Christchurch District Plan
Site of Ecological Significance

Site Significance Statement

Site name: Lake Forsyth North Side

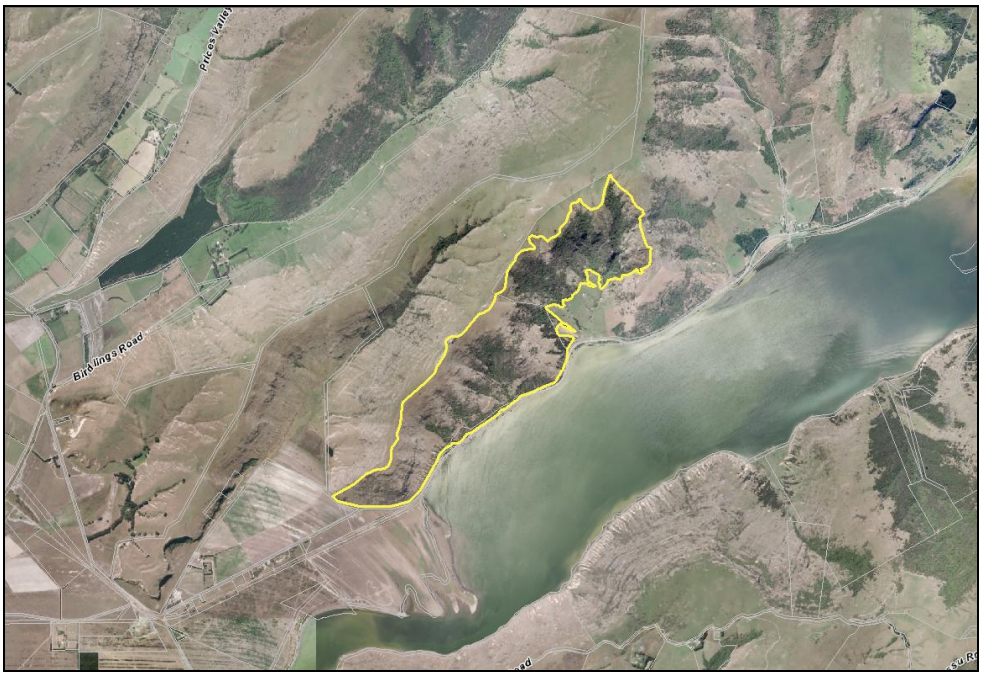
Site number: SES/H/18

Physical address of site: Off Christchurch Akaroa Road

Summary of Significance:

This site is significant because it contains a diverse range of representative indigenous vegetation communities that support nine indigenous plant species that are nationally At Risk, of which three are also endemic to Banks Peninsula, two species that are uncommon within the ecological district or region and four species that are at their southern national or regional distributional limits on Banks Peninsula. It also has four invertebrate species that are nationally At Risk, thirteen that are endemic to Banks Peninsula and one that is at its southern national distributional limit on Banks Peninsula. It has extensive basic igneous bluffs, scarps and rock outcrops, and seepages both of which are originally rare ecosystems nationally. It is part of an important network of indigenous forest, scrub and shrubland on the northern side of Lake Forsyth and buffers Lake Forsyth/Wairewa. It is important habitat for an assemblage of invertebrates that has a high proportion of species that are endemic to Banks Peninsula.

Site Map



Additional Site Information

Ecological District: Herbert

Area of SES (ha): 160.56

Central point (NZTM): E1578457, N5150665

Site Description

This site is located on the northern side of Lake Forsyth/Wairewa on very steep slopes above the Christchurch to Akaroa Highway. It includes a small amphitheatre-like side valley and numerous bluffs and scarps. The altitudinal range of the site is from near sea level to approximately 420 m above sea level. The Department of Conservation identified the site as a Recommended Area for Protection (Herbert RAP 16 – Forsyth Spur) (Wilson 1992).

The site is covered in a mosaic of indigenous dominated vegetation including second growth hardwood forest, shrubland, scrub, and tussockland. The main vegetation communities identified at the site by Walls unpubl. data (2014a,b) are:

- (Matai-lowland totara)/mixed secondary hardwood forest and treeland in gullies
- Mixed secondary broadleaved hardwood forest and treeland in gullies
- Secondary kanuka forest and treeland
- Small leaved shrubland and scrub on lowland hillslopes
- Small leaved shrubland/exotic grass species on lowland hillslopes
- Silver tussock-(hard tussock) tussockland on upper slopes
- (Prostrate kowhai-*Coprosma crassifolia*)/lichen sp.-(moss sp.) rockland on bluffs, scarps and rock outcrops
- (Lancewood)/lowland flax/*Carex secta* flaxland

A range of common indigenous forest bird species occur at the site: bellbird New Zealand wood pigeon, South Island fantail, grey warbler, Australasian harrier, welcome swallow, New Zealand pipit and silvereye. Skink species were also recorded in grassland habitats (Walls unpubl. data 2014 a, b).

