

# ASSESSMENT OF SIGNIFICANT NATURAL AREAS AT 331 SOUTHERNTHREAD ROAD, BROOKLYN

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## **Contract Report No. 3942k.01**

June 2023

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## 1. PROPERTY DETAILS

<b>Site Name:</b>	331 Southernthread Road, Brooklyn
<b>Landowners:</b>	Matt Rutledge
<b>Ecological District(s):</b>	Cook Strait and Wellington Ecological Districts
<b>Ecodomain(s):</b>	Western Hills; Western Hills Cloud Zone (>400m)
<b>Significant Natural Areas(s):</b>	WC142 – Hawkins Hill coastal māhoe scrub and shrubland WC143 – Te Kopahau, Waipapa Stream coastal scrub and shrubland
<b>Coordinates:</b>	Lat: -41.330665, Long: 174.713863
<b>Property Address:</b>	331 Southernthread Road, Brooklyn
<b>Property Identifier:</b>	Lot 14 DP 462620
<b>Altitudinal Range:</b>	220-500m asl
<b>Property Area:</b>	35.44 hectares
<b>Date of Visit:</b>	8 June 2023

## 2. BACKGROUND

In preparation for upcoming proposed District Plan hearings, Wellington City Council (WCC) has engaged Wildland Consultants Ltd to undertake site visits on private land, at the landowner's request, to assess boundaries and characteristics of Significant Natural Areas (SNAs) and to ground truth the SNA designation on the property.

This report is based on an assessment of on areas of SNA within then property at 331 Southernthread Road, Brooklyn (portions of the SNAs 'WC142' and 'WC143').

## 3. ASSESSMENT OF SIGNIFICANCE

### 3.1 Planning obligations

The obligations of the WCC to identify indigenous ecosystems and habitats are set out in Policy 23 of the Regional Policy Statement for the Wellington region (GWRC 2013). Ecosystems and habitats will be considered significant if they meet one or more of the criteria outlined below.

#### **Policy 23: Identifying indigenous ecosystems and habitats with significant indigenous biodiversity values – district and regional plans**

District and regional plans shall identify and evaluate indigenous ecosystems and habitats with significant indigenous biodiversity values; these ecosystems and habitats will be considered significant if they meet one or more of the following criteria:

- (a) Representativeness: the ecosystems or habitats that are typical and characteristic examples of the full range of the original or current natural diversity of ecosystem and habitat types in a district or in the region, and:
  - (i) are no longer commonplace (less than about 30% remaining); or

- (ii) are poorly represented in existing protected areas (less than about 20% legally protected).
- (b) **Rarity:** the ecosystem or habitat has biological or physical features that are scarce or threatened in a local, regional, or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.
- (c) **Diversity:** the ecosystem or habitat has a natural diversity of ecological units, ecosystems, species, and physical features within an area.
- (d) **Ecological context of an area:** the ecosystem or habitat:
  - (i) enhances connectivity or otherwise buffers representative, rare, or diverse indigenous ecosystems and habitats; or
  - (ii) provides seasonal or core habitat for protected or threatened indigenous species.
- (e) **Tangata whenua values:** the ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tangata whenua, identified in accordance with tikanga Māori.

### 3.2 Methods used to determine significance for WCC Significant Natural Areas

Wildland Consultants and Kessels Ecology (Wildlands and Kessels 2015) sets out the agreed methodology to assess ecological significance and the location of the boundaries of a Significant Natural Area, including the following:

- The ecologists agreed that a site either is, or isn't, significant for a particular aspect or criteria.
- To be significant a site needs to meet one or more of the criteria in RPS Policy 23. Thus even meeting one of the criteria would make a site significant.
- Two vegetation classification systems should be used to assess the representativeness of vegetation and habitats at national, regional, district and Ecological District scales (Singers and Rogers 2014, and Leathwick *et al.* 2012).
- Vegetation and habitat types are considered significant if they are representative and either less than 30% of the postulated original extent remains or less than 20% of the current extent is legally protected (i.e. public land managed by the Department of Conservation, Queen Elizabeth II Trust covenants, Nga Whenua Rahui covenants, private covenants under the Conservation Act).
- Rarity of features should be assessed using the following:
  - The Department of Conservation's national threat classification lists should be used to assess the rarity of fauna and flora.
  - Williams *et al.* (2007), Holdaway *et al.* (2012), and Wiser *et al.* (2013) should be used to assess the status of naturally rare ecosystems.
  - The Threatened Environment Classification (Cieraad *et al.* 2015) should be used to assess whether the site occurs in a threatened land environment.

