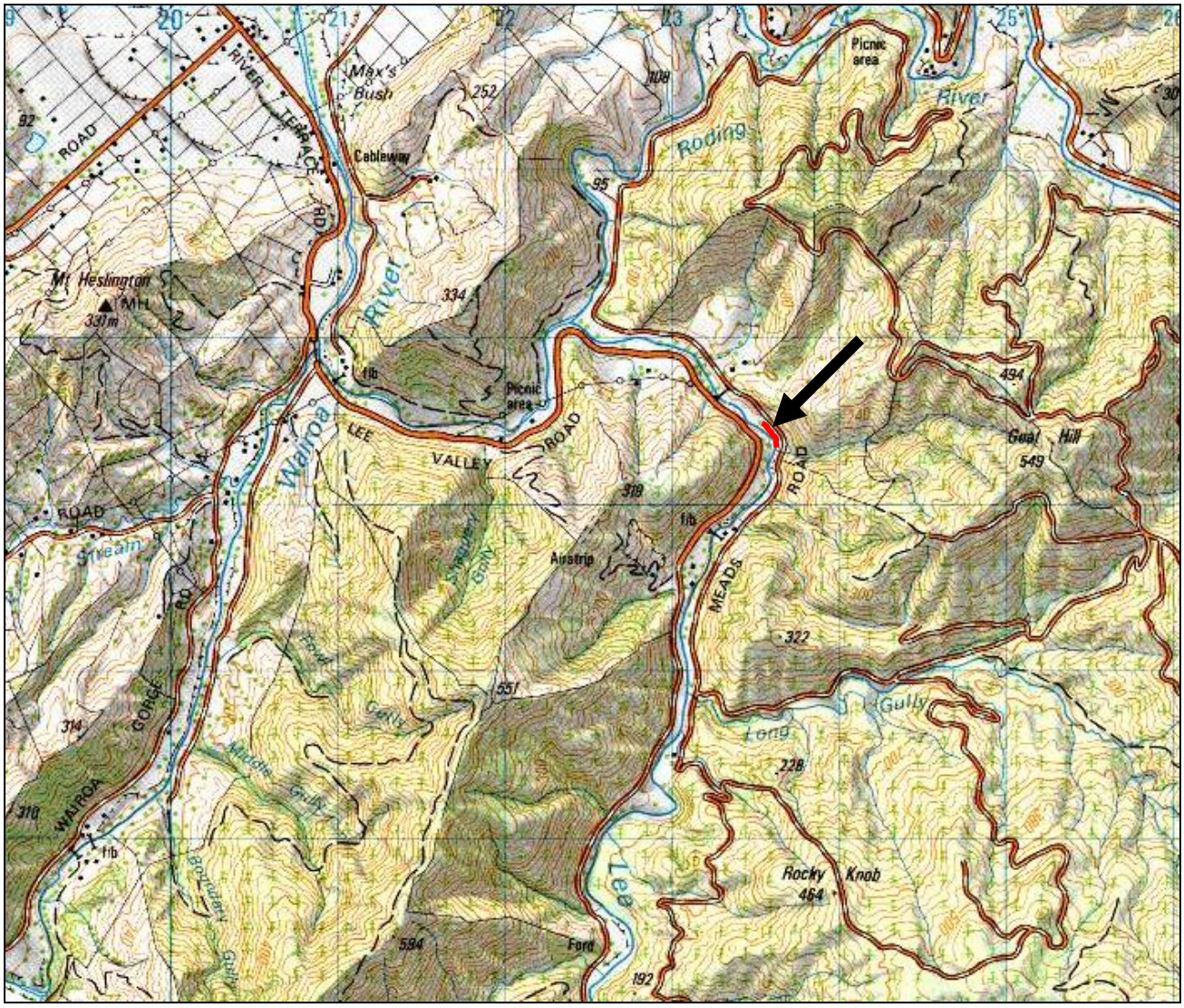
Native Habitats Tasman
Ecological Assessment Report

Site:	B 87
Landowners/Occupiers:	TDC (part of Meads Recreation Reserve)

Ecological District:	Bryant
Grid Ref:	E2523649 N5977376
Surveyed By:	Michael North
Date:	14 August 2012
Survey Time:	1 ½ hrs



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 0.2 ha site lies at 60m asl on the true-right banks of the Lee River, at the south-eastern end of Meads Recreation Reserve. It occupies the riparian margin and immediate toe-slope, forming a small narrow band of forest on moderate to steep slopes on the margins of a high river terrace.
The geology is alluvial – of Hope Gravel – constituting 'poorly-sorted tight clay-bound gravel underlying terraces above the floodplain'.

