ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 53, 64, 73, 74, 80, 85, 86, 92, 100, 103, 103A, 123 AND 127 SCROGGS HILL 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 220) at 53, 64, 73, 74, 80, 85, 86, 92, 100, 103, 103A, 123 and 127 Scroggs Hill Road located on the hills above Brighton Beach, Dunedin.

Methods

An ecological assessment of Site 220 was undertaken on 31 March 2022. The site was assessed by walk-through surveys and with binoculars to view vegetation on properties that could not be accessed. Notes were taken of vascular plants observed, as were any incidental observations of indigenous fauna.

Biodiversity Values

There is forest vegetation in a gully to the west of Scroggs Hill Road. On the eastern side of the gully on property 85 Scroggs Hill Road there is broadleaved forest (figure 1), composed largely of māhoe (*Melicytus ramiflorus*), kānuka (*Kunzea robusta*) and tī kōuka/cabbage tree (*Cordyline australis*) (figures 2, 3 and 4). There is very little understory but species included kahaha/bush lily (*Astelia fragrans*), *Coprosma* spp., kiwakiwa (*Blechnum fluviatile*), pūniu (*Polystichum vestitum*) and male fern (*Dryopteris filix-mas*). Bordering the gullythe vegetation is largely exotic, including wattle (*Acacia* sp.), gum (*Eucalyptus* sp.), hawthorn (*Crataegus monogyna)*, poplar (*Populus* sp.*)* and gorse (*Ulex europaeus*).

On the western side of the gully (103A Scroggs Hill Road) the vegetation is largely exotic with the occasional indigenous species, including several kōtukutuku (*Fuchsia excorticata*). Along the gully floor some wetland species were present such as rautahi/cutty grass (Carex geminata) and wī/leafless rush (*Juncus edgariae*) (figures 5 and 6). These continued up the gully (north) until 103 Scroggs Hill Road where there was a very small wetland area with toetoe (*Austroderia richardii.)* (figures 7 and 8).

The properties south of 85 Scroggs Hill Road and 103A Scroggs Hill Road were unable to be accessed on foot. The vegetation was observed using binoculars. The canopy on the lower slopes comprised kānuka (*Kunzea robusta*), māhoe (*Melicytus ramiflorus*), kōtukutuku

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

(*Fuchsia excorticata*), tī kōuka/cabbage tree (*Cordyline australis*), hawthorn, gorse and scotch broom (*Cytisus scoparius*). It is possible that there may be wetland habitat at the bottom of the gully, but this was unable to be assessed.

Within the gully that was assessed, there was abundant birdlife with kōparapara/bellbird (*Anthornis melanura melanura*) and pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*) being commonly observed. One of the landholders provided a list of 20 bird species they had identified during a recent survey.

To the north east there are significant areas of kānuka-dominant indigenous forest (Taylors Creek) and similar forest to the north west in Site 160.

Significance Criteria

Although there are some areas of vegetation that are dominated by indigenous tree species and provides good habitat for indigenous forest birds, it has not been mapped as important habitat for forest birds (Wildland Consultants 2020), and this area of vegetation is not large enough or diverse enough to meet the 2GP criteria for ecological significance. However, it would help to provide connectivity between the remnants of indigenous vegetation in the adjacent landscape and any future residential development should avoid clearance of indigenous trees.

Impacts of Rezoning and Mitigating Measures

The potential effects of increased residential development through rezoning include clearance of mature indigenous tree species or clearance of gorse with regenerating indigenous forest trees. Consideration should be given to retaining the indigenous tree species 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 sides with indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), mataī (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*) and broadleaved trees such as fierce lancewood (*Pseudopanax ferox*), manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*) kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), kōhūhū (*Pittosporum tenuifolium*), tarata (*P. eugenioides*), and makomako/wineberry (*Aristotelia serrata*). The wetland and gully could be enhanced by planting the wetland margin with ecologically appropriate species such as harakeke/New Zealand flax (*Phormium tenax*), pūkio (*Carex secta*), and tī kōuka/cabbage tree (*Cordyline australis*) .

The area of vegetation on site provides good habitat for forest birds, invertebrates, and possibly lizards. If the site were to be developed and pet cats were introduced this would have a negative effect on these 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 indigenous fauna.

Biodiversity Recommendation

This site is being considered for rezoning to Large Lot Residential 1 or Township and Settlement Zones. This reduces the minimum site size from 2 ha to 2000m^2, and 500m^2 respectively. Rezoning the entire site to Township and Settlement could result in adverse effects on indigenous biodiversity unless the areas of existing vegetation were excluded from

the rezoning. The gully should be protected from residential development and enhanced by indigenous planting. A combination of Large Lot Residential 1 & 2 and Township and Settlement zones could be employed to further residential development while being compatible with the maintenance of indigenous biodiversity values. The effects of this level of residential activity could be mitigated if the actions described above were implemented. As a precautionary approach, the properties surrounding the gully could be zoned as Large Lot Residential 2 (3500m^2) to reduce the potential for clearance or modification of indigenous vegetation in the gully.

Figure 1: Vegetation and habitat types
within site 220, 85-103A Scroggs Hill Road
Legend
Site boundary
Vegetation and habitat types
1. Broadleaved vegetation
2. Broadleaved-exotic vegetation
3. Exotic vegetation
4. Wetland vegetation
Data Acknowledgment
Map contains data sourced from LINZ
Crown Copyright Reserved
Wildlands
Scale: 1:3,000
Date: 20/04/2022
Cartographer: LD
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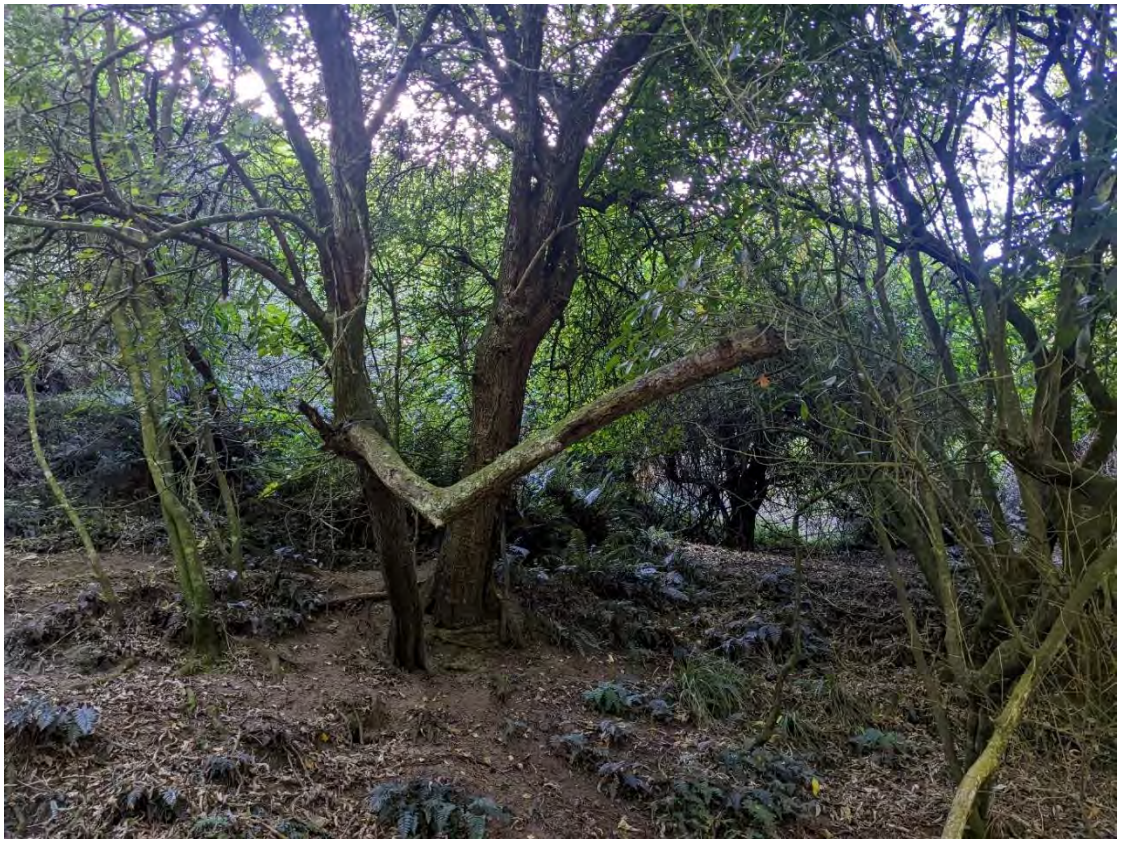

Figure 2: Interior of broadleaved forest at site 220, Scroggs Hill.

Figure 3: Interior of broadleaved forest at site 220, Scroggs Hill.

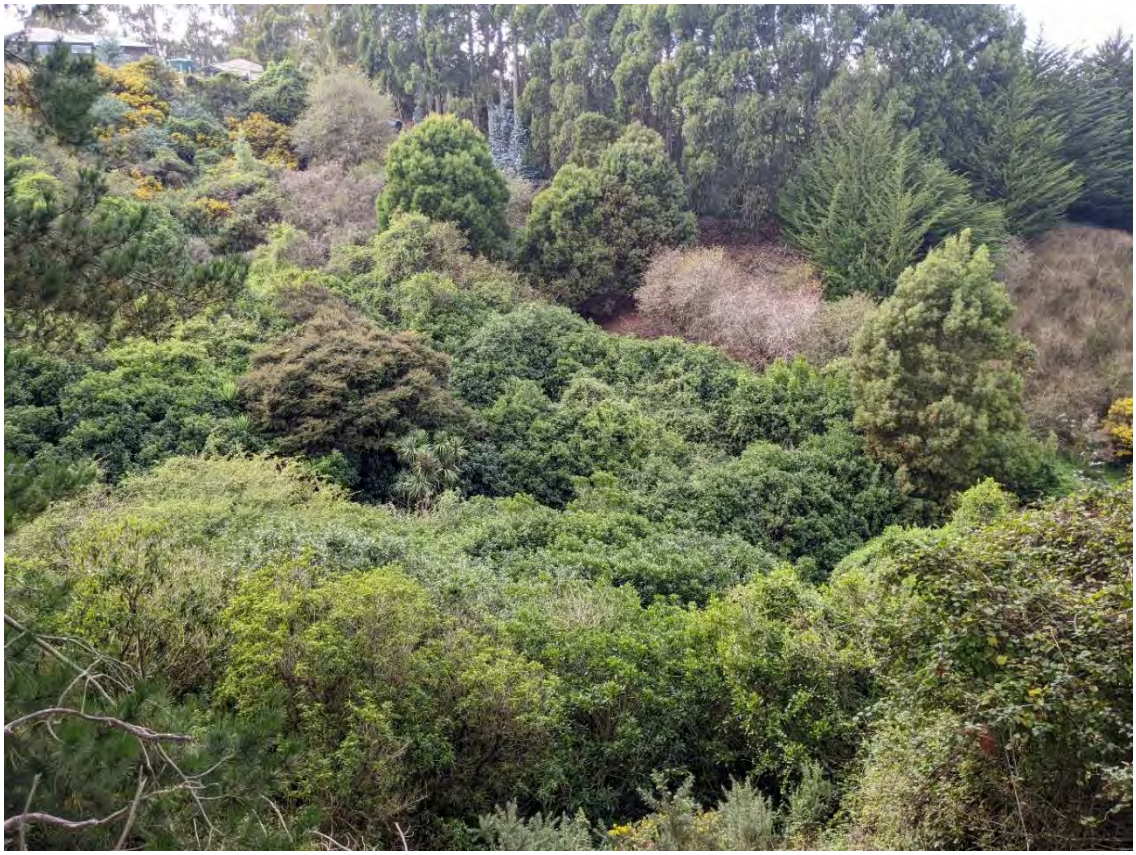

Figure 4: Canopy of broadleaved forest at site 220, Scroggs Hill.

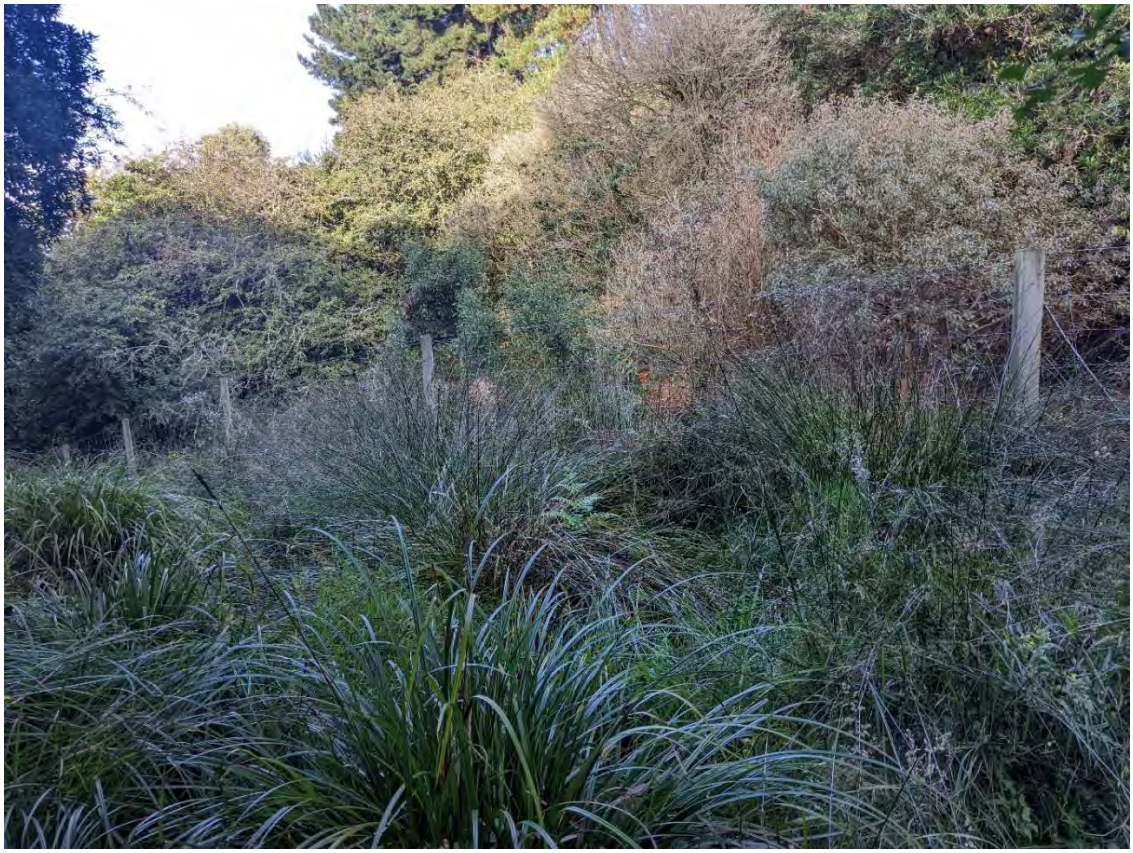

Figure 5: Wetland species present along gully floor at site 220, Scroggs Hill.

