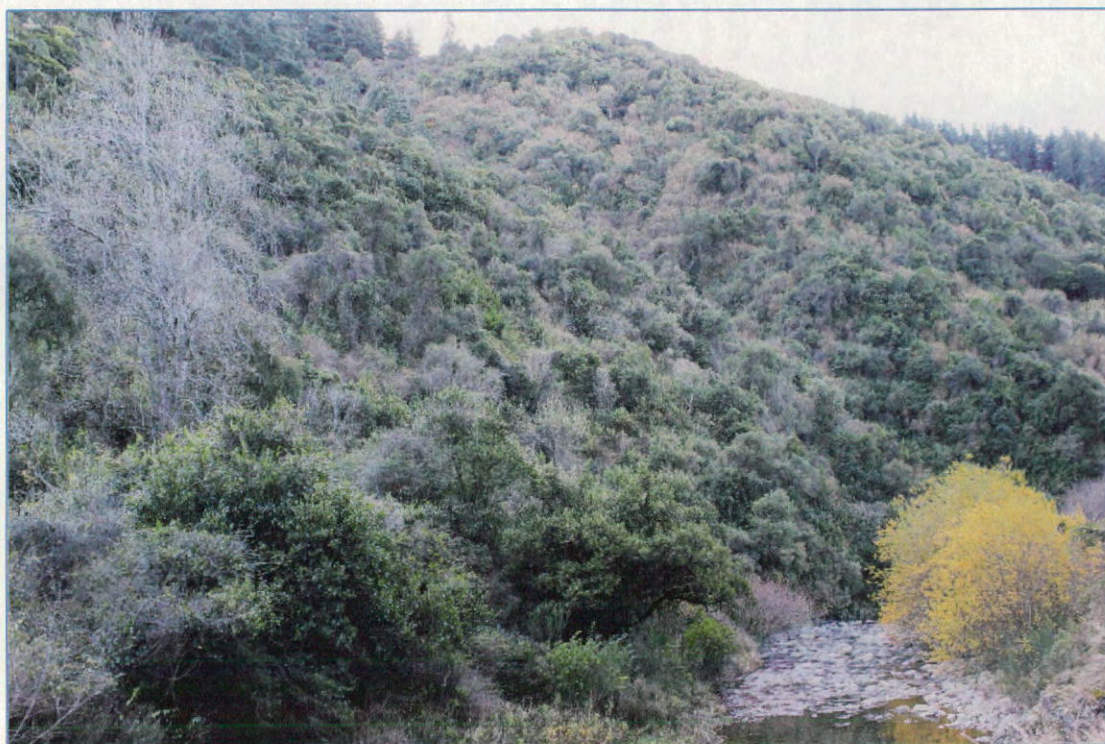


TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

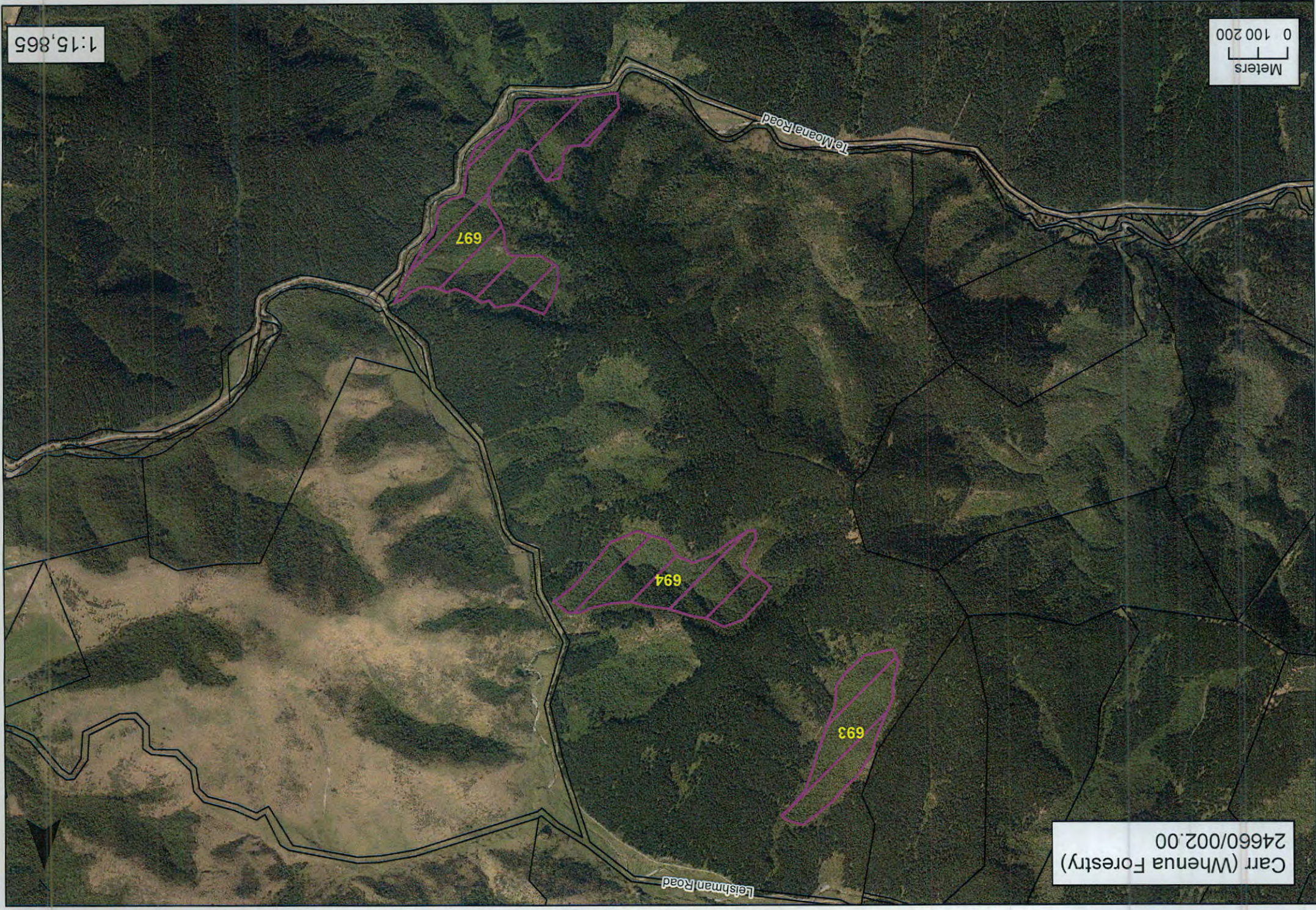
WHENUA FORESTRY LIMITED
(G CARR)



Report prepared for the Timaru District Council by Mike Harding
October 2015

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Carr (Whenua Forestry)
24660/002.00

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: Whenua Forestry Limited (G Carr)
Valuation Reference: ... 24660/002.00
Address: Peel Forest Estate, RD 22, Geraldine
Location: Upper Te Moana valley, South Canterbury.
Ecological Districts: Orari Ecological District.
TDC Land Types: Hard Rock Hills and Downs.
Land Environments: Q2 (south-eastern hill country).

ECOLOGICAL CONTEXT:

This property lies in the foothills of the Four Peaks Range in South Canterbury. The Significant Natural Areas (SNAs) described in this report are areas of indigenous forest on steeper slopes alongside the Hae Hae Te Moana (South Branch) River and its major tributary, Leishman Stream. The property lies within the Orari Ecological District and comprises moderately-steep slopes from an altitude of approximately 300m on the valley floor to over 700m on higher slopes.

The original vegetation of this area would have been predominantly hardwood forest with emergent podocarps (matai, totara and kahikatea). The indigenous fauna would have been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area.

