

**BEFORE THE INDEPENDENT HEARINGS PANELS APPOINTED TO HEAR AND MAKE  
RECOMMENDATIONS ON SUBMISSIONS AND FURTHER SUBMISSIONS ON PROPOSED CHANGE 1  
TO THE REGIONAL POLICY STATEMENT FOR THE WELLINGTON REGION**

**UNDER** the Resource Management Act 1991 (the  
Act)

**AND**

**IN THE MATTER** of Hearing of Submissions and Further  
Submissions on Proposed Change 1 to the  
Regional Policy Statement for the  
Wellington Region under Schedule 1 of the  
Act

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**STATEMENT OF EVIDENCE OF FLEUR JENNIFER FOSTER MASEYK  
ON BEHALF OF GREATER WELLINGTON REGIONAL COUNCIL  
TECHNICAL EVIDENCE (BIODIVERSITY OFFSETTING AND  
BIODIVERSITY COMPENSATION)  
HEARING STREAM 6 – INDIGENOUS ECOSYSTEMS  
5 DECEMBER 2023**

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## INTRODUCTION

- 1 My full name is Fleur Jennifer Foster Maseyk. I am a Conservation Scientist with The Catalyst Group, where I have worked since January 2012.
- 2 I was initially approached by Greater Wellington Regional Council (**the Council**) in late 2022 to provide technical advice on specific matters in relation to the proposed biodiversity offsetting and compensation provisions in Proposed Change 1 to the Regional Policy Statement for the Wellington Region (**Change 1**). This included the following matters:
  - a. Contextual explanation of the use of biodiversity offsetting and biodiversity compensation as last steps of the effects management hierarchy to address the adverse effects of activities on indigenous biodiversity.
  - b. An explanation of the no net loss and net gain objectives for biodiversity offsetting.
  - c. Risks to indigenous biodiversity from application of the effects management hierarchy and the need for strong policy direction on its application.
  - d. Evaluation of the introduction of requirements for at least 10% net gain biodiversity offsetting and 10% net benefit compensation outcomes in Change 1, including consideration of the state of indigenous biodiversity in the Wellington Region, the direction of the National Policy Statement for Freshwater Management (NPS-FM) and the National Policy Statement for Indigenous Biodiversity (NPS-IB), and emerging application of net gain.
  - e. Any consequential recommendations for revisions to the Change 1 provisions for biodiversity offsetting and biodiversity compensation.
- 3 More recently (December 2023), I was asked to provide that advice as a technical expert to these proceedings. Specifically, this statement of evidence relates to the matters in the Section 42A Report relating to biodiversity offsetting and biodiversity compensation, Policy 24, and associated appendices.
- 4 I have read the evidence and statements provided by submitters relevant to the Section 42A report on indigenous ecosystems.
- 5 I am authorised to provide this evidence on behalf of the Council.

## QUALIFICATIONS AND EXPERIENCE

- 6 I have a PhD (natural 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.
- 7 I have over 25 years of experience working in natural resource management and conservation and have particular expertise in the areas of biodiversity policy, effects management and biodiversity offsetting and compensation, natural capital focussed ecosystem services approaches to natural resource management and integrating indigenous biodiversity in farm planning processes. I have produced numerous reports, popular articles, conference proceedings, and over 20 published papers in peer reviewed national and international journals on these topics.
- 8 My recent experience relevant to these proceedings includes:
- a. I was project leader and lead-author of the guidance document for biodiversity offsetting under the Resource Management Act produced in 2018 for the Regional Council Biodiversity Working Group<sup>1</sup>, and a follow-up think piece exploring challenges and opportunities for the use of strategic mechanisms to deliver biodiversity offsets and compensation measures.<sup>2</sup>
  - b. I led the development of an accounting system for the purposes of evaluating ecological equivalence in biodiversity offset exchanges for the Department of Conservation's toolbox<sup>3</sup>.

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<sup>1</sup> Maseyk F, Ussher G, Kessels G, Christensen M, Brown M 2018. Biodiversity offsetting under the Resource Management Act. A guidance document. Prepared for the Regional Council Biodiversity Working Group on behalf of the BioManagers Group. This document is available on the Local Government NZ website: <http://www.lgnz.co.nz/our-work/our-policy-priorities/3-environment/biodiversity/>

<sup>2</sup> Maseyk F, Ussher G, Christensen M 2022. Improving outcomes from biodiversity offsetting and compensation. Challenges and opportunities for the use of strategic mechanisms. Contract report No. 2022/173 prepared for the Regional Council Biodiversity Working Group. The Catalyst Group, RMA Ecology, and Natural Resources Law.

<sup>3</sup> 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. <https://www.doc.govt.nz/about-us/our-policies-and-plans/guidance-on-biodiversity-offsetting/biodiversity-offsets-accounting-system/>

- c. I led the 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 Energy<sup>4</sup>.
- d. I have been involved in the following Environment Court cases, providing expert evidence on effects management, including biodiversity offsetting and compensation:
  - i. McCallum Bros Ltd against Auckland Council’s decision to grant resource consents for sand extraction within the Mangawhai-Pākiri Embayment (for Ngāti Manuhiri).
  - ii. Auckland Regional Landfill at Wayby Valley (for Te Rūnanga o Te Ngāti Whātua).
  - iii. Brookby Quarries Ltd appeal of the Auckland Unitary Plan (for Auckland Council).
- e. I regularly provide advice, review proposals, and deliver presentations and training sessions to local government or private consultants on effects management, biodiversity offsetting and compensation design, and use of accounting systems for evaluating biodiversity offset exchanges.
- f. In addition, I am familiar with the National Policy Statement for Freshwater Management 2020 (**NPS-FM**) and the National Policy Statement of Indigenous Biodiversity (**NPS-IB**). I regularly provide advice on the implementation of the NPS-FM to regional councils, particularly in relation to inland natural wetlands and the aquatic offsetting and aquatic compensation provisions. I compiled the submission to the Exposure Draft of the NPS-IB (2022) on behalf of the Regional Council Biodiversity Working Group and undertook further evaluation of the shift between the Exposure Draft and the gazetted NPS-IB and implications for the regional sector.

