

BEFORE THE FAST-TRACK EXPERT PANEL

IN THE MATTER of the Fast-track Approvals Act 2024 ("FTAA")

AND

IN THE MATTER of Bendigo-Ophir Gold Project (FTAA-2507-1089)

JOINT STATEMENT OF EXPERT WITNESSES:

ECOLOGY – LIZARDS

19 May & 10 June 2026

INTRODUCTION

1. Expert conferencing on the ecology topic of lizards took place online via Microsoft Teams from 8.00am-4.30pm on 19 May 2026 and in a hybrid format, with participants attending in person in Wellington and online via Microsoft Teams, from 8.00am-12.00pm on 10 June 2026.
2. The conference was attended by the following experts:
 - (a) Dr Graham Ussher (“GU”) (Applicant);
 - (b) Keith Barber (“KB”) (Applicant);
 - (c) Dr Matt Baber (“MB”) (Applicant);
 - (d) Dr Mandy Tocher (“MT”) (Department of Conservation);
 - (e) Trudy Anderson (“TA”) (Otago Regional Council);
 - (f) Rebecca Teele (“RT”) (Otago Regional Council);
 - (g) Dr Geoffrey Rogers (“GR”) (Sustainable Tarras);
 - (h) Matthew Dale (“MD”) (Kā Rūnaka); and
 - (i) Jade Watkin (“JW”) (Kā Rūnaka). JW only attended conferencing on 19 May 2026.
3. Steve Mutch (ChanceryGreen) acted as independent facilitator.
4. Caitlin Todd (ChanceryGreen) assisted the experts to draft the Joint Witness Statement (“JWS”).

CODE OF CONDUCT

5. The experts confirm that they have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and referred to in the Fast-track Approvals Act 2024: Panel Conveners’ Practice and Procedure Guidance 22 July 2025, and agree to comply with it. The experts confirm that the issues addressed in this JWS are within their area of expertise, unless stated otherwise.

SCOPE OF JWS

6. In Expert Panel Minute 8 (4 May 2026), the Panel directed experts in the ecology topic of lizards to conference on identified focus areas. The Panel also provided a supporting paper, “Expert conferencing questions – ecology”, which outlines additional topic-specific detail. Annexure 1 of Minute 8, together with that paper, has formed the basis of the conferencing agenda.

7. In this JWS, we report the outcome of our discussions in relation to each item (below), including by reference to points of agreement, disagreement, and unresolved matters or uncertainties. Where we do not agree in relation to any issue, we have set out the nature and basis of that disagreement.
8. For remaining unanswered agenda items, the experts did not have time during conferencing to record their opinions. The experts consider it is important that the remaining agenda items be conferenced and they intend to reconvene, if possible, to do this.

AGENDA ITEMS

A. Is there agreement as to what species are potentially present on site and what the overall effects of the Project on lizards will be? If not, what are the areas of disagreement?

9. For the purposes of this JWS, when the experts refer to “On Site”, this means the area of the impact on lizards, which includes:
 - (a) The DDF (610ha);
 - (b) Covenant revocation area;
 - (c) Ardgour restoration area;
 - (d) DDZ;
 - (e) MRZ;
 - (f) All concession areas;
 - (g) Areas of disturbance for services;
 - (h) Pipeline and bore field; and
 - (i) All other areas of impact for lizards.
10. MB and GU noted that, outside of this conferencing, they will provide an all-encompassing map showing all potential areas in which lizard impacts are possible.

Species

11. TA, MB, GU, MT and MD agree that the following species are present On Site:
 - (a) McCann’s skink;
 - (b) Southern grass skink; and
 - (c) Kowarau gecko.

12. TA, MB, GU, MT and MD agree that orange-spotted gecko, grand skink, and Otago skink are unlikely to be present On Site.
13. There is minor disagreement between TA, MB, GU, and MT as to the likelihood of presence of Nevis skink, jewelled gecko, and Lakes skink. In particular:
 - (a) MB and GU consider it highly unlikely that these species are present On Site but agree that their presence cannot be ruled out, and that an accidental discovery protocol to account for unlikely, but potential presence, is warranted.
 - (b) MT and TA consider there is habitat and records for these species, and they are difficult to detect at low abundance, therefore they could potentially be present.
14. Effects are addressed below.