Extent of Site of Ecological Significance

The site includes the areas of second growth hardwood forest, shrubland, scrub, and tussockland.

Assessment Summary

The Lake Forsyth North Side 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.

Although the vegetation within the site is secondary-growth, and has been modified by sheep grazing and exotic plants and animals, it is dominated by indigenous vegetation that supports a diverse range of indigenous plant species. The structure and composition of these vegetation communities are relatively intact and they are representative of seral communities in the ecological district.

Secondary broadleaved forest and treeland with kanuka occurs in the gullies. The canopy has a representative diversity of trees including ribbonwood, narrow-leaved lacebark, ngaio, titoki, lancewood, lemonwood, mahoe, kowhai and kaikomako, with lesser amounts of other species. At least 15 remnant matai and 4 adult totara trees are present in the northern part of the site. Although the understorey has been depleted by sheep grazing these forest communities are typical of those that would have been present at a baseline of 1840, although podocarps would probably have been more common.

Diverse indigenous shrubland and scrub dominated by *Coprosma crassifolia, C. propinqua, C. virescens, C. rigida*, *Carmichaelia australis*, niniao, ongaonga, prostrate kowhai and *Muehlenbeckia complexa* occupies much of the site. Although secondary, this community is only lightly to moderately grazed by sheep and is in good condition. It is representative of seral shrubland and scrub communities in the ecological district.

The extensive rock bluffs, scarps and outcrops throughout the site are still relatively intact and support representative bluff communities.

The silver tussock grasslands have abundant exotic pasture grasses and herbs between tussocks but they are extensive, particularly on the upper slopes and have a dense cover of silver tussock. There is a strong population of speargrass (*Aciphylla subflabellata*) in the highest (NE) part of the Hutchison property. The silver tussock grasslands are a good example of their type within the ecological district, especially at low altitude.

The site has an invertebrate assemblage that is highly representative of the composition that is expected for the vegetation communities present. Of 225

species recorded at the site (Wildland Consultants 2015 a,b) only four (1.8%) are exotic.

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.

   The site is extensive and is a large example of a mosaic of lowland second growth hardwood forest, shrubland, scrub, and tussockland in the Herbert Ecological District.

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.

   The indigenous forest within the site is significant under this criterion because it has been reduced to less than 20% of its former extent in the ecological district. Banks Peninsula, including the Herbert Ecological District, was almost entirely forested prior to the arrival of humans (Harding 2009, Wilson 2013). The present extent of all other indigenous forest (excluding manuka and/or kanuka) in the ED is estimated to be 7% (10.9% including manuka and/or kanuka) (New Zealand Landcover Database (Version 4)).

   Seral vegetation communities such as secondary kanuka forest and treeland and small leaved shrubland and scrub that occur within the site have expanded their range in the ecological district as a result of human disturbance. However, the extent of all indigenous woody vegetation in the ecological district is estimated to be only 10.9% (New Zealand Landcover Database (Version 4)).

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 nine indigenous plant species that are nationally At Risk, of which three are also endemic to Banks Peninsula and two species that are uncommon within the ecological district or region. It has four invertebrate species that are nationally At Risk and thirteen species that are endemic to Banks Peninsula.

   Plants

   Nationally At Risk plant species (de Lange et al. 2013) recorded from the site (Walls unpubl. data 2014a,b) are:

   - *Aciphylla subflabellata* (At Risk - Declining) – a strong population grows in silver tussockland on the upper slopes of the Hutchison property.
   - *Coprosma virescens* (At Risk - Declining)

- *Coprosma wallii* (At Risk - Declining)
- *Teucridium parvifolium* (At Risk – Declining)
- *Festuca actae* (At Risk - Naturally Uncommon, endemic to Banks Peninsula)
- *Hebe strictissima* (At Risk - Naturally Uncommon, endemic to Banks Peninsula)
- *Leptinella minor* (At Risk - Naturally Uncommon, endemic to Banks Peninsula)
- *Pseudopanax ferox* (At Risk - Naturally Uncommon)
- *Senecio glaucophyllus subsp. basinudus* (At Risk - Naturally Uncommon)

Plant species recorded from the site (Walls unpubl. data 2014a,b) that are "uncommon to rare or very local" on Banks Peninsula (Wilson 2013) are:

- *Carex secta*
- *Pyrrosia eleagnifolia*

Invertebrates

Nationally Threatened and At Risk invertebrate species recorded from the site (Wildland Consultants unpubl. data 2015 a, b) are:

- *Zelleria sphenota* (At Risk – Declining)
- *Dasyuris partheniata* (At Risk – Declining)
- *Gadira petraula* (At Risk - Naturally Uncommon)
- *Glyphipterix euastera* (At Risk - Naturally Uncommon)

