

**BEFORE THE HEARING PANEL
AT UPPER HUTT**

IN THE MATTER OF the Resource Management Act 1991
AND
IN THE MATTER OF Proposed Plan Change 49 – Open Spaces
(PC49) to the Operative Upper Hutt District
Plan; and Variation 1 to PC49.

**STATEMENT OF EVIDENCE OF DR FLEUR JENNIFER FOSTER
MASEYK ON BEHALF OF THE ROYAL FOREST AND BIRD
PROTECTION SOCIETY INCORPORATED**

ECOLOGY

Dated: 17 November 2023

1. EXECUTIVE SUMMARY

- 1.1. This evidence covers matters relating to ecological values present at the Silverstream Spur and policy provisions as relevant to indigenous biodiversity and in the context of Proposed Plan Change 49 Variation 1 (**PC49-V1**).
- 1.2. Silverstream Spur comprises a mosaic of vegetation types, includes part of a Significant Natural Area, contributes to remaining indigenous vegetation cover in Upper Hutt District (now much reduced), and provides important ecological connectivity.
- 1.3. In recognition of these ecological values, proposed PC49-V1 includes Silverstream Spur within the Natural Open Space Zone.
- 1.4. The provision for a transport corridor within Silverstream Spur is contrary to that Zoning and the provisions of the National Policy Statement for Indigenous Biodiversity in relation to Significant Natural Areas.
- 1.5. The enabling of a transport corridor is not required to provide for passive recreation within Silverstream Spur, which can occur in way that appropriately manages any adverse effects via application of the effects management hierarchy at the time of application for consent.
- 1.6. The species composition and condition of Silverstream Spur is changing over time. It is a feasible assumption that in the absence of development, and with appropriate management, the ecological features and values present at the Spur will be enhanced over time. It is my view, that the current provisions of PC49-V1 undermine this potential.

2. INTRODUCTION

- 2.1. My full name is Fleur Jennifer Foster Maseyk.
- 2.2. 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. I am a Conservation Scientist and General Manager with The Catalyst Group, where I have worked since 2012.

- 2.3. I have over twenty-five years of experience working in natural resource management and conservation, and have particular expertise in the areas of biodiversity policy, including for the identification and protection of significant natural areas; effects management and biodiversity offsetting; natural capital focussed ecosystem services approaches to natural resource management; and integrating indigenous biodiversity in farm planning processes, and have produced numerous reports, popular articles, conference proceedings, and over 20 published papers in national and international journals on these topics.
- 2.4. 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. I have both in-field and desktop experience in vegetation and habitat mapping, the assessment of ecological value and significance, and technical assessment of resource consent applications; and evaluation of effects management and biodiversity offset and biodiversity compensation proposals. I specialise in working in the interface of science-policy-implementation.
- 2.5. My relevant expertise and experience include:
 - a. I regularly provide advice and guidance on biodiversity policy development and implementation to local government and private consultants, including the interpretation and requirements of national policy directions.
 - b. I led the development of the indigenous biodiversity provisions in the Manawatū-Whanganui Regional Council's One Plan,

including a habitat-based approach for identifying ecological significant areas for the purposes of section 6(c) RMA.

- c. 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 Group¹, and a follow-up think piece exploring challenges and opportunities for the use of strategic mechanisms to deliver biodiversity offsets and compensation measures.²
 - d. 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 toolbox³.
 - e. I have undertaken numerous desktop and in-field assessments for ecological significance of wetland, scrub, shrubland, and forest habitats.
- 2.6. Early in 2023, I was asked by the Royal Forest and Bird Protection Society (**Forest & Bird**), on behalf to the Upper Hutt Forest & Bird Branch, to present ecological evidence on their behalf in relation to provisions for Silverstream Spur (**the Spur**) within Variation 1 to Proposed Plan Change 49 (**PC49; PC49-V1**). I have not been involved in any form or for any parties on PC49 or Variation 1 prior.
- 2.7. I visited Silverstream Spur on 7 November 2023 with representatives of Forest & Bird and the Silverstream Steam Railway.

