Christchurch District Plan
Site of Ecological Significance

Site Significance Statement

Site name: Birdlings Flat Shrublands

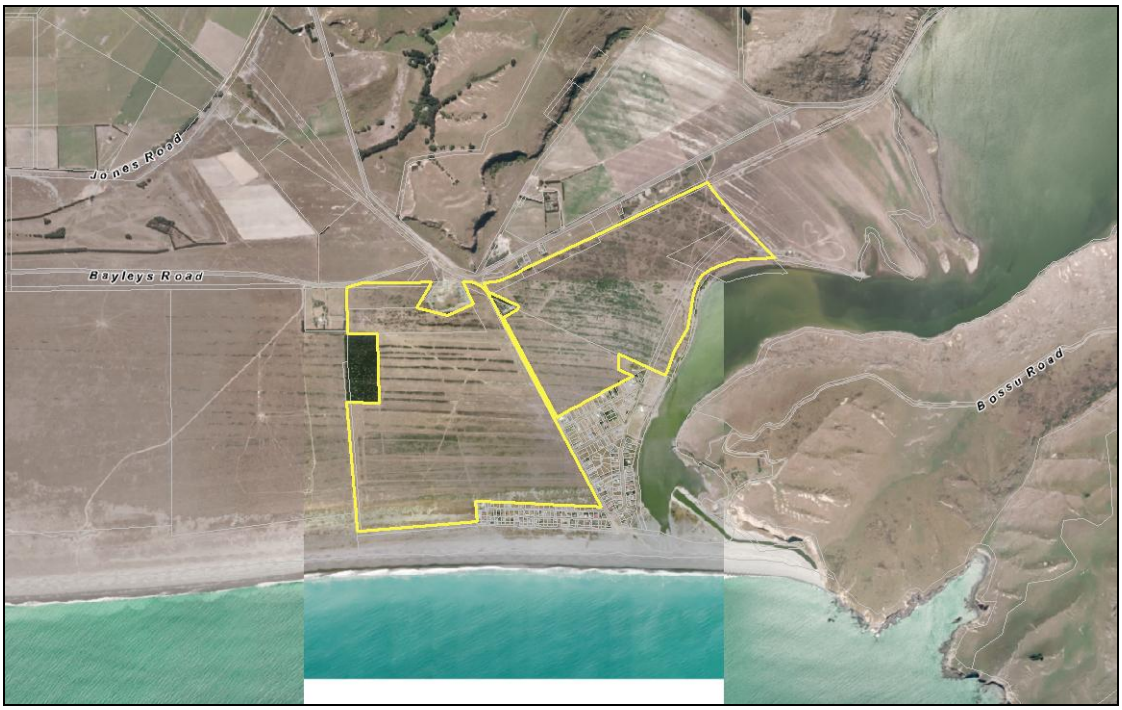
Site number: SES/H/14

Physical address of site: Poranui Beach Road, Birdlings Flat

Summary of Significance:

This site is significant because it supports one the best examples of distinctive, nationally rare indigenous stony beach ridge vegetation in New Zealand. It is the only example in the Canterbury region and one of only two examples in the South Island. Stony beach ridges are an originally rare ecosystem and the majority of the site is also on an Acutely Threatened land environment. The shrubland and grassland habitats within the site support a number of plant, invertebrate and lizard species that are either nationally Threatened, At Risk and/or endemic to Kaitorete Spit and Canterbury and one plant species at its northern national limit. The site provides important habitat for a distinctive assemblage of indigenous lizard species.

Site Map



Additional Site Information

Ecological District: Herbert/Ellesmere

Area of SES (ha): 163.71

Central point (NZTM): E1575682, N5147976

Site Description

This site is located behind Birdlings Flat at the eastern end of Kaitorete Spit and the western end of Lake Forsyth/Waiwera. It extents across both sides of Poranui Beach Road and is bounded by the Christchurch Akaroa Road, Lake Forsyth/Wairewa, the Birdlings Flat settlement and the Kaitorete Spit Scientific Reserve.

The site is approximately 10 m above sea level and is relatively flat with stony, semi-arid near coastal alluvial ground (Wilson 1992). It has a series of parallel stony beach ridges that are continuous with those in the adjoining Kaitorete Spit Scientific Reserve to the west. Stony beach ridges are former beach crests (and associated depressions) no longer influenced by wave action and comprised of wave-deposited water-smoothed gravel and cobbles. They become progressively older further inland. Stony beach ridge ecosystems are an originally rare ecosystem at a national scale (Williams et al. 2007).