Vegetation

This is not a report on all the native vegetation of the reserve, rather, just of the area deemed worthy of survey in the context of the requirements and constraints of the TDC SNH survey programme.

COMMUNITIES

1 Lowland totara- black beech- (kahikatea)- [matai] forest on riparian slopes

Rarely-occurring kowhai, lemonwood, titoki and kaikomako are also present in the canopy among the four canopy dominants that characterise the community. The subcanopy is largely of mahoe with fivefinger and kanono and some mapou. Locally, barberry dominates this tier. Lower regeneration of these species is common, with good regeneration of kahikatea and kowhai also. Scrub coprosma is moderately common. Rohutu seedlings are widespread. Pate is occasional. Ground cover varies with topography and drainage. Moister areas support kiokio, *Carex lambertiana* and gully fern. Better drained spots include *Astelia fragrans*, shining spleenwort and occasional *Pellaea rotundifolia* and lowland shield fern. Sheer riparian banks under forest support beds of ferns.

2 Tutu shrubland on riparian margin (including mixed mossfield-herbfield)

As is typical of all such sites in this catchment, a band of tutu with karamu runs along the steep riparian slopes in the flood zone. These stand over, and merge with a lower band of moss/herbfield on bedrock. Species include *Anaphalis trinervis*, *Epilobium* sp., *Nertera depressa*, common maidenhair fern, common maidenhair fern, *Blechnum chambersii*, depauperate *Chionochloa conspicua*, jointed rush and monkey musk – species composition varying with degree of flood exposure.

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. In this context this forest remnant is of significant ecological value, although it is very small and in fairly poor condition.

SPECIES

44 native plant species were noted. None are rare in the Bryant ED. Warmer-loving plants present are titoki and rangiora, indicating that semi-coastal microclimates prevail in this valley. South Island kowhai is localised in the ED, being confined to river margins and associated slopes in the Maitai and greater Wairoa catchments.

Fauna

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

Weed and Animal Pests

Old man's beard is well entrenched at this site. Periwinkle is locally present. Barberry is locally common and hawthorn rare. No pest animal sign was noted.

Other Threats

None were noted.

General Condition & Other Comments

The site is heavily compromised by weeds, and part of the site is separated from the river by a band of willow.

Landscape/Historic Values

The site is tiny and easily overlooked.

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 not significant for the following reasons:
The site has moderately high rarity values, but only moderate representativeness values and low diversity/pattern values, not quite sufficient to be deemed significant in the context of the entire ecological district. It does however have local significance.

Management Issues and Suggestions

The most pressing management issue is the advance of old man's beard through the site. The infestation is large, the site is small and there are ample sources of adjacent vines to seed reinvasion. Clearly this is not a priority site for conservation management amongst TDC reserves.

However, it clearly has ecological values, not least for being part of the patchwork of small riparian forest sites in this section of the Lee Valley that provide habitat to mobile native fauna. It is well worth saving.
The patch of periwinkle should be sprayed out before it takes over the forest floor.

The drying of the forest interior as a result of surrounding land clearance is a perennial concern for small remnants but one which is difficult to address. Small islands of forest such as this one are a human artefact. Prior to clearance, continuous swathes of forest would have ensured fairly moist conditions prevailed in forest interiors most of the time. Today, air moves through the remnant heated and dried by the surrounding open environment, markedly changing the interior conditions, making regeneration problematic for some species and eliminating others such as some ferns. There is no effective way to address such changes other than ensuring that dense vegetation is maintained or created around the margins, and by reintroducing species that are failing to regenerate through restoration plantings.