- Rare geo-physical features are listed in Kenny and Hayward (1996).
- The amount of diversity, and whether this is considered to be significant, is based on professional judgement and is evaluated relative to the particular ecosystem or habitat type, the pre-human base-line condition, and the other remaining similar ecosystems and habitats.
- A site needs to play an important role or function to qualify for the connectivity and buffering criterion, it is not appropriate to identify a site as significant solely on its role as a buffer or corridor.
- Assessment of tangata whenua values is generally outside the expertise of ecological specialists and should be evaluated by a specialist in that field, but information can be noted if known.

#### 4. DESCRIPTIONS OF SNA AT THE SITE

The current summary information for the Significant Natural Areas within the 331 Southernthread Road property as included in the WCC Operative District Plan (2022), and the proposed District Plan (pDP, 2023), is provided in Appendix 1.

#### 5. LANDOWNER CONCERNS

The summary below of the landowner's concerns is based on direct communication of the WCC representatives with the landowner.

##### 5.1 Summary of ecological concerns raised by landowner

- Concerned that approximately half of their rural land has been notified as SNA without any in-field inspection to ground truth that designation.
- A council desktop assessment marked the area as SNA even though it is already designated as the Hilltops and Ridgelines area.
- The submitter has a resource consent to clear the property and return it to pasture over the next five years (obtained prior to June 2022).
- Prepared to work with the council to protect any areas of our property that are of genuine ecological value.

##### 5.2 Issues discussed during site visit

- The landowner considers that they are currently act as reliable caretakers of the place, by undertaking goat, possum, and pig control. They are interested in protecting areas of higher indigenous value, but also intend to make a living off the land, including planting exotic forestry for timber and firewood production.
- Pine trees have already been planted within WC143 (along the southeastern corner of the property).

- Some indigenous trees have also been planted within WC143 including mānuka (*Leptospermum scoparium*) and tī kōuka (*Cordyline australis*).

## 6. SITE VISIT

A site visit to both SNAs on the property was undertaken on 8 June 2023 by Senior Ecologist Nyree Fea. This section briefly describes the ecological values of the sites.

### 6.1 Vegetation and habitats within the SNAs on the property

The vegetation and habitat types for each Significant Natural Area are described below. Plant species identified are listed in Appendix 2. A total of six *Aciphylla squarrosa* plants (At Risk – Declining) were seen during the site visit. Mānuka is also present at the site, and although it is classified as (At Risk - Declining), it is however abundant in the region and seemingly unaffected by myrtle rust (*Austropuccinia psidii*).

### 6.2 Fauna observed at the site

Five indigenous and five exotic bird species were observed during the site visit (Table 1). Numerous sign of introduced mammals was also encountered during the site visit (Table 2).

Table 1: Bird species observed at 331 Southernthread Road during the site visit (8 June 2023).

Common Name	Scientific Name	Endemicity	Threat Status <sup>3</sup>
Pīhoihoi (pipit)	<i>Anthus novaeseelandiae</i>	Endemic	At Risk - Declining
Riroriro (grey warbler)	<i>Gerygone igata</i>	Endemic	Not Threatened
Silvereye	<i>Zosterops lateralis</i>	Native	Not Threatened
Swamp harrier	<i>Circus approximans</i>	Native	Not threatened
Tūl	<i>Prothemadera novaeseelandiae</i>	Endemic	Not Threatened
Common redpoll	<i>Acanthis flammea</i>	Introduced	na
Common starling	<i>Sturnus vulgaris</i>	Introduced	na
Dunnock	<i>Prunella modularis</i>	Introduced	na
Eurasian Blackbird	<i>Turdus merula</i>	Introduced	na
Song thrush	<i>Turdus philomelos</i>	Introduced	na

Table 2: Signs of introduced mammals observed at 331 Southernthread Road during the site visit (8 June 2023).

