

**BEFORE THE HEARINGS PANEL
FOR THE GORE DISTRICT COUNCIL PROPOSED DISTRICT PLAN**

IN THE MATTER of the Resource Management Act 1991
(**RMA** or **the Act**)

AND

IN THE MATTER Hearing Stream 9 – Natural Features and
Landscape, Sites and Areas Significance
to Maori

**SUPPLEMENTARY EVIDENCE OF GLENN ALISTER DAVIS
ON BEHALF OF STONEY CREEK STATION
ECOLOGIST
20 FEBRUARY 2024**

1 INTRODUCTION

- 1.1 I am a Director and Principal Environmental Scientist of e3Scientific Limited. I have been in this position since 2007. I have over 25 years' postgraduate work experience in environmental management and hold a BSc in Ecology and MSc in Geography.
- 1.2 I provided a statement of evidence dated 7th of February 2025 that set out the ecological values of Stoney Creek Station and my opinion on the effects of the provisions set out in R(2) of the proposed district plan.
- 1.3 I again confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023 and agree to comply with it while giving oral evidence before the Hearings Panel.

2 SUPPLEMENTARY EVIDENCE

- 2.1 I have prepared this supplementary statement of evidence in response to the following submissions from the Department of Conservation:
 - Evidence of Juzah Zammit-Ross for the Department of Conservation; and
 - Legal Submissions for the Director-General of Conservation
- 2.2 The submissions are of the view that there was insufficient ecological information to support the analysis by the working group. I disagree with this characterisation of my evidence and provide further supplementary evidence to support this opinion.
- 2.3 In paragraphs 20 – 22 Miss Zammit-Ross highlights botanical values associated with a 127 ha block of land on the eastern boundary of Stoney Creek Station that has been surveyed by the Department of Conservation. The survey recorded c.140 indigenous species in this block including 2 nationally threatened and 6 'at risk- declining' plant species. This block is the subject of an Agreement for the Management of Land between Stoney Creek Station and the Department of Conservation (under s29 of the Conservation Act) that prohibits Stoney Creek from grazing the land or undertaking any activities that could disturb the ecological values of the area. This area is therefore not subject to the proposed vegetation clearance provisions in Rule ECO-R2 1 j. or k. and the high

values recorded by the DOC are not at risk of disturbance. Recognition of this agreement should have been set out in my EIC but also the evidence from the DOC as it is a critical matter of concern raised in DOC submissions, especially with respect to protection of nationally endangered species.

2.4 Contrary to paragraph 19 of Miss Zammit-Ross's evidence, an ecological assessment of the remainder of Stoney Creek was undertaken to support the working groups consideration of planning provisions for the Hokonui Hills precinct. This work included the following ecological work:

- Desktop assessment including a review of the existing ecological information for the property and undertaking preliminary mapping of the vegetation communities.
- Fieldwork that involved traversing the Station to assist with mapping the vegetation communities and recording floristic composition. Bird and lizard observations were also recorded during the fieldwork. A total of two days fieldwork was completed across the property which enabled two ecologists to gain vantage points to view the extent of the vegetation communities and also collect floristics information from 25 locations. This survey work significantly advanced the understanding of the ecological values of the property that had not already been surveyed by the Department of Conservation in the 127 ha area subject to the landowner agreement.
- Targeted lizard survey was completed by an experienced herpetologist to assess the lizard values of improved pasture that contained tall tussock cover. This was undertaken to determine if this area was suitable to be incorporated into the maintenance of improved pasture provision ECO R2 1. a.

2.5 I consider the level of ecological assessment was sufficient to support the working groups deliberations on the Hokonui Hills precinct. This information is set out in section 5 of my EIC and the attached tables that provide information on birds and lizards that have been observed and/or may be present on the property. I do not consider further detailed ecological assessment was required in order to inform the working groups analysis.

