Native Habitats Tasman
Ecological Assessment Report

Site:	MU 88
Landowners/Occupiers:	Pat Russell

Ecological District:	Moutere
Grid Ref:	E1607235 MU 88N5433782
Surveyed By:	Michael North
Date:	15 July 2020
Survey Time:	1 hr

SITE DESCRIPTION

Location, Geology, Hydrology

This 0.14 ha site lies at 3-7m asl on a broadly east-facing scarp slope, just west of Mapua. It occupies the full altitude span of the slope, between the valley floor and the gentle margins of rolling hill-country.

The geology is Pliocene Moutere Gravel composed of clay-bound gravels (Ptm). This material is outwash from the Southern Alps.

Vegetation

GENERAL

Ecosystem: Semi-coastal beech-podocarp forest.

COMMUNITIES

1 Black beech- lowland totara/mixed broadleaved forest on scarp slope.

About five canopy black beech and ten lowland totara form the canopy over or amongst mixed broadleaves that include quite mature densely-growing mapou, some kohuhu and minor tarata/lemonwood, ngaio, mahoe, fivefinger and akeake. Single specimens of canopy hinau, rimu and tanekaha are present. Strong understorey regeneration is patchy, with dense areas of mapou and kohuhu regeneration in particular. Lowland totara regeneration is moderately common, with areas where it is locally common. Mahoe and shining coprosma regeneration is moderately common in places. Localised are ponga and scrub coprosma, with one wheki treefern noted. Pole and sapling black beech are rare with a concentrated area of c14 seedlings/saplings above the largest tree. Pirita/green mistletoe was noted a couple of times. One sapling kahikatea and miro are present. Ground cover is entirely of exotic plants with no indigenous ferns seen other than for occasional bracken. One small patch of gossamer grass could well be planted or be a garden escape.

Botanical Values

COMMUNITIES

Context

Lowland beech forest once covered 2/3 of the Moutere Ecological District (ED), but with extensive forest clearance this has now been reduced to 5% of its original cover, most of it occurring in Big Bush at the southern end. Forest up to 600m asl is defined as 'lowland' and whilst 5% remains, the figure is far less for forest below 300m which is probably of the order of 1-2% remaining. Loss of black beech-rich forest and hard beech-rich forest in the ED well exceeds 95%.

The Site

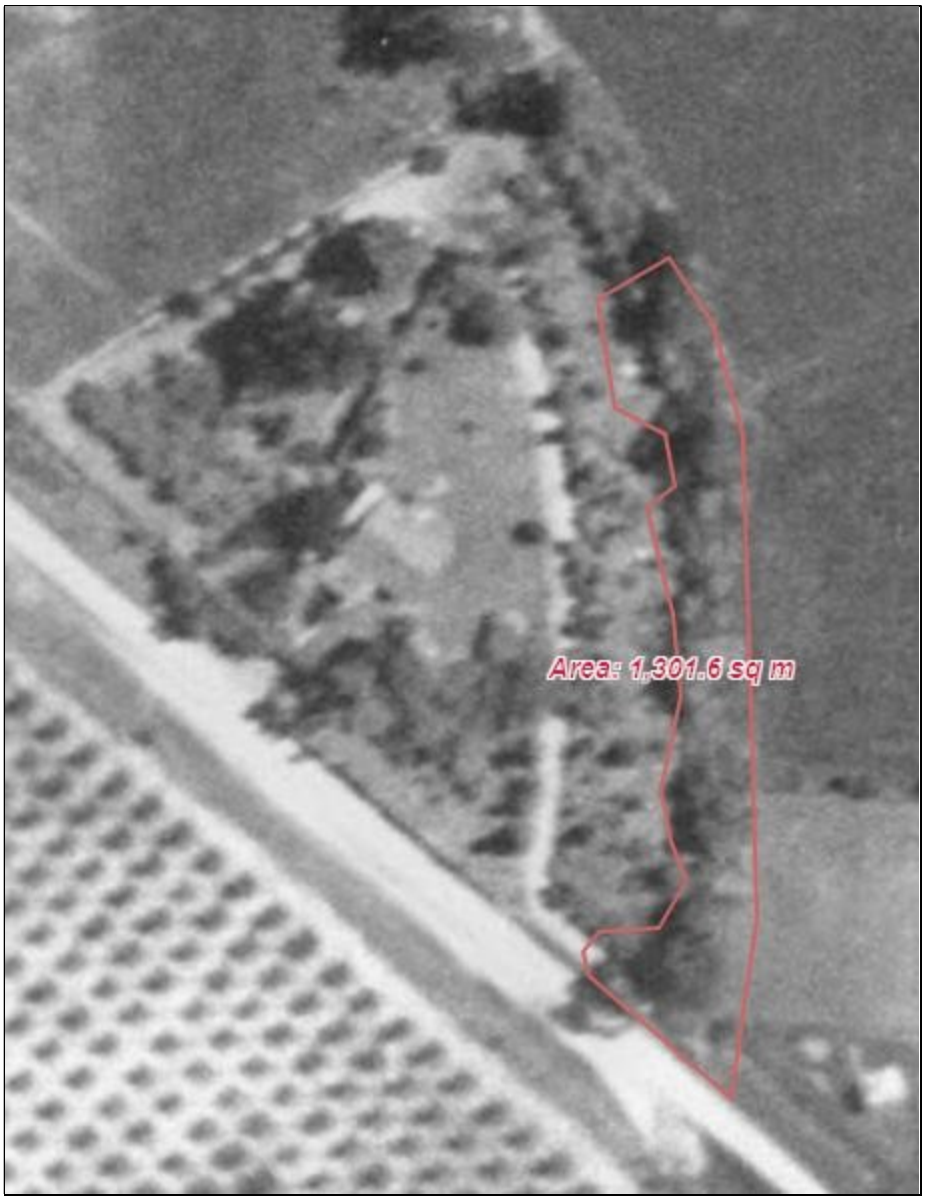
East of the Moutere Valley/north of the Moutere Saddle, ie broadly the coastal/semi-coastal portion of the Moutere Ecological District, there are probably <200 beech and <50 podocarp canopy forest trees remaining, and this site the only patch of beech-podocarp forest in this near 6000ha area - where the total native forest area is of the order of 30ha, including <2ha of beech or beech-podocarp forest/treeland.

