

**The South Island Land Use
Capability Extended Legend for the
New Zealand Land Resource
Inventory**

THE SOUTH ISLAND LAND USE CAPABILITY
EXTENDED LEGEND FOR THE
NEW ZEALAND LAND RESOURCE INVENTORY

PRODUCED BY THE NATIONAL WATER AND SOIL
CONSERVATION ORGANISATION

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1. INTRODUCTION

The South Island Extended Legend contains summary details of the 219 land use capability units mapped in the South Island part of the New Zealand Land Resource Inventory (NZLRI). The NZLRI was produced by the Water and Soil Division of the Ministry of Works and Development for the National Water and Soil Conservation Organisation.

The land use capability is an assessment of the land's capacity for sustained productive use taking into account physical limitations, including climate, soil conservation needs and management requirements.

The land use capability classification has three basic components - class, subclass and unit - each of which is represented by a number or symbol.

The CLASS is the most general grouping in the classification, giving the broad degree of limitation to use. There are eight classes, with limitations to use increasing and versatility of use decreasing from Class 1 to Class 8, as shown in Figure 1.

(Note the following use of symbols - for the land use capability class, roman numerals are used on printed worksheets, but corresponding arabic numerals are used on computer output.)

Class	Area(ha) & % of S.I.	Cropping Suitability	General Pastoral & Production forestry Suitability (x)	General Suitability (x)
1	36000 0.2%	High	High	Multiple use land
2	490000 3.2%			
3	1409000 9.3%	Medium		
4	1462000 9.7%	Low		
5	117000 0.8%	Unsuitable	Medium	Pastoral or Forestry land
6	3346000 22.1%			
7	2877000 19.0%		Low	Catchment protection land
8	4888000 32.3%		Unsuitable	
Rivers, Lakes, etc	505000 3.3%			

* Land use capability classes 4 - 7 which have wetness as the major limitation and those units in very low rainfall areas or those occurring on shallow soils are normally not suited to production forestry.

Figure 1. Uses of classes 1 to 8.

The second grouping, the land use capability SUBCLASS, groups units with the same kind of limitation or hazard. The four general kinds of limitations recognised are:

c	climate
e	erodibility
s	soil limitation within the rooting zone
w	wetness

Only the dominant limitation is recorded in symbol form, but information on other limitations is recorded in the land use capability extended legend.

The most detailed grouping is the land use capability UNIT. This groups inventory units which respond similarly to the same management, require the same conservation measures, would grow the same kind of crops, pasture or forest species and have about the same potential yield. Units within the subclass of each class are numbered according to generally increasing overall limitation to use.

Each land use capability (LUC) unit has descriptive and numerical information obtained from the NZLRI (as at November 1982) using LADEDA. (LADEDA is the computer program used to handle Water & Soil Division's spatial data.) The information is grouped under the following headings.

Description

A general description of the LUC unit is given, including climate and soil information.

Geographical distribution

The general geographical distribution of the LUC unit in the South Island is described. Distributions are not listed in any sequence.

Altitude zone

Climatic conditions related to altitude influence land use. Each LUC unit is mapped in one or more altitude zones which, although variable throughout the South Island, are broadly defined as follows:

Lowland	0 - 300 metres
Lower montane	300 - 600 metres
Montane	600 - 900 metres
Sub-alpine	900 - 1200 metres
Alpine	> 1200 metres

Typical locality

The location of a typical example of the LUC unit is given by grid reference on the NZMS1 map series.

Area and number of map units

The total area, percentage within the South Island, and number of map units of the dominant LUC units are given. Also given are the area and number of map units where the LUC occurs as a subdominant.

By dominant is meant that, where an attribute (LUC or inventory factor) has multiple values (e.g. 3s3+2e2, or A+B, or P1,2m4), the first value is considered to be the dominant value for the attribute in the map unit.

Inventory factors

For each of the 5 inventory factors a description(s), percentage(s) and code(s) are recorded. The percentages (and codes) pertain only to those map units where the LUC unit is dominant. Furthermore, percentages are only noted where they equal or exceed 10% of the area of the (dominant) LUC unit. This is so that only the more typical factor values are noted. Thus some percentages do not total 100%.

For slope, only the dominant slope has been used in obtaining the description, percentage and code.

For rock type, a general description is given, followed by the percentages and codes of the full rock types which cover 10% or more of the LUC unit. The full rock type is used as rock types often occur in complexes.

For soil, the description consists of the dominant soil group (e.g. recent soils) where they occur in over 10% of the area of the LUC unit. The codes listed are those used in the General Survey of the Soils of the South Island, New Zealand, (Soil Bureau Bulletin #27). Soil sets (e.g. 96a) within each soil group are listed in decreasing order of importance and cover 5% or more of the total area of the LUC unit.

For erosion, a description of the present and potential erosion types and severities are given.

For vegetation, a general description is given, followed by the percentages and codes of the dominant vegetation.

Present and Potential Land Use

Present land use describes the current use of the land such as grazing and various types of cropping.

Potential land use lists the range of alternative uses, only taking into account the physical characteristics of the LUC unit. It is not a recommended land use as it does not take into account factors such as location, access and social aspects.

Stock carrying capacity

Estimates of the stock carrying capacity at various management levels have been made in collaboration with MAF advisory officers. These are given as the number of stock units per hectare (expressed as ewe equivalents) that are capable of being carried on an annual basis. Figures are given assuming no irrigation (DRY), and with irrigation (IRR) where available and appropriate. The range of the estimates is given in brackets. The figures are presented for up to 4 regions, corresponding to the MAF regions: Nelson (including Nelson, Marlborough and Westland), Canterbury, Otago and Southland.

Exotic forest growth potential

This is the site index of PINUS RADIATA, i.e. the mean height (in metres) of the tallest 100 trees in a sampled hectare of a 20-year-old (or extrapolated to 20 years) stand of P. RADIATA. Figures are subdivided into these conservancies: Nelson, Westland, Canterbury, Southland. The Nelson conservancy is further subdivided into Nelson and Marlborough districts. Similarly Southland is subdivided into Invercargill and Dunedin districts.

References

For further information on the NZLRI see "Our Land Resources", NWASCO, Wellington, N.Z. 1979, and "Land Use Capability Survey Handbook", NWASCO, 1971.

These publications as well as information on how to obtain worksheets and computerised data may be obtained from:

Land Resource Liaison Unit
Planning and Technical Services
Water and Soil Division
Ministry of Works and Development
PO Box 12-041
Wellington North
NEW ZEALAND

2. EXAMPLE: 1c1

This unit is mapped on well-developed, deep soils occurring in summer moisture-deficient districts.

It is found principally on the Canterbury Plains, and to a lesser extent in Wairau Plain in Marlborough. It occurs in the lowland altitude zone. A typical example of the unit can be found at grid reference NZMS1 S76:045880.

1c1 appears as the dominant land use capability on 18 map units covering 6460 ha (0.04% of the South Island). 1c1 does not occur as a subdominant LUC unit.

