TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

DONEHUE

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

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: ..... Donehue
Valuation Reference: ...24660/043.07
Address: ..... 110 Donehue Road, Temuka.
Location: ..... 1248 Peel Forest Road, South Canterbury.
Ecological Districts: ..... Geraldine/High Plains ecological districts.
TDC Land Types:..... Plains.
Land Environments: ..... N2 and N3 (eastern South Island plains).

ECOLOGICAL CONTEXT:

This property lies on the upper Canterbury Plains at the base of the Tara Haoa (Mt Peel) Range in South Canterbury. It is at the boundary of Geraldine and High Plains ecological districts (McEwen, 1987). The property occupies a broad terrace adjacent to the Rangitata River. The higher (northern) part of the property is within the Level IV Land Environment N3.1a; the lower part is within N2.1d (Leathwick *et al*, 2003). Indigenous vegetation within these land environments is regarded as 'acutely threatened' (Walker *et al*, 2006).

The original vegetation of this area would have been podocarp-hardwood forest, with large trees of kahikatea, totara and matai emergent over a hardwood canopy dominated by broadleaf, lemonwood, pokaka, lowland ribbonwood, narrow-leaved lacebark and other lowland hardwood trees. Areas of kowhai-kanuka forest may have been present alongside active stream channels and denser kahikatea forest at poorly drained sites. The property lies within the known distribution of the South Canterbury population of long-tailed bat, listed as a threatened (nationally critical) species (O'Donnell *et al*, 2012).

Indigenous vegetation on the property comprises remnant podocarp-hardwood forest/treeland and remnant/regenerating swamp kahikatea forest. This vegetation is near other indigenous vegetation protected within the regionally-important Peel Forest Park Scenic Reserve.

SIGNIFICANT NATURAL AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during September 2015. Ten separate areas are regarded as significant when assessed against the District Plan criteria, though six are very small (comprising single large trees or small groups of trees).

Area No.	Map ref. (NZTM)	Aprox. size(ha)	Vegetation/habitat type
676a	1460202E-5137110N	0.15	treeland
676b	1460393E-5136953N	1.64	forest/treeland
676c	1460379E-5137081N	0.88	forest/treeland
677	1460866E-5136945N	0.69	forest

678a	1460554E-5137892N	0.15	treeland
678b	1460505E-5137805N	0.01	notable tree
678c	1460492E-5137917N	0.01	notable tree
679a	1460375E-5138027N	1.71	kahikatea forest
679b	1460283E-5137826N	0.16	treeland
679c	1460324E-5137750N	0.02	notable tree

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.

