Before the Fast-track Panel

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

Statement of advice

Dr Mandy D Tocher

Technical Advisor Herpetofauna

19 March 2026

Department of Conservation
Te Papa Atawhai

Te Kāwanatanga o Aotearoa
New Zealand Government

Contents

Before the Fast-track Panel 1

Introduction 3

Instruction 3

Qualification and Experience 3

Code of conduct 3

Material Considered 3

Scope of Advice and Expert Opinion 5

Recent Declines in NZ Lizards, Hitchmough *et al.* 2026 5

Lizard Values Assessment 6

Lizard Effects Assessment 8

Significance of Effects 10

Assessment of Residual Effects 12

Adequacy of the Proposed Lizard Effects Management Package 13

Wildlife Approvals 15

Proposed Council Conditions 16

Lizard Management Plan 17

Concessions 18

Further comments 18

Conclusion 18

Appendix 1: Agenda provided by Santana the day before the March 13th Lizard Workshop 20

Appendix 2: Impact Areas Omitted from Effects Assessment 21

Appendix 3: Actual Lizard-Related Effects of the BOGP not included in the Applicants reports. 22

Appendix 4: Topics covered by proposed Wildlife Act Conditions 23

Appendix 5: Suggested Additional Wildlife Act Conditions 24

Appendix 6: Proposed CODC Conditions 25

Appendix 7: Concessions Affecting Lizard Habitats 27

Introduction

1. My name is Dr Mandy D Tocher.

Instruction

2. I am providing expert advice on behalf of the Department of Conservation (DOC) on the Bendigo-Ophir Gold Project Fast-track application (the 'BOGP').

3. My advice relates to the applications under the Fast-track Approvals Act 2024 (FTAA) for wildlife approval and conservation covenant revocation at the proposed 'Project Site'[1], as well as the concession applications, and will be used to inform DOC's section 51 and 53 comments.

Qualification and Experience

4. I hold a PhD and MSc (1st class hons.) in Zoology and an MPlan (Dist.). I was the South Island Herpetologist for DOC (16-years from 1995-2011) and have been a herpetologist for private consultancies (15-years from 2011-present), all the while based in Otago. I led a 6-year multidisciplinary research programme on critically endangered grand and Otago skinks in Otago that led to management to bring them back from the brink of extinction; I have carried out multiple lizard assessments in and around the Dunstan Mountains, including a lizard survey of Rocky Point near the proposed BOGP footprint.

5. I have been the lead author or joint author to over 20 scientific publications / book chapters / best practice reports, with a focus on South Island herpetofauna; for example, under contract to DOC, I produced the best practice salvage guidelines and designed the best practice lizard management plan (LMP) template for DOC.

6. I have a wide technical and general knowledge of the ecology of lizard species found in the Bendigo region, particularly southern grass skink; Kawarau gecko; McCann's skink; Lake's skink, and orange-spotted gecko.

Code of conduct

7. Whilst it is acknowledged this is not an Environment Court Proceeding, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. I have complied with the Code of Conduct in the preparation of this advice. Unless I state otherwise, this advice is within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Material Considered

8. In preparing this advice I have reviewed:

    i. A.09 - Section 2 - Existing Environment .pdf

[1] The "project site" includes all areas where the applicant proposes activities in relation to the application (including Public Conservation Land (PCL), the covenant uplift area, all concession areas and areas where other activities including ecological enhancement activities are proposed).

ii. B.08 - Alliance Ecology Consulting - Assessment of Ecological Effects (Alliance 2025).pdf
iii. B.08 - Appendix 3 - Biodiversity Offset Modelling (terrestrial ecology values).pdf
iv. B.09 - Habitat NZ - Mammalian Pest Survey (Habitat NZ 2025a).pdf
v. B.12 - RMA Ecology - Wetland Values Assessment (RMA Ecology 2025a).pdf
vi. B.15 - RMA Ecology - Lizard Values Assessment (RMA Ecology 2025d).pdf
vii. B.40 - Mine Closure Management - Mine Closure Plan (MCM 2025).pdf
viii. C.01 - BOGP Location Overview.pdf
ix. C.02 - BOGP Project Site Layout.pdf
x. C.03 - BOGP Consent Area.pdf
xi. C.06 - Project Site Land Ownership - Overview.pdf
xii. C.07 - Project Site Land Ownership - Borefield Pipeline 1.pdf
xiii. C.08 - Project Site Land Ownership - Borefield Pipeline 2.pdf
xiv. C.09 - Project Site Land Ownership - Borefield Pipeline 3.pdf
xv. C.10 - BOGP Consent Area and Adjacent Land Ownership.pdf
xvi. C.12 - Bendigo Conservation Covenant - Overview (1).pdf
xvii. C.13 - Bendigo Conservation Covenant - Project Site (1).pdf
xviii. C.14 - Bendigo Conservation Covenant - Uplift Area (1).pdf
xix. D.03 - Schedule One - Central Otago District Council and Otago Regional Council Common Conditions .pdf
xx. D.04 - Schedule Two - General Conditions for Otago Regional Council Resource Consents .pdf
xxi. D.06 - Concession and Conditions for Ardgour Rise.pdf
xxii. D.07 - Concession and Conditions for SH8 and Ardgour Road Intersection.pdf
xxiii. D.08 - Concession and Conditions for Access Route to CIT Battery.pdf
xxiv. D.09 - Concession and Conditions for Willow Management.pdf
xxv. D.10 - Concession and Conditions for Monitoring and Access.pdf
xxvi. D.11 - Wildlife Act Authority and Conditions.pdf
xxvii. E.04 - Bendigo Conservation Covenant 2000.pdf
xxviii. F.14 - CODC Response Letter - Section 30 of the FTA Act (1).pdf
xxix. F.15 - ORC Response Letter - Section 30 of the FTA Act (1).pdf
xxx. G.03 - Habitat Impact Management Plan (1).pdf
xxxi. G.05 - Lizard Management Plan (1).pdf
xxxii. G.07A - Landscape and Ecological Rehabilitation Management Plan (1).pdf
xxxiii. G.07B - Landscape and Ecological Rehabilitation Management Plan - Appendices (1).pdf
xxxiv. G.08 - Ardgour Restoration Area Management Plan (1).pdf
xxxv. G.09 - Matakanui Sanctuary Management Plan (1).pdf
xxxvi. G.10 - Mammalian Pest Management Plan (1).pdf
xxxvii. G.11 - Biosecurity and Plant Pest Management Plan (1).pdf
xxxviii. G.12 - Biodiversity Outcome Monitoring Plan (1).pdf

Site visits

9. I have undertaken two BOGP site visits: the first was a brief drive-through on December 24th, 2025, where I was unaccompanied so largely unaware of access constraints. For this reason, I accessed the area through Thomsons Gorge Road and from there undertook brief forays from the road to make a visual assessment of lizard habitats. The second site visit was with the Santana ecologists, on February 20th, 2026, where we saw the location of the proposed Ardgour and Bendigo pest exclusion fenced areas and had a brief look over parts of the proposed Ardgour Restoration Area.

Lizard Workshops

10. I attended the pre-lodgement TEAMS meeting on 22 September 2025, during which the project and the Applicant's ecologists were introduced to the DOC team. I subsequently

made myself available for a lizard focused workshop scheduled for 1 October 2025; however, on 30 September 2025 I was advised—along with Dr Matt Baber—that the workshop would not proceed, apparently due to the unavailability of the Applicant's ecologists.