Endemic invertebrate species recorded from the site (Wildland Consultants unpubl. data 2015 a, b) are:

- *Stanwellia sp.* (probably *S.kaituna*)
- *Megadromus guerinii*
- *Mimopeus granulosus*
- *Hemiandrus "peninsularis"* ground weta
- *Kikihia new species*
- *Aorangia isolata* (likely rare Banks Peninsula endemic, likely to be the male, which is undescribed. Known only from a single female from Akaroa (Wildland Consultants unpubl. data 2015b)
- Indeterminate. genus and species of golden harvestman - possible new Banks Peninsula endemic? never seen before (Wildland Consultants unpubl. data 2015b)
- *Phrynixus sp.* weevil
- *Undescribed genus 'Epitimetes'*
- *Maniho ngaitahu*
- *Kikihia new species*
- *Pseudocoremia modica*
- *Maoridrilis sp.* - possibly a Banks Peninsula endemic (Wildland Consultants unpubl. data 2015a)

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 four plant species that are at their southern national or regional distributional limits on Banks Peninsula (Wilson 2013) and one invertebrate species at its southern national distributional limit on Banks Peninsula.

Plant species at their southern national or regional distributional limits on Banks Peninsula are (Walls unpubl. data 2014a,b):

- *Alectryon excelsus* (southern national limit)
- *Hedycarya arborea* (southern regional limit)
- *Passiflora tetrandra* (southern national limit)
- *Piper excelsum* (southern national limit)

The invertebrate species at its southern national distributional limit on Banks Peninsula (Wildland Consultants unpubl. data 2015 a,b) is:

- *Zelanda kaituna* (southern national limit)

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.

There are extensive basic igneous bluffs, scarps and rock outcrops throughout the site that support indigenous vegetation (Walls unpubl. data 2014a,b). At a national scale these features are an originally rare ecosystem (Williams et al. 2007).

There are also lowland flax seepages with emergent young lancewoods and *Carex secta* on upper slopes (Walls unpubl. data 2014a,b). Some of these are extensive. Seepages and flushes are also an originally rare ecosystem on a national scale (Williams et al. 2007).

Walls unpubl. data (2014b) recorded an unusual hybrid ribbonwood (*Plagianthus regius* x *Plagianthus divaricata*) at the site. This unusual hybrid reflects the close proximity of *Plagianthus regius* on lowland hill slopes with *Plagianthus divaricata* on the shoreline of Lake Forsyth/Wairewa.

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 site contains a high diversity of vegetation communities and habitat types, including rocklands, seepages, broadleaved forest, kanuka forest, treelands, scrub, shrublands, tussocklands and exotic grasslands. They exist as a mosaic across the site. Because of the altitudinal gradient from near sea level to over 400 m the indigenous plant species composition has coastal, lowland and montane

elements. One-hundred and two species were recorded during recent botanical surveys (Walls 2014 a,b). This high diversity of plant taxa reflects both the diversity of the vegetation communities and habitat types and the altitudinal gradient.

The southern part of the site has a relatively high diversity of invertebrates (Wildland Consultants unpubl. data 2015b).

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.

It is part of an important network of indigenous forest, scrub and shrubland extending from the southern end of Lake Forsyth/Wairewa around the eastern faces of High Bare Peak into the upper catchment. It is likely to provide an important ecological linkage for the dispersal of indigenous fauna (birds, lizards and invertebrates) and plants (via seed dispersal) along the north-western side of Lake Forsyth/Wairewa between Birdlings Flat and Kaitorete Spit and Banks Peninsula.

The site adjoins Lake Forsyth/Wairewa (SES/H/6), a lake of very high ecological value, and particularly as a habitat for indigenous fauna (although the Christchurch to Akaroa Highway passes between the lake and the site). Lake Forsyth/Wairewa is in a highly eutrophic state and reducing nutrient and sediment inputs is a high priority (Gray 2013). Maintaining vegetation cover on these slopes reduces these local inputs, but management within the wider catchment is also essential to address water quality issues.

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. The only wetlands within the site are seepages on steep slopes dominated by lowland flax, with emergent young lancewoods and *Carex secta* (Walls unpubl. data 2014a,b). These are limited in extent and do not play an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.

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 provides important habitat for a high diversity of indigenous invertebrates, including a high proportion of species that are endemic to Banks Peninsula. The rocklands, grasslands and shrublands provide good habitat for gecko and skinks (Walls unpubl. data 2014 a,b).

Existing Protection Status

The site is not legally protected.