The dominant slope group is A (0 - 3 degrees).

The typical rock association is alluvium.

Recent soils (77% of the area) and yellow-grey earths (23%) comprise the soil groups, each being composed in this instance of a single soil set, viz. 96a and 18f respectively.

Present and potential erosion is negligible.

The vegetation is high producing pasture and cereal, forage and horticultural crops. The dominant vegetation is 100% P1 (high producing pasture).

The present land use is intensive grazing, cereal cropping, forage cropping and horticultural cropping.

The potential land use is intensive cropping, intensive grazing and production forestry.

The estimated 'present average' stock carrying capacity for Canterbury is 13 stock units per hectare with dry land farming (DRY), and 16 su/ha with irrigation (IRR). In Nelson, 10 su/ha under dry land and 15 su/ha under irrigation.

The estimated 'top farmer' stock carrying capacity for Canterbury is 15 su/ha (dryland farming), and 20 su/ha (irrigated). In Nelson, 15 su/ha (dryland farming) and 20 su/ha (irrigated).

The estimated 'attainable physical potential' stock carrying capacity in Canterbury is 18 su/ha (dryland farming) and 24 su/ha (irrigated). In Nelson it is 20 su/ha (dryland farming) and 25 su/ha (irrigated).

The exotic forest growth potential (i.e. the *Pinus radiata* site index) is 26 metres for Marlborough District in the Nelson Conservancy and 21-23 metres for the Canterbury Conservancy.

There are no recommended soil conservation measures.

3. DETAILED DESCRIPTION OF EACH

SOUTH ISLAND

LAND USE CAPABILITY UNIT

1c 1

1c1

DESCRIPTION: Well-developed, deep soils in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, minor extent in Wairau Plain in Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:046876

AREA: 6460 ha (0.04% of S.I) + subdominant: 0 ha

NUMBER OF MAP UNITS: 18

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium	100%	A1
Soil:	Recent soils	77%	96a
	Yellow-grey earths	23%	18f
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High producing pasture	100%	P1
	cereal, forage and horticultural crops		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, horticultural cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	13	16	15	20	18	24
Nelson	10	15	15	20	20	25

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26		21-23	

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

1c 2

1c2

DESCRIPTION: Well-drained, recent floodplains in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Eastern Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S170:802333

AREA: 1100 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium from schist, greywacke, granite, basic igneous rocks and mudstone	100%	A1
Soil:	Recent soils	100%	98f
Erosion:	Present - Negligible Potential - Negligible		
Vegetation:	High producing pasture, forage crops	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Southland	16		19		22	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

1s 1

1s1

DESCRIPTION: Flat to gently undulating valley floors with heavy-textured soils derived from basaltic tuff and limestone colluvium.

GEOGRAPHICAL DISTRIBUTION: North Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S136:458595

AREA: 0 ha (0.00% of S.I.) + subdominant: 1110 ha

NUMBER OF MAP UNITS: 0 + subdominant: 1

INVENTORY FACTORS:

Slope:	4 - 8 degrees	-	B
	0 - 3 degrees	-	A
Rock type:	Colluvium from weathered basaltic tuff with interbedded limestone, loess in places	-	Tb
Soil:	Rendzina soils	-	-
	Brown granular loams and clays	-	-
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High producing pasture, horticultural and cereal crops	100%	P1

PRESENT LAND USE: Intensive grazing, horticultural cropping, cereal cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Not applicable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: This capability unit occurs only as a subdominant with 2s 3 as a dominant.

Is 2

ls2

DESCRIPTION: Floodplains with deep, light textured soils.

GEOGRAPHICAL DISTRIBUTION: Nelson Plains.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 14:376526

AREA: 4720 ha (0.03% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 8

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium from greywacke, shales, granite and basic igneous rocks	100%	A1
Soil:	Recent soils	100%	98, 98a
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High producing pasture, orchards, horticultural crops	100%	P1

PRESENT LAND USE: Intensive grazing, orcharding, intensive cropping.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	13	20	17	20	21	27
	(12-14)				(20-22) (25-30)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	30-34			

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

1w 1

1w1

DESCRIPTION: Deep, slightly wet soils on flood plains in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, Wairau Plains in Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:008712

AREA: 20610 ha (0.14% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 50

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke alluvium	100%	A1
Soil:	Yellow-grey earths	48%	18f
	Recent soils	41%	95b
	Gley soils	8%	89
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High producing pasture, cereal, horticultural and forage crops, orchards	84%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, horticultural cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	13	18	18	22	22	25
	(12-15)	(15-20)		(20-25)		(25-35)
Nelson	15	20	25	30	26	30

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv. Dun
Site Index:	26		21-23	

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

1w 2

1w2

DESCRIPTION: Deep, slightly wet, recent soils on flood plains in moist, cool districts.

GEOGRAPHICAL DISTRIBUTION: Mosgiel Plain, Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S163:936698

AREA: 3080 ha (0.02% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Schist and greywacke alluvium	100%	A1
Soil:	Recent soils	100%	97, 95c
Erosion:	Present - negligible Potential - negligible		
Vegetation:	High producing pasture, horticultural crops, forage	100%	P1

PRESENT LAND USE: Intensive grazing, horticultural cropping, forage cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	15		18		20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				21-24

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

2c 1

2c1

DESCRIPTION: Plains with deep, fertile soils in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, Marlborough plains.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 83:521507

AREA: 14530 ha (0.10% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 36

INVENTORY FACTORS:

Slope:	0 - 3 degrees	90%	A
	4 - 8 degrees	10%	B
Rock type:	Greywacke alluvium with a thin loess cover in places	100%	A1
Soil:	Recent soils	91%	96a
	Yellow-grey earths	9%	11b
Erosion:	Present - Negligible to slight wind		
	Potential - Negligible to slight wind when cultivated		
Vegetation:	High producing pasture, cereal and forage crops, orchards	94%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12	16	14	20	17	24
	(10-12)		(12-16)		(15-22)	(20-31)
Nelson	9	12	15	20	17	25

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland
District:	Nel	Marl			Inv Dun
Site Index:	23		21-23		

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

2c 2

2c2

DESCRIPTION: Terraces and flood plains with moderately deep soils in inland districts with cool, moist climates.

GEOGRAPHICAL DISTRIBUTION: Southland Plains, minor extent south Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S161:159745

AREA: 65490 ha (0.43% of S.I.) +subdominant: 220 ha

NUMBER OF MAP UNITS: 76 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	87%	A
	4 - 8 degrees	13%	B
Rock type:	Greywacke alluvium,	56%	Lo/A1
	mostly with a loess cover	37%	A1
Soil:	Lowland yellow-brown	59%	33, 33a
	earths		
	Recent soils	34%	98f
	Brown granular loams and	7%	80
	clays to yellow-brown		
	earths intergrade		
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	High producing pasture,	100%	P1
	forage and cereal crops		

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10		17		20	
Otago	16		19		20	
Southland	16		19		22	

(15-18)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			22-23	23-25 23-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: The climate is a slight limiting factor to intensive cropping.

