movement across the site will be predominantly restricted the day and not at night when Koalas are more likely to moving through the landscape. Despite the anticipated increase in traffic across the project area this is unlikely to impact Koala through increase road mortality, disturbances associated with noise and vibration, or impacts associated with the operation of turbines.</p>	<p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 3.1.4)</p>
<p>44, 66, 105, 398, 411, 530, 441, 443, 454, 556, 586, 588, 631, 713</p>	<p>Potential effects of noise pollution, infrasound, vibration and flicker on local fauna.</p> <p>Possible effects of noise pollution on animals which rely on hearing when hunting (e.g. owls).</p>	<p>Fauna are expected to habituate to disturbances within the landscape (Helldin <i>et al.</i> 2012). Adjusting to the noise of wind turbines is similar to the adaptation required to reside in proximity to highway traffic, machinery, etc.</p> <p>Empirical studies have not demonstrated adverse effects of flicker on diurnal animals. The study area does not provide important or limiting habitat for any fauna species of conservation significance, and the proposed development is not expected to significantly impact any fauna species. The project will not result in local fauna extinctions associated with the construction and operation of the project, including impacts associated with noise and vibration.</p>	

Submission No.	Ecological Issue	Response	Relevant Report and Section
44, 71, 76, 283, 331, 351, 382, 443, 454, 487, 492, 516, 528, 535, 588	Greater roadkill of native fauna due to increased traffic associated with the construction and operation of the wind energy facility	There is a potential short-term risk (albeit very low) of increased road mortality of native fauna during the construction phase of the operation. However, the anticipated increase in road traffic is not expected to be substantially greater than baseline levels. Mitigation measures will also be implemented to reduce the risk to native wildlife, including restricting work to daylight hours (relevant for nocturnal fauna). This will reduce the risk of collision with crepuscular and nocturnal animals (e.g. wallabies, wombats, possums) during periods of peak activity. These will be detailed in the Construction Environmental Management Plan which will be prepared prior to construction.	Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 6.3, Section 7.2)
6, 7, 11, 17, 18, 34, 46, 67, 68, 77, 78, 81, 84, 85, 87, 97, 100, 101, 105, 156, 164, 175, 231, 235, 310, 311, 328, 331, 349, 364, 376, 381, 382, 385, 386, 387, 388, 390, 398, 400, 401, 404, 406, 411, 417, 429, 435, 439, 456, 460, 461, 469, 477, 480, 482, 484, 487, 490, 504, 505, 513, 519, 521, 522, 528, 530, 531, 532, 534, 539, 545, 546, 550, 552, 556, 557, 558, 562, 564, 566, 577, 588, 590, 592, 595, 605, 614, 617, 619, 623, 631, 637	General concerns about extent of native vegetation removal and associated biodiversity loss, including both threatened and common native species (Lyrebirds, Echidnas, Lace Monitors etc.)	<p><u>Vegetation removal</u></p> <p>The State <i>Guidelines for the removal, destruction or lopping of native vegetation</i> (DELWP 2017) were followed in all assessments of native vegetation within the study area.</p> <p>There have been several changes to the layout of the proposed development in response to a number of technical assessments, including the identification and mapping of native habitat and significant species habitat. The changes have been undertaken to avoid significant species (e.g. Strzelecki Gum, Growling Grass Frog), and to minimise the extent of native vegetation (including remnant trees) which will be impacted by the development.</p> <p><u>Hollow-bearing trees</u></p> <p>It is well known that hollow-bearing trees are critically important for the persistence of a diversity of fauna species (i.e. used for breeding, sheltering, and foraging). Given that it takes many years (often >80-100 years) for trees to form hollows, there is considerable timeframe to replace hollows across the landscape, and therefore retention of hollow-bearing trees is a priority. There are an estimated 27 hollow-bearing trees (either supporting hollows of varying sizes and/or containing fissures) that are proposed to be impacted. Large mature trees with hollows will be avoided as much as possible as part of the additional micro-siting measures that will be implemented prior to and during construction. Salvage and relocation of fauna will also be undertaken as part of the Construction Environmental Management Plan prepared for the project.</p>	<p><u>Vegetation removal</u></p> <p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 2.4, Section 3, Section 4.1)</p> <p>Biodiversity Assessment: Terminal stations options for the proposed Delburn Wind Farm (Section 2.3, Section 3, Section 5.1)</p> <p><u>Hollow-bearing trees</u></p> <p>Biodiversity Assessment for the Proposed Delburn Wind Farm (Section 3.1.2, Section 6.4, Section 7.2)</p>