¹ 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/>

² 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.

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

3. CODE OF CONDUCT

- 3.1. I have read the code of conduct for expert witnesses as contained in the Environment Court's Practice Note 2023. I have complied with the practice note when preparing my written statement and will do so when I present evidence.
- 3.2. 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.
- 3.3. Unless I state otherwise, this evidence is within my sphere of expertise. I have not omitted to consider material facts known to me that might alter or detract from opinions expressed.
- 3.4. 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.

4. SCOPE OF EVIDENCE

- 4.1. My evidence addresses:
 - a. Ecological values known to be present at Silverstream Spur.
 - b. Proposed Plan Change 49 Variation 1 provisions.
 - c. Decision sought by Forest & Bird.
- 4.2. I do not comment on landscape architecture, amenity, or archaeological values associated with Silverstream Spur as these matters are outside my area of expertise.
- 4.3. In producing this statement of evidence, I have read the following material:
 - a. Forest & Bird's submission to PC49, and subsequent submissions from Forest & Bird and the Upper Hutt Branch on Variation 1 to Proposed PC49.

- b. Section 42A report for Variation 1 to Proposed PC49.
 - c. Section 32 report for Variation 1 to Proposed PC49.
 - d. Draft Probable significant natural areas for Upper Hutt City District Plan.⁴
 - e. Ecological values assessment of Silverstream Spur.⁵
 - f. Recommended amendments to PC49 and PC49 Variation 1.
- 4.4. I rely on the previous ecological assessments (conducted in 2015, 2018, 2020, & 2022) and have not undertaken my own assessment of Silverstream Spur.

5. ECOLOGICAL VALUES OF THE SILVERSTREAM SPUR

Assessment of ecological assessment

- 5.1. In 2016 an initial desktop assessment to identify potential significant natural areas present on private land was undertaken within the Upper Hutt District. This assessment was updated in 2018⁶ and expanded to include areas of public land known to have ecological values.
- 5.2. Wildland Consultants Ltd (**Wildlands**) undertook a remote assessment⁷ of the Pinehaven Valley forest and scrub and identified the area labelled UH070 to be a significant natural area (**SNA**) using the Regional Policy Statement (**RPS**) Policy 23 Criteria⁸ as shown in Table 1.

⁴ Wildland Consultants Limited 2018. Probable significant natural areas for Upper Hutt City District Plan. *Draft*. Wildland Contract Report No. 4390a, prepared for Upper Hutt City Council.

⁵ Boffa Miskell Limited 2015. Silverstream Spur: Ecological values assessment. Draft report prepared for Upper Hutt City Council.

⁶ Wildlands 2018.

⁷ Using aerial imagery, historic images, and road side viewing.

⁸ An area qualifies as an SNA if it meets any one of the assessment criteria. NB: the RPS is currently subject to a Proposed Change (RPS PC1) including to Policy 23. Proposed RPS PC1 does not materially change the significance assessment criteria in a manner that would alter the assessment of UH070.

Table 1: Ecological significance assessment of UH070 (Silverstream Spur) conducted in 2018 by Wildlands. *Source:* Taken from Wildlands 2018 Draft probable SNAs for Upper Hutt City District Plan

RPS Policy 23 Criteria	Achieved	Assessment
RPS23a: Representativeness	Yes	Late succession broadleaved forest is representative of current vegetation types.
RPS23b: Rarity	Yes	Two threatened and two At Risk plant species; Two At Risk lizard species
RPS23c: Diversity	No	Appears modified and likely to have a reduced natural diversity.
RPS23d: Ecological context	Yes	Likely to promote ‘stepping stone’ habitat for birds travelling through the Hutt Valley.
RPS23e: Tangata Whenua values	Unknown	Not assessed.
Overall significance	Yes	This site meets one or more RPS Policy 23 criteria

5.3. This assessment pre-dates the directions of the National Policy Statement – Indigenous Biodiversity (**NPS-IB**). However, the first four criteria align with the criteria prescribed in the NPS-IB for assessing ecological significance.

