

TIMARU DISTRICT
SIGNIFICANT NATURAL AREAS
SURVEY

HENRIKSEN PROPERTY



Report prepared for the Timaru District Council by Mike Harding

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner:AG and CP Henriksen
Valuation Reference:24810/036.00
Address:Totara Valley, RD2, Pleasant Point
Location:.....Northeast flank of the Brothers Range, Totara Valley.
Ecological District:Straddling the boundary of the Geraldine and Fairlie ecological
.....districts.
TDC Land Type:.....Hard Rock Hills and Downs.
Land Environment:N3 (undulating plains and low hills, South Canterbury and eastern
.....Otago).

ECOLOGICAL CONTEXT:

Areas on the upper slopes of the Brothers Range (above c.300 m altitude) lie within Fairlie Ecological District (ED) and areas on the lower northeast slopes lie within Geraldine ED. It is likely that the original vegetation of this area was predominantly mixed podocarp-hardwood (matai, totara, broadleaf, kowhai, lowland ribbonwood) forest with minor areas of scrub and shrubland. Today, forest in this area is confined to small modified remnants and areas of regenerating hardwood forest in gullies. Indigenous vegetation on the property comprises some of the larger areas of indigenous forest in the area.

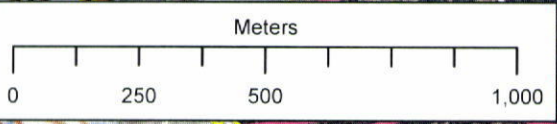
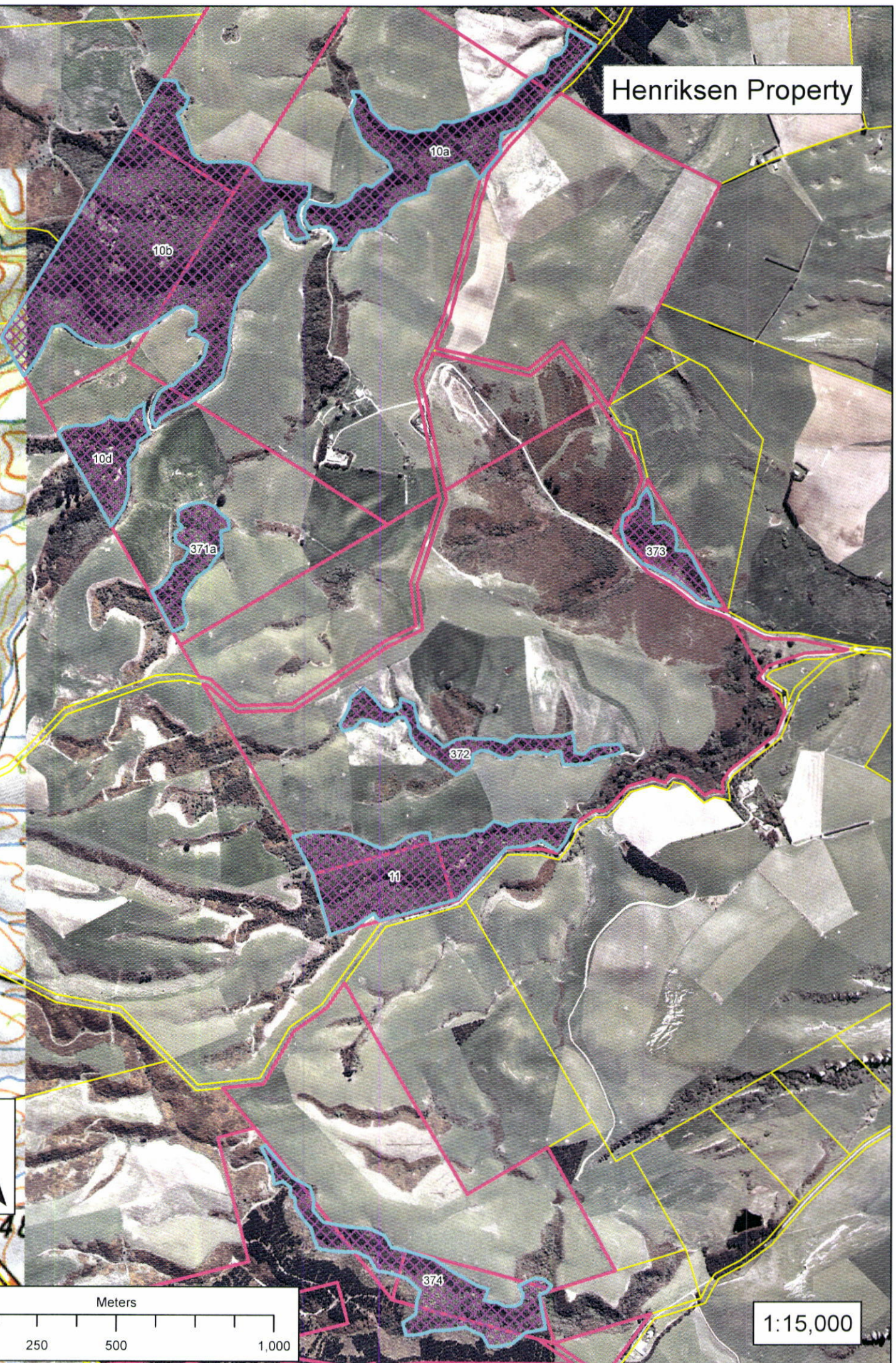
SIGNIFICANT AREAS OF INDIGENOUS VEGETATION/HABITAT ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during December 2004 and February 2005. Nearly all parts of the property were visited and assessed. Eight areas, totalling approximately 102 hectares, are regarded as significant when assessed against the District Plan criteria. The areas are predominantly regenerating hardwood forest. Podocarp trees (totara) are present in two areas and one area includes a small wetland. These eight areas are listed in the table below.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
10a	QEII Block 1	J38: 458-609	14	Hardwood forest with podocarps
10b	The Bush Block	J38: 449-605	43	Hardwood forest
10d	Top 30 Bush	J38: 447-599	5	Hardwood forest
11	QEII Trust Block	J38: 455-585	15.5	Hardwood forest
371a	Water Supply Bush	J38: 449-595	4	Hardwood forest
372	Untitled-The Strip	J38: 459-590	5.5	Hardwood forest
373	Road Bush 1	J38: 464-596	4	Wetland and hardwood forest
374		J38: 458-572	11	Hardwood forest with podocarps