2.6 Additional ecological information not provided in my EIC is provided below.

- 2.7 I provide as Attachment 1 a species list of the plants recorded during the vegetation survey. As stated in my EIC a total of 89 indigenous plant species were recorded across the range of communities. The collection of this floristic data confirms that detailed ecological assessment of the indigenous communities present across the property has been completed.
- 2.8 The survey did not record any further presence of the nationally endangered species *Olearia hectorii* or *Carex strictissima* on Stoney Creek Station. The *Olearia hectorii* population is confined to the 127 ha area of land subject to the landowner agreement and it is likely that *Carex strictissima* is in very low numbers if present at all on the wider area of Stoney Creek. I note that *Carex strictissima* is a facultative wetland species found in lowland scrub, forests and wetlands and is unlikely to be present in the higher country where most of the remaining indigenous cover is on Stoney Creek.
- 2.9 Five at risk-declining species were recorded during the survey including *Olearia lineata*, *Olearia odorata*, *Olearia fragrantissima*, *Carmichaelia australis* and *Coprosma rubra*. The three *Olearia* species were recorded in low abundance in the wharariki/inaka/olearia shrubland while *Carmichaelia australis* was also recorded in low abundance in the wharariki/inaka/olearia shrubland. *Coprosma rubra* was prevalent in the dry shrubland on the rocky ridges. I note three of these species *Olearia odorata*, *Carmichaelia australis* and *Coprosma rubra* were not referred to in paragraph 5.10 of my EIC as the threat status of these species has been elevated recently and were not listed at the time of completing the ecological survey of Stoney Creek. I also note that manuka is now listed as not threatened and not 'at risk – declining' as set out in my EIC.
- 2.10 Based on the ecological survey the nationally threatened plants recorded in the 127 ha area subject to the landowner agreement are most likely only found in this area of the property and will therefore not be affected by the permitted vegetation clearance regime in ECO-R2 1 j. or k.
- 2.11 It is possible that very small numbers of 'at risk-declining' *Olearia* species and *Carmichaelia australis* species may be disturbed under the proposed ECO-R2 1. j. However, these species are in low abundance and therefore unlikely to be disturbed by the installation of a new fence or track that is enabled under the proposed provisions. Further there is approximately 104 ha of this habitat within Stoney Creek Station. The provisions allow for

the clearance of a relatively small 3750 square metres over a 5 year period equating to less than 0.5% of the total area mapped. Anything beyond that would require detailed ecological assessment. Given the scale of the area that will remain, I am of the opinion that the effects on the *Olearia* and *Carmichaelia* populations on Stoney Creek would be minimal.

- 2.12 With respect to *Coprosma rubra*, this species was recorded within the dry rocky ridges which are not a productive part of the farm. The rocky nature provides refuge for a diverse vegetation community and provides excellent lizard habitat. One lizard was seen during the vegetation survey in this area but the species was not identified. This area is therefore highly unlikely to be affected by the farming operation. I also note the rocky ridges are located on ridgelines and the landscape provisions also afford these areas protection from earthworks associated with farm tracks, walking and cycling tracks within 30 metres of a ridgeline.
- 2.13 The DOC submissions consider further lizard surveys should have been undertaken to support the working groups analysis. In my opinion, further lizard survey above that undertaken by Mr Carey Knox is not required. The desktop analysis set out in my EIC lists the lizard species that have been recorded on the property and species that may be present. This information was considered through the working groups process. Importantly, based on the information provided in the 127 ha landholder owner agreement with DOC, the nationally 'threatened-nationally critical' green skink was recorded in this area. The population within this area of Stoney Creek (should it still be present) is not subject to the proposed vegetation clearance provisions.
- 2.14 Within the wider area of Stoney Creek Station the highest value habitat for a range of lizard species is in the indigenous communities that also contain rocky habitat. This point was made in paragraph 26 of Miss Zammitt-Ross's evidence. On Stoney Ridge, these areas are typically on the steep rocky ridges that will be avoided under the management of Stoney Creek Station. It is my view that providing the high quality habitat is avoided and the lizard habitat is protected, the lizard populations should be maintained. This is not to say that there may be some accidental loss of lizard individuals through vegetation clearance permitted by ECO R2 1. j. and k. but that the provisions do provide protection for almost all of the habitat.