9 REQUIRED INFORMATION

Name and Address

This report has been prepared by Aaron Organ, Director of Ecology and Heritage Partners, 292 Mt Alexander Road, Ascot Vale, Ph: (03) 9377 0100, aorgan@ehpartners.com.au

Area of Expertise

Aaron Organ is an expert ecologist, with skills in all the major ecological environments of south-eastern Australia. He has expertise in the workings of ecological systems, both under natural conditions and when affected by unnatural disturbance regimes such as weed invasion and impacts of development projects. He has also considerable experience in the application and practical implementation of current Commonwealth and State environmental legislation and Government Policy.

Expertise to make the Report

Aaron Organ has considerable knowledge of the native flora and fauna in south eastern Australia, including in areas throughout central Victoria. Relevant experience includes:

- Completed over 500 flora and fauna investigations/assessments.
- Aaron has also prepared over 200 ecological assessment reports for residential development throughout Victoria.

A selection of past VCAT and Panel appearances include:

- 2021: Proposed three lot residential subdivision at 26 Warringah Crescent, Eltham (VCAT)
- 2021: Proposed Golf Driving Range development at 112 Sandy Point Road, Balnarring (VCAT)
- 2021: Proposed Fingerboard Sand Mine (Environment Effects Statement) (Inquiry and Advisory Committee)
- 2021: Proposed Aged Care Facility and Retirement Village in association with a Place of Worship: 60-70 Kunyung Road, Mt Eliza, Victoria (VCAT)
- 2021: Proposed Grantville Quarry Extension, Bass Highway, Grantville, Victoria (Panel)
- 2020: Proposed Addition of Nine Dwellings to the Existing Development at 114 Hanna Street, Noble Park, Victoria (VCAT)
- 2019: Proposed Emergency Fire Station at 109-115A Yan Yean Road, Plenty, Victoria (VCAT)
- 2019: Proposed telecommunication tower at 20 Settlement Road, Wesburn (VCAT)
- 2019: Proposed residential development at 22 Wood Street, Preston (VCAT)
- 2019: Proposed Inverleigh Wind and Solar Farm (Panel)
- 2018: Proposed residential development at 11 Tarella Drive, Chelsea (Panel)
- 2017: Proposed retirement development at 527 Stoney Point Road and 182 Wooleys Road, Bittern (VCAT)