11. I was later notified, at very short notice, of a lizard workshop planned for 18–19 February 2026. Owing to prior commitments, I could not attend, due to the importance of resolving many issues identified DOC requested that the workshop was moved to an alternative date, this was not facilitated by the applicant. Despite this, I remained willing to contribute and therefore participated online in the permissions focused workshop on 17 February 2026 and the compensation focused workshop on 20 February 2026.

12. Most recently, I participated in a lizard focused workshop on 13 March 2026, where I provided input on potential solutions to persistent deficiencies in the Applicant's evolving effects management package. The agenda for this workshop is attached as Appendix 1.

13. Across all engagements, I have consistently demonstrated a willingness to participate constructively. However, late notifications, a cancellation, and the continually shifting scope of the effects management package have materially constrained my ability to provide advice at the appropriate stages of proposal development. These process issues indicate a broader pattern of an evolving and frequently incomplete proposal, which has required repeated clarification and revision on my part. This is particularly evident in relation to the eight Management Plans related to the Lizard Management Plan.

Scope of Advice and Expert Opinion

14. My expert advice addresses the following matters:

    I. Adequacy of the Applicant's assessment of lizard values, including identification of any values that have not been assessed or have been insufficiently characterised.

    II. Adequacy of the Applicant's assessment of effects on lizards and their habitats, with specific reference to any effects that are incomplete, understated, or not addressed.

    III. Adequacy of the Applicant's proposed mitigation, rehabilitation, salvage, and management measures.

    IV. Alternative mitigation or management approaches, where appropriate, including clarification of my recommended measures where these differ from those proposed by the Applicant.

Recent Declines in NZ Lizards, Hitchmough *et al.* 2026[2]

15. Recent assessments show that declines in New Zealand lizards remain severe and widespread, with 97.3% of endemic taxa now classified as Threatened, At Risk, or Data Deficient. The New Zealand Threat Classification Status (NZTCS) 2025 reassessment

[2] Hitchmough *et al.* 2026. Conservation status of reptiles in Aotearoa New Zealand 2025. New Zealand Threat Classification Series 50. Department of Conservation, Wellington. 32 p.

highlights that declines are driven primarily by introduced mammalian predators, ongoing habitat loss, and climate related impacts, with 82 species (53.6 %) considered vulnerable to climate change. Although many changes in threat status between 2021 and 2025 reflect new information rather than biological recovery, some taxa show clear evidence of actual decline. The Data Deficient list has also expanded substantially, now including many newly discovered or poorly known taxa—several of which are likely to be highly threatened and potentially already in decline.

16. Across the lizard fauna, mainland populations continue to decline because effective long-term protection is largely limited to offshore islands and fenced sanctuaries, leaving most species exposed to predation and landscape scale ecological pressures. Despite national "Predator Free" ambitions, the Hitchmough et al. 2026 report notes no evidence that broadscale predator control benefits lizards and warns that meso-predator release of mice following predator control may worsen declines. While four species show genuine improvement due to intensive management (e.g., grand skink, Otago skink, Kapitia skink, Whitaker's skink), these are exceptions occurring at a small number of intensively managed sites.
17. Overall, the 2025 assessment reinforces that declines remain the dominant trend, with worsening threat status, ongoing loss of range, and increasing recognition of cryptic, narrowly distributed taxa that further elevate the urgency for conservation intervention.

Lizard Values Assessment

18. RMA Ecology carried out a lizard survey over the Project Site between summer 2024-summer 2025. This survey informed the effects assessment and the proposed effects management across multiple documents and management plans of the lodged Application.
19. Three lizard species were recorded in high numbers across the project site: Kawarau gecko (At -Risk – Declining; high tens of thousands), southern grass skink (At Risk- – Declining; low thousands), and McCann's skink (Not Threatened; low hundreds of thousands).
20. In my opinion, these are the lizard species most likely to occur across the site, and the survey methods used were appropriate for detecting them.
21. However, misidentification of lizards—particularly confusion between McCann's skink and southern grass skink—undermines the reliability of the lizard survey undertaken by the Applicant in four keyways:
    I. The number of individuals of each species affected by the BOGP may be over- or underestimated, and as a worse case, a cryptic species may not have been identified at all.
    II. Species-specific habitat use is inaccurately characterised; this is a particular concern for At Risk – Declining species (especially southern grass skink).
    III. Survey and salvage methods cannot be appropriately designed for the species present.

IV. Salvaged lizards may be released into unsuitable sites, compromising their long-term survival.

22. The Applicant's ecologists acknowledged these errors and proposed a potential fix at the 13 March 2026 Lizard Workshop. The potential 'fix' proposed involves selecting a range of representative sites across the Project Site (e.g., slopes, valley bottoms, wetland edges) and sampling 10–12 skinks at each. These skinks would then be worked through an identification sheet that outlines the most reliable diagnostic traits distinguishing southern grass skinks from McCann's skinks. The intention is to "calibrate" species identifications by comparing skinks detected during the original survey with those identified through this targeted verification exercise.

23. While I support the intent to address the misidentification issue, the proposed solution remains entirely within the applicant's control and is unlikely to be completed in time and at the scale to meaningfully inform revisions to the mitigation package.

24. Exacerbating the misidentification issue is that:

i. Survey coverage is incomplete, with several parts of the project site not assessed for lizard values (including wetlands, areas within the Bendigo Conservation Covenant, proposed release sites within the Ardgour Restoration Area[3], proposed pest exclusion fenced areas, and concession areas). This constitutes a critical information gap and significantly constrains the ability to assess the effects of the project on lizards.

ii. A map of lizard detections, including grid references, is missing, preventing a clear understanding of lizard distribution and surveyed versus un-surveyed areas.

iii. Potential habitat for rarer species (e.g., Lake's skink, jewelled gecko) was not adequately surveyed, particularly in heavily vegetated or inaccessible areas.

Fauna Habitat Significance

25. No significance assessment was undertaken using DOC's significance guidelines,[4] against the Significant Natural Area (SNA) criteria in the National Policy Statement for Indigenous Biodiversity (NPS-IB) or the Otago Regional Council (ORC) significance criteria. This is a critical omission, as most of the DDF (*c.* >70 %) is likely to meet these significance thresholds due to the extent and quality of Kawarau gecko habitat, and, to a lesser extent, southern grass skink habitat.

---

[3] The Lizard Management Plan dated September 2025 implies the Ardgour Restoration Area was surveyed yet its lizard values are unreported. Suitable habitat for southern grass skinks within this area appears uncertain. As I understand it from the February 20th, 2026, site visit and the March 12th, 2026, Lizard Workshop further work is currently being carried out by a range of Santana' contractors, including Keith Barber, all under Matt Baber's Wildlife Act handling permit; these surveys include ACOs and manual habitat searches. The scope of further lizard survey work being carried out now, is not known to me.

[4] Davis, C. M., Head, N., Myers, S. C., & Moore, S. H. (2016). Department of Conservation guidelines for assessing significant ecological values. Publishing Team, Department of Conservation.

26. Overall, the combined issues of species misidentification, incomplete survey coverage, missing detection maps, and insufficient assessment of potential habitats for rarer or higher risk species significantly undermine confidence in the applicant's lizard survey dataset and its suitability for informing effects assessment or mitigation design. These gaps constrain the ability to determine which species are present, in what numbers, and how they use habitats across the Project Site. The gaps in methodology and data materially limit the defensibility of the subsequent effects management package.

