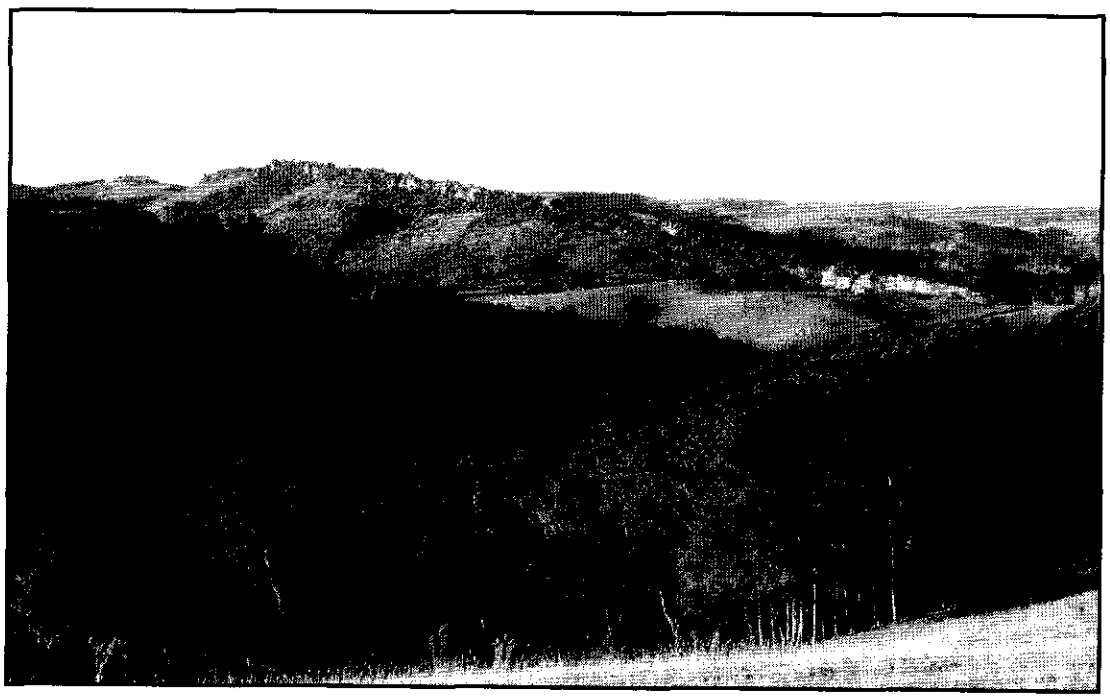
TIMARU DISTRICT

SIGNIFICANT NATURAL AREAS SURVEY

DRAFT

CLAY DOWNS PROPERTY
GR & ME CHAPMAN



Report prepared for Timaru District Council by Mike Harding
June 2008

TIMARU DISTRICT SIGNIFICANT NATURAL AREAS SURVEY

PROPERTY REPORT

PROPERTY DETAILS:

Owner: ..... GR & ME Chapman
Valuation Reference: 24670/216.00
Address: ..... Winchester Hanging Rock Road, Kakahu Bush
Location: ..... Rolling hill country between Limestone Road and Winchester Hanging Rock Road
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 dissected rolling hill country in the Kakahu area south of Waitohi Hill in South Canterbury. The hill country comprises loess-covered limestone hills. It includes the catchments of small streams that flow northeast to the Kakahu River near Kakahu Bush. 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 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 regarded as nationally-endangered.

Indigenous vegetation on the property comprises areas of kanuka forest, shrubland and a relatively extensive raupo- and sedge-dominated wetland. The property lies close to protected areas of indigenous forest at Kakahu Bush and 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 2008. Nearly all parts of the property were visited and assessed. Three areas, totalling approximately ? 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
195	Clay Downs kanuka forest	J38: 560-697	?	kanuka forest
188	Clay Downs kanuka gully	J38: 570-696	?	kanuka forest; scrub
186	Clay Downs wetlands	J38: 575-702	?	reedland, sedgeland, rushland

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 are considered to be sustainable in the long term (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 to 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.

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.

One area comprises two small patches of large kanuka trees in a small gully southwest of the SNA 186 (Clay Downs wetland). Another area is a small patch of kanuka-hardwood forest adjacent to the Kakahu River at the northern boundary of the property. Both these areas are too small and/or modified to meet the District Plan criteria. However, these areas have considerable potential value and, if left alone, may eventually become significant.