Areas of indigenous vegetation and/or habitat on the property that are identified as Significant Natural Areas (above) are illustrated on the attached map and described in greater detail on the Area Inspection Forms that form part of this report. These areas meet the ecological criteria in the Timaru District Plan (criteria i-vi, pages B18-B19), are considered to be sustainable in the long term (criterion vii, page B19) and are confirmed as significant after regarding the matters listed under Final Considerations (pages B19-B20).

Henriksen Property



1:15,000

Scientific names of species cited by common name

Common Name Scientific name
 (* = naturalised species)

blackberry*	<i>Rubus fruticosus</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</i> sp.
cabbage tree/ti rakau	<i>Cordyline australis</i>
elderberry*.....	<i>Sambucus nigra</i>
fivefinger.....	<i>Pseudopanax arboreus</i>
foxglove*.....	<i>Digitalis purpurea</i>
fuchsia.....	<i>Fuchsia excorticata</i>
gorse*.....	<i>Ulex europaeus</i>
hanging spleenwort	<i>Asplenium flaccidum</i>
hen and chickens fern.....	<i>Asplenium bulbiferum</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
hound's tongue fern	<i>Microsorium pustulatum</i>
jointed rush*.....	<i>Juncus articulatus</i>
kanuka.....	<i>Kunzea ericoides</i>
korokio.....	<i>Corokia cotoneaster</i>
kowhai.....	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
lawyer.....	<i>Rubus schmidelioides</i>
lemonwood.....	<i>Pittosporum eugenioides</i>
lowland ribbonwood	<i>Plagianthus regius</i>
mahoe/whiteywood	<i>Meliclytus ramiflorus</i>
male fern*	<i>Dryopteris filix-mas</i>
mapou.....	<i>Myrsine australis</i>
marbleleaf/putaputaweta	<i>Carpodetus serratus</i>
matai/black pine.....	<i>Prumnopitys taxifolia</i>
matipo/kohuhu	<i>Pittosporum tenuifolium</i>
mistletoe.....	<i>Ileostylis micranthus</i>
native jasmine	<i>Parsonsia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
pate.....	<i>Schefflera digitata</i>
pohuehue.....	<i>Muehlenbeckia australis</i>
poroporo.....	<i>Solanum laciniatum</i>
prickly shield fern	<i>Polystichum vestitum</i>
raupo	<i>Typha orientalis</i>
spindle tree*.....	<i>Euonymus europaeus</i>
thousand-leaved fern.....	<i>Hypolepis millefolium</i>
totara	<i>Podocarpus totara</i>
water fern	<i>Hystiopteris incisa</i>
weeping mapou.....	<i>Myrsine divaricata</i>
wineberry	<i>Aristotelia serrata</i>
yellowwood.....	<i>Coprosma linariifolia</i>
Yorkshire fog*.....	<i>Holcus lanatus</i>

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 10a	Area Name: Henriksen, QEII Trust Block 1	Date: 15 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: mild, partly cloudy		Time Spent at Area: 2 hours

Location (central grid reference): J38: 458-609	Approximate size of Area: 14 ha
--	--

General description of Area:

An incised gully on the eastern slopes of the Brothers Range (Geraldine Ecological District), 150-250m altitude. The Area covers the area protected as QEII Covenant 5/11/027a. It adjoins an area protected as QEII Covenant 5/11/027c at its upper boundary (described as Area 10b on a separate form).

General description of plant communities and habitats:

Hardwood forest with scattered totara on moderately steep slopes on either side of a small stream.

Detailed vegetation description:

The main forest canopy is dominated by fivefinger, matipo, kowhai, mapou, broadleaf and mahoe. Also present in the canopy are cabbage tree, fuchsia, kanuka and occasional totara. Tall kanuka is dominant in patches near the forest margins. Wineberry, pate, marbleleaf, fuchsia and bush lily are common along the stream. Common understorey species are *Coprosma rhamnoides*, *Coprosma crassifolia*, *Helichrysum lanceolatum*, *Coprosma propinqua*, kowhai, weeping mapou, lancewood, yellowwood, *Melicope simplex*, *Raukaua anomalus*, native jasmine and pohuehue. Also present, but less common, are *Gaultheria antipoda*, mistletoe (on matipo), korokio, poroporo, *Clematis* sp., *Coprosma rubra* and lemonwood. Important groundcover species are necklace fern, *Hydocotyle* sp., hanging spleenwort, hound's tongue fern, *Pellaea rotundifolia*, *Polystichum richardii*, hen and chickens fern, *Asplenium hookerianum* and *Blechnum chambersii*. Elderberry seedlings and small saplings are present within the forest. One spindle tree sapling observed near the stream was cut and treated with herbicide (Vigilant). Bracken, gorse, elderberry, Himalayan honeysuckle and pohuehue are present and in places common on the forest margin.