2e 1

2e1

DESCRIPTION: Terraces, fans and floodplains with deep soils in low rainfall districts. Liable to slight wind erosion.

GEOGRAPHICAL DISTRIBUTION: Canterbury, north-east Otago, Lake Hayes Basin in Central Otago, Wairau Valley and Plains in Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 62:555492

AREA: 72630 ha (0.48% of S.I.) + subdominant: 1220 ha

NUMBER OF MAP UNITS: 115 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	61%	A
	4 - 8 degrees	39%	B
Rock type:	Loess	54%	Lo/A1
	Schist and greywacke	35%	A1
	alluvium and colluvium		
Soil:	Yellow-grey earths	78%	20, 19a, 15, 14a
	Recent soils	20%	95, 96d, 93
Erosion:	Present -	Negligible to slight wind	
	Potential -	Slight wind when cultivated	
Vegetation:	High producing pasture,	99%	P1
	cereal and forage crops, orchards		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12 (11-14)	15	15 (13-16)	20	16 (15-17)	25
Nelson	10	15	17	25	20	25
Otago	9 (7- 9)	12 (15)	12	15	16	21

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-22		21-23	19-23

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: Unit is subject to summer soil moisture deficiencies.

2e 2

2e2

DESCRIPTION: Plains and terraces with deep soils in cool, moist climates. Liable to slight wind erosion.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury, Southland Plains.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S176:180249

AREA: 21900 ha (0.14% of S.I.) + subdominant: 2920 ha

NUMBER OF MAP UNITS: 12 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	92%	A
Rock type:	Alluvium, loess in places	64%	(Lo)/A1
		29%	Lo/A1
Soil:	Brown granular loams and clays to yellow-brown earths intergrade	82%	80
	Yellow-grey earths	17%	20a
Erosion:	Present - Negligible to slight wind		
	Potential - Slight wind when cultivated		
Vegetation:	High producing pasture, cereal and forage crops	99%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	11		15		17	
Otago	11		15		17	
Southland	17		20		22	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			22-23	23-25 22-25

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

2s 1

2s1

DESCRIPTION: Low terraces and floodplains with fertile, moderately deep soils in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Inland Southland, coastal Otago, minor extent in Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S164:210868

AREA: 17290 ha (0.11% of S.I.) + subdominant: 17620 ha

NUMBER OF MAP UNITS: 49 + subdominant: 15

INVENTORY FACTORS:

Slope:	0 - 3 degrees	98%	A
Rock type:	Alluvium from various rock types	95%	A1
Soil:	Recent soils	97%	98g, 98f 95c, 97
Erosion:	Present - Negligible to slight streambank and wind		
	Potential - Negligible to slight streambank and wind		
Vegetation:	High producing pasture, forage, cereal and horticultural crops	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, horticultural cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		15		20	
Nelson	10		15		20	
Otago	14		17		20	
	(13-16)					
Southland	14		18		20	
	(14-15)				(19-20)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			20-23	23-25 23-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

2s 2

2s2

DESCRIPTION: Low terraces and floodplains with fertile, moderately deep soils in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, minor extent on Nelson plains, coastal Marlborough, Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 83:839540

AREA: 71600 ha (0.47% of S.I.) + subdominant: 8980 ha

NUMBER OF MAP UNITS: 197 + subdominant: 16

INVENTORY FACTORS:

Slope:	0 - 3 degrees	95%	A
Rock type:	Alluvium from various rock types	93%	A1
Soil:	Recent soils	78%	96a, 95, 96c
	Yellow-grey earths	20%	14, 19a
Erosion:	Present - Negligible to slight wind		
	Potential - Negligible to slight wind when cultivated		
Vegetation:	High producing pasture, cereal, horticultural and forage crops, orchards	93%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, horticultural cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12	15	15	20	17	24
	(11-13)	(12-17)	(12-16)		(14-17)	(20-31)
Nelson	10	20	15		18	25
	(7-12)		(14-15)		(17-20)	(23-30)
Otago	9		13		16	20
	(8-10)				(10-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	30-34	23	20-22	20-22

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

2s 3

2s3

DESCRIPTION: Terraces with deep soils and compact, drainage-impered subsoils. Unit occurs in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, coastal Otago, inner Southland plains.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S163:984745

AREA: 107690 ha (0.71% of S.I.) + subdominant: 3830 ha

NUMBER OF MAP UNITS: 148 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	79%	A
	4 - 8 degrees	21%	B
Rock type:	Loess over alluvium from	70%	Lo/A1
	various rock types	20%	A1
Soil:	Yellow-grey earths	56%	18a, 18, 18b
	Yellow-grey to yellow-brown earths intergrade	41%	25c, 26, 25d
Erosion:	Present - Negligible to slight wind		
	Potential - Negligible to slight wind when cultivated		
Vegetation:	High producing pasture, cereal, forage and horticultural crops, orchards	96%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, horticultural cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	11	15	14	18	16	20
	(9-12)	(12-17)	(13-17)		(16-20)	(20-30)
Nelson	10		15		20	
Otago	11		15		17	
	(8-13)				(15-18)	
Southland	16		18		20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			20-22	22-24 21-23

SOIL CONSERVATION MEASURES: Windbreaks, drainage.

ADDITIONAL COMMENTS:

2w 1

2w1

DESCRIPTION: Floodplains and low-lying parts of terraces, with wet soils in winter, in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Nelson, coastal Marlborough, eastern Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:017798

AREA: 90630 ha (0.60% of S.I.) + subdominant: 7800 ha

NUMBER OF MAP UNITS: 282 + subdominant: 10

INVENTORY FACTORS:

Slope:	0 - 3 degrees	96%	A
Rock type:	Greywacke alluvium, alluvium and colluvium from marls, calcareous and glauconitic sandstones and limestones, peat, alluvium from greywacke, shales and igneous rocks	99%	A1
Soil:	Yellow-grey earths	34%	18f
	Gley soils	33%	89
	Gley recent soils	18%	90
	Recent soils	9%	-
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High producing pasture, cereal and forage crops, orchards	93%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Intensive cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	14 (13-17)	18 (17-20)	17 (15-18)	20 (18-22)	20 (18-22)	24 (22-25)
Nelson	12 (10-14)	20	16 (15-17)	25	22 (20-25)	26 (22-30)
Otago	10		12		20 (15)	22

Exotic forest growth potential (*P. radiata* site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel · Marl			Inv · Dun
Site Index:	26-30	23	20-22	20-22

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

2w 2

2w2

DESCRIPTION: Floodplains and low-lying parts of terraces, with wet soils in winter, in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south-east Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S163:959680

AREA: 27300 ha (0.18% of S.I.) + subdominant: 3740 ha

NUMBER OF MAP UNITS: 52 + subdominant: 6

INVENTORY FACTORS:

Slope:	0 - 3 degrees	98%	A
Rock type:	Alluvium from various rock types	99%	A1
Soil:	Gley recent soils	66%	90f, 90a, 90b
	Recent soils	31%	98f, 95c
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	High producing pasture, cereal and forage crops	100%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Intensive cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	14		17		20	
Otago	16		17		20	
Southland	15		19		22	
(20-22)						

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				19-22 19-22

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS: Unit is physically similar to 2w1, but occurs in cooler, moister districts.

