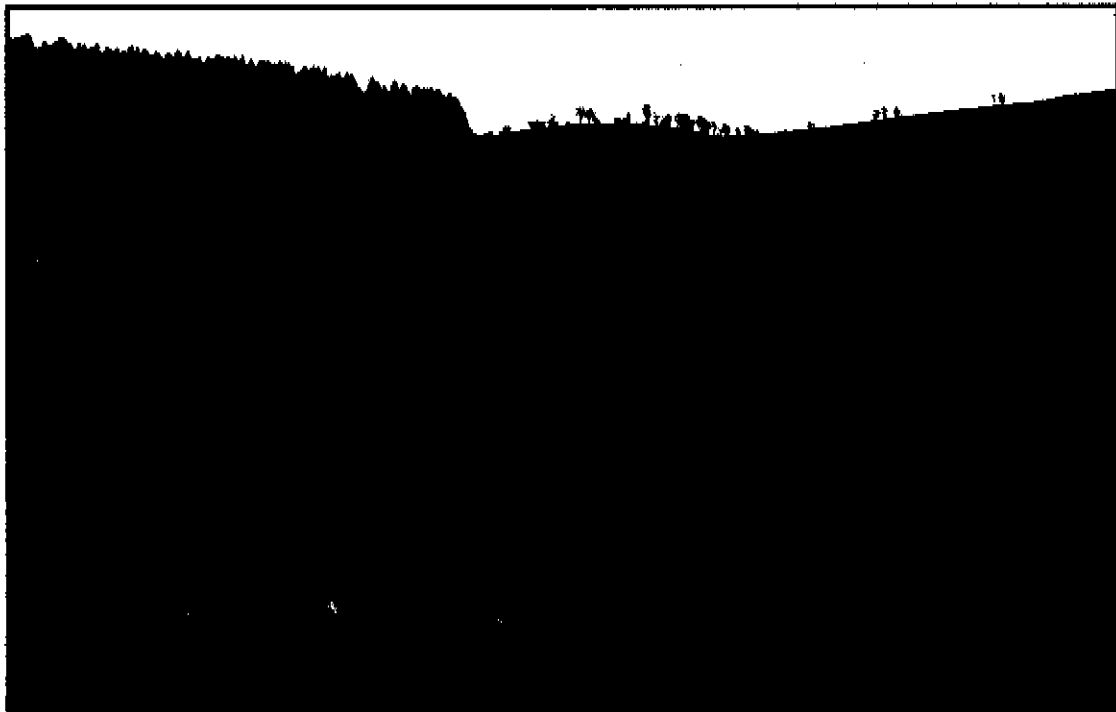


TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS
SURVEY

ROCKBURN PROPERTY
RA & EM CHAPMAN



Report prepared for Timaru District Council by Mike Harding
September 2008

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: RA & EM Chapman
Valuation Reference: 24670/200.00
Address: Limestone Road, Kakahu Bush
Location: Rolling hill country between Winchester Hanging Rock Road, Limestone Road, Coles Road and Gully Bush Road, between Kakahu Bush and Upper Waitohi
Ecological District: Geraldine Ecological District.
TDC Land Type: Soft Rock Hills and Downs.
Land Environment: N3 (eastern South Island undulating plains and hills).

ECOLOGICAL CONTEXT:

The property covers rolling hill country in the Kakahu-Upper Waitohi area in South Canterbury, comprising loess-covered limestone hills. It includes the catchments of small streams that flow northeast to the Kakahu River near Kakahu Bush and one stream that flows southeast to Raupo Creek in the Opihi River catchment. The property lies in the central inland part of Geraldine Ecological District.

It is likely that the original vegetation of this area was predominantly mixed podocarp-hardwood forest with smaller areas of scrub, shrubland, wetland and limestone bluff flora. This is the part of the Geraldine Ecological District with the largest remaining areas of indigenous forest. Nevertheless, indigenous forest is still generally confined to small remnants in gullies and around limestone bluffs, with some larger areas of younger regenerating forest.

The indigenous fauna would have originally been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than is presently found in the area. The property lies within the known range of the South Canterbury population of long-tailed bat. This species is listed as nationally-endangered.

Indigenous vegetation on the property comprises areas of mixed hardwood forest, cabbage tree treeland, kanuka forest, shrubland, limestone bluff vegetation and two relatively large pasture-dominated wetlands. The property lies close to protected areas of indigenous forest at Kakahu Bush and Waitohi Scenic Reserve and to other important indigenous forest remnants on limestone scarps.

SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during June and July 2008. Nearly all parts of the property were visited and assessed. Eleven discrete areas, totalling approximately 41 hectares, are regarded as Significant Natural Areas (SNAs) when assessed against the District Plan criteria. These SNAs are listed in the table below.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
175a	Rockburn Treelands	J38: 589-699	4.63	Treeland; shrubland
175b	Rockburn Treelands	J38: 581-701	2.32	Treeland; limestone flora
175c	Rockburn Treelands	J38: 580-695	3.4	Treeland; kanuka forest
175d	Rockburn treelands	J38: 576-692	2.4	Treeland
189a	Limestone Road Treeland	J38: 568-687	1.08	Treeland
189b	Limestone Road Treeland	J38: 571-688	0.35	Treeland
189c	Limestone Road Treeland	J38: 570-690	0.91	Treeland
190	Saddle Road Treeland	J38: 574-687	13.76	Treeland, wetland, limestone
196	Monkey Gully	J38: 579-686	10.3	Hardwood forest, wetland, limestone flora
198a	Lower Monkey Gully	J38: 589-685	0.37	Kanuka forest
198b	Lower Monkey Gully		1.8	Treeland

These SNAs are illustrated on the attached aerial photograph and described in greater detail on the Area Inspection 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 most 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 under Final Considerations (pages B19-B20).

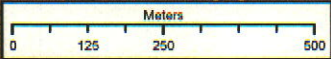
The implication of an area being listed as an SNA is that consent is required from Council for clearance of indigenous vegetation or habitat by any means (including burning and spraying with herbicides) or over-planting. To assist with the protection and management of any SNA, landowners can apply to Council for financial assistance. Any questions regarding the protection, management and use of SNAs should be directed to the District Planner. It is expected that SNAs will eventually be listed in the District Plan by way of a notified plan change.

