

# **Crown Pastoral Land Tenure Review**

**Lease name : GLENFELLAN**

**Lease number : PS 038**

## **Conservation Resources Report - Part 2**

As part of the process of Tenure Review, advice on significant inherent values within the pastoral lease is provided by Department of Conservation officials in the form of a Conservation Resources Report. This report is the result of outdoor survey and inspection. It is a key piece of information for the development of a preliminary consultation document.

Note: Plans which form part of the Conservation Resources Report are published separately.

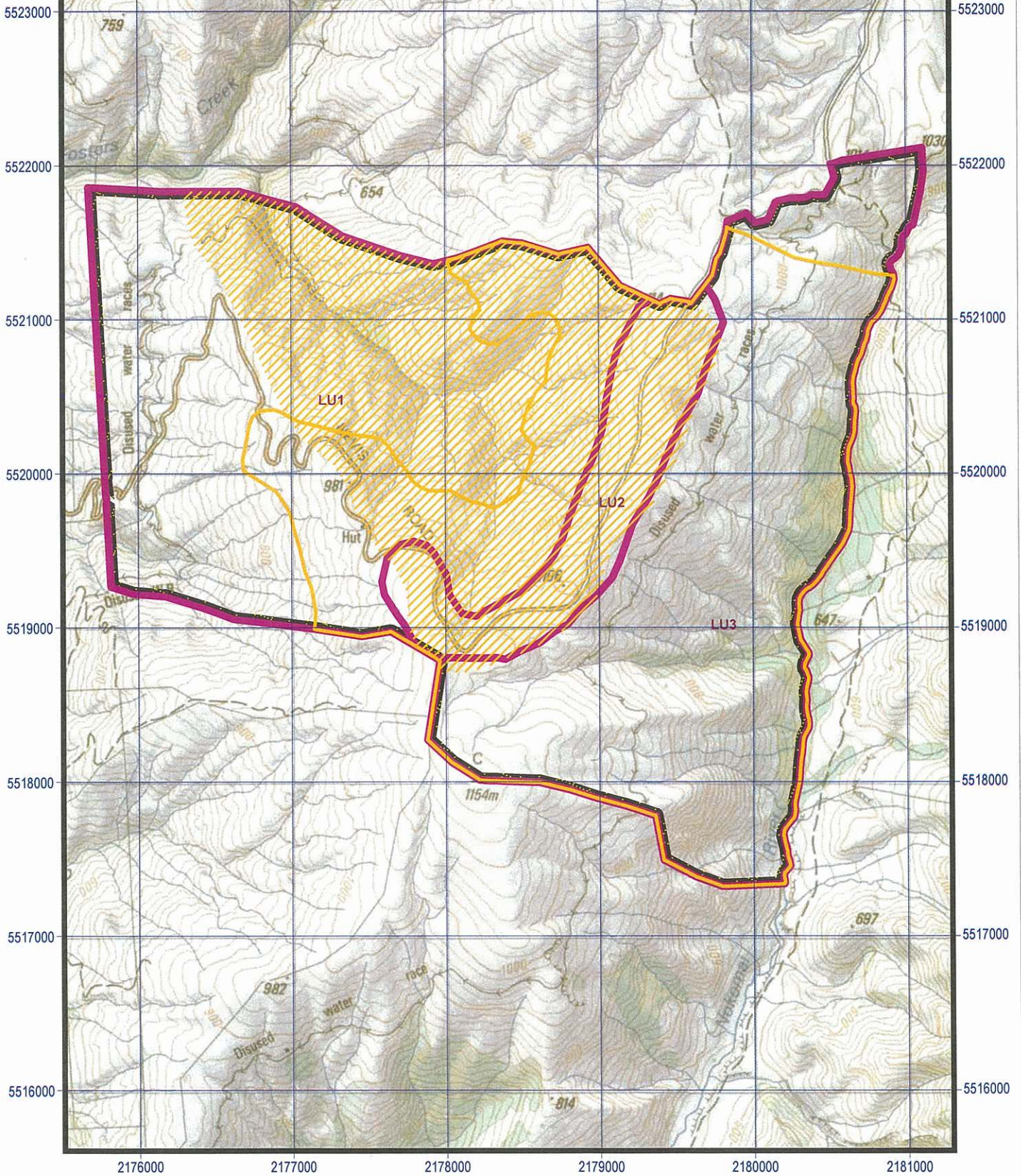
These documents are all released under the Official information Act 1982.

**November**

**05**



2176000 2177000 2178000 2179000 2180000 2181000



- Landscape values
- High visual values
- Significant landscape values
- Landscape units
- Pastoral lease