Clay Downs Land Co
24670 / 216.00
MCKIE ROAD
HALL ROAD
HORNSEY ROAD
MEREDITH ROAD
186
MCBETH ROAD
195
188
LIMESTONE ROAD
SADDLE ROAD
COLES ROAD
STEVENSON ROAD
MATTHEW ROAD
N
Meters
0 200 400 800
1:20,000

TIMARU DISTRICT SNA SURVEY AREA 195

Area Name: Clay Downs kanuka forest
Location (central map reference): J38: 560-697
Ecological District: Geraldine
Surveyors: Mike Harding
Property: GR & ME Chapman
Nearest Locality: Kakahu Bush
Area Size (ha): ? **Altitude (m):** 180-240
Survey Time: 2½ hours **Survey Date:** 05-06-08

General Description:

This SNA occupies mostly south-facing slopes at the head of a small gully system on rolling hill country on the south side of the Winchester-Hanging Rock Road. It comprises two areas of kanuka forest: the largest occupies two gully heads; and the smaller occupies a smaller side gully and is separated from the main block by a narrow (c.50m) strip of pasture. The smaller block is similar in composition to the larger block.

Plant Communities:

The main plant community present is kanuka forest. Some areas of lower vegetation are present within the kanuka forest. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy is, in most areas, dominated by kanuka. Trunk diameters (at breast height) of the larger kanuka trees are between 30 and 40cm. Other canopy species are five-finger, fuchsia, matipo, lemonwood, wineberry, mahoe, broadleaf, cabbage tree, kowhai, native jasmine, bush lawyer and pohuehue. Two pine* trees are present.
Dominant understorey species are *Coprosma rhamnoides*, mahoe and, in places, lemonwood. Other understorey or sub-canopy species present are fuchsia, broadleaf, wineberry, lancewood, kowhai, yellowwood, pate, *Coprosma rotundifolia*, *Coprosma propinqua*, *Coprosma crassifolia*, *Melicope simplex*, mingimingi, weeping mapou, bush lawyer, native jasmine, *Clematis foetida* and occasionally blackberry* and elderberry*.
Ground-cover species present are prickly shield fern, necklace fern, *Blechnum fluviatile*, *Blechnum penna-marina*, *Asplenium hookerianum*, *Asplenium appendiculatum*, bidibid, pennywort, foxglove*, male fern* and seedlings of marbleleaf, five-finger, matipo, wineberry, pate, cabbage tree, kowhai and *Clematis paniculata*. One plant of the rare fern *Asplenium lyallii* was observed.
Species present in areas of low-stature vegetation or on the forest margin are Himalayan honeysuckle*, *Coprosma propinqua*, poroporo, pohuehue, *Calystegia tuguriorum*, thousand-leaved fern, *Hypolepis ambigua*, gorse*, broom* and bracken.

Birds/Fauna Observed:

Native birds observed during this brief inspection were bellbird, fantail, brown creeper, rifleman, silvereye, grey warbler and harrier.

Notable Flora, Fauna and Habitats:

Notable features of this SNA are the diversity of species present, the presence of locally uncommon species (*Asplenium lyallii* and mingimingi), the habitat the area provides for threatened bird species (rifleman and possibly kereru), the size of the area and the contribution the area makes to the network of fauna habitat in the wider area. The area may provide habitat for long-tailed bat (a 'nationally-endangered' species).

Notable Plant and Animal Pests:

No significant plant pests were observed. Himalayan honeysuckle, gorse, broom, elderberry, blackberry, foxglove and male fern are present, though none of these weeds pose a significant threat to the forest. Of greater concern are the effects of the native climbing pohuehue (*Muehlenbeckia australis*) which, though not presently dominant, can smother and eventually kill trees especially trees on the forest margin. Animal pests were not surveyed.

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

The SNA is relatively long and narrow in shape. The smaller block is fenced; the larger block is fenced along its lower boundary. The main block adjoins another area of similar vegetation on an adjoining down-valley property. Otherwise the SNA adjoins pasture. The SNA lies close to other areas of remnant and regenerating

indigenous forest, including the large Kakahu Bush block (protected by a QEII covenant) and some important patches of forest on limestone scarps.

