### TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

### PROPERTY REPORT

### **PROPERTY DETAILS:**

Owner: .....JLD & EW Wallace Valuation Reference: .....24660/187.00

Address: ......Sundrum, Rae Road, Woodbury, RD 21, Geraldine

Location: ......Between Rae Road and Poole Road, on the south side of the Wajhi

River, northwest of Woodbury

Ecological District: ......Geraldine Ecological District

TDC Land Type:.....Plains

Land Environment: .......N2 (well drained plains)

### **ECOLOGICAL CONTEXT:**

The property lies at the northwest edge of the Geraldine Ecological District. Landforms on the property are river terraces and small terrace scarps. The original vegetation of this area would have been predominantly podocarp-hardwood forest, dominated by totara. Other important canopy species at free-draining (drought-prone) sites were probably matai, narrow-leaved lacebark, lemonwood and fivefinger. Damper sites would have supported kahikatea and lowland ribbonwood. Tall kanuka-kowhai forest would probably have been present on disturbed surfaces, such as recent river flats and terrace scarps. Minor areas of matagouri-Coprosma-Olearia shrubland, small wetlands and associated areas of short tussockland may have been present on recent river flats. The indigenous fauna would have been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than are presently found in the area.

Indigenous vegetation on the property is predominantly strongly regenerating podocarp forest dominated by totara, most of which has probably grown since the original forests were logged in the 1850s. However, a number of larger indigenous trees appear to pre-date logging and are therefore representative of the original vegetation. Forest on the property is part of a more extensive area of scattered to dense totara-dominated forest which stretches from the foothills at Waihi Gorge to Waihi Bush near Woodbury. This forest is the most extensive area of totara forest remaining on the Canterbury Plains. Two notable trees are present on the property: weeping totara (*Podocarpus totara* "pendula") and southern rata (*Metrosideros umbellata*). Two locally-rare plant species are present: *Coprosma rubra* and *Melicytus* aff. alpinus. Two threatened bird species were observed on the property: kereru (gradual decline) and rifleman (gradual decline). The property lies within the existing range of the South Canterbury population of long-tailed bat (nationally-endangered).

### SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during June 2006. All parts of the property were visited and the indigenous forest assessed as one Area. This area of forest (comprising approximately 10 hectares) is regarded as significant when assessed against the District Plan criteria.

The indigenous forest on the property that is identified as a Significant Natural Area (SNA) is illustrated on the attached aerial photograph and described in greater detail on the Area Inspection Form in this report. This area meets the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19) and is considered to be sustainable in the long term (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed under Final Considerations (pages B19-B20).

The implication of an area being listed as a SNA is that consent is required from Council for clearance by any means (including burning and spraying with herbicides) or over-planting. This does not normally prevent clearance to prevent shading of buildings or the maintenance of tracks and fences. To assist with the protection and management of any SNA, landowners can apply to Council for financial assistance. Any questions regarding the protection, management and use of SNAs should be directed to the District Planner.

## SIGNIFICANT TREES ON THE PROPERTY:

Two significant trees are present on the property.

# Weeping totara (Podocarpus totara "pendula"):

This attractive 13 m tall tree (trunk diameter 120 cm) is located just south of the old barn, at map reference 2364407E-5686780N. It is a hybrid between *Podocarpus acutifolius* (which grows in Westland, Nelson and Marlborough) and snow totara (*P. nivalis*), which has in turn crossed with lowland totara (*P. totara*) (Dr Brian Molloy, *email message*, July 2006). It is unique (there are no other known specimens) and infertile, although specimens propagated from this tree are growing in the Christchurch Botanical Gardens and at Landcare Research, Lincoln.

### Southern rata (Metrosideros umbellata):

This small (7 m tall) multi-trunked tree is present with a single kaikomako tree in pasture near the Waihi River in the northern part of the property, at map reference 2364594E-5687069N. It is growing out of a very old tree stump (probably totara) on recent alluvium on a river terrace. It appears to be the only known naturally-occurring southern rata tree in the Geraldine Ecological District. Although it is located near the boundary of the Orari Ecological District (where southern rata is present), it is growing on an atypical substrate (alluvial gravels). Southern rata occurs elsewhere in the Timaru District at Peel Forest Scenic Reserve and in an upper tributary of the Waihi River, though at these sites it grows on rock bluffs or dry spurs. It is likely to be present at other locations in the Timaru District, though less likely to be present elsewhere in the Geraldine Ecological District.

