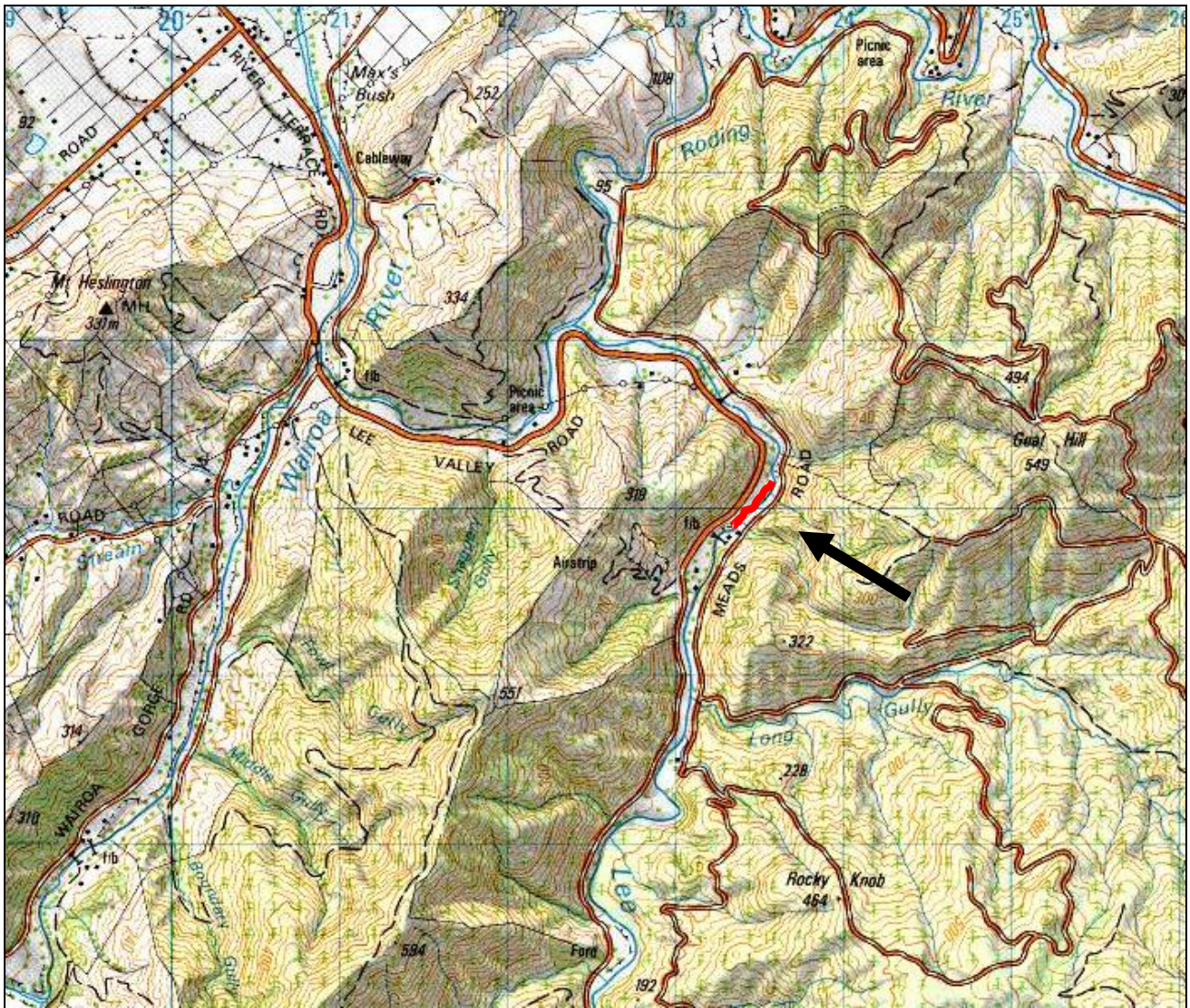


Native Habitats Tasman Ecological Assessment Report

Site:	B 86
Landowners/Occupiers:	TDC (Firestones Reserve)
Ecological District:	Bryant
Grid Ref:	E2523494 N5977045
Surveyed By:	Michael North
Date:	14 August 2012
Survey Time:	1 hr