Condition and Management Issues:
The SNA is in relatively good condition. The forest canopy is intact and, apart from the presence of occasional pine trees and the invasive pohuehue, is unaffected by weeds. Some parts of the forest understorey along the upper boundaries are affected by stock browsing and trampling. Fencing of these remaining boundaries would be beneficial.

Property Owner Comment:

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A good example of indigenous forest that is typical of the ecological district and containing many species representative of the original vegetation at such sites.
Rarity	M/H	Provides good habitat for chronically threatened species: rifleman and kereru (both 'gradual decline'). Two locally uncommon plant species are present: mingimingi and *Asplenium lyallii*. May provide habitat for long-tailed bat.
Diversity and pattern	M	A relatively diverse range of species present, though diversity is probably reduced from that originally present.
Distinctiveness/special features	M	The absence of aggressive introduced weeds and the health of the forest understorey are important features.
Other Criteria		
Size/shape	M/H	A moderate-sized area for the Geraldine Ecological District and mostly well buffered by its location on steeper slopes and by fences.
Connectivity	M	Adjoins other indigenous vegetation at one corner and is an important component of the network of indigenous forest habitat in the area.
Long-term Sustainability	M/H	A relatively resilient plant community that should persist and improve with minimal conservation management (plant and animal pest control).

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
This area has been informally protected through the voluntary efforts of the landowners. It largely covers slopes that have limited development potential, except for plantation forestry. The forest is not under any immediate threat and its values are likely to persist with little additional management effort.

Discussion:
This area easily meets the District Plan criteria for a Significant Natural Area. Important features of the area are the diversity of species present, the presence of locally uncommon species (*Asplenium lyallii* and mingimingi), the habitat the area provides for threatened bird species (rifleman and possibly kereru and long-tailed bat), 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 AREA 188

Area Name: Clay Downs kanuka gully
Location (central map reference): J38: 570-696
Ecological District: Geraldine
Surveyors: Mike Harding
Property: GR & ME Chapman
Nearest Locality: Kakahu Bush
Area Size (ha): ?
Altitude (m): 160-180
Survey Time: 1 hour
Survey Date: 06-06-08

General Description:
This SNA is a small stand of kanuka forest and associated vegetation, including recent restoration plantings, in a small gully. It is located near other areas of remnant and regenerating indigenous forest on rolling hill country on the north side of Limestone Road. A small farm pond is present at the base of the gully.

Plant Communities:
The main plant communities present are kanuka forest, low-stature broadleaved scrub and an area of restoration planting. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The forest canopy on the west side and lower section of the gully is dominated by tall kanuka. Other canopy species present here are cabbage tree, fuchsia and pohuehue. Understorey species include fuchsia, elderberry* and prickly shield fern. Vegetation in the main part of the gully is dominated by Himalayan honeysuckle*, gorse*, blackberry*, pohuehue, bracken, male fern* and rank grasses*. Planted, and now well-established, shrubs of matipo and lemonwood are present on the eastern side of the gully.

Birds/Fauna Observed:
Native birds observed during this brief inspection were fantail, rifleman, bellbird and grey warbler.

Notable Flora, Fauna and Habitats:
The presence of tall kanuka trees, a threatened species (rifleman) and its location near to other areas of indigenous vegetation are notable features of the area.

Notable Plant and Animal Pests:
Himalayan honeysuckle, gorse, broom, elderberry, blackberry and male fern are the main plant pests present. While these species dominate the gully bottom, they do not pose a significant threat to taller vegetation on the gully sides. The native climbing pohuehue (*Muehlenbeckia australis*) is also present and does pose a threat to other native vegetation, especially trees at the forest margins. Animal pests were not surveyed.

Boundaries (buffering, fencing, adjoining plant communities and habitats):
The area is securely fenced. A substantial amount of planting has occurred and this vegetation is now well established. The area adjoins a pine plantation on one boundary. A farm pond is present at the lower end of the site. Other areas of remnant and regenerating indigenous vegetation are present in the area.

Condition and Management Issues:
Indigenous vegetation in this SNA is in reasonable condition. The indigenous plant communities are not large and a proportion of the area supports low-growing vegetation dominated by exotic species. However, the restoration plantings are healthy.

