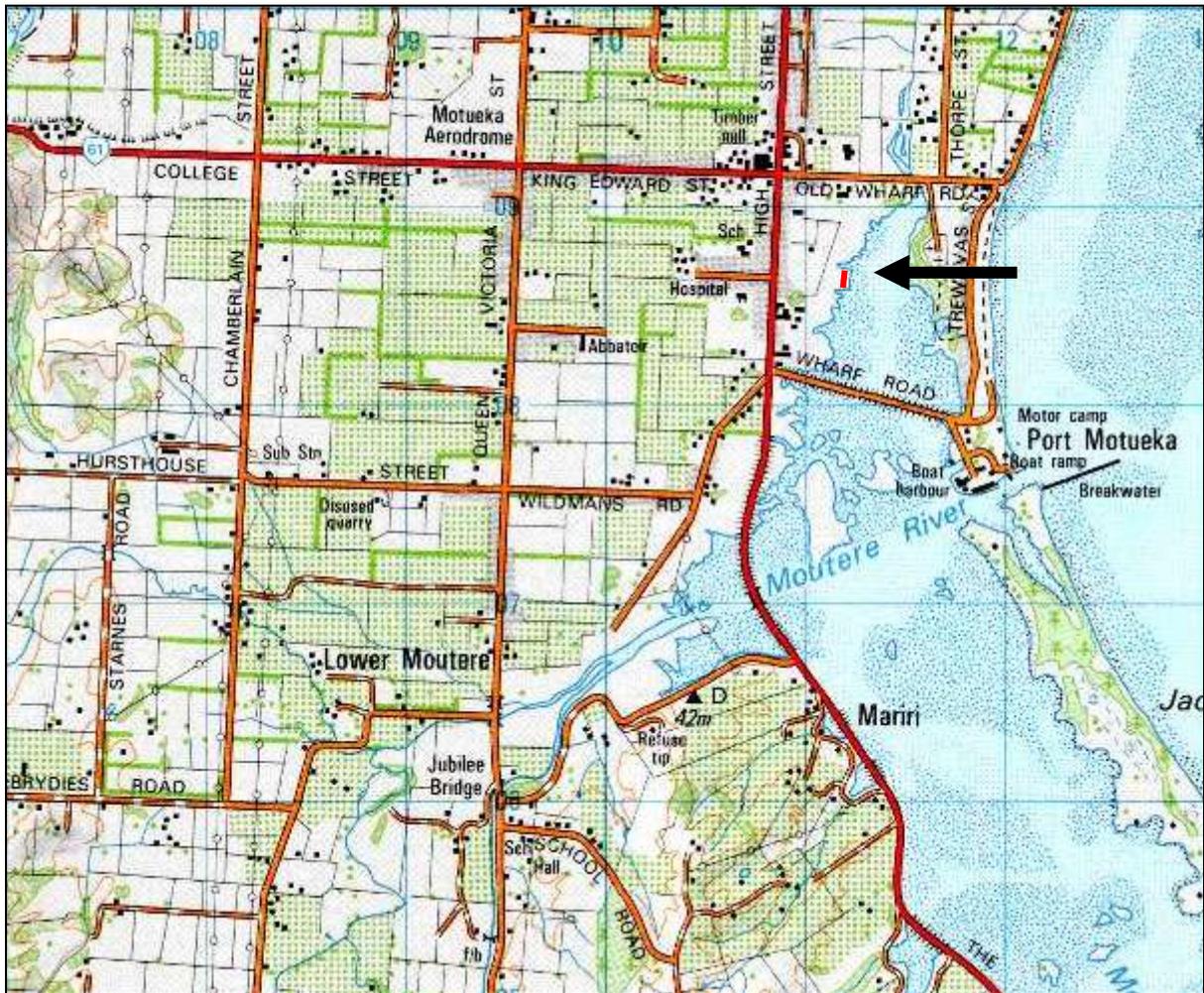


# Native Habitats Tasman Ecological Assessment Report

<b>Site:</b>	MO 81 Barkdump saltmarsh
<b>Landowners/Occupiers:</b>	TDC

<b>Ecological District:</b>	Motueka
<b>Grid Ref:</b>	E2511305 N6008812
<b>Surveyed By:</b>	Michael North
<b>Date:</b>	13 April 2011
<b>Survey Time:</b>	1 ½ hrs





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.

