**BEFORE AN EXPERT PANEL** **FTAA-2507-1089**
**BENDIGO-OPHIR GOLD PROJECT**

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| Under the | FAST-TRACK APPROVALS ACT 2024 |
| In the matter of | an application for approvals to establish, operate, rehabilitate and ultimately close an open pit and underground gold mining operation known as the Bendigo-Ophir Gold Project |
| By | **MATAKANUI GOLD LIMITED**<br>Applicant |

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# STATEMENT OF SUPPLEMENTARY EVIDENCE OF MICHAEL HARDING

## TERRESTRIAL ECOLOGY

**for**

## CENTRAL OTAGO DISTRICT COUNCIL

**20 August 2026**

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## List of Abbreviations

| | |
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| BOGP | Bendigo-Ophir Gold Project |
| CIT | Come In Time (mine pit) |
| CODC | Central Otago District Council |
| Consent Area | The BOGP Consent Area (as mapped in Document C.03) |
| DDF | Direct Disturbance Footprint |
| ESA | Ecological Study Area |
| FTAA | Fast-Track Approvals Act 2024 |
| JWS | Joint Statements of Expert Witnesses |
| MWLR | Manaaki Whenua-Landcare Research |
| MGL | Matakanui Gold Limited |
| RAS | Rise And Shine (mine pit) |

## Introduction

1. My full name is Michael Arthur Coupland Harding.

2. This Supplementary Evidence responds to the recently released Bioeconomy Science Institute's Spring Annuals Report (**the report**) for the proposed Bendigo-Ophir Gold Project (BOGP). It has been prepared after the Expert Panel granted leave for Central Otago District Council (CODC) to comment on the report, as offered in Minute 40 of the Expert Panel (para 9).

## Qualifications and Experience

3. My qualifications and experience are set out in my Evidence in Chief (paragraphs 3 to 6) dated 10 April 2026. Experience that is particularly relevant for review of the report is my involvement in a survey of cryptic (difficult to detect) dryland herb (*Lepidium*) species at nearly all previously recorded and many additional locations throughout Central Otago, Mackenzie Basin and Waimakariri Basin in 2021-2023.[1]

## Code of Conduct

4. I have read the code of conduct for expert witnesses contained in the Environment Court's Practice Note 2023 (the Code). I have complied with the Code when preparing this written statement of evidence. The data, information, facts, and assumptions I have considered in forming my opinions are set out in my evidence. Unless I state otherwise, this evidence is within my sphere of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## Scope and Material Considered

5. The scope of this Supplementary Evidence is terrestrial ecology with respect to the information presented in the Bioeconomy Science Institute's Spring Annuals Report. Text quoted from the report is referenced by report section and page number, in square brackets. The full reference for the report is presented below. Other documents and papers are referenced in footnotes.

[1] Walker, S.; Harding, M.A.C.; Loh, G. 2023. The pattern of declines and local extinctions of endemic inland Lepidium species in the eastern South Island. NZ Journal of Ecology 47(1): 3547.

- Bioeconomy Science Institute, March 2026. Results of a survey of spring annual herb species on Bendigo and Ardgour Stations, 2025 (updated). Bioeconomy Science Institute, Manaaki Whenua-Landcare Research Contract Report 2526-0088. 42pp.

## Importance of the Spring Annuals Report

6. The report is notable as a comprehensive analysis of a scientifically robust survey undertaken by a reputable research organization, Manaaki Whenua-Landcare Research (MWLR).

7. The survey method is clearly defined, the data clearly presented, and the limitations of the survey method and data clearly articulated. I am aware that the field survey was undertaken by people who are among the most experienced and skilled dryland ecologists in the country (although their names are redacted from the report).

8. The survey is the most comprehensive – and probably the most extensive – survey of dryland spring annual species in recent years. It provides data that are invaluable for our understanding of the numbers, distributions and biology of these cryptic species. The report illustrates, through objective survey and analysis, the difficulties associated with determining the presence and population numbers of the four species surveyed: *Ceratocephala pungens* (Threatened – Nationally Critical), *Myosotis brevis* (Threatened – Nationally Vulnerable), mousetail *Myosurus minimus* subsp. *novae-zelandiae* (At Risk – Declining), and *Myosotis antarctica* subsp. *antarctica* (At Risk – Naturally Uncommon).

9. An important comment in the report is "tracking distributional changes and trends in the numbers of the spring annuals in future will depend on similar targeted surveys, using similar methods by similarly experienced observers" [6.1; 22]. I concur that, to provide comparable data, future surveys must replicate the rigour, robustness and expertise of the reported survey.

## Key Findings of the Spring Annuals Report

10. The report reveals that the estimated numbers of three of the four spring annual species are considerably larger than indicated in the earlier RMA Ecology vegetation survey[2], both within the Direct Disturbance Footprint (DDF) and in adjacent habitats. Those

[2] Bendigo-Ophir Gold Project Vegetation Values Assessment. RMA Ecology, October 2025 (Document B.13).

same species (*Ceratocephala pungens*, *Myosotis brevis* and *Myosurus minimus* subsp. *novae-zelandiae*) were found to be present at densities that were substantially higher within the DDF than in the surrounding surveyed locations [5.1-5.3; 9-20].