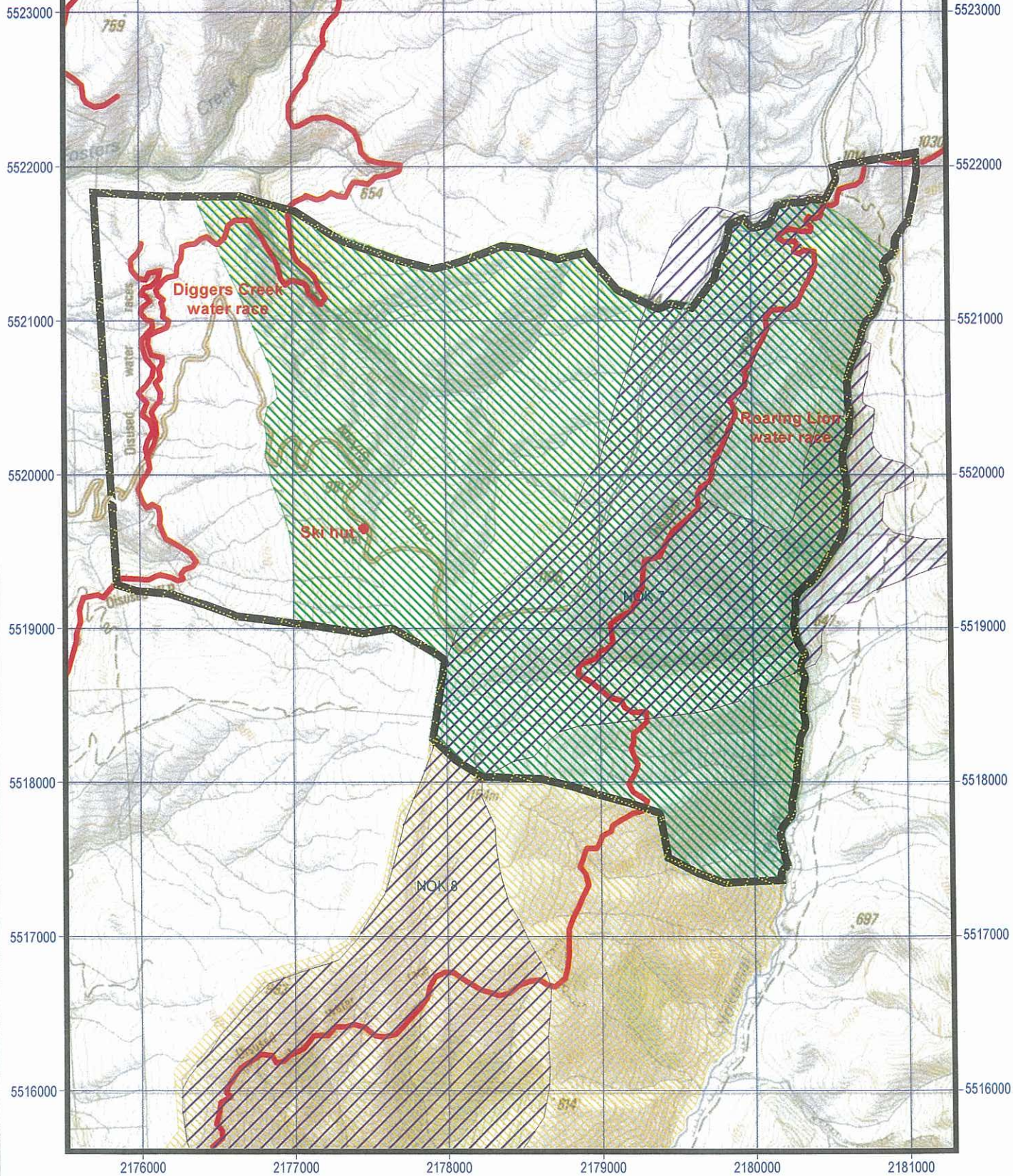
4.2.2 Landscape units and significant landscape values  
**Glenfellen**

300 0 300 600 900 1200 Meters





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### 4.2.3 Values - Ecological / Recreation / Historic Glenfellen

-  Raps
-  Historic values
-  Ecological values
-  Blackmore conservation covenant





### 4.3 Appendices

Appendix 1:	Glenfellen Plant List
Appendix 2:	LENZ plan
Appendix 3:	Site Data Electric Fish Survey
Appendix 4:	Invertebrate List
Appendix 5:	Bird List
Appendix 6:	Extracts from PNAP Report.
Appendix 7:	NGO submissions
Appendix 8	Recreation Opportunity Spectrum - Glenfellen

APPENDIX 1 Glenfellen Plant Species List

**Ferns**

Asplenium flaccidum			3	
Asplenium richardii	1	2		
Blechnum fluviatile			3	
Blechnum montanum	1	L	3?	
Blechnum penna-marina		1		3
Blechnum procerum			3	
Blechnum vulcanicum		1		
Grammitis billardieri		F	3	
Hymenophyllum multifidum			3	#
Hypolepis millefolium		1	2	3
Lycopodium australianum		1	2	
Lycopodium fastigiatum		1	2	
Lycopodium scariosum		1	2	
Lycopodium varium		2		
Ophioglossum coriaceum		1	2	
Polystichum cystostegia		1		
Polystichum vestitum	1	2	3	
Pteridium esculentum	1	L	3	

**Podocarps**

**Trees & shrubs**

Alepis flavida			3	
Arisotelia fruticosa			3	
Carmichaelia virgata	1	L	3	
Coprosma cheesemani		1	2	
Coprosma ciliata		1	F	3
Coprosma colensoi			3	#
Coprosma depressa			3	#
Coprosma sp. aff. parviflora	1	F	3	#
Coprosma perpusilla	1	2		#
Coprosma propinqua	1	L	3	
Coprosma rugosa		1		#
Coriaria plumosa		1	2	
Coriaria sarmentosa		2		
Corokia cotoneaster	1			
*Cytasus scoparius	1	R		
Discaria toumatou	1	L		
Dracophyllum longifolium		1	2	
Dracophyllum muscoides			2	
Dracophyllum uniflorum		1	2	#
Gaultheria antipoda	1			
Gaultheria crassa		1	2	
Gaultheria depressa var. novae-zelandiae		1	2	3 #
Gaultheria macrostigma		1	2	
Gaultheria novae-zelandiae x macrostigma?			2	
Griselinia littoralis			3	#

Hebe anomala	1	2			
Hebe propinqua		1	2		#
Hebe rakiaensis		1			
Hebe salicifolia				3	
Hoheria lyallii			3		
Kelleria dieffenbachii	1	2			
Leptospermum scoparium		1			
Leucopogon colensoi	1	2			
Leucopogon fraseri	1	2	3		
Muehlenbeckia australis		1			
Muehlenbeckia axillaris				3	
Muehlenbeckia complexa		1	L	3	
Melicytus sp. aff. alpinus		1	2		
Nothofagus fusca		1		3	#
Nothofagus menziesii	1		3	#	
Nothofagus solandri var. cliffortioides		1	F	3	#
Olearia arborescens	1		3		
Olearia bullata			3		
Olearia fimbriata				3	
Olearia moschata?	1				
Oxothamnus vauvilliesii		1	2		
Pentachondra pumila	1	2		#	
Phyllocladus alpinus			3	#	
Pimelea oreophila	1	2	3	#	
*Pinus contorta		1			
*Pinus sp.	1				
Podocarpus hallii				3	#
Pseudopanax crassifolius				3	
*Rosa rubiginosa		1			
Rubus cissoides				3	
Rubus schmidelioides			3		
*Sambucus nigra		1			
*Ulex europaeus		1	R		

**Herbs**

Acaena anserinifolia			3		
Acaena caesiglauca	1	2			
Acaena profundiincisa		1	2		
Acaena sacaticupula		2			
Acaena tesca	1				
Aciphylla aurea		1	2		#
Aciphylla glaucescens	1	2			
Aciphylla sp. aff. horrida					#
Aciphylla scott-thomsonii		1			
Anaphalioides bellidioides		1	2	3	
Anemone tenuicaulis	1	2		#	
Anisotome aromatica	1	2			
Anisotome aromatica var. flabellifolia		1	2		
Brachyglottis bellidioides		1			#
Brachyglottis revoluta	1	2			

