Before the Fast-track Panel

Under:	The Fast-track Approvals Act 2024
In the matter of:	FTAA-2507-1089 – Bendigo-Ophir Gold Project

Further Statement of advice

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Te Papa Atawhai

Te Kāwanatanga o Aotearoa
New Zealand Government

Introduction

1. My full name is Max Maurice Leigh Crowe.

2. I have been requested to provide expert advice on behalf of the Department of Conservation (DOC) on the Bendigo-Ophir Gold Project Fast-track application.

Qualification and Experience and Code of Conduct

3. I refer to my Statement of Advice dated 10 March 2026, and the qualification and experience set out at paragraphs 4-5. In providing this further evidence, I confirm I continue to abide by the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 as set out in my previous statement at paragraph 6.

Response to Minute 40

4. This evidence responds to the 2025 Spring Annual Report discussed in Minute 40 of the Panel[1]. Counsel for DOC sought leave for me to provide comment on this report to assist the panel, with leave being granted on 24 July 2026.

5. Thank you for the opportunity to respond to the 2025 Spring Annual Report, discussed in Minute 40. This response provides the Department of Conservation's analysis of the report's findings, including detailed consideration of the raw data and the supporting information provided by the applicant.

6. The 2025 Spring Annual Report confirms that the population and distribution of the four spring annual species are greater than the initial survey indicated[2]. The estimated population sizes of three of the four threatened spring annual species within and immediately surrounding the Direct Disturbance Footprint (DDF) are now several times greater than previously understood, despite less than half of the area within the DDF considered likely to support the species having been surveyed to date.

Relevance of the new data for the Assessment of effects

7. The 2025 Spring Annual data significantly increases the level of effect of the project for spring annual species and as a result, the overall effect on indigenous

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[1] Minute 40 dated 8 July 2026
[2] B.13 – RMA Ecology – Vegetation Values Assessment (RMA Ecology 2025)

biodiversity. This will almost certainly be increased again once survey work has been completed in the DDF.

8. In paragraph 115 of the Effects Management Joint Witness Statement[3], the ecologists for the Applicant, having had the benefit of early access to the findings of the report, revised their assessment of the magnitude of effect (i.e. the level of effect after rehabilitation) on all four spring annual species, to be "very high". This means that the 2025 survey evidence has materially changed the factual basis for assessing both direct effects and the adequacy of the proposed effects-management response.

9. The Assessment of Ecological Effect[4] had previously identified the magnitude of **residual** effect (i.e. the level of effect after offsetting/compensation) for the two most threatened spring annual species as "very high". According to Mr Baber's interpretation of the Ecological Impact Assessment Guidelines (EcIA)[5], no higher level of effect is possible. Once an assessment reaches the top category, the matrix therefore ceases to discriminate between materially different levels of residual adverse effect, a critical flaw in the method.

10. The EcIA Guidelines explicitly warn against over-reliance on the matrices when determining level of effect, and state: "Fundamentally, the matrix is not a substitute for sound professional judgement and good science, but can be used to guide assessments of effects and demonstrate to those reading assessment documents that a repeatable, logical process has been applied to the data" (page 76, EcIAG).

11. Because of the way the Guidelines have been interpreted, the decision to upgrade the magnitude of effect for species already identified as having a very high level of **residual** adverse effect makes no practical difference in this case. That outcome is difficult to reconcile with the EcIAG's expectation that professional judgement be used to distinguish between very high effects that differ in scale, uncertainty, and conservation consequence.

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[3] Joint Witness Statement of Experts – Ecology Effects Management 10-11 June 2026
[4] B.08 – Alliance Ecology Consulting – Assessment of Ecological Effects (Alliance 2025)
[5] Ecological Impact Assessment Guidelines 2nd ed, (EIANZ 2018)

Densities within the Come-in-Time pit considerably higher than elsewhere for C. pungens

12. The 2025 Spring Annual survey results indicate that highest-value populations of the most threatened spring annual species *Ceratocephala pungens* (Threatened – Nationally Critical), in terms of both population size and density, are concentrated in areas proposed for revocation of protection and direct disturbance.

