BRIEF OF SUPPLEMENTARY EVIDENCE OF MELANIE KATE HARDIMAN ECO – ECOSYSTEMS AND INDIGENOUS BIODIVERSITY

Qualifications and Experience

1 My qualifications and experience are set out in paragraphs 6 to 9 of ECO section 42A Report titled *Chapter 10: ECO – Ecosystems and indigenous biodiversity*, dated 4 May 2022.

Code of Conduct

I have read and agree to comply with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2014. I have complied with the code in preparing my evidence. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of Evidence

- This supplementary evidence updates recommendations I made in the ECO s42A Report titled Chapter 10: ECO-Ecosystems and indigenous biodiversity after the pre-hearing discussions with some submitters. In this evidence I cover the following matters:
 - 3.1 The definition of "indigenous vegetation" to clarify its application in freshwater and coastal environments.
 - 3.2 The use of "or" in ECO-O2.
 - 3.3 The relationship between the ECO and CE chapters regarding the management of coastal indigenous biodiversity.
 - 3.4 Clarify how taoka species and ecosystems are to be managed in the coastal environment.
 - 3.5 Including "wilding trees" and ecosystems that are taoka to ECO-P9

Errata

I have identified some errors in the ECO s42A Report titled Chapter 10: ECO-Ecosystems and indigenous biodiversity after pre-hearing discussions with some submitters. These are out, together with the corrections, in Appendix 1. I acknowledge that these corrections have been identified as necessary to properly understand my ECO s42A Report.

Indigenous vegetation

- Following the pre-hearing discussions on the ECO chapter, I reconsidered my position in paragraph 34 of my s42A Report, concerning the use of "*indigenous vegetation*" in freshwater and coastal environments.
- My original position on this matter was that because the definition is used in the LF, CE and ECO chapters "indigenous vegetation" covers freshwater and marine vegetation. Following the pre-hearing discussions, I have considered whether the term "bioregion" should be included in "indigenous vegetation" along with "ecological district" so it is clear that the definition applies in freshwater and marine environments. This would amend the definition as follows:

"Indigenous vegetation: Means vascular and non-vascular plants that, in relation to a particular area, are native to the ecological district or bioregion (whichever is applicable to the area) in which that area is located."

I sought ecological advice from Dr Kelvin Lloyd at Wildland Consultants on this suggested new definition. Dr Lloyd recommended:

"Indigenous vegetation: Means vascular and non-vascular plants that, in relation to a particular area, are native to the ecological district or freshwater or marine bioregion in which that area is located."

I accept Dr Lloyd's advice because the suggested amendment to the definition makes it clear that "indigenous vegetation" not only applies to terrestrial environments, but also freshwater and marine environments. I recommend amending the definition of "indigenous vegetation" to:

Indigenous	Means vascular and non-vascular plants that, in		
vegetation	relation to a particular area, are native to the relevant		
	ecological district ¹ or freshwater or marine bioregion ¹ in		
	which that area is located.		

Section 32AA evaluation

I do not consider a section 32AA assessment is necessary because my recommended amendment to the definition of "indigenous vegetation" seeks to clarify what areas the definition applies to and ensures the definition corresponds to the use of the phrase "indigenous vegetation" in the pORPS; it does not alter the meaning of the definition.

Restoration and enhancement

- Following pre-hearing discussions, I have reconsidered whether ECO-O2 should refer to "restoration and enhancement" instead of "restoration or enhancement" to ensure consistency with ECO-P8. My original position on this matter, set out in paragraph 121 of my s42A Report, was that it is appropriate to use "and" in the header of ECO-O2 because the header should cover both concepts equally, whereas in the body of objective it is appropriate to use the term "or" because, in some instances, to achieve a net increase Otago's indigenous biodiversity, it may not be necessary to both restore and enhance.
- 11 Following the pre-hearing discussion, I have reflected on this and have reconsidered my position. I now consider that in order to have a net increase in Otago's indigenous biodiversity, restoration and enhancement are both required.
- 12 I recommend the following amendments:

ECO-O2 - Restoring or and² enhancing

Restoration or and enhancement activities result in a A net increase in the extent and occupancy of Otago's indigenous biodiversity results from restoration or enhancement.