<b>Indigenous Ecosystems – Motueka Ecological District</b>				
<b>Ecosystem type</b>	<b>Original extent (% of ED)</b>	<b>Proportion of original extent remaining (%)</b>	<b>Proportion of original extent / remaining area protected (%)</b>	
			<b>Original</b>	<b>Remaining</b>
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

## Location, Geology, Hydrology

This 0.4ha site lies at and around MHW at the northern end of the Moutere Inlet, on the margins of Motueka. It comprises a tidal saltmarsh and groundwater seeping landward margins of a former bark dump.

## Vegetation

### COMMUNITIES

#### 1 Sea rush rushland associations

Sea rush occurs largely as pure stands, with some areas associated with glasswort, and occasionally with sea primrose. One area of the site supports tall fescue with sea rush.

#### 2 Oioi sedgeland

Small pockets of oioi occur very locally, generally forming pure stands, or merging with sea rush.

#### 3 Raupo reedland

Raupo lines much of the landward side of the saltmarsh, rising from its margins up the gently-contoured slope of the sawdust dump. Raupo merges with sea rush in places, or fairly abruptly adjoins the saltmarsh, with minor beds of oioi locally. Associates include marsh arrowgrass, *Atriplex*, and *Juncus pallidus*, and more locally, glasswort, sea primrose and slender clubrush. Tall fescue becomes more common in places away from saline influence. Gorse and blackberry are increasingly common moving away from the shoreline, but have been sprayed in places. Upper margins of raupo are either very weedy, or occur openly on deep sawdust lacking much other vegetation.

## Botanical Values

### COMMUNITIES

It is estimated (see table above) that less than 30% of estuarine wetland remains of its former extent in the Motueka Ecological District (ED). Freshwater to brackish wetland sequences as occur here are vanishingly rare by area in the Motueka ED due to land drainage and infilling of estuarine margins. Although the brackish/freshwater margin here may be largely induced by the presence of the bark/sawdust dump, it is nevertheless a close surrogate of naturally-occurring wetland/saltmarsh margins and is considered important in the context of the Motueka ED.

### SPECIES

Ten native plant species were noted. Marsh arrowgrass and slender clubrush are rare in the Motueka ED.

## Fauna

No native bird species were noted and none are likely to be specifically associated with the site as mapped.

## Weed and Animal Pests

Blackberry is well established in raupo areas, particularly the more landward margins. Gorse and tall fescue are also moderately common locally.

## Other Threats

Sea level rise is likely to extinguish the site, with no scope for retreat inland.

Bark dumps typically leach toxins into groundwater, as well as having acidifying and de-oxygenating effects. This pollution is likely to be entering the saltmarsh – but to what effect is unknown.

## General Condition & Other Comments

The site is a tiny relic of the once continuous saltmarsh that extended around much of the margins of the Moutere Inlet. It is enclosed by a stop-bank that attenuates natural tidal flows – but which also favours the establishment of raupo by reducing saline water impacts on the more landward margins of the saltmarsh. A large former bark/sawdust dump lines its landward margins. The lack of good tidal flow does also have a negative effect in that the estuarine substrate is highly anoxic due to sawdust leachate (Trevor James pers.comm.) Better tidal circulation would probably reduce this problem.

## Landscape/Historic Values

The site is much valued as part of the natural character of this part of the Moutere Inlet that lies so close to Motueka – heavily modified though it may be.

