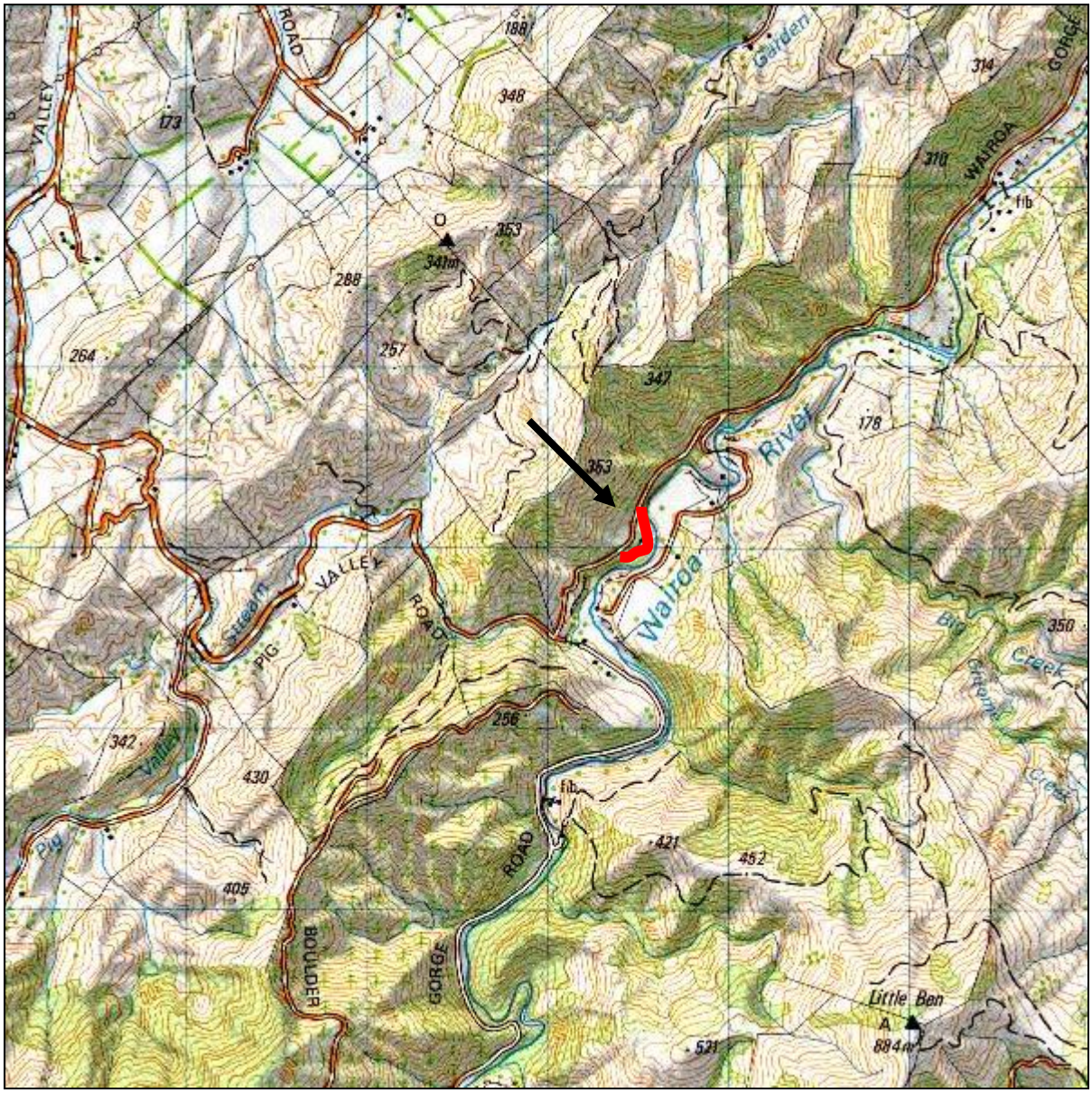
Native Habitats Tasman
Ecological Assessment Report

Site:	B 26g
Landowners/Occupiers:	Tony & Laura Chivers

Ecological District:	Bryant
Grid Ref:	E2517557 N5973049
Surveyed By:	Michael North
Date:	23 August 2012
Survey Time:	2 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 c1.5 ha site lies at 100-120m asl along the true-left margins of the Wairoa River. It occupies the valley toe-slopes, a terrace and terrace scarp (but not the riparian margins occupied by a 20m wide esplanade reserve).