This very small site is distinctive for its scattering of canopy black beech and lowland totara in an indigenous forest setting, including two very mature black beech. It is likely that in the past the site was reduced to just a handful of trees, later to recover to forest in an ungrazed domestic garden margin. Although highly modified it is indicative of the original composition of semi-coastal forest on well-drained slopes on the Moutere Gravels. The abundance of canopy lowland totara is notable in this context.

SPECIES

19 native plant species were noted. The presence of one canopy tanekaha is remarkable (a further recently cut stump suggests there was a second tree within the forest). This may be naturally occurring, although it seems just as likely that it was planted (there is one within the garden as well).

However, several saplings were noted that are self-sown, and it is not inconceivable that this species was an original component of coastal/semi-coastal forest in the locality (as it is on the coast at Takaka, Golden Bay). The one hinau tree is noteworthy for the locality. The one rimu within the forest is a similar stature to two within the garden outside the forest (that appear planted), and it may also have been planted (see aerial below):



The site in the late 1940s broadly outlined in red; the line of rimu west of the start of the driveway appear to have been planted (two remain today)

Fauna

Indigenous fauna were noted incidentally and not directly surveyed. Any observations are therefore likely to be conservative.
Native forest birds noted were tui, korimako/bellbird and piwakawaka/fantail. Kotare/kingfisher holes are numerous in one of the largest black beech. Forest birds also reported from the title are pipiwharauroa/shining cuckoo, riroriro/grey warbler and tauhou/waxeye.

Weed and Animal Pests

The forest holds some serious pest plants, notably tree privet, ivy, climbing asparagus, cotoneaster, a small-leaved privet species, stinking iris, an unidentified scrambling vine ground cover species, fan palm, onion weed, Japanese honeysuckle, hybrid pseudopanax, and North Island lacebark. Only the ivy and the unidentified vine are locally extensive, others being sparse or localised.

Other Threats

The owner has applied for a subdivision, with consent conditions requiring the establishment of a section of a future walkway/cycleway along the southern margins of the forest beside Seaton Valley Rd. The kerb and channel design, requiring excavation, would seriously damage the root zone of two canopy black beech.

General Condition & Other Comments

The forest is in a variable condition with the central section particularly infested with a range of pest plants. The small size and narrow shape of the forest mean that the interior is seasonally very droughty, with impacts on sensitive species (no ground ferns were noted).

Landscape Values

The site is tenuously connected ecologically to other sites: It lies 250m to the north-west of the newly created Mapua wetland covenant, and 980m from a coastal forest covenant on the very margins of the Waimea Inlet. Higgs Reserve coastal forest lies 1.1km to the south-west.

