

Expert Witness Statement of Brett Alexander Lane
(Expert retained by Union Fenosa Australia Wind Pty Ltd)

1 Name and address

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2 Area of expertise

- (a) My area of expertise is Ecology; I hold a degree in Zoology and Physical Geography.
- (b) I am an ecologist with over 31 years' experience in ecological research and management, and in development impact assessment.
- (c) My qualifications and experience are detailed in Annexure A.
- (d) I am sufficiently expert to make this statement because:
 - 1) I have appropriate qualifications and experience;
 - 2) I have particular expertise in flora and fauna; and
 - 3) I have assessed the impacts on flora and fauna of over 80 wind farm projects in all states in Australia.

Note that a team from BL&A undertook the work on this project. Details of their qualifications and experience are provided in Annexure X.

3 Scope

3.1 Instructions

My company has been commissioned by Union Fenosa Australia Wind Pty Ltd to undertake the work described below for the proposed Berrybank Wind Farm.

Stage 1 - 2007

- A preliminary flora and fauna assessment was undertaken, including a review of existing DSE flora and fauna databases and of the EPBC Act Protected Matters Search Tool, as well as an inspection of the site;
- Significant flora and fauna issues associated with the development of this project were identified at this stage;
- The implications for the project were identified arising from:

- The federal *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act);
 - The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act);
 - The Victorian Environment Effects Act 1978; and
 - The Victorian Native Vegetation Management Framework and any other relevant planning provisions;
- To undertake a targeted survey of the Brolga and its habitat in a region within 20 km of the proposed wind farm, to ascertain whether the proposal is likely to affect the species.

Stage 2 – 2008 - 2009

- Spring threatened flora surveys and native vegetation mapping was undertaken in 2008;
- A flocking season survey of the region was undertaken for the Brolga;
- Further detailed breeding season surveys of the Brolga; and
- An autumn bat survey was undertaken (2009).

The reports that detail the results and conclusions from this work were exhibited with the planning permit application and I adopt them as the basis for my expert witness statement and evidence, together with the additional report on Brolga breeding in 2009 (BL&A 2010) indicated below.

3.2 Process and methodology

In this project, my company:

- a) Undertook native vegetation mapping of the wind farm site in early 2007 (preliminary) and mid- October 2008 (detailed).
- b) Undertook a targeted survey of the EPBC Act listed flora species: Trailing Hop-bush, Spiny Rice-flower, Adamson's Blown-grass, Button Wrinklewort, Clover Glycine, Curly Sedge, Fragrant Leek Orchid, Hairy Tails, Large-fruit Fireweed, Maroon Leek-orchid, Small Milkwort, Swamp Fireweed and White Sunray. This survey occurred on areas of native vegetation proposed to be impacted on by the development footprint. Surveys were conducted on 20th August and 12th October 2009.
- c) Undertook a targeted survey of the EPBC Act listed community Natural Temperate Grassland of the Victorian Volcanic Plain and habitat hectare assessment in areas of roadside native vegetation proposed to be impacted on by the development footprint. Surveys were conducted on 20th August and 12th October 2009. As very little native vegetation occurs away from roadsides on the wind farm site (see Figure 1 in BL&A 2009) and none of these areas will be affected, no further habitat scoring of native vegetation was warranted.
- d) Undertook a fauna field survey of the wind farm site on 11th and 14th September 2007.
- e) Undertook a targeted survey of Brolgas between 2007 and 2008. The first survey between 1st and 3rd of October 2007 was undertaken to search for breeding Brolga's within 20 kilometres of the wind farm site. The flocking season survey was carried out from 11th to 13th February 2008 within the same region. A further

breeding season survey was undertaken during the period 17th to 21st November 2008.

- f) In response to the issue raised by DSE in relation to the Striped Legless Lizard, a further site assessment was undertaken on 4th February 2010 to identify the location and extent of areas that qualify as 'recently uncultivated' or rocky on the site. This involved checking all parts of the site for the presence of this potential habitat and assessing its quality and suitability for the Striped Legless Lizard.

Details of the methods used for most of these investigations and their findings are provided in the report BL&A (2009) 'Proposed Berrybank Wind Farm – flora, fauna and targeted Brolga Assessment.' Consultants Report to Union Fenosa Australia Wind Pty Ltd, Report No. 7152 (7.3), which was annexed to the planning permit application submitted to Golden Plains Shire.

Information on native vegetation being affected by off-site works on roadsides is also provided in BL&A (2009), 'Proposed Berrybank Wind Farm – flora, fauna and targeted Brolga Assessment.' Consultants Report to Union Fenosa Australia Wind Pty Ltd, Report No. 7152 (7.3).

These assessments were undertaken based on information about the proposed wind farm provided by Union Fenosa Australia Wind Pty Ltd, being for 100 wind turbines standing up to 131m at top of blade tip, with supporting infrastructure at Berrybank in south-west Victoria.

It is noteworthy that the site surveyed in 2007 incorporated properties to the west that include the Chain of Ponds wetlands and the findings of the fauna assessment at the time reflected potential for the nationally threatened Growling Grass Frog to occur in this wetland. Subsequent changes to the wind farm boundary have meant that this wetland is no longer included in the proposed development area.

3.3 Reports reviewed

The reports I considered or took into account as part of the investigations of flora and fauna on the site are listed in the reference lists of the above reports. Key sources included references on the ecology and behaviour of the Brolga, as well as local and international sources on the impacts of wind farms on birds.