## 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:

Significance of the site hinges on the assessment of the value of the raupo beds. They appear to be induced by the presence of the bark/sawdust dump and the resultant ground seepage from rainwater that is occurring along its margins, ie the freshwater wetland is probably not naturally occurring. Anoxic conditions are also reported in the adjoining estuarine substrate due to sawdust leachate that is likely to strongly impact on native substrate-inhabiting invertebrates. However there are a range of plant associates that make for a mixed brackish wetland plant community here. On balance, a high rarity score for the freshwater/brackish margins of the site is given (due to the extreme rarity of freshwater and brackish water wetlands in the ED), sufficient for the site to qualify for significance in the context of the ED.

The Moutere Inlet as a whole is the proper ecological context within which to assess significance. As such the Inlet readily qualifies for significance within the Moutere and Motueka EDs – indeed it is of huge ecological significance in this regard. This survey however has assessed individual saltmarshes in isolation, which is an artefact of the survey approach as they are strictly part of this much larger system. This approach is justified in a limited sense however, in assisting the targetting of saltmarsh restoration priorities, and is felt to be a valuable exercise.

It is worth noting here that the total area of intertidal estuary around New Zealand is c100 000 ha (CLMcLay 1976) – a sufficiently low hectarage, if it had been included, to qualify as a nationally ‘originally rare ecosystem’ (a designation confined to fully terrestrial ecosystems). For this element of the rarity criterion alone, all estuaries or estuarine sites would then have been considered significant under the TDC significance framework.

## **Management Issues and Suggestions**

This site forms a part of a TDC reserve that is managed by the Keep Motueka Beautiful group. They have undertaken a vast amount of work here in reclaiming the area from weeds and planting thousands of trees. This has been done as much for beautification as restoration of natural vegetation patterns, which is unfortunate as the site offers a rare opportunity in the Motueka ED, on public land to restore coastal scrub/forest sequences down to the shoreline.

Some of the poor management practices have recently been addressed, including stopping the infilling of a corner of the saltmarsh, and the use of exotic plants in the plantings. It remains to be seen which direction further work will take, but it is strongly recommended here that at least in a part of the site, a full native restoration is undertaken to recreate original vegetation sequences at the rear of the raupo beds – where such planting is yet to be undertaken. Additionally, it is suggested that within such an area, any walkway is kept well away from the raupo margins so that this sequence is not interrupted at the wetland/scrub interface.



*A narrow band of raupo lines much of the landward margin of the saltmarsh – most of which is growing on a former bark/sawdust dump and its margins*



*The saltmarsh itself is very small and is enclosed by a stop-bank (from which this image was taken)*



*Considerable weed control has been undertaken with recent mowing of blackberry and spraying of gorse obvious here*



*Large areas of the landward margins have been planted up with native and to a lesser extent exotic plants and walkways laid out – by Keep Motueka Beautiful – but more as amenity plantings than an attempt to establish native vegetation sequences up into coastal scrub/forest*



*It is unfortunate that part of the rear of the raupo beds about a new track, rather than continuing the native vegetation sequences uninterrupted into coastal forest through restoration plantings – as the site offers a very rare opportunity for such restoration (notwithstanding the substrate is sawdust rather than the original ground material)*



*A corner of the saltmarsh is being used as a dumping ground by the project, with a deliberate attempt to infill it; it is understood that since this site visit, this and other issues have been addressed*

# 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.

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.

NB Saltmarsh sites have been assessed for representativeness by the degree of alteration to their immediate margins by infilling, change in natural tidal movements, weed impacts and any earthmoving that may have taken place within the saltmarsh eg channel straightening or causeways. Degree of vegetation resemblance to the original condition has not been used as a determinant, as is usual, because the saline conditions mean that every saltmarsh would score H due to the presence of unmodified sea rush beds.

The second element for representativeness – as to whether the site is one of the best or better examples, has been retained.