THE SETTING – BRYANT ECOLOGICAL DISTRICT (ED)

Location and Physical Description

The Bryant Ecological District is made up of steep hill country, rising to over 1600m and draining to the north-west. It has complex geology, including Permian sandstone and argillite, nationally important areas of ultramafic rocks, volcanic rocks, greywacke and fossil-bearing marine and non-marine sedimentary rocks spanning a considerable age range. Soils vary greatly in structure and fertility accordingly. The climate is generally sunny and sheltered, with very warm summers, mild winters and moderate rainfall, although it is cooler and wetter in the south. Lower slopes are typically farmed or in exotic forestry. The northern part of the Ecological District has a coastal portion featuring Nelson City, the Nelson Boulder Bank, its associated estuary and hilly hinterland, but this part is not within Tasman District. Tasman District Council has some landholdings in this District.

Ecosystem Types Originally Present

Formerly, the Ecological District below the bushline (about 1200-1300m) would have been almost entirely covered in forest, apart from the waterways. The alluvial valley flats and terraces supported towering podocarp forests of totara, matai, rimu, miro and kahikatea. On the hills was mixed beech-podocarp forest, in which black beech was dominant in drier sites and hard beech in wetter lowland places, whilst red beech and silver beech occupied most cooler and mid-altitude slopes. Mountain beech was dominant on upland slopes, along with southern rata, Hall's totara and pahautea (mountain cedar). In sheltered coastal gullies were pockets of lush broadleaved forest containing tawa, titoki, pukatea, nikau, hinau and tree ferns, accompanied by large podocarps. On the ultramafic areas were distinctive forest and shrubland, stunted by the unusual soil conditions and containing species found nowhere else. Above the bushline were tussock grassland, subalpine shrubland, herbfield and fellfield. Freshwater wetlands occurred in the valleys and would have included fertile lowland swamps with kahikatea, harakeke, cabbage tree and tussock sedge (*Carex secta*). Rivers and streams, including riparian ecosystems (trees, shrubs, flaxes, toetoe, etc), would have made up an appreciable although not large portion of the District. The table below gives estimates of the extent of these original ecosystems.

Existing Ecosystems

Most of the lowland forests and wetlands have been lost. What remains are fragments of beech forest, tiny remnants of lowland broadleaved forest and podocarp forest, and a few small freshwater wetlands. There are considerable tracts of mid-altitude forest still, accompanied by regenerating native vegetation where the former forest has been cleared or burnt. The upland forests and ecosystems at higher altitude are still present, although much diminished in ecological quality by exotic animal impact. The table below gives estimates of the proportions of the original ecosystems that remain.

Degree of Protection

Mt Richmond Forest Park protects much of the indigenous ecosystems that remain. A little of the rest is protected within reserves and covenants. There are still considerable opportunities for further protection. The table below gives estimates of how much of the original and remaining ecosystems have formal protection.

Indigenous Ecosystems – Bryant Ecological District

Ecosystem type	Original extent (% of ED)	Proportion of original extent remaining (%)	Proportion of original extent / remaining area protected (%)	
			Original	Remaining
Coastal sand dune and flat	—	—	—	—
Estuarine wetland	—	—	—	—
Fertile lowland swamp and pond	<1	<5	<2	<20
Infertile peat bog	—	—	—	—
Upland tarn	<1	100	100	100
Lake	—	—	—	—
River, stream and riparian	1	40	?	?
Lowland podocarp forest	5	1	<1	70
Lowland broadleaved forest	2	<5	<1	20
Lowland mixed forest	20	5	2	40
Lowland beech forest	25	15	8	50
Upland beech forest	35	30	25	80
Subalpine forest	2	70	70	100
Lowland shrubland	1	<10	<5	50
Upland/subalpine shrubland	2	70	70	100
Frost flat communities	—	—	—	—
Tussock grassland	3	100	100	100
Alpine herbfield and fellfield	2	100	100	100

[From Simpson & Walls (2004): Tasman District Biodiversity Overview]

SITE DESCRIPTION

Location, Geology, Hydrology

This 0.6 ha site (c300m long x 20m wide) lies at 80m asl on the true-left bank of the Lee River about 3km above its confluence with the Wairoa River. It occupies moderate to steep riparian banks and very minor river terrace.

