

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

CARR PROPERTY
(PEEL FOREST ESTATE)



Report prepared for Timaru District Council by Mike Harding
October 2010

These SNAs are illustrated on the attached aerial photograph 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 in the long term, or 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 which 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, 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.

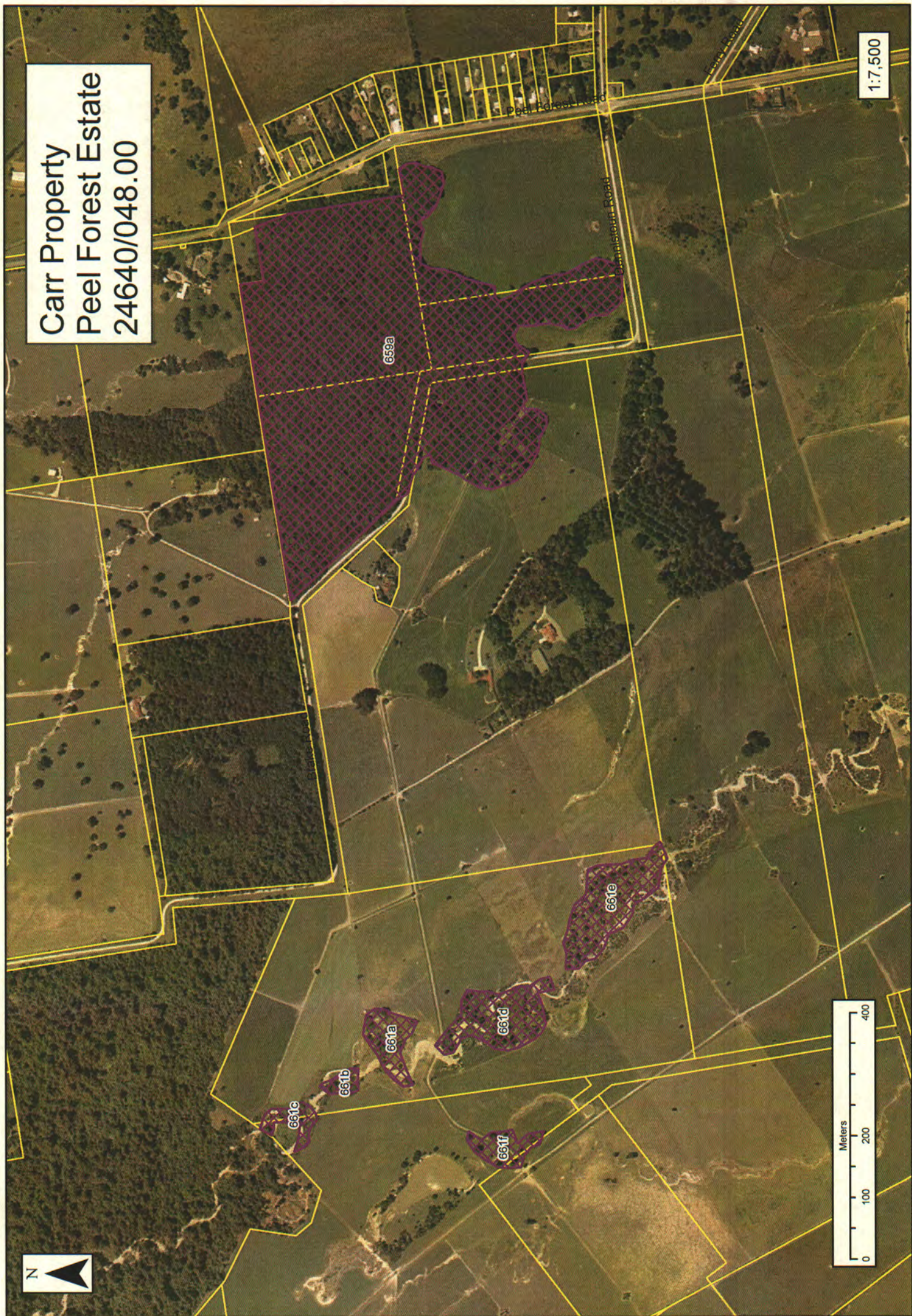
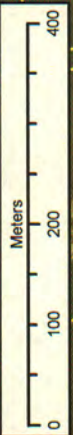