11. The report confirms the conclusion of the RMA Ecology report with respect to *Ceratocephala pungens* that the "population within the ESA is likely one of the most – if not the most – important strongholds and is of critical importance to the long-term persistence of the species".[3] Further, it also confirms that the proposed locations of the RAS and CIT pits coincide with especially dense populations of these species.

12. The report also notes that the spring annual species are not confined to cushionfield habitats. The species were also found in "kānuka shrubland and woodland, and saline-influenced areas" [5; 7]. The key determinant of habitat suitability appears to be sparse ground cover in early spring.

13. Another important finding of the report is that the presence and detectability of these species – and especially *Ceratocephala pungens* – vary through the season and most likely between seasons. This finding has important implications for determining the distributions and numbers of these species though field survey. Clearly, field survey at one point in time, in one season of one year is insufficient to provide robust data on these spring annual species within the Consent Area.

14. These findings highlight the uncertainties associated with interpreting spring annuals survey data and therefore assessment of the potential effects of the proposed activity.

## Limitations of the Spring Annuals Survey

15. There are two important limitations of the spring annuals survey data: duration and coverage.

16. The report found that the locations of plants change across the spring growing season within a single year, and that plant locations are also likely to vary between different years. Spring annuals that were only present/visible outside the two survey periods (29 September – 3 October and 28 October – 1 November) would not have been recorded

[3] Bendigo-Ophir Gold Project Vegetation Values Assessment. RMA Ecology, October 2025 (Document B.13), p69.

in the survey. The report states that "sites with spring annuals therefore need to be identified over multiple years" [6.1; 22].

17. The first stage of the spring annuals survey (29 September – 3 October) covered only 50 of the 91 blocks identified as potential habitat for spring annuals, principally due to restrictions (lambing) on access to Ardgour Station [4.3; 4]. The survey data show that adjacent areas of potential habitat on Bendigo Station within the DDF support very high numbers and high densities of spring annual species.

18. The second stage of the spring annuals survey (28 October – 1 November) covered 42 of the 45 blocks identified as potential habitat for spring annuals, though none of those blocks were within the Ardgour Station part of the DDF [4.3; 4; Table 1].

19. Another important limitation of the survey coverage is that large parts of the Bendigo Conservation Covenant were not surveyed. The lack of comprehensive coverage of the covenant constrains the assessment of the effects of covenant revocation.

## Implications of the delayed release of the Spring Annuals Report

20. I know from my professional experience that spring annual species are difficult to survey. On several occasions I have reviewed ecologist's surveys of dryland sites, surveyed those sites, and frequently found spring annual species that were not recorded by those ecologists. A critical part of the review of spring annuals survey data is understanding the survey method, survey coverage and experience of the surveyors.

21. For those reasons I requested a copy of the report early in the consultation process and again – repeatedly – while preparing evidence.[4] Those requests were declined by Matakanui Gold Limited (MGL). It is now evident that the ecologists providing advice to MGL had unredacted copies of the report to assist with preparation of their evidence and with their contributions to expert conferencing and the resultant Joint Statements of Expert Witnesses (JWS).[5]

22. The effect of MGL's refusal to provide copies of the report is that some ecologists (those providing advice to MGL) have had privileged access to the report. That access

[4] Verbal requests at workshops, 18 & 19 February 2026; requests by emails 18 March 2026.
[5] Memorandum of Counsel for Environmental Defence Society Inc. 24 June 2026.

has enabled those ecologists to provide evidence, and contributions to expert conferencing, that are better informed than the contributions of the other ecologists.

23. The privileged/unequal access to the survey data means that the parts of the joint witness statements related to springs annuals (and the consequent assessment of effects) cannot be relied upon to provide complete or robust ecological advice, in particular Part G of the Ecology-Terrestrial Vegetation JWS (25 May 2026) and Part CC of the Ecology-Effects Management JWS (10 & 11 June 2026).

## Conclusions

24. The data for spring annual species within the BOGP Consent Area are incomplete. These species are either nationally threatened with, or at risk of, extinction. Determining the extent to which the proposed activity will increase the likelihood of extinction is critical for the consenting process.

25. The DDF is more important for these spring annual species than previously assumed. Therefore, the applicant's assessment of effects, while acknowledging the high value of these species, does not adequately address the potential effects of the activity, notably the extinction risk.

26. The Evidence presented to the Panel from myself and other ecologists working for parties other than the Applicant, did not benefit from the important information and analysis presented in the report. The Applicant's ecologists had earlier access to the report. Therefore, the evidence and JWS before the Panel are constrained by preferential access to data by the applicant's ecologists.

27. Further surveys are urgently required to inform the consenting process. The most important areas for survey are those parts of the DDF that were not covered by the MWLR spring annuals survey. Also important are those un-surveyed parts of the wider Consent Area and the Bendigo Conservation Covenant. Furthermore, ideally, the formerly surveyed areas should be re-surveyed to determine whether plants are present this season at locations at which they were absent last season.

28. It is critical that the further survey work is undertaken by ecologists with proven survey experience, otherwise the survey data will be unreliable. Ideally, this season's surveys should be undertaken by the same (or similar) team that undertook the 2025 survey. The

effort required to complete survey of the affected areas, and to therefore provide adequate information for the assessment of the effects of the proposed activity, is substantial (several hundred person hours).

29. Survey data from this 2026 season – and preferably a longer period – is critical to ensure that the risk posed by the activity is adequately assessed.

**Mike Harding**
**20 August 2026**