# Mike Harding

## **ENVIRONMENTAL CONSULTANT**

Totara Road Woodbury R.D. 21 **GERALDINE 7991** 

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19 July 2006

James and Eve Wallace Sundrum Rae Road Woodbury **RD 21** Geraldine

Dear James and Eve.

Thank you for your comments on the draft report of significant indigenous vegetation and habitat on your property. Enclosed is an edited copy of the report.

Since preparing the draft report, I have learnt more about the weeping totara and the species of Melicytus. The weeping totara is a hybrid between Podocarpus acutifolius (a species confined to Westland, Nelson and Marlborough) and P. nivalis (a low-growing high altitude species) which has then crossed with lowland totara (P. totara). It is unique. Attached is a copy of the email message received from Dr Brian Molloy which describes the tree in more detail.

As for the Melicytus, it appears unlikely to be the threatened Melicytus flexuosus. Brian Molloy explains in his email message (attached) that it is probably an un-named species in the Melicytus alpinus complex. It occurs in lowland forests, such as the totara-matai forest in the Woodbury area and, although it does not appear threatened, is almost certainly a species worth noting as locally uncommon.

Most other changes from the draft report are minor. I have included photographs of the two significant trees, though unfortunately the quality of the photographs is not good. The map in the report is drawn on the Council's GIS. Note that, due to the difficulty of delineating the scattered parts of forest, the boundaries are not precise.

Thank you for your assistance and hospitality during the survey. Please do not hesitate to contact me or Andrew Hammond (District Planner) if you have any questions or concerns regarding this report. Please contact me if you would like me to show you some of the interesting plants that I found on the survey. I am continuing to discuss weed control options with other landowners in the area, and may contact you sometime to discuss this further.

Yours sincerely,

Mike Harding

cc: Andrew Hammond, District Planner, Timaru District Council

# mikeharding

From:

"Brian Molloy" <molloyb@clear.net.nz>

To:

"Mike Harding" <mikeharding@xtra.co.nz>

Cc: Sent: "Nick Head" <nhead@doc.co.nz> Tuesday, 4 July 2006 3:51 p.m.

Subject:

Your samples

#### Hello Mike

Nick Head has passed on your Podocarpus and Melicytus samples to me for identification. Both Podocarpus samples are lowland totara, P. totara. The cultivar "Pendulus" occurs as a wild hybrid at "Sundrum" near Woodbury as you already know. As far as I am aware it is a "one off" and quite unique. Specimens propagated from it are in the ChCh Botanic Gardens, at Landcare Lincoln, and probably elsewhere. We looked at its flavonoid chemistry and cytology years ago (NZJ Bot. 25: 355-366, 1987) and determined it to be a P. acutifolius X nivalis hybrid which in turn had crossed with P. totara at Sundrum or thereabouts. The pollen from an original fertile F1 hybrid had most likely blown over from the West Coast and fertilised a female cone of totara at Sundrum. We found that Pendulus is not an F1 hybrid cytologically. It has an odd chromosome number (2n=35). Long distance pollen dispersal is not usual in NZ conifers but it does occur, eg., P. hallii X nivalis on Banks Penin. and Mt Moehau in the total absence of one parent, and Lepidothamnus intermedius X laxifolius at Arthurs Pass and elsewhere in the absence of one parent. Pendulus is characterised by its shorter stature, multileadered growth habit with erect central stems and suberect to decumbent side branches on which the branchlets all droop downwards. The bark is relatively thin and cross fibred, coming off in small pieces. Pendulus leaves are shorter than totara with a very sharp point. They are also more numerous and tend to be suberect and not patent like totara and cover the terminal resting buds as in nivalis. The Sundrum tree is a male and the cones are highly distorted and sterile. So it is going nowhere. Your chances of finding another Pendulus in the district are pretty slim, but you can never be sure. Mother Nature comes up with many surprises!