- 2.15 The DOC submission is critical of the lack of significance assessment provided in my EIC (see paragraph 15 of the legal DOC legal submission) and that more comprehensive information should be supplied to support the development of bespoke rules.
- 2.16 To assist the panel, I can confirm that I have undertaken an analysis of the significance of the vegetation communities on Stoney Creek. In summary I can confirm that the areas mapped as A and C in Appendix 7 are consistent with at least some of the significance assessment criteria set out in both the NPS-IB and SRPS. The broadleaf forest, manuka shrubland, wharariki/inaka/olearia shrubland, coprosma/corokia scrub and closed canopy tall tussock grassland all meet the representativeness criteria as they all have ecological integrity and are typical of the character of the ecological district. Some of the communities also meet the rarity and distinctiveness criterion as they contain 'at risk-declining' species and provide habitat for threatened and 'at risk-declining' fauna.
- 2.17 Notwithstanding the above, it was not the intention of the working group to consider the ecological significance of the communities on Stoney Creek, rather, it was to use ecological information to develop a suite of rules that would be cognisant of the biodiversity of the Stoney Creek Station while providing some scope to allow the installation of some new fences and tracks and carry out other activity essential for existing farming operations.
- 2.18 As set out in section 6 of my EIC and my supplementary evidence, I consider the Hokonui Hills precinct provisions ensure suitable protections are in place that will maintain the biodiversity of Stoney Creek Station and therefore achieve the objectives set out in section 1.7 of the NPS-IB:

1.7 Maintaining indigenous biodiversity

(1) Maintaining indigenous biodiversity requires:

(a) the maintenance and at least no overall reduction of all the following:

(i) the size of populations of indigenous species: indigenous species occupancy across their natural range:

(ii) the properties and function of ecosystems and habitats used or occupied by indigenous biodiversity:

(iii) the full range and extent of ecosystems and habitats used or occupied by indigenous biodiversity:

(iv) connectivity between, and buffering around, ecosystems used or occupied by indigenous biodiversity:

*(v) the resilience and adaptability of ecosystems;
and*

(b) where necessary, the restoration and enhancement of ecosystems and habitats

2.19 Furthermore, it is my view that the provisions provide the space on Stoney Creek Station to ensure the ecosystems present on Stoney Creek Station will continue to enhance.

2.20 This view is reinforced through a comparison of historical vegetation cover in the middle of last century with the present day. In Attachment 2 I provide a series of comparative aerial photographs across Stoney Creek between 1949 and imagery captured in May 2024. These images show shrubland communities have expanded across the station since the middle of last century. This expansion has significantly improved the biodiversity of Stoney Creek. It is my opinion that Hokonui Hills Precinct provisions will support the successional processes within the seral communities such that biodiversity will continue to enhance over time.

2.21 In summary, it is my opinion that there are protections in place through the landholder agreement with DOC, Hokonui Hills Precinct provisions and the physical and biological characteristics that will ensure the biodiversity of Stoney Creek will be not only maintained but enhanced over time.

Glenn Davis

20 February 2025

Attachments

Attachment 1: Plant species recorded in the Stoney Creek Station ecological assessment.

Attachment 2: Comparison of vegetation between 1949 and the present day.