3.4 Limitations and exclusions

No significant limitations were encountered during the flora and fauna field assessments, or during the targeted flora and fauna assessments. Nevertheless, botanical and fauna field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species and short survey duration. Rare or cryptic species are often missed in short surveys. To overcome these limitations, targeted surveys were undertaken at seasonally appropriate times using standard field survey methods in an attempt to detect species potentially occurring in the area based on the review of existing information.

As the primary purpose of the investigation was to identify the extent and quality of native vegetation and fauna habitats and populations of significance in the study area, the review of existing information, combined with the extensive field investigations over more than two years were sufficient to inform a detailed flora and fauna impact assessment.

4.1 Summary of opinions

A summary of my findings is presented below.

The assessment involved a review of existing flora and fauna literature and databases, and field surveys involving habitat and vegetation mapping, as well as detailed targeted surveys of key species and groups. The investigations aimed to identify any significant flora and fauna habitats and populations that may be affected by the development of the proposed wind farm at Berrybank.

Native Vegetation

The study area is almost entirely cleared of native vegetation and the land use is agricultural, including cropping and grazing. As a result the likelihood of threatened flora or fauna species occurring in the study area is considered to be low. Primary production on the site includes sheep, cattle, wheat and canola. Remnant native vegetation and habitats are confined exclusively to road reserves, or to very limited areas that have not been disturbed by agricultural production, usually adjacent to road reserves.

This remnant vegetation varies from low to high quality and was found to support two threatened species: Spiny Rice-flower and Trailing Hop-bush. A number of other threatened flora species also have the potential to occur within these road reserves areas, or along the Chain of Ponds Creek (no longer in the affected area): Adamson's Blown-grass, Button Wrinklewort, Clover Glycine, Curly Sedge, Fragrant Leek-orchid, Hairy Tails, Large-fruit Fireweed, Maroon Leek-orchid, Small Milkwort, Swamp Fireweed and White Sunray.

Most of the remnant patches of vegetation on roadsides are classed as Western (Basalt) Plains Grassland Community or Western Basalt Plains (River Red Gum) Grassy Woodland Floristic Community, both of which are listed as threatened under the state's FFG Act. The applicable Ecological Vegetation Class is Plains Grassland (EVC 132).

Since the surveys reported in BL&A (2009), assessment was undertaken (spring 2009) of road reserve vegetation affected by the project to determine if it was Natural Temperate Grassland of the Victorian Volcanic Plain, an ecological community listed as Critically Endangered under the EPBC Act. Most areas of remnant native vegetation on road sites where a small area is proposed to be removed qualified as this community. Initial assessment of where two access tracks meet Doyles Road (Foxhow – Rokewood Road), south of Hamilton Highway, indicated the presence of native grassland. Surveys in October 2009 indicated that disturbance along this road had removed grassland from the section where the access tracks are proposed and no native vegetation, including listed communities will be affected by access tracks.

Native fauna

Literature review and the site inspection found potential habitat for several listed threatened fauna species in the region and the likelihood of occurrence on the site has been assessed. These include the nationally threatened (EPBC Act listed) Striped Legless Lizard and the Golden Sun Moth, which may inhabit areas of roadside vegetation. Vegetation suitable for these species occurs on road sides.

No vegetation suitable for these species occurs in areas where development is proposed, other than where power poles may be located in the northern part of the project site.

Initial assessment of where two access tracks meet Doyles Road (Foxhow – Rokewood Road) Road, south of Hamilton Highway, indicated the presence of native grassland. Surveys in October 2009 indicated that disturbance along this road had removed grassland from the section where the access tracks are proposed and no habitat suitable for these species will be affected by access tracks.

The Growling Grass Frog, another nationally threatened species, was considered to have the potential to occur within the wind farm site. However, wetland habitats on the site are limited in extent, lack suitable fringing vegetation and are not linked to nearby areas where the species occurs. The probability that it occurs in the study area is considered to be low.

It is noteworthy that the site surveyed in 2007 incorporated properties to the west that include the Chain of Ponds wetlands and the findings of the fauna assessment at the time reflected potential for the nationally threatened Growling Grass Frog to occur in this wetland. Subsequent changes to the wind farm boundary have meant that this wetland is no longer included in the proposed development area.

Anecdotal reports suggest there are Wedge-tailed Eagle nests within the proposed wind farm site. No evidence of a Wedge-tailed Eagle nest was found during the current series of surveys, although the species was observed over the site (see later).

Targeted Brolga investigation

The Brolga was considered potentially to occur in the wider region based on the review of existing information. Historical records of the Brolga, together with the results of field investigations, indicate that there are few potential breeding habitats for the Brolga on or near the Berrybank Wind Farm, resulting in few documented records of the species on the site or in the region. One record was found in the Atlas of Victorian Wildlife: a sighting of the species.

Knowledge about the usual flight distances of the Brolga from its breeding and flocking sites generated in recent years (BL&A 20091, 2009b) indicate that Brolgas fly up to at least 3 kilometres from their breeding sites during the breeding season and up to 5 kilometres from traditional flocking sites. No such sites were found during the current investigation within three and five kilometres respectively of the Berrybank Wind Farm site.

Based on these findings, it has been concluded that the Berrybank Wind farm does not pose a significant threat to the Brolga.

Submissions on the planning application have indicated that the Brolga regularly utilises the site. This is considered later in this witness statement where a response is provided to submissions.

Bird utilisation survey

A quantitative bird utilisation survey was undertaken across the site. On the impact points, species richness was broadly similar between the seven observation points, with the number of species recorded at each point ranging between six and twelve.

The most abundant species at the impact sites were:

- Australian Magpie;
- Australasian Pipit;
- House Sparrow;
- Yellow-rumped Thornbill;
- Willy Wagtail; and
- Common Starling.

