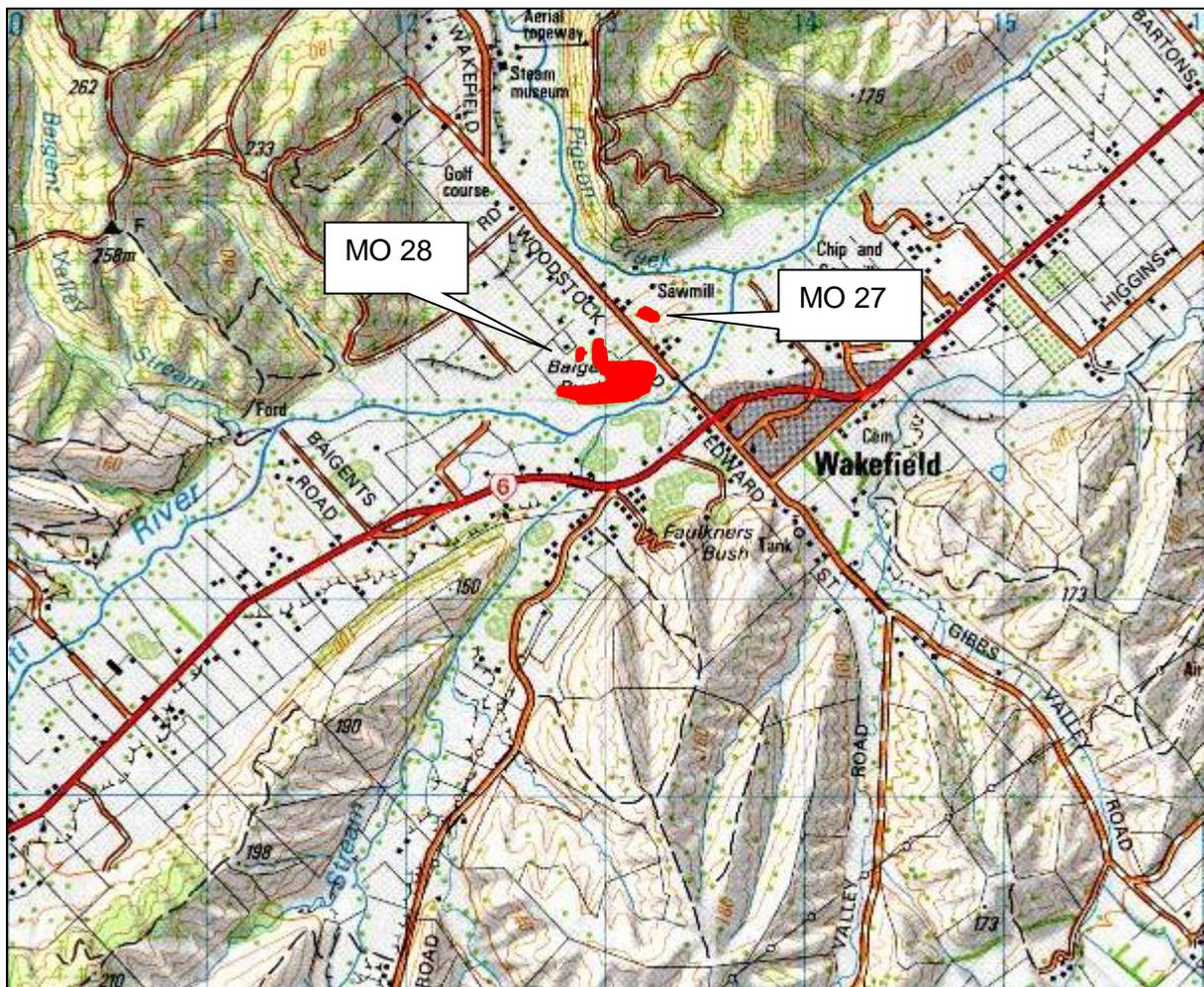


Native Habitats Tasman Ecological Assessment Report

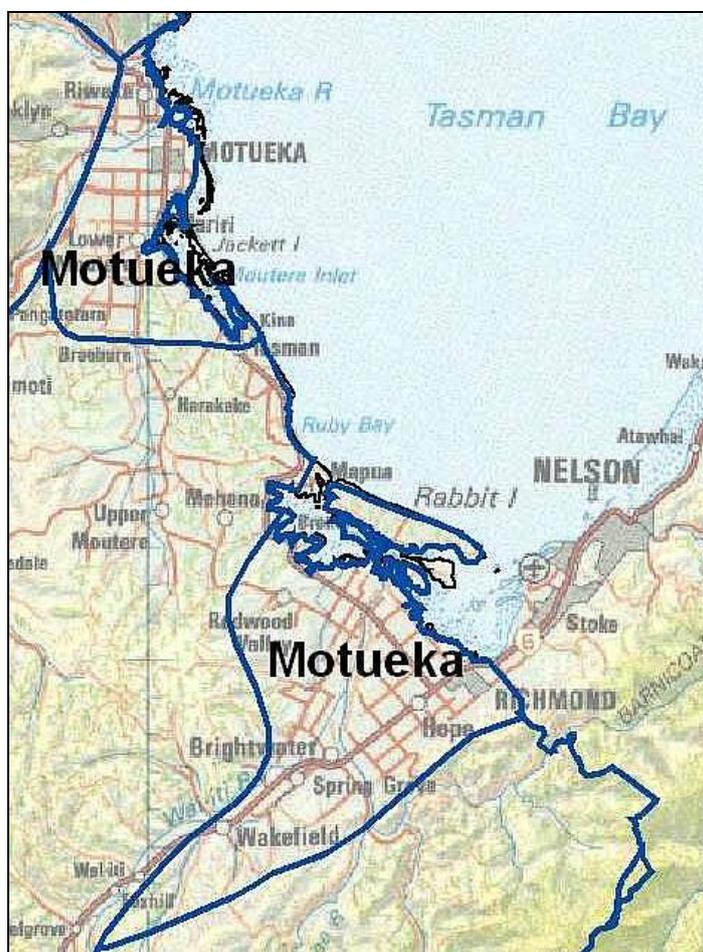
Site:	MO 27 & 28
Landowners/Occupiers:	Ryversdale Trust
Ecological District:	Motueka
Grid Ref:	E2513066 N578138
Surveyed By:	Michael North
Date:	15 June & 1 July 2010
Survey Time:	4 hrs



THE SETTING – MOTUEKA ECOLOGICAL DISTRICT (ED)

Location and Physical Description

The Motueka Ecological District is small and in two parts; the western one where the Motueka River flows into Tasman Bay and the eastern where the Wairoa and Wai-iti rivers come together to form the Waimea River before entering the bay. It comprises lowland and coastal alluvial plains and remnants of the Moutere Gravels. It has a coast of fertile deltas, large estuaries, sand islands and bluffs. Soils from the Moutere Gravels are clayey and not very fertile, those on stony terraces and sand are shallow and prone to drought, and alluvial soils are generally well drained and fertile. The climate is sunny and sheltered, with very warm summers and mild winters. The land is mostly in private ownership and is used for pastoral farming, forestry, horticulture, residential and commercial 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 plains and terraces supported towering podocarp forests of totara, matai and kahikatea. On the low hills was mixed forest of black beech, hard beech, rimu, totara, kamahi, titoki and tawa. Along the coastal bluffs and fringing the estuaries, ngaio, cabbage tree, kowhai and totara would have been common. The estuaries were alive with wetland birds, fish and invertebrates. They had vegetation sequences grading from eelgrass and saline turf into rushes, sedges, harakeke (lowland flax) and shrubs (mainly saltmarsh ribbonwood, mingimingi and