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. 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.

Other areas of indigenous vegetation on the property include small areas of cabbage tree treeland and small patches of kanuka forest or other indigenous trees. These areas are too small and/or modified to meet the District Plan criteria. However, these areas have some potential value and, if protected or managed, may eventually become significant.

Rockburn
24670/200.00



1:12,500

Area Name: Rockburn Treelands	Property: Rockburn (RA & EM Chapman)	
Ecological District: Geraldine	Nearest Locality: Kakahu Bush	
Area 175a: Location (central map ref.): J38: 589-699	Area Size (ha): 4.63	Altitude (m): 150-200
Area 175b: Location (central map ref.): J38: 581-701	Area Size (ha): 2.32	Altitude (m): 120-160
Area 175c: Location (central map ref.): J38: 580-695	Area Size (ha): 3.4	Altitude (m): 150-180
Area 175d: Location (central map ref.): J38: 576-692	Area Size (ha): 2.4	Altitude (m): 160-200
Surveyors: Mike Harding	Survey Time: 2½ hours	Survey Date: 08-07-08

General Description:

This SNA comprises four discrete areas of treeland in small valleys or on valley sides on rolling hill country south of Winchester-Hanging Rock Road and east of Limestone Road. One area (175b) also includes an area of denser vegetation on and around a small limestone outcrop. One other patch of scattered cabbage trees, in a small gully adjacent to the main vehicle track on the property, does not meet the significance criteria because it is too small and lacks larger trees with suitable bird or bat roost sites.

Plant Communities:

Scattered cabbage trees form the dominant indigenous vegetation in these four areas. Plant communities of each area are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Area 175a:

This SNA comprises a long and narrow treeland on a south to southeast-facing slope of a small valley. It is dominated by scattered to clumped cabbage trees, scattered matagouri and pasture. Trunk diameters (at breast height) of the larger cabbage trees are between 55 and 70 cm. Many larger trees have trunk cavities that provide suitable roost sites for birds and possibly bats.

Other indigenous species present are *Coprosma propinqua*, silver tussock, one fuchsia tree, two kanuka trees (one with a trunk diameter of 66 cm) and mistletoe (on *Coprosma propinqua*). Two Lawson's cypress trees are present at the edge of the SNA. Scattered clumps of rushes (*Juncus* sp.) are present in damp pasture on the valley floor at the edge of the SNA.

A small patch of cabbage trees is present in a side gully but is too small and too distant from the main area of treeland to be regarded as significant.

Area 175b:

This SNA comprises an area of scattered cabbage trees on a gentle west-facing slope and clumps of trees on and adjacent to a limestone outcrop. The cabbage trees are evenly scattered across the slope and include larger trees with trunk cavities that provide suitable roost sites for birds and possibly bats.

Indigenous vegetation around the limestone outcrop is dominated by broadleaf trees. Other woody species present are mahoe, *Coprosma propinqua*, porcupine shrub, mountain akeake, matagouri, elderberry* and mistletoe (on *Coprosma propinqua*). Two native climbers, pohuehue and *Cabystegia tuguriorum*, are present on the trees. Indigenous herbaceous species associated with the limestone are *Asplenium lyallii*, maidenhair fern, *Dichondra* aff. *repens* and *Oxalis* sp.

Area 175c:

This SNA comprises scattered cabbage trees in the head of a small valley, a small stand of kanuka trees and areas of rushland. Trunk diameters of the larger cabbage trees are between 45 and 60 cm. The larger cabbage trees have trunk cavities that provide suitable roost sites for birds and possibly bats. The cabbage treeland is otherwise dominated by pasture and scattered shrubs of matagouri.

The small patch of kanuka comprises moderate-sized trees with an open understorey. Scattered clumps of soft rush* are present in seepages on the valley floor.

Area 175d:

This SNA comprises scattered cabbage trees on a moderately-steep northwest-facing slope, down-valley from Area 190. The slope is extensively slumped and contains areas of rushland. The larger cabbage trees have trunk cavities that provide suitable roost sites for birds and possibly bats. The cabbage treeland is otherwise dominated by pasture.

Birds/Fauna Observed:

Native birds observed during this brief inspection were grey warbler, fantail, paradise shelduck, white-faced heron and harrier.

Notable Flora, Fauna and Habitats:

Notable features of these sites are the size and density of the cabbage trees, the presence of larger cabbage trees with cavities that provide suitable roost sites for birds and bats, the abundance of native shrubs at Area 175a, the presence of limestone plants at Area 175b, and the contribution these areas make to the network of fauna habitat in the wider area.

Notable Plant and Animal Pests:

Elderberry was the only significant woody weed observed in the area (175b). While this plant poses little threat while the area is grazed, its fleshy fruits are readily dispersed by birds thereby threatening other areas of forest or shrubland. Animal pests were not surveyed.

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

All four parts of this SNA occupy steep or unstable slopes which are to some extent buffered and are less suitable for farm development. Area 175a is effectively fenced into two paddocks. The other three areas have fences along some of their boundaries. Each area is isolated from other areas of indigenous vegetation but is part of a network of fauna habitat, including other areas of cabbage treeland, in the wider area.

Condition and Management Issues:

The scattered cabbage trees within these areas are probably a depleted representative of the indigenous vegetation that was present at or the shortly after the time of European settlement. Since that time, associated indigenous vegetation such as shrubs and tussock grasses have gradually disappeared during years of pastoral activity. Eventually the cabbage trees will also senesce and die. An important management issue is the establishment or regeneration of new cabbage trees and protection of associated indigenous species (e.g. shrubs and tussock) so that the ecological value and character of the treeland are not lost.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Modified examples of the vegetation originally present; good examples of indigenous treeland that is typical of the ecological district.
Rarity	M	The SNAs are at the margin of the range of long-tailed bats and contain a good number of cabbage trees with suitable roost sites for bats.
Diversity and pattern	L/M	Three main communities are present: cabbage treeland, kanuka forest and vegetation on limestone. Species diversity is substantially reduced from that originally present.
Distinctiveness/special features	L/M	Notable features are the size of the areas of treeland and the presence of outcropping limestone.
Other Criteria		
Size/shape	M	Each area is of moderate size for the ecological district but not well buffered.
Connectivity	M	Each area is isolated from other areas of indigenous vegetation but is part of a network of fauna habitat in the wider area.
Long-term Sustainability	L/M	Active management, such as the establishment of new cabbage trees, will be required to maintain the values of the area in the long term.