RELEASED UNDER THE OFFICIAL INFORMATION ACT

Brachyglottis southlandicus	1	2	
Cardamine debilis agg.		1	F
Celmisia sp. aff. alpina			2
Celmisia densiflora (includes "prorepens" form)	1		2
Celmisia glandulosa	1	2	
Celmisia gracilentata	1	2	3
Celmisia sp. "gracilentata rhizomatous"		1	
Celmisia hookerii	1	2	
Celmisia lyallii		1	2
Celmisia semicordata	1	2	
Celmisia sessiliflora		2	
Celmisia verbascifolia		2	
*Cerastium fontanum	1		
*Cirsium arvense		1	
*Cirsium vulgare			R
Colobanthus affinus?	1		
Colobanthus buchananii		1	
Colobanthus strictus		2	
*Digitalis purpurea	1	2	
Dolychoglottis lyallii	1	2	
Drosera arcturii			2
Epilobium alsinoides	1	2	
Epilobium atriplifolium			2
Epilobium brunnescens			2
Epilobium chloraefolium			2
Epilobium komarovianum			2
Epilobium macropus	1	2	
Euphrasia zelandica			3
Forstera sedifolia		1	
Forstera tenella		1	
Galium perpusillum	1		3
Gentiana bellidifolia	1	2	
Geranium microphyllum		1	2
Geranium sessiliflorum			2
Geum leiospermum	1	2	
Geum parviflorum		2	
Gingidia baxerae		1	
Gingidia montana		1	
Gnaphalium laterale	1	2	
Gnaphalium mackaii		2	
Gnaphalium ruahinicum		1	
Gonocarpus aggregatus		1	2
Gonocarpus micranthus		1	2 3
Gonocarpus montanus	1		
Gunnera monoica			2
Helichrysum filicaule	1	2	3
*Hieracium lepidulum		1	2
*Hieracium pilosella	1	2	
Hydrocotyle microphylla		1	2
Hydrocotyle novae-zelandiae var. montana		1	2 3

RELEASED UNDER THE OFFICIAL INFORMATION ACT

*Hypochaeris radicata	1	2		#
Kirkianella novae-zelandiae	1			
Lagenifera cuneata		2		
Lagenifera petiolate			3	
Lagenifera strangulata		F	3	
Leptinella squalida var. mediana		1	2	3
Leucogenes grandiceps		1		
*Linum catharticum	1			
Mazus radicans				3
*Mimulus moschatus		2		
Montia fontana		1	2	
*Myosotis arvensis		2		
Nertera ciliata		F	3	
Nertera depressa				3
Nertera villosa		F	3	
Oreomyrrhis sp. "bog"			2	
Oreomyrrhis colensoi		2		
Oreomyrrhis ramosa	1		3	
Ourisia caespitosa	1	2		
Oxalis magellanica	1	2	3	
Phyllachne colensoi		2		
Plantago lanigera		1		
Plantago novae-zelandiae			2	
Plantago uniflora		1	2	3
Pratia angulata	1	2	3	
Ranunculus cheesemanii		1		
Ranunculus ensyii	1	2		
Ranunculus foliosus	1			
Ranunculus gracilepes		1	2	
Ranunculus membranaceum		F	3	
Ranunculus multiscapus		1	2	3
Raoulia glabra	1			
Raoulia grandiflora	1	2		
Raoulia subsericea	1	2	3	#
*Rumex acetosella		2		
*Rumex crispus			2	
Rumex flexuosus		1		
*Sagina procumbens		2		
Schizeilema cockaynei	1	2	3	
Scleranthus uniflorus	1	2		
*Senecio jacobaea	1			
Senecio waurauensis	1		3	
*Spergularia rubra?		2		
*Stellaria alsine		1	2	
Stellaria parviflora	1		3	
*Taraxicum officinale	1			
*Trifolium repens	1	2		
Viola cunninghamii	1	2	3	
Viola filicaulis	1		3	
Wahlenburgia albomarginata	1	2	3	



**Grasses**

*Agrostis capillaris	1	2		#
Agrostis muscosa			2	
*Aira caryophila			2	
*Anthoxanthum odoratum			2	#
Chionocloa rigida		1	2	3
Chionochloa rubra	1			
*Dactylis glomerata			H	
Festuca novae-zelandiae		1	2	3
*Festuca rubra		2		
*Holcus lanatus		1	2	
Hierochloe novae-zelandiae?		2		
Hierochloe recurvata		2		
Koeleria cheesemanii	1	2		
Poa brevifolia	1			
Poa cita		1	2	
Poa colensoi	1	2		
Rytidosperma australe		2		
Rytidosperma gracile		2		
Rytidosperma pumila		2		#

**Sedges**

Carex bergrennii				3
Carex breviculmis		2		
Carex comans	1			
Carex coracea	1	2		
Carex echinata	1			
Carex gaudichaudiana	1	2		
Carex hectorii (red form)			2	
*Carex ovalis	1	2		
Carex wakatipu			2	
Carex secta	1			
Eleocharis acuta		1		
Isolepis aucklandicus		2		
Isolepis habra		2		
Oreobolus pectinatus	1	2		#
Oreobolus strictus	1			
Schoenus pauciflorus		2		
Uncinia clavata				3 #
Uncinia divaricata	1	2		
Uncinia filiformis?		F	3	#
Uncinia rubra		2	3	
Uncinia rupestris				3 #
Uncinia uncinata				#

**Rushes**

*Juncus conglomeratus?		1	2	
Juncus antarcticus	1	2		
*Juncus articulatus	1	2		

*Juncus bufonius	1		
Juncus pusillus	1	2	
Luzula leptophila		2	
Luzula petriana? (rock outcrop)	1	2	
Luzula rufa	1	2	

**Orchids**

Adenochilus gracilis			#
Aporostylis bifolia	2	3	
Caladenia lyallii	1	2	
Chiloglottis cornuta		3	#
Corybas trilobus	1		F
Gastrodia cunninghamii			#
Microtis uniflora	1		
Prasophyllum colensoi		2	
Thelymitra longifolia?	1	2	