A large clump of white mistletoe (*Tupeia antarctica*) in SNA 661e

Cover photo: kowhai and lowland ribbonwood (with white mistletoe) in SNA 661e

Carr Property
Peel Forest Estate
24640/048.00

1:7,500



Area Name: Carr Forest

Location (central map reference): J37: 700-982

Ecological District: High Plains

Surveyors: Mike Harding

Property: Graham Carr (Peel Forest Estate)

Nearest Locality: Peel Forest

Area Size (ha): 21.4 **Altitude (m):** 280

Survey Time: 2½ hours **Survey Date:** 28-06-10

General Description:

This SNA lies mostly on a gently sloping terrace, presumably an old outwash surface of the Kowai River. A small part of the area at its inland (north) edge covers a low ridge and associated shallow gully. This relatively extensive area of forest is adjacent to Peel Forest village and is clearly visible from Peel Forest and Dennistoun roads.

Plant Communities:

The main plant community present is forest dominated by sycamore, and with varying densities of large old podocarp trees scattered throughout. Southern parts of the forest, adjacent to Dennistoun Road and on the southwest side of Brake Road are grazed. Other parts of the forest are fenced and appear un-grazed. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is dominated by sycamore*. Other canopy and emergent species are large old trees of kahikatea, matai and totara, with greater densities of these podocarps (especially matai) the northern edge of the forest. Also present in the forest canopy are lowland ribbonwood, narrow-leaved lacebark, broadleaf, pokaka, lancewood and old man's beard*. Important sub-canopy species are totara and kaikomako. Trunk diameters (cm at breast height) of the larger trees are: kahikatea, 100-115; totara, 100-150; matai, 120-130; and sycamore, 45-65. One very large totara has a trunk diameter of 255cm.

The forest understorey is dominated in most places by mahoe, *Coprosma rotundifolia* and/or *Coprosma areolata*. Other understorey species are *Coprosma crassifolia*, matipo, kaikomako, weeping mapou, pate, mapou, lancewood, horopito, poataniwha, lemonwood, wineberry, sycamore*, native jasmine, bush lawyer, *Clematis marata*, *Calystegia tuguriorum*, leather-leaf fern, hanging spleenwort and saplings of totara, kahikatea and matai. Occasionally present in the understorey are marbleleaf, fuchsia, lowland ribbonwood, five-finger, wheki-ponga, blackberry*, holly*, Himalayan lily* and hawthorn*.

The dominant ground-cover species present throughout is prickly shield fern. Other ground-cover species are hen and chickens fern, hound's tongue fern, *Hypolepis ambigua*, male fern*, a buttercup* (*Ranunculus ficarii* ssp. *ficariiiformis*) and seedlings of totara, kahikatea, matai, horopito, mahoe, elderberry*, sycamore* and *Coprosma* species.

Additional understorey species present in the northeast part of the forest (the part closest to Peel Forest village) are *Raukaua anomalus*, *Coprosma virescens*, *Coprosma propinqua*, shrubby mahoe, pokaka and cherry laurel*. Additional ground-cover species in this part of the forest are ivy*, stinking iris* and violet*.

Additional species present in the northern part of the forest, mostly near the small stream, are *Blechnum chambersii*, *Blechnum fluviatile*, swamp kiokio, *Leptopteris hymenophylloides*, bush lily, bush rice grass, sedge (*Carex* sp.), *Raukaua simplex* and a single bush of *Melicytus* "Blondin".

Parts of the forest southwest of Brake Road and adjacent to Dennistoun Road are grazed. These areas of forest have an open understorey and depleted ground-cover dominated by grasses and fallen leaves. The forest canopy is similar to that described above. The only additional species observed in this part of the forest was mistletoe (*Ileostylis micranthus*) on totara trees.

