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24 June 2025

Re: VALHALLA GAS EXPLORATION AND APPRAISAL PROGRAM (EPBC 2024/10006) DCCEEW RFI DESKTOP ASSESSMENT

Please find below a memo summarising *ecologia* Environment's (*ecologia*) response to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) comments requesting additional information for the bilby (*Macrotis lagotis*) on the Valhalla Exploration and Gas program.

Background

Bennett Resources Pty Ltd (BNR) is proposing to undertake the Valhalla Gas Exploration and Appraisal Program (the Project) located approximately 51 km northwest of the townsite of Fitzroy Crossing (Shire of Derby-West Kimberley) in WA. *ecologia* was commissioned by Bennett Resources in 2024 to undertake a targeted fauna survey of the Project Area to identify the presence of any Threatened or Priority fauna, with focus on assessment of the greater bilby, ghost bat and northern quoll. BNR have since referred the project under the EPBC Act utilising both the baseline Eco Logical Survey Report and the ecologia Targeted Survey (Greater bilby/Northern Quoll and ghost bat) (2024). The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has determined the proposal to be a controlled action on Matter of National Environmental Significance (MNES) which will be assessed by preliminary documentation. This requires BNR to respond to a Request for Information (RFI) requested by DCCEEW.

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Table 1: Responses to RFI in relation to the Bilby (*Macrotis lagotis*)

Comment	Response
7e-i) Information on the abundance, distribution, ecology and habitat preferences for each listed and migratory species	The greater bilby is patchily distributed through the Tanami, Great Sandy and Gibson Deserts (DCCEEW, 2023b; Maxwell, Burbidge, & Morris, 1996). For a variety of reasons, the species experienced a sudden and widespread population reduction in the early 1900s, and the distribution is understood to still be contracting northwards (DCCEEW, 2023b; Threatened Species Scientific Committee, 2016). Reasons for historical decline included predation by feral predators on both young and adult bilbies, competition from rabbits and livestock, reduced food resources as a result of altered fire regimes, and drought (DCCEEW, 2023b; Johnson, 2008; Maxwell *et al.*, 1996; O'Malley, 2006). Current threats impacting bilby population numbers are identical to historical threats, with the addition of habitat loss and fragmentation due to land clearing and development. Since the 1800s, the bilby has experienced a dramatic reduction in population and range extent and now occupies less than 20% of its original range (DCCEEW, 2023b; Threatened Species Scientific Committee, 2016). Bilbies occupy a variety of habitats, including open tussock grasslands, Acacia (mulga) shrubland and woodlands, hummock grasslands on plains and alluvial areas and cracking clays (Johnson, 2008; Maxwell *et al.*, 1996; Threatened Species Scientific Committee, 2016). Three main habitat types have been identified within the Valhalla project area that align with those outlined by EcoLogical Australia (2021) including: • Mixed open woodland over grassland on sandy clay flats and slopes; • Mixed open woodland over tussock grasses on dune slopes and crests; and • Eucalypt open woodland and mixed shrubland on closed depression and creek line. The habitat types found within the proposed pads and associated access roads are considered common at a local and regional scale and none are restricted to the development envelope.
7e-ii) Quantification of the extent of habitat and the number of individuals likely to be impacted, or historical	Suitable habitat for the bilby was identified in the south-east between Proposed Well 3 and Proposed Well 4 (*ecologia*, 2024). The extent of this suitable habitat includes 13.5 ha (Map1) and coincides with the

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patterns of use by those species, within the proposed action area and surrounds (including mapping identifying known and/or potential habitat)	Mixed open woodland over tussock grasses on dune slopes and crests habitat type. Old bilby diggings were recorded during targeted surveys of the Valhalla project areas undertaken by ecologia for the bilby, ghost bat and northern quoll (*ecologia*, 2024). These potential old diggings suggest that bilbies may have previously foraged within the impact area. As defined by the *Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in Western Australia,* old diggings on their own do does not confirm presence and are considered as "potential greater bilby activity, presence not confirmed". To confirm presence, additional secondary evidence would need to recorded, such as scats, active burrows or tracks (fresh, very distinctive). After comprehensive survey effort in the vicinity of the diggings (Map 1), none of the supporting secondary evidence was recorded and accordingly, presence of bilbies at the time of the surveys was not confirmed. After adequate survey effort, it is considered unlikely any individuals will be impacted by the proposed action. Without broad fauna habitat mapping across the wider landscape, to quantify the amount of habitat proposed to be impacted, we used Beard's vegetation association (Beard, 1979) as a surrogate (Map 1). The vegetation association incorporating the impact areas and surrounds is number 700, 'Northern Fitzroy Plains' and described as 'Acacia thicket with scattered low trees over spinifex *Acacia eriopoda, Corymbia dichromophloia, Triodia pungens, T. bitextura*.' This vegetation association covers a continuous area of 175,086 ha in the immediate vicinity of the impact area. The proposed action intends to clear 13.5 ha of this association, representing approximately 0.0077% of the total extent of the vegetation association within the 'Northern Fitzroy Plains.' Within the broader region, the Northern Fitzroy Plains covers an area of 309,786 ha.