3c 1

3c1

DESCRIPTION: Floodplains, low terraces and gently sloping fans with moderately deep soils in cold inland districts.

GEOGRAPHICAL DISTRIBUTION: Inland Marlborough, Canterbury, Otago, Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S145:659262

AREA: 15710 ha (0.10% of S.I.) + subdominant: 2830 ha

NUMBER OF MAP UNITS: 64 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	64%	A
	4 - 8 degrees	36%	B
Rock type:	Greywacke and schist	62%	A1
	alluvium	22%	Lo/A1
Soil:	Recent soils	60%	96, 96d, 98f
	Yellow-grey to yellow-brown earths integrate	14%	29b
	lowland yellow-brown earths	12%	35b
	Brown-grey earths	7%	2a
Erosion:	Present - Negligible to slight wind and streambank		
	Potential - Negligible to slight streambank, slight wind when cultivated		
Vegetation:	High and low producing	87%	P1
	pasture, forage and cereal crops	12%	P2

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10		13		16	
			(12-13)		(15-17)	
Nelson	5		15		17	
	(2-5)		(5-15)		(6-17)	
Otago	8		12		14	
	(5-10)				(13-15)	
Southland	11		14		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			22-25	20-24 15-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

3c 2

3c2

DESCRIPTION: Downs, terraces and floodplains in moderately high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Southland, northern Marlborough, central and north Westland, Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S24:444976

AREA: 124320 ha (0.82% of S.I.) + subdominant: 530 ha

NUMBER OF MAP UNITS: 306 + subdominant: 3

INVENTORY FACTORS:

Slope:	4 - 8 degrees	58%	B
	0 - 3 degrees	42%	A
Rock type:	Alluvium and loess from	44%	Lo/A1
	greywacke, schist and	33%	A1
	granite	12%	Lo/Hs
Soil:	Lowland yellow-brown	81%	33, 43d, 36c, 36e,
	earths		39, 37e, 34a
	Recent soils	10%	-
	Gley recent soils	7%	90f
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	High producing pasture,	95%	P1
	forage and cereal crops,		
	mixed scrub		

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, unimproved land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	13		18		24	
	(7-17)		(15-20)		(22-25)	
Otago	12		15		20	
Southland	12		19		21	
	(10-15)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	30-34	30-34	30-32	22-24	20-25	20-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: High summer rainfalls limit the types of crops which can be grown without artificial drying.

3c 3

3c3

DESCRIPTION: Flat to undulating terraces and fans with moderately deep to deep soils in a climate with very low rainfall and cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S133:987714

AREA: 19950 ha (0.13% of S.I.) + subdominant: 1350 ha

NUMBER OF MAP UNITS: 68 + subdominant: 5

INVENTORY FACTORS:

Slope:	0 - 3 degrees	71%	A
	4 - 8 degrees	29%	B
Rock type:	Schist and greywacke	60%	A1
	alluvium, loess in places	12%	A1+Lo
		10%	Lo/A1
Soil:	Yellow-grey earths	48%	6, 6b
	Brown-grey earths	39%	2, 2b, 2a
	Recent soils	13%	94a
Erosion:	Present - Slight wind		
	Potential - Slight to moderate wind when cultivated		
Vegetation:	High and low producing	68%	P1
	pasture, rushes and	32%	P2
	sedges, cereal and forage		
	crops, orchards		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Cropping, orcharding, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	6		10	12	10	18
	(5-8)				(8-10)	(15-20)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: Brown-grey earths in this unit are slightly to moderately salty.

3c 4

3c4

DESCRIPTION: Undulating to rolling uplands up to 500m a.s.l. in cold inland districts.

GEOGRAPHICAL DISTRIBUTION: Northern Southland, South Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S162:612726

AREA: 12620 ha (0.08% of S.I.) + subdominant: 780 ha

NUMBER OF MAP UNITS: 44 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	75%	C
	4 - 8 degrees	25%	B
Rock type:	Loess on schist and	40%	Lo/St1
	greywacke	18%	Lo/St2
Soil:	Upland and high country	83%	54e, 54b, 54f
	yellow-brown earths		
	Yellow-grey to yellow-brown earths intergrade	9%	29a
	Lowland yellow-brown earths	7%	36c
Erosion:	Present - Negligible to slight sheet and wind		
	Potential - Slight sheet and wind when cultivated		
Vegetation:	High and low producing	83%	P1
	pasture, red and fescue	13%	P3
	tussock associations,		
	forage crops, manuka and gorse		

PRESENT LAND USE: Intensive grazing, unimproved tussock, forage cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	10		11		14	
Southland	12		15		16	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				19-21 16-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

3e 1

3e1

DESCRIPTION: Rolling downs on hard limestone and basalt, with soils of high fertility, in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, north-east Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S136:471580

AREA: 2620 ha (0.02% of S.I.) + subdominant: 430 ha

NUMBER OF MAP UNITS: 11 + subdominant: 1

INVENTORY FACTORS:

Slope:	9 -15 degrees	59%	C
	4 - 8 degrees	41%	B
Rock type:	Limestone, basaltic	41%	Ls
	tuffs, loess in places	18%	Lo/Ls
		10%	Lo+Tb
Soil:	Rendzina and related soils	86%	71, 71a
	Brown granular loams and clays	14%	75d
Erosion:	Present - Slight sheet		
	Potential - Slight sheet and rill when cultivated		
Vegetation:	High producing pasture, horticultural and cereal crops	86%	P1

PRESENT LAND USE: Intensive grazing, horticultural cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		14		15	
Otago	8		12		15	22
	(4-9)				(8-15)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			21-24	20-23

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

3e 2

3e2

DESCRIPTION: Rolling downs on calcareous sandstone, with soils of high fertility.

