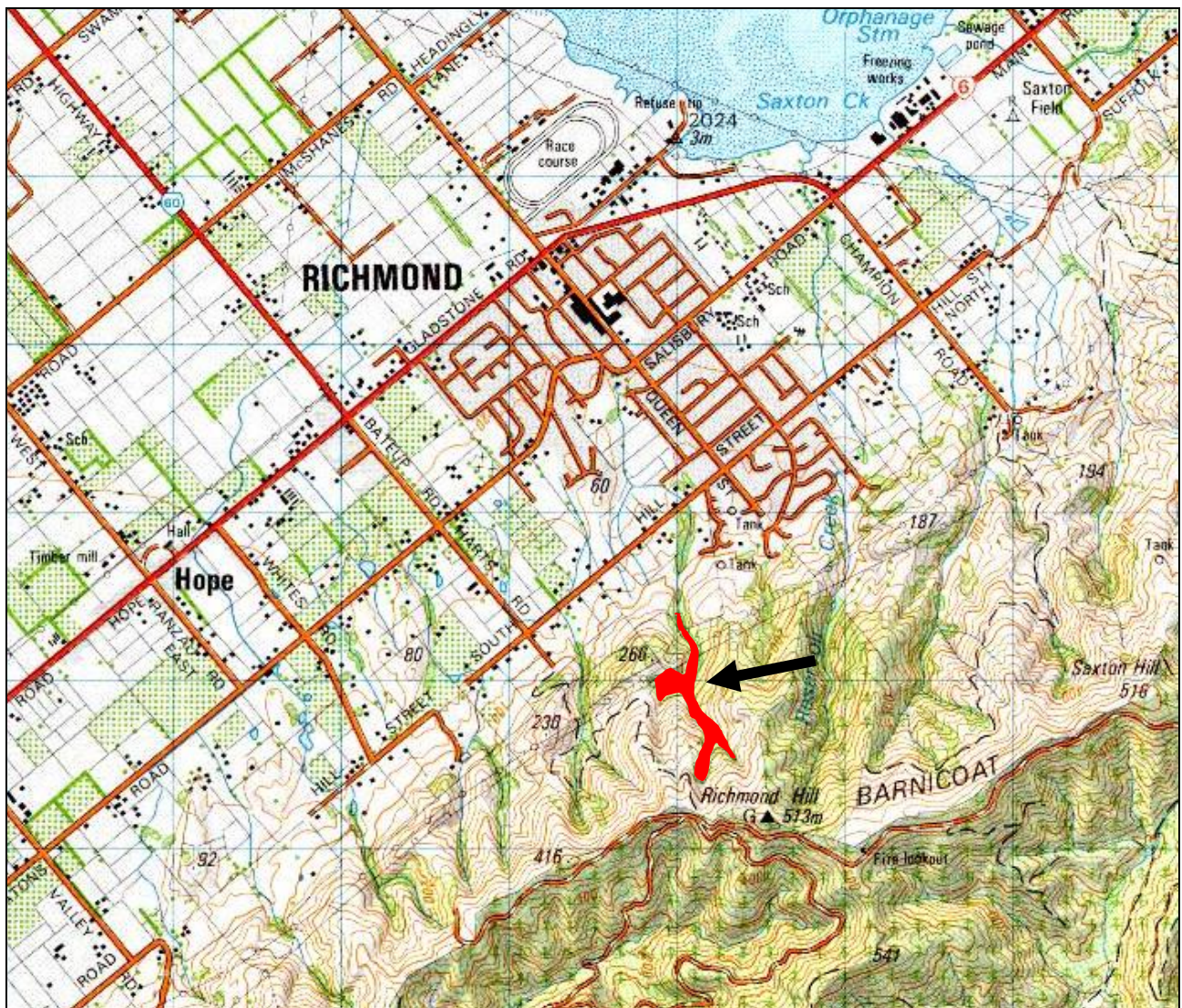


Native Habitats Tasman Ecological Assessment Report

Site:	B 1 Jimmy Lee Creek (part of Dellside Reserve)
Landowners/Occupiers:	TDC
Ecological District:	Bryant
Grid Ref:	E2526112 N5982801
Surveyed By:	Michael North
Date:	18 July 2012
Survey Time:	4 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 9.5 ha site lies between 120-360m asl along the upper reaches of Jimmy Lee Creek, that runs westward off the face of the Barnicoat Range behind Richmond. It forms part of TDC's Dellside Reserve. In its upper sections it is steep and deeply incised. The very uppermost headwaters of the creek above the site arise in pine forest.