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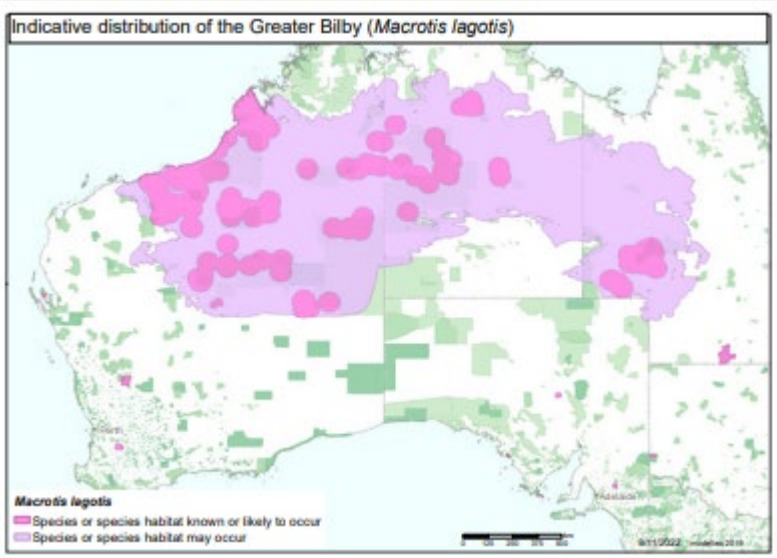
	The figure below taken form the bilby recovery plan (DCCEEW, 2023b) outlines the indicative distribution for the bilby. 
7e-iii) Assessment of the quality and importance of known or potential habitat for the relevant listed species and migratory species, within the proposed action area and surrounds.	Basic (EcoLogical, 2021) and targeted (*ecologia*, 2024) surveys for the bilby were conducted within the Valhalla project area. Suitable habitat for the bilby was identified in the south-east between Proposed Well 3 and Proposed Well 4 and records of old bilby diggings were recorded during the surveys. As outlined in EcoLogical (2021), the vegetation within the south-east between Proposed Well 3 and 4 was assessed as 'Very Good' to 'Excellent' in condition. Potential habitat recorded is not restricted to the impact areas and vast expanses of suitable habitat are present outside of the impact areas. As defined in the *Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in Western Australia,* bilby diggings are not considered definitive evidence of the presence of the species, and diggings recorded within the suitable habitat within the project area cannot be deemed as 'known'.

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	As bilby presence was not confirmed, an important population is not present according to the definitions outlined in Matters of National Environmental Significance *Significant Impact Guidelines (DEWHA, 2013)*, and therefore, the habitat within the impact areas is not considered important or critical for the long-term survival of this species.
7e-iv) Information detailing known populations or records of individuals within at least 2 km of the proposed action area and the size of these populations, if available.	There are no known bilby populations recorded within the development envelope or proposed disturbance footprint. The northern pad is approximately 42 km NW of the southernmost pad and the east to west pads are approximately 28 km apart. The area was traversed be vehicle, helicopter and on foot, and no evidence of a bilby population was recorded while undertaking the surveys or transiting between sites (Map 1). A traditional custodian/owner, Tyrone Skinner, was consulted during the field assessments for the targeted surveys, and indicated that bilbies have never been observed within the development envelope. For context, Tyrone has spent his life on country hunting in the vicinity of the project area and has never seen a bilby. Tyrone indicated that he had never encountered bilbies in the sandy country to the south of the Fitzroy River. The indicative distribution for the bilby is discussed in section 7e-ii.
7e-v) An assessment of the adequacy of any surveys undertaken (including survey effort and timing). In particular, the extent to which these surveys were appropriate for the listed species and migratory species, and undertaken in accordance with relevant	*ecologia* undertook targeted surveys for the bilby, northern quoll and ghost bat in July 2024. Survey methodologies for each species were in accordance with the following guiding documents: - *Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in Western Australia (DBCA, 2017)* - *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020).* - *EPBC Act Referral Guideline for the Endangered Northern Quoll* (Commonwealth of Australia, 2016);

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Departmental survey guidelines.	- *Guidelines for Surveys to Detect the Presence of Bilbies, and Assess the Importance of Habitat in Western Australia* (DBCA, 2017);
	- *Survey Guidelines for Australia's Threatened Mammals* (DSEWPaC, 2011); and
	- *Survey Guidelines for Australia's Threatened Bats* (DSEWPaC, 2010).
	