From what you say it sounds like you may have Melicytus flexuosus in your area. It does after all occur sporadically at Peel Forest not far away. To help you with that one see my paper with Tony Druce (NZJ Bot. 32: 113-118, 1994). Your other plant in the forest remnants I have seen before and have not placed it firmly yet under one of the dozen or more taxa I recognise in the M. alpinus complex which I am working on. It is not M. alpinus a very low growing cushion with narrow entire leaves. I must make a point of visiting South Canterbury to mull over your forest understory or edge plant.

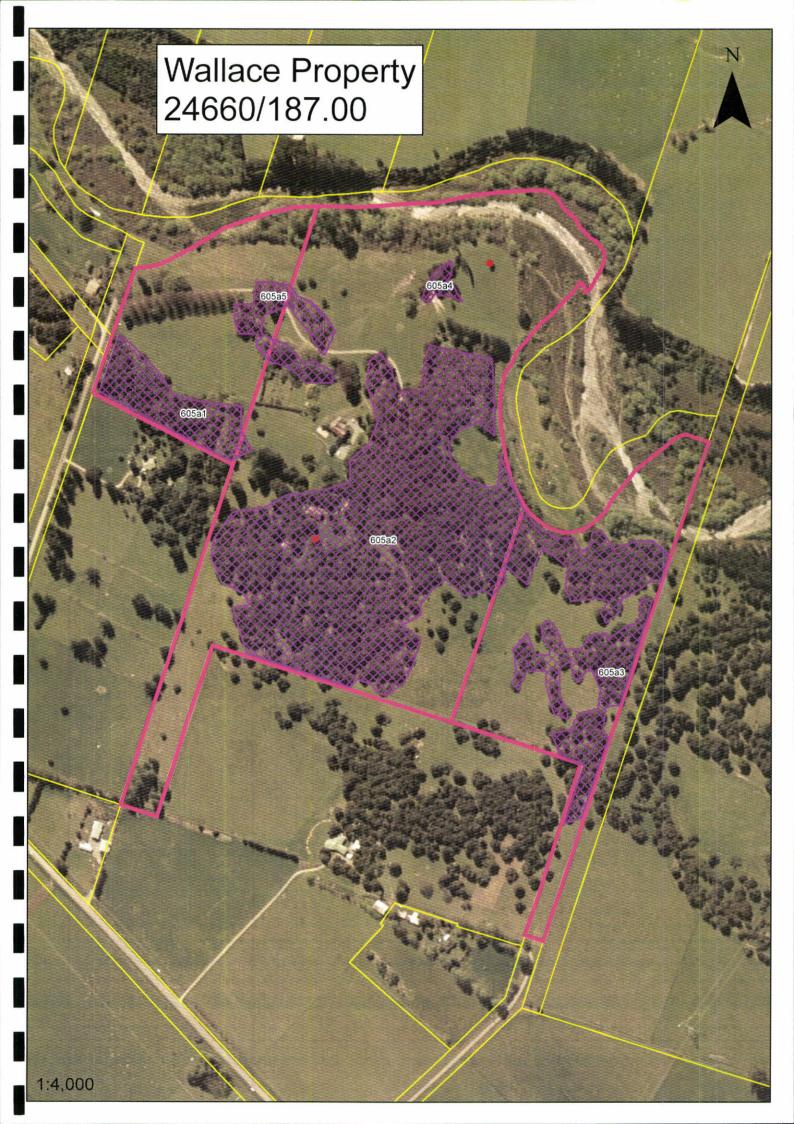
I hope this note is helpful.

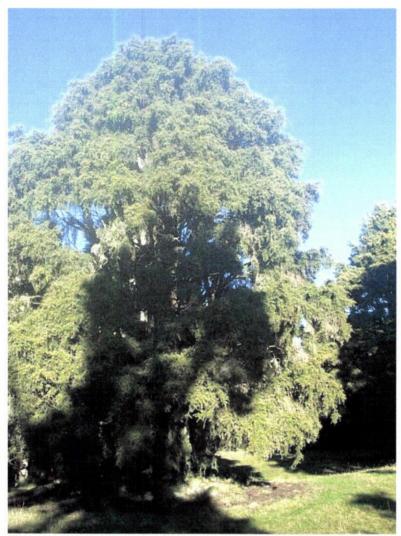
Cheers. Brian.