27. For a project of this scale and ecological sensitivity, a lizard values assessment would ordinarily include:

    iv. (i) comprehensive survey coverage across all activity areas, including wetlands, riparian margins, concession areas, covenant land, and proposed receiver sites;

    v. (ii) verified species identifications supported by diagnostic images, voucher specimens, or independent expert review;

    vi. (iii) mapped lizard detections with grid references to delineate distribution, density, and surveyed versus unsurveyed areas;

    vii. (iv) targeted assessment of potential habitat for rarer or higher-risk taxa likely to occur, including Lake's skink and jewelled gecko;

    viii. (v) a structured evaluation of habitat significance against the DOC significance criteria, the NPS-IB Significant Natural Area (SNA) criteria and the Otago Regional Council (ORC) significance criteria; and (vi) an evidence-based interpretation of how species use the landscape, including microhabitat associations, population context, and vulnerability to proposed activities.

28. Collectively, these elements provide the minimum information required to characterise ecological values, evaluate effects, and design a defensible effects-management and compensation package for protected lizards.

Lizard Effects Assessment

29. The Applicant's effects assessment is incomplete and materially understates the scale and significance of adverse effects on lizards and their habitats. Key effects are dispersed across multiple documents, requiring forensic cross-referencing to identify them, and several fundamental components of the effects assessment are missing.

Lizard Species Affected

30. Although three lizard species were recorded, the effects assessment fails to address impacts on other At Risk and Threatened species acknowledged as potentially present, including jewelled gecko, Lake's skink, and orange spotted gecko. These species are excluded from the effects evaluation, and the Incidental Discovery Protocol (Section 8 of the Lizard Management Plan) provides inadequate management for them. This omission does not follow best practice and in my opinion represents a fundamental flaw in the assessment.

31. Lake's skink (Threatened – Nationally Vulnerable) is the unrecorded species which is most likely to occur and presents the highest conservation concern. Suitable habitat exists within localised parts of the DDF, particularly rocky gullies that were not surveyed due to dense shrubland and limited access. The failure to adequately survey and assess these areas significantly undermines the credibility of the Applicant's effects assessment and the robustness of the proposed management response.

Numbers of Individuals Affected

32. Population estimates are inconsistent across reports[5] and likely underestimated for southern grass skink. No mapped detection data were provided, and large areas of suitable habitat—including wetlands, riparian zones, concession areas, pipeline and bore field, quarry and silt pond sites, spoil areas, and trenching alignments—were not surveyed. Wetlands were entirely excluded despite supporting potentially high densities of southern grass skinks, and misidentification of McCann's and southern grass skinks further undermines the reliability of reported numbers.

Extent of Habitat Loss

33. The Applicant has not provided coherent information on the extent of habitat used by each lizard species within the DDF. Instead, they rely on an unsubstantiated claim that southern grass skink, McCann's skink, and Kawarau gecko are "ubiquitous" across the area,[6] along with an estimate—limited to Kawarau gecko and McCann's skink—that up to 607 ha of suitable habitat will be lost.[7]

34. Habitat extents for each lizard species are not provided. Works had already commenced in lizard habitats during the site visit, the applicant has advised they have an appropriate Wildlife Act authority[8] for these activities from DOC, but it does not appear to have been provided with the application. Any existing activities occurring without an appropriate authority would be unlawful.

35. The extent of habitat affected is underestimated. For example, based on shape files provided by the applicant, I calculate the DDF is larger than stated (>607 ha), and as I understand it, several impact areas are omitted from the applicant's habitat-loss calculations, including predator-proof fence footprints, four concession areas, the conservation covenant uplift area beyond the area of disturbance, trenching, dewatering drawdown zones, and stockpile areas (Appendix 1).

Activity-Specific Effects

36. The effects assessment presents all effects as merely "potential," avoiding acknowledgment of the actual and inevitable outcomes, including largescale lizard

---

[5] At the February 20th, 2026, compensation workshop, the Applicants ecologists estimated 500,000 – 750,000 lizards would be affected across at least three species (not including those present at potential release sites in the Ardgour Restoration Area). Of these losses, only *c*. 20 % would be balanced by the mitigation package offered.
[6] Page 6 para 5 of the RMA Ecology Ltd Lizard Values report; page 79 para 3 of B.08 (EcIA by Alliance Ecology).
[7] Table 19 of B.08 (EcIA by Alliance Ecology dated October 2025).
[8] see Schedule 7 FTAA 2 (1)(L)).

mortality and permanent habitat loss. It omits site specific effects across multiple activity areas—concession areas outside the DDF, wetlands and drawdown zones, Bendigo covenant uplift areas, exclusion fence footprints, trenching, pipelines, silt ponds, quarrying, dewatering, and rock stockpiling—all detailed in Appendix 3.

Significance of Effects

37. The applicant has not provided a comprehensive assessment of effects significance, including in Section 4.2 'Effects on lizards'. In the absence of such an assessment, I have provided my own. Based on current information, the permanent loss of approximately 700 ha of shared lizard habitat within the Direct Disturbance Footprint is unlikely to significantly affect McCann's skink at either the local or national scale. Southern grass skink may experience locally significant effects, although national level impacts remain unlikely. For Kawarau gecko, effects are likely to be significant at both local and potentially national scales; however, data deficiencies prevent a definitive conclusion. Species specific assessments follow.

38. For the purposes of assessing effects on lizard populations, "local" refers to the spatial scale encompassing the DDF and the immediately surrounding habitats within the western slopes of the Dunstan Mountains, where populations are likely to be demographically or ecologically connected. At this scale, effects relate to the viability, abundance, and habitat continuity of populations occurring within or adjacent to the project area, rather than to the wider regional or national distribution of the species.

Kawarau gecko

39. Kawarau geckos share the At Risk–Declining national threat status and 'Climate Impact' and 'Data Poor Trend' qualifiers[9] assigned to southern grass skink. However, they occupy a much smaller geographic range (ca. 10,000–100,000 ha) and have markedly lower reproductive output, producing only two offspring per female per year compared with up to ten in southern grass skinks10 and two to six in McCann's skinks.11 As with southern grass skink, a national population decline of 10–30 % over the next decade or three generations is predicted, with climate change expected to intensify this trend.

40. Kawarau geckos carry additional regional qualifiers under the At Risk – Declining classification, including Regional Endemic, National Stronghold, and Partial Decline. The regional assessment estimates more than 100,000 mature individuals, although no area of occupancy estimate is provided. A population decline of 10–30 % is projected, consistent with the national assessment, with climate change identified once again as an ongoing pressure on the species.

---

[9] Hitchmough *et al.* 2026. Conservation status of reptiles in Aotearoa New Zealand 2025. New Zealand Threat Classification Series 50. Department of Conservation, Wellington. 32 p.
[10] Patterson GB, Daugherty CH (1990). Four new species and one new subspecies of skinks, genus *Leiolopisma* (Reptilia: Lacertilia: Scincidae) from New Zealand. J R Soc N Z 20:65–84.
[11] Holmes KM, Cree A (2006) Annual reproduction in females of a viviparous skink (*Oligosoma maccanni*) in a subalpine environment. J Herpetol 40:141–151.

41. If approximately 700 ha of shared habitat within the Direct Disturbance Footprint is permanently removed, Kawarau gecko populations are likely to experience locally significant effects that may increase their extinction risk. This assessment reflects the species' lower fecundity, uncertainty in population trend data, and relatively small area of occupancy. Additional development on the western slopes of the Dunstan Mountains—including the recently consented 33 lot subdivision at Rocky Point and another pending subdivision—further compounds these effects and highlights the cumulative pressures on local populations. Climate change is also expected to exacerbate habitat and population stress.