Threats and risks	Management recommendations	Support package options
• Biodiversity pest plants. There are few species of concern within the site. Common broom occurs in the northern part of the site, elderberry occurs at low altitude and in low numbers, Sweet briar is present but is not an ecological threat (Walls unpubl. data 2014a,b).	• Consider controlling broom and elderberry using methods that do not damage surrounding indigenous vegetation. • Consider ongoing surveillance for other biodiversity pest plants such as old mans beard, sycamore, wilding pines, spur valerian, fennel and *Polypodium vulgare* which are known to be in the surrounding area.	• Advice and guidance for landowners about identification, monitoring and control of pest plants. • Assistance available where possible.
• A small number of goats have been observed on the site.	• Consider removing goats from the site. Goats are a serious threat to the ecological values of the site. They also have the potential to spread onto neighbouring properties and into other areas with high ecological values. Not removing goats poses a significant threat to the success of the multi-agency Banks Peninsula Feral Goat Eradication Programme.	• Assistance to landowners with goat control, with their agreement.
• Stock. Sheep graze the site at moderate and low intensity in the northern and southern parts of the site respectively. This appears to be preventing or impeding natural vegetation regeneration, especially in forests, treelands, scrub and shrublands (Walls unpubl. data 2014a,b).	• Consider the implications of stock grazing in relation to management of indigenous vegetation communities. Removing stock from the site would allow more natural vegetation regeneration. But a higher level of pest plant surveillance and control would be required.	• Discussions with landowners about the benefits to biodiversity of stock management options. • Assistance available where possible.

References

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Assessment completed by: Scott Hooson
Date: 27 January 2015

Statement completed by: Scott Hooson
Date: 27 January 2015

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

List of plant species recorded during botanical surveys of the Millar and Hutchison properties (sourced from Walls unpubl. data (2014a,b)).

Scientific Name	**Common Name(s)**
Indigenous species	
Acaena anserinifolia	bidibidi, piripiri
Aciphylla subflabellata	speargrass
Alectryon excelsus	titoki
Arthropodium candidum	grass lily, repehinapapa
Asplenium appendiculatum	ground spleenwort
Asplenium flabellifolium	necklace fern
Asplenium flaccidum	hanging spleenwort, raukatauri
Asplenium gracillimum	
Asplenium hookerianum	Hooker's spleenwort
Austroderia richardii	toetoe
Blechnum fluviatile	kiwakiwa
Blechnum minus	swamp kiokio
Blechnum penna-marina	little hard fern
Calystegia tuguriorum	NZ bindweed
Cardamine debilis	NZ bitter cress
Carex secta	purei, tussock sedge
Carmichaelia australis	native broom, common broom
Carpodetus serratus	putaputaweta
Clematis foetida	yellow clematis
Clematis paniculata	puawananga
Convolvulus waitaha	elfin bindweed
Coprosma crassifolia	thick-leaved coprosma, mikimiki
Coprosma propinqua	mingimingi, mikimiki
Coprosma rigida	stiff coprosma
Coprosma rotundifolia	round-leaved coprosma
Coprosma virescens	mikimiki
Coprosma wallii	mikimiki
Cordyline australis	cabbage tree, ti kouka
Corokia cotoneaster	korokio
Crassula sieberiana	dwarf stonecrop
Discaria toumatou	matagouri, wild irishman
Disphyma australe	native iceplant, horokaka
Epilobium nummulariifolium	willow herb
Festuca actae	Banks Peninsula blue tussock
Festuca novae-zelandiae	fescue tussock
Fuchsia excorticata	tree fuchsia
Griselinia littoralis	broadleaf
Haloragis erecta	toatoa
Hebe strictissima	Banks Peninsula hebe
Hedycarya arborea	pigeonwood
Helichrysum lanceolatum	niniao
Hoheria angustifolia	narrow-leaved lacebark, houhere
Hydrocotyle heteromeria	pennywort