Detailed fauna descriptions:

Birds observed in the Area were bellbird, magpie, grey warbler, rifleman, redpoll, welcome swallow, blackbird and chaffinch.

Notable flora, fauna or habitats:

Notable species observed at the Area were emergent totara (*Podocarpus totara*) trees, *Coprosma rubra* and *Raukaua anomalus* near the stream, and *Ileostylus micranthus* (mistletoe) on matipo. *Coprosma rubra* and *Raukaua anomalus* are considered rare in South Canterbury. Both species were present as part of an interesting understorey shrub layer on small terraces near the stream, along with *Melicope simplex*, *Coprosma crassifolia* and weeping mapou. A threatened (gradual decline) plant species (*Teucrium parvifolium*) has been recorded in the Area (Miles Giller, QEII, pers.comm.).

General condition of Area:

The Area is in very good condition. While wild animals are present, they are presently having much less impact than at other areas in the vicinity. The good condition of the forest appears largely due to the wild animal control efforts of the owners, and the fact that it has been fenced from stock for a number of years.

Notable plant and animal pests:

Plant pests: Naturalised plant species observed within the forest were elderberry, spindle tree and Himalayan honeysuckle. Of these, elderberry appears to pose the greatest threat as it can grow to a small tree and its fleshy fruits can be spread by birds to other parts of the forest. Elderberry is relatively common elsewhere in the vicinity. Only one spindle tree was observed (and removed), though this species also has fruits that are readily spread by birds.
Animal pests: One wallaby was observed within the forest. Well-used animal tracks are present on the drier upper slopes of the site. Goats are present in relatively high numbers further upstream in forest that is contiguous with (though fenced from) the Area.

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

All boundaries of the Area are fenced. Some fences are no longer completely stock proof. Replacement of these fences is proposed in the near future (financial support has been offered by TDC). The Area is well buffered by its location in a steep-sided gully, and is connected to areas of forest upstream and downstream. A relatively large area of forest upstream is also protected by a QEII covenant (Area 10b).

Present management and management issues:

The Henriksens have protected and managed this area for many years. It is formally protected by an open space (QEII) covenant. Wild animal populations have been controlled and domestic stock excluded. The present condition of the forest is a credit to the efforts of the Henriksens.

Property Owner Comment:**ASSESSMENT (against District Plan criteria):**

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of regenerating forest that is typical of the ecological district and contains species representative of the original forest (e.g. totara).
Rarity	M/H	The Area supports a threatened species (<i>Teucrium parvifolium</i>) and two species that are considered rare in South Canterbury: <i>Coprosma rubra</i> and <i>Raukawa anomalus</i> .
Diversity and pattern	M/H	Species and habitat diversity is similar to that originally present.
Distinctiveness/special features	M	The Area provides locally-important forest bird habitat and is a relatively good example of an intact sequence of plant communities across a small valley. If considered in conjunction with areas of regenerating forest upstream, or if the Area provides habitat for native fish, it could rank M/H.
Other Criteria		
Size/shape	H	The area of indigenous vegetation at the Area (covenanted area) is relatively large for the Geraldine Ecological District (14.6 ha).
Connectivity	M/H	The Area adjoins other areas of indigenous vegetation upstream and downstream, forming an ecologically viable corridor. Regenerating forest at the upstream end is formally protected by a QEII covenant.
Long-term Sustainability	M	The Area is threatened by a relatively high population of feral goats on its upper boundary and the presence of wallabies. Continued wild animal control will be required to protect the regenerating forest from the effects of these and other wild animals. If goats and wallabies were not present in the vicinity, the Area would rank M/H.
SNA (yes/no):	YES	

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

The Area is already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing and wild animal control) have already been incurred, and the development potential of the Area already sacrificed (through protection by covenant).

Discussion:

The Area easily meets the District Plan criteria for a Significant Natural Area. The main attributes that give the Area its values are the diversity and condition of the vegetation, the size of the Area, its location adjoining other areas of indigenous vegetation and the presence of threatened and locally rare species. The site is also relatively resilient. Its values can be maintained by regular wild animal control, occasional plant pest control and regular maintenance of boundary fences.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 10b	Area Name: The Bush Block	Date: 15 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: mild, partly cloudy		Time Spent at Area: 1.5 hours

Location (central grid reference): J38: 449-605	Approximate size of Area: 43
--	-------------------------------------

General description of Area:

Several gentle gullies and intervening spurs on the eastern slopes of the Brothers Range (250-400m asl) on the boundary of the Geraldine and Fairlie ecological districts. The Area covers the area protected as QEII Covenant 5/11/027c. It adjoins an area protected as QEII Covenant 5/11/027a at its lower boundary (described as Area 10a on a separate form).

General description of plant communities and habitats:

Regenerating hardwood forest with minor areas of scrub, fernland and pasture.

Detailed vegetation description:

The main forest canopy is dominated by fivefinger, matipo, kowhai, mapou, broadleaf, mahoe, lancewood and cabbage tree. The forest understorey is relatively open. Common species present are *Coprosma crassifolia*, *Melicope simplex*, native jasmine, bush lawyer, elderberry and pohuehue. Wineberry, pate, marbleleaf, fuchsia, bush lily, *Blechnum chambersii*, *Blechnum fluviatile* and thousand-leaved fern are present in the gullies. Kowhai is very common in the main gullies. Also present, but less common, are *Coprosma rhamnoides*, *Coprosma propinqua*, *Coprosma rigida*, korokio and lemonwood. Important groundcover species are necklace fern, *Hydocotyle* sp., hanging spleenwort, hound's tongue fern, *Pellaea rotundifolia*, *Polystichum richardii*, *Asplenium richardii*, and *Asplenium appendiculatum*. Bracken, gorse, foxglove and pohuehue are present and in places common on the forest margin. Openings on small spurs are dominated by foxglove, bracken, water fern and pasture grasses, though these areas are heavily browsed.