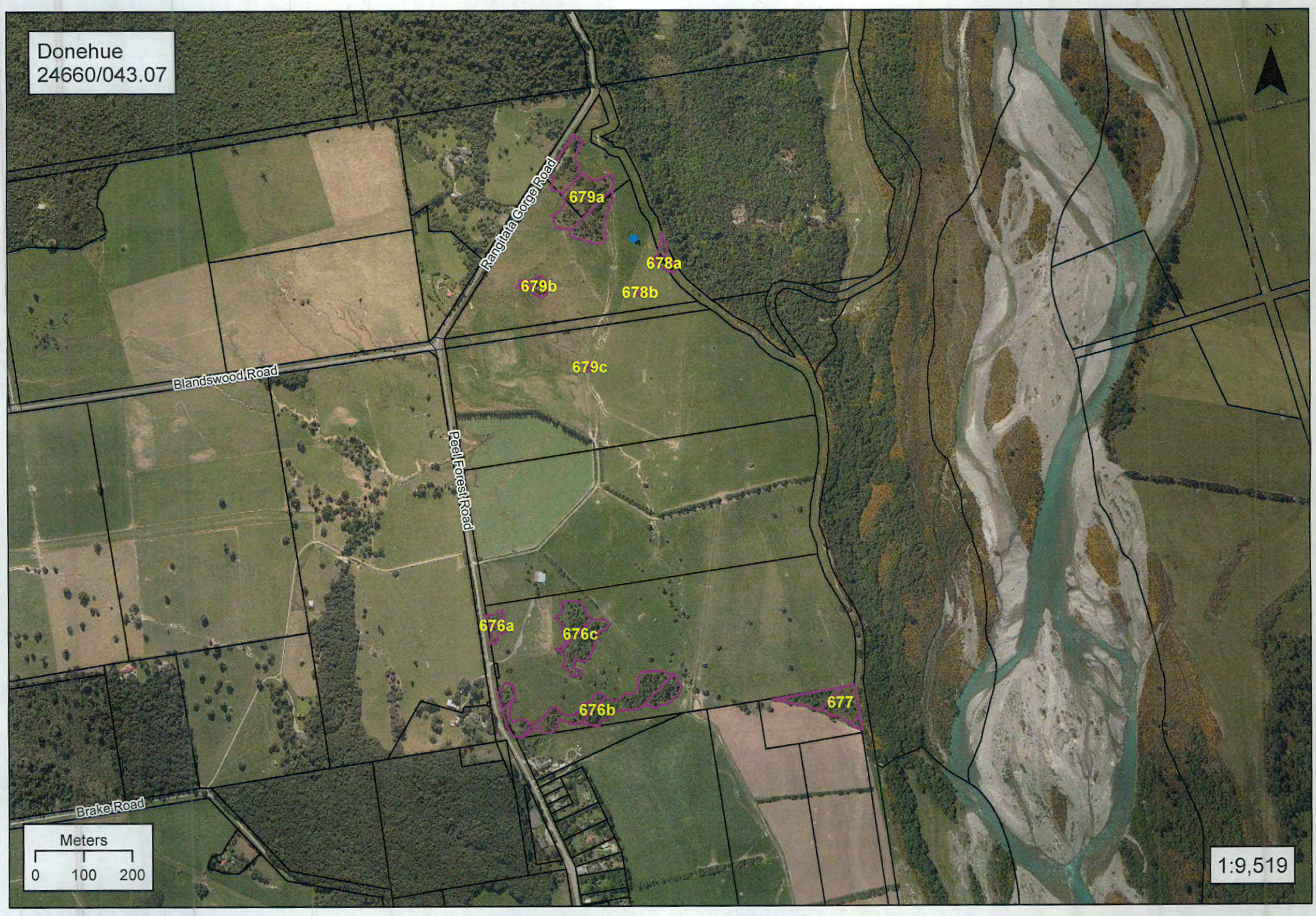
At present, consent is required from Council for clearance of areas of indigenous vegetation or habitat that meet the Interim Definitions in the District Plan. Clearance includes burning, spraying with herbicides and over-planting. SNAs encompass most, but not necessarily all, areas of vegetation and 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 either scattered old trees or denser stands of trees dominated by sycamore (on the Rangitata River terrace scarp). Note that individual indigenous trees at plains sites are protected from clearance by existing District Plan rules.

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.


Donehue
24660/043.07
N
679a
678a
679b
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679c
Rangitata Gorge Road
Blandswood Road
Peel Forest Road
676a
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TIMARU DISTRICT SNA SURVEY SNA 676

Area Name:
Ecological District: Geraldine/High Plains
676a: Central map ref. (NZTM): 1460202E-5137110N
676b: Central map ref. (NZTM): 1460393E-5136953N
676c: Central map ref. (NZTM): 1460379E-5137081N
Surveyors: Mike Harding

Property: Donehue
Nearest Locality: Peel Forest
Area Size (ha): 0.15 **Altitude (m):** 280
Area Size (ha): 1.64 **Altitude (m):** 280
Area Size (ha): 0.88 **Altitude (m):** 280
Survey Time: 1½ hours **Survey Date:** 18-09-15

General Description:

These three sites are just south of the farm buildings, just north of the settlement of Peel Forest and adjacent to Peel Forest Road. They lie either side of a low terrace scarp and are separated by areas of pasture on stony (uncultivated?) ground. The sites are close to a large area of sycamore forest with old remnant podocarps (SNA 659a) to the southeast.

Plant Communities:

All three sites support a similar plant community, podocarp-hardwood forest/treeland (scattered trees), so are described together. Naturalized exotic species are indicated with an asterisk*. Scientific names of species cited by common name are listed at the end of this report.