Hydrocotyle moschata	pennywort
Hypolepis millefolium	thousand-leaved fern
Juncus distegus	wiwi
Juncus edgariae	leafless rush, wi
Korthalsella lindsayi	dwarf mistletoe
Kunzea robusta	kanuka
Lagenophora pumila	parani
Leptinella dioica	shore button
Leptinella minor	Banks Peninsula button daisy
Linum monogynum	rauhuia
Lophomyrtus obcordata	rohutu, NZ myrtle
Luzula banksiana var. orina	woodrush
Melicope simplex	poataniwha
Melicytus alpinus	porcupine shrub
Melicytus ramiflorus	mahoe, whiteywood
Microlaena stipoides	meadow rice grass, patiti
Microsorum pustulatum	hounds tongue, kowaowao
Muehlenbeckia australis	large-leaved pohuehue
Muehlenbeckia complexa	scrub pohuehue, wire vine
Myoporum laetum	ngaio
Myrsine divaricata	weeping matipo, weeping mapou
Olearia paniculata	akiraho
Ophioglossum coriaceum	adders tongue
Oxalis exilis	native oxalis
Parietaria debilis	
Parsonsia capsularis	native jasmine, akakaikiore
Parsonsia heterophylla	native jasmine, akakaikiore
Passiflora tetrandra	native passion vine, kohia
Pellaea rotundifolia	round-leaved fern, tarawera
Pennantia corymbosa	kaikomako, ducks foot
Phormium tenax	flax, harakeke
Piper excelsum	kawakawa
Pittosporum eugenioides	tarata, lemonwood
Pittosporum tenuifolium	kohuhu, black matipo
Plagianthus regius	lowland ribbonwood, manatu
Pneumatopteris pennigera	gully fern
Poa cita	silver tussock
Podocarpus totara	lowland totara
Polystichum oculatum	shield fern
Polystichum vestitum	prickly shield fern
Prumnopitys taxifolia	matai, black pine
Pseudopanax arboreus	five-finger
Pseudopanax crassifolius	lancewood
Pseudopanax ferox	fierce lancewood
Pteridium esculentum	bracken
Pyrrosia eleagnifolia	leather leaf fern
Ranunculus reflexus	hairy buttercup, maruru
Rubus cissoides	bush lawyer, tataramoa
Rubus schmidelioides	bush lawyer, tataramoa
Rubus squarrosus	leafless lawyer, tataramoa
Scandia geniculata	climbing aniseed
Schefflera digitata	pate
Senecio glaucophyllus	yellow rock groundsel

Sophora microphylla	kowhai, small-leaved kowhai
Sophora prostrata	prostrate kowhai, dwarf kowhai
Teucridium parvifolium	
Urtica ferox	ongaonga, tree nettle
Viola cunninghamii	native violet
Wahlenbergia gracilis	harebell
Exotic Species	
Agrostis capillaris	brown top
Aira caryophyllea	silvery hair grass
Anthoxanthum odoratum	sweet vernal
Anthriscus caucalis	beaked parsley
Bellis perennis	daisy
Bromus diandrus	ripgut brome
Cerastium glomeratum	chickweed
Cirsium arvense	Californian thistle
Cirsium vulgare	Scotch thistle
Critesion murinum	barley grass
Cynosurus echinatus	rough dogstail
Cytisus scoparius	common broom
Dactylis glomerata	cocksfoot
Digitalis purpurea	foxglove
Echium vulgare	vipers bugloss
Galium aparine	cleavers
Geranium molle	dovesfoot cranesbill
Holcus lanatus	Yorkshire fog
Hypochoeris radicata	catsear
Lolium perenne	ryegrass
Marrubium vulgare	horehound
Mycelis muralis	wall lettuce
Orobanche minor	broomrape
Petroselinum crispum	wild parsley
Polycarpon tetraphyllum	allseed
Rosa rubiginosa	sweet brier/briar
Rumex acetosella	sheeps sorrel
Sambucus nigra	elderberry
Silene gallica	catchfly
Silybum marianum	variegated thistle
Sisymbrium officinale	hedge mustard
Stellaria media	chickweed
Trifolium dubium	suckling clover
Trifolium repens	white clover
Verbascum thapsus	woolly mullein
Vicia sativa	vetch
Vitttadinia gracilis	purple fuzzweed

Appendix 2: Invertebrate Species List for Mandalay Station

Sourced from Wildland Consultants unpubl. data (2015a)

Order	Family	Scientific Name	Common Name	Species Status
Indigenous species				
ANNELIDA	Megascolecidae	*Maoridrilis transalpinus*		
		Maoridrilis sp.1		possibly BP endemic species
TUBELLARIA	Geoplanidae	*Newzelandia sp. 1*		
		Newzelandia sp. 2		
MEGALOPTERA	Corydalidae	*Archichauliodes diversus*	dobsonfly	
NEUROPTERA	Hemerobiidae	*Drepanacra binocula*	lacewing	
		Micromus tasmaniae	lacewing	
HEMIPTERA	Tibicinidae	*Amphipsalta zealandica*	clapping cicada	
		Amphipsalta strepitans	rock cicada	
		Kikihia new species		endemic
	Miridae	*Chinamiris virescens*		
ORTHOPTERA	Tettigoniidae	*Conocephalus bilineatus*	katydid	
	Gryllidae	*Pteronemobius bigelowi*	cricket	
	Rhaphidophoridae	*Pleioplectron simplex*	cave weta	common
	Anostostomatidae	*Hemiandrus "peninsularis"*		BP endemic
COLEOPTERA	Cerambycidae	*Prionoplus reticularis*	huhu	
	Carabidae	*Megadromus guerini*		BP endemic
		Cicindela latecincta	tiger beetle	
		Holcaspis ellongella		common
		Demetridia deiffenbachii		common
	Lucanidae	*Paralissotes reticulatus*	Reticulate stag beetle	
	Coccinellidae	*Coccinella leonina*	ladybird	
	Scarabaeidae	*Costelytra zelandica*	chafer	