The geology is alluvial – of clay-bound gravel and minor fan deposits forming lowest aggradation surfaces above major rivers (Q2a).

Vegetation

COMMUNITIES

1 Lowland totara- kanuka- [black beech] forest on riparian margin

Mature secondary forest lines the Lee River along much of the reserve margin. Other adult canopy trees that feature rarely are pokaka, kaikomako, matai, turepo and kahikatea. Several fallen spars of black beech lie on the ground, long fallen. Lowland totara occur up to 80cm dbh. Moderately lush understories prevail, with mahoe common, and a moderate presence of kanono, mapou, putaputaweta, lemonwood, barberry and karamu. Rohutu/*Lophomyrtus obcordata* is common, particularly of juveniles, and scrub coprosma and thick-leaved coprosma are moderately common. Regenerating lowland totara is scattered through. Poataniwha is occasional and fuchsia is rare. Old man's beard scrambles locally into low canopies, and native jasmine is moderately common throughout. Ground cover is generally lush, with a diverse range of ferns and seedlings, most prominently houndstongue fern, with lowland shield fern common. Other species include *Pellaea rotundifolia*, shining spleenwort, common maidenhair fern, gully fern, bush rice grass, *Uncinia uncinata*, *Blechnum chambersii*, *Uncinia scabra*, and kiokio. Locally patches of periwinkle dominate. Along the riverbank where floods impact on the forest, light levels are higher with mossy beds, along with *Blechnum chambersii*, depauperate toetoe, bush rice grass, common maidenhair fern, *Blechnum chambersii*, kiokio and gully fern. Shrubs include karamu, tutu, broom and rare native broom. Where small glades occur within the forest, exotic elements are common including cocksfoot grass, common forgetmenot, blackberry, herb robert and old man's beard seedlings.

Botanical Values

COMMUNITIES

Lowland beech and beech-podocarp forest once covered nearly all of the Bryant Ecological District (ED) below the treeline and away from the mineral belt. Forest below 600m asl is defined as 'lowland' in the above table, which suggests that a little over 20% of the original lowland forest cover remains. Most of this is above 300m. The figure is far less for forest below 300m which is of the order of 5% or less remaining. Riparian and toe-slope podocarp-beech forest ribbons are scattered along the length of the lower Lee River in numerous small sections of which this is one, but most lack continuity with adjoining forest. Riparian/toe-slope forest farther upriver within public conservation land is extensive but differs in its ecological characteristics with rimu becoming prominent and lowland totara absent, among other differences.

SPECIES

56 native plant species were noted. Rare in the ecological district are poataniwha/*Melicope simplex*, swamp mahoe, bamboo rice grass and the sedge *Carex lambertiana*. These are all characteristic species of river terraces in the area and have become rare through habitat depletion.

Fauna

Native forest birds noted were riroriro/grey warbler and piwakawaka/fantail. Ruru/morepork, tui, korimako/bellbird, kotare/kingfisher, kereru/pigeon, toutouwai/robin, miromiro/tomtit, pipipi/brown creeper, karearea/native falcon, weka and waxeye are also likely to be present in the locality.

Weed and Animal Pests

The most concerning weeds are periwinkle and old man's beard. Both are established locally. Barberry, blackberry, broom and gorse are also present, the first two within the forest. No pest animal sign was noted.

Other Threats

None were noted.

General Condition & Other Comments

This secondary forest site is in reasonably good condition, with only weed impacts detracting.

Landscape/Historic Values

The site lies beside the Lee Valley road and forms an attractive riparian margin to the reserve.