Significance Evaluation		
	Score	Example/Explanation
<b>Primary Criteria</b>		
<b>Representativeness</b>		
The site is a poor example of its kind	L	
The site as a whole poorly resembles its original condition	L	Sawdust/bark dump, stop-banked
<b>Rarity and Distinctiveness</b>		
The site supports a species rare in the Ecological District (ED)	M	Marsh arrowgrass
The site includes an ecosystem that is originally rare nationally as listed under DoC/MfE National Priority 3, and retains functional indigenous components	H	Estuaries are listed as an originally rare ecosystem
The site includes a community that is nationally threatened under DoC/MfE National Priority 2 (dunes and wetlands) and retains functional indigenous components	H	Raupo reedland
<b>Diversity and Pattern</b>		

<b>Significance Evaluation</b>		
	<b>Score</b>	<b>Example/Explanation</b>
Indigenous plant communities species or habitats are present with less diversity than is typical for such sites in the Ecological District	L	
<b>Secondary Criteria</b>		
<b>Ecological Context (highest score)</b>		
<b>Connectivity</b>		
The site lies very close to a second area of indigenous vegetation	M	<200m separate the sites
<b>Buffering to</b>		
The site is poorly buffered	L	
<b>Provision of critical resources to mobile fauna</b>		
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.	L	Eg Unusually important stands of podocarp, tawa or kowhai trees that provide seasonally important benefits for forest birds. Eg Inanga spawning site
<b>Size and Shape</b>		
The site is of small size for its vegetation community and Ecological District	L	
<b>Other Criterion</b>		
<b>Sustainability (average score)</b>		
<b>Physical and proximal characteristics</b>		
Size, shape, buffering and connectivity provide for a low overall degree of ecological resilience.	L	Size L Shape L Buffering L Connectivity M
<b>Inherent fragility/robustness</b>		
Indigenous communities are inherently fragile.	L	
<b>Threats (low score = high threat; lowest score taken)</b>		
Ecological impacts of grazing, surrounding land management, weeds and pests*	M	Grazing H Surroundings M? (sawdust leachate?) 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

<b>Summary of Scores</b>	<b>Criterion</b>	<b>Ecological District Ranking</b>
<b>Primary Criteria</b>	Representativeness	L
	Rarity	H
	Diversity and Pattern	L
<b>Secondary Criteria</b>	Ecological Context	M
	Size/Shape	L
<b>Additional Criteria</b>	Sustainability	L

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	
		<b>Plus</b>	
	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? <b>YES</b>
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## 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'