WCC SNA ID	Common Name	Scientific Name
WC142	Rabbit	<i>Oryctolagus cuniculus</i>
WC142	Possum	<i>Trichosurus vulpecula</i>
WC142	Domestic sheep	<i>Ovis aries</i>
WC142 / WC143	Goat	<i>Capra hircus</i>
WC142 / WC143	Pig	<i>Sus scrofa</i>



## 7. FLORA AND FAUNA KNOWN NEARBY

### 7.1 Overview

A desktop analysis of fauna recently observed within two kilometres of the site was undertaken to further assess the likelihood of rare species occurring at the site. According to the DOC bat distribution database (updated May 2022), no bat species have been observed near the site. According to the eBird<sup>1</sup> and iNaturalist<sup>2</sup> websites, kārearea have been observed within two kilometres of the site. There are no records in the Department of Conservation Herpetofauna database (updated May 2022) within two kilometres of the property boundary (Table 2). According to iNaturalist, there are no records of rare invertebrates within two kilometres of the site in the Lower North Island invertebrate database. No intermittent or perennial streams occur within the SNA boundaries on the property; therefore, a search of the Freshwater Species Database<sup>3</sup> was not required. Table 3 lists the single rare indigenous fauna species observed nearby.

Table 3: Fauna species observed within two kilometres of 331 Southernthread Road in the last ten years.

Source	Taxon	Common Name	Scientific name	Threat Status <sup>3</sup>	Observation Date
iNaturalist	Bird	Kārearea	<i>Falco novaeseelandiae</i>	Threatened – Nationally Increasing	08/05/2023

### 7.2 Significance assessment

This section assesses the information known for these sites against RPS Policy 23. The prevalence of predicted pre-human vegetation types, the prevalence of current vegetation types, and the amount under protection, for the two SNAs are described in Tables 4 and 5. According to historical imagery of the site (accessed from data on Google Earth<sup>4</sup> and Retrolens<sup>5</sup>), the seral vegetation within the SNAs on the property is approximately 20 years old.

Table 4: Prevalence and protection of the *predicted pre-human vegetation* classifications for WC142 and WC143 on the property.

Classification	Ecosystem or Vegetation Type	Prevalence
Singers and Rogers (2014)	MF7 - Tawa, kamahi, podocarp forest	26% of the original extent remains in Wellington region, with 28% of current extent protected.
	MF8 - Kamahi, broadleaved, podocarp forest	88% of the original extent remains in Wellington region, with 33% of current extent protected.

<sup>1</sup> An online database documenting avifauna distribution, abundance and habitat use data (<https://ebird.org/home>).

<sup>2</sup> An online database documenting sightings of wildlife by scientists and naturalists (<https://www.inaturalist.org/>).

<sup>3</sup> National Institute of Water and Atmospheric Research, an open access database with New Zealand freshwater fish and invertebrate sampling records (<https://nzffdms.niwa.co.nz/>).

<sup>4</sup> Historical and current satellite imagery of Earth (<https://earth.google.com/web/>).

<sup>5</sup> Historical image online library (www.retrolens.co.nz) made available by the Local Government Geospatial Alliance (LGGA) and Land Information New Zealand.

Classification	Ecosystem or Vegetation Type	Prevalence
Leathwick <i>et al.</i> (2012)	Kahikatea-matai/tawa-mahoe forest	15% of the original extent remains nationally, 8.4% in Wellington Ecological District, 31% in the Cook Strait Ecological District. 2.6% of current extent is protected nationally, 1.3% in the Wellington Ecological District, 66% in the Cook Strait Ecological District.

Table 5: Prevalence and protection of the *current* vegetation classification for WC142 and WC143 on the property.

Classification	Ecosystem or Vegetation Type	Prevalence
Singers and Rogers (2014)	CL3 - <i>Coprosma</i> , <i>Muehlenbeckia</i> shrubland/ herbfield/rockland	43% of the original extent remains in Wellington region, with 33% of current extent protected.
Leathwick <i>et al.</i> (2012)	Scrub, shrubland and tussock-grassland below treeline	43% of the original extent remains nationally. 25% of current extent is protected nationally.

### Significance Assessment of the SNAs Within 331 Southernthread Road (WC142 and WC143)

Assessment of the significance of the biodiversity, habitats, ecosystems and physical features of the areas within SNA boundaries on the property are described below in Table 6. This assessment follows the criteria set out in Policy 23 of the RPS, and also follows recommendations provided in Wildlands and Kessels (2015) for defining these criteria.

Table 6: Significance assessment for biodiversity and ecosystems at 331 Southernthread Road.