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 with moderate representativeness values and high rarity values.

Management Issues and Suggestions

The creation of a kerb and channel walkway/cycleway presents a threat to the forest margins due to root disturbance. This could potentially be avoided if this section were constructed as a boardwalk, but this would require expert investigation. Further west along the title boundary, the walkway is required under the consent to be cut deeply, very close to a seemingly planted rimu likely 80-90 years old judging by the 1940s aerial above. Damage to the root zone may be reduced if the cut is made steeper and/or the width of path construction is minimized. This should be considered as a way to reduce impacts on this not unimpressive tree.

The most pressing weed management issue is the advance of ivy and a woody ground creeper species through the site. The presence of climbing asparagus is also somewhat alarming. Spraying and hand grubbing are suggested (see Weedbusters website for herbicide recommendations). Other concerning weeds can be manually felled and stump treated, or grubbed out.

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.
For restoration plantings the relevant planting list for your area is available from the TDC website at My Region » Environment » Environmental management » Biodiversity » Native plant restoration lists or at:
https://www.tasman.govt.nz/my-region/environment/environmental-management/biodiversity/native-plant-restoration-lists/
The list for your area is Moutere Downlands Hill Country. The list is fully comprehensive.
A number of local nurseries (such as Titoki Nurseries in Brightwater and Mainly Natives in Appleby) raise a diverse range of locally sourced plants for restoration plantings.

The landowner's proposal to covenant the forest with QEII National Trust is supported.

Two views of the site looking both ways from the centre along the top margins

Black beech c1.2m dbh amongst mature mapou

Ngaio and mapou comprise a part of the mixed broadleaved canopy and understorey

Lowland totara are a strong feature with c10 canopy trees noted up to 70cm dbh

A young canopy beech tree and a patch of seedlings/saplings show that some regeneration is taking place

The second largest black beech at c90cm dbh has severe rot on one flank, with numerous kotare/kingfisher nest holes visible

The one canopy tanekaka, with fallen trunk of a dead ngaio that was counted to have 150 growth rings

Tanekaha regeneration amongst more abundant young lowland totara

North Island lacebark, not native to the locality, over dense ivy

An unidentified scrambling ground cover species

Tree privet and climbing asparagus amongst dense ivy

Several fan palm are present

One of two hybrid pseudopanax

Black beech on the southern forest margins whose root zone on the roadward side is imperiled by the proposed development of a kerb and channel walkway/cycleway

Surface black beech root under the dripline where the proposed pathway excavations would take place

A likely planted rimu close to the road just north-west of the forest whose root zone on the road-ward side would be largely removed by the proposed pathway construction; careful consideration of the rootzone area could minimize damage by allowing the cut batter to be steeper (with some wall retention?) or the walkway narrower at this point

APPENDIX

1)Technical Assessment of Site Significance

Significance Evaluation		
	Score	**Example/Explanation**
Primary Criteria		
Representativeness		
Mature secondary vegetation that moderately or moderately-poorly resembles natural regeneration	M	e.g. Secondary beech or podocarp forest in moderate to moderately-poor condition
Rarity and Distinctiveness		
A primary community (or mature secondary of the same defining canopy/dominant species) that is depleted to less than 20% of its former extent in the ecological district	H	As determined by local lists, e.g. beech forest communities below 600 m altitude in Moutere ED
Diversity and Pattern		
Presence of a lower diversity of indigenous species, communities or habitat types than is typical for such sites in the ecological district	L	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		
The site is reasonably well separated from other areas of indigenous vegetation or habitat	ML	
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	e.g. Unusually important stands of podocarp 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	Although this site appears to be a unique example of semi-coastal beech-podocarp it is very small and is scored as such, despite the lack of comparable examples
Other Criterion		
Sustainability (average score)		
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 ML
Inherent fragility/robustness		

Significance Evaluation		
	Score	**Example/Explanation**
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 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 H L
Secondary Criteria	Ecological Context Size and Shape	ML 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**

