ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 210 SIGNAL HILL ROAD, DUNEDIN[1]

Sharon Lequeux and Lydia Metcalfe
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site at 210 Signal Hill Road on the urban margin of Dunedin City.

Methods

An ecological assessment of site 161 was undertaken on 29 March 2022. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity values

In the south western part of site 161 there are two vegetation types.

On the western side there is recently regenerated kānuka (*Kunzea robusta*) forest (Figure 1) with other indigenous species such as mikimiki (*Coprosma crassifolia* and *Coprosma rhamnoides*), māhoe (*Melicytus ramiflorus*), māpou (*Myrsine australis*), akakaikiore/New Zealand jasmine (*Parsonsia heterophylla*), necklace fern (*Asplenium flabellifolium*) and little hard fern (*Blechnum penna-marina*). This area has indigenous dominance with occasional weed species such as Darwins barberry (*Berberis darwinii*), radiata pine (*Pinus radiata*), holly (*Ilex aquifolium*) and male fern (*Dryopteris filix-mas*).

Uphill of the kānuka forest is an area of dense, mature gorse (*Ulex europaeus)* and scotch broom (*Cytisus scoparius)* with other exotic species and occasional indigenous species such as kānuka, māhoe and large-leaved pōhuehue (*Muehlenbeckia australis)* (Figure 2). Over time, in the absence of disturbance, this area will eventually return to indigenous forest through succession. This process could be facilitated by the planting of indigenous tree species.

While visiting the site kāhu/Australasian harrier (*Circus approximans*), pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*), kōparapara/bellbird (*Anthornis melanura melanura*) and rironiro/grey warbler (*Gerygone igata*) were observed. The landholder has reported 36 bird species on the property, including a pair of miromiro/tomtit (*Petroica macrocephala*), which are uncommon in the Dunedin urban area. Skinks (*Oligosoma* sp.) have also been reported.

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

Outside site 161 but within the property boundaries there is mature broadleaved forest. The headwaters of Opoho Creek are located on the property.

Ecological significance

The area of kānuka forest comprises significant indigenous vegetation as it meets the criteria set by the Dunedin City Council's 2nd Generation District Plan in regards to Ecological Context. The area of kānuka forest provides a small amount of habitat for indigenous fauna, and helps to buffer the mixed broadleaved forest further downhill.

Impacts of Rezoning

Rezoning could see the development of from 7-23 new residential lots.

The area of kānuka forest on the south western margin of the proposed rezoned area warrants protection from development. Other kānuka and broadleaved forest on the property, while affected by wilding conifers, provides significant habitat for indigenous forest birds and also warrants protection.

The potential effects of increased residential development through rezoning include clearance of gorse with regenerating indigenous forest trees, clearance of kānuka forest, invasion of adjacent forest by garden weeds, and increased predation on and disturbance of indigenous fauna by pets. While domestic and feral cats are already likely to utilise habitats on the site, increased residential development could increase the density of cats.

Intensive residential development has the potential to degrade the water quality of the nearby Opoho Creek through an increase in non-permeable surfaces and contamination of storm water.

Biodiversity Recommendation

Consideration should be given to protection of the regenerating forest and kānuka forest within the rezoning area, and of the remaining indigenous forest on the property, either as an Area of Significant Biodiversity Value scheduled in the Dunedin District Plan, or by a QEII covenant. Discussion with the landholder indicated an interest in this. Consideration could be given to prohibiting the keeping of cats on future residences within the site. Careful management of stormwater would be required to avoid adverse effects on water quality and habitat in Opoho Creek. It may be difficult to prevent such adverse effects at the higher density of residential development.

Legend
Site boundary
Vegetation and habitat types
1. Kānuka (Kunzea robusta)
2. Gorse (Ulex europaeus)
1
2
Figure 1: Vegetation and habitat types within site 161 Signal Hill
0
25
50
m
Data Acknowledgment
Map contains data sourced from LINZ
Crown Copyright Reserved
Wildlands
Scale: 1:1,000
Date: 20/04/2022
Cartographer: LD
Format: A3R

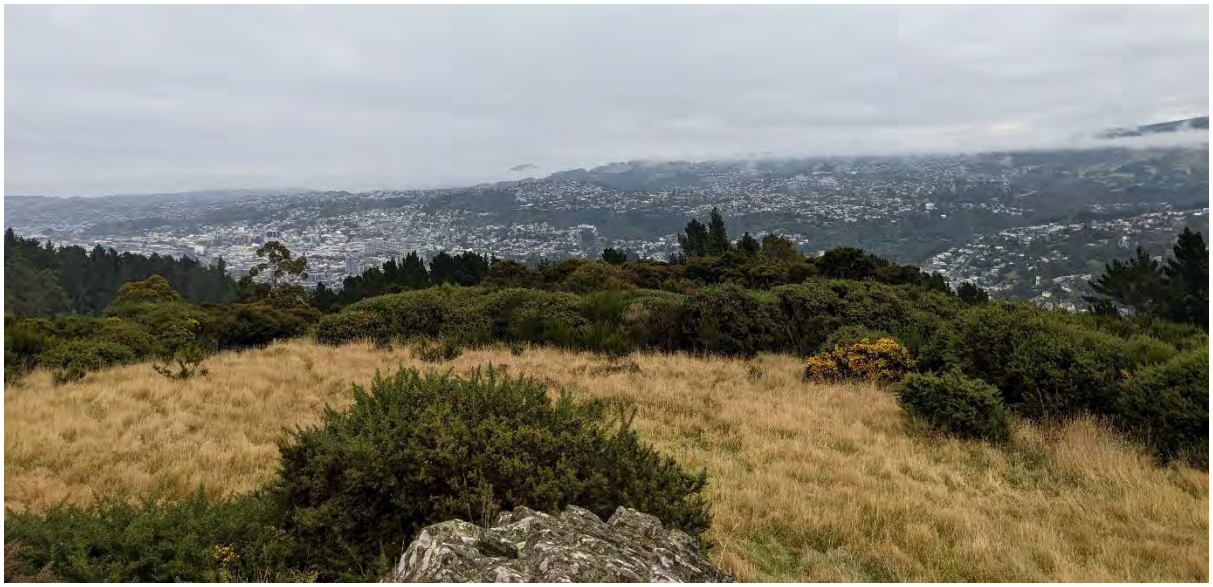

Figure 2: View towards the south east of site 161 (210 Signal Hill Road). Regenerating kānuka (*Kunzea robusta*) forest is visible behind an exterior border of gorse (*Ulex europaeus)*.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 234-290 MALVERN STREET, DUNEDIN[1]

Sharon Lequeux and Lydia Metcalfe
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site at 234-290 Malvern Street on the urban margin of Dunedin City.

Field Assessment and Reporting

An ecological assessment of site 176 was undertaken on 29 March 2022. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity Values

There were four vegetation types on the site.

The area of vegetation in the southern half of the property (mapped as Broadleaved-podocarp-exotic vegetation in figure 1) running along the driveway (access from Malvern street) contains a reasonable diversity of indigenous species including at least three lowland tōtara (*Podocarpus totara*) (figures 2 and 3). There are some exotic species such as hawthorn (*Crataegus monogyna*), blackberry (*Rubus fruticosus*), elderberry (*Sambucus nigra*) and Himalayan honeysuckle (*Leycesteria formos*a), but the majority of vegetation is indigenous and contains piripiriwhata/marbleleaf (*Carpodetus serratus*) (figure 4), kaikōmako (*Pennantia corymbose*), tarata (*Pittosporum eugenioides*), māhoe (*Melicytus ramiflorus*), mingimingi (*Coprosma areolata* and *Coprosma propinqua*), kōhūhū (*Pittosporum tenuifolium*), pate/seven finger (*Schefflera digitata*), māpou (*Myrsine australis*), kōtukutuku/fucsia (*Fuchsia excorticata*), horoeka/lancewood (*Pseudopanax crassifolius*), kāpuka (*Griselinia littoralis*), large-leaved pōhuehue (*Muehlenbeckia australis*), akakaikiore/native jasmine (*Parsonsia heterophylla*), pūniu (*Polystichum vestitum*), kiokio (*Blechnum novae-zelandiae*), hen & chicken's fern (*Asplenium bulbiferum*), shield fern (*Polystichum neozelandicum*), and kiokio (*Blechnum procerum*). Between the mixed broadleaved forest and the pasture there is a border of kānuka (*Kunzea robusta*) (figure 5). The understory of this area is not very dense, and has possibly been grazed.

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

Downslope from the driveway, where the site extends toward Malvern Street, there is a small creek running parallel to the road through the vegetation (mapped as Broadleaved-exotic vegetation in figure 1). In this area there are similar species to those already mentioned (figure 6), but fern species are predominant (figure 7) and there is kātote/soft tree fern (*Cyathea smithii*) present as well as smooth shield fern (*Lastreopsis glabella*), heruheru (*Leptopteris hymenophylloides*), kiwakiwa (*Blechnum fluviatile*) and little hard fern (*Blechnum penna-marina*).

