Before the Expert Panel appointed under the Fast-track Approvals Act 2024

Under	the Fast-track Approvals Act 2024 (**Act**)
And	
In the Matter of	an application for approvals by Matakanui Gold Limited to establish, operate, rehabilitate and ultimately close an open pit and underground gold mining operation known as the Bendigo-Ophir Gold Project

Statement of Evidence of **Zachary Thomas Milner** on behalf of **Matakanui Gold Limited** in response to Section 53 Feedback

Terrestrial Ecology

Dated: 17 April 2026

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INTRODUCTION

1. My name is Zachary Thomas Milner.

Qualifications and Experience

2. I have been employed as a Senior Ecologist at RMA Ecology Ltd since 2021.

3. I hold the qualifications of Bachelor of Science (Environmental Science and Geography; 2012) and Bachelor of Environmental Management (Honours; 2013) from Massey University, New Zealand. I am a Certified Environmental Practitioner (registration number 1675), having attained this certification in 2023.

4. I have ten years' experience in ecological restoration and ecological consulting with a particular focus on restoration ecology, weed ecology, and botany. My experience includes the assessment and mapping of ecosystems, vegetation communities, ecological features and wildlife; strategic planning and oversight of implementation of restoration actions; and the identification of impacts and development of solutions to avoid or manage adverse effects on the environment.

5. This statement is given as part of Matakanui Gold Limited's (**MGL**) response to comments on the BOGP made under Section 53 of the of the Fast Track Approval Act (**FTAA**).

6. My original findings are provided in full in the Bendigo-Ophir Gold Project:

   (a) B.13A RMA Ecology - Vegetation Values Assessment (RMA Ecology 2025b).

7. That Assessment was not informed by any of the other technical reports that are a part of the Substantive Application, but the ecology-related reports of the Substantive Application should be read in conjunction for a complete understanding of the ecological values at the site, the effects on those values, and the management of those effects.

Scope of Evidence

8. I have prepared this statement in the limited time available for MGL to respond to comments under the Act. Due to time constraints, I have focused my response on the issues I consider most material. The absence of comment on other matters should not be taken as agreement or acceptance. If the Panel requires elaboration on any of the matters raised in this statement, I am available to provide further information on request.

9. Although this is not an Environment Court proceeding my confirmation of compliance with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 is included in Substantive Application Document A0.2B.

10. This statement is given as part of MGL's response to comments on the Bendigo-Ophir Gold Project (**BOGP**) made under Section 53 of the FTAA. This statement responds to specific comments raised by:

    (a) Mike Harding, independent consultant representing Central Otago District Council (**CODC**), Statement of Evidence *Terrestrial Ecology* 10 April 2026.

    (b) Rebecca Teele, E3S representing Otago Regional Council (**ORC**), Technical Review *Terrestrial Ecology* 18 March 2026.

    (c) Max Crowe, independent consultant representing Department of Conservation (**DOC**), Statement of Evidence *Vegetation and Flora* 10 March 2026.

    (d) Nick Head, independent consultant representing Environmental Defence Society (**EDS)**, Statement of Evidence *Terrestrial Ecology* 10 April 2026.

    (e) Geoffrey Rogers, independent consultant representing Sustainable Tarras, Statement of Evidence *Terrestrial Ecology* 2 April 2026.

    (f) Matthew Dale, independent consultant representing Kāti Huirapa Rūnaka Ki Puketeraki, Te Rūnanga o Moeraki, Te Rūnaka o Ōtākou, and Hokonui Rūnanga (Kā Rūnaka) Statement of Evidence *Ecology* 10 April 2026.

    (g) Otago Conservation Board Comment on Fast-Track application: Bendigo–Ophir Gold Project.

    (h) Chelsea McGaw, Regional Conservation Manager – Otago & Southland for Forest and Bird *Non-expert evidence* no date.