The geology is late Permian, Maitai Group well bedded green and grey sandstone, grey siltstone and mudstone with beds of massive green and grey sandstone (ys). The lowest reaches overlie late Triassic well to poorly bedded, fine to coarse-grained sandstone with sequences of conglomerate and grey siltstone (if).

Vegetation

COMMUNITIES

1 Titoki- mahoe- [tawa]- [matai] forest on gully bottoms

Gully bottoms throughout the site are dominated by titoki and mahoe, with matai and tawa more localised, particularly in the mid to mid-upper gully. The lack of matai in lower sections may reflect timber extraction in the past. Pigeonwood also features strongly in places. Lemonwood and kanuka are occasional. Understories are largely of kawakawa that readily shade out other species or prevent their establishment. Where it is not dominant, regeneration of mahoe and titoki is common. Kiekie is very scattered and kareao/supplejack is present locally. *Metrosideros diffusa*/white rata vine commonly climbs trunks. The climbing ferns *Microsorium scandens* and climbing hard fern are common in some areas. Ground cover is typically lush with ferns such as climbing hard fern, hen and chickens fern, some shining spleenwort, velvet fern, *Blechnum chambersii*, lowland shield fern and *Pellaea rotundifolia*. Very locally on bedrock, jointed fern and lance fern occur.

2 Titoki- mahoe- [pigeonwood]- [matai] forest on gully side-slopes

Sideslopes immediately above the gullies and associated toe-slopes lack tawa, and matai occurs in the canopy as young trees. Some kanuka is present. Understories are much less dense, with kawakawa and mahoe regeneration. Mid to upper sections lack much ungulate-palatable broadleaved regeneration and there is considerable dieback of kawakawa. Shining spleenwort, *Asplenium hookerianum*, velvet fern and lowland shield fern are typically common and *Metrosideros diffusa*/white rata vine may cover areas of rubbly ground. Pellitory is locally common. The tract on the slopes of the lowest fork includes a notable presence of pigeonwood and kaikomako in the canopy and a lack of matai.

3 Matai forest on spur crest

A very small and discrete stand of densely-packed pole matai occurs on the spur crest in the fork of the uppermost gully. Shading is dense, with few associates, but which include necklace fern, hanging spleenwort and *Asplenium hookerianum*.

4 Mahoe scrub/low forest on side-slope

This is present on many margins of the more mature gully forests. It is of young secondary growth, with some kanuka presence. In the one area visited, understorey associates are few due to dense growth and low light levels that included occasional young mapou, mahoe, pigeonwood, kaikomako, native jasmine seedlings, and occasional lowland shield fern and hen and chickens fern.

5 Kanuka forest on side-slopes

Ribbons or linear tracts of kanuka forest are a feature of the site. It varies considerably in age and degree of succession into mixed forest. Mahoe and matai, and more occasionally fivefinger and pigeonwood may feature in the more diverse areas of canopy. Two mature broadleaf were seen together (but no others noted).

Where kanuka are mature or more spaced, there may be lush regeneration of mahoe, young barberry locally, some young titoki and mapou regeneration. Groundcover is of dense houndstongue fern in some areas, with shining spleenwort typical. Common maidenhair fern beds

feature in the lower-most tract. Where kanuka is younger and more densely packed (poles) associates are sparse, with some young mahoe presence.

6 Mixed broadleaved [+ kanuka] forest associations

Upper-most margins of the site include areas of diverse secondary forest of mahoe, lemonwood, matai, kanuka, and occasional pigeonwood and kaikomako among others.

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 serpentine geology. 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 lies 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. In particular, the strong presence of matai with a scattering of very mature trees amongst mature titoki and tawa give this site particular value.

SPECIES

54 native plant species were noted, a lower number than is typical for such a site. Jointed fern is rare in the Bryant ED. Lance fern is scarce in the ED.