The vegetation from the current house site to the north end of the site (mapped as Broadleaved-exotic vegetation in figure 1) has a mixed canopy with a high prevalence of hawthorn. However, the understory is in very good condition and there are dense coprosma shrubs (*Coprosma rotundifolia*, *Coprosma propinqua*, *Coprosma areolata*) (figures 8 and 9) as well as seedlings from indigenous tree species including mataī *(Prumnopitys taxifolia*) and kōwhai (*Sophora* sp.). There are some podocarp species, including a large tōtara approximately 85 metres north of the house (figures 10 and 11) and many mature broadleaved species (figure 12).

The finger of vegetation that runs from above the house toward the east of the site (mapped as Exotic vegetation in figure 1) between two paddocks largely comprises exotic species (hawthorn and gorse) (figure 13). There are occasional mature indigenous species such as horoeka/lancewood (figure 14), kotukutuku/fucsia (figure 15), māhoe, kānuka and mingimingi (*Coprosma rotundifolia*) and ferns including mātātā (*Histiopteris incisa),* little hard fern, kiwakiwa and pūniu. There is little understory, likely due to grazing.

While visiting the site tūī (*Prosthemadera novaeseelandiae novaeseelandiae*), pūkeko (*Porphyrio porphyrio*) and kōparapara/bellbird (*Anthornis melanura melanura*) were observed.

Nearby areas of indigenous vegetation include Leith Valley Scenic Reserve, Ross Creek and Pine Hill. The area of indigenous vegetation on the rezoning site provides habitat that helps to connect these areas.

Significance Criteria

The areas of vegetation to the north and to the west of the house comprise significant indigenous vegetation as they meet the 2GP criteria of rarity (as tōtara and mataī are uncommon in the Dunedin Ecological District) and ecological context (due to its habitat value and as part of network of connected habitats in the local area). The finger of vegetation between the two paddocks is not significant due the abundance of hawthorn and grazed understorey.

The area of vegetation north east of the house, between the two paddocks, is not currently ecologically significant.

Impacts of Rezoning and Mitigating Measures

If the forest along the northern and western borders of the proposed site were to be cleared for development then significant biodiversity would be lost. The site 176 rezoning boundary should either be remapped to exclude this vegetation from the development site, or alternatively the vegetation could be protected as an Area of Significant Biodiversity Value scheduled in the 2GP, or by a QEII covenant.

These important areas of indigenous forest should be securely fenced along their boundaries with residential lots to restrict disturbance of these areas by people and pets.

Invasion of weeds into the areas of indigenous-dominant forest would increase with residential development, due to escapes of garden plants. Consideration could be given to requiring control of pest plants that can reach the indigenous forest canopy, such as hawthorn and elderberry.

The finger of non-significant vegetation between the two paddocks could be enhanced by control of hawthorn and elder and fencing to exclude stock and disturbance from people and pets.

The area of vegetation on site and surrounding forest provides good habitat for birds, lizards and invertebrate fauna. If the site were to be developed and pet cats were introduced this would have a negative effect on the indigenous fauna. If it were possible to prohibit the keeping of pet cats at this site (or preventing their roaming outside residential sections) this would better protect the bird and lizard populations.

Biodiversity Recommendation

Rezoning site 176 should either exclude the area of indigenous vegetation along the northern and eastern borders or ensure that these areas are protected from future clearance. Rezoning at Rural Residential zoning allowing 7 new lots should be compatible with the maintenance of indigenous biodiversity values, as it would not represent a significant increase in residential density in this area. The effects of this level of residential activity could be mitigated if the actions described above were implemented. Allowing the maximum amount of 23 lots could result in measurable adverse effects on indigenous biodiversity at the site, with indigenous vegetation becoming 'squeezed' between two areas of relatively high residential density and thus more at risk of disturbance and modification.

Legend
Site boundary
Vegetation and habitat types
1. Broadleaved-podocarp-exotic vegetation
2. Broadleaved-exotic vegetation
3. Exotic vegetation
1
2
2
3
Figure 1: Vegetation and habitat types within site 176, 234/290 Malvern Street
0
75
150
m
Data Acknowledgment
Map contains data sourced from LINZ
Crown Copyright Reserved
Wildlands
Scale: 1:3,000
Date: 20/04/2022
Cartographer: LD
Format: A3R

Figure 2: Exterior of broadleaved-podocarp-exotic vegetation at site 176. Centre frame is a young lowland tōtara (*Podocarpus totara*).

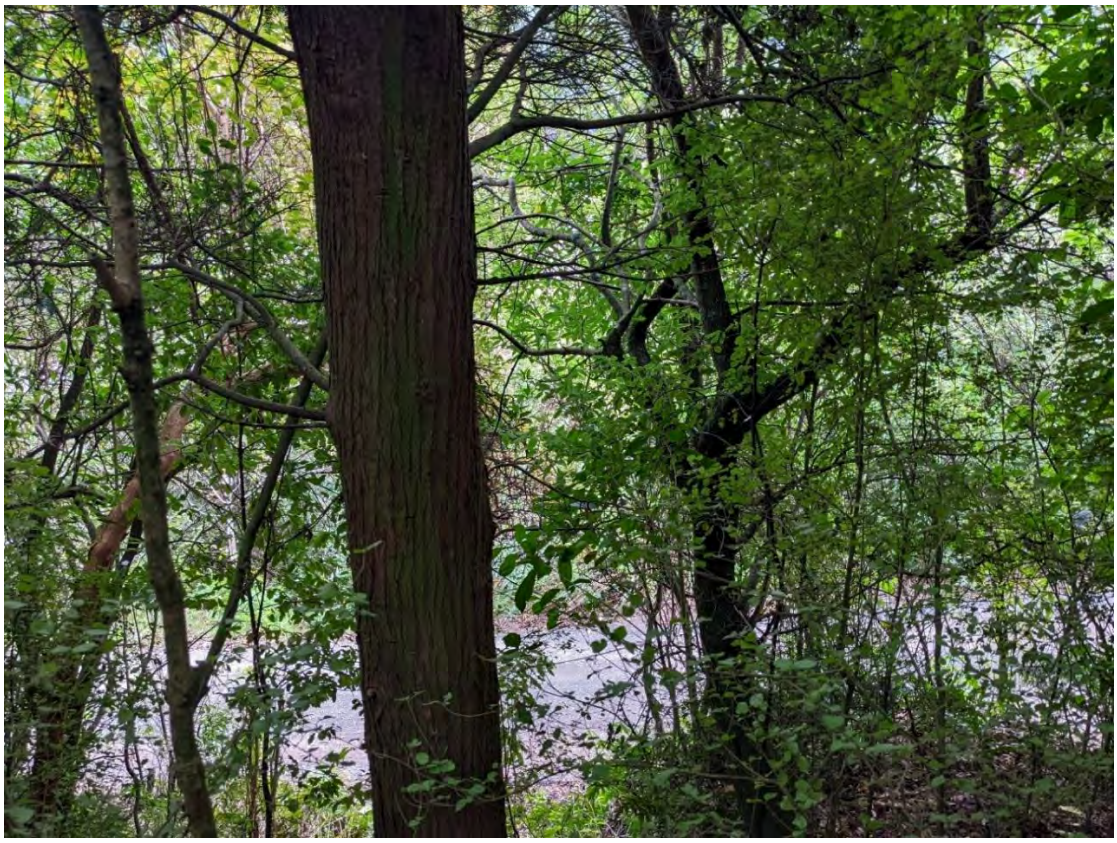

Figure 3: Interior of broadleaved-podocarp-exotic vegetation looking toward the driveway at site 176. Centre frame is a mature lowland tōtara (Podocarpus totara).

Figure 4: Exterior of broadleaved-podocarp-exotic vegetation at site 176.