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<sup>4</sup> 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 ‘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.

## **CODE OF CONDUCT**

- 9 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023 (Part 9). I have complied with the Code of Conduct in preparing this evidence. My experience and qualifications are set out above.
- 10 The data, information, facts, and assumptions I have considered in forming my opinions are set out in my evidence to follow. The reasons for the opinions expressed are also set out in the evidence.
- 11 Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.
- 12 The overriding duty to the Environment Court expressed in this Code will be treated as a duty to the Hearing Panel for the purpose of this hearing.

## **SCOPE OF EVIDENCE**

- 13 My evidence covers:
- a. Contextual background on the state and trend of indigenous biodiversity in the Wellington Region.
  - b. The effects management hierarchy.
  - c. The difference between biodiversity offsetting and biodiversity compensation.
  - d. No net loss versus net gain outcomes from biodiversity offsetting.
  - e. Proposed Change 1 provisions, specifically:
    - i. The requirements for at least a 10% net gain outcome for biodiversity offsets.
    - ii. The requirements for at least a 10% net benefit for biodiversity compensation.
  - f. Recommendations for revisions to Policy 24 and Appendix 1A.

## **BACKGROUND CONTEXT**

- 14 A number of amendments to Chapter 3.6: Indigenous Ecosystems were proposed in Change 1, amongst these are changes to improve the application of the effects

management hierarchy to manage the effects of development on indigenous biodiversity, and responding to concerns that offset and compensation outcomes for indigenous biodiversity are often poor. These changes include:

- a. Extending Policy 24 to provide a regional interpretation for the 'limits to the use of biodiversity offsetting and compensation'. Appendix 1A identifies the ecosystems and species where these limits apply in the Wellington Region.
- b. Adding a specific requirement for biodiversity offsetting and biodiversity compensation in ecosystems or habitats with significant indigenous biodiversity values to achieve at least a 10% net gain or at least a 10% net benefit outcome, as a precautionary approach reflecting both the inherent risks associated with biodiversity offsetting and biodiversity compensation and the current state of indigenous biodiversity in the Wellington Region.

15 Limits to offsetting is an internationally recognised principle, reflected in guidance documents (e.g., Maseyk et al. 2018<sup>5</sup>; New Zealand Government 2014<sup>6</sup>), the principles for biodiversity offsetting and biodiversity compensation in the Natural Resources Plan for the Wellington Region (NRP), and in the NPS-IB, and the NPS-FM (amendment 1)<sup>7</sup>.

#### **STATE OF INDIGENOUS BIODIVERSITY IN THE WELLINGTON REGION**

16 The importance of indigenous biodiversity and the benefits we derive from it span cultural, social, environmental, and economic dimensions. Biodiversity contributes to the provision of ecosystem services and is therefore critical for sustaining human wellbeing (IBES 2018<sup>8</sup>).

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<sup>5</sup> 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.

<sup>6</sup> New Zealand Government 2014. Guidance on good practice biodiversity offsetting in New Zealand. Wellington: New Zealand Government

<sup>7</sup> Presented in both NPSs as the 'appropriateness of offsetting and compensation'.

<sup>8</sup> IPBES 2018. Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Bonn, Germany, IPBES Secretariat. 44 p.

- 17 Aotearoa New Zealand is recognised as a ‘biodiversity hotspot’ but, reflecting global patterns, is experiencing a biodiversity crisis (Bradshaw et al. 2020; Brown et al. 2016<sup>9</sup>) which is further exacerbated by the entwined climate crisis (Bellard et al. 2012; Keegan et al. 2022<sup>10</sup>).
- 18 The state and trend of indigenous biodiversity in the Wellington Region generally reflect both the legacy of historic loss and continued pressures from land use and management practices, development, and ubiquitous pressures from introduced invasive species. Continued effort from mana whenua, communities, landowners, and local and central government to protect and enhance indigenous biodiversity values, has resulted in some recovery of some aspects of indigenous biodiversity, in some places. However, a high proportion of the indigenous species of the Wellington Region are regionally threatened or at risk of local extinction including 100% of bat, 85% of reptile, 79% of bird, 67% of freshwater fish, and 22% of plant species. At an ecosystem level <3% of former wetland extent remains, 58% forest types are regionally threatened, and 74% of naturally uncommon ecosystems are nationally threatened (Maseyk & Parlato 2023<sup>11</sup>).
- 19 Land use continues to impact on indigenous biodiversity. A total of 390 consents were granted over the period 2013–2016 that impacted on streams, wetlands, coastal ecosystems, or (unspecified) vegetation. Identification and provision for Significant Natural Areas (SNAs) in the terrestrial environment is incomplete at a regional level and inconsistent between district plans. A raft of activities that have the potential to have a detrimental impact on indigenous biodiversity are permitted within the Region’s policy framework, the cumulative effect of which is unknown (Maseyk & Parlato 2023<sup>12</sup>).

