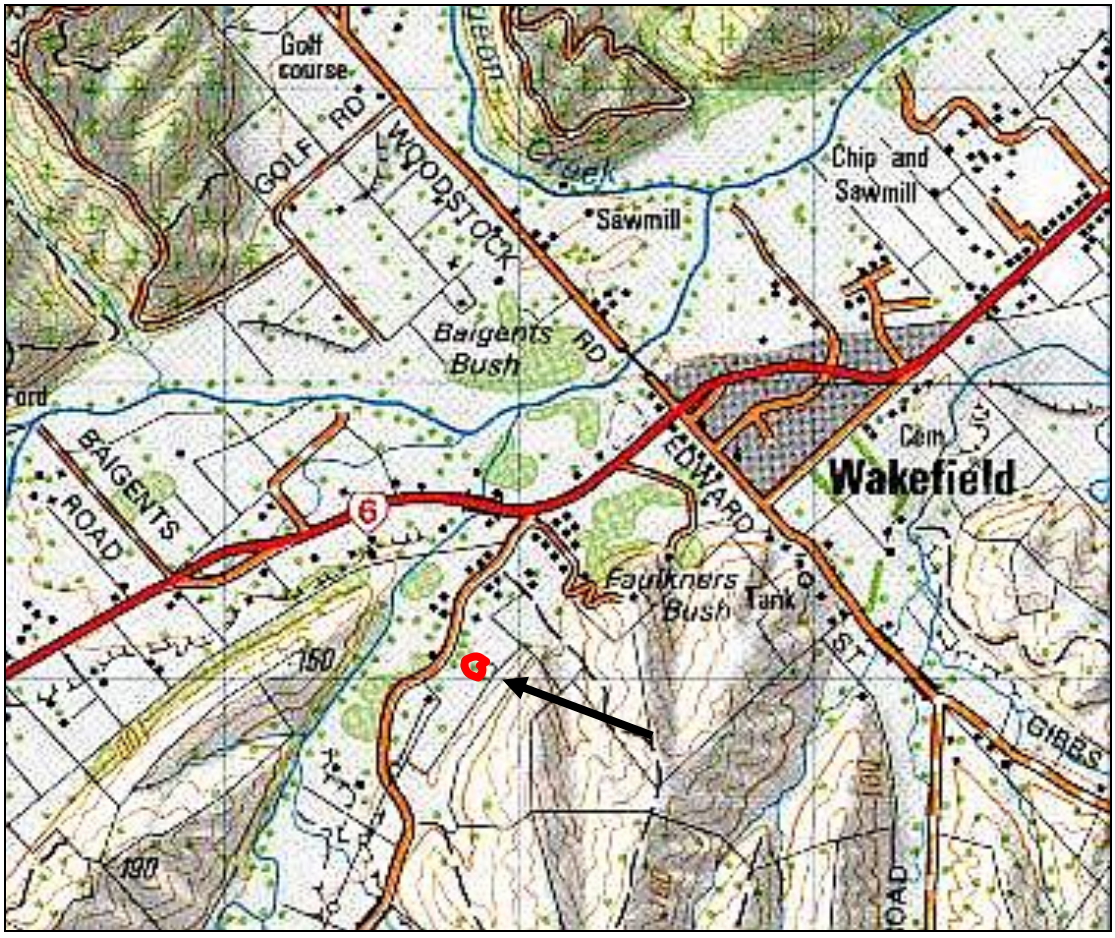
Tasman District Council
Significant Natural Area (SNA) Survey Programme
Site Assessment Report

Site No MO 34
Property Name Genia Road Reserve
Landowners/Occupiers Tasman District Council
Ecological District Motueka
Surveyed By Michael North
Date 8 October 2008



The Setting - Motueka Ecological District
(Information copied from the TDC report 'Tasman District Biodiversity Overview' 2004)

Location and physical description
This small ecological district is 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 and residential and commercial settlement. Tasman District Council has considerable land holdings 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 tabulation 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 tabulation 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 tabulation 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	Remain
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
The c0.4ha site lies on a low aggradation terrace (Q2a) of clay-bound gravels formed from alluvial deposits of the Eighty Eight Valley Stream. It lies at 80m asl.

Vegetation
The entire site comprises a tiny remnant of lowland totara-matai forest that may be secondary forest as none of the trees are of great stature. The largest dbh of lowland totara is c70cm, and matai c45cm. Indigenous vegetation is confined to the canopy podocarps which stand densely packed over an exotic sward of herbs and grasses which were not identified in detail. The site has had a long history of grazing until recently when it became a council reserve as part of a subdivision consent.

Botanical Values
Communities
Alluvial podocarp forest, whatever its condition is extremely rare in Motueka ED, with well less than 1% of its original cover remaining. It once covered around half of the ED (over 12000ha), whereas today there would be <50ha remaining. These figures highlight the extreme significance of such communities.

Species
No indigenous plant species of note were recorded.

Fauna
No indigenous fauna were recorded. Seasonally however, the site provides an important source of fruit for forest birds in the locality.

Weed and animal pests
One patch of white deadnettle is established under the canopy, that will continue to spread into a dense sward and possibly preclude/inhibit natural regeneratation of the forest. Young/seedling old man's beard, stinking iris, blackberry and barberry were also noted, and one hawthorn bush occurs.

