

The flora of the Island Hills Station Walking Track

A checklist and discussion of the special interest flora of Bush Creek Covenant, Island Hills Station, North Canterbury

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Farming steep hill and mountain country can be difficult, and several farms in North Canterbury have diversified their operations by setting up commercial walking tracks. These tracks allow even quite inexperienced trampers to confidently walk well-maintained routes, knowing that there will be assured food and accommodation awaiting them at the end of each day. The walking track on Island Hills Station was established in 2004, providing clients with a 3-day 30 km walk across back-country farmland and through extensive areas of montane forest. First known as the Hurunui High Country Track and run by the landowners, the track is now managed by New Zealand Wild Things and has been renamed the Island Hills Station Walking Track. A portion of the track passes through a 601 ha QEII covenant below Nicholsons Knob and Clay Knob, known as Bush Creek. This covenant was registered in late 1988, well before the walking track was formed. The area had special significance to the landowners, in part because of an historic cabin constructed in 1932 from beech logs (Fig. 1).

Located 25 km west of Culverden, Island Hills straddles the catchments of the Dove, Glencoe and Mandamus rivers, which collectively drain into the northern side of the Hurunui River. Riparian flats and small terraces give way to steeper greywacke hillslopes, the latter clad in a mosaic of tussockland, shrubland, secondary kānuka forest and primary beech forest. Upper slopes support a greater proportion of beech forest, eventually giving way to sub-alpine scrub and tussocklands, alpine herbfields and rocklands. The Bush Creek Covenant has an altitudinal span of 1,105 meters. The covenant portion of the walking track generally follows through toe-slope and mid-slope beech forest, with occasional areas of kānuka forest, wetlands, and small riparian terraces.

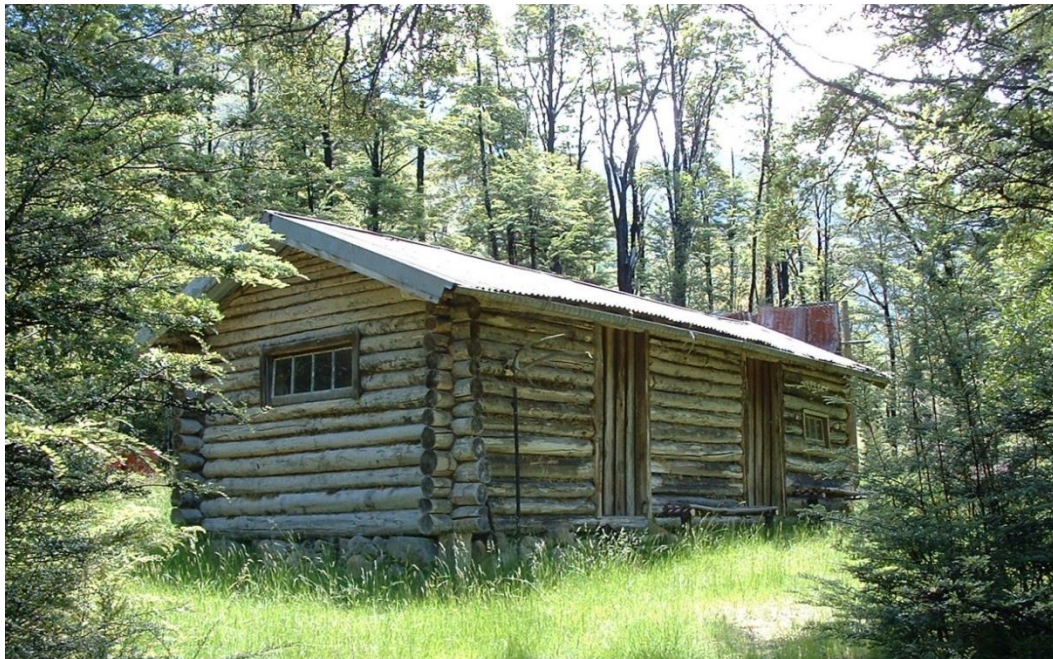


Figure 1. The historic log cabin beside Bush Creek, built in 1932. (Photo: Dan Shand)

Being only 35 km from the Main Divide, the overall environment is montane, with weather ranging from hot summer days to cold winter spells. Winter frosting can be severe, visually demonstrated by a band of dead kānuka and mānuka along the valley floor of the Mandamus River brought about by a series of particularly harsh frosts in the early 2000s (Fig. 2, p.44).