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<sup>9</sup> Bradshaw CJA, Giam X, Sodhi NS 2010. Evaluating the relative environmental impact of countries. PLoS One 5:e10440.

Brown MA, Peart R, Wright M 2016. Evaluating the environmental outcomes of the RMA. Auckland: Environmental Defence Society.

<sup>10</sup> Bellard C, Bertelsmeier C, Leadley P, Thuiller W, Courchamp F 2012. Impacts of climate change on the future of biodiversity. Ecology Letters 15:365–377.

Keegan LJ, White RSA, Macinnis-Ng C 2022. Current knowledge and potential impacts of climate change on New Zealand’s biological heritage. New Zealand Journal of Ecology 46(1):3467.

<sup>11</sup> Maseyk F, Parlato L 2023. State of indigenous biodiversity and indigenous ecosystems in the Wellington Region. A collation of recent monitoring and reporting. The Catalyst Group Contract Report No. 2023/189 prepared for Greater Wellington Regional Council.

<sup>12</sup> As above.



20 It is evident that adverse effects on indigenous biodiversity from development are occurring and contribute to indigenous biodiversity degradation and declines. Outcomes for indigenous biodiversity from consenting processes has been inconsistent, and in many instances poor.<sup>13</sup> Improving outcomes for indigenous biodiversity from consenting processes is therefore critical when considered in this context. Further, continued pressures from development and land use practices undermine restoration and enhancement efforts and are contrary to Objectives 16 and 16A in Change 1.<sup>14</sup>

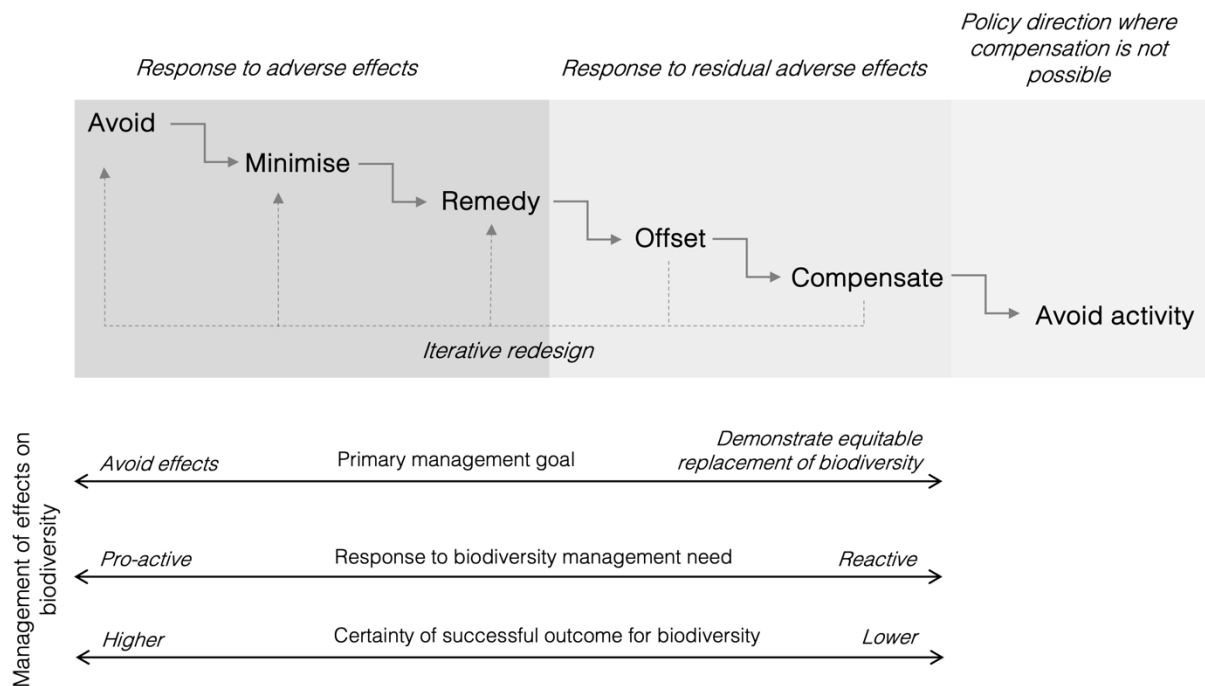
#### THE EFFECTS MANAGEMENT HIERARCHY

21 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 implemented.

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<sup>13</sup> Brown MA, Clarkson BD, Barton BJ, Joshi C 2013. Ecological compensation: An evaluation of regulatory compliance in New Zealand. *Impact Assessment and Project Appraisal* 31(1):34–44.  
Brown MA, Peart R, Wright M 2016. Evaluating the environmental outcomes of the RMA. Auckland: Environmental Defence Society.

<sup>14</sup> Objective 16: Indigenous ecosystems and habitats with significant ecosystem functions and services and/or biodiversity values are maintained, protected, enhanced, and restored to a healthy functioning state.  
Objective 16A: The region’s indigenous ecosystems are *maintained*, enhanced, and restored to a healthy functioning state, improving their resilience to increasing environmental pressures, particularly climate change, and giving effect to *Te Rito o te Harakeke*.



**Figure 1:** The effects management hierarchy showing the five sequential responses to address adverse effects on indigenous biodiversity 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. 2018.