Fauna

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

One weka was noted (the first sighting for a few years by one of the trap volunteers who was present at the time.). About 20 piwakawaka were seen hawking insects over the canopy above the upper logging road that cuts through the uppermost end.

Weed and Animal Pests

Old man's beard is well established in localised areas within the site. It is also commonly spread through scrubby areas of barberry on adjoining slopes between the native forest and pine plantation. Banana passionfruit was seen occasionally but is also commonly through adjoining scrubby areas of barberry. Hawthorn is occasional, barberry is moderately common locally and gorse is occasional.

Possum bark scratching was noted. Pig tracking occurs in some areas, with rooting only extensive in the lowest arm of the forest. No other animal pest sign was seen. However the understorey in the mid to upper gully section is only sparsely populated with ungulate palatable broadleaves, suggestive of an earlier history of goat/deer browse.

Kawakawa dieback is severe locally in upper areas, with heavy foliage browse by the native kawakawa moth caterpillar also evident. It is not clear if this is the cause of dieback or whether *Phytophthora* induced dieback is underway, as has been reported elsewhere locally and nationally.

Other Threats

The future felling of adjoining pines is a concern as the steep nature of the slopes means avoiding damage to bush margins is problematic. This can cause considerable damage and create conditions that favour old man's beard and banana passionfruit establishment.

General Condition & Other Comments

The forest is largely a primary forest remnant, likely modified by the removal of podocarps in the lower more accessible reaches. Understories lack much ungulate-palatable species, with the forest seemingly recovering from past ungulate browse pressure.

Landscape/Historic Values

The site is all but hidden in the fold of the land and currently by mature pine plantation.

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 significant for the following reasons:

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

Management Issues and Suggestions

It is important to acknowledge and celebrate here, that this forest remnant has been retained through the care and foresight of the landowners, present and past who have been custodians of this land. Without a certain regard for native bush, this site would have long been lost.

The most pressing management issue are the advance of old man's beard and banana passionfruit through the site. Infestations are locally abundant in exotic scrub and bracken just outside the native forest margins, with only localised infestations within the forest margins. The gully bottom areas support only very scattered vines of both species. Overall the infestations are not large and could be dealt with at present with a systematic programme. Major inundation will ensue in time if these weeds are left unattended.