No virus found in this outgoing message.

Checked by AVG Free Edition.

Version: 7.1.394 / Virus Database: 268.9.8/381 - Release Date: 7/3/06





Weeping totara in SNA 605a



Southern rata, adjacent to SNA 605a

Area Number: 605a	Area Name: Sundrum	•	Date: 3 and 6 June 2006
Property: Wallace		Surveyors: Mike Harding	
Weather Conditions: fine	e and cool	-	Time Spent at Area: 6 hours

Location (central grid reference): J37: 645-869		Nearest Locality: Woodbury	
Ecological District: Geraldine	Approxima	te size of Area: 9.7 ha	Altitude: 250 m
General description of Area:			
Scattered to dense podocarp forest on allu-	vial terraces on th	ne south side of the Waihi R	iver, between Rae Road and
Poole Road.			

### General description of plant communities and habitats:

Strongly regenerating podocarp forest dominated by totara. Other canopy species are matai, kahikatea, narrow-leaved lacebark, lowland ribbonwood, lancewood and kowhai. Two parts of the forest are fenced from grazing. Two notable trees are present: weeping totara (*Podocarpus totara* "pendula") and southern rata. Forest patches are separated by open pasture and scattered totara trees.

### Detailed vegetation description:

(naturalised species are identified with an asterisk\*)

Fenced block adjacent to Rae Road (605a1):

This fenced block of forest occupies a higher terrace and the terrace riser at the western side of the property, adjacent to Rae Road. The forest canopy is dominated by totara and matai. Other canopy species present are kowhai, lancewood, lemonwood, narrow-leaved lacebark and sycamore\*.

The forest understorey is dominated by *Coprosma crassifolia*, *Coprosma rigida* and *Melicope simplex*. Other understorey species present are mahoe, kowhai, weeping mapou, mapou, shrubby mahoe, *Melicytus* aff. *alpinus*, pokaka, yellowwood, native jasmine, lawyer, matipo, poroporo, elderberry\*, sycamore\*, holly\*, hawthorn\* and Khasia berry\*.

Common ground cover species are common shield fern, necklace fern, Asplenium hookerianum, Pellaea rotundifolia, bidibid, Clematis marata, pennywort, foxglove\*, black nightshade\* and violet\*.

Additional species present on the forest margin are kaikomako, pohuehue, blackberry\*, broom\*, old man's beard\*, barberry\*, ash\*, cherry plum\* and a cherry laurel\* tree.

### Scattered patches of trees at northern end of property (605a4 and 605a5):

These indigenous trees are in scattered clumps among pasture alongside the driveway to the homestead. The dominant species present is totara. Other large trees present are matai, kahikatea, kowhai, lemonwood, kaikomako, lancewood and lowland ribbonwood. Indigenous species beneath or at the margin of the canopy trees are *Melicope simplex*, fuchsia, horopito, broadleaf, *Coprosma propinqua* and *Coprosma rigida*. Mistletoe (*Ileostylis micranthus*) is present on kaikomako.

A small patch of trees in open pasture nearer the river comprises totara, lowland ribbonwood, kahikatea and lemonwood, with a single elderberry\* sapling beneath and a single kanuka tree on the margin.

Just east of this patch, in open pasture at the bend in the river, is a single southern rata tree growing together with a

small kaikomako tree (GPS reference 2364594E-5687069N). The multi-trunk southern rata is 7 m tall.

### Central fenced block (part 605a2):

This area comprises the main block of forest at the centre of the property, behind (east of) the homestead. It is dominated by totara. Other canopy species are matai, kahikatea, lowland ribbonwood, narrow-leaved lacebark, kowhai, lancewood and occasionally sycamore\*. The climbing native jasmine and pohuehue are common. One small patch of cherry plum\* is present at the northern end.