- 22 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.<sup>15</sup> Any residual adverse effects on biodiversity may then be offset or, where an offset is not possible, compensated. Biodiversity offsetting and biodiversity compensation are distinct responses and achieve different outcomes.
- 23 The Resource Management Act 1991 (RMA) does not provide any specific direction on applying the effects management hierarchy<sup>16</sup> or the magnitude of adverse effects that the effects management hierarchy is to be applied to. Previously this was informed by regional

<sup>15</sup> 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.

<sup>16</sup> Although section 104(1)(ab) RMA directs consent authorities to have regard to offset or compensation proposed or agreed by an applicant.

policy. The NRP, and the now the NPS-IB and the NPS-FM all provide policy direction on this matter.

- 24 The NPS-IB directs that *any* adverse effects on a significant natural area (SNAs)<sup>17</sup>, and *any significant* adverse effects on indigenous biodiversity outside of SNAs be managed via the effects management hierarchy<sup>18</sup>, 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 hierarchy<sup>19</sup>.
- 25 Critically, the NPS-IB, the NPS-FM, and the NRP include a sixth step to the effects management hierarchy (Figure 1), whereby if biodiversity compensation is not possible then the activity is to be avoided. All of these policy documents include a set of principles that an applicant must comply with or have regard to, when designing an offset or compensation proposal. These principles provide direction on when biodiversity offsetting or compensation is not appropriate – otherwise referred to as ‘limits to offsetting’ (or compensation).

## **BIODIVERSITY OFFSETTING VERSUS BIODIVERSITY COMPENSATION**

- 26 **Biodiversity 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.
- 27 **Biodiversity 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.
- 28 Compensation, unlike offsetting, does not carry the requirement to demonstrate a quantified no net loss or net gain outcome (Maseyk et al. 2018<sup>20</sup>). This differentiation is also recognised in the NPS-IB, the NPS-FM, and the NRP.

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<sup>17</sup> NPS-IB clause 3.10(2) & 3.10(3), with exceptions set out in set out in clause 3.11.

<sup>18</sup> NPS-IB clause 3.16(1).

<sup>19</sup> NPS-FM clause 3.21 and 3.22, with exceptions set out in clause 3.22.

<sup>20</sup> 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.

29 The principles that guide the design and implementation of biodiversity offsetting and biodiversity compensation define the rigour required in the design of an offset or compensation response. For biodiversity 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 equivalency<sup>21</sup> of the proposed exchange (the trade of the biodiversity gained for biodiversity lost). It is also important to note that no net loss or net gain outcomes only apply to the specific elements of biodiversity targeted by an offset proposal, and subject to loss/gain calculations as a component of the offset design. That is, outcomes from biodiversity offsetting can only be claimed for those elements of biodiversity that were specifically accounted for in loss/gain calculations.

30 Thus, biodiversity 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 decreases with each subsequent step in the effects management hierarchy, with biodiversity compensation providing the least certainty. This decreasing certainty of outcome for biodiversity is a critical consideration for policy development in the context of the dual biodiversity and climate crises.

31 Adhering to definitions, fundamental concepts, and principles of biodiversity offsetting is challenging. However, given the uncertainty for biodiversity outcomes, policies need to be carefully designed to both uphold the rigour required for biodiversity offsetting (and recognise situations where offsetting is not appropriate) and prevent perversely defaulting to biodiversity compensation on the premise that biodiversity offsetting is unachievable.

#### **NO NET LOSS AND NET GAIN OUTCOMES FROM BIODIVERSITY OFFSETTING**

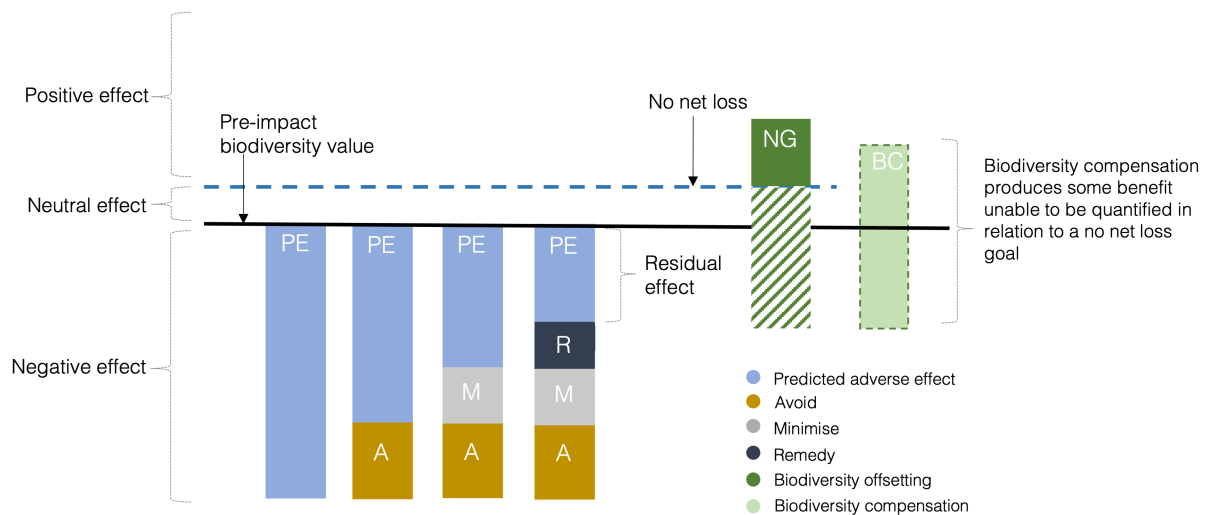
32 A fundamental differentiation between biodiversity offsetting and biodiversity compensation is the requirement for a biodiversity offset to produce a measurable outcome that can reasonably be demonstrated to balance losses (no net loss outcome) or exceed losses (net gain outcome).