The majority of the site east of Poranui Beach Road is a Christchurch City Council Reserve (Birdlings Flat Regional Park) and there is a small (0.7 ha) reserve (Omahanui Conservation Area, conservation number M36174) administered by the Department of Conservation near the intersection of the Christchurch Akaroa Road and Poranui Beach Road. A triangle of land on the eastern side of Poranui Beach Road is privately owned. On the western side of Poranui Beach Road a Banks Peninsula Conservation Trust (BPCT) covenant protects an area of private property near the coast and behind Birdlings Flat. Kaitorete Spit Scientific Reserve (conservation number M37014), administered by the Department of Conservation, has a similar landform and borders the western side of the site.

The main vegetation communities at the site (adapted from Partridge 2008) are:

- *Coprosma* shrubland (in beach ridge depressions) with danthonia grassland (on the beach ridges)
- *(Muehlenbeckia complexa)/*danthonia shrubland and grassland
- Danthonia grassland

The shrubland in the beach ridge depressions is dominated by *Coprosma propinqua* and *C. crassifolia*. Other shrubs include matagouri (*Discaria toumatou*), *Coprosma virescens*, *Helichrysum lanceolatum* and low-growing subshrubs of porcupine shrub (*Melicytus alpinus*), native broom (*Carmichaelia australis*) and kowhai (*Sophora microphylla*). Climbers include leafless clematis (*Clematis afoliata*), *Scandia geniculata*, native bindweed (*Calystegia tuguriorum*) and native jasmine (*Parsonsia heterophylla*). In the shelter of the shrubs are the necklace fern (*Asplenium flabellifolium*) and other small native herbs.

The grassland on the beach ridges between the depressions is dominated by dryland danthonia grasses comprising a mixture of native and Australian *Rytidosperma* species along with other exotic grasses such as *Austrostipa nodosa, Elymus scaber*, browntop (*Agrostis capillaris*), and sweet vernal (*Anthoxanthum odoratum*). The native silver tussock (*Poa cita*) is present, but uncommon. Creeping pohuehue (*Muehlenbeckia complexa*) grows amongst the grassland.

The *(Muehlenbeckia complexa)/*danthonia shrubland and grassland vegetation is similar to the shrubland and grassland mosaic described above but without the shrubs. Apart from the occasional *Coprosma propinqua* shrub, the depressions have no shrub or associated climbers at all. Common exotic grasses and herbs include browntop, sheeps sorrel (*Rumex acetosella*) and catchfly (*Silene gallica*). Within this vegetation community the beach ridges have a similar structure and composition to the depressions.

The danthonia grassland comprises grassland dominated by danthonia species, *Austrostipa nodosa*, and other exotic grasses. Barley grass (*Critesion murinum*) is also common, while closer to the lake margin it is replaced by the smaller salt barley grass (*C. marinum*), which can be dominant in hollows where salt water ponds.

Wilson (2013) recorded 36 indigenous vascular species from within the Hauroko BPCT covenant near the coast and behind Birdlings Flat. Species he identified as being of particular interest include the Kaitorete prostrate broom (*Carmichaelia appreessa*), *Muehlenbeckia ephedroides*, and the tiny herbaceous *Galium "kaitorete"* (referred to as *Galium* "lake"). Wilson also recorded the drought-tolerant fern *Pyrrosia eleagnifolia*, abundant drought-tolerant mosses *Triquetrella papillata* and *Hypnum cupressiforme* and several species of lichen. He noted that the diversity of the drought-tolerant, wind-sculptured native shrubs is of great botanical interest.

Extent of Site of Ecological Significance

The site is bounded by the Little River Rail Trail to the north, cultivated land within the Christchurch City Council Reserve, Lake Forsyth/Wairewa to the east, the Birdlings Flat settlement and the coastal margin to the south and Kaitorete Spit Scientific Reserve to the west. A residential dwelling and its surrounding gardens on the eastern side of Poranui Beach Road, near its intersection with the Christchurch Akaroa Road, and a dwelling and fenced section north of Birdlings Flat settlement are excluded from the site. The Lake Forsyth/Wairewa lake margin vegetation is within the Lake Forsyth/Wairewa Site and the coastal dunes south of the site are included in the Kaitorete Spit Site.

Assessment Summary

The Birdlings Flat Stony Beach Ridges Site has been evaluated against the criteria for determining significant indigenous vegetation and significant habitats of indigenous fauna listed in Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury, 2013) (see below) referring also to the Wildland Consultants (2013) Guidelines and advice from the relevant Specialist Ecologist Groups. Under these criteria the site is ecologically significant because it meets the representativeness (criteria 1 and 2), rarity/distinctiveness (criteria 3, 4, 5 and 6), diversity and pattern (criterion 7) and ecological context criteria (criteria 8 and 10).

Assessment against Significance Criteria

Representativeness

1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.

The site is significant under this criterion.

