

Before the Fast-track Panel

Under: Fast-track Approvals Act 2024

In the matter of: FTAA-2605-1236 – Remarkables Ski Area Upgrade and Doolans Expansion

Statement of advice: Dr Fleur Jennifer Foster Maseyk

Effects management including compensation

Independent consultant

12 October 2026



Department of
Conservation
Te Papa Atawhai

**Te Kāwanatanga
o Aotearoa**
New Zealand Government

Executive Summary

1. This advice covers matters relating specifically to the effects management hierarchy and the concepts and principles of offsetting and compensation, with an emphasis on compensation (and the proposed Biodiversity Compensation Package) as this is the crux of the effects management response proposed by NZSki to address the diverse and large-scale adverse effects associated with the Remarkables Ski Area Upgrade and Doolans Expansion application.
2. I draw on the conclusions within the statements of advice of the Department of Conservation subject experts in relation to the assessment of biodiversity and ecological values (avifauna, lizards, terrestrial invertebrates, aquatic and wetlands, and terrestrial ecology) and the adequacy of effects assessment to inform my position.
3. NZSki consider 'that the Project can be undertaken in a manner that will appropriately address adverse environmental effects'. I do not agree with the Applicant's conclusion and am instead of the view that the Application does not appropriately address adverse biodiversity and ecological effects, based on the following key issues:
 - i. The assessment of biodiversity and ecological values contains significant gaps, and/or downplays values by using inappropriate scales of assessment.
 - ii. Coupled with downplaying of values, assessments of effects are understated, and therefore the scope and scale of residual adverse effects is undersized.
 - iii. The inadequacies of the Applicant's effects management package stems from inadequacies in first, the identification of biodiversity and ecological values and second, in overlooking or understating adverse effects. In several instances proposed mitigation measures are insufficiently designed which further contributes to the level of residual adverse effects, that in the absence of offsetting and a substantially insufficient

compensation proposal, remain unaddressed. These unaddressed adverse effects represent permanent and irreversible losses.

- iv. Offsetting is acknowledged by NZSki to not be appropriate or feasible and hence instead offers (following the application of a raft of mitigation measures) compensation. I agree with NZSki's conclusions as to offsetting but emphasise that the same reasons for the inability to offset apply to compensation.
- v. Having determined the Project cannot align with the principles of offsetting (as set out in the National Policy Statements¹), the Applicant has not then undertaken an assessment of the principles of compensation as is required when adhering to the effects management hierarchy. There is scant justification provided by the Applicant for not adhering to principles of compensation and thus the effects management hierarchy, nor any acknowledgement of the consequences for not doing so.
- vi. The proposed Biodiversity Compensation Package is substantially inadequate in scope and magnitude to address residual adverse ecological and biodiversity effects and does not reflect the context in which the Project sits, or the extent and importance of the values lost.
- vii. The amount of positive compensatory outcome to be generated must be sufficient to outweigh the lost values². Sizing compensation relies on accurate description of the biodiversity and ecological values in the first instance and realistic consideration of the consequence of the permanent loss of impacted values (across all domains). Right-sizing compensation is inherently subjective, but nonetheless, in following good practice, requires an evaluation of the anticipated *outcomes* from proposed compensation projects and not to be driven by degree of effort or investment (or cost of actions). This has not occurred, and instead

¹ And also in the Otago Regional Council Regional Policy Statement.

² Principle 3 of Principles for biodiversity compensation (Appendix 4, NPS-IB) and Principles for aquatic compensation (Appendix 6, NPS-FM)

proposed compensation measures are parametrised by arbitrary capped funding allocations that are substantially insufficient to support the scale of works required to generate sufficient outcomes.

4. Unlike offsetting, compensation is not required to demonstrate ecological equivalence, or quantified outcomes (e.g., no net loss or net gain) and is therefore more subjective in its design and evaluation than offsetting. This makes compensation an even more risky undertaking than offsetting. However, in good practice, the principles of compensation can, and should, be taken as a clear indication of the standards and rigour required for compensation design. This is not the case for the Applicant's proposed Biodiversity Compensation Package.
5. Should the Panel be inclined to grant, the proposed effects management package remains a significant issue to be resolved. This includes improved application of the effects management hierarchy, addressing the adverse effects on the full raft of identified values, strengthening measures to minimise adverse effects (including tightening of conditions of consent and approvals), and revisiting the proposed Biodiversity Compensation Package to ensure compensation outcomes are proportionate with the residual adverse effects which are diverse and of landscape-scale.
6. A draft framework to assist with the evaluation of compensation proposals has been developed (based on the principles of compensation) with the purpose of improving objectivity, rigour, and transparency in the process. The draft framework is appended to this statement.
7. The development of this framework has emerged in an attempt to contend with the challenge of having to consider a compensation proposal outside of best practice effects management, as is the case for this Project. Thus, the framework is an attempt to improve an inherently ambiguous process while also recognising that, in the instance of this Project, for the majority of the residual adverse effects, the first and second principles of compensation have not been met. Under the National Policy Statement framework and the Otago Regional Council Regional Policy Statement, compensation would not be appropriate, and the activities avoided.

8. In demonstrating the applicability of the draft framework, the beginnings of a potential compensation package, currently comprising 10 discrete projects targeting landscape-scale outcomes, has been evaluated and presented here. The potential package as evaluated using the draft framework requires the full implementation of all ten projects. Estimated resourcing levels to support this potential package are still being confirmed but are considerably greater than the cost-capped budget offered by the Applicant.
9. The potential compensation package presented here, while a considerable improvement on the proposed compensation package, is still unlikely to generate sufficient positive outcome that could be considered to outweigh the losses. This is primarily due to the inability to weigh up the positive, but dissimilar, outcomes from compensation against the diverse and large-scale adverse effects from the proposal on valuable, vulnerable, and irreplaceable values. However, it is important to emphasise that compensation is not about the amount of money offered. Compensation should not be sized on the amount of investment, but rather on outcomes generated from that investment when considering the scope and scale of adverse effects at issue.
10. Irrespective of the challenges this Project faces in terms of sufficiently addressing adverse effects on biodiversity and ecological values, if the Panel were minded to approve this Application, I am of the view that it is preferable that any compensation package tends considerably more towards the 'sufficient' end of the scale of commensurateness than the 'insufficient' end of that scale. In my view, the Applicant's offering is materially insufficient in scope and scale. I suggest that application of the draft framework can assist in informing decision-making as to the appropriateness and adequacy of any proposed compensation package.
11. This statement does not comment on matters relating to visitor experience, landscape, or geomorphology, except to note that any adverse effects of the Project on these values are not included in the ecological compensation discussed in this statement, and additional measures to compensation for losses relating to those values may be required.

Introduction

12. My full name is Fleur Jenifer Foster Maseyk.
13. I am a Conservation Scientist with The Catalyst Group, where I have worked since 2012. I am based in Wellington but work nationally.

Instruction

14. I have been requested to provide expert advice to the Director-General of Conservation (**DOC, the Department**) for the purposes of his comments on the Remarkables Ski Area Upgrade and Doolans Expansion Fast-track application (**the Application, Project**).
15. Specifically, I have been asked to provide comment on NZSki's (**the Applicant**) proposed effects management proposal (including offers of mitigation, biodiversity offsetting, and compensation measures) and the associated proposed conditions as relevant for resource consents and/or approvals.
16. My advice will be used to inform DOC's s51 reporting and s53 comments on the application.

Qualification and Experience

17. I have a PhD (nature resource management and conservation decision-making) obtained from the University of Queensland; a Master of Environmental Science (ecology and conservation biology), and a Bachelor of Science (ecology and conservation) from the University of Auckland.
18. I have nearly 30 years of experience working in natural resource management and conservation and have expertise in areas of biodiversity policy development and implementation, biodiversity offsetting, natural capital focussed ecosystem services approaches to natural resource management, and integrating biodiversity into farm planning processes.

19. I have extensive experience of both in-field and desktop vegetation and habitat mapping, and the assessment of ecological value and significance, technical assessment of resource consent applications, and the evaluation of biodiversity offset proposals.
20. Prior to joining The Catalyst Group my previous roles included working for local government, private consultancy, and the Department of Conservation. I have also spent several years working overseas for a conservation NGO, and in a research role at the University of Queensland.
21. Of relevance to this statement of advice is my experience and qualifications relating to biodiversity offsetting and compensation. I have led the development of several tools and guidelines including:
 - i. The development of an accounting system for the purposes of evaluating ecological equivalence in biodiversity offset exchanges³.
 - ii. The guidance document for biodiversity offsetting under the RMA⁴ and a think piece on strategic mechanisms for delivery of biodiversity offsetting or compensation for the regional council Biodiversity Working Group⁵.
 - iii. The development of guidance on best practice for calculating credible 'risk of loss' estimates under the Environment Protection and Biodiversity Conservation Act for the Australian Department of Environment and Energy⁶.

³ Maseyk FJF, Barea L, Stephens RTT, Possingham HP, Dutson G, Maron M. 2016. A disaggregated biodiversity offset accounting model to improve estimation of ecological equivalency and no net loss. *Biological Conservation* 204:322–332.

This model is available at: <https://www.doc.govt.nz/about-us/our-policies-and-plans/guidance-on-biodiversity-offsetting/biodiversity-offsets-accounting-system/>

⁴ Maseyk F, Usser G, Kessels G, Christensen M, Brown M 2018. Biodiversity offsetting under the Resource Management Act. A guidance document. Prepared for the Biodiversity Working Group on behalf of the BioManagers Group.

Available on the Local Government NZ website:

<https://www.lgnz.co.nz/news/publications/biodiversity-offsetting-under-the-resource-management-act/>

⁵ Available on the Local Government NZ website: <https://www.lgnz.co.nz/news/publications/improving-outcomes-from-the-delivery-of-biodiversity-offsets-and-compensation/>

⁶ Maseyk FJF, Evans MC, Maron M 2017. Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act. Report to the National Environmental Science Programme, Department of Environment and Energy. Threatened Species Recovery Hub, Project 5.1

22. I provided advice on biodiversity offsetting and compensation to the Biodiversity Collaborative Group preparing recommendations for the drafting of the National Policy Statement for Indigenous Biodiversity.
23. I frequently prepare expert evidence on terrestrial ecology and effects management into council plan or resource consent hearings, Environment Court hearings and expert caucusing, and more recently have provided expert advice into Fast-track proceedings.
24. I regularly provide advice, review proposals, and deliver presentations and training sessions on effects management to local government or private consultants on the effects management hierarchy, biodiversity offsetting and compensation design, and the use of accounting systems (loss/gain calculators).
25. I have published over 20 papers in peer-reviewed journals and two book chapters across the raft of my expertise areas, including several papers on the concepts and theory of biodiversity offsetting and the use of offset models. I have also produced numerous contract client reports, including on the topics of biodiversity offsetting and compensation, biodiversity policy development, interpretation, and implementation, biodiversity strategies, nature-based solutions, social and ecological outcomes from community conservation, restoring and enhancing indigenous biodiversity on-farm, and development of abundance assessment frameworks.
26. I have a strong understanding of the subject matter on which I provide advice. My recent experience of relevance to this application includes:
 - i. I been involved in providing advice to the Department of Conservation on effects management and offsetting associated with several projects under the Fast-track Approvals Act 2024.

‘Better offsets for threatened species’. Centre of Biodiversity and Conservation Science, University of Queensland.

Maseyk FJF, Maron M, Gordon A, Bull JW, Evans MC. 2020. Improving averted loss estimates for better biodiversity outcomes from offset exchanges. *Oryx* 1–11.

- ii. I provided advice to the Panel on a substantial wetland offset proposal within a housing development being processed under the COVID-19 Recovery (Fast-track) Consenting Act 2020.
- iii. I provided expert evidence on effects management (for Te Rūnanga o Ngāti Whātua) in relation to the appeals on the Auckland Regional landfill at Wayby Valley (Waste Management NZ Ltd.) before the Environment Court.
- iv. I provided expert evidence on effects management (for Manuhiri Kaitiaki Charitable Trust) on the appeals relating to sand extraction within the Mangawhai-Pākiri Embayment before the Environment Court.
- v. I was engaged by Auckland Council to provide technical expert evidence in relation to biodiversity offsetting in the matter of Brookby Quarries Ltd. appeal to the Auckland Unitary Plan before the Environment Court.
- vi. I regularly provide advice on offset design or undertake reviews of biodiversity offsetting and effects management packages including for roading projects, and housing developments, and have provided review and technical advice into the development of biodiversity offsetting legislation and policy.

Code of conduct

27. 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.

Scope of advice and expert opinion

28. My expert advice relates to the following:

Part A

- i. An overview of the effects management hierarchy and principles of biodiversity offsetting and compensation.

Part B

- ii. Adequacy of the Applicant's proposed effects management measures, with a focus on proposed compensation measures.
- iii. Comments on conditions.

Part C

- iv. A proposed framework for the evaluation of proposed compensation measures.
- v. An alternative compensation package as a starting point for further exploration and discussion.

Material Considered

29. In preparing this advice I have reviewed the following documents as part of the substantive application:

Part A – Substantive Application

- i. A-10 – Substantive Application Report Section 3 - Project Description updated 3 September 2026
- ii. A-13 – Substantive Application Report Section 6 - Assessment of Environmental Effects updated 3 September 2026.
- iii. A-14 Substantive Application Report Section 7 – Management and Monitoring of Actual and Potential Effects updated 3 September 2026.
- iv. A-21 Effects Management and Compensation Overview Addendum.
Memorandum from Mitchell Daysh Ltd to NZSki dated 3 September 2026.

Part B – Technical Reports

- v. B-09 Freshwater Ecological Impact Assessment 27 August 2026 (**FEIA**)
- vi. B12– Terrestrial Ecology Impact Assessment 26 August 2026 (**TEIA**)

Part F – Management Plans

- vii. F.01A Lizard Assessment and Management Plan 14 May 2026
- viii. F.03 - Remarkables Ski Area Upgrade and Doolans Expansion Terrestrial Ecology Management Plan dated 21 May 2026

Part H – Proposed Conditions

- ix. H.02 – Resource Consent Conditions updated 3 September 2026.

Other documents

- x. Response to DOC re B-12 Terrestrial Ecology Impact Assessment 26 August 2026
 - xi. Response to ORC and DOC re B.09 Freshwater Ecological Impact Assessment 27 August 2026
30. I also rely on the following statements of advice:
- i. Dr Kerry Weston (DOC) – Avifauna
 - ii. Nicholas Harker (DOC) – Herpetology
 - iii. Dr Corinne Watts (Independent Consultant) – Terrestrial invertebrate ecology
 - iv. Dr Christopher Kavazos (DOC) – Freshwater
 - v. Dr Susan Walker (Independent Consultant) – Terrestrial flora, vegetation and ecosystems
 - vi. David Barrell (Independent Consultant) – Geomorphology
31. This statement focuses on biodiversity and ecological values, and I do not comment on the identification of or effects on other values for which additional compensation may be required. These other values include recreational, landscape, or cultural values.

Site Visit

32. I have not been on site, as the site visit was arranged prior to my engagement on the project. A further site visit is seasonally-dependent and cannot occur until after the snow melt.