33 A **no net loss** objective requires an offset to generate sufficient gains in target biodiversity values to balance the losses of that target biodiversity value. This requires that, at a specified point in time, values of the elements of biodiversity for which a no net loss

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<sup>21</sup> 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.

outcome is sought will be returned to what they would have been if the impact and offset had not occurred, taking into account uncertainty and time-lags (between losses and gains). A **net gain** objective requires the gains in target biodiversity values generated by an offset measure(s) to exceed the point of no net loss (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. Adapted from Maseyk et al. 2018

34 Demonstrating, with a reasonable level of certainty, no net loss or net gain requires the losses (at the impact site) and gains (at the offset site) to be described, measured, and evaluated for ecological equivalence across biodiversity type, amount (area and condition), space and time. Demonstrating ecological equivalence across biodiversity type and amount requires quantitative analysis of loss/gain calculations using numerical models and accounting systems<sup>22</sup>. Best practice numerical frameworks use currencies to create a common value that describes how much of what is exchanged in a biodiversity trade, and an accounting system to evaluate the exchange. Thus, currencies are used as the basis for

<sup>22</sup> For biodiversity offsetting this requires accounting systems that are ecological robust, transparent, repeatable, and which account for time-lag and reduce uncertainties where possible, including the use of appropriate data inputs.

demonstrating no net loss or net gain and the accounting system tests the adequacy (is it enough?) of the exchange.<sup>23</sup>

35 Evaluating whether an offset proposal achieves a no net loss or net gain outcome requires explicit statements of the elements of biodiversity for which the outcome is sought, the assumed background biodiversity trajectory against which no net loss or net gain is evaluated, and the time horizon within which the outcome is to be achieved. Therefore, a no net loss outcome will return biodiversity values to the point they would have been if the impact and offset had not occurred (the counterfactual scenario), including on a downward trajectory if a declining baseline had been assumed, whereas a net gain outcome will shift the trajectory. The amount of net gain achieved will determine the shape of the change in trajectory.

36 A single project proposal may include a mix of responses within an 'effects management package'. That is, some adverse effects on indigenous biodiversity values may be avoided, others minimised, while effects on other biodiversity values may be addressed via no net loss or net gain offsets, while still other values may be addressed using compensation. In such cases, offset claims can only apply to those values where this is reasonably demonstrated.

#### **REGIONAL POLICY STATEMENT PROPOSED CHANGE 1 PROVISIONS**

37 Change 1 provides explicit direction on two principles underpinning biodiversity offsetting and compensation – limits to biodiversity offsetting and biodiversity compensation, and net gain (offsetting) and net benefit (compensation) outcomes for indigenous biodiversity. The intention of Change 1 is to provide clarity on the former, by indicating when biodiversity offsetting and biodiversity compensation measures are not appropriate, and prescribing the latter, by providing a minimum amount of net gain for biodiversity offsetting and introducing a requirement for net benefit from biodiversity compensation measures.

38 The proposed provisions in Change 1 differ from the NPS-IB and NPS-FM in that:

- Biodiversity offsetting and biodiversity compensation, by definitions proposed in Change 1, applies to all residual effects on indigenous biodiversity that have not been avoided, minimised, or remedied; compared with the NPS-IB and NPS-FM that include

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<sup>23</sup> Therefore, claims of no net loss or net gain outcomes can only apply to what is captured by the currency. Anything not captured by the choice of currency will not be explicitly accounted for, such it will either be lost in exchange or accounted for by default.

a 'more than minor' threshold for effects that are to be subject to biodiversity offsetting and biodiversity compensation.

- Change 1 requires a net gain outcome (of at least 10%) from biodiversity offsetting. In comparison the NPS-IB requires a net gain outcome (in type, amount, and condition (structure and quality))<sup>24</sup> demonstrated by a like-for-like quantitative loss/gain calculation but does not quantify the amount of net gain to be reasonably demonstrated. The NPS-FM directs that aquatic offsets are to achieve no net loss, and preferably a net gain (measured by type, amount, and condition).<sup>25</sup>
- Change 1 requires a net biodiversity benefit outcome (of at least 10%) from biodiversity compensation, whereas the NPS-IB and NPS-FM require positive effects that outweigh the adverse effects.

39 Local authorities must include provisions in their policy statements and plans as directed by national policy statements. In doing so, local authorities can apply more specificity to give effect to these requirements, and they can require outcomes that go beyond NPS requirements.

40 It is my opinion that the intent to improve indigenous biodiversity outcomes from the when using biodiversity offsetting and biodiversity compensation behind Change 1 is appropriate, particularly in light of the poor (and in many cases, declining) state of indigenous biodiversity and ecosystems in Wellington Region (Maseyk & Parlato 2023<sup>26</sup>) and the poor outcomes for indigenous biodiversity from the consenting process in the past.

41 Biodiversity offsetting is quite possibly the most complex, challenging, and contentious conservation intervention in common usage. When offsetting fails to achieve the anticipated gains in target biodiversity there is a direct impact on the state and trend of that target biodiversity. Where shortfalls in anticipated outcomes are such that gains fall

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<sup>24</sup> Principle 3, Appendix 3 NPS-IB.