		Odontria striata	striped chafer	
	Zopheridae	*Pristoderus bakewelli*		common
	Curculionidae	*Phrynixus sp.*	weevil	BP endemic
		Undescribed genus 'Epitimetes'		BP endemic
	Oedemeridae	*Thelyphassa nemoralis*		common
HYMENOPTERA	Formicidae	*Monomorium antarcticum*	ant	
	Ichneumonidae	*Netelia producta*	wasp	
LEPIDOPTERA	Mnesarchaeidae	*Mnesarchaea paracosma*		
	Hepialidae	*Wiseana copularis*	porina moth	
		Wiseana umbraculata	striped porina moth	
	Tineidae	*Erechthias fulguritella*		
		Erechthias charadrota		
		Opogona omoscopa		
		Sagephora phortigera		
	Glyphipterigidae	*Glyphipterix achlyoessa*		
		Glyphipterix iocheaera		
		Glyphipterix euastera		Naturally Uncommon
	Elachistidae	*Cosmiotes ombrodoca*		
	Depressariidae	*Eutorna caryochroa*		
	Gelechiidae	*Anisoplaca achyrota*		
		Kiwaia brontophora		
	Oecophoridae	*Barea exarcha*		
		Gymnobathra parca		
		Gymnobathra sarcoxantha		
		Gymnobathra hamatella		
		Izatha huttoni		
		Izatha katadiktya		
		Izatha convulsella		
		Leptocroca scholaea		
		Leptocroca species		
		Phaeosaces coarctatella		
		Tingena macarella		
		Tingena plagiatella		

		Trachypepla conspicuella		
	Stathmopodidae	*Stathmopoda holochra*		
		Stathmopoda horticola		
	Tortricidae	*Capua semiferana*		
		Cnephasia jactatana		
		Ctenopseustis obliquana		
		Epichorista siriana		
		Harmologa amplexana		
		Leucotenes coprosmae		
		Merophyas leucaniana		
		Planotortrix notophaea		
		Planotortrix excessana		
		New genus and species		
	Thyrididae	*Morova subfasciata*		
	Crambidae	*Deana hybreasalis*		
		Eudonia philerga		
		Eudonia leptalea		
		Eudonia sabulosella		
		Eudonia submarginalis		
		Eudonia aff. minualis		
		Gadira acerella		
		Glaucocharis lepidella		
		Orocrambus flexuosellus		
		Orocrambus ramosellus		
		Orocrambus vittellus		
		Scoparia chalicodes		
		Scoparia halopis		
		Scoparia minusculalis		
		Udea flavidalis		
		Udea marmarina		
		Uresiphita maorialis	kowhai moth	
	GEOMETRIDAE	*Asaphodes aegrota*		
		Asaphodes beata		
		Asaphodes chlamydota		
		Austrocidaria callichlora		
		Austrocidaria gobiata		
		Austrocidaria similata		
		Chloroclystis		

		inductata		
		Chloroclystis sphragitis		
		Declana egregia	zebra moth	
		Declana floccosa		
		Declana leptomera		
		Declana junctilinea		
		Epiphyrne undosata		
		Epiphyrne verriculata		
		Epyaxa rosearia		
		Gellonia dejectaria		
		Homodotis megaspilata		
		Helastia cinerearia		
		Helastia corcularia		
		Helastia triphragma		
		Hydriomena deltoidata		
		Hydriomena rixata		
		Ischalis fortinata		
		Orthocyldon praefectata		
		Pasiphila bilineolata		
		Pasiphila muscosata		
		Pasiphila sandycias		
		Pasiphila urticae		
		Pseudocoremia indistincta		
		Pseudocoremia leucelaea		
		Pseudocoremia modica		endemic
		Pseudocoremia pergrata		
		Pseudocoremia suavis		
		Xanthorhoe semifissata		
	Noctuidae	*Bityla defigurata*		
		Feredayia graminosa		
		Graphania morosa		
		Graphania mutans		
		Graphania phricias		
		Graphania plena		
		Graphania ustistriga		
		Meterana decorata		
		Meterana levis		
		Meterana ochthistis		
		Meterana stipata		
		Persectania aversa		
		Proteuxoa comma		
		Tmetolophota arotis		
		Tmetolophota atristriga		
		Tmetolophota propria		
		Tmetolophota unica		