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

The parts of the property occupied by the four parts of this SNA have been informally protected by the landowner. The areas are grazed and have limited potential for further development.

Discussion:

These four areas just meet the District Plan criteria for Significant Natural Areas. Important features of the areas are the size and density of the cabbage trees, the presence of larger cabbage trees with cavities that provide suitable roost sites for birds and bats, the abundance of native shrubs at Area 175a, the presence of limestone plants at Area 175b, and the contribution these areas make to the network of fauna habitat in the wider area.



Area 175c

Area Name: Limestone Road Treelands	Property: Rockburn (RA & EM Chapman)	
Ecological District: Geraldine	Nearest Locality: Kakahu Bush	
Area 189a: Location (central map ref.): J38: 568-687	Area Size (ha): 1.08	Altitude (m): 250-280
Area 189b: Location (central map ref.): J38: 571-688	Area Size (ha): 0.35	Altitude (m): 230
Area 189c: Location (central map ref.): J38: 570-690	Area Size (ha): 0.91	Altitude (m): 180-220
Surveyors: Mike Harding	Survey Time: 1½ hours	Survey Date: 12-06-08

General Description:

This SNA comprises three discrete areas of treeland on north-facing slopes near the crest of the rolling hill country north and east of Limestone Road. The three areas are similar, though are described separately here because they are isolated from one another by areas of open pasture.

Plant Communities:

Scattered cabbage trees form the dominant indigenous vegetation in these areas. Plant communities of each area are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Area 189a:

This SNA comprises an area of treeland on moderately steep slopes alongside Limestone Road. It adjoins similar vegetation on the adjoining road reserve. It is dominated by scattered cabbage trees, scattered matagouri, *Coprosma propinqua* and pasture. Trunk diameters (at breast height) of the larger cabbage trees are between 45 and 60 cm. The trees are between eight and nine metres tall. Some of the trees have trunk cavities that provide suitable roost sites for birds and possibly bats. Other indigenous species present are a single multi-trunked kowhai tree and a browsed native broom shrub.

The shrubland and low forest on the roadside comprises cabbage tree, mahoe, *Coprosma propinqua*, bracken, blackberry*, mistletoe (on *Coprosma propinqua*) and cotoneaster*.

Area 189b:

This SNA comprises a small patch of cabbage trees on a gentle north-facing slope. Also present are two large kowhai trees, matagouri and *Coprosma propinqua* shrubs. The larger trees have trunk cavities that provide suitable roost sites for birds and possibly bats.

Area 189c:

This SNA comprises scattered to clumped kanuka and cabbage trees on steeper lower slopes at the head of a small valley. The larger cabbage trees have trunk cavities that provide suitable roost sites for birds and possibly bats.

Birds/Fauna Observed:

Native birds observed during this brief inspection were fantail and harrier.

Notable Flora, Fauna and Habitats:

Notable features of these sites are the extent of the cabbage treelands, the presence of large kowhai trees, the presence of trees with cavities that provide suitable roost sites for birds and bats and the contribution these areas make to the network of fauna habitat in the wider area.

Notable Plant and Animal Pests:

The only significant plant pest observed in the area was cotoneaster. This species is present on the roadside alongside the SNA. It has fleshy fruits which are readily dispersed by birds thereby threatening other areas of forest or shrubland. Animal pests were not surveyed.

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

These three areas lie within fenced paddocks and are not fenced separately. Area 189a adjoins an area of indigenous vegetation on Limestone Road, which extends onto an adjoining property. Area 189b lies close to a very large area of cabbage treeland (Area 190). Area 189c is isolated from other areas of indigenous vegetation. All three areas contribute to the network of fauna habitat in the wider area.

Condition and Management Issues:

The scattered cabbage trees within these areas are probably depleted representatives of the indigenous vegetation that was present at or shortly after the time of European settlement. A photograph in the book 'Moonshine Country' (Gordon Olgivie, Caxton Press, 1971) shows scattered cabbage trees, shrubs and tall tussock near the crest of Limestone Road at the time of early European farming. Much of that indigenous plant cover has since disappeared. Eventually the cabbage trees will also senesce and die. Re-establishment or regeneration of cabbage trees and protection of associated indigenous species (e.g. shrubs and tussock) will be necessary to maintain the ecological values and character of the SNA in the long term.

Primary Criteria	Rank	Notes
Representativeness	M	A modified example of the vegetation originally present; a good example of indigenous treeland that is typical of the ecological district.
Rarity	M	The SNA is at the margin of the range of long-tailed bats and contains a good number of cabbage trees with suitable roost sites for bats.
Diversity and pattern	L	Only one main plant community is present. Species diversity is substantially reduced from that originally present.
Distinctiveness/special features	L/M	Notable features are the extent of the areas of treeland and the presence of large kowhai trees. The trees are clearly visible from Limestone Road.
Other Criteria		
Size/shape	M	Each area is of moderate size for the ecological district but not well buffered.
Connectivity	M	The areas adjoin indigenous vegetation along Limestone Road (and extending onto an adjoining property) and are close to an extensive cabbage treeland (Area 190). They are part of a network of fauna habitat in the wider area.
Long-term Sustainability	I/M	Active management, such as the establishment of new cabbage trees, will be required to maintain the values of the area in the long term.

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

The trees within these areas have been informally protected by the landowners. Areas 189a and 189b could be developed for pasture or other uses; Area 189c lies on slopes too steep for easy development. The existing use of the area (grazing) does not immediately threaten the larger trees, but is likely to discourage natural regeneration of indigenous species.