Rece Plot Forms: Plant Community	GPS Location			Survey Form No.
Low (regenerating) hardwood forest	E: 2344828	N: 5660572	+/-: 5.9m	2

Detailed fauna descriptions:

Birds observed in the Area were bellbird, silvereye, rifleman, fantail, grey warbler and magpie.

Notable flora, fauna or habitats:

The extent of the forest bird habitat and the relative abundance of kowhai trees in the main gullies are the most notable features of the Area.

General condition of Area:

The forest understorey in the Area is severely depleted. Populations of feral goats and wallabies appear high. Animal tracks and browsing damage are prominent features of the understorey and ground cover. The area is fenced from domestic stock.

Notable plant and animal pests:

Plant pests: The most important naturalised plant species observed in the Area was elderberry. Several large trees were observed and seedlings were relatively common at some locations.

Animal pests: Five wallabies and c.12 goats were observed in the Area. Wild animal populations are relatively high and appear to be having a significant impact on understorey vegetation.

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

All boundaries of the Area are fenced, though the presence of goats suggests that at least parts of the upper (northwest) boundary may not be animal-proof. The Area is relatively well buffered by its location in a series of gullies, and is connected to areas of forest upstream and downstream. An area of forest downstream is also protected by a QEII covenant (Area 10a).

Present management and management issues:

The Henriksens have protected and managed this area for many years. It is formally protected by an open space (QEII) covenant. Domestic stock have been excluded and wild animal populations controlled, though wild animal populations are presently high.

Property Owner Comment:

--

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	An example of regenerating hardwood forest that is typical of the ecological district.
Rarity	L/M	No threatened or rare species were observed in the Area, though it is likely to provide habitat for important species such as NZ pigeon.
Diversity and pattern	M	Species and habitat diversity is less than that originally present.
Distinctiveness/special features	M	The Area provides a relatively large area of locally-important forest bird habitat. The Area is part of an ecological and altitudinal sequence of indigenous vegetation and habitat.
Other Criteria		
Size/shape	H	It is one of the larger areas of indigenous forest in the vicinity.
Connectivity	M/H	The Area adjoins other areas of indigenous vegetation upstream and downstream, forming an ecologically viable corridor. Regenerating forest at the downstream end is formally protected by a QEII covenant.
Long-term Sustainability	L/M	The Area is threatened by relatively high populations of feral goats and wallabies. Continued wild animal control will be required to protect the regenerating forest from the effects of these and other wild animals. If goat and wallaby populations were reduced, the Area would rank M. If goats and wallabies were not present in the vicinity, the Area would rank M/H.
SNA (yes/no):	YES	
Final Consideration (of other matters, Section D, page B-19):		
The Area is already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing and wild animal control) have already been incurred, and the development potential of the Area already sacrificed (through protection by covenant). However, additional wild animal control is urgently required to reduce the high numbers of goats and wallabies in the area.		

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area. The main attributes that give the Area its value are the size of the Area and its location adjoining other areas of indigenous vegetation. The site is relatively resilient, though continued natural regeneration is presently compromised by the presence of relatively high numbers of wallabies and goats. Its values could be maintained by regular wild animal control, occasional plant pest control and regular maintenance of boundary fences.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 10d	Area Name: Top 30 Bush	Date: 15 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: mild, partly cloudy		Time Spent at Area: 1 hour

Location (central grid reference): J38: 447-599	Approximate size of Area: 5 ha
--	---------------------------------------

General description of Area:
Two small gullies on the eastern slopes of the Brothers Range (Fairlie Ecological District), 320-380m asl. It adjoins an area protected as QEII Covenant 5/11/027c (described as Area 10b on a separate form).

General description of plant communities and habitats:
Regenerating hardwood forest in small gullies.

Detailed vegetation description:
This Area was only viewed from the outside; it was not traversed. The forest canopy is dominated by fivefinger, matipo, kowhai, mapou and mahoe. Also present are cabbage tree, wineberry, marbleleaf and pohuehue. Gorse, foxglove and pohuehue are present at the forest margin.

Notable flora, fauna or habitats:
No notable plant or animal species were observed, though the forest interior was not inspected.

General condition of Area:
The forest canopy appears in relatively good condition. The forest understorey is presumed to be in similar condition to that in the larger area of forest downstream, i.e. affected by relatively high numbers of goats and wallabies.

Notable plant and animal pests:
Goats were heard and seen inside the forest. Sheep were also seen on the forest side of the fence. Wallabies and possums are also likely to be present.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
Boundaries of the block are fenced from adjoining pasture blocks. The block is also well buffered by its position in the small gullies. It adjoins a larger area of forest at its downstream end (though separated by a formed vehicle track) and areas of indigenous forest and scrub on the adjoining property at its upstream end.

Present management and management issues:
This area of forest is protected from domestic stock by fences. However, there do appear to be relatively high numbers of wild animals (goats and wallabies) in the Area, despite previous wild animal control. Removal of wild animals would increase its value considerably.