Meetings with the Applicant

33. I attended the following post-lodgement meetings facilitated by the Applicant:

Topic	Date (2026)	Duration
Wetlands, streams, and crossings – discussion on preliminary feedback on draft technical reports	4 August	2 hours
Terrestrial ecology – discussion on preliminary feedback on draft technical reports	7 August	1.5 hours
Lizards – discussion on preliminary feedback on draft technical reports	21 August	1 hour
Effects management hierarchy and proposed Biodiversity Compensation Project – Applicant’s presentation of proposal	15 September	1 hour

34. The additional material (not contained in document A-21) presented during the meeting on 15 September 2026 does not form part of the Application, and I do not comment in detail on it here, other than to note that nothing was presented that would shift the conclusions and recommendations I present in this statement.

PART A – CONTEXT

35. Biodiversity offsetting has become well established in biodiversity policy globally⁷, and has emerged from a recognition that globally, biodiversity continues to decline and the role of economic development in that decline cannot be overlooked. The need to address the adverse effects on biodiversity and ecological values from development is now generally accepted whereas previously these effects were treated as externalities. The concept of offsetting is thus presented as a market-based instrument to address the policy challenge of allowing development while maintain biodiversity.⁸
36. This acceptance of the conceptual compatibility between development and biodiversity protection is controversial⁹, relies on accepting certain losses now for uncertain gains in the future, and lacks an evidence base in support of its effectiveness.¹⁰

⁷ Maron M, Ives CD, Kujala H, Bull JW, Maseyk FJF, Bekessy S, Gordon A, Watson JEM, Lentini PE, Gibbons P, Possingham HP, Hobbs RJ, Keith DA, Wintle BA, Evans MC, 2016. Taming a wicked problem: resolving controversies in biodiversity offsetting. *Bioscience* 66(6):489–498.

⁸ Bull JW, Suttle KB, Gordon A, Singh NJ, Milner-Gulland EJ 2012. Biodiversity offsets in theory and practice. *Oryx* 47(3):369–380.

Calvet C, Guillaume O, Claude N 2015. Tracking the origins and development of biodiversity offsetting in academic research and its implications for conservation: A review. *Biological Conservation* 192:492–503.

Hrabanski M 2015. The biodiversity offsets as market-based instruments in global governance: Origins, success and controversies. *Ecosystem Services* 15:143–151.

Walker S, Brower AL, Stephens RTT, Lee WG 2009. Why bartering biodiversity fails. *Conservation Letters* 2:149–157.

⁹ Maron et al. 2016.

¹⁰ Gordon A, Curtsdotter A, Oliver I, Hernandex S, Cox M, Dorrough J 2025. Five years of offsetting native vegetation: The challenge of achieving no-net-loss. *Ecological Indicators* 179:114180.

Maron et al. 2016.

Maron M, von Hase A, Quétier F, Sonter LJ, Theis S, zu Ermgassen SOSE 2025. Biodiversity offsets, their effectiveness and their role in a nature-positive future. *Nature Reviews Biodiversity* 1:183–196

Marshall E, Wintle BA, Southwell D, Kujala H 2020. What are we measuring? A review of metrics used to describe biodiversity in offsets exchanges. *Biological Conservation* 241:108250.

Moilanen A, Jalkanen J, Halme P, Nieminen E, Kotiaho JS, Kujala H 2024. Monitoring in biodiversity offsetting. *Global Ecology and Conservation* 54:e03039.

Price CA, Simon KS, Neale M 2022. Destruction and reconstruction: Is freshwater offsetting achieving no net loss? *New Zealand Journal of Marine and Freshwater Research* 58(1):127–144.

37. The concept of being able to offset or compensate for biodiversity and ecological losses is a complex, challenging, uncertain, and high-risk notion. For these reasons, a high level of rigour and transparency in the design of offsetting or compensation measures must be maintained.
38. The principles for offsetting and compensation help us do that, and reflect the precautionary approach needed in response to scarce resources (such as biodiversity) and high value ecological attributes.

Principles of offsetting and compensation

39. The national policy direction for offsetting and compensation sits within the National Policy Statement for Indigenous biodiversity 2023 (**NPS-IB**) and the National Policy Statement for Freshwater Management 2020 (**NPS-FM**).¹¹ The NPS-IB addresses offsetting and compensation of terrestrial matters (broadly indigenous vegetation, habitat of significant indigenous fauna and land-based ecosystems), and the NPS-FM ‘addresses offsetting and compensation of rivers and natural inland wetlands’¹². The NPS-IB refers to ‘biodiversity’ offsetting and compensation (but only applies to terrestrial biodiversity) while the NPS-FM refers to ‘aquatic’ offsetting and compensation (and includes aquatic biodiversity).
40. The principles for offsetting and compensation illustrate the level of rigour and standards required when designing an offset or compensation measures. The

Tran HN, Maron M 2024. Biodiversity offset conditions contributing to net loss of koala *Phascolarctos cinereus* habitat. *Conservation Science and Practice* e13271.

Walker et al. 2009.

zu Ermgassen SOSE, Baker J, Griffiths RA, Strange N, Struebig MJ, Bull JW. 2019. The ecological outcomes of biodiversity offsets under ‘no net loss’ policies: A global review. *Conservation Letters*. 12:e12664.

zu Ermgassen SOSE, Devenish K, Simmons BA, Gordon A, Jones JPG, Maron M, to Bühne HS, Sharma R, Sonter LJ, Strange N, Ward M, Bull JW 2023. Evaluating the impact of biodiversity offsetting on native vegetation. *Global Change Biology* 29:4397–4411.

¹¹ The Fast-track Approvals Act (FTAA) treats the emphasis on the National Policy Statements (NPS) differently to the Resource Management Act framework, but the NPS remain relevant as available policy direction, reflective of internationally recognised good practice in effects management.

¹² In instances where a Significant Natural Area (SNA) contains a natural inland wetland, the wetland may be treated as part of the SNA and therefore the NPS-IB provisions are also triggered. If there is a conflict between the NPS-IB and the NPS-FM, the NPS-FM prevails.

NPS-IB (Appendices 2 and 3) and the NPS-FM (Appendices 6 and 7) set out the principles that apply to the use of offsetting and compensation (Table 1). These principles have evolved from, and are largely reflective of, the internationally recognised principles developed by the Business and Biodiversity Offsets Programme (BBOP)¹³.

Table 1: *Principles of offsetting and compensation as set out in the NPS-IB (biodiversity offsetting and compensation) and the NPS-FM (aquatic offsetting and compensation). The NPS-IB requires a net gain outcome for offsetting, while the NPS-FM seeks no net loss and preferably a net gain. The principles that differ between offsetting and compensation are shaded.*

Offsetting	Compensation
1 Adherence to the effects management hierarchy	1 Adherence to the effects management hierarchy
2 When biodiversity aquatic offsetting is not appropriate	2 When biodiversity aquatic compensation is not appropriate
3 Net gain No net loss and preferably a net gain	3 Scale of biodiversity aquatic compensation
4 Additionality	4 Additionality
5 Leakage	5 Leakage
6 Long-term outcomes	6 Long-term outcomes
7 Landscape context	7 Landscape context
8 Time lags	8 Time lags
	9 Trading up
	10 Financial contributions
9 Science and mātauranga Māori	11 Science and mātauranga Māori
10 Tangata whenua and stakeholder participation	12 Tangata whenua and stakeholder participation
11 Transparency	13 Transparency

41. There are fundamental differences between offsetting and compensation.

Offsetting requires an applicant to demonstrate a ‘net gain’ (NPS-IB) or ‘no net loss and preferably a net gain’ (NPS-FM) outcome. Demonstrating a net gain or a no net

¹³ See Business and Biodiversity Offsets Programme (BBOP) 2009. Biodiversity Offsets and BBOP: An overview. BBOP, Washington, D.C.
BBOP was an international collaboration between companies, financial institutions, government agencies, scientists, policy makers, industry, and non-governmental organisations.

loss requires the quantitative demonstration of ecological equivalence (measured by type, amount, and condition).

42. Compensation does not require those standards, only that positive outcomes from compensation outweigh the values lost. 'Outweighing' is a much more subjective evaluation than demonstrating net gain or no net loss, and does not require numerical analysis. The greater flexibility afforded to compensation is also reflected in the principles for trading up (out of kind trades) and financial contributions (as a last resort, and where gains can be shown).
43. However, all other principles apply equally to offsetting and compensation. Therefore, apart from the expectation for outcomes differing, the same levels of rigour and effort are required when proposing compensation measures as when designing an offset. Of relevance here are the requirements to adhere to the effects management hierarchy (Principle 1, preventing skipping over previous steps in the hierarchy, see next section from para [51]) and the appropriateness principles (Principle 2).
44. The 'appropriateness' of offsetting or compensation encapsulates the understanding that there are limits to what can be offset or compensated for. Recognition of limits reflects our understanding of biodiversity being finite, and that globally and nationally we are experiencing a 'biodiversity crisis' with continued declines across many biodiversity attributes. The concept of limits is an internationally accepted principle, reflecting the high-risk endeavour that is offsetting or compensation and the associated need for a precautionary approach. Put simply, the appropriateness principle accepts that there are some biodiversity and ecological values that cannot be offset or compensated for if losses were to occur.
45. These limits define what is inappropriate for offsetting or compensation and include where:
 - i. Biodiversity or ecological values are vulnerable (e.g., threatened species) and/or irreplaceable (e.g., naturally uncommon ecosystems).
 - ii. There are no technically feasible or socially acceptable options to generate gains or positive outcomes.

- iii. The level of uncertainty in achieving outcomes is too high (unacceptable risk).
 - iv. Outcomes are not achievable in acceptable timeframes (longer time frames carry higher risk and are socially unacceptable).
 - v. For offsetting, no net loss or net gain outcomes cannot be validated.
 - vi. There is no available site to implement offset or compensation actions.
46. The limits and the appropriateness principles are in place specifically to avoid the use of offsetting or compensation to address losses of values like those present in Doolans Basin¹⁴. It is known that for much biodiversity and many ecological values, offsetting or compensation is simply not possible. Recognising that many biodiversity attributes and ecological values are of too great a value to subject to the risks associated with offsetting and compensation is a fundamental guard rail underpinning the concept of effects management. To ignore this guard rail is to undermine the explicit precautionary intentions of the mechanism, and will entrench externalities instead of preventing them as was intended.
47. To be clear, in the context of good practice application of the effects management hierarchy, the inability to offset or compensate (due to principles not being met) should not be seen as a pathway that permits unaddressed losses.
48. Outside the limits of Principle 2, and provided remaining principles are adhered to, compensation can be an appropriate response. Like all other components of effects management, all compensation measures must be secured through conditions of resource consent, and other approvals as relevant (see also Part B).
49. The concept of burden of proof¹⁵ is tightly linked to the principles of additionality, appropriateness, transparency as well as other aspects of offset or compensation design such as confidence in anticipated restoration trajectories, certainty in

¹⁴ See Statements of advice from DOC subject experts.

¹⁵ Pilgrim JD, Brownlie S, Ekstrom, JMM, Gardner TA, von Hase A, ten Kate K, Savy CE, Stephens RTT, Temple HJ, Treweek J, Ussher GT, Ward G 2013. A process of assessing the offsetability of biodiversity impacts. *Conservation Letters* 6(5):376–384.

outcome, etc. The ‘proof’ required is that there is no risk to biodiversity or ecological values, and the burden is on those who are seeking to cause the losses (e.g., in this context, the Applicant). The burden of proof concept mirrors polluter pays and precautionary principles, as is fitting in situations of scarcity.

The effects management hierarchy

50. The effects management hierarchy is an internationally accepted approach to addressing adverse effects on indigenous biodiversity from activities and development, describing the sequential steps to be implemented to address adverse effects of an activity. The hierarchy can be represented visually as a continuum of responses (Figure 1), reflecting that each subsequent and specific step cannot occur until the previous steps have been.

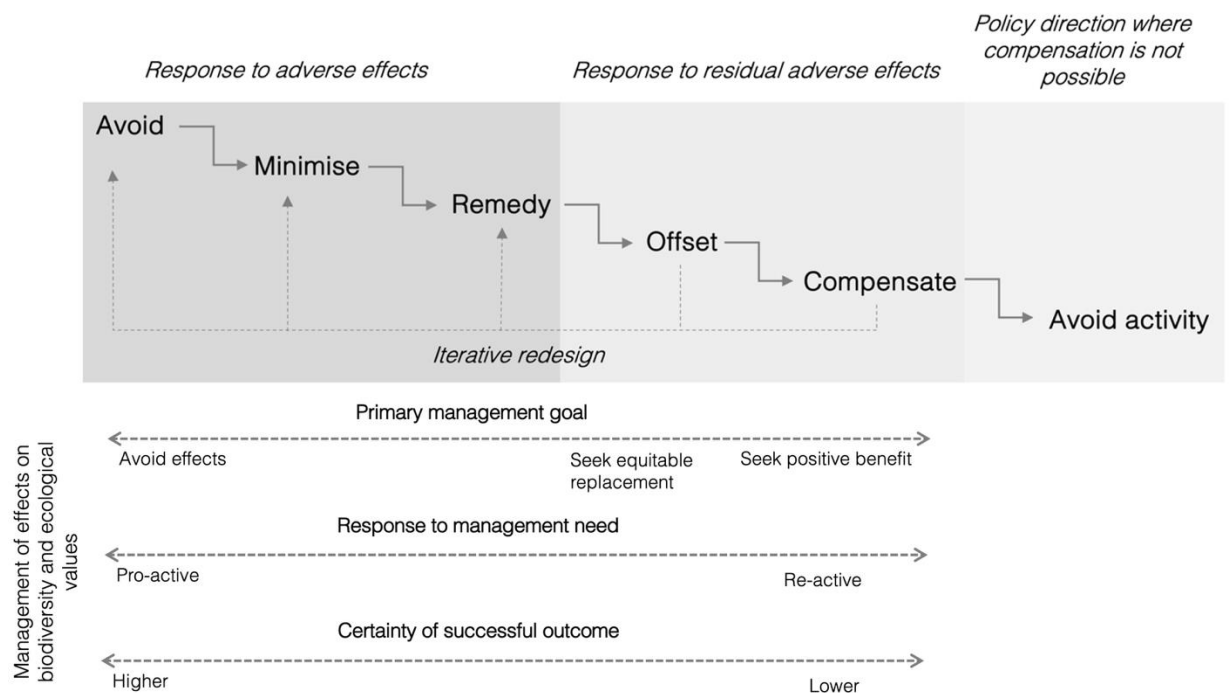


Figure 1: The effects management hierarchy showing the five sequential responses to address adverse effects on indigenous biodiversity and ecological values from development activities. Certainty about achieving successful outcomes for biodiversity decreases at each step along the continuum. The additional sixth step as directed by operative national policy statements and the NRP is also shown. Adapted from Maseyk et al. 2018¹⁶.

¹⁶ Maseyk F, Ussher G, Kessels G, Christensen M, Brown M 2018. Biodiversity offsetting under the Resource Management Act. A guidance document. September 2018. Prepared for the Biodiversity Working Group on behalf of the BioManagers Group.