GEOGRAPHICAL DISTRIBUTION: Minor extent in north-east Otago, Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S155:313061

AREA: 5150 ha (0.03% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 10

INVENTORY FACTORS:

Slope:	9 -15 degrees	100%	C
Rock type:	Calcareous sandstone,	46%	Ls
	loess in places	23%	Lo/Ss+Ls
		17%	Lo/Ls+Ms
		11%	Ss+Ls
Soil:	Rendzina and related soils	98%	7ld, 7lc
Erosion:	Present - Slight sheet		
	Potential - Slight sheet and rill when cultivated		
Vegetation:	High producing pasture, forage and cereal crops	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9		13		15	
Nelson	12		15		18	
Otago	9		13		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31		22-24	21-24

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

3e 3

3e3

DESCRIPTION: Undulating to rolling downs on calcareous sandstone, limestone and basalt, in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S159:995623

AREA: 3450 ha (0.02% of S.I.) + subdominant: 320 ha

NUMBER OF MAP UNITS: 13 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	69%	C
	4 - 8 degrees	16%	B
	0 - 3 degrees	16%	A
Rock type:	Calcareous sandstone	36%	Lo/Gw
	and limestone with dis-	25%	Ls
	continuous loess,	16%	Al
	tuffaceous greywacke	15%	Lo/Gw+In
Soil:	and basalt		
	Brown granular loams	58%	76, 76a
	and clays		
Erosion:	Rendzina and related	25%	73
	soils		
	Brown-grey earths	16%	4d
Vegetation:	Present - Negligible to slight sheet		
	Potential - Slight sheet and rill when cultivated		
Vegetation:	High producing pasture,	100%	P1
	forage and cereal crops		

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	12		13		19	
Southland	13		16		19	
(12-15)						

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				23-25 23-25

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

3e 4

3e4

DESCRIPTION: Undulating to rolling downs, mainly in districts with cool winters and periods of seasonal moisture deficiency. The soils, formed on loess, have compact subsoils and impeded drainage.

GEOGRAPHICAL DISTRIBUTION: Central Southland, Otago, North Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 75:456682

AREA: 53130 ha (0.35% of S.I.) + subdominant: 2450 ha

NUMBER OF MAP UNITS: 85 + subdominant: 4

INVENTORY FACTORS:

Slope:	9 -15 degrees	65%	C
	4 - 8 degrees	35%	B
Rock type:	Loess on tuffaceous sandstone, greywacke and schist, alluvium	46%	Lo/Gw
		17%	Lo/Gw+Ms
Soil:	Yellow-grey earths	99%	23, 23a, 20a, 23b
Erosion:	Present - Negligible to slight sheet and wind		
	Potential - Slight to moderate sheet, wind and rill when cultivated		
Vegetation:	High producing pasture, forage and cereal crops, some gorse and broom	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	11		15		16	
	(10-13)		(14-15)		(15-17)	
Otago	12		16		18	
	(10-13)		(14-16)		(16-20)	
Southland	12		14		17	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			20-23	20-25 20-25

SOIL CONSERVATION MEASURES: Contour cultivation and contour works, windbreaks.

ADDITIONAL COMMENTS:

3e 5

3e5

DESCRIPTION: Flat to undulating plains with moderately deep soils, occurring in gorge areas or adjacent to major rivers. Moderate wind erosion potential when cultivated.

GEOGRAPHICAL DISTRIBUTION: Canterbury, Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 75:475768

AREA: 45330 ha (0.30% of S.I.) + subdominant: 1020 ha

NUMBER OF MAP UNITS: 66 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	95%	A
Rock type:	Loess, greywacke alluvium	72%	A1
		23%	Lo/A1
Soil:	Yellow-grey earths	64%	13a, 13c, 14, 13b, 14c,
	Recent soils	36%	93a, 96a, 95,
Erosion:	Present - Slight to moderate wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High producing pasture, forage and cereal crops	98%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	11		14		16	
	(8-14)		(11-17)		(13-20)	
Nelson	7		10		17	25
Southland	11		14		16	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	18-22		18-22	

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: Foehn winds aggravate seasonal moisture deficiencies.

3e 6

3e6

DESCRIPTION: Undulating to rolling downs on weathered gravels with low fertility soils in mild, moist districts.

GEOGRAPHICAL DISTRIBUTION: Nelson, Motueka.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 14:446305

AREA: 5390 ha (0.04% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 51

INVENTORY FACTORS:

Slope:	9 -15 degrees	81%	C
	4 - 8 degrees	19%	B
Rock type:	Greywacke alluvium, loess	94%	A1
Soil:	Yellow-grey to yellow-brown earths intergrade	81%	32, 30a
	Lowland yellow-brown earths	18%	33g, 37bH
Erosion:	Present - Slight sheet and soil slip		
	Potential - Slight sheet and soil slip, moderate sheet and rill when cultivated		
Vegetation:	High producing pasture,	64%	P1
	orchards, exotic forest, minor gorse	27%	L2

PRESENT LAND USE: Intensive grazing, orcharding, production forestry, reverted land.

POTENTIAL LAND USE: Orcharding, cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		15		18	
					(17-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	23-25			

SOIL CONSERVATION MEASURES: Contour cultivation and contour works.

ADDITIONAL COMMENTS:

3e 7

3e7

DESCRIPTION: Flat to undulating terraces and plains, with soils of low fertility, in foothill situations with cool to cold winters and moderate rainfall.

GEOGRAPHICAL DISTRIBUTION: Western Southland, inland Canterbury, Wairau Valley in Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 82:251575

AREA: 38960 ha (0.26% of S.I.) + subdominant: 1740 ha

NUMBER OF MAP UNITS: 111 + subdominant: 3

INVENTORY FACTORS:

Slope:	0 - 3 degrees	63%	A
	4 - 8 degrees	35%	B
Rock type:	Greywacke alluvium,	61%	A1
	loess in places	24%	(Lo)/A1
		12%	Lo/A1
Soil:	Lowland yellow-brown earths	40%	33b, 33c
	Yellow-grey to yellow-brown earths intergrade	31%	27, 27e
	Brown granular loams and clays to yellow-brown earths intergrade	10%	80a
	Recent soils	10%	95a
	Yellow-brown loams	9%	84
Erosion:	Present - Slight wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High and low producing pasture, forage crops,	84%	P1
	manuka scrub	10%	P2

PRESENT LAND USE: Intensive grazing, forage cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		15		18	
	(10-14)		(14-17)		(16-21)	
Nelson	7		10		15	20
Southland	12		15		16	
					(15-17)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-24		19-23	18-24

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

3e 8

3e8

DESCRIPTION: Undulating to rolling loess-covered alluvium and sandstone in seasonally moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: Coastal Marlborough, eastern north and south Canterbury, coastal north Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S68:124179

AREA: 133190 ha (0.88% of S.I.) + subdominant: 21180 ha

NUMBER OF MAP UNITS: 306 + 34

INVENTORY FACTORS:

Slope:	9 -15 degrees	66%	C
	4 - 8 degrees	30%	B
Rock type:	Loess over greywacke	37%	Lo/A1
	gravels and sandstone	11%	A1
Soil:	Yellow-grey earths	100%	15, 20, 21, 15c, 20c, 15e
Erosion:	Present - Slight sheet and wind		
	Potential - Slight sheet and wind, moderate sheet, rill and wind when cultivated		
Vegetation:	High and low producing pasture, cereal and forage crops, minor gorse	100%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9 (9-11)		14 (12-16)		16 (13-18)	
Nelson	7		10		14 (12-16)	20
Otago	8 (7-8)		11 (10-11)		15 (12-15)	20

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	22-24		19-23	19-23

SOIL CONSERVATION MEASURES: Contour cultivation and contour works, windbreaks.