The stony beach ridges at the eastern end of Kaitorete Spit are the only known example of this ecosystem type in Canterbury (the only other known example in the South Island is at Rarangi in Marlborough) (Landcare Research website). Although the beach ridges within the site have been degraded by historic, and more recent, vegetation clearance, grazing and the presence of introduced plant species, the indigenous vegetation communities within the site are one the best examples of stony beach ridge vegetation in New Zealand and are highly representative. The vegetation within the site has retained a diverse range of indigenous plant species including shrubs, climbers and trailers, sedges, grasses herbs, mosses and lichens. Refer to Appendices 1 – 3 for plant species lists from the Birdlings Flat Regional Park, east of Poranui Beach Road, the Hauroko BPCT covenant and the land on the western side of Poranui Beach Road[1]).

The site also supports a representative indigenous lizard assemblage. Four of the five lizard species present on Banks Peninsula occur within the site (Lettink 2005, Lettink et al. 2008).

2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.

The site is significant under this criterion.

It is the largest coastal shrubland in Canterbury (Lettink 2013) (and is the only known example of stony beach ridges in the ecological district and the Canterbury region).

Rarity/Distinctiveness

3. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.

The site is significant under this criterion.

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[1] Jensen's 2015 survey of the land west of Poranui Beach Road was undertaken in January 2015 during a particularly hot dry summer. Because Kaitorete Spit is a dry environment several small herbs appear in winter or early spring and will have dried up by summer. It is likely that several more species, in particular, *Daucus glochidiatus, Galium sp, Leptinella serrulata* would have been recorded on the Manson property if it was surveyed in the spring.

Coastal shrublands are likely to have been reduced to less than 20% of their former extent in the Region and the ecological district. There are very few intact coastal shrublands remaining on Banks Peninsula (Lettink 2013).

The site also meets this criterion at the Level IV land environment scale. The majority of the site is on an Acutely Threatened land environment (J2.1b) where <10% indigenous vegetation is left on this land environment nationally. The remainder is on a Chronically Threatened land environment (J2.1d) where 10 - 20% indigenous vegetation is left on this land environment nationally (Walker et al. 2007).

4. ***Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.***

The site is significant under this criterion.

It supports a number of plant, lizard and invertebrate species that are either nationally Threatened, At Risk and/or endemic to Kaitorete Spit and Canterbury.

Plants

Botanical surveys of the reserve land east of Poranui Beach Road (Partridge 2008) and the BPCT covenant (Wilson 2013) recorded several nationally Threatened and At Risk species and species that are uncommon within the Banks Ecological Region.

Nationally Threatened and At Risk plant species (de Lange et al 2013) are:

- *Geranium retrorsum* Threatened - Nationally Vulnerable (east of Poranui Beach Road)
- *Daucus glochidiatus* (Nationally Vulnerable) (BPCT covenant)
- *Muehlenbeckia ephedroides* (At Risk - Declining) (BPCT covenant)
- *Coprosma virescens* (At Risk – Declining) (east of Poranui Beach Road)
- *Carmichaelia appressa* (At Risk - Naturally Uncommon, and rare in Canterbury) (eastern and western sides of Poranui Beach Road, BPCT covenant)
- *Chenopodium allanii* (At Risk - Naturally Uncommon) (western side of Poranui Beach Road, BPCT covenant)
- Pseudopanax ferox (At Risk - Naturally Uncommon) - Council Reserve (Richardson unpubl. data 2015)
- Galium “kaitorete” (endemic to Kaitorete Spit) (BPCT covenant).

The site also supports several species that are either “uncommon to rare or very local” on Banks Peninsula (Wilson 2013a) or uncommon within the Ellesmere Ecological District.

Lizards

The site provides excellent habitat for at least two species of indigenous lizard (Lettink 2005, Lettink et al. 2008) that are nationally At Risk (Hitchmough et al. 2012). One of these species is also endemic to Canterbury. These species are:

- Canterbury gecko (At Risk – Declining, endemic to Canterbury)

- Common skink clade 5 (At Risk – Declining)

Central Canterbury spotted skinks *Oligosoma aff. lineoocellatum "central Canterbury"* (Threatened – Nationally Vulnerable) may also be present. This species persists in low densities in shrubland west of the site (Lettink 2004).

Invertebrates

Two nationally At Risk invertebrate species were recorded from the site during a recent survey (Wildland Consultants and Boffa Miskell unpubl. data 2015):

- *Mimopeus granulosus* (Brême) (darkling beetle) (At Risk - Naturally uncommon, endemic to eastern Banks Peninsula)
- *Samana acutata* (At Risk - Relict)

In addition, *Scythris* 'new species' (Threatened - Nationally Critical) may be present at the site. A single male of this species was discovered within the Hauroko BPCT covenant in 1989. It has not been re-collected since at its original location or elsewhere, but members of the genus are difficult to find in the field and don't come to light traps (Patrick 2014).

5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.

The site is significant under this criterion.