Discussion:

These three areas just meet the District Plan criteria for Significant Natural Areas. Important features of the areas are the extent of the cabbage treelands, the presence of large kowhai trees, the presence of trees with cavities that provide suitable roost sites for birds and bats and the contribution these areas make to the network of fauna habitat in the wider area.

TIMARU DISTRICT SNA SURVEY

AREA 190

Area Name: Saddle Road treeland

Location (central map reference): J38: 574-687

Ecological District: Geraldine

Surveyors: Mike Harding

Property: Rockburn (RA & EM Chapman)

Nearest Locality: Kakahu Bush

Area Size (ha): 13.76 **Altitude (m):** 200-290

Survey Time: 1½ hours **Survey Date:** 12-06-08

General Description:

This SNA comprises a very extensive area of cabbage treeland on northwest-facing slopes and an associated gully near the crest of the rolling hill country at the junction of Saddle Road and Limestone Road. It is the most extensive and impressive area of cabbage treeland in this part of the district.

Plant Communities:

Scattered cabbage trees form the dominant indigenous vegetation in this area. This plant community is described below. Naturalized (exotic) species are indicated with an asterisk*.

The area is dominated by large cabbage trees, scattered shrubs and pasture. The larger cabbage trees are 8 to 10 m tall and have trunk diameters (at breast height) between 70 and 80 cm. There are hundreds of cabbage trees in this area, forming one of the most extensive areas of treeland in the ecological district.

Other species present in the cabbage treeland are matagouri, *Coprosma propinqua*, native broom, two large mahoe trees, mistletoe (on *Coprosma propinqua*) and scrub pohuehue.

A small patch of kanuka is present on the northwest side of the area. The kanuka trees are small, with trunk diameters between 15 and 20 cm. Also present here are matagouri, *Coprosma propinqua*, native broom, silver tussock and scrub pohuehue.

An extensive wetland is present on the valley floor. Its source is a substantial spring at the head of the valley. It is mostly a seepage dominated by a spongy turf of pasture grasses. A patch of *Carex secta* is present near the lower end of the wetland, and scattered plants are present elsewhere. Other wetland species present are rushes (*Juncus gregiflorus*), sedge (*Carex coriacea*), water cress* (*Rorippa* sp.), *Ranunculus amphitrichus* and *Azolla filiculoides*.

At the head of the valley, at the northwest corner of the area, is a small limestone bluff. This bluff appears to have been previously quarried, though now provides a refuge for a number of native species. Plants present here are native broom, kanuka, mountain akeake, cabbage tree, *Coprosma propinqua*, mahoe, pohuehue, toatoa, *Senecio* sp. and a willowherb (*Epilobium* sp.).

Birds/Fauna Observed:

Native birds observed during this brief inspection were fantail, welcome swallow, bellbird, harrier and silvereye.

Notable Flora, Fauna and Habitats:

The most notable feature of this area is the extent of the cabbage treeland. It is the most extensive and impressive cabbage treeland in this part of the ecological district and is clearly visible from a public road (Limestone Road). Other notable features are the range of plant communities present, the extent of the wetland on the valley floor, the size of some of the cabbage trees, the presence of trees with cavities that provide suitable roost sites for birds and bats and the contribution the area makes to the network of fauna habitat in the wider area.

Notable Plant and Animal Pests:

No significant plant pests were observed in the area. Animal pests were not surveyed.

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

This area lies within fenced paddocks, but its boundaries are not fenced separately. It does not adjoin other areas of indigenous vegetation, though lies close to Area 189b and Area 175d. It makes an important contribution to the network of fauna habitat in the wider area.

Condition and Management Issues:

The scattered cabbage trees within these areas are probably a depleted representative of the indigenous vegetation that was present at or shortly after the time of European settlement. A photograph in the book 'Moonshine Country' (Gordon Olgivie, Caxton Press, 1971) shows scattered cabbage trees, shrubs and tall tussock near the crest of Limestone Road at the time of early European farming. Much of that indigenous plant cover has since disappeared. Eventually the cabbage trees will also senesce and die. Re-establishment or regeneration of cabbage trees and protection of associated indigenous species (e.g. shrubs and tussock) will be necessary to maintain the ecological values and character of the SNA in the long term.

Property Owner Comment:

The owners value this area and are keen to see it better protected.

Primary Criteria	Rank	Notes
Representativeness	M/H	A modified example of the vegetation originally present; but a very good example of indigenous treeland that is typical of the ecological district.
Rarity	M	The SNA is at the margin of the range of long-tailed bats and contains many cabbage trees with cavities that provide suitable roost sites for bats.
Diversity and pattern	M	Although species diversity is substantially reduced from that originally present, the area supports several community types: cabbage treeland, kanuka forest, limestone flora and an extensive seepage (wetland).
Distinctiveness/special features	M/H	The most extensive and clearly visible cabbage treeland in this part of the ecological district.
Other Criteria		
Size/shape	M/H	The area is large for the ecological district but not well buffered.
Connectivity	M	The area forms an important part of the network of fauna habitat in the wider area.
Long-term Sustainability	L/M	Active management, such as the establishment of new cabbage trees, will be required to maintain the values of the area in the long term.

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

The trees within these areas have been informally protected by the landowners. The steepness and instability of the slope limits its potential for further development. The existing use of the area (grazing) does not immediately threaten the larger trees, but is likely to discourage natural regeneration of indigenous species. The presence of stock (especially cattle) is affecting the wetland.

Discussion:

This area easily meets the District Plan criteria for Significant Natural Areas. Important features of the area are the extent of the treeland, the range of plant communities present, the extent of the wetland on the valley floor, the size of some of the cabbage trees, the presence of trees with cavities that provide suitable roost sites for birds and bats and the contribution the area makes to the network of fauna habitat in the wider area.

TIMARU DISTRICT SNA SURVEY

Wetland 190

Wetland Record Form

Wetland name: Saddle Road	Date: 12 June 2008
Property: Rockburn (RA & EM Chapman)	GPS/Grid Ref: J38: 574-687
Altitude: 200 to 250m	No. of plots sampled:
Location: Saddle Road, Kakahu Bush	Approximate size (ha): ?