42. At the national scale, the loss may also be significant, as the project footprint represents up to 7 % of the species' estimated habitat in New Zealand.

43. The Applicant's ecologists have previously recommended halting development at the Come In Time Pit if more than 1% of the Dunstan Ecological District population of the Nationally Critical plant Ceratocephala pungens is present. This in principle can be seen to establish a trigger-based approach in which a defined proportion of a nationally significant population is considered an unacceptable level of impact. In the context of the Bendigo–Ophir proposal, this provides a useful benchmark for understanding the scale of potential effects on other Threatened or At-Risk taxa.

44. Applying that same trigger-based logic to Kawarau gecko indicates that the permanent loss of approximately 7 % of the species' national—and effectively global—habitat within the Direct Disturbance Footprint represents a population-level effect of comparable magnitude. Given the species' At Risk – Declining classification, low reproductive output, and restricted distribution, a loss of this scale is likely to influence extinction risk and long-term population viability.

45. This comparison highlights that the potential loss of 7 % of Kawarau gecko habitat sits at the upper end of what would not typically be considered tolerable for At-Risk fauna using the Applicant's own thresholds. On that basis, the scale of impact requires careful consideration, as it indicates a material effect on a nationally significant lizard species.

Southern grass skink

46. Tussock skink is now recognised as the southern grass skink (*Oligosoma chionochloescens*), retaining its At Risk–Declining status due to its large national population spread over more than 100,000 ha and a projected 10–30 % decline over the next decade or three generations.

47. In my experience, southern grass skinks are not ubiquitous on the western slopes of the Dunstan Mountains, as claimed by the Applicant. Instead, they are largely restricted to wet or heavily shaded habitats—areas that were not adequately surveyed. This is consistent with the 2026 NZTCS qualifiers 'Climate Impact' and 'Data Poor Recognition', which indicate vulnerability to long term climatic trends and significant uncertainty in population size, trend, and occupancy.

48. Climate projections for the Cromwell area indicate hotter, drier summers and warmer winters, 12 which are likely to further reduce available habitat. If approximately 700 ha of shared habitat within the DDF is permanently removed, southern grass skink populations may experience locally significant medium to long- term effects that could impact on its extinction proneness. However, national- level- impacts are unlikely, as the affected area represents at a worst-case only about 0.7 % of the species' estimated total habitat in New Zealand with some habitats such as the valley floor grasslands of the Eglinton Valley supporting *c*. 13 million individuals.[13]

McCann's skink

49. For McCann's skink, although more than 100,000 individuals may be lost within the DDF, the species remains classified as 'Not Threatened' nationally and regionally due to its broad distribution and large, stable populations across rocky habitats in Otago, Canterbury, and parts of Southland. It therefore does not meet the area, population size, or population trend- criteria of the NZTCS[14] or the equivalent regional-level criteria.[15] For these reasons, if approximately 700 ha of shared lizard habitat within the DDF is permanently removed, McCann's skink populations and their extinction proneness are unlikely to be significantly affected at either the national or local scale.

Assessment of Residual Effects

50. The Applicant's AEE claims the project will deliver "demonstrable ecological benefits" and "a net gain in ecological values" for some species through pest control, pest exclusion, habitat enhancement, plantings, and browsing pressure management.[16] However, these claims are not supported for lizard values at the project site. The applicant's own assessment confirms that, even after applying the effects-management hierarchy, offsetting (for two species), and compensation, a net loss of all three lizard species and their habitats will occur.[17]

51. When questioned on the scale of loss, the Applicant's ecologists confirmed that their effects-management package addresses only ~20% (approximately) of adverse effects on lizard species and habitats, leaving approximately 80 % unmanaged as residual effects. This exposes a substantial deficit in the proposed compensation and demonstrates that most effects—four-fifths of them—remain unaddressed.

---

[12] CODC, August 2017. The past, present and future climate of Central Otago: Implications for the District.

[13] Lettink *et al*. 2011. Accuracy and precision of skink counts from artificial retreats. New Zealand Journal of Ecology 35(3): 236-246.

[14] Rolfe, J.; Hitchmough, R.; Michel, P.; Makan, T.; Cooper, J.A.; de Lange, P.J.; Townsend, C.A.J.; Miskelly, C.M.; Molloy, J. 2022: *New Zealand Threat Classification System manual 2022. Part 1: Assessments.* Department of Conservation, Wellington. 45 p

[15] Jarvie *et al*. (2024). *Conservation Status of Reptile Species in Otago (Otago Threat Classification Series 5).* Otago Regional Council.

[16] Alliance Ecology 2025. Assessment of Ecological Effects: Terrestrial Ecology Bendigo-Ophir Gold Project. Report prepared for Matakanui Gold. 202 pages.

[17]Table 1 of Alliance Ecology 2025. Assessment of Ecological Effects: Terrestrial Ecology Bendigo-Ophir Gold Project. Report prepared for Matakanui Gold. 202 pages.

Adequacy of the Proposed Lizard Effects Management Package

52. I agree with the Applicant that a substantial net loss of Kawarau geckos, southern grass skinks, and McCann's skinks—and their habitats—is likely, given the scale of disturbance proposed. Reducing disturbance areas and/or expanding and realigning the proposed pest-proof fencing to encompass habitat used by all affected species would be necessary to materially reduce this loss, supported by an appropriate long-term governance and management framework. The current package does not yet achieve this.

53. I outline options for avoidance, and my assessment of the Applicant's proposed rehabilitation and mitigation measures, in the following sections.

Avoid Bendigo Conservation Covenant Uplift Area

54. The Applicant seeks to uplift approximately 888 ha of the Bendigo Conservation Covenant. The Applicant has not provided mapped lizard detections over this area but assumes that all three species are 'ubiquitous' across the project footprint, presumably including the areas proposed for uplift. My own experience of lizard survey over this landscape, including part of the covenant indicates that only Kawarau gecko and McCann's skink are ubiquitous, with southern grass skink absent or extremely rare away from damp habitats, e.g., Figure 1.