51. The first three steps of the effects management hierarchy, in order of prior application, are to avoid adverse effects in the first place, then to minimise, then remedy.¹⁷ Any residual adverse effects on biodiversity may then be offset or, where an offset is not possible, compensated.
52. The effects management hierarchy and principles clearly distinguish between offsetting and compensation as distinct responses that achieve different outcomes, and they recognise that compensation should be used only as last resort once all other options have been sequentially explored and exhausted. The national policy direction is clear that in the event compensation is not possible, the activities themselves should be avoided.
53. The NPS-IB directs that any adverse effects on a significant natural area (SNA)¹⁸, and any significant adverse effects on indigenous biodiversity outside of SNAs be managed via the effects management hierarchy¹⁹, while the NPS-FM directs that any adverse effects on the extent or values of a wetland or river be managed via the effects management hierarchy²⁰. The values present within the NZSki project area meet these thresholds.
54. Critically, the NPS-IB and the NPS-FM include a sixth step to the effects management hierarchy (Figure 1), whereby if compensation is not possible then the activity is to be avoided.

Biodiversity offsetting and biodiversity compensation are not the same thing

55. I agree with the Applicant that biodiversity offsetting is not possible or appropriate to address the effects that will occur as a result of this Project. The DOC subject experts are also in agreement on this point²¹, a conclusion they reach based on

¹⁷ These first steps are known internationally as the ‘mitigation hierarchy’, and while the language (and order) differs slightly from the ‘avoiding, remedying, or mitigating’ in the Resource Management Act (s5(2)(c)) this shift to place emphasis on mitigation prior to remedy has been adopted in the National Policy Statement for Indigenous Biodiversity 2023 and the National Policy Statement for Freshwater Management 2020.

¹⁸ NPS-IB clause 3.10(2) & 3.10(3), with exceptions set out in set out in clause 3.11.

¹⁹ NPS-IB clause 3.16(1).

²⁰ NPS-FM clause 3.21 and 3.22, with exceptions set out in clause 3.22.

²¹ See Statements of advice for Dr Watts, Dr Kavazos, Dr Walker.

their assessment of values, scale of effect, and application of the principles of offsetting, particularly the appropriateness of offsetting.

56. As offsetting is not in question in this situation, I do not dwell on details pertaining to offsetting. However, as the emphasis in this Application is on biodiversity compensation it is useful to clarify the difference between offsetting and compensation.
57. **Offsetting** generates a measurable conservation outcome resulting from actions that aim to generate like-for-like gains in target biodiversity in one place that are sufficient (across type, amount, and condition) to counterbalance residual adverse biodiversity effects in the same target biodiversity elsewhere due to development activities, after appropriate avoidance, minimisation, and remediation have been applied.
58. **Compensation** generates a conservation outcome designed to compensate for losses due to development activities where a biodiversity offset cannot be achieved, after all appropriate avoidance, minimisation, remediation, and biodiversity offset measures have been applied.
59. The principles that guide the design and implementation of offsetting and compensation define the rigour required in the design of an offset or compensation response. For offsetting, the principles also define the outcome objective (e.g., no net loss or net gain) and the requirement for quantified evaluation of the ecological equivalency²² of the proposed exchange (the trade of the biodiversity gained for biodiversity lost).
60. Compensation, unlike offsetting, does not carry the requirement to demonstrate a quantified no net loss or net gain outcome (Maseyk et al. 2018²³). This differentiation is also recognised in the NPS-IB and the NPS-FM. Consequently,

²² Ecological equivalence describes the degree of similarity in biodiversity values between impact and offset sites, and therefore whether the exchange achieves ‘like-for-like’ no net loss or net gain outcomes.

²³ Maseyk F, Ussher G, Kessels G, Christensen M, Brown M 2018. Biodiversity offsetting under the Resource Management Act. A guidance document. September 2018. Prepared for the Biodiversity Working Group on behalf of the BioManagers Group.

the outcomes from compensation are not tied to a target and can therefore vary substantially in the scale of positive outcome (Figure 2).

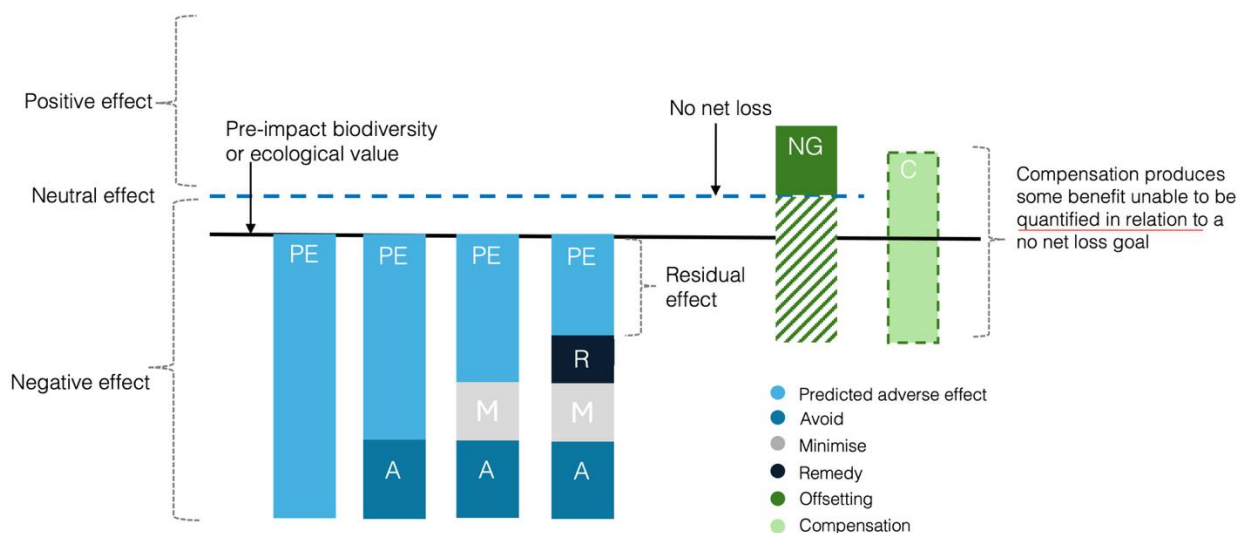


Figure 2: Conceptual illustration showing the difference between no net loss and net gain outcomes from biodiversity offsetting of residual adverse effects, following the sequential application of the efforts to avoid, minimise, and remedy adverse effects. The point of no net loss (blue-dashed line) is above the pre-impact biodiversity value, as more gains than losses are required to achieve no net loss when accounting for uncertainty and time lags between losses occurring and gains eventuating. This figure refers to biodiversity offsetting and compensation but applies equally to aquatic offsetting and compensation. Adapted from Maseyk et al. 2018.²⁴

61. Thus, offsetting and compensation are not the same and they achieve very different outcomes. As shown in Figure 1, certainty about achieving successful outcomes for biodiversity and ecological values decreases with each subsequent step in the effects management hierarchy, with compensation providing the least certainty. This decreasing certainty of outcome for biodiversity and ecological values is a critical consideration for evaluating the adequacy of effects management measures. Low certainty reinforces the necessity for adhering to the principles of compensation that serve to protect against poor compensation offerings. The principles of particular relevance to this Project are those of appropriateness and scale of compensation.

²⁴ Maseyk F, Ussher G, Kessels G, Christensen M, Brown M 2018. Biodiversity offsetting under the Resource Management Act. A guidance document. September 2018. Prepared for the Biodiversity Working Group on behalf of the BioManagers Group.

62. The inherent uncertainty in the outcomes from compensation reinforces the need to design compensation packages that run ‘as close as possible’ to an offset in terms of amount (scale of compensation), rigour in design, and certainty of outcome. While equivalence between losses and positive outcomes from compensation cannot be quantitatively demonstrated, a transparent, structured qualitative approach to the evaluation of suitability and adequacy of the proposed compensation measures can help to reduce uncertainty and increase confidence (see Part C).

PART B – PROPOSED EFFECTS MANAGEMENT

Assessment of values and effects

63. Prior to assessing effects and subsequently applying the effects management hierarchy, ecological values must be identified and described. The methods and adequacy for identification of avifauna, terrestrial invertebrates, lizards, freshwater, and terrestrial ecological (including indigenous vegetation and flora) values have been detailed in the statements of advice of the other DOC experts²⁵, and I do not repeat that here, except to note that considerable deficiencies in the identification of ecological values have been identified within the Application.
64. Without a full and appropriate assessment of ecological values, adverse effects will be understated. Any undervaluing of ecological attributes and/or understating of effects then flows through to insufficient consideration of each step of the effects management hierarchy. That is, where ecological values are missed or undervalued and effects are understated (considered to be less than they actually are), opportunities to avoid or minimise adverse effects are also overlooked or not considered necessary, and efforts to address residual adverse effects considered to be lesser in magnitude and narrower in scope.
65. This matters because undescribed and unaddressed effects result in permanent losses and ongoing declines in indigenous biodiversity and ecological values, including loss of indigenous representation across organisational levels (species,

²⁵ Dr Weston (Avifauna), Dr Watts (Indigenous invertebrates), Mr Harker (Lizards), Dr Kavazos (freshwater), Dr Walker (Terrestrial ecology).

habitats, ecosystems), local extinctions, diminished or interrupted ecological processes and declines in the provision of ecosystem services.

66. In summary the subject experts²⁶ have concluded:

- i. Assessment of avifauna values and effects on avifauna values within the Project area is adequate and accurate. However, improvements are required to proposed r conditions of approvals to ensure effects are appropriately managed and minimised (see statement of advice of Dr Kerry Weston).
- ii. Within the area the Lizard Management Plan (LMP) applies to (including the headwaters of Rastus Burn and the Doolans Basin), assessment of lizard values and assessment of effects on lizards was mostly adequate. However, some areas were not adequately sampled due to weather conditions. There was no survey for lizards within the Car Park and Bus Hub Ecological Impact Assessment, and there is a lack of information about management of this area (which requires a separate LMP that has not been made available) (see statement of advice of Nicholas Harker).
- iii. The field-based baseline for invertebrates was limited due to absence of sampling during early to mid-summer, and the invertebrate communities present may not be fully characterised. Dr Watts broadly agrees with assessment of effects on indigenous invertebrates relating to habitat loss but identifies other significant effects that have not been adequately identified or assessed in the TEIA. Unaddressed adverse effects include those from snow making, snow grooming, skiing, visitor use and associated activities, roading and associated infrastructure (see statement of advice of Dr Corinne Watts).
- iv. Dr Kavazos is in general agreement with the FEIA for freshwater values but assigns higher value to the tributaries and the tarn systems being directly affected the proposed activities. The Applicant has used the incorrect scale to assess magnitude of effect, which has resulted effects on freshwater values being understated. Other adverse effects on freshwater values have not been identified or assessed including those caused by snow making and

²⁶

See the statements of advice of the relevant topic expert

snow grooming, the cumulative effects of these activities, and climate change. Dr Kavazos evidence also describes the activity as a major alteration to an otherwise pristine environment which he doesn't consider has been adequately addressed by the applicant. This represents a significant gap in the identification and assessment of adverse effects on freshwater values (see statement of advice of Dr Christopher Kavazos).

- v. There are fundamental inadequacies in the Applicant's identification of terrestrial ecological values and assessment of effects. There is failure to identify and assess effects on key naturally uncommon ecosystems, and use of the incorrect scales to assess both values and magnitude of effects, downplaying significance, irreplaceability, and levels of effects. Several important large-scale effects of the Project on the Doolans Basin vegetation and ecosystems are overlooked (snow making, snow grooming, skiing) or inadequately assessed (visitor use, roading, edge effects and fragmentation). Cumulative effects are therefore greatly underestimated (see statement of advice of Dr Susan Walker).
- vi. The geomorphological values of Doolans Creek Right Branch Basin were not identified or assessed by the Applicant. Mr Barrell concludes that a prominent feature of the northwestern head of the Doolans Creek Right Branch Basin is an exceptionally well-preserved late-glacial moraine sequence (that includes Tarn 3). Mr Barrell notes this moraine sequence to be an outstanding natural feature of national scientific relevance, that will be adversely impacted by the Project, which will also compromise the ability to obtain scientific information of international relevance from the feature (see statement of advice of David Barrell).

- 67. The gaps highlighted above are critical because any values not identified, or effects not adequately and appropriately assessed, will not be accounted for in the effects management responses. Unaddressed adverse effects result in permanent losses and continued decline in quality and condition of values.

Proposed effects management

68. Evaluating the level of residual adverse effect following the implementation of mitigation measures requires assumptions to be made about the effectiveness of each proposed measure. Overestimating the likely effectiveness of mitigation measures also contributes to underestimating the residual adverse effects. Therefore, assumptions about effectiveness must be supported with an evidential base. The burden of proof (that the risk of biodiversity loss is reduced, see Part A) is commensurate with the ecological values at stake. Effects management is not the place for experimental techniques or methods.
69. Application of the effects management hierarchy does not only require effort to avoid adverse effects in the first instance. It also directs activities to be avoided where the sequential steps in the hierarchy have been exhausted and it is found that neither offsetting or compensation are appropriate or feasible. This emphasis on avoidance reflects the intention of the effects management hierarchy to reduce risk to further declines of biodiversity and to build in a precautionary approach as explained in Part A.
70. In short, the hierarchy is not a line, it is a circle. Getting to the final step and finding there are limited options to address effects does not extinguish responsibilities for addressing those effects. In practice, the options are iterative redesign of the project to avoid effects, or to leave those adverse effects unaddressed, noting that unaddressed adverse effects are a relevant consideration when weighing costs and benefits of an application.
71. The Applicant has provided commentary on why avoidance of effects is not possible (particularly for the loss of Tarn 3 and locating ski field infrastructure and ski runs). Dr Kavazos and Dr Walker have responded to these comments in their statements, and I do not repeat that response here but note the relevance of their statements to this matter.
72. The inability to either avoid, offset, or (in full adherence to the principles) compensate effects as a result of this Project leaves a large number of large-scale residual adverse effects across a diverse range of values as yet unaddressed.

73. I summarise the proposed effects management and the gaps in the Applicants assessment²⁷ in Table 2 and make further comment on these matters in the paragraphs following the table.

²⁷ As detailed in the Statements of advice of the DOC subject experts.