RPS Policy 23 Criterion	Significant (Yes/No)	Justification
a) Representativeness	No	According to historical aerial imagery, the seral vegetation is ≤25 years old, and is not representative of the original forest type. The current habitat type (shrubland and tussock-grassland below treeline) is not a threatened or rare habitat type in the ecological district.
b) Rarity	No	<p><b>Flora</b> Following threat classification of plants (de Lange <i>et al.</i> 2018), a total of six <i>Aciphylla squarrosa</i> plants (At Risk – Declining) were seen during the site visit (see Plate 1, locations of plants shown in Figure 1, totalling an area ≤0.20 ha). The estimated area of <i>A. squarrosa</i> habitat is below the 0.5 ha threshold for minimum SNA area (Wildlands and Kessel 2015). The area threshold could potentially be met if <i>Aciphylla squarrosa</i> specimens are also present in the adjacent property to the south.</p> <p><b>Fauna</b> Pihoihoi (At Risk – Declining) were observed in the open grassland habitat within the SNA land on the property. This bird species prefers open habitat such as rank grassland and is therefore unlikely to persist at the site if vegetation reverted to indigenous forest. Kārearea (Threatened – Nationally increasing, Robertson <i>et al.</i> 2021) have been observed nearby (potentially significant if they are found to nest within the property).</p>

RPS Policy 23 Criterion	Significant (Yes/No)	Justification
		<p><b>Ecosystems and habitats</b> Following Williams <i>et al.</i> (2007), Holdaway <i>et al.</i> (2012), Wiser <i>et al.</i> (2013): Cloud Forest is considered a historically rare ecosystem type. Therefore, forest vegetation within the Western Hills Cloud Zone (Fig. 1) would qualify, however shrubland and grassland would not.</p> <p><b>Threatened and rare environments</b> Following the Threatened Environment Classification (Cieraad <i>et al.</i> 2015), the environment within the SNA boundaries on the property is not threatened (i.e. with &gt;30% left and &gt;20% protected).</p> <p><b>Physical features</b> Following the NZ Geopreservation Inventory (Kenny and Hayward 1996), there are no geologically significant sites within the property boundaries.</p>
Diversity	No	<p>Attributes of diversity were assessed following criteria in Wildlands and Kessels 2015.</p> <p>The shrubland and grassland habitat have baseline (low-moderate) diversity that is typical of early-stage seral vegetation in the ecological district. As it is early-stage seral vegetation, it is unlikely to contain diverse fauna assemblages; nor are the indigenous faunal species guilds likely to be full. At most, faunal surveys are most likely to detect two vertebrate fauna groups (indigenous birds and lizards), but not bats.</p>
d) Ecological context	No	<p>The habitat is connected to larger areas of SNA and formally protected areas (e.g. Zealandia), but because of its young age, it is unlikely to offer favourable foraging or roosting habitat for multiple indigenous taxa. Although the habitat will serve as a corridor for some indigenous species, as Wildlands and Kessels (2015) explain, it is not appropriate to identify a site as significant solely on its role as a buffer or corridor, as this attribute could apply to most environments.</p>
e) Tangata whenua	Unknown	–
<b>Is the site significant?</b>		<b>No</b>



Plate 1: *Aciphylla squarrosa* (speargrass) specimens (At Risk – Declining) seen on the western side of Hawkins Hill Road (and within WC142). The total area where *A. squarrosa* specimens were observed was estimated to be c.0.20 hectares. 8 June 2023.



## 8. RECOMMENDATIONS

### 8.1 Proposed changes to SNA boundaries

Following our assessment of the significance of the biodiversity, habitats, ecosystems, and physical features of the site, we conclude that there is no land within the 331 Southernthread Road property that qualifies as a Significant Natural Area. We therefore propose changes to the current SNA boundaries for WC142 and WC143 to reflect this new information (Figure 1). The proposed boundaries for WC142 and WC143 will be amended as per Figure 1 and supplied to WCC in a GIS shape file.

