



TIMARU DISTRICT

**SIGNIFICANT NATURAL AREAS
SURVEY**

GEARY PROPERTY



Report prepared for the Timaru District Council by Mike Harding

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner:IA and CJ Geary
Valuation Reference:24810/006.01
Address:Mount Gay Road, Totara Valley
Location:.....Slopes and valleys on the north side of Mt Gay.
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 gently-sloping to moderately-steep slopes on the northern flank of Mt Gay. It includes parts of small streams that flow to the Opihi River just below the confluence of the Opuha River near Raincliff. A notable feature of the property is the prominent limestone bluffs on south-facing slopes of the main valley. The property lies in the southern part of Geraldine Ecological District.

It is likely that the original vegetation of this area was predominantly mixed podocarp-hardwood forest with areas of scrub and shrubland. Forest in this part of Geraldine Ecological District is now largely confined to small remnants in gullies and around limestone bluffs. Otherwise, vegetation of the ecological district has been substantially modified, though areas of sparse rockland plant communities are present on steep limestone. The original vegetation of these rockland areas was probably similar to that present today, though probably with a greater diversity of indigenous species and the absence of naturalized species. Areas of wetland present on the property were probably originally forested, though the existing wetland vegetation is typical of that present in the ecological district today.

The indigenous fauna would have been significantly more numerous and diverse, with a greater range of birds, lizards and invertebrates than are presently found in the area. The property lies very close to the known range of the South Canterbury population of long-tailed bat and provides suitable roosting and/or breeding habitat for bats. This species is regarded as nationally-endangered.

Indigenous vegetation on the property comprises areas of hardwood forest, shrubland, cabbage tree treeland, rockland plant communities on limestone bluffs, a relatively extensive sedge-dominated wetland and a small area of kanuka forest. The combination of wetlands, ponds, shrubland, treeland, forest and limestone bluffs provide habitat suitable for indigenous fauna, including long-tailed bat.

SIGNIFICANT AREAS ON THE PROPERTY:

The property was surveyed as part of the District-wide survey of Significant Natural Areas during July 2006. Nearly all parts of the property were visited and assessed. Eight areas, totalling approximately 18 hectares, are regarded as significant when assessed against the District Plan criteria. These areas are listed in the table below. Note that the assessment of limestone plant communities on the property is constrained by the unclear identity and status of some plant species. Further taxonomic or survey work may alter the significance assessments of areas supporting these species.

Area No.	Area Name	Central grid reference	Aprox. size (ha)	Vegetation/habitat type
349a	Upper Rockpool Valley	J38: 479-673	0.96	rockland, sedgeland, shrubland
352a	Parry Road Treeland	J38: 466-678	1.25	treeland, shrubland
364a	Mount Gay Road Limestone West	J38: 474-671	6.03	forest, shrubland, rockland
364b*	Mount Gay Road Limestone East	J38: 478-669	2.02	shrubland, rockland
366a	Mount Gay Road Treeland	J38: 473-666	4.30	treeland, shrubland
366b	Mount Gay Road Kanuka	J38: 470-670	0.67	kanuka forest
367a	Mount Gay Road Wetland East	J38: 479-667	1.90	sedgeland, rockland, shrubland
367b	Mount Gay Road Wetland West	J38: 472-671	0.76	sedgeland, shrubland

* Subject to resolution with Council of proposals for vegetation clearance.

Areas of indigenous vegetation and/or habitat on the property that are identified as Significant Natural Areas (above) are illustrated on the attached aerial photograph 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) and are considered to be sustainable in the long term (criterion vii, page B19). Areas 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 a Significant Natural Area (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 are eligible to apply to Council for financial assistance. Any questions regarding the protection, management and use of SNAs should be directed to the District Planner.

OTHER AREAS INSPECTED ON THE PROPERTY:

Other areas of indigenous vegetation and habitat on the property were inspected but are not regarded as significant when assessed against the criteria on pages B18-B20 of the Timaru District Plan. Failure of an area to meet the significance criteria does not necessarily mean that it is not important for nature conservation or the protection of indigenous biodiversity; it simply means that the area (as assessed at this time) does not meet the criteria in the Timaru District Plan. Some of these areas have considerable potential value and, if left alone, may eventually become significant. One notable area comprises several small patches of regenerating hardwood forest and smaller associated areas of scattered cabbage trees and sedgeland (wetland) in the upper (western) part of the main valley on the property. This area is linked by planted (exotic) forest to the main area of limestone forest on the property (Area 364a) and has considerable potential habitat value. This area would soon become significant if natural regeneration continues undisturbed.

Geary Property
24810/006.01



352a

349a

364a

367b

366a

366b

364b

367a

Scientific names of species cited by common name

Common Name Scientific name

(* = naturalised species)