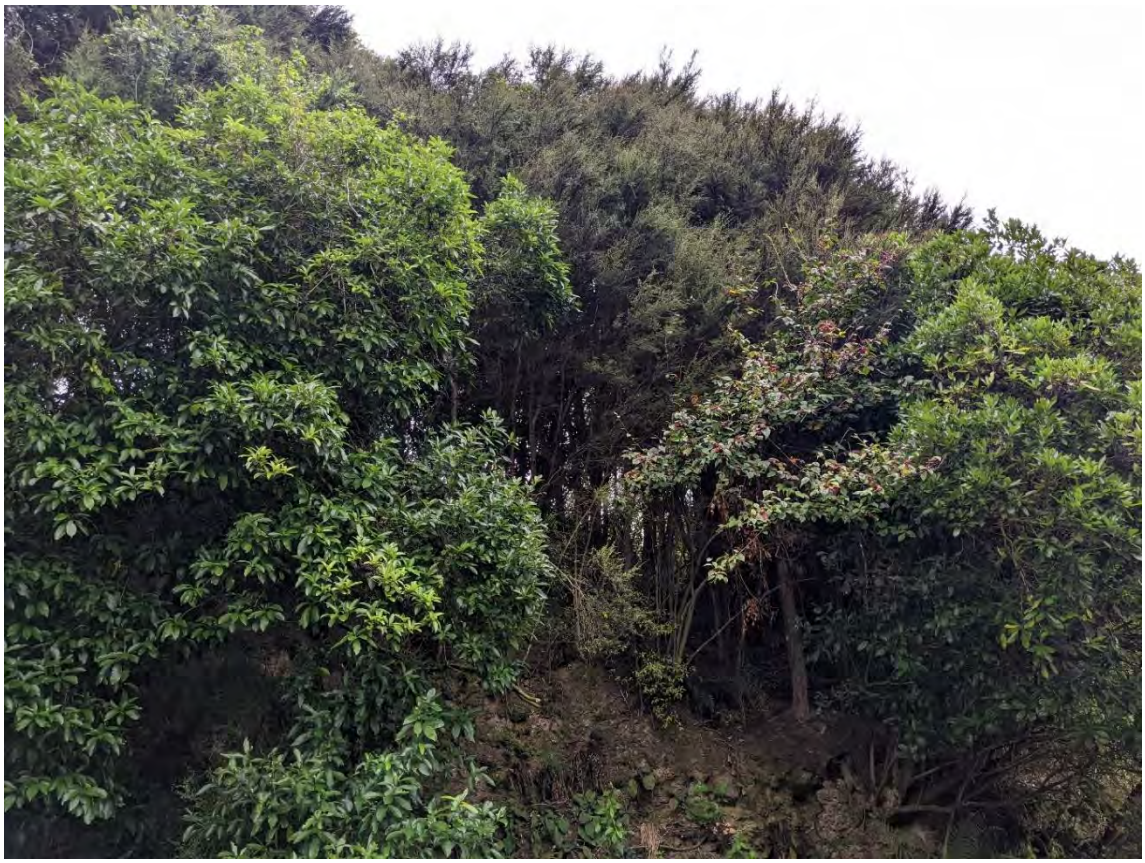

Figure 5: Kānuka (*Kunzea robusta*) bordering the broadleaved-podocarp-exotic vegetation at site 176.

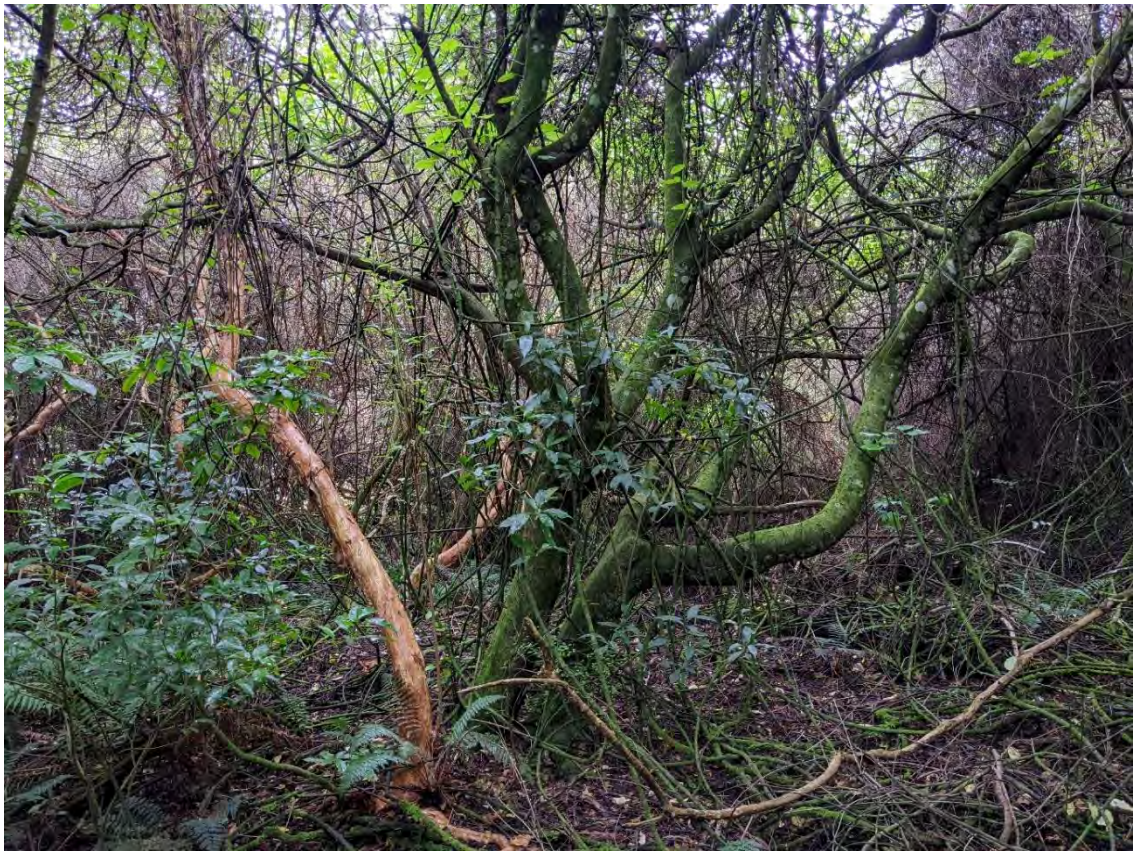

Figure 6: Understory within broadleaved-exotic vegetation west of driveway at site 176.

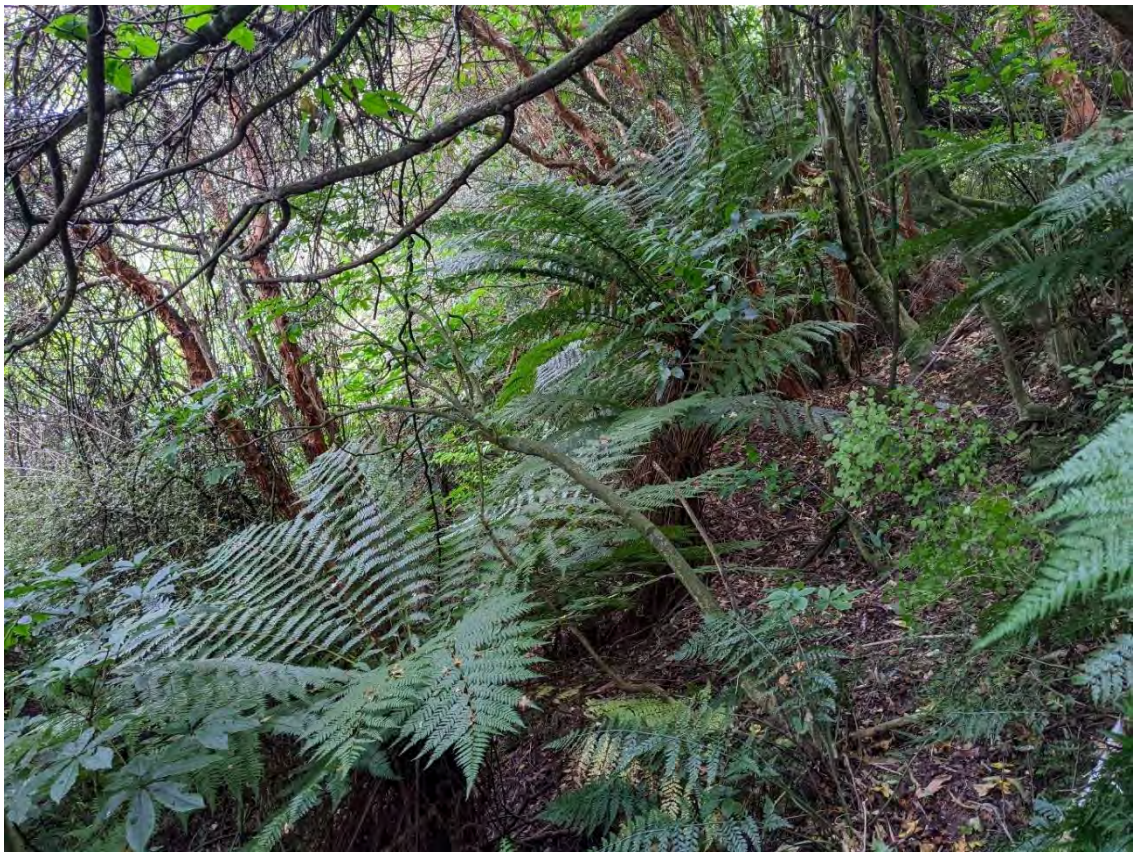

Figure 7: Fern dominated understory within broadleaved-exotic vegetation west of driveway at site 176.