manuka), and finally into forest. Freshwater wetlands would have included fertile lowland swamps with kahikatea, harakeke, cabbage tree, tussock sedge (*Carex secta*) and raupo. Rivers and streams, including riparian ecosystems (trees, shrubs, flaxes, toetoe, etc) and some braided river beds, would have made up a significant 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 mostly in small fragments of forest and freshwater wetland. The estuaries are still surprisingly intact, although their fringing vegetation sequences have 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 important tall forest remnants at Motueka, Brightwater and Wakefield, kanuka forest on alluvial flats at Brightwater, estuarine shores and sand islands. It also includes some small freshwater wetlands and hillslope forest patches. The table below gives estimates of how much of the original and remaining ecosystems have formal protection.

Indigenous Ecosystems – Motueka 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	10	<5	<5	100
Estuarine wetland	10	30	12?	40?
Fertile lowland swamp and pond	3	<1	<1	40?
Infertile peat bog	—	—	—	—
Upland tarn	—	—	—	—
Lake	—	—	—	—
River, stream and riparian	3	50	5?	10?
Lowland podocarp forest	50	<1	<1	90
Lowland broadleaved forest	5	<1	<1	90
Lowland mixed forest	12	<1	<1	90
Lowland beech forest	5	<1	<1	90
Upland beech forest	—	—	—	—
Subalpine forest	—	—	—	—
Lowland shrubland	2	<1	<1	50
Upland/subalpine shrubland	—	—	—	—
Frost flat communities	—	—	—	—
Tussock grassland	—	—	—	—
Alpine herbfield and fellfield	—	—	—	—

SITE DESCRIPTION - MO 28

Location, Geology, Hydrology

This c7.0 ha site lies at 60m asl on recent alluvium beside the Wai-iti River, close to Wakefield. The landform is fairly uniform with minor channels and banks created by former watercourses.

Vegetation

GENERAL

The site is a mosaic of largely fenced podocarp forest and treeland with small pockets of grazed forest/treeland, and grassy/weedy glades.