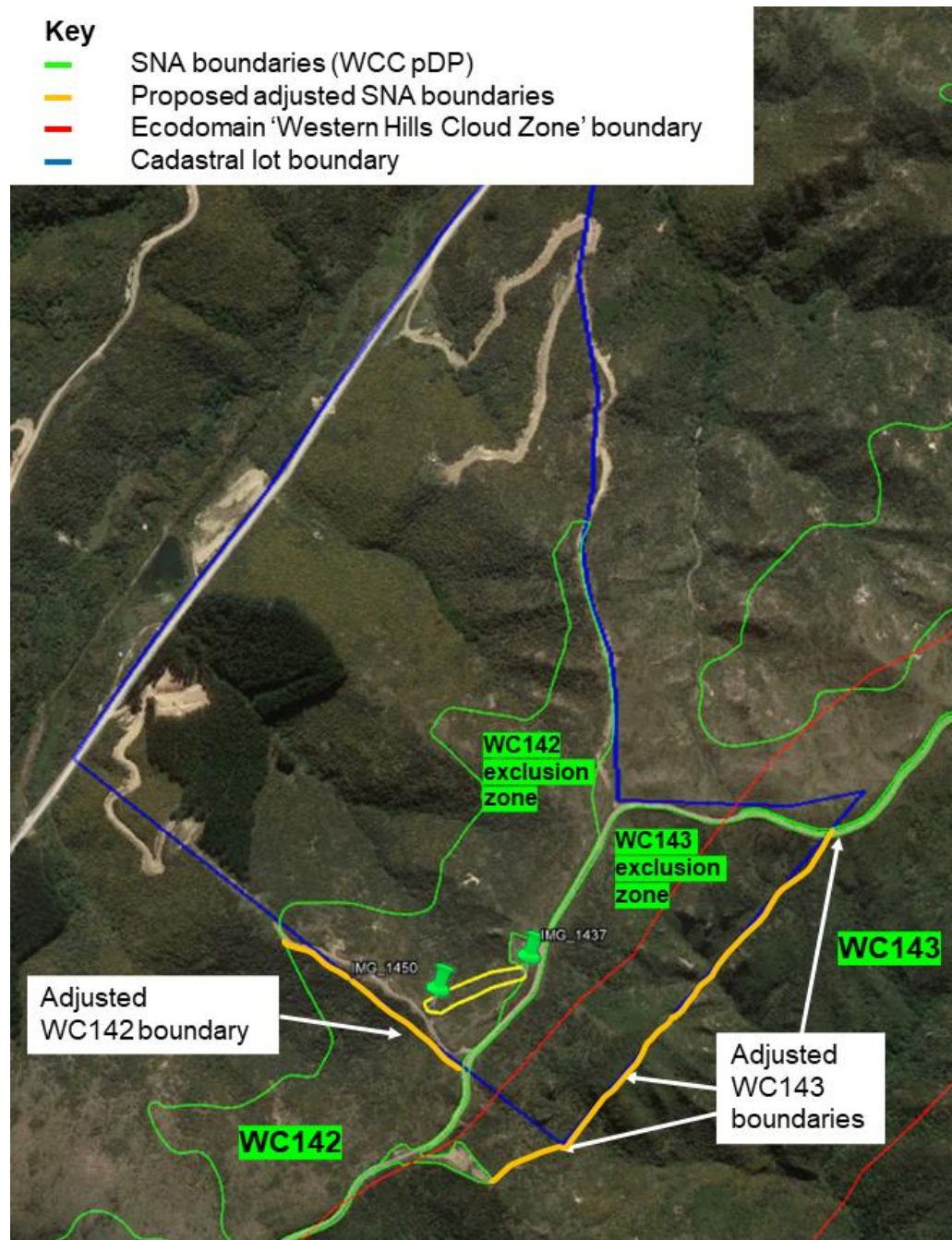


Figure 1: Proposed boundary adjustments for SNAs WC142 and WC143. Estimated area of *Aciphylla squarrosa* habitat (yellow polygon with green pin symbols showing the two locations where the plants were observed during the site visit).

Although the vegetation and habitats at the site may not qualify for SNA designation, indigenous values are present on the property and should be protected. For example, the locations of the *Aciphylla squarrosa* plants could be protected from sheep, goat, and pig grazing through fencing of the small area where they are present. The landowner currently undertakes possum, goat and pig control on the land, and the Capital Kiwi Project also undertakes some control of mustelids along the roadside within the property. Continued control of introduced mammals at the site is recommended as this will serve to protect indigenous biodiversity in the area from predation and browsing by introduced mammals.

Two At Risk – Declining species were observed along the upper slopes on the property (*Aciphylla squarrosa*, and pīhoihoi), within the mixed grassland/shrubland habitats. However the area of *A. squarrosa* habitat (0.20 ha) was less than 05.0 hectares, and therefore below the threshold for SNA protection. The pīhoihoi forages and nests in open habitat and is therefore unlikely to benefit from SNA protection and regeneration of indigenous forest. To ensure the continued survival of *A. squarrosa* and pīhoihoi along the upper slopes of the property, plantation of exotic forestry should only occur in select areas and not across the entire site.