Table 2: *Effects management (excluding avoidance) proposed by the Applicant in response to adverse effects identified by DOC experts. Further comment on the proposed measures to minimise adverse effects is also provided in the respective Statements of advice and Applicants technical reports. Text in italicised font represent my conclusions (as informed by the conclusions of the relevant subject experts). Detailed comment on the inadequacy of the proposed compensation measures is provided in the paragraphs following the table.*

Effects management response (excluding 'avoid') (sourced from A-21 and A-14)			
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Avifauna^a			
Eastern falcon – loss of high-quality foraging and nesting habitat and infrastructure impediment	Limited scope to minimise loss of foraging habitat	Applicant considers no further effects management necessary. <i>Dr Weston agrees, although this conclusion is dependent on tighter conditions for minimisation measures.</i>	
Eastern falcon – direct impacts on individuals	Avoidance of active nests (≥ 200 m exclusion zone until fledging) Measures to mitigate effects of infrastructure impediment and window strike		
New Zealand pipit – loss of high-quality foraging and nesting habitat and infrastructure impediment	Limited scope to minimise loss of foraging habitat		
New Zealand pipit – direct impacts on individuals	Nest avoidance, discouragement of nesting within disturbance footprint		
Indirect effects on kea due to construction noise and ongoing light,	Use of lead-free building materials		

Effects management response (excluding 'avoid') (sourced from A-21 and A-14)			
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
operational noise and increased human presence	Waste and materials to be secured from kea		
Lizards^b			
McCann's skink – direct impacts and mortality	No salvage of McCann's skinks to occur Habitat creation (rock pile construction with associated planting) at 14 sites along earthworks footprint	Offsetting not possible (breaches limits)	One-off payment of \$80,000 ¹ for: A field study to determine if eDNA methods can be relied on to determine presence of lizard species in the alpine environment And Translocation of Lakes skink (<i>Oligosoma</i> aff. <i>Chloronoton</i> "West Otago") to the Whakatipu Lizard Sanctuary <i>See comments at paras:[90] [93])</i>
Discovery of lizard species other than McCann's Skink not covered by the LMP	Incidental discovery protocols	Offsetting not possible (breaches limits)	
Potential impacts on lizard values at the Car Park and Bus Hub	<i>Not adequately assessed (no survey conducted); not covered in the existing LMP, no additional effects management offered</i>		

	Effects management response (excluding ‘avoid’) (sourced from A-21 and A-14)		
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Terrestrial invertebrates °			
Effects on native invertebrates due to habitat loss (including impacts on connectivity, habitat availability, fragmentation of populations, edge effects, and loss of resources)	Measures to minimise indigenous vegetation loss are considered to also benefit native invertebrates	No measures proposed to offset or compensate for loss and effects on particular ecological functions, habitat attributes	
Direct mortality of and disturbance to native invertebrates	None offered	No measures proposed to offset or compensate for loss and effects on invertebrate populations	
Indirect effects on native invertebrates due to modifications to habitat	None offered	No measures proposed to offset or compensate for loss and effects on invertebrate populations	
Loss of invertebrate host specific plant species	Translocated outside of the disturbance footprint and relocated to comparable nearby habitats	Considered to be no residual adverse effects to address, although this conclusion relies on proposed minimisation measures which require strengthening	
Effects on native invertebrates from snowmaking and grooming (including changes in snow density, persistence, and insulation and impacts on soil environment and invertebrate habitat)	Consideration of these effects have not been included in the Applicant’s assessments		
Effects on native invertebrates from skiing and associated on-mountain activity	Consideration of these effects have not been included in the Applicant’s assessments		

	Effects management response (excluding ‘avoid’) (sourced from A-21 and A-14)		
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Effects on native invertebrates from visitor use and associated activities during summer	Consideration of these effects have not been included in the Applicant’s assessments		
Effects on native invertebrates from roading and associated infrastructure	Consideration of these effects have not been included in the Applicant’s assessments		
Freshwater ecology ^d			
Impacts on Doolans Creek due to weir construction	Conditioned construction controls	Applicant considers there is no requirement for offsetting or compensation (residual effects less than minor). <i>Dr Kavazos agrees, although this conclusion is dependent on tighter conditions for minimisation measures.</i>	
Increased biosecurity risk from construction and operation creating new transfer pathways for spread of invasion organisms (including Didymo)	Check-Clean-Dry protocols		
Water take from Doolans Creek	Conditioned 33.5 L/s residual flow		
Rastus Burn wastewater discharge	Conditioned annual nitrogen and phosphorus load limits		
Stormwater discharge from Proposed Gondola Base building to Tributary A, and directly to ground from secondary buildings and infrastructure	Specific roofing materials		

Effects management response (excluding 'avoid') (sourced from A-21 and A-14)			
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Total and permanent loss of Tarn 3 and associated freshwater and wetland values (for water storage purposes)	Total loss, minimisation of effects not possible	Offsetting determined to not be feasible by both the Applicant and DOC.	A one-off payment to DOC of \$20,000 to be utilised for the construction of a boardwalk over the wetland leading to Lake Alta ² <i>See comments at para [100].</i>
Direct loss, fragmentation, loss of ecological integrity and connectivity, hydrological disconnection and sedimentation of the wetland complex, including the seepage, cushion bog, and string mire wetlands to construct formed track and buried services cables	Permeable track sections to maintain seepage flow across the corridor Buffers and sediment and erosion control management plan Concrete bulkheads (trench plugs) to prevent the service trench becoming a preferential flow path	<i>Unrealistic expectations from ability to minimise effects through proposed minimisation measures</i> <i>No measures proposed to offset or compensate for loss and effects (breaches limits for both offsetting and compensation)</i>	
Loss of ~ 55 m of intermittent alpine stream length and associated interstitial habitat due replacement of natural channel with armoured swales for reservoir inflow diversion	<i>None offered</i>	<i>No measures proposed to offset or compensate for loss and effects (breaches limits for both offsetting and compensation)</i>	
Loss of 40 m of natural stream due to culverting and crossing activities	<i>None offered</i>	<i>No measures proposed to offset or compensate for loss and effects</i>	

	Effects management response (excluding ‘avoid’) (sourced from A-21 and A-14)		
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Ongoing effects of snow grooming and snow making on peat wetland systems	Consideration of these effects have not been adequately addressed in the Applicant’s assessments		
Cumulative effect of converting undeveloped alpine basin with waterways fed by snowmelt and supporting uncommon freshwater and wetland systems forming a hydrologically connected mosaic of very high ecological value to an operating ski area with associated impacts	Consideration of these effects have not been adequately addressed in the Applicant’s assessments		
Implications of climate change in Doolans Creek	Consideration of these effects have not been adequately addressed in the Applicant’s assessments		
Terrestrial ecology including indigenous vegetation communities and flora °			
Impact on Threatened and At Risk – plant species	Translocated outside of the disturbance footprint and relocated to comparable nearby habitats	Offsetting determined to not be feasible by both the Applicant and DOC.	None offered.
Permanent loss of 13.8 ha of indigenous vegetation	–	Offsetting determined to not be feasible by both the Applicant and DOC.	The proposed \$75K³ per annum, for 40 years is (at least in part⁴) intended for revegetation. See comments at paras [102]–[105].

	Effects management response (excluding ‘avoid’) (sourced from A-21 and A-14)		
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Direct disturbance of indigenous vegetation and ecosystems, including edge effects and future fragmentation	Limited consideration of these adverse effects resulting in the underestimation of adverse effects – no effects management response is proposed		
Risk to indigenous vegetation and ecosystems from weed invasion	Measures to restrict weed invasion	Unrealistic expectations from ability to minimise weed invasion has led to underestimated level of effect – no further effects management response has been proposed	
Effects from snowmaking on Doolans Basin indigenous vegetation and ecosystems	These large-scale effects have not been included in the assessment of effects and therefore these adverse effects have not been accounted for, and no effects management measures have been offered.		
Effects from snow grooming on Doolans Basin indigenous vegetation and ecosystems	These large-scale effects have not been included in the assessment of effects and therefore these adverse effects have not been accounted for, and no effects management measures have been offered.		
Effects of skiing and snowboarding on Doolans Basin indigenous vegetation and ecosystems	These large-scale effects have not been included in the assessment of effects and therefore these adverse effects have not been accounted for, and no effects management measures have been offered.		
Summer visitor impacts (including summer road use) on Doolans Basin indigenous vegetation and ecosystems	These large-scale effects have not been included in the assessment of effects and therefore these adverse effects have not been accounted for, and no effects management measures have been offered.		

	Effects management response (excluding ‘avoid’) (sourced from A-21 and A-14)		
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
Nationally uncommon ecosystems (e.g., nested moraine, alpine deflation surfaces, extensive low relief tussock-clad moraine bench, ephemeral wetlands, wetland string mires)	Ecological values associated with these naturally uncommon ecosystems have not been adequately identified and effects are not adequately assessed		
Cumulative effects on representativeness, diversity and pattern, rarity and distinctiveness, and ecological context values in Doolans Basin	Key attributes of ecological significance within Doolans Basin have not been described and therefore adverse effects on these significant values have been greatly understated		
Geomorphology ^f			
Modification of and disruption to moraine sequence landform	Values associated with these landform have not been identified, and effects are not adequately assessed		
¹ Sum total to be paid for all lizard compensation under all authorisations.			
² This one-off payment is offered in addition to the funding commitments under the Biodiversity Compensation Project (BIO.15).			
³ Adjusted by the CPI. The \$75K was initially proposed as an annual payment until 13.8 ha of revegetation had occurred but is now offered as an annual payment for duration of the concession (40 years) (A-21 page 15; BIO.4). However, no specific projects have been described, so the benefits (how much, where, by when) is unclear.			
⁴ The Applicant has also indicated that this funding (\$75K) will also be spent on predator control (A-21 page 15) – the specifications of which (including the objective) are also unclear.			
^a Dr Kerry Weston Statement of advice – Avifauna		^d Dr Christopher Kavazos Statement of advice – Freshwater	

Effects management response (excluding 'avoid') (sourced from A-21 and A-14)			
Adverse effect identified by DOC experts (Source provided at bottom of table as per letter in subscript)	Minimisation measures proposed by NZSki	Offset measures to address residual adverse effects proposed by NZSki	Compensation measures to address residual adverse effects unable to be offset proposed by NZSki
^b Nicholas Harker Statement of advice – Lizards		^e Dr Susan Walker Statement of advice – Terrestrial flora, vegetation and ecosystems	
^c Dr Corinne Watts, Statement of advice – Terrestrial invertebrate ecology		^f David Barrell Statement of advice – Geomorphology	

Comments on the proposed effects management responses

74. The Applicant states that credible opportunities for offsetting within the alpine environment are not possible and the ability to generate sufficient gain to at least balance (no net loss) or exceed (net gain) losses are limited. The DOC subject experts generally agree, as do I. The limits to offsetting (appropriateness principle) are breached on four fronts:
- i. Impacted values are vulnerable and irreplaceable (e.g., naturally uncommon ecosystems).
 - ii. No feasible techniques to generate gains (e.g. lack of techniques to reverse widespread ecosystem degradation effects such as drainage, sedimentation, nutrient enrichment, pH change, soil compaction and degradation, fragmentation, and pollution).
 - iii. Lack of offset sites or ability to generate sufficient gains (e.g., tarns, other alpine basins)
 - iv. Inability to demonstrate an offset has been achieved (e.g., lizards).
75. Given the inability to offset the residual adverse effects, compensation measures have been offered.
76. The Applicant acknowledges its proposal does not ‘*strictly conform to the requirements of the NPS-IB and NPS-FM/ NES Freshwater*’²⁸, and that the Application seeks to compensate effects in ‘*the overarching context of the Act...*, *rather than a traditional compensation pathway*’²⁹. By ‘traditional compensation

²⁸ A-21 PDF page 1.

I note that in A-21 the Applicant conflates offset (net gain outcomes) with compensation. Net gain claims cannot be made in the absence of biodiversity offsetting (and numerical evaluation to demonstrate likelihood of achieving this outcome). By accepting that the compensation measures offered do ‘not generate net gain’, because they have chosen a different approach, the Applicant is providing an unjustified rationale for offering compensation well below that needed to generate positive outcomes that outweigh the scale of adverse effects.

²⁹ A.14 Substantive Application Section 7 Management and Monitoring of Actual and Potential Effects. Updated 3 September 2026. PDF pages 1–2.

pathway’, I assume they mean the expectations and requirements as set out within national policy statements and other statutory documents.

77. I agree with the Applicant³⁰ that the statutory documents providing direction on offsetting and compensation are relevant under the FTAA. However, the Applicant does not provide an assessment against the principles for offsetting or compensation, nor provide any detailed narrative on their approach to designing the compensation package in accordance with the relevant principles. This is problematic.
78. An initial feasibility assessment of the ability to compensate for lost values would have reached the same conclusion with regard to the appropriateness of compensation as for offsetting, because the test is the same. The Applicant does not appear to have conducted that feasibility assessment, nor noted that adherence to the effects management hierarchies and policy directions in the NPSs would require any adverse effects that cannot be compensated for to be avoided.
79. Instead, the Applicant offered a ‘Biodiversity Compensation Package’ within their Substantive Application, subsequently refined as follows:

NZSki has refined the compensation package to be implemented as part of the Project – noting that this is to address the residual adverse effects of the Project. The proposed compensation package now includes:

- > The funding of predator control and planting works to a total of \$75,000 per annum for duration to the concession – 40 years (the original resource consent conditions proposed \$75,000 per annum until approximately 13 ha of land is revegetated). Consideration will be given to other projects or initiatives identified by DOC, the Mana Whenua Advisory Group or Councils;*
- > The funding of a lizard research project and skink translocation exercise (a one-off payment of \$80,000);*

³⁰ A-21 PDF page 2.

- > *Increasing the proposed annual concession fee from 2.5% of gross annual revenue to 3%; and*
- > *A payment of \$20,000 to DOC to be utilised for the construction of a boardwalk over the wetland leading to Lake Alta*

The proposed conditions include the requirement for a Biodiversity Compensation Project project plan to be developed in consultation with key parties – including mana whenua, DOC, and the relevant councils.

It is proposed that the nature of the biodiversity compensation be further developed and refined during subsequent workshops with the relevant parties.³¹

80. I expand on comments in response to this proposal in the context of effects on specific values below. However, I first make the following high-level observations of the proposed Biodiversity Compensation Project and the Applicants approach:
- i. There is a clear mismatch of scale and magnitude between the effects of the Project and the compensation offered (see Table 2 and Part C).
 - ii. Rather than design their compensation measures in consideration of the statutory principles³², the Applicant has instead applied a cost-capped approach with a loose indication of potential projects that may be funded, coupled with conditions requiring confirmation of compensation measures post-decision. It is my view, that this is a flawed approach as I detail below.
 - iii. Offering a capped budget to fund unspecified compensation projects is an incorrect approach to designing and sizing appropriate compensation measures. The focus of compensation must instead be on identifying anticipated outcomes, and those outcomes must be targeted and sized to be commensurate with the values impacted and to outweigh the scale of effects.

³¹ Verbatim, A-21 PDF page 15–16.

³² Including the NPSs and the ORC RPS.

- iv. Only once those targeted and sized outcomes are identified can the projects required to deliver these outcomes then be identified. And once the projects are identified, the costs of those projects can be calculated.
- v. Costs must include the full costs including operational costs, FTEs, monitoring and reporting requirements, and contingency measures. The small, arbitrary budget of \$75K per annum offered by the Applicant is insufficient to fund anything more than very localised and short-term direct efforts at predator management or revegetation.
- vi. In addition to issues of inadequate funding, the justification for the capped amount is not provided, nor any explanation of the relationship between the capped funding and specified outcomes. Securing a fund, and providing high-level suggestions of preferred actions (e.g., 'predator control and planting works') provides no certainty of additionality of any benefits that might arise, nor indication of what those benefits (outcomes) might be. There is also no proposed process to back-fill this fundamental information gap, other than consultation on a project plan, as a condition of consent. Leaving this clarity and confirmation to post-decision provides no certainty around outcomes nor any assurance that the proposed compensation is right-sized and appropriate.
- vii. Annual concession fees (i.e., rent) and compensation for adverse effects have been conflated. It is my understanding that the annual concession fees set for ski fields did not include consideration of compensation requirements. Therefore, in this Application, annual concession fees cannot be counted as part of any compensation package for adverse effects on biodiversity and ecological values.
- viii. The relationship between the proposed boardwalk and the current Application is unclear, and instead addresses impacts of summer visitors connected to existing activities and skifield infrastructure. The proposed level of funding (\$20,000) does not provide for boardwalk maintenance, potentially creating an unsolicited liability for the Department. This requires further input from operational staff.