Property Owner Comment:

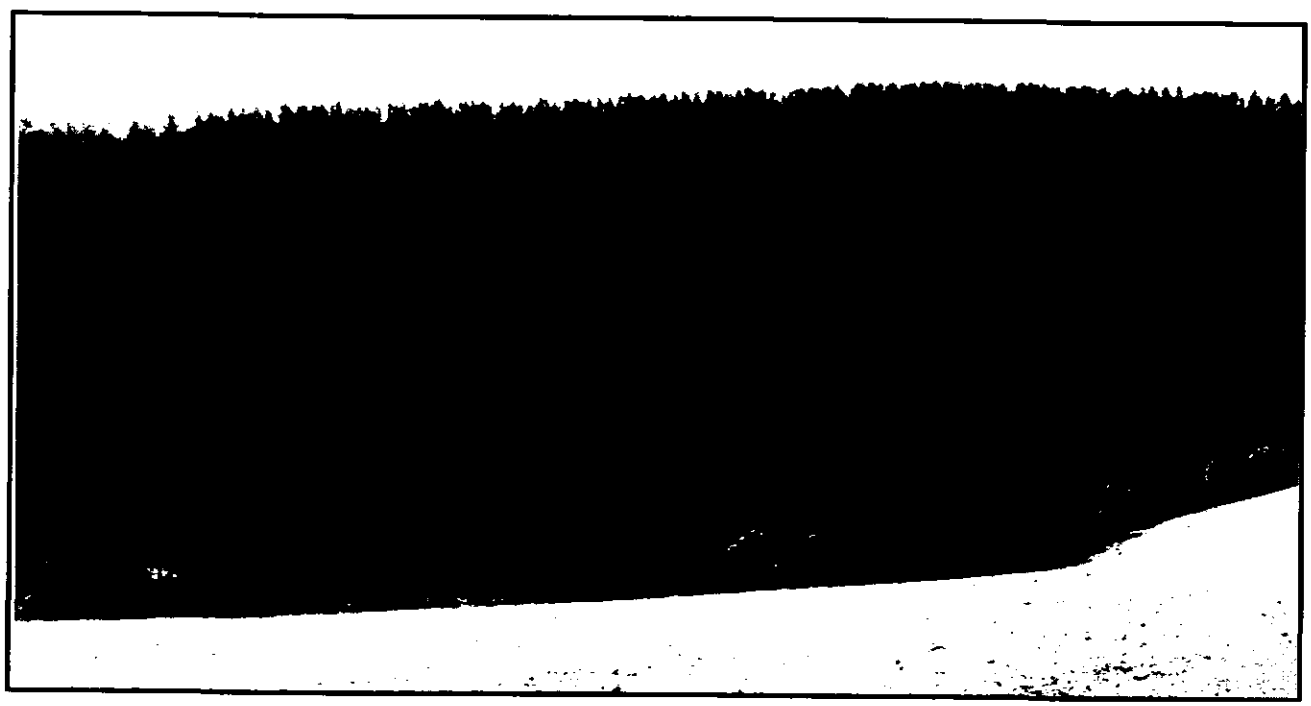
ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M	A depleted (modified) example of the indigenous vegetation of the ecological district.
Rarity	M	Provides habitat for a chronically threatened bird species: rifleman (gradual decline).
Diversity and pattern	L/M	A relatively low diversity of indigenous species. Species diversity is

		substantially reduced from that originally present.
Distinctiveness/special features	**M**	The presence of the farm pond at the lower end of the site is a special feature.
Other Criteria		
Size/shape	**M**	A small area, but with a reasonable shape and well buffered by fences and restoration plantings.
Connectivity	**M**	Not connected to any other areas of indigenous vegetation, but part of a network of fauna habitat in the area.
Long-term Sustainability	**M**	A modified area, but with relatively resilient plant communities. Some continued management will probably be necessary to maintain the ecological values of the area.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
This area has been informally protected by the landowners. Protection has included fencing and substantial restoration plantings. The area has little development potential, except perhaps for plantation forestry. It protects a small gully that feeds a farm pond.

Discussion:
This area meets the District Plan criteria for a Significant Natural Area. Important attributes of the area are presence of tall kanuka trees, a threatened species (rifleman) and its location near to other areas of indigenous vegetation and adjacent to a farm pond.



