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Tēnā koe Suzanne,

Clarifications on s92 responses, MP4 project

On 28 August 2024 we provided responses to questions 1 a), b), c), d), e), 2 a), b), c), d), e), f), g), h), 3 f), 4 b), 5 b), c) raised by council under s92 of the Resource Management Act (1991).

On 9 December 2024, ORC requested clarifications to some of these responses. This memo provides responses to the requests for clarification numbered 6.1, 6.2, 6.4 in that letter. The Impact Management Plan is being updated and will incorporate the points discussed below.

6.1. *It remains unclear how the translocation of Orocrambus and its host species can be considered mitigation when it relies on research into its behaviour and interaction with its habitat. Mitigation should not be reliant on research, and it is difficult to see how any weight can be given to the mitigation proposed. Further information is required to support the proposed mitigation.*

This point is acknowledged and action "2) a research programme to better understand the moth's distribution, habitat and food plants in both the Golden Bar and local area" which was identified as a mitigation action in Section 9.3.9 (Rescue of Threatened invertebrates) of the Impact Management Plan (IMP) will be proposed as an ecological compensation action in Section 9.7.5 of the revised IMP, which is being updated and which will be provided prior to notification.

Currently the presence of this species is inferred from a single individual caught at a light trap in the Golden Bar project area. The presence and abundance of this species will need to be confirmed in pre-clearance surveys undertaken in autumn. Assuming the species is found to be present, the proposed approach to managing potential adverse effects is as follows:

1) Mitigate adverse effects by salvaging *Orocrambus sophistes* via the host plant, and re-create or enhance suitable habitat in a protected site.

2) Compensate for potential residual adverse effects by conducting research into invertebrate community response to changes in tussockland habitat and researching habitat of *Orocrambus sophists*.

This approach acknowledges that if the species is present, mitigation by salvaging the species via the host plant will have potential residual adverse effects that may be more than minor. The research component will provide compensation and the knowledge gained from this will then be able to be applied to future projects affecting the same or similar species.

6.2. *The remediation of the Golden bar WRS is a significant component of the mitigation package. The OGL response in 2 b) refers to similar remedial work completed successfully elsewhere. Can you provide examples of this remedial work?*

Similar tussock planting projects involving narrow-leaved tussock *Chionochloa rigida* subsp. *rigida* have been successfully completed nearby at the Mahinerangi Windfarm and in rehabilitation of flood damaged water races feeding into Lake Mahinerangi. Whirika Consulting Ltd was responsible for the planning and implementation of these projects and holds reports of these projects. Planting of scattered tussock has occurred at several Waste Rock Stacks at Macraes Gold Project, including at Golden Bar, and anecdotal reports indicate that there is a high survival rate. Plants at Golden Bar are now c. 2 – 3 m in crown diameter. This demonstrates that rehabilitation of WRS surfaces with tussock grassland can be completed successfully at Macraes.

6.4. *There is a lack of ecological detail associated with the MEEA offset site. This is a fundamental requirement of any offset and directed in the offset guidance documents and regulatory instruments including the DCC 2GP (see 10.9.2 c) NPS-IB and Proposed ORPS (both of which require the data that informs the calculation and the detailed plan). This needs to be documented for the purpose of understanding whether the offset site can achieve a 'like for like' outcome. We understand this work is underway and should be supplied to council to assist with the review of the proposed offset.*

The offset models for tussock grassland and those used as the basis for calculating the extent of compensation for lizards and riparian shrublands are being updated with improved measurement of the current state at both the sites impacted by MP4 open pit extensions and at the proposed Murphys EEA (see tables and figures below).

Additional information is also provided on other key aspects of the terrestrial ecology, including:

- a vegetation map for Murphys EEA (image 250115_Land Cover Within Fence). These vegetation communities are all semi-natural plant communities. All (except water) would meet the significance criteria for presence of rare species, and most for representation. The depleted grassland has the lowest ecological value.
- a list of plant species recorded within the site (spreadsheet MurphysPlantSpecies); and

- a map of the locations where rare plant species have been recorded (image 250115_RarePlants Within Fence).

This information shows that Murphys EEA is of similar ecological character to those in the impact areas.

Figure 1a: Lizard population density estimates derived from pitfall trapping data and Capture-Mark-Recapture and N-mixture models for rough grassland and semi-natural vegetation communities in the MP4 impact areas.