The upstream end of the area of native forest, illustrating the heavy impacts of old man's beard on the site

Titoki along the road margins

Typicla interior with much Astelia fragrans and mapou regeneration; the fence netting is a relic of former grazing activity in the area

A tight cluster of kahikatea with flood impacts evident

Riparian shrublands of tutu and dense turfs hugging the banks

Anaphalis trinervia, a native daisy, is one of the turf species present

A patch of periwinkle is present

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 moderately poorly resembles pre-human natural regeneration	ML	Secondary beech or podocarp forest in moderately poor condition, heavily affected by weeds
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 scores MH
Diversity and Pattern		
Presence of a lower diversity of indigenous species, communities or habitat types than is typical for the ecological district	L	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		
The site is separated from other areas of indigenous vegetation but is an important part of a network of fauna habitat	M	
Buffering to		
The site is poorly buffered	L	
Provision of critical resources to mobile fauna		

Significance Evaluation		
	Score	**Example/Explanation**
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.	L	Unusually important stands of podocarp, tawa or kowhai trees that provide seasonally important benefits for forest birds.
Size and Shape		
A very small area for this type of vegetation or habitat for the ecological district	L	
Other Criterion		
Sustainability (average score)	**ML**	
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 neither inherently resilient nor fragile.	M	Kahikatea component susceptible to drought and drainage
Threats *(low score = high threat; lowest score taken)*		
Ecological impacts of grazing, surrounding land management, weeds and pests*	ML	Grazing H Surroundings H Weeds ML 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 Rarity and Distinctiveness Diversity and Pattern	ML MH L
Secondary Criteria	Ecological Context Size and Shape	M L
Additional Criteria	Sustainability	ML

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? **NO**

Species List

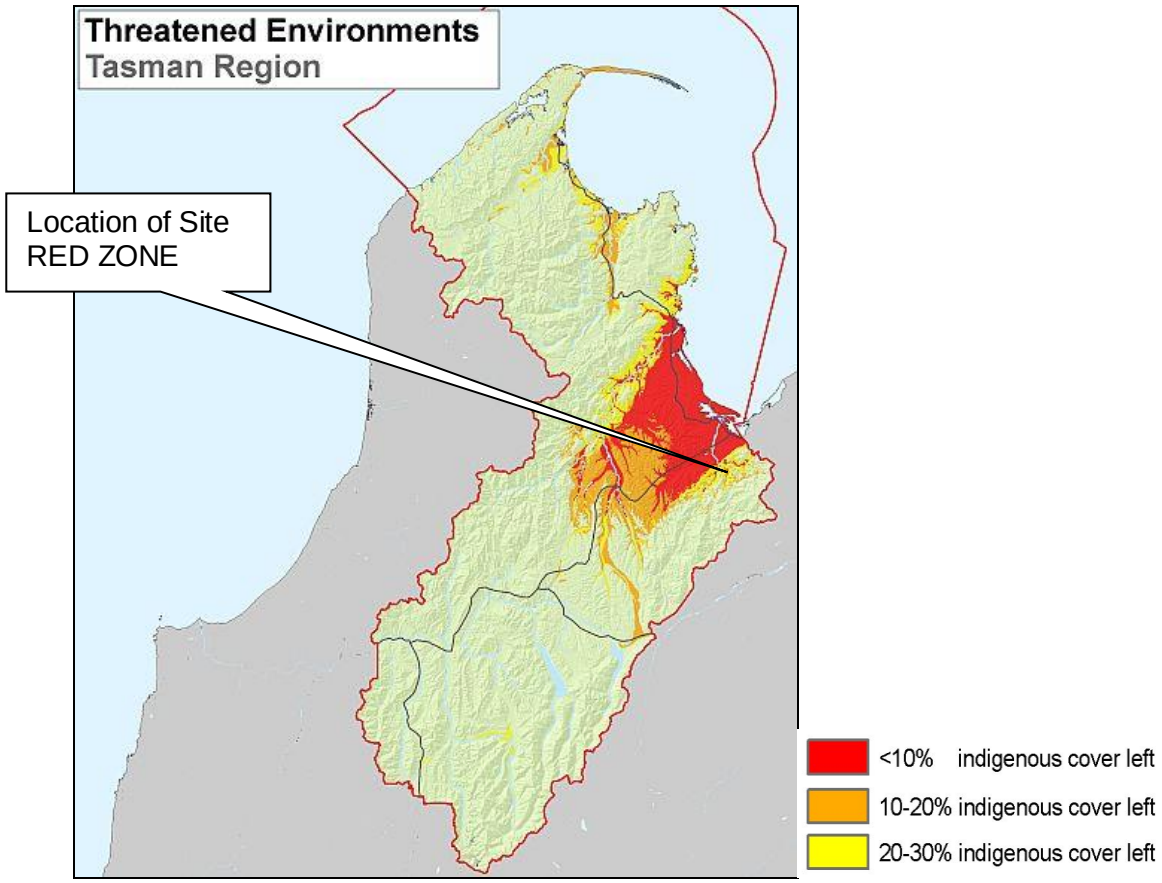
r = Rare o = Occasional m = Moderate Numbers ml = Moderate Numbers Locally
c = Common lc= Locally Common f = Frequent lf = Locally Frequent x = Present But Abundance Not Noted P = Planted R = Reported
v= Very. For example: vlc = very locally common, mvl = moderate numbers very locally