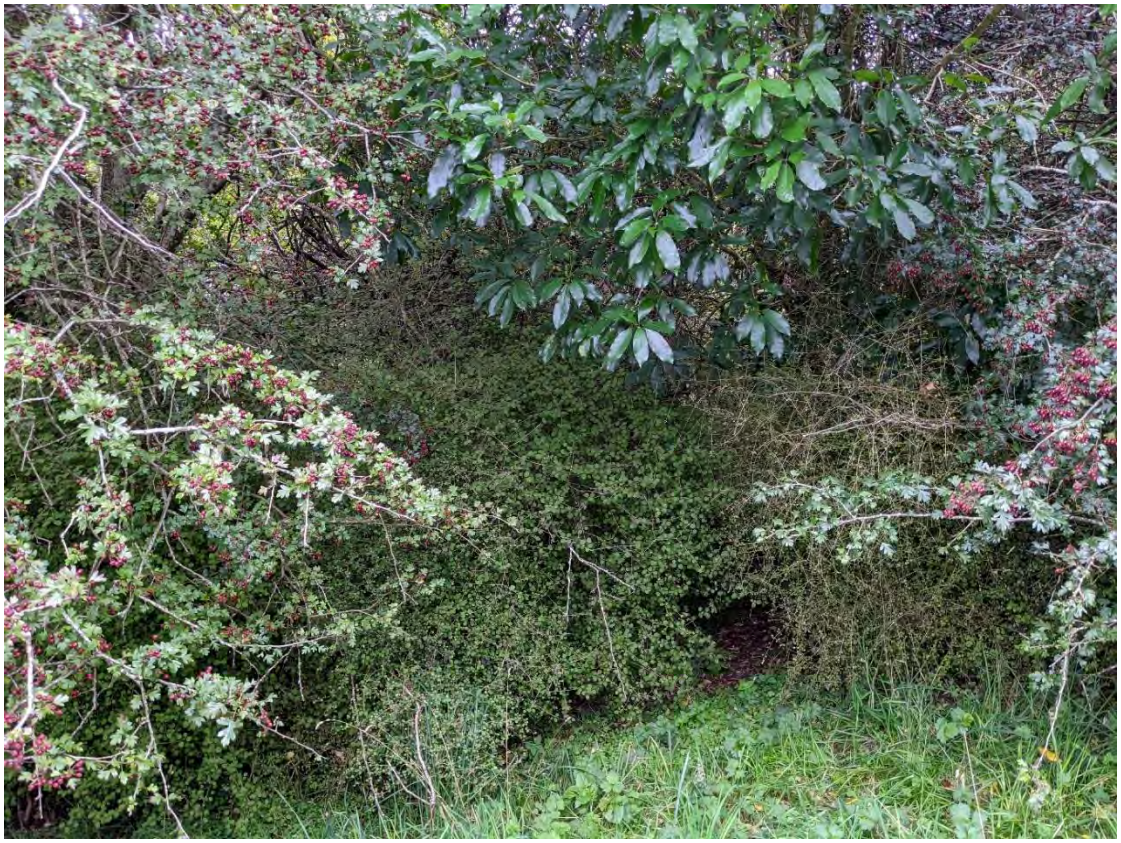

Figure 8: *Coprosma* shrubs bordering north western broadleaved-exotic vegetation at site 176.

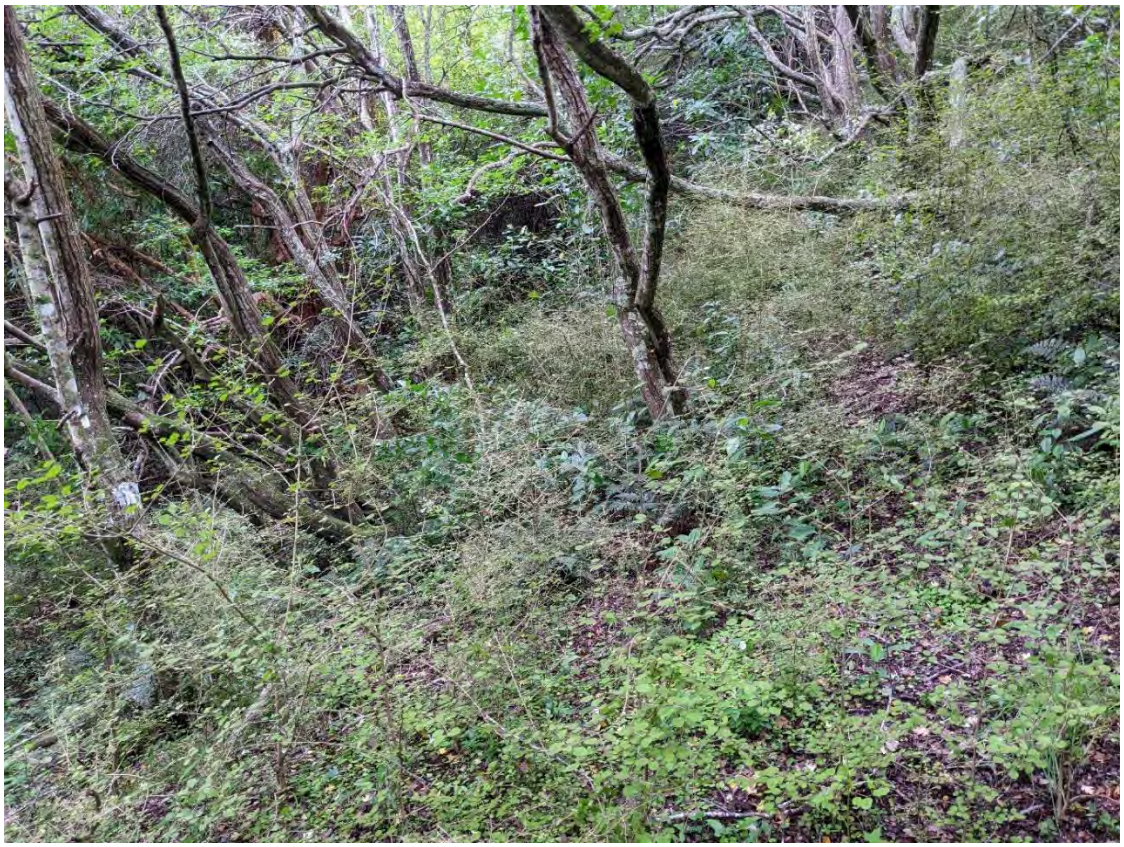

Figure 9: *Coprosma* dense understory within north western broadleaved-exotic vegetation at site 176.

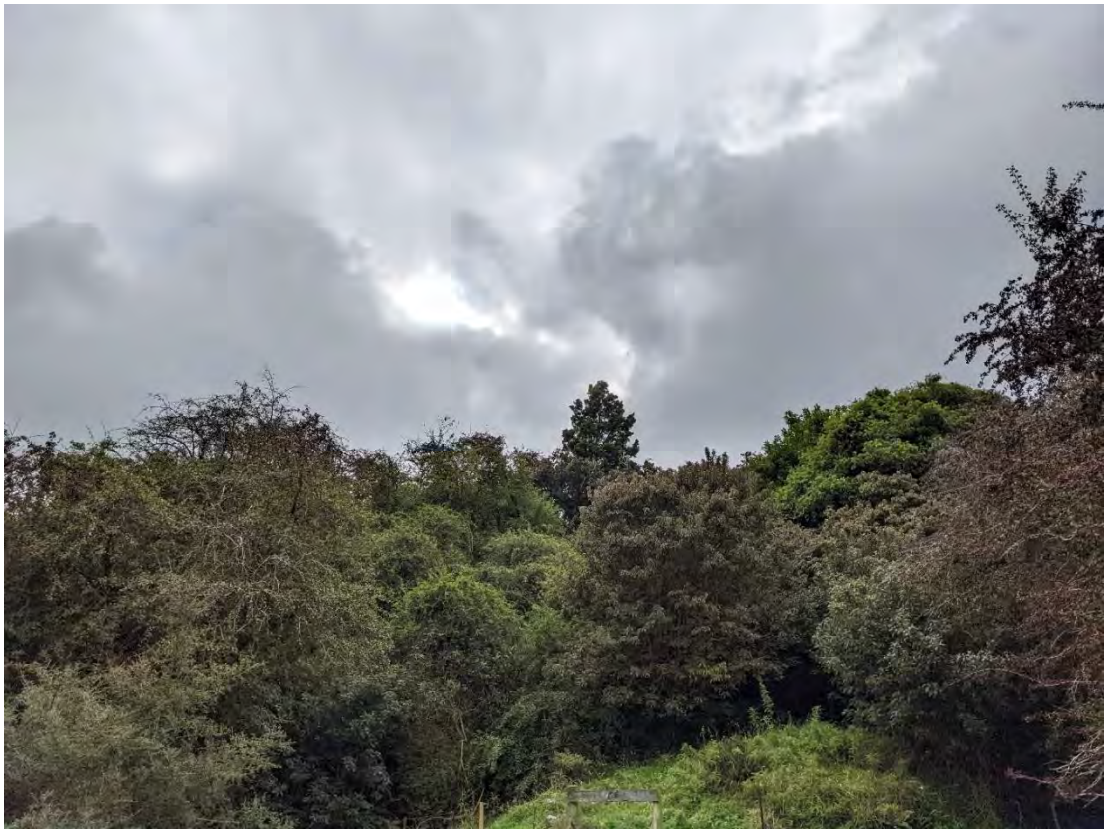

Figure 10: Exterior of north western broadleaved-exotic vegetation at site 176. Centre frame is a large mature lowland tōtara (*Podocarpus totara*).