Indigenous vegetation on the property is part of a network of small forest remnants and regenerating forest in this part of the ecological district. Eastern falcon/karearea, a threatened (nationally vulnerable) species, is present in the area, though was not observed during the survey.

SIGNIFICANT NATURAL AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during May 2015. Three separate areas are regarded as significant when assessed against the District Plan criteria.

Area No.	Area Name	Map ref. (NZTM)	Aprox. size (ha)	Vegetation/habitat type
693		1445055E-5123195N	9.6	hardwood forest
694		1445643E-5122644N	14.2	hardwood forest
697		1446188E-5121347N	21.3	hardwood forest with young totara

These SNAs are illustrated on the aerial photograph below and described in greater detail on the SNA Survey Forms in this report. Note that the boundaries of the SNAs are indicative, rather than precise. These areas meet the ecological criteria in the Timaru District Plan (criteria i-vi,

pages B18-B19) and are considered to be sustainable with appropriate management (criterion vii, page B19). SNAs are subject to confirmation by Council after regarding the matters listed in the District Plan (pages B19-B20). It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat that meet the Interim Definitions in the District Plan. Clearance includes burning, spraying with herbicides and over-planting. SNAs encompass most, but not necessarily all, areas of vegetation and habitat which meet the Interim Definitions.

To assist with the protection and management of any SNA, such as fencing or pest control, 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.

OTHER AREAS INSPECTED ON THE PROPERTY:

Other areas of indigenous vegetation and habitat on the property were inspected but are not regarded as significant when assessed against the criteria on pages B18-B20 of the Timaru District Plan. These are generally smaller or younger areas of indigenous vegetation.

Failure of an area to meet the significance criteria does not necessarily mean that it is not important for nature conservation or the protection of indigenous biodiversity; it simply means that the area (as assessed at this time) does not meet the criteria in the Timaru District Plan. Some of these areas have considerable potential value and, if left alone, may eventually become significant.

Area Name:	Property: Whenua Forestry Limited (G. Carr)
Ecological District: Orari	Nearest Locality: Te Moana
Central map ref. (NZTM): 1445055E-5123195N	Area Size (ha): 9.6 Altitude (m): 400-550
Surveyors: Mike Harding	Survey Time: 2 hours Survey Date: 28-05-15

General Description:

This area of native forest lies on steep east-facing slopes in the Leishman Stream tributary of the Hae Hae Te Moana River (South Branch) valley. It is surrounded by plantation pine forest.

Plant Communities:

Indigenous vegetation at this SNA comprises young low-canopied forest with areas of scrub and shrubland at the forest margin, as described below. Naturalized species are indicated with an asterisk*.

The forest canopy at most parts of the SNA is dominated by kohuhu, broadleaf and kowhai. Other canopy species are cabbage tree, five-finger, mountain akeake, lancewood, mapou, marbleleaf, pohuehue and, near the stream, fuchsia and wineberry.

Plant species present in the understorey are *Coprosma dumosa*, *Coprosma rhamoides*, *Coprosma crassifolia*, *Coprosma rigida*, marbleleaf, kohuhu, mapou, five-finger, kowhai, lawyer, native jasmine and pohuehue. Less commonly present are sycamore*, lancewood and mahoe.

The dominant ground cover species in the valley bottom is prickly shield fern; the dominant species on upper slopes is hound's tongue fern. Other common forest-floor species are hen and chickens fern, *Blechnum chambersii*, *Blechnum fluviatile*, common shield fern, necklace fern, *Asplenium hookerianum*, *Asplenium richardii*, button fern, hookgrass, pennywort, wall lettuce* and seedlings of mapou, wineberry, broadleaf, mahoe, kohuhu, five-finger, kowhai and *Coprosma* species. Less common are bush lily, black nightshade*, male fern* and hanging spleenwort.