Figure 2. Clay Knob and the Mandamus River valley, viewed from the east. The band of dead mānuka and kānuka along the valley floor was brought about by severe frosts almost two decades ago.

The area was visited by members of the Canterbury Botanical Society for their Spring Camp in November 2013, and is also subject to routine visits by the local QEII regional representative. These visits, plus observations of the landowners, have resulted in a fairly extensive botanical coverage of the lower slopes, though the more isolated sub-alpine and alpine tops have received less botanical scrutiny.

Like many South Island high country native forests, a small number of species are very dominant over a broad range of other species. Four beech species are present – plants tending towards black beech (*Fuscospora solandri*) occur on some toe-slopes but soon grade into mountain beech (*Fuscospora cliffortioides*) with increasing altitude. Scattered specimens or groups of red beech (*Fuscospora fusca*) and silver beech (*Lophozonia menziesii*) occur on some lower slopes. Mānuka (*Leptospermum scoparium*) is a common coloniser of damper soils, especially around parts of the upper bushline. One particularly hard rocky spur supports an almost monocultural stand of short-statured, lichen-clad kānuka (*Kunzea serotina*), a few plants hosting cryptic pygmy mistletoe (*Korthalsella salicornioides* - Nationally Critical). Nearby, a moist fertile gully supports a relatively diverse assemblage of broadleaved hardwoods dominated by gnarly old broadleaf (*Griselinia littoralis*) and far larger kānuka (*Kunzea robusta*), some of which are up to 16 m tall.

The less common species include several of botanical interest. A small but healthy population of the small-leaved daisy tree (*Olearia fimbriata* - Nationally Vulnerable), nearing its northern distributional limit, occurs on a terrace riser. A few outlier *O. fimbriata* trees have also been found in fertile forest associations nearby. One particularly large twin-trunked tree beside the walking track toppled in about 2010. When measured, the two stems had diameters at (reclining) breast height of 44 cm and 48 cm, respectively. A few large matai trees (*Prumnopitys taxifolia*), at least one of them being a fruiting female, occur on nearby toe-slope sites. Terrace formations at the bases of two side-streams provide fragments of semi-wetland habitat, one of them supporting *Carex tenuiculmis* (Declining). A second terrace formation below the hut is drier, but does support a single specimen of *Coprosma intertexta* (Declining). Whilst kānuka and mountain beech are dominant nearby, it appears that winter frosting prevents most woody species from dominating the “frost flat” terrace itself.

Southern rātā (*Metrosideros umbellata*) has been found sparingly on rocky outcrops high above the walking track, although there appears to be enough suitable habitat for it to be more widespread than currently recorded. Whilst rātā plus kānuka, mānuka and pygmy mistletoe are all currently listed as being threatened

(directly or indirectly) by myrtle rust, all species appear to be thriving at the moment. One can only hope that myrtle rust does not cause much impact if and when it does establish in the Canterbury high country.

Coral broom (*Carmichaelia crassicaulis* – Declining, and approaching its northern distributional limit) occurs on a few open rocky outcrops, and occasionally up above the current bushline. The suckering *Coprosma acerosa* (Declining) can be found on shattered dry rock outcrops, seemingly able to penetrate its roots through the fine fissures to obtain sufficient moisture. The tiny native carrot (*Daucus glochidiatus* – Declining) was found by Botanical Society members back in 2013, growing in loose gravels beside the Mandamus River, but has not been relocated since. *Hebe leiophylla* occurs under the beech forest close to the hut. This location was once thought to be approaching its southern distributional limit until another population was recorded in 2013 by Botanical Society members at Mount Grey, some 50 km further south (Giller and Macdonald 2013).

Much of the upper bushline has almost certainly been induced by fire, and would probably once have been a few hundred meters higher. Former bush-line forest on easier slopes has been replaced by fields of snow tussock (*Chionochloa flavescens*, *C. macra* and *C. pallens*) interspersed with *Dracophyllum* and mānuka shrublands and scrub. Rocky spurs provided some refuge from these fires and retain occasional outlier patches of beech forest, with young beech occasionally volunteering back into open areas (Fig. 3). There are a few screes, especially on the up-slope southern flanks of Clay Knob. These support very few alpine herbs, perhaps indicating their induced nature (Fig. 4, p. 46).



Figure 3. Western flanks of Nicholson's Knob. Parts of the original upper bushline appear to have been lowered by fire, with mānuka now leading a slow succession back towards beech forest dominance.