13. The highest densities, and around 40% of *C. pungens* individuals found during the 2025 survey, are within the DDF, compared with 36% within the ARA. Based on analysis of the data and figures provided, nearly 21% (2,490/11,885) of all individuals found were inside the proposed Come-in-Time footprint, and the density of *C. pungens* within the DDF and CIT pit is about 32% and 280% greater than the density within the ARA, respectively. Similarly high densities are found within the DDF and CIT for most other spring annual species surveyed (Table 1).

Table 1. Calculated average density (number of plants per area surveyed) for discrete areas of the Proposed BOGP mine. Note that for the DDF and CIT some areas were searched twice during the 2025 season.

Species	Density in ARA (#/ha searched)	Density in DDF (#/ha searched)	Density in the CIT (#/ha searched)
C. pungens	38	50	146
M. brevis	10	161	405
M. antarctica	3	3	19
M. minimus	49	374	2096

14. High concentrations and densities of spring annuals extend beyond, and are immediately adjacent to, the current proposed footprint, and are highly likely to be impacted indirectly. If the mine footprint is increased to realistically include all effects (e.g., a 200 m buffer around the activities with the highest dust generating potential, such as pits and haul roads), the existing survey data indicate that the proportion of affected individuals would increase to 59% for *C. pungens*, 40% for *M. brevis,* and 63% for *M. minimus* (Table 2). Nearly all these individuals occur within the proposed covenant revocation area.

Table 2. Approximate proportion of spring annual populations within components of the 2025 Spring annual survey.

Species	% within DDF	% within DDF including 200 m buffer	% within Covenant revocation area	% within ARA	% on private land
C. pungens	40	59	61	36	3
M. brevis	27	40	30	2	42
M. antarctica	38	37	37	40	22
M. minimus	25	63	60	4	16

Lack of data regarding Bendigo Conservation Covenant outside revocation area

15. According to the data provided, none of the search effort in 2024 or 2025 occurred within the approximately 5,500 ha Bendigo Conservation Covenant outside the proposed revocation area. Without survey of the wider covenant, the Panel cannot determine whether the proposed revocation area is exceptional, representative, or part of a broader distribution of threatened spring annual flora. Based on the current evidence, the revocation would result in the loss of legal protection for the only significant concentration of a Nationally Critical species known within the Bendigo Conservation Covenant, and almost certainly the largest known and highest-density populations of the species anywhere.

16. The lack of consideration of the conservation significance of revoking the only area of the covenant known to support these values is indicative of how the EcIAG, as applied, fails to discriminate between materially different levels of "very high" adverse effect.

Spring annuals more widely distributed than previously reported

17. The 2025 Spring Annual Report found that the species also occur in a range of habitat types. Analysis of data provided by the applicant indicates that, within the Ecological Study Area, more than 20% of *Ceratocephala pungens*, 35% of *Myosotis brevis*, and 25% of *Myosurus minimus* were found in habitats other than depleted herbfield, including exotic grassland, tussock grassland, mixed scrub, and kānuka treeland. This finding is consistent with the agreement reached by all experts in paragraph 16 of the Ecology – Terrestrial Vegetation Joint Witness Statement[6], namely that the vegetation mapping, vegetation descriptions, and

[6] Joint Statement of Expert Witnesses – Ecology – Terrestrial Vegetation – 25 May 2026

ecological values associated with the habitats underestimate impacts on spring annual species.

18. All experts for the submitters agreed in paragraph 17 of the Ecology – Terrestrial Vegetation Joint Witness Statement that the findings of larger and more widely dispersed populations of spring annual species have implications for calculation of ecological values, and by extension residual adverse effects on both habitats and species.