The geology is alluvial – of poorly-sorted tight clay-bound gravel underlying terraces 11-15m above the flood plain (uh2).

Vegetation

GENERAL

The site comprises secondary forest of a range of ages, with rare mature black maire that probably date from the original forest cover.

COMMUNITIES

1 Lowland totara- [matai]- [narrow-leaved lacebark] forest on toe-slope and terrace

A small stand of densely-packed young adult lowland totara occurs at the southern end of the site, continuous with native forest on the adjoining title. As well as matai and narrow-leaved lacebark, one large kowhai and three kahikatea on the lower margins were also noted. A low mahoe understorey to 2m is present, with moderate regeneration of narrow-leaved lacebark and black maire. Young lowland totara are scattered. Also present are young kawakawa, thin-leaved coprosma, round-leaved coprosma, porokaiwhiri/pigeonwood and titoki. Ground cover is fairly sparse to moderate with patches of houndstongue fern in places. Other species include *Asplenium hookerianum*, *Pellaea rotundifolia*, lowland shield fern and native jasmine seedlings.

2 Lowland totara- kanuka +- barberry mixed forest associations on side-slope and terrace scarp

Several separate tracts of forest are treated here under this broad community, in variable permutations and states of regeneration.

1) Above the house/lawn terrace, the slope supports a range of ages and permutations of these species. This includes: pole totara over dense young mahoe regeneration; open kanuka and lowland totara over a barberry understorey of variable density (where it has not been cleared) with young mahoe and mapou, scrub coprosma, and some tikoki regeneration. A small stand of pole matai is also present on the toe-slope above a 90cm dbh black maire. A second black maire beside a mature narrow-leaved lacebark occurs on the northern margins. Ground cover typically includes lowland shield fern, shining spleenwort, *Asplenium hookerianum*, *Pellaea rotundifolia* and native jasmine seedlings. Bamboo rice grass occurs locally, and jointed fern is present on a bedrock face, spreading out onto the forest floor.

2) The terrace scarp comprises patchy kanuka with some lowland totara, and more scattered kowhai and narrow-leaved lacebark, forming a very discontinous canopy over dense broadleaved regeneration and young plantings. Mahoe is dominant, with young black maire, narrow-leaved lacebark, akeake, tarata, wineberry, and locally, weeping matipo at the southern end.

3) At the northern end, below the road and above the esplanade reserve, steep faces of open lowland totara, kanuka and some akeake and occasional kowhai, mahoe, fivefinger, putaputaweta, and lemonwood stand over or amongst recently cleared barberry that formed part of the low canopy and understorey in large areas. One 45cm dbh black beech is present (a second is reported). Young mapou regeneration is common, with mahoe moderately so. Also present are thick-leaved coprosma, lancewood. Rangiora occurs locally. Ground cover includes lowland shield fern, *Pellaea rotundifolia* and houndstongue fern.

3 Kanuka forest on side-slope

A small area of fairly mature kanuka occurs at the northern end of the site, with some minor canopy lowland totara. A lush understorey to 4m of regeneration includes much fivefinger, with mahoe, and mapou. Houndstongue fern forms a dense ground cover, with some shining spleenwort, and minor *Uncinia uncinata* and *Uncinia scabra*.

Botanical Values

COMMUNITIES

Lowland beech, beech-podocarp, and at the lowest elevations, 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 all such forest remnants at such low altitude as this site are noteworthy. This site is however a very small and fragmented secondary forest remant with serious weed issues (but being rapidly dealt with- see below).

SPECIES

50 native plant species were noted. Five are rare in the ecological district, these being black maire, narrow-leaved lacebark, *Carex lambertiana*, bamboo rice grass and jointed fern.