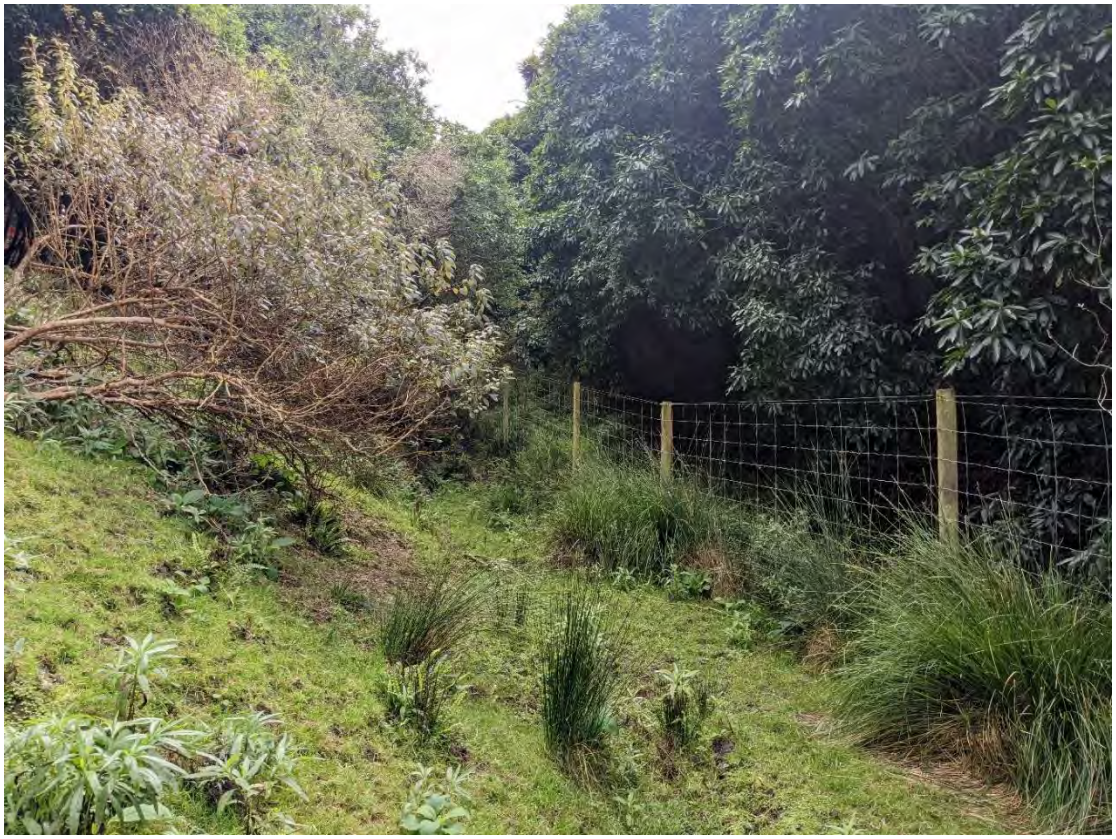

Figure 6: Wetland species present along gully floor at site 220, Scroggs Hill.

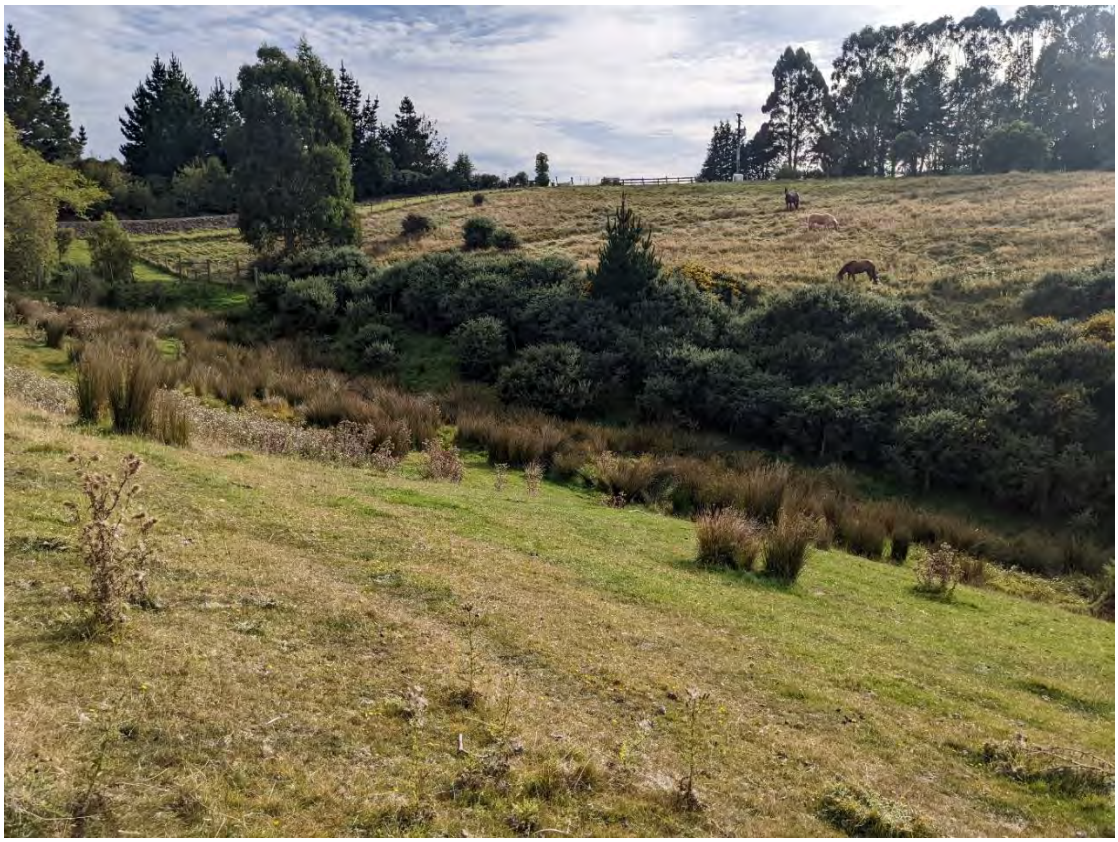

Figure 7: Wetland habitat at site 220, Scroggs Hill.

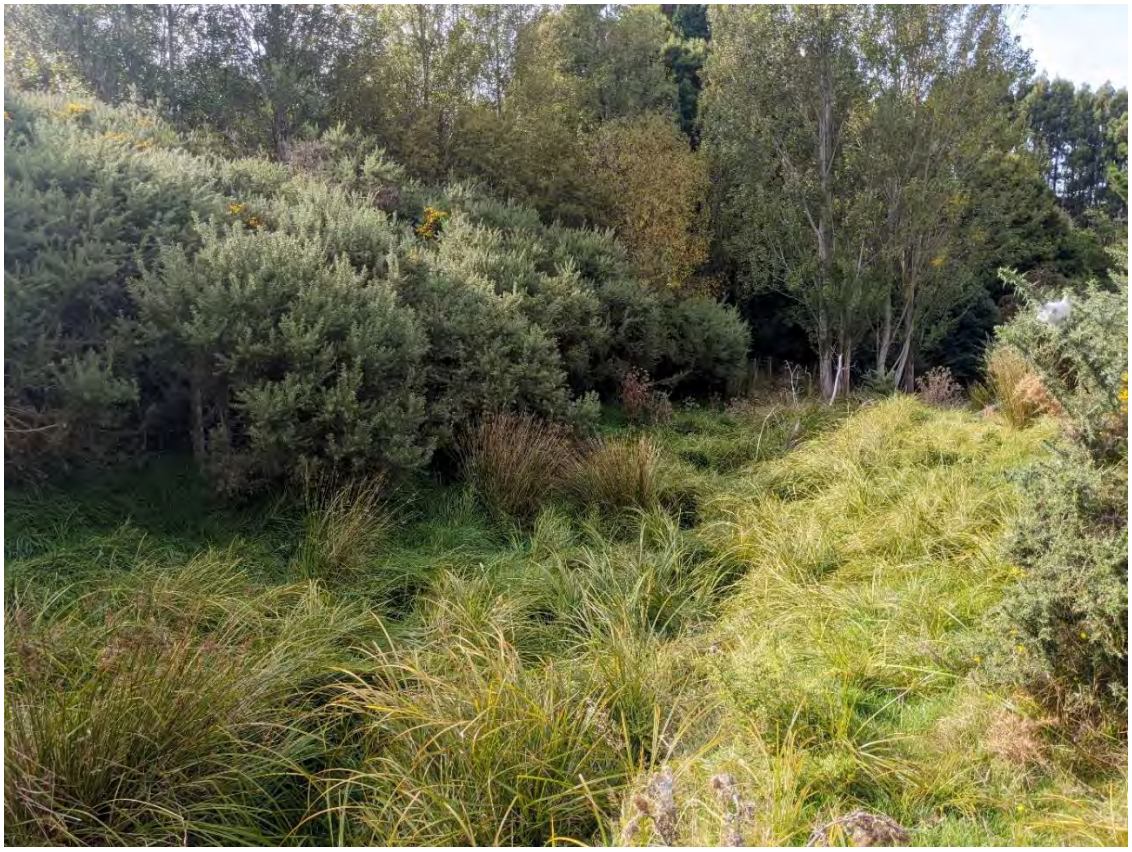

Figure 8: Wetland habitat at site 220, Scroggs Hill.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 155 and 252 SCROGGS HILL 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 160) located on 155 and 252 Scroggs Hill Road on hills above Brighton Beach, Dunedin.

Methods

An ecological assessment of Site 160 was undertaken on 31 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

Site 160 is bisected by Scroggs Hill Road. To the east of Scroggs Hill Road the vegetation is not ecologically significant (figure 1). There is a small gully that is dominated by exotic species such as crack willow (*Salix xfragilis*), hawthorn (*Crataegus monogyna)* and gorse (*Ulex europaeus*) with occasional indigenous species - wī/leafless rush (*Juncus edgariae*) and large-leaved pōhuehue (*Muehlenbeckia australis*). The other areas of vegetation on the eastern site area are largely planted macrocarpa (*Cupressus macrocarpa*).

On the west side of Scroggs Hill Road there is a gully running down from the existing farmhouse (figures 2, 15). From approximately 60 metres south of the farmhouse the gully contains wetland habitat down most of the side branches and along the gully floor (figure 1), continuing for the remaining length of the site (figures 3, 4 5, 6, 8, 9, 10, 11 and 12). These wetlands almost entirely comprise indigenous species such as rautahi/cutty grass (*Carex geminata*), wī/leafless rush (*Juncus edgariae*) and giant rush (*Juncus pallidus*). There is also a large area of broadleaved forest vegetation down the centre of the gully with fragments of broadleavead forest (figure 7) and kānuka-dominant forest above (figures 13 and 14). Toward the top of the gully the vegetation contains many mature broadleaved species and several very large horoeka/lancewood (*Pseudopanax crassifolius*). Other species include kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), tī kōuka/cabbage tree (*Cordyline australis*), māhoe (*Melicytus ramiflorus*), kōhūhū (*Pittosporum tenuifolium*), tarata (*Pittosporum eugenioides*), kānuka (*Kunzea robusta*), mikimiki (*Coprosma rotundifolia* and *Coprosma propinqua*), tātarāmoa/bush lawyer (*Rubus cissoides*), large-leaved pōhuehue

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

(*Muehlenbeckia australis*) and shield fern (*Polystichum neozelandicum*). In general, there were very few exotic plants under the canopy, but blackberry (*Rubus fruticosus*) and gorse were present around the vegetation border. The forest contained very little understorey, likely due to grazing given its location in farmed landscape. Further down the gully kānuka begins to dominate and there is a presence of hawthorn, karamū (*Coprosma robusta*), akakaikiore/native jasmine (*Parsonsia heterophylla*) and male-fern (*Dryopteris filix-mas*). Around the edges of the broadleaved vegetation there are occasional exotics such as poplar (*Populus* sp.), macrocarpa and gum (*Eucalyptus* sp.).

There is also an area of dominant indigenous wetland on the far west of the site below a pond and following along the gully and side branches (figure 1). Kānuka forest containing tī kōuka and māhoe is present on the wetland margins (figures 16, 17 and 18).