The most common canopy tree species is totara, which is especially dominant at the lower site (SNA 676b). Other common canopy or emergent species are lowland ribbonwood, narrow-leaved lacebark, broadleaf, pokaka, kowhai, sycamore* and elderberry*. Less commonly present are kahikatea, matai, wineberry, kaikomako, matipo, lancewood, lemonwood, yellowwood, cabbage tree, holly*, hawthorn*, barberry*, plum* and ash*. Climbers commonly present are bush lawyer, pohuehue, native jasmine and *Clematis foetida*,

Three species of mistletoe are present: white mistletoe (*Tupeia antarctica*) is present on lowland ribbonwood and narrow-leaved lacebark trees, green mistletoe (*Ileostylis micranthus*) on totara, and dwarf mistletoe (*Korthalsella lindsayi*) on *Coprosma crassifolia*. White mistletoe is listed by de Lange *et al* (2012) as an 'at risk' (declining) plant species.

SNA 676b on the lower terrace: totara is the dominant canopy tree.

The forest/treeland understorey is only sparsely vegetated. Species commonly present are mingimingi, *Coprosma crassifolia*, *Coprosma rigida*, weeping mapou, poataniwha, lawyer and leather-leaf fern (on tree trunks). Occasionally present are *Coprosma rotundifolia*, *Raukaua anomalus*, scrub pohuehue, porcupine shrub, gorse* and, at two locations in SNA 676c, tree nettle (*Urtica ferox*). Tree nettle is a locally uncommon species.

The ground-cover is in most places dominated by pasture grasses. Other species present are foxglove*, horehound*, nettle*, velvety nightshade*, hemlock*, necklace fern, pennywort, cardamine and occasional seedlings of kowhai and elderberry*.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, grey warbler, kereru, paradise shelduck and spur-winged plover. Other species likely to be present are fantail, silvereye, welcome swallow and harrier.

Notable Flora, Fauna and Habitats:
Notable features of this site are the presence of: indigenous vegetation in an acutely-threatened land environment; old podocarp trees (predominantly totara); a declining species (white mistletoe); a locally-uncommon species (tree nettle); and important habitat for forest birds.

Notable Plant and Animal Pests:
Sycamore, holly, hawthorn and barberry are important plant pests at the site. Most important is sycamore, as this species can dominate and over-top native forest, as has occurred just southwest of the site. Other exotic species such as elderberry and gorse do not pose a significant threat. Animal pests were not surveyed, though possums will be present.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The boundaries of these three patches have been drawn to include the main areas of forest and treeland. Some isolated native trees (including some fine specimens) are excluded, though it is worth noting that individual native trees on lowland alluvial (plains) surfaces are protected from clearance by the District Plan.

Condition and Management
Canopy trees at these sites are mostly in good condition, though some tree trunks have been damaged by stock. The forest understorey and floor are substantially depleted, as is typical for grazed sites. The most important management issues are control of invasive exotic trees (especially sycamore) and protection of the forest understorey to enable regeneration of canopy tree species.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M**	Good examples of remnant forest canopy, though the forest understorey is substantially depleted and only moderately representative of that originally present.
Rarity	**H**	Indigenous vegetation in an acutely-threatened Land Environment (N3.1a); remnant old-growth forest is now very rare in lowland Canterbury; supports a good population of an 'at risk' (declining) species (white mistletoe) and a small population of a locally-uncommon plant species (tree nettle).
Diversity and pattern	**M**	Plant species diversity is moderate (37 vascular species) though substantially reduced from that originally present.
Special features	**M**	The presence of large old-growth trees is a notable feature.
Other Criteria		
Size/shape	**M/H**	Relatively large sites for the Geraldine/High Plains ecological districts.
Connectivity	**M**	Lies close to other areas of indigenous vegetation including the regionally-important Peel Forest Park Scenic Reserve.
Long-term Sustainability	**L/M**	Regeneration of indigenous canopy species and control of invasive exotic species will be necessary to maintain ecological values in the long term.