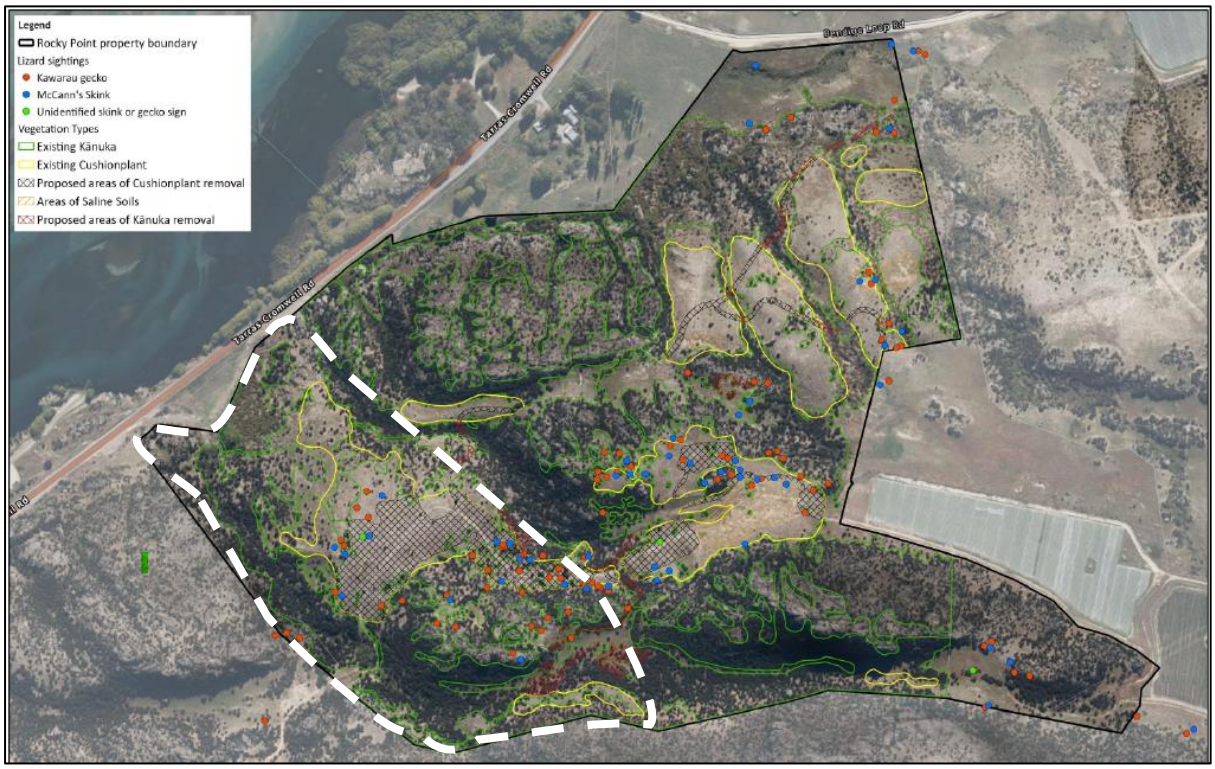


Figure 1: *Map of lizard detections over the Rocky Point subdivision taken from evidence provided to Central Otago District Council for consenting purposes (RC30170). The southwestern portion of the site takes in a part of the Bendigo Conservation Covenant (white dotted line; indicative only). Blue dots show McCann's skink and orange=Kawarau gecko. No southern grass skinks were present over the site and no habitat for them was present.*

55. The potential loss of covenant protection over approximately 888 ha of habitat has implications for all three lizard species, with the greatest effect expected for Kawarau gecko at both local and national scales. The Bendigo Conservation Covenant currently provides an important contribution to the stability of existing Kawarau gecko habitat.

56. If revocation is progressed, consideration should be given to limiting any uplift to the smallest practicable area. Within any area proposed for uplift, rocky habitats known to support higher densities of Kawarau gecko warrant specific assessment to determine whether they should be retained. For example, in the Historic Reserve adjacent to the covenant, parts of the Come In Time Battery Concession area contain habitat characteristics commonly associated with higher suitability.

57. Where any portion of the Covenant is revoked, identification, legal protection and ongoing conservation management of replacement habitat within the wider Bendigo area would assist in maintaining the overall extent and quality of habitat types affected. Verification of replacement areas by a suitably qualified herpetologist approved by the Department of Conservation would ensure ecological comparability.

Rehabilitation of the DDF

58. The Applicant's ecologists consider that rehabilitation within the DDF will develop vegetation and landform conditions capable of supporting all three lizard species and that, over a period of approximately 35 years, these areas will offset losses arising from the BOGP. Expert opinion is an accepted basis for predicting future ecological outcomes, and the evidence provided reflects the professional judgement of the applicant's specialists.

59. Based on my experience with lizard ecology and rehabilitation outcomes in comparable Otago environments, I take a different view regarding the likelihood that the rehabilitated DDF will provide suitable or secure habitat for all three species. Available monitoring information from rehabilitation at Macraes Flat indicates that, after several years, habitat redevelopment has reliably supported only the more disturbance-tolerant McCann's skink.[18] In my assessment, the current evidence does not demonstrate a clear or practicable pathway for the redevelopment of habitat characteristics required by Kawarau gecko or southern grass skink within the proposed rehabilitation envelope.

60. For this reason, reliance on DDF rehabilitation to address c. 20 % residual effects[19] introduces uncertainty—particularly for Kawarau gecko and southern grass skink—because the predicted habitat outcomes for these species are not supported by empirical results from analogous sites and species (Kōrero gecko at Macraes Flat versus Kawarau gecko at the Project Site). Should rehabilitation outcomes be more limited than predicted by the applicant's ecologists, the scale of residual effects on these species would be correspondingly greater.

---

[18] E.g., Bell, T and Herbert, S. 2019. Lizard abundance in rock stack habitat: Coronation project Year 5. Technical Report Prepared for Oceana Gold (NZ) limited by Ecogecko Consultants Limited, April 2019.
[19] Figure quoted at 2 x workshops by Dr Graeme Ussher.

Mitigation – Lizard Salvage

61. At the 12 March 2026 lizard workshop, the Applicant's ecologists acknowledged that a salvage operation involving hundreds of thousands of lizards across three species and multiple habitat types would be an extremely large and complex undertaking. The Applicant proposed to salvage lizards from higher value habitats within the DDF and release them into the Ardgour Restoration Area. This area is intended to be managed for high order predators (including feral cats and mustelids) but, as I understand it, not for mice. As outlined in earlier in this report ongoing confusion between McCann's skinks and southern grass skinks affects the reliability of the Applicant's habitat quality assessments and, in turn, their ability to identify suitable release sites for southern grass skinks within the Ardgour Restoration Area.

62. During the workshop, I advised that any salvage and release programme should demonstrably align with the purpose of the Wildlife Act, which is the protection of the affected species. The absence of sustained mouse control is relevant in this context because mice are known predators of small skinks and geckos, particularly juveniles. Without controlling mice alongside higher-order predators, predation pressure may remain high despite broader predator management.

63. I also noted that the applicant's proposal would introduce new adverse effects within the Ardgour Restoration Area by overlaying a large number of salvaged lizards onto resident populations. This can increase competition, displacement, or mortality for both translocated and resident individuals, particularly where habitat availability or food resources are limited. Predator control alone does not automatically increase carrying capacity for lizards; gains depend on whether habitat structure, thermal quality, and invertebrate prey availability are sufficient to support a larger population. These factors have not yet been assessed in the context of the proposed release locations.

64. Overall, discussions at the 12 March 2026 workshop highlighted that the Applicant's salvage and release proposal remains subject to considerable technical uncertainty. The combination of unresolved species identification issues, untested suitability of proposed release sites, and unassessed interactions with resident populations means that, at this stage, the proposal does not provide a clear or reliable pathway for safeguarding all three affected species.

Wildlife Approvals

Suitably qualified and experienced people

65. If approved, the authorisation should identify the suitably qualified and experienced herpetologists responsible for implementing the Lizard Management Plan. The Application does include a list of such personnel in the Wildlife Conditions (D.11 Condition 3.1) but does not provide the required declaration relating to criminal convictions under the Wildlife Act.

Proposed Wildlife Act Conditions

66. I could not find, within the proposed condition set, any condition that specifies the objectives and intended outcomes of the Lizard Management Plan (LMP). In the absence of an explicit statement of purpose, it is difficult to evaluate whether the proposed methods, monitoring, and reporting are appropriate for achieving the level of species protection sought. Clear objectives and outcomes aid with deciding whether an LMP is fit for purpose and provide a basis for certification, implementation, and subsequent review.

67. The Wildlife Act conditions proposed by the Applicant focus primarily on operational matters, including authorisations for handling, salvage techniques, temporary holding requirements, and associated reporting and documentation (summarised in Appendix 4). These elements are relevant to the conduct of salvage activities but do not, on their own, define the ecological outcomes the LMP is intended to deliver or the criteria against which DOC, as the administering agency, would assess performance.