**Other monocots**

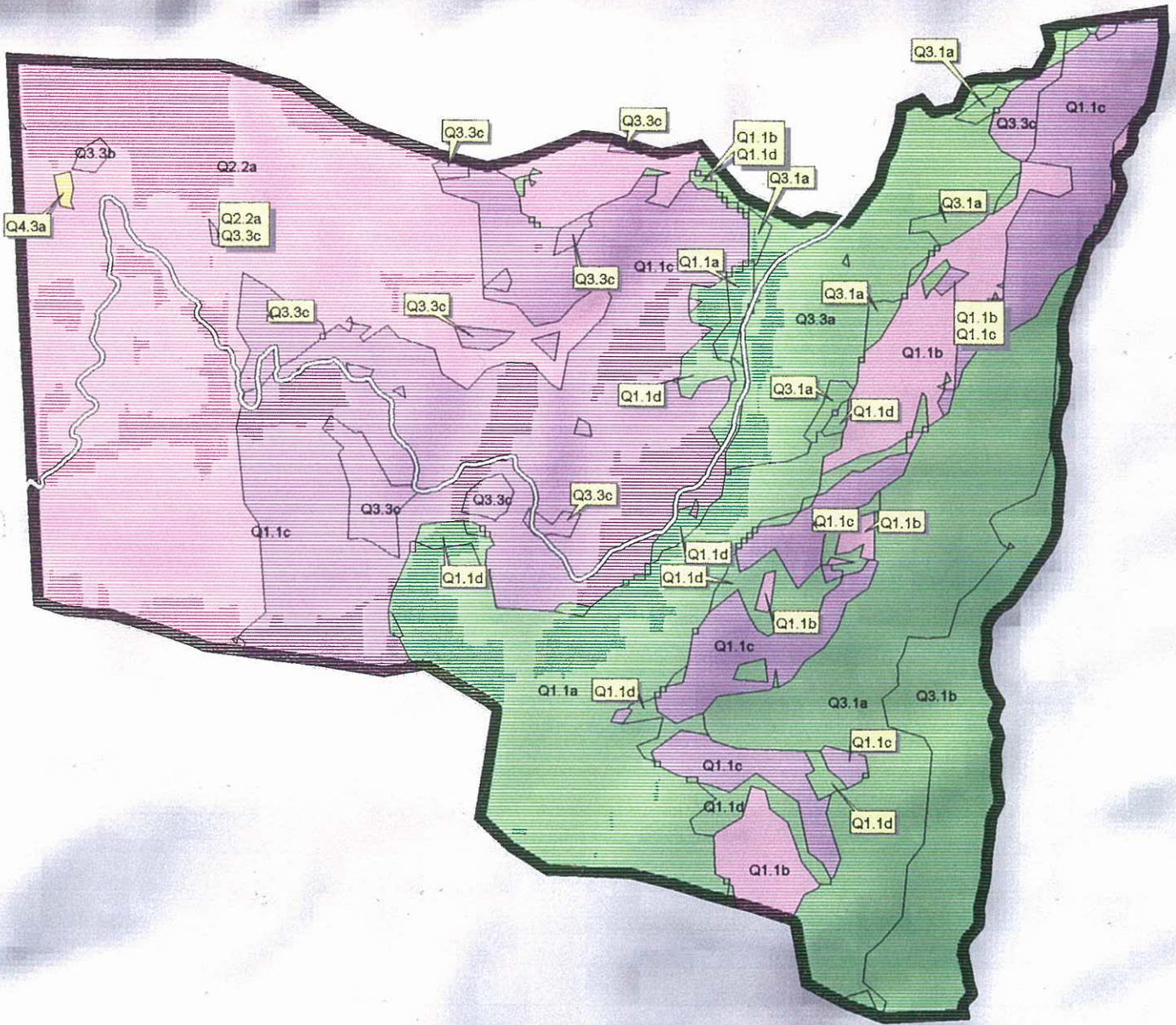
Astelia nervosa	1	2F	3
Bulbinella angustifolia	1	2	3
Phormium cookianum	1	3	

1	Glenfellen Tenure Review inspection	(1/12/2004)
2	Nokomai Saddle to Sod hut	(29/12/2000)
3	Forest in Nokomai Stream headwaters	(3/12/92)
#	Nokomai Ecological District PNAP report	(198

- F Forest
- R Roadside
- L Lower slopes
- H Hut

APPENDIX 2      LENZ Plan





Shape	Lvl_4	Count	Sum Hectares	First_Ind_cover_
Polygon	Q1.1a	5	177.3120	No Threat Category
Polygon	Q1.1b	17	93.6370	Critically Underprotected
Polygon	Q1.1c	14	406.2190	Underprotected
Polygon	Q1.1d	62	56.6880	No Threat Category
Polygon	Q2.2a	4	395.3540	Critically Underprotected
Polygon	Q2.2b	1	0.2170	Critically Underprotected
Polygon	Q3.1a	17	179.5570	No Threat Category
Polygon	Q3.1b	2	97.7720	No Threat Category
Polygon	Q3.3a	2	100.1690	No Threat Category
Polygon	Q3.3b	1	1.7190	Critically Underprotected
Polygon	Q3.3c	19	46.0570	Underprotected
Polygon	Q4.3a	1	1.1140	At Risk

- Glenfellen\_lvl4.shp
- Acutely Threatened
  - Chronically Threatened
  - Critically Underprotected
  - At Risk
  - Underprotected
  - No Threat Category



APPENDIX 3 Site Data Electric Fish Survey

GLENFELLEN STATION TENURE REVIEW

Electric Fish Survey - 15th November 2004.

Upper Nokomai River and selected western slope tributaries

*Map F43 Garvie.*

Site 1 - F43 GR 807204

Site 2 - F43 GR 789188

Site 3 - F43 GR 803181

Site 4 - F43 GR803174

Site 5 - F43 GR 802175

Method used - Electric Fishing ( NIWA Kainga EFM300 )  
3 passes per site.

Site 1

Above beech forest bush line in main Nokomai River. Sampled a 30 metre stretch with partial tussock cover of 20%. Average river width was 3 metres with a depth varying from 250mm to 750mm.

Habitat type - riffle/run with substrate of boulder/cobble/fine gravel. Water clarity milky

Water level - normal

Fish barriers downstream - yes ( waterfalls >1metre)

Aquatic invertebrate - abundant green stonefly/mayfly

Fish species - Galaxias depressiceps ( flathead galaxias )

Total fish caught - 21, Size range 20mm -120mm

Site2

Side tributary on western slope feeding into Nokomai River. Sampled a 10 metre stretch with tussock cover 30%. Average stream width was 1metre with a depth varying from 250mm to 600mm.

Habitat type - pool/cascade with substrate of bedrock/course gravel. Water clarity clear.

Water level normal

Fish barriers downstream yes ( numerous >10 metres )

Aquatic invertebrate - few mayfly

Fish species - Nil

Total fish caught - Nil

Site3

Within remnant beech forest canopy in main Nokomai River. Sampled a 30 metre stretch with 80% canopy overhead. Average river width was 4 metres with a depth varying from 200mm to 450mm.