Proposed Ardgour fenced sanctuary support few spring annual values

19. The siting of the proposed fenced sanctuaries has been the subject of several discussions. It has been unclear what values the sanctuaries support, and therefore, the relative merit of undertaking to fence and exclude pests from these areas. The Proposed Ardgour Fenced Sanctuary includes specific consideration of cushionfield; however, the spring annual survey data shows that low densities of only two species, *C. pungens* (~140 individuals) and *M. brevis* (~5 individuals), were detected. It therefore appears that the area has relatively low value as spring annual habitat when compared with adjacent areas within the Ardgour Restoration Area.

Potential impacts of erosion mitigation on spring annual recruitment

20. The Spring Annual Report found that *C. pungens* populations were recorded within areas of recently disturbed soils associated with the upgrade of Thomsons Gorge Road during the first survey of the DDF (page 22, 2025 Spring Annual Report). However, these plants could not be relocated among the exotic grass sward that had established since the first survey, and the authors identify a potential negative effect from exotic grass species used for soil stabilisation. The implication is that, while these species may benefit from some level of disturbance, their habitat requirements may potentially be incompatible with the erosion and sediment control objectives of the mining operation (page 23, 2025 Spring Annual Report).

Impacts on threatened species associated with CIT early works

21. Proposed Condition C103 provides for 2.7 ha of early disturbance within the Come-in-Time pit, and a map showing the proposed disturbance area was provided as Appendix D to the condition set. Based on a digitised version of this map, in combination with the search effort maps provided in the Spring Annual

Report and GPS data provided by the applicant, it is possible to estimate the number of individuals that would be impacted by these early works.

22. While only around half (1.4 ha) of the 2.7 ha early works extent was covered by the 2025 survey, it is notable that the early works would impact several hundred individuals of Threatened and At-Risk species (Table 3).

Table 3. Estimated numbers of spring annual species within the surveyed area of the proposed Come-in-Time early works area defined in Appendix D to the Common Conditions.

Species	Estimated # of individuals within CIT early works area
C. pungens	10
M. brevis	765
M. antarctica	35
M. minimus	300