11. In my evidence, I focus on comments that relate to vegetation values.

EVIDENCE SUMMARY

12. The Direct Disturbance Footprint (**DDF**) (c. 610 ha) contains a mosaic of seven vegetation communities (excluding wetlands), of which six (c. 87 % of the DDF) are of High or Very High ecological value. The DDF contains 48 Nationally or Regionally At Risk or Threatened species.

13. The results of an additional spring annual survey undertaken in 2025 elevate the proportional impact of the Bendigo-Ophir Gold Project (**BOGP**) on spring annuals both within the Come in Time (**CIT**) Pit, and elsewhere in the DDF.

14. Several statements of evidence submitted by Section 53 parties critique aspects of the vegetation assessment, including vegetation community classification, mapping precision, and species detection. While alternative classification approaches and finer-scale mapping could have been applied, my assessment provides an appropriate representation of the range and distribution of vegetation communities at the site, and increased precision is unlikely to materially alter the overall extent of those communities at the aggregate scale. Some species may not have been detected, particularly outside habitats comparable to the DDF where targeted survey was not undertaken; however, this does not undermine the overall characterisation of ecological values within the Ecological Study Area (**ESA**).

15. Mr Harding (**CODC**), Mr Crowe (**DOC**) and Mrs Teele (**ORC**) question the assertion made in some of the technical reports prepared as part of the Substantive Application that indigenous biodiversity is generally in decline within the application area. My opinion (for the vegetation component) is that for only a few species or communities do I have enough evidence to declare an improvement or decline at the site with confidence. For most species, their trend in the past few decades to present is uncertain. I refer to other ecology reports who have considered this point also.

16. The baseline state for assessing site values is defined as the condition of the site at the time of the field surveys, excluding the effects of existing exploration activities. In other words, the extent and condition of vegetation communities, and the population and functioning of plant species, are considered to reflect the state they would have been in had no exploration work associated with BOGP occurred.

17. Mr Head (**EDS**) assigns slightly higher values to vegetation communities based on Threatened environments and species; however, I do not consider these factors alone justify the higher scores. Notwithstanding this, I assess the broader landscape as Very High ecological value (and agree the site overall has very high conservation value).

18. There is a Very High level of effect after mitigation and offsetting for several plant species and one vegetation community. Effects of this nature represent a severe and irreversible loss of indigenous biodiversity. From an ecological perspective, including when applying the Ecological Impact Assessment Guidelines[1] and the

[1] Roper-Lindsay, J., Fuller S.A., Hooson, S., Sanders, M.D., Ussher, G.T. 2018. Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

National Policy Statement for Indigenous Biodiversity, these effects are not capable of being appropriately managed, and from that ecological perspective are most appropriately addressed through avoidance.

OVERVIEW OF VEGETATION VALUES

19. We (myself and colleagues at RMA Ecology) undertook 176 person-days of field survey at the site focussed on vascular vegetation (including wetlands). This represents an appropriate level of effort to detect most species (including those which are rare, cryptic or sparse) and to map the vegetation communities at the site with reasonable accuracy, however, the limitations of the field survey and mapping approach are laid out in the B.13A Vegetation Values Assessment.

20. The DDF (c. 610 ha) contains a mosaic of seven vegetation communities (excluding wetlands), of which I have assessed six (c. 87 % of the DDF) to be of High or Very High ecological value. The DDF contains 48 Nationally or Regionally At Risk or Threatened species including large populations of the Threatened – Nationally Critical *Ceratocephala pungens* and the Threatened – Nationally Vulnerable *Myosotis brevis*. I agree with Mr Head (EDS) that the indigenous biodiversity of the site qualifies it as "nationally important for indigenous dryland biodiversity."

SPECIFIC RESPONSE TO COMMENTS

Lack of Data Relating to Spring Annuals

21. The B.13A Vegetation Values Assessment included the results of a spring annual[2] survey that was undertaken in spring 2024. Since the Substantive Application was submitted, a second spring annual survey has been undertaken by Manaaki Whenua Landcare Research in spring 2025. The data from the 2025 survey was circulated after the Substantive Application. Dr Rogers (Sustainable Tarras), Mr Crowe (DOC), Mr Harding (CODC), Mr Dale (Kā Rūnaka), Mrs McGaw (Forest and Bird), and Mrs Teele (ORC) had variable access to this data but regardless expressed similar concerns regarding large gaps in the surveyed extent in 2024 and 2025.