Birds/Fauna Observed:

Native birds observed during this survey were bellbird, fantail, kereru (NZ pigeon), grey warbler and rifleman. Kereru were very common in the forest at the time of survey. The area is also likely to provide habitat for tomtit and silvereye.

Notable Flora, Fauna and Habitats:

Important features of this area are the numerous large old podocarp (kahikatea, totara and matai) trees, the presence (and abundance in places) of podocarp saplings and seedlings, the presence of locally-uncommon plant species (including wheki-ponga, *Coprosma virescens*, *Raukaua simplex*, *Melicytus* "Blondin" and bush rice grass), the habitat the area provides for an 'at-risk' bird species (rifleman), the habitat the area provides for other forest birds (including kereru) and possibly long-tailed bat (a nationally-endangered species), and the proximity of the area to regionally important areas of protected forest at Dennistoun Bush and Peel Forest Park Scenic Reserve. The large trunk diameter (255cm) of one totara tree is notable.



Large old matai trees amongst sycamore in the northern part of the forest.

Notable Plant and Animal Pests:

Sycamore is the most important plant pest present. It dominates the forest canopy over most parts of this SNA and is present in the forest understorey. Old man's beard is also present in patches throughout the forest, though does not appear to be having as great an impact as it does in smaller patches of forest. Ivy is very common at the northeast part of the forest and appears to be gradually advancing into the forest. Hawthorn and holly are occasionally present. Other important plant pests are stinking iris and Himalayan lily, both of which are still relatively uncommon. Also present on the forest floor are an introduced buttercup and violet. Animal pests were not surveyed.

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

This is a relatively large area of forest and is well buffered by its size. It appears to be fenced along most boundaries, though the southwest and southern parts of the forest are grazed as part of larger paddocks. The forest extends onto an adjoining property to the north and adjoins another area of forest (which links it to Dennistoun Bush) at its northwest corner. It lies close to the regionally-important Peel Forest Park Scenic Reserve.

Condition and Management Issues:

From the exterior, the forest appears to be in poor condition. Sycamore is dominant and the understorey at the forest margin appears open. However, there are a surprisingly large number of old podocarp trees throughout the forest and especially in the northern part of the forest. The main management issue is undoubtedly the control (and eventual removal, if possible) of sycamore. Such control would have to be done in a way that enabled indigenous species in the understorey, notably the relatively common podocarp saplings, to replace sycamore in the forest canopy. This could probably be achieved by killing the trees without felling, such as by applying herbicide to tree trunks. Other urgent priorities for weed control are old man's beard and ivy. Of these, ivy is more problematic, as it is very common at the northeast corner of the forest. Any weed control effort should probably work southeast from the northwest corner of the forest.

Property Owner Comment:

Would not want the sycamore trees in this forest completely removed or killed. Sycamore is a valuable timber tree and provides important shade and shelter for stock.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A highly-modified (by sycamore) example of the forest originally present in this part of the ecological district.
Rarity	M/H	Large old podocarp trees are uncommon in the High Plains Ecological District. The forest provides habitat for an 'at-risk' bird species (rifleman) and several locally-uncommon plant species. The large trees provide suitable habitat for a nationally-endangered species (long-tailed bat).
Diversity and pattern	M	A relatively diverse range of plant species is present, though diversity is substantially reduced from that formerly present.
Distinctiveness/special features	H	The number and size of the old podocarp trees is a special feature. One totara tree has a trunk diameter of 255cm.
Other Criteria		
Size/shape	H	A very large area of forest for the High Plains Ecological District.
Connectivity	M	Adjoins other indigenous forest at its northern and northwest boundaries and lies close to the regionally-important Peel Forest Park Scenic Reserve.
Long-term Sustainability	L/M	Protection of ecological values in the long term is almost certainly dependent on control of sycamore, ivy and old man's beard.