81. In summary, it is my view that the approach to effects management chosen by the Applicant is inappropriate. Further, supporting documentation has not been provided and therefore the Applicant's conclusions as to the adequacy of the offered compensation package cannot be demonstrated or tested. .
82. As the application does not adhere to the effects management hierarchy and the principles for compensation, significant and irreplaceable ecological values will be permanently lost. Those effects remain unaddressed.
83. To be clear, compensation measures can generate positive ecological and biodiversity outcomes, but they are not equivalent or comparable to the losses that will occur. Unmodified alpine basins, once modified, can never again be unmodified and their irreplaceable values cannot be replaced elsewhere.
84. The magnitude of the values permanently lost and unable to be offset must be considered when determining whether proposed compensation measures are 'right-sized'. That is, the compensation must attempt to produce outcomes that are commensurate in scale with the losses, if not in type.
85. With this context, I turn now to comment on the proposed effects management measures as set out in Table 2.

Avifauna

86. Dr Weston concludes there will be direct and ongoing adverse effects on eastern falcon, New Zealand pipit, and kea, but considers the long-term persistence of these threatened species throughout their natural range will not be affected by the proposed activity. Dr Weston comments on required improvements to proposed conditions of resource consent and approvals to ensure adverse effects are minimised but is otherwise satisfied with the proposed effects management for avifauna.
87. I agree with Dr Weston that the proposed conditions need strengthening. In addition, I am of the view that any room for discretion that reduces certainty of outcome and clarity for implementation (e.g., 'where practicable') must also be removed from conditions associated with measures to minimise impacts on avifauna. This is because the confidence that these measures will be effective is reduced where conditions are not clear or certain that the required actions will be

implemented. To my reading, Dr Weston's conclusion that the proposed measures are adequate to minimise adverse effects is predicated on conditions securing those measures. Thus, it is my view that without the recommended improvements to conditions and removal of discretion in their implementation, the adverse effects on avifauna will not be adequately minimised, and additional effects management measures will be required to address these residual adverse effects.

88. For other values (**lizards, native invertebrates, freshwater, and indigenous vegetation and ecosystems**) the proposed effects management has substantial outstanding issues. I discuss those next.

Lizards

89. The two actions proposed as compensation for residual adverse effects on lizards will achieve different outcomes. The research project is essentially an information gathering exercise that will not result in tangible outcomes for lizards in the short term. From the limited information provided, it is not clear how much the eDNA study would add to existing knowledge. On these grounds, the research project alone would not provide sufficient compensation for mortality of approximately 600 McCanns skinks and indirect adverse effects on lizards.
90. In comparison, securing a population of Lakes skink within the Whakatipu Sanctuary would have a significant conservation benefit for the species. However, detail on that proposed project is scant and this project is expected to also be funded from the same allocation (one off payment of \$80K) as the research project. This further obscures what will be achieved by either the research or the translocation proposal as the funding allocation is unclear. The translocation proposal is not currently reflected in proposed conditions of resource consent and other approvals.
91. Critically, there is some question as to the additionality of both the eDNA study and the translocation of Lakes skinks to the Whakatipu Lake Sanctuary, both of which are existing initiatives. Southern Lakes Sanctuary is investigating a similar eDNA study, which will answer some of the same questions as that proposed by the Applicant³³ (as detailed in F.01A). Preliminary work to determine the feasibility

³³

Pers. com. Nick Harker.

of the Lakes skink translocation will also be required.³⁴ Confirmation of additionality of benefit (outcomes for lizards) for these programmes is required to ensure their eligibility as compensation projects.

92. To further evaluate the suitability of proposed compensation for lizards, additionality will need to be demonstrated, project details and associated management plans provided, with project specifics replicated in conditions of all relevant approvals. In addition, the research project would be more beneficial if it was coupled with a requirement to translocate individuals of threatened species to the Sanctuary should they be discovered to be present within the Remarkables in the course of undertaking the eDNA study.

Terrestrial invertebrates

93. The proposed response to manage effects on the indigenous invertebrate communities is limited to translocation of invertebrate host specific plant species as a measure to minimise effects on these species. It is assumed that measures to minimise indigenous vegetation loss will also benefit terrestrial invertebrates by default, but no evidence has been provided to support this assumption.
94. No other measures (e.g., mitigation or compensation) have been proposed to address adverse effects on terrestrial invertebrate assemblages. However, Dr Watts notes that the appropriateness of compensation has not been met as there are no technical feasible options by which to generate positive outcomes for terrestrial invertebrates. This is because there are specialised associations between alpine terrestrial invertebrates and habitats and microhabitats and these habitats are not readily replaceable. Therefore, there is no means by which to create new habitat for alpine terrestrial invertebrate assemblages.
95. Regardless, Dr Watts concludes that there is insufficient information provided by the Applicant to be confident that adverse effects on terrestrial invertebrates have been adequately minimised (but considers it is unlikely given the limited measures proposed), and that residual adverse effects also remain unaddressed.

³⁴

See Statement of advice of Mr Harker.

Freshwater

96. Dr Kavazos has confirmed that the effects of the weir construction and water take in Doolans Creek and Rastus Burn wastewater discharge are manageable provided that the resource consent conditions associated with these measures are strengthened as set out in his statement of advice.
97. However, the remainder of the measures to minimise effects across all other freshwater values are insufficient³⁵ to reduce the level of effects to acceptable levels. Therefore, residual adverse effects on significant freshwater values remain for all freshwater considerations, except for those set out in para [99] above.
98. Critically, the residual adverse effects are associated with freshwater values that cannot be offset due to their irreplaceability, vulnerability, and very high ecological value. Nor can they be compensated for, because the same limits to the appropriateness of doing so are breached³⁶.
99. The Applicant has acknowledged that their proposal does not adhere to the principles of compensation in the NPS-FM and accepts the Project will result in residual adverse effects on freshwater values. In response, they offer \$20,000 to be paid to DOC for construction of a boardwalk in compensation for the total and permanent loss of Tarn 3. The proposed compensation falls considerably short of being proportional to the total and permanent loss of Tarn 3 given the very high ecological value of this tarn.
100. No additional offsetting or compensation has been proposed for residual adverse effects on other freshwater values (i.e. additional to those set out in para [99] above) and these remain wholly unaddressed (See Table 1).

Terrestrial ecology including indigenous vegetation and flora

101. The inadequacies in the assessment of values and effects for terrestrial ecology have left significant gaps in the effects management response, meaning that the majority of residual adverse effects on terrestrial ecology values are unaddressed.

³⁵ As detailed in Dr Kavakos' Statement of advice.

³⁶ Aquatic compensation principle 2; Appendix 7 National Policy Statement for Freshwater Management 2020.

These gaps in the Applicant's assessment are consequential. This is because where values and effects are suggested to be less than they are, the long-term and permanent impacts have been underestimated.

102. It is established that for most of the adverse effects that will arise from this Project, compensation is not feasible. This includes for the values identified in the TEIA and those overlooked in the TEIA and identified by Dr Walker. We are in an extraordinarily challenging position of attempting to evaluate appropriate compensation while acknowledging that compensation is not the appropriate response.
103. Dr Walker offers some suggestions for measures to avoid or minimise adverse effects relating to snowmaking, snow grooming, skiing, summer visitor, summer roading and weed effects that, in my view, should be further explored. Should these measures (or others) be adopted, they will need to be secured via concession and resource consent conditions.
104. Dr Walker's conclusions confirm that providing adequate compensation to outweigh the losses will be extremely difficult. The ecological loss from the Project is especially large because of the combined attributes in the Doolan Basin – *'its near-pristine baseline state, large size, diversity of aspects and elevations, and the range and intact connectivity of the rare and common ecological features and alpine vegetation and fauna habitat it contains.'*

Geomorphology

105. The Application has not identified the presence or geomorphological significance of the late-glacial moraine sequence in the Doolans Creek Right Branch Basin, and therefore has overlooked the level of adverse effect on this feature that will result from the Project. Mr Barrell proposes potential measure to avoid or minimise these adverse effects on the moraine sequence. Should these measures (or others) be adopted, they will need to be secured via concession and resource consent conditions.

Concluding comments

106. In conclusion, it is my view that:
107. Adverse effects from this Project will be diverse, permanent, irreversible and occur on large-scales. The Project will impact on vulnerable and irreplaceable values, and high-value biodiversity and ecological attributes. In addition, there are unknown or uncertain potential effects that could be significant.
108. There are significant inadequacies in the values and effects assessments that cannot be backfilled post-decision by way of conditions of consent (or other approvals). Critically, this has meant that the proposed effects management response is inadequate, and the unidentified and unassessed effects have not been accounted for in the proposed compensation.
109. The conditions of resource consent (and other approvals where relevant) to secure mitigation measures require redrafting to provide greater stringency, improve clarity, and provide greater certainty. It is critical to ensure that mitigation measures are implemented to be as effective as possible. Otherwise, the outcomes achieved will fall short of assumptions made within the effects assessment, and residual adverse effects will be greater than anticipated.
110. It is important to reiterate that compensation does not reduce the level of residual adverse effects. Avoidance of adverse effects in the first instance is the only guaranteed way to avoid effects. Mitigation measures can minimise adverse effects, but they do not avoid effects, and there is a degree of uncertainty inherently associated with mitigation measures. This is because such measures are reliant on being targeted, right-sized, well-designed using appropriate methods and techniques, implemented by appropriately qualified personnel, secured via conditions of consent and other approvals, and enforced. I also note that the DOC subject matter experts have indicated that the proposed mitigation measures are inadequate or poorly supported by conditions.³⁷ This is important because if mitigation measures underperform (achieve less than anticipated),

³⁷ See for example Table 1, and Statements of evidence of Dr Weston, Dr Kavazos, and Dr Watts.

residual adverse effects will be understated and not accounted for in compensation proposals.

111. The proposed compensation package to address residual adverse ecological effects is substantially insufficient in scope and magnitude even for the residual effects that have been identified by the Applicant, and even more so when taking into account the large-scale and significant adverse effects that have been overlooked in the Applicant's assessment. Further there is no certainty on what the compensation fund will be spent on or the outcomes that will arise from that expenditure. It is unclear as to what the intended outcome of the proposed (but not detailed) revegetation is – what is it attempting to compensate for? This is important as the intended target and outcome defines the specifications of the actions.
112. Compensation in proportion to biodiversity and ecological effects will be extremely difficult to achieve. It will require a diverse package of projects whose outcomes (positive benefits) are realised at landscape-scales, with each project adhering to good practice compensation and alignment with principles. Achieving this will require a structured and transparent approach. As a starting point, see Part C.
113. As I explain above, it is not appropriate to determine the size of compensation by use of an arbitrary and capped funding allocation. In contrast, I anticipate a more commensurate compensation package will require substantially more investment per annum, as reflective of the magnitude of effort and investment required to generate conservation outcomes sufficient to outweigh the losses (see Part C).
114. Conditions pertaining to any resulting compensation package also require redrafting (see also following section).

115. It is my view for the reasons set out in this statement, that the Applicants conclusion '*Overall, NZSki and its technical advisors consider that the Project can be undertaken in a manner that will appropriately address adverse environmental effects*³⁸' does not hold up from an ecological and biodiversity perspective and is not supported by the material provided within the Application.

Proposed resource consent conditions

116. For the reasons set out above, I do not consider the proposed Biodiversity Compensation Project Plan to be adequate. Therefore, the proposed resource consent conditions associated with the BCPP are also inadequate. It is my view these need to be substantially redrafted to provide for a redesigned compensation package that is driven by outcomes not a predetermined funding cap.

117. However, I make the following general comments:

- i. The design of the Biodiversity Compensation Project should not be delayed until post-decision (see BIO.3). This creates opaqueness and uncertainty as to the specifications of the compensation measures, and in particular anticipated outcomes.
- ii. As discussed above, the projects (compensation measures) themselves need to be specified and secured through conditions and any other relevant approvals. The current proposed conditions only specify funding and not specified outcomes. Conditions need to include a description of each compensation project, the anticipated outcome, time-bound actions, performance measures, monitoring, reporting and compliance requirements and a feedback loop that triggers contingency measures where monitoring shows anticipated outcomes have not been achieved. Management plans (potentially combined within an umbrella Biodiversity Compensation Plan) will be needed to provide further detail, but the specifications listed above must also be reflected in consent conditions.
- iii. Noting the need for a substantial revision, commencement of funding the Biodiversity Compensation Project should commence at the time of

construction, in accordance with BIO.1 (if not prior,) and not be delayed until winter ski field operations within the Doolans Basin as required by BIO.4.

- iv. I agree that any stated funding must be adjusted each year by the annual Consumer Price Index (CPI) but I reiterate that the compensation package (and thus the conditions) must ensure outcomes are at the heart, not funding.

PART C – AN ALTERNATIVE APPROACH TO DESIGNING A COMPENSATION PACKAGE

Development of a framework for evaluating biodiversity compensation proposals

118. I have shown above why the collective adverse effects of this Application are unable to be offset, and that the appropriateness principle for compensation has not been met due to the high value, vulnerability and irreplaceability of the biodiversity and ecological values, coupled with technical infeasibility to generate sufficient gains of like values in an alpine environment. The DOC subject experts have confirmed that Doolans Basin cannot be replaced and is not replicated elsewhere in the Remarkables.
119. I have also detailed how, in my view, the compensation package offered by the Applicant is substantially insufficient in scope and scale and is inappropriately focussed on a capped-cost budget rather than on compensatory *outcomes* – being additional, tangible, and sustained positive outcomes on the ground that generate positive conservation benefits.
120. Therefore, should the Panel be minded to approve this Application, and notwithstanding that the principle of appropriateness for compensation has not been met, the question of adequate sizing of any compensation package becomes a very live issue. To this end, it is encouraging that the Applicant has stated their willingness to further develop their proposal with relevant parties.³⁹
121. My conclusion that the compensation package offered by the Applicant is inadequate in its design, scope, magnitude, and certainty around delivery begs the

³⁹ A-21 PDF page16.

question “what does good compensation look like, and how do we know what level of compensation is enough?”.

122. As I set out in Part A, biodiversity compensation is a more subjective process than biodiversity offsetting. By not being tied to a strict like-for-like exchange or outcome, compensation does not require the same numerical loss/gain calculations to reasonably demonstrate a no net loss or net gain offset.
123. In the absence of methods to evaluate and balance exchanges of biodiversity within a compensation setting, it is challenging to determine how much compensation is enough. It is especially challenging when the losses are of exceptionally high value and irreplaceable ecological and biodiversity attributes, as is the case for this Application.
124. To help resolve the challenges of designing appropriate compensation for this Project, and to improve objectivity and transparency, I was asked by DOC to develop a framework to assist in the evaluation of proposed compensation measures offered through the Fast-track process. This draft framework is attached at **Appendix 1**.⁴⁰
125. The purpose of the framework is to provide a repeatable, transparent method for evaluating whether proposed compensation is appropriate and adequate. There remains a high level of subjectivity in applying the framework, but the framework has been designed to improve objectivity, rigour, repeatability, and transparency.
126. The framework comprises three steps (Figure 3). Any potential project is evaluated for eligibility to contribute to the compensation package (Step 1, pass or fail), and each eligible project is then further evaluated for fit against key characteristics of good practice compensation (Step 2). The second step does not disqualify projects but rather provides a deeper assessment of which of the list of eligible projects would be preferable (the better fit in the context of the specific losses) should there be a surplus of eligible projects. Step 2 also enables different combinations of projects to be compared. The final step (Step 3) is to test the combination of eligible projects (the package as a whole) against a final set of

⁴⁰ I am aware that DOC shared (in confidence) an early version of steps 1 and 3 of the draft framework, with NZSki on 3 September 2026.

considerations designed to evaluate whether the package is appropriate and right-sized.