The physical isolation of Bush Stream Covenant has resulted in a relatively low incidence of problematic weeds. Exotic broom (*Cytisus scoparius*) occurs in a few disturbed and stream-side locations but poses little threat to the forested areas. A smattering of hawthorn (*Crataegus monogyna*) near the hut was controlled several years ago, before this species had a chance to get a firm foothold. The most serious weed threat stems from a nearby plantation of Douglas fir (*Pseudotsuga menziesii*) that was established at a time when the species was not regarded as posing a significant risk of wilding spread. The subsequent introduction of a mycorrhizal associate has unfortunately resulted in the species becoming far more prone to spreading. Occasional wilding pines, sourced from further afield, have been controlled above the bushline.



Figure 4. Rubble screens and regenerating shrublands on the south-eastern flanks of Clay Knob, with true alpine faces around the head of Bush Creek visible to the rear.

Animal pests include all the usual suspects. Red deer and feral pigs are routinely hunted. Possums have been trapped, the sale of fur occasionally off-setting some of the costs of the field work. Mustelid and rat traps are being established alongside the walking track, in part to demonstrate to all track users that active pest control is an integral part of managing any forest remnant.

The following list of vascular plant species (Table 1, p. 47) has been compiled progressively over almost two decades. Several plant names have changed over this period. In some cases the most recently published names have been used, in other cases they have not been used. This is not because of any contention over them, but simply because several Botanical Society members felt that some of the older and more familiar names were just more recognisable.

Acknowledgements

Particular thanks go to the Shand family of Island Hills Station for having the foresight to protect the area by way of a covenant, and also to New Zealand Wild Things for their ongoing custodianship of the area, including considerable time spent managing pests and weeds. Thanks also to Gillian Giller and Kevin Platt for routinely accompanying the QEII representative and helping with plant identification. Particular thanks (and perhaps apologies) to Gillian and Kevin, and to Geoff Henderson & Margaret Mackenzie, and to Jason Butt & Margaret Meehan, who accompanied the QEII representative on somewhat longer than anticipated botanical marathons up, around and down from the alpine areas. Thanks also to members of the Canterbury Botanical Society for sharing their observations and opinions.

Reference and further reading

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Moore LB, Edgar E. 1976. *Flora of New Zealand* (Vol. 2). Wellington: AR Shearer, Government Printer.

Giller M, Macdonald A. 2013. *Hebe leiophylla* - a new southern distributional limit. *Canterbury Botanical Society Journal* 44: 77–78.

Table 1. Species list and abundance of vascular plant species compiled progressively over almost two decades for Bush Creek Covenant, Island Hills Station (and additional species recorded on walking track nearby). * = Exotic species. Abundance key: D, Dominant; A, Abundant; F, Frequent; O, Occasional; R, Rare. Abundance is relative to the entire covenant area, some species may be locally common in particular habitats, but less common overall.