barberry*	<i>Berberis glaucocarpa</i>
blackberry*	<i>Rubus fruticosus</i>
bracken	<i>Pteridium esculentum</i>
broadleaf	<i>Griselinia littoralis</i>
burdock*	<i>Arctium minus</i>
cabbage tree/ti rakau	<i>Cordyline australis</i>
chickweed*	<i>Stellaria media</i>
elderberry*	<i>Sambucus nigra</i>
five finger	<i>Pseudopanax arboreus</i>
flax	<i>Phormium tenax</i>
foxglove*	<i>Digitalis purpurea</i>
fuchsia	<i>Fuchsia excorticata</i>
gorse*	<i>Ulex europaeus</i>
horchound*	<i>Marrubium vulgare</i>
kanuka	<i>Kunzea ericoides</i>
koromiko	<i>Hebe salicifolia</i>
kowhai	<i>Sophora microphylla</i>
lancewood	<i>Pseudopanax crassifolius</i>
leafless lawyer	<i>Rubus squarrosus</i>
lemonwood	<i>Pittosporum eugenioides</i>
mahoe/whiteywood	<i>Melicactus ramiflorus</i>
maidenhair fern	<i>Adiantum cunninghamii</i>
matagouri	<i>Discaria toumatou</i>
mistletoe	<i>Ileostylis micranthus</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>Parsonsia</i> sp.
necklace fern	<i>Asplenium flabellifolium</i>
nettle*	<i>Urtica</i> sp.
pohuehue	<i>Muehlenbeckia australis</i>
scrub pohuehue	<i>Muehlenbeckia complexa</i>
silver tussock	<i>Poa cita</i>
stonecrop*	<i>Sedum acre</i>
swamp kiokio	<i>Blechnum minus</i>
toatoa	<i>Haloragis erecta</i>
toetoe	<i>Cortaderia richardii</i>
totara	<i>Podocarpus totara</i>
wineberry	<i>Aristotelia serrata</i>
woolly mullein*	<i>Verbascum thapsus</i>

TIMARU DISTRICT SNA SURVEY

AREA 349a

Area Number: 349a	Area Name: Upper Rockpool Valley	Date: 21 July 2006
Property: IA and CJ Geary		Surveyors: Mike Harding
Weather Conditions: cold and cloudy		Time Spent at Area: 1 hour

Location (central grid reference): J38: 479-673	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 0.96 ha	Altitude: 180 m
General description of Area: Small limestone bluffs on lower north-facing slopes and an adjoining wetland on the valley floor, in a small valley northwest of Mt Gay.		

General description of plant communities and habitats: Rockland plant communities on limestone, associated shrubland, cabbage trees and pasture, and sedgeland in the valley floor wetland.

Detailed vegetation description: (naturalized species are indicated by an asterisk*) Limestone bluffs dominate this site. Species present on the limestone or on associated limestone soils are <i>Oxalis</i> sp., <i>Epilobium nummulariifolium</i> , <i>Asplenium lyallii</i> , <i>Cardamine</i> sp., <i>Dichondra repens</i> , <i>Blechnum chambersii</i> , maidenhair fern, stonecrop* and mouse-ear hawkweed*. Tree and shrub species present in and around the limestone are <i>Coprosma propinqua</i> , scrub pohuehue, pohuehue, native broom, leafless lawyer, <i>Calystegia tuguriorum</i> , elderberry*, cabbage tree and one small mahoe tree. Other species present are horehound*, woolly mullein* and pasture grasses. The wetland is dominated by rautahi (<i>Carex coriacea</i>) and pukio (<i>Carex secta</i>). Other species present are cabbage tree, flax, <i>Coprosma propinqua</i> , <i>Juncus gregiflorus</i> , blackberry*, woolly mullein* and one small patch of gorse*. A small gully at the southeast corner of the Area has limestone bluffs with <i>Epilobium nummulariifolium</i> , <i>Asplenium lyallii</i> and <i>Blechnum chambersii</i> , a small tomo (pothole) and scattered shrubland dominated by <i>Coprosma propinqua</i> , cabbage tree, scrub pohuehue and pohuehue, with occasional gorse* and mahoe.

Notable birds observed: No notable indigenous bird species were observed.

Notable flora, fauna or habitats: The extent of the limestone habitat and its proximity to an area of wetland habitat are the most notable features of the Area. The presence of the locally uncommon leafless lawyer (<i>Rubus squarrosus</i>) is also notable.
--

General condition of Area: The central part of the wetland and the less accessible parts of the limestone bluffs are in relatively good condition. Otherwise the Area (at the time of survey) was heavily used and trampled by domestic stock. One limestone overhang has a very clear rock drawing.
--

Notable plant and animal pests: Elderberry, gorse and stonecrop are the most important plant pests present, though these species are not widespread or dominant. Gorse is confined to one small patch near the wetland. A feral cat was observed on the limestone bluffs.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.): The Area forms a small part of a much larger area of limestone bluff, wetland and shrubland most of which lies on an adjoining property. The Area is mostly fenced, but appears heavily used by stock to gain access to water.
--

Present management and management issues: Important management issues are the protection of limestone and wetland plant communities from intensive stock use, and the control of invasive plant pests such as elderberry and gorse.

Property Owner Comment: Concurs that this Area has high natural values and has no intention of developing or modifying the limestone bluff and its associated vegetation. Need to maintain, and perhaps enlarge, the artificial pond to provide a secure stock-water supply.
--

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M	A modified example of limestone bluff and wetland plant communities.
Rarity	M	Provides potential habitat for long-tailed bat; supports species that are uncommon in the ecological district (leafless lawyer, native broom and scrub pohuehue).
Diversity and pattern	M	Species diversity is less than that originally present.
Distinctiveness/special features	M	The limestone bluff and wetland are part of a much larger area of similar habitat. The presence of a rock drawing is a special feature.
Other Criteria		
Size/shape	M	A small area with a good shape and potentially well buffered (and part of a much larger area on adjoining land).
Connectivity	M	Contiguous with a much larger area of limestone bluff, wetland and shrubland on an adjoining property.
Long-term Sustainability	M	Modified communities and habitats that will require conservation management.
SNA (yes/no):	YES	
Final Consideration (of other matters, Section D, page B-19):		
The indigenous species and habitats in this Area should persist under the present land use, provided intensive grazing of stock is minimised. The long term survival of indigenous vegetation may require more active encouragement of indigenous species recruitment.		