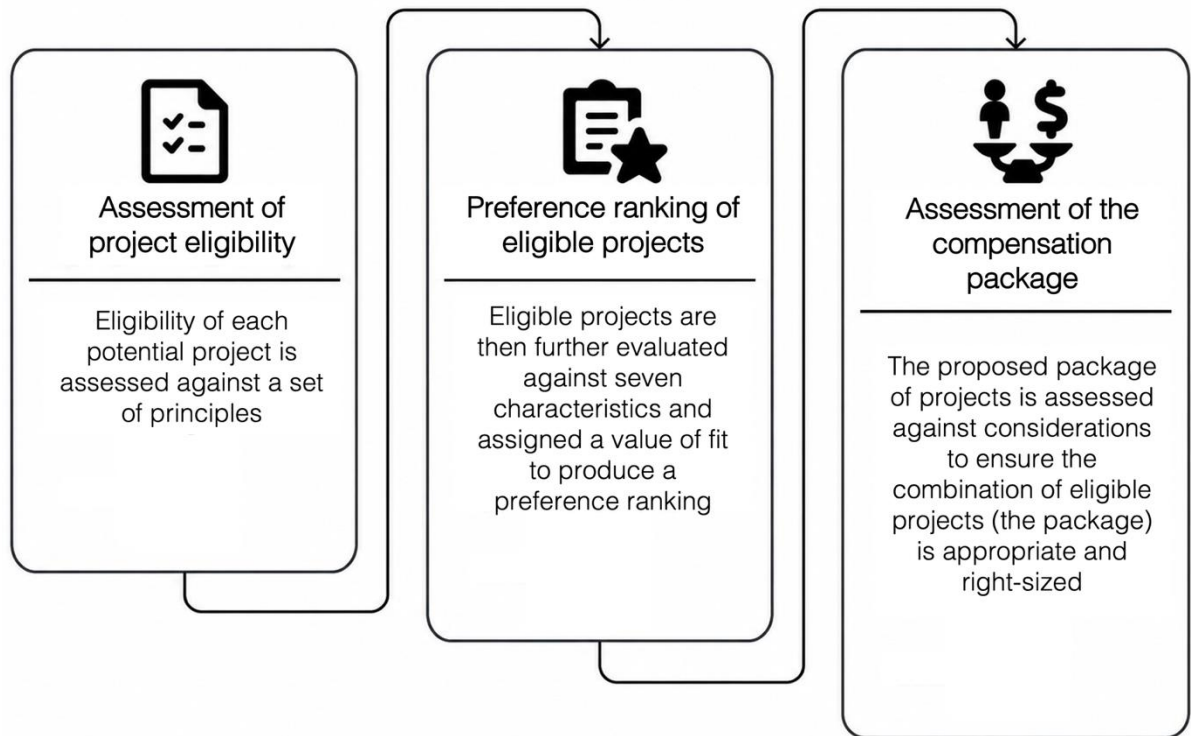


Figure 3: *The three step process within the draft framework for evaluation compensation proposals (Source: Draft framework, Appendix 1).*

127. Unlike Step 1, Step 3 (testing of the package as whole) is not a pass or fail, but an overall evaluation. This is a qualitative process, but the framework provides some objectivity (in taking a structured and repeatable approach) and improves transparency (in requiring documentation of why conclusions were made and how responses were arrived at). Good practice application of this framework would ensure that the evaluation was done with input from relevant experts, including local operational knowledge and conservation managers.
128. The framework has been designed to provide a conceptual approach and the scaffolding for a framework that can then be tailored to specific development applications or situations, provided the rationale for any tailoring is clearly presented to retain the transparency and repeatability of the framework application. For example, within Step 2 weightings of characteristics, and/or fit values within characteristics can be adapted to suit specific situations. This allows for tailoring the framework to different projects where importance of

characteristics (weightings) or preference of fit (spread of fit values within characteristics) may differ.

129. A specific tailoring of the framework for the NZSki Application is the deliberate exclusion of the NPS⁴¹ principles 1 and 2 (adherence to the effects management hierarchy and the requirement to consider the appropriateness of compensation) in acknowledgement of the fact that both these principles have not been met, but compensation may be 'on the table' regardless. Ordinarily, and in other situations, both these principles would be gateway principles to apply before progressing to using this framework to evaluate compensation proposals.
130. It should be noted that while this framework has undergone some internal review⁴² it is still in a draft form and should not be taken as an official 'DOC approach'.

Applying the framework to design a more appropriate compensation package

131. The draft framework has been 'road tested' in recent weeks and the beginnings of an alternative potential compensation package is being compiled. The first cut of potential projects was selected using information from DOC's BioInvest⁴³ and suggestions from local DOC operational staff. These projects focus on biodiversity (terrestrial and aquatic) and ecological outcomes and do not target geomorphological values (or other values not addressed in this statement).
132. The combination of BioInvest and local knowledge enabled relevant, impactful conservation projects (work programmes) to be identified, with a focus on projects that have the potential to generate additional, tangible positive outcomes

⁴¹ And the Otago Regional Council RPS.

⁴² In particular, feedback on early versions and input to the frameworks development was provided by Dr Susan Walker. Dr Ilse Corkery undertook the internal review and contributed to revisions to characteristics and associated fit categories and values for evaluating project preference (step 2 of the framework). Both Dr Walker and Dr Corkery hold expertise in biodiversity offsetting and compensation.

⁴³ The Department's biodiversity investment system which contains a set of plans that detail work programmes needed to achieve conservation outcomes. <https://www.doc.govt.nz/our-work/managing-our-biodiversity/bioinvest/>

at land-scape scales as appropriate given the large-scale landscape and ecosystem level that adverse effects occur.

133. The initial list contained 17 discrete projects, 10 of which proved to be eligible to be included in a compensation package following application of the framework⁴⁴ (Table 3). The set of 10 projects (focussing on anticipated outcomes) as a package was then further tested against the step 3 considerations to determine whether this potential package was appropriate and right-sized (commensurate) (Table 4).
134. Each of the 10 projects was also further evaluated at Step 2 of the framework. However, the rankings that were calculated from this process were not needed as there were insufficient eligible projects to compensation for the losses that would be incurred by the NZSki Application to require preferential selection of the ‘best fit’ projects.
135. The data held in BioInvest, combined with local operational knowledge, has also enabled indicative annual, and 40-year costs to be estimated (Table 3). This information can provide a useful proxy for indicating the magnitude of effort (and investment) to implement a well-designed compensation package that is appropriate and right-sized to address Project-associated effects.
136. However, I stress that cost is not a determinate of the appropriateness or eligibility of any individual project or the package as a whole. Outcomes, and whether they are appropriate and sufficient, must be the driver of determining acceptability of any compensation package, not project costs.

⁴⁴ The DOC project team team workshopped ideas and applied the framework to evaluate projects as a group, or sub-group, over a series of online meetings.

Table 3: Initial potential compensation package including 10 discrete projects that have each been shown to be eligible as compensation projects, and which collectively (when implemented in full) comprise the compensation package. This initial list is indicative and only includes projects focused on terrestrial and aquatic biodiversity and ecological outcomes. Further investigation of the potential package is continuing, and additional compensation measures may be considered outside of this framework (e.g., to compensate for residual adverse effects on cultural, landscape, or geomorphological values). Therefore, this table should be viewed as an illustration of the application of the framework, and a starting point for designing an alternative compensation package rather than a confirmed alternative proposal to that offered by the Applicant. Additional projects are also being evaluated for their eligibility for inclusion in the compensation package. Indicative cost estimates to deliver these projects are still being finalised.

Potential Compensation Package A		
Project name	Anticipated outcome	Project description including indication of management actions to achieve outcomes
Wildling pines – Remarkables MU	Protection of Remarkables ecosystems and plant communities from loss to wildling pine invasion and transformation of landscape	Extension of existing wildling pine programme into the Remarkables MU. Same methods. Formal agreements needed to ensure funding extends the programme (additionality) and is targeted at the Remarkables MU (local gains) without any cost shifting
Goat control – Remarkables CA	Indigenous vegetation recovery	Sustained control of goats within the Remarkables Conservation Area using standard methods.
Rubbish removal – Doolans Basin	Reduction of plastic (and other) pollution. Protection and enhancement of ecological health within the Doolans Basin	Physical removal of rubbish from the Doolans Basin, management of black-backed gulls. Surveillance and ongoing rubbish removal.
<i>Galaxis Nevis</i> – Nevis catchment	Protection of <i>Galaxis Nevis</i> and enhanced security of the population	Removal of trout and installation of trout barriers. Maintenance of barriers.

Potential Compensation Package A		
Project name	Anticipated outcome	Project description including indication of management actions to achieve outcomes
Integrated conservation management – Dunstan Mountains and Leaning Rock	Landscape-scale protection and enhancements; protection of nationally critical plant species	Management actions include animal pest management and control (barriers, ground hunting), restoration planting, weed control, plant propagation and translocations
Integrated conservation management – Pisa Range	Protection of <i>Dracophyllum muscoides</i> cushionfield ecosystem; protection of nationally critical plant species	Management actions include animal pest management and control (barriers, ground and aerial hunting, trapping), fire reduction and management, fencing, riparian planting, native plant propagation, species translocations, weed control (chemical, mechanical) monitoring.
Integrated conservation management – Old Man Range	Protection of alpine plant communities and naturally uncommon ecosystem types including cushion bogs; protection of threatened species.	Management actions include animal pest management and control (barriers, ground and aerial hunting, trapping), fire reduction and management, fencing, riparian planting, native plant propagation, species translocations, weed control (chemical, mechanical) monitoring.
Integrated conservation management – Old Woman Range	Protection of alpine plant communities and naturally uncommon ecosystem types including string mire and cushion bogs; protection of threatened species	Management actions include landscape wild animal control ground shooting, predator control, ground weed control, fire management, management of nutrient inputs, monitoring; and species-specific management

Potential Compensation Package A		
Project name	Anticipated outcome	Project description including indication of management actions to achieve outcomes
Integrated conservation management – Waikaia and Pomahaka river headwaters	Protection and restoration of cushion bogs	Management actions include advocacy, animal pest control (barriers, ground hunting, aerial pesticide, trapping), fencing, riparian management, management of nutrient inputs, fire management, and monitoring,
Integrated conservation management – Blue Mountains	Protection and restoration of cushion bogs	Management actions include advocacy, animal pest control (barriers, ground hunting, aerial pesticide, trapping), fencing, riparian management, management of nutrient inputs, fire management, and monitoring,

Table 4: *Evaluation of the potential compensation package (combination of eligible projects) set out in Table 3 against key considerations to assist in the determining whether the package is ‘right-sized’ and appropriate. Given the indicative status of the potential compensation package detailed in Table 3 and with further work continuing, the evaluation set out here should also be viewed as an illustration of the application of the framework. Based on this initial evaluation, the overall conclusion is that the amount of compensatory outcome anticipated from the compensation package presented in Table 3 is insufficient to outweigh the adverse effects of the Application.*

Consideration (Table 3 of the framework)	Evaluation Yes / No / Partially	Justification of evaluation
The amount of compensatory outcome to be generated by the package is commensurate with lost values	No	In weighing the anticipated outcomes against the diverse, and large-scale, permanent, and irreversible adverse effects that will arise from the Application, the anticipated positive outcomes are not considered to be commensurate or to outweigh the adverse effects.
The compensation package provides for all types of lost values	No	The proposed package will provide some positive benefits for some vegetation community, ecosystem, freshwater, and species values, but has not addressed cumulative, landscape-scale values or loss of high value naturally uncommon ecosystems.
The compensation package is ecologically sensible within a landscape context	Yes	Projects contributing to the proposed package have been sourced from BioInvest, subject expertise, and local operational knowledge.
The compensation package is informed by the best available information	Yes	Scoping and costings of each project contributing to the package have been informed by BioInvest data and analysis, with input from local operational expertise.
Mana whenua values are appropriately recognised	Partially	Preliminary conversations have been commenced; further discussion and input is required, including the opportunity to suggest additional projects.
DOC planning framework directions	Partially	Aligns with BioInvest. Further evaluation against priorities in other planning documents to be concluded.
Potential to enhance other DOC functions	TBC	Evaluation to be concluded.

137. The further testing of the potential compensation package shown above indicates that the anticipated outcomes are still likely to fall short of being adequate compensation for the large-scale, permanent loss of high-value irreplaceable values present across Doolans Basin (Table 4). This is perhaps not surprising in that context.
138. Further exploration of additional projects is ongoing, and a wider net is being cast to identify potentially eligible projects (e.g., those further away from Doolans Basin, or outside of the Ecological District). Proximity to location of loss is preferable but not obligatory under the draft framework. Greater flexibility widens the pool of potential projects, but this is a trade off with preference for ecological proximity of outcomes.
139. It is important to note that the package is just that, a package. It requires the *full* implementation of *all* the projects. It is not a menu to select from, nor can projects be partially implemented (e.g., some actions within a project but not all actions, or implemented to a lesser level of effort). This is critical, as the adequateness of the package is evaluated as a *whole* and not in part.
140. It is imperative that any compensation package be secured via conditions of other approval/s) that, for each of the projects within the package, specify the objective, time-bound actions to achieve outcomes, performance measures, monitoring and reporting requirements, and contingency measures responsive to monitoring outcomes. Compensation Management Plans and Monitoring Plans would be required to support the implementation, and these would also be required and described within conditions.
141. I am of the view that adequate compensation to outweigh the large-scale losses due to the Project will be extraordinary difficult (and conceptually and theoretically impossible) given the inability to meet the appropriateness principle of compensation. Therefore, the preferred outcome from an ecological perspective would be to avoid effects in the first instance.
142. Putting that to one side, and if the Panel were minded to approve this Application, I am of the view that it is preferable that any compensation package tends

considerably more towards the 'sufficient' end of the scale of commensurateness than the 'insufficient' end of that scale. In my view, the Applicant's offering is materially insufficient in scope and scale. .

APPENDIX ONE

DRAFT Framework for evaluating compensation proposals

[DRAFT] Framework for evaluating compensation proposals

Introduction and purpose

Compensation is subjective and risky. This framework provides a repeatable, transparent method for evaluating whether proposed compensation is appropriate and adequate. There remains a high level of subjectivity in applying the framework, but the framework has been designed to improve objectivity, rigour, repeatability, and transparency. The requirement to record the evaluation process adds to the transparency and reliance on informed opinion where data is lacking (i.e., justification is provided rather than only expert 'gut feeling' which cannot be interrogated).

The draft framework in its current formation aligns with the third to thirteenth¹ principles of the compensation principles within the National Policy Statement for Freshwater Management 2020 (Appendix 7) and the National Policy Statement of Indigenous Biodiversity 2023 (Appendix 4). Individual compensation projects and the package as a whole are assessed in the context of the eleven remaining principles.

The framework has been designed to provide a concept and scaffolding that can then be adapted to specific projects or situations, provided the rationale is clearly presented to retain the transparency and repeatability of the framework application.

For example:

- Integration of all thirteen of the compensation principles into the framework.
- For applications outside of public conservation land, it may be appropriate to remove considerations to align with DOC planning framework and other functions
- It might be more appropriate to incorporate the perspectives and goals of Treaty partners in a different articulation.
- Additional considerations in Table 3 maybe also considered necessary.
- Table 2 may also be adapted, by changing the weighting of characteristics or the fit categories and values.