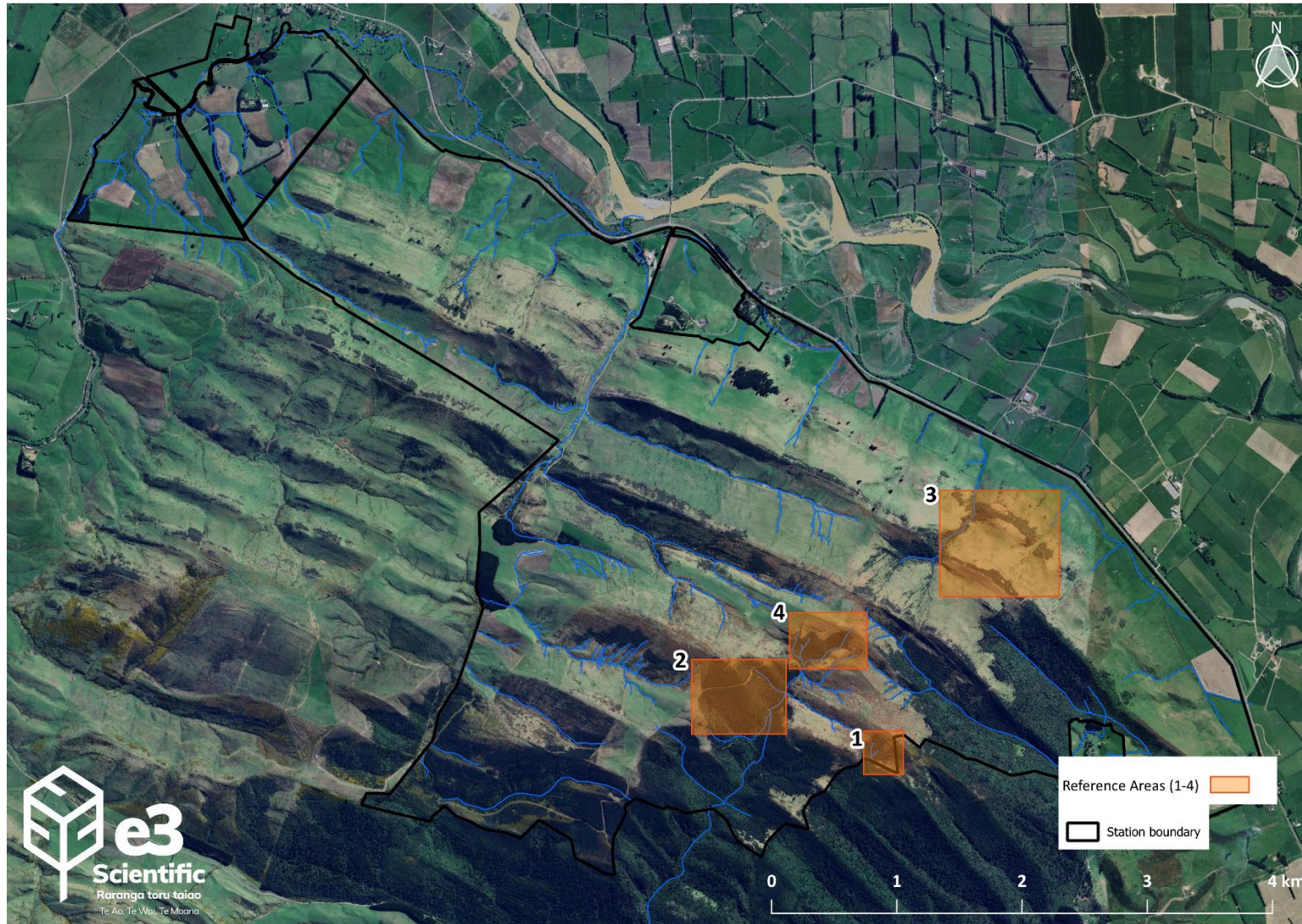
Attachment 1: Plant species recorded in the Stoney Creek Station ecological assessment