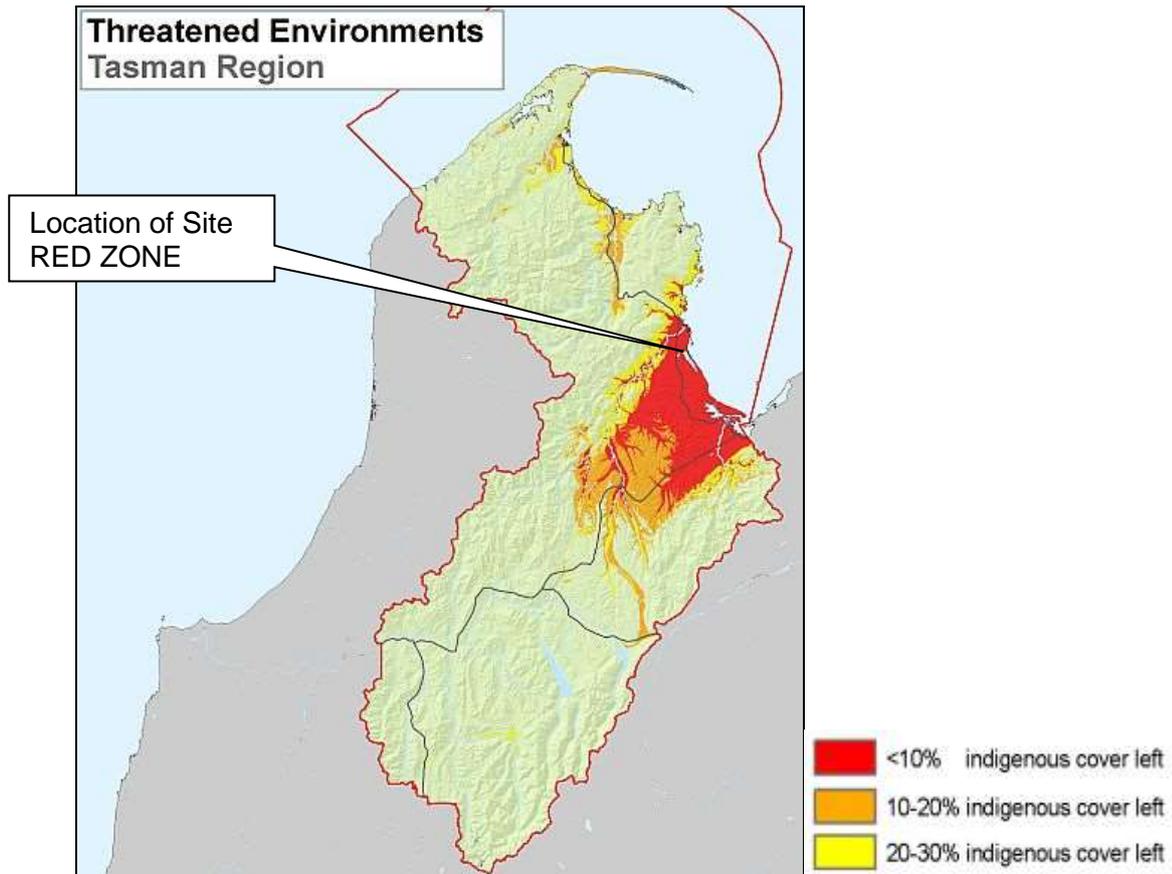
<b>Species Name</b>	<b>Common Name</b>	<b>Status</b>
<b>Trees Shrubs</b>		<b>x</b>
<i>Plagianthus divaricatus</i>	saltmarsh ribbonwood	r
<b>Lianes</b>		<b>x</b>
<b>Dicot Herbs</b>		<b>x</b>
<i>Cotula coronopifolia</i>	batchelor's buttons	r
<i>Samolus repens</i>	sea primrose	ml
<i>Sarcocornia quinquefolia</i>	glasswort	lf
<i>Triglochin striata</i>	marsh arrowgrass	mv
<b>Monocot Herbs</b>		<b>x</b>
<i>Typha australis</i>	raupo	lc
<b>Grasses Sedges Rushes</b>		<b>x</b>
<i>Apodasmia similis</i>	oioi	lc
<i>Ficinia nodosa</i>	knobby clubrush, wiwi	mv
<i>Isolepis cernua</i>	slender clubrush	
<i>Juncus kraussii</i>	sea rush	f
<i>Juncus pallidus</i>		ml
<b>Ferns</b>		<b>x</b>
<b>Weeds</b>		<b>x</b>
<i>Rubus fruticosus agg</i>	blackberry	o
<i>Schedonorus phoenix</i>	tall fescue	ml
<i>Ulex europaeus</i>	gorse	ml
<b>Birds</b>		<b>x</b>

## 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](http://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.

<b>National Priorities</b>	<b>Does this Site Qualify?</b>
<b>1</b> 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
<b>2</b> Indigenous vegetation associated with sand dunes and wetlands; ecosystem types that have become uncommon due to human activity	Yes
<b>3</b> Indigenous vegetation associated with 'naturally rare' terrestrial ecosystem types not already covered by priorities 1 and 2 (eg limestone scree, coastal rock stacks)	No
<b>4</b> 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](http://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.



- Mo 81
- J Sea rush
  - A Oioi
  - T Ranpo
  - S Glasswort
  - Sc Tall fescue