Discussion:
The Area meets the District Plan criteria for a Significant Natural Area. The significance of the Area is enhanced if it is considered alongside adjacent areas of wetland, shrubland and limestone bluff.



Area 349a

TIMARU DISTRICT SNA SURVEY

AREA 352a

Area Number: 352a	Area Name: Parry Road Treeland	Date: 21 July 2006
Property: IA and CJ Geary	Surveyors: Mike Harding	
Weather Conditions: cold and cloudy	Time Spent at Area: 1 hour	

Location (central grid reference): J38: 466-678	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 1.25 ha	Altitude: 220 to 260 m
General description of Area: A central gully on a north-facing slope, comprising a slump feature on limestone.		

General description of plant communities and habitats:

Rough pasture with scattered cabbage trees and shrubs (mostly *Coprosma propinqua*) and minor areas of rushland and patches of gorse. The Area adjoins other areas of treeland and scattered shrubland on an adjoining property.

Detailed vegetation description:

(naturalized species are indicated by an asterisk*)

The dominant indigenous plant species present is cabbage tree, forming a treeland of widely-spaced trees over pasture and denser clumps in the valley bottom. The individual tree trunk diameters are mostly between 50 and 65 cm dbh (diameter at breast height). Some of the cabbage trees are damaged or split, with cavities and hollows in their trunks. No juvenile cabbage trees were observed.

Shrubs, predominantly the indigenous matagouri and *Coprosma propinqua*, are present as scattered individuals or clumps. Some appear to be recovering from the effects of herbicide spray and some larger shrubs have been damaged by the heavy snowfall of early June 2006.

A patch of gorse (recently sprayed) is present on the west side of the gully.

Other species present are native broom, silver tussock, scrub pohuehue, foxglove*, horehound*, *Juncus* sp.*, elderberry*, a single *Coprosma crassifolia* shrub, and, in the gully, a small patch of toetoe and flax.

A small band of limestone is exposed on the slope above and east of the Area, though it is highly modified and dominated by pasture species.

Notable birds observed:

No notable indigenous bird species were observed.

Notable flora, fauna or habitats:

The number and extent of the cabbage trees are the most notable features of the Area. The presence of toetoe, native broom (*Carmichaelia australis*) and plants of scrub pohuehue (*Muehlenbeckia complexa*) are also notable.

General condition of Area:

Indigenous plants in this Area appear predominantly old and mature, with little if any juvenile recruitment. A number of individual shrubs appear to have suffered from the effects of the application of herbicide.

Notable plant and animal pests:

Gorse and elderberry are the most important plant pests present. Gorse infestations have been controlled recently. Other pasture weeds, such as thistles, nettle and horehound, are also present.

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

The treeland (cabbage trees) and shrubland is not fenced, except along the bottom (property) boundary. It is buffered to some extent by the slumped hummocky nature of the terrain. The Area adjoins areas of treeland and shrubland (and gorse scrub) on the adjoining property.

Present management and management issues:

Important management issues are the lack of recruitment (seedlings) of the indigenous species (notably cabbage tree and *Coprosma propinqua*), the control of woody weeds (e.g. elderberry) which threaten other areas of indigenous vegetation, weeds (notably gorse) which threaten pasture and the protection of sensitive indigenous species from the effects of herbicide spray.

Property Owner Comment:

Concurs that this Area has natural values and has no intention of developing or modifying the Area, apart from continued weed control and pasture improvement.

ASSESSMENT (against District Plan criteria):

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of cabbage tree treeland, typical of limestone slopes in the ecological district.
Rarity	M/H	Provides potential roosting habitat for long-tailed bat and supports species that are uncommon in the ecological district (toetoe, native broom and scrub pohuehue).
Diversity and pattern	L/M	Species diversity is substantially reduced from the original state.
Distinctiveness/special features	L/M	The treeland and shrubland are part of a larger area of vegetation and habitat on adjoining land, which appears to include areas of forest and limestone bluff.
Other Criteria		
Size/shape	M	A small area with a good shape and relatively well buffered.
Connectivity	M	Connected to areas of treeland, shrubland, limestone bluff (and scattered forest?) on adjoining land.
Long-term Sustainability	M	Modified communities and habitats that will require conservation management.
SNA (yes/no):	YES	

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

The indigenous species and habitats in this Area should persist under the present land use, provided sensitive species are protected from herbicides. The long term survival of indigenous vegetation may require more active encouragement of indigenous species recruitment.

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area, especially when its position as part of a larger area of scattered indigenous vegetation and habitat on adjoining land is taken into consideration.



Area 352a

TIMARU DISTRICT SNA SURVEY

AREA 364a and 364b

Area Number: 364a and b	Area Name: Mount Gay Road Limestone	Date: 21 July 2006
Property: IA and CJ Geary	Surveyors: Mike Harding	
Weather Conditions: cold and cloudy		Time Spent at Area: 3 hours

Location (central grid reference): J38: 476-670	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 8.05 ha	Altitude: 180 to 260 m
General description of Area: Moderately-steep to steep south-facing slopes and limestone bluffs in a small valley northwest of Mt Gay.		

General description of plant communities and habitats:

Scattered trees and patches of indigenous hardwood forest, shrubland and scrub, with several limestone bluffs. Adjacent to areas of wetland and streamside shrubland on the valley floor (Area 367). The western part of the Area (364a) (6.03 ha) has larger and more prominent limestone bluffs and a greater density and diversity of woody vegetation (including taller trees) than the eastern part of the Area (364b) (2.02 ha).