2) Species List

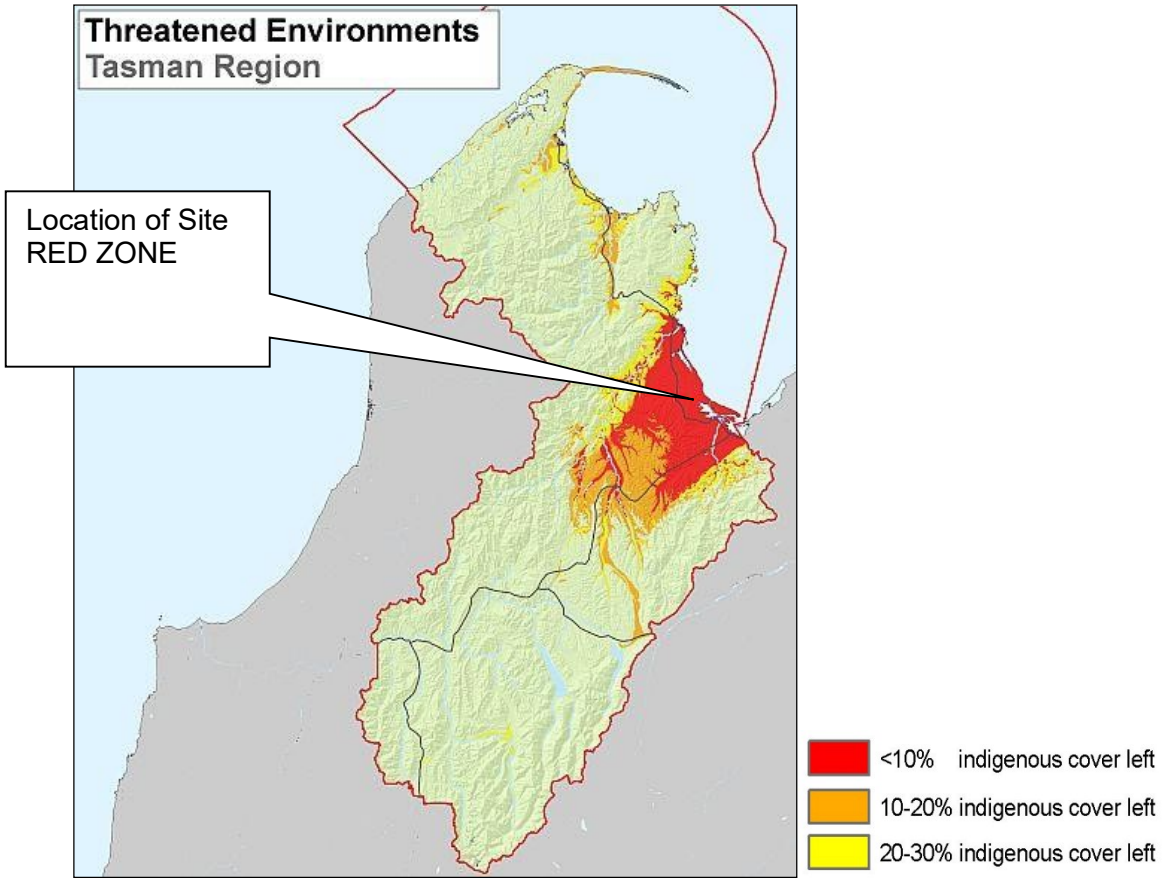
r = Rare o = Occasional m = Moderate Numbers ml = Moderate Numbers Locally
c = Common lc= Locally Common f = Frequent lf = Locally Frequent x = Present But Abundance Not Noted P = Planted R = Reported
v= Very. For example: vlc = very locally common, mvl = moderate numbers very locally

Species Name	Common Name	Status
Trees Shrubs		**x**
Alectryon excelsus	titoki	P
Carpodetus serratus	putaputaweta; marbleleaf	P
Coprosma lucida	shining coprosma	ml
Coprosma rhamnoides	scrub coprosma	o
Coprosma robusta	karamu	r
Cordyline australis	ti kouka; cabbage tree	P
Dacrycarpus dacrydioides	kahikatea	r
Dacrydium cupressinum	rimu	r
Elaeocarpus dentatus	hinau	r
Ileostylus micranthus	green mistletoe; piritia	r
Melicytus ramiflorus	mahoe, whiteywood	ml
Myoporum laetum	ngaio	o
Myrsine australis	mapou, red matipo	c
Nothofagus solandri	tawhairauriki; black beech	o
Pittosporum eugenioides	tarata; lemonwood	o
Pittosporum tenuifolium	kohuhu	c
Podocarpus totara	lowland totara	m
Prumnopitys ferruginea	miro	r
Pseudopanax arboreus	whauwhaupaku; fivefinger	o
Sophora microphylla	kowhai	r (P?)
Lianes		**x**
Dicot Herbs		**x**
Monocot Herbs		**x**
Phormium tenax	harakeke, swamp flax	P
Grasses Sedges Rushes		**x**
Anemanthele lessoniana	gossamer grass	P?
Carex dipsacea		P?
Carex forsteri		P?
Carex virgata	pukio	P?
Ferns		**x**
Cyathea dealbata	ponga, silver fern	mvl
Dicksonia squarrosa	wheki, rough tree fern	r
Pteridium esculentum	bracken	o
Exotic		x