- 2015: Amendment C187 to the Whittlesea Planning Scheme. Wollert Precinct Structure Plan (PSP 1070) (Panel)
- 2015: Yaringa Boat Harbour Expansion, Yaringa, Victoria – (Panel)
- 2015: Proposed residential development at 134-166 Aspinall Street, Golden Square, Victoria – (VCAT)
- 2015: Amended Permit Associated with the use and development of the land for a Place of Worship – 171 – 197 Harkness Road, Melton West, Victoria – (VCAT)
- 2014: Proposed Development Plan Overlay and Planning Permit Applications for a Proposed Residential Development at 370A Riddell Road, Sunbury, Victoria – (VCAT).
- 2014: Proposed Kilmore – Wallan Bypass. VicRoads (Panel)
- 2014: Proposed residential development at 107 Gipps Street, Port Fairy (VCAT)
- 2014: NBN Fixed Wireless Telecommunications Facility at 49D Eddy Avenue, Mt Helen, Victoria – Clayton Utz Lawyers (VCAT)
- 2014: Proposed residential development at 10 Fullarton Drive, Paynesville, Victoria – Hall & Wilcox Pty Ltd (VCAT)
- 2013: Statement of Expert Evidence: 1 Hobbs Road Wyndham Vale, Victoria. Amendment C171 - Ballan Road Precinct Structure Plan (PSP 40)
- 2013: Statement of Expert Evidence: Review of time stamped data for Amendment C172 - Ballan Road, Wyndham Vale (PSP 92)
- 2013: Statement of Expert Evidence: 305-315 Craigieburn Road East, Wollert, Victoria. Wollert Developments Pty Ltd. (VCAT)
- 2013: Proposed Planning Scheme Amendment C164 - 275 Racecourse Road, Sunbury – Hume City Council (Panel)
- 2013: Western Highway Duplication - Section 3, Ararat to Stawell, Victoria – DLA Phillip Piper (Panel).
- 2013: Cherry Tree Wind Farm – Maddocks Lawyers (VCAT)
- 2012: Western Highway Duplication - Section 2, Beaufort to Ararat, Victoria – DLA Phillip Piper (Panel).
- 2012: Proposed Peninsula Link Freeway Service Centres, 83 Sages Road Baxter, Victoria – Rigby Cook Lawyers Pty Ltd (VCAT)
- 2011: Western Highway Duplication - Section 1, Burrumbeet to Beaufort, Victoria – DLA Phillip Fox (Panel)
- 2011: Old Warrandyte Road, flora and fauna review and Panel hearing, Donvale – Norton Rose Australia Pty Ltd. (Panel)
- 2010: Marquands Road and Leakes Road (Lot 9), Truganina, Truganina South Precinct Structure Plan – Stockland (Panel)
- 2010: Proposed Eastern Golf Course relocation to 'Windsor Park', 215–217 Victoria Road, Yering, Victoria – for Best Hooper (VCAT)
- 2010: Truganina South Community Precinct Structure Plan – for Central Equity and Stockland Limited (Panel)

- 2010: Craigieburn R2 Precinct Structure Plan – for Peet Limited (Panel)
- 2010: Proposed Mortlake Wind Farm – for Accionia Oceania Limited (Panel)
- 2009: Grenda Vehicle Storage Depot, Springvale Road, Keysborough - for Urbis Pty. Ltd. (VCAT)
- 2009: 1280 Boneo Road, Cape Schanck, development a proposed barn – for Hansen Planning Services (VCAT)
- 2008: Proposed Donald Mineral Sands Project. Donald Mineral Sands (Panel)
- 2009: Melton Planning Scheme Amendment C65 – 489-555 Robinsons Road South Precinct (Marksx Property), Truganina (Panel)
- 2008: Amendment C88 to the Bass Coast Shire Planning Scheme - Silverleaves, Phillip Island (Panel)
- 2008: Proposed residential subdivision at 30-80 Seymour Road, Viewbank – for local landowner (VCAT)
- 2008: Proposed medium density development located on the corner of 1587-1589 Point Nepean Road and 1-1A Chatfield Avenue, Rosebud – for Fulcrum Town Planning Pty. Ltd. (VCAT)
- 2008: Residential development at 2 Rowe Street, Alphington – for Rob Wignall Architects (VCAT)
- 2008: Officer Service Centres, Officer – for Clayton UTZ Pty. Ltd. (VCAT)
- 2007: Anglesea Golf Club proposed Amendment C32 – for TGM Group Pty. Ltd. (Panel)
- 2007: Medium density housing at 2 Ramptons Road, Eltham – for Nillimbik Shire Council (VCAT)
- 2007: Medium density unit development in Frankston (adjacent to Kananook Creek) – for Gary Testro Lawyer (VCAT)
- 2007: Single dwelling development at 683 Great Ocean Road, Eastern Views, Victoria – for SJB Planning Pty. Ltd (VCAT)
- 2006: Constructio02n of a dwelling at 8 Charlotte Court, Warrandyte - for Glossop Town Planning Pty. Ltd. (VCAT)
- 2005: Dollar Wind Farm, Gippsland – for Freehills Lawyers (Panel)

Author's Declaration

I, Aaron Organ, have made all the inquiries that I believe are desirable and appropriate and that no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.