There are three plant species (Partridge 2008, Wilson 2013, Jensen unpubl. data 2015) at its northern national limit (Wilson 2013a):

- *Carmichaelia appressa* (eastern and western sides Poranui Beach Road and BPCT covenant)
- *Dodonea viscosa* (southern national limit) - Council Reserve (Richardson unpubl. data 2015)
- *Piper excelsum* (southern national limit) - Council Reserve (Richardson unpubl. data 2015)

6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

The site is significant under this criterion.

It supports indigenous vegetation on stony beach ridges. Stony beach ridges are an originally rare ecosystem (Williams et al. 2007). The distribution of stony beach ridges is poorly known and most are likely to have been destroyed by land use changes. Nationally, extant stony beach ridges are of very restricted occurrence. They are known from Miranda and Whakatiwai, Pukerua Bay in Wellington, and on the South Island at Rarangi (Marlborough) and Kaitorete Spit in Canterbury (Landcare Research website).

The site provides habitat for a distinctive assemblage of indigenous lizard species. Three of the five lizard species known to occur on Banks Peninsula have been recorded from the site and the Central Canterbury spotted skinks

Oligosoma aff. lineoocellatum "central Canterbury" persists in low densities in shrubland west of the site (Lettink 2004) and may also be present. The area is the only site on Banks Peninsula and in the Canterbury Region with this particular assemblage of lizard species (Lettink 2005, Lettink et al. 2008).

Diversity and Pattern

7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.

The site is significant under this criterion.

The vegetation includes a distinctive and contrasting vegetation pattern of indigenous shrubland in beach ridge depressions and danthonia grassland on the beach ridges. On the western side of Poranui Beach Road the stony beach ridge sequence has been modified by vegetation clearance on the higher ridges between depressions.

On the eastern side of Poranui Beach Road there is a sequence of indigenous vegetation communities from the narrow zones of the lake margin vegetation along Wairewa to the shrublands and grasslands on the stony beach ridges. On the western side there is a sequence of indigenous vegetation communities from the coast that includes a shingle beach, dune and back dune systems and older stony beach ridges.

Across the wider site the vegetation pattern within the site reflects the range and age of coastal landforms, increasing soil development inland and varying degrees of tolerance to exposure, salinity and moisture availability.

The indigenous plant taxa within the surveyed areas is relatively diverse (Partridge 2008, Wilson 2013, Jensen unpubl. data 2015) (refer to Appendices 1 – 3 for species lists from the Birdlings Flat Regional Park, east of Poranui Beach Road, the Hauroko BPCT covenant and the land on the western side of Poranui Beach Road).

Ecological Context

8. Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.

The site is significant under this criterion.

The beach dune ridges and their associated indigenous vegetation are continuous with those in the adjoining Kaitorete Spit Scientific Reserve to the west. The site provides an important ecological corridor for indigenous lizards and invertebrates in the wider area and a linkage from Kaitorete Spit to Wairewa.

9. ***A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.***

   The site is not significant under this criterion. There are no wetlands within the site (the Wairewa lake margin is included as part of the Lake Forsyth/Wairewa Site).

10. ***Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.***

    The site is significant under this criterion.

    It is very important habitat for lizards (Lettink 2004). Shrublands provide excellent cover, refuge from predators, and an important seasonal food source for lizards (Lettink 2004, Lettink et al. 2008). It supports at least three and possibly four of the five lizard species known to occur on Banks Peninsula and has the highest known densities of Canterbury gecko (>1000 geckos per ha) on Banks Peninsula and on the Canterbury mainland (Lettink 2004). It is one of the three most significant sites for this species in Canterbury.

Site Management

Existing Protection Status

The site is partially protected by:

- Birdlings Flat Regional Park - Reserve 3185 administered by the Christchurch City Council
- Omahanui Conservation Area, (conservation number M36174) administered by the DOC (0.7 ha)
- The Hauroko Banks Peninsula Conservation Trust Covenant immediately behind Kaitorete Spit Beach and Birdlings Flat settlement (18.7 ha)

The remainder of the site is not legally protected.

Threats and risks	Management recommendations	Support package options
• Vegetation clearance. Historically there has been clearance of shubland in parts of the site by scraping off or mowing the shrubs, accentuating the banded appearance of the shrubland (Partridge 2008).	• Maintain or increase the indigenous shrubland on the site, due to the very high ecological value of this vegetation community which is on a nationally important stony beach ridge ecosystem.	• Discussion with landowners about the benefits to biodiversity of the shrubland on the site and options available to manage such habitats. • Assistance available as appropriate.
• Stock damage to shrublands and grasslands, particularly during hot dry conditions when animals seek shade under the shrub canopy (Jensen unpubl. data 2015).	• Consider either removing grazing from the site and monitoring the growth of exotic grasses as was recommended by (Wilson 2013) for the Hauroko BPCT covenant. *Or* consider controlled, light sheep (but not cattle) grazing during the growing season to reduce rank exotic grass growth and the spread of some weeds, as was recommended by Lettink (2005) for the Council Reserve. • Continue to monitor vegetation communities within the Council Reserve to inform the ongoing management of the site, and particularly to determine whether low-level sheep grazing is beneficial to indigenous	• Discussion with landowners about the benefits to biodiversity of managed stock grazing on the site. • Assistance available as appropriate.