Vegetation community	Species present
Broadleaf forest	Overstory vegetation: kōwhai (<i>Sophora microphylla</i>), broadleaf/kāpuka (<i>Griselinia littoralis</i>), mountain horopito (<i>Pseudowintera colorata</i>), horoeka/lancewood (<i>Pseudopanax crassifolius</i>), kōtukutuku, tree fuchsia (<i>Fuchsia excorticata</i>)*, kōhūhū/black matipo (<i>Pittosporum tenuifolium</i>), tarata, lemonwood (<i>Pittosporum eugenioides</i>), and mānuka (<i>Leptospermum scoparium</i> var. <i>scoparium</i>) *. Understory vegetation and lower strata: punui/prickly shield fern (<i>Polystichum vestitum</i>), mingimingi (<i>Coprosma propinqua</i>), <i>Coprosma rotundifolia</i>, makomako/wineberry (<i>Aristotelia serrata</i>), mountain wineberry (<i>Aristotelia fruticosa</i>), marbleleaf/putaputawētā (<i>Carpodetus serratus</i>), kiwikiwi/creek fern (<i>Cranfillia fluviatilis</i>), tātarāmoa/bush lawyer (<i>Rubus cissoides</i>), New Zealand jasmine (<i>Parsonsia heterophylla</i>), korokio/wire-netting bush (<i>Corokia cotoneaster</i>), necklace fern (<i>Asplenium flabellifolium</i>), koromiko (<i>Veronica salicifolia</i>), porcupine shrub (<i>Melicytus alpinus</i>)*, hound's tongue/kōwaowao (<i>Zealandia pustulata</i> subsp. <i>pustulata</i>), supplejack/kareao (<i>Ripogonum scandens</i>), weeping māpou (<i>Myrsine divaricata</i>), hook sedge (<i>Carex penalpina</i>), <i>Coprosma rhamnoides</i>, mikimiki/yellow wood (<i>Coprosma linariifolia</i>)*, kātote/Smith's tree fern (<i>Alsophila smithii</i>), alpine hard fern (<i>Austroblechnum penna marina</i> subsp. <i>alpina</i>), and forest violet (<i>Viola filicaulis</i>).
Mānuka shrubland	Overstory vegetation: <i>Leptospermum scoparium</i> var. <i>scoparium</i> Understory vegetation and lower strata: <i>Pseudowintera colorata</i>, <i>Myrsine divaricata</i>, <i>Rubus cissoides</i>, <i>Coprosma rotundifolia</i>, <i>Pseudopanax crassifolius</i>, <i>Coprosma rhamnoides</i>, <i>Coprosma propinqua</i>, <i>Coprosma crassifolia</i>, <i>Griselinia littoralis</i>, mountain tauhinu (<i>Ozothamnus vauvilliersii</i>)*, <i>Aristotelia serrata</i>, <i>Aristotelia fruticosa</i>, <i>Fuchsia excorticata</i>*, <i>Pittosporum tenuifolium</i>, fireweed (<i>Senecio minimus</i>), <i>Alsophila smithii</i>, <i>Carex penalpina</i>, mountain flax/wharariki (<i>Phormium cookianum</i> subsp. <i>cookianum</i>)*, crown fern/petipeti (<i>Lomaria discolor</i>), <i>Carpodetus serratus</i>, <i>Polystichum vestitum</i>, <i>Austroblechnum penna marina</i> subsp. <i>alpina</i>, water fern/mātātā (<i>Histiopteris incisa</i>), <i>Zealandia pustulata</i> subsp. <i>pustulata</i>, <i>Cranfillia fluviatilis</i>, <i>Viola filicaulis</i>, <i>Brachyglottis southlandica</i>, hairy pennywort (<i>Hydrocotyle moschata</i> var. <i>moschata</i>), waxweed pennywort (<i>Hydrocotyle heteromeria</i>), and parani (<i>Lagenophora strangulata</i>).
Wharariki/Dracophyllum/Olearia Shrubland	Overstory vegetation: inaka (<i>Dracophyllum longifolium</i>), <i>Phormium cookianum</i> subsp. <i>cookianum</i>, <i>Ozothamnus vauvilliersii</i>, <i>Veronica salicifolia</i>, <i>Leptospermum scoparium</i> var. <i>scoparium</i>, <i>Olearia lineata</i>*, fragrant tree daisy (<i>Olearia fragrantissima</i>), scented tree daisy (<i>Olearia odorata</i>)*, <i>Senecio minimus</i>, <i>Hydrocotyle heteromeria</i>, mountain holly (<i>Olearia ilicifolia</i>), <i>Olearia bullata</i>, <i>Pittosporum eugenioides</i>, <i>Pittosporum tenuifolium</i>, <i>Coprosma propinqua</i>, <i>Myrsine divaricata</i>, and three finger (<i>Pseudopanax colensoi</i>).