Figure 11: Interior of north western broadleaved-exotic vegetation at site 176. Centre frame is a large mature lowland tōtara (*Podocarpus totara*).

Figure 12: Kōtukutuku/fucsia (*Fuchsia excorticata*) along the exterior of north western broadleaved-exotic vegetation at site 176.

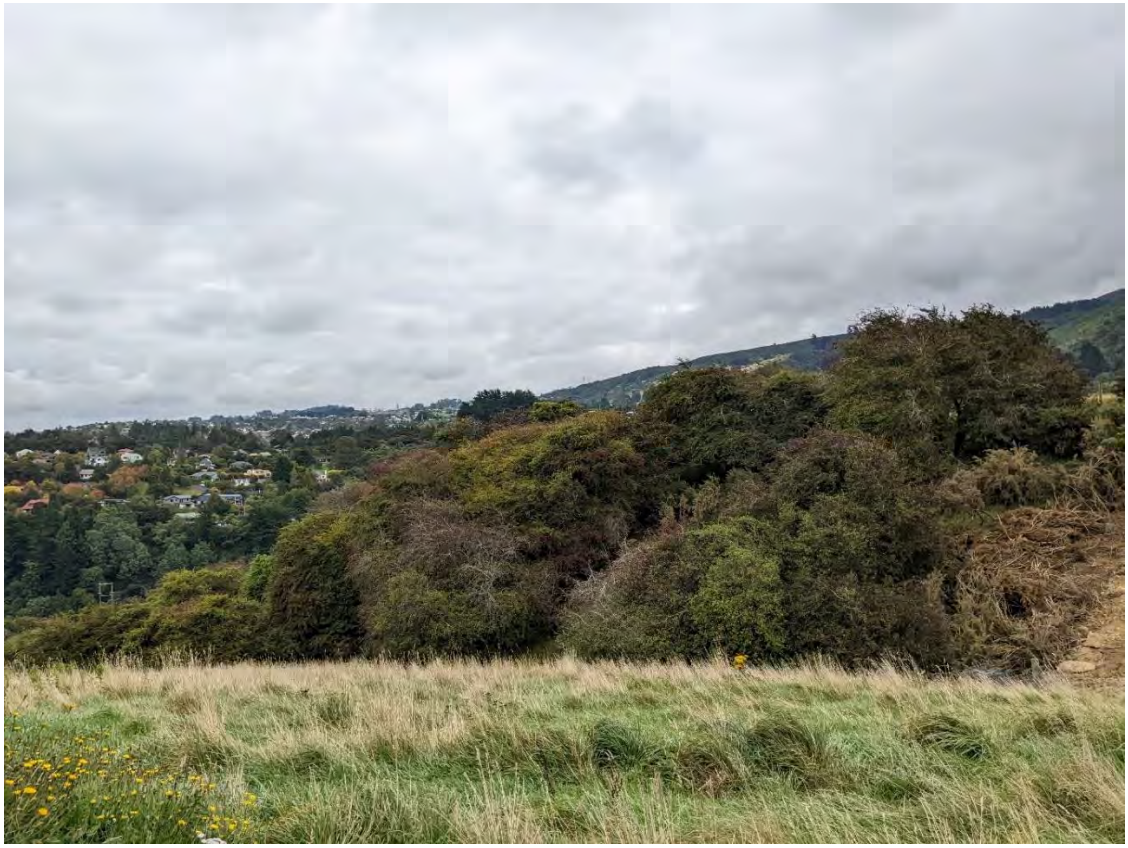

Figure 13: Canopy view of exotic vegetation at site 176.

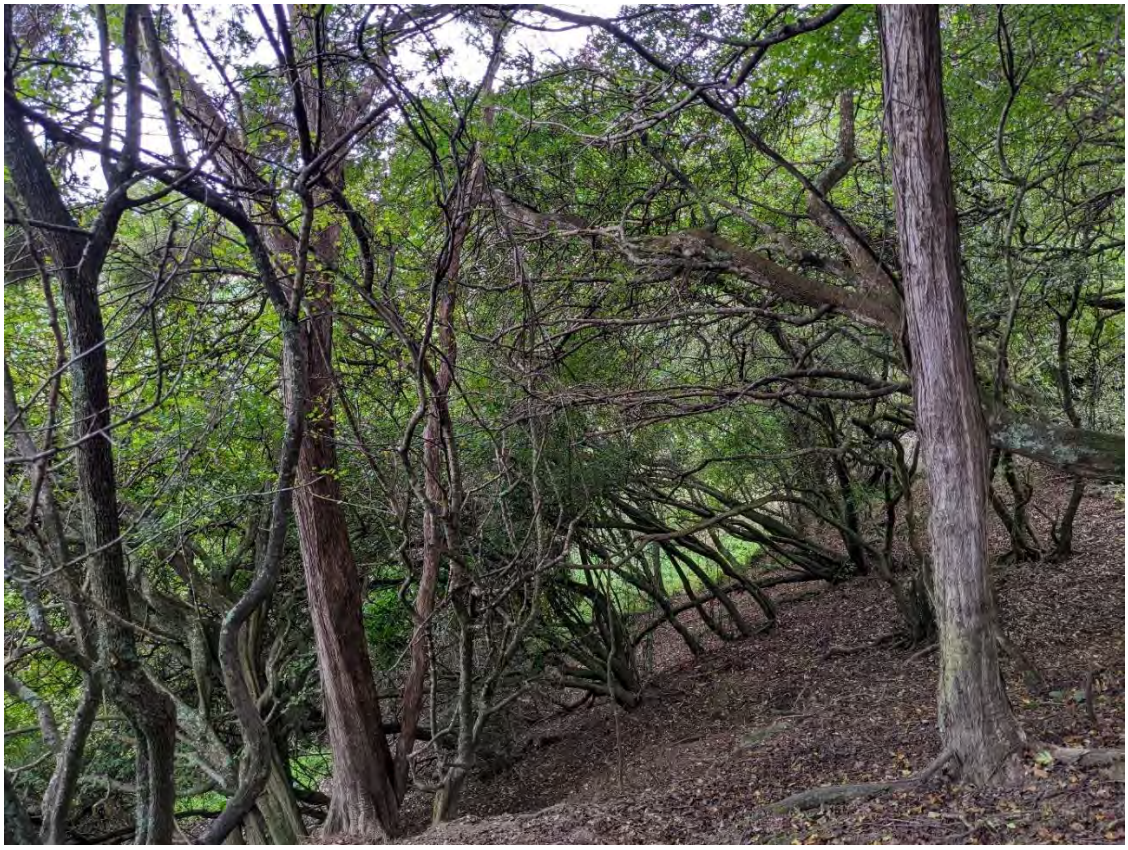

Figure 14: Interior view of exotic vegetation at site 176. There are occasional indigenous species such as these mature horoeka/lancewood (*Pseudopanax crassifolius*) and kānuka (*Kunzea robusta*).