22. The B.13A Vegetation Values Assessment describes the limitations of assessing the values of spring annual species at the site based on the 2024 survey, including (briefly):

[2] Spring annuals are a functional group of plants that includes the Threatened – Nationally Critical *Ceratacephala pungens* and the Threatened – Nationally Vulnerable *Myosotis brevis*. These are the only two Nationally Threatened species that were detected in the DDF.

(a) The species are small and cryptic and the 2024 survey was late in the season and so many plants were already desiccated or absent;

(b) The 2024 survey effort for these two species only covered 266 ha of the 771 ha suitable habitat[3] within the ESA, and a portion of the suitable habitat had already been destroyed at the time of survey for consented access tracks and drill platforms;

(c) The population and distribution of spring annuals change each year within areas of suitable habitat, and I agree with Mr Harding (CODC) that our interpretation of the data is "hampered by our limited understanding of the biology and national distributions of these spring annual species". Presenting an estimate of the population or proportion of individuals within the DDF relative to the ESA or wider area may understate the importance of that spring annual population or the habitat it occupies. This is because the number or proportion of individuals affected is only one measure of ecological value or effect and does not, on its own, capture factors such as population condition or resilience. It also does not account for the spatial distribution of those individuals or the habitat they occupy, where effects may result in fragmentation or the loss of a disproportionate amount of suitable habitat relative to the number of individuals affected. I support further survey work given that uncertainty and refer to Ms Simcock's evidence in relation to that.

23. The 2025 spring annual data is summarised below. It is important to note that uncertainty increases at larger spatial scales (from the CIT Pit population to the national population), reflecting differences in survey effort relative to area. Some figures are sourced from other documents, as referenced.

(a) The 2025 survey covered 123 ha of the DDF, 467 ha of the SL, as well as an additional 300 ha outside of the ESA in nearby areas within the Dunstan Ecological District. There are at least 33 ha of suitable habitat in the DDF and at least 80 ha of suitable habitat on Ardgour Station (outside the DDF) that have not been surveyed either in 2024 or 2025 in part due to accessibility issues relating to lambing (survey coverage map provided in **Appendix 1**). I consider these need to be surveyed in the future. There may be additional potential habitat elsewhere in the ED.

[3] For all comments relating to "suitable habitat", note that: (1) "suitable habitat" is based on my observations at the site in 2024 and was not intended to be comprehensive. The 2024 survey did not cover the full extent of potential habitat, as the suite of spring annuals was only detected part-way through the season. Spring annuals were subsequently recorded outside these areas during the 2025 survey, indicating that the extent of suitable habitat within both the DDF and ESA is greater than initially identified; and (2) "suitable habitat" is not of uniform quality.

(b) There were 12,900 individual *Ceratocephala pungens* found[4], 5220 (40 %) of which were within the DDF. The proportion of the estimated national population within the Come in Time (CIT) Pit is 19 % in both the 2024 and 2025 survey. The proportion in the DDF excluding the CIT Pit increased from 3 % in 2024 to 21 % in 2025 (**Table 1**). The known national population increased by a factor of approximately 20 following the 2025 survey.

Table 1. *Ceratocephala pungens* population data based on the 2024 and 2025 surveys.

Ceratocephala pungens	CIT pit	DDF minus CIT	DDF	SL	ED outside ESA	Outside ED	National population[5]
2024 data	111	18	129	263	5	250	647
2024 % of national population	17%	3%	20%	41%	1%	39%	100%
2025 population	2,495	2,725	5,220	7,675	5	250	13,150
2025 % of national population	19%	21%	40%	58%	0%	2%	100%

(c) There were 61,515 *Myosotis brevis* found, 16,650 (27 %) of which were within the DDF. The proportion of the estimated national population within the CIT Pit increased from 3 % in the 2024 survey to 9 % in the 2025 survey. The proportion in the DDF excluding the CIT increased from 9 % to 12 % (**Table 1**). The known national population more than doubled following the 2025 survey.