Habitat type - run with substrate of boulder/cobble/fine gravel. Water clarity milky.

Water level - normal

Fish barriers downstream - nil

Aquatic invertebrate - nil recorded

Fish species - Salmo trutta ( brown trout )

Total fish caught - 23 , Size range 30mm - 140mm

Site4

Below remnant beech forest in main Nokomai River. Sampled a 30 metre stretch with no vegetation cover. Average river width was 4 metres with a depth varying from 250mm to

450mm.

Habitat type - pool/run with substrate of boulder/cobble/fine gravel. Water clarity milky.

Water level - normal.

Fish barriers downstream - nil recorded

Aquatic invertebrate - nil recorded

Fish species - Salmo trutta ( brown trout )

Total fish caught - 9 , size range 30mm - 130mm

Site5

Side tributary on western slopes feeding into Nokomai River. Sampled 10 metre stretch with 10% vegetation cover. Average stream width was 450mm with a depth varying from 50mm to 450mm..

Habitat type - riffle/rapid with substrate of cobble/fine gravel/sand. Water clarity clear.

Water level - normal.

Fish barriers downstream - yes ( waterfall < 1metre and cascade < 1 metre )

Aquatic invertebrate - abundant green stonefly/mayfly

Fish species - Galaxias depressiceps ( flathead galaxias )

Total fish caught - 3 , size range 25mm - 35mm



APPENDIX 4 Invertebrate List

Annotated list of the Orthoptera, Hemiptera and Lepidoptera of the Nokomai Ecological District, Waikaia Ecological Region. Altitude shown for upland species only. Taken from Dickinson et. al. 1998.

\* = recorded during the present survey.

Taxa	Altitude (m)	Comments
ORTHOPTERA		
Acrididae (grasshoppers)		
<i>Alpinacris tumidicauda</i> Bigelow	1000-1430	
<i>Sigaus campestris</i> (Hutton)	500-1200	
* <i>Sigaus australis</i> (Hutton)	500-1500	
<i>Paprides dugdali</i> (Bigelow)	500-1500	
HEMIPTERA		
* <i>Kikihia augusta</i> (Walker)	300-1300	
LEPIDOPTERA		
Hepialidae		
<i>Aoraia senex</i> (Hudson)	1140-1500	
Plutellidae		
<i>Proditrix megalynta</i> (Meyrick)	1000	Larvae in <i>Chionochloa</i> tiller bases
<i>Protosynaema quaestuosa</i> Meyrick		Larvae on <i>Carex</i> spp.
Nymphalidae		
<i>Bassaris gonerilla</i> (Fabricius)		Larvae feed on <i>Urtica</i> spp.
Glyphipterigidae		
<i>Glyphipterix bactrias</i> Meyrick	950-1160	
<i>Glyphipterix barbata</i> Philpott		
<i>Glyphipterix cionophora</i> (Meyrick)		
<i>Glyphipterix metasticta</i> Meyrick	1160-1250	
Choreutidae		
<i>Asterivora fasciata</i>	1000-1500	Larvae on <i>Celmisia densiflora</i>
* <i>Asterivora marmarea</i>		Larvae on <i>Celmisia</i>
Satyridae		
<i>Argyrophenga antipodum</i> Doubleday	to 1500	Larvae on <i>Chionochloa</i> spp.
<i>Argyrophenga janitae</i> Craw	1250-1450	Larvae on <i>Chionochloa</i> spp.
Lycaenidae		
<i>Bouldenaria</i> sp.	450	Larvae on <i>Muehlenbeckia axillaries</i>

Tortricidae		
<i>Epichorista hemionana</i> (Meyrick)	1200-1400	
<i>Epichorista mimica</i> Philpott	1000	
<i>Epichorista siriana</i> Meyrick		Larvae on grasses
<i>Epichorista demiana</i> (Meyrick)	1200	
<i>Eurythecta phaeoxyla</i> Meyrick	500-1200	Larvae on herbs
<i>Harmologa sanguinea</i> (Philpott)	1000-1300	Larvae on <i>Hebe odora</i>
<i>Merophyas leucaniana</i> (Walker)		Larvae polyphagous
Gelechiidae		
<i>Megacraspedus calamagonus</i> Meyrick	1000-1300	Larvae on <i>Chionochloa</i> seedheads
Elachistidae		
<i>Elachista thallopheora</i> Meyrick	1100-1400	
<i>Cosmiotes ombrodoca</i> (Meyrick)	to 1000	
Oecophoridae		
* <i>Prepala austrina</i> Meyrick	1000	Larvae on <i>Leucopogon fraseri</i>
Geometridae		
<i>Chloroclystis nereis</i> (Meyrick)	1000-1500	Larvae in <i>Celmisia</i> flower heads
<i>Pasiphila halianthes</i> (Meyrick)	1000-1300	Larvae on <i>hebe odora</i>
<i>Pasiphila rivalis</i> (Philpott)	1000-1200	Low alpine; larvae on <i>Hebe propinqua</i>
<i>Asaphodes abrogate</i> (Walker)	900-1520	Larvae on herbs
<i>Asaphodes cinnabari</i> (Howes)	500-1400	Northern Nokomai District (Nevis area) is Type Locality
<i>Asaphodes clarata</i> (Walker)	to 1100	Larvae on <i>Ranunculus</i>
<i>Asaphodes dionysias</i> (Meyrick)	1200-1500	
<i>Asaphodes sericodes</i> (Meyrick)	1100-1400	
<i>Asaphodes nephelias</i> (Meyrick)	1100-1400	
<i>Xanthorhoe semifissata</i> (Walker)	to 1100	Larvae feed on herbs
<i>Paranotoreas brephosata</i> (Walker)	to 1520	Common orange underwing; larvae feed on <i>Epilobium</i>
<i>Aponotoreas anthracias</i> (Meyrick)	1200-1450	Larvae feed on <i>Dracophyllum</i>
<i>Dasyuris anceps</i> (Butler)	1000-1500	Larvae feed on <i>Anisotome</i>
<i>Dasyuris callicrena</i> (Meyrick)	1000-1300	Larvae feed on <i>Hebe odora</i>
<i>Dasyuris partheniata</i> Guenee		Larvae on <i>Aciphilla glaucescens</i>
<i>Dasyuris transaurea</i> Howes	1000-1150	Larvae on <i>Anisotome</i> , Nokomai ED is type locality
<i>Arctesthes cataphyrrha</i> (Butler)	500-1500	
<i>Notoreas paradelpa</i> (Meyrick)	900-1500	