Detailed vegetation description:

(naturalized species are indicated by an asterisk*)

Patches of forest in the Area are dominated by broadleaf, mahoe, cabbage tree, fivefinger and native jasmine.

Other species present are elderberry*, lancewood, mistletoe (on *Coprosma propinqua*), pohuehue, *Coprosma crassifolia*, *Calystegia tuguriorum*, necklace fern and *Asplenium hookerianum*.

A more densely vegetated area around the larger limestone blocks at the western end of the Area (364a) supports (in addition to the species listed above) several large narrow-leaved lacebark trees, a single totara tree, wineberry, fuchsia and lemonwood. Trunk diameters of the two larger narrow-leaved lacebark trees are 70 cm and 73 cm. The trunk diameter of the totara tree is 55 cm.

Arcas between the trees support pasture and shrubland dominated by *Coprosma propinqua*, matagouri and scrub pohuehue. Other species present are flax, native broom, several clumps of leafless lawyer, *Clematis* sp. and, at one location near the top of the slope, a single golden spargrass (*Aciphylla aurea*) plant.

Areas of pasture support scattered silver tussock, scattered patches of gorse (especially at the eastern end), bracken, rushes* (*Juncus* sp.), horehound*, foxglove*, nettle* and, at one location, burdock*.

Limestone bluffs support several characteristic limestone plant species including *Asplenium lyallii*, *Gingidia* aff. *enysii*, *Geranium* aff. *sessiliflorum*, *Craspedia* sp. and *Colobanthus* aff. *strictus*. Other species on limestone rock and soils are *Blechnum chambersii*, *Epilobium nummulariifolium*, *Lagenifera petiolata*, *Cardamine* sp., *Hydrocotyle* sp., maidenhair fern, leafless lawyer, *Dichondra repens*, koromiko, *Schizeilema* sp., stoncrop*, and mouse-ear hawkweed*.

Birds observed:

The Area was relatively quiet during the inspection, presumably due to the very cold weather (cold southerly wind with light flurries of snow). Birds observed were grey warbler, blackbird, spur-winged plover, magpie, harrier and feral pigeon.

Notable flora, fauna or habitats:

The Area supports a relatively extensive area of limestone, including large blocks of limestone with overhangs, ledges, and deposits of talus. The limestone substrates support a diverse flora, including a range-restricted species, *Gingidia* aff. *enysii*, and three relatively uncommon limestone obligates: *Colobanthus* aff. *strictus*, *Craspedia* sp. and *Geranium* aff. *sessiliflorum*. Also notable are the presence of several large narrow-leaved lacebark trees, two of which have trunk diameters substantially larger (70 cm and 73 cm) than the typical 50-60 cm recorded at other sites in Timaru District. The presence of golden spargrass (*Aciphylla aurea*) is notable, as this has not yet been recorded during SNA surveys in the Geraldine Ecological District. Other locally uncommon species recorded are the totara tree and several clumps of leafless lawyer (*Rubus squarrosus*).

General condition of Area:

Most parts of the Area are in relatively good condition, though regeneration of palatable species appears to be affected by grazing animals. Parts of the eastern end of the Area have been affected by herbicide. While the application of herbicide has killed patches of gorse, it also appears to have killed or damaged a number of trees of broadleaf, mahoe, fivefinger and cabbage tree. Herbicide also appears to have affected *Coprosma propinqua* shrubs in this area. Palatable limestone plants in the Area are generally restricted to small crevices or pockets and inaccessible ledges, though there is enough of this habitat to support good populations of these plants.

Notable plant and animal pests:

The Area is relatively free of plant pests that would pose a threat to the indigenous vegetation. The most important plant pests present are elderberry and, on the limestone, stoncrop. The main pasture weeds present are gorse, horehound and burdock. Possum sign was observed, and feral pigeons are present.

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

The Area has a good shape and size and is protected to some extent by its location on a damper south-facing slope. It is fenced along its upper boundary and adjoins areas of wetland and shrubland (Area 367) on its lower, valley-floor boundary.

Present management and management issues:

The most important management issue is the effective control of both ecological and pasture weeds, and especially the control of gorse in such a way that the surrounding indigenous vegetation is not adversely affected. Recent aerial application of herbicide has had a significant effect on indigenous vegetation (including mature trees) in parts of the Area. Control of wild animals (especially possums) is also likely to be necessary to protect the ecological values of the Area.

Property Owner Comment:

Concurs that the western part of the Area (Area 364a) has high natural values and has no intention of developing or modifying this part of the Area. Would like to improve pasture within the eastern part of the Area (Area 364b), by removing gorse and some of the other shrubby vegetation while leaving trees and areas of exposed limestone unmodified.

ASSESSMENT OF AREA 364a (western part of Area) against District Plan criteria:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous vegetation typical of the ecological district, containing a representative range of species originally present at such sites.
Rarity	M/H	Provides potential habitat for long-tailed bat. Supports an "at risk" species (<i>Gingidia</i> aff. <i>enysii</i>) and several locally uncommon species.
Diversity and pattern	M/H	Habitat diversity is similar to that originally present. Wetland, shrubland and treeland habitats adjoining the Area enhance its value.
Distinctiveness/special features	M	The prominent limestone bluffs and the sequence of habitats (bluff, forest, shrubland and wetland) are special features.
Other Criteria		
Size/shape	II	A moderate-sized area, with a good shape and relatively well buffered.
Connectivity	M	Adjoins other areas of indigenous vegetation along its lower and east boundary.
Long-term Sustainability	M	Relatively resilient plant communities that will require some conservation management (e.g. plant and animal pest control).
SNA (yes/no):	YES	

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

The Area is informally protected by its location on a sheltered slope and by the absence of land development. It is part of a larger area of indigenous vegetation and habitat comprising wetland and shrubland on the valley floor, shrubland on slopes to the east, and cabbage tree treeland and shrubland on the opposite side of the valley. The whole Area is clearly visible from Mt Gay Road and has considerable scenic value.