Most of the neighbouring gullies on nearby properties contain remnants of broadleaved forest. To the east there is ecologically significant indigenous forest vegetation in Taylors Creek and to the west in McColls Creek.

While visiting the site pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*) were observed.

Significance Criteria

The two areas of vegetation in the western part of the site comprise significant indigenous vegetation as they meet several 2GP criteria. The indigenous wetland vegetation meets the criteria of rarity as wetlands are widely held to have been reduced to less than 10% of their original extent. A small amount of the indigenous forest is located on land environments that retain less than 20% of their original cover. The broadleaved and kānuka forest surrounding the wetland habitats are important as buffering vegetation. Additionally, the forest has important ecological context attributes including connectivity and provision of indigenous fauna habitat.

Impacts of Rezoning and Mitigating Measures

The potential effects of increased residential development through rezoning include clearance of mature indigenous tree species or clearance of gorse with regenerating indigenous forest trees. It is important that the indigenous forest and wetland vegetation on the site is protected from future residential development. The site 160 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. The forest and wetland vegetation should be fenced off (with a stock-proof fence) from any adjacent residential sections, to restrict disturbance of these areas by people and pets.

The area of indigenous vegetation and habitat on the site provides good habitat for indigenous fauna. If the site were to be developed resulted in an increase in the density of domestic and feral cats, 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 indigenous fauna.

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 prohibiting the

planting of any pest plants listed as ‘pest plants’ or ‘organisms of interest’ in the Otago Regional Pest Management Strategy.

Intensive residential development has the potential to degrade the water quality of surface run-off through an increase in non-permeable surfaces and contamination of storm water. Wetland habitats can be utilised to help reduce impacts of surface flooding in heavy rain by filtering run-off, absorbing excess water and nutrients. With careful planning, the swamp wetlands on this site could be used in this way but would need to be monitored to ensure that they are not filled with sediment. The wetland habitats not already protected by forest could be enhanced by planting their margins with ecologically appropriate species such as harakeke/New Zealand flax (*Phormium tenax*), pūkio (*Carex secta*), and tī kōuka/cabbage tree (*Cordyline australis*).

Indigenous biodiversity could be restored by planting any gaps in the existing forest with indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), mataī (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*) and broadleaved trees such as fierce lancewood (*Pseudopanax ferox*), manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*), kōhūhū (*Pittosporum tenuifolium*), tarata (*P. eugenioides*), and makomako/wineberry (*Aristotelia serrata*).

Biodiversity Recommendation

The current zoning of Site 160 is a combination of Rural Coastal and Rural Residential 1 and is being considered for rezoning to a mix of rezoning to Large Lot Residential 1, Large Lot Residential 2, and Township and Settlement zoning. These have minimum site sizes of 2000m^2, 3500m^2 and 500m^2 respectively. Even if the areas of significant vegetation were excluded from the zone, allowing the maximum level of development (Township and Settlement) 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.

A combination of Large Lot Residential 1 & 2 and Township and Settlement zones could be used to further residential development while being more compatible with the maintenance and enhancement of indigenous biodiversity values. The effects of this level of residential activity could be mitigated if the actions described above were implemented. The area to the east of Scroggs Hill Road is most suitable for rezoning to Township and Settlement and also the area directly adjacent to Scroggs Hill Road in the western part of the site. The areas closer to the vegetated gullies in the west could be zoned as Large Lot Residential 1 (2000m^2) or as Large Lot Residential 2 (3500m^2) depending on their proximity to the gullies, to reduce the potential for disturbance and modification to gully vegetation, habitats, and species.

Figure 1: Vegetation and habitat types within site 160, 155-252 Scroggs Hill Road
Legend
Site boundary
Vegetation and habitat types
1. Indigenous forest vegetation
2. Wetland vegetation
3. Exotic forest vegetation
Data Acknowledgment
Map contains data sourced from LINZ
Crown Copyright Reserved
Wildlands
Scale: 1:5,500
Date: 20/04/2022
Cartographer: LD
Format: A3R
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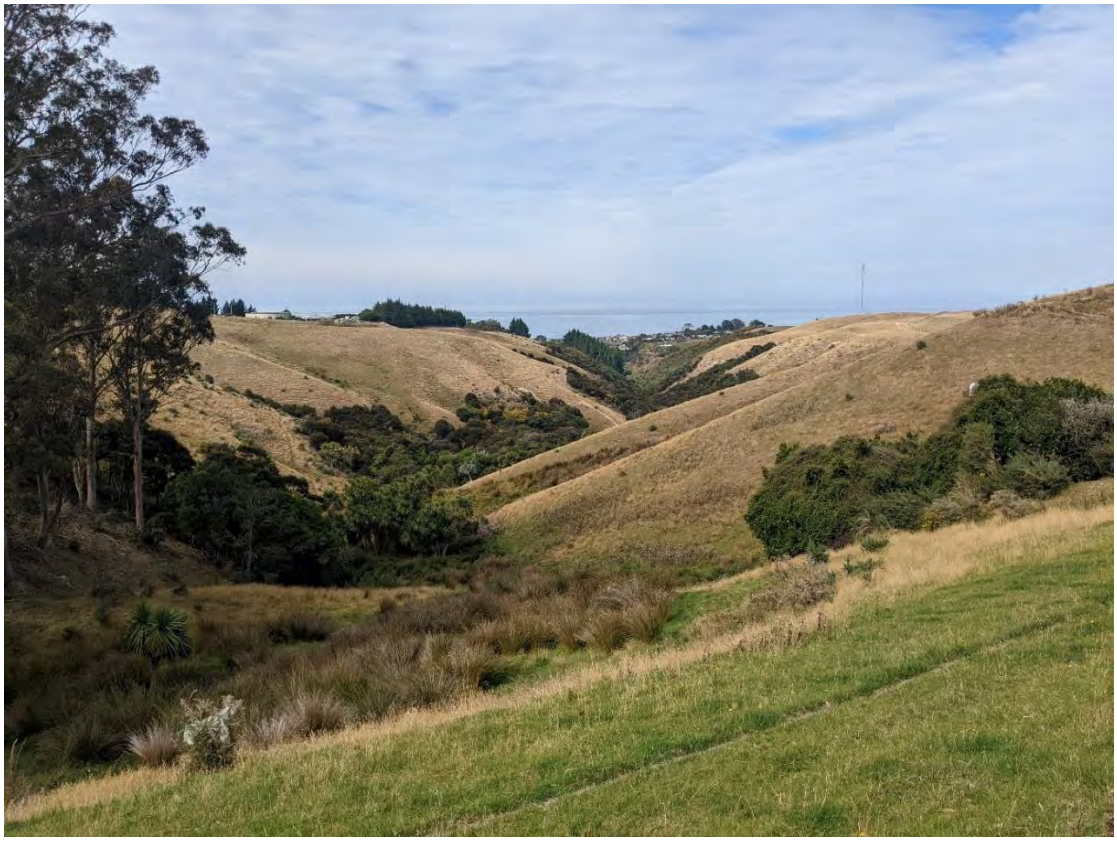

Figure 2: View towards the south from the top of the main gully containing indigenous vegetation at site 160, Scroggs Hill.

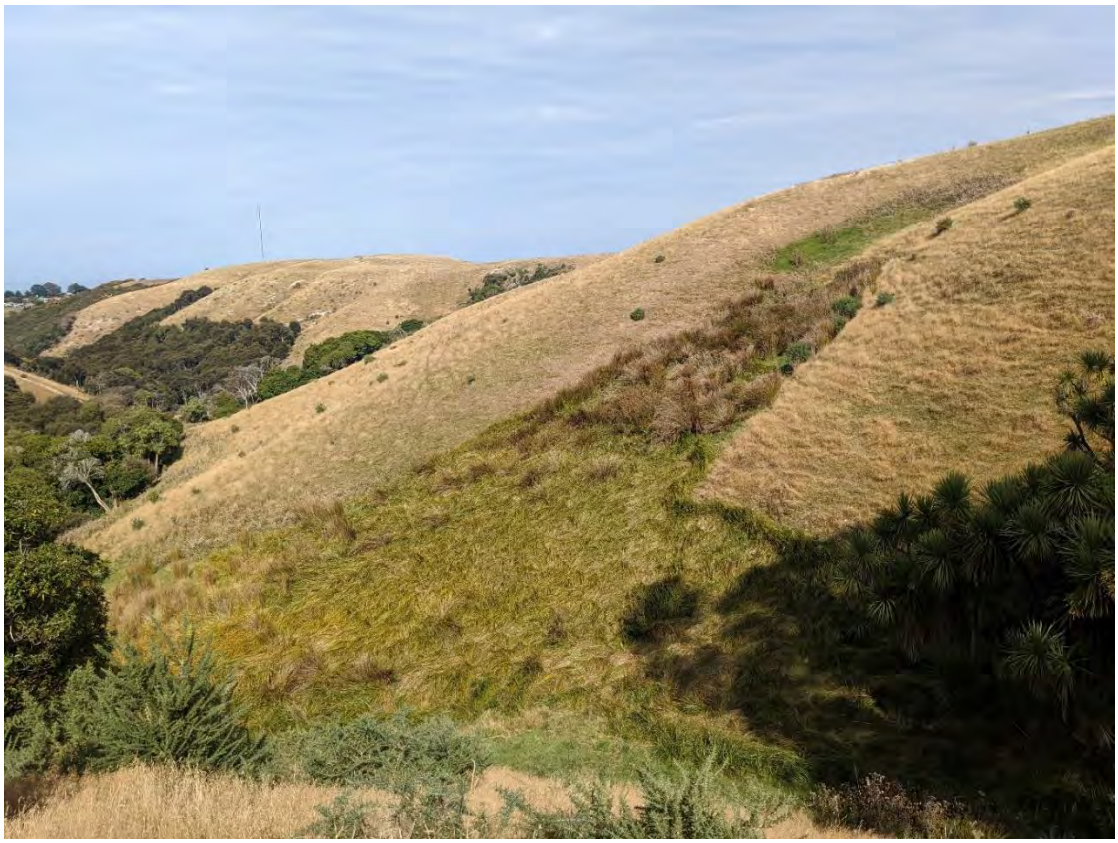

Figure 3: Wetland vegetation at the top of the main gully at site 160, Scroggs Hill.

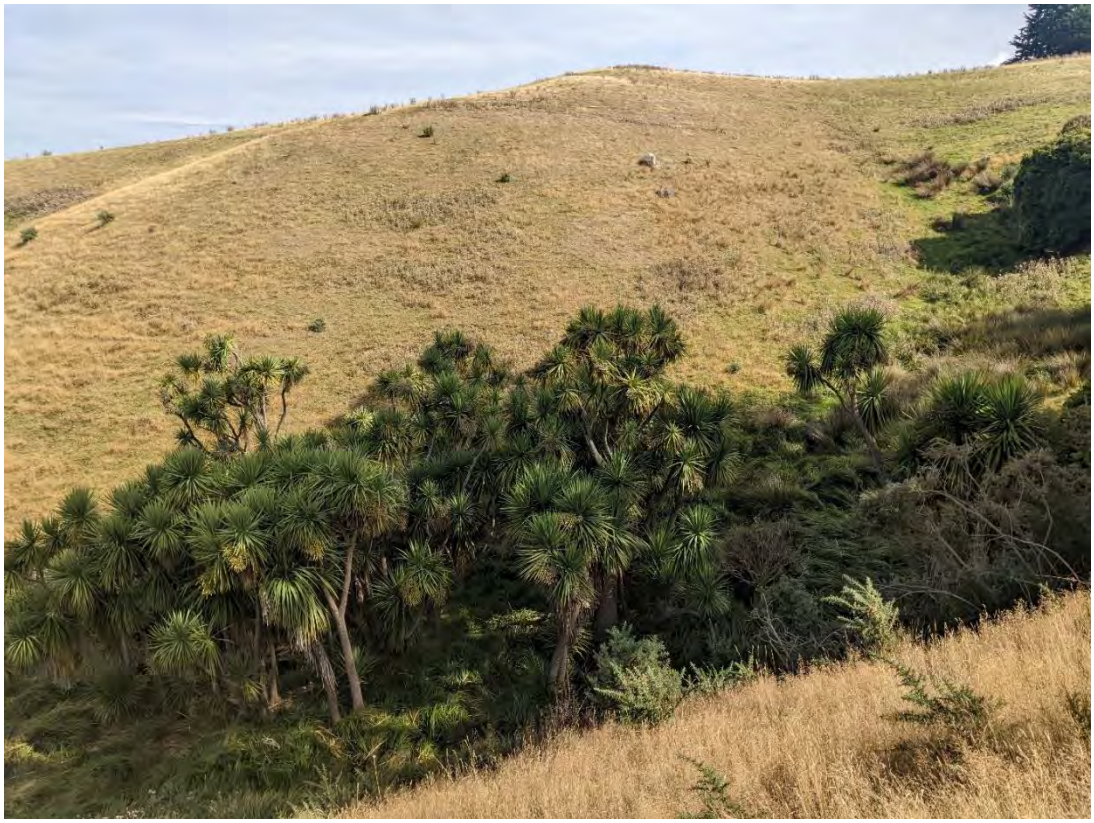

Figure 4: Wetland vegetation interspersed with tī kōuka/cabbage tree (*Cordyline australis*) near the top of the main gully at site 160, Scroggs Hill.