Allium triquetrum	onion weed	ml
Asparagus scandens	climbing asparagus	r
Cotoneaster simonsii	cotoneaster	r
Eriobotrya japonica	loquat	r
Eucalyptus sp	eucalyptus species	r
Hedera helix	ivy	lf
Hoheria populnea	common lacebark	r
Iris foetidissima	stinking iris	o
Ligustrum lucidum	tree privet	r
Lonicera japonica	Japanese honeysuckle	r
Metrosideros excelsa	pohutukawa	P
Oxalis incarnata	lilac oxalis	lf
Prunus sp plum	wild plum	r
Pseudopanax lessonii x	hybrid pseudopanax	r
Trachycarpus fortunei	fan palm	r
Birds		**x**
Prosthemadera novaeseelandiae	tui	x
Anthornis melanura	bellbird/korimako	x
Rhipidura fuliginosa	fantail/piwakawaka	x
Zosterops lateralis	waxeye	R
Gerygone igata	grey warbler/riroriro	R
Eudynamys taitensis	long tailed cuckoo	R
Halcyon sancta vagans	NZ kingfisher/kotare	R

3) 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



4) 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

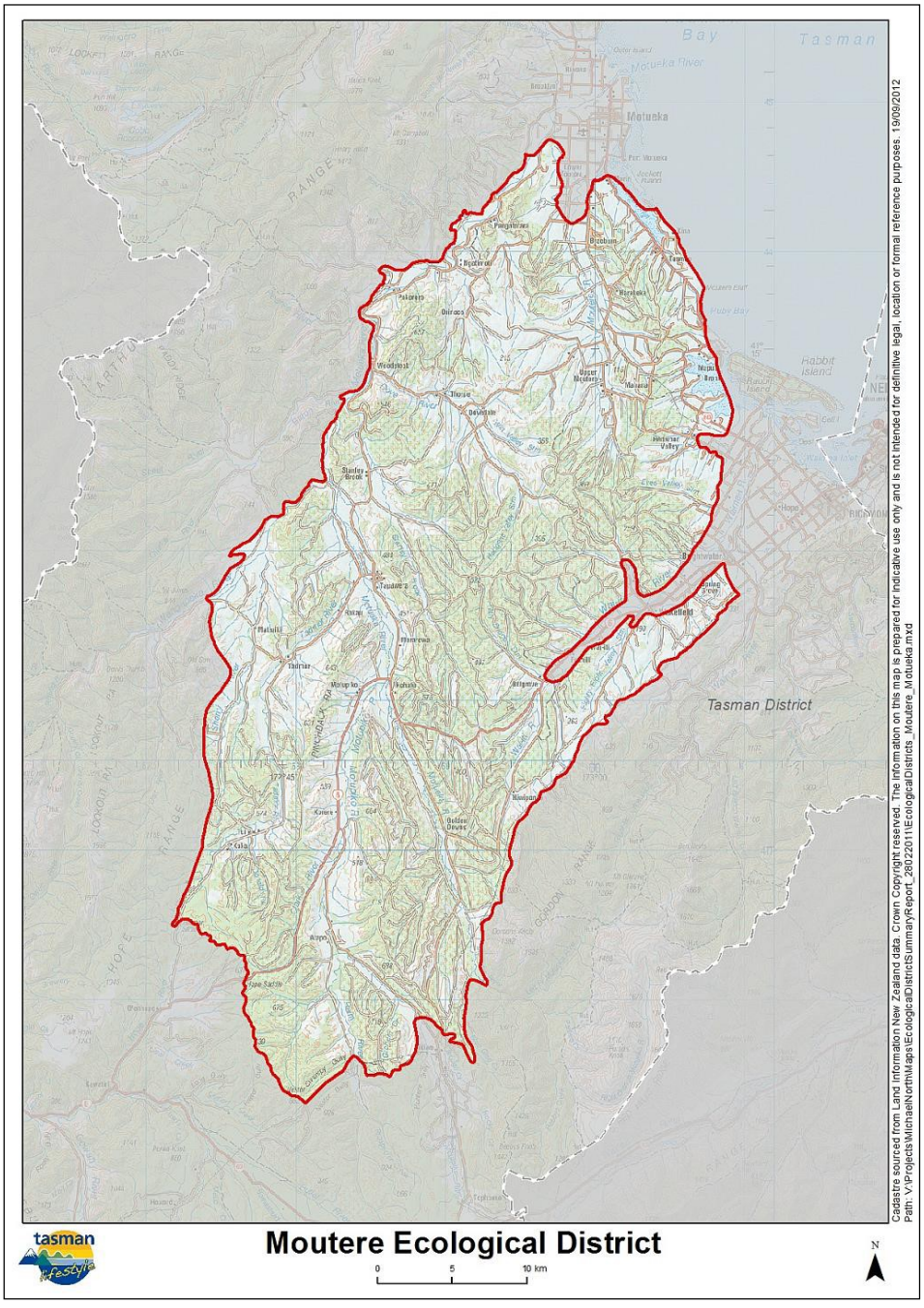
What does it mean if your site falls within the highly depleted LENZ environments, or falls within one or more of the four National Priorities?
These frameworks have been included in this report to give deeper ecological context to the site. They are simply another means of gauging ecological value. 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.