¹ As the framework was developed to respond to a specific application which does not adhere to the first two principles of compensation (adherence with the effects management hierarchy and appropriateness of compensation) these two principles are not built into the framework. See also 'Important context' on page 3.

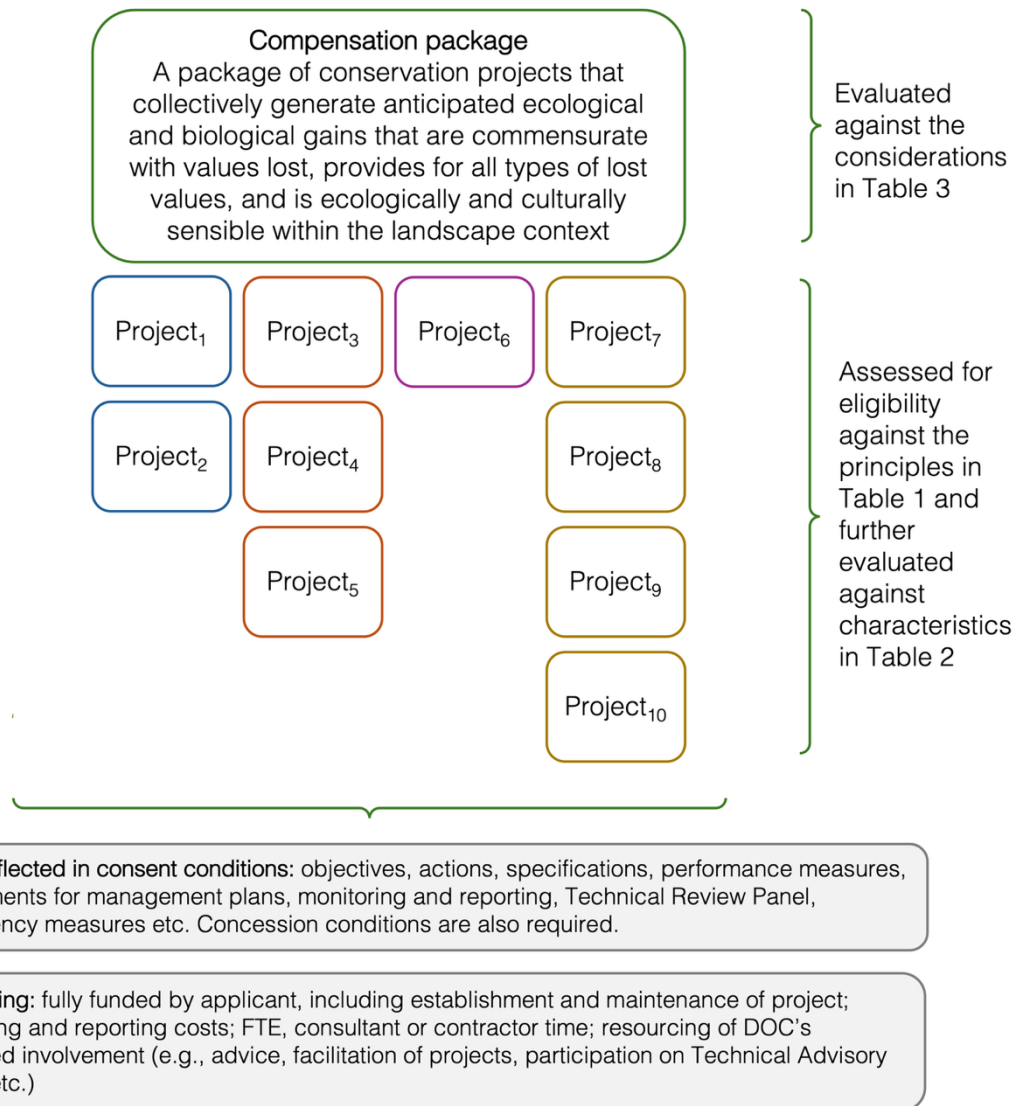
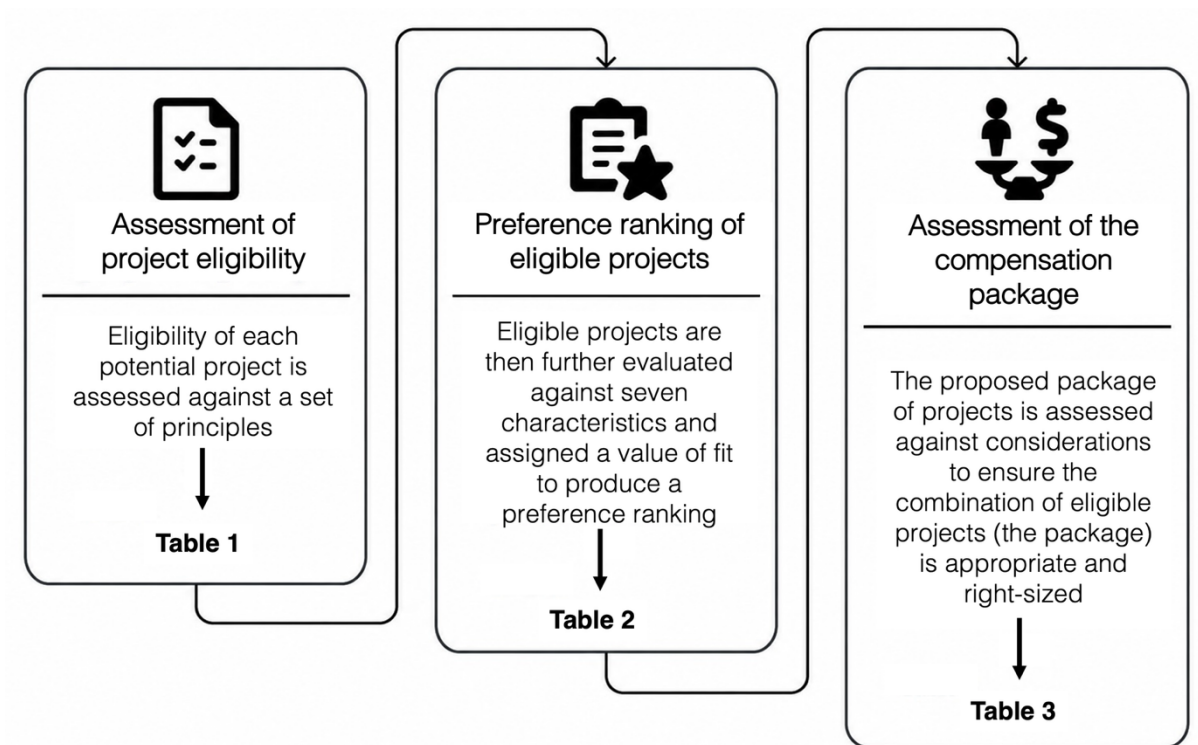


Figure 1: Conceptual diagram of the compensation package. Different coloured project boxes indicate different target outcomes.

Application of this framework involves three sequential steps:



IMPORTANT CONTEXT

The following points provide important context and assumptions underpinning application of the framework.

1. Prior to undertaking this exercise and considering compensation, appropriate and complete identification of values present, assessment of effects, and strict adherence with the effects management hierarchy must be undertaken in the first instance. Compensation is the last resort of effects management, and where compensation is not appropriate or cannot be achieved the activity should be avoided.
2. The framework excludes offsetting: evaluation of any measure proposed as an offset must occur outside of this framework.
3. The scope and size of the compensation package should be commensurate with the significance of the ecological, conservation, and cultural values lost or impacted.
4. The compensation package (along with all other effects management responses) must be fully secured by resource consent conditions (and, where on public conservation land, concession conditions) covering at least:
 - a. Detailed objectives, actions, specifications and performance targets for each project
 - b. Specified content to be included (as a minimum) in management plans.
 - c. Specified monitoring and reporting requirements.
 - d. Contingency measures should outcomes fall short of anticipated gains.
5. The onus for resourcing and implementing the compensation package remains with the consent holder. These obligations include project establishment and maintenance costs (OPEX and CAPEX); development of management plans; monitoring and reporting costs; FTE and/or contractor or consultant costs and reasonable resourcing for all parties involved in Expert Advisory Panels or (similar mechanism designed to, for example, sign-off management plans, review monitoring reports, make recommendations for ongoing management and contingencies etc.). The consent holder may engage third parties (e.g., contractors) to provide expert services in the delivery of the compensation package and compliance with consent conditions, but the compliance obligation should not be discharged to third parties.

Additional context relevant to FTAA-26050-1236 – Remarkables Ski Area Upgrade and Doolans Expansion

6. The first two principles for aquatic and biodiversity compensation are the requirement to adhere to effects management hierarchy and the requirement to consider the appropriateness of compensation principles. Both are gateway principles to apply before progressing to subsequent principles when designing a compensation package. This framework was designed during the process of responding to NZSki's Fast-track application and therefore explicitly acknowledges that, in the context of that application, both these principles have been breached. Keeping that breach in mind, the framework does not require adherence with these two principles. *Should the*

framework be applied outside of this application these principles must first be adhered to.

7. The scale of compensation must also recognise and reflect the inability to meaningfully compensate for irreplaceable values. In the context of the NZSKi application, these losses are diverse, large, permanent and irreversible. They will not be, and cannot be, reduced or replaced by compensation measures. Sizing of compensation to be commensurate with ecological and biodiversity effects will be extremely difficult to achieve.

DRAFT

STEP 1: ASSESSMENT OF PROJECT ELIGIBILITY

This step answers the question *Can this project legitimately contribute to compensation?*

Before testing this fundamental question against the principles set out in Table 1, the following questions must also first be answered in the affirmative:

- 1. Can the anticipated outcomes be described – will real gains be generated?*
- 2. For actions targeted at addressing threats or pressures, are the values to be compensated at risk from these threats or pressures – will real gains be generated?*

Table 1 includes nine principles which have been informed by the statutory principles for compensation within the National Policy Statement for Freshwater 2020 and the National Policy Statement for Indigenous Biodiversity 2023, and additional considerations deemed of relevance to defining a suitable compensation project.

Evaluating adherence to these principles requires the following information to be recorded:

- Binary response (Yes, No)
- Explanations of and/or justifications for response

All principles in Step 1 must be adhered to (i.e., the response is 'Yes') for a proposed compensation project to be eligible for further evaluation.

The nine principles intentionally differ from those that would be used to identify a conservation project of merit more generally (a process which would ask 'does this project legitimately contribute to conservation?'). Otherwise worthwhile conservation projects may not meet compensation eligibility principles and will therefore be ineligible as compensation projects. The distinction between eligibility for compensation and general worth as a conservation project is important in the context of effects management.

Table 1: Principles to *determine eligibility of potential projects* for consideration as part of a compensation package. Projects are **assessed against each criteria on a binary basis (yes / no)**, and each proposed project must be shown to **meet all nine principles in Table 1** to be eligible for further evaluation within this framework.

Principle	Explanation of principle	Adherence with principle (Yes / No explanation)
Additionality	Additionality can sometimes be achieved through ‘topping up’ or ‘adding on’ to an existing project. However, calculating the actual gain achieved from the portion of additional effort, and/or delivering outcomes within a shorter timeframe is very difficult. There is also an increased risk of cost shifting and existing project funds being withdrawn. Considering the risks associated with ‘adding on’ to existing projects, demonstrably new projects are preferred. This may include new projects within existing conservation programmes (e.g., new locations of wild animal control or wilding pine control), but the risk of and measures to address potential cost shifting within the programme should be explicitly considered in such cases. New, unplanned, works that expand current projects, may also be considered where appropriate mechanisms are in place to ensure any existing expenditure is retained long-term, additional gains can be demonstrated, and it can be shown that expansion of the project would not have happened otherwise.	Compensation projects deliver gains that would not have otherwise occurred.
Tangible gains	The focus must be on compensation actions that result in direct, tangible and measurable outcomes ‘on-the-ground’ , such that target species, habitats, and/or ecosystems are	Compensation projects deliver targeted, tangible, on-the-ground, outcomes.

Principle	Explanation of principle	Adherence with principle (Yes / No explanation)
	demonstrably improved (above what would have occurred anyway). This requires tagged and sustained funding, secured from the applicant for the life of the project, and proven implementation techniques. Part-funded projects are not eligible as this risks project failure or cost shifting within the Department to cover shortfalls. Financial contributions may be considered as a last resort, provided there is sufficient certainty the contributions will directly fund additional benefits and otherwise adhere to these principles.	
Confidence in management techniques	Projects need to be supported with a credible evidence base that the proposed management interventions can achieve the anticipated outcome. Experimental projects, or projects reliant on unproven methods or techniques, are not eligible as outcomes are uncertain.	Compensation projects utilise proven techniques.
Time lags	The longer the time lag between losses occurring and gains being realised the greater the uncertainty. Future estimates of gain become less defensible with time. Projects should achieve on-the-ground additional gains within a relatively short period of time (e.g., 15 years or less). Compensation actions may need to continue past this	The delay between loss of or effects on values and achieving compensation outcomes is minimised.

Principle	Explanation of principle	Adherence with principle (Yes / No explanation)
	point to ensure compensation outcomes are sustained long-term. Ideally, compensation actions would commence prior to impacts to reduce the time lag between impacts occurring and gains being realised.	
Long-term outcomes	Adherence to this principle requires a feasibility check at the project proposal stage: a) That mechanisms exist to: - Legally protect compensation sites from land use pressures (if not already in place). - Secure financial resourcing for the duration of the project (including via consent conditions). - Provide for contingency measures if anticipated outcomes are not achieved. b) Project costings are defensible and account for 'all of project costs' (e.g., initial costs, ongoing maintenance costs corresponding to project time horizons, monitoring and reporting, and project administration, etc.) and/or adequate to cover the actual and real costs of the proposed action to avoid any short falls in resourcing. c) Stated time horizons within which anticipated gains will be generated are realistic and defensible. Responsibility for full resourcing for securing compensation outcomes long-term remains with the applicant.	Compensation outcomes can be secured long-term.

Principle	Explanation of principle	Adherence with principle (Yes / No explanation)
Transparency	Transparency is a critical component of maintaining integrity. This is of particular importance where the losses are significant, irreversible, and will occur on PCL where there is a high level of public interest and statutory obligation.	The compensation project design, approach, and associated aspects (delivery, third party agreements, monitoring and reporting etc.) are transparent.
Trading up	Trading up is subjective and no standard method for evaluating appropriateness of out-of-kind trades exists. An expert-informed, defensible proposition must support any 'trading up' outcomes proposed as part of the compensation package – for species, habitats, or ecosystems. This includes demonstrating why the exchange is considered trading up from an ecological, conservation, or cultural perspective. Additional considerations should be the degree of similarity between elements being traded, restricting exchanges to within kind as strictly as possible (e.g., wetlands for wetlands, birds for birds, grassland for grassland etc.) while also considering ecological functions and processes, and the location of the project (e.g. it is within the same catchment or ecological district). For example, if the impact is on otherwise unthreatened alpine wetlands, an outcome may considered trading up if there will be benefit to nearby lowland or mid-elevation wetlands which have more threatened species.	If not <i>similar</i> in type to the values being impacted at the impact site, the outcomes from compensation will benefit ecosystems and biota that are <i>comparable</i> in type, in the same general location, and more threatened than the ecosystems and biota affected by the project.
Leakage	Projects designed to prevent current or demonstrably likely land use pressures need careful evaluation that their	Compensation projects do not displace biodiversity or ecological harm to another location

Principle	Explanation of principle	Adherence with principle (Yes / No explanation)
	implementation will not result in shifting these impacts to another area. Increasing protection status over an area would be valid where there is no risk of displacing likely harm.	
Project readiness	Project readiness is an important consideration in the feasibility of a compensation project. The project cannot be reliant on landowner negotiations, uncertain access arrangements, unresolved governance issues, or any other form of third party agreement that is not yet secured.	The project is ready to be stood up with no or minimal additional prior-work.