	vegetation within the site.	
• The perception that the site is of low value (Wilson 1992, Lettink 2005). Wilson (1992) stated these semi-arid shrublands "are under considerable threat mainly because there is a common attitude that they are wastelands, and tend to be treated as such".	• Consider raising the profile of the area by educating the local community and landowners about the outstanding ecological value of the site.	• Discussions with landowners and development of interpretive material for local community about the biodiversity and ecosystems on the site.
• Off-road vehicles (Partridge 2008, Lettink 2005)	• Consider restricting the use of off-road vehicles to existing tracks and preventing vehicle access into the Council Reserve (with the exception of land owners and the leasee of the Council reserve for management purposes).	• Discussion with landowners about the benefits to biodiversity of managing off-road vehicle access to the site. • Assistance available where appropriate.
• Karo (*Pittosporum crassifolium*), a non-local tree native to the North Island (Partridge 2008, Wilson 2013, Jensen unpubl. data 2015)	• Consider controlling karo throughout the site.	• Advice and guidance for landowners about monitoring and controlling karo. • Assistance where appropriate.
• There are a large number of biodiversity pest plants that have been recorded from within the site, including garden escapes from Birdlings Flat settlement: karo, boneseed, yellow lupin, sweet brier, gorse, pig's ear purple groundsel, broom, gorse, sweet briar, tree lucerne, karo, flowering cherry, oak, elderberry, spindleberry, tagasaste, old mans, plum, apple, spur valerian, asparagus, Euphorbia sp., prickly pear cactus, fennel, *Polypodium vulgare*.	• Consider controlling the biodiversity pest plants already present at the site and undertaking regular surveillance for new weed incursions. • Weeds are only present in small numbers on the western side of Poranui Beach Road and could be controlled relatively easily. • Consider controlling biodiversity pest plants inside the quarry to prevent them spreading to the surrounding land.	• In collaboration with BPCT, advice and guidance for landowners about monitoring and control of pest plants. • Assistance available where possible.
• The current classification of the Council Reserve	• Consider changing the reserve's status to more appropriately reflect its high	• N/A

(Reserve 3185) is not appropriate and does not reflect the high ecological values present (Lettink 2005).	ecological values. Prepare and implement a management plan for the reserve (Lettink 2005).	
• Quarry expansion	• The existing quarry should not be expanded to encroach on the surrounding native shrubland communities.	• N/A
• Fire	• Consider restricting the use of vehicles and managing visitor use. • Council to consider preparing a fire response plan for the site.	• N/A

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Assessment completed by: Scott Hooson
Date: 5 November 2014

Statement completed by: Scott Hooson
Date: 5 November 2014

Statement updated by: XXX
Date: XXX

PLEASE NOTE THIS STATEMENT IS BASED ON INFORMATION AVAILABLE AT THE TIME OF WRITING. DUE TO THE DYNAMIC NATURE OF ECOSYSTEMS, FUTURE REASSESSMENT OF THE SITE MAY BE NECESSARY TO REFLECT ANY CHANGES IN KNOWLEDGE OF ITS ECOLOGICAL SIGNIFICANCE.

Appendix 1: Plant Species List for the Birdlings Flat Regional Park, East of Poranui Beach Road

From Partridge (2008).

Scientific Name	Common Name(s)
Indigenous species	
Asplenium flabellifolium	necklace fern
Calystegia soldanella	shore bindweed
Calystegia tuguriorum	bindweed
Carex breviculmis	dryland sedge
Carmichaelia appressa	prostrate broom
Carmichaelia australis	common broom
Clematis afoliata	leafless clematis
Clematis foetida	clematis
Convolvulus waitaha	convolvulus
Coprosma crassifolia	thick-leaved coprosma
Coprosma propinqua	coprosma
Coprosma virescens	coprosma
Dichelachne crinita	hair grass
Discaria toumatou	matagouri
Geranium retrorsum	Geranium
Helichrysum lanceolatum	
Juncus edgariae	wiwi
Juncus krausii var *australiensis*	sea rush
Leucopogon fraseri	patotara
Melicytus alpinus	porcupine shrub
Melicytus ramiflorus	mahoe
Microtis unifolia	onion orchid
Muehlenbeckia axillaris	mat pohuehue
Muehlenbeckia complexa	creeping pohuehue
Oxalis exilis	oxalis
Parsonsia capsularis	native jasmine
Parsonsia heterophylla	native jasmine
Phormium tenax	flax, harekeke
Plagianthus divaricatus	coastal ribbonwood
Poa cita	silver tussock
Rubus schmidelioides	leafless lawyer
Rubus squarrosus	lawyer
Rubus squarrosus x *schmidelioides*	
Scandia geniculata	
Sophora microphylla	kowhai
Exotic Species	
Acaena agnipila	Australian bidibid
Achillea millefolium	yarrow
Agrostis stolonifera	creeping bent
Aira caryophyllea	silvery hair grass
Anthoxanthum odoratum	sweet vernal