	Nolidae	*Celama parvitis*		
	Erebidae	*Nyctemera annulata*	magpie moth	
		Rhapsa scotoscialis		
		Schrankia costaestrigalis		
	Lycaenidae	*Lycaena "common copper"*	common copper	
			Nymphalidae	Vanessa gonerilla
ODONATA	Coenagrionidae	*Xanthocnemis zelandica*	damselfly	
MANTODEA	Mantidae	*Orthodera novaezelandiae*	praying mantis	
PHASMATODEA	Phasmidae	*Clitarchus hookeri*	stick insect	
ARANEAE	Lycosidae	*Anoteropsis hilaris*	Spiders	common
	Gnaphosidae	*Zelanda kaituna*		BP southern most distribution
	Linyphiidae	*Pseudafroneta incerta*		Dunedin to Lewis Pass
	Amphinectidae	*Maniho ngaitahu*		BP endemic
	Agelenidae	*?Neoramia sp.*		unknown
	Nemesiidae	*Stanwellia sp. (probably S.kaituna)*		BP endemic
	Miturgidae	*Argoctenus sp.*		?share with Australia
	Araneidae	*Novaranea queribunda*		throughout NZ
	Salticidae	*unknown species 1*		Unknown
	Thomisidae	*Sidymella sp. (probably S. angularis)*		throughout NZ
Exotic species				
LEPIDOPTERA	Tortricidae	Cydia succedana	gorse seed pod moth	
	Pieridae	Pieris rapae	white butterfly	

Appendix 3: Invertebrate Species List for Hutchinson Property

Sourced from Wildland Consultants unpubl. data (2015b)

Order	Family	Scientific Name	Common Name	Species Status
Indigenous species				
MEGALOPTERA	Corydalidae	*Archichauliodes diversus*	dobsonfly	
NEUROPTERA	Hemerobiidae	*Drepanacra binocula*	lacewing	
HEMIPTERA	Tibicinidae	*Amphipsalta zealandica*	clapping cicada	
		Amphipsalta strepitans	rock cicada	
		Kikihia new species		endemic
	Pentatomidae	*Dictyotis caenosus*	shieldbug	
	Lygaeidae	*Nysius huttoni*		
		Rhypodes anceps		
	Tettigoniidae	*Conocephalus bilineatus*		
	Gryllidae	*Pteronemobius bigelowi*	cricket	
	Acrididae	*Phaulacridium marginale*	grasshopper	
MEGALOPTERA	Corydalidae	*Archichauliodes diversus*	dobsonfly	
NEUROPTERA	Hemerobiidae	*Drepanacra binocula*	lacewing	
HEMIPTERA	Tibicinidae	*Amphipsalta zealandica*	clapping cicada	
		Amphipsalta strepitans	rock cicada	
		Kikihia new species		endemic
	Pentatomidae	*Dictyotis caenosus*	shieldbug	
	Lygaeidae	*Nysius huttoni*		
		Rhypodes anceps		
	Tettigoniidae	*Conocephalus bilineatus*		
	Gryllidae	*Pteronemobius bigelowi*	cricket	
	Acrididae	*Phaulacridium*	grasshopper	

		marginale		
COLEOPTERA	Cerambycidae	*Prionoplus reticularis*	huhu	
		Zorion species		
	Carabidae	*Holcaspis angustula*	ground beetles	
		Demetrida dieffenbachi		
		Megadromus antarcticus		
		Megadromus guerinii		BP endemic
		Dicrochile atrata		
	Zopheridae	*Pristoderus bakewelli*		
	Byrridae	*Epichorius sp.*		
	Scarabaeidae	*Pyronota festiva*	manuka beetle	
		Costelytra zealandica	grass grub beetle	
		Odontria varicolourata		
		Odontria 'large'		
	Dermestidae	*Trogoderma antennale*		
	Oedemeridae	*Thelyphassa nemoralis*		
	Curculionidae	*Cryptorhynchinae sp. indet. 1.*		
		Cryptorhynchinae sp. indet. 2.		
	Tenebrionidae	*Mimopeus granulosus*		BP endemic
	Coccinellidae	*Veronicobious sp. 1*		
		Veronicobious sp. 2		
ORTHOPTERA	Raphidophoridae	*Pleioplectron simplex*	cave weta	
	Anostostomatidae	*Hemiandrus "peninsularis"*	ground weta	BP endemic
HYMENOPTERA	Formicidae	*Monomorium antarcticum*	ant	
	Ichneumonidae	*Netelia producta*		
LEPIDOPTERA	Micropterigidae	*Sabatinca aenea*		
	Hepialidae	*Wiseana copularis*	porina moth	
		Wiseana umbraculata	striped porina moth	
	Psychidae	*Reductoderces*	casemoth	