These six species, including two introduced species (House Sparrow and Common Starling), were the most abundant species and accounted for over 75 percent of the individual birds counted. These were common in most parts of the study area. The abundant species were, predictably, common farmland birds, species that are widely distributed in farmland areas across south-eastern Australia. No threatened species were found. The most abundant birds at rotor swept area were also common farmland birds. Therefore the species most at risk of collision with turbines are common farmland species, including introduced, pest species, of no conservation significance.

Bat investigation

Nine bat species were recorded during the survey from the six recording sites. The species recorded at the wind farm site were widespread, common and secure species and none were threatened or listed under any wildlife conservation legislation, nationally or in Victoria; however, the Inland Broad-nosed Bat occurs in low densities but is widespread in northern and western Victoria (Menkhorst 1995). Habitat on the proposed wind farm site is limited in extent, with most bats being recorded near Sugar Gum plantations. No indigenous habitat remains on the site of any significance for bats.

Impacts of the proposed wind farm

Potential flora and fauna issues do not represent significant constraints to the future development of the wind farm. The key issues and appropriate responses are presented and summarised below.

Finding: The site was mostly cleared of native vegetation for agriculture, although intact native vegetation occurred along roadsides. The state Native Vegetation Management Framework requires that clearing of native vegetation be avoided in the first instance, with unavoidable removal being minimised and offset with vegetation protection, enhancement and rehabilitation works nearby.

Response: Vegetation mapping in the study area shows remnant grassland was confined mostly to roadside reserves. Most crossover points for site access tracks have been located to avoid this vegetation. More recent survey work than that presented in the planning application indicates that at the two crossover points where vegetation was to be removed, it no longer exists. Appropriate offsets have been calculated for the maximum likely number of overhead power poles for the grid connector. No offset site is likely to be found within the wind farm site and a financial contribution to a third-party (off-site) offset is considered the most practical means of meeting the very limited offset target (i.e. 0.02 habitat hectares).

Finding: Threatened plant species listed under the EPBC Act or the FFG Act, or listed as rare or threatened on the DSE Advisory List, may occur in the limited areas of remnant vegetation on public roadsides outside the site.

Response: Native vegetation remnants occur on a small proportion of the area potentially proposed for wind farm infrastructure. Layout plans have been carefully assessed and planned to avoid removing native roadside vegetation wherever possible. Initial layout plans should be assessed before finalisation to ensure micro-siting takes this matter into consideration. (Note that this may occur after a planning permit is issued, given the limited extent of native vegetation).

Finding: One pair of Wedge-tailed Eagles may occur on or near the site. Utilisation rates for this species during the bird utilisation survey are considered low.

Response: Significant risks to the Wedge-tailed Eagle population are considered unlikely therefore no further investigation of eagle use of the site is warranted. Impacts on a single eagle pair from the wind farm are not considered to represent a significant impact on the regional or wider population of this widespread species.

Finding: The bird utilisation survey found that common farmland species dominate the avifauna of the site. No threatened species were found. The most abundant birds at rotor swept area were also common farmland birds.

Response: No further investigation of bird risks is warranted, other than the work that has been undertaken on the Brolga (see below).

Finding: The Brolga (listed on the FFG Act, or considered threatened on DSE's Advisory List) may occur occasionally in small numbers on the proposed wind farm site. A Level Two risk assessment for the Brolga, and in particular targeted breeding season surveys of the region within 20 km of the wind farm, were initiated. This located three Brolga pairs (none breeding) between 14 and 20 kilometres from the wind farm site. This is well beyond the distance at which direct or indirect impacts on this species would be expected from a wind farm (i.e. usually up to 3 km from breeding sites and up to 5 km from a traditional flocking site).

Response: Regular usage of the wind farm site and its surrounds by Brolgas is considered unlikely and impacts on this species are unlikely to be of concern. No Level Three (*sensu* AusWEA 2005) risk assessment is therefore warranted.

Finding: Nine species of bats were recorded utilising the wind farm site. Species were common, secure, and none was listed as threatened either nationally or at the state level. Some bat species recorded relatively high activity levels, particularly at sites where large Sugar Gum plantations were present and may have been used as roosting sites. Elsewhere, no habitats likely regularly to support significant numbers of bats occur on the site.

Response: No significant impacts on threatened bat species are anticipated so no further investigations are warranted.

4.2 EPBC Act Referral

A referral of the proposed Berrybank Wind Farm under the EPBC Act was lodged in January 2009, however a request was made by the federal Department of Environment, Water, Heritage and The Arts (DEWHA) to provide further information on flora and fauna listed under the *Environment Protection and Biodiversity Conservation Act 1999*. This request relates to the potential impacts on matters of

national environmental significance arising from the project and environmental management commitments to avoid significant impacts on these matters.

Subsequent to a response to this request, the Commonwealth Minister for the Environment decided that the project was not a controlled action and that an assessment and decision on the project under the EPBC Act was not required. This indicates that the project will not have a significant impact on any matters of national environmental significance.

4.3 Environment Effects Act 1978

The Minister for Planning decided on 9th January 2008 that an Environment Effects Statement (EES) *is not* required for the proposed Berrybank Wind Farm (Referral Number 2007R00022).

5 Response to key submissions

Issues raised in public submission have been summarised by the project legal team and a short list of flora and fauna issues raised by submitters has been provided. A response to these issues is provided below.

Sufficiency of flora studies and response to submissions on native vegetation and roadside impacts

It is considered that the studies on which my previous reports and this expert witness statement are based, were at a sufficient level of detail to indicate accurately the quality, quantity and location of native vegetation and likely threatened flora populations within and near the wind farm development footprint.