GYMNOSPERMS		<i>Celmisia discolor</i>	R
<i>Pinus nigra</i> *	R	<i>Celmisia gracilentia</i>	R
<i>Podocarpus hallii</i>	R	<i>Celmisia</i> aff. <i>gracilentia</i> (rhizomatous wetland form)	R
<i>Podocarpus nivalis</i>	R	<i>Celmisia incana</i>	R
<i>Prumnopitys taxifolia</i>	R	<i>Celmisia lyallii</i>	R
<i>Pseudotsuga menziesii</i> *	R	<i>Celmisia monroi</i>	R
		<i>Celmisia semicordata</i>	R
ANGIOSPERMS		<i>Celmisia spectabilis</i>	F
DICOTS		<i>Celmisia viscosa</i>	R
<i>Acaena agnipila</i> *	R	<i>Centaurium erythraea</i> *	R
<i>Acaena anserinifolia</i>	O	<i>Cerastium fontanum</i> *	R
<i>Acaena caesiiglauca</i>	R	<i>Cirsium vulgare</i> *	R
<i>Acaena dumicola</i>	R	<i>Clematis forsteri</i> sens. lat.	O
<i>Acaena glabra</i>	R	<i>Clematis marata</i>	R
<i>Acaena inermis</i>	O	<i>Clematis paniculata</i>	R
<i>Acaena inermis</i> x <i>anserinifolia</i>	R	<i>Clematis quadribracteolata</i>	O
<i>Acaena juvenca</i>	O	<i>Colobanthus acicularis</i>	R
<i>Acaena novae-zelandiae</i>	R	<i>Coprosma acerosa</i>	R
<i>Aciphylla aurea</i>	R	<i>Coprosma cheesemanii</i>	O
<i>Aciphylla monroi</i>	R	<i>Coprosma crassifolia</i>	R
<i>Acrothamnus colensoi</i>	R	<i>Coprosma dumosa</i>	F
<i>Anaphalioides bellidioides</i>	O	<i>Coprosma fowerakeri</i>	O
<i>Anisotome aromatica</i>	O	<i>Coprosma intertexta</i>	R
<i>Anisotome filifolia</i>	R	<i>Coprosma linariifolia</i>	O
<i>Aristotelia fruticosa</i>	R	<i>Coprosma lucida</i>	R
<i>Aristotelia fruticosa</i> x <i>serrata</i>	R	<i>Coprosma microcarpa</i>	F
<i>Aristotelia serrata</i>	R	<i>Coprosma perpusilla</i>	R
<i>Australina pusilla</i>	R	<i>Coprosma propinqua</i>	O
<i>Brachyglottis bellidioides</i>	O	<i>Coprosma pseudocuneata</i>	R
<i>Brachyglottis bidwillii</i>	R	<i>Coprosma rhamnoides</i>	F
<i>Brachyscome longiscapa</i>	R	<i>Coprosma rugosa</i>	O
<i>Callitriche stagnalis</i> *	R	<i>Coprosma</i> x <i>cunninghamii</i>	R
<i>Cardamine</i> sp. (large, rockland)	R	<i>Coriaria plumosa</i>	R
<i>Cardamine</i> sp. (small, wetland)	R	<i>Coriaria sarmentosa</i>	F
<i>Carmichaelia australis</i>	R	<i>Corokia cotoneaster</i>	O
<i>Carmichaelia crassicaulis</i>	R	<i>Craspedia minor</i>	R
<i>Carmichaelia odorata</i> (<i>C. angustata</i>)	R	<i>Crassula sieberiana</i>	R
<i>Carpodetus serratus</i>	O	<i>Crataegus monogyna</i> *	R

<i>Celmisia angustifolia</i>	R	<i>Crepis capillaris*</i>	R
<i>Cytisus scoparius*</i>	O	<i>Hebe brachysiphon</i>	R
<i>Daucus glochidiatus</i>	R	<i>Hebe canterburiensis</i>	R
<i>Dichondra repens</i>	R	<i>Hebe cheesemanii</i>	R
<i>Discaria toumatou</i>	R	<i>Hebe glaucophylla</i>	O
<i>Dolichoglottis lyallii</i>	R	<i>Hebe leiophylla</i>	R
<i>Dracophyllum acerosum</i>	R	<i>Hebe lycopodioides</i>	R
<i>Dracophyllum kirkii</i>	R	<i>Hebe pinguifolia</i>	R
<i>Dracophyllum pronum</i>	O	<i>Hebe rakaiensis</i>	O
<i>Dracophyllum uniflorum</i>	A	<i>Hebe salicifolia</i>	R
<i>Epilobium alsinoides</i> ssp. <i>atriplicifolium</i>	R	<i>Hebe subalpina</i>	R
<i>Epilobium brunnescens</i>	R	<i>Hebe traversii</i>	R
<i>Epilobium chionanthum</i>	R	<i>Hebe vernicosa</i>	R
<i>Epilobium cinereum</i>	R	<i>Helichrysum depressum</i>	R
<i>Epilobium glabellum</i>	R	<i>Helichrysum filicaule</i>	O
<i>Epilobium melanocaulon</i>	R	<i>Helichrysum intermedium</i> (ii)	O
<i>Epilobium nummularifolium</i>	R	<i>Helichrysum lanceolatum</i>	R
<i>Epilobium pedunculare</i>	R	<i>Helichrysum parvifolium</i>	R
<i>Epilobium pubens</i>	R	<i>Heliohebe raoulii</i>	R
<i>Epilobium rotundifolium</i>	R	<i>Hieracium pilosella*</i>	O
<i>Euchiton audax</i>	O	<i>Hoheria glabrata</i>	R
<i>Euchiton involucratus</i>	R	<i>Hoheria lyallii</i>	R
<i>Euchiton limosus</i>	R	<i>Hydrocotyle moschata</i>	R
<i>Euphrasia monroi</i>	R	<i>Hydrocotyle novae-zelandiae</i>	O
<i>Exocarpos bidwillii</i>	O	<i>Hydrocotyle pterocarpa</i>	R
<i>Forstera tenella</i>	R	<i>Hypericum pusillum</i>	O
<i>Fragaria vesca*</i>	O	<i>Hypochaeris radicata*</i>	R
<i>Fuchsia excorticata</i>	R	<i>Kelleria dieffenbachii</i>	O
<i>Fuscospora fusca</i>	O	<i>Kelleria laxa</i>	R
<i>Fuscospora fusca</i> x <i>F. solandri</i>	R	<i>Korthalsella salicornioides</i> (on <i>K. serotina</i>)	O
<i>Fuscospora cliffortioides</i>	D	<i>Kunzea robusta</i>	O
<i>Fuscospora solandri</i>	R	<i>Kunzea serotina</i>	F
<i>Galium aparine*</i>	R	<i>Lagenophora pinnatifida</i>	O
<i>Galium propinquum</i>	R	<i>Lagenophora pumila</i>	R
<i>Gaultheria antipoda</i>	R	<i>Lagenophora strangulata</i>	F
<i>Gaultheria crassa</i>	O	<i>Leontodon taraxacoides*</i>	O
<i>Gaultheria depressa</i>	O	<i>Leptecophylla juniperina</i>	O
<i>Gentianella montana</i>	O	<i>Leptinella pectinata</i>	R
<i>Geranium</i> aff. <i>microphyllum</i>	O	<i>Leptinella pusilla</i>	R
<i>Geranium brevicaula</i>	R	<i>Leptinella pyrethrifolia</i>	R
<i>Geranium molle*</i>	R	<i>Leptinella squalida</i>	R
<i>Geum cockaynei</i>	O	<i>Leptospermum scoparium</i>	D
<i>Gingidia montana</i>	R	<i>Leptostigma setulosum</i>	R
<i>Gonocarpus aggregatus</i>	R	<i>Leucogenes grandiceps</i>	O
<i>Gonocarpus montanus</i>	R	<i>Leucopogon fasciculatus</i>	O