Property Owner Comment:

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
Trees at these sites have been informally protected by the landowner. The area is grazed as part of larger paddocks, affecting the forest understorey and forest regeneration. The small scarp upon which part of the site is located limits the potential for further development. The trees presumably provide useful shade and shelter for farm animals.

Discussion:
These areas of forest and treeland easily meet the District Plan criteria for Significant Natural Areas (SNA). Important features are the presence of old-growth trees at a lowland alluvial (plains) location and the habitat they provide for forest birds. The sites support an 'at risk' (declining) plant species, a locally-uncommon species and a good diversity of plant species.

TIMARU DISTRICT SNA SURVEY — SNA 677

Area Name:
Property: Donehue
Ecological District: Geraldine/High Plains
Nearest Locality: Peel Forest
Central map ref. (NZTM): 1460866E-5136945N
Area Size (ha): 0.69 **Altitude (m):** 280
Surveyors: Mike Harding
Survey Time: ½ hour **Survey Date:** 18-09-15

General Description:

This site is a triangular-shaped area at the eastern property boundary, adjacent to the steep terrace scarp of the Rangitata River. It is fenced from grazing.

Plant Communities:

The main plant community present is podocarp-hardwood forest/treeland, in patches separated by rank pasture grasses. This community is described below; naturalized (exotic) species are indicated with an asterisk*.

The forest/treeland canopy is dominated by totara and narrow-leaved lacebark. Other canopy species are lowland ribbonwood, rohutu, sycamore*, elderberry*, bush lawyer, native jasmine and pohuehue. The understorey of denser patches of trees is dominated by *Coprosma crassifolia*. Other species present are poataniwha, weeping mapou, *Coprosma propinqua*, *Coprosma rigida*, lemonwood, mapou, totara, kowhai, lawyer, elderberry*, holly*, *Libertia ixioides*, foxglove* and hound's tongue fern (on tree trunks). Seedlings of mahoe and *Coprosma* species are present on the forest floor.

Open spaces between the trees are dominated by rank pasture grasses* and blackberry*. Other species present are elderberry*, broom*, *Coprosma crassifolia*, Himalayan honeysuckle*, velvety nightshade* and horehound*.

Tall totara trees at SNA 677, with dense blackberry at forest openings (foreground).

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, fantail, grey warbler and harrier. Other species likely to be present are kereru, silvereye and welcome swallow.

Notable Flora, Fauna and Habitats:

Notable features of this area are the presence of indigenous vegetation in an acutely-threatened land environment, large old trees and the habitat the area provides for forest birds.

Notable Plant and Animal Pests:

Sycamore and holly are the most important plant pests present. Both these species can dominate and smother native forest. Other exotic species present, such as elderberry, broom and blackberry, do not pose a significant threat. Animal pests were not surveyed, though possum sign was observed.

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

The boundaries of this area are the fences which separate the site from grazed paddocks. There are some open areas dominated by exotic vegetation, though these areas have high potential for regeneration or restoration. The site adjoins a large area of sycamore-dominated forest on the adjacent Rangitata River floodplain and lies close to other areas of indigenous vegetation.

Condition and Management

The forest patches are in relatively good condition. Canopy trees are intact and understorey vegetation is quite thick. The most important management issues are control of invasive exotic species (notably sycamore and holly) and continued control of possums.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest typical of that remaining on the plains in this part of the ecological district, though only moderately representative of the original vegetation.
Rarity	H	Indigenous vegetation in an 'acutely threatened' Land Environment (N2.1d).
Diversity and pattern	M	Plant species diversity is moderate and includes understorey species, though is substantially depleted from that originally present.
Distinctiveness/special features	M	The presence of relatively dense understorey vegetation, including young totara, is a notable feature.
Other Criteria		
Size/shape	M	A small to moderate sized area, though well buffered.
Connectivity	M	Adjoins an area of exotic forest (and extensive forest bird habitat) and lies close to other areas of indigenous forest.
Long-term Sustainability	M/H	Some plant pest control (notably sycamore and holly) and ongoing pest control (possums) will be necessary to maintain ecological values in the long term.

Property Owner Comment:

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

This area has been fenced and deliberately protected by the landowner. It does not provide access to other parts of the property. It does have potential for farm development.