The entire site was initially inspected by vehicle and on foot in spring 2007 and it was found to be dominated by cropping and introduced pasture. Areas of identified native vegetation were generally confined to roadsides. The small number of vegetated areas away from roadsides will not be impacted by the project. Areas of roadside native vegetation potentially affected by the project were later assessed in detail in spring 2008 for the presence of threatened species and for their quality.

The current proposal involves 17 track – road crossovers to provide access from public roads onto the wind farm site. These have been carefully chosen based on vegetation mapping of roadsides within the study area. Two (12%) of these crossovers were thought to involve the unavoidable removal of native vegetation but more recent inspection indicates that the relevant roadside has been disturbed and no vegetation is proposed to be removed for crossovers. The choice of crossover locations was made by invoking the ‘avoid’ and ‘minimise’ principles of the state Native Vegetation Management Framework.

Four access points from public roads require (AECOM 2009, p. 20) and three roads require partial widening to provide access to the site (AECOM 2009, p. 14). The four access points lie outside areas of mapped native vegetation. A section of the Berrybank – Wallinduc Road supports native grassland but this lies to the north of the section of road proposed to be widened for heavy vehicle access. The section of the Foxhow – Berrybank Road proposed for widening does not support native vegetation. The recent inspection of Doyles Road (Foxhow – Rokewood Road) south of Hamilton Highway indicates that native vegetation previously mapped there is no

longer present between the Hamilton Highway and the southernmost planned site access point.

As no works or impacts are proposed for the railway reserve that runs through the southern part of the proposed wind farm site, no surveys of this area are warranted.

The only other native vegetation to be removed as a consequence of the project is for up to 15 power pole sites along roadsides that support native vegetation. This removal generates a minor net gain offset requirement (0.02 habitat hectares). No threatened flora species were found in these sections of roadside. Notwithstanding this, the construction environmental management plan for the project should include a pre-construction search of power pole sites in spring, with micro-siting of sites to avoid impacts on any threatened flora species.

Based on these conclusions, no significant impacts on native vegetation or threatened flora species are likely to occur. Separate Native vegetation management plan is not required for this project provided that the foregoing measure is explicitly required to be included in the construction environmental management plan.

Response to submission that a vegetation assessment is required along the railway line

Remnant native vegetation has been recorded along the railway line. As this area is not to be impacted on by the development footprint there is no need to assess it. The only areas of native vegetation that needed to be assessed in detail were areas proposed to be impacted by the development proposal.

Response to submission that all EVC's mapped in the study area are a critically endangered community under the EPBC Act

The two critically endangered communities believed to occur in the study area are Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) and Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP).

Not all grassland or grassy woodland related EVC's qualify as these EPBC Act listed communities as some do not meet the criteria for the higher level of indigenous plant cover that defines these listed communities. A small amount of NTGVVP was recorded in the north of the study area, along Robert's Road in habitat zone 9.

Response to submissions that raised concerns about visual screening planning interfering with roadside vegetation

It is understood that screening planting will be installed within the wind farm sites, where required, not in roadsides. Therefore, impacts on roadside grassland from such plantings will not occur.

Response to submission that raised the issue of cumulative impacts on habitats

No significant habitats will be affected by the project, apart from a limited area of native vegetation on roadsides associated with the construction of power pole sites. This represents less than 0.001% of the 159.39 hectares of mapped native vegetation on roadsides. This removal will need to be offset, consistent with the requirements of the state Native Vegetation Management Framework which requires a 'net gain' in the area and quality of native vegetation. Because of this, the net cumulative impact of habitat removal will be positive, as it is for all projects that require a planning permit for native vegetation removal in Victoria.

Response to submission that high threat weed infestations occurring in the study area should be considered

A weed management protocol should be developed for the construction and operational environmental management plans for the project. This will ensure that high threat weed infestations will not increase as a consequence of the project. These measures may include vehicle and machinery wash down areas, prohibited zones, and/or weed control techniques like spraying, hand weeding or burning, backed up by regular monitoring of infestations to inform control strategies.

Response to submission that planted natives constitute native vegetation if public funding was provided

It is stated in Clause 52.17 that planted native plants constitute native vegetation if public funding is provided for planting or managing the vegetation. However direction from DSE indicates that this is only the case if the planting has occurred for ecological reasons and involves species characteristic of the particular EVC involved. No such vegetation will be affected by the project.

Response to submission that proposed screen planting should occur outside of any native vegetation

It is imperative that no screening planting occurs in or near any native grassland on roadsides as it will cause a significant reduction in the quality of that native vegetation. It is understood that screening planting is proposed only on private land where there is no remnant native vegetation. Therefore, no significant impacts on remnant native vegetation are anticipated from these plantings.

Response to submission that business identification signage should occur outside of any patch of native vegetation

Any sign required to be constructed for the proposed wind farm should not be placed in or near any native grassland on roadsides. This will avoid any removal of native vegetation that has not been accounted for in the current report.

Response to submission that targeted Striped Legless Lizard (SLL) surveys are required

The submission made by the Department of Sustainability and Environment (DSE) on 7th December 2009 mentions that there are recent (2005 – 2009) records of SLL at two sites within the study area. The report concludes that there is a high probability that SLL occurs throughout the wind farm. Specifically DSE believe that this fauna species occurs across all native vegetation patches that we mapped except 3, 7 and 10, and potentially in recently uncultivated paddocks and uncultivated rocky areas in the wind farm site. They have requested targeted surveys and adjustment of the layout in response to the findings of these surveys.