Other threats
Canopy dieback is common, particularly with lowland totara, and may relate to the 2000/01 drought, although there may be other contributory effects. Podocarps are known to compete poorly with exotic grass cover even when mature.
The site is very small and open with little or no buffering capacity on external effects such as drying air caused by surrounding open ground.
Potentially threatening weeds may invade by virtue of the site being located so close to residential gardens.

General condition
As a forest remnant the site is in very poor condition due to a long history of grazing and regeneration failure.

Landscape/Historic values
The small site offers an attractive view of native forest for the Genia Drive residents at this end of the road.

Assessment of ecological value
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?*

These are tabulated below.

SITE EVALUATION UNDER THE SIGNIFICANCE CRITERIA		
	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		
The site includes a community depleted 5% or less of original pre-human cover in the Ecological District but in poor condition whose canopy species may be either primary or secondary	MH	Eg. A stand of alluvial podocarp or pukatea trees over grazed 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	Diversity at this site is very low
SECONDARY CRITERIA		
Size		
The site is of moderately small size for its vegetation community and Ecological District	ML	
Ecological Context	**M**	
Connectivity/Buffered by		
The site is separated from other areas of indigenous vegetation but provides an important part of a network of closely lying sites	M	The site lies within several hundred metres of two other podocarp forest/treeland sites, and 500-700m from two of a number of intact podocarp remnants closer to Wakefield
Buffering		
The site is poorly buffered	L	Farmland, mown grass and a residential garden surround 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	M	This is a moderately important source of seasonal fruit for forest birds in the context of the locality
Hydrological services to the catchment		
The site provides hydrological services to the catchment	L	The site is very small
OTHER CRITERION		
Sustainability	**M**	
Physical and proximal characteristics		
Size shape buffering and connectivity provide for a moderately low overall degree of ecological resilience	ML	Size L Shape H Buffering L Connectivity M
Inherent fragility/robustness		
Indigenous communities are inherently resilient	H	Podocarp forest is inherently resilient in this inland part of Motueka ED
Threats *(lowest score taken; low score*		

= high threat)		
Ecological impacts of grazing, surrounding land management, weeds or pests*	MH	Grazing H Surroundings H Weeds MH Pests H

*observed pest impacts only

SUMMARY OF SCORES	Criterion	Ecological District Ranking
Primary Criteria	Representativeness Rarity Diversity and pattern	M MH L
Secondary Criteria	Size/shape Ecological context	ML M
Additional Criterion	Sustainability	MH

H=high MH=medium-high M=medium ML=medium-low L=low

If a site scores 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 Any of the 3 primary criteria with a score at least as high as listed		**Secondary Criteria** Any of the 2 secondary criteria with a score at least as high as listed
1	H		-
2	2x MH		-
3	MH + M		-
4	MH	&	MH
5	2x M	&	H
6	2x M	&	2x MH
7	M	&	H + MH

Is the site 'significant' under the TDC SNA criteria? YES

Management issues and suggestions

Without intervention the forest will gradually disintegrate into treeland through recruitment failure, and eventually be lost, although this may take many decades. Many of the trees are not in good health, a probable consequence of drought-induced dieback and the effects of a well drained site combined with edge effects that come with forest fragmentation. From a purely ecological standpoint it would be recommended that the forest be fenced off from open access, and restored through natural regeneration and revegetation. However it is acknowledged that such a small site at the road end of a small and very new subdivision will have high recreational usage due to its location. This may make restoration problematic if not impossible, and from a recreational point of view, undesirable.

If restoration is pursued, even in a part of the site, then the following comments are relevant. The well-drained nature of much of the site will mean that regeneration is likely to be very slow without restoration planting. Such planting should be targetted to seal the edges of the forest with a buffering margin, to lower light levels within the forest that favours native regeneration over dense exotic ground cover, and to mitigate against edge effects, particularly drying air movement that has been heated by surrounding open conditions. Weeds such as blackberry, old man's beard and barberry are tending to establish without grazing and so a weed maintenance programme needs to be established to target ecologically important weeds.

Much of the site is visible in this image comprising of about 80-90 lowland totara and matai trees; the grass in the foreground is also reserve land

Matai are co-dominant with lowland totara although they are not necessarily evenly distributed through the site

In other areas lowland totara are more dominant

Canopy dieback is evident in both lowland totara and matai but particularly the former where is is quite pronounced, for reasons which are not clear, but which may relate to the recent 2000/01 drought

White deadnettle is a little known weed in Tasman District and this is the first time the author has noted it; it favours greater light levels than the shade tolerant and closely related aluminium plant, but may still pose a threat to the easy establishment of native plants due to its dense cover

APPENDIX

1 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

Species Name	Common Name	Status
Trees Shrubs		
Podocarpus totara	lowland totara	f
Prumnopitys taxifolia	matai	c
Lianes		
Dicot Herbs		
Monocot Herbs		
Grasses Sedges Rushes		
Ferns		
Weeds		
Berberis vulgaris	barberry	o
Lamium album	white deadnettle	lc
Rubus fruticosus agg	blackberry	r
Birds		