Table 2. *Myosotis brevis* population data based on the 2024 and 2025 surveys.

Myosotis brevis	CIT pit	DDF minus CIT	DDF	SL	ED outside ESA	Outside ED	National population[6]
2024 data	500	1,500	2,000	500	15,100	17,600	35,200
2024 % of national population	1%	4%	6%	1%	43%	50%	100%
2025 population	6,895	9,710	16,605	16,620	28,290	17,600	79,115
2025 % of national population	9%	12%	21%	21%	36%	22%	100%

[4] For data from the 2025 survey, the figures are the result of summing the mid-point of data that was collected as a range, i.e., 1-10 = 5, 11-50 = 30, 50-100 = 75, etc.
[5] Part of the national population data is drawn from: Ewans, R. (2025, December 2). Summary: Ceratocephala pungens (Ref. OIAD-5832). Department of Conservation.
[6] Part of the national population data is drawn from: Prebble, J. M., Symonds, V. V., Tate, J. A., & Meudt, H. M. (2022). Taxonomic revision of the southern hemisphere pygmy forget-me-not group (Myosotis; Boraginaceae) based on morphological, population genetic and climate-edaphic niche modelling data. Australian Systematic Botany, 35(1), 63–94.

(d) There were 880 *Myosotis antarctica* subsp. *antartica* found, 330 (38 %) of which were within the DDF (**Table 3**).

Table 3. *Myosotis antarctica* subsp. *antarctica* population data based on the 2025 surveys.

Myosotis antarctica subsp. *antartica*	CIT pit	DDF minus CIT	DDF	SL	ED outside ESA	Outside ED	National population[7]
2025 data	330	0	330	370	180	12,006	12,886
2025 % of national population	3%	0%	3%	3%	1%	93%	100%

(e) There were 153,130 *Myosurus minimus* subsp. *novae-zelandiae* found, 38,530 (25 %) of which were in the DDF (**Table 4**).

Table 4. *Myosurus minimus* subsp. *novae-zelandiae* population data based on the 2025 surveys.

Myosurus minimus subsp. *novae-zelandiae*	CIT Pit	DDF minus CIT pit	DDF	SL	ED outside ESA	2025 survey total
2025 survey result	35,635	2,895	38,530	70,300	44,300	153,130
2025 % of total survey	23%	2%	25%	46%	29%	100%

24. The current proposal includes the possible avoidance of the majority of the CIT Pit (if certain conditions cannot be met).[8] However, even if the CIT Pit is avoided, on the basis of available survey results and noting the limitations of the current surveys, the project would currently impact on 21 % of the national *Ceratocephala pungens* population, and 12 % of the national *Myosotis brevis* population (noting that large areas of suitable habitat within the DDF and in the SL have not been surveyed). The findings of the 2025 survey indicate that:

(a) The populations of spring annuals are larger and cover a wider area than understood following the 2024 survey;

(b) I agree with Mr Harding (CODC) that the data remains insufficient to determine the magnitude of effect on spring annual species;

[7] Part of the national population data is drawn from: Prebble, J. M., Symonds, V. V., Tate, J. A., & Meudt, H. M. (2022). Taxonomic revision of the southern hemisphere pygmy forget-me-not group (Myosotis; Boraginaceae) based on morphological, population genetic and climate-edaphic niche modelling data. Australian Systematic Botany, 35(1), 63–94.

[8] Refer to Condition 111 of *D.01 CODC Land Use Consent and Conditions*.

(c) The proportion of the populations of *Ceratocephala pungens and Myosotis brevis* within the DDF is larger than what was indicated during the 2024 survey.