Species commonly present at forest openings or at the forest margin are mingimingi, *Coprosma crassifolia*, Himalayan honeysuckle*, scrambling fuchsia, koromiko, bracken, mountain flax, toatoa and lawyer. Less commonly present are leafless lawyer, *Coprosma dumosa*, matagouri, porcupine shrub, native bindweed, *Hypolepis ambigua* and foxglove*.



Birds/Fauna Observed:

Native birds observed during this survey were bellbird, fantail, brown creeper, rifleman, silvereye, kereru and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are the dominance of kowhai, the size of the area and the habitat it provides for forest birds.

Notable Plant and Animal Pests:

The most important plant pest at this SNA is sycamore, though it is relatively uncommon and was only observed in the understorey. Other plant pests, such as Himalayan honeysuckle and male fern, do not pose a significant threat to indigenous vegetation at the site. Animal pests were not surveyed, though possum and feral pig sign was observed. Feral pig sign (rooting, tracks and droppings) is very common at the forest margins.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is not fenced but is buffered on all sides by plantation pine forest. The steep rubbly slopes provide some protection from clearance, though do not protect it from wind- or bird-dispersed weed seeds that are present nearby (such as sycamore). The area lies near to other similar patches of young native forest in the Te Moana valley.

Condition and Management:

The forest at this site has presumably regenerated following earlier disturbance. It is in good condition though is threatened by the presence of sycamore. Important management issues are control of sycamore and feral animals, especially possum and pigs.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Regenerating indigenous forest typical of that present in this part of the ecological district.
Rarity	L	No rare or threatened species were observed.
Diversity and pattern	M	Plant species diversity is moderate and typical.
Distinctiveness/special features	M	The dominance of kowhai is notable.
Other Criteria		
Size/shape	M	A moderate-sized area that is well buffered.
Connectivity	M	Lies close to other areas of indigenous forest.
Long-term Sustainability	M	The area is threatened by the presence of sycamore and feral pigs.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This area has been informally protected by the retirement of grazing and its exclusion from the pine plantation. It has very limited potential for farm development.

Discussion:

This area meets the Timaru District Plan criteria for a Significant Natural Area (SNA). Important values are the dominance of kowhai, its size and the habitat it provides for forest birds, including its role as part of a network of forest bird habitat in the wider area.

Area Name:	Property: Whenua Forestry Limited (G.Carr)		
Ecological District: Orari	Nearest Locality: Te Moana		
Central map ref. (NZTM): 1445643E-5122644N	Area Size (ha): 14.2	Altitude (m): 350-550	
Surveyors: Mike Harding	Survey Time: 2 hours	Survey Date: 27-05-15	

General Description:

This area comprises regenerating indigenous forest in a steep-sided valley in Leishman Stream, a tributary of the Hae Hae Te Moana (South Branch) River. It adjoins plantation forest on the surrounding slopes. The core area of forest was not surveyed. The vegetation description below is of forest at the margins of the area.

Plant Communities:

Indigenous vegetation at this SNA is low-canopied hardwood forest, described below. Naturalized species are indicated with an asterisk*.

The forest canopy at most parts of this SNA is dominated by broadleaf. Other canopy species are kohuhu, lancewood, mountain akeake, mountain ribbonwood, wineberry, marbleleaf, narrow-leaved mahoe, fuchsia, cabbage tree, Himalayan honeysuckle*, sycamore*, pohuehue, native jasmine, bush lawyer and lawyer. Understorey species present are pate, mapou, mahoe, *Coprosma rigida*, native jasmine, bush lawyer and saplings of the canopy trees.

Prickly shield fern is the dominant ground-cover species at lower parts of the SNA. Other ground-cover species are hen and chickens fern, necklace fern, *Asplenium hookerianum*, hanging spleenwort, *Blechnum chambersii*, *Blechnum fluviatile*, *Blechnum penna-marina*, kiokio, hound's tongue fern, common shield fern, hookgrass, nettle, bush lily and seedlings of broadleaf, wineberry, narrow-leaved mahoe, mountain ribbonwood, lancewood, pohuehue and *Coprosma* species.