ASSESSMENT OF ECOLOGICAL SIGNIFICANCE

The following criteria are assessed:

Representativeness: *How representative is the site of the original vegetation? How representative is the site of what remains?*

Rarity and Distinctiveness: *Are there rare species or communities? Are there any features that make the site stand out locally, regionally or nationally for reasons not otherwise addressed?*

Diversity and Pattern: *Is there a notable range of species and habitats? To what degree is there complexity in this ie patterns and gradients?*

Size/shape: *How large and compact is the site?*

Ecological context: *How well connected is the site to other natural areas, to what extent does the site buffer and is buffered by adjoining areas, and what critical resources to mobile species does it provide?*

Sustainability: *How well is the site able to sustain itself without intervention?*

Site Significance

The technical assessment of significance is tabled in the Appendix.

This site is / is not significant for the following reasons:

With moderately high representativeness and rarity values the site is significant.

Management Issues and Suggestions

The history of management of the forested section of the reserve is not known to the surveyor. Some marginal plantings have been undertaken along the inner margin of the forest but plants have struggled to get established due to the rubbly free-draining nature of the slopes. It is important that at least the old man's beard and periwinkle infestations are dealt with if the values of the site are to be retained.



Lowland totara is the most dominant tree species at the site



Black beech and kanuka also have a notable presence



The riparian margins of the site at the lower end are gently-sloping and dominated by tall fescue with some tutu and willow regeneration



Toward the upstream end banks drop steeply into the river with a diverse array of ground cover plants



Where the riparian forest is well developed and sufficiently wide there is a diverse understory of shrubs, broadleaved regeneration and ferns



An unusually large turepo/small-leaved milkwood is present, a species surprisingly rare in the greater Wairoa/Lee/Roding catchment



Old man's beard has a localised presence but is getting established, seen here cloaking forest shrub canopies



Periwinkle cloaks the forest floor locally to the exclusion of most native ground plants

APPENDIX

Technical Assessment of Site Significance

Each site is ranked according to the highest ranking vegetation community or habitat that occurs within it. However, a site will be divided into more than one area for assessment purposes if they vary markedly in character, size or condition. Some examples are:

- (a) a core area of vegetation (say, a podocarp gully remnant) is surrounded by/adjoins a much larger area of markedly different vegetation (say, kanuka scrub);
- (b) a core area of vegetation has *markedly* different ecological values to the surrounding/adjacent vegetation;
- (c) where artificially abrupt ecological boundaries occur between an area of primary vegetation and a surrounding/adjacent area of secondary vegetation - that is more than just a change in canopy composition.

The above does not apply if such adjoining vegetation forms only a small part of the total site, or if such vegetation forms a critical buffer to the core area.

Where such division of a site into two or more separately assessed areas occurs, such adjoining areas will also be considered in their buffering/connectivity roles to one another.

This site was assessed as one unit as the above considerations did not indicate the need to assess communities separately.

Significance Evaluation		
	Score	Example/Explanation
Primary Criteria		
Representativeness		
Mature secondary vegetation that strongly or moderately strongly resembles pre-human natural regeneration	MH	Egs. 1. Mature secondary kanuka (<i>Kunzea ericoides</i>) or mixed broadleaved forest in good condition with beech or podocarp species present, as seedlings or as occasional relic emergent trees, and moderately low herbivore impacts 2. Secondary beech or podocarp forest in good condition
Rarity and Distinctiveness		
A primary community that is depleted to less than 5% of its original (pre-human) extent in the ecological district, unless in poor condition	MH	Mature secondary forest of the original forest type scores MH not H
Diversity and Pattern		
Presence of a less than typical diversity of indigenous species, communities or habitat types for the ecological district	L	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		