I note that ECO-M4(3) and ECO-M5(5) use the phrase "restoring or enhancing"; however I consider in those context that is appropriate as projects may be either

¹ 00137.013 Director General of Conservation

² 00226.215 Kāi Tahu ki Otago

restoring or enhancing and do not necessarily need to be doing both in order to have provision made for them in plans.

Section 32AA evaluation

14 I consider the recommended amendment to ECO-O2 ensures consistency between ECO-O2 and ECO-P8 and does not change the overall outcome in ECO-O2. I consider that no section 32AA assessment is necessary.

Coastal indigenous biodiversity and taoka

- 15 In paragraph 311 of my s42A Report, I agreed with submitters that it was unclear whether the CE chapter, the ECO chapter or both applied to indigenous biodiversity in the coastal environment and so I recommended a new version ECO-P7 to resolve this issue.
- 16 Following pre-hearing discussions, I now understand that ECO-P7 did not remove the confusion. I note that it is unclear how coastal indigenous biodiversity that are taoka are to be managed because ECO-P7(2) directs readers to CE-P5(2), which has a lower threshold than ECO-P3. To address this, I recommend that ECO-P7 be a simplified statement that indigenous biodiversity and taoka in the coastal environment be managed by CE-P5 and all the objectives and policies in the ECO chapter apply to coastal indigenous biodiversity, except ECO-P3, ECO-P4, ECO-P5 and ECO-P6.
- 17 I recommend amending ECO-P7 as follows:

ECO-P7 – Coastal indigenous biodiversity and taoka³

Coastal indigenous biodiversity is managed by CE-P5, and implementation of CE-P5 also contributes to achieving ECO-O1.

Indigenous biodiversity in the coastal environment is managed by the relevant provisions of this chapter, except that:

- (1) significant natural areas in the coastal environment are managed by CE-P5(1) instead of ECO-P3 to ECO-P5, and
- other indigenous biodiversity in the coastal environment that is not part of a significant natural area are also managed by CE-P5(2).4

^{3 00226.223} Kāi Tahu ki Otago

^{4 00226.223} Kāi Tahu ki Otago, 00230.106 Forest and Bird

Indigenous biodiversity and taoka species and ecosystems in the coastal environment are managed by CE-P5 in addition to all objectives and policies of the ECO chapter except ECO-P3, ECO-P4, ECO-P5 and ECO-P6.5

Section 32AA evaluation

The recommended amendments to ECO-P7 make clear the interpretation of the provisions and does not change the purpose of the policy; therefore, no section 32AA assessment is considered necessary.

CE-P5 and indigenous taoka species

- If the version of ECO-P7 now proposed is adopted, a consequential amendment to CE-P5 is required. I recommend amending CE-P5(1) to include a new clause for indigenous species that are taoka, so that they are managed in accordance with CE-P5(1) not CE-P5(2). Section 6(e) of the RMA states that as a matter of national importance all persons exercising functions and powers under the Act shall recognise and provide for the relationship of Māori with their taoka. Elevating coastal indigenous species and ecosystems that are taoka to CE-P5(1) is consistent with s6(e) because it provides for greater protection of the relationship of Māori with their taoka.
- 20 I recommend the following amendments:

CE-P5 – Coastal indigenous biodiversity

Protect indigenous *biodiversity* in the coastal environment by:

(1) identifying and avoiding adverse effects on the following ecosystems, vegetation types and areas:

• • •

- (g) significant natural areas identified in accordance with APP2, and
- (h) indigenous species and ecosystems identified as taoka in accordance with ECO-M3, and⁶

Section 32AA evaluation

^{5 00226.223} Kāi Tahu ki Otago

^{6 00226.223} Kāi Tahu ki Otago

I have assessed my proposed recommended amendments to CE-P5 in accordance with s32AA as follows:

	Costs	Benefits
Economic	 Restricts new uses of land within the coastal environment that contain indigenous species and ecosystems that are taoka because CE-P5(1) is more stringent than CE-P5(2). Transaction cost for obtaining resource consent due to increased stringency. 	Protects indigenous species and ecosystems that are taoka which will help support businesses that depend on indigenous biodiversity e.g., ecotourism.
Environmental	There are no further costs to the environment.	 Improves protection for indigenous species and ecosystems that are taoka. Reduces loss of indigenous species and ecosystems that are taoka.
Social	Limiting the amount of land available in the costal environment may reduce employment opportunities.	Protecting areas in the coastal environment that contain taoka may improve the amenity of recreational and amenity areas.
Cultural	There are no further cultural costs.	 Supports the relationship of mana whenua with their taoka. Protects indigenous species and ecosystems that are taoka which will help to support mahika kai in the coastal environment.