Property Owner Comment:

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	An example of regenerating hardwood forest that is typical of this part of the ecological district.
Rarity	L	No rare or threatened species were observed (though the forest was not closely inspected).
Diversity and pattern	M	Species and habitat diversity is less than that originally present.
Distinctiveness/special features	M	The Area is part of an ecological and altitudinal sequence of indigenous vegetation and habitat.
Other Criteria		
Size/shape	H	The Area is of moderate size for the ecological district (2-10 ha), but has a good shape and is well buffered.
Connectivity	M	The Area adjoins other areas of indigenous vegetation upstream and downstream. Forest at the downstream end is protected by a QEII covenant.
Long-term Sustainability	L/M	The Area appears to be threatened by relatively high populations of feral goats and wallabies. Continued wild animal control will be required to protect the regenerating forest from the effects of these and other wild animals. If goat and wallaby populations were reduced or absent, the Area would rank M.
SNA (yes/no):	YES	

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

The Area is in effect already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing and wild animal control) have already been incurred, though the development potential of the Area has not been sacrificed (i.e. the Area is not formally protected). Additional wild animal control is required to reduce the high numbers of goats and wallabies in the area.

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area. The main attributes that give the Area its value are the shape and size of the Area and its location adjoining other areas of indigenous vegetation. The site is relatively resilient, though continued natural regeneration is presently compromised by the presence of relatively high numbers of wallabies and goats. Its values could be maintained by regular wild animal control, occasional plant pest control and regular maintenance of boundary fences.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 11	Area Name: QEII Trust Block	Date: 17 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: partly cloudy, showers		Time Spent at Area: 1.5 hours

Location (central grid reference): J38: 455-585	Approximate size of Area: 15.5 ha
--	--

General description of Area:
A gentle spur and adjoining gullies on the northeast slopes of the Brothers Range, spanning the boundary between the Geraldine and Fairlie ecological districts, 220-360m altitude. The Area covers the area protected as QEII Covenant 5/11/027b.

General description of plant communities and habitats:
Regenerating hardwood forest with occasional small totara trees.

Detailed vegetation description:
Forest on the main spur and upper slopes in the Area is dominated by matipo, with mapou, mahoe, fivefinger, broadleaf and occasional wineberry. Large fuchsia, broadleaf, cabbage tree and occasional young totara are present in the main gullies. The forest understorey is relatively open throughout at least the upper part of the Area. Common understorey species are *Coprosma crassifolia*, *Coprosma propinqua*, *Coprosma rigida*, *Coprosma rhamnoides*, bush lawyer, native jasmine and occasionally *Coprosma rubra*. Important ground cover species on the spurs are necklace fern, *Asplenium hookerianum*, hound's tongue fern, *Polystichum richardii* and *Hydrocotyle* sp. Additional understorey and ground-cover species in the gullies are pate, *Melicope simplex*, thousand-leaved fern, hen and chickens fern and *Pellaea rotundifolia*. On drier spurs, fivefinger, matipo, mapou, broadleaf, *Coprosma crassifolia*, necklace fern, hound's tongue fern, *Asplenium hookerianum* and bracken are common. Clearings in the forest and some forest margins support gorse, Himalayan honeysuckle, water fern, foxglove and bracken.

Recce Plot Forms: Plant Community	GPS Location			Survey Form No.
Low (regenerating) hardwood forest on spur	E: 2345400	N: 5658593	+/-: 6.8	4

Detailed fauna descriptions:
Birds observed in the Area were bellbird, blackbird, chaffinch, grey warbler, fantail, rifleman, redpoll and song thrush.

Notable flora, fauna or habitats:
Notable species observed in the Area were emergent totara (*Podocarpus totara*) trees and *Coprosma rubra*. *Coprosma rubra* is considered rare in South Canterbury.

General condition of Area:
The forest canopy in the Area is in good condition, especially in the gullies where the forest appears older. However, the forest understorey appears to be heavily browsed throughout the Area.

Notable plant and animal pests:
Plant pests: The only significant naturalised plants were observed within the forest were male fern and areas of gorse, foxglove and Himalayan honeysuckle at open areas.
Animal pests: Several goats and wallabies were observed in the Area, and the understorey is heavily browsed. Possums are also likely to be present.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
All boundaries of the Area are fenced. The area is partly buffered by its location in gullies. It adjoins areas of regenerating forest and scrub at its upper boundary, though there is a bulldozed line along at least part of the boundary fence.

Present management and management issues:
The Henriksens have protected and managed this area for many years. It is formally protected by an open space (QEII) covenant. Domestic stock have been excluded and wild animal populations controlled, though wild animal populations presently appear to be high.

Property Owner Comment:

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M/H	A typical example of regenerating forest with original canopy/emergent species (totara) present.
Rarity	M	The Area supports a locally-rare species, <i>Coprosma rubra</i> .
Diversity and pattern	M	Species and habitat diversity is less than that originally present.
Distinctiveness/special features	M	The Area provides a relatively large area of locally-important forest bird habitat over a moderate altitudinal range.
Other Criteria		
Size/shape	H	The Area is relatively large (>10 ha) for the ecological district.
Connectivity	M	The Area adjoins other (unprotected) areas of indigenous vegetation and is close to other important areas of forest bird habitat.
Long-term Sustainability	L/M	The Area is threatened by relatively high populations of feral goats and wallabies. Continued wild animal control will be required to protect the regenerating forest from the effects of these and other wild animals. If goat and wallaby populations were reduced, the Area would rank M. If goats and wallabies were not present in the vicinity, the Area would rank M/H.
SNA (yes/no):	YES	
Final Consideration (of other matters, Section D, page B-19):		
The Area is already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing and wild animal control) have already been incurred, and the development potential of the Area already sacrificed (through protection by covenant). However, additional wild animal control is required to reduce the high numbers of goats and wallabies in the area.		