B. Lizard species ID

15. GU and MB have high confidence that McCann's skink and southern grass skink have been correctly identified in the field and that there is no set of distinguishing characteristics universally agreed by herpetologists that provides 100% certainty of discrimination without referring to genetic analysis.
16. MT has low confidence that McCann's skink and southern grass skink have been distinguished as two instances of misidentification occur in the original lizard values report authored by GU, only one of which was picked up and acknowledged by GU, who carried out the field survey (noting that MB also carried out the field survey but was not an author of the report). As a result, MT has concerns regarding the flow on effects with respect to lizard population estimates, habitat mapping and effects management.
17. MT is concerned that the lizards were misidentified, which led to a flawed values assessment. This appears to have affected the information gathered, the assessment of effects, and the range of management options considered. For example, southern grass skink habitat has not been comprehensively mapped across the Ardgour Restoration Area (ARA), which limits its usefulness as a release site for this species.
18. MB and GU note that the degree to which some individuals were potentially misidentified is expected to have a negligible bearing on the level of effects assessment assigned to southern grass skink in which the level of residual effects

is already assessed as high. Their understanding is that MT is concerned that it is the level of effect on southern grass skink that has been underestimated.

19. MD and TA acknowledge there is a degree of uncertainty around identification of McCann's skink and southern grass skink and considers that some further mapping around southern grass skink habitat would be useful. TA and MD also request habitat mapping for Kowarau gecko.

C. Population estimation

20. TA, MB, GU, MT and MD agree that the DDF is home to an excess of 500,000 lizards. They agree additional lizards will be affected beyond the DDF, On Site (refer to paragraph 9).
21. MB notes that "affected" includes both potentially positive and adverse impacts.
22. MT contends that most impacts are adverse or uncertain, and that the proposed heavy reliance on adaptive management places the onus on future ecologists to determine whether the planned on-site actions are effective. Very few contingency actions, if any, are presented for lizards should widespread failure occur across the 'mitigation offerings'.
23. TA, MB, GU, MT and MD agree that the most numerous species On Site are McCann's skink and Kowarau gecko, followed by southern grass skink, and all three species are Absolutely Protected under the Wildlife Act 1953.
24. MT acknowledges the estimates provided by the Applicant's ecologists are reasonable for McCann's skink and Kowarau gecko but may underestimate the numbers of southern grass skink affected On site.
25. TA, MB, GU, MT and MD agree that Kowarau gecko is more vulnerable to extinction (regionally and nationally) than the other species.

D. Ecological value of lizard habitats

26. TA, MT, GR and MD consider that the habitat mapping provided does not suitably reflect the distribution of at-risk lizards at the site and that higher value should be given to sites that provide habitat for at-risk species.
27. MT and TA consider that wetland habitats could be reasonably mapped as habitat for southern grass skink, but could also be present in other places e.g. riparian areas. Furthermore, to more accurately inform the mitigation package and the

quantum of residual effects across each lizard species, the area (extent) of habitat for each lizard species should be provided in the final LMP and used in residual effects calculations. For example, at workshopping, MT raised this question and understands habitat was combined across all species as a single metric.

28. TA, MB, GU, MT and MD consider that the current mapping does not accurately reflect the habitat of southern grass skink and that it should be updated to address this.
29. TA, MB, GU, MT, MD and GR note that they are unable to understand the value and extent of lizard habitat as it relates to the covenant revocation area as it has not been described.
30. MT and TA consider there is confusion about the ecological value of the proposed sanctuaries and the values they seek to protect.
31. MB and KB clarify that the Ardgour sanctuary was for a combination of values, including lizards. MB notes that the Ardgour sanctuary area had the highest density of rocky tors in the Ardgour site within which pest exclusion fencing could feasibly be constructed and maintained. However, MB and GU also note that the Ardgour sanctuary area has considerably lower lizard habitat value than the Bendigo sanctuary. MB and GU clarify that these sanctuary sites are not suitable for translocation of southern grass skink. GU and MB confirmed that, in the accounting, the sanctuaries were assumed as providing no value for southern grass skink.
32. MT seeks to understand in the final LMP the additionality of the Ardgour Sanctuary for both Kowarau gecko and McCann's skink individually. MT does not accept that herpetologists should understand the EXCEL files/calculations that form the basis of the compensation and offset modelling (and additionality) as asserted by GU during conferencing. Instead, MT believes the onus is on the modellers (GU and MB) to communicate model inputs, assumptions and outputs in plain English to all interested parties.
33. GU and MB contend that the offset modelling is a necessary requirement for biodiversity offsetting and that the report that accompanies the offset model clearly lays out the foundation, basis, assumptions, inputs, outputs, and interpretation of those. They further regard it as reasonable to expect that ecology experts engaged by invited parties or regulatory authorities to assess the effects of the project should have a familiarity with widely used tools, including the DOC-

developed and promoted Biodiversity Offset Accounting Models (BOAM) that have been used for this project. If ecologists do not have familiarity, it is incumbent on them to upskill or seek advice from elsewhere (including the Applicant's ecologists) as part of providing reliable advice to their client.