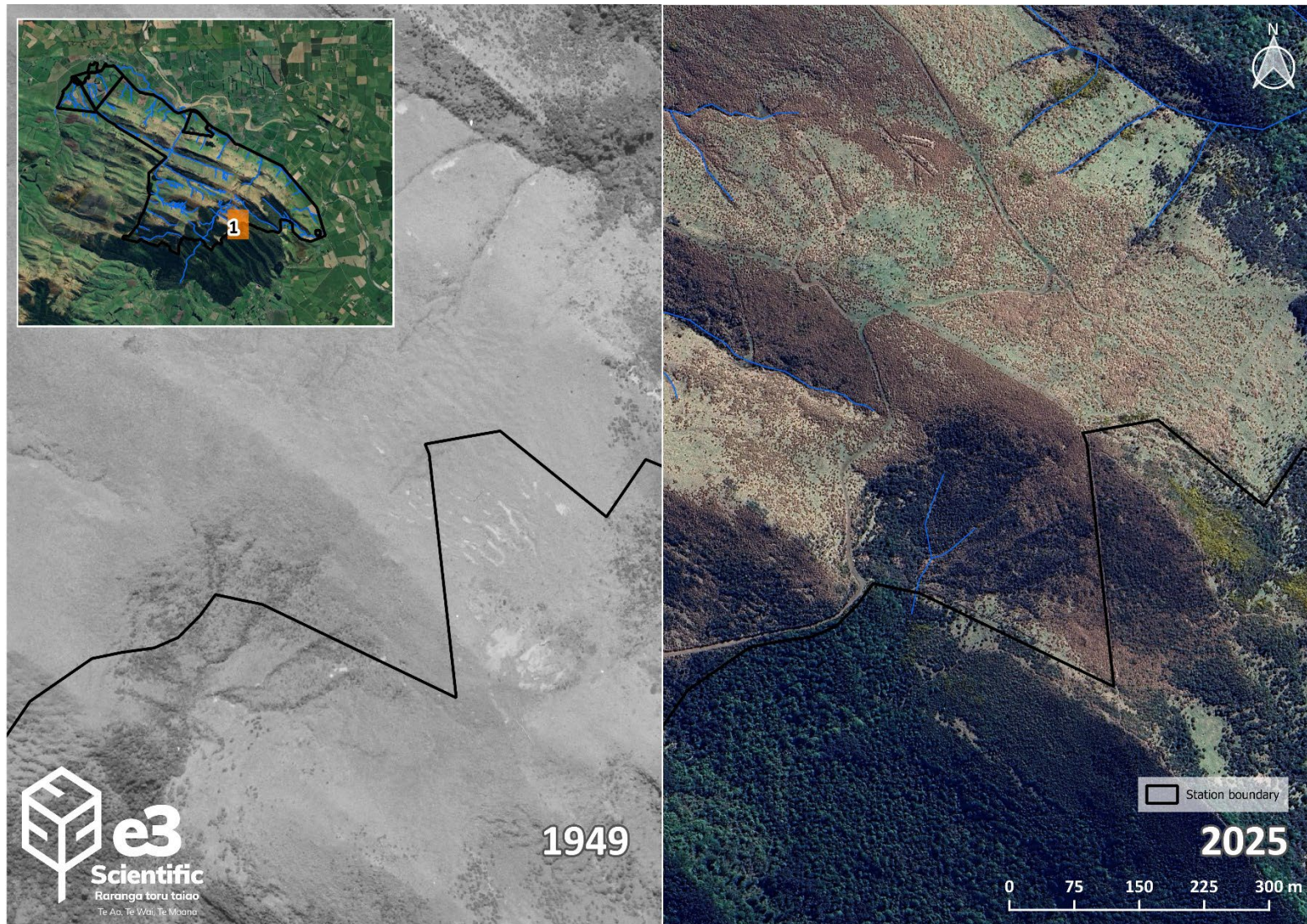
	Understory vegetation and lower strata: <i>Polystichum vestitum</i>, small kiokio (<i>Blechnum procerum</i>), and pātōtara/dwarf mingimingi (<i>Styphelia nesophila</i>). Rocky ridges within community's distribution: matagouri (<i>Discaria toumatou</i>), hanging clubmoss (<i>Phlegmariurus billardierei</i>), <i>Coprosma rubra</i>, hanging spleenwort (<i>Asplenium flaccidum</i>), <i>Rubus cissoides</i>, <i>Zealandia pustulata</i> subsp. <i>pustulata</i>, pōhuehue/large-leaved muehlenbeckia (<i>Muehlenbeckia australis</i>), hard tussock (<i>Festuca novae-zelandiae</i>), narrow-leaved snow tussock (<i>Chionochloa rigida</i> subsp. <i>rigida</i>), rarauhe/bracken fern (<i>Pteridium esculentum</i>), <i>Aristotelia fruticosa</i>, mākaka/common native broom (<i>Carmichaelia australis</i>)*, porcupine shrub (<i>Melicytus alpinus</i>), blue tussock (<i>Poa colensoi</i>), red bidibid (<i>Acaena novae-zelandiae</i>), glaucous bidibid/piripiri (<i>Acaena caesiiglauca</i>), and prostrate snowberry (<i>Gaultheria macrostigma</i>).
Small-leaved Coprosma/Corokia Scrub	Overstory vegetation: <i>Corokia cotoneaster</i>, <i>Coprosma propinqua</i>, <i>Coprosma rubra</i>, <i>Coprosma dumosa</i>, <i>Coprosma crassifolius</i>, <i>Myrsine divaricata</i>, <i>Discaria toumatou</i>, <i>Carmichaelia australis</i>*, ongaonga/tree nettle (<i>Urtica ferox</i>)*, <i>Sophora microphylla</i>*, <i>Griselinia littoralis</i>*, <i>Pittosporum tenuifolium</i>*, and <i>Coprosma linariifolia</i>.* Understory vegetation and lower strata: <i>Festuca novae-zelandiae</i>, silver tussock (<i>Poa cita</i>), <i>Poa colensoi</i>, <i>Muehlenbeckia australis</i>, and <i>Rubus cissoides</i>.