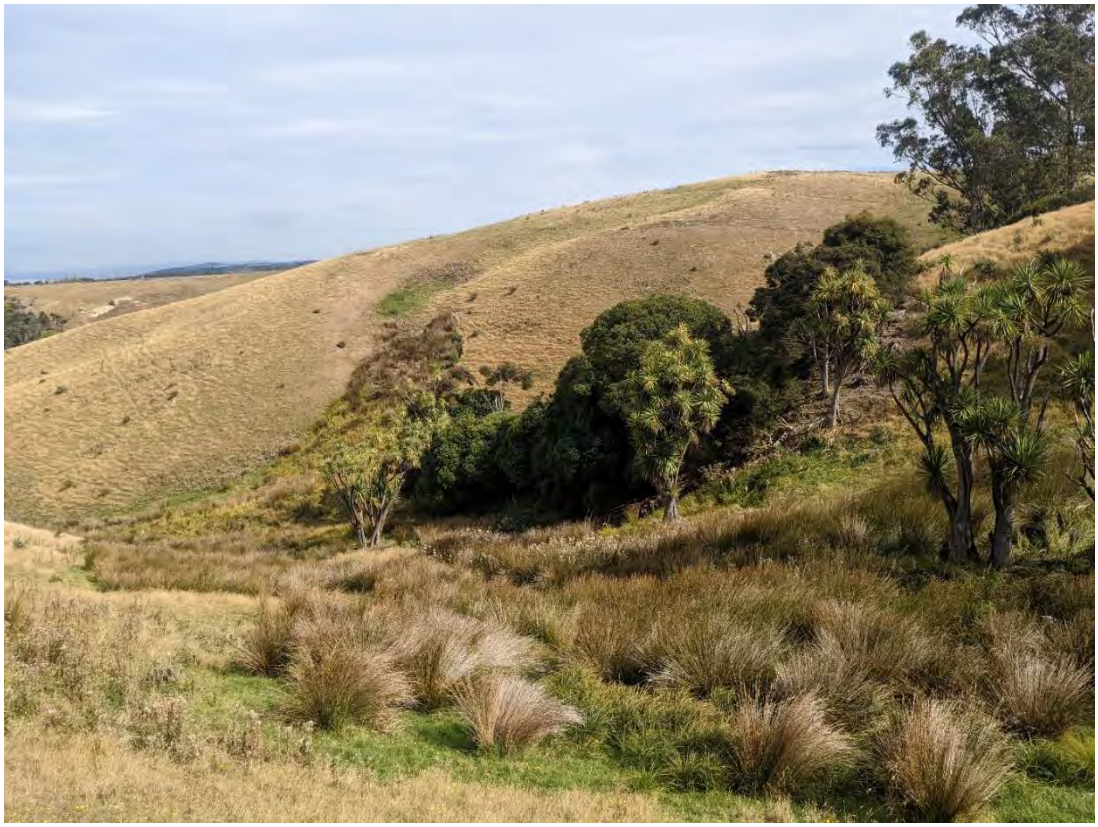

Figure 5: Wetland vegetation interspersed with tī kōuka/cabbage tree (*Cordyline australis*) near the top of the main gully at site 160, Scroggs Hill.

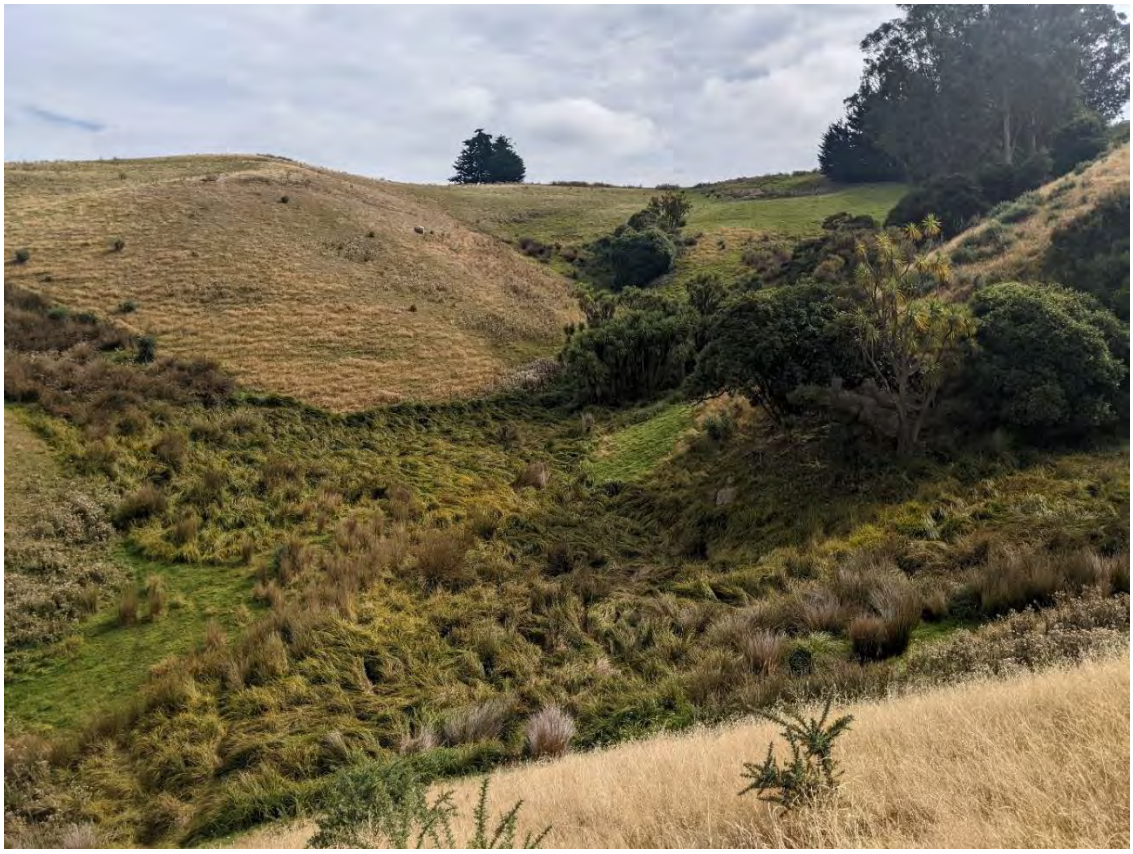

Figure 6: Indigenous wetland and forest vegetation near the top of the main gully at site 160, Scroggs Hill.

Figure 7: Interior of broadleaved forest at site 160, Scroggs Hill.

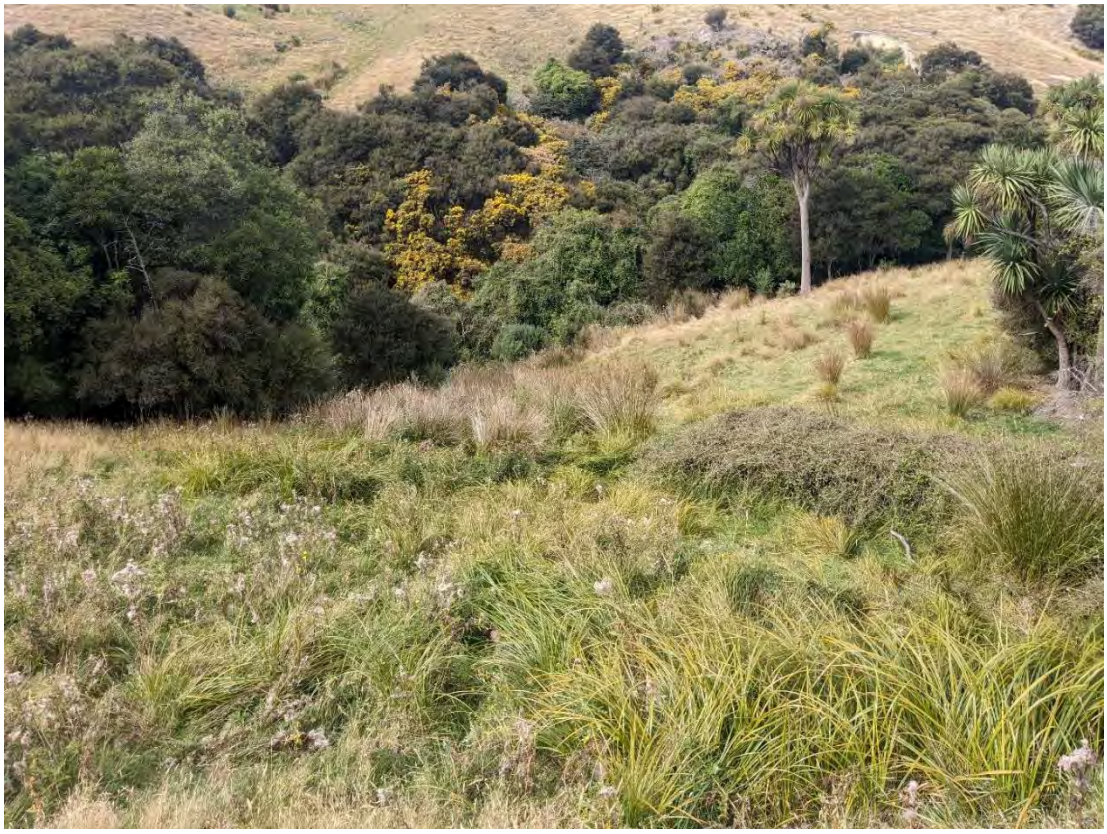

Figure 8: One of the gully side branches containing wetland vegetation at site 160, Scroggs Hill.

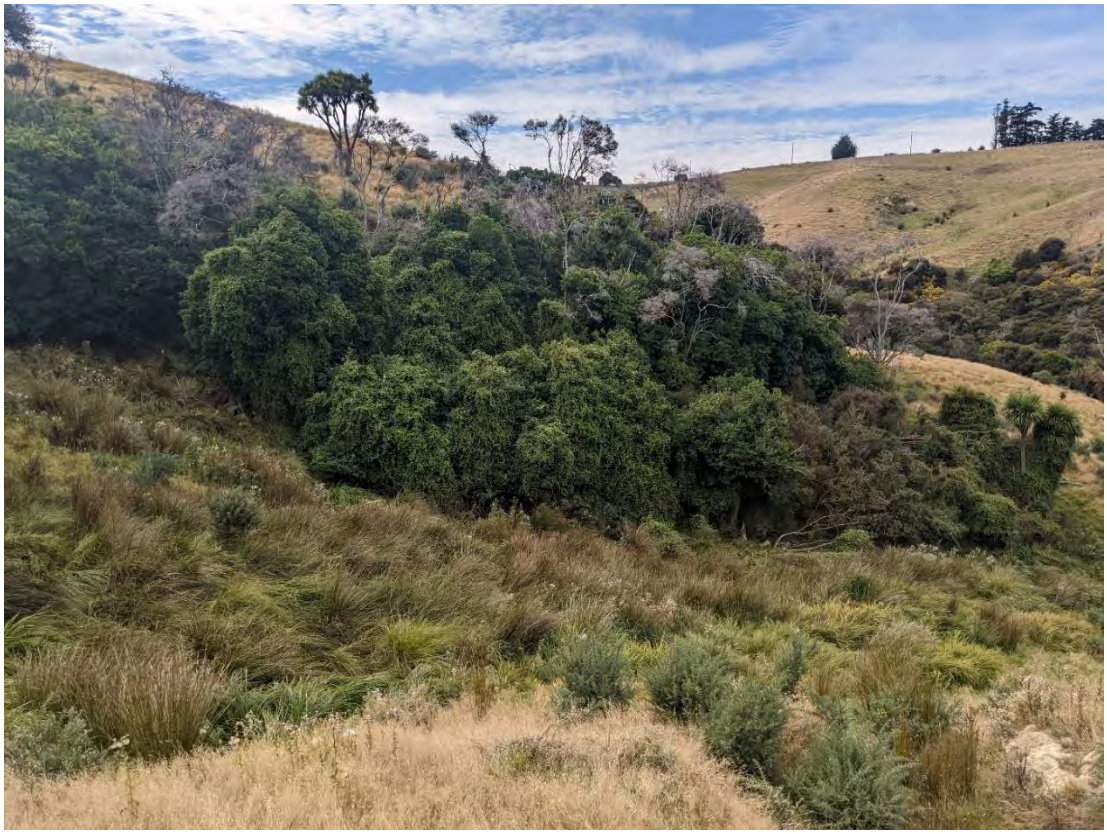

Figure 9: One of the gully side branches containing wetland vegetation at site 160, Scroggs Hill.