COMMUNITIES

1 Lowland totara-(matai) forest on alluvium

The most structurally diverse sections of forest have been fenced from stock for 16-18 years with a dense understorey of regeneration to 3m. That it should have only reached this stature in this timeframe is testimony to the degree of summer/autumn water stress that this site experiences. Canopy species other than matai and totara are localised to marginal or disturbed areas, including kanuka, small-leaved lacebark, and kowhai. Lianas include very occasional bush lawyer, pohuehue (moderately common on margins), and native jasmine (quite common throughout). One huge kahikatea has recently died. Sub-canopy or young understorey saplings include rare kaikomako and titoki. Hawthorn is scattered through, commonly in places, and sycamore is becoming established locally, with sub-canopy trees and abundant saplings. Regeneration of all tiers is generally dominated by mahoe, with swamp mahoe locally common, round-leaved coprosma and rohutu moderately common, and regeneration of matai and small-leaved lacebark moderately common locally. Other species include juvenile small-leaved lacebark. A surprising lack of lowland totara regeneration is apparent. Jerusalem cherry is common in better-lit areas. Ground cover is variable, with ferns scattered or in beds, most notably *Pellaea rotundifolia*, lowland shield fern, necklace fern and *Lastreopsis glabella*. The sedge *Carex lambertiana* is local, and bamboo rice grass is rare. Leather leaf fern is common on totara branches.

Other areas have been fenced for only five or so years with a regeneration still generally less than 1.5m tall but in some areas up to 2m. This is again mahoe-dominated, with much swamp mahoe, as well as small-leaved milkwood, rohutu, and kowhai seedlings locally. Rare seedlings of weeds such as bay and holly were noted. Ground cover ferns include hen and chickens fern, *Pellaea rotundifolia*, lowland shield fern and *Lastreopsis glabella*. Margins and light wells support a dense ground cover low vegetation including the grass *Microlaena stipoides*, selaginella, wild strawberry, old man's beard seedlings, some blackberry, downy nightshade, and the fern *Hypolepis ambigua*. Some old man's beard is locally common on the margins.

These forest areas are heavily dissected in places, particularly in the SE corner, by grassy rides and glades that are kept largely weed free through occasional grazing.

2 Lowland totara-(matai) treeland on alluvium

Dense treeland (ie grazed-out forest) occurs in a number of locations around the site, varying from fairly mature trees to pockets of younger regeneration, particularly lowland totara. Rare canopy lemonwood, black beech and small-leaved lacebark occur, and sapling mapou and kohuhu are rare. Hawthorn occurs on margins. Generally there is a very impoverished ground cover and open shrub tier of Jerusalem cherry where there is enough light, and heavily hedged small-leaved shrubs are occasional, for example swamp mahoe.

3 Lowland totara trees over pasture

Up to ¼ of the site is pasture with generally large specimens of lowland totara scattered through individually or in pockets. Matai are more occasional. Denser treeland areas at the northern end include kahikatea and small-leaved lacebark along the foot of a wee scarp. A mature titoki is also here. Old man's beard climbs into canopies at this northern end, the worst infestation at the site. A patch of tradescantia occurs on a terrace scarp slope.

Botanical Values

COMMUNITIES

Alluvial podocarp forest is massively depleted in Motueka Ecological District (ED) with well less than 1% remaining of its original area. Of the 24 709 ha that make up this ED, 72% (17 790 ha) once supported forest (see table above). Of this a mere 40 ha remains in podocarp/beechness forest or treeland, a loss of 99.88%. At 7ha this site constitutes nearly 1/5 of what remains. It is by far the largest alluvial forest/treeland site remaining in the ED (the next largest is a 4.4 ha treeland) and is of the very highest ecological value in this context.

SPECIES

49 native plant species were noted. Lowland ribbonwood and small-leaved lacebark are both particularly rare in the Motueka ED and the broader Nelson Ecological Region. Other species considered rare in the Motueka ED are wineberry, cabbage tree, kahikatea, kawakawa, swamp mahoe, black beech, kaikomako, lancewood, SI kowhai, bush lawyer (2 species), the perching orchid *Earina mucronata*, the sedges *Carex lambertiana* and *Carex solandri*, bamboo rice grass, the hookgrass *Uncinia leptostachya*, hanging spleenwort, and the fern *Pteris tremula*.

Fauna

Native forest birds noted were tui, korimako/bellbird, piwakawaka/fantail, kereru/pigeon and waxeye. Kereru were moderately common during the visits. Ruru/morepork riroriro/grey warbler and kotare/kingfisher are also likely to be present in the locality.

Weed and Animal Pests

A very large number of threatening weeds were recorded, but none other than old man's beard, Jerusalem cherry and selaginella are at all widespread. The other more threatening species are chocolate vine, ivy, yew, holly, bay, tree privet, NI lacebark, fan palm, sycamore, barberry and hawthorn.

Possum are generally present as no AHB or DoC control of possums is undertaken in the locality.

Other Threats

Stock access to some small areas has eliminated the understorey or at least prevented it ever establishing. Some mature trees open pasture are being damaged/killed by stock rubbing on or chewing bark.

General Condition

Overall the site is in moderate condition, with the condition of different sectors ranging from excellent to poor.

Landscape/Historic Values

The site is an impressive part of the lower Pigeon Valley landscape. The forest also has historic associations, being held by the Baigent family for many generations, and indeed marked as Baigents Bush on the 1:50000 topographic map of the district.