Species commonly present at the forest margin or in forest openings are mingimingi, *Coprosma rigida*, *Coprosma dumosa*, porcupine shrub, koromiko, Himalayan honeysuckle*, matagouri, native broom, mountain flax, tutu, bracken, bidibid, toatoa, leafless lawyer and pohuehue. Less commonly present are Spanish heath*, Chilean flame creeper* and wild marjoram*.



SNA 694: on lower damper slopes the forest ground-cover is dominated by prickly shield fern

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, fantail, rifleman, silvereye and, flying above the forest, harrier and black shag.

Notable Flora, Fauna and Habitats:

Important features of this area are the habitat it provides for forest birds, its size and that it is well buffered.

Notable Plant and Animal Pests:

The most important plant pest observed at this SNA is sycamore, though it is not common. Other plant pests, such as Spanish heath and Himalayan honeysuckle do not pose a significant threat to the forest. The area is vulnerable to infestation by other plant pests that are present in the area, such as old man's beard, Khasia berry and cherry laurel. Animal pests were not surveyed, though possum and feral pig sign was observed in the area.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is well buffered by its location in a steep-sided gully and by the surrounding plantation pine forest. It lies close to other similar areas of forest in the Te Moana valley.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Regenerating indigenous forest typical of that present in this part of the ecological district.
Rarity	L	No rare or threatened species were observed.
Diversity and pattern	M	Plant species diversity is moderate and typical.
Distinctiveness/special features	L	No special features were observed, though the core area of forest was not closely inspected.
Other Criteria		
Size/shape	M/H	A relatively large area that is very well buffered.
Connectivity	M	Lies close to other similar areas of indigenous forest.
Long-term Sustainability	M	Plant and animal pest control will probably be required to maintain ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This area has been set aside from farming and forestry. The steepness of the slopes limit its potential for further development.

Discussion:

This area meets the Timaru District Plan criteria for a Significant Natural Area (SNA). Important features are the size of the area, the habitat it provides for forest birds and the extent to which it is buffered by its location.

Area Name:	Property: Whenua Forestry Limited (G. Carr)		
Ecological District: Orari	Nearest Locality: Te Moana		
Central map ref. (NZTM): 1446188E-5121347N	Area Size (ha): 21.3	Altitude (m): 280-450	
Surveyors: Mike Harding	Survey Time: 3½ hours	Survey Date: 08-05-15	

General Description:

This area of native forest lies on moderately-steep southeast-facing slopes in the Hae Hae Te Moana River (South Branch) valley, just above the confluence of Leishman Stream. The lower boundary of the SNA is the property boundary at the valley floor; the upper boundary is below the plantation pine forest that occupies the upper slopes.

Plant Communities:

Indigenous vegetation at this SNA comprises young low-canopied forest with small areas of scrub or shrubland, as described below. Naturalized species are indicated with an asterisk*.

The forest canopy at most parts of the SNA is dominated by broadleaf, five-finger, kohuhu, lancewood and in gullies, wineberry, fuchsia, Himalayan honeysuckle* and pohuehue. Other canopy species are kowhai, narrow-leaved mahoe, marbleleaf, cabbage tree, mapou, mountain akeake, cherry laurel* (in gullies), clematis, native jasmine, bush lawyer and at a few locations, old man's beard*. Tall trees of sycamore* and ash* are emergent from the forest canopy at some locations, though are not dominant.

Plant species present in the understorey are *Coprosma rhamnoides*, five-finger, broadleaf, lancewood, mapou, kohuhu, narrow-leaved mahoe, weeping mapou, wineberry, marbleleaf, kowhai, Himalayan honeysuckle*, pate, native jasmine, bush lawyer, and, on tree trunks, hound's tongue fern. Less commonly present are korokio, narrow-leaved lacebark, totara, tutsan*, gooseberry*, Khasia berry*, ash* and sycamore*.