The dense ungrazed forest understorey is dominated by mahoe, Coprosma rotundifolia and weeping mapou. Other understorey species present are kaikomako, horopito, mapou, matipo, lemonwood, lancewood, totara, shrubby mahoe, Melicope simplex, Coprosma rigida, Coprosma rhamnoides, Coprosma crassifolia, Coprosma rubra, broadleaf, marbleleaf, cabbage tree, pate, holly\*, elderberry\*, sycamore\*, Chilean flame creeper\*, yew\* and Darwin's barberry\*. A single planted kauri, a rhododendron, tall lilies\* and old man's beard\* are present in openings in the forest. Ground cover species are moss, necklace fern, hanging spleenwort, hen and chickens fern, Asplenium hookerianum, hound's tongue fern, leather-leaf fern, prickly shield fern, Blechnum penna-marina, bidibid, pennywort, white climbing rata, Clematis marata, foxglove\*, violet\* and male fern\*.

Other species present on the forest margin are fuchsia, poroporo, *Calystegia tuguriorum*, Khasia berry\*, broom\*, gorse\*, and at one location on the eastern margin a clump of Japanese honeysuckle\*. At the forest edge near the homestead, honesty\* and *Tradescantia fluminensis*\* are present.

## Water supply block (part 605a2):

This is a small fenced patch of forest encompassing a small gully and spring north of the main fenced block of forest

described above. Canopy species are totara, kahikatea, kowhai, narrow-leaved lacebark, lemonwood and lancewood. Understorey species are pate, horopito, fuchsia, mahoe, kaikomako, mapou, lawyer, *Coprosma rotundifolia*, sycamore\* and elderberry\*.

Ground cover species are necklace fern, hen and chickens fern, Asplenium appendiculatum, Asplenium richardii, prickly shield fern, common shield fern, Blechnum chambersii, Blechnum fluviatile, Pellaea rotundifolia, Clematis marata, bush lily, Carex sp., male fern\*, violet\* and holly\* seedlings.

Additional species on the forest margin are weeping mapou, kanuka, pohuehue, *Blechnum penna-marina*, burdock\* (one plant) and cherry plum\*.

An unfenced area of closed-canopy forest links this area with the main block of fenced forest. This forest is dominated by kowhai, totara, matai, narrow-leaved lacebark, lowland ribbonwood and kahikatea, with *Coprosma rotundifolia*, *Melicope simplex*, mahoe, pokaka and kaikomako in the understorey.

### Southern unfenced block (part 605a2):

This area of forest lies to the south of the main block of fenced forest, between the homestead and the southern boundary of the property. It is dominated by dense to scattered totara. Other canopy species are matipo, lemonwood, matai, narrow-leaved lacebark, native jasmine, a small patch of sycamore\*, one lowland ribbonwood and one hawthorn\*.

Understorey species are totara, *Melicope simplex*, *Coprosma rigida*, *Coprosma crassifolia*, *Coprosma rotundifolia*, mahoe, shrubby mahoe, lawyer, bush lawyer, lancewood, weeping mapou, fuchsia, sycamore\*, two Darwin's barberry\* bushes and one holly\* bush.

Ground cover species are bidibid, common shield fern, necklace fern, Pellaea rotundifolia and foxglove\*.

Additional species present on the forest margin are lawyer, pohuehue, mistletoe (*Ileostylis micranthus*, on *Coprosma crassifolia*), kowhai, leather-leaf fern, elderberry\* and a single spindle tree\*.

The weeping totara (*Podocarpus totara* "pendula"), listed as a notable tree in the District Plan, is present in this block, just south of the barn (GPS reference 2364407E-5686780N). This attractive tree has a diameter (at breast height) of 120 cm, and is 13 m tall.

### Scattered forest at eastern edge of the property (605a3):

This block comprises the scattered clumps and individual trees between the main central forest block (described above) and the eastern property boundary. The forest canopy is dominated by totara, with matai, lancewood, narrow-leaved lacebark, pohuehue and, nearer the river, kowhai.