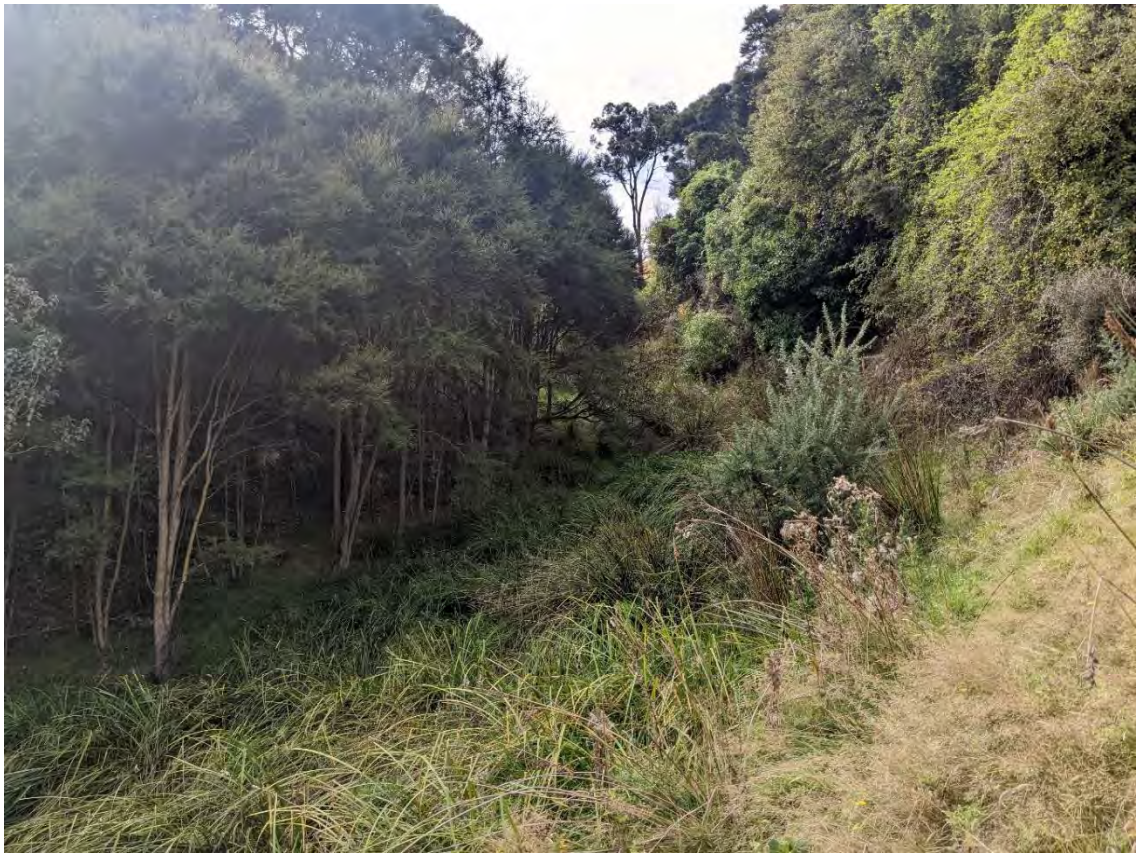

Figure 10: One of the gully side branches containing wetland vegetation at site 160, Scroggs Hill.

Figure 11: Wetland vegetation along the main gully floor at site 160, Scroggs Hill.

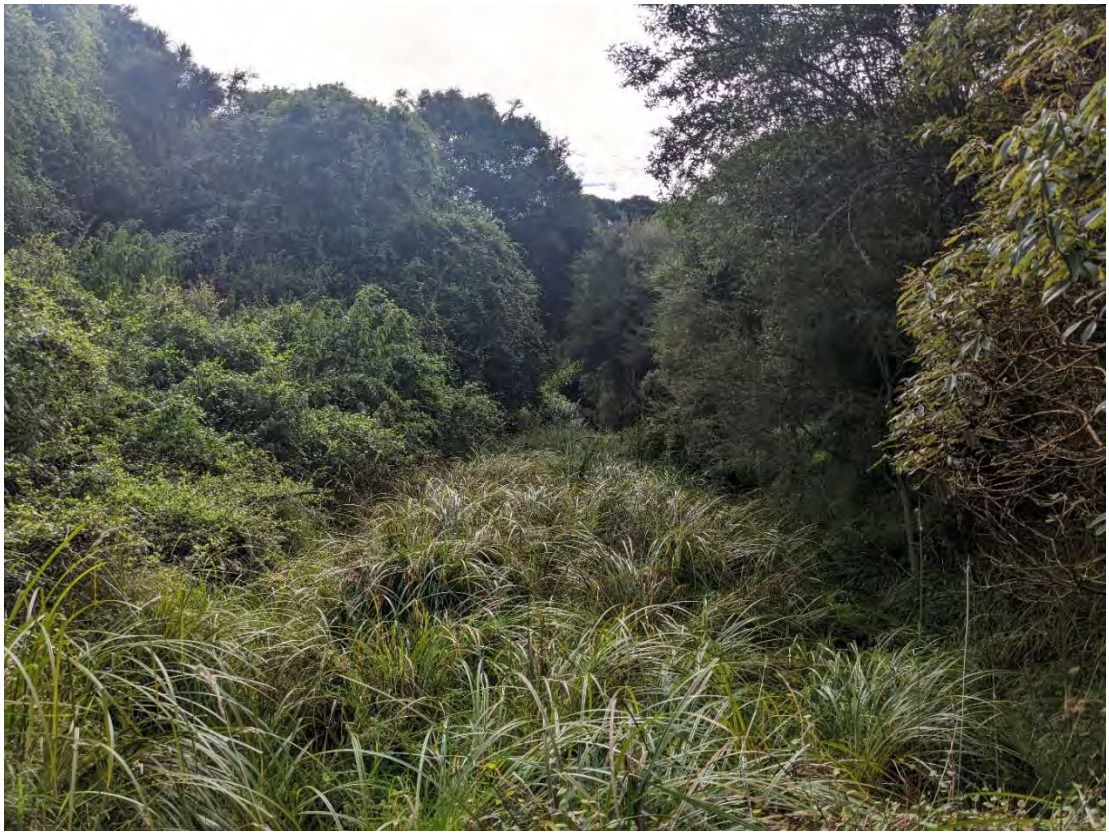

Figure 12: Wetland vegetation along the main gully floor at site 160, Scroggs Hill.

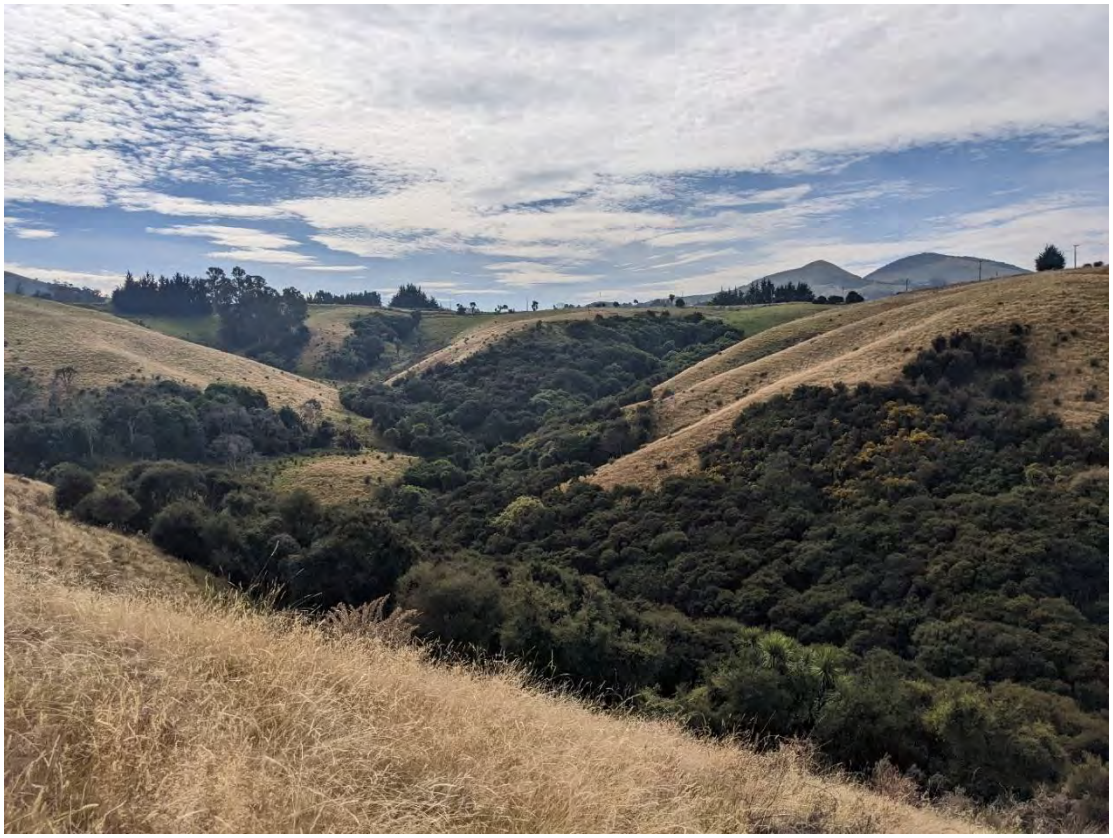

Figure 13: View towards the north up the main gully containing broadleaved forest at site 160, Scroggs Hill.

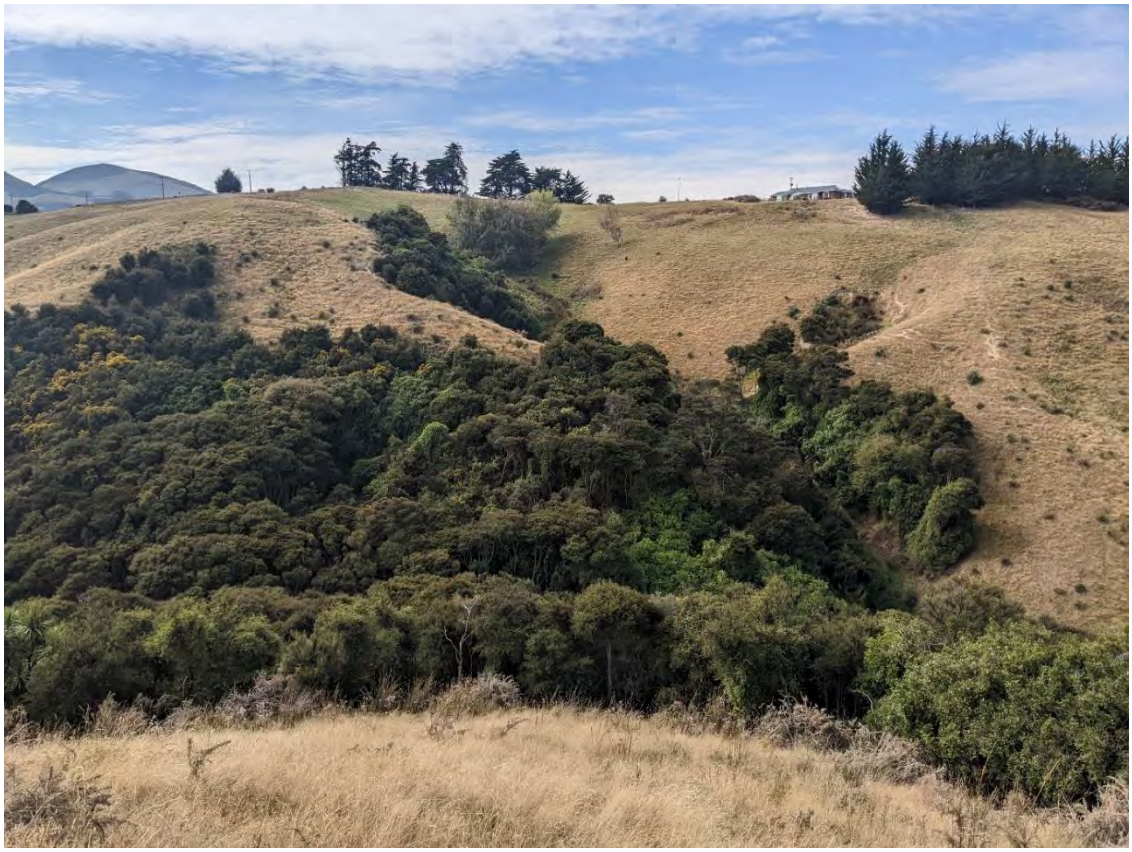

Figure 14: View towards the east over the lower main gully containing broadleaved forest at site 160, Scroggs Hill.

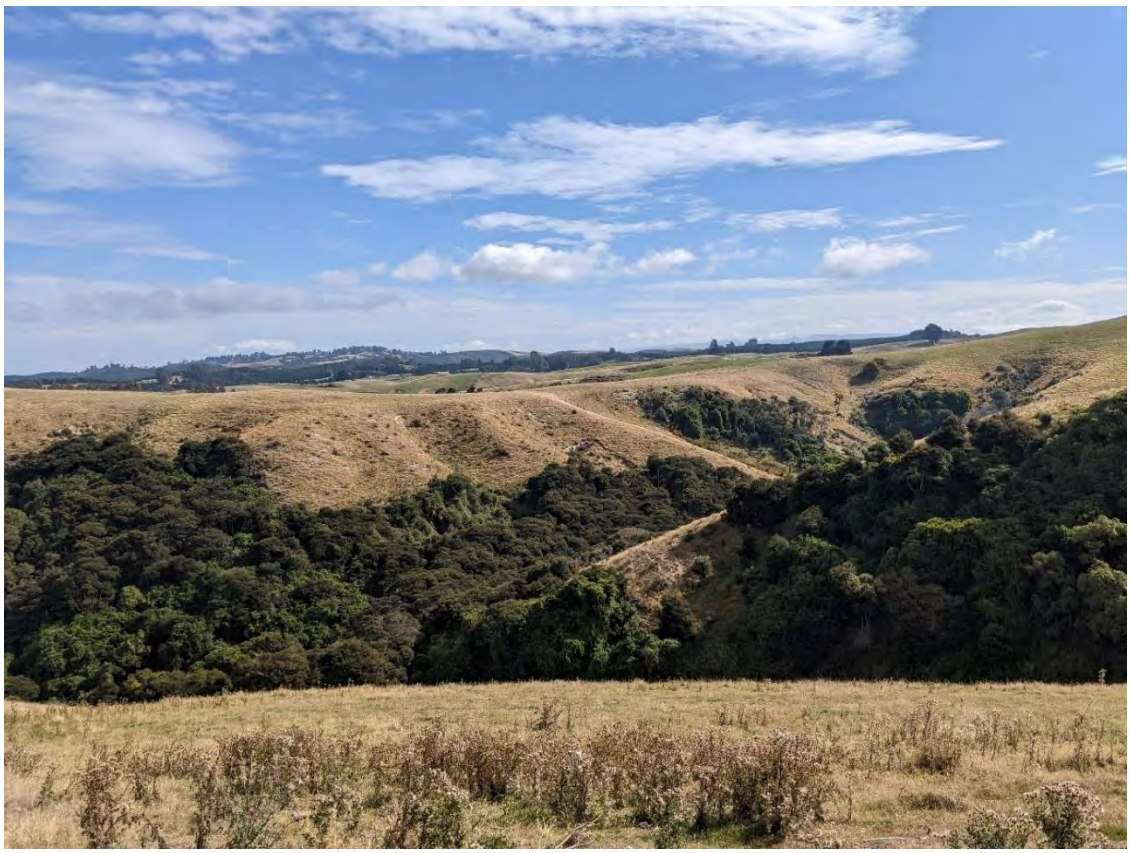

Figure 15: View across the main gully containing broadleaved forest at site 160, Scroggs Hill.