Four large black maire were noted on the property with two within or adjoining forest. Seedlings and young saplings are occasional within the site. Black maire is confined to the Wairoa, Lee and Roding Rivers in the ecological district, the only occurrence in the Nelson region. It is largely a North Island species, only otherwise present in the South Island at Linkwater and Kaikoura.

Narrow-leaved lacebark trees are occasional in the southern end, with regeneration scattered nearby. Bamboo rice grass occurs behind the house under a barberry understorey. In the same area a rock face supports lance fern, a rare inland record. The sedge *Carex lambertiana* is rare.

Fauna

Native forest birds noted were korimako/bellbird, riroriro/grey warbler, karearea/native falcon, and weka. No doubt ruru/morepork tui, piwakawaka/fantail, kotare/kingfisher, kereru/pigeon, pipipi/brown creeper, and waxeye are also present, at least seasonally. A weka pair have bred successfully on the property (or at least a family is resident) for the first time since the landowners have been in residence (10 years?) – an experience repeatedly reported in recent years along the western margins of the Richmond Ranges.

Weed and Animal Pests

Barberry is rampant in some understories where it has yet to be tackled. Old man's beard is moderately common as seedlings, but with only one canopy vine noted seeding. Gorse is occasional.

Other Threats

None were noted.

General Condition & Other Comments

This secondary forest site is in a highly variable condition depending on locality and stage in recovery through restoration work. The secondary lowland totara stand at the southern end is in good condition, as is the kanuka stand at the northern end just below the road. The terrace scarp forest/scrub area has been cleared of weeds and is in rapid recovery through regeneration and plantings. An area of forest above the house/lawn terrace remains with a dense barberry understorey. The forest/scrub area of open lowland totara-kanuka at the northern end is being/has just been cleared of barberry and will regenerate rapidly.

Landscape/Historic Values

The site forms a small part of the very extensive tract of forest that runs for some km along the Wairoa River on the true left, spanning quite a number of properties, providing a stunning forest setting to the valley road.

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 moderate rarity and representativeness scores, and a high connectivity score, the site is (only just) significant in the context of the ecological district. With only moderate primary scores its significance hinges on the important role that it plays as a corridor linking native forest vegetation on adjoining titles. The value of the site in itself can only increase with all the management that has been undertaken.

Management Issues and Suggestions

The landowners have undertaken a restoration project of remarkable scale, with extensive barberry clearance, and restoration plantings co-financed by the Biodiversity Fund. Further, much of the site has been covenanted under the QEII Trust. This is all to be celebrated and provides an inspiring example of what can be done with enough determination.
In the light of this there is little if anything that can be said that could assist with caring for this site.
Congratulations are in order.

Black maire (right) and narrow-leaved lacebark (far right) feature in the band of native forest above the house

An esplanade strip runs 20m wide between the Wairoa River and the property; above this strip up to the valley road, runs a narrow band of secondary native forest vegetation within the title

A small stand of densely-packed lowland totara with a large kowhai featured in the image lies in the south-west corner of the site adjoining forest on the neighbouring title

Kanuka forest below the valley road in the northern end of the site

A band of secondary forest/treeland over a rapidly regenerating and planted understorey occupies the terrace scarp between terraces

Adult kahikatea occur occasionally on the upper terrace

Lowland totara over a regenerating understorey

A stand of pole matai

Barberry forms a major sub-canopy presence (where it remains uncleared) with an often lush and diverse understorey

Jointed fern/Athropteris tenella occurs on a bedrock face above the house; this species is generally coastal and this is a remarkable inland record

One of two black beech noted at the site; it is notably rare this far down the Wairoa River catchment, presumably as a result of catastrophic loss of the original forest and the lack of remaining seed source nearby (its seed is spread by gravity and water and is very slow to spread)

Very extensive native restoration plantings have also been undertaken, both in areas cleared of barberry and areas of former pasture/lawn

Further more recent plantings will form an important corridor linking forest along the true left of the Wairoa River that are otherwise interrupted by pine plantation

The perennial threat of old man's beard is ever present, but with extensive control this was the only seeding canopy occurrence noted