68. To address this, I have outlined a set of additional conditions in Appendix 5. These conditions identify the matters that, in my view, would help provide a clearer framework for implementation. They include provisions relating to the treatment of higher value habitats, verification of habitat suitability prior to any release, and procedures to follow if species of greater sensitivity or unexpected distributions are encountered during works.

Proposed Council Conditions

69. The joint Central Otago District Council (CODC) and Otago Regional Council (ORC) conditions in D.03 contain no standalone lizard specific conditions, although they do include several cross references, obligations, and rehabilitation requirements that directly involve lizards or lizard habitats. These occur via the Lizard Management Plan (LMP) and through ecological rehabilitation and habitat creation requirements.

70. D.01 CODC proposed land use consent conditions provide a comprehensive suite of lizard-related conditions, summarised here in Appendix 6. The Appendix 6 conditions require full implementation of a certified Lizard Management Plan covering salvage, handling, relocation, habitat reconstruction, monitoring, and reporting, with strict effort thresholds, salvage targets, and handling standards for Kawarau gecko, southern grass skink, and McCann's skink.

71. They mandate detailed data collection, incident protocols, annual compliance reporting, and long-term biodiversity outcome obligations including achieving baseline lizard abundance within the Direct DDF and delivering -net gain- outcomes for Threatened species across more than 2,200 ha of compensation land.[20] The conditions also require long-term monitoring, adaptive management, -predator proof- sanctuary establishment at

[20] A total of 2,200 hectares of compensation land comprising the Mine Regeneration Zones, the Ardgour Restoration Area, and the predator-proof sanctuaries at Ardgour and Bendigo, within which all required lizard offsetting, habitat creation, predator control, and long-term biodiversity outcome obligations must be achieved.

Ardgour and Bendigo, and contingency measures if outcomes are not met, ensuring lizard impacts from all project activities are managed, offset, or compensated.

72. The applicant's proposed CODC conditions contain several gaps, including the lack of clear LMP objectives, outcomes, and performance measures; limited protection for high value habitats; absence of requirements to certify release site suitability before salvage; omission of predator control measures (including for control of mice); no provision for independent verification of species identification or detection mapping; incomplete inclusion of all affected areas within salvage requirements; no requirement for DOC certification of the LMP prior to works commencing; limited adaptive management triggers; unclear monitoring ethics and iwi approval processes; and no defined contingency framework or long-term governance and funding arrangements for sanctuary management.

73. The condition set includes several aspirational provisions relating to species reintroductions that appear to fall outside the scope of the current BOGP proposal. Condition 102, for example, requires the Applicant to use best endeavours to reintroduce extirpated Threatened lizard species—such as Otago skink, jewelled gecko, and grand skink—into two proposed fenced sanctuaries. As the Application does not include any translocation activities, these conditions cannot be implemented or enforced and have no clear link to the Applicant's management plans, including the Lizard Management Plan.

Lizard Management Plan

74. The Applicant's proposed Lizard Management Plan (LMP) does not currently provide sufficient information to determine whether adverse effects on protected lizards will be appropriately managed. A structured revision addressing the following gaps would be required before approval or certification.

75. The proposed LMP is not a standalone instrument; it functions largely as a set of cross-references to other management plans rather than a coherent, self-contained document that directs and coordinates lizard-related actions. It also lacks clear objectives, measurable outcomes, and success criteria that are necessary for certification, monitoring, and enforcement.

76. Coverage of core actions is incomplete. The plan does not explicitly or adequately set out requirements for (i) salvage, (ii) rehabilitation of the Direct Disturbance Footprint (DDF), or (iii) baseline and projected population outcomes within pest-exclusion fences, including associated methods and performance triggers. The treatment of salvage risks is limited; issues such as species misidentification, uncertainty around release-site suitability, and potential effects on resident populations are not addressed.

77. The LMP relies on an assumption that DDF rehabilitation will re-create suitable habitats for all three species within approximately 35 years, but no empirical pathway is provided to support this, and existing evidence indicates that outcomes to date relate primarily to McCann's skink. Criteria for release site suitability and predator control are also underspecified; the plan does not require species specific assessments, confirmation that

resident populations will not be adversely affected, or mouse control, nor does it prioritise the establishment of a fenced sanctuary prior to salvage.

78. Data and mapping gaps—including the absence of mapped detections, incomplete survey coverage, and identification errors—limit confidence in effects assessment, site prioritisation, salvage planning, and compensation design. In addition, the plan does not demonstrate clear application of the effects-management hierarchy, particularly with respect to avoidance of high-value microhabitats, minimisation through micro-siting or method selection, or a remedy/offset/compensation pathway proportionate to the scale of effects.

79. The Applicant acknowledged on 12 March that further work on the LMP is required. In my opinion, certification or approval should occur only once these matters have been addressed.

Concessions

80. For the concession applications that are most likely to affect lizard habitat, I provide an assessment of potential effects and recommended management actions in Appendix 6.

Further comments

81. My assessment indicates that the Applicant has applied some elements of the effects-management hierarchy. However, there is no documentation demonstrating that avoidance of high-value lizard habitat was considered or implemented. As avoidance is the first step in the hierarchy, the absence of evidence that key microhabitats were identified and avoided means the effects-management approach remains incomplete.

82. Regarding lizard monitoring, the proposed method relies on toe-clipping. The Application does not include information on the required animal ethics approvals or the process for obtaining iwi approval. These authorisations sit outside the FTAA process and outside DOC's direct control. Without confirmation that they have been secured and can be lawfully exercised, the reliability and ability to implement the proposed pre- and post-construction monitoring cannot be assured.

Conclusion

83. Based on the information currently available, key components of the Applicant's lizard effects assessment and management package remain incomplete. Issues relating to species identification, unmapped detections, and unsurveyed habitats limit confidence in population estimates, habitat use interpretation, and the assessment of effects significance. These information gaps constrain the application of the effects management hierarchy and limit the ability to reliably determine the scale of potential effects.

84. The evidence provided to date does not demonstrate that rehabilitation of the Direct Disturbance Footprint will recreate suitable habitats for all three species within the anticipated timeframe. Similarly, the proposed salvage and release framework remains technically uncertain, with release-site suitability, interactions with resident populations, and predator-management requirements yet to be fully established. On this basis, the

current Lizard Management Plan does not yet provide a sufficient basis for Wildlife Act approval.

85. A decision-ready package would require clear management plan objectives and outcomes capable of certification and enforcement; verified species identifications and mapped detections; demonstrated avoidance of high-value microhabitats where practicable; and establishment of a DOC-approved, purpose-built pest-exclusion fenced receiver site prior to any salvage. Once these matters are addressed and presented as a coherent, evidence-based package, effects on protected lizards can be more reliably assessed and management actions more appropriately aligned with statutory requirements.

Appendix 1: Agenda provided by Santana the day before the March 13th Lizard Workshop

Lizard discussion

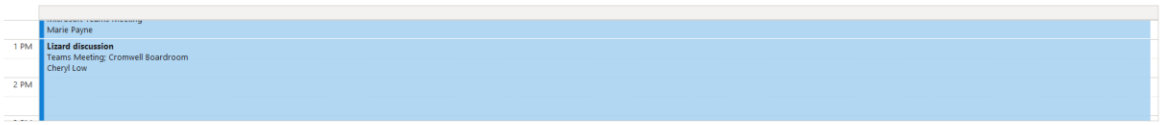
Cheryl Low <clow@santanaminerals.com>
Required Matt Baber; Keith Barber; graham.ussher; Mandy Tocher; Marie Payne; Ann Rodgers; Shay McDonald; trudy.anderson@e3scientific.co.nz; Mark Chrisp; Mary Askey
Optional Dean van Mierlo

No Response Required

Thu 12/03/2026 12:12 pm

Accepted on 2/03/2026 11:07 pm.