I consider my recommendation to include indigenous species and ecosystems that are taoka in CE-P5(1) is more effective and efficient at achieving CE-O4 because it strengthens Kāi Tahu's relationship with the coastal environment as it provides for improved protection of indigenous species and ecosystems that are

taoka, which is consistent with s6(e) of the RMA as a matter of national importance.

ECO-P3, ECO-P4, ECO-P5 and ECO-P6

As a consequential amendment from the new version of ECO-P7 and CE-P5, I recommend removing "outside the coastal environment)" from the chapeau of ECO-P3, ECO-P4 and ECO-P5, and removing "(...the coastal environment and...)" from the chapeau of ECO-P6. The new proposed amendments to ECO-P7 makes clear that coastal indigenous biodiversity and taoka are not managed by ECO-P3, ECO-P4, ECO-P5 and ECO-P6 and so it is not necessary to state this exclusion in these policies as well. I recommend the following amendments:

ECO-P3 - Protecting significant natural areas and taoka

Except as provided for by ECO-P4 and ECO-P5, protect *significant natural areas* (outside the coastal environment)⁷⁸ and indigenous species and ecosystems that are taoka by:

. . .

ECO-P4 - Provision for new activities

Maintain Otago's indigenous *biodiversity* by following the sequential steps in the *effects management hierarchy* (in relation to indigenous biodiversity)⁹ set out in ECO-P6 when making decisions on plans, applications for resource consent or notices of requirement for the following activities in *significant natural areas* (outside the coastal environment), ¹⁰¹¹ or where they may adversely affect indigenous species and ecosystems that are taoka:

. . .

 $^{^7}$ 00237.007 Beef & Lamb and DINZ, 00137.016 DOC, 00226.035 Kāi Tahu ki Otago, 00120.011 Yellow-eyed Penguin Trust, 00230.016 Forest and Bird

⁸ Clause 10(2)(b)(i) - Consequential amendment arising from 00226.223 Kāi Tahu ki Otago

⁹ 00016.013 Alluvium and Stoney Creek, 0017.011 Danny Walker and Others, 00321.022 Te Waihanga, 00137.009 DOC

 $^{^{10}}$ 00237.007 Beef & Lamb and DINZ, 00137.016 DOC, 00226.035 Kāi Tahu ki Otago, 00120.011 Yellow-eyed Penguin Trust, 00230.016 Forest and Bird

¹¹ Clause 10(2)(b)(i) - Consequential amendment arising from 00226.223 Kāi Tahu ki Otago

ECO-P5 - Existing activities in significant natural areas

Except as provided for by ECO-P4, pProvide¹² for existing activities that are lawfully established¹³ within significant natural areas (outside the coastal environment)¹⁴¹⁵ and that may adversely affect indigenous species and ecosystems that are taoka, if:

. . .

ECO-P6 – Maintaining indigenous biodiversity

Maintain Otago's indigenous *biodiversity* (...the coastal environment and a reas managed protected under ECO-P3) by applying the following *biodiversity* effects management hierarchy (in relation to indigenous biodiversity) in decision-making on applications for resource consent and notices of requirement:

Section 32AA evaluation

No section 32AA assessment is considered necessary because the amendments to ECO-P3, ECO-P4, ECO-P5 and ECO-P6 are consequential amendments that have arisen from ECO-P7 and CE-P5 and remove unnecessary repetition.

ECO-P9

- The notified version of ECO-P9 seeks to protect significant natural areas from wilding conifer spread caused by plantation forestry. As a consequence of a recommended amendment in the General Themes s42A chapter, ECO-P9 was amended to include permanent forests, so that the provision captured carbon forestry and not just plantation forestry.
- 26 Following the pre-hearing discussions on the ECO chapter, I have reconsidered whether ECO-P9 should be amended to include ecosystems that are taoka to protect them from the impacts of wilding conifers from forestry. Also discussed was a suggestion to include "wilding trees" to capture other wilding tree pest species.