ASSESSMENT OF AREA 364b (eastern part of Area) against District Plan criteria:

Primary Criteria	Rank	Notes
Representativeness	M	A modified example of indigenous vegetation typical of the ecological district, containing a depleted range of species originally present at such sites.
Rarity	M	May provides some habitat for long-tailed bat. Supports an "at risk" species (<i>Gingidia</i> aff. <i>enysii</i>) and several locally uncommon species.
Diversity and pattern	M	Habitat diversity is reduced from that originally present. Wetland, shrubland and treeland habitats adjoining the Area enhance its value.
Distinctiveness/special features	M	The limestone outcrops and the proximity of the Area to areas of limestone bluff, forest, shrubland and wetland) are special features.
Other Criteria		
Size/shape	M	A small area, with a good shape and relatively well buffered.
Connectivity	M	Adjoins other areas of indigenous vegetation along parts of its lower and western boundaries.
Long-term Sustainability	M	Relatively resilient plant communities that will require some conservation management (e.g. plant and animal pest control).
SNA (yes/no):	YES	

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

The Area is informally protected by its location on a sheltered slope and by the absence of land development. It is linked to a larger area of indigenous vegetation and habitat comprising wetland and shrubland on the valley floor and shrubland and scattered forest on slopes to the west. The Area is clearly visible from Mt Gay Road.

Discussion:

Both areas (Area 364a and Area 364b) easily meet the District Plan criteria as a Significant Natural Areas. The eastern end of the Area (Area 364b) has less outcropping limestone or forest and is generally more modified than the western end (Area 364a). Area 364b still meets the significance criteria, as it has areas of limestone vegetation, is contiguous with the

other parts of the Area and has important habitat values, though it does not rank as highly as Area 364a. Listing of the Area as an SNA does not prevent removal of infestations of plant pests such as gorse, nor does it prevent pasture improvement and fencing. However, resource consent would be required for the removal of indigenous vegetation including weed control methods that would have the effect of removing indigenous vegetation.



Area 364a (background) and lower part of Area 366a (foreground)

TIMARU DISTRICT SNA SURVEY

AREA 366a

Area Number: 366a	Area Name: Mount Gay Road Treeland	Date: 17 July 2006
Property: IA and CJ Geary	Surveyors: Mike Harding	
Weather Conditions: fine and cool		Time Spent at Area: 2 hours

Location (central grid reference): J38: 473-666	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 4.3 ha	Altitude: 200 to 250 m

General description of Area:

A moderately-steep north-facing slope, with two shallow gullies and slump features on limestone.

General description of plant communities and habitats:

Rough pasture with scattered cabbage trees and shrubs (mostly *Coprosma propinqua*) and minor areas of rushland and sedgeland in small seepages. The Area adjoins, at its lower margin, areas of wetland and streamside vegetation.

Detailed vegetation description:

The dominant indigenous plant species present is cabbage tree, forming a treeland of widely-spaced trees over pasture. The individual trees appear old and mature. The trunk diameters are mostly between 50 and 75 cm dbh (diameter at breast height) and the tree heights are between 7 and 10 m. Many of the cabbage trees are damaged or split, with cavities and hollows in their trunks. No juvenile cabbage trees were observed.

Shrubs, predominantly the indigenous *Coprosma propinqua*, are present as scattered individuals or clumps, mostly in the two shallow gullies on the upper slope and along the hummocky terrain at the base of the slope. Most individual *Coprosma propinqua* appear old; the larger specimens are multi-stemmed and 3 to 4 m tall. Most appear healthy, though some appear to be recovering from the effects of herbicide spray and a number of larger shrubs have been damaged by the heavy snowfall of early June 2006. Matagouri shrubs are also relatively common, though a significant proportion of these appear to have died recently, presumably from the effects of herbicide spray.

Other indigenous species present are silver tussock, native broom, the climbers pohuehue and scrub pohuehue, and, at the base of the slope, a single shrub daisy (*Olearia bullata*). Both species of pohuehue appear to have suffered from the effects of herbicide spray.

Small seepages on the lower slope support scattered rushes and sedges.

A single barberry bush and a clump of elderberry trees are present near the top of the slope. Individual gorse plants are present and a larger (sprayed) patch of gorse is present near the base of the slope. Other weeds present include thistles, horehound, woolly mullein and nettle.

Notable birds observed:

No notable indigenous bird species were observed. A little owl was observed flying from a cabbage tree.

Notable flora, fauna or habitats:

The number, size and extent of the cabbage trees are the most notable features of the Area. The presence of native broom (*Carmichaelia australis*), the single shrub of *Olearia bullata* and plants of scrub pohuehue (*Muehlenbeckia complexa*) are also notable. While *Coprosma propinqua* is relatively common in the Geraldine Ecological District, it is especially dense and healthy in this Area.