TIMARU DISTRICT SNA SURVEY AREA 186

Area Name: Clay Downs wetlands
Location (central map reference): J38: 575-702
Ecological District: Geraldine
Surveyors: Mike Harding
Property: GR & ME Chapman
Nearest Locality: Kakahu Bush
Area Size (ha): ?
Altitude (m): 120-140
Survey Time: 1 hour
Survey Date: 06-06-08

General Description:

This SNA comprises two wetlands separated by a small dam and farm track, in a small shallow valley just west of Limestone Road near its junction with Winchester Hanging Rock Road.

Plant Communities:

Raupo reedland, *Carex* sedgeland, *Juncus* rushland and pasture are the main plant communities present. These plant communities are described below. Naturalized (exotic) species are indicated with an asterisk*.

The upper (western) part of the wetland and wetter parts of the lower wetland are dominated by raupo reedland. Scattered plants and patches of pukio (*Carex secta*) and *Juncus gregiflorus* are present at the reedland margins. Open ground-cover within the raupo reedland is dominated by pasture grasses, especially Yorkshire fog* and cocksfoot*. Other species present are bog rush (*Schoenus pauciflorus*), creeping buttercup*, water cress*, blackberry*, gorse*, lotus*, Scotch thistle*, occasional shrubs of *Coprosma propinqua* and one small kanuka shrub. A dam and small pond are present at the lower end of the raupo reedland. Planted poplar trees are present on the northern side of the wetland and a few self-sown poplar* saplings are present within the reedland.

Two main areas of raupo reedland are present in the lower wetland, adjacent to the two small streams that drain the wetland. Between these reedland communities are areas of sedgeland dominated by rautahi (*Carex coriacea*), rushland dominated by *Juncus gregiflorus* and rough pasture dominated by pasture grasses, bog rush, jointed rush* and sedges. Crack willow* trees are present along the small streams at either side of this wetland. Occasional shrubs of *Coprosma propinqua* and gorse* are present.

Birds/Fauna Observed:

A flock of approximately ten pukeko was observed at the edge of the wetland. Other native birds observed during this brief inspection were grey warbler and rifleman (in the willow trees).

Notable Flora, Fauna and Habitats:

The presence and extent of the raupo reedland is a notable feature of the SNA. Wetlands are a much-depleted community in the ecological district and few are sufficiently wet to support raupo. Other notable features of the SNA are the diversity of wetland plant communities present, the size of the wetland and the presence of pukeko and rifleman.

Notable Plant and Animal Pests:

Crack willow, poplar and gorse are the most significant woody plant pests present. A number of herbaceous exotic plants are also present and in places dominant; however, that is typical of most lowland wetlands in the area.

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

The wetland is well defined by the area of poorly-drained ground in this shallow valley. It is fenced on one boundary and could easily be completely fenced from grazing. It is not connected to other areas of indigenous vegetation but lies close to areas of remnant and regenerating indigenous forest and shrubland.

Condition and Management Issues:

The wetland appears to be regularly grazed. Otherwise, it is relatively good condition. The presence and dominance of a number of introduced species is the main management issue, especially introduced woody species (crack willow, poplar and gorse).

Property Owner Comment:

ASSESSMENT AGAINST DISTRICT PLAN CRITERIA:

Primary Criteria	Rank	Notes
Representativeness	M/H	A very good example of wetland vegetation typical of the ecological district and a good example of the wetland communities originally present.
Rarity	M	Raupo is uncommon in the ecological district and wetlands are a much depleted and now relatively rare community.
Diversity and pattern	M/H	A diverse range of wetland plant communities is present.
Distinctiveness/special features	M	The gradient of the wetland and mostly-intact hydrology are special features.
Other Criteria		
Size/shape	H	A large wetland for this ecological district.
Connectivity	M	Not connected to other wetlands but close to a number of other areas of indigenous vegetation.
Long-term Sustainability	M	Some management (notably weed control) will be required to maintain the ecological values in the long term.

Final Consideration (of other matters: Section D, page B-19 of Timaru District Plan):
This area has been informally protected and partly fenced by the landowners. The poorly drained nature of the area would make further development difficult. It provides a useful water supply for stock.

Discussion:
This area easily meets the District Plan criteria for a Significant Natural Area. Important features are the presence and extent of the raupo reedland, the diversity of wetland plant communities present, the size of the wetland and the presence of pukeko and rifleman.