(d) The proportion of the population within the DDF (outside of the CIT Pit) is larger than what was indicated in the 2024 survey.

25. Overall, the level of effect on *Ceratocephala pungens* and *Myosotis brevis* is Very High, reflecting the high ecological value of the affected species and the habitat that they occupy, the magnitude of loss expected as a result of the BOGP, and the absence of any proven and/or effective mitigation or offsetting measures for these spring annual species. In addition to direct habitat loss and mortality, the project is also likely to result in indirect effects, including fragmentation, edge effects, weed invasion, dust deposition, and altered grazing or browsing regimes, which may further reduce the viability of the remaining population and habitat. While the precise magnitude of these indirect effects is uncertain, they are likely to exacerbate an already severe impact.

26. Taken together, the direct and indirect effects on spring annuals represent a severe and likely irreversible loss of indigenous biodiversity values. In the absence of a proven pathway to avoid, remedy, mitigate, or offset these impacts, the adverse effects remain fundamentally unmanaged and would result in a permanent net loss of biodiversity**.**

Missed Plant Species

27. Dr Rogers (Sustainable Tarras) suspects "that another important spring annual herb (in drylands), *Myosotis glauca* Threatened – Nationally Vulnerable, has been misidentified as the much less threatened *M. antarctica* subsp. *antarctica* or missed entirely in survey". The native *Myosotis* spp. that we detected at the site in 2023-2024 appeared to be either *M. brevis* or *M. antarctica* subsp. *antarctica* based on characteristics described in Prebble et al. (2022)[9]. While leaf colour alone is not a distinguishing feature, none of the native *Myosotis* spp. that we detected had glaucous grey leaves which are typical of *Myosotis glauca*. Diagnostic characteristics require close visual assessment ideally with a hand lens, and we did not assess each individual plant to this level of detail. In addition, *Myosotis glauca* was not detected during the 2025 spring annual survey (Robyn Simcock, personal communication, 14 April 2026). Therefore, it is likely that *Myosotis glauca* is absent or present only at very low density.

[9] Prebble, J. M., Symonds, V. V., Tate, J. A., & Meudt, H. M. (2022). Taxonomic revision of the southern hemisphere pygmy forget-me-not group (Myosotis; Boraginaceae) based on morphological, population genetic and climate-edaphic niche modelling data. Australian Systematic Botany, 35(1), 63–94.

28. During a six-hour site visit by Mr Crowe (DOC) that included the Mt Moka area, he detected "six additional plant species, five of which are Nationally Threatened or At Risk, that had not previously been identified within the Ecological Study Area". While the Mt Moka area is within the ESA, it is outside of the DDF and not comparable with any area within the DDF as it extends much above (up to 1222 m a.s.l.) the altitudinal range of the DDF (270 – 910 m a.s.l.). For this reason, the Mt Moka area was not a focus of the botanical survey. The focus of the botanical survey was the DDF and comparable areas in the rest of the ESA.

29. Mr Head (EDS**)** notes that "riparian areas do not appear to have been comprehensively surveyed". In this sense, no part of the DDF or broader ESA has been comprehensively surveyed (i.e., physically walked to the extent that there is a high degree of certainty for detecting all species in all locations) as this is not practicable for the scale of the BOGP. Nonetheless, riparian areas were a part of the targeted vegetation survey.

30. Mr Head (EDS), Mr Harding (CODC), and Mr Crowe (DOC) all note the lack of non-vascular plant information. A separate non-vascular plant survey has been undertaken by Wildlands Consultants on behalf of MGL and I understand this will be provided to the Panel and invited parties. The results were:

    (a) Forty-three species of native moss, 22 species of native liverwort, one species of native hornwort, and 32 species of native lichen were recorded.

    (b) Of these, two had a conservation status of At Risk – Declining, eight had a conservation status of At Risk – Naturally Uncommon, and two had a conservation status of Data Deficient.

Vegetation Survey Method

31. Mr Harding (CODC) states, regarding the vegetation plot methods, that "survey coverage may be insufficient for an area as extensive as the ESA, especially with respect to spring annual flora".