General condition of Area:

Indigenous plants in this Area appear predominantly old and mature, with little if any juvenile recruitment. A number of individual plants, notably matagouri shrubs and pohuehue vines, appear to have died or suffered from the effects of the recent (2005) treatment of the site with herbicide. Cabbage trees and *Coprosma propinqua* have either not been seriously affected by the herbicide or have recovered quickly from its effects.

Notable plant and animal pests:

Gorse is the most common plant pest present. Gorse infestations have been controlled recently. A single barberry bush and several elderberry bushes are present. Other pasture weeds, such as thistles, are also present.

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

The main block of treeland (cabbage trees) and shrubland is fenced from cultivated paddocks on adjoining slopes. The remaining area of treeland forms the lower part of a cultivated paddock. The Area adjoins wetland and streamside plant communities on the valley floor (Area 367b) and, across the valley, an extensive area of scattered indigenous forest and shrubland on and around limestone bluffs (Area 364a). Mount Gay Road forms the upper boundary of the Area.

Present management and management issues:

Important management issues are the lack of recruitment (seedlings) of the indigenous species (notably cabbage tree and *Coprosma propinqua*), the control of woody weeds which threaten other areas of indigenous vegetation (barberry

and elderberry), weeds which threaten pasture (notably gorse) and the protection of sensitive indigenous species from the effects of herbicide spray.

Property Owner Comment:

Concurs that the Area has natural values and has no intention of removing or modifying the main natural features of the area (i.e. the scattered cabbage trees). Intend to continue weed control and pasture improvement. Pasture improvement may include removal of scattered matagouri shrubs from the more open parts of the Area. Also intend to replace the lower boundary fence, including levelling of the fence-line with machinery (without the removal of indigenous vegetation). Intend to form a vehicle track across the slope at the upper boundary of the Area (between the Area and Mount Gay Road).

ASSESSMENT (against District Plan criteria):

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of cabbage tree treeland, typical of limestone slopes in the ecological district.
Rarity	M/H	Provides potential roosting habitat for long-tailed bat; supports species that are uncommon in the ecological district (<i>Olearia bullata</i> , native broom and scrub pohuehue).
Diversity and pattern	L/M	Species diversity is substantially reduced from the original state.
Distinctiveness/special features	M	Part of a sequence of treeland, shrubland, wetland, forest and limestone bluff.
Other Criteria		
Size/shape	M/H	A moderate-sized area with a good shape but not well buffered.
Connectivity	M	Adjoins areas of wetland and scattered forest on its lower boundary.
Long-term Sustainability	M	Modified communities and habitats that will require conservation management.
SNA (yes/no):	YES	

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

The indigenous species and habitats in this Area should persist under the present land use, provided sensitive species are protected from herbicides. The long term survival of indigenous vegetation may require more active encouragement of indigenous species recruitment.

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area. The significance of the Area is enhanced if it is considered alongside adjacent areas of wetland, forest and limestone bluff.



Lower part of Area 366a (foreground); Area 364a (left, background); Area 364b (right, background)

TIMARU DISTRICT SNA SURVEY

AREA 366b

Area Number: 366b	Area Name: Mount Gay Road Kanuka	Date: 21 July 2006
Property: IA and CJ Geary	Surveyors: Mike Harding	
Weather Conditions: cold and cloudy		Time Spent at Area: ½ hour

Location (central grid reference): J38: 470-670	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 0.67 ha	Altitude: 240 to 260 m
General description of Area: Western slopes in a small north-facing gully on the northern slopes of Mt Gay.		

General description of plant communities and habitats: A dense patch of tall kanuka, with scattered cabbage trees on the gully floor along the lower boundary.

Detailed vegetation description: (naturalized species are indicated by an asterisk*) This patch of low forest has a canopy of kanuka, with occasional cabbage trees, especially at the forest margins. The kanuka trees are old and mature. Most have trunk diameters between 20 and 30 cm; trunks of the larger kanuka trees are up to 45 cm in diameter. The larger cabbage trees have trunk diameters of 60 to 65 cm. Other species present in the forest are elderberry*, <i>Coprosma propinqua</i> , pohuehue, necklace fern, <i>Hydrocotyle</i> sp., foxglove*, <i>Dichondra repens</i> and mistletoe (on <i>Coprosma propinqua</i>).

Birds observed: Despite the cold conditions, more indigenous birds were observed in this small patch of forest than in the larger areas of forest associated with limestone on the property. Silvereyes were common, feeding in the canopy of the kanuka, and the threatened (gradual decline) rifleman was present.

Notable flora, fauna or habitats: The size of the kanuka trees in this Area and the presence of rifleman are notable.
--

General condition of Area: The forest canopy is in good condition. The forest understorey is well used by stock and is largely bare.

Notable plant and animal pests: Elderberry is the only significant plant pest present. The few small elderberry trees could easily be removed.

Boundaries: (buffering, fencing, adjoining plant communities/habitat etc.): The Area is not fenced. It is buffered to some extent by its location on a relatively steep and sheltered valley side.

Present management and management issues: Protection of the forest understorey from intensive stock use is an important management issue.
--

Property Owner Comment: Concurs that the Area has natural values and has no intention of developing or modifying the Area.