34. MT considers that DOC has engaged an offset modelling expert that is not part of this Lizards conferencing. MT considers that the modellers should have been present in this Lizards conferencing.
35. TA, MB, GU, MT and MD agree that the proposed sanctuaries are not the most suitable place to generate the best conservation outcomes for *all* lizards (i.e. the proposed sanctuaries are not suitable for southern grass skink).

E. Nature of the effects

Type of effects

36. TA, MB, GU, MT and MD agree that the type of effects detailed in the AEE are adequately stated (e.g. death, displacement).
37. JW considers that there are also effects in relation to severing the relationship of lizard species with the land and the wider impact on iwi/hapu that share the connection to that land.
38. Clarification is sought by RT, MT and MD whether this application requests permission for exploratory drilling in the covenant revocation area outside the DDF. If it has been sought, it has not been taken into account in the AEE.
39. MT raised concerns that exploratory drilling within the covenant revocation area seemed inconsistent with the proposal to mine only the DDF. Nonetheless, MT notes that MB and GU confirmed during conferencing that any exploratory drilling in the covenant revocation area, was not considered in the AEE.
40. MB, KB and GU clarify that exploratory drilling within the covenant revocation area and outside the DDF is part of this fast-track application but associated impacts (to MB's understanding up to 3ha) has not been assessed as part of the AEE reporting. Correspondingly, this is expected to elevate the quantum of impact albeit to a relatively minor degree relative to the 610ha of loss that is accounted for in the AEE. MB further notes that, beyond this, we do not know the degree of impact in terms of location, habitat type, or species.

41. Clarification is sought by TA, RT, MT, GR and MD whether this application requests permission for exploratory drilling beyond the covenant revocation area outside the DDF. If it has been sought, it is their understanding that has not been taken into account in the AEE.

Temporary/permanent nature of effects

42. GU considers that the adverse effects on lizard habitat and numbers of the three species (McCann's skink, Kowarau gecko, and southern grass skink) over 480ha of the DDF will be temporary, if temporary is defined as a human generation. GU states that the balance of the DDF will constitute a permanent loss to lizard habitat. The rationale for this temporary effect is based around the anticipated creation of habitat to a greater extent than currently occurs within the footprint of the TSF in terms of tussock grassland planting, rock tor density, and scattered rock areas, and wet areas and wetlands (wetland, wetland margins, and swale drains and their margins).
43. MB, KB and GU consider that adverse effects on lizard habitat and numbers over 480ha of the DDF, which can be ecologically rehabilitated, are long-term but not permanent.
44. TA and MT consider that most impacts within the 480ha of the DDF will be permanent, particularly related to Kowarau gecko and southern grass skink. There is reasonable uncertainty around the success of rehabilitation and habitat creation which mean that the success of these cannot be assumed. The lack of mapped information about the distribution of at-risk species across the site contributes to the uncertainty of impact.
45. MT considers the characterisation of the effects as temporary to be unsupported. This view reflects MT's low confidence in the lizard survey results, the uncertainty as to whether rehabilitation can achieve the targets specified above, and the absence of current information on the ability of Kowarau geckos to move across rehabilitated landscapes.
46. JW considers that the effects are permanent from a cultural perspective because the whakapapa of that landscape will be severed; and beyond lizards, the relationship of non-lizard species with lizards will be forever altered and cannot be replicated from its current state.
47. GR has low confidence in the ability to, using present technologies of plant establishment and rock stack creation that equivalent, let alone improved lizard

habitat can be achieved on rehabilitated part of the DDF. TA and MT agree with this.