## 8.2 Future management at the site

The seral vegetation will eventually transition to indigenous forest if left undisturbed, and will eventually meet the criteria to qualify as a Significant Natural Area. Achieving SNA status for the higher value areas on the property would present positive opportunities for the landowner, and biodiversity at the site. For example, if the landowner allowed continued regeneration of the shrubland in the gullies, and along the lower slopes, the vegetation would return to indigenous forest. Regeneration on the lower slopes on the eastern side of the property is especially important as the vegetation would likely transition to cloud forest, a threatened environment type in New Zealand (Kenny and Hayward 1996). Protection of the gullies and lower slopes would not only provide quality habitat for a range of indigenous taxa, and buffer adjacent protected areas, but would also serve to protect these areas from erosion and slippage. There may be future opportunities for the landowner to gain carbon credits for this regeneration, depending on how future Governments adapt carbon policies.

## 8.3 Representative site photographs

Plates 2–9 are representative photographs of the habitat types encountered during the site visit to the property.





Plate 2: Mixed indigenous/exotic shrubland and grassland on the western side of Hawkins Hill Road (and within WC142). 8 June 2023.



Plate 3: In the foreground is mixed indigenous/exotic shrubland and grassland on the western side of Hawkins Hill Road (and within WC142). 8 June 2023.





Plate 4: Mixed indigenous/exotic shrubland and grassland on the western side of Hawkins Hill Road (and within WC142). 8 June 2023.



Plate 5: Indigenous dominant grassland on the eastern side of Hawkins Hill Road (and within WC143). 8 June 2023.





Plate 6: Gorse dominant shrubland on the eastern side of Hawkins Hill Road (and within WC143). 8 June 2023.



Plate 7: Indigenous dominant shrubland and grassland on the eastern side of Hawkins Hill Road (and within WC143). 8 June 2023.





Plate 8: North-facing view of the vegetation within WC143, on the eastern side of Hawkins Hill Road. The mānuka seen in the foreground was planted approximately five years ago by the landowner. 8 June 2023.



Plate 9: A pine seedling planted in the indigenous dominant vegetation on the eastern side of Hawkins Hill Road (and within WC143). 8 June 2023.

## ACKNOWLEDGMENTS

We would like to thank Matt Rutledge and his cousin Wil for allowing access on their property, and for discussion of concerns with regards to the Significant Natural Areas.

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## SUMMARY OF DISTRICT PLAN INFORMATION ON SIGNIFICANT NATURAL AREAS AT 331 SOUTHERNTHREAD ROAD

Table A1-1: Summary of District Plan (Operative District Plan (WCC 2023), the Proposed District Plan (WCC 2023)) for each Significant Natural Areas on the 331 Southernthread property.

SNAs on 331 Southernthread Road, Brooklyn	
<b>WC142</b>	
<b>Site number</b>	WC142
<b>Site name:</b>	Hawkins Hill coastal mahoe scrub and shrubland
<b>Ecological District:</b>	Cook Strait ED / Wellington ED
<b>Dominant Habitat(s) or Vegetation Type:</b>	Shrubland
<b>Area (ha):</b>	48.77 ha (c.6.2 ha within 331 Southernthread Road)
<b>Site summary:</b>	Six areas of indigenous shrubland on NW-facing slopes below Hawkins Hill - Te Kopahou. Some of the more open grassy areas are habitat for speargrass ( <i>Aciphylla squarrosa</i> , Regionally Vulnerable), and potentially the speargrass weevil ( <i>Lyperobius huttoni</i> , Regionally Sparse). However, speargrass will be lost as shrubs increase in stature and density. Goat and stock browsing impact on speargrass also.
<b>Status</b>	Private, WCC
<b>RPS23a (Representative)</b>	No – Shrubland is not representative of former forest cover
<b>RPS23b (Rarity)</b>	Yes - Regionally vulnerable plant species and regionally sparse invertebrate Threatened Environment - Areas do not trigger <10% threshold.
<b>RPS23c (Diversity)</b>	No - Secondary vegetation is likely to have a reduced diversity of species; Includes areas of speargrass and low altitude tussockland which is regionally rare May provide bird habitat, habitat for invertebrates
<b>RPS23d (Ecological context)</b>	Yes - Larger than 10 ha and partially buffers WC143 and WC135
<b>Significant?</b>	Yes - Seven areas of secondary scrub, which are cumulatively large in area, that include regionally threatened plant species that provides habitat for regionally sparse invertebrate. These areas also contribute to connectivity. Likely to be significant but requires site visit.
<b>WC143</b>	
<b>Site number</b>	WC143
<b>Site name:</b>	Te Kopahou, Waipapa Stream coastal scrub and shrubland
<b>Ecological District:</b>	Cook Strait ED
<b>Dominant Habitat(s) or Vegetation Type:</b>	Coastal Shrubland
<b>Area (ha):</b>	418.05 ha (c.5.5 ha within 331 Southernthread Road)