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

This area of forest has been informally protected by the landowner. While it could be cleared to create pasture, this would be a major exercise. The forest, despite the dominance of sycamore, adds considerable amenity value to the property and provides a highly-visible scenic backdrop to Peel Forest village.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the numerous large old podocarp (kahikatea, totara and matai) trees, the presence (and abundance in places) of podocarp saplings and seedlings, the presence of locally-uncommon plant species, the habitat the area provides for an 'at-risk' bird species (rifleman), the habitat the area provides for other forest birds (including kereru) and possibly long-tailed bat, and the proximity of the area to regionally important areas of protected forest at Dennistoun Bush and Peel Forest Park Scenic Reserve.

Area Name: Kowai River treeland	Property: Graham Carr (Peel Forest Estate)	
Ecological District: High Plains	Nearest Locality: Peel Forest	
SNA 661a: Location (central map ref.): J37: 689-982	Area Size (ha): 0.62	Altitude (m): 300
SNA 661b: Location (central map ref.): J37: 688-983	Area Size (ha): 0.17	Altitude (m): 305
SNA 661c: Location (central map ref.): J37: 687-984	Area Size (ha): 0.32	Altitude (m): 310
SNA 661d: Location (central map ref.): J37: 689-980	Area Size (ha): 1.33	Altitude (m): 295
SNA 661e: Location (central map ref.): J37: 691-978	Area Size (ha): 1.57	Altitude (m): 290
SNA 661f: Location (central map ref.): J37: 686-979	Area Size (ha): 0.46	Altitude (m): 300
Surveyors: Mike Harding	Survey Time: 3 hours	Survey Date: 28-06-10

General Description:

This SNA comprises five main areas of scattered trees (treeland) or small patches of trees on recent alluvial gravels along the narrow floodplain of the Kowai River and one patch of widely-spaced old podocarp trees on the adjacent terrace (SNA 661f). It adjoins Dennistoun Bush at its upper margin.

Plant Communities:

Two main plant communities are present: kowai-lowland ribbonwood treeland and podocarp-hardwood forest/treeland. These plant communities are described for each of the six parts of this area below.

Naturalized (exotic) species are indicated with an asterisk*.

SNA 661a:

This area lies just above the farm track where it crosses Kowai River. It comprises scattered trees and patches of trees amongst pasture. Kowhai and lowland ribbonwood are the dominant trees present. Other canopy species are totara, narrow-leaved lacebark, broadleaf, mahoe, mapou, poataniwha, kanuka, weeping mapou, sycamore*, pohuehue, leather-leaf fern (on tree trunks) and a single matai tree. Trunk diameters (cm at breast height) of the larger trees are: kowhai, 60-70; totara, 60-65, lowland ribbonwood, 55-65; and matai, 85.

Indigenous ground-cover species present, mostly on steeper banks where pasture grasses are not dominant, are hairy pennywort, necklace fern, *Asplenium appendiculatum*, prickly shield fern, *Cardamine* sp. and seedlings of kowhai and mapou. Also present are elderberry*, male fern*, old man's beard*, foxglove*, black nightshade*, nettle* and seedlings of sycamore*.

Islands and flats adjacent to the active stream channel are dominated by grasses (especially cocksfoot*), gorse*, broom*, buddleia* and Himalayan honeysuckle*. A small pond and adjacent wetland support soft rush*, *Mimulus* sp.*, cocksfoot* and creeping buttercup*.

SNA 661b:

This small area is dominated by kowhai trees. Other canopy species present are lowland ribbonwood, old man's beard*, totara, matai and a single kahikatea sapling.

Understorey and ground-cover species present are mahoe, *Coprosma virescens*, weeping mapou, necklace fern, *Asplenium appendiculatum*, hairy pennywort, foxglove*, nettle* and seedlings of old man's beard*, sycamore*, lowland ribbonwood, kowhai, mahoe, *Calystegia tuguriorum* and pohuehue.

Mountain akeake and koromiko are present on the stream bank, amongst gorse*, broom*, Himalayan honeysuckle*, blackberry* and cocksfoot*.