Dominant species on the forest floor are prickly shield fern, hen and chickens fern, hound's tongue fern and/or bush lily, depending on the rockiness of the ground. Other ground-cover species are *Asplenium hookerianum*, *Asplenium richardii*, necklace fern, common shield fern, *Blechnum chambersii*, *Blechnum fluviatile*, kiokio, mountain kiokio, *Blechnum penna-marina*, male fern*, hookgrass, cardamine and seedlings of kowhai, marbleleaf, five-finger, broadleaf, *Coprosma* species, mahoe (uncommon), native jasmine and clematis.

Species commonly present at forest openings or at the forest margin are bracken, gorse*, mingimingi, *Coprosma rigida*, mountain akeake, korokio, mountain flax, tutu, bittersweet*, native bindweed, lawyer and *Carex forsteri*.



SNA 697

Additional species present at the river margin are mountain ribbonwood, crack willow*, grey willow*, hybrid wineberry, native broom, porcupine shrub, koromiko, *Coprosma rugosa*, *Coprosma crassifolia*, *Hebe traversii*, broom*, aquilegia*, selfheal*, pennywort, bidibid, *Libertia ixioides*, *Carex geminata*, swamp kiokio, *Asplenium trichomanes*, thousand-leaved fern and Chilean flame creeper*.

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, fantail, brown creeper, rifleman, silvereye, kingfisher and harrier.

Notable Flora, Fauna and Habitats:

Important features of this area are the relatively high diversity of plant species, presence of totara saplings (though uncommon) in the forest understorey, the size of the area, the habitat it provides for forest birds, and that it buffers the Te Moana River.

Notable Plant and Animal Pests:

There are several important plant pests at this SNA, notably ash, sycamore, cherry laurel, old man’s beard and Khasia berry. These species are not dominant but do have the potential to become so, especially sycamore and old man’s beard. Other plant pests such as crack willow, grey willow, gorse, broom, Himalayan honeysuckle, tutsan and gooseberry are less likely to have a significant effect on indigenous vegetation at the site. Animal pests were not surveyed, though possum and feral pig sign was observed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):

This area is not fenced but is buffered by plantation pine forest at its upper boundary and the Te Moana River at its lower boundary. The steep slopes provide some protection from clearance, though do not protect it from wind- or bird-dispersed weed seeds that are present nearby (such as old man’s beard and Khasia berry). The area lies near to other similar patches of young native forest in the Te Moana valley.

Condition and Management:

The forest at this site has presumably regenerated following earlier disturbance. It is in good condition though is threatened by the presence of fast-growing emergent or smothering plant pests, notably ash, sycamore and old man’s beard. Important management issues are control of dominant plant pests and feral animals, especially possum and pigs.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	Regenerating indigenous forest typical of that present in this part of the ecological district, though with podocarp (totara) regeneration.
Rarity	L	No rare or threatened species were observed.
Diversity and pattern	M	Plant species diversity is moderate and typical.
Distinctiveness/special features	M	The density of the riparian vegetation helps buffer the Te Moana River.
Other Criteria		
Size/shape	M/H	A relatively large area that is well buffered.
Connectivity	M	Lies close to other areas of indigenous forest.
Long-term Sustainability	M	The area is threatened by the presence of invasive plant pests, notably sycamore, ash and old man’s beard.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):

This area has been informally protected by the retirement of grazing and its exclusion from the pine plantation. It has only limited potential for farm development, though could support plantation pine forest. It helps buffer the Te Moana River.

Discussion:

This area meets the Timaru District Plan criteria for a Significant Natural Area (SNA). Important values are the diversity of plant species present, its size and the habitat it provides for forest birds, the presence of young totara and its role buffering the river.