48. GU and MB have high confidence in the ability of native lizards to re-establish on the rehabilitated part of the DDF because McCann's skink are generalist habitat users and Kowarau gecko are habitat opportunists (on this site they use side cast rock on roadside margins, rock piles on the edge of fields, rock anchors that weigh down rabbit fences, shards of rock lying loosely on the ground, and rock tors). Southern grass skink are more specialised and will require a greater investment in rehabilitation effort to ensure adequate densely vegetated wet environments are provided on the TSF.
49. MB and GU note that, while they expect lizard habitat and lizard numbers to return in the long-term, due to uncertainties and time lag, the modelling assumes that the ecological rehabilitation only gets 20% towards no net loss outcomes. TA and MT consider this statement is inconsistent in the context of paragraph [57]-[60] of GU's statement of evidence in response to section 53 comments, dated 17 April 2026. TA notes that this topic is covered further under the rock stacks item below.
50. GU clarifies that paragraph [57] of his evidence is correct and aligns with the Minutes of the ecology workshop (page 6) where the contribution of rehabilitation for providing effects management for geckos is stated as around 20%.

Magnitude and extent of effects prior to consideration of avoidance, minimisation, and remediation

51. TA, MB, GU, MT and MD agree that effects on lizards are significant, and the effects broadly relate to habitat loss and direct harm to individuals (including displacement). However, there is some disagreement about the location, quantity, and scale of effects.
52. MT considers effects cover a much wider geographic area than the DDF. As an example, effects include adverse effects of resident lizards in the ARA, that are presumably at current population levels, if lizards salvaged from the DDF are released there. Moreover, MT has doubts that salvaged lizards will be released over a large area as stated but will instead be released at sites convenient to the herpetologists.
53. MB and GU intend to provide a summary table to clarify the degree to which effects management measures reduce the severity of effects or provide

potentially positive benefits for each lizard species in the context of no net loss outcomes.

54. MT supports the production of a summary table, in place of EXCEL spreadsheets, to explain the modelling undertaken and in particular the calculations that explain the quantum of residual effects for each species (both individuals and habitats).

Spatial and proportional extent

55. MT and TA had considered that the Project will impact up to 7% of the national population of Kowarau gecko. This number comes from a conservative estimate of the impact area at 700 ha and the published national and regional extent of the Kowarau gecko habitat to ca. 10,000-100,000 ha. However, On Site, the total area impacted by the Project in some way (potentially positively in some places and negatively in others) is ca. 3283 ha (see paragraph 9 above), or up to 32.83% of the national and regional extent of Kowarau gecko habitat.
56. MB and GU consider that the proportion of adverse impact on Kowarau gecko relative to a population range is approximately 0.1% as set out in paragraphs [40]-[46] of MB's evidence dated 17 April 2026. This is because the area occupied by Kowarau gecko is likely to be in the order of 400,000 ha, based on a review of iNaturalist research grade 3 records, the DOC herpetofauna database records, and statement on the New Zealand herpetological society website setting out the known locations of Kowarau gecko.
57. MT considers that MB has relied on an unpublished calculation which has a low level of certainty and creates difficulties in reviewing this information. MT notes that the herpetofauna database has identification errors and of the 400,000 ha only some of this is actual habitat. For example, Kowarau gecko is only on the very edge of the Old Woman Range and not at all widespread in the Crown Range. The species is only on the eastern side of the Remarkables and western side of the Dunstan Range. Kowarau gecko is also absent from much of the lowland areas of its range where rock is sparse. The Ruby Island record for Kowarau gecko is also not verified and was based on morphology, a trait notoriously inconsistent for Kowarau gecko.
58. As MT understands it, the National Threat Classification expert panel made up of 10 herpetologists¹ and a panel MT was part of for many years, takes these gaps

¹ Rod Hitchmough, Ben Barr, Carey Knox, Marieke Lettink, Joanne M. Monks, Geoff B. Patterson, James T. Reardon, Dylan van Winkel, Troy Makan and Pascale Michel.

into consideration when deeming the Kowarau gecko range to be 10,000-100,000 ha. Also, the regional threat panel made up of a mix of the national panel and 3 others² including Samuel Purdie, apparently applies the same constraints when estimating the range to be 10,000 ha.