## SNA on 331 Southernthread Road, Brooklyn

<b>Site summary:</b>	<p>A large site consisting of high (to 485m) coastal hills and valley's with diverse vegetation with tussockland on the tops and indigenous shrubland and narrow leaved scrub at various stages of succession. Vegetation comprises mahoe, Veronica arborea, hangehange, kanuka, kohekohe, akiraho (<i>Olearia paniculata</i>), manuka treeland, gorse, <i>Dracophyllum filifolium</i>, coastal tree daisy (<i>Olearia solandri</i>), tauhinu scrub and areas of grassland. The site has not been farmed for some years and despite goat browsing is returning rapidly to coastal forest. Park (1999) identified a forest remnants near the coast - a stand of old karaka (0208.1). Some of the more open grassy areas are habitat for speargrass (<i>Aciphylla squarrosa</i>, Regionally Vulnerable), and potentially the speargrass weevil (<i>Lyperobius huttoni</i>, Regionally Sparse). However, speargrass will be lost as shrubs increase in stature and density). Threatened plant species include At Risk - Naturally Uncommon Crassula kirkii, parahia (<i>Chenopodium allanii</i>), grassland greenhood orchid (<i>Pterostylis foliata</i>), Cook Strait kowhai (<i>Sophora molloyi</i>); Data Deficient silverback spider orchid (<i>Corybas rivularis</i>); Regionally Endangered white fuzzweed (<i>Vittadinia australis</i>); regionally gradual decline leafless Clematis (<i>Clematis afoliata</i>); regionally sparse: leafless dwarf mistletoe (<i>Korthalsella lindsayi</i>), leafless lawyer, yellow-prickled lawyer (<i>Rubus squarrosus</i>), woolly cloak fern (<i>Cheilanthes distans</i>); and Not Threatened species of local interest include karaka (<i>Corynocarpus laevigatus</i>) and sand bidibid (<i>Acaena pallida</i>). Regionally endangered speargrass weevil (<i>Lyperobius huttoni</i>) and At Risk-Naturally Uncommon invertebrate <i>Geodorcus novaezealandiae</i> reported. Data from the mouth of the Waipapa Stream includes six species of fish and koura (freshwater crayfish) including At Risk-Declining koaro (<i>Galaxias brevipinnis</i>), inanga (<i>Galaxias maculatus</i>), longfin eel (<i>Anguilla dieffenbachia</i>), redfin bully (<i>Gobiomorphus huttoni</i>, Risk-Declining). Includes WCC public land, DOC EcoSite No.978-Waipapa Catchment Shrubland and is included in a GWRC Biodiversity Management Area.</p>
<b>Status</b>	Private, WCC, Crown
<b>RPS23a (Representative)</b>	<p>Yes – Includes representative elements but mostly greatly modified from previous predicted cover. &gt;0.5ha, predicted Singers of CL3, Coprosma, <i>Muehlenbeckia</i> shrubland/herbfield/rockland, MF6, Kohekohe, tawa forest, MF7, Tawa, kamahi, podocarp forest, MF8, Kamahi, broadleaved, podocarp forest, and Strand</p>
<b>RPS23b (Rarity)</b>	<p>Yes - Three At Risk-Naturally Uncommon, one Data Deficient, one regionally endangered, one regionally gradual decline, three regionally sparse, one regionally vulnerable plant species reported. At Risk-Naturally uncommon and regionally endangered invertebrates reported. Four At Risk-Declining fish species reported.</p> <p>Threatened Environment - 9.06ha 20-30% indigenous cover left, 67.62ha &gt; 30 % left and &lt; 10% protected (Areas do not trigger &lt;10% threshold).</p> <p>Includes areas of speargrass and low altitude tussockland which is regionally rare, Areas containing both manuka and kanuka are uncommon in Wellington City. Lowland forest is regionally rare (less than 16% remaining of MF6, less than 14% remaining MF7, less than 7% remaining MF8).</p> <p>Threatened plant species include At Risk - Naturally Uncommon Crassula kirkii, parahia (<i>Chenopodium allanii</i>), grassland greenhood orchid (<i>Pterostylis foliata</i>), Cook Strait kowhai (<i>Sophora molloyi</i>); Data Deficient silverback spider orchid (<i>Corybas rivularis</i>); regionally endangered white fuzzweed (<i>Vittadinia australis</i>); Regionally Gradual Decline leafless Clematis (<i>Clematis afoliata</i>); Regionally Sparse: leafless dwarf mistletoe (<i>Korthalsella lindsayi</i>), leafless lawyer, yellow-prickled lawyer (<i>Rubus squarrosus</i>), woolly cloak fern (<i>Cheilanthes distans</i>); regionally vulnerable speargrass (<i>Aciphylla squarrosa</i>) and Not Threatened species of local interest include karaka (<i>Corynocarpus laevigatus</i>) and sand bidibid (<i>Acaena pallida</i>).</p> <p>Seven indigenous bird species reported - all Not Threatened. Regionally Endangered speargrass weevil (<i>Lyperobius huttoni</i>) and At Risk-Naturally uncommon invertebrate <i>Geodorcus novaezealandiae</i> reported. Data from the mouth of the Waipapa Stream includes six species of fish and koura (freshwater crayfish) including At Risk-Declining koaro (<i>Galaxias brevipinnis</i>), inanga (<i>Galaxias maculatus</i>), longfin eel (<i>Anguilla dieffenbachia</i>), redfin bully (<i>Gobiomorphus huttoni</i>, Risk-Declining).</p> <p>At least three indigenous communities and at least 50% of expected indigenous plant species diversity.</p> <p>Site larger than 100 ha and part of series of coastal and semi-coastal ecological sites.</p>