<i>Notoreas perornata</i> (Walker)	500-1450	Larvae found under <i>Pimelia</i>
<i>Notoreas chioneres</i> Prout	1200-1500	Larvae on <i>Kelleria</i> <i>Villosa</i>
Noctuidae		
<i>Tmetolophota acontistis</i> (Meyrick)	900-1000	Larvae on <i>Poa</i> , <i>Festuca</i> and <i>Elymus</i>
<i>Tmetolophota arotis</i> (Meyrick)		
<i>Tmetolophota propria</i> (Walker)		
<i>Ichneutica homerica</i> Howes	1300-1520	
<i>Aletia obsecrata</i> Meyrick	1000-1400	
<i>Aletia sollennis</i> Meyrick	1000-1300	
<i>Schrankia costastrigalis</i> (Stephens)		
<i>Graphania nullifera</i> (Meyrick)	1000-1500	Larvae bore in to tap- root of <i>Aciphylla</i> spp.
<i>Graphania mutans</i> (Walker)		
<i>Graphania disjungens</i> (Walker)	to 1400	
<i>Graphania sequens</i> (Howes)	1000	
<i>Homohadena fortis</i> (Butler)		Larvae on <i>Melicyus</i> <i>alpinus</i>
<i>Heliothis armigera conferta</i> Walker		Pest species
Crambidae		
<i>Orocrambus aethonellus</i> (Meyrick)		Diurnal in damp areas
* <i>Orocrambus corruptus</i> Butler		Grasslands
<i>Orocrambus tritonellus</i> (Meyrick)	1000	Diurnal
<i>Glaucobaris epiphaea</i> (Meyrick)	900	
<i>Diasemia grammalis</i> Doubleday		Diurnal
<i>Mnesictena flavidalis</i> (Doubleday)		
<i>Eudonia melanaegis</i> (Meyrick)	670	Shrubland and forest species
* <i>Eudonia chalara</i> (Meyrick)	to 1400	Grasslands
<i>Eudonia deltophora</i> (Meyrick)		Diurnal; grasslands
<i>Eudonia organaea</i> (Meyrick)		Diurnal; shrublands
* <i>Eudonia sabulosella</i> (Walker)	to 1400	Sod webworm
* <i>Eudonia trivirgata</i> (Felder & Rogenhofer)	to 1400	
<i>Scoparia claranota</i> Howes	1200-1400	
<i>Scoparia exilis</i> Knaggs		Open areas
<i>Scoparia fumata</i> Philpott	1000-1400	Southern low alpine species
<i>Scoparia</i> sp.aff. <i>subita</i> Howes	900-1400	
<i>Stenoptilia orites</i> (Meyrick)	to 1200	Larvae feed on <i>Brachyglottis bellidioides</i> flowers

Annotated species list of Coleoptera from the Nokomai Ecological District, Waikaia Ecological Region, with altitudinal ranges. Taken from Dickinson et. al. 1998.

\* = recorded during the present survey.



Taxa	Altitude (m)	Comments
COLEOPTERA		
Carabidae		
Broscinae		
<i>Oregus aereus</i> White	970-1450	
Pentagonicinae		
<i>Scopodes cognatus</i> Broun	1100-1500	
<i>Scopodes edwardsi</i> Bates	1100-1500	
<i>Scopodes elaphroides</i> White	1100-1500	
Pterostichinae		
<i>Holocaspis punctigera</i> Broun	1100-1450	
* <i>Megadromus sandageri</i> (Broun)	1100-1500	
<i>Neoferonia ?procerula</i> (Broun)	1100-1450	
Leodidae		
<i>Inocatops</i> sp.	1100	
Scydaemidae		
? <i>Euconnus ?alackensis</i> Franz	1100-1450	
? <i>Sciacharis</i> sp.	1100	
Staphylinidae		
Aleocharinae		
Aleocharine sp.	1100-1450	
Aleocharine sp.	1100	
Aleocharine sp.	1100	
Aleocharine sp.	1100	
Euaesthetinae		
<i>Agnostaethus</i> sp.	1100	
Staphylininae		
Staphylinine sp.	100-1100	
Pselaphidae		
Pselaphid sp.	1100-1500	
Pselaphid sp.	1100	
Pselaphid sp.	1100	
Hydrophilidae		
<i>Rygmodus ?opimus</i> Broun	1000-1500	on <i>Aciphylla</i>
Scarabaeidae		
Melolonthinae		
<i>Scythrodes squalidus</i> Broun	1100-1500	
Elateridae		
<i>Betarmonides</i> sp.	1100	
<i>Conoderus</i> sp.	1100	
<i>Conoderus</i> sp.	1100	
<i>Elatichrosis castanea</i> (Broun)	850-1500	

Cantharidae <i>?Asilis</i> sp.	1000-1100	On <i>Aciphylla</i> flower
Melyridae *Melyrid sp.	1000	tussock-shrubland
Corylophidae <i>Holopsis</i> sp.	1100-1500	
Coccinellidae <i>Adoxellus ?prolongatus</i> Broun	1100	
<i>Coccinella leonine</i> F.	100-1500	
<i>Diomus</i> sp.	1100-1500	
<i>Scymus</i> sp.	1100	
Lathridiidae <i>Melanopthalma zelandica</i> Belou	1100	
Colydiidae <i>?Coxellus</i> sp.	1100	
Melandryidae Melandryid sp.	1100-1450	tussock
Oedemeridae <i>Selenopalpus aciphyllae</i> Broun	600-1100	
Chrysomelidae <i>Allocharis</i> sp.	1100	
<i>Chaetocnema</i> sp.	1100-1500	
Cryptorhynchinae Cryptorhynchine sp.	1100	
Curculioninae <i>Peristoreus veronicae</i> (Broun)	1100	
Eriirhininae <i>Baesomus amplus</i> (Broun)	1100-1500	
<i>Baesomus</i> sp.	1100-1500	
<i>Baesomus</i> sp.	1100	
Eugnominae Eugnomine sp.	1100-1500	
Eugnomine sp.	1100	
<i>Eugnomus dispar</i> (Broun)	1100-1500	On <i>Aciphylla</i> flower
Leptopiinae <i>Brachyolus</i> sp.	1100	
<i>Catoptes censorious</i> Pasc.	1100	
<i>Catoptes</i> sp.cf. <i>murinus</i> (Broun)	1100	
Rhytirhininae <i>Listronotus bonariensis</i> (Kuschel)	1300-1450	

*Nestrius* sp.