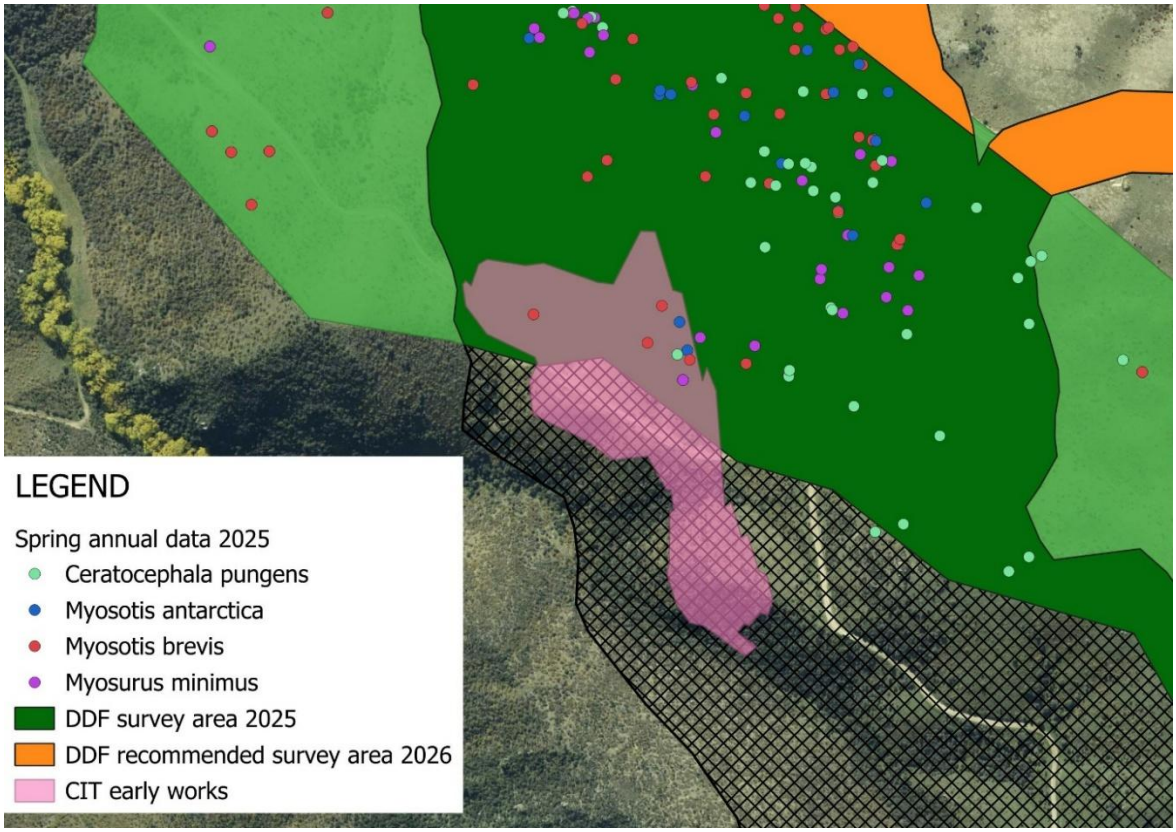

Figure 1. Proposed Come-in-Time early works (pink) relative to the 2025 spring annual search extent (green).

Spring annual populations within the ARA

23. The 2025 survey has identified the presence of sizable populations of *C. pungens* within the Ardgour Restoration Area for the first time, albeit with a total number and average density of individuals lower than those found within the

DDF. The other spring annual species were also detected, but at considerably lower densities than those found within the DDF (Table 1).

24. While the discovery of additional populations of *C. pungens* within the ARA arguably diminishes the short-term likelihood of extinction, it does not reduce the level of effect of the proposal.

Survey recommendations for 2026

25. Nearly 1,400 ha of additional habitat of potentially very high conservation value has been identified for further survey in 2026, including 144 ha within the DDF, 330 within the Ardgour Restoration Area, and 881 ha on nearby privately-owned land. It is considered highly likely that further survey will detect additional populations of these species both inside and outside the Direct Disturbance Footprint.

26. Assuming an 8-hour workday, the 2025 survey, which covered approximately 900 ha, occupied around 480 person-hours, or just over half an hour per hectare. It could therefore be expected that the 1,400 ha recommended area for 2026 will require at least 700 person-hours. This represents a significant volume of work requiring specialist botanical expertise. Given the time constraints for both the survey work and reporting back to the Panel within the statutory timeframes, it is recommended that this survey work be undertaken as soon as possible, and that appropriately qualified and experienced field staff are employed.

27. On the basis of the information received and given the clear time restrictions on obtaining additional information to support the application, it is recommended that the highest-priority surveys are those needed to resolve uncertainty about direct and indirect effects, covenant revocation, and high-value affected habitat before surveys intended mainly to test compensation opportunities. The recommended priority areas are:

    a. The remaining 61 ha of identified potential spring annual habitat within the proposed Bendigo Conservation Covenant revocation area (recommended in Appendix 2 of the 2025 Spring Annual Report), including the remaining 1.4 ha of the CIT early works area.

    b. Identification and survey of potential spring annual habitat within the approximately 5500 ha extent of the Bendigo Conservation Covenant

outside of the proposed revocation area (not included in the recommendations of the 2025 Spring Annual Report).

c. The additional 103 ha of identified potential spring annual habitat on Ardgour Station within and directly adjacent to the Direct Disturbance footprint (recommended in Appendix 2 of the 2025 Spring Annual Report).

d. Remaining 330 ha of identified potential spring annual habitat within the Proposed Ardgour Restoration Area (recommended in Appendix 2 of the 2025 Spring Annual Report).

e. Approximately 881 ha of private land outside the Ecological Study Area (recommended in Appendix 2 of the 2025 Spring Annual Report).