Discussion:
The Area meets the District Plan criteria for a Significant Natural Area. The main attributes that give the Area its value are the size of the Area and the presence of podocarp trees (totara). The site is relatively resilient, though continued natural regeneration is presently compromised by the presence of relatively high numbers of wallabies and goats. Its values could be maintained by regular wild animal control, occasional plant pest control and regular maintenance of boundary fences.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 371a	Area Name: Water Supply Bush	Date: 15 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: mild, partly cloudy		Time Spent at Area: 0.5 hours

Location (central grid reference): J38: 449-595	Approximate size of Area: 4 ha
--	---------------------------------------

General description of Area:
Small gully on the northeast slopes of the Brothers Range (Fairlie Ecological District), 300-370m altitude. It lies directly upstream from, and provides the main catchment for, a recently-constructed dam and pond.

General description of plant communities and habitats:
Regenerating hardwood forest in a small gully.

Detailed vegetation description:
This Area was only viewed from the outside; it was not traversed. It comprises areas of regenerating hardwood forest with areas of gorse scrub and pohuehue at its margins. The main area of regenerating forest is dominated by matipo, broadleaf, mahoe and mapou. Kowhai and cabbage tree are present nearer the stream.

Notable flora, fauna or habitats:
No rare or threatened species were observed, though the forest interior was not inspected. A rare fern has been observed by Miles Giller (QEII) in this Area (Graeme Henriksen, *pers.comm.*).

General condition of Area:
Regenerating forest within the Area appears in relatively good condition, though the forest interior was not inspected.

Notable plant and animal pests:
No wild animals were observed in the Area, though goats, wallabies and possums are likely to be present.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
The Area is fenced and does not appear to be grazed by domestic stock. It adjoins an area of regenerating forest and scrub upstream on the adjoining property.

Present management and management issues:
The Area is fenced and appears to be managed primarily for catchment protection. Continued control of wild animals and maintenance of boundary fences will be required to maintain and protect the ecological values of the area.

Property Owner Comment:
A QEII covenant is presently being prepared for this area. Miles Giller (QEII) advises that a rare fern is present in the area. Believe that it is an SNA.

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	An example of regenerating hardwood forest that is typical of this part of the ecological district.
Rarity	L	No rare or threatened species were observed (though the forest was not closely inspected). If the rare fern recorded by Miles Giller is one of the species listed for the District-wide survey, the area would rank M.
Diversity and pattern	M	Species and habitat diversity is less than that originally present.
Distinctiveness/special features	M	The Area adjoins another area of indigenous vegetation upstream, though does not form an important ecological or altitudinal sequence.
Other Criteria		
Size/shape	H	The Area is of moderate size for the ecological district (2-10 ha), a relatively good shape and is well buffered.
Connectivity	L/M	The Area adjoins other unprotected indigenous vegetation.
Long-term Sustainability	M	Continued wild animal control will be required to maintain and improve the existing ecological values.
SNA (yes/no):	YES	See Discussion below.

Final Consideration (of other matters, Section D, page B-19):
The Area is in effect already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing and wild animal control) have already been incurred and the development potential of the Area has

not been sacrificed (i.e. the Area is in the process of being formally protected).

Discussion:

This Area is a borderline case. Its ranking as an SNA hinges on whether the shape of the Area is regarded as good and on the status of the rare fern recorded by Miles Giller. Because the area is in the process of being formally protected by a covenant, it is listed as an SNA.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 372	Area Name: Untitled 1 – The Strip	Date: 17 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: partly cloudy, showers		Time Spent at Area: 3 hours

Location (central grid reference): J38: 459-590	Approximate size of Area: 5.5 ha
General description of Area: A long narrow area on either side of a small gully, on the northeast slopes of the Brothers Range (Geraldine Ecological District), 220-300m altitude.	

General description of plant communities and habitats:
Regenerating hardwood forest, gorse scrub and small areas of modified sedgeland.

Detailed vegetation description:
The main forest canopy over much of the Area is dominated by fivefinger, matipo, broadleaf, mahoe, mapou, wineberry and pohuehue. Fuchsia, kowhai, cabbage tree and lancewood are also present in the canopy. The upper part of the site supports some large cabbage trees, fuchsia, broadleaf and kowhai trees in an incised part of the gully. Gorse, bracken, foxglove, thistles, blackberry, Himalayan honeysuckle and elderberry are present at the forest margins. Common understorey species are *Coprosma crassifolia*, *Coprosma rhamnoides*, *Coprosma rigida*, bush lawyer, lawyer, native jasmine, *Urtica* sp., *Hydrocotyle* sp., necklace fern, *Asplenium hookerianum*, *Asplenium appendiculatum*, *Pellaea rotundifolia*, *Polystichum richardii*, prickly shield fern. Nearer the stream are bush lily, *Blechnum fluviatile* and thousand-leaved fern. The forest understorey is open and bare except at few well-buffered locations nearer the stream. A very large old *Coprosma crassifolia* bush (4-5 m tall) is present at the upstream end of the Area.

Rece Plot Forms: Plant Community	GPS Location			Survey Form No.
Low (regenerating) hardwood forest	E: 2346046	N: 5658989	+/-: 6.9m	3

Detailed fauna descriptions:
Birds observed in the Area were blackbird, redpoll, grey warbler, fantail, bellbird and rifleman, with magpie, spur-winged plover and starling observed at the margins.

Notable flora, fauna or habitats:
No threatened or rare species were observed in the Area. However, the large specimen of *Coprosma crassifolia* at the upstream end of the Area is notable.