32. I disagree with this comment. In response, the survey of indigenous flora was not limited to vegetation plots (106 person-days), but also included targeted rare plant survey (39 person days), and wetland delineation (31 person days) (noting that some of this time was spent on other tasks, e.g., five minute-bird counts at some vegetation plot locations; and soil and hydrology assessments as part of wetland delineation). I consider this level of effort to be appropriate to for the investigation of vegetation at the site, although the 2024 spring annual survey was subject to limitations outlined in paragraph 22 of this evidence.

Vegetation Mapping

33. Mr Crowe (DOC) observed that a 40 ha area of Mt Moka was incorrectly classified as "Mixed depleted herbfield (cushionfield) and Grassland" where it is actually a unique sub-alpine community not otherwise mapped or described in the B.13A Vegetation Values Assessment. I concur with Mr Crowe. The reason for the error is because while the Mt Moka area is within the ESA, it is outside of the DDF and not comparable with any area within the DDF as it extends much above (up to 1222 m a.s.l.) the altitudinal range of the DDF (270 – 910 m a.s.l.) and for this reason was not a focus of the botanical survey. By changing the classification of this area, the proportional effect on "Mixed depleted herbfield (cushionfield) and Grassland" increases from 17.01 % to 20.54 %. If the CIT Pit is avoided, then the proportional effect would decrease to 15.99 % (**Table 5**).

Table 5. Assessment of proportional effect on Mixed depleted herbfield (cushionfield) and grassland under different scenarios.

Vegetation community and assessment method	Area within ESA	Proportion within ESA	Area within DDF	Proportion within DDF
Mixed depleted herbfield (cushionfield) and grassland – original assessment	552.69 ha	10.26 %	103.82 ha	17.01 %
Mixed depleted herbfield (cushionfield) and grassland – excluding Mt Moka	505.42 ha	9.38 %	103.82 ha	20.54 %
Mixed depleted herbfield (cushionfield) and grassland – excluding Mt Moka and excluding the CIT pit from the DDF	505.42 ha	9.38 %	80.82 ha	15.99 %

34. Mr Harding also identified an area that was clearly mapped as the wrong vegetation community in the SL. I accept that the vegetation mapping is not precise due to the scale at which the site was mapped, especially in the SL. However, these inaccuracies in aggregate are likely to balance for the overall area of each vegetation community and therefore the proportional effect is unlikely to materially change.

35. Mr Crowe raises an issue with the vegetation mapping, noting that it is "highly likely that the use of only seven vegetation types over a 5,300 ha Ecological Study Area is unreasonably coarse", while Mr Harding notes that "the alternative of dividing vegetation into many communities can result in inaccurate mapping" but that "broad-scale vegetation mapping has limitations and should not be relied upon for analysis of biodiversity loss".

36. The ESA contains a continuous and integrated ecological system expressed as a mosaic of vegetational and structural composition as a result of environmental

gradients, site history, and successional state. I consider that 10 vegetation communities (seven terrestrial vegetation communities and three wetland types) are suitable for describing this variability at the site, and concur with Mr Harding that this type of mapping has limitations, especially since disaggregating and assessing individual vegetation types in isolation can elevate the risk of overlooking or undervaluing the ecological linkages and broader context of a site. We therefore assessed the ecological value and significance of both the individual vegetation communities, but also the wider landscape unit that encompasses most of the DDF and remain of the view that the approach that we took to mapping was appropriate.

37. Nonetheless, I accept that "Exotic pasture or grassland" could have been split into "Exotic grassland" and "Exotic herbfield" given that they have distinct vegetational compositions, however I elected to map them together as a single vegetation community since they contain similar botanical values overall. I also accept that "Native dominant scrubland" could have been split into "Native matagouri-*Coprosma propinqua*-scented tree daisy scrub" and "Native kānuka scrub" given that they have distinct vegetational compositions, however I elected to map them together as a single vegetation community since they contain similar botanical values overall, and the kānuka portion of the community is not found within the DDF, being restricted to the Bendigo Creek catchment and sites to the southwest of this. For all vegetation communities, we describe the breadth of compositional variability and value in the B.13A Vegetation Values Assessment.