ASSESSMENT OF ECOLOGICAL SIGNIFICANCE

The following criteria are assessed:

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

Rarity: *Are there rare species or communities?*

Diversity and pattern: *Is there a notable range of species and habitats?*

Distinctiveness/special features: *Are there any features that make the site stand out locally, regionally or nationally for reasons not addressed by the above criteria?*

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 hydrological services to the catchment and 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 such high representativeness and rarity values the site easily qualifies for significance. Indeed it is one of the most important sites for conservation on private land within the Motueka Ecological District.

PHOTO GALLERY



Alluvial podocarp forest is vanishingly rare in the Motueka Ecological District; this site is the largest such area outside Eves Valley Scenic Reserve



Some areas have been fenced from stock for c16-18 years, since when a fine understory has regenerated



Other areas have been fenced for only c5 years with regeneration at a much earlier stage



A few smaller areas of what is now dense treeland remain unfenced from stock



Grazed open treelands cover a significant proportion of the site with some huge trees present



Some matai are of reasonable stature; larger specimens may have been logged



Some areas of forest are of closely packed second-growth lowland totara with low diameters; totara generally dominates with matai having a more variable presence



Several large kahikatea have died in recent times, leaving just a handful of smaller trees at the site and no regeneration evident; this one was c2m diameter (dbh)



A network of glades and rides honeycomb the south-east sector of the site, and are periodically grazed for weed control using electric tape to contain animals



Old man's beard has a moderate presence locally; having been heavily knocked back in recent years through extensive (and expensive) control it is now resurgent close to the river



Chocolate vine is established in one area and requires elimination before it becomes entrenched



A large range of woody weeds – such as holly above, are present but fortunately none but hawthorn are at all widespread



Ungrazed forest clearings are vulnerable to weed infestation – particularly selaginella, old man's beard and blackberry



Regionally rare small-leaved lacebark are being killed by stock at the northern end of the site



Dieback of the more mature trees is no doubt a part of the natural process of aging, but exacerbated by the lack of a forest setting for such trees



The site adjoins TDC-administered riparian margins that are infested with old man's beard – the main source of the constant reinvasion of this weed



SITE DESCRIPTION – MO 27

Location, Geology, Hydrology

This 1.05 ha site lies on recent alluvium close to the Wai-iti River at Wakefield.

Vegetation

COMMUNITIES

1 Lowland totara-matai-titoki treeland on alluvium

About 93 trees of these species make up this small grazed site, each dominating in particular locations. Some trees are closely packed but others widely spaced. Green mistletoe is common in lowland totara canopies. Leather leaf fern is locally common on canopy limbs.

Botanical Values

COMMUNITIES

Alluvial podocarp forest is massively depleted in Motueka Ecological District (ED) with well less than 1% remaining of its original area. Of the 24 709 ha that make up this ED, 72% (17 790 ha) once supported forest (see table above). Of this a mere 40 ha remains in podocarp/beechness forest or treeland, a loss of 99.88%. Consequently a one hectare treeland such as this is of considerable importance.

SPECIES

Five native species were noted, none of which are rare or scarce in the Motueka ED.

Fauna

No native forest birds were noted but tui, korimako/bellbird, riroriro/grey warbler, piwakawaka/fantail, kotare/kingfisher, ruru/morepork kereru/pigeon and waxeye are also likely to be present at times.

Weed and Animal Pests

None were noted.

Other Threats

Grazing and consequent lack of understorey and ground cover that favour native canopy tree health (compared to standing in pasture) spells the long-term demise of this site.

General Condition

As a functional forest the site is obviously in poor condition, but even as a treeland it is in trouble with dieback advancing.

Landscape/Historic Values

The site is an attractive feature of the lower Pigeon Valley.

ASSESSMENT OF ECOLOGICAL SIGNIFICANCE

The following criteria are assessed:

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

Rarity: *Are there rare species or communities?*

Diversity and pattern: *Is there a notable range of species and habitats?*

Distinctiveness/special features: *Are there any features that make the site stand out locally, regionally or nationally for reasons not addressed by the above criteria?*

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 hydrological services to the catchment and 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 representativeness and moderately high rarity values the site just qualifies for significance.

PHOTO GALLERY



This treeland encompasses just over one hectare



It comprises open to more closely packed matai, lowland totara and titoki



Lowland totara rich section



Titoki rich section



One titoki is 80-90cm diameter (dbh) – the largest ever seen by the surveyor



Matai health is generally not good with, typically, rot running up one side of the trunk



The matai on the left is about 1m diameter (dbh) – the largest on the property



The winter water-table is about 1m below the surface at this point

Management Issues and Suggestions - MO 27 & 28

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

The main site MO 28 is a complex mosaic of fenced forest, with small areas of unfenced forest/dense treeland, lightly grazed glades and rides, and scattered mature trees in a pastoral setting. Most of the closed forest is fenced, a considerable undertaking that is to be applauded. MO 27 is entirely of open treeland.

Considerable weed control has been undertaken in recent years, particularly on old man's beard.

The diverse management regimes and variable condition of different parts of the site raises a number of issues of how best to look after the forest for its long-term future. With sufficient resources the entire site (including the open treelands) could be restored to healthy forest, if this were deemed desirable. The main rationale in considering restoration of the entire site is that size counts for everything in the longer term when viewing species viability and resilience against local extinction. In reality this would be a considerable undertaking. More realistically, restoration needs to be done in a staged and gradual process. Ideally weed control, further fencing where required, and restoration plantings need to go hand in hand as each supports the other. So what are the priorities, and how can they be resourced? These are numbered by priority.