<sup>25</sup> Principle 3, Appendix 6 NPS-FM. While, the NPS-FM provides for a lesser outcome than net gain, the intended outcome is not dissimilar.

<sup>26</sup> Maseyk F, Parlato L 2023. State of indigenous biodiversity and indigenous ecosystems in the Wellington Region. A collation of recent monitoring and reporting. The Catalyst Group Contract Report No. 2023/189 prepared for Greater Wellington Regional Council.

below the amount required to at least balance losses (no net loss outcomes), biodiversity losses are entrenched (Maron et al. 2015<sup>27</sup>).

42 Further, offset outcomes can only be determined for the elements of biodiversity that are explicitly accounted for in loss/gain calculations. All other biodiversity elements are either offset implicitly or lost in the exchange, but we would never know. This obscuring of exchanges in biodiversity leaves protection of that biodiversity to chance, facilitating losses (Walker 2009<sup>28</sup>).

43 Thus, the stakes are high and due caution is appropriate when using biodiversity offsetting (and biodiversity compensation) to address residual adverse effects on indigenous biodiversity. This is even more so when addressing effects on vulnerable or threatened indigenous biodiversity, or where compensation is used over offsetting. Thus, a precautionary approach is appropriate.

#### **Net gain requirement for biodiversity offsetting**

44 Net gain outcomes from biodiversity offsetting are preferable to no net loss outcomes. As opposed to net gain, no net loss outcomes are neutral (no loss, no gain) – they will not result in increases of biodiversity values. The preference for net gain over no net loss has long been reflected in the principles of biodiversity offsetting.<sup>29</sup> The national shift in emphasis from a preference to a requirement for net gain (embedded in the NPS-IB) reflects the emergence internationally of net gain requirements.

45 For example, the UK Environment Act 2021 includes a mandatory biodiversity net gain (BNG) policy<sup>30</sup> for England to provide for the recovery of nature from the adverse effects of land development that will be phased in between November 2023 and April 2024. The policy is based on the premise of leaving the natural environment in a measurably better state than it was beforehand. The minimum 10% net gain required is calculated using a

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<sup>27</sup> Maron M, Bull JW, Evans MC, Gordan A 2015. Locking in loss: Baselines of decline in Australian biodiversity offset policies. *Biological Conservation* 192:504–512.

<sup>28</sup> Walker S, Brower AL, Stephens RTT, Lee WG 2009. Why bartering biodiversity fails. *Conservation Letters* 2:149–157.

<sup>29</sup> The most frequently cited guiding principles for biodiversity offsetting were initially developed by the Business and Biodiversity offsets Programme (BBOP), established in 2004. These principles included the explicit goal of ‘no net loss and preferably a net gain’ (BBOP 2009).

<sup>30</sup> Implemented via an automatic new condition to every planning permission granted for development and requiring a net gain plan for approval by local authority.



habitat-based metric (the Biodiversity Metric<sup>31</sup>) which can be delivered through on-site or off-site units, or via statutory credits<sup>32</sup>.

46 There is also an emerging recognition of the need for business and development to put more back into society than they take out, as reflected in the net positive movement.<sup>33</sup>

47 I support the net gain requirement for biodiversity offsetting within Change 1 and consider that this aligns with direction in the NPS-IB to achieve a net gain.

48 However, I consider that the '*at least 10%*' net gain requirement has potential to lead to perverse outcomes. This is because if an applicant cannot achieve *at least* a 10% net gain for the target biodiversity, under the policy as proposed, it will not be possible to offset residual adverse effects of the target biodiversity value – even if a net gain less than 10% can be demonstrated. Where a biodiversity offset is not possible, an applicant will move to the next step in the effects management hierarchy and offer biodiversity compensation instead. As highlighted above, biodiversity compensation provides a less certain outcome for indigenous biodiversity values and is the least preferred outcome.

49 In terms of the 10% target, it is my opinion that this is a somewhat arbitrary and generalised value, in that the amount of gain required to reverse trajectories of decline and positively change threat status is ecosystem and species specific, and influenced by where they sit relative to desired species populations or minimum ecosystem extents. The amount of gain that should be required remains a challenge for both policy and practice (Simmonds et al. 2021<sup>34</sup>). New Zealand does not have a standard metric (such as the Biodiversity Metric associated with the UK's BNG policy) against which the 10% gain would be measured. Instead, the 10% net gain requirement would apply to the specific elements of indigenous biodiversity subject to the offset (and for which loss/gain calculations are conducted).

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<sup>31</sup> The Biodiversity Metric uses changes in the extent and quality of habitats as a proxy for nature and comprises four factors: habitat size, habitat condition, habitat distinctiveness, and strategic significance.

<sup>32</sup> Statutory credits are planned for the future, intended for use only when BNG cannot be delivered on-site or off-site.

<sup>33</sup> For example: <https://www.netpositiveproject.org/>  
Polman P, Winston A 2021. Net positive. How courageous companies thrive by giving more than they take. Boston, MA: Harvard Business Review Press.

<sup>34</sup> Simmonds JS, von Hase A, Quétier F, Brownlie S, Maron M, Possingham HP, Souquet M, zu Ermgassen SOSE, ten Kate K, Costa HM, Sonter LJ 2022. Aligning ecological compensation policies with the Post-2020 Global Biodiversity Framework to achieve real net gain in biodiversity. Conservation Science and Practice 4:e12634.