Austrostipa nodosa	
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft brome
Bromus tectorum	downy brome
Carduus tenuiflorus	winged thistle
Cerastium holosteoides	mouse-ear chickweed
Chamaecytisus palmensis	tree lucerne
Cirsium arvense	Californian thistle
Cirsium vulgare	Scotch thistle
Conyza bonariensis	wavy-leaved fleabane
Crepis capillaris	hawksbeard
Critesion marinum	salt barley grass
Critesion murinum	barley grass
Cytisus scoparius	broom
Dactylis glomerata	cocksfoot
Digitalis purpurea	foxglove
Echium vulgare	viper's bugloss
Elymus scaber	
Elytrigia repens	couch
Erodium cicutarium	storksbill
Eucalyptus globulus	Tasmanian gum
Galium aparine	cleavers
Holcus lanatus	Yorkshire fog
Hypochaeris radicata	catsear
Linaria purpurea	purple linaria
Linum bienne	pale flax
Lolium perenne	perennial ryegrass
Malva neglecta	dwarf mallow
Marrubium vulgare	horehound
Oxalis corniculata	horned oxalis
Petroselinum crispum	wild parsley
Picris echioides	oxtongue
Pittosporum crassifolium	karo
Plantago lanceolata	narrow-leaf plantain
Poa pratensis	Kentucky bluegrass
Prunus avium	wild cherry
Pseudopanax crassifolius x *arboreus*	hybrid lancewood
Quercus robur	oak
Rosa rubiginosa	sweet brier
Rumex acetosella	sheep sorrel
Rytidosperma spp.	danthonia grass
Salix fragilis	crack willow
Schedonorus arundinaceus	tall fescue
Sedum acre	stonecrop
Silene gallica	catchfly
Silene latifolia	white campion
Sisymbrium officinale	wall rocket
Solanum nigrum	black nightshade
Sonchus oleraceus	sow thistle
Trifolium dubium	suckling clover
Trifolium fragiferum	strawberry clover
Trifolium glomeratum	clustered clover
Ulex europaeus	gorse

Verbascum thapsus	wolly mullein
Vicia sativa	vetch
Vicia tetrasperma	smooth tare

Appendix 2: Plant Species List for the Hauroko Banks Peninsula Conservation Trust Covenant

From (Wilson 2013).

Species are listed alphabetically in the following categories, with native species listed first, and naturalised exotic species (including plants native to other parts of New Zealand) listed second.

(a) Trees, shrubs and prostrate shrubs
(b) Climbers and related trailers
(c) Dicot herbs
(d) Monocot herbs (grasses and sedges)
(e) Ferns
(f) Prominent mosses, lichens and fungi

* = not native to Birdlings Flat area

Abundance symbols:
A = abundant to very common
B = quite common
C = uncommon to rare

(a) Trees, shrubs and prostrate shrubs		
Carmichaelia appressa	C	Kaitorete prostrate broom
Coprosma crassifolia	A	mikimiki
Coprosma propinqua	A	mikimiki
Corokia cotoneaster	C	korokio
Discaria toumatou	B	matagouri tūmatakuru
Lophomyrtus obcordata	C	rōhutu, NZ myrtle
Melicytus alpinus	A	porcupine shrub
Olearia paniculata	C	akiraho
**Chrysanthemoides monolifera*	C	boneseed
**Lupinus arboreus*	C	yellow lupin
**Pittosporum crassifolium*	C	karo
**Rosa rubiginosa*	B	sweet brier
**Ulex europaeus*	C	gorse
(b) Climbers and related trailers		
Calystegia solanella	B	sand bindweed
Calystegia tuguriorum	B	NZ bindweed, pōwhiwhi
Einadia allanii	C	
Einadia triandra	C	
Muehlenbeckia axillaries	B	
Muehlenbeckia complexa	A	scrub pōhuehue
Muehlenbeckia ephedroides	A	
Parsonsia heterophylla	C	NZ jasmine, akakaikiora
Rubus schmidelioides		lawyer, tātarāmoa