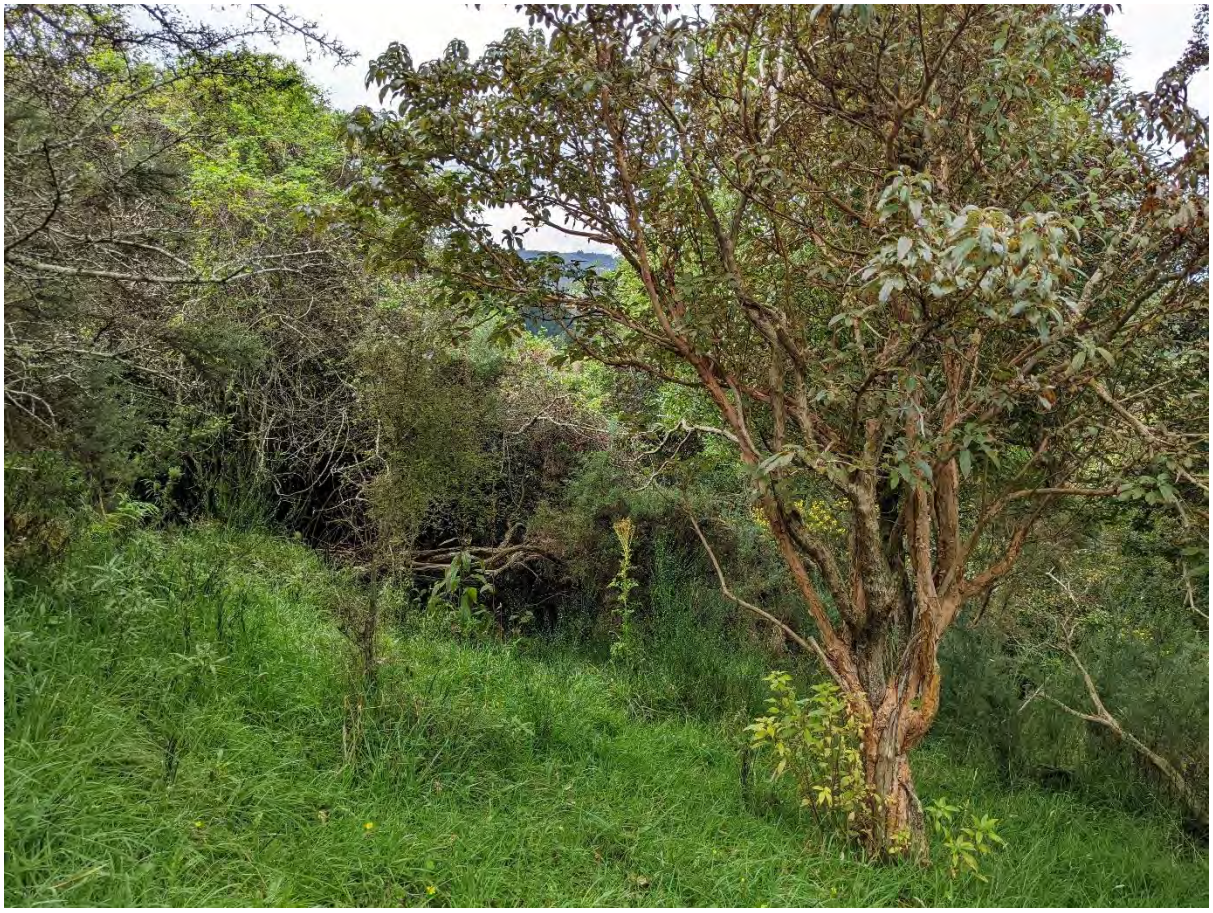

Figure 15: Interior view of exotic vegetation at site 176. There are occasional indigenous species such as kōtukutuku/fucsia (*Fuchsia excorticata*).

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 489 EAST TAIERI-ALLANTON ROAD, ALLANTON[1]

Sharon Lequeux
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site at 489 East Taieri-Allanton Road on rural land on the eastern side of Allanton and southern side of State Highway 1.

Field Assessment and Reporting:

The site was assessed in the field on 4 April 2022. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity Values

The site is largely pasture, with an area of gorse (*Ulex europaeus*). There is an area in the middle of the site that contains some rush species but they do not compose more than 50% of the vegetation in this area.

Kānuka (*Kunzea robusta*)-broadleaved forest with scattered hawthorn is present in gullies above the site, along with extensive areas of gorse scrub, but the indigenous forest does not extend into the proposed site.

Significance Criteria

There are no areas of vegetation within the site that meet the 2GP ecological significance criteria.

Impacts of Rezoning and Mitigating Measures

As there is currently no indigenous vegetation within the site, rezoning the proposed site would have minimal effect on indigenous biodiversity. It is possible that increasing residential development in this area may lead to invasion of the adjacent kānuka forest by garden weeds, and increased predation on and disturbance of indigenous fauna by pets, but the area of indigenous forest habitat is small, already infested with weeds, and thus is less important for indigenous fauna.

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

Consideration could be given to creating an ecological restoration site within the area of residential development, for example by establishing a corridor of indigenous forest along the drain in the centre of the site. This could be planted with indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), mataī (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*) and broadleaved trees such as manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*) kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), makomako/wineberry (*Aristotelia serrata*).

Biodiversity Recommendation

The site could be rezoned to Township and Settlement (Stage 1) or Large Lot Residential 1 (stage 2) with either zoning having minimal adverse effects on indigenous biodiversity. Indigenous biodiversity could be restored at the site by planting a broad corridor of indigenous trees along the central drain.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 21, 43, 55, 65, 75, 79 AND 111 CHAIN HILLS ROAD, MOSGIEL[1]

Sharon Lequeux
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site (Site 204) at 21-111 Chain Hills Road, immediately east of State Highway 1.

Field Assessment and Reporting

Site 204 was assessed in the field on 4 April. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity Values

The site largely comprises pasture after being cleared over the last 17 years. The only area within this site that is dominated by indigenous species is a gully in the centre of the site that protrudes toward the east (mapped as Kānuka (*Kunzea robusta*)-broadleaved-exotic forest vegetation in figure 1). Within this gully the canopy includes kānuka (*Kunzea robusta*), kōtukutuku (*Fuchsia excorticata*), kōhūhū (*Pittosporum tenuifolium*), large-leaved pōhuehue (*Muehlenbeckia australis*) and tātarāmoa *Rubus cissoides*. There is little understory, likely due to grazing, but species observed included pūniu (*Polystichum vestitum*), little hard fern (*Blechnum penna-marina*) and *Carex* species. The indigenous vegetation extends onto site 153.

In many small gullies *juncus* species were observed but exotic vegetation was dominant.

To the east of the proposed site are the Chain Hills, which contain ecologically significant forest habitat in gullies.

While visiting the site pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*) and skinks (*Oligosoma* sp.) were observed.

Significance Criteria

Although the area of vegetation is dominated by indigenous tree species and provides habitat for fauna, this area is small and only meets the 2GP ecological significance criteria as an

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

example of indigenous vegetation on land environments that retain less than 10% of their original cover. When combined with the vegetation on the adjacent site it would comprise a reasonable sized area of indigenous vegetation, which has been largely cleared from the Chain Hills ridge. These areas of indigenous forest warrant protection.

Impacts of the Requested Rezoning and Appropriate Measures to Mitigate Effects

One potential effect of increased residential development through rezoning includes invasion of adjacent forest (Chain Hills) by garden weeds. However, there is already dense residential development along Chain Hills Road adjacent to the site so the effects of additional residential development may not be noticeable.

While domestic and feral cats are already likely to utilise habitats on the site, increased residential development could increase the density of cats, and therefore predation on and disturbance of indigenous fauna on the site and in the adjacent Chain Hills forest. Consideration could be given to prohibiting the keeping of cats on future residences within the site, or allowing cats only in secure areas that do not allow wider roaming.

Consideration should be given to retaining the indigenous vegetation on the site and how this could be achieved. Indigenous biodiversity could be restored in particular sites within the area of residential development, for example by planting with indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), mataī (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*) and broadleaved trees such as manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*) kāpuka/broadleaf (*Griselinia littoralis*), kōhūhū (*Pittosporum tenuifolium*), tarata (*P. eugenoides*), kōtukutuku/fuchsia (*Fuchsia excorticata*), and makomako/wineberry (*Aristotelia serrata*). This could be undertaken within the gully and on the slopes surrounding the gully to provide better connectivity to the larger area of indigenous vegetation.

Biodiversity Recommendation

The site could be rezoned as a combination of General Residential 1, Low density Residential, Large Lot Residential 1, Large Lot Residential 2 and Rural Residential 1, without having significant effects on indigenous biodiversity. Indigenous vegetation on the site should be protected either as an area of significant biodiversity value scheduled in the 2GP or by a QEII covenant. Ecological restoration could be considered at particular sites.

Figure 1: Vegetation and habitat types within sites 153 and 204, Chain Hills

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 77 AND 121 CHAIN HILLS ROAD AND 100 IRWIN LOGAN DRIVE, MOSGIEL[1]

Sharon Lequeux
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site (Site 153) at 77 and 121 Chain Hills Road and 100 Irwin Logan Drive, immediately east of State Highway 1.

Field Assessment and Reporting

Site 153 was assessed on 4 April 2022. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity Values

Site S153 largely comprises pasture developed after clearance of vegetation over the last 17 years. There are two areas of indigenous vegetation remaining (figure 1). The largest is within a gully in the south of the proposed site that protrudes toward the east. Within this gully the canopy includes kānuka (*Kunzea robusta*), kōtukutuku/fucsia (*Fuchsia excorticata*), kōhūhū (*Pittosporum tenuifolium*), large-leaved pōhuehue (*Muehlenbeckia australis*) and tātarāmoa (*Rubus cissoides)* (figure 2). There is little understory, likely due to grazing, but species observed included pūniu (*Polystichum vestitum*), little hard fern (*Blechnum penna-marina*) and *Carex* species. The indigenous vegetation continues up the hill to the east onto the adjacent site covered by site 204. At the bottom of the gully there are *Juncus* and *Carex* species and a small pool.