38. Mr Harding notes that the "accuracy of the vegetation mapping is insufficient for assessment of ecological value based on the mapped polygons". For example, "Exotic pasture and herbfield" contains nine Regionally or Nationally At Risk or Threatened vascular plant species at low density. However, I consider that the vegetation communities as mapped broadly reflect the diversity within the ESA. It would not be practicable to map the site at the level of detail required to definitively delineate comparable ecological values and composition given the fine-scale variability that exists. In this sense, Mr Harding and I agree that the best way to assess the ecological value for the ESA is to divide it into two 'landscape units'[10] where there is a clear boundary in vegetational composition and value between the heavily modified basin and the less modified hills of the Dunstan Range.

39. However, when assessing effects and offering mitigation, disaggregation of the vegetation communities is useful as long as the shortcomings of this method are acknowledged and managed. These shortcomings include ensuring the identification of elements that may be contained within broadly mapped areas at a

[10] Mr Harding disagrees with the boundary that we presented in the Vegetation Values report between the two landscape units owing to the results of the 2025 spring annual survey. I agree that the boundary should be amended to reflect these results.

fine-scale (which we have done by recording the presence and relative abundance of each species within each mapped vegetation community), acknowledging the relationships between vegetation communities, and ensuring that any monitoring regime is multi-faceted to capture trends in a wide range of attributes.

Trends in Indigenous Biodiversity at the Site and Implications for Mitigation and Offsetting

40. Mr Crowe (DOC), Mr Harding (CODC), Mr Head (EDS), and Mrs Teele (ORC) all express concern regarding the lack of evidence supporting the assertation in the B.08 Ecological Effects Assessment prepared by Alliance Ecology that indigenous biodiversity at the site is generally in decline.

41. Trends in indigenous biodiversity at the site are addressed in the Statement of Evidence of David Norton and I generally agree with the description of the drivers of decline by Emeritus Professor Norton.

42. Regarding the temporal dimension of this decline, I consider the 'current trend' to be the past few decades to present, as opposed to the past few hundred years where it is more obvious that a decline in indigenous biodiversity has taken place. Regarding the spatial dimension, I consider the ESA, as opposed to regional or national trends where it may be more obvious that there is a decline for certain aspects of indigenous plant biodiversity.

43. Specific examples of indigenous plant biodiversity for which there is uncertainty as to their trend at the site include the range of At Risk grasses such as *Anthosachne aprica*, *Rytidosperma buchananii*, *Rytidosperma maculatum*, and *Poa maniototo*, or the species which have a stronghold in the cushionfields such as *Colobanthus brevisepalus*, *Agrostis muscosa*, *Cheilanthes sieberi*, *Hypericum involutum*, or *Daucus glochidiatus*. While many of these species and other species at the site are experiencing decline generally at a national or regional scale, or have experienced decline over the past several hundred years, most of the trajectories of plant species at the site remain uncertain, and so asserting an overall decline or improvement is not possible without further research.

44. I agree with Mr Crowe (DOC) that the positive trend for woody vegetation coverage is important in the context of the offsetting and compensation package which anticipate and claim gains for this metric. Other targets of the mitigation and offsetting package for plant biodiversity are native woody species richness, taramea cover, and tussock cover which also need to be additional to what could be expected to occur without intervention in order to claim benefit. It is therefore important that monitoring of mitigation and offsetting actions include appropriate reference sites to ensure that any purported gains exceed those that would have occurred naturally.

Baseline State

45. Mr Crowe notes that "The question of baseline conditions was raised during workshops, and the stated position of the applicant is that all disturbance associated with exploration is provided for under consent conditions, and therefore the appropriate baseline for considering the impacts of mining is the post-exploration environment."