Rubus squarrosus	A	leafless lawyer
Scandia geniculata	B	climbing aniseed
(c) Dicot herbs		
Acaena novae-zelandiae	C	bidibid, piripiri
Cotula australis (possibly not native)		
Crassula sieberiana		
Daucus glochidiatus		NZ carrot
Dichondra repens		
Galium species "lake"	B	
Haloragis erecta	B	toatoa
Leeptinella pusilla		
Oxalis exilis	A	yellow oxalis
Raoulia australis	B	mat daisy, scrabweed
scleranthus uniflorus	B	
senecio quadridentatus	C	pekapeka
**Acaena agnipila*	B	Australian burr
**Anagallis arvensis*	C	scarlet pimpernel
**Carduus pycnocephalus*	C	winged thistle
**Cerastium glomeratum*		mouse-ear chickweed
**Cerastium semidecandrum*		lesser mouse-ear chickweed
**Cirsium vulgare*	C	scotch thistle
**Cotyledon orbicularis*	C	elephant's ear
**Echium vulgare*	C	viper's bugloss
**Erodium cicutarium*		storksbill
**Erodium moschatum*	C	musky storksbill
**Geranium molle*		dove's foot cranesbill
**Hypochoeris glabra*		smooth catsear
**Hypochoeris radicata*	A	catsear
**Lobularia maritime*	C	alyssum
**Malva neglecta*		dwarf mallow
**Marrubium vulgare*		horehound
**Petroselinum crispum*	B	wild parsley
**Rumex acetosella*	A	sheep's sorrel
**Sedum acre*	C	yellow stonecrop
**Senecio elegans*	C	purple groundsel
**Silene gallica*	A	catchfly
**Sisymbrium officinale*	C	hedge mustard
**Stellaria media*	B	chickweed
**Trifolium arvense*	C	hare's foot trefoil
**Trifolium dubium*	B	suckling clover
**Trifolium tomentosum*		woolly clover
**Verbascum thapsus*	C	woolly mullein
**Vicia satira*	A	vetch

(d) Monocot herbs (grasses and sedges)		
Carex pumila	C	sand sedge
Dichelachne crinita	B	plume grass
Elymus solandri	C	blue wheatgrass
Poa cita	A	silver tussock, wī
**Aira caryophyllea*		silvery hair grass
**Anthoxanthum odoratum*	C	sweet vernal
**Bromus diandrus*	B	ripgut brome
**Dactylis glomerata*	B	cocksfoot
**Elymus rectisetus*	B	Australian wheatgrass
**Lagurus ovatus*	A	hare's tail grass
**Lolium perenne*	A	perennial ryegrass
**Poa pratensis*	B	meadow grass
**Rytidosperma racemosum*	A	danthonia
**Stipa nodosa*	B	needle grass
**Vulpia bromoides*	A	squirrel tail fescue
(e) Ferns		
Pyrrosia eleagnifolia	C	leather leaf fern
(f) Mosses, lichens, fungi		
Agaricus arvensis	C	horse mushroom
Hypnum cupressiforme	A	
Neofuscelia species	A	
Pseudocyphellaria crocata	C	gold dust lichen
Triquetrum papillata	A	
Usnea species	C	
Xanthoparmelia species	A	

Appendix 3: Plant Species List for Land West of Poranui Beach Road

Sourced from Jensen unpubl. data (2015).

Scientific Name	**Common Name(s)**
Indigenous species	
Asplenium flabellifolium	necklace fern
Calystegia tuguriorum	
Carmichaelia appressa	Kaitorete prostrate broom
Chenopodium allanii	
Clematis afoliata	
Clematis foetida	
Coprosma crassifolia	
Coprosma propinqua	
Cordyline australis	cabbage tree
Corokia cotoneaster	
Dichelachne crinita	plume grass
Discaria toumatou	matagouri
Helichrysum lanceolatum	
Melicytus alpinus	
Muehlenbeckia complexa	
Oxalis exilis	
Parsonsia capsularis	
Pittosporum tenuifolium	kohuhu
Poa cita	silver tussock
Rubus squarrosus	leafless lawyer
Scandia geniculata	
Solanum laciniatum	poroporo
Indigenous non-vascular species	
Hypnum cupressiforme	
Polytrichum juniperinum	
Racomitrium species	
Triquetrella papillata	
Exotic and non-native species	
Aira caryophyllea	silvery hair grass
Anthosachne scabra	Australian wheatgrass
Anthoxanthum odoratum	sweet vernal
Asparagus officinalis	asparagus
Austrostipa nodosa	needlegrass
Bromus diandrus	ripgut brome
Cirsium vulgare	scotch thistle
Dactyis glomerata	cocksfoot
Echium vulgare	viper's bugloss
Euonymus europaeus	spindleberry
Euphorbia sp.	

Hypochoeris radicata	catsear
Lagurus ovatus	hairs tail grass
Linaria purpurea	purple linaria
Lolium perenne	ryegrass
Marrubium vulgare	horehound
Opuntia monacantha	prickly pear cactus
Petroselinum crispum	wild parsley
Poa pratensis	meadow grass
Pittosporum crassifolium[†]	karo
Rosa rubiginosa	sweet brier
Rumex acetosella	sheep's sorrel
Rytidosperma racemosum	danthonia
Senecio elegans	purple grounsel
Solanum dulcamara	bittersweet
Ulex europaeus	gorse
Verbascum thapsus	woolly mullien
Verbascum virgatum	moth mullien
Vupia bromoides	

[†] A non-local North Island species that occurs naturally in the North Island.