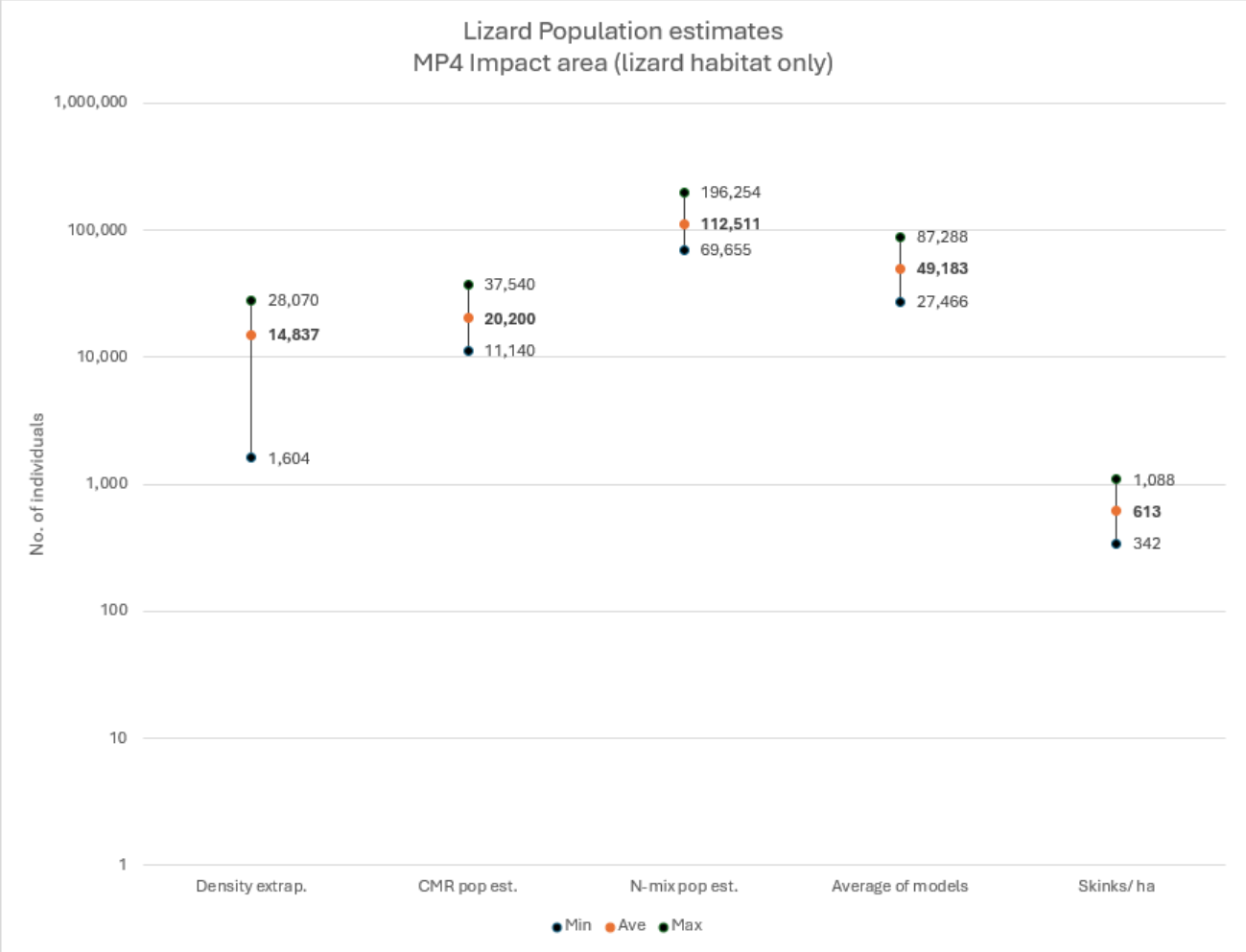

Figure 1b. Lizard population density estimates derived from pitfall trapping data and Capture-Mark-Recapture and N-mixture models for rough grassland and semi-natural vegetation communities in the Murphys EEA