46. The baseline state is as described in the B.13A Vegetation Values Assessment: "The baseline state is the current state of the site (as at the time of ecological field investigations, which took place between October 2023 and January 2025) except for impacts associated with the exploratory phase of the project which include earthworks, vegetation clearance, and the construction of roading and drill platforms. We understand that these effects are addressed as part of the ecological effects assessment that has been prepared by Alliance Ecology Limited." Therefore, we excluded exploratory impacts from the vegetation community mapping and de-selected vegetation plots that were in exploration areas. As such the vegetation characteristics and values assessment and the assessment of effects work is effectively a pre-mine exploration state.

47. Related to the baseline state of the mitigation and offsetting areas, I agree with Mr Head (EDS) that there may be issues of leakage as a result of the offsetting package. In particular, increasing woody cover across an area may cause herbaceous native species or the structural diversity that currently exists as a mosaic across the site to decline, and these aspects may not be captured in the predictive offset modelling or monitoring if that modelling or monitoring is limited to a small subset of ecological attributes.

Assessment of Ecological Value

48. The B.13A Vegetation Values Assessment and the B.08 Ecological Effects Assessment use different methods to assess ecological value for vegetation communities. Mrs Teele (ORC) concurs with the valuation of vegetation communities in the B.13A Vegetation Values Assessment, while Mr Head (EDS) asserts that three of the seven vegetation communities should be half a point higher (on a 5-point scale), and a point higher for one vegetation community. These elevated assessments are on the basis of them occurring on Threatened land environments, and supporting multiple Threatened and At Risk species. While I took these factors into account when assessing value, they alone did not trigger the slightly higher ecological valuation that Mr Head (EDS) has arrived at. Nonetheless, I also undertook an assessment of the hilly landscape unit that comprises most of the DDF and ESA and determined it to be of Very High value, so in that respect, I

generally agree with Mr Head (EDS) that the site overall contains values that are of very high conservation importance.

49. I agree with Mr Harding (CODC), Mr Crowe (DOC) and Mrs Teele (ORC) that the 'Representativeness' criteria is properly assessed as the extent to which a vegetation community is typical of the present-day indigenous biodiversity in the Ecological District. This is the approach that I took in assessing 'Representativeness' in the B.13A Vegetation Values Assessment. For the assessment of ecological value of each vegetation community more generally (including 'Representativeness'), I considered the vegetation communities as they exist across the entire ESA and also considered the better examples of each vegetation community within the ESA, so as to not obscure values by taking an average.

Irreplaceable Vegetation Values

50. I agree with Mr Harding (CODC), Mr Crowe (DOC) and Mr Head (EDS) who state that ecological values that are irreplaceable and cannot be adequately offset or compensated should be avoided.

51. This is the case for, at a minimum, the following plants and vegetation communities which have a Very High level of effect after mitigation and offsetting, namely:

    (a) *Myosotis brevis*;

    (b) *Carex talboti*;

    (c) *Colobanthus brevisepalus*;

    (d) *Raoulia beauverdii*;

    (e) *Poa maniototo*;

    (f) *Hypericum involutum*;

    (g) *Ceratocephala pungens*;

    (h) Mixed depleted herbfield (cushionfield) and grassland.

52. Effects of this nature represent a severe and irreversible loss of indigenous biodiversity, arising from high ecological value, high magnitude of effect, and the absence of proven and/or effective mitigation or offsetting options. From an ecological perspective, including when applying the Ecological Impact Assessment

Guidelines[11] and the National Policy Statement for Indigenous Biodiversity, these effects are not capable of being appropriately managed and from that ecological perspective are therefore most appropriately addressed through avoidance.

Zachary Thomas Milner

17 April 2026

[11] Roper-Lindsay, J., Fuller S.A., Hooson, S., Sanders, M.D., Ussher, G.T. 2018. Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd edition.

APPENDIX 1

Map showing the extent of spring annual survey in 2024 (pink), 2025 (green) relative to the DDF (white) and ESA (red).