The probability of the lizard occurring in the wind farm where there is no remnant native vegetation is considered to be low as the full complement of habitat components, such as dense tussock grass cover (Webster, Fallu and Preece, 2003, Flora and Fauna Guarantee Action Statement No. 17) is not present in these areas due to the long history of intensive agricultural use of the site. Most of the site has been cultivated and sown to pasture or crops in the past, removing the species from the wind farm site.

The extent of rocky terrain is very limited, being confined to two small, isolated patches in the north-west part of the site. Sparsely grassed grazing paddocks in the

northern part of the wind farm site are the only areas that may be 'recently uncultivated'. Here, a number of paddocks were found that support wallaby grasses recolonising cultivated land. These are considered to be poor quality habitat for the Striped Legless Lizard as they lack sufficient surface cover to provide shelter. Further details of the location of these areas will be provided at the Panel Hearing. Targeted surveys for this species are not warranted as the habitat is not considered to be suitable for this species.

Of the total 159.39 hectares of native vegetation recorded in the study area (mostly on roadsides), the current proposal involves the removal of less than 0.001% for power pole construction. This impact is not considered to be a significant impact on the regional SLL population or SLL habitat. Notwithstanding this, a salvage protocol should be considered during construction of power poles where this occurs in roadside vegetation suitable for the SLL to reduce the consequences of this impact.

Response to submission that targeted Growling Grass Frog (GGF) surveys are required if any potential habitat is being impacted on by the proposed Berrybank Wind Farm

This submission made by the DSE indicates that recent records of GGF occur in the Gnarkeet Chain of Ponds, and that targeted surveys for this species would be required if the any potential habitat was to be impacted on by the proposal.

The initial study area for the proposal included Gnarkeet Chain of Ponds. However the proponent has changed the boundary of the wind farm to avoid this waterway ecosystem completely. Therefore no targeted survey for the GFF is required.

Response to submission that targeted Fat-tailed Dunnart (FTD) surveys are required if any Plains Grassland is being impacted on by the proposed Berrybank Wind Farm

This submission made by the DSE on 7th December 2009 indicates that because the FTD prefers native grassland habitat, targeted surveys will be required should the proposal impact on any Plains Grassland.

The current proposal involves the removal of a very limited area of Plains Grassland for power poles.

Of the total 159.39 hectares of native vegetation recorded in the study area, the current proposal involves the removal of less than 0.001% for power pole construction. This impact is not considered to have significant impacts on the regional FTD population and / or FTD habitat. Notwithstanding this, a salvage protocol should be considered during construction of power poles where this occurs in roadside vegetation suitable for the FTD to reduce the consequences of this impact. Provided this is done, targeted surveys are not considered necessary.

Response to submission that targeted Golden Sun Moth (GSM) surveys are required if any Plains Grassland is being impacted on by the proposed Berrybank Wind Farm

This submission made by the DSE indicates that because the GSM prefers native grassland habitat, targeted surveys will be required should the proposal impact on any Plains Grassland. The current proposal involves the removal of a very limited area of Plains Grassland, therefore according to the submission made by the DSE targeted surveys are required.

Of the total 159.39 hectares of native vegetation recorded in the study area, less than 0.001% will be removed for power pole construction. This impact is not considered to represent a significant impact on any regional GSM population and /

or GSM habitat. A targeted survey of this species is not considered necessary given the scale of the proposed impact.

Response to submission that targeted Brolga assessments should be reviewed as they are insufficient

The studies on which the report and this expert witness statement are based were carried out in accordance with the methods of the Australian Wind Energy Association (AusWEA 2005). The results presented in our report are an accurate indication of likely future Brolga usage of the site and its surrounds and they are corroborated by the distribution of records in the Atlas of Victorian Wildlife, as well as the distribution of wetland habitat and its quality in the wider region. The proposed wind farm lies in a comparatively elevated setting with noticeably fewer wetlands than lower elevation settings in south western Victoria. The level of Brolga usage of the site is therefore low, as corroborated by low numbers of historical records from the site and its surrounds. Based on this, the risks to the Brolga from this project will not be of consequence.

Response to submission that the targeted Brolga assessment did not adequately address all Brolga records in the area

This submission made by the DSE mentions a 1980 record from a site 1km east of the current study area was missed in our investigation. The report documents that 15 birds were recorded in this nearby area. This record is not in the Atlas of Victorian Wildlife.

The record of 15 birds from 1980 most likely represents an incidental flocking record. Habitat at this site comprises agricultural land, not wetland, indicating that the site would not represent a traditional flocking site. The lack of repeated records over time at this site supports this conclusion. Incidental flocking records involve groups of birds moving about between their traditional flocking sites. Our experience in analysing such records elsewhere in south western Victoria indicates that this kind of record is possible anywhere within the species' range and that incidental flocking records represent a very small proportion of Brolga flocking season records and are not a frequent occurrence. This additional record therefore does not change the original assessment of the significance of the impact of the proposed wind farm on the Brolga.

Also highlighted in this submission was a Brolga nesting record known to the department near the intersection of Hamilton Highway and Doyles Road (Foxhow-Rokewood Road), within the proposed wind farm.

It is possible that a pair of Brolgas may occasionally breed in the limited number of wetlands on or near the proposed wind farm. All available evidence indicates that the site and its surrounding region do not support significant Brolga breeding activity. The additional information cannot be construed to support a contention that the species consistently and regularly uses the wind farm site in numbers that would place the state population at potential risk from the proposed wind farm.