Clearance of barberry (top and bottom) to hasten bush regeneration is being undertaken on a vast scale

The attractively flowered North Island lacebark is an avid invader of native forest in the Nelson Region, penetrating the deepest shade

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		
Secondary vegetation that moderately resembles pre-human natural regeneration	M	Eg Young regenerating forest with beech or podocarp species present (even as seedlings) or with good structural and functional diversity
Rarity and Distinctiveness		
A species rare in the ecological district	M	Black maire, narrow-leaved lacebark, bamboo rice grass, jointed fern
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 forms an important and ecologically viable link between two other areas of indigenous vegetation or habitat, either as a corridor of vegetation, or as 'stepping stones' of suitable habitat	H	Important linkage between riparian esplanade forest and forest on titles to the south, north and west
Buffering to		
The site is partially buffered	ML	Vegetation effectively buffers the site around at least 25 to 50% of its boundary
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.	ML	Eg 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)	**M**	
Physical and proximal characteristics		
Size, shape, buffering and connectivity provide for a moderately low overall degree of ecological resilience.	ML	Size L Shape L Buffering ML Connectivity H
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*	M	Grazing H Surroundings H Weeds M 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	M M ML
Secondary Criteria	Ecological Context Size and Shape	H 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

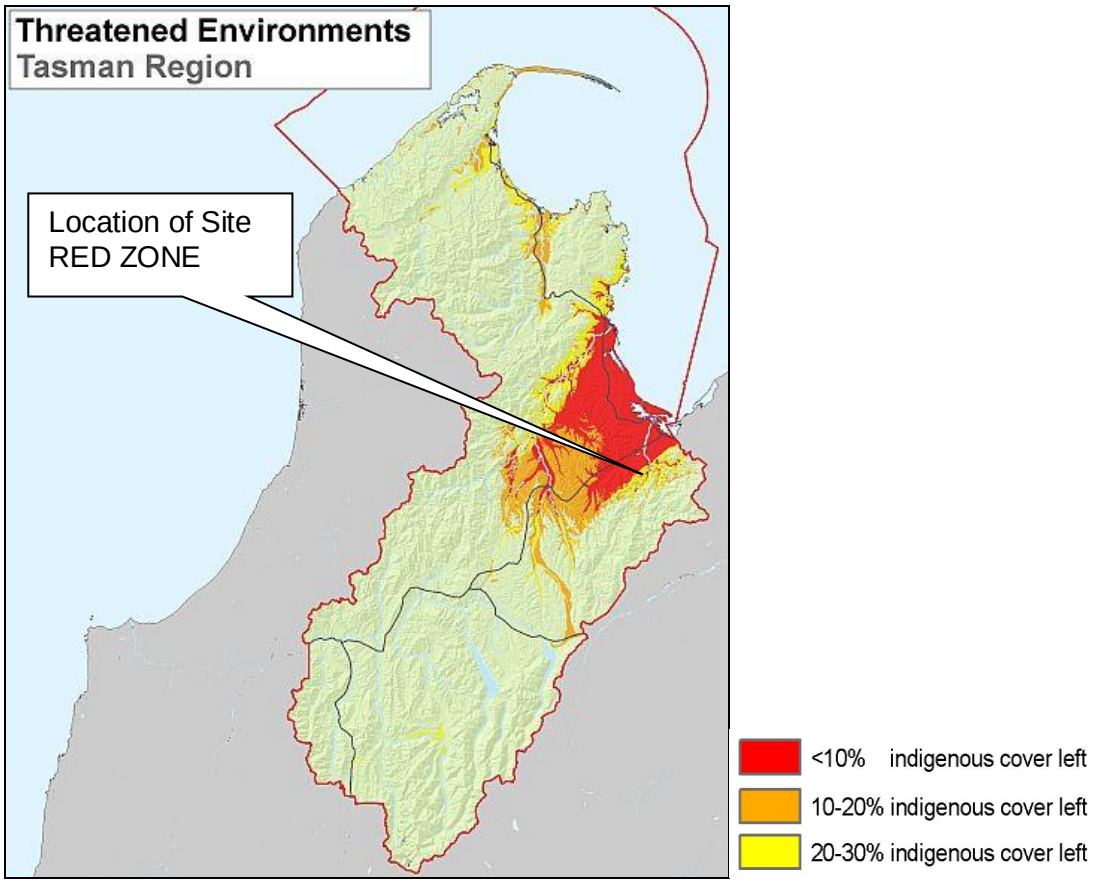
r = Rare o = Occasional m = Moderate Numbers ml = Moderate Numbers Locally
c = Common lc= Locally Common f = Frequent lf = Locally Frequent x = Present But Abundance Not Noted P = Planted R = Reported
v= Very. For example: vlc = very locally common, mvl = moderate numbers very locally