Common understorey species are totara, *Melicope simplex*, *Coprosma rigida*, *Coprosma crassifolia*, kaikomako and lawyer. Occasionally present in the understorey are mahoe, weeping mapou, lancewood, yellowwood, matipo, leather-leaf fern, mistletoe, native jasmine, fuchsia and sycamore\*.

Ground cover is generally pasture, occasionally with pennywort, common shield fern, foxglove\*, horehound\* and gorse\*.

#### Birds observed:

Indigenous birds observed on the property were fantail, bellbird, kereru, grey warbler, rifleman and harrier.

### Notable flora, fauna or habitats:

The extent and density of the totara forest on the property is notable. This forest adjoins areas of similar forest on either side of the property on the alluvial flats of the Waihi River, forming a semi-continuous area of podocarp forest stretching from the foothills at Waihi Gorge to Waihi Bush near Woodbury. The forest on the property is more diverse on the flats nearest the river and on the adjoining terrace scarps. At these locations kahikatea, kowhai, lowland ribbonwood, narrow-leaved lacebark and matai are common.

Two notable trees are present: the weeping totara near the old barn in the southern block of forest, and the small southern rata tree surrounded by pasture near the river in the northern part of the property. The weeping totara is an apparently unique hybrid. The southern rata is the only one recorded in the Geraldine Ecological District; the only other known populations the Timaru District are in the foothills. Two locally uncommon species are present: *Melicytus* aff. *alpinus* in the fenced block of forest adjacent to Rae Road (605a1) and Coprosma rubra.

The forest habitat on the property supports, in conjunction with areas of forest on adjoining properties, healthy bird populations, including two threatened species: kereru (gradual decline) and rifleman (gradual decline).

The property lies within the known range of the South Canterbury population of long-tailed bat (nationally endangered).

#### General condition of Area:

Areas of forest on the property are generally in very good condition. Substantial parts of the forest are fenced from grazing and in other parts the grazing pressure appears low. Regeneration of canopy species is good, especially in the fenced blocks. A number of plant pests (weeds) are present, some of which have the potential to have a significant long-term impact on the forest.

# Notable plant and animal pests:

The most significant plant pests observed on the property are sycamore, holly, old man's beard and Darwin's barberry. These four species are present at a number of locations, though are not yet dominant. All three species have easily

dispersed seed, can colonise established indigenous forest and eventually dominate, smother or over-top the forest. These species pose a significant threat to forest on the property.

Other common plant pests are cherry plum, elderberry, Khasia berry and Chilean flame creeper. These species also pose a significant threat, though are less invasive in closed-canopy forest. Also present are ash, barberry, *Tradescantia*, spindle tree and Japanese honeysuckle. However each of these five species was observed at only one location. Other naturalised plants present that pose a potential threat and should be monitored are honesty, yew, lily, violet and male fern. Agricultural weeds (gorse, broom and burdock) are also present, though do not pose a significant threat to indigenous forest on the property.

### Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):

The main area of forest on the property is of good size and shape for protection. Substantial parts of the forest are fenced and appear ungrazed. Forest on the property adjoins similar regenerating podocarp forest on adjoining properties, collectively forming the most extensive area of totara forest on the Canterbury Plains.

#### Present management and management issues:

The most important management issue is the control of invasive plant pests. The long-term integrity of the forest will require the removal of infestations of sycamore, holly, old man's beard and Darwin's barberry. Ideally, the other aggressive plant pests listed above should also be removed or contained, especially cherry plum, elderberry, Khasia berry, ash, barberry, *Tradescantia*, spindle tree and Japanese honeysuckle. However, many of these species (notably sycamore, holly, old man's beard, Darwin's barberry, cherry plum, elderberry, Khasia berry and ash) are present nearby, so continued monitoring and control would be required to prevent re-infestation of these species. Regular control of animal pests, notably possums, is also likely to be necessary to protect the ecological integrity of the forest. The fenced blocks of forest illustrate the potential for restoration of forest understorey communities and the continued regeneration of canopy species. Further regeneration of totara may occur in the unfenced (grazed) blocks, though the regeneration of other canopy species is less likely.