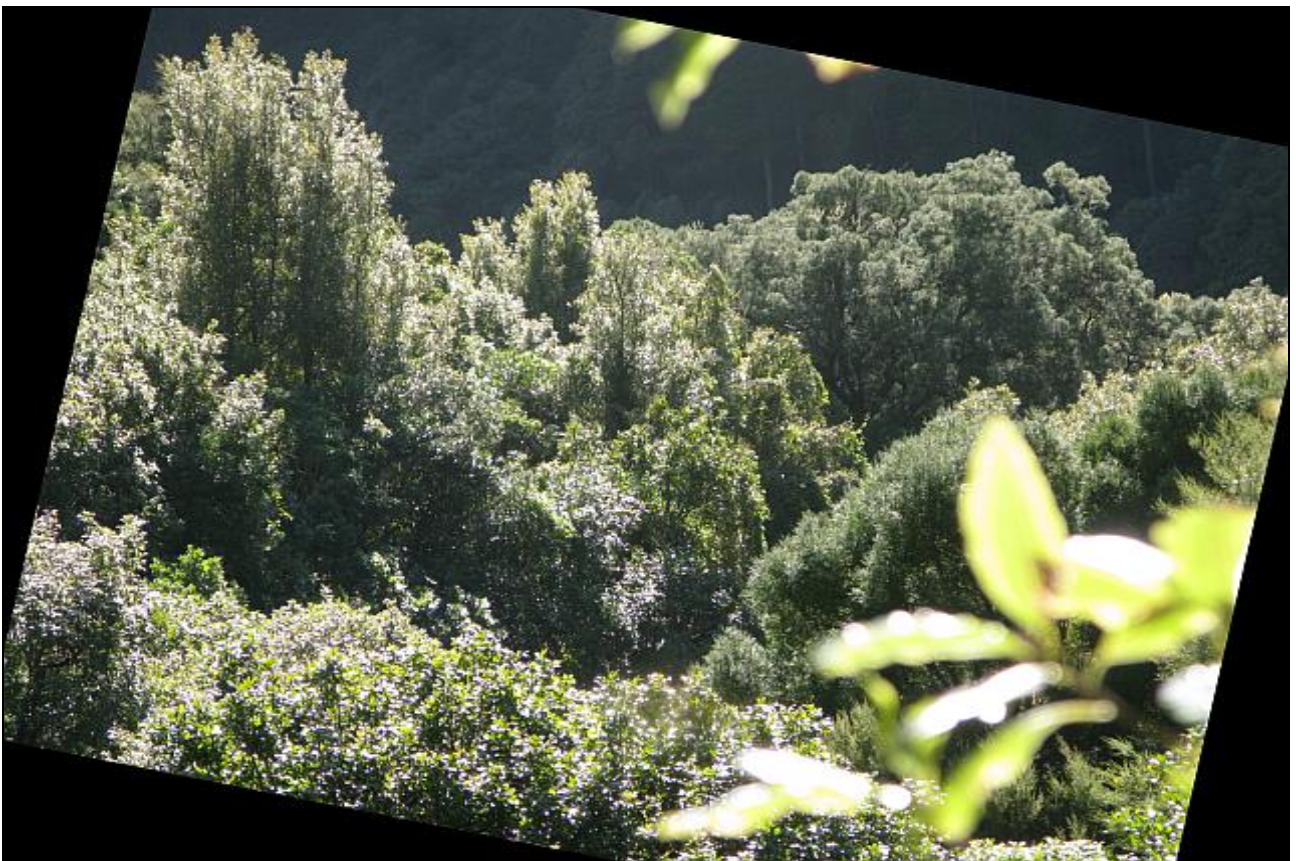
One yew sapling was noted near to the track just above the first track junction. It should be removed as it can readily colonise the deep shade of native forest. It is pleasing to note that no sign of baumeria spread from the nearby Reservoir Creek bush margins was seen.

The reserve has enjoyed intensive pest trapping for a number of years by the 'Richmond Bird Recovery' group, with rats and possums targetted. Anecdotal reports are of enhanced bird numbers in recent times, presumably as a result of trapping. This is one of only four native forest sites within the ecological district with an intensive trapping programme.

Some species are surprisingly absent, that would once probably been a component of the forest, including lowland totara, miro, rimu, and away from the gullies, black beech and hard beech. These could all be planted into the site to restore its diversity.



Jimmy Lee Creek rises above Richmond, offering important recreational opportunities and a critical reservoir of biodiversity so close to the town



Gully canopies of tawa, titoki and matai



The lowest elevation forest is a corridor of titoki-mahoe forest, and forms a very popular walking route close to the town



Tawa is a more localised component of the forest; this is the largest concentration noted



Mature matai are scattered thinly through mid-gully with some large trees – this being the largest at c1.4m dbh



Pole matai forest on the main upper spur



Kieke draped trunks in the lower reaches



Mid to upper gully sections lack much ungulate palatable broadleaves in the understory; combined with recent severe dieback of kawakawa, the understory is becoming very open



Jointed fern is rare in the Bryant ecological district and is largely confined to coastal forest



Mature kanuka forest with lush understories



Kanuka pole forest with variably sparse to moderate broadleaved regeneration



Possum (and rat) traps have been deployed throughout the forest for a number of years by the local community group 'Richmond Bird Recovery'



Banana passionfruit infesting the scrub margins of the gully



Old man's beard along the roadside forest margins at the top of the site

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		
One of the better examples, but not the best, of the characteristic ecosystem types of the ecological district	MH	Titoki-tawa-matai gully forest
Primary vegetation or habitat that moderately resembles its original condition	MH	Vegetation characterised by original canopy species and which has been only moderately affected by herbivores or direct human intervention
Rarity and Distinctiveness		
A primary community that is depleted to less than 5% of its original (pre-human) extent in the ecological district	H	Podocarp-hardwood gully forest <300m
Diversity and Pattern		
Presence of a typical diversity of indigenous species, communities or habitat types for the ecological district	ML	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		
The site is reasonably well separated from other areas of indigenous vegetation	ML	350m to Reservoir Creek gully forest to east; c600m to small gully forest to west