ADDITIONAL COMMENTS:

3e 9

3e9

DESCRIPTION: Undulating to rolling downs on calcareous rocks in mild, wet districts.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 12:588355.

AREA: 280 ha (0.00% of S.I.) + subdominant: 280 ha

NUMBER OF MAP UNITS: 7 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	64%	C
	4 - 8 degrees	36%	B
Rock type:	Calcareous sandstone	29%	A1
	and mudstone	24%	Ms+Ls
		23%	Ss+Ms
		16%	Ms
Soil:	Lowland yellow-brown earths	100%	44,
Erosion:	Present - Negligible to slight soil slip		
	Potential - Slight soil slip, slight to moderate sheet and rill when cultivated		
Vegetation:	High and low producing pasture, gorse and bracken fern	90%	P1
		10%	M8

PRESENT LAND USE: Intensive grazing, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		12		20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	27-31	30-32		

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

3e10

3e10

DESCRIPTION: Undulating to rolling downs with loessial soils in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south-east Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S183:789794

AREA: 83170 ha (0.55% of S.I.) + subdominant: 1810 ha

NUMBER OF MAP UNITS: 184 + subdominant: 3

INVENTORY FACTORS:

Slope:	9 -15 degrees	68%	C
	4 - 8 degrees	33%	B
Rock type:	Loess on tuffaceous greywacke and sandstone	44%	Lo/Hs
Soil:	Lowland yellow-brown earths	100%	36c, 36e, 36, 39, 35
Erosion:	Present - Negligible to slight sheet		
	Potential - Slight sheet and rill when cultivated		
Vegetation:	High and low producing pasture, forage crops, red and short tussock, gorse and mixed native scrub, exotic forest	96%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, reverted land, production forestry.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	12		15		19	
	(10-13)				(18-20)	
Southland	12		15		19	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				22-25 22-25

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS: Grain ripening is difficult due to cool, moist summers.

3ell

3ell

DESCRIPTION: Flat to undulating terraces and fans with soils of high to medium fertility. Annual rainfall is low.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S135:805640

AREA: 30850 ha (0.20% of S.I.) + subdominant: 2460 ha

NUMBER OF MAP UNITS: 95 + subdominant: 10

INVENTORY FACTORS:

Slope:	4 - 8 degrees	55%	B
	0 - 3 degrees	45%	A
Rock type:	Greywacke and schist	62%	A1
	alluvium, loess in places	25%	Lo/A1
Soil:	Brown-grey earths	50%	2f, 2e, 1b
	Yellow-grey earths	45%	15a, 6b, 8b
	Recent soils	5%	-
Erosion:	Present - Slight wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High and low producing pasture, cereal and	69%	P1
	forage crops, scattered	28%	P2
	matagouri and sweetbriar		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5	12	8	15	11	20
	(5-6)		(6-8)		(9-12)	(18-20)
Otago	6		8	15	10	20

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Unit is subject to cold winters, dry summers and frequent strong winds. Most brown-grey earths in this unit are slightly to moderately salty.

3e12

3e12

DESCRIPTION: Undulating to rolling downs with loessial soils in cool, moist foothill districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south Otago, inland and north Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 82:308592

AREA: 119220 ha (0.79% of S.I.) + subdominant: 7910 ha

NUMBER OF MAP UNITS: 334 + subdominant: 28

INVENTORY FACTORS:

Slope:	9 -15 degrees	66%	C
	4 - 8 degrees	33%	B
Rock type:	Loess over mainly	30%	Lo/A1
	alluvium, some greywacke,	20%	Lo/Gw
	schist, mudstone and	10%	Lo/St1
	sandstone		
Soil:	Yellow-grey to yellow-brown earths intergrade	99%	28c, 28b, 29d, 29, 29a
Erosion:	Present -	Negligible to slight sheet and wind	
	Potential -	Slight sheet and wind, moderate sheet, rill and wind when cultivated	
Vegetation:	High and low producing pasture, forage and cereal crops, short tussock associations, gorse and manuka	97%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10		12		15	
	(7-12)		(9-14)		(10-16)	
Nelson	10		12		20	
Otago	12		16		18	
	(9-14)				(15-20)	
Southland	13		18		20	
	(11-14)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:		22		22-25	20-24	20-24

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

3e13

3e13

DESCRIPTION: Undulating to rolling downs with soils of medium to high fertility. Unit has very dry summers and cold winters.

ALTITUDE ZONE: Lowland-lower montane

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki.

TYPICAL LOCALITY: S145:943473

AREA: 24040 ha (0.16% of S.I.) + subdominant: 1770 ha

NUMBER OF MAP UNITS: 76 + subdominant: 6

INVENTORY FACTORS:

Slope:	4 - 8 degrees	68%	B
	9 -15 degrees	27%	C
Rock type:	Loess on schist and	48%	A1
	greywacke gravels,	23%	Ss+Ms
	mudstone and sandstone	15%	Lo/A1
Soil:	Brown-grey earths	55%	4d
	Yellow-grey earths	44%	15a, 8c
Erosion:	Present - Slight sheet and wind		
	Potential - Slight sheet and wind, moderate sheet, wind and rill when cultivated		
Vegetation:	Low and high producing	58%	P2
	pasture, forage and	41%	P1
	cereal crops, scattered matagouri		

PRESENT LAND USE: Semi-intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		8		10	
Otago	6		11		11	
	(4-10)				(7-12)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Contour cultivation, windbreaks.

ADDITIONAL COMMENTS:

3e 14

3e14

DESCRIPTION: Rolling downs with soils of low fertility in foothill situations, with cool to cold winters and a moderate rainfall.

GEOGRAPHICAL DISTRIBUTION: Western Southland, minor extent in inland Canterbury and Kaikoura.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S168:950553

AREA: 7530 ha (0.05% of S.I.) + subdominant: 2080 ha

NUMBER OF MAP UNITS: 24 + subdominant: 8

INVENTORY FACTORS:

Slope:	9 -15 degrees	56%	C
	4 - 8 degrees	43%	B
Rock type:	Loess on schist and	24%	Lo/A1
	greywacke gravels,	24%	Lo/Ms
	mudstone and sandstone	19%	A1
		16%	Lo/Ss+Ms
Soil:	Yellow-grey to yellow-brown earths intergrade	63%	32b, 25e
	Lowland yellow-brown earths	37%	36d, 35b
Erosion:	Present - Slight sheet and wind		
	Potential - Slight sheet and wind, moderate sheet, rill and wind when cultivated		
Vegetation:	High and low producing pasture, cereal crops,	84%	P1
	short tussock associations, manuka scrub	10%	P2

PRESENT LAND USE: Semi-intensive grazing, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		15		17	
Nelson	5		10		15	
Southland	13		13		18	

(15-19)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			19-23	22-25

SOIL CONSERVATION MEASURES: Contour cultivation, windbreaks.

ADDITIONAL COMMENTS: Unit occurs in higher and colder situations than 3e12.