STEP 2: PREFERENCE RANKING OF ELIGIBLE PROJECTS

This step answers the question *How well does the project fit with key characteristics of good practice compensation?* This step helps to determine preference for projects to be included in a compensation package, it does not serve to qualify or disqualify projects.

Preference ranking is likely be an iterative process comparing different project combinations – particularly where two or more projects are assigned the same overall project score. This process would also be helpful to compare anticipated outcomes from different combinations of projects.

Evaluating fit involves four steps:

1. Evaluation of fit of each project against a set of seven characteristics reflecting good practice for compensation projects. (*Table 2*)
2. Scoring the project against each characteristic. The value of fit is set to reflect preference of fit within each characteristic (least to best) and reflect the benefit in moving from the least fit to the best fit categories. (*Table 2*)
3. Calculating an overall preference value (0–10) based on total fit value, weighting-adjusted. Weightings reflect the importance of each characteristic in shaping an appropriate compensation package. (*Table 2*)
4. Ranking eligible projects in order of the overall preference value.

Determining preference:

$$\text{Preference value} = \frac{\sum(\text{characteristic fit value} \times \text{characteristic weight})}{\sum(\text{weights})}$$

The preference value will between 0 and 10, with values towards 0 indicating lesser preference and values towards 10 indicating greater preference.

Fit categories and values

The fit category values represent preference of fit – least preferred to most preferred fit category – and how much better a fit category is from the other categories within each characteristic.

A scale of 0–10 has been used to provide flexibility of fit preference within each category, while restricting risk of false precision. This is an important consideration when projects are being evaluated using expert opinion and not data. To further avoid overstating precision, the fit categories within each characteristic have been framed as criteria which the user decides which best matches. This avoids (or reduces) the inclination to assign fit values part way between fit categories.

Weighting of characteristics:

The weighting influences a characteristic's contribution to the overall preference value relative to the other characteristics. Weightings used in this framework include:

- 1 Standard weighting – default influence
- 1.5 50% more influence than characteristics with standard weighting
- 2 Twice the influence than characteristics with standard weighting

The justification of Fit categories and value and weighting of project characteristics is provided in Appendix 1.

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Table 2: Determining fit of eligible projects against seven characteristics reflecting good practice for compensation projects.

Characteristic	Weight	Fit categories and values	
Certainty in outcome A high level of certainty is associated with the predicted outcomes (future state within the stated time horizon) attributable to the proposed compensation actions.	2	Low level of certainty (>50% < 75%)	0
		Medium level of certainty (>75 <90%)	3
		High level of certainty (>90%)	10
Similarity to lost values The type of values targeted by compensation projects are equivalent (in type) with specific values adversely effected by the proposed activity.	1.5	Dissimilar – limited ecological relationship with impacted values	1
		Dissimilar but ecologically relevant	5
		Equivalent (in type)	10
Permanence of ecological or conservation gains Additional gains generated from compensation actions are permanent [^] . Compensation area(s) will be legally protected as a prerequisite (Table 1) [^] As far as can be determined	2	Sustaining gains is reliant on perpetual management actions	1
		Gains are likely to persist for 50–100 years in the absence of management actions	6
		Gains are permanent and not reliant on perpetual management actions	10
Ecological proximity of compensation outcomes The outcomes generated by compensation project will occur within ecologically relevant proximity to the values adversely effected at the impact site.	1	Compensation gains do not occur within ecologically relevant proximity of the impact site	3
		Compensation gains occur within ecologically relevant proximity of the impact site	10

Characteristic	Weight	Fit categories and values	
Spatial considerations, including but not limited to scale and connectivity <i>Habitat or ecosystem-focused project:</i> The project delivers ecological and biodiversity outcomes at a local scale (e.g., discrete site or habitat patch) or a landscape scale (e.g., across multiple ecosystems, landforms, and habitats and providing for broader ecological processes to occur). The project provides or enhances ecological, spatial, or temporal connectivity. <i>Actions may be implemented at a local scale to achieve tangible outcomes at a broader spatial scale.</i>	2	Anticipated outcomes will occur at a local scale	3
		Anticipated outcomes will occur at a landscape scale	10
OR <i>Species-focused project</i> The project will deliver population benefits for species at a local, regional, or national scale. <i>Securing a local population that is a national stronghold, provide a new insurance population (even if discrete), or restoring or creating connectivity between sub-populations for a species could be considered to benefit the species on a national scale.</i>	2	Anticipated population benefits will occur at a local scale	4
		Anticipated population benefits will occur at a regional scale	7
		Anticipated population benefits will occur at a national scale	10
Alignment and engagement with mana whenua priorities or aspirations Mana whenua been meaningfully engaged and it is confirmed that the project aligns with mana whenua priorities or aspirations.	1	Unknown or weak alignment	1
		Partial alignment	4
		Strong alignment	10

Characteristic	Weight	Fit categories and values	
Quality of monitoring proposed The project includes resourced monitoring programme(s) that is fit-for-purpose, and able to detect change in target values in response to the proposed compensation actions. A fit-for-purpose monitoring plan would include control sites, standard methods, adherence with nationally accepted standards and protocols where relevant, include appropriate monitoring indicators and metrics and thresholds to trigger feedback loops and further action (responsive management), and utilise appropriate adaptive management to reduce uncertainties.	1	No monitoring of project outcomes	0
		Monitoring framework is limited, under-resourced, or not connected to a responsive management framework	3
		Monitoring is resourced and fit-for-purpose	10

STEP 3: ASSESSMENT OF COMPENSATION PACKAGE

The final step is to evaluate the combination of eligible projects against the considerations in Table 3. This will likely be an iterative process comparing different project combinations – particularly where two or more projects are assigned the same overall project score.

When evaluating a proposed compensation package against these considerations the following information should be recorded:

- Response (Yes, No, Partially)
- Explanations of and/or justifications for response
- Overall conclusion as to the appropriateness and adequateness of the proposed compensation package.

There is no obligation to fully align with all of the considerations listed in Table 3, although greater emphasis should be placed on the first three (shaded grey) when making determining an overall conclusion. This is because these three considerations further reflect the scale and landscape context principles of compensation and contribute considerably to good practice compensation.

Table 3: Principles to inform evaluation of the adequacy of the compensation package (taken as a whole). The package may adhere with any given principle in full, part, or not at all, although emphasis should be placed on the first three (shaded grey).

Consideration	Alignment with consideration (Yes/No/Partially Explanation)
The amount ² of compensatory outcome to be generated by the package is commensurate with lost values	Anticipated outcomes are commensurate with the ecological, conservation, and cultural values and significance of the ecosystem and ecological features that will be impacted, including adequate compensation to address the scale and magnitude of impact of the project in its entirety. That is, compensation amount should be considered overall and for each component, such as different aquatic and terrestrial ecosystems and habitats, and flora and fauna groups (e.g. lizards, birds, invertebrates) as well as the scale and magnitude of impacts on different ecological processes and functions.

² Sizing compensation relies on accurate description of the biodiversity and ecological values in the first instance and realistic consideration of the consequence of the permanent loss of impacted values (across all domains). The amount of compensation needs to be measured in terms of anticipated outcomes from proposed projects and not the degree of effort (or cost of actions).

Consideration	Alignment with consideration (Yes/No/Partially Explanation)
The compensation package provides for all types of lost values	The projects within the compensation package are complementary (include different elements of biodiversity and ecological attributes) and representative of the values lost.
The compensation package is ecologically sensible within a landscape context	The combination of compensation projects addresses proximity to impact, like-for-like, spatial connections, and ecosystem function considerations .
The compensation package is informed by the best available information	Project selection, design, and proposed implementation is informed by the best available scientific, technical, mātauranga, and local knowledge.
Mana whenua values are appropriately recognised	Ongoing, meaningful engagement and co-ordination with appropriate mana whenua / hapū at place has occurred and their values as apply to the project area are reflected within the compensation package.
DOC planning framework directions	The project does not create tension with DOC planning framework such as Conservation Management Strategy and/or management plans relevant to the area.
Potential to enhance other DOC functions	The project has potential to generate secondary benefits or enhancement as well as biodiversity or ecological outcomes (e.g., historic heritage, recreational enjoyment of PCL).

APPENDIX ONE:

Table A1.1: Justification of weightings of characteristics

Characteristic	Weight	Justification where weighting is adjusted from the default influence provided by standard weighting (1)
Certainty in outcome	2	Certainty of outcome is a fundamental characteristic and therefore warrants twice the influence on the overall preference value
Similarity to lost values	1.5	Good practice compensation design would ideally address the values that have been lost, as measured by the similarity characteristic. The importance of similarity warrants additional weighting (while recognising compensation does not require strict ecological equivalence), similarity has additional influence in the other steps of this framework (via the principles and further consideration).
Permanence of ecological or conservation gains	2	Securing gains long-term is fundamental to addressing permanent losses.
Ecological proximity of compensation outcomes	1	–
Spatial considerations, including but not limited to scale and connectivity	2	It is critical that the compensation project achieves gains on a similar scale to that where the losses are experienced or manifest.
Alignment and engagement with mana whenua priorities or aspirations	1	–
Quality of monitoring proposed	1	–

Table A1.2: Justification of fit category values

Characteristic	Explanation of fit categories and values		
Certainty in outcome	Thresholds for low (>50%<75%), medium (>75%<90%), and high (>90%) levels of certainty are set to reflect the importance of certainty of outcome within effects management measures, including compensation. Fit values follow the same logic:		
	Fit category values		Explanation
	Low level of certainty (>50% < 75%)	0	A low level of certainty is inappropriate for compensation project.
	Medium level of certainty (>75 <90%)	3	There is some reduction of uncertainty provided by the medium category, but potentially uncertainty remains unacceptably high
	High level of certainty (>90%)	10	A high level of certainty provides the best fit with this characteristic, acknowledging some uncertainty will always remain
	The skewed spread between low and medium, and medium and high categories reflects the importance of certainty in outcomes. It is also considered there is more ability to address residual uncertainty (<9%) through conditions of consent and carefully developed adaptive management, which is not possible of greater levels of uncertainty.		
Similarity to lost values	Categories for fit with this characteristic reflect that strict ecological equivalence (across type, amount, time, and space) is not a requirement of compensation, but similarity in type is the best fit with this characteristic and is strongly preferred over dissimilar but ecologically relevant. This is because achieving ecological relevance across types of values is difficult to demonstrate and would potentially introduce further uncertainty in outcomes. A high burden of proof would be expected in support of dissimilar but ecologically relevant claims.		

Characteristic	Explanation of fit categories and values		
	Fit category values		Explanation
	Dissimilar – limited ecological relationship with impacted values	1	There is some, but very limited value for compensation outcomes from a compensation project that benefits completely dissimilar values
	Dissimilar but ecologically relevant	5	In a compensation context, dissimilar but ecologically relevant values may provide a positive compensation outcome but fall short of the best fit with this category.
	Equivalent (in type)	10	Equivalence in type of values is the best fit with this characteristic.
Permanence of ecological or conservation gains	Legal protection is required as a prerequisite (Table 1) and therefore these fit categories focus on the permanence of gains that can be generated by actions other than legal protection of compensation area(s). Legal protection does not prevent the loss of gains in condition.		
	Fit category values		Explanation
	Sustaining gains is reliant on perpetual management actions	1	Some value in gains for the period which management actions are implemented, but this is the least preferred category as gains will be lost as soon as management actions cease. It is unrealistic to assume management will occur in perpetuity.
	Gains are likely to persist for 50–100 years in the absence of management actions	6	This category is skewed towards best fit as there is significant value in gains that can be secured for this period (2–4 generations) but acknowledges it is not as certain as permanent gains.
	Gains are permanent and not reliant on perpetual management actions	10	Permanent gains that do not require ongoing management are the best fit with this characteristic.

Characteristic	Explanation of fit categories and values		
Ecological proximity of compensation outcomes	Ecological proximity between the compensation site(s) and area(s) of impact considers one element (distance) of landscape context and contributes to aspects of similarity as it can be assumed that values closer in distance to each will be more similar than those further apart.		
	Fit category values		Explanation
	Compensation gains do not occur within ecological relevant proximity of the impact site	3	There is some value in compensation gains generated outside of ecologically relevant proximity to the impact site.
	Compensation gains occur within ecologically relevant proximity of the impact site	10	Gains generated within ecologically relevant proximity of the impact site are the best fit for this category.
	The difference between the two categories reflects the strong preference for gains to occur within an ecologically relevant proximity.		
Spatial considerations, including but not limited to scale and connectivity	The preference settings for this category should be determined in consideration of the scale of impact.		
	Fit category values		Explanation
	Anticipated outcomes will occur at a local scale	3	There is some value in gains realised at a local scale.
	Anticipated outcomes will occur at a landscape scale	10	Gains realised on a landscape scale are the best fit for this category.
	Fit category values		Explanation
	Anticipated population benefits will occur at a local scale	4	There is value in species gains realised at a local scale.
	Anticipated population benefits will occur at a regional scale	7	There is even more value in species gains realised at a regional scale.
	Anticipated population benefits will occur at a national scale	10	Species gains realised at a national scale are the best fit for this category.

Characteristic	Explanation of fit categories and values		
	There is a more even spread of fit values across the species fit categories in recognition of the value of local and regional gains for species conservation, and therefore a more even preference to shift between categories. However, for habitat and ecosystem-focused compensation projects, the strong preference for gains to be generated at the landscape scale is reflected in the distance between the category fit values.		
Alignment and engagement with mana whenua priorities or aspirations	Fit category values		Explanation
	Unknown or weak alignment	1	Compensation projects may still have some value despite not aligning with mana whenua priorities or aspirations.
	Partial alignment	4	Compensation projects may still have some value despite only partially aligning with mana whenua priorities or aspirations.
	Strong alignment	10	Strong alignment with mana whenua priorities is the best fit for this category.
	The uneven spread between the three categories is reflective of the preference for shifting categories. The lower fit values for the first categories acknowledge that these categories carry some value but are not reflective of obligations to Treaty partners or other considerations of good practice compensation (such as engagement with tangata whenua and incorporation of mātauranga Māori).		
Quality of monitoring proposed	Although monitoring itself does not create biodiversity or ecological gain, it is necessary for accountability and assessing management effectiveness. A limited monitoring framework may generate some useful information, but it is unlikely to significant. The uneven spread of fit value between the categories reflects the strong preference for the best fit with this category.		
	Fit category values		Explanation

Characteristic	Explanation of fit categories and values		
	No monitoring of project outcomes	0	Without monitoring there is no way to confirm anticipated gains are generated and sustained.
	Monitoring framework is limited, under-resourced, or not connected to a responsive management framework	3	There may be some useful information generated from a imperfect monitoring programme, but it will be limited.
	Monitoring is resourced and fit-for-purpose	10	A fit for purpose monitoring programme is the best fit with this category.