Significance Evaluation		
	Score	Example/Explanation
Buffering to		
The site is very well buffered	H	A wide margin of scrub or forest (or other appropriate vegetation) surrounds or almost surrounds the site
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.	MH	Site is an example of an unusually important stand of podocarp, tawa and pigeonwood trees that provide seasonally important benefits for forest birds.
Size and Shape		
A moderate-sized area for this type of vegetation or habitat for the ecological district, but without a compact shape	M	
Other Criterion		
Sustainability (average score)	M	
Physical and proximal characteristics		
Size, shape, buffering and connectivity provide for a moderately low overall degree of ecological resilience.	ML	Size M Shape L Buffering H Connectivity ML
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 MH

* 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	MH H ML
Secondary Criteria	Ecological Context Size and Shape	H M
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>Beilschmiedia tawa</i>	tawa	ml
<i>Brachyglottis repanda</i>	rangiora	o
<i>Carpodetus serratus</i>	putaputaweta; marbleleaf	o
<i>Coprosma crassifolia</i>	thick leaved coprosma	r
<i>Coprosma grandifolia</i>	large leaved coprosma; kanono	o
<i>Coprosma rhamnoides</i>	scrub coprosma	ml
<i>Fuchsia excorticata</i>	kotukutuku; tree fuchsia	vo
<i>Griselinia littoralis</i>	kapuka; broadleaf	r
<i>Hedycarya arborea</i>	porokaiwhiri; pigeonwood	m
<i>Kunzea ericoides</i>	kanuka	lc
<i>Leucopogon fasciculatus</i>	mingimingi	r
<i>Macropiper excelsum</i>	kawakawa	c
<i>Melicytus ramiflorus</i>	mahoe, whiteywood	c
<i>Myoporum laetum</i>	ngaio	r
<i>Myrsine australis</i>	mapou, red matipo	ml
<i>Olearia rani</i>	heketara	r
<i>Pennantia corymbosa</i>	kaikomako	m
<i>Pittosporum eugenoides</i>	tarata; lemonwood	o
<i>Prumnopitys taxifolia</i>	matai	ml
<i>Pseudopanax arboreus</i>	whauwhaupaku; fivefinger	mvl
<i>Pseudopanax crassifolius</i>	horoeka; lancewood	r
<i>Schefflera digitata</i>	pate	r
<i>Solanum avi/lac</i>	poroporo	r
Lianes		x
<i>Metrosideros diffusa</i>	white rata vine	m
<i>Muehlenbeckia australis</i>	pohuehue, muehlenbeckia, blackvine	o
<i>Parsonsia heterophylla</i>	native jasmine	c
<i>Ripogonum scandens</i>	supplejack	ml
<i>Rubus cissoides</i>	bush lawyer	o
Dicot Herbs		x
<i>Parietaria debilis</i>		ml
Monocot Herbs		x
<i>Libertia mooreae</i>		r
Grasses Sedges Rushes		x
<i>Uncinia uncinata</i>	a hook grass	r
Ferns		x
<i>Adiantum cunninghamii</i>	common maidenhair fern	vlc