50 I also note that a 10% net gain outcome from biodiversity offsetting is a significant shift in policy setting from a no net loss requirement, or a preference for a (unquantified) net gain. However, as a preferred target (not a minimum requirement), I consider that 10% is reasonable and justifiable when considered against the background context of a biodiversity crises and continued biodiversity declines from development and land use activities.

51 Therefore, I recommend that the requirement to achieve *at least a 10% net gain* be replaced with a *preference* for a 'net gain of 10% or greater', while retaining the policy requirement for a net gain (as opposed a no net loss) outcome from biodiversity offsetting.

### **Net benefit requirements for biodiversity compensation**

52 Change 1 attempts to provide further guidance on when the use of biodiversity compensation is not appropriate, and I support this.

53 Change 1 also attempts to improve outcomes for indigenous biodiversity by including a quantified outcome ('at least 10% net biodiversity benefit') from the use of biodiversity compensation. I do not support this. This is because, the language used to describe biodiversity compensation outcomes in Change 1 (10% net biodiversity benefit) risks creating confusion by introducing new terminology that blurs the distinction between biodiversity offsetting (measurable outcomes and a reasonable demonstration of net gain) and biodiversity compensation which does not have the same requirement. The '10%' implies numerical calculation of losses and gains, yet in many cases biodiversity compensation can apply more qualitative or subjective analysis of the appropriateness of an exchange. If a quantitative calculation (on a like-for-like basis) was possible and gains could be reasonable demonstrated to deliver 'at least 10% net benefit', the exchange would more likely meet the requirements of a (at least no net loss) biodiversity offset.

54 Care needs to be taken in developing policy that directs the application of the effects management hierarchy so as not to inadvertently create perverse outcomes, whereby applicants move straight from remedy to compensation, missing out biodiversity offsetting, on the basis the standards of offsetting are not possible to meet, and compensation is perceived as a relatively easy and acceptable pathway.

55 Therefore, I consider that it is appropriate that Change 1 requires biodiversity compensation to adhere to high thresholds and standards, and limits be recognised with an aim of achieving better outcomes for indigenous biodiversity. However, I consider that

the requirement for at least a 10% net benefit needs to be removed and the policy revised to better reflect the definition of biodiversity compensation. Due to the greater uncertainty associated with biodiversity compensation, it is appropriate that biodiversity compensation is not used to address residual adverse effects on threatened and nationally uncommon ecosystems and threatened species (as these elements of indigenous biodiversity are particularly vulnerable to continued losses and eventual extinction).

56 In my view, Change 1 should reflect the requirement for biodiversity compensation to generate positive effects that outweigh adverse effects as set out in the NPS-IB and NPS-FM.

## RECOMMENDATIONS

57 On the basis of my evaluation, I make the following recommendations:

- a. Separate out the amendments to Policy 24 in Change 1 into a new policy that applies to provisions in regional and district plans to provide further direction on applying the principles of biodiversity offsetting and biodiversity compensation as required for indigenous biodiversity in the terrestrial and coastal environments, and for the extent or values of natural inland wetlands and rivers.
- b. Amend the front-end text in proposed Appendix 1A as necessary to align with the addition of proposed new policy.
- c. Amend the definitions of biodiversity offsetting and biodiversity compensation (in Appendix 3 Change 1) to align with definitions provided in the relevant national policy statements.

58 Following discussions with GWRC policy staff, I provide some recommended wording for new policy 24A and revisions to Appendix 1A and the definitions in Appendix 3 of Change 1 in **Annex A**. The proposed wording reflects the following recommendations and revisions:

- a. **Retain** the net gain requirement for biodiversity offsetting.
- b. **Reframe** the '*at least 10% net gain*' from a minimum requirement to a preferred outcome, so net gain offsetting outcomes are not disqualified in favour of compensation where net gain offsetting attempts fall short of a reasonably demonstratable 10% net gain.

- c. **Replace** the requirement for an '*at least 10% net biodiversity benefit*' from biodiversity compensation outcomes with a requirement to generate positive effects that outweigh residual adverse effects.
- d. **Include policy direction** so that the full set of principles underpinning biodiversity offsetting and compensation as set out in the NPS-IB, NPS-FM, and NRP (not just the principles that relate to limits and outcomes) apply wherever policies/rules that enable the use of biodiversity offsetting or biodiversity compensation via the application of the effects management hierarchy are in place.
- e. **Amend definition** for biodiversity compensation in Change 1 Appendix 3 to remove the requirement for outcome to be 'measurable' to clarify differentiation between biodiversity offsetting and biodiversity compensation, and to clarify that biodiversity compensation is only to be considered following sequential application of previous steps in the effects management hierarchy.
- f. **Amend definition** for biodiversity offsetting in Change 1 Appendix 3 to specify the required outcome of a biodiversity offset (at least a net gain, and preferably a 10% net gain or greater).

59 In addition, it is my view that the current Table 17 in Appendix 1A of Change 1 could be improved by indicating the threat status of the listed ecosystems and species. This would provide clarity and justification for the inclusion of these ecosystems and species in Table 17.

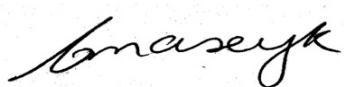
## CONCLUSIONS

60 Biodiversity offsetting and biodiversity compensation are not the same thing, they achieve different outcomes for indigenous biodiversity. It is therefore important that the two are differentiated between within policy documents.