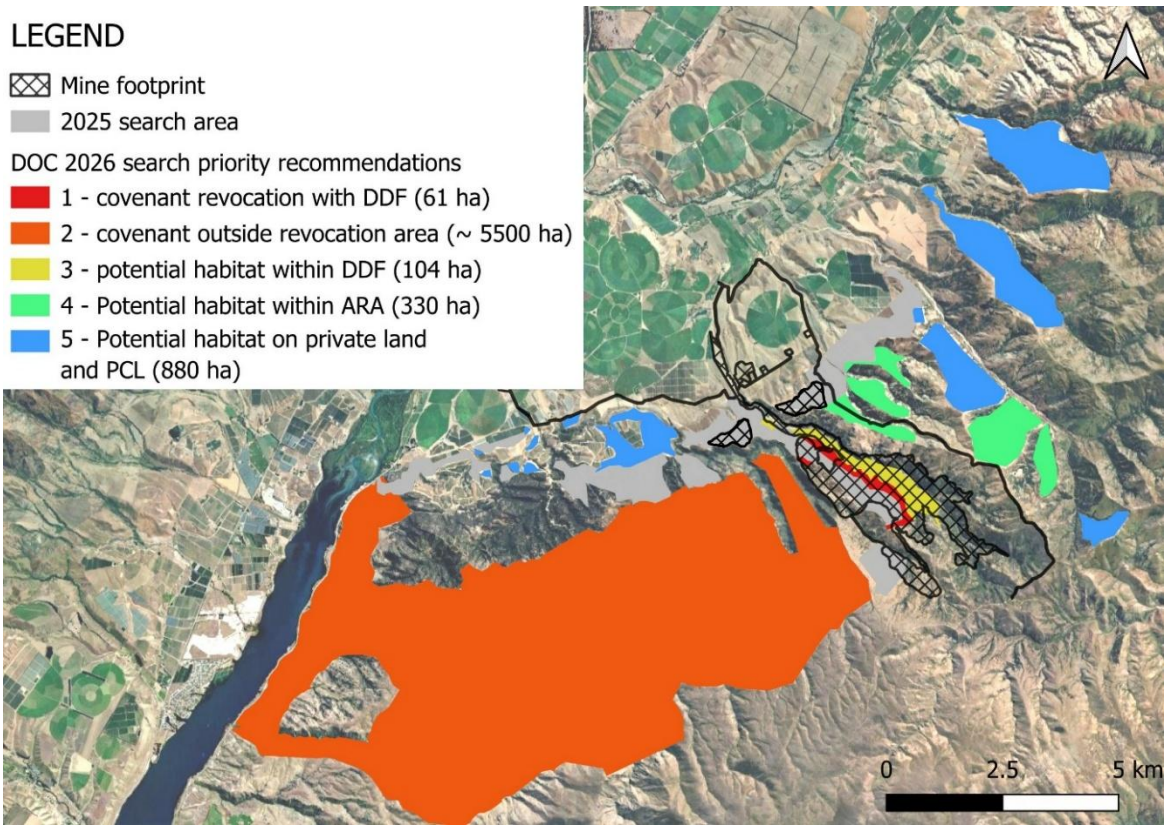

Figure 2. Recommended priority areas for spring annual survey in 2026. Note that full survey of the Bendigo Conservation Covenant is not required – only those areas considered most likely to support spring annual values.

Conclusion

28. In summary, the 2025 survey materially changes the evidential basis for assessing effects on spring annual species. It shows that the proposed disturbance footprint and the proposed covenant revocation area contains

almost certainly the largest population in the world of a Threatened – Nationally Critical plant species within substantial concentrations of threatened spring annual flora, all of which are assessed as subject to the highest possible level of adverse effects under the EcIAG assessment framework. For *C. pungens*, a species already on the brink of extinction, the loss of the largest known population would further increase extinction risk.

29. These threatened species and their habitats are irreplaceable, and the effects of the proposal are irreversible. It is not possible to offset or compensate for these effects, and the impacts should therefore be avoided.

30. The Panel should treat the residual uncertainty as relevant to the scale of direct and indirect effects, the adequacy of proposed offsetting and compensation, and the conservation consequences of covenant revocation.

Max Crowe