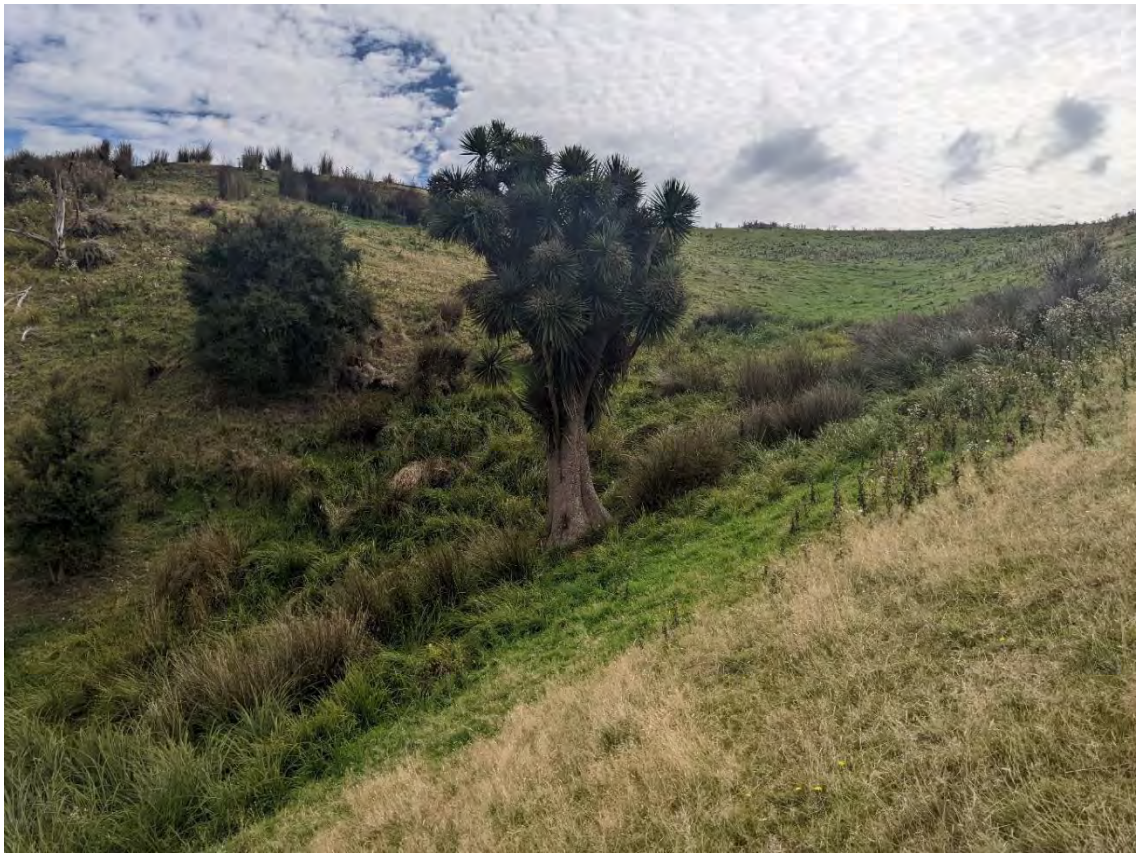

Figure 16: Wetland habitat in the western most gully at site 160, Scroggs Hill.

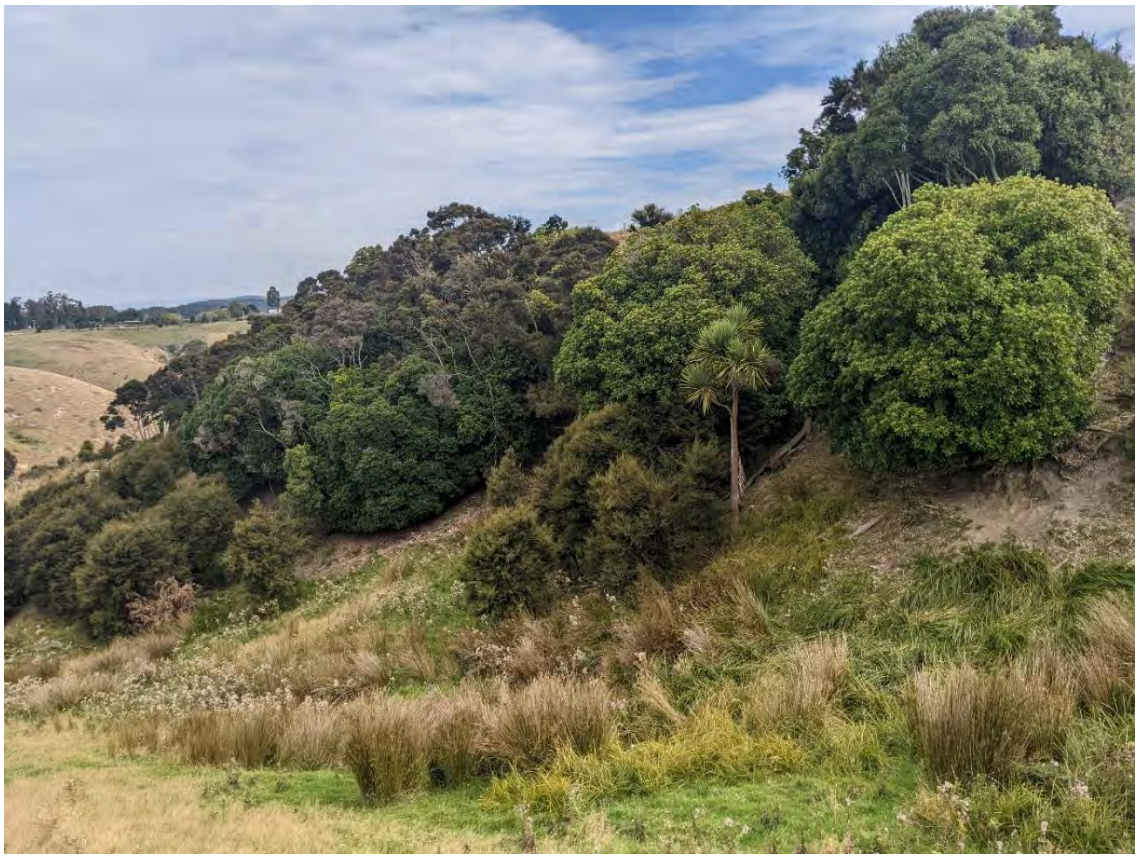

Figure 17: Indigenous forest and wetland vegetation in the western most gully at site 160, Scroggs Hill.

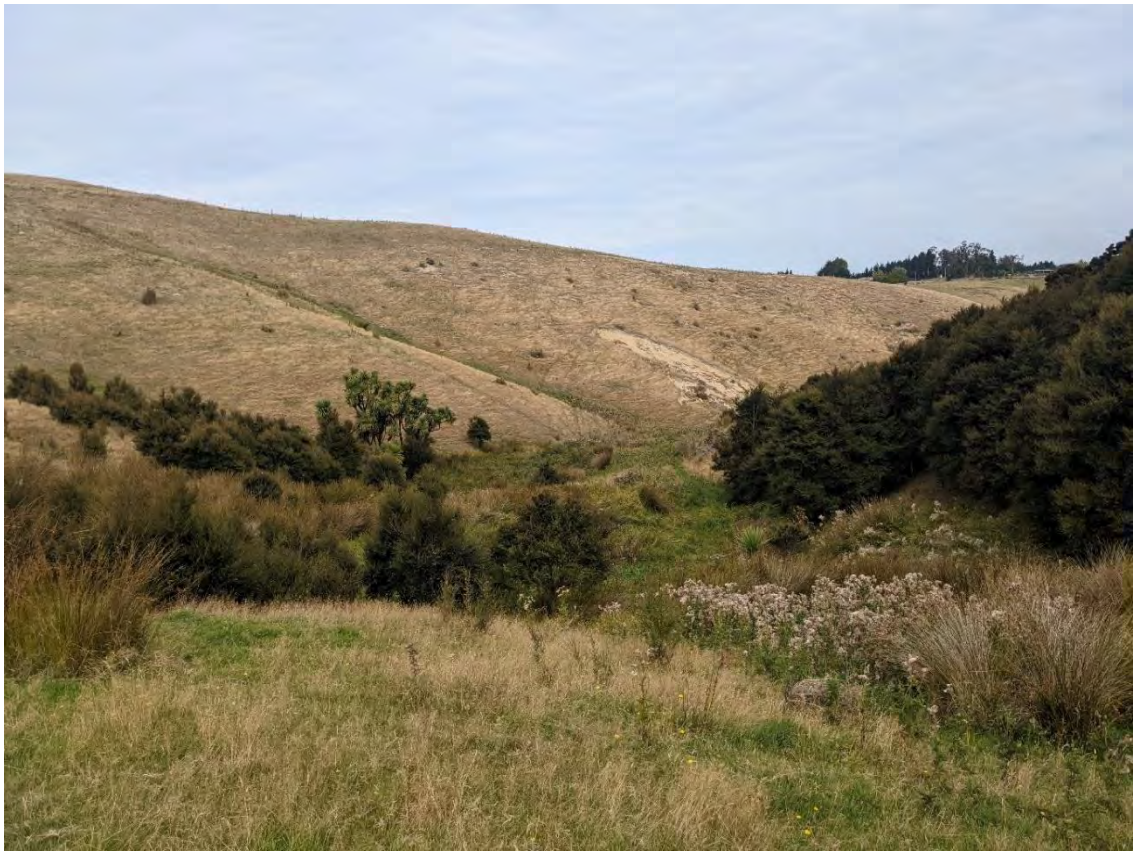

Figure 18: Indigenous forest and wetland vegetation in the western most gully at site 160, Scroggs Hill.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF 177 TOMAHAWK RD, DUNEDIN[1]

Teresa Konlechner
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 193) at 177 Tomahawk Road on the urban margin of Dunedin City. The site is located on the western side of Tomahawk Lagoon, and features a race track on reclaimed land near the lagoon outlet.

Methods

An ecological assessment of Site 193 was undertaken on 12 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

There are eight vegetation types on the site.

Most of the site comprises rough pasture in paddocks, with exotic shrubs such as tree lupin (*Lupinus arboreus*), Scotch broom (*Cytisus scoparius*) and gorse (*Ulex europaeus*), as well as blackberry (*Rubus fruticosus*), dominant in places. Vegetation is dominated by exotic plant species. However scattered ngaio (*Myoporum laetum*), 2 – 3 metres in height, poroporo (*Solanum aviculare*), bracken (*Pteridium esculentum*) and occasional mahoe (*Melicytus ramiflorus*) (2 – 3 metres in height) are present within this vegetation type. Occasional mature hawthorn (*Crataegus monogyna*) and holly (*Ilex aquifolium*) are also present, especially around the existing buildings and on the property boundary. Very occasional taupata (*Coprosma repens*) and one akiraho (*Olearia paniculata*) were also present.

On the eastern boundary north of the race-track, vegetation comprised large macrocarpa (*Cupressus macrocarpa*) growing adjacent to the lagoon. Semi continuous large macrocarpa interspersed with mature ngaio are also present along the south-west boundary and north-east boundary of the site. A small radiata pine (*Pinus radiata*) is present on the north-eastern corner of the property. The understory of these areas is almost absent. Indigenous species include very occasional juvenile ngaio, poroporo, and taupata seedlings and patches of native spinach species (*Tetragonia* spp.).

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

On the upper slopes of the site is a small area of dense, mature gorse (*Ulex europaeus)* and scotch broom (*Cytisus scoparius)* with other exotic species and occasional indigenous species including scattered regenerating ngaio, mahoe, and karamu (*Coprosma robusta*). 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.

Behind the old house in the centre of the site are several very large mature ngaio. Ngaio is a distinctive feature of the vegetation of the site, with several very large trees present as well as numerous mid-sized trees. growing throughout the site in areas where grazing pressure may be relatively low (property boundaries, areas of denser lupin and gorse).

Other vegetation types include an area of tall *Eucalyptus* sp. trees on the south-west boundary. This area also contains five individuals of lowland tōtara (*Podocarpus totara*), up to 8 – 10 metres in height with breast-height diameters of 70 centimetres. Adjacent to this area is a small linear strip of regenerating kōtukutuku/tree fuchsia (*Fuchsia excorticata)* and mahoe growing along an ephemeral stream. Along the access road adjacent to the race track, vegetation comprises a mix of gorse, bracken, lupin and ngaio overgrown by large-leaved pōhuehue (*Muehlenbeckia australis*), with marram grass (*Ammophila arenaria*) in open areas. Large-leaved pōhuehue was also present in other vegetation types, particularly in the west of the site.

While visiting the site kāhu/Australasian harrier (*Circus approximans*), pīwakawaka/fantail (*Rhipidura fuliginosa fuliginosa*), paradise shelduck (*Tadorna variegata*) and pūkeko (*Porphyrio porphyrio*) were observed. The site is adjacent to Tomahawk Lagoon, a regionally significant wetland habitat for waterfowl and waders. Several of these species are likely roost on the lower sections of the site, especially the race-track.