Appendix 4: Invertebrate Species List for the Mansons Property (West of Poranui Beach Road)

Sourced from Wildland Consultants and Boffa Miskell unpubl. data (2015)

Order	Family	Scientific Name	Common Name	Species Status
Indigenous species				
Orthoptera	Gryllidae	*Bobilla sp.*	a small field cricket	
		Gryllidae, sp. indet. small pale	a cricket	
Blattodea	Blattidae	*Celatoblatta peninsularis Johns*	a cockroach	
Neuroptera	Hemerobiidae	*Micromus tasmaniae (Walker)*	Tasmanian lacewing	
Coleoptera	Anthribidae	*Dysnocryptus maculifer Broun*	a fungus weevil	
	Cerambycidae	*Spilotrogia nr pulchella (Bates)*	a longhorn beetle	
	Coccinellidae	*Veronicobius acceptus (Broun)*	a lady bird beetle	
		Veronicobius sp. dark, pale pronotum	a lady bird beetle	
	Curculionidae	*Irenimus sp.*	a weevil	
		Praolepra infusca Broun	a flower weevil	
	Elateridae	*Conoderus exsul (Sharp)*	pasture wire worm	
		Elateridae indet.	a click beetle	
	Latridiidae	*Bicava sp.*	a mould beetle	
	Scarabaeidae	*Odontria smithii Broun*	Smith's chafer	
	Staphylinidae	*Staphylininae indet.*	a rove beetle	
	Tenebrionidae	*Mimopeus granulosus (Brême)*	a darkling beetle	Naturally uncommon, range restricted

Lepidoptera	Hepialidae	*Wiseana copularis*	porina moth	
	Plutellidae	*Plutella antiphona*		
	Gelechiidae	*Anisoplaca achyrota*		
		Isochasta paradesma		
	Tortricidae	*Bactra noteraula*		
		Capua semiferana		
		Harmologa amplexana		
		Harmologa oblongana		
		Harmologa scoliastes		
		Merophyas leucaniana		
	Pyralidae	*Crocydopora cinigerella*		
	Crambidae	*Eudonia leptalea*		
		Eudonia sabulosella		
		Eudonia submarginalis		
		Deana hybreasalis		
		Gadira acerella		
		Hygraula nitens	pond moth	
		Orocrambus flexuosellus		
		Orocrambus vittellus		
		Orocrambus ramosellus		
		Scoparia halopis		
		Udea flavidalis		
	Geometridae	*Austrocidaria gobiata*		
		Chloroclystis inductata		
		Declana junctilinea		
		Epyaxa rosearia		
		Epyaxa venipunctata		
		Gellonia pannularia		
		Homodotis megaspilata		

		Helastia corcularia		
		Samana acutata		At Risk Relict
	Noctuidae	*Aletia moderata*		
		Bityla defigurata		
		Euxoa admirationis		
		Graphania phricias		
		Graphania lithias		
		Graphania mutans		
		Persectania aversa		
		Proteuxoa comma		
		Tmetolophota atristriga		
		Tmetolophota propria		
		Tmetolophota unica		
	Erebidae	*Schrankia costaestrigalis*		
	Lycaenidae	*Lycaena new species*	boulder copper butterfly	
Exotic species				
Coleoptera	Anobiidae	*Ptinus tectus Boieldieu*	Australian spider beetle	
	Anthicidae	*Anthicus hesperi King*	an ant-like beetle	
	Archeocrypticidae	*Archeocrypticus topali Kaszab*		
	Coccinellidae	*Coccinella undecimpunctata Linnaeus*	11-spotted ladybird	
	Curculionidae	*Otiorhynchus ovatus (Linnaeus)*	strawberry root weevil	
	Scarabaeidae	*Acrossidius tasmaniae (Hope)*	Tasmanian grass grub	
Lepidoptera	Tineidae	*Monopis ethelella*		
	Tortricidae	*Cydia succedana*		
		Epiphyas postvittana		
	Geometridae	*Chloroclystis filata*		
	Crambidae	*Achyra affinitalis*		
	Crambidae	*Stericta carbonalis*		
	Coccinellidae	*Coccinella undecimpunctata Linnaeus*	11-spotted ladybird	

	Curculionidae	*Otiorhynchus ovatus (Linnaeus)*	strawberry root weevil	
	Scarabaeidae	*Acrossidius tasmaniae (Hope)*	Tasmanian grass grub	
Lepidoptera	Tineidae	*Monopis ethelella*		
	Tortricidae	*Cydia succedana*		
		Epiphyas postvittana		
	Geometridae	*Chloroclystis filata*		
	Crambidae	*Achyra affinitalis*		
	Crambidae	*Stericta carbonalis*		