5.4. The extent of UH070 extends into the Silverstream Spur land parcel. The boundary of UH070 identified during the 2018 assessment where it occurs on the Silverstream Spur land parcel was confirmed during a 2020 site visit.⁹ The boundary of the SNA was extended to include additional area within Silverstream Spur that was determined to be significant following a further site visit in 2022.¹⁰ The revised extent of UH070 is shown in Appendix 3 of the section 32 report for PC49-V1.

⁹ Upper Hutt City Council. Variation 1 to proposed Plan Change 49 – Silverstream Spur. Section 32 Report. Appendix 3, pages 41–43.

¹⁰ As above.

- 5.5. A previous assessment of ecological values present at Silverstream Spur was conducted by Boffa Miskell Limited (**BML**) in 2015.¹¹ The Boffa Miskell assessment was not however, an assessment of ecological significance in terms of s6(c) of the RMA. Further, it appears that the vegetation communities have shifted in composition in the period between the Boffa Miskell and Wildlands assessments, with the presence of indigenous species increasing over time.
- 5.6. I have no reason to question the assessment conducted by Wildlands. I further note that the Spur holds potential for continued recovery and restoration of ecological values over time.
- 5.7. The Wildlands report notes the following threatened¹² species have been recorded from the SNA:
- a. Threatened indigenous flora:
 - i. Northern rātā (*Metrosideros robusta*) Threatened – Nationally Vulnerable.
 - ii. *Pterostylis puberula* Threatened – Nationally Vulnerable.¹³
 - iii. *Crassula ruamahanga* At Risk – Naturally Uncommon.
 - iv. Mānuka (*Leptospermum scoparium*) At Risk – Declining.
 - b. Threatened indigenous fauna:
 - i. Moko kākārīki/barking gecko (*Naultinus punctatus*) At Risk – Declining.
 - ii. Ngahere gecko (*Mokopirirakau* “southern North Island”) At Risk – Declining.
- 5.8. A revised assessment of the conservation status of reptiles in the Wellington Region was completed this year. Under the regional classification, moko kākārīki are listed as Regionally Vulnerable and

¹¹ Boffa Miskell 2015. Silverstream Spur. Ecological Values Assessment. Draft report. Prepared for Upper Hutt City Council.

¹² As classified according by the New Zealand Threat Classification System (NZTCS). <https://nztns.org.nz/>.

¹³ This species is now recorded as regionally extirpated (Crisp 2020), highlighting the vulnerability of threatened species in the absence of appropriate protection and management. Crisp P 2020. Conservation status of indigenous vascular plant species in the Wellington region. GW/ESCI-G-20/20. Greater Wellington Regional Council.

ngahere gecko as Regionally Declining. The Wellington Region is a national stronghold for both moko kākārīki and ngahere gecko on the mainland.¹⁴

- 5.9. Other nationally At Risk species have been recorded nearby including a lizard species and four bird species.¹⁵
- 5.10. Copper skink (*Oligosoma aenum*); Regionally At Risk – Declining¹⁶ has also been recorded within UH070¹⁷.
- 5.11. Three podocarp species were recorded by Wildlands and noted to be of local interest (rimu (*Dacrydium cupressinum*); kahikatea (*Dacrycarpus dacrydioides*); tōtara (*Podocarpus totara*).¹⁸
- 5.12. The Threatened Environment Classification (TEC)¹⁹ provides information on patterns of indigenous vegetation loss and remaining indigenous vegetation cover within land environments at a national scale and uses indigenous vegetation as a surrogate for indigenous biodiversity. The Silverstream Spur includes areas of category 3 (20–30% indigenous cover remaining) and category 6 (>30% left and >20% protected) land environments.²⁰ Thus, the Silverstream Spur includes indigenous vegetation cover representative of land environments where indigenous biodiversity has been much reduced and fragmented (category 3) and land environments where indigenous vegetation cover has been less reduced and is better protected (category 6), but which can still undergo further losses due to threats (e.g., invasive species) and adverse effects of land use activities.