Species Name	***Common Name***	***Status***
Trees Shrubs		**x**
Alectryon excelsus	titoki	r
Brachyglottis repanda	rangiora	r
Coprosma grandifolia	large leaved coprosma; kanono	o
Coprosma rhamnoides	scrub coprosma	m
Coprosma robusta	karamu	m
Dacrycarpus dacrydioides	kahikatea	m
Lophomyrtus obcordata	rohutu; NZ myrtle	m
Melicope simplex	poataniwha	r
Melicytus ramiflorus	mahoe, whiteywood	c
Myrsine australis	mapou, red matipo	o
Nothofagus solandri	tawhairauriki; black beech	o
Pennantia corymbosa	kaikomako	o
Pittosporum eugenioides	tarata; lemonwood	o
Podocarpus totara	lowland totara	m
Prumnopitys taxifolia	matai	m
Pseudopanax arboreus	whauwhaupaku; fivefinger	r
Schefflera digitata	pate	r
Sophora microphylla	kowhai	m
Weinmannia racemosa	kamahi	r
Lianes		**x**
Parsonsia heterophylla	native jasmine	o
Dicot Herbs		**x**
Anaphalioides trinervis		mvl
Cardamine sp		r
Dichondra repens		o
Epilobium sp		o
Hydrocotyle moschata	a pennywort	o
Nertera depressa		mvl
Monocot Herbs		**x**
Astelia fragrans	ground lily	m
Grasses Sedges Rushes		**x**
Carex forsteri		r
Carex lambertiana		ml
Chionochloa conspicua	a riparian tussock	r
Microlaena avenacea	bush rice grass	o
Ferns		**x**
Adiantum cunninghamii	common maidenhair fern	mvl

Asplenium bulbiferum	hen & chickens fern	o
Asplenium oblongifolium	shining spleenwort	m
Blechnum chambersii		vlc
Blechnum novae-zelandiae	kiokio	lc
Cyathea dealbata	ponga, silver fern	r
Dicksonia squarrosa	wheki, rough tree fern	r
Lastreopsis glabella		r
Microsorum pustulatum	houndstongue fern	ml
Pellaea rotundifolia		o
Pneumatopteris pennigera	gully fern	mvl
Polystichum neozelandicum	lowland shield fern	o
Pyrrosia eleagnifolia	leather leaf fern	r
Algae		**x**
Weeds		**x**
Berberis vulgaris	barberry	lc
Clematis vitalba	old man's beard	f
Crataegus monogyna	hawthorn	r
Vinca major	periwinkle	lc
Birds		**x**
fantail/piwakawaka	fantail/piwakawaka	x
grey warbler/riroriro	grey warbler/riroriro	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 indigeneous 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
B88 Meads Recreation Reserve
www.topofthesouthmaps.co.nz
0 25 50 75 100 Metres
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tasman