Species Name	***Common Name***	***Status***
Trees Shrubs		**x**
Alectryon excelsus	titoki	m
Aristotelia serrata	makomako; wineberry	o
Brachyglottis repanda	rangiora	o
Carpodetus serratus	putaputaweta; marbleleaf	o
Coprosma areolata	thin leaved coprosma	r
Coprosma crassifolia	thick leaved coprosma	o
Coprosma pxr	hybrid coprosma	r
Coprosma rhamnoides	scrub coprosma	m
Coprosma rotundifolia	round-leaved coprosma	r
Cordyline australis	ti kouka; cabbage tree	r
Cordyline banksii	forest cabbage tree	r
Dacrycarpus dacrydioides	kahikatea	ml
Dodonaea viscosa	akeaeke	m
Fuchsia excorticata	kotukutuku; tree fuchsia	r
Hedycarya arborea	porokaiwhiri; pigeonwood	r
Hoheria angustifolia	narrow-leaved lacebark/ n-l houhere	ml
Kunzea ericoides	kanuka	c
Lophomyrtus obcordata	rohutu; NZ myrtle	o
Macropiper excelsum	kawakawa	r
Melicytus ramiflorus	mahoe, whiteywood	c
Myoporum laetum	ngaio	r
Myrsine australis	mapou, red matipo	m
Myrsine divaricata	weeping matipo	r
Nestegis cunninghamii	black maire	o
Nothofagus solandri	tawhairauriki; black beech	r
Pittosporum eugenioides	tarata; lemonwood	o
Podocarpus totara	lowland totara	c
Prumnopitys taxifolia	matai	ml
Pseudopanax arboreus	whauwhaupaku; fivefinger	ml
Pseudopanax crassifolius	horoeka; lancewood	o
Sophora microphylla	kowhai	ml
Lianes		**x**
Parsonsia heterophylla	native jasmine	m
Dicot Herbs		**x**
Hydrocotyle moschata	a pennywort	o
Monocot Herbs		**x**
Grasses Sedges Rushes		**x**

Carex lambertiana		r
Microlaena polynoda	bamboo rice grass	r
Uncinia scabra	a hook grass	r
Uncinia uncinata	a hook grass	r
Ferns		**x**
Arthropteris tenella	jointed fern	r
Asplenium bulbiferum	hen & chickens fern	r
Asplenium flabellifolium	necklace fern	r
Asplenium flaccidum	hanging spleenwort	r
Asplenium hookerianum		o
Asplenium oblongifolium	shining spleenwort	c
Blechnum discolor	crown fern	r
Dicksonia squarrosa	wheki, rough tree fern	r
Microsorum pustulatum	houndstongue fern	c
Pellaea rotundifolia		m
Polystichum neozelandicum	lowland shield fern	m
Pteridium esculentum	bracken	ml
Pyrrosia eleagnifolia	leather leaf fern	o
Algae		**x**
Weeds		**x**
Berberis vulgaris	barberry	m
Clematis vitalba	old man's beard	m
Ulex europaeus	gorse	o
Birds		**x**
bellbird/korimako	bellbird/korimako	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) that 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