<i>Griselinia littoralis</i>	O	<i>Leucopogon fraseri</i>	O
<i>Linum catharticum</i> *	R	<i>Pseudopanax crassifolius</i>	O
<i>Lobelia angulata</i>	O	<i>Ranunculus ensyii</i>	R
<i>Lobelia macrodon</i>	O	<i>Ranunculus foliosus</i>	R
<i>Lophozonia menziesii</i>	O	<i>Ranunculus glabrifolius</i>	R
<i>Melicope simplex</i>	R	<i>Ranunculus reflexus</i>	O
<i>Melicytus 'alpinus group'</i>	R	<i>Raoulia australis</i>	R
<i>Metrosideros umbellata</i>	R	<i>Raoulia bryoides</i>	R
<i>Mimulus moschatus</i> *	R	<i>Raoulia eximia</i>	R
<i>Montia fontana</i>	R	<i>Raoulia glabra</i>	R
<i>Muehlenbeckia axillaris</i>	O	<i>Raoulia grandiflora</i>	R
<i>Muehlenbeckia complexa</i>	R	<i>Raoulia mammilaris</i>	O
<i>Mycelis muralis</i> *	O	<i>Raoulia subsericea</i>	R
<i>Myosotis forsteri</i>	R	<i>Raoulia tenuicaulis</i>	R
<i>Myosotis laxa</i> ssp. <i>caespitosa</i> *	O	<i>Raukaua anomalus</i>	O
<i>Myosotis sylvatica</i> *	R	<i>Raukaua anomalus</i> x <i>R. simplex</i>	R
<i>Myrsine divaricata</i>	O	<i>Rosa rubiginosa</i> *	R
<i>Myrsine nummularia</i>	O	<i>Rubus cissoides</i>	
<i>Nasturtium microphyllum</i> *	R	<i>Rubus schmidelioides</i>	
<i>Nertera ciliata</i>	R	<i>Rubus schmidelioides</i> var. <i>subpauperatus</i>	
<i>Olearia avicenniifolia</i>	R	<i>Rumex acetosella</i> *	
<i>Olearia cymbifolia</i>	O	<i>Rumex flexuosus</i>	
<i>Olearia fimbriata</i>	R	<i>Sagina procumbens</i> *	
<i>Olearia nummulariifolia</i> x (hybrid)	R	<i>Salix cinerea</i> *	R
<i>Ourisia macrophylla</i> ssp. <i>lactea</i>	R	<i>Schizeilema trifoliolatum</i>	R
<i>Oxalis exilis</i>	R	<i>Scleranthus uniflorus</i>	R
<i>Oxalis magellanica</i>	O	<i>Scleranthus brockiei</i>	R
<i>Ozothamnus leptophyllus</i>	O	<i>Senecio</i> aff. <i>dunedinensis</i> (undescribed brown-leaved form)	R
<i>Ozothamnus vauvilliersii</i>	O	<i>Senecio dunedinensis</i>	R
<i>Parahebe decora</i>	R	<i>Senecio jacobaea</i> *	O
<i>Parahebe lyallii</i>	R	<i>Senecio quadridentatus</i>	R
<i>Parsonsia capsularis</i>	R	<i>Senecio wairauensis</i>	
<i>Parsonsia capsularis</i> var. <i>rosea</i>	R	<i>Sophora microphylla</i>	
<i>Pentachondra pumila</i>	O	<i>Sophora microphylla</i> x <i>longicarinata</i>	
<i>Phyllachne colensoi</i>	O	<i>Stellaria alsine</i> *	
<i>Pimelea oreophylla</i>	R	<i>Stellaria graminea</i> *	
<i>Pimelea traversii</i>	O	<i>Stellaria parviflora</i>	
<i>Pittosporum divaricatum</i>	R	<i>Taraxacum officinale</i> *	
<i>Pittosporum tenuifolium</i>	R	<i>Trifolium pratense</i> *	
<i>Plantago lanceolata</i> *	R	<i>Trifolium repens</i> *	
<i>Plantago raoulii</i>	O	<i>Urtica sykesii</i>	O
<i>Potentilla anserinoides</i>	R	<i>Verbascum thapsus</i> *	R
<i>Prunella vulgaris</i> *	O	<i>Veronica serpyllifolia</i> *	R
<i>Pseudognaphalium luteo-album</i>	R	<i>Viola cunninghamii</i>	O