Scientific names of species cited by common name in this report

(Note: this is not a complete species list; it is a list only of species cited by common name in this report)

Common Name	Scientific name
(* = naturalised species)	
aquilegia*	<i>Aquilegia vulgaris</i>
ash*	<i>Fraxinus excelsior</i>
bidibid	<i>Acaena</i> sp.
bittersweet*	<i>Solanum dulcamara</i>
black nightshade*	<i>Solanum nigrum</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
bush lawyer	<i>Rubus cissoides</i>
bush lily	<i>Astelia fragrans</i>
button fern	<i>Pellaea rotundifolia</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
cardamine	<i>Cardamine debilis</i>
cherry laurel*	<i>Prunus laurocerasus</i>
Chilean flame creeper*	<i>Tropaeolum speciosum</i>
clematis	<i>Clematis paniculata</i>
common shield fern	<i>Polystichum richardii</i>
crack willow*	<i>Salix fragilis</i>
five-finger	<i>Pseudopanax arboreus</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
gooseberry*	<i>Ribes uva-crispa</i>
gorse*	<i>Ulex europaeus</i>
grey willow*	<i>Salix cinerea</i>
hanging spleenwort	<i>Asplenium flaccidum</i>
hen and chickens fern	<i>Asplenium gracillimum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
hookgrass	<i>Uncinia</i> sp.
hound's tongue fern	<i>Microsorium pustulatum</i>
hybrid wineberry	<i>Aristotelia serrata</i> X <i>fruticosa</i>
Khasia berry*	<i>Cotoneaster simonsii</i>
kiokio	<i>Blechnum novae-zelandiae</i>
kohuhu	<i>Pittosporum tenuifolium</i>
korokio	<i>Corokia cotoneaster</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
lawyer	<i>Rubus schmidelioides</i>
leafless lawyer	<i>Rubus squarrosus</i>
mahoe/whiteywood	<i>Melicytus ramiflorus</i>
male fern*	<i>Dryopteris filix-mas</i>
mapou	<i>Myrsine australis</i>
marbleleaf/putaputaweta	<i>Carpodetus serratus</i>
matagouri	<i>Discaria toumatou</i>
mingimingi	<i>Coprosma propinqua</i>
mountain akeake	<i>Olearia avicenniifolia</i>
mountain flax	<i>Phormium cookianum</i>
mountain kiokio	<i>Blechnum montanum</i>
mountain ribbonwood	<i>Hoheria lyallii</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
narrow-leaved mahoe	<i>Melicytus lanceolatus</i>
native bindweed	<i>Calystegia tuguriorum</i>
native broom	<i>Carmichaelia</i> aff. <i>australis</i>

native jasmine	<i>Parsonsia heterophylla</i>
necklace fern	<i>Asplenium flabellifolium</i>
nettle.....	<i>Urtica incisa</i>
old man's beard*	<i>Clematis vitalba</i>
pate.....	<i>Schefflera digitata</i>
pennywort	<i>Hydrocotyle novae-zelandiae</i>
pohuehue	<i>Muehlenbeckia australis</i>
porcupine shrub.....	<i>Melicytus alpinus</i>
prickly shield fern	<i>Polystichum vestitum</i>
scrambling fuchsia	<i>Fuchsia perscandens</i>
selfheal*	<i>Prunella vulgaris</i>
Spanish heath*	<i>Erica lusitanica</i>
swamp kiokio	<i>Blechnum minus</i>
sycamore*	<i>Acer pseudoplatanus</i>
thousand-leaved fern	<i>Hypolepis millefolium</i>
toatoa.....	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
tutsan*	<i>Hypericum androsaemum</i>
tutu	<i>Coriaria sarmentosa</i>
wall lettuce*	<i>Mycelis muralis</i>
weeping mapou	<i>Myrsine divaricata</i>
wild majoram*	<i>Origanum vulgare</i>
wineberry	<i>Aristotelia serrata</i>