1100-1500

*Nestrius* sp.

1100

## APPENDIX 5 Bird List

Annotated species list of birds from the Nokomai Ecological District, Waikaia Ecological Region, with altitudinal ranges. Taken from Dickinson et. al. 1998.

\* = recorded during the present survey.

* Australian Harrier / Kahu	<i>Circus approximans</i>
Australia magpie	<i>Gymnorhina tibicen</i>
Bellbird	<i>Anthornis melanura</i>
Blackbilled gull	<i>Larus bulleri</i>
Blackbacked gull	<i>Larus dominicanus</i>
* Blackbird	<i>Turdus merula</i>
Brown creeper	<i>Finschia novaeselandiae</i>
California quail	<i>Lophortyx californica</i>
* Chaffinch	<i>Fringilla coelebs</i>
* Dunnock	<i>Prunella modularis</i>
Fantail	<i>Rhipidura fuliginosa</i>
Goldfinch	<i>Carduelis carduelis</i>
Greenfinch	<i>Carduelis chloris</i>
Grey warbler	<i>Gerygone igata</i>
Kingfisher	<i>Halcyon sancta vagans</i>
New Zealand falcon	<i>Falco novaeseelandiae</i>
Paradise shelduck	<i>Tadorno varleoata</i>
* Pipit	<i>Anthus novaeseelandiae</i>
* Redpoll	<i>Carduelis flammea</i>
Rifleman	<i>Acanthisitta chloris</i>
Robin	<i>Petroica australis</i>
* Skylark	<i>Alauda arvensis</i>
* Song thrush	<i>Turdus philomelos</i>
* Sparrow	<i>Passer domesticus</i>
Spur-winged plover	<i>Vanellus miles novahollandiae</i>
Starling	<i>Sturnus vulgaris</i>
Tui	<i>Prothemadera novaeselandiae</i>
Waxeye	<i>Zosterops lateralis</i>
Wood pigeon / kereru	<i>Hemiphaga novaeseelandiae</i>
Yellow breasted tit	<i>Petroica macrocephala macrocephala</i>
* Yellowhammer	<i>Emberiza citrinella</i>

**APPENDIX 6**      Extracts from PNAP Report.



NOK 7

UPPER NOKOMAI

S151 665 187  
(extends onto S142)  
SN 8565 F7

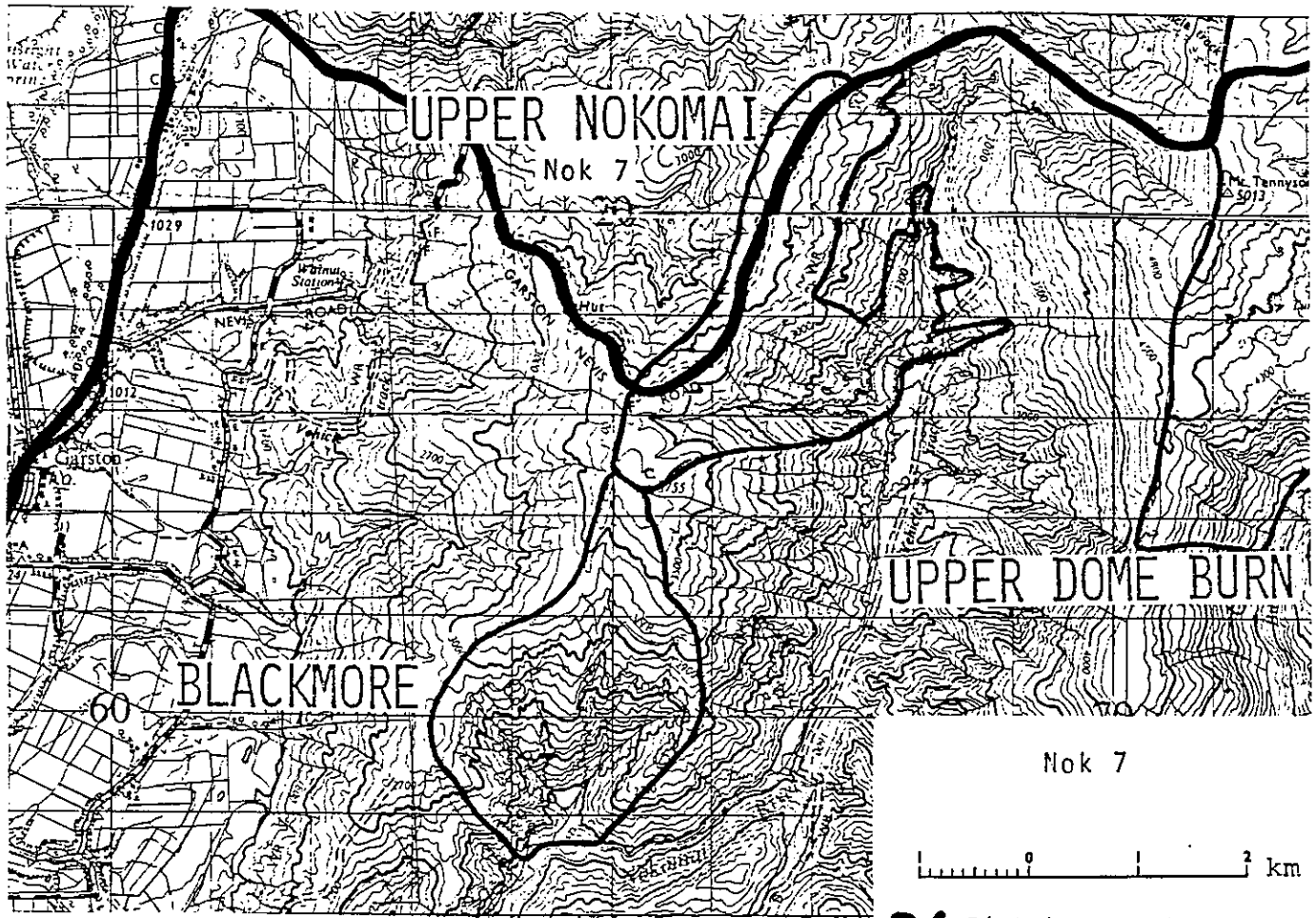
Area	c. 575 ha	
Altitude range	c. 395 m to 1145 m	
General aspect	Southeasterly	
Plot cards	023-025 072-073 077-078, 080 082-084, 087-088 025a, 084a	Quadrat Group 3 " " 7  General species lists
Tenure	Pastoral lease	
References	Brockie (1973)	

Vegetation type	Landform
Mountain-silver beech forest	on terrace
Red-silver beech forest	on colluvial slope
Mixed red-mountain-silver beech forest	on colluvial slope
Tussockland	on slumped colluvial slope on ridge crest in gully
Shrubland	on ridge crest on colluvial slope in gully
Tussock-shrubland	in gully on ridge crest
Shrub-tussockland	on ridge crest on slumped colluvial slope

Vegetation and flora

Beech forest, tussock and shrubland communities are represented within this RAP.