General condition of Area:
The forest understorey over much of the Area is depleted. However vegetation in the central part of the Area, where the Area is partially buffered, appears in better condition. The upper part of the Area supports taller forest with an intact canopy, though depleted understorey.

Notable plant and animal pests:
No wild animals were observed, though goats, possums and/or wallabies could be present. Parts of the Area are grazed by domestic stock. A number of plant pests are present at the forest margin, of which elderberry poses the greatest threat.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
The lower, narrower part of the Area is fenced along only one side. The upper part of the Area is fenced from adjoining pasture blocks. The Area is wider and better buffered at its central and upper parts.

Present management and management issues:
Upper parts of the Area are fenced and therefore are (or can easily be) protected from grazing by domestic stock. Wild animal control may also be required to protect the ecological values of the Area.

Property Owner Comment:
Agree that the core part of this area is significant. The area provides useful shelter for stock. The area is partly fenced and further fencing is proposed.

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	The Area supports regenerating forest that is typical of that present in the ecological district.
Rarity	L/M	No threatened or rare species were observed in the area. However the Area, notably the large kowhai trees, provides good seasonal food resource for NZ pigeon.
Diversity and pattern	M	Species and habitat diversity is less than that originally present.
Distinctiveness/special features	L/M	The Area does not form part of an ecological or altitudinal sequence. However, the presence of large trees (including the large <i>Coprosma crassifolia</i>) makes the Area distinctive.
Other Criteria		
Size/shape	M	The Area is of moderate size for the ecological district (2-10 ha) but does not have a good shape and not all of the Area is well buffered. The upstream part of the Area is smaller, but has a better shape and is better buffered.
Connectivity	M	The Area is not directly connected to other areas of indigenous vegetation and habitat, but the upper part of the Area contains good forest bird habitat and is close to other areas of similar habitat.
Long-term Sustainability	M	The existing ecological values of the Area will persist with minimal management.
SNA (yes/no):	YES	The upper part of this Area just meets the criteria for an SNA (because of its likely value as forest bird habitat).
Final Consideration (of other matters, Section D, page B-19):		
The upper part of the Area is in effect already protected through the voluntary efforts of the landowners. Important management costs (boundary fencing) have already been incurred, though the development potential of the Area has not been sacrificed (i.e. the Area is not formally protected).		

Discussion:
This is a borderline case. Its assessment as an SNA hinges on whether it provides an important part of the forest bird habitat present in the vicinity. The upper part of the Area, which is wider and supports taller trees, is likely to fulfil this role. The lower part of the Area does not meet the significance criteria, though does complement the habitat present in the upper part of the Area. It would be appropriate to further define the precise boundaries of the proposed SNA with the landowner.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 373	Area Name: Road Bush 1	Date: 17-12-04 and 16-02-05
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: light rain (day one); overcast and cool (day two)		Time Spent at Area: 1.5 hours

Location (central grid reference): J38: 464-596	Approximate size of Area: 4 ha.
--	--

General description of Area:
Gentle south-facing slopes of a small valley and adjoining valley-floor alongside Henriksen Road, eastern side of Brothers Range, Geraldine Ecological District, 160-180m altitude.

General description of plant communities and habitats:
A small wetland (rushland/sedgeland) buffered on one side by areas of regenerating hardwood forest and gorse scrub.

Detailed vegetation description:
Areas of regenerating hardwood forest are dominated by matipo and fivefinger, with wineberry, mahoe, broadleaf and pohuehue. The forest understorey is relatively open. Important understorey species are *Coprosma crassifolia*, *Coprosma* sp., native jasmine, *Clematis* sp., prickly shield fern, hound's tongue fern, necklace fern, male fern, *Asplenium appendiculatum* and *Asplenium hookerianum*. Two uncommon ferns are present on the steeper slopes near the valley floor: *Asplenium lyallii* and *Blechnum vulcanicum*. Elderberry seedlings are common. Margins of the regenerating forest are dominated by gorse, blackberry and occasional elderberry and Himalayan honeysuckle. The valley-floor supports wetland vegetation dominated by raupo, *Mimulus guttatus*, jointed rush, pasture grasses (especially Yorkshire fog) and scattered *Carex secta*, gorse and *Coprosma propinqua*. A single large (c. 4m tall) plant of *Olearia lineata* is present at the edge of the wetland. Margins of the wetland support gorse scrub and/or rough pasture. Areas of bracken are present between the wetland and areas of regenerating hardwood forest.

Rece Plot Forms: Plant Community	GPS Location			Survey Form No.
raupo rushland	E: 2346481	N: 5659506	+/-: 5.8	5

Notable flora, fauna or habitats:
The presence of *Olearia lineata* and raupo are notable. The presence of two uncommon ferns (*Asplenium lyallii* and *Blechnum vulcanicum*) in the forest is notable.

General condition of Area:
The area appears to be occasionally grazed. The forest understorey is relatively open, and palatable plants in the valley floor wetland (such as raupo) appear to have been grazed.

Notable plant and animal pests:
Important plant pests observed in or near the forest were elderberry, bay laurel and male fern. Several naturalised species (such as Yorkshire fog, clover, *Mimulus guttatus* and jointed rush) are dominant in the wetland.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
The areas of forest and wetland are not fenced from stock, though the larger block is fenced from the adjoining property. The wetland is relatively well buffered by areas of regenerating forest and gorse scrub, and by the road. The Area is surrounded by a large area of gorse scrub.

Present management and management issues:
The areas of wetland and regenerating forest are not protected from grazing, though they are well buffered by scrub.

Property Owner Comment:
Cattle presently graze the area.