Response to submission that further fauna studies are required, specifically of the Yellow Tailed Black Cockatoo and Wedge Tailed Eagle

The studies on which the previous report and this expert witness statement are based were carried out in accordance with the methods of the Australian Wind Energy Association (AusWEA 2005). It is considered that results presented in our

reports provide an accurate indication of bird usage of the site and of the likely risks the project presents to birds.

In addition to the observations during formalised, fixed-point counts, incidental observations of waterbirds and raptors, including the Wedge-tailed Eagle, were also made while moving about the study area. Emphasis was placed on observing birds that were moving about the site at RSA height.

The Wedge-tailed Eagle was seen on two occasions during formal counts and five times incidentally outside the counts. This species is a bird of concern as it is prone to colliding with wind turbines. It was seen on one occasion at RSA height in the study area during the five-day survey. This indicates that the eagle may occasionally fly over the wind farm site, but the utilisation rate at the site is low compared with the utilisation rate at a number of other wind farm sites in Victoria. The wind farm site is believed to be within the foraging territory of one pair of eagles. This information indicates that the risk of the project to the regional or state population of this species is low.

The Yellow-tailed Black Cockatoo would occasionally pass through the area. Experience with this and other black-cockatoos at wind farm sites indicates that they generally avoid areas within 500 metres of wind turbines (BL&A observations). The site lacks extensive areas of suitable foraging habitat for this common species, such as forest or pine plantations, and it is unlikely that limiting access to the small area of pine wind breaks on the site would result in a significant population impact.

Response to submission that an EMP is required to control possible offsite impacts caused by the proposed terminal station

It is usual for wind farms to have prepared an environmental management plan that ensures that impacts on flora and fauna are minimised and monitored. In addition, these plans usually include a procedure for developing contingency impact mitigation measures if unanticipated impacts arise either on site or off site.

Response to submission that migratory birds travelling to and from nearby Ramsar wetlands will be impacted by the proposed wind farm

Given the paucity of wetlands within the wind farm footprint, there are unlikely to be significant numbers of water birds from the Western District Lakes Ramsar site using the area. The bird utilisation survey of the site confirmed the lack of regular waterbird usage of the site and, combined with the limited low quality habitat available, significant waterbird impacts are not anticipated.

The lack of habitat, combined with the significant distance between the proposed wind farm and the Ramsar wetlands make it unlikely that migratory shorebirds that use the Ramsar wetland would utilise the proposed wind farm site.

The shorebird species may overfly the site once or twice per year during their migration to the Ramsar wetlands, but shorebird migratory flights are known to be at a height much greater than wind turbines, so interactions are unlikely.

Response to submission that a contingency plan should be developed for any excavated trenches or pits to ensure the safety of fauna species

Measures to ensure the inspection of excavated trenches for trapped ground fauna before they are filled can be incorporated into the Environmental Management Plan for the proposed Berrybank Wind Farm..

Response to submission that recommendations made by BL&A to minimise wire-induced bird mortality should be introduced

The following recommendations, as stated in BL&A (2009), should be adopted, where possible, for the current proposal in order to minimise wire-induced bird mortality:

- Lines should be built underground if possible;
- Line visibility should be increased by adding markers, and increasing the size of wire;
- Lines should not be built over water or other areas of high bird concentration;
- Lines should be oriented parallel to prevailing wind direction.

Other than the principal power lines, the turbines in the proposed Berrybank wind farm are connected to the substation by underground powerlines, thereby significantly reducing this potential risk to birds. Careful consideration should be given to the foregoing recommendations in evaluating the options for the grid connection powerline for the project.

Response to submission that requests a program be developed to monitor and report bird strikes from wind turbine operation

It is usual for wind farms to have prepared bat and avifauna management plan that ensures that impacts on flora and fauna are monitored and, if relevant, a contingency procedure developed in the event of significant impacts being detected.

6 Comment on permit conditions and/or EMP

The model permit conditions for wind energy facilities (prepared by DPCD) provided for review include most of the standard procedures for addressing wind farm impacts on flora and fauna, including:

- provision for a Native Vegetation Management Plan that ensures that any vegetation removal is undertaken consistent with the requirements to avoid, minimise and offset impacts;
- provision for pest plant and pest animal management plans that ensure local weed and vermin problems are not exacerbated;
- provision for a Bat and Avifauna Management Plan that can require the proponent to monitor and mitigate the impacts of the project on birds and bats.

These conditions are considered to address adequately the most likely potential risks to flora and fauna associated with the project.

The recommended salvage protocol for the Striped Legless Lizard and Fat-tailed Dunnart that should be implemented during construction of the external powerline will require a finalised map of the habitat along the preferred route to be prepared that identifies areas where the protocol should be implemented. A Fauna Management Plan for the powerline works, similar to that developed for the Macarthur Wind Farm for the same species would be appropriate as a condition of the planning permit.

7 Conclusion

Based on the work we have undertaken and having consideration to the questions raised and information emerging from submissions on the planning application, my conclusion is that the proposed Berrybank Wind Farm will not have any significant impacts on flora and fauna. This is because:

- The site lacks extensive remnant native vegetation and fauna habitats, which are mostly confined to roadsides that are readily avoidable;
- The site lacks extensive or numerous wetland habitats for a range of threatened fauna species;
- The has a fauna dominated by common and widespread farmland species of limited conservation significance; and
- The site is sufficiently distant from significant wetlands to represent a threat to waterbirds inhabiting those wetlands.
- The development footprint, including access track entry points does not affect native vegetation of habitat for the Striped Legless Lizard.

The limited potential for impacts on flora and fauna, which are largely restricted to roadsides, can be mitigated or reduced through the adoption of commonly applied environmental management measures that are provided for in the model planning permit conditions (see above).