59. Based on current information, TA and MT consider the extent of population to be 10,000-100,000 ha as per the DOC National Threat Classification 2026 and supported by the Regional threat classification, 2025. MT considers that this means the impact area of the BOGP (described in paragraph 10) takes up to ca. 32.83 % of the national and regional habitat extent of Kowarau gecko (between 3.28 – 32.83 %).
60. GU and MB disagree with the above. They have undertaken further analysis if unfiltered iNaturalist records and herpetofauna database records and applied nearest neighbour distances and DBSCAN clustering to identify potential connectivity groupings in the landscape. These analyses were used to inform buffers and concave hulls which estimate the potential range envelopes between 175,000 and 214,000 ha. At these levels the proportion of the range of Kowarau gecko impacted by the Project (the DDF) is between 0.29% and 0.35% although following rehabilitation (return of viable habitat across 480ha of the 610ha DDF) the permanent loss (130ha) will be between 0.06% and 0.08% of the estimated range of Kowarau gecko. This is outlined in the recent technical document supplied to the other lizard experts on 9 June 2026 (and which is intended to be tabled as evidence before the Panel). RT, TA, MT, GR and MD note they have not had sufficient time to review this.
61. MT notes that the New Threat Classification System to which she refers uses the IUCN model of area of occurrence which differs from the extent of occurrence that seems to be used by GU and MB.
62. MT notes that the prevailing use of technical language to explain important concepts is not helpful.

Noise, lighting, etc. effects

63. RT and TA are aware that the noise and lighting impacts go beyond the 610 ha DDF and that the impact on lizards from this has not been described in the AEE. It has been explained by MB that the complete loss of 610 ha is to account for/balance the unknown effects of vibration, light, noise, dust, outside of the

² Scott Jarvie, Carey Knox, Jo Monks, Samuel Purdie, James Reardon, Ciaran Campbell.

610ha due to lack of evidence/research on the effects on lizards. However, TA considers the 610ha includes a contingency, not a buffer zone, therefore potential impacts may be underestimated given lack of evidence/research and therefore greater conservatism is needed given this uncertainty. Therefore, the impact and overall Net Loss is likely underestimated. MT agrees with this paragraph.

- 64. MB considers the types of indirect effects on lizards noted above are addressed in the AEE, and are adequately addressed via the contingency for indirect effects within the 610ha DDF and this approach to addressing indirect effects via contingency is considered most appropriate due to challenges within quantifying the extent and magnitude of each type of indirect effect on each species.
- 65. MT considers the DDF 'contingency area' could be extended to account for the spillage of light and dust beyond the DDF.

Quantum of residual effects (before compensation and offsetting)

- 66. Using the ECIAG Guidelines, MB has assessed the magnitude of residual effects (after avoidance, minimisation, and ecological rehabilitation has been considered) on Kowarau gecko and southern grass skink as moderate, which corresponds to a high level of residual effects for both of these species. MB has assessed the magnitude of residual effects on McCann's skink as low which corresponds to a low level of residual effect. GU agrees with this assessment. TA also agrees with this assessment but notes the use of the ECIAG Guidelines for lizards does not cover all of the significance assessments that are relevant.
- 67. TA, MB, GU, MT and MD agree there is a high level of residual effect on Kowarau gecko and southern grass skink because of the number of lizards impacted and the scale of impact.
- 68. GU and MB emphasise that after salvage/relocation and ecological rehabilitation, the spatial area not occupied by native lizards will be considerably lower (ca. 140 ha) than the overall area impacted (ca. 620 ha). Therefore, the long-term effects of loss of lizards and impact on habitat will be reduced compared to only considering the impact of active mining on the site. MD agrees with this paragraph.
- 69. MT considers there is also a significant level of residual effect on McCann's skink because of the large number of lizards impacted and the scale of impact (extent of their habitat impacted, up to 3283 ha).

- 70. JW agrees there is a significant impact on all three species. Each species holds its own unique whakapapa so therefore have different forms of importance to Māori communities that may not fit within a western perspective of how those species are valued.
- 71. MB and TA consider the impacts on McCann's skink to be considerable.
- 72. TA and MT consider that, following the implementation of effects management measures (avoidance, minimisation, and ecological rehabilitation), the residual effects remain significant.

Quantum of overall level of residual effects (after compensation and offsetting)

- 73. TA, MB, GU, MT and MD agree that the proposed offsetting and compensation measures do not materially reduce the level of residual effect and, as such, after offsetting and compensation is considered, the level of residual effects on the lizard assemblage and, in particular, on Kowarau gecko and southern grass skink, remains significant (i.e. net loss of at least a high magnitude, comprising loss of individuals, values, and habitat extent).
- 74. MT considers there is also a significant level of residual effect on McCann's skink after compensation and offsetting has been considered because of the number of lizards impacted and the scale of impact.
- 75. MB and TA consider the impacts on McCann's skink to be considerable after compensation and offsetting has been considered.