ASSESSMENT (against District Plan criteria):		
Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of mature kanuka forest that is typical of the ecological district.
Rarity	M/H	Provides habitat for a chronically threatened species: rifleman (threat status: gradual decline).
Diversity and pattern	L/M	Species diversity is substantially reduced.
Distinctiveness/special features	L/M	The size and age of the kanuka trees are special features.
Other Criteria		
Size/shape	L/M	A small area with a poor shape, though relatively well buffered by its location.
Connectivity	M	Isolated from other areas of indigenous vegetation, though part of a network of fauna habitat in the area.
Long-term Sustainability	L/M	Active management required to sustain ecological values.
SNA (yes/no):	YES	

Final Consideration (of other matters, Section D, page B-19): This is a small and somewhat modified area of indigenous vegetation. However, it is a good example of mature kanuka forest and it provides habitat for a forest bird species (rifleman) that has recently been listed as threatened (gradual decline).

Discussion:

The Area only just meets the Significance Criteria in the District Plan. Its long-term future depends on protection of the forest understorey. If regeneration in the forest understorey was encouraged, it is likely that the mature kanuka canopy would eventually be replaced by indigenous hardwood (and eventually podocarp) trees.



Area 366b

TIMARU DISTRICT SNA SURVEY

AREA 367a and 367b

Area Number: 367 a and b	Area Name: Mount Gay Road Wetland	Date: 17 July 2006
Property: IA and CJ Geary	Surveyors: Mike Harding	
Weather Conditions: fine and cool		Time Spent at Area: 3 hours

Location (central grid reference): J38: 477-668	Nearest Locality: Totara Valley	
Ecological District: Geraldine	Approximate size of Area: 2.66 ha	Altitude: 170 to 210 m

General description of Area:

The floor of a small valley on the northwest side of Mt Gay, comprising a stream, two main areas of wetland and a small area of exposed limestone on the adjacent north-facing slope.

General description of plant communities and habitats:

Sedgeland plant communities on the valley floor, scattered shrubland and trees along the stream, two ponds and small limestone bluffs with rockland plants and associated trees and shrubs.

Detailed vegetation description:

(naturalized species are indicated by an asterisk*)

Wetland:

The two main areas of wetland are dominated by rautahi (*Carex coriacea*) with patches and scattered plants of pukio (*Carex secta*). Other plant species, such as pasture grasses, are present within the rautahi community but were difficult to survey as the vegetation was still flattened after recent heavy snow and subsequent frosts. A tall rush, *Juncus gregiflorus*, is present at the wetland margins. *Coprosma propinqua* shrubs and cabbage trees are scattered through and alongside the wetland. The upper (western) pond has flax and scattered young broadleaf and fivefinger among the clumps of pukio.

Streamside shrubland:

Areas of stream within and linking the two areas of wetland support a streamside plant community dominated by *Coprosma propinqua*. Other species commonly present are cabbage tree, matagouri, native broom, scrub pohuehue, pohuehue, flax, silver tussock and swamp kiokio. This plant community is contiguous with denser areas of shrubland and scattered forest on adjoining slopes, especially the northern (south-facing) slope (Area 364a).

Limestone bluff:

A series of small limestone bluffs with small overhangs is present on the lower north-facing slopes alongside the bottom (eastern) wetland. A notable feature is the presence of a small patch (c. 7-8 trees) of kowhai, comprising one older tree and several smaller trees. Other species present here are *Coprosma propinqua*, cabbage tree, matagouri, fivefinger, toatoa and a large patch of leafless lawyer (*Rubus squarrosus*).

Perching on the exposed limestone are clumps of maidenhair fern (*Adiantum cunninghamii*) and, at sheltered sites such as the overhangs, the ferns *Blechnum chambersii* and *Asplenium lyallii*.

On soils beneath the small overhangs are chickweed*, nettle* and a single young mahoe. Horehound* and a single plant of burdock* are present near the overhangs.

Exposed soils associated with the limestone support a turf community dominated by pasture species but with several indigenous species, including *Geranium* aff. *sessiliflorum*, *Oxalis* sp., *Epilobium nummulariifolium* and *Schizeilema* sp.

Birds observed:

Paradise shelduck, mallard and pukeko were observed in the wetlands, grey warbler in the shrublands and a little owl was seen flying from the limestone. Harrier, magpie and southern black-backed gull were observed in the area.

Notable flora, fauna or habitats:

The extent of the pukio (*Carex secta*) and flax communities is a notable feature of the wetlands. The presence of locally uncommon species (leafless lawyer and toatoa) at the limestone bluff is also notable. The areas of wetland and the stream linking the areas provide, along with the associated shrubland and limestone bluffs, a good habitat for indigenous birds. It also provides habitat suitable for long-tailed bat, and is within the South Canterbury range of this species.

General condition of Area:

The wetland and stream margins are in good condition. The two ponds in this area have been formed by the construction of embankments and are drained by culverts, creating a possible barrier for fish passage. The central parts of the wetlands appear unaffected by stock, especially at the upper pond where a large patch of pukio and flax are surrounded by standing water. The limestone overhangs are heavily used by stock.

Notable plant and animal pests:

Two young Douglas fir trees (presumably self-sown) are present. Scattered plants and patches of gorse are present on adjoining slopes, though have been recently sprayed. Burdock is present at the limestone bluff. Otherwise, the area is free of woody weeds. Unusually, there are no willow trees along the stream or in the wetland.

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

The wetland and limestone bluff are not fenced from adjoining pasture. Shrubland, scattered forest, treeland and limestone bluffs are present on adjoining slopes, especially the northern (south-facing) slope (Area 364a). Together these plant communities provide a relatively large and diverse area of habitat in an otherwise largely modified landscape.

Present management and management issues:

Protection of the wetland and limestone bluff from intensive grazing and the continued control of any invasive weeds, such as gorse and wilding trees, are important management issues.