8 Provisional opinion

The opinions that I have expressed in this report are based on my experience and the experience and advice provided to me by Union Fenosa Australia Wind Pty Ltd and the consultants engaged to carry out specialist studies for the Berrybank Wind Farm. Subject to any limitations and exclusions, my opinions are complete and accurate in every respect.

I am satisfied through my inquiries that the opinions I have expressed are reasonable in regard to flora and fauna impacts of the proposed wind farm.

9 Declaration

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

Signed:



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Brett Lane
4th February 2010

10 References

Australian Wind Energy Association 2005, *Wind Farms and Birds: Interim Standards for Risk Assessment*. Report prepared by: Brett Lane and Associates and AIRA Professional Services; Report No. 2003.35(2.2), July 2005.

Brett Lane & Associates 2009, *Proposed Berrybank Wind Farm – Flora, Fauna and Targeted Brolga Assessment*, Report no. 7152 (7.3), June, 2009.

Menkhorst, P 1995, *Mammals of Victoria*, Oxford University Press, Melbourne.

Annexure A – Curriculum Vitae for Brett Alexander Lane

CURRICULUM VITAE

BRETT LANE**BA****Title: Principal Consultant****Nationality:**

Australian

Qualifications:

Bachelor of Arts (Zoology, Physical Geography, Monash University)

Affiliations:Victorian Planning and Environment Law Association
Birds Australia (Royal Australasian Ornithologists Union)
Australasian Wader Studies Group**Awards:**

Special Commendation, Royal Australian Planning Institute 1991 for Point Cook Residential Development Environmental Planning – now Sanctuary Lakes.

Banksia Award 1990 (Secondary School Environmental Education Category) for Ashwood College Concept Plan and Design of Urban Forest and Wetland.

EMPLOYMENT HISTORY

1979:	Kinhill Planners Pty Ltd., Research Assistant (Melbourne)
1980 – 1986:	Wader Studies Co-ordinator, Royal Australasian Ornithologists' Union (Melbourne)
1987 – 1991:	Director, Brett A Lane Pty Ltd (Melbourne)
1991 – 1993:	Assistant Director (East Asia), Asian Wetland Bureau (Kuala Lumpur, Malaysia)
1993 – 1996:	Principal Terrestrial Ecologist, WBM Oceanics Australia (Brisbane, Qld.)
1996 – 1998:	Senior Ecologist, Ecology Australia Pty Ltd (Melbourne)
1999 – 2000:	Natural Resource Specialist, PPK Environment & Infrastructure Pty Ltd (Melbourne)
2001 – present:	Director, Brett Lane & Associates Pty Ltd (Melbourne)

Annexure B: Curricula Vitae of Team

CURRICULUM VITAE

KHALID AL-DABBAGH

PhD Zoology.

Title: Zoologist.

Qualifications:

B.Sc. Biology (University of Baghdad, Iraq)

M.Sc. Zoology (Ornithology, University of Baghdad, Iraq)

Ph.D Zoology (Population Ecology, Leicester University, England)

Affiliations:

Birds Australia (Royal Australasian Ornithologists Union).

Environment Australia, Bird and Bat Banding Scheme.

Awards:

The Whitley Medal for best book on the natural history of Australian animals (1996) awarded to Birds Australia for the production of the Handbook of Australian, New Zealand and Antarctic Birds, Vol. 3, and the Whitley Award (1999, 2001) for Volumes 4 & 5. I was one of a team of scientists that produced these volumes.

SKILLS & EXPERTISE:

- Extensive knowledge of the bird fauna of Australia and Europe.
- Familiarity with a broad range of Australian native mammals, reptiles and frogs.
- Extensive experience in the field of ecological impact assessment of industrial developments, particularly windfarms on native fauna.
- Knowledge of ecological methods used for estimation of birds and bat mortality caused by industrial developments, such as windfarms.
- Extensive experience in methods and techniques used for surveying various fauna.
- A good working knowledge in the use of statistics in data analysis.
- Knowledge in the application of key national and Victorian biodiversity conservation policies to the protection and conservation of native fauna.
- Evaluation of fauna in area designated for development against the national or state conservation and protection legislations.

EMPLOYMENT HISTORY

2002 – current:	Field Ecologist, and Ornithologist, Brett Lane & Associates Pty Ltd (Melbourne).
1993 – 2001:	Scientific editor and research scientist, Birds Australia (Royal Australasian Ornithological Society).
1989 – 1992:	Assistant Professor, University of Baghdad.
1983 – 1989:	Senior Scientific Researcher (Biological research Centre, Iraq Research Council).
1977 – 1983:	Lecturer in ecology (Basrah University, Iraq)

CURRICULUM VITAE

DAVIDE COPPOLINO BSc (Hons)

Title: Botanist and Project Manager

Nationality:

Australian

Qualifications:

Bachelor of Science – Honours (Ecology & Sustainability), Victoria University

Affiliations:

Friends of Iramoo Inc.

Field Naturalists Club of Victoria Inc.

Australasian Native Orchid Society Inc.

Awards, Accreditations, Certificates and Licences:

Outstanding final year student – Ecology and Sustainability, Victoria University

2007 Valedictorian – School of Biomedical Sciences, Victoria University

Grass Identification Course - completed 2007

Victorian Driver's Licence

Statement of Attainment - Intermediate Four Wheel Drive and Recovery

SKILLS & EXPERTISE:

- Knowledge of terrestrial and wetland plant communities and flora of South-eastern Australia.
- Experience in identifying, propagating and re-establishing populations of nationally and state listed threatened grassland plant taxa.
- Knowledge and experience in remnant ecosystem management and rehabilitation including pest plant control and appropriate fire regime reintroductions.
- Experience in agricultural and environmental noxious weed research.
- Experience in natural wetland plant recruitment research.
- Experience in co-ordinating community-based programs aimed at environmental repair.
- Knowledge in the application of key biodiversity conservation policies to land development and infrastructure projects.
- Familiarity with the practical application of state native vegetation retention controls and Victoria's Native Vegetation Management – A Framework for Action (Net Gain Policy).