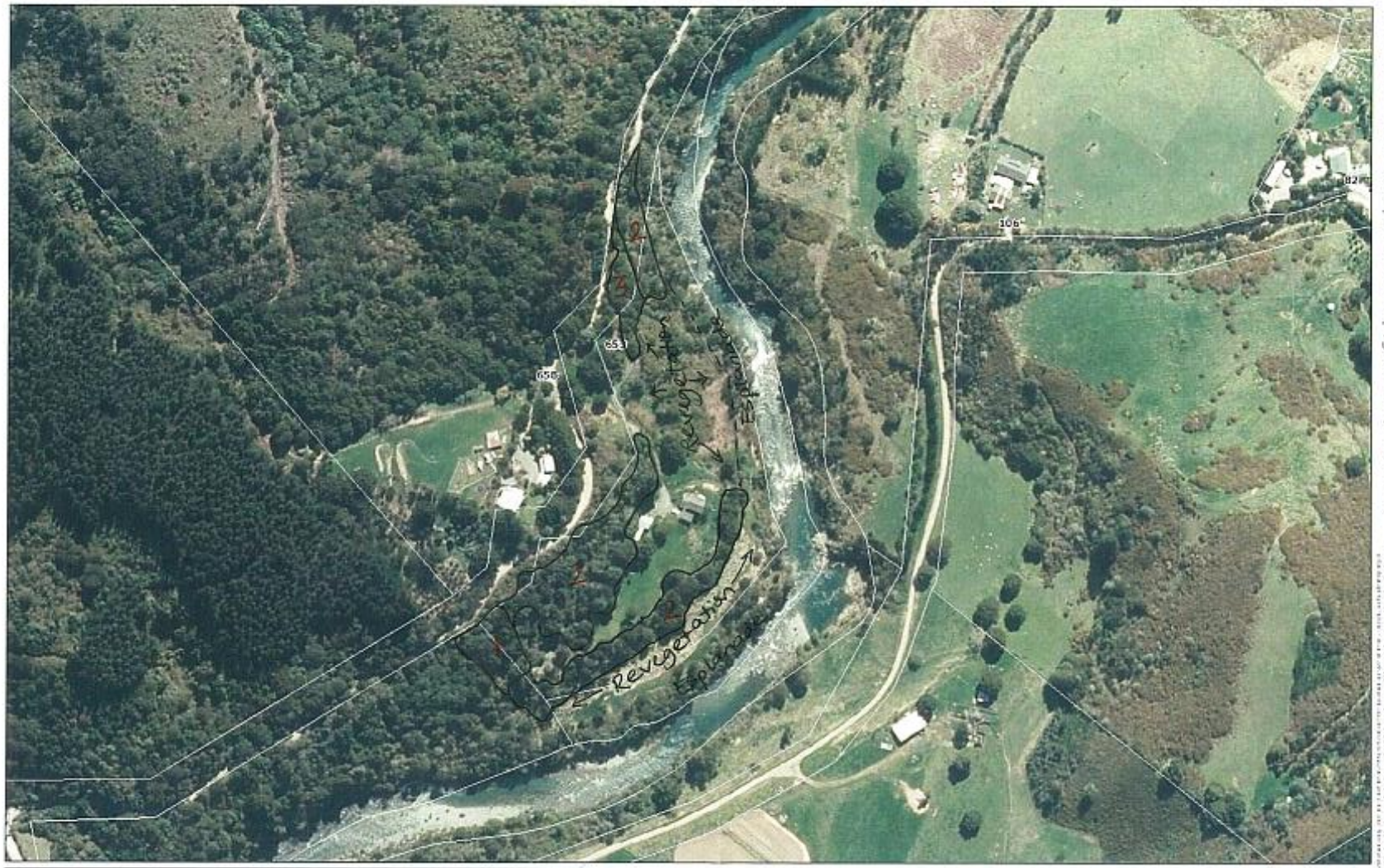
Four national priorities for biodiversity protection were set in 2007 by the Ministry for the Environment and Department of Conservation.

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.


B26c Chivers
1 Lowland totara-[matai]-[kowhai] forest on toe-slope ± terrace
2 Lowland totara - kanuka ± barberry mixed forest associations on side-slope ± terrace scarp
3 Kanuka forest on side-slope
Revegetation
Escarpment
www.topofthesouthmaps.co.nz