¹⁴ Crisp P, Hitchmough R, Newman D, Adams L, Lennon Ox, Woolley C, Hulme-Moir A, Bell T, Herbert S, Spearpoint O, Nelson N 2023. Conservation status of reptile species in the Wellington region. GW/ESCI-G-23/03. Greater Wellington Regional Council.

¹⁵ Wildlands 2018.

¹⁶ Crisp et al. 2023.

¹⁷ Wildlands 2018.

¹⁸ Wildlands 2018.

¹⁹ Cieraad E, Walker S, Price R, Barringer J. 2015. An updated assessment of indigenous cover remaining and legal protection in New Zealand's land environments. New Zealand Journal of Ecology 39(2).

²⁰ Manaaki Whenua Landcare Research. OurEnvironment. https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Habitats/lenz_tec.

Ecological connectivity

- 5.13. Less than 10% of the Upper Hutt District is under indigenous cover.²¹ The Upper Hutt District Plan recognises this drastic shift from the original indigenous vegetation cover within the District, noting that remaining areas of indigenous vegetation are important.²²
- 5.14. Habitat fragmentation (incorporating both habitat loss and dissection of habitat) results in the change in landscape from previously extensive areas to scattered and varying isolated areas of habitat. This fragmentation and loss of connectivity has direct and obvious implications (loss of species, habitats, and ecosystems) and less obvious, long-term implications, such as the increased isolation of remaining areas, decrease in size of remaining areas, and an increase in edge habitat. Further reductions in the extent of indigenous vegetation cover results in further fragmentation of habitat across the landscape which leads to further degradation of ecological values and function and loss of extent.
- 5.15. Forest & Bird's submission identifies that the Silverstream Spur "*connects the Eastern and Western Hills north to Wi Tako Ngatata Scenic Reserve, the Southern Hills, Remutaka Range, Keith George Memorial Park, Trentham Scenic Reserve through to the Akatarawa Valley, Kaitoke Regional Park and the Tararua Range, south to Belmont Regional Park through to Porirua, and east and south to Wainuiomata and the southern Regional Parks.*"
- 5.16. Ecological connectivity relates to the degree of connection between the components, spatial distribution, and functions of ecological features within a landscape. Loss and fragmentation of habitats and ecosystems (historic and contemporaneous) negatively impact on ecological connectivity.

²¹ Walker S, Price R, Rutledge D 2005. New Zealand's remaining indigenous cover: Recent changes and biodiversity protection needs. Landcare Research Contract Report: LCR0405/038 prepared for Department of Conservation.

²² Part 2 District-wide matters. Chapter ECO – Ecosystems and Indigenous Biodiversity. Upper Hutt District ePlan <https://e-plan.upperhuttcity.com/eplan/rules/0/54/0/2023/0/52>.

- 5.17. Connectivity requirements for fauna are species-specific. For example, stepping stones can provide connectivity for highly mobile species (such as strong flyers) allowing them to move around the landscape through one-off or a series of movement events, whereas less-mobile species will require contiguous corridors of suitable habitat and microclimates to enable slower movements over the longer term.
- 5.18. Connectivity between different areas and different habitat and ecosystem types is also important for the ecological processes and contribution to the provision of ecosystem services.²³ This is because a change in the spatial configuration of habitat influences ecological processes (e.g., dispersal, recruitment, energy transfer etc.). Thus, the detrimental impacts of fragmentation and loss of connectivity occur across temporal and functional as well as spatial domains.
- 5.19. In the context of its location in the landscape and against the background of a drastic loss of indigenous vegetation cover within Upper Hutt District, the Silverstream Spur (including SNA UH070) and the adjacent indigenous vegetation cover provides important ecological connectivity and associated ecological and biodiversity values. The importance of maintaining connectivity and avoiding fragmentation of SNAs is recognised in the NPS-IB.

6. PROPOSED PC49-V1 PROVISIONS

- 6.1. Natural Open Space Zone (**NOSZ**) is differentiated from other Open Space Zones based on the presence of ecological values. The objectives and policies of the NOSZ, as set out proposed PC49 include (among other things):
- a. Retain natural environmental values (NOSZ-O1).
 - b. Protect indigenous biodiversity values, and retain indigenous vegetation associated with those values (NOSZ-O2).