----- Date: 4/10/2021

REFERENCES

- AusWEA. 2005. Wind Farms and Birds: Interim Standards for Risk Assessment. Australian Wind Energy Association Report. Prepared for the Australian Wind Energy Association by Brett Lane & Associates Pty Ltd. In association with Aria Professional Services Pty Ltd. Report no. 2003.35(2.2).
- BirdLife 2017. BirdLife Australia's Bittern Survey Guide Guidelines for surveying Australasian and Australian Little Bitterns. [www Document]. URL: <http://birdlife.org.au/documents/AB-Bitternsurveyguide.pdf>
- DAWE 2020. Protected Matters Search Tool: Interactive Map [WWW Document]. URL <http://www.environment.gov.au/epbc/pmst/>. Federal Department of the Environment, Canberra.
- DELWP 2017. Guidelines for the removal, destruction or lopping of native vegetation (Guidelines). Victorian Department of Environment and Primary Industries
- DELWP 2018. Victorian Biodiversity Atlas. Sourced from GIS layers: "VBA_FLORA25", "VBA_FLORA100", "VBA_FAUNA25", "VBA_FAUNA100". Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.
- DELWP 2021a. Native Vegetation Information Management Tool [www Document]. URL: <<http://nvim.depi.vic.gov.au/>>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.
- DELWP 2020b. NatureKit [www Document]. URL: <<http://maps.biodiversity.vic.gov.au/viewer/?viewer=NatureKit>>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.
- DELWP 2020c. Ecological Vegetation Class (EVC) Benchmarks for each Bioregion [www Document]. URL: <<https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks>>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.
- DELWP 2021d. Planning Maps Online [www Document]. URL: <<http://services.land.vic.gov.au/maps/pmo.jsp>>. Victorian Department of Environment, Land, Water and Planning, Melbourne, Victoria.
- DEWHA 2009. Significant survey guidelines for the vulnerable Growling Grass Frog (*Litoria raniformis*). Nationally threatened species and ecological communities EPBC Act policy statement 3.14. Department of Environment, Water, Heritage and the Arts. Commonwealth of Australia, Canberra, ACT.
- DEWHA 2010a. Survey Guidelines for Australia's Threatened Birds. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT.
- DEWHA 2010b. Survey Guidelines for Australia's Threatened Frogs. Department of the Environment, Water, Heritage and the Arts, Canberra, ACT.
- DoE 2013. Significant Impact Guidelines 1.1. Matters of National Environmental Significance. Federal Department of the Environment, Canberra.
- DSE 2004. Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method. Version 1.3. Victorian Department of Sustainability and Environment.

- Ecology and Heritage Partners Pty Ltd 2019. Existing Conditions for the proposed Delburn Wind Farm, Gippsland, Victoria. Unpublished report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria. October 2019.
- Ecology and Heritage Partners Pty Ltd 2020a. Biodiversity Assessment for the proposed Delburn Wind Farm, Gippsland, Victoria. Unpublished report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria. January 2020.
- Ecology and Heritage Partners Pty Ltd 2020b. Matters of National Environmental Significance for the proposed Delburn Wind Farm, Gippsland, Victoria. Unpublished report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria.
- Ecology and Heritage Partners Pty Ltd 2020c. Environment Report for the proposed Delburn Wind Farm, Gippsland, Victoria. Unpublished report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria.
- Ecology and Heritage Partners 2020d. Flora and Fauna Management Plan (draft) for Delburn Wind Farm, Gippsland, Victoria. Unpublished draft report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria.
- Ecology and Heritage Partners Pty Ltd 2021. Biodiversity Assessment: Terminal stations options for the proposed Delburn Wind Farm. Unpublished report for Delburn Wind Farm Pty Ltd by Ecology and Heritage Partners, Melbourne, Victoria. February 2021.
- Helldin J. O., Jung, J., Neumann, W., Olsson, M., Skarin, A., Widemo, F. 2012. The impacts of wind power on terrestrial mammals. Swedish Environmental Protection Agency, Report 6510.
- SEWPaC 2011. Survey Guidelines for Australia's Threatened Mammals. Commonwealth Department of Environment, Water, Population and Communities, Canberra, ACT.
- Viridans 2013a. Flora Information System. Viridans Biological Databases.
- Viridans 2013b. Victorian Fauna Database. Viridans Biological Databases.