Weed Control

1 The most immediate threat to the site is weed-vine invasion, in particular old man's beard. This will be an ongoing issue, due to annual reinvasion from adjoining areas, particularly the banks of the Wai-iti River. The best approach would be to eliminate old man's beard as soon as possible, and to undertake annual trawls thereafter to remove seedlings as it reinvades or comes up from the existing seedbank. Seed is not viable for long so within a few years all new seedlings will be from seed that has blown in. It is suggested that this report is used to make representation to TDC to support the restoration by removing the old man's beard from at least the most immediate areas of the Wai-iti River banks (I would be happy to facilitate this).

A considerable effort has already been undertaken to clear the site of old man's beard both in recent years through paid contractors, and prior to that for '25 years' or so of periodic and at times intensive control by the landowners. It has subsequently begun to become a problem again. Now is the time to hit the site hard before all the recent work is undone. Outside assistance is sorely needed at this juncture. (Subsequent to the site visit, Nelson/Tasman Weedbusters undertook a day of old man's beard control, removing all that was found in the closed forest community).

Chocolate vine is also entrenched in one discrete area, and ivy in a few places. A combination of cutting these vines down to ground level with follow-up grubbing and/or spraying would eliminate these without too much difficulty.

2 Fairly rapidly invading exotic trees are hawthorn and sycamore. They are able to do so as they are both very shade tolerant and can penetrate all but the darkest native forest. The larger fruiting/seeding specimens should be ring-barked or drilled/poisoned, to at least stop further spread. Follow-up on seedlings and saplings should then follow.

3 Other widespread problem weeds are selaginella and Jerusalem cherry. These are more difficult to control due to their abundance. Their eventual impacts at this site are likely to be moderate, not high. For the time being, control could be deferred. More of concern *at this time* is with the large suite of problem weeds (see species list) that have only really just arrived. It would make considerable sense to eliminate these whilst it is still easy to do so.

Fencing

4 Several very small sections of forest/treeland are still open to stock and could be fenced off. Such areas have no viable future in the longer term, with no regeneration possible and existing trees susceptible to root and bark damage. These areas still have a closed canopy that mitigates against easy weed invasion other than around the margins.

Grazing/Restoration Plantings

5 The south-east sector includes numerous grassy/weedy glades and rides within the forest that are lightly grazed from time to time for weed control. Such grazing could be phased out in tandem with weed control and dense restoration plantings. This is quite a programme to undertake, but if done would greatly increase the size and long-term viability of intact forest ie the south-eastern 1/3 of the site. With the surrounding forest shelter it is likely that planted trees would grow well, significantly slowing the re-establishment of blackberry and old man's beard, if not largely preventing it.

6 Further down the restoration track, it is worth considering fencing off areas of treeland that are currently parkland (parts of MO 28 and all of MO 27). It is acknowledged that such areas may be valued as they are, in which case replacement plantings of specimen native trees will be required to compensate for ongoing losses of older trees. Some trees (lowland totara and small-leaved lacebark) are being damaged by stock rubbing/chewing their bark and require protection if they are not to be fenced off.

Loss of Species

It is reported that there used to be much more cabbage tree, black beech, kowhai and kahikatea in the past, but that due to dieback and poor recruitment these are now becoming rarer. One rimu was also once known. Black beech is vanishing from many landscapes in the district due to premature dieback and lack of regeneration – for reasons that may be drought and pathogen related. The kahikatea losses here are more than likely attributable to water stress as a consequence of lowered water tables and forest fragmentation. This may also be pertinent to black beech with regard to recruitment failure. Cabbage trees have probably succumbed to sudden decline. It is unclear why there is a huge generation gap between mature kowhai and the not uncommon seedlings that are present. Further, only one lowland ribbonwood was noted. All of these species should be planted amongst any restoration plantings undertaken. Whether it is possible to successfully enrich the kahikatea numbers in this way now is debateable. Perhaps such plantings should be confined to lower lying areas such as former back waters and the old mill race if light permits.

It is noted here that seedlings of a range of species are being taken from the forest, grown on in planter bags and re-planted in areas where restoration is required. This is a welcome initiative.

Funding Sources

A number of funding sources exist that could help with site restoration. These are contestable funds, with successful application dependant on the provision of good information and planning. Assistance in Biodiversity Fund applications at least may be available from Philip Lissaman. Considering the huge significance of Baigents Bush, applications would have a very good chance of success. Covenanteeing the site (see below) would also make funders more likely to approve applications.