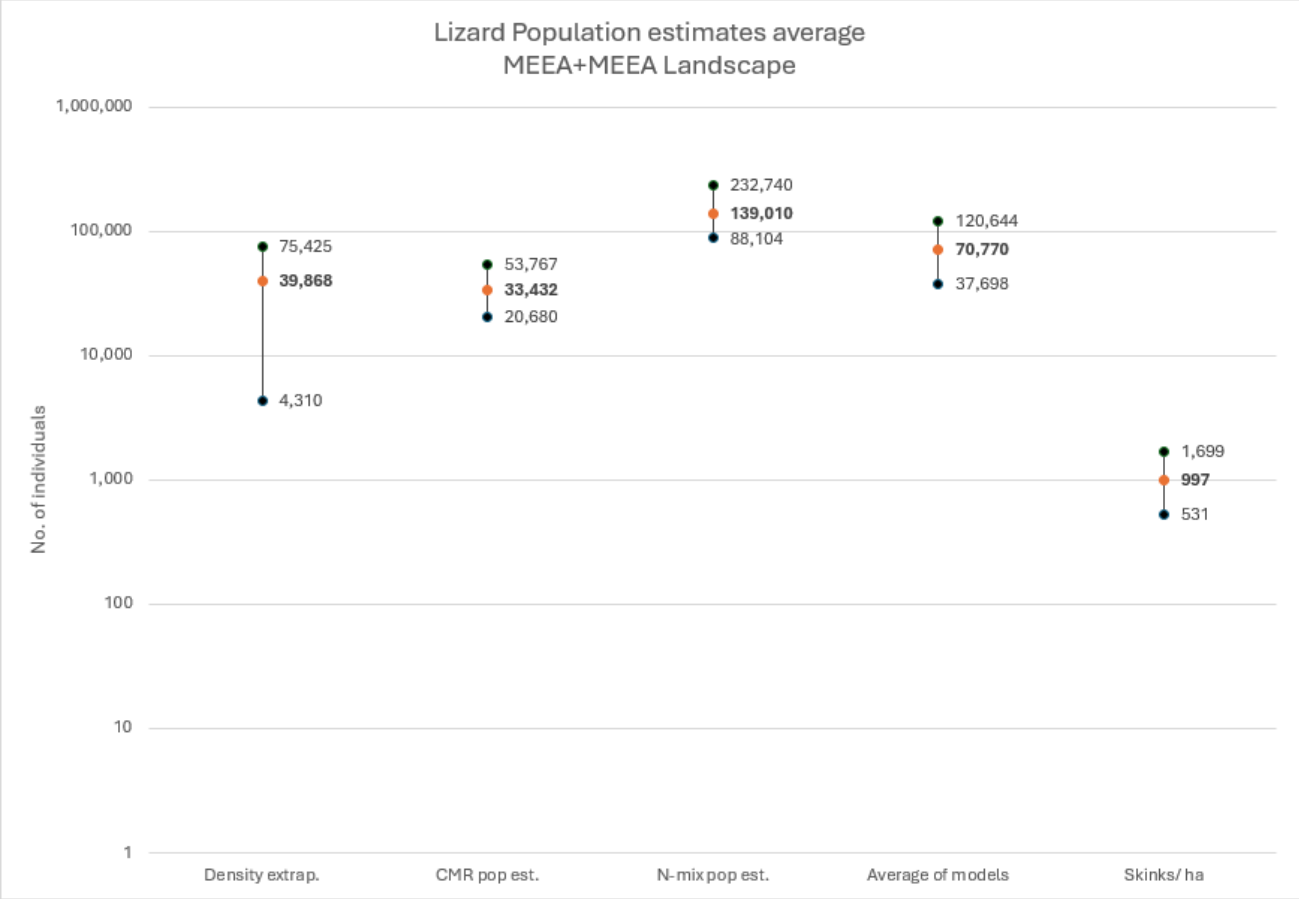

Table 1. Quantity of vegetation communities in Murphys EAA.

Vegetation Community	**Extent (Ha)**
Depleted Grassland	32.127
Riparian	2.151
Rock	3.674
Scrub	2.629
Tussock - Dense	37.9
Tussock - Moderate Density	21.239
Water	0.008

Table 2. Habitat quality metrics for MP4 impact areas and Murphys EEA

Ecological Component	Quality Metric	Impact Area Value	Mitigation Area Value	Notes
Tussock	Canopy cover % by tussock	24.2	15.5	Tussock cover measured from cover in 10m x 10m plots randomly located in tussock community in impact area and Murphys EEA (10 in each) mapped in drone images
Tusssock	Inter-tussock indigeneity	0.008	0.16	Inter-tussock indigeneity measured as species shoot presence in 25 5 cm x 5 cm cells within a 50 cm x 50 cm grid square placed in each of the four corners of the 10m x 10m plots. Indigenity is calculated of the sum of cells occupied by shoots of indigenous species divided by total shoot presence in all grid squares within the impact sites and at Murphys EEA
Ephemeral wetlad	Indigeneity	0.52	0	Indigeneity measured as species shoot presence in 25 5 cm x 5 cm cells within a 50 cm x 50 cm grid square randomly located within ephemeral wetland. Indigenity is calculated of the sum of cells occupied by shoots of indigenous species divided by total shoot presence in all grid squares
Wetland	Indigeneity	0.52	0	Indigeneity measured as species shoot presence in 25 5 cm x 5 cm cells within a 50 cm x 50 cm grid square randomly located within wetland. Indigenity is calculated of the sum of cells occupied by shoots of indigenous species divided by total shoot presence in all grid squares
Shrubland	Diversity	5	Not yet measured	Number of native species in area

	Canopy cover	50	Not yet measured	% cover within plots and/or mapping from drone images

Kā mihi nui

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