SNA 661c:

Indigenous vegetation in this area comprises two patches on either side of the river, adjacent to the property boundary at Dennistoun Bush. Canopy species are narrow-leaved lacebark, kowhai, lemonwood, broadleaf, cabbage tree, five-finger, totara, lowland ribbonwood, matipo, mahoe, mapou, sycamore*, pohuehue, *Calystegia tuguriorum* and old man's beard*. Other indigenous species present are prickly shield fern and leather-leaf fern.

661d:

Indigenous vegetation in this area comprises scattered trees over pasture, with patches of gorse* and old man's beard* along the river. The dominant species is kowhai. Other trees present are lowland ribbonwood, totara, broadleaf, cabbage tree, kahikatea, kanuka, narrow-leaved lacebark and elderberry*. Other indigenous species present are leather-leaf fern (abundant on some tree trunks) and lawyer.

SNA 661e:

This large area of treeland is dominated by scattered trees of lowland ribbonwood and kowhai over pasture and scattered clumps of gorse*. Occasional trees of totara, cabbage tree, elderberry* and Lombardy poplar* are also present. The threatened white mistletoe, *Tupeia antarctica*, is abundant on many of the lowland ribbonwood trees. Other indigenous species are lawyer, leather-leaf fern and pohuehue.

SNA 661f:

This SNA comprises old kahikatea trees scattered in grazed paddocks adjacent to a laneway. Also present are large trees of totara, cabbage tree and mapou. There are scattered patches of kanuka above these trees.

Birds/Fauna Observed:

Native birds observed during this brief survey were bellbird, fantail, silvereye, kereru (NZ pigeon) and pukeko.

Notable Flora, Fauna and Habitats:

Important features of this area are the presence of mature indigenous trees, including old podocarps, the dominance of kowhai and lowland ribbonwood, the presence and abundance of an 'at-risk' (declining) plant species (white mistletoe), the habitat the area provides for birds and possibly long-tailed bat, and the contribution the vegetation makes to buffering the river. The population of white mistletoe in SNA 661e is part of the largest known population in Timaru District. *Coprosma virescens* is locally uncommon.



White mistletoe on a lowland ribbonwood tree in SNA 661e

Notable Plant and Animal Pests:

Sycamore and old man's beard are the most important plant pests present. Other weeds, such as gorse, broom and Himalayan honeysuckle, do not pose a significant threat to the indigenous vegetation. Buddleia may pose a threat to other open streambeds in the vicinity. Animal pests were not surveyed, though possum sign was observed.

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

Most parts of these small SNAs are not fenced and are grazed as part of larger paddocks. The areas (except SNA 661f) are buffered to some extent by the terrace scarps on either side of the river floodplain, especially at the downstream end (SNA 661e) where the scarps are several metres high. SNA 661c adjoins Dennistoun Bush; otherwise the SNAs are separated by areas of pasture or woody weeds, though are close enough to one another to provide contiguous bird (or bat) habitat.

Condition and Management Issues:

The main management issues are management of grazing animals and control of woody weeds, notably old man's beard and sycamore. The trunks of a number of trees in these SNAs have been protected from grazing by plastic netting. However, the long-term survival of indigenous trees in this area will eventually require regeneration (or planting) of canopy tree species. The area has good potential for restoration of riparian forest.

Property Owner Comment:

The trees in these areas, including naturalized species such as sycamore, provide important shade and shelter for stock, especially deer.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A good example of treeland, though a substantially depleted example of the vegetation originally present at the site.
Rarity	H	Supports a large population of an 'at-risk' (declining) plant species (white mistletoe); may provide habitat for a nationally-endangered species (long-tailed bat); mature indigenous trees are uncommon in the High Plains Ecological District.
Diversity and pattern	L/M	Most parts of the SNA have a low diversity of indigenous species; diversity is substantially reduced from that originally present.
Distinctiveness/special features	M	The location of these SNAs alongside the Kowai River is a special feature.
Other Criteria		
Size/shape	M/H	The SNAs are relatively large for the High Plains Ecological District.
Connectivity	M	The SNAs lie close to one another and are close to other areas of indigenous vegetation, including Dennistoun Bush and the regionally-important Peel Forest Park Scenic Reserve.
Long-term Sustainability	L/M	Regeneration or planting of indigenous trees will be required to maintain ecological values in the long term. The area has good potential for restoration.