		species		
	Tineidae	*Erechthias fulguritella*		
	Glyphipterigidae	*Glyphipterix alchyoessa*		
		Glyphipterix oxymacaera		
	Elachistidae	*Cosmiotes ombrodoca*		
	Lyonetiidae	*Bedellia psammitis*		
	Yponomeutidae	*Zelleria sphenota*		At Risk, Declining
	Gelechiidae	*Anisoplaca achyrota*		
		Kiwaia brontophora		
	Oecophoridae	*Barea exarcha*		
		Gymnobathra omphalota		
		Gymnobathra hamatella		
		Gymnobathra parca		
		Gymnobathra sarcoxantha		
		Hierodoris s-fractum		
		Izatha huttoni		
		Izatha katadiktya		
		Izatha convulsella		
		Leptocroca scholaea		
		Tingena macarella		
		Tingena melinella		
		Tingena plagiatella		
		Trachypepla inconspicuella		
	Tortricidae	*Apoctena conditana*		
		Capua semiferana		
		Cnephasia jactatana		
		Ctenopseustis obliquana		
		Catamacta gavisana		
		Epichorista siriana		
		Harmologa amplexana		
		Merophyas leucaniana		
	Thyrididae	*Morova subfasciata*		
	Crambidae	*Antiscopa epicomia*		
		Deana hybreasalis		
		Eudonia cymatias		
		Eudonia cataxesta		
		Eudonia feredayi		
		Eudonia luminatrix		
		Eudonia manganeutis		
		Eudonia leptalea		
		Eudonia sabulosella		

		Gadira acerella		
		Gadira petraula		Naturally Uncommon
		Glaucocharis auriscriptella		
		Glaucocharis interrupta		
		Glaucocharis lepidella		
		Glaucocharis pyrsophanes		
		Hygraula nitens		
		Orocrambus flexuosellus		
		Orocrambus ramosellus		
		Orocrambus vittellus		
		Udea flavidalis		
		Udea marmarina		
		Uresiphita maorialis		
	GEOMETRIDAE	*Asaphodes aegrota*		
		Asaphodes beata		
		Asaphodes chlamydota		
		Austrocidaria anguligera		
		Austrocidaria gobiata		
		Chloroclystis inductata		
		Dasyuris partheniata		At Risk, Declining
		Declana leptomera		
		Declana junctilinea		
		Epiphyrne undosata		
		Epiphyrne verriculata		
		Epyaxa lucidata		
		Epyaxa rosearia		
		Homodotis megaspilata		
		Helastia cinerearia		
		Helastia triphragma		
		Ischalis fortinata		
		Orthocyldon praefectata		
		Pasiphila muscosata		
		Pasiphila urticae		
		Poecilasthena schistaria		
		Pseudocoremia indistincta		
		Pseudocoremia pergrata		
		Pseudocoremia suavis		
		Xanthorhoe semifissata		
	Noctuidae	*Aletia moderata*		
		Agrotis ipsilon		
		Bityla defigurata		
		Feredayia graminosa		
		Graphania beata		

		Graphania mutans		
		Graphania omoplaca		
		Graphania plena		
		Graphania ustistriga		
		Meterana coeleno		
		Meterana decorata		
		Meterana levis		
		Persectania aversa		
		Proteuxoa comma		
		Tmetolophota arotis		
		Tmetolophota atristriga		
		Tmetolophota unica		
	Nolidae	*Celama parvitis*		
	Erebidae	*Nyctemera annulata*	magpie moth	
		Rhapsa scotoscialis		
	Lycaenidae	*Lycaena "comon copper"*	common copper	
		Lycaena feredayi	glade copper	
	Nymphalidae	*Vanessa gonerilla*	red admiral	
MANTODEA	Mantidae	*Orthodera novaezelandiae*	praying mantis	
PHASMATODEA	Phasmidae	*Clitarchis hookeri*	stick insect	
ARANEAE			Spiders	
	Pisauridae	*Dolomedes minor*		Common throughout NZ
	Gnaphosidae	*Zelanda kaituna*		Banks Peninsula to Feilding
	Lycosidae	*Anoteropsis hilaris*		Common throughout NZ
		Allotrochosina schauinslandi		Common throughout NZ
	Nemesiidae	*Stanwellia sp. (probably S.kaituna)*		Banks Peninsula
	Linyphiidae	*Tenuiphantes tenuis*		Introduced and common
		Pseudafroneta incerta		Dunedin to Lewis Pass
	Zoropsodae	*Uliodon albopunctatus*		Common in NZ
	Thomisidae	*Diaea sp. (probably D. ambara)*		Common throughout NZ
	Salticidae	*unknown species 1*		unknown
	Amphinectidae	*Aorangia isolata*		likely rare BP endemic
	Thomisidae	*Sidymella sp. (probably S. angularis)*		Common throughout NZ
OPILIONES	Triaenonychidae	*Indet. genus & sp.*	harvestman	new BP endemic?
COLLEMBOLA	Neanuridae	*?Holacanthella sp.*	giant springtail	?

Introduced species				
LEPIDOPTERA	Tineidae	*Monopis ethelella*		
	Geometridae	*Chloroclystis filata*		
	Pieridae	*Pieris rapae*	white butterfly	