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Palustrine	Permanent	Seepage	Blanket Mire

Surveyors:

Indicator	Indicator components	Specify and Comment	Score 0-5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	Vehicle ford/track	4	3.3
	Water table depth	Unmodified	5	
	Dryland plant invasion	Dominated by pasture grasses	1	
Change in physico-chemical parameters	Fire damage	No evidence of damage	5	3.7
	Degree of sedimentation/erosion	No erosion evident	4	
	Nutrient levels	Dominated by grasses	2	
	von Post index	n/a		
Change in ecosystem intactness	Loss in area of original wetland	Some drying at margins?	4	4.5
	Connectivity barriers	Connections intact	5	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	All browsed/trampled	1	2.3
	Introduced predator impacts on wildlife	Intermittent control?	2	
	Harvesting levels	Presumably minor	4	
Change in dominance of native plants	Introduced plant canopy cover	Dominated by pasture grasses	1	1
	Introduced plant understorey cover	n/a		
Total wetland condition index /25				14.8

Main vegetation types: Pasture, *Juncus gregiflorus* rushland and *Carex coriacea-Carex secta* sedgeland

Native fauna: Fantail, bellbird, harrier, silveryeye and welcome swallow in adjacent areas.

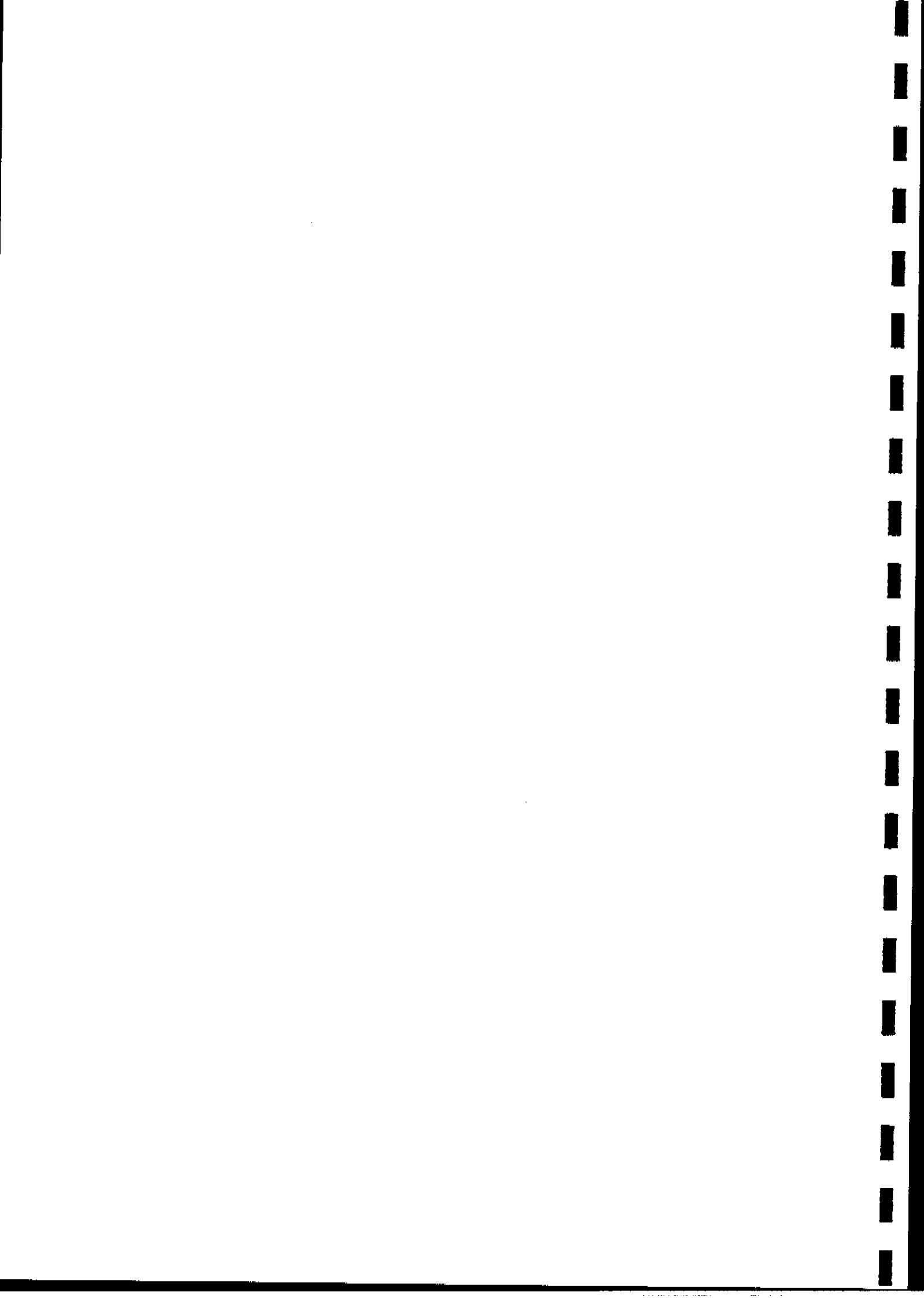
Other comments: Adjacent to indigenous treeland vegetation on limestone; at head of catchment.

Pressure	Rating ²	Specify and Comment
Modifications to catchment hydrology	1	Vehicle crossing
Water quality within the catchment	1	At head of spring-fed stream
Animal access	4	Unfenced; semi-intensive grazing landuse
Key undesirable species	2	Introduced animals present; no woody weeds
% catchment in introduced vegetation	4	
Other pressures	1	Fertiliser?
Total wetland pressure index /30	13	

Source: Clarkson *et al.*, Handbook for monitoring wetland condition, Ministry for the Environment, August 2002.