3e15

3e15

DESCRIPTION: Flat to undulating terraces and fans in the cold tussock-covered high country.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, Te Anau Basin, minor extent in western Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 73:889821

AREA: 19030 ha (0.13% of S.I.) + subdominant: 220 ha

NUMBER OF MAP UNITS: 70 + subdominant: 1

INVENTORY FACTORS:

Slope:	4 - 8 degrees	53%	B
	0 - 3 degrees	41%	A
Rock type:	Greywacke gravels, loess	71%	A1
	in places	21%	(Lo)/A1
Soil:	Upland and high country	67%	53d, 48, 50
	yellow-brown earths		
	Recent soils	28%	99, 99a
Erosion:	Present - Slight wind and sheet		
	Potential - Slight wind and sheet, moderate wind and slight sheet when cultivated		
Vegetation:	High and low producing	64%	P1
	pasture, short and red	27%	P2
	tussock associations, with scattered matagouri scrub, forage crops		

PRESENT LAND USE: Semi-intensive grazing, forage cropping.

POTENTIAL LAND USE: Cropping, semi-intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		12		14	
	(2-10)		(9-15)		(12-15)	
Otago	9		9		15	
Southland	10		14		16	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			15-20	18-22 15-18

SOIL CONSERVATION MEASURES: Windbreaks, contour cultivation, ensure complete ground cover during winter.

ADDITIONAL COMMENTS: Frost lift is a problem when bare ground is exposed during winter periods.

3s 1

3s1

DESCRIPTION: Terraces and plains with moderately shallow and stony soils of medium to high fertility, in mild districts.

GEOGRAPHICAL DISTRIBUTION: Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 20:500194

AREA: 3510 ha (0.02% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 8

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium from various rock types	100%	A1
Soil:	Yellow-grey to yellow-brown earths intergrade	100%	27d, 27c
Erosion:	Present - Negligible to slight streambank Potential - Negligible to slight wind when cultivated		
Vegetation:	High producing pasture, cereal and horticultural crops, orchards	100%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, horticultural cropping, orcharding.

POTENTIAL LAND USE: Cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	11	15	12	20	13	24
			(11-12)		(12-14)	(23-25)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	27-31			

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Unit is subject to seasonal soil moisture deficiencies.

3s 2

3s2

DESCRIPTION: Floodplains and low terraces with moderately shallow, stony or sandy soils. Unit occurs often in cool climates.

GEOGRAPHICAL DISTRIBUTION: Nelson, Canterbury, Southland, south Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 54:161754

AREA: 49970 ha (0.33% of S.I.) + subdominant: 20260 ha

NUMBER OF MAP UNITS: 156 + 36

INVENTORY FACTORS:

Slope:	0 - 3 degrees	96%	A
Rock type:	Alluvium from various rock types	98%	A1
Soil:	Recent soils	98%	98f, 98g, 96d, 98c
Erosion:	Present - Negligible to slight wind and streambank		
	Potential - Slight streambank and deposition, slight wind when cultivated		
Vegetation:	High and low producing pasture, forage, cereal and horticultural crops, gorse	96%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, horticultural cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10		13 (12-14)		16 (15-17)	
Nelson	11 (10-12)		12		18 (16-20)	
Otago	12 (10-15)		16		18 (15-19)	
Southland	13 (12-14)		16		17 (16-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	30-34	30-34		20-22	21-24	20-22

SOIL CONSERVATION MEASURES: Streambank protection.

ADDITIONAL COMMENTS:

3s 3

3s3

DESCRIPTION: Flat to undulating terraces and plains with moderately shallow and/or stony soils in cool, moist foothill districts.

GEOGRAPHICAL DISTRIBUTION: Nelson, Marlborough, Canterbury, minor extent in Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 26:177955

AREA: 80970 ha (0.54% of S.I.) + subdominant: 17080 ha

NUMBER OF MAP UNITS: 214 + subdominant: 13

INVENTORY FACTORS:

Slope:	0 - 3 degrees	76%	A
	4 - 8 degrees	24%	B
Rock type:	Alluvium from greywacke	81%	A1
	and tuffaceous greywacke, loess in places	12%	(Lo)/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	63%	27, 27e
	Lowland yellow-brown earths	22%	33g
	Brown granular loams and clays to yellow-brown earths intergrade	12%	80a
Erosion:	Present - Negligible to slight wind		
	Potential - Slight to moderate wind when cultivated		
Vegetation:	High and low producing pasture, cereal and horticultural crops, orchards	96%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, horticultural cropping, orcharding.

POTENTIAL LAND USE: Cropping, orcharding, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	13 (12-14)		17 (15-17)		19 (18-20)	
Nelson	5		13		16	27
Otago	13		17		19	
Southland	13		15		18	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland
District:	Nel	Marl			Inv Dun
Site Index:	27-31	20-24		19-22	21-24

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Similar to unit 3e7, but with shallower and more stony soils.

3s 4

3s4

DESCRIPTION: Floodplains with shallow and/or stony soils of medium to high fertility, but with a relatively high water table.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S124:067063

AREA: 10180 ha (0.07% of S.I.) + subdominant: 2410 ha

NUMBER OF MAP UNITS: 43 + subdominant: 7

INVENTORY FACTORS:

Slope:	0 - 3 degrees	81%	A
	4 - 8 degrees	19%	B
Rock type:	Alluvium from schist and greywacke, loess in places	100%	A1
Soil:	Recent soils	100%	94a, 94, 95c, 96
Erosion:	Present - Negligible to slight wind		
	Potential - Negligible to slight wind, slight wind when cultivated		
Vegetation:	High and low producing pasture, cereal and forage crops, orchards, scattered matagouri	63%	P1
		36%	P2

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, orcharding.

POTENTIAL LAND USE: Cropping, orcharding, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7		10		11	18
	(4-9)				(8-12)	(15-20)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Many soils in the semi-arid regions are salty.

3s 5

3s5

DESCRIPTION: Moderately shallow and/or stony soils on plains and terraces, in the summer moisture-deficient eastern districts.
 GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, north Canterbury, north-east Otago, minor extent on Wairau Plain in Marlborough.
 ALTITUDE ZONE: Lowland
 TYPICAL LOCALITY: S128:585902
 AREA: 249130 ha (1.65% of S.I.) + subdominant: 69680 ha
 NUMBER OF MAP UNITS: 349 + subdominant: 32

INVENTORY FACTORS:

Slope:	0 - 3 degrees	96%	A
Rock type:	Alluvium from greywacke and schist, loess in places	93%	A1
Soil:	Yellow-grey earths	58%	13, 14
	Recent soils	38%	96c, 96a
Erosion:	Present - Negligible to slight wind		
	Potential - Slight wind, slight to moderate wind when cultivated		
Vegetation:	High producing pasture, cereal and forage crops	99%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9 (7-10)	15	11 (8-14)	18	13 (13-15)	22
Nelson	6 (5-7)		13 (10-15)		15	20 (20-25)
Otago	8	15	12	18	13	22
Southland	13		16		18	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20		17-20	20-23 17-20

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: This unit occurs in a milder environment than 3s4, and has more mature soils.