¹² Under RMA Schedule 1, Clause 16(2) of the RMA amend the cross-referencing error

¹³ 00230.104 Forest and Bird

 $^{^{14}}$ 00237.007 Beef & Lamb and DINZ, 00137.016 DOC, 00226.035 Kāi Tahu ki Otago, 00120.011 Yellow-eyed Penguin Trust, 00230.016 Forest and Bird

¹⁵ Clause 10(2)(b)(i) - Consequential amendment arising from 00226.223 Kāi Tahu ki Otago

¹⁶ Clause 10(2)(b)(i) - Consequential amendment arising from 00226.223 Kāi Tahu ki Otago

 $^{^{17}\,00230.105}$ Forest and Bird

¹⁸ 00016.013 Alluvium and Stoney Creek, 0017.011 Danny Walker and Others, 00321.022 Te Waihanga

Since the pre-hearing discussions, I have made a number of attempts to redraft ECO-P9 to address these two matters. However, it is not possible to include ecosystems that are taoka because the provision references activities from the National Environmental Standards for Plantation Forestry (NES-PF). Meaning ECO-P9 is restricted by the NES-PF, which does not permit more stringent provisions in policy statements and plans to protect ecosystems that are taoka.

I tried to resolve this issue by removing all NES-PF Reg 5 activity terms from the provision. However, the policy still contained the term "wilding conifers" which is defined by the NES-PF and so the NES-PF still applies, meaning it is inconsistent with the NES-PF to include taoka ecosystems. I also included the term "wilding trees" to the provision and defined the phrase, but legal advice is that the definition I provided is not permitted by the NES-PF. For these reasons I recommend no changes to the s42A recommended version of ECO-P9.

ECO-P10 – Integrated management

During the pre-hearing discussions it was raised that ECO-P10 should reference the relevant IM provisions. ECO-P10 requires adopting a co-ordinated approach to the management of Otago's indigenous biodiversity that recognises the many interactions and interconnections within the environment. I appreciate how the header and chapeau of the provision could mislead readers to think the policy relates to provisions in the IM chapter. This was not the intention.

I therefore recommend amending ECO-P10 to remove any reference to "integrated management":

ECO-P10 - Integrated management Co-ordinated approach¹⁹

Implement an integrated and co-ordinated approach to managing Otago's ecosystems and indigenous biodiversity that:

. . .

Section 32AA evaluation

The recommended amendment to ECO-P10 does not change the substance and effect of ECO-P10; therefore, no section 32AA assessment is necessary.

^{19 00226.226} Kāi Tahu ki Otago

^{20 00226.226} Kāi Tahu ki Otago

Consequential amendments

32 Ms Boyd's supplementary evidence on Introduction and General Themes²¹ recommends consequential amendments to ECO-M4(1A) and ECO-M5(2) to replace "control" with "manage" for reasons set out in her evidence. The specific amendments to these provisions are set out in that statement of supplementary evidence and therefore I do not repeat them here.

Mr Adams' supplementary evidence on MW – Mana whenua²² recommends consequential amendments to ECO-P4(2) and (3) to replace "Māori land" with "Native reserves and *Māori Land*". The specific amendments to these provisions are set out in that statement of supplementary evidence and therefore I do not repeat them here.

Melanie Kate Hardiman

11 October 2022

²¹ Brief of Supplementary Evidence of Felicity Ann Boyd. Introduction and general themes. 11 October 2022.

²² Brief of Supplementary Evidence of James Henry Adams. MW – Mana whenua. 11 October 2022.

Appendix 1: Errata to Chapter 10: ECO-Ecosystems and indigenous biodiversity

Provision	Paragraph in s42A report	Error	Correction
ECO-O2	126	Section 42A report recommended an amendment but no footnote was including demonstrating the scope for the amendment.	<u>enhancement activities result in a A²³ net increase</u>
ECO-P1	280	Section 42A recommendation is not correctly shown in the analysis of the ECO s42A report	Federated Farmers seeks to delete clause 3. I agree with the submitter that ECO-P1(3) does not give access over private land. However, I do not recommend deleting clause (3) as kaitiaki need to be able to access mahika kai, which is consistent with s5, s6(e) and s7(a) of the RMA, and clause (3) supports ECO-M3, ECO-M5 and ECO-M6. Therefore, instead I recommend amending 'providing for' to 'facilitate' 'facilitating'.
ECO-P5	224	Section 42A analysis refers back to a discussion on ECO-P2. For ease of reading, I consider the refence should be removed and the discussion stated in the analysis of paragraph 224.	Federated Farmers seeks 'or indigenous species or ecosystem that are taoka' is removed. For reasons stated above in the discussion on ECO-P2, I do not recommend accepting the submission because under s6(e) of the RMA local authorities are required to recognise and provide for the relationship of Māori and their culture and traditions with taonga as a matter of national importance.
ECO-P3	168	Section 42A missing analysis on submission point.	Trojan Holdings Limited & Wayfare Group Ltd seek clause 1(a) is amended to 'any discernible reduction'. I disagree with the submitters that clause 1 does not meet the purpose of the RMA because sustainable management is about managing the use, development and protection of natural and physical resources while safeguarding the life-supporting capacity of ecosystems and avoiding, remedying or mitigating any adverse effects on the environment. Further, 'discernible' allows for some loss which is inconsistent with the protective nature of the objective and the requirements of s6(c), s30(ga) and 31(b)(iii) of the RMA. Therefore, I do not recommend accepting the submission
ECO-P4	189	Section 42A analysis recommends a change which is not intended.	Forest and Bird seeks the chapeau is amended to clearly state ECO-P4 applies to specified new developments. I do not consider it is unclear that the provision applies to all new activities as clause

²³ 00322.026 Fulton Hogan Limited

ECO-P5	237	Section 42A recommendation is missing a submission footnote in clauses (1) and (2) and is not correctly shown in report version.	 1 to 5 specify the new activities which are allowed under ECO-P4; therefore, I do not recommend accepting this submission point. However, for clarity purposes I recommend including 'despite ECO-P3' at the beginning of the chapeau of ECO-P4. I do not recommend accepting Forest and Bird's submission point to amend 'or enhancing' to 'and improving' because 'enhancing' is a well-used term in the pORSP 'or' to 'and' in clause 5 as this aligns with the language used in ECO-P8. ECO-P5 – Existing activities in significant natural areas Except as provided for by ECO-P4, pProvide²⁴ for existing activities that are lawfully established within significant natural areas (outside the coastal environment)²⁶ and that may adversely affect indigenous species and ecosystems that are taoka, if: (1) the continuation, maintenance and minor upgrades²⁷ of an existing activity that is lawfully established²⁸ will not lead to the loss (including through cumulative loss) of extent or degradation²⁹ of the ecological integrity of any significant natural area or indigenous species or ecosystems that are taoka, and (2) the adverse effects from the continuation, maintenance and minor upgrades³⁰ of an existing activity that is lawfully established³¹ are no greater in character, spatial extent, intensity or scale than they were before this RPS became operative.
ECO-P6	263	Section 42A missing analysis on submission point.	Similarly, Queenstown Airport considers ECO-P6 is inconsistent with the draft NPSIB, NPSFM and s104(1)(ab) of the RMA. The submitter also seeks amendments to provide for nationally and regionally significant infrastructure. For reasons stated above in reply to Oceana's submission, I do not consider ECO-P6 is inconsistent with the draft NPSIB, NPSFM and s104(1)(ab) of the RMA because a pathway has been provided for offsetting and compensation, an applicant may propose something else, and it will be tested against what is in the pORPS or lower order plans, and a decisionmaker may prefer what the applicant has proposed in a particular case. I consider ECO-P6

²⁴ Under RMA Schedule 1, Clause 16(2) of the RMA amend the cross-referencing error

²⁵ 00230.104 Forest and Bird

²⁶ 00237.007 Beef & Lamb and DINZ, 00137.016 DOC, 00226.035 Kāi Tahu ki Otago, 00120.011 Yellow-eyed Penguin Trust, 00230.016 Forest and Bird

²⁷ 00311.023 Trustpower Limited, 00321.024 New Zealand Infrastructure Commission

²⁸ 00230.104 Forest and Bird

²⁹ Clause 16(2), Schedule 1, RMA (remove the italics from 'degradation' as this term is not defined in the pORPS)

³⁰ 00311.023 Trustpower Limited, 00321.024 New Zealand Infrastructure Commission

³¹ 00230.104 Forest and Bird

			does provide for regionally and nationally significant infrastructure, in some instances, provided the parameters in the provision are met.
ECO-P8	328	Section 42A recommendations not correctly shown in report version of the provision.	ECO-P8 – Restoration and eEnhancement The intrinsic values, 32 extent, occupancy 33 and condition of Otago's indigenous biodiversity is increased by: (1) restoring and enhancing habitat for indigenous species, including taoka and mahika kai 34 species, (2) improving the health and resilience of indigenous biodiversity, including ecosystems, species, important 35 ecosystem function, and intrinsic values, 36 and (3) buffering or linking ecosystems, habitats and ecological corridors, ki uta ki tai. 37
ECO-M2	403	S42A recommendation has the phrase "that requirement" in clause (4). This was not recommended to be included in the provision and it was not contained in the notified version of ECO-M2(4).	ECO-M2 – Identification of significant natural areas Local authorities must: (1) in accordance with the statement of responsibilities in ECO-M1, identify the areas and indigenous biodiversity ³⁸ values of significant natural areas as required by ECO-P2, and (2) map and verify ³⁹ the areas and include the indigenous biodiversity ⁴⁰ values identified under (1) in the relevant regional plans ⁴¹ and district plans ₇ no later than 31 December 2030, ⁴² (3) recognise that indigenous biodiversity spans jurisdictional boundaries by:

³² 00138.037 Queenstown Lakes District Council

³³ 00223.099 Ngãi Tahu ki Murihiku, 00226.215 Kãi Tahu ki Otago

³⁴ 00226.0038 Kāi Tahu ki Otago

³⁵ 00137.091 DOC

³⁶ 00138.037 Queenstown Lakes District Council

³⁷ 00138.037 QLDC

³⁸ 00226.228 Kāi Tahu ki Otago

³⁹ 00020.018 Rayonier Matariki

⁴⁰ 00226.228 Kāi Tahu ki Otago

⁴¹ Clause 16(2), Schedule 1, RMA

⁴² 00139.036 DCC

			 (a) working collaboratively to ensure the areas identified by different <i>local authorities</i> are not artificially fragmented when identifying <i>significant natural areas</i> that span jurisdictional boundaries, and (b) ensuring that indigenous <i>biodiversity</i> is managed in accordance with this RPS, (4) until <i>significant natural areas</i> are identified and mapped in accordance with (1) and (2), 43 require ecological assessments to be provided with applications for resource consent and notices of requirement that requirement that identify whether affected areas are <i>significant natural areas</i> in accordance with APP2, and 44 (5) in the following areas, prioritise identification under (1) no later than 31 December 2025: (a) intermontane basins that contain indigenous vegetation and habitats,
			(b) areas of dryland shrubs, (c) braided <i>rivers</i> , including the Makarora, Mātukituki and Lower Waitaki Rivers, (d) areas of montane tall tussock grasslands, and(e) limestone habitats.
Highly valued species and vegetation types	599	Section 42A recommendation (contained in the analysis of the ECO s42A) not correctly shown in report version of the definition.	include: (a) any agricultural, pastoral, horticultural, or plantation forestry activities; (b) includes, as an ancillary activity, the initial processing of commodities that result from the activities listed in (a); and (c) includes any land and buildings used for (a) and (b); but (d) excludes further processing of those commodities into a different product. include: (a) naturally uncommon ecosystems (b) wetlands and indigenous sand dune vegetation (c) important indigenous fauna habitats (d) species classified as Threatened or At Risk-Declining
			(e) species with important ecosystem functions, for example pollination, seed dispersal and provision of fauna habitat.

⁴³ 00311.014 Queenstown Airport

⁴⁴ Clause 16(2), Schedule 1, RMA