The main sources are:

Biodiversity Advice and Condition Funds (DoC administered)

<http://www.biodiversity.govt.nz/land/nzbs/pvtland/condition.html>

Lotteries Commission

http://www.dia.govt.nz/diawebsite.NSF/wpg_URL/Services-Lottery-Grants-Environment-and-Heritage?OpenDocument

World Wide Fund for Nature (WWF)

http://www.wwf.org.nz/what_we_do/land_and_forests/community_funding/habitat_protection_fund/

Plant Sources

For restoration plantings the relevant planting list for your area is available from the TDC website at:

<http://www.tasman.govt.nz/environment/land/biodiversity/restoration-planting-lists/tasman-bay-restoration-planting-lists/>

The list for your area is named 'Moutere Valleys - Inland'

The list is fully comprehensive.

A number of local nurseries (such as Titoki Nurseries in Brightwater) raise a diverse range of locally sourced plants for restoration plantings.

Local Contractors

There are a number of contractors operating in the district who work in native restoration and weed control. These include Enviroplus (Marcus Woodward) 03 541 8233, Te Ngahere (Brad Myer) 03 545 6091, and Nelmac (03 546 0910). Kevin Newman (03 544 5148) is a spray contractor with much experience in native areas. It is good to compare quotes/rates when engaging such practitioners.

Future Proofing

To help ensure the longer-term survival and protection of this site, it is suggested that the owners consider covenanting their forest area with QEII. This would ensure that no future owner could destroy the bush or run stock through it, thus undoing any restoration work that may have been done. Such a covenant can be tailored to the owners' requirements and there is no indication that there is any negative impact on land values with such a process. Covenanted sites are far more likely to receive funding assistance than those that are not. The local QEII representative can assist with/undertake funding applications on the landowners behalf for fencing, weed control and restoration plantings.

APPENDIX

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.

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.

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

Significance Evaluation MO 28 (Main forest/treeland area)		
	Score	Example/Explanation
Primary Criteria		
Representativeness		
The site includes primary vegetation that moderately resembles its original condition	MH	Vegetation characterised by original canopy species which has been only moderately impacted by herbivores or direct human intervention eg. forest with past low to moderate impact selective logging or with no more than moderate apparent herbivore impacts on current vegetation structure and diversity. <i>This pertains to parts of the site</i>
The site contains one of the best examples of the characteristic ecosystem types in the ecological district	H	
Rarity and Distinctiveness		
The site includes a primary community depleted to 5% or less of original pre-human cover in the Ecological District, unless in poor condition	H	Eg. Alluvial mixed podocarp forest in all Ecological Districts
Diversity and Pattern		
Indigenous plant communities species or habitats are present with typical diversity for such sites in the Ecological District	ML	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		

**Significance Evaluation
MO 28 (Main forest/treeland area)**

	Score	Example/Explanation
Within the Ecological District context the site forms an important 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	
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.	H	Unusually important stands of podocarp, tawa or kowhai trees that provide seasonally important benefits for forest birds.
Hydrological services to the catchment		
The site provides hydrological services to the catchment.	L	
Size and Shape		
The site is large for its vegetation community and Ecological District	H	
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 ML Shape M Buffering L 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 M Surroundings H Weeds MH Pests H

* observed pest impacts only

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

Summary of Scores	Criterion	Ecological District Ranking
Primary Criteria	Representativeness	H
	Rarity	H
	Diversity and Pattern	ML
Secondary Criteria	Ecological Context	H
	Size/Shape	H
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**

Significance Evaluation MO 27 (treeland)		
	Score	Example/Explanation
Primary Criteria		
Representativeness		
The site consists of mature primary forest canopy species over pasture	M	Eg. Mature alluvial treelands of podocarp or beech species, pukatea, titoki
Rarity and Distinctiveness		
The site includes a community depleted 5% or less of original pre-human cover in the Ecological District but in poor condition that may be of either primary or mature secondary climax canopy species	MH	Eg. A stand of alluvial podocarp or pukatea trees over pasture. This definition includes secondary forest/treeland where canopy species are those of the original/primary canopy
Diversity and Pattern		
Indigenous plant communities species or habitats are present with less diversity than is typical for such sites in the Ecological District	L	
Secondary Criteria		
Ecological Context (highest score)		
Connectivity		
The site is separated from other areas of indigenous vegetation but provides an important part of a network of closely lying sites	M	
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	Unusually important stands of podocarp, tawa or kowhai trees that provide seasonally important benefits for forest birds.
Hydrological services to the catchment		
The site provides hydrological services to the catchment.	L	
Size and Shape		
The site is of small size for its vegetation community and Ecological District	L	
Other Criterion		
Sustainability (average score)		
Physical and proximal characteristics		
Size, shape, buffering and connectivity provide for a moderately low overall degree of ecological resilience.	ML	Size L Shape M Buffering L Connectivity M
Inherent fragility/robustness		
Indigenous communities are inherently resilient.	H	.
Threats (low score = high threat; lowest score taken)		

Significance Evaluation MO 27 (treeland)		
	Score	Example/Explanation
Ecological impacts of grazing, surrounding land management, weeds and pests*	L	Grazing L Surroundings H Weeds H 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	M
	Rarity	MH
	Diversity and Pattern	L
Secondary Criteria	Ecological Context	M
	Size/Shape	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? YES
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Species List - MO 28