<i>Pseudopanax colensoi</i> var. <i>colensoi</i>	R	<i>Wahlenbergia albo-marginata</i>	O
<i>Wahlenbergia violacea</i>	R		
	R	<i>Festuca rubra</i> ssp. <i>rubra</i> *	R
MONOCOTS		<i>Glyceria declinata</i> *	R
<i>Agrostis capillaris</i> *	F	<i>Hierochloe redolens</i>	R
<i>Aira caryophyllea</i> *	R	<i>Holcus lanatus</i> *	R
<i>Alopecurus geniculatus</i> *	R	<i>Isolepis inundata</i>	R
<i>Anthoxanthum odoratum</i>	F	<i>Isolepis pottsii</i>	R
<i>Arthropodium candidum</i>	R	<i>Juncus articulatus</i> *	R
<i>Astelia fragrans</i>	R	<i>Juncus australis</i>	R
<i>Astelia nervosa</i>	R	<i>Juncus distegus</i>	R
<i>Bulbinella</i> sp.	R	<i>Juncus edgariae</i>	R
<i>Carex breviculmis</i>	R	<i>Juncus effusus</i> *	R
<i>Carex coriacea</i>	O	<i>Juncus tenuis</i> *	O
<i>Carex dissita</i>	O	<i>Lachnagrostis lyallii</i>	O
<i>Carex dipsacea</i>	R	<i>Lepidosperma australe</i>	R
<i>Carex flagellifera</i>	R	<i>Libertia ixioides</i>	R
<i>Carex forsteri</i>	O	<i>Luzula picta</i> var. <i>limosa</i>	R
<i>Carex gaudichaudiana</i>	R	<i>Luzula rufa</i>	O
<i>Carex geminata</i>	R	<i>Luzula traversii</i>	R
<i>Carex goyenii</i>	R	<i>Oreobolus pectinatus</i>	R
<i>Carex inversa</i>	R	<i>Phormium cookianum</i>	O
<i>Carex maorica</i>	R	<i>Poa cita</i>	O
<i>Carex ovalis</i> *	R	<i>Poa colensoi</i>	O
<i>Carex secta</i>	R	<i>Poa imbecilla</i>	R
<i>Carex sinclairii</i>	R	<i>Potamogeton cheesemanii</i>	R
<i>Carex solandri</i>	O	<i>Rytidosperma gracile</i>	R
<i>Carex testacea</i>	O	<i>Rytidosperma setifolium</i>	R
<i>Carex tenuiculmis</i>	R	<i>Schoenus pauciflorus</i>	R
<i>Carex virgata</i>	R	<i>Stenostachys gracilis</i>	R
<i>Chionochloa australis</i>	O	<i>Uncinia clavata</i>	R
<i>Chionochloa conspicua</i>	R	<i>Uncinia filiformis</i>	R
<i>Chionochloa flavescens</i>	F	<i>Uncinia gracilentata</i>	R
<i>Chionochloa macra</i>	O	<i>Uncinia rubra</i>	R
<i>Chionochloa pallens</i>	O	<i>Uncinia rupestris</i>	O
<i>Cordyline australis</i>	R	<i>Uncinia scabra</i>	R
<i>Cortaderia richardii</i>	R	<i>Uncinia strictissima</i>	R
<i>Cynosurus cristatus</i> *	R	<i>Uncinia uncinata</i>	F
<i>Dactylis glomerata</i> *	R		
<i>Deyeuxia aucklandica</i>	R	ORCHIDS	
<i>Deyeuxia avenoides</i>	R	<i>Adenochilus gracilis</i>	
<i>Dichelachne crinita</i>	R	<i>Caladenia lyallii</i>	R
<i>Eleocharis acuta</i>	R	<i>Chiloglottis cornuta</i>	O
<i>Elymus rectisetus</i>	R	<i>Corybas hatchii</i>	R
<i>Festuca novae-zelandiae</i>	O	<i>Corybas trilobus</i>	O