3s 6

3s6

DESCRIPTION: Moderately shallow and/or stony soils of medium to high fertility on plains and terraces in dry inland areas with cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S135:937582

AREA: 30680 ha (0.20% of S.I.) + subdominant: 9590 ha

NUMBER OF MAP UNITS: 160 + subdominant: 29

INVENTORY FACTORS:

Slope:	0 - 3 degrees	49%	A
	4 - 8 degrees	48%	B
Rock type:	Alluvium from greywacke	74%	A1
	and schist, loess in patches	11%	(Lo)/A1
		11%	Lo/A1
Soil:	Brown-grey earths	59%	2, 2a, 2b, 1a
	Yellow-grey earths	30%	6a, 9c, 6b, 6
	Recent soils	8%	94
Erosion:	Present - Slight wind		
	Potential - Slight wind, slight to moderate wind when cultivated		
Vegetation:	High and low producing	53%	P1
	pasture, orchards,	42%	P2
	cereal crops		

PRESENT LAND USE: Intensive grazing, orcharding, cereal cropping.

POTENTIAL LAND USE: Orcharding, cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	5	10	7	14	10	20

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: Brown-grey earths of this unit are slightly to moderately salty. The recent soils in this unit were mapped on low terraces in Soil Bureau detailed surveys.

3s 7

3s7

DESCRIPTION: Moderately shallow and/or stony soils on plains and terraces in cool to cold, moist inland districts.

GEOGRAPHICAL DISTRIBUTION: Western Southland, minor extent in inland Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S150:919040

AREA: 23120 ha (0.15% of S.I.) + subdominant: 3790 ha

NUMBER OF MAP UNITS: 53 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	83%	A
	4 - 8 degrees	18%	B
Rock type:	Alluvium from greywacke	84%	A1
	and tuffaceous greywacke, loess in places	13%	(Lo)/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	53%	27b, 27a
	Brown granular loams and clays to yellow-brown earths intergrade	30%	80a, 80
	Lowland yellow-brown earths	11%	33b
Erosion:	Present - Negligible to slight wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High and low producing pasture, cereal and forage crops, exotic forest	77%	P1

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping, exotic forestry.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	7 (5-7)		10 (7-10)		11 (11-12)	
Otago	2		11		13	
Southland	12 (11-13)		14		19 (17-20)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			20-25	20-23 18-22

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: This unit occurs in higher and colder situations than unit 3s3.

3s 8

3s8

DESCRIPTION: Flood plains with moderately shallow, stony or sandy soils in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson, Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 45:114068

AREA: 9940 ha (0.07% of S.I.) + subdominant: 2290 ha

NUMBER OF MAP UNITS: 38 + 3

INVENTORY FACTORS:

Slope:	0 - 3 degrees	74%	A
	4 - 8 degrees	26%	B
Rock type:	Alluvium from greywacke, granite and schist	100%	A1
Soil:	Recent soils	90%	99c, 99b
	Gley recent soils	10%	91
Erosion:	Present - Negligible to moderate streambank and deposition		
	Potential - Slight to moderate streambank and deposition		
Vegetation:	High and low producing pasture, rushes and sedges, gorse	99%	P1

PRESENT LAND USE: Intensive grazing, reverted and undeveloped land.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	16		23		25	
	(14-17)		(18-25)			

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	30-32	30-32		

SOIL CONSERVATION MEASURES: Streambank protection.

ADDITIONAL COMMENTS:

3s 9

3s9

DESCRIPTION: Flood plains with moderately shallow and stony soils in the summer moisture-deficient eastern districts. Liable to occasional surface flooding and deposition.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, coastal Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:945688

AREA: 28820 ha (0.19% of S.I.) + subdominant: 2130 ha

NUMBER OF MAP UNITS: 127 + subdominant: 7

INVENTORY FACTORS:

Slope:	0 - 3 degrees	88%	A
	4 - 8 degrees	12%	B
Rock type:	Greywacke alluvium, loess in places	99%	A1
Soil:	Recent soils	100%	95a, 95, 96d
Erosion:	Present - Negligible to slight wind and streambank		
	Potential - Slight streambank and wind, slight to moderate wind when cultivated		
Vegetation:	High and low producing pasture, cereal and forage crops	88%	P1

PRESENT LAND USE: Intensive to semi-intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9	15	11	17	12	20
	(9-10)	(13-16)	(9-12)	(15-19)	(9-14)	(16-23)
Nelson	6		12		19	
	(5-7)		(10-15)		(15-22)	
Otago	4		4		8	18

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	20			18-20		18-20

SOIL CONSERVATION MEASURES: Windbreaks, streambank protection.

ADDITIONAL COMMENTS:

3s10

3s10

DESCRIPTION: Terraces and gentle fans with moderately shallow, stony soils of low fertility, but not podzolised, in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: North Westland, north-west Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 25:704702

AREA: 10160 ha (0.07% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 53

INVENTORY FACTORS:

Slope:	0 - 3 degrees	60%	A
	4 - 8 degrees	40%	B
Rock type:	Greywacke and granite alluvium	99%	A1
Soil:	Lowland yellow-brown earths	100%	43c, 43a, 43
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	High and low producing pasture, rushes and sedges, bracken fern and gorse	87%	P1
		10%	P2

PRESENT LAND USE: Intensive grazing, reverted and undeveloped land.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	15		25		25	
	(12-17)		(16-25)		(20-25)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	30	30		

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

3s11

3s11

DESCRIPTION: Salt lake and lagoon margins with slightly to moderately saline soils, in summer moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: Coastal Canterbury, Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 94:018267

AREA: 5650 ha (0.04% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 12

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke alluvium	100%	A1
Soil:	Saline gley recent soils	89%	92
	Gley recent soils	11%	90
Erosion:	Present - Negligible		
	Potential - Negligible to slight wind when cultivated		
Vegetation:	High and low producing	68%	P1
	pasture, cereal and	32%	P2
	forage crops, salt-tolerant herbaceous associations		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9	15	13		17	22
Nelson	16		20		30	37

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	20-22		18-22	Dun

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

3s12

3s12

DESCRIPTION: High terraces and plains with soils of low fertility and generally impeded drainage.

GEOGRAPHICAL DISTRIBUTION: Inland Southland, south-east Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S160:379748

AREA: 76420 ha (0.51% of S.I.) + subdominant: 4220 ha

NUMBER OF MAP UNITS: 122 + 1

INVENTORY FACTORS:

Slope:	4 - 8 degrees	61%	B
	0 - 3 degrees	39%	A
Rock type:	Loess from schist and greywacke on gravels and sand	41%	A1
		41%	Lo/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	70%	25b, 28c, 26, 29d, 26a
	Yellow-grey earths	30%	19b, 21c
Erosion:	Present - Negligible to slight wind		
	Potential - Negligible to slight wind		
Vegetation:	High producing pasture, forage and cereal crops	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Otago	14		17		18	