61 No net loss biodiversity offsetting outcomes return indigenous biodiversity values to the point they would have been (at a specified point in time) in the absence of the impact and the offset. Therefore, if achieved, a no net loss outcome is neutral (no loss, no gain) and will not change background biodiversity baselines or trajectories. Therefore, a policy requirement for net gain outcomes from biodiversity offsetting is justified in the context of the dual biodiversity and climate crises and the national policy direction in both the NPS-IB and the NPS-FM.

- 62 Change 1 requires an ‘at least 10% net gain’ outcome for biodiversity offsetting, which has the potential for perverse outcomes by pushing applicants to biodiversity compensation, where a 10% gain in the target indigenous biodiversity is unachievable. The policy should be reworded to avoid such situations while retaining the requirement for net gain outcomes from biodiversity offsetting.
- 63 Biodiversity compensation may generate positive outcomes but the outcomes for indigenous biodiversity are more uncertain than other effects management responses and compensation is a high-risk response to effects management. Therefore, policy requirements for positive outcomes and recognising limitations to the use of biodiversity compensation to address residual adverse effects on high-value biodiversity are important.
- 64 The provisions for biodiversity compensation in Change 1 as drafted when notified introduce new terminology and conflate concepts that are the realm of biodiversity offsetting with biodiversity compensation. The provisions should be revised to resolve these issues.
- 65 There are limits to the situations in which biodiversity offsetting or biodiversity compensation are appropriate. Breaching these limits will result in entrenched biodiversity losses. Providing explicit policy direction describing when biodiversity offsetting and biodiversity compensation is not appropriate is likewise justified, and consistent with the principles in the NPS-IB, the NPS-FM, and the NRP.

**DATE: 4 December 2023**



**Fleur Jennifer Foster Maseyk**

**Conservation Scientist, The Catalyst Group**

## **ANNEX A: Recommended further amendments to provisions in Plan Change 1**

### ***Recommended wording for new Policy 24A:***

#### **Policy 24A: Principles of biodiversity offsetting and biodiversity compensation**

- (1) Where district and regional plans provide for biodiversity offsetting or biodiversity compensation as part of an effects management hierarchy for indigenous biodiversity in terrestrial and coastal environments and aquatic values, they shall include policies and methods to:
  - (a) ensure this meets the requirements of the full suite of principles for biodiversity offsetting and biodiversity compensation as set out in any applicable operative national policy statement:
  - (b) provide further direction on where biodiversity offsetting and biodiversity compensation is not appropriate in accordance with clause (2) and (3) below:
  - (c) provide further direction on required outcomes from biodiversity offsetting and biodiversity compensation in accordance with clause (4) and (5) below.
- (2) In evaluating whether biodiversity offsetting is inappropriate because of irreplaceability or vulnerability of the indigenous biodiversity, extent, or values affected, the feasibility to offset residual adverse effects on any threatened or naturally uncommon ecosystem or threatened species listed in Appendix 1A must be considered as a minimum.
- (3) In evaluating whether biodiversity compensation is inappropriate because of the irreplaceability or vulnerability of the indigenous biodiversity, extent, or values affected, recognise that it is inappropriate to use biodiversity compensation where residual adverse effects affect a threatened or naturally uncommon ecosystem or threatened species listed in Appendix 1A.
- (4) District and regional plans shall include policies and methods that require biodiversity offsetting to achieve at least a net gain, and preferably a 10% net gain or greater in indigenous biodiversity outcomes to address residual adverse effects on indigenous biodiversity, extent, or values. This requires demonstrating, and then achieving, net gains in the type, amount, and condition of the indigenous biodiversity, extent, or values impacted. Calculating net gain requires a like-for-like quantitative loss/gain calculation of the indigenous biodiversity values (type, amount, and condition) affected by the proposed activity.

- (5) District and regional plans shall include policies and methods to require biodiversity compensation to achieve positive effects on indigenous biodiversity, extent, or values that outweigh residual adverse effects on affected indigenous biodiversity, extent, or values.

### **Explanation**

This policy recognises that the outcomes achievable through the use of biodiversity offsetting and compensation are different. A 'net gain' outcome from biodiversity offsetting is expected to achieve an objectively verifiable increase in target indigenous biodiversity values while a biodiversity compensation outcome is more subjective and less preferable.

This policy applies to the use of biodiversity offsetting and biodiversity compensation to address the residual adverse effects on indigenous biodiversity in the terrestrial and coastal environments and to address the loss of extent or values of natural inland wetlands and rivers.

### ***Amend Appendix 1A as follows:***

To avoid doubt:

- Applications for offsetting adverse effects on ecosystems and species that meet the criteria in Policy 24A(2) potentially meet the limits of *biodiversity offsetting* and can be considered only if at least a net gain, and preferably a 10% net gain or greater, in the indigenous biodiversity values affected can be reasonably demonstrated.
- Policy 24A(3) describes the situations when *biodiversity compensation* is not appropriate, meaning that where Policy 24A(3) applies applications for compensation cannot be considered.

### ***Amend Change 1 definitions as follows:***

#### **Biodiversity compensation**

A conservation outcome that results from actions that are intended to compensate for residual adverse effects on indigenous biodiversity, after all appropriate avoidance, minimisation, remediation, and biodiversity offsetting measures have been sequentially applied.

### **Biodiversity offsetting**

A measurable conservation outcome that results from actions intended to:

- (a) redress for the residual adverse effects on biodiversity arising from activities after appropriate avoidance, minimisation, and remediation measures have been sequentially applied; and
- (b) achieve at least a net gain, and preferably a 10% net gain or greater in type, amount, and condition of indigenous biodiversity compared to that lost.