EMPLOYMENT HISTORY

2005 – Present: Botanist, Brett Lane & Associates Pty Ltd, Nth Carlton, Vic.

2004 – 2005: Grounds, Nursery & Research Assistant, Iramoo Sustainable

Living Precinct (Victoria University), St Albans, Victoria

2001-2005: Sales Assistant, Retail Industry.

CURRICULUM VITAE

Peter Scott Lansley

BIS, BSc

Title: Zoologist

Nationality:

Australian

Qualifications:

Bachelor of Science (Zoology, La Trobe University, 1999)

Bachelor of Indonesian Studies (Indonesian language, Australian National University, 1997)

Affiliations:

Birds Australia (Royal Australasian Ornithologists Union)

Accreditations:

Victorian Driver's Licence

Professional translator, Indonesian to English (NAATI – National Accreditation Authority for Translators and Interpreters)

Skills and expertise:

Extensive knowledge of the distribution and abundance of birds throughout Australia, and parts of South-east Asia and Antarctica, and familiarity with other terrestrial vertebrate fauna (mammals, reptiles, frogs) in south-eastern Australia. Experience as a consultant ornithologist to government departments and wind power companies.

EMPLOYMENT HISTORY

2004 – current: Zoologist, Brett Lane & Associates Pty Ltd, Melbourne

2004 – 2005: Consultant ornithologist, Portland Capes Windfarm Project, Pacific Hydro Ltd (Portland, Vic.)

2003 – 2005: Consultant ornithologist, 'Productive Grazing, Healthy Rivers', Department of Primary Industries (Ellinbank, Vic.)

2003: (volunteer) Seabird Observer aboard RSV *Aurora Australis*, Australian Antarctic Division (Hobart)

2002: Contractor, Species Profile And Threats (SPRAT) project, Birds Australia (Melbourne)

2000 – 2002: Computer Network Administrator (part-time), Birds Australia (Melbourne)

1997 – 2001: Section Editor, *Handbook of Australian, New Zealand and Antarctic Birds*, Birds Australia (Melbourne)

1988 – 1990: Tech. Trainee, Arthur Rylah Institute for Environmental Research (Melbourne) [secondment]

1981 – 1991: Tech. Assistant, Melbourne Water (Melbourne)

CURRICULUM VITAE

TEISHA SLOANE**BSc (Hons)****Title: Zoologist****Nationality:**

Australian

Qualifications:

Bachelor of Science (Hons.) Environmental Management and Ecology, La Trobe University

Affiliations:NSW Wildlife Information and Rescue Service Inc. (WIRES)
Australian Association of Natural Resource Management**Accreditations, Certificates and Licences:**Victorian Drivers Licence.
Wildfire Management, Chainsaw Licence and Chemical Users Course, Riverina TAFE
Senior First Aid Certificate.**Awards:**Vice-Chancellor's Regional Campus Scholarship, La Trobe University, 2001.
Commonwealth Learning Scholarship, La Trobe University, 2004
Australian Association of Natural Resource Management prize, La Trobe University, 2002.**EXPERIENCE**

- Experience in native fauna survey and identification in southern Australia, including threatened vertebrate species.
- Experience in vertebrate survey methods and techniques.
- Extensive experience in the field of ecological impact assessment of industrial developments, particularly windfarms on native fauna.
- Knowledge of the application of key national and Victorian biodiversity conservation policies to the protection and conservation of native fauna.
- Evaluation of fauna in area designated for development against the national or state conservation and protection legislations.

EMPLOYMENT HISTORY

2007 – present: Zoologist, Brett Lane & Associates Pty Ltd (Melbourne).
2005: Field Assistant, Jotunheiman National Park, Norway.
2004 – 2005: Laboratory Assistant, Department of Environmental Management and Ecology, La Trobe University, Wodonga Vic.
2003: Volunteer Ranger, NSW National Parks and Wildlife Service, Griffith NSW

CURRICULUM VITAE

BILL WALLACH**BSc (Hons)****Title: Botanist****Nationality:**

Australian

Qualifications:Bachelor of Science (Botany, Conservation, Statistics, La Trobe University)
Honours in Botany (H2A, La Trobe University)**Affiliations:**

The Naturalist Society of La Trobe University member

Accreditations, Certificates and Licences:Victorian Driver's Licence
Intermediate 4WD Certificate**SKILLS & EXPERTISE:**

- Demonstrated knowledge of terrestrial plant communities and flora of Victoria.
- Experience in the assessment of vegetation condition.
- Knowledge in the application of state native vegetation retention controls and Victoria's Native Vegetation Management – a Framework for Action.
- Knowledge in the application of key Victorian biodiversity conservation policies to land development and infrastructure projects.
- Knowledge and experience in remnant ecosystem management including pest plant and animal control.
- Experience in plant identification techniques.
- Experience in fine-scale mapping of remnant native vegetation using Differential Global Positioning System (DGPS)

EMPLOYMENT HISTORY

2008 – present: Botanist, Brett Lane & Associates Pty. Ltd. (North Carlton, Vic)
2004 – 2008: Customer Service Industry (Retail)
2007 – 2007: Casual risk management consultant, CETEC Pty. Ltd