Property Owner Comment:

Concurs that most of the Area has high natural values and has no intention of developing or modifying the Area, apart from maintaining and perhaps enlarging the ponds to ensure a secure stock-water supply. Question the value of the area downstream (east) of the lower pond.

ASSESSMENT (against District Plan criteria):

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of the indigenous vegetation and habitat typical of the ecological district.
Rarity	M	Supports species that are uncommon in the ecological district (leafless lawyer and toatoa).
Diversity and pattern	M	Species diversity is reduced from its original state, though a number of original species are present.
Distinctiveness/special features	M	The Area is part of a larger area which supports shrubland, forest, treeland and limestone bluffs.
Other Criteria		
Size/shape	M	A moderate-sized area, but long and narrow in shape.
Connectivity	M	Adjoins areas of shrubland, forest and treeland.
Long-term Sustainability	M	Ongoing management (such as weed control) will be required to maintain ecological values.
SNA (yes/no):	YES	

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

This area has been informally protected by the landowner and by its location on the valley floor. Fencing of the wetland and exclusion of stock would enhance its ecological value. The hydrology of the area has been affected by the creation of dams and installation of culverts. Although this may have affected in-stream values, it has probably enhanced the value of the area for waterfowl.

Discussion:

The Area meets the District Plan criteria for a Significant Natural Area. The significance of the Area is enhanced if it is considered alongside adjacent areas of shrubland, forest, treeland and limestone bluff.



Area 367a

TIMARU DISTRICT SNA SURVEY

Wetland Record Form

Wetland 367a

Wetland name: Mount Gay Road East	Date: 17 July 2006
Property: IA and CJ Geary	GPS/Grid Ref: J38: 479-667
Altitude: 170 to 190 m	No. of plots sampled:
Location: North side Mount Gay Road	Approximate size (ha):

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Palustrine	Permanent	Swamp	Riparian

Surveyors: Mike Harding

Indicator	Indicator components	Specify and Comment	Score 0-5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	embankment and culvert	4	4.33
	Water table depth		5	
	Dryland plant invasion	some pasture at margins	4	
Change in physico-chemical parameters	Fire damage	no evidence of fire	5	4.67
	Degree of sedimentation/erosion		5	
	Nutrient levels	animal dung	4	
	von Post index		n/a	
Change in ecosystem intactness	Loss in area of original wetland	no drainage evident	5	4.5
	Connectivity barriers	dam at upstream end	4	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	not fenced, margins affected, centre unaffected	3	3
	Introduced predator impacts on wildlife	not known	2	
	Harvesting levels	duck shooting?	4	
Change in dominance of native plants	Introduced plant canopy cover	none present	5	4
	Introduced plant understorey cover	grasses present	3	
Total wetland condition index /25				20.5

Main vegetation types: *Carex coriacea-Carex secta* sedgeland, with *Coprosma propinqua*, *Juncus gregiflorus* and *Cordyline australis*.

Native fauna: paradise shelduck

Other comments:

Pressure	Rating ²	Specify and Comment
Modifications to catchment hydrology	3	large parts deforested
Water quality within the catchment	2	stock present
Animal access	3	largely unrestricted
Key undesirable species	2	gorse present in catchment (no willow)
% catchment in introduced vegetation	4	pasture, exotic forest, indigenous forest and shrubland
Other pressures	1	risk of herbicide spray drift
Total wetland pressure index /30	15	

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

Wetland Record Form

Wetland 367b

Wetland name: Mount Gay Road West	Date: 17 July 2006
Property: IA and CJ Geary	GPS/Grid Ref: J38: 472-671
Altitude: 200 to 220 m	No. of plots sampled:
Location: North side Mount Gay Road	Approximate size (ha):

Classification: I System	IA Subsystem	II Wetland Class	IIA Wetland Form
Palustrine	Permanent	Swamp	Riparian

Surveyors: Mike Harding

Indicator	Indicator components	Specify and Comment	Score 0-5 ¹	Mean score
Change in hydrological integrity	Impact of manmade structures	dam at bottom	4	4
	Water table depth	increased at bottom	4	
	Dryland plant invasion	some pasture at margins	4	
Change in physico-chemical parameters	Fire damage	no evidence of fire	5	4.67
	Degree of sedimentation/erosion		5	
	Nutrient levels	animal dung	4	
	von Post index		n/a	
Change in ecosystem intactness	Loss in area of original wetland	no drainage evident	5	4.5
	Connectivity barriers	dam at downstream end	4	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	not fenced	3	3
	Introduced predator impacts on wildlife	not known	2	
	Harvesting levels	duck shooting?	4	
Change in dominance of native plants	Introduced plant canopy cover	Douglas fir present	4	3.5
	Introduced plant understorey cover	grasses present	3	
Total wetland condition index /25				19.7

Main vegetation types: *Carex secta*-*Carex coriacea* sedge/land and flax, with *Coprosma propinqua*, cabbage tree and occasional broadleaf (*Griselinia littoralis*) and fivefinger (*Pseudopanax arboreus*) at margins.

Native fauna: paradise shelduck, pukeko

Other comments:

Pressure	Rating ²	Specify and Comment
Modifications to catchment hydrology	3	large parts deforested
Water quality within the catchment	2	stock present
Animal access	3	largely unrestricted
Key undesirable species	2	gorse present in catchment
% catchment in introduced vegetation	4	pasture, exotic forest, indigenous forest and shrubland
Other pressures	1	risk of herbicide spray drift
Total wetland pressure index /30	15	

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