Discussion:

This area easily meets the District Plan criteria for a Significant Natural Area (SNA). Important features are the presence of indigenous vegetation in an acutely-threatened land environment. It supports old trees, including podocarps, and provides good habitat for forest birds.

TIMARU DISTRICT SNA SURVEY

SNA 678

Area Name:
Ecological District: Geraldine/High Plains
678a: Central map ref. (NZTM): 1460554E-5137892N
678b: Central map ref. (NZTM): 1460505E-5137805N
678c: Central map ref. (NZTM): 1460492E-5137917N
Surveyors: Mike Harding

Property: Donehue
Nearest Locality: Peel Forest
Area Size (ha): 0.15 **Altitude (m):** 290
Area Size (ha): 0.01 **Altitude (m):** 290
Area Size (ha): 0.01 **Altitude (m):** 290
Survey Time: ½ hour **Survey Date:** 18-09-15

General Description:

This SNA comprises one small patch of indigenous treeland (scattered trees) and two isolated indigenous trees. It lies at the terrace edge near the northeast corner of the property, adjacent to a large area of sycamore-dominated forest on the adjacent lower terrace.

Plant Communities:

The main patch of trees (SNA 678a) is made up of old mature trees of totara, lowland ribbonwood, narrow-leaved lacebark, broadleaf and kowhai, in grazed pasture.

Old trees of lowland ribbonwood and kowhai at SNA 678a; Peel Forest Park Scenic Reserve beyond.

SNA 678b is a large old pokaka tree (left, below); SNA 678c is a large totara tree (right, below).

Notable Flora, Fauna and Habitats:

Notable features of these areas are the age and size of the indigenous trees and that they are within an acutely-threatened Land Environment. The trees lie close to other areas of indigenous vegetation, including the regionally-important Peel Forest Park Scenic Reserve. They are likely to provide important roost sites and seasonal food for birds.

Condition and Management

The trees are in good condition apart from some damage to tree trunks from stock rubbing. The main management issue is encouragement of forest regeneration, as these trees will eventually senesce and die.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	**M**	Remnant old-growth canopy trees, though the lack of understorey vegetation means the vegetation is only moderately representative of the original vegetation.
Rarity	**H**	Indigenous vegetation in an acutely-threatened Land Environment (N3.1a).
Diversity and pattern	**L**	Plant species diversity is low and substantially depleted from that originally present.
Distinctiveness/special features	**M**	The size of the trees, especially the pokaka (678b) and totara (678c) are notable.
Other Criteria		
Size/shape	**L/M**	A small site: one small patch and two nearby trees, though significant for a lowland alluvial site.
Connectivity	**M**	Lies close to other areas of indigenous vegetation, including Peel Forest Park Scenic Reserve.
Long-term Sustainability	**L**	Regeneration of canopy tree species is required.

Property Owner Comment:

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

These trees have been informally protected by the landowner. They lie at the terrace edge and do not hinder grazing or farm access.

Discussion:

These areas meet the District Plan criteria for Significant Natural Areas (SNAs). Important features are that they are large old-growth trees that lie within an acutely-threatened Land Environment. They are close to the regionally-important Peel Forest Park Scenic Reserve and are likely to provide important roosting and feeding habitat for birds.

TIMARU DISTRICT SNA SURVEY

SNA 679

Area Name:
Ecological District:
679a: Central map ref. (NZTM): 1460375E-5138027N
679b: Central map ref. (NZTM): 1460283E-5137826N
679c: Central map ref. (NZTM): 1460324E-5137750N
Surveyors: Mike Harding

Property: Donehue
Nearest Locality: Peel Forest
Area Size (ha): 1.71 **Altitude (m):** 290
Area Size (ha): 0.16 **Altitude (m):** 290
Area Size (ha): 0.02 **Altitude (m):** 290
Survey Time: 1 hour **Survey Date:** 18-09-15

General Description:

This SNA comprises a patch of swamp kahikatea forest, a smaller patch of podocarp-hardwood forest, and a single large kahikatea tree. It lies at the northern boundary of the property adjacent to Rangitata Gorge Road.