<i>Festuca rubra</i> ssp. <i>commutata</i> *	R	<i>Gastrodia</i> sp.	R
<i>Microtis unifolia</i>	R	<i>Botrychium biforme</i>	R
<i>Prasophyllum colensoi</i>	O	<i>Cheilanthes sieberi</i>	R
<i>Pterostylis areolata</i>	O	<i>Dryopteris filix-mas</i> *	R
<i>Pterostylis graminea</i>	R	<i>Histiopteris incisa</i>	O
<i>Pterostylis irsoniana</i>	R	<i>Hymenophyllum multifidum</i>	R
<i>Pterostylis</i> sp.	R	<i>Hymenophyllum peltatum</i>	O
<i>Pterostylis tristis</i>	R	<i>Hymenophyllum villosum</i>	R
<i>Thelymitra longifolia</i>	O	<i>Hypolepis ambigua</i>	R
<i>Thelymitra pauciflora</i>	O	<i>Hypolepis lactea</i>	R
<i>Thelymitra</i> sp. aff. <i>purpureo-fusca</i>	O	<i>Hypolepis millefolium</i>	O
		<i>Hypolepis rufobarbata</i>	R
FERNS & FERN ALLIES		<i>Lycopodium australianum</i>	R
<i>Adiantum cunninghamii</i>	R	<i>Lycopodium fastigiatum</i>	O
<i>Asplenium appendiculatum</i>	R	<i>Lycopodium scariosum</i>	O
<i>Asplenium flabellifolium</i>	O	<i>Lycopodium volubile</i>	O
<i>Asplenium flaccidum</i>	R	<i>Microsorium pustulatum</i>	R
<i>Asplenium hookerianum</i>	R	<i>Notogrammitis</i> aff. <i>ciliata</i> (hairless)	R
<i>Asplenium richardii</i>	R	<i>Notogrammitis billardierei</i>	O
<i>Asplenium trichomanes</i>	R	<i>Notogrammitis crassior</i>	R
<i>Blechnum chambersii</i>	R	<i>Notogrammitis heterophylla</i>	R
<i>Blechnum colensoi</i>	R	<i>Notogrammitis patagonica</i>	R
<i>Blechnum fluviatile</i>	O	<i>Ophioglossum coriaceum</i>	R
<i>Blechnum minus</i>	R	<i>Paesia scaberula</i>	R
<i>Blechnum montanum</i>	R	<i>Phlegmariurus varius</i>	R
<i>Blechnum novae-zelandiae</i>	R	<i>Polystichum neozelandicum</i> ssp. <i>zerophyllum</i>	R
<i>Blechnum penna-marina</i>	F	<i>Polystichum vestitum</i>	O
<i>Blechnum procerum</i>	O	<i>Pteridium esculentum</i>	R
<i>Blechnum vulcanicum</i>	R	<i>Pyrrhosia eleagnifolia</i>	R