Significance Evaluation		
	Score	Example/Explanation
The site is separated from other areas of indigenous vegetation but provides an important part of a network of closely lying sites	M	A network of small closely-lying riparian forest sites runs along this section of the Lee Valley
Buffering to		
The site is poorly buffered	L	
Provision of critical resources to mobile fauna		
The site provides seasonally important resources for indigenous mobile animal species and these species are present in the locality even though they may not have been observed at the site.	ML	Eg Unusually important stands of podocarp, tawa or kowhai trees that provide seasonally important benefits for forest birds.
Size and Shape		
The site is of moderately small size for its vegetation community and Ecological District but is not compact	L	
Other Criterion		
Sustainability (average score)	M	
Physical and proximal characteristics		
Size, shape, buffering and connectivity provide for a low overall degree of ecological resilience.	L	Size L Shape L Buffering L Connectivity M
Inherent fragility/robustness		
Indigenous communities are inherently resilient.	H	
Threats (low score = high threat; lowest score taken)		
Ecological impacts of grazing, surrounding land management, weeds and pests*	MH	Grazing H Surroundings H Weeds MH Pests H

* observed pest impacts only


NB where scores are averaged, the score must reach or exceed a particular score for it to apply

Summary of Scores	Criterion	Ecological District Ranking
Primary Criteria	Representativeness	MH
	Rarity and Distinctiveness	MH
	Diversity and Pattern	L
Secondary Criteria	Ecological Context	M
	Size and Shape	L
Additional Criteria	Sustainability	M

H = High MH = Medium-High M = Medium ML = Medium-Low L = Low

Summation of Scores to Determine Significance

If a site scores at least as highly as the combinations of primary and secondary scores set out below, it is deemed significant for the purposes of this assessment.

Primary Criteria		Secondary Criteria	
Any of the three primary criteria with a score at least as high as listed		Any of the two secondary criteria with a score at least as high as listed	
		Plus	
	H		—
	MH x 2		—
	MH + M		—
	MH	+	MH
	M x 2	+	H
	M x 2	+	MH x 2
	M	+	H + MH

H = High MH = Medium-High M = Medium

Is this site significant under the TDC assessment criteria? **YES**

Species List

r = Rare o = Occasional m = Moderate Numbers ml = Moderate Numbers Locally
 c = Common lc = Locally Common f = Frequent lf = Locally Frequent x = Present But
 Abundance Not Noted P = Planted R = Reported
 v = Very. For example: vlc = very locally common, mvl = moderate numbers very locally

Species Name	Common Name	Status
Trees Shrubs		x
<i>Aristotelia serrata</i>	makomako; wineberry	r
<i>Carmichaelia australis</i>	common broom	r
<i>Carpodetus serratus</i>	putaputaweta; marbleleaf	o
<i>Coprosma crassifolia</i>	thick leaved coprosma	m
<i>Coprosma grandifolia</i>	large leaved coprosma; kanono	lc
<i>Coprosma propinqua</i>	common coprosma	r
<i>Coprosma pxr</i>	hybrid coprosma	r
<i>Coprosma rhamnoides</i>	scrub coprosma	ml
<i>Coprosma robusta</i>	karamu	m
<i>Coriaria arborea</i>	tutu	ml
<i>Dacrycarpus dacrydioides</i>	kahikatea	r
<i>Elaeocarpus hookerianus</i>	pokaka	r
<i>Fuchsia excorticata</i>	fuchsia	r
<i>Hebe stenophylla</i>		r
<i>Hedycarya arborea</i>	porokaiwhiri; pigeonwood	o
<i>Kunzea ericoides</i>	kanuka	m
<i>Lophomyrtus obcordata</i>	rohutu; NZ myrtle	c
<i>Melicope simplex</i>	poataniwha	r
<i>Melicytus micranthus</i>	swamp mahoe	o
<i>Melicytus ramiflorus</i>	mahoe, whiteywood	c
<i>Myoporum laetum</i>	ngaio	r
<i>Myrsine australis</i>	mapou, red matipo	o
<i>Nothofagus fusca</i>	tawhairaunui; red beech	r
<i>Nothofagus menziesii</i>	tawhai; silver beech	r
<i>Nothofagus solandri</i>	tawhairauriki; black beech	o
<i>Pittosporum eugenioides</i>	tarata; lemonwood	m
<i>Podocarpus totara</i>	lowland totara	m
<i>Prumnopitys taxifolia</i>	matai	o
<i>Pseudopanax arboreus</i>	whauwhaupaku; fivefinger	r
<i>Pseudopanax crassifolius</i>	horoeka; lancewood	r
<i>Streblus heterophyllus</i>	turepo; small leaved milkwood	ml
Lianes		x
<i>Metrosideros diffusa</i>	white rata vine	o
<i>Muehlenbeckia aus x com</i>		o
<i>Parsonsia heterophylla</i>	native jasmine	m
Dicot Herbs		x
Monocot Herbs		x