	Two suitably qualified and experienced zoologists conducted the targeted surveys over eight days (July 22-29, 2024) and traversed the disturbance footprint on foot in linear search transects at intervals of 20 m to detect potential evidence of bilby occupancy or transient presence within the project area (scat, diggings, burrows and tracks). The project area was accessed using a vehicle and some of the less accessible pads were accessed via a helicopter.
	
	Any evidence of bilby activity was documented and categorised in accordance with methodologies outlined in Dziminski and Carpenter (2018).
	
	The following activities were undertaken as part of the scope of works for this project:
	
	- Review previously completed desktop surveys and previously undertaken surveys.
	- Conduct targeted surveys for significant fauna, with a focus on the bilby, northern quoll and ghost bat. Survey methods used included, but were not limited to;
	  - Motion cameras;
	  - Autonomous recording units (ARUs);
	  - Search transects; and
	  - Active searches.
	
	The survey methodology and effort undertaken is considered appropriate for the bilby and was sufficient to inform the assessment.

7e-vi) Where the relevant guideline is not followed,	The *Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in Western Australia* (DBCA, 2017)

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provide reasoning of the sufficiency of survey work that was undertaken to adequately determine the presence of these species.	recommends surveying a buffer zone for small survey areas (<1600 ha). The disturbance footprint for the project totalled 125 ha consisting of ten 200 x 200 m drill pads connected by roads (10 m wide, > 5 km apart). Each drill pad was searched in linear transects (intervals of 20 m), and each connecting road within the impact area was traversed on foot. Therefore, a buffer zone was not considered necessary to achieve a wider coverage of the surrounding area of this project, and the survey effort is sufficient to determine the presence of the bilby. Additionally, traditional custodian Tyrone Skinner has never observed or heard of a bilby being observed in the surrounding areas.
8-a) Provide justification, with supporting evidence, as to why the habitat found within the proposed action area is considered to be suitable or secondary habitat, as opposed to habitat critical for the survival of the species defined in the Recovery Plan for the Greater Bilby (Macrotis Lagotis) (Recovery Plan for the Greater Bilby (Macrotis lagotis)	Suitable habitat for the bilby includes open tussock grasslands, Acacia (mulga) shrubland and woodlands, hummock grasslands on plains and alluvial areas and cracking clays. Bilby presence is limited by the availability of suitable soils and substrates that allow for burrowing (DCCEEW, 2023b; Johnson, 2008; Maxwell et al., 1996; Threatened Species Scientific Committee, 2016). Within the disturbance footprint, the habitat to the south-east, between Proposed Well 3 and Proposed Well 4 was considered the most suitable for bilbies, as the area comprised of sandy loam substrates supporting a scattered Eucalypt woodland and Acacia shrubland. The remaining eight pads did not provide any suitable habitat for the bilby. As addressed above, the surveys conducted by *ecologia* (2024) recorded 'potential diggings' in the areas of suitable habitat in Proposed Well 3 and 4. However, as defined by the *Guidelines for Surveys to Detect the Presence of Bilbies and Assess the Importance of Habitat in Western Australia,* potential diggings are not considered confirmation of the presence of bilbies. No evidence of active bilby habitation or an important population was recorded within the disturbance footprint and as such, the habitat in

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	the south-east of the project area represents 'suitable habitat' for the bilby. The proposed action may result in the clearing of suitable bilby habitat.
22) The Department considers the proposed action may result in, but not be limited to, the following impacts: a) Vegetation clearance of critical habitats for listed species. (Does Eco Logical consider there to be habitat critical to the survival of any species? Provide justification)	As outlined in section 8-a, the proposed action may result in the clearing of suitable bilby habitat. The proposed action only intends to clear small disjunct pads and linear corridors which will not fragment suitable habitats. According to the Matters of National Environmental Significance *Significant Impact Guidelines* (DEWHA, 2013), the proposed action is not likely to have a significant impact on the bilby as it will: • not lead to a long-term decrease in the size of an important population of a species • not reduce the area of occupancy of an important population; • not fragment an existing important population into two or more populations; • not adversely affect habitat critical to the survival of a species; • not disrupt the breeding cycle of an important population; • not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; • not result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat; • not introduce disease that may cause the species to decline; or, • not interfere substantially with the recovery of the species. To mitigate any direct potential impacts to the bilby, the proponent, Bennett Resources, proposes to implement the following species-specific management measures during clearing activities:

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	• the disturbance footprint will be scouted for new burrows (within a range of ~75 m) • no clearing will be undertaken within 50 m of any identified burrows • no clearing will be undertaken within 75 m of identified active burrows • vehicle speed limits will be reduced from dusk to dawn to: 20 km/h in areas where bilbies have been recorded or 40 km in areas where bilbies have not been.
23-a) For each listed species, identify the quantum and quality of habitat or vegetation likely to be impacted.	As outlined in section 8-a, the proposed action may result in the clearing of suitable bilby habitat. Additionally, as outlined by EcoLogical (2021), the vegetation within the areas deemed as suitable habitat for the bilby, were assessed as 'Very Good' to 'Excellent' in condition.
23-b) Identify the number of affected individuals and/or habitat features (e.g. potential breeding habitat, roosting trees, potential foraging habitat, movement pathways, etc.) relevant to each listed species	As addressed in section 7e-vi, bilby presence cannot be confirmed within the project area. The indicative distribution for the bilby is displayed in section 7e-ii. The proposed action is unlikely to impact any individuals as the species has not been confirmed in the disturbance footprint. While suitable habitat is proposed to be cleared, the clearing of pads is disjunct with linear road corridors and when species specific management measures (outlined in section 22) are implemented, the risks to bilbies due to the proposed action is negligible.

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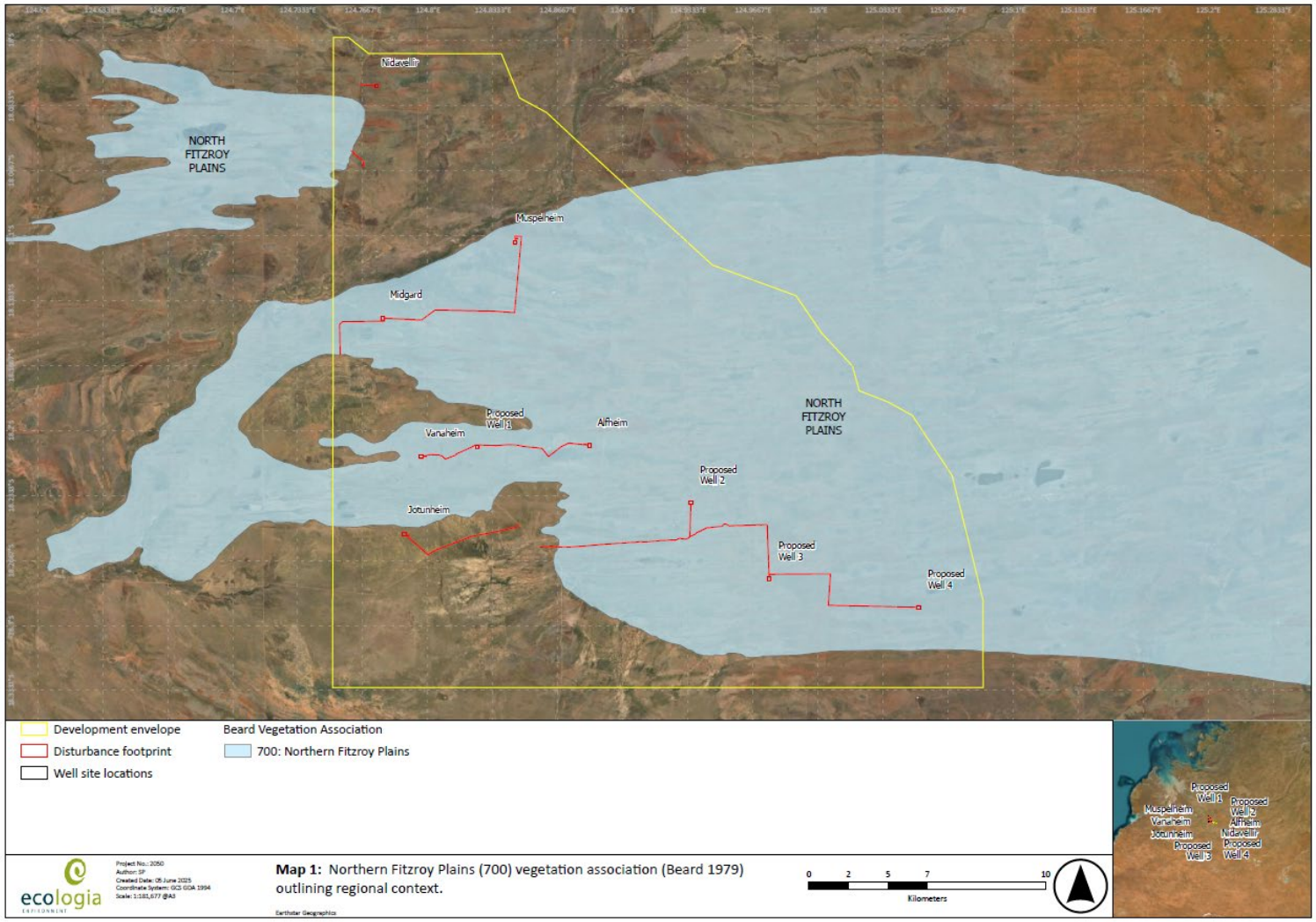

Map 1: Northern Fitzroy Plains (700) vegetation association (Beard 1979) outlining regional context.

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