Additional species recorded on walking track			
GYMNOSPERMS		MONOCOTS	
<i>Pinus radiata</i> *	R	<i>Microlaena stipoides</i>	R
<i>Podocarpus hallii</i> x <i>nivalis</i>	R		
		ORCHIDS	
ANGIOSPERMS		<i>Aporostylis bifolia</i>	R
DICOTS		<i>Caladenia bartlettii</i>	R
<i>Brachylottis buechananii</i>	R	<i>Pterostylis australis</i>	R
<i>Centella uniflora</i>	R	<i>Pterostylis banksii</i>	O
<i>Colobanthus strictus</i>	R	<i>Pterostylis venosa</i>	R
<i>Euphrasia cuneata</i>	R	<i>Thelymitra hatchii</i>	R
<i>Hebe</i> sp. (<i>cryptomorpha</i> / <i>rupicola</i>)	R		
<i>Olearia nummulariifolia</i>	R	FERNS	
<i>Olearia</i> sp. (<i>odorata</i> ?)	R	<i>Blechnum discolor</i>	R

A history of the Harris Scientific Reserve, Ashburton

Val Clemens

A precious remnant conserved

As with many similar projects, the history of the Harris Scientific Reserve (HSR) consists of two intertwining stories. Firstly the people: those who have touched the reserve fleetingly and those who work constantly to protect the place they see as significant and irreplaceable. Secondly the place: there are remnants of a much longer natural history that we can only surmise from the clues that have been left for us to find.

Our part of this history began when Arthur and Shirley Harris bought the farm at Maronan, 12 km southwest of Ashburton, in 1962. Their house was on nearby Scales Road but part of the farm consisted of 40 acres (about 16 ha) of dry stony land along Lovetts Road that still had “scrub” on it. “Townies” would often arrive to help themselves to firewood, and sometimes leave the gate open letting Arthur’s stock escape. To prevent this, he asked the council grader driver to flatten the scrub but to leave a small paddock surrounded by kānuka down a farm track about 300 m from the Lovetts Road frontage as shelter for lambing ewes.

Local GP Ross Lane and his wife Marion were early conservationists in Ashburton who had noticed the increasing rarity of native plants on the plains. They suggested to Arthur and Shirley that the remaining kānuka be protected. They arranged a visit with Dr Brian Molloy and Dr William Blair of QEII, who confirmed the significance of the area when they visited in 1969. A QEII covenant was gazetted in 1983. Arthur then double-fenced the perimeter with the kānuka and continued to use the interior.

“This patch is the largest of several smaller remnants that occur on farmland and roadside verges in this district ... Together they represent the last survivors of an extensive area of scrub mapped for this district between 1858 and 1873 ... The Lovetts Rd scrub, and the small kanuka scientific reserve at Eyrewell, are virtually all that remains of a vegetation type that once covered 500,000 acres or 200,000 hectares on the Canterbury Plains.” Dr Brian Molloy

Arthur and Shirley spoke of driving sheep past the covenant on a warm spring day and noticing a delightful perfume. After some time they realised that it came from small green flowers high in the kānuka – it was *Clematis marata*.

Reserve establishment

In 1995 the farm was sold to the then Ashburton County Council as a site for a landfill, but when it was found unsuitable, the area was leased. The covenant was neglected and when Forest & Bird (F&B) members visited in 2006 they found the fences in poor repair with evidence of stock being among the kānuka.

Discussions with the Ashburton District Council (ADC) were initiated by F&B members. After the significance of the site was described to councillors by Dr Colin Meurk, and with strong support from Mayor Bede O’Malley, the Council agreed to lease the 2.4 ha covenant, plus an additional paddock of 8.6 ha between the covenant and Lovetts Road, to the Ashburton Branch of Forest and Bird on the condition that a trust be formed to administer and develop the Reserve. As a result the Ashburton Community Conservation Trust was formed in 2010 and took over management of the now 11 ha Harris Scientific Reserve (Fig. 1, p. 53). A management plan was written and has been regularly updated.

When the remainder of the farm was sold by the Council, there was a shelterbelt of large kānuka growing on the roadside along Lovetts Road. To the horror of F&B members, the new owner of the farm removed the large kānuka beside his land, despite the ADC being in negotiation with QEII to protect them with a Landscape Protection Agreement.

Planting began in the interior of the covenant in 2007. Inexperienced and naïve as we were, there was little success on a site with very low fertility, masses of weeds, and a nearest water source 300 m away. With some very dry summers and unusually heavy frosts, the attrition rate was very high, and the outcome for the Reserve was looking bleak.