#### **Property Owner Comment:**

Primary Criteria	Rank	Notes	
Representativeness	Н	One of the best examples of indigenous vegetation typical of the ecological district (and part of the best example of totara-matai forest in the district).	
Rarity	M/H	Supports populations of two chronically-threatened species: kereru (gradual decline) and rifleman (gradual decline). Also supports three locally uncommon species: southern rata, <i>Melicytus</i> aff. <i>alpinus</i> and <i>Coprosma rubra</i> , and one unique hybrid: weeping totara	
Diversity and pattern	M/H	Plant species diversity over most of the Area (and especially in the fenced blocks) is probably typical of that originally present.	
Distinctiveness/special features	M/H	Weeping totara and southern rata trees, the extent of the totara forest and its importance as bird habitat are special features.	
Other Criteria			
Size/shape	Н	Moderate to large size and of good shape for management.	
Connectivity	Н	Forms a regionally-important and ecologically-viable link between other areas of indigenous vegetation and habitat.	
Long-term Sustainability	M	Regenerating indigenous forest that will require plant pest control to protect its ecological values.	
SNA (yes/no):	YES		

### Final Consideration (of other matters, Section D, page B-19):

Forest on the property has been informally protected by the landowners. Forest management has included fencing and weed and pest control. The health of the forest will depend on targeted control of aggressive plant pests. Trimming or removal of indigenous vegetation to prevent shading of buildings, to facilitate weed control, or to maintain tracks and fences can be achieved here without having a major effect on the ecological integrity of the Area, provided such actions were undertaken sympathetically.

#### Discussion:

Although the Area supports forest that, for the most part, appears to be regenerating (rather than original) forest, it is largely representative of the forest originally present and is certainly part of an area of forest that is the best example of totara forest in the ecological district. The Area has been assessed here as one block of forest. It could be assessed as separate blocks (e.g. fenced and unfenced blocks) though the assessment result would be the same, i.e. all parts of the Area would easily meet the District Plan's significance criteria.

Scientific names of species cited by common name		
Common Name	Scientifia nama	
(* = naturalised species)	. Scientific name	
( = Hataransoa species)		
ash*	. Fraxinus excelsior	
barberry*		
bidibid	. Acaena sp.	
blackberry*	•	
black nightshade*		
broadleaf		
broom*		
burdock*		
bush lawyer		
bush lilycabbage tree/ti rakau		
cherry laurel*		
cherry plum*		
Chilean flame creeper*		
common shield fern	. Polystichum richardii	
Darwin's barberry*		
elderberry*		
foxglove*		
fuchsia	. Fuchsia excorticata	
gorse*		
hanging spleenwort		
hawthorn*		
hen and chickens fern	. Asplenium bulbiferum	
horehound*		
holly*		
honesty*		
horopito/pepperwoodhound's tongue fern		
Japanese honeysuckle*		
kahikatea/white pine		
kaikomako		
kanuka	•	
kauri		
Khasia berry*		
kowhai		
lancewood	. Pseudopanax crassifolius	
lawyer		
leather-leaf fern		
lemonwood		
lowland ribbonwood	<del>-</del>	
mahoe/whiteywood	-	
male fern*	* * *	
mapou marbleleaf/putaputaweta		
matai/black pine	<u>*</u>	
matipo/kohuhu	1 0	
mistletoe		
mouse-ear hawkweed*		
narrow-leaved lacebark		
native jasmine		
necklace fern	. Asplenium flabellifolium	
old man's beard*		
pate		
pennywort	. Hydrocotyle sp.	

pohuehue	Muehlenbeckia australis
pokaka	Elaeocarpus hookerianus
poroporo	Solanum laciniatum
prickly shield fern	Polystichum vestitum
	Melicytus micranthus
southern rata	Metrosideros umbellata
spindle tree*	Euonymus europaeus
sycamore*	Acer pseudoplatanus
totara	Podocarpus totara
violet*	Viola odorata
weeping mapou	Myrsine divaricata
weeping totara	Podocarpus totara "pendula"
white climbing rata	Metrosideros diffusa
	Coprosma linariifolia
	Taxus baccata