<b>SNA on 331 Southernthread Road, Brooklyn</b>	
<b>RPS23c (Diversity)</b>	Yes - Contains a range of habitat and vegetation types, riparian to ridge and coastal to inland vegetation sequences. Known to be habitat for birds, fish, and invertebrates and likely for lizards also.
<b>RPS23d (Ecological context)</b>	Yes - One of a number of coastal and semi-coastal sites which in combination include a wide range of habitats and great ecological connectivity.
<b>Significant?</b>	Yes - Ecosystems that are typical and characteristic of the current natural diversity of the Wellington and Cook Strait Ecological Districts, but probably not the best examples. Large site with a range of habitats from 'upland' to lowland and coastal to inland, supports a wide variety of vegetation types. Habitat for a range of Threatened, At Risk, and regionally endangered plant and animal species. Excellent connectivity to other sites. indigenous vegetation on >5.0 ha of At Risk LENZ.

## PLANT AND CLUBMOSS SPECIES OBSERVED AT 331 SOUTHERNTHREAD ROAD

### Key

\* Threat classification: At Risk – Declining

### **INDIGENOUS SPECIES**

#### **Vascular plants\*:**

*Aciphylla squarrosa*\*  
*Anaphalioides bellidioides*  
*Asplenium appendiculatum*  
*Blechnum penna-marina*  
*Blechnum novaezeelandiae*  
*Centella uniflora*  
*Coprosma rhamnoides*  
*Dracophyllum filifolium*  
*Leptinella squalida*  
*Leptostigma setulosum*  
 Mānuka (*Leptospermum scoparium*)\*  
 Kowaowao (*Micosorum pustulatum*)  
 Mingimingi (*Coprosma propinqua*)  
*Olearia arborescens*  
*Olearia solandri*  
 Ongaonga (*Urtica ferox*)  
*Paesia scaberula*  
 Papataniwhaniwha (*Lagenophora pumila*)  
 Piripiri (*Acaena anserinifolia*)  
*Polystichum vestitum*  
 Putaputawētā (marbleleaf, *Carpodetus serratus*)  
*Raukua anomalus*  
 Tauhinu (*Ozothamnus leptophyllus*)  
 Tutu (*Coriaria sarmentosa*)  
*Viola cunninghamii*  
 Wharariki (flax, *Phormium cookianum*)

#### **Clubmosses:**

Creeping clubmoss (*Diphasium scariosum*)  
 Mountain clubmoss (*Austrolycopodium fastigiatum*)



## **INTRODUCED SPECIES**

Cocksfoot (*Dactylis glomeratus*)  
Darwin's barberry (*Berberis darwinii*)  
Gorse (*Ulex europaeus*)  
Karetu (*Anthoxanthum odoratum*)  
*Pinus radiata*





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