The south western area of vegetation consists of planted conifer species. North of this is a bank covered with gorse (*Ulex europaeus*). The gully running through the centre of the site contains some indigenous species such as kānuka, kotukutuku, māhoe (*Melicytus ramiflorus*) and large-leaved pōhuehue, but the vegetation is dominated by exotic species such as blackberry (*Rubus fruticosus*).

In the north western area of the site is a small area of kānuka (*Kunzea robusta*) forest.

In many small gullies *Juncus* (rush) species were observed but exotic vegetation was dominant. Running down the northernmost gully there is wetland habitat in which sedges and rushes are dominant (figure 3). This vegetation extends onto the flat and largely comprises of wī/leafless rush (*Juncus edgariae*) and rautahi/cutty grass (*Carex geminata*).

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

To the east of the proposed site are the Chain Hills, an ecologically significant forest habitat.

While visiting the site pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*) and skinks (*Oligosoma* sp). were observed.

Significance Criteria

Although the area of broadleaved forest is dominated by indigenous tree species and provides habitat for fauna, this area is small and only meets the 2GP ecological significance criteria as an example of indigenous vegetation on land environments that retain less than 10% of their original cover. When combined with the vegetation on the adjacent site it would comprise a reasonable sized area of indigenous vegetation, which has been largely cleared from the Chain Hills ridge. These areas of indigenous forest warrant protection.

Impacts of Rezoning and Mitigating Measures

One potential effect of increased residential development through rezoning includes invasion of adjacent forest (Chain Hills) by garden weeds. However, there is already dense residential development along Chain Hills Road adjacent to the site so the effects of additional residential development may not be noticeable.

While domestic and feral cats are already likely to utilise habitats on the site, increased residential development could increase the density of cats, and therefore predation on and disturbance of indigenous fauna on the site and in the adjacent Chain Hills forest. Consideration could be given to prohibiting the keeping of cats on future residences within the site, or allowing cats only in secure areas that do not allow wider roaming.

Consideration should be given to retaining the indigenous vegetation on the site and how this could be achieved. Indigenous biodiversity could be restored by creating ecological restoration sites within the area of residential development, for example by planting the gully system that runs through the site with indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), matai (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*) and broadleaved trees such as manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*), kōwhai (*Sophora microphyllum*), kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), kōhūhū (*Pittosporum tenuifolium*), tarata (*P. eugenoides*), and makomako/wineberry (*Aristotelia serrata*). The wetland could be enhanced by planting its margin with ecologically appropriate species such as harakeke/New Zealand flax (*Phormium tenax*), pūkio (*Carex secta*), and tī kōuka/cabbage tree (*Cordyline australis*).

Biodiversity Recommendation

The site could be rezoned as a combination of General Residential 1, Low density Residential, Large Lot Residential 1, Large Lot Residential 2 and Rural Residential 1, without having significant effects on indigenous biodiversity. Indigenous vegetation on the site should be protected either as an area of significant biodiversity value scheduled in the 2GP or by a QEII covenant. The gully system that runs through the site could be restored to indigenous forest vegetation. Consideration should be given to prohibiting the keeping of cats, unless they could be contained to prevent roaming.

Figure 1: Vegetation and habitat types within sites 153 and 204, Chain Hills

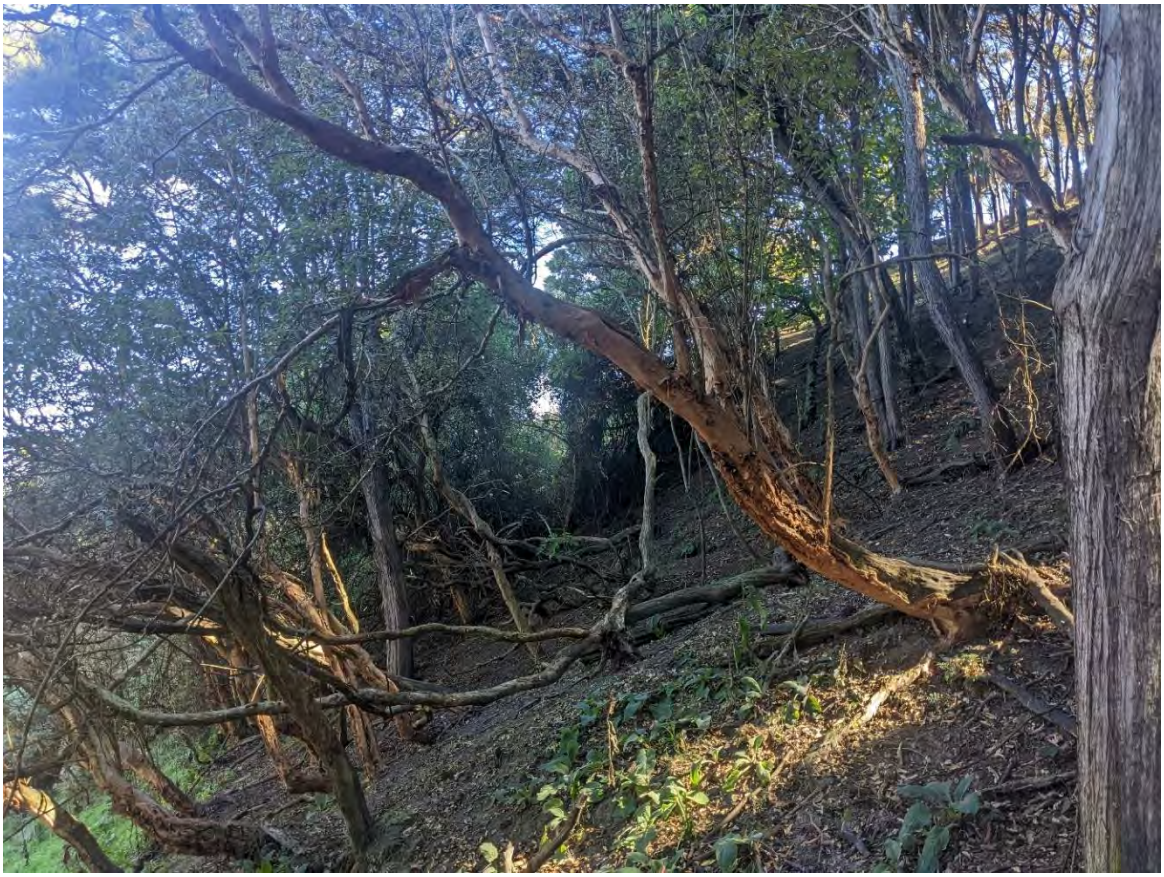

Figure 2: Interior of forested gully at site 153, Chain Hills.

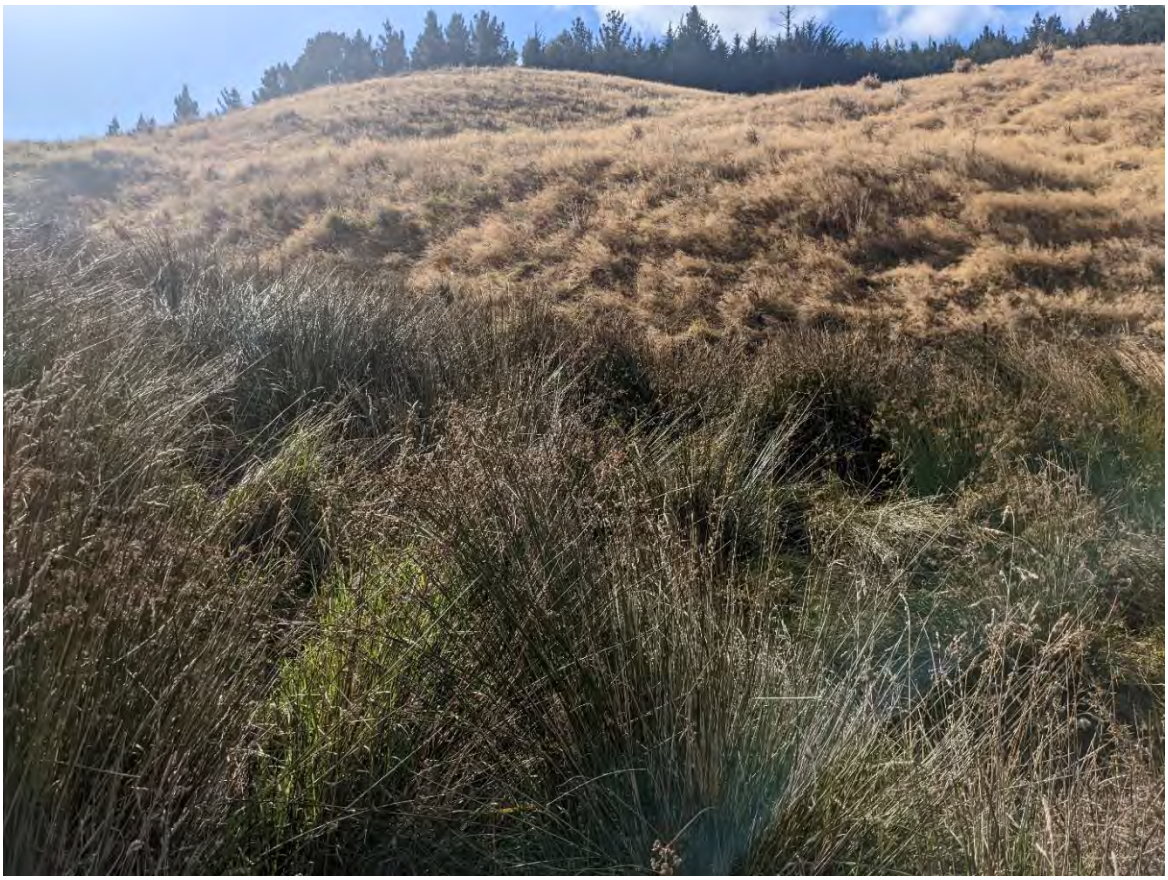

Figure 3: Wetland habitat at site 153, Chain Hills.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 761 ARAMOANA ROAD, DUNEDIN[1]