Ecological significance

The vegetation communities of the site do not meet the criteria set by the Dunedin City Council's 2nd Generation District Plan being largely dominated by exotic species and pasture. Indigenous plant species present are generally representative of regenerating coastal shrubland in the Dunedin Region. The individuals of lowland totara are significant and warrant protection. Large individuals of ngaio, although relatively common in coastal Otago, also warrant protection. The site provides some buffering to the adjacent Tomahawk Lagoon as well as temporary resting habitat for avifauna in the centre of the race track.

Impacts of Rezoning

Rezoning could see the development of 134 dwellings.

The potential effects of increased residential development through rezoning include clearance of regenerating indigenous forest trees, clearance of significant trees, 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 lagoon through an increase in non-permeable surfaces and contamination of storm water.

Biodiversity Recommendation

Submissions suggest rezoning the site to a General Residential 1 zone, which could produce a maximum of 134 residences developed on the site based on a minimum unit size of 400 m^2. The upper part of the site could support relatively dense residential use, but development should be avoided on the lower part of the site due to proximity to Tomahawk Lagoon and its regionally important wildlife values. If residential development was allowed on the upper part of the site, the lower part could be progressively restored to indigenous forest and coastal vegetation, helping to buffer the lagoon and provide higher quality lagoon margin habitat (e.g. reed beds). Consideration should be given to protection of the totara and the larger ngaio in the rezoning area. 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 Tomahawk Lagoon. It may be difficult to prevent such adverse effects at the higher density of residential development.

ECOLOGICAL EVALUATION OF PROPOSED REZONING OF PART 35 AND 43 WATTS ROAD, PART 109 NORTH 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 at 35 and 43 Watts Road in North East Valley.

Methods

An ecological assessment of sites 77, 206 and 206a was undertaken on 12 April 2022. Access to the site was requested from the landowner but was not received, so observations of vascular plants and vegetation and habitats were undertaken from public roads adjacent to the property using binoculars.

Biodiversity values

Lindsay Creek runs along the southern boundary of Site 77. Many indigenous species were present on the margins of the creek (Plates 1-3) including horoeka/lancewood (*Pseudopanax crassifolius*), mānatu/lowland ribbonwood (*Plagianthus regius*), māpou (*Myrsine australis*), tarata (*Pittosporum eugenioides*), kōhūhū (*Pittosporum tenuifolium*), kōtukutuku/fuchsia (*Fuchsia excorticata*), kōwhai (*Sophora* sp.), tī kōuka/cabbage tree (*Cordyline australis*), kanono (*Coprosma grandifolia*), koromiko (*Veronica salicifolia*), harakeke/lowland flax (*Phormium tenax*), *Astelia* spp. and many fern species. There were also many exotic species such as sycamore (*Acer pseudoplatanus*), hawthorn (*Crataegus monogyna*) and scotch broom (*Cytisus scoparius*) but the vegetation was dominated by indigenous species.

Further uphill on Site 77 the vegetation appears to have a higher prevalence of introduced species (Plate 4) such as gum (*Eucalyptus* sp.), radiata pine (*Pinus radiata*), poplar (*Populus* sp.), birch (*Betula* sp.), cherry (*Prunus* sp.) and sycamore. It is not possible to say whether the vegetation is overall dominated by exotic or indigenous species as it may be that the tall exotic species prevalent within the canopy obscure the indigenous species from a distance. Some of the indigenous species present within the canopy included kānuka (*Kunzea robusta*), pate/seven finger (*Schefflera digitata*), māhoe (*Melicytus ramiflorus*), whauwhaupaku/five-finger (*Pseudopanax arboreus*), kōtukutuku/fuchsia, kōhūhū, māpou, tī kōuka/cabbage tree and mānatu/lowland ribbonwood.

[1] Reviewed by Kelvin Lloyd (Principal Ecologist)

At Site 206a the canopy around the perimeter consisted of mixed exotic-indigenous vegetation with similar species to those observed in Site 77 (Plate 5). There may have been some modification of vegetation in this site (referred to in submission FS237.1), but this was unlikely to be indigenous-dominant vegetation.

Along the roadside of Site 206 the vegetation was predominantly comprised indigenous species (Plate 6) - horoeka/lancewood, whauwhaupaku/five-finger, kānuka, māpou, tarata, kōhūhū, koromiko, tī kōuka/cabbage tree, kanono, harakeke/lowland flax and several indigenous fern species. Exotic species included radiata pine, crack willow (*Salix* x*fragilis*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*), ivy (*Hedera helix*) and male fern (*Dryopteris filix-mas*).

Throughout North East Valley there are small areas of broadleaved forest.

Ecological significance

It is difficult to assess whether this area is ecologically significant without access to the interior forest vegetation and understory. Some areas of vegetation around the perimeter appear to be indigenous-dominant and contain a reasonable diversity of species, but this may not be reflective of the vegetation across the sites. It is possible that the sites may meet the 2GP ecological significance criteria in regards to ecological context (due to its habitat value and as part of network of connected habitats in the local area).

The broadleaved vegetation adjacent to Lindsay Creek acts as an ecological buffer and should be preserved.

Both indigenous and exotic forest vegetation provide habitat for indigenous fauna.

Impacts of Rezoning and Mitigating Measures

Site 206 may be appropriate to rezone to Large Lot Residential 1, however in the north-eastern part of this site there is broadleaved forest that should not be cleared for development. It may be preferable to select a smaller area within this site to develop more densely (General Residential 1) to reduce the overall amount of vegetation clearance rather than rezoning the entire site as Large Lot Residential 1.

If Sites 77 and 206a were rezoned to General Residential 2 density this would allow an additional 95 and 70 dwellings. This would certainly result in a large clearance of forest vegetation, causing a loss of biodiversity and habitat. It would also likely degrade the water quality of Lindsay Creek through an increase in non-permeable surfaces and additional contamination of storm water, although the cumulative effects of this may not be great due to the predominantly urban land use in lower catchment of Lindsay Creek. These sites may be appropriate to rezone as Large Lot Residential 2, however in the absence of a detailed assessment, this is uncertain. As above, it may be preferable to select smaller areas within these sites to develop densely (such as apartment blocks rather than clear large areas of vegetation for residential sections.

The area of vegetation on site and surrounding forest provides good habitat for birds 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

Consideration should be given to protection of indigenous forest species within the rezoning area. Requiring control of pest plants that can reach the indigenous forest canopy, such as sycamore, hawthorn, cherry and pine would help to enhance indigenous biodiversity at the site. Biodiversity could be further enhanced and restored by planting indigenous vegetation around the development.

Consideration should 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 Lindsay Creek.

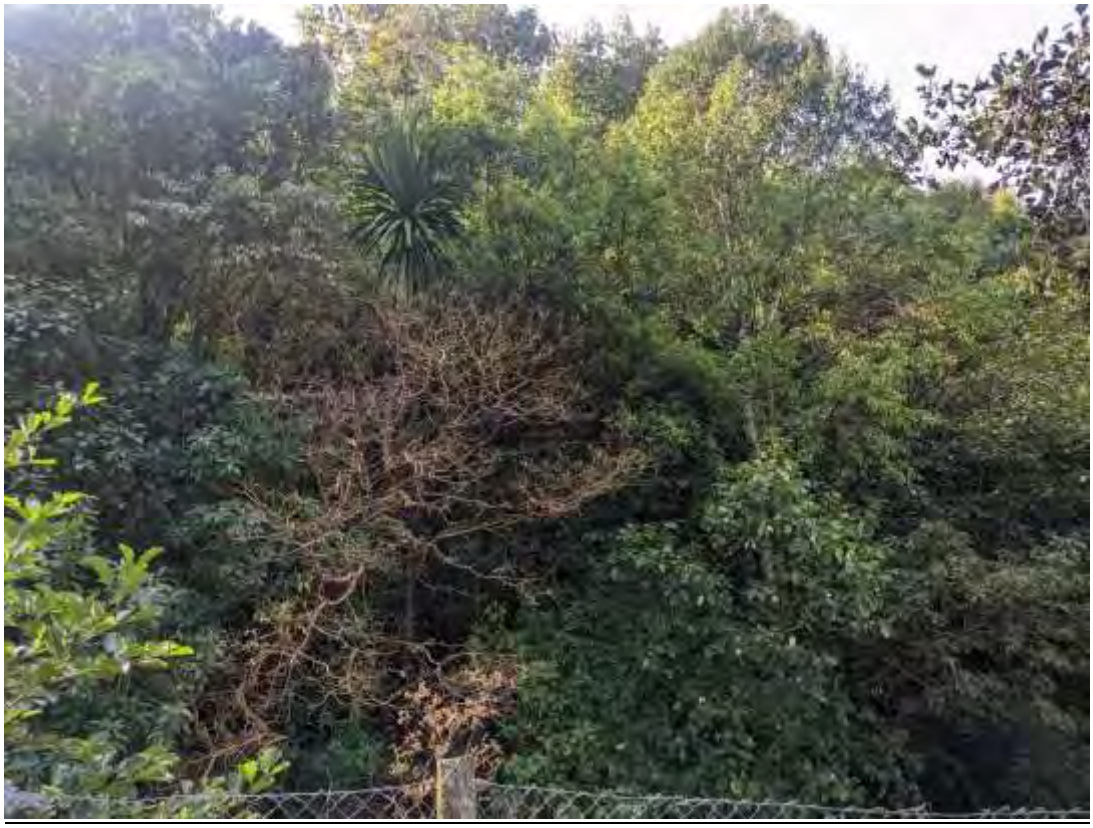

Plate 1: Forest vegetation bordering Lindsay Creek at site 77.

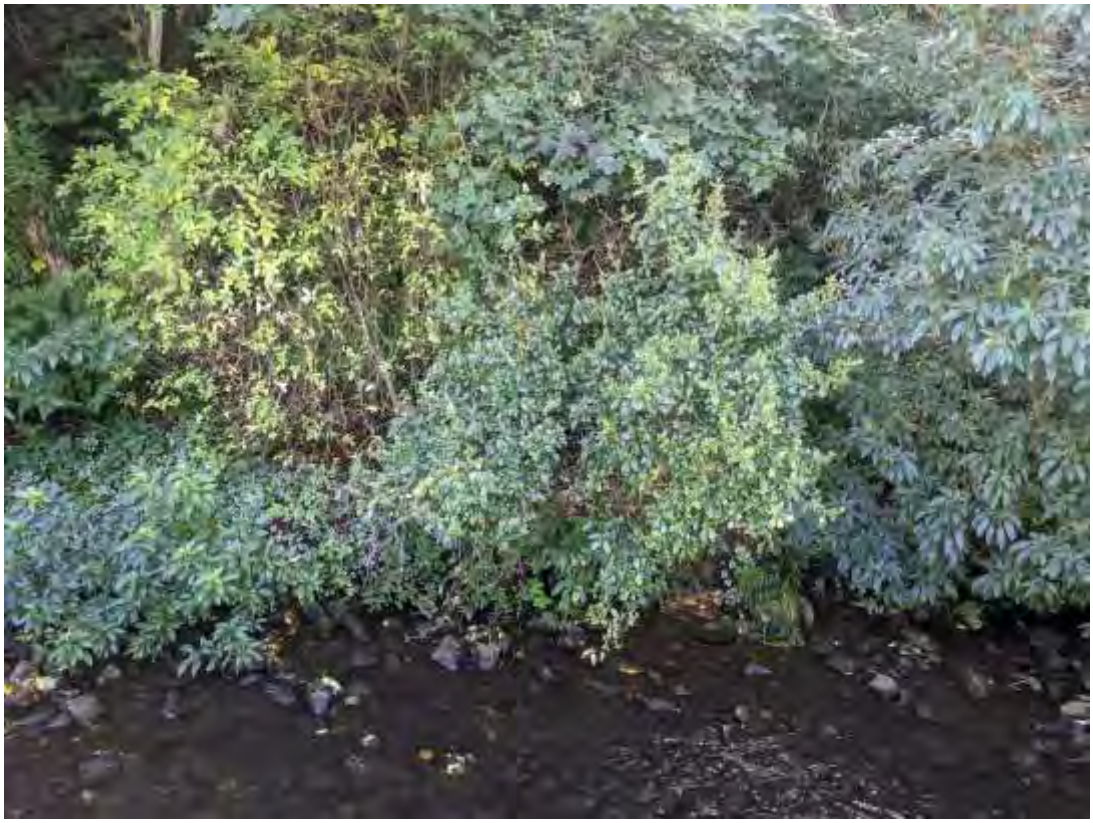

Plate 2: Forest vegetation bordering Lindsay Creek at site 77.