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

This area has been informally protected by the landowner, though is grazed as part of larger paddocks. The SNAs along the river (661a to 661e) have limited potential for farm development as they lie on the river floodplain; SNA 661f comprises large scattered trees which provide shade and some shelter for stock.

Discussion:

This area meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of mature indigenous trees, including old podocarps, the dominance of kowhai and lowland ribbonwood, the presence and abundance of an 'at-risk' (declining) plant species (white mistletoe), the habitat the area provides for birds and possibly long-tailed bat, and the contribution the vegetation makes to 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)	
blackberry*	<i>Rubus fruticosus</i>
black nightshade*	<i>Solanum nigrum</i>
broadleaf	<i>Griselinia littoralis</i>
broom*	<i>Cytisus scoparius</i>
buddleia*	<i>Buddleja davidii</i>
bush lawyer	<i>Rubus cissoides</i>
bush lily	<i>Astelia</i> sp.
bush rice grass	<i>Microlaena</i> sp.
cabbage tree/ti rakau	<i>Cordyline australis</i>
cherry laurel*	<i>Prunus laurocerasus</i>
cocksfoot*	<i>Dactylis glomerata</i>
creeping buttercup*	<i>Ranunculus repens</i>
elderberry*	<i>Sambucus nigra</i>
five-finger	<i>Pseudopanax arboreus</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
gorse*	<i>Ulex europaeus</i>
hairy pennywort	<i>Hydrocotyle moschata</i>
hanging spleenwort	<i>Asplenium flaccidum</i>
hawthorn*	<i>Crataegus monogyna</i>
hen and chickens fern	<i>Asplenium bulbiferum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
Himalayan lily*	
holly*	<i>Ilex aquifolium</i>
horopito/pepperwood	<i>Pseudowintera colorata</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
ivy*	<i>Hedera helix</i>
kahikatea/white pine	<i>Dacrycarpus dacrydioides</i>
kaikomako	<i>Pennantia corymbosa</i>
kanuka	<i>Kunzea ericoides</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
lawyer	<i>Rubus schmidelioides</i>
leather-leaf fern	<i>Pyrrhosia eleagnifolia</i>
lemonwood	<i>Pittosporum eugenioides</i>
Lombardy poplar*	<i>Populus nigra</i>
lowland ribbonwood	<i>Plagianthus regius</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>
matai/black pine	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mistletoe	<i>Ileostylis micranthus</i>
mountain akeake	<i>Olearia avicenniifolia</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
native jasmine	<i>Parsonsia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
nettle*	<i>Urtica</i> sp.
old man's beard*	<i>Clematis vitalba</i>
pate	<i>Schefflera digitata</i>

poataniwha	<i>Melicope simplex</i>
pohuehue	<i>Muehlenbeckia australis</i>
pokaka	<i>Elaeocarpus hookerianus</i>
prickly shield fern	<i>Polystichum vestitum</i>
shrubby mahoe	<i>Melicytus micranthus</i>
soft rush*	<i>Juncus effusus</i>
stinking iris*	<i>Iris foetidissima</i>
swamp kiokio	<i>Blechnum minus</i>
sycamore*	<i>Acer pseudoplatanus</i>
totara	<i>Podocarpus totara</i>
violet*	<i>Viola odorata</i>
weeping mapou	<i>Myrsine divaricata</i>
wheki-ponga	<i>Dicksonia fibrosa</i>
white mistletoe/pirita	<i>Tupeia antarctica</i>
wineberry	<i>Aristotelia serrata</i>