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	An example of a modified wetland and area of regenerating hardwood forest.
Rarity	M	The Area supports a threatened species (<i>Olearia lineata</i>) regarded as "at risk" (sparse).
Diversity and pattern	M	Plant communities are modified and probably less diverse than those originally present.
Distinctiveness/special features	L/M	The presence of the wetland is the most distinctive feature.
Other Criteria		
Size/shape	M	A small area with a relatively good shape and partly buffered.
Connectivity	M	The area is isolated from other areas of protected indigenous vegetation, though adjoins unprotected (mostly non-indigenous) habitat and probably forms part of a network of

		fauna habitat, especially the wetland component.
Long-term Sustainability	M	The area is modified but its values could be maintained with conservation management.
SNA (yes/no):	YES	See Discussion below.

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

Before confirmation as an SNA, the precise boundaries and predicted changes to the Area in the absence of grazing should be discussed with the landowner. In particular the role and future spread of pasture grasses and gorse in the wetland area should be considered.

Discussion:

The Area is a borderline case. However, the presence of wetland habitat (albeit modified), the presence of threatened and notable plants (*Olearia lineata* and raupo), and the extent to which the Area is buffered suggest that it should be considered significant. Note that the area (yet to be precisely defined) encompasses only the valley-floor wetland and the areas of regenerating hardwood forest that adjoin (and buffer) the wetland.

**TIMARU DISTRICT SNA SURVEY
AREA INSPECTION FORM**

Area Number: 374	Area Name:	Date: 17 December 2004
Property: AG (Graeme) and CP (Christine) Henriksen		Surveyors: Mike Harding
Weather Conditions: cloudy, showers		Time Spent at Area: 1.5 hours

Location (central grid reference): J38: 458-572	Approximate size of Area: 11 ha
--	--

General description of Area:
An incised gully on the eastern slopes of the Brothers Range (Fairlie Ecological District), 280-380m altitude.

General description of plant communities and habitats:
Regenerating hardwood forest with patches of totara, kanuka and scrub.

Detailed vegetation description:
The canopy of the main forested parts of the Area is dominated by matipo, mapou, broadleaf, mahoe, lemonwood and fivefinger. Additional canopy species nearer the stream are fuchsia, lancewood, kowhai, wineberry and marbleleaf. An area in the main gully supports abundant kowhai and a number of young totara trees. Upper slopes support areas of tall kanuka forest. Important understorey species are pate, bush lawyer, *Coprosma crassifolia*, *Coprosma rhamnoides*, *Clematis* sp., *Hebe salicifolia*, *Melicope simplex*, bush lily, poroporo and, on drier spurs, *Gaultheria antipoda* and *Coprosma* sp. 't'. Important ground-cover species are necklace fern, hen and chickens fern, hound's tongue fern, *Asplenium richardii*, *Blechnum fluviatile*, *Blechnum penna-marina*, thousand-leaved fern, *Polystichum richardii*, prickly shield fern, *Leptopteris hymenophylloides* and *Pellaea rotundifolia*. Scrubby areas on the upper slopes are dominated by dense broom and/or gorse with emergent hardwoods.

Detailed fauna descriptions:
Bird species observed in the Area were bellbird, grey warbler, magpie, redpoll and blackbird.

Notable flora, fauna or habitats:
The presence, and relative abundance, of young totara is a notable feature of the Area.

General condition of Area:
Forest in the Area is in relatively good condition. A formed track provides access for stock to part of the Area (for drinking water). The remaining area is well-buffered by dense scrub. The forest understorey and ground-cover do not appear heavily browsed by wild animals.

Notable plant and animal pests:
Naturalised plants observed within the forest and scrub were Himalayan honeysuckle, gorse, broom, elderberry and male fern.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.):
Not all boundaries of the area were checked. The southern boundary adjoins a pine plantation. The main forest communities are well-buffered in the gully. One small totara tree on the southern boundary appears to have been affected by herbicide spray. The Area adjoins other areas of indigenous forest downstream on the adjoining property.

Present management and management issues:
The area provides an important water supply for stock. Wild animal populations do not appear high, though occasional wild animal control is probably required to protect ecological values.

Property Owner Comment:
The stream within this area is important for stock-water. It is proposed to create a small dam on this stream to provide stock water on this part of the property. The precise boundaries of the area would be difficult to define.

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of regenerating forest that includes components of the original canopy/emergent vegetation (totara).
Rarity	L/M	No threatened or rare species were observed. The Area is likely to provide at least seasonal habitat for NZ pigeon.
Diversity and pattern	M/H	The core area in the main gully supports species diversity similar to that originally present in the vicinity.
Distinctiveness/special features	M	The Area provides locally-important habitat, and is part of vegetation spanning a

		moderate altitudinal range for this vicinity.
Other Criteria		
Size/shape	H	The Area is relatively large for the ecological district (>10 ha).
Connectivity	M	The Area adjoins other areas of indigenous vegetation and is close to other large areas of forest bird habitat.
Long-term Sustainability	M	The ecological values of the Area will persist and improve with minimal management.
SNA (yes/no):	YES	
Final Consideration (of other matters, Section D, page B-19):		
The Area is in effect already protected through the voluntary efforts of the landowners.		

Discussion:

The Area easily meets the District Plan criteria for a Significant Natural Area. The main attributes that give the Area its values are the diversity and condition of the vegetation, the size of the Area, its location adjoining other areas of indigenous vegetation and the presence and relative abundance of totara. The site is also relatively resilient. Its values can be maintained by regular wild animal control, occasional plant pest control. The precise boundaries of the proposed SNA should be defined through further discussion with the landowner.