¹ Assign degree of modification thus: 5=v. low/ none, 4 = low, 3=medium, 2=high, 1=v. high, 0=extreme

² Assign pressure scores as follows: 5 = very high, 4=high, 3 = medium, 2=low, 1= very low, 0=none



TIMARU DISTRICT SNA SURVEY

AREA 196

Area Name: Monkey Gully	Property: Rockburn (RA & EM Chapman)
Location (central map reference): J38: 579-686	Nearest Locality: Upper Waitohi
Ecological District: Geraldine	Area Size (ha): 10.3 Altitude (m): 180-240
Surveyors: Mike Harding	Survey Time: 2½ hours Survey Date: 12-06-08

General Description:

This SNA covers areas of indigenous vegetation on and adjacent to limestone scarps at the head of the valley between Coles Road and Saddle Road (known locally as 'Monkey Gully').

Plant Communities:

The main plant community present is mixed hardwood forest/shrubland. A sparser plant community is present on open areas of limestone on the north-facing side of the valley. Wetland plants are present in seepage areas on the valley floor. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Mixed hardwood forest/shrubland on south-facing slopes:

Hardwood forest and shrubland are present in scattered patches, mostly on the steeper slopes associated with the outcropping limestone. Important canopy species are mahoe, cabbage tree, five-finger, pohuehue and less-commonly broadleaf and kowhai.

Plant species present in the understorey are koromiko, *Coprosma propinqua* and occasionally mountain akeake, poroporo, elderberry* and cotoneaster*.

Ground-cover species present in the forest or on exposed limestone are *Asplenium lyallii*, necklace fern, maidenhair fern, *Blechnum chambersii*, pennywort, *Schizellema trifoliolatum*, *Galium* sp., willowherb (*Epilobium* sp.), *Geranium* aff. *sessiliflorum*, *Dichondra* aff. *repens*, *Cardamine* sp., *Leptinella* sp., *Colobanthus acicularis*, toatoa, black nightshade*, nettle* (*Urtica* sp.), stoncrop*, horehound* and mouse-ear hawkweed*.

Other species present on the margins and in shrubland are cabbage tree, *Coprosma propinqua*, matagouri, native broom, silver tussock, flax and a small stand of tall *Coprosma crassifolia* bushes.

One large totara tree is present on the valley floor.

Sparse vegetation on north-facing slopes:

The south side of the valley is gently sloping with areas of exposed limestone surrounded by pasture. Plant species present on or adjacent to the exposed limestone are kanuka, cabbage tree, mahoe, pohuehue, matagouri, *Coprosma propinqua*, mistletoe (on *Coprosma propinqua*), sedge (*Carex* sp.), *Oxalis* sp., *Asplenium lyallii*, toatoa, maidenhair fern, *Blechnum chambersii*, *Galium* sp., stoncrop*, willowherb (*Epilobium* sp.) and pasture grasses* and herbs.

Valley-floor wetland:

The broad valley-floor is poorly drained. This damp turf is dominated by pasture grasses and patches of the sedge *Carex coriacea*. Other species present are *Mimulus* sp.*, creeping buttercup*, moss, *Carex secta* and occasionally *Coprosma propinqua*.

Birds/Fauna Observed:

Native species observed during this brief inspection were bellbird and grey warbler. Welcome swallow nests are present in limestone overhangs.

Notable Flora, Fauna and Habitats:

Notable features of this SNA are the extent of the exposed limestone, the extent and diversity of the vegetation, the presence of obligate limestone species (such as *Asplenium lyallii* and numerous herbs), the presence of totara, the size of the area and the contribution the area makes to the network of fauna habitat in the wider area. The presence of tomos (sinkholes) and the history of moonshine production in this valley add interest to the SNA.

Notable Plant and Animal Pests:

Elderberry and cotoneaster are the most important woody plant pests present. These species are not dominant but could become so. The most significant threat to the forest patches is probably the native climber pohuehue (*Muehlenbeckia australis*). Pohuehue can smother and eventually kill large trees, especially isolated trees or trees on the forest margin. Areas of limestone are vulnerable to invasion by numerous exotic grasses and herbs. Mouse-ear hawkweed and stonecrop are probably the two most invasive species present, though control of these species is difficult. Animal pests were not surveyed.

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

The native vegetation in this SNA is not fenced, though it is buffered to some extent by its location at the head of the valley and its position on limestone scarps. The SNA is surrounded by grazed pasture, though is not far from other areas of indigenous vegetation and outcropping limestone in adjacent valleys.

Condition and Management Issues:

The indigenous vegetation that is protected by its location on the steeper limestone scarps is in relatively good condition. Other areas, that are accessible to domestic stock, are more depleted. Protection of these native plant communities from domestic stock and control of the more invasive weeds (such as pohuehue, elderberry and cotoneaster) are the most important management issues.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

<u>Primary Criteria</u>	<u>Rank</u>	<u>Notes</u>
Representativeness	M/H	A good example of indigenous vegetation on limestone that is typical of the ecological district and containing species representative of the original vegetation of the district.
Rarity	M/H	The SNA is within the local range of long-tailed bat (a 'nationally endangered' species) and provides good roost sites for bats. A number of locally uncommon plant species are present.
Diversity and pattern	M	Species diversity is reduced from that originally present. However, the SNA contains a range of plant communities.
Distinctiveness/special features	M	The extent of the limestone scarps and the presence of limestone tomos (sinkholes) are special features.
<u>Other Criteria</u>		
Size/shape	M/H	The area is moderate-large for the ecological district and relatively well buffered.
Connectivity	M	Isolated from other SNAs but an important part of the network of fauna habitat in the wider area.
Long-term Sustainability	M	Vegetation on the limestone scarps is well buffered, though there is little regeneration of canopy species elsewhere.

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

Most parts of this SNA are protected by their location on steeper limestone slopes or scarps, or by their rockiness (north-facing slopes) or poor drainage (valley-floor). The main areas of vegetation have been informally protected by the landowners. The area is presently grazed as part of larger fenced paddocks.

Discussion:

This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the extent of the exposed limestone, the extent and diversity of the vegetation, the presence of obligate limestone species (such as *Asplenium lyallii* and numerous herbs), the presence of totara, the size of the area and the contribution the area makes to the network of fauna habitat in the wider area.