Mid-altitude mountain or mixed-beech forests (three sites: Group 3) is found at altitudes of c. 600-700 m on gentle to moderate slopes (6° to 26°) and varying aspects. The three beech species, red (*Nothofagus fusca*), silver (*N. menziesii*), and mountain (*N. solandri* v. *cliffortioides*), are variously codominant or subdominant at each site. Overall, canopy cover is generally high (>50%). Mountain beech dominates on ridge crests with dense regeneration in gaps. Stand height ranges from 14 m to 22 m,



averaging 15 m to 18 m at different sites, with some red beech individuals to 1 m d.b.h., and silver beech to 0.6 m d.b.h. The beech species are the most common components of tiers 4 and 5, with cover usually less than 5%. Hall's totara (Podocarpus hallii) was also recorded in these tiers, with one fallen individual measuring 0.35 m d.b.h. Broadleaf (Griselinia littoralis) was present intermittently in tier 4. Cover in tier 3 is low, individual species rarely exceeding 5% cover. Beech is again dominant with the shrubs and small trees, celery pine (Phyllocladus aspleniifolius v. alpinus), Coprosma colensoi, C. parviflora and lancewood (Pseudopanax crassifolius), intermittent. In tiers 1 and 2, species include the shrub Coprosma depressa, the hooked sedges Uncinia clavata, U. uncinata, U. filiformis, and U. rupestris, the ferns Grammitis billardierei and Hymenophyllum multifidum, plus the orchids Chiloglottis cornuta, Adenochilus gracilis and Gastrodia cunninghamii. Their cover is generally low. Litter cover is highly variable; bryophyte cover is usually less than 25%.

A narrow strip of beech forest extends to c. 920 m in a gully on the western slopes above the Nokomai River. Indicating the probable pre-European altitudinal extent of this forest, mountain beech dominates with silver a very minor component.

On the eastern forest margins, shrubland occupies gullies and occurs as patches on colluvial slopes. Abundant canopy species include Olearia odorata, Coprosma rugosa, C. propinqua, C. ciliata and Carmichaelia petriei. Those occurring occasionally include mountain ribbonwood (Hoheria glabrata), mountain flax (Phormium cookianum), narrow-leaved snow tussock (Chionochloa rigida), and speargrass (Aciphylla aff. horrida).

Mid-altitude dry tussockland (ten sites: Quadrat Group 7), described as tussockland, tussock-shrubland or shrub-tussockland on the basis of canopy dominants occurs at altitudes from 945 m to 1070 m, on a variety of slopes and aspects. Narrow-leaved snow tussock is the only species achieving greater than 5% cover in tier 3. Turpentine scrub (Dracophyllum uniflorum), Hebe propinqua and golden spaniard (Aciphylla aurea) are present as canopy codominants in tier 2. The ground tier (1) is variously dominated by sweet vernal (Anthoxanthum odoratum), browntop (Agrostis capillaris), snowberry (Gaultheria depressa), catsear (Hypochoeris radicata), Ragulia subsericea, Pentachondra pumila, and Brachyglottis bellidioides, each up to 25% cover. Other less common plants include Coprosma pumila, Pimelea oreophila, Anemone tenuicaulis, comb sedge (Dreobolus pectinatus), and Erythranthera pumila. Litter may reach 5-25% cover; the lichen and bryophyte component is usually low (<5%).

#### Landform

It is likely that the upper Nokomai River follows the southern continuation of the Nevis fault, the major structural feature of the Nevis Valley (Mr M.W. Stirling, pers. comm. 1987). During, and since the Pleistocene, the Nokomai River maintained an antecedent gorge in this part of the Garvie Mountains

(Brockie 1973). In places, the valley is deeply incised with rock bluffs common. Above these, colluvial slopes showing a range of mass movement features, including slumped and ripply topography, rise to the broad, gently sloping ridge crest of the "Nokomai Range" (see Fig. 1).

Soils are high country yellow-brown earths (Carrick, Carrick Hill and Fairlight soils), derived from greywacke, schist and semi-schist. Texture varies from silty and stony loams to stony silt loams.

### Fauna

Birds observed in the forest remnant were grey warbler and yellow-breasted tit.

The shrub and tussockland communities of the Nokomai Range are considered a key site for invertebrates (see Appendix V).

### Discussion

The tussock-shrubland communities of the Nokomai Range are significant for their invertebrate values. The ridge crest is included in the area identified here with a water race forming the eastern boundary. Between this race and the beech forest, cover and abundance of adventive species increases rapidly.

The beech forest is included for its representation of the three beech species, together with Hall's totara, plus the Olearia odorata shrublands on the eastern margins. Evidence of deer rubbing on beech and Hall's totara stems was seen. Broadleaf was extensively browsed. Pellets were observed in low to moderate density through the stand. The forest has been logged in the past with cut stumps present. The existence of beech forest to the estimated natural tree line is significant. Slopes above the western forest margin are included in the RAP to allow beech regeneration above the present upper tree limit.

### Criteria summary

Representativeness	M	Representative of beech, shrubland and tussockland communities of northern Nokomai District.
Diversity (species richness)	M	Small number of communities, each of moderate diversity.
Naturalness	M	Shrublands affected by fire and grazing. Evidence of logging in beech forest; moderate browsing damage.
Special Features	H	Key invertebrate site.
Viability	M	Generally good.

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Buffering	M	RAP partially follows natural limits. Rapid transition to pasture in lower sections.
Threat	M	Fire and heavy stock pressure. Problems associated with public road traversing the identified area - litter deposition, plant removal.
Landform	M	Representative of upper sections of antecedent Nokomai Gorge.



APPENDIX 7      NGO submissions.

Written submissions were received from;

- Federated Mountain Clubs of New Zealand.
- Upper Clutha Branch of Forest and Bird,
- The Dunedin Branch of Forest and Bird,
- Southern Lakes Branch of the New Zealand Deer Stalkers Association,
- Central Otago Branch of the New Zealand Deer Stalkers Association.