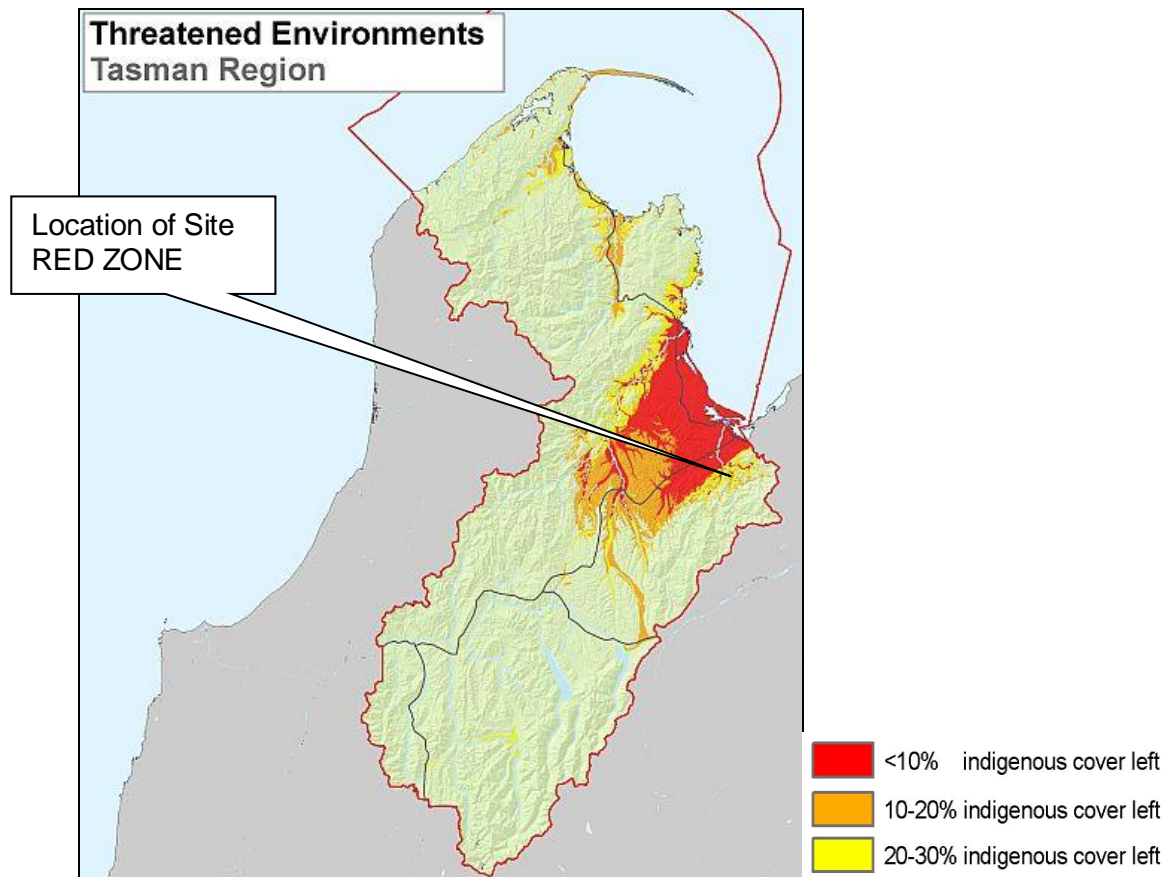
<i>Astelia fragrans</i>	ground lily	o
Grasses Sedges Rushes		x
<i>Carex forsteri</i>		o
<i>Carex lambertiana</i>		r
<i>Cortaderia richardii</i>	toetoe	o
<i>Microlaena avenacea</i>	bush rice grass	ml
<i>Microlaena polynoda</i>	bamboo rice grass	r
<i>Uncinia scabra</i>	a hook grass	o
<i>Uncinia uncinata</i>	a hook grass	o
Ferns		x
<i>Adiantum cunninghamii</i>	common maidenhair fern	ml
<i>Asplenium bulbiferum</i>	hen & chickens fern	o
<i>Asplenium flaccidum</i>	hanging spleenwort	o
<i>Asplenium oblongifolium</i>	shining spleenwort	o
<i>Blechnum chambersii</i>		ml
<i>Blechnum fluviatile</i>	terrace hard fern	r
<i>Blechnum novae-zelandiae</i>	kiokio	r
<i>Hypolepis rufobarbata</i>		r
<i>Microsorium pustulatum</i>	houndstongue fern	lc
<i>Pellaea rotundifolia</i>		o
<i>Pneumatopteris pennigera</i>	gully fern	o
<i>Polystichum neozelandicum</i>	lowland shield fern	m
<i>Pteridium esculentum</i>	bracken	ml
<i>Pyrrosia eleagnifolia</i>	leather leaf fern	lc
Algae		x
Weeds		x
<i>Berberis vulgaris</i>	barberry	o
<i>Clematis vitalba</i>	old man's beard	ml
<i>Cytisus scoparius</i>	broom	r
<i>Geranium robertianum</i>	herb robert	r
<i>Myosotis laxa</i>	water forgetmenot	ml
<i>Mycelus muralis</i>	wall lettuce	o
<i>Rubus fruticosus agg</i>	blackberry	o
<i>Ulex europaeus</i>	gorse	r
<i>Vinca major</i>	periwinkle	ml
Birds		x
fantail/piwakawaka	fantail/piwakawaka	x
grey warbler/riroriro	grey warbler/riroriro	x
chaffinch	chaffinch	x