F. Is the Ardour Restoration Area a suitable location for release of salvaged lizards? Is mouse control necessary to make this release site suitable?

- 76. The experts did not have sufficient time to address this item.

G. Are the site rehabilitation and offset/compensation measures proposed to address effects on lizards appropriate, and will they achieve positive outcomes?

- 77. The experts did not have sufficient time to address this item.
- 78. This item is also to be addressed during the Effects Management conference.

H. Should all or some salvaged lizards be released into a pest exclusion fenced area?

79. MB, KB, GU, RT, TA, GR and MD agree that all salvaged lizards should be released into a pest exclusion area, but note the size and location matters are addressed elsewhere in this JWS.

I. What are appropriate performance measures for each aspect of the lizard effects management programme?

80. The item is addressed elsewhere in this JWS.

J. Introduction of grand and Otago skinks to the fenced enclosures has been loosely referred to in the application but is not formally offered as a project compensation measure. Is there support for this to occur?

81. This is intended to be addressed at the Effects Management conferencing. MT and MD consider this is a priority item.

K. What evidence is there that the proposed rock stacks will provide successful habitat for lizards? Is there a risk that the stacks will become predator focal points?

82. The experts did not have sufficient time to address this item.

L. Appropriateness of the habitat

83. The experts have interpreted this question to mean the appropriateness of the relocation habitat.
84. The experts did not have sufficient time to address this item.

M. Survey methodology

85. The experts have addressed this item above.

N. Need for additional approvals

86. The experts did not have sufficient time to address this item.

O. Long-term management and legal protection of sanctuaries

87. This item is to be addressed during the Effects Management conference.

P. Salvage plan (as part of the LMP)

88. This item has been addressed in part elsewhere in this JWS.

Q. Toe clipping

89. As per the Applicant's response to section 53 comments, toe clipping is not proposed to be undertaken (in accordance with iwi and others' recommendations).
90. All experts agree that if alternatives to toe clipping to track lizards are feasible, the experts intend to discuss this further, because the tracking of lizards is important to determining contingencies.
91. All experts (except JW who was not present) further addressed this elsewhere in the JWS.

R. Wildlife approval assessment matters

92. The experts did not have sufficient time to address this item.

S. Management Plans and Protocols

(i) LMP best practice/salvage principles

93. TA, MB, MT, KB, MD and GU agree there are 2 best practice documents: LMP template and salvage principles.
94. MT and TA consider that the final LMP should follow the LMP template. Furthermore, relevant salvage principles should be adhered too. The existing LMP does not provide an adequate commentary on adherence to salvage principles.
95. MB considers there to be adequate response to salvage principles acknowledging that there is non-compliance with several principles based on the scale of impacts and associated challenges with managing effects but notes that there will be further updates to the LMP.
96. TA, MB, MT, KB, MD and GU consider the LMP as it is currently presented in the application does not meet the minimum requirements for LMPs as detailed in DOC (2018). Some examples are detailed in MT's Statement of Evidence provided with DOC's s51 report. They agree that focus of salvage should be on

at-risk lizards and they should be salvaged and relocated into areas that provide suitable habitat and are pest free.

97. MB, TA, MT, MD, GU and KB do not consider it feasible to salvage all lizards but outcomes should be optimised for those lizards that are salvaged and relocated. The current salvage plan does not achieve this.
98. MB, TA, MT, MD and GU consider that to substantially reduce the severity of effects for relocated lizards it would require release into larger scale pest exclusion fence(s) with suitable habitat. KB agrees on the basis that larger pest exclusion fence(s) are a viable solution and practically achievable.
99. MT, MD, GU, MB and TA consider that despite the technical and logistical problems with pest-exclusion fences, e.g., long-term management and governance, the only locally proven and effective way to reduce residual effects on lizards related to the proposal is to release salvaged lizards into a single, large, habitat-rich pest exclusion fence area. Furthermore, they do not believe it necessary or constructive to limit the location of any such fence to within the footprint of the proposal. In other words, they consider it is more important to reduce effects by sensible positioning and sizing of the pest-exclusion fence.
100. KB, GU, MB, MD and TA consider that a key focus should be the area protected by fencing and it may be that multiple areas may provide a better solution than one large fence.
101. MT notes that, during lizard workshopping, she suggested a population modelling approach would be useful to determine what size pest-exclusion fence would be required to offset all or a substantive portion of residual effects on all or some affected lizards. TA, GU, MB and MD agree this approach would be useful.