TIMARU DISTRICT SNA SURVEY

Wetland Record Form

Wetland 196

Wetland name: Monkey Gully	Date: 12 June 2008
Property: Rockburn (RA & EM Chapman)	GPS/Grid Ref: J38: 579-686
Altitude: 170 to 200m	No. of plots sampled:
Location: Saddle Road, Upper Waitohi	Approximate size (ha): ?

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Palustrine	Permanent	Seepage	Basin

Surveyors:

Indicator	Indicator components	Specify and Comment	Score 0-5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	None present	5	3.7
	Water table depth	Unmodified	5	
	Dryland plant invasion	Dominated by pasture grasses	1	
Change in physico-chemical parameters	Fire damage	No evidence of damage	5	3.7
	Degree of sedimentation/erosion	No erosion evident	4	
	Nutrient levels	Dominated by grasses	2	
	von Post index	n/a		
Change in ecosystem intactness	Loss in area of original wetland	Some drying at margins?	4	4.5
	Connectivity barriers	Connections intact	5	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	All browsed/trampled	1	2.3
	Introduced predator impacts on wildlife	Intermittent control?	2	
	Harvesting levels	Presumably minor	4	
Change in dominance of native plants	Introduced plant canopy cover	Dominated by pasture grasses	1	1
	Introduced plant understorey cover	n/a		
Total wetland condition index /25				15.2

Main vegetation types: Pasture and *Carex coriacea* sedge/land

Native fauna: Bellbird, grey warbler and welcome swallow in adjacent vegetation.

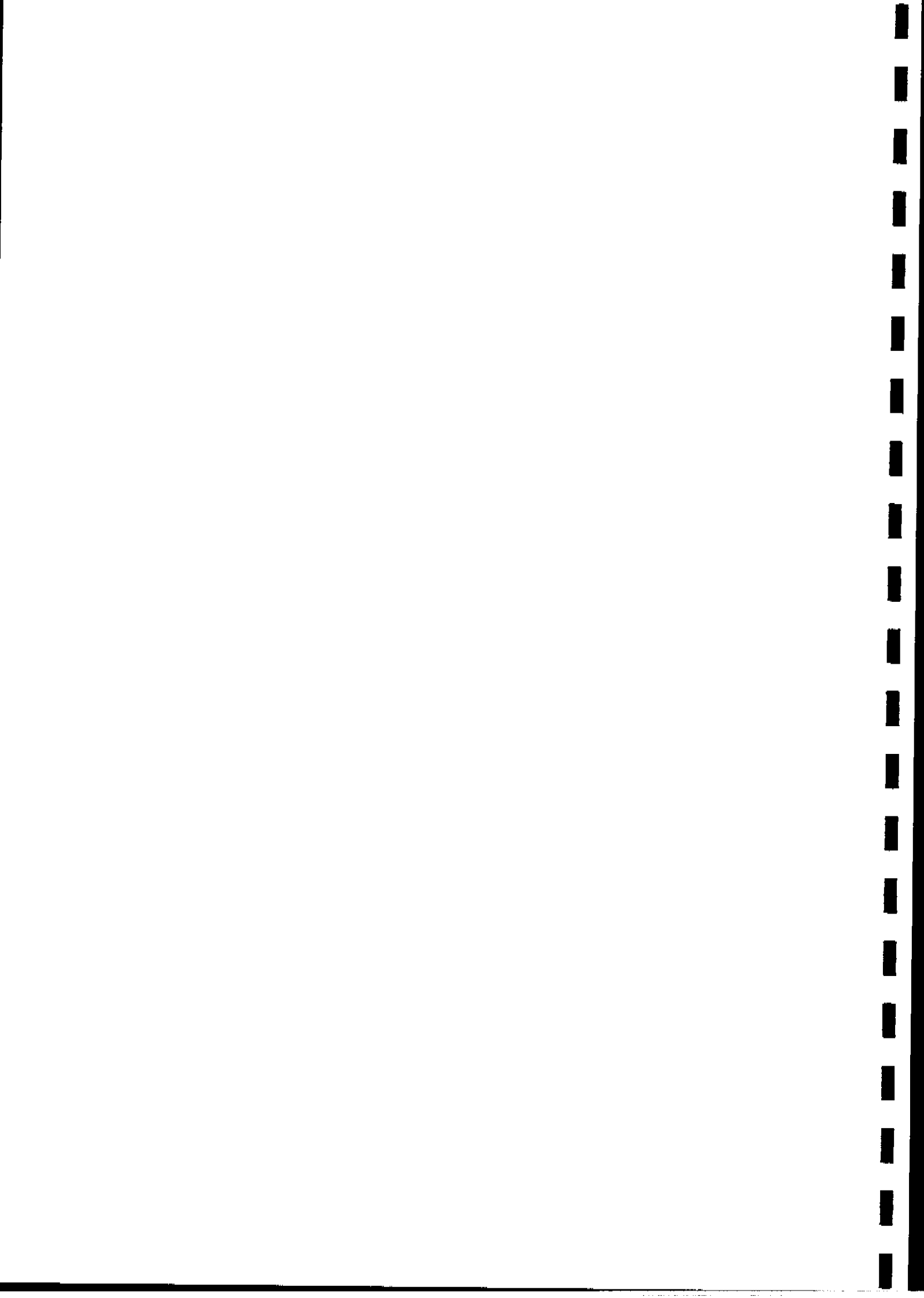
Other comments: Adjacent to limestone scarp vegetation; at head of catchment.

Pressure	Rating ²	Specify and Comment
Modifications to catchment hydrology	0	None apparent
Water quality within the catchment	1	At head of spring-fed stream
Animal access	4	Unfenced; semi-intensive grazing landuse
Key undesirable species	2	Introduced animals present; no woody weeds
% catchment in introduced vegetation	4	
Other pressures	1	Fertiliser?
Total wetland pressure index /30	12	

Source: Clarkson *et al*, Handbook for monitoring wetland condition. Ministry for the Environment, August 2002.