TIMARU DISTRICT SNA SURVEY Wetland 186
Wetland Record Form

Wetland name: Clay Downs Wetland	**Date:** 6th June 2008
Property: GR & ME Chapman	**GPS/Grid Ref:** J38: 575-702
Altitude: 120 to 140m	**No. of plots sampled:**
Location: Limestone Road, Kakahu Bush	**Approximate size (ha):** ?

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

Surveyors: Mike Harding

Indicator	**Indicator components**	**Specify and Comment**	**Score 0-5**[1]	**Mean score**
Change in hydrological integrity	Impact of manmade structures	Small dam present	4	4
	Water table depth	Altered locally	4	
	Dryland plant invasion	Some present	4	
Change in physico-chemical parameters	Fire damage	No evidence of damage	5	4
	Degree of sedimentation/erosion	Some stock damage	4	
	Nutrient levels	Dung present	3	
	von Post index			
Change in ecosystem intactness	Loss in area of original wetland	Some inundation	4	4
	Connectivity barriers	Dam across middle	4	
Change in browsing, predation and harvesting regimes	Damage by domestic or feral animals	Browsing and trampling over >50% of wetland	2	3
	Introduced predator impacts on wildlife	Some intermittent control?	3	
	Harvesting levels	Presumably minor	4	
Change in dominance of native plants	Introduced plant canopy cover	Some willow and poplar	4	3.5
	Introduced plant understorey cover	Pasture grasses	3	
Total wetland condition index /25				**18.5**

Main vegetation types: Raupo reedland, *Carex* sedgeland, *Juncus* rushland, pasture

Native fauna: pukeko (grey warbler and rifleman in willow trees)

Other comments: A large wetland for this part of the Geraldine Ecological District. In relatively good condition.

Pressure	**Rating**[2]	**Specify and Comment**
Modifications to catchment hydrology	0	None apparent
Water quality within the catchment	2	A small catchment grazed by stock
Animal access	4	Little impediment to animal access
Key undesirable species	2	
% catchment in introduced vegetation	4	
Other pressures	1	Fertiliser and spray drift?
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

Scientific names of species cited by common name in this report

(Note: this is not a complete species list; it is a list only of species cited by common name in this report)

Common Name (* = naturalised species)	Scientific name
bidibid	*Acaena* sp.
blackberry*	*Rubus fruticosus*
bog rush	*Schoenus pauciflorus*
bracken	*Pteridium esculentum*
broadleaf	*Griselinia littoralis*
broom*	*Cytisus scoparius*
bush lawyer	*Rubus cissoides*
cabbage tree/ti rakau	*Cordyline australis*
cocksfoot*	*Dactylis glomerata*
crack willow*	*Salix fragilis*
creeping buttercup*	*Ranunculus repens*
elderberry*	*Sambucus nigra*
five-finger	*Pseudopanax arboreus*
foxglove*	*Digitalis purpurea*
fuchsia	*Fuchsia excorticata*
gorse*	*Ulex europaeus*
Himalayan honeysuckle*	*Leycesteria formosa*
jointed rush*	*Juncus articulatus*
kanuka	*Kunzea ericoides*
kowhai	*Sophora microphylla*
lancewood	*Pseudopanax crassifolius*
lemonwood	*Pittosporum eugenioides*
lotus*	*Lotus pedunculatus*
mahoe/whiteywood	*Melicytus ramiflorus*
male fern*	*Dryopteris filix-mas*
marbleleaf/putaputaweta	*Carpodetus serratus*
matipo/kohuhu	*Pittosporum tenuifolium*
mingimingi	*Cyathodes juniperina*
native jasmine	*Parsonsia* sp.
necklace fern	*Asplenium flabellifolium*
pate	*Schefflera digitata*
pennywort	*Hydrocotyle* sp.
pohuehue	*Muehlenbeckia australis*
poplar*	*Populus* sp.
poroporo	*Solanum laciniatum*
prickly shield fern	*Polystichum vestitum*
pukio	*Carex secta*
raupo	*Typha orientalis*
rautahi	*Carex coriacea*
Scotch thistle*	*Cirsium vulgare*
sedge	*Carex* sp.
thousand-leaved fern	*Hypolepis millefolium*
water cress*	*Rorippa* sp.
weeping mapou	*Myrsine divaricata*
wineberry	*Aristotelia serrata*
yellowwood	*Coprosma linariifolia*
Yorkshire fog*	*Holcus lanatus*