Tussock Grassland and Grey Shrubland	Overstory vegetation: <i>Chionochloa rigida</i> subsp. <i>rigida</i> snow tussock hybrids (<i>Chionochloa rigida</i> x <i>Chionochloa rubra</i> subsp. <i>cuprea</i>), <i>Festuca novae-zelandiae</i>, copper tussock (<i>Chionochloa rubra</i> subsp. <i>cuprea</i>)*, <i>Coprosma propinqua</i>, <i>Coprosma rubra</i>, <i>Coprosma dumosa</i>, <i>Coprosma rugosa</i>, <i>Melicytus alpinus</i>, <i>Myrsine divaricata</i>, and <i>Leptospermum scoparium</i> var. <i>scoparium</i>, gorse (<i>Ulex europaeus</i>)*^E. Understorey vegetation and lower strata: <i>Poa colensoi</i>, <i>Poa cita</i>, creeping pōhuehue (<i>Muehlenbeckia axillaris</i>), <i>Muehlenbeckia australis</i>, <i>Argyrotegium mackayi</i>, creeping everlasting daisy (<i>Helichrysum filicaule</i>), <i>Polystichum vestitum</i>, taramea/golden speargrass (<i>Aciphylla aurea</i>), <i>Aciphylla glaucescens</i>, <i>Austroblechnum penna marina</i> subsp. <i>alpina</i>, <i>Acaena novae-zelandiae</i>, <i>Acaena caesiiglauca</i>, <i>Discaria toumatou</i>, <i>Geranium brevicaulis</i>, <i>Styphelia nesophila</i>, red woodrush (<i>Luzula rufa</i> var. <i>rufa</i>), <i>Rubus cissoides</i>, <i>Gaultheria macrostigma</i>, New Zealand harebell (<i>Wahlenbergia albomarginata</i>), browntop (<i>Agrostis capillaris</i>)^E, cocksfoot (<i>Dactylis glomerata</i>)^E, sweet vernal (<i>Anthoxanthum odoratum</i>)^E, crested dog's tail (<i>Cynosurus cristatus</i>)^E, scotch thistle (<i>Onopordum acanthium</i>)^E, chickweed (<i>Stellaria media</i>)^E, and white clover (<i>Trifolium repens</i>)^E.
Scattered Tussock Grassland/ Grey Shrubland	