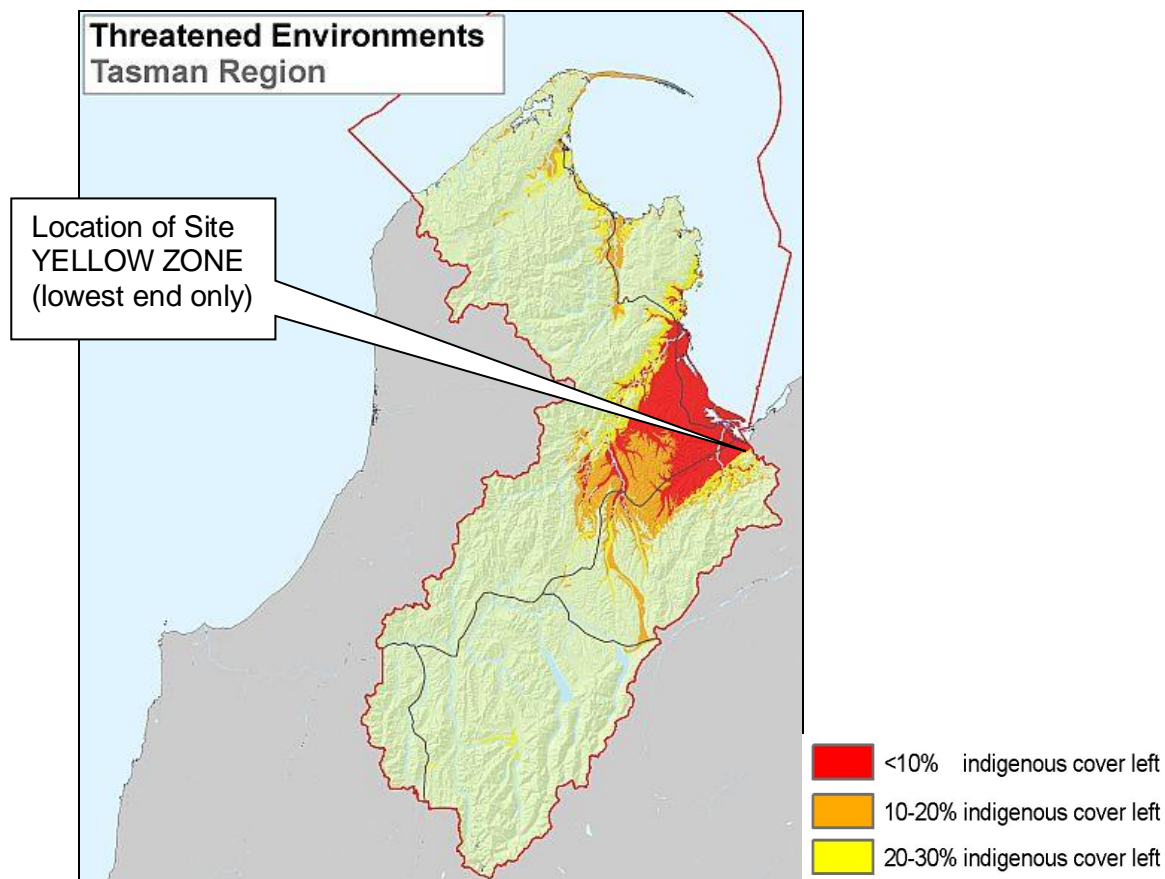
<i>Anarthropteris lanceolata</i>	lance fern	r
<i>Arthropteris tenella</i>	jointed fern	r
<i>Asplenium bulbiferum</i>	hen & chickens fern	ml
<i>Asplenium flabellifolium</i>	necklace fern	vlc
<i>Asplenium flaccidum</i>	hanging spleenwort	ml
<i>Asplenium hookerianum</i>		o
<i>Asplenium oblongifolium</i>	shining spleenwort	c
<i>Asplenium polyodon</i>		r
<i>Blechnum chambersii</i>		mv
<i>Blechnum filiforme</i>	climbing hard fern	lc
<i>Cyathea medullaris</i>	mamaku	r
<i>Dicksonia squarrosa</i>	wheki, rough tree fern	r
<i>Lastreopsis velutina</i>	velvet fern	ml
<i>Microsorium scandens</i>		mv
<i>Microsorium pustulatum</i>	houndstongue fern	vlc
<i>Pellaea rotundifolia</i>		ml
<i>Pteris macilenta</i>		r
<i>Pteris tremula</i>		r
<i>Pyrrosia eleagnifolia</i>	leather leaf fern	r
Algae		x
Weeds		x
<i>Berberis vulgaris</i>	barberry	mv
<i>Clematis vitalba</i>	old man's beard	vlc
<i>Crataegus monogyna</i>	hawthorn	o
<i>Passiflora mixta/mollissima</i>	banana passionfruit	o
<i>Ulex europaeus</i>	gorse	o
Birds		x
tui	tui	x
bellbird/korimako	bellbird/korimako	x
fantail/piwakawaka	fantail/piwakawaka	x
waxeye	waxeye	x
grey warbler/riroriro	grey warbler/riroriro	x
pigeon/kereru	pigeon/kereru	?
weka	weka	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.	No
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