Plant Communities:

The larger forest patch (SNA 679a) is dominated by kahikatea (*Dacrycarpus dacrydioides*). These canopy trees are a range of sizes from small closely-spaced "pole" kahikatea to larger trees emergent over the forest canopy. Other canopy species are broadleaf, totara, pokaka, narrow-leaved lacebark, manuka, kowhai, cabbage tree, bush lawyer and pohuehue. Other species present are weeping mapou, *Neomyrtus pedunculatus*, mapou, turepo, gorse*, clematis, dwarf mistletoe (on weeping mapou) and, on tree trunks, leather-leaf fern, hanging spleenwort and white climbing rata. Damper areas support *Juncus edgariae*, soft rush*, pukio, swamp kiokio, *Blechnum penna-marina*, prickly shield fern, water fern and pennywort.

A large pokaka tree (foreground) and dense "pole" kahikatea at SNA 679a.

The smaller patch of forest (SNA 679b) comprises trees of kahikatea, totara, manuka and weeping mapou. Other plant species present are *Neomytus pedunculatus*, green mistletoe, dwarf mistletoe, leather-leaf fern, bush lawyer, lawyer, pohuehue, soft rush* and rautahi.

SNA 679c is a large old kahikatea tree.

Birds/Fauna Observed:

Native birds observed were pukeko, paradise shelduck, bellbird and fantail. Other native bird species are very likely to use this area. Kahikatea trees provide an important seasonal food source for birds.

Notable Flora, Fauna and Habitats:
Notable features are the presence of indigenous vegetation in an acutely-threatened land environment; stands of pole kahikatea (a rare forest type), the habitat it provides for forest birds, and its proximity to a regionally-important protected area (Peel Forest Park Scenic Reserve).

Notable Plant and Animal Pests:
These stands of trees are free of invasive plant pests. Gorse and soft rush are present, though do not pose a significant threat to the forest. Animal pests were not surveyed, though possum sign was observed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The boundaries of these areas are drawn to include the main stands of trees. The area lies very close to Peel Forest Park Scenic Reserve. The main forest patch (SNA 679a) is buffered to some extent by its location on a poorly-drained spring-fed surface. However, it is also vulnerable if drainage at the site is altered.

Condition and Management
The main stand of kahikatea is in good condition, except that it lacks understorey vegetation. Important management issues are protection of the forest understorey from grazing and wild animals and control of any new plant pests (such as sycamore) that may appear.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	The main patch of kahikatea forest is moderately representative of the original vegetation; other vegetation at the site is less representative.
Rarity	H	Indigenous vegetation in an acutely-threatened Land Environment (N3.1a); swamp kahikatea forest is a rare forest type, especially in Canterbury.
Diversity and pattern	M	Plant species diversity is moderate, though reduced from that originally present.
Distinctiveness/special features	M/H	The large pokaka trees and dense stands of pole kahikatea are special features.
Other Criteria		
Size/shape	M	A moderate-sized site (679a) for this part of the ecological district.
Connectivity	M	Lies very close to other indigenous vegetation, including the regionally-important Peel Forest Park Scenic Reserve.
Long-term Sustainability	M	Regeneration of canopy species is required to maintain ecological values in the long term. Alteration of drainage will affect the site.

Property Owner Comment:
Mr Donehue noted that he may fence this area of forest from grazing.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
The main forest patch at this site occupies a poorly-drained surface that has limited potential for farm development. It does not hinder farm access and has been informally protected by the landowner. Vegetation at the site is vulnerable to lowering of the water table: modification of drainage should be avoided.

Discussion:
This area easily meets the District Plan criteria for a Significant Natural Area (SNA). It is a rare example of pole kahikatea forest and lies in an acutely-threatened Land Environment. It is very close to a regionally-important protected natural area (Peel Forest Park Scenic Reserve) and provides important habitat for forest birds.