Friday, 13 March 2026 1:00 pm-4:00 pm Teams Meeting; Cromwell Boardroom, ~~(Teams Meeting)~~



Hi everyone,

Agenda for the teams meeting:

- Tussock McCanns skink identification
- Salvage methodology and level of effort
- Relocation site management
- Lizard habitat rehabilitation within the project footprint
- Offset/Compensation options for improving outcomes for lizards
- Residual Effects Management Requirements for net positive outcomes (benefits that are expected to outweigh outcomes)

Cheryl

Appendix 2: Impact Areas Omitted from Effects Assessment

- Areas of the Bendigo Conservation Covenant Uplift area that fall outside the DDF.
- 2.9 ha for the footprint of the predator exclusion fences (not included in the 610-ha calculation provided by the Applicant); or shown in the shape file or shown in Figure 2 of B.15 (confusingly it is included in Figure 7 of B.15 but the bore field and pipeline is then absent from Figure 7). It is also included in the definition of DDF in the lizard values report glossary.
- the extent of vegetation/ habitat clearance over 4 of the 5 concession areas (only the Ardgour Rise of the 5 concession applications falls within the '610 ha' DDF in Figures 2/7 of the B.15, and the 610-ha stated in G.05 the LMP and the area of the Bendigo Conservation Covenant that the Applicant seeks to uplift that falls outside the DDF.
- The footprint of underground trenching to deliver electricity to the site.
- Areas of the Dewatering Drawdown Zone (DDZ) (3.45 ha).
- Stockpiles of rock from DDF to use in rehabilitation of 4 areas: DDF, ARA, 2 x pest exclusion fences.

Appendix 3: Actual Lizard-Related Effects of the BOGP not included in the Applicant's reports.

- Effects on lizards of the Ardgour Restoration Area of releasing salvaged lizards into their home ranges/territories.
- Effects over four of the concession areas (Ardgour Rise was surveyed)
- Effects over bore field and pipeline.
- Effects over riparian areas
- Effects over the footprint of underground trenching to convey electricity cabling.
- Effects over quarry & silt pond sites
- Effects over temporary spoil storage areas
- Effects of clearing ground and constructing predator exclusion fences
- Effects over areas affected by the Dewatering Drawdown Zone, and
- Effects at stockpile areas (stockpiles of rock from DDF to use in rehabilitation of 4 areas: DDF, ARA, 2 x pest exclusion fences).

Appendix 4: Topics covered by the Applicant's proposed Wildlife Act Conditions

- Only SEQEs may handle lizards, under the supervision of authorised personnel.
- Capture and relocation may occur only between 1 October and 30 April, and only when temperatures exceed 12 °C.
- Capture and handling must follow approved LMP methods, including artificial cover objects, manual searches, and construction assisted- salvage.
- Low-risk capture and handling techniques must be used to minimise harm.
- Instruments must be sterilised between locations, and all gear must be cleaned and dried between sites.
- Each lizard must be placed in a separate breathable bag, kept out of direct sunlight, with a maximum holding time of 12 hours.
- All lizards (live animals, dead animals, eggs, and genetic material) remain the property of the Crown; no transfers may occur without written approval.
- Accidental deaths are permitted only where all conditions have been complied with.
- Euthanasia is prohibited unless recommended by a veterinarian or directed by DOC.
- All lizard salvage and handling records must be available for DOC inspection.
- An annual Lizard Compliance Monitoring Report is required, including:

    a. salvage methods and results
    b. confirmation that salvage targets were met
    c. maps of avoidance and minimisation measures
    d. evidence that relocation site- enhancement has been completed
    e. recommendations for improvements
    f. representative photographs

- Annual lizard reporting ceases once salvage is complete and all lizards have been relocated.
- DOC must be notified within five days of any unscheduled event causing adverse effects, followed by a detailed report within 30 working days.
- An annual Bioweb Herpetofauna submission (August) is required, detailing species, counts, sex/age, locations, effort, methods, and success.
- Any novel species encountered must be reported to ARDS, followed by a survey and review of the Lizard Management Plan.

Appendix 5: Suggested Additional Wildlife Act Conditions

Notwithstanding the provision of further information which would be required to fully assess appropriate conditions, I have provided the information below.

1. These conditions apply to all project areas where lizards may be affected, including the DDF, concession areas, covenant uplift areas, fence footprints, trenching and services, bore field and pipelines, quarry/silt ponds, dewatering draw-down zones, temporary stockpiles, and access/laydown sites.
2. Only named SEQEs (herpetologists) approved under this authorisation may handle lizards. The Authorisation Holder must provide the names and qualifications, together with the required declarations regarding Wildlife Act convictions, prior to any handling.
3. SEQEs may supervise trained field staff for non-invasive tasks; all handling must be undertaken by, or under the direct supervision of, the SEQE.
4. No works that may disturb lizards may commence until DOC confirms in writing that the LMP is certified as giving effect to these conditions.
5. The Authorisation Holder must avoid disturbance of high value microhabitats (e.g., rock outcrops/tors, boulder fields, cushion vegetation, riparian/wetland edges) wherever practicable through micro siting, exclusion fencing, and method selection.
6. Lizards must not be released into the Ardgour Restoration Area or any other area without:
   (a) demonstrated habitat suitability for the target species;
   and
   (b) a predator management regime that includes mice, unless DOC approves otherwise on the basis of evidence.
7. **Preferred approach**: establish a purpose-built pest exclusion fenced area before salvage, sized and located to be commensurate with the scale of residual effects, and approved by DOC. Salvage releases should be prioritised to this fenced area.
8. No release may proceed until DOC has certified the release site(s) against Conditions 6–7 and the LMP specifies prerelease habitat preparation, carrying capacity, and post release monitoring.
9. Discovery of any novel/unexpected species (not Kawarau Gecko, McCann's Skink, or Southern Grass Skink) requires stop work in the affected area, notification, targeted survey, and LMP review in full collaboration with DOC before recommencement.
10. The LMP must include contingencies and adaptive management triggers where objectives are not met (e.g., release sites underperforming), with pre agreed corrective actions and timelines for DOC approval.

Appendix 6: Proposed CODC Conditions

Condition 62 – Lizard Management Plan (LMP)

- Requires implementation of the certified Lizard Management Plan to avoid/minimise adverse effects on native lizards.

Condition 62(a–e) (sub-clauses) Salvage, Handling & Relocation

- Salvage footprint & timing:
  - Salvage required in all high- and moderate-value habitat; only when T > 12°C, between 1 Sept–30 Apr.
- Minimum effort & targets:
  - ≥2,330 person-hours,
  - ≥102,000 lizards salvaged, including 70,000 McCann's skinks, 2,000 tussock skinks, 30,000 Kawarau geckos.
- Methods:
  - Manual and construction-assisted salvage; ≤6 months between salvage and clearance.
- Handling & transport:
  - Must meet Animal Welfare Code; DOC approval required for toe-clipping; container and holding-time requirements.
- Relocation:
  - All lizards must be released into the Ardgour Restoration Area, placed into species-appropriate microhabitats.