(ii) Performance measures: Decide if appropriate performance measures for each aspect of the lizard effects management programme can be ascertained at this stage, and if so, what are they.

102. MB, MD, KB, TA, GU and MT agree that performance measures should be provided in the LMP. MB states that he intends to update the LMP accordingly.
103. MT, TA, MB and MD consider the proposal is too underdeveloped to assign performance measures at this point in time. They note that this is particularly so,

in light of the changes made through this conferencing process and the updates/changes required.

104. MT, MD and TA hold the view that the heavy reliance on adaptive management to manage effects means performance measures/triggers and detailed responses are a vital but missing ingredient in the proposal as it stands.
105. MB, GU, RT, TA, MD and GR note that the interim updated management plans (to be provided on 22 June) will be able to incorporate broad feedback from all relevant JWSs from s53 parties to date, but the ability of those parties to review and provide their opinion on these to the Panel is necessary to provide certainty as to the overall ecological effect. They consider that it is likely that updated management plans due on 22 June will be further advanced but will not satisfactorily address all issues/concerns raised (or yet to be raised) by experts.

(iii) Monitoring for salvaged lizards

106. MB considers that monitoring the success of a salvage and relocation programme is dependent on the ability to distinguish relocated lizards from resident lizards. In MBs view, the only viable technique to this end is toe clipping which is not proposed due to cultural and animal ethics concerns. On this basis, MB does not consider it possible to monitor the success of the salvage and relocation programme, unless further techniques prove feasible, culturally acceptable, and approved by DOC. If that is the case, then MB considers that salvage and relocation performance monitoring can and should be undertaken. MD, KB, GU and TA agree with this paragraph.
107. MT holds the view that monitoring is vital given the reliance on adaptive management. MT understands that the Applicant expects no salvaged lizards will survive, at least as the application stands. MT further notes that monitoring is being undertaken over the Project area so on the face of it monitoring can be achieved.
108. MB notes that from an effects management accounting perspective, it is assumed that the lizard salvaging and relocation programme does not reduce the severity of effects. To clarify, this reflects conservatism, not the assumption that all 102,000 lizards currently proposed for salvaging will die.
109. MB, TA, MT and MD agree that population monitoring at the release sites is proposed and necessary. The methodology is set out in the Biodiversity Outcome

Monitoring Plan (the BOMP). TA and MT consider that these should all be part of the revisions provided by 22 June, and preferably in the LMP.

(iv) Accidental/Incidental Discovery Protocols

110. MT, MD, MB, TA and GU agree that the onus is on the Applicant to provide workable protocols should species other than the three lizards known to be present on site. Alternatively, if preferred, including potential effects on the proposal on other local lizard species could be considered, and then addressed in the 'mitigation' offerings.

111. TA and MB agree the incidental discovery protocol currently detailed in the LMP is inadequate due to the absence of any stop work triggers and no clear requirement to salvage any new species that may be discovered. In addition, there is no requirement for prompt notification to the Department of Conservation.

(v) Additional approvals

(a) Wildlife Act

112. The experts did not have sufficient time to address this agenda item.

(b) Other approvals

113. The experts did not have sufficient time to address this agenda item.

Effects Management

T. Salvage and release

(i) Salvage methodology

114. The experts did not have sufficient time to address this agenda item but consider it has been suitably addressed elsewhere in this JWS.

(ii) Release site: assess whether the Ardgour Restoration Area is suitable for the release of salvaged lizards, whether mouse control is necessary, and whether some or all salvaged lizards should be released into a pest-exclusion fenced area.

115. This item is addressed elsewhere in this JWS.

U. Rehabilitation and 'offset's: Assess whether the proposed site rehabilitation and compensation measures are appropriate and likely to achieve positive outcomes for lizards

(i) Covenanting

116. MT, TA, GU, MD and MB consider that covenanting of rehabilitated areas and fenced sanctuaries is an essential aspect of the proposal to 'lock in' ecological gains; yet the mechanisms and administering bodies for any such covenants have not been secured.
117. MT, MB, GU, MD and TA note long-term protection of managed-sites is a principle of lizard salvage best-practice.
118. GR, MD, MB, GU, KB, TA and MT consider that the conditions of the covenant and any relevant management plans/processes are important.

(ii) Release from grazing (ARA, pest fences): consider the expected positive effects on lizards, including tussock regeneration, and any uncertainty created by the absence of mouse control or mouse monitoring.