¹ Assign degree of modification thus: 5= v. low/ none, 4=low, 3=medium, 2=high, 1=v. high, 0=extreme

² Assign pressure scores as follows: 5=very high, 4=high, 3=medium, 2=low, 1=very low, 0=none



TIMARU DISTRICT SNA SURVEY

AREA 198

Area Name: Lower Monkey Gully

Ecological District: Geraldine

Area 198a: Location (central map ref.): J38: 589-685

Area 198b: Location (central map ref.): J38: 589-685

Surveyors: Mike Harding

Property: Rockburn (RA & EM Chapman)

Nearest Locality: Upper Waitohi

Area Size (ha): 0.37

Altitude (m): 160-180

Area Size (ha): 1.8

Altitude (m): 180-230

Survey Time: 1 hour

Survey Date: 08-07-08

General Description:

This SNA comprises scattered indigenous vegetation on moderately-steep south-facing slopes below Saddle Road in the mid-section of Monkey Gully.

Plant Communities:

Two main plant communities are present: treeland and a small patch of kanuka forest. These plant communities are described separately below. Naturalized (exotic) species are indicated with an asterisk*.

Treeland (Area 198b):

This plant community contains scattered trees or clumps of trees of totara, narrow-leaved lacebark, cabbage tree, mapou, mahoe and single trees of lemonwood, turepo and rohutu. Large clumps of the smothering climber pohuchuc are present on some trees. Trunk diameters (centimetres at breast height) of the larger trees are: totara, 53; narrow-leaved lacebark, 39; mapou, 19 and 21; and cabbage tree, 51 to 63. Other plant species present are the climbers, native jasmine and lawyer, and shrubs of *Coprosma crassifolia*, *Coprosma areolata*, and mistletoe (on *Coprosma crassifolia*).

This treeland is located on a recently-slumped slope dominated by pasture grasses and areas of rushland dominated by *Juncus gregiflorus*, soft rush* and *Carex coriacea*.

Kanuka Forest (Area 198a):

This small patch of kanuka was not inspected closely, to avoid disturbing a large flock of sheep. It appears to comprise tall kanuka with an open understorey.

Birds/Fauna Observed:

Native birds observed during this brief inspection were pukeko, grey warbler, fantail and harrier.

Notable Flora, Fauna and Habitats:

Notable features are the presence of totara, the range of forest trees present, the extent of the areas and the contribution the areas make to the network of fauna habitat in the wider area.

Notable Plant and Animal Pests:

The native climber pohuehue (*Muehlenbeckia australis*) is the most serious plant pest present. It is well established and has already smothered a number of trees. Other plant pests present, such as occasional gorse plants, do not pose a significant threat to the native vegetation. Animal pests were not surveyed.

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

These areas are unfenced and are grazed as parts of a larger paddock. The vegetation is protected to some extent by its location on an unstable and in places damp slope. They lie close to Waitohi Scenic Reserve.

Condition and Management Issues:

These forest remnants are in poor condition. They are unlikely to persist in the long term unless regeneration of indigenous woody species is encouraged.

Property Owner Comment:

Keen to protect the areas of forest but wishes to cultivate areas of rough pasture between them.

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	Modified examples of the indigenous vegetation that is typical of the ecological district.
Rarity	M	The older trees may provide roost sites for long-tailed bat (a 'nationally-endangered' species).
Diversity and pattern	L/M	A good range of forest trees is present but species diversity is substantially reduced from that originally present.
Distinctiveness/special features	L/M	The presence of wetland vegetation (rushland) on damper parts of the slump is an interesting feature.
Other Criteria		
Size/shape	M	Together a moderate sized area for this ecological district, buffered to some extent by its location.
Connectivity	M	Isolated from other areas of indigenous vegetation but a useful part of the network of fauna habitat in the wider area.
Long-term Sustainability	L/M	Unlikely to survive in the long term without some management.

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

These areas have been informally protected by the landowners and by their location on a moderately steep and unstable slope.

Discussion:

This area just meets the District Plan criteria for a Significant Natural Area. Important features of the area are the presence of totara, the range of forest trees present, the extent of the area and the contribution the area makes to the network of fauna habitat in the wider area.

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>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
cotoneaster*	<i>Cotoneaster glaucophyllus</i>
creeping buttercup*	<i>Ranunculus repens</i>
elderberry*	<i>Sambucus nigra</i>
five-finger	<i>Pseudopanax arboreus</i>
flax	<i>Phormium tenax</i>
fuchsia	<i>Fuchsia excorticata</i>
gorse*	<i>Ulex europaeus</i>
horehound*	<i>Marrubium vulgare</i>
kanuka	<i>Kunzea ericoides</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
Lawson's cypress*	<i>Chamaecyparis lawsoniana</i>
lawyer	<i>Rubus schmidelioides</i>
lemonwood	<i>Pittosporum eugenioides</i>
mahoe/whiteywood	<i>Meliccytus ramiflorus</i>
maidenhair fern	<i>Adiantum cunninghamii</i>
mapou	<i>Myrsine australis</i>
matagouri	<i>Discaria toumatou</i>
mistletoe	<i>Ileostylis micranthus</i>
mountain akeake	<i>Olearia avicenniifolia</i>
mouse-ear hawkweed*	<i>Hieracium pilosella</i>
narrow-leaved lacebark	<i>Hoheria angustifolia</i>
native broom	<i>Carmichaelia aff. australis</i>
native jasmine	<i>Parsonia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
pennywort	<i>Hydrocotyle</i> sp.
pohuehue	<i>Muehlenbeckia australis</i>
porcupine shrub	<i>Meliccytus alpinus</i>
poroporo	<i>Solanum laciniatum</i>
rohutu	<i>Lophomyrtus obcordata</i>
scrub pohuehue	<i>Muehlenbeckia complexa</i>
silver tussock	<i>Poa cita</i>
soft rush*	<i>Juncus effusus</i>
stonecrop*	<i>Sedum acre</i>
toatoa	<i>Haloragis erecta</i>
totara	<i>Podocarpus totara</i>
turepo	<i>Streblus heterophyllus</i>
yew*	<i>Taxus baccata</i>
Yorkshire fog*	<i>Holcus lanatus</i>