Condition 62(c–e) – Data, Release & Habitat Features

- Data collection required for every individual (ID, GPS, SVL, sex, age, photos, health).
- Release data also required (GPS, habitat type, photos).
- Habitat reconstruction:
  - Deploy 480 rock stacks, rubble pits (1 per 5 ha), and revegetation across 480 ha (per LERMP).
- Incident Management

Condition 62(e)

- Protocols required for inadvertent lizard injury/death and Threatened species discovery.
- FTAA Wildlife Approval required for capture/handling.
- Monitoring & Reporting

Condition 64 – Annual Lizard Compliance Monitoring Report

- Must include:
  - Confirmation of compliance with LMP/HIMP protocols.
  - Salvage totals vs targets.
  - Maps of salvage/avoidance areas.
  - Confirmation that relocation habitats were prepared.
  - Recommendations for improved management.
  - Representative photographs.

Condition 65 – LMP Updates

- Any updates to the LMP must be prepared by a qualified herpetologist.
- Biodiversity Outcome & Long-term Monitoring

Condition 102 – Lizard Abundance Targets

- Within the DDF, lizard populations (Kawarau gecko, tussock skink, McCann's skink) must achieve baseline conditions.
- Net-gain required for Threatened species:
- Otago skink, grand skink, jewelled gecko.

Condition 103 – Baseline Monitoring

- Baseline lizard monitoring must begin within 6 months of pest control establishment in the Ardgour Restoration Area.
- ACOs must bed-in for 12 months before use.

Conditions 104–106 – Ongoing Monitoring, Year-35 Outcomes & Adaptive Management

- Annual biodiversity outcome reporting must include lizard metrics.
- If interim results show outcomes will not be met, adaptive management is mandatory.
- A final Year-35 report must confirm success or trigger contingency measures.

Condition 118 – Net Positive/Net Gain Outcomes Offsetting, Compensation & Sanctuaries

- Lizard outcomes must be achieved across 2,219 ha of offset/compensation land, including Mine Regeneration Zones, Ardgour Restoration Area, and predator-free sanctuaries.
- Conditions 120–121 – Predator-Proof Sanctuaries
- Establishment of Ardgour Sanctuary (38 ha) and Bendigo Sanctuary (29 ha).
- Predator eradication, fence inspection, incursion response, and habitat enhancement for lizards.
- Species Re-introductions (under re-introduction section)
- Consent holder must use best endeavours to reintroduce:
    - Otago skink, jewelled gecko, grand skink.
    - Consultation with DOC and iwi required.

Condition 112 Ecological Salvaging

- Confirms salvaging of lizards (McCann's skink, tussock skink, Kawarau gecko) and relocation to Ardgour Restoration Area.
- Habitat materials (rocks, wood, vegetation) must be salvaged to aid lizard habitat restoration.

Appendix 7: Concessions Affecting Lizard Habitats

Access to the Come in Time Battery

The proposed route passes through rocky habitats that support all three lizard species recorded within the DDF. Kawarau geckos are primarily nocturnal and shelter beneath rocks and dying cushion vegetation, making these microhabitats highly vulnerable to trampling. Pedestrian access along the 4 km alignment presents a credible risk of crushing geckos, disturbing occupied refugia, and causing incremental mortality. Based on available habitat, I estimate that 50–100 geckos could be affected.

The proposal therefore creates a foreseeable and avoidable risk pathway for lizard mortality and habitat degradation. Without targeted micro siting and behavioural controls, adverse effects on At Risk – Declining species are likely.

To minimise these effects, the alignment should be micro sited away from rocky outcrops, tors, and boulder habitat, and a 3–5 m exclusion band from rocky refugia should be maintained where practicable. Signage instructing walkers to remain on the track and not disturb rocks is required, along with prohibitions on motorbikes, e-bikes, bicycles, picnicking, and fires to limit off-track movement and disturbance. Toilets should be provided to prevent human waste being deposited under rocks.

The track should remain informal and unformed to reduce ground disturbance. Salvage and relocation of geckos must occur wherever rocks within 3–5 m of the alignment may be disturbed. All residual effects must be incorporated into the Lizard Management Plan and included in compensation calculations.

Ardgour Rise Access Track Upgrade

The proposal to upgrade, use, and maintain the existing vehicular track between Ardgour Terrace and the Manuherikia Valley will affect all three lizard species known from the DDF and may also affect Lake's skink (Threatened – Nationally Vulnerable) where substantial rock fields occur.

At least two rock tors/outcrops are present along the alignment, and both uphill and downhill batters support lizard habitat. Track upgrading risks disturbing soil seed banks, facilitating weed spread, damaging or removing rock habitat, destabilising tors and boulder fields, crushing or exposing sheltering lizards, and disturbing occupied refugia. Works outside the existing footprint—such as turnarounds, stockpiles, or spoil placement—would create further disturbance, and the use of heavy machinery increases the likelihood of uncontrolled batter modification or side casting into sensitive rocky habitat.

The potential presence of Lake's skink materially elevates ecological risk. Without deliberate micro siting and strict control measures, upgrading works will intersect high value habitat and result in foreseeable and avoidable mortality of At Risk and potentially Threatened species. Targeted pre-works surveys are required to confirm the presence of Lake's skink and to map sensitive microhabitats.

Salvage and relocation of Kawarau geckos and any Threatened species within a 3–5 m earthworks buffer should occur, and a qualified herpetologist must preapprove any off-footprint

activity, including turnarounds, temporary stockpiles, or spoil areas. Bulldozer use should be prohibited due to the high risk of habitat damage, and side casting must not occur where it could affect rocky downhill batters. All residual effects must be incorporated into the Lizard Management Plan and included in compensation calculations.

SH8 / Ardgour Road Intersection Upgrade

The proposal to upgrade, use, and maintain the SH8/Ardgour Road intersection, including temporary construction laydown areas, will disturb vegetation and soil within areas known to support McCann's skink (Not Threatened). These works carry a foreseeable risk of crushing skinks, exposing sheltering individuals, and removing microhabitat.

Effects on a Not Threatened species, and any other species present are readily avoidable through standard micro siting and exclusion methods. A preworks lizard survey should be undertaken to delineate occupied microsites, and temporary fencing or other avoidance measures should be used to exclude these areas from disturbance. All avoidance and residual effects measures must be incorporated into the Lizard Management Plan and accounted for within the project's compensation framework.

Willow Clearance – Bendigo Historic Reserve & Marginal Strip (Bendigo Creek)

Mechanised removal of crack willow and grey willow from riparian margins within the concession area will take place within habitat supporting southern grass skink (At Risk – Declining), Kawarau gecko (At Risk – Declining) on rock outcrops, and McCann's skink (Not Threatened). There is also potential for Lake's skink (Threatened – Nationally Vulnerable) where large rock areas occur. Large excavators will be required, operating within potentially high-value skink and gecko habitat.

These works present a credible risk of crushing lizards, destabilising rock habitat, and removing essential refugia. Willow removal will also alter shading and microclimate, potentially changing habitat structure for skinks.

Given the presence of multiple At-Risk species and the potential for Threatened species, unmanaged willow clearance carries a high likelihood of direct mortality and habitat loss. A targeted lizard survey is required to identify sensitive areas, such as southern grass skink sites and Lake's skink rock fields. These areas must either be avoided or fenced, or subject to salvage prior to works. All effects must be addressed in the Lizard Management Plan and fully accounted for in compensation calculations.