119. TA, MT and MD consider the removal of grazing without mesopredator control is likely to result in an increase in mice numbers, particularly in places such as the ARA with a high proportion of pasture grasses (and hence annual seeding). Dryland ecosystems are highly complex and the outcomes resulting from changes to input and outputs are not certain (Norbury et al 2013 based on studies at Macraes and Alexandra). However, they consider that when grazing removal is combined with mesopredator control there is a reasonable likelihood this will result in increased mice predation on lizards.
120. KB agrees that it is a complex environment and that, in respect of mesopredator control, complexity may well lead to different rates of predation.
121. In relation to paragraph 119 above, KB, MB and GU consider that while there is potential for that to happen, the impact of that would likely be identified through long-term monitoring of lizard populations, and this could be used as a trigger for investigation and management.
122. RT, MD and MT note that monitoring of mice would be needed to know that the impact on the lizard population is from mice predation.

123. MB agrees that it would be helpful to include rodent monitoring in habitats where potential mice eruptions are more likely to better understand the reason for decreasing lizard populations in the unlikely event that this occurs.
124. KB, MD and MT consider that any rodent monitoring should follow set guidelines using national protocols.
125. MT considers that release from grazing is expected to improve the complexity of lizard habitat and is therefore included in the accounting models. For example, MT understands that a 50% improvement in lizard habitat above baseline is anticipated across the ARA. MT and GR note that one assumed mechanism is increased tussock recruitment. However, they consider there is no technical evidence to support confidence in this specific outcome. In addition, greater habitat complexity may also lead to an increase in rodents, which is not currently proposed to be monitored.
126. MB notes that, despite the stated expectations and benefits of the residual effects management for lizards, the outcome is expected to result in a very high magnitude of residual effects remaining.
127. MT and TA consider the optimism in the 50% habitat improvement is unfounded, and residual effects are even higher than stated by the Applicant's ecologists.
128. MT recommends conducting power tests to confirm whether the lizard monitoring design is sufficiently robust—in both extent and intensity—to detect trends and provide the information intended.

(iii) Rock stacks: consider the evidence that proposed rock stacks will provide successful lizard habitat for all lizard species. How useful are these for mitigating adverse effects for each species and why. Consider whether they could become predator focal points.

129. The experts did not have sufficient time to address this agenda item.

(iv) Sanctuaries

130. MD, TA, KB, MT, GU and MB are of the view that the proposed sanctuaries are of insufficient scale to offset the effects of the proposed activity, both with regards to the size of the impacted area (DDF) and the uncertainty around the effectiveness of planned offsets such as lizard salvage and relocations.

- (a) **Location and size:** discuss the proposed location (habitat quality) and size of sanctuaries. Clarify purpose.

131. The experts did not have sufficient time to address this agenda item.

- (b) **Species introduction:** consider whether the introduction of grand and Otago skinks & jewelled geckos into fenced enclosures forms part of the mitigation/compensation offerings, noting this has been mentioned in the application but not formally proposed as a compensation measure.

132. There was insufficient time to address this item. It is therefore intended to be addressed at Effects Management conferencing. MT and MD consider this should be addressed as a priority.

V. Release from grazing – effects on lizards will be positive including tussock regeneration – confounded by no mice control or mice monitoring?

133. The experts did not have sufficient time to address this agenda item.

SIGNATURES OF EXPERTS



Dr Graham Ussher



Keith Barber



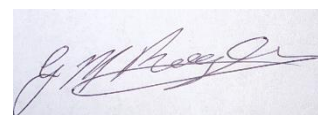
Dr Matt Baber



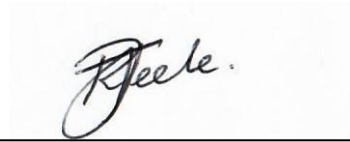
Dr Mandy Tocher



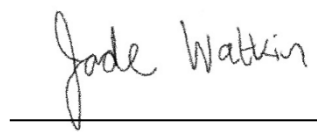
Trudy Anderson



Dr Geoffery Rogers

A handwritten signature in cursive script, appearing to read 'Rebecca Teele', written in black ink on a light background.

Rebecca Teele

A handwritten signature in cursive script, appearing to read 'Jade Watkin', written in black ink on a light background.

Jade Watkin

A handwritten signature in cursive script, appearing to read 'Matthew Dale', written in black ink on a light background.

Matthew Dale