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

Species Name	Common Name	Status
Trees Shrubs		x
<i>Alectryon excelsus</i>	titoki	o
<i>Aristotelia serrata</i>	makomako; wineberry	r
<i>Coprosma areolata</i>	thin leaved coprosma	r
<i>Coprosma rigida</i>		?r
<i>Coprosma rotundifolia</i>	round-leaved coprosma	ml
<i>Cordyline australis</i>	ti kouka; cabbage tree	r
<i>Dacrycarpus dacrydioides</i>	kahikatea	r
<i>Hoheria angustifolia</i>	small-leaved lacebark	o
<i>Ileostylus micranthus</i>	green mistletoe; piritia	ml
<i>Kunzea ericoides</i>	kanuka	m
<i>Lophomyrtus obcordata</i>	rohutu; NZ myrtle	m
<i>Macropiper excelsum</i>	kawakawa	r
<i>Melicope simplex</i>	poataniwha	r
<i>Melicytus micranthus</i>	swamp mahoe	f
<i>Melicytus ramiflorus</i>	mahoe, whiteywood	f
<i>Myrsine australis</i>	mapou, red matipo	o
<i>Myrsine divaricata</i>	weeping matipo	r
<i>Nothofagus solandri</i>	tawhairauriki; black beech	r
<i>Pennantia corymbosa</i>	kaikomako	o
<i>Pittosporum eugenioides</i>	tarata; lemonwood	r
<i>Pittosporum tenuifolium</i>	kohuhu	r
<i>Plagianthus regius</i>	manatu; lowland ribbonwood	r
<i>Podocarpus totara</i>	lowland totara	f
<i>Prumnopitys taxifolia</i>	matai	m
<i>Pseudopanax crassifolius</i>	horoeka; lancewood	r
<i>Sophora microphylla</i>	kowhai	m
<i>Streblus heterophyllus</i>	turepo; small leaved milkwood	o
Lianes		x
<i>Muehlenbeckia australis</i>	blackvine	ml
<i>Parsonsia heterophylla</i>	native jasmine	m
<i>Rubus schmedelioides</i>	bush lawyer	r
<i>Rubus cissoides</i>	bush lawyer	r
Dicot Herbs		x
<i>Hydrocotyle heteromeria</i>	a pennywort	ml
<i>Parietaria debilis</i>		ml
Monocot Herbs		x
<i>Earina mucronata</i>	a perching orchid	r
Grasses Sedges Rushes		x
<i>Carex lambertiana</i>		o

<i>Carex solandri</i>		r
<i>Microlaena polynoda</i>	bamboo rice grass	r
<i>Microlaena stipoides</i>		ml
<i>Uncinia leptostachya</i>		ml
Ferns		x
<i>Asplenium bulbiferum</i>	hen & chickens fern	ml
<i>Asplenium flabellifolium</i>	necklace fern	lc
<i>Asplenium flaccidum</i>	hanging spleenwort	r
<i>Deparia petersonii</i>		?r
<i>Diplazium australe</i> (*)		?r
<i>Hypolepis ambigua</i>	common hypolepis	lc
<i>Lastreopsis glabella</i>		m
<i>Pellaea rotundifolia</i>		m
<i>Polystichum neozelandicum</i>	lowland shield fern	m
<i>Pteris tremula</i>		r
<i>Pyrrosia eleagnifolia</i>	leather leaf fern	c
Weeds		x
<i>Acer pseudoplatanus</i>	sycamore	r
<i>Agrostis stolonifera</i>	creeping bent	o
<i>Akebia quinata</i>	chocolate vine	r
<i>Allium triquetrum</i>	onion weed	r
<i>Berberis vulgaris</i>	barberry	o
<i>Carex divulsa</i>	grey sedge	r
<i>Castanea sativa</i>	chestnut	P
<i>Clematis vitalba</i>	old man's beard	ml
<i>Crataegus monogyna</i>	hawthorn	m
<i>Dactylis glomerata</i>	cocksfoot grass	o
<i>Digitalis purpurea</i>	foxglove	o
<i>Fragaria vesca</i>	wild strawberry	lc
<i>Hedera helix</i>	ivy	r
<i>Hoheria populnea</i>	common lacebark	r
<i>Ilex aquifolium</i>	holly	r
<i>Juglans regia</i>	walnut	P
<i>Laurus nobilis</i>	bay	r
<i>Ligustrum lucidum</i>	tree privet	r
<i>Mycelis muralis</i>	wall lettuce	m
<i>Prunella vulgaris</i>	self heal	o
<i>Ranunculus repens</i>	creeping buttercup	o
<i>Rubus fruticosus agg</i>	blackberry	o
<i>Sellaginella kraussiana</i>	sellaginella	lc
<i>Solanum pseudocapsicum</i>	Jerusalem cherry	c
<i>Solanum nigrum</i>	black nightshade	o
<i>Solanum chenopodioides</i>	velvety nightshade	m
<i>Taxus buccata</i>	yew	r
<i>Trachycarpus fortunei</i>	fan palm	r
<i>Ulmus glabra</i>	wych elm	r

<i>Zantedeschia aethiopica</i>	white arum lily	r
Birds		x
	tui	x
	bellbird/korimako	x
	fantail/piwakawaka	x
	waxeye	x
	pigeon/kereru	x