²³ Ecosystem services are the benefits flowing from nature consumed or used by humans to sustain or advance wellbeing.

- c. Provide for built development that do not adversely affect indigenous biodiversity (NOSZ-P2).
 - d. Avoid developments that are incompatible with indigenous biodiversity or that result in a loss of indigenous biodiversity values (NOSZ-P3).
 - e. Maintain and enhance indigenous biodiversity (NOSZ-P4).
- 6.2. The inclusion of Silverstream Spur within the NOSZ is, in my opinion, fitting with the ecological values present at the site.
- 6.3. However, there are several proposed provisions within PC49-V1 which are at odds with providing for those ecological values.
- 6.4. In particular, policy NOSZ-P6 to enable infrastructure, including a transport corridor, with Silverstream Spur. Such a provision would compromise the very values within the Spur that qualify it as NOSZ and is contrary to the directions of the NPS-IB in relation to managing adverse effects on an SNA.
- 6.5. The NPS-IB requires adverse effects on an SNA to be avoided, including the loss of ecosystem representation and extent, disruption to ecosystem function, and fragmentation.²⁴ Proposed policy NOSZ-P7 requires application of the effects management hierarchy, including avoiding adverse effects on the SNA ('where practicable'). However, this is not an avoidance policy in of itself.
- 6.6. The development of a road within the Spur would result in a number of adverse effects on the SNA and surrounding ecological values including the fragmentation of habitat (and consequential disruption to ecological connectivity), increased edge effects, changes in micro-climate and hydrological regimes, adverse effects on fauna due to lighting, noise, and vibration associated with the road, and potential for collisions of wildlife with vehicles.
- 6.7. I also note that NOSZ-R15 identifies 'effects on *biodiversity* in the identified Significant Natural Area' (my emphasis) as a matter that Council can impose conditions on in relation to consenting of road

²⁴ Clause [3.10(2)(a)–(c)] NPS-IB.

and associated network utility infrastructure. However, biodiversity is only one component of ecological value, and it is ecologically nonsensical and inappropriate from a policy perspective to restrict consideration of adverse effects. The NPS-IB directs that 'any adverse effects on an SNA' are subject to application of the effects management hierarchy where they are not to be avoided [Clause 3.10(2)(3)].

- 6.8. Further, the enabling of a transport corridor is not required to provide for passive recreation within Silverstream Spur. The specifications for tracks for recreation (e.g., walking / jogging and mountain biking) are of a much lesser scale and consequently adverse effects associated with providing for passive recreation are lesser and more easily managed compared to the scope and adverse effects associated with providing access (roading) for vehicle access.
- 6.9. Thus, bespoke provisions for a transport corridor within the Spur is not required to provide for passive recreational opportunities. Ecological values can be protected and enhanced via application of the effects management hierarchy to address any adverse effects that may arise from providing for passive recreational activities at the time of application for consent.
- 6.10. I also note that the condition and species composition of Silverstream Spur is changing overtime and, with a comprehensive management and enhancement plan, will continue to improve over time and shift towards increased indigenous dominance. The location of Silverstream Spur in the landscape contributes to the potential for species lost from the Spur to recolonise or be reintroduced.

7. DECISION SOUGHT BY FOREST & BIRD

- 7.1. Based on the arguments as set out above, it is my opinion that the amendments to PC49-V1 proposed by Forest & Bird should be adopted in full. Forest & Bird have also noted the need for the inclusion of a definition of biodiversity offsetting. I support this but go further in that a definition for biodiversity compensation should also

be included and the principles of both be referenced. It is my view, that the definitions and principles associated with biodiversity offsetting and biodiversity compensation should follow those set out in the NPS-IB.

- 7.2. It is my view that adopting the wording that reflects the NPS-IB directions for the protection of, and management of adverse effects on, SNAs is appropriate. The current proposed provisions within PC49-V1 fall short in this regard.

17 November 2023

Dr Fleur Jennifer Foster Maseyk