Land Environments of New Zealand (LENZ)

LENZ is a national classification system based on combinations of soil characteristics, climate and landform. These three factors combined are correlated to the distribution of native ecosystems and species.

When LENZ is coupled with vegetation cover information it is possible to identify those parts of the country (and those Land Environments) which have lost most of their indigenous cover. These tend to be fertile, flatter areas in coastal and lowland zones as shown in the map below for Tasman District.

Further information on the LENZ framework can be found at -
www.landcareresearch.co.nz/databases/lenz



National Priorities for Protecting Biodiversity on Private Land

Four national priorities for biodiversity protection were set in 2007 by the Ministry for the Environment and Department of Conservation.

National Priorities	Does this Site Qualify?
1 Indigenous vegetation associated with land environments (ie LENZ) that have 20 percent or less remaining in indigenous cover. This includes those areas colored in red and orange on the map above.	Yes
2 Indigenous vegetation associated with sand dunes and wetlands; ecosystem types that have become uncommon due to human activity	No
3 Indigenous vegetation associated with 'naturally rare' terrestrial ecosystem types not already covered by priorities 1 and 2 (eg limestone scree, coastal rock stacks)	No
4 Habitats of nationally 'threatened' or 'at risk, declining' indigenous species	No

Further information can be found at -
www.biodiversity.govt.nz/pdfs/protecting-our-places-brochure.pdf

Significance of LENZ and National Priorities

What does it mean if your site falls within the highly depleted LENZ environments, or falls within one or more of the four National Priorities?

These frameworks have been included in this report to put deeper ecological context to the site. They are simply another means of gauging ecological value. This information is useful in assessing the relative value of sites within Tasman District when prioritising funding assistance. They otherwise have no immediate consequence for the landowner unless the area of indigenous vegetation is intended to be cleared, in which case this information would be part of the bigger picture of value that the consenting authority would have to take into account if a consent was required.



Top of the South Maps B 86 Firestones Reserve (TDC)