Species List - MO 27

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 P = Planted R = Reported

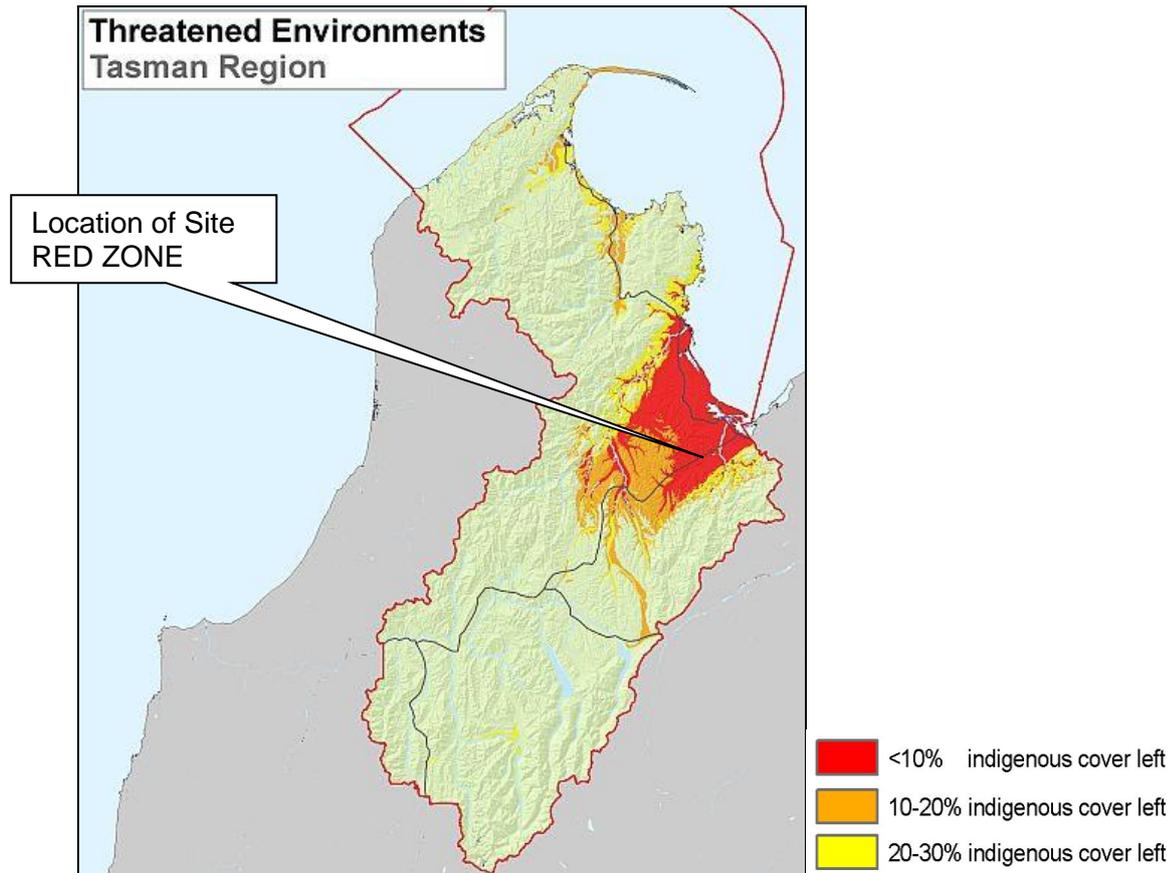
Species Name	Common Name	Status
Trees Shrubs		x
<i>Alectryon excelsus</i>	titoki	m
<i>Ileostylus micranthus</i>	green mistletoe; piritia	ml
<i>Peraxilla colensoi</i>	scarlet mistletoe	R
<i>Podocarpus totara</i>	lowland totara	m
<i>Prumnopitys taxifolia</i>	matai	m
Lianes		x
Dicot Herbs		x
Monocot Herbs		x
Grasses Sedges Rushes		x
Ferns		x
<i>Pyrrosia eleagnifolia</i>	leather leaf fern	lc
Weeds		x
Birds		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 threatened 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

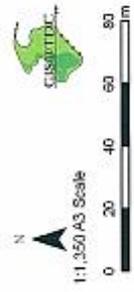
What does it mean if your site falls within the highly depleted LENZ environments, or falls within one or more of the four National Priorities?

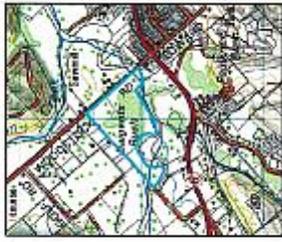
These frameworks have been included in this report to put deeper ecological context to the site. They are simply another means of gauging ecological value. This information is useful in assessing the relative value of sites within Tasman District when prioritising funding assistance. They otherwise have 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.



Baigent
MO 27

! Lowland totara -
matai - titoki
treeband on
alluvium





Baigent
MO 28



- 1 Lowland totara -
(matai) forest on
alluvium
- 2 Dense lowland totara
(matai) freeland on
alluvium
- 3 Open lowland totara
freeland/pasture
on alluvium