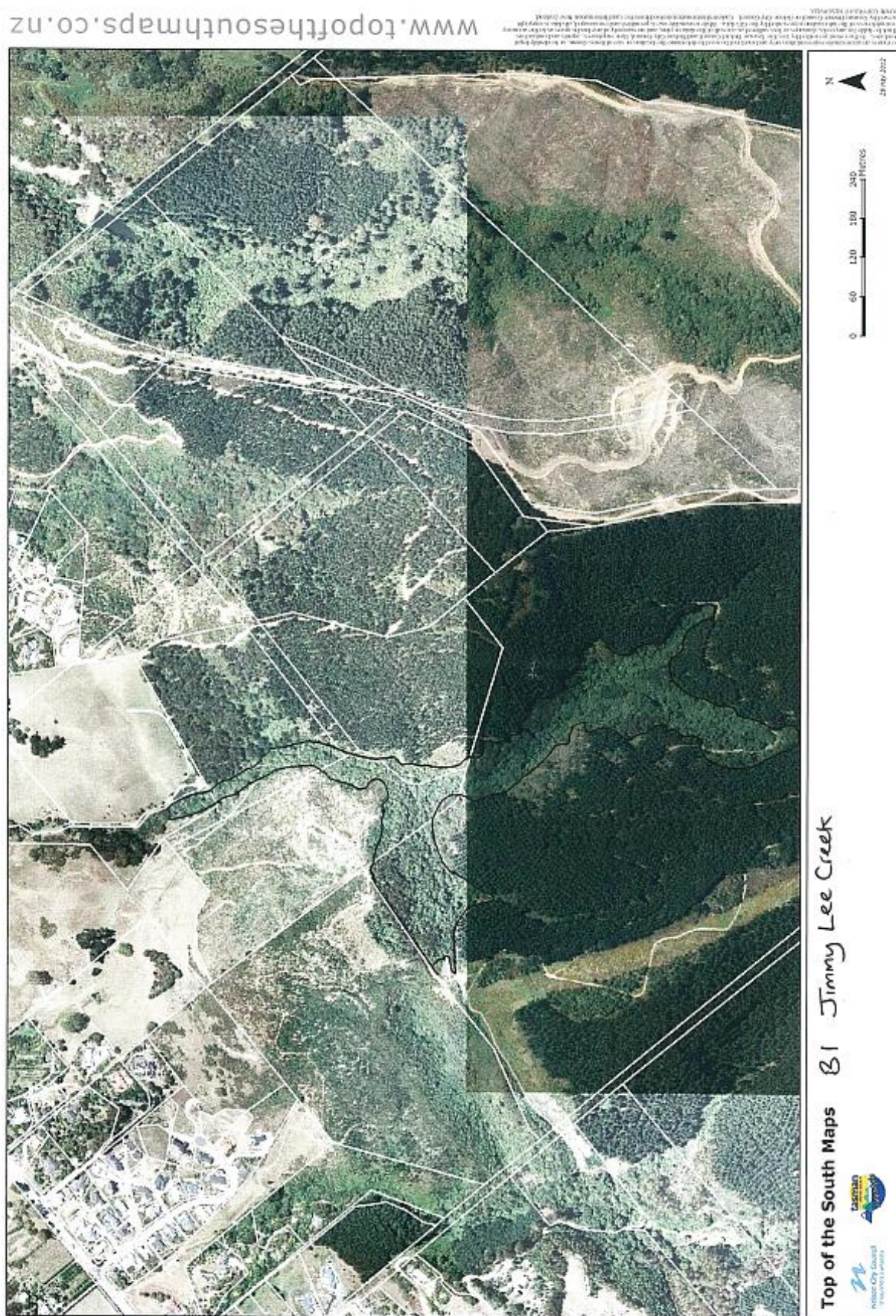
Further information can be found at -

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

- 1 Titoki-mahoe-[tauwa]-[matai] forest on gully bottoms
- 2 Titoki-mahoe-[pigeonwood]-[matai] forest on gully sideslopes
- 3 Matai forest on spur crest
- 4 Mahoe scrub/low forest on side-slope
- 5 Kanuka forest on sideslopes
- 6 Mixed broadleaved [\pm kanuka] forest associations on side-slopes

--- indicative boundaries only