Sharon Lequeux
April 2022

Introduction

Dunedin City Council are progressing the next phase of a variation (Variation 2 Additional Housing Capacity) to the second generation Dunedin City District Plan (2GP). As part of Variation 2, a number of sites were initially assessed for rezoning but were not progressed in the notified variation as they did not meet (or there was insufficient information to be confident that they would meet) the relevant policy assessment criteria. Submissions have been received to rezone a number of these sites, and the Council now needs further assessments of them, including assessments of their indigenous biodiversity values. Wildland Consultants were commissioned to undertake these ecological evaluations for a number of sites. This report describes the assessment of a proposed rezoning site (Site 205) at 761 Aramoana Road, a site located beside the Otago Harbour.

Methods

An ecological assessment of site 205 was undertaken on 8 March 2022. The site was easily accessible and assessed by walk-through surveys. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity values

There were two vegetation types present at Site 205.

The vegetation along the west of the property is largely exotic and is dominated by sycamore (*Acer pseudoplatanus*), blackberry (*Rubus fruticosus*), gorse (*Ulex europaeus)*, scotch broom (*Cytisus scoparius*), black nightshade (*Solanum nigrum*), lupin (*Lupin arboreus*), tree lucerne (*Chamaecytisus palmensis*), exotic grass species and male fern (*Dryopteris filix-mas*). Within this area there are occasional indigenous species, including tī kōuka/cabbage tree (*Cordyline australis*), large-leaved pōhuehue (*Muehlenbeckia australis*) and ongaonga (*Urtica ferox*).

Along the rear of the proposed site and continuing up the hill behind it is broadleaved forest (figure 1). Species include māhoe/(*Melicytus ramiflorus*), kōwhai (*Sophora* spp.), rangiora/bushman's friend (*Brachyglottis repanda*), kōhūhū (*Pittosporum tenuifolium*), and kāpuka (*Griselinia littoralis*). There is little understory, but there is a presence of ferns such as *Asplenium gracillimum*, hounds tongue (*Phymatosorus pustulatus)*, and shield fern (*Polystichum neozelandicum*). There are many sycamores and occasional radiata pine (*pinus radiata*).

Beyond the broadleaved forest are planted pines, pasture and fragments of indigenous vegetation.

No indigenous fauna were observed while on site.

[1] Reviewed by Kelvin Lloyd (Principal Ecologist, Wildland Consultants Ltd).

Ecological significance

This area of broadleaved forest is not large enough or diverse enough to be considered ecologically significant. However, there is very little indigenous vegetation in the local area and it would be preferable for the indigenous vegetation not to be removed.

Impacts of Rezoning and Mitigating Measures

The boundary at the rear of the property (along the north west) does encroach on some of the broadleaved forest, but would only affect a small part of this (fewer than 10 trees). None the less, as indigenous forest is significantly reduced in the local area, the broadleaved forest at the rear of the site should be protected from clearance, either by redrawing the rezoning area or through conditions attached to titles.

It is possible that increasing residential development in this area may lead to invasion of the adjacent broadleaved forest by garden weeds, and increased predation on and disturbance of indigenous fauna by pets, but the area of indigenous forest habitat is small, already infested with weeds, and thus is less important for indigenous fauna. If the developer were to plant further indigenous tree species, such as kōwhai (*Sophora microphyllum*), manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*) kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), ngaio (*Myoporum laetum*), and makomako/wineberry (*Aristotelia serrata*), then this would be a positive ecological outcome.

Control of sycamores would also be positive, and necessary to prevent sycamore from dominating any areas reserved from development.

There is potential to affect estuarine habitats in the adjacent Otago Harbour through an increase in non-permeable surfaces and contamination of storm water. Consideration should be given to how stormwater will be managed to avoid this.

Biodiversity Recommendation

The property owners seek to rezone Site 205 from Rural Coastal to Township and Settlement, allowing an additional 3 lots. This zoning would have minimal adverse effects on indigenous biodiversity so long as the small area of broadleaved forest within the site was protected. Indigenous biodiversity could be restored at the site by planting indigenous vegetation around the development, and by controlling sycamores.

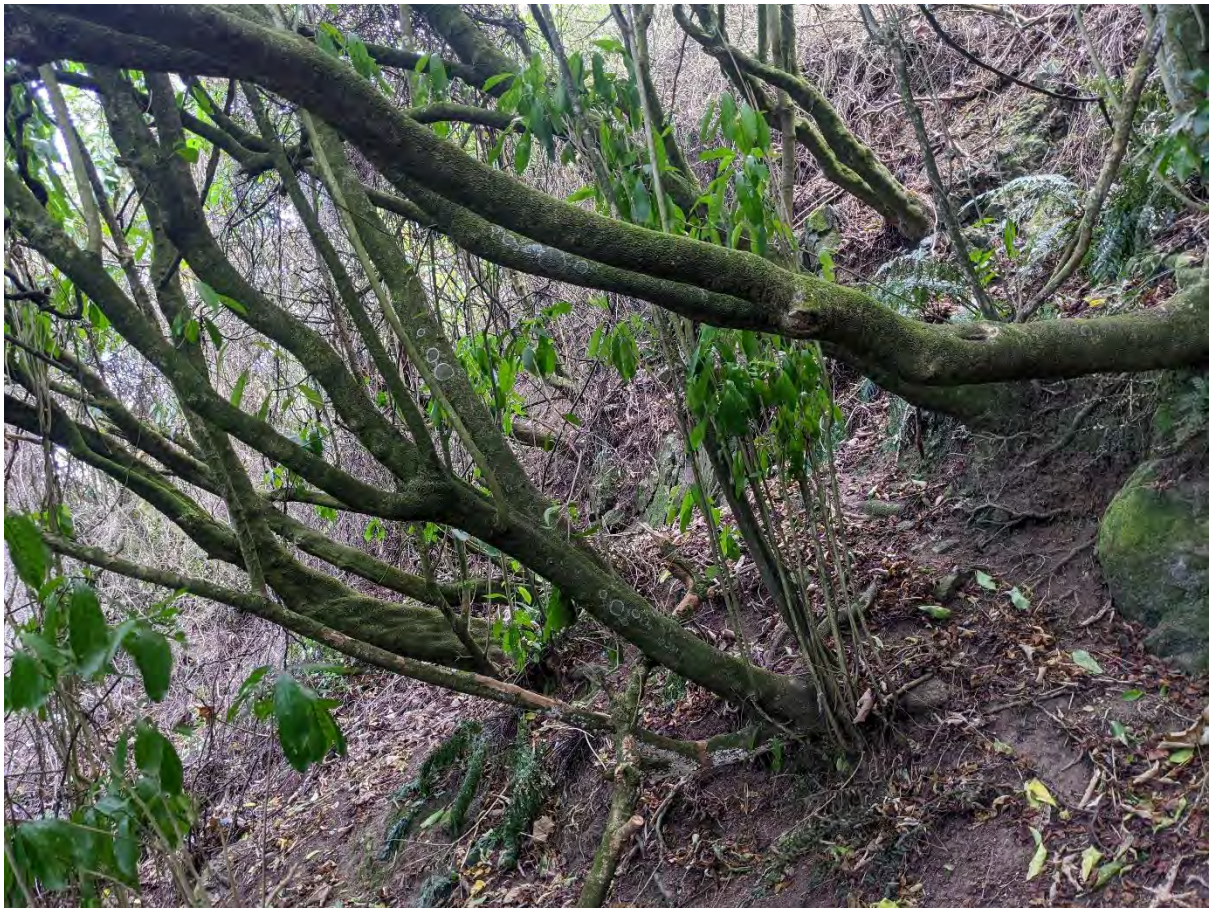

Figure 1: Interior of mixed broadleaved-exotic forest vegetation at site 205 (761 Aramoana Road).