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 (* = naturalised species)	Scientific name
ash*	*Fraxinus excelsior*
barberry*	*Berberis glaucocarpa*
blackberry*	*Rubus fruticosus*
broadleaf	*Griselinia littoralis*
broom*	*Cytisus scoparius*
bush lawyer	*Rubus cissoides*
cabbage tree/ti rakau	*Cordyline australis*
cardamine	*Cardamine debilis*
clematis	*Clematis paniculata*
dwarf mistletoe	*Korthalsella lindsayi*
elderberry*	*Sambucus nigra*
foxglove*	*Digitalis purpurea*
gorse*	*Ulex europaeus*
green mistletoe	*Ileostylis micranthus*
hanging spleenwort	*Asplenium flaccidum*
hawthorn*	*Crataegus monogyna*
hemlock*	*Conium maculatum*
Himalayan honeysuckle*	*Leycesteria formosa*
Himalayan lily*	*Cardiocrinum giganteum*
holly*	*Ilex aquifolium*
horehound*	*Marrubium vulgare*
hound's tongue fern	*Microsorum pustulatum*
kahikatea/white pine	*Dacrycarpus dacrydioides*
kaikomako	*Pennantia corymbosa*
kowhai	*Sophora microphylla*
lancewood	*Pseudopanax crassifolius*
lawyer	*Rubus schmidelioides*
leather-leaf fern	*Pyrrosia eleagnifolia*
lemonwood	*Pittosporum eugenioides*
lowland ribbonwood	*Plagianthus regius*
manuka	*Leptospermum scoparium*
mapou	*Myrsine australis*
matai/black pine	*Prumnopitys taxifolia*
matipo/kohuhu	*Pittosporum tenuifolium*
mingimingi	*Coprosma propinqua*
narrow-leaved lacebark	*Hoheria angustifolia*
native jasmine	*Parsonsia heterophylla*
necklace fern	*Asplenium flabellifolium*
nettle	*Urtica incisa*
pennywort	*Hydrocotyle novae-zelandiae*
plum*	*Prunus* sp.
poataniwha	*Melicope simplex*
pohuehue	*Muehlenbeckia australis*
pokaka	*Elaeocarpus hookerianus*
porcupine shrub	*Melicytus alpinus*
prickly shield fern	*Polystichum vestitum*
pukio	*Carex secta*
rautahi	*Carex coriacea*
rohutu	*Lophomyrtus obcordata*
scrub pohuehue	*Muehlenbeckia complexa*
soft rush*	*Juncus effusus*
swamp kiokio	*Blechnum minus*
sycamore*	*Acer pseudoplatanus*

totara	*Podocarpus totara*
tree nettle	*Urtica ferox*
turepo	*Streblus heterophyllus*
velvety nightshade*	*Solanum chenopodioides*
water fern	*Histiopteris incisa*
weeping mapou	*Myrsine divaricata*
white climbing rata	*Metrosideros diffusa*
white mistletoe	*Tupeia antarctica*
wineberry	*Aristotelia serrata*
yellowwood	*Coprosma linariifolia*

References Cited

de Lange, PJ; Rolfe, JR; Champion, PD; Courtney, SP; Heenan, PB; Barkla, JW; Cameron, EK; Norton, DA; Hitchmough, RA. 2012. *Conservation status of New Zealand indigenous vascular plants, 2012.* Department of Conservation, Wellington, New Zealand. 70p.

Leathwick, J.; Wilson, G.; Rutledge, D.; Wardle, P.; Morgan, F.; Johnston, K.; McLeod, M.; Kirkpatrick, R. 2003. *Land Environments of New Zealand.* David Bateman, Auckland. 184p.

McEwen, W.M. (editor) 1987. Ecological regions and districts of New Zealand, third revised edition (Sheet 4). *New Zealand Biological Resources Centre Publication No.5.* Department of Conservation, Wellington, 1987.

O'Donnell, C.F.J.; Christie, J.E.; Lloyd, B.; Parsons, S.; Hitchmough, R.A. 2012. Conservation status of New Zealand bats 2012. *New Zealand Threat Classification Series 6.* Department of Conservation, Wellington.

Walker, S.; Price, R.; Rutledge, D.; Stephens, R.T.T.; Lee, W.G. 2006. Recent loss of indigenous cover in New Zealand. *NZ Journal of Ecology 30*: 169-177.

Large lowland ribbonwood tree with clumps of white mistletoe, adjacent to Peel Forest Road (SNA 676a)