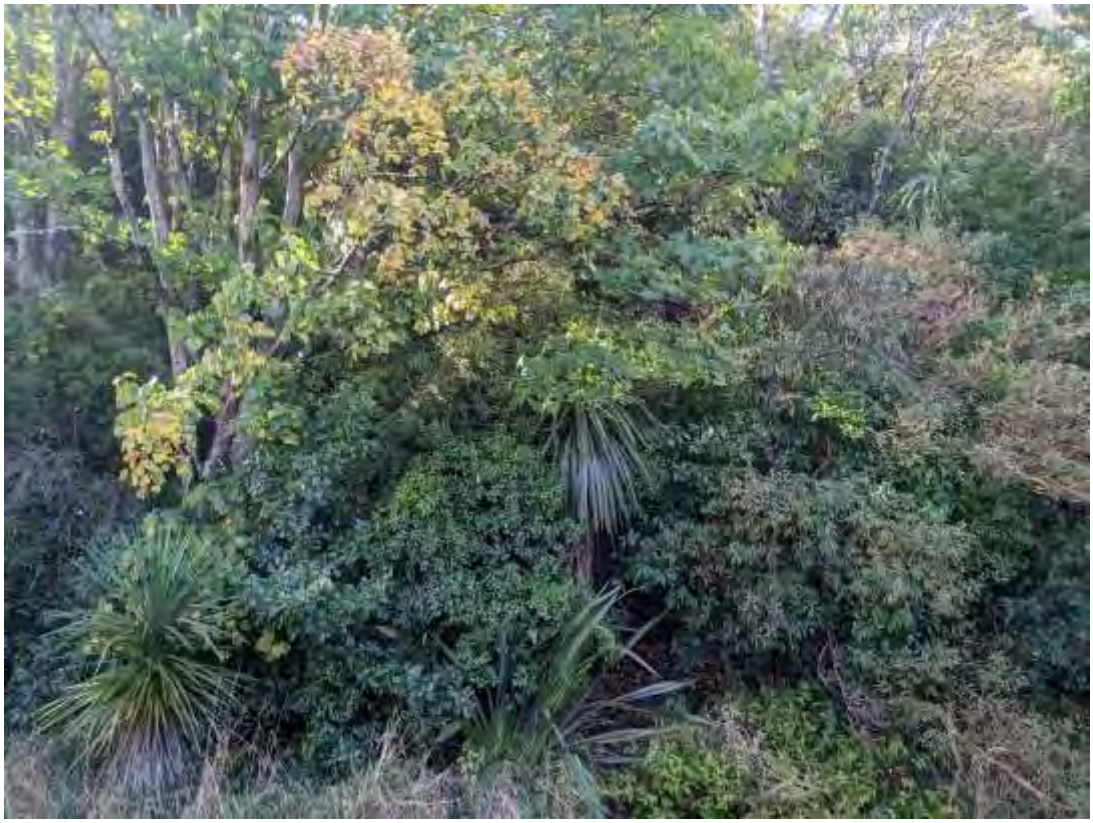

Plate 3: Forest vegetation bordering Lindsay Creek at site 77.

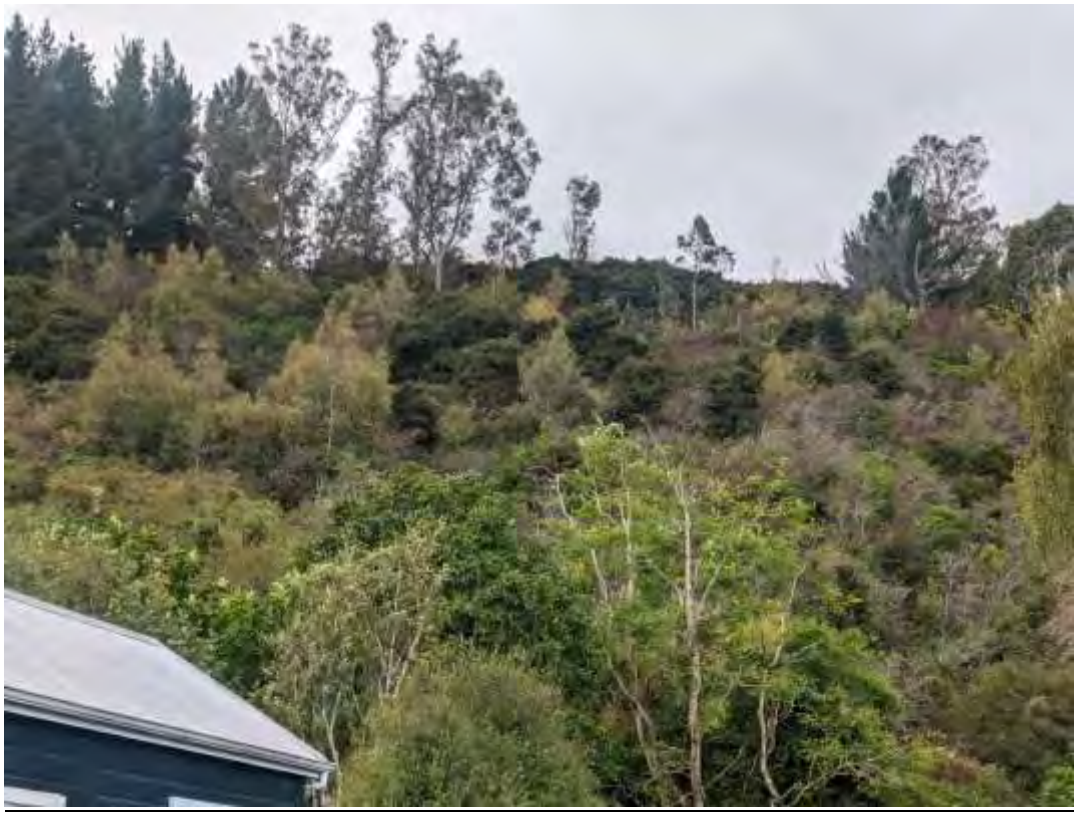

Plate 4: View of vegetation uphill of Lindsay Creek at site 77.

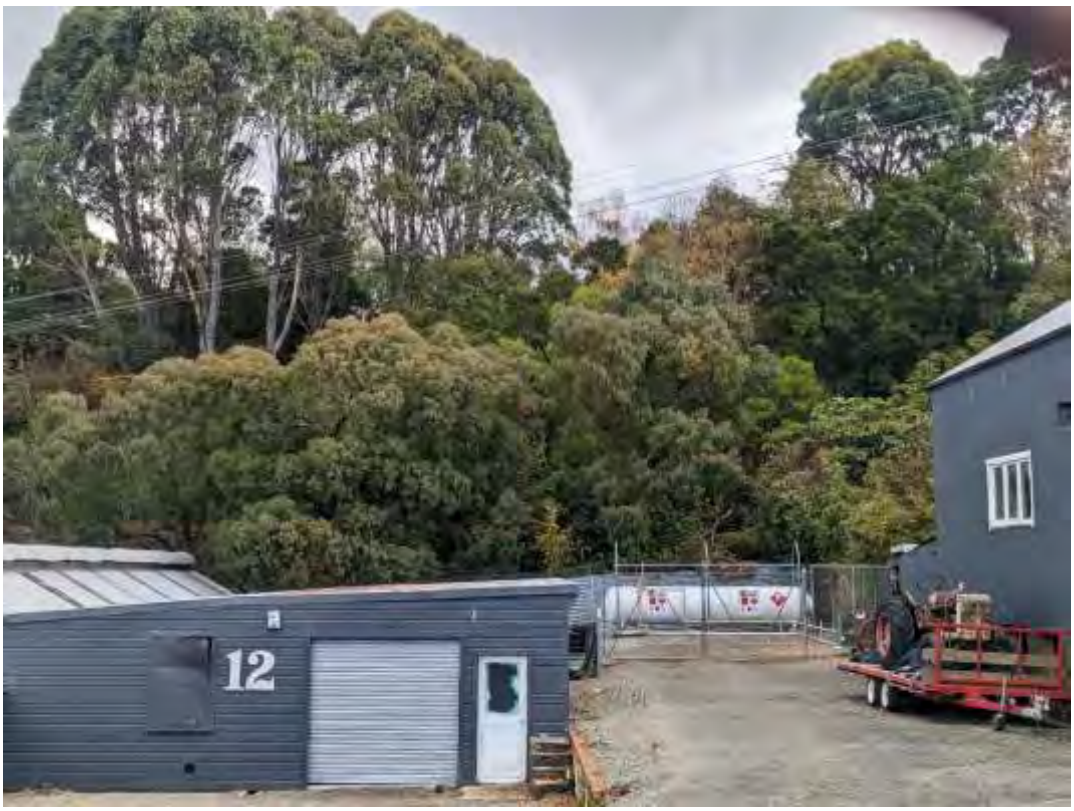

Plate 5: View of vegetation at site 206a from Watts Road.

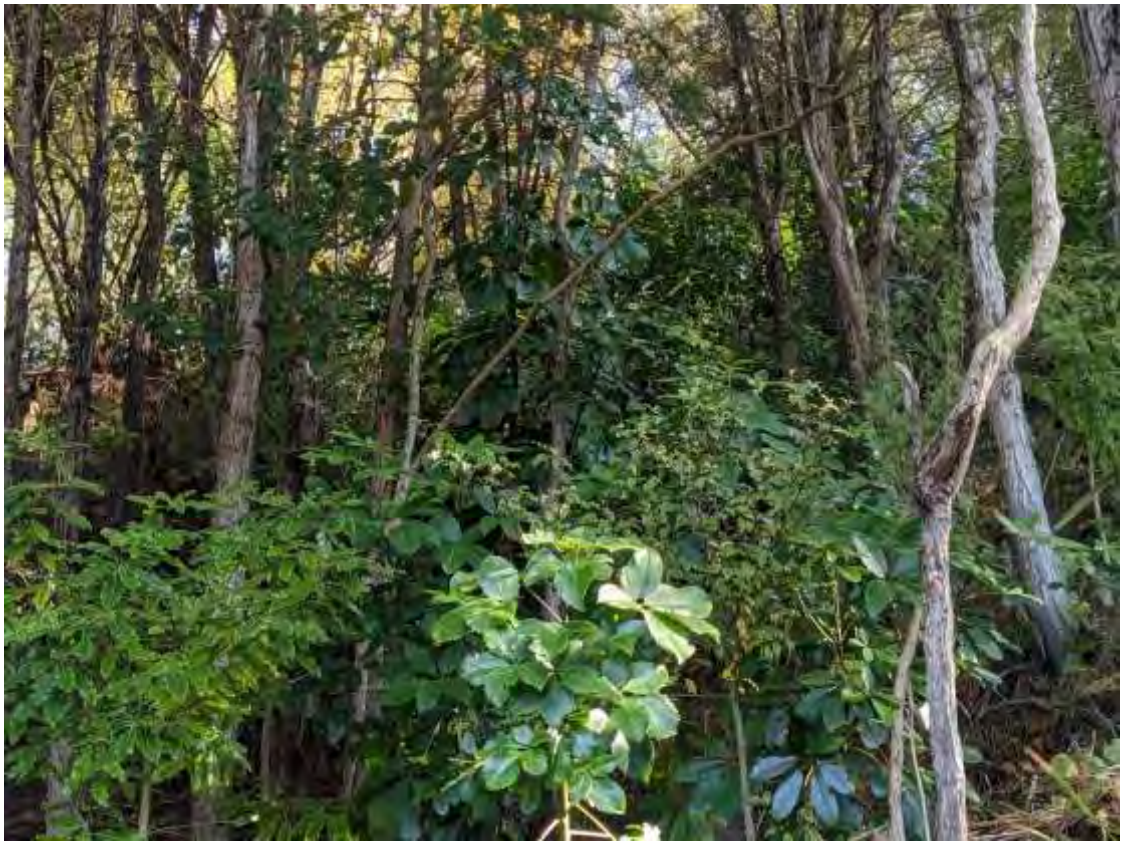

Plate 6: View of vegetation at site 206 from Watts Road.

POTENTIAL ECOLOGICAL IMPACTS OF INCREASED RESIDENTIAL DEVELOPMENT IN THE NORTH EAST VALLEY AREA [1]

Sharon Lequeux
April 2022

Increasing residential development has the potential to result in the clearance of mature indigenous tree species or clearance of gorse with regenerating indigenous forest trees. If development is planned, thought should be given to how indigenous vegetation in the area can be retained and/or restored. It may be preferable to have more dense residential zoning within North East Valley if this allows areas of indigenous vegetation to be preserved.

One of the most concerning adverse effects of increasing residential development is the fragmentation of existing indigenous vegetation. Areas of indigenous vegetation should therefore be protected from development, unless compensatory planting programmes are developed to address any loss. Community-based planting projects should also be encouraged, involving the planting of indigenous trees such as kahikatea (*Dacrycarpus dacrydioides*), mataī (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*), rimu (*Dacrydium cupressinum*) and broadleaved trees such as kōwhai (*Sophora microphylla*), lancewood (*Pseudopanax crassifolius*), manatū/lowland ribbonwood (*Plagianthus regius*), narrow-leaved lacebark (*Hoheria angustifolia*) kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*), kōhūhū (*Pittosporum tenuifolium*), tarata (*P. eugenioides*), and makomako/wineberry (*Aristotelia serrata*). Development should be carefully planned to enable the development of future biodiversity corridors.

Intensive residential development has the potential to adversely affect the nearby Lindsay Creek through increased runoff and degraded water quality. Higher rates of stormwater runoff resulting from increased impervious cover may lead to erosion of the stream channels and riparian vegetation. Furthermore, these surfaces may increase sediment and toxin loadings to the creek. Purpose-built stormwater management systems (such as attenuation or bioretention facilities) can be used to minimise the effects of development. It may be difficult to prevent adverse effects of higher density of residential development, particularly contamination. However, Lindsay Creek has already been highly modified and in its lower reaches is an urban watercourse consisting of mostly concreted channels.. Areas of the upper Lindsay Creek still contain good stream habitats and biodiversity. If development is increased in North East Valley the existing vegetation surrounding the Creek (particularly the upper reaches) should be protected, and compensatory planting and enhancement measurements should be undertaken to further limit adverse effects of development. Indigenous riparian vegetation along the creek could act as a biodiversity corridor, and would benefit freshwater habitats through shading and contribution of organic matter.

If residential development is increased in North East Valley it is likely to result in increased predation on and disturbance of indigenous fauna by pets. While domestic and feral cats are already present in the valley, increased residential development could increase the density of cats. This could be mitigated by prohibiting the keeping of cats on future residential development complexes or requiring cats to be confined to residences.

If the issues outlined above are addressed, there should be no significant limitations to projects such as the Valley Project, Halo Project, or other projects aimed at enhancing indigenous biodiversity in North East Valley.

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