5) The Setting –
MOUTERE ECOLOGICAL DISTRICT (ED)

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

Location and Physical Description

The Moutere Ecological District occupies most of the Moutere Depression. It is rolling hill country founded on deeply weathered fluvio-glacial outwash gravels (Moutere Gravels), with a little limestone and granite in the west. The hills are drained by numerous valleys with flat alluvial floors. There is a small amount of coast containing an estuarine shore and a series of bluffs. The climate is sunny and sheltered, with very warm summers and mild winters. Most of the land is in private ownership and is used for pastoral farming, forestry, horticulture and small-scale settlement. Tasman District Council has considerable landholdings in this District.



Ecosystem Types Originally Present

Formerly, the Ecological District, apart from the waterways, would have been almost entirely covered in forest. The alluvial valley floors supported towering podocarp forests of totara, matai, rimu, miro and kahikatea. On the hills, black beech was dominant at the seaward end of the District, with hard beech prominent further inland, giving way further inland still to red beech with silver beech. In sheltered coastal gullies were pockets of lush broadleaved forest containing tawa, titoki, pukatea, nikau and tree ferns. Along the coastal bluffs was forest of ngaio, titoki, nikau and other broadleaved trees, with totara and black beech. Fringing the estuary would have been a vegetation sequence like that in the neighbouring Motueka Ecological District. Freshwater wetlands occurred in the coastal 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) and some braided river beds, 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 natural terrestrial ecosystems have been lost. What remains is largely a scattering of fragments of beech forest, with some larger areas in the south. There are tiny remnants of coastal bluff forest, lowland broadleaved forest and podocarp forest only, and a few wee freshwater wetlands. The estuary margin is still surprisingly intact, although its fringing vegetation sequence has largely gone. The table below gives estimates of the proportions of the original ecosystems that remain.

Degree of Protection

There is little protected land within the Ecological District. However, there are significant remnants protected in reserves and covenants. These include a coastal bluff forest remnant at Ruby Bay, tawa forest at Eves Valley, podocarp forest remnants near Upper Moutere, several key remnants of beech forest and larger tracts of beech forest in the south. A few tiny wetlands are also protected. The table below gives estimates of how much of the original and remaining ecosystems have formal protection.

Indigenous Ecosystems – Moutere 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	<1	30	?	?
Fertile lowland swamp and pond	1	<5	<2	<20
Infertile peat bog	—	—	—	—
Upland tarn	—	—	—	—
Lake	—	—	—	—
River, stream and riparian	1	40	?	?
Lowland podocarp forest	20	1	<1	50
Lowland broadleaved forest	1	<5	<5	100
Lowland mixed forest	5	<5	<5	50
Lowland beech forest	65	5	2	40
Upland beech forest	5	50	40	80
Subalpine forest	—	—	—	—
Lowland shrubland	<1	<5	<1	<10
Upland/subalpine shrubland	—	—	—	—

Frost flat communities	—	—	—	—
Tussock grassland	—	—	—	—
Alpine herbfield and fellfield	—	—	—	—

SNH Map