	Areas of increased water accumulation: fruiting duckweed (<i>Nertera depressa</i>), pratia (<i>Lobelia angulate</i>), <i>Gunnera monoica</i> , edgar's rush/wiwi (<i>Juncus edgarie</i>), rautahi (<i>Carex Coriacea</i>), pukio (<i>Carex secta</i>), red bastard grass (<i>Carex punicea</i>), and <i>Olearia bullata</i> .
Exotic Vegetation	<i>Agrostis capillaris</i> ^E , <i>Dactylis glomerata</i> ^E , <i>Anthoxanthum odoratum</i> ^E , <i>Cynosurus cristatus</i> ^E , <i>Onopordum acanthium</i> ^E , <i>Stellaria media</i> ^E , <i>Trifolium repens</i> ^E , <i>Ulex europaeus</i> ^E , hawthorn (<i>Crataegus monogyna</i>) ^E , radiata pine/Monterey pine (<i>Pinus radiata</i>) ^E , willow (<i>Salix</i> sp(p.) ^E , Cypress (<i>Cupressus</i> sp.) ^E and black poplar (<i>Populus nigra</i>) ^E .

Attachment 2: Comparison of vegetation between 1949 and the present day.



Reference plan showing the location of vegetation comparison figures 1 – 4.



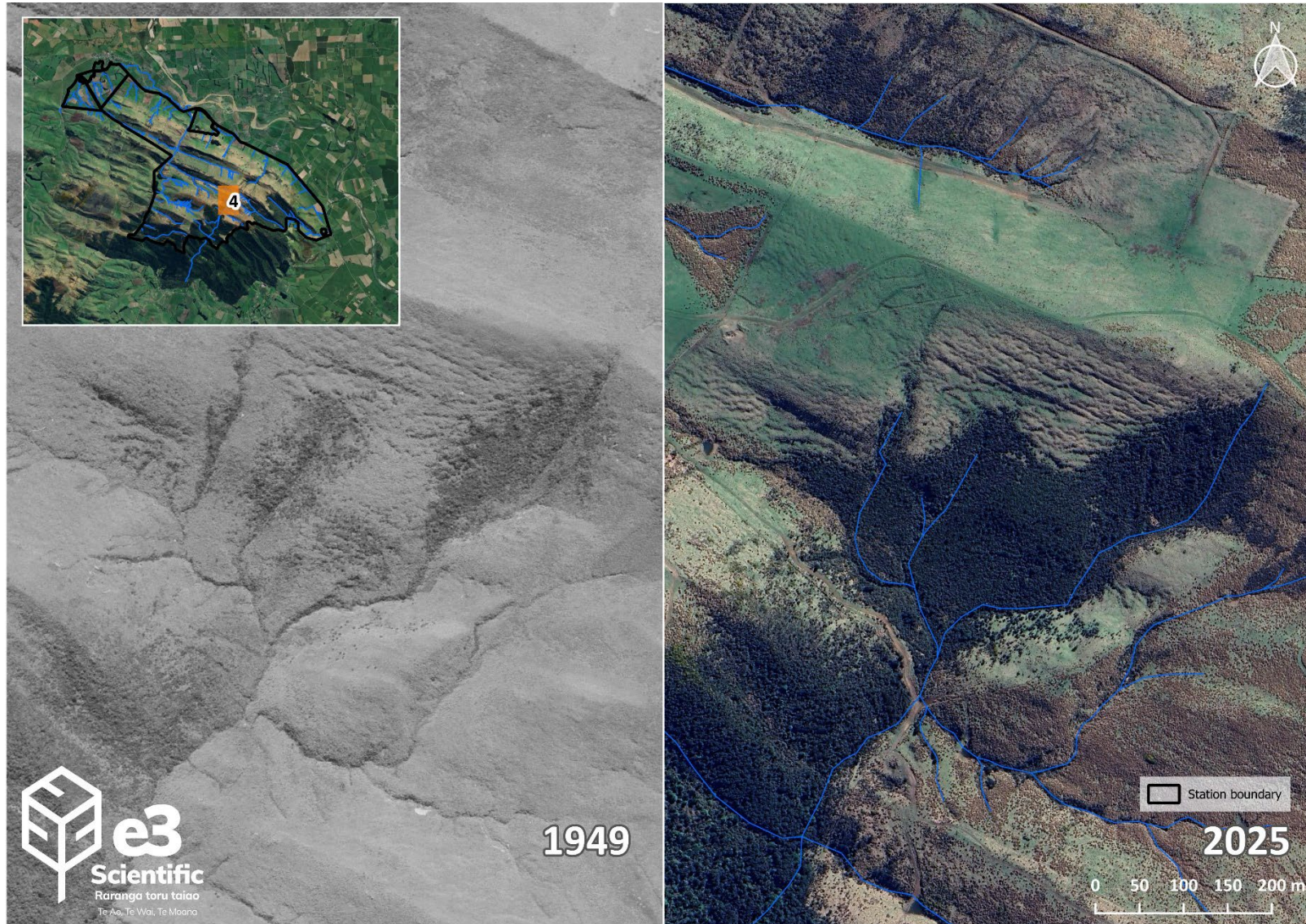
Comparison Image 1.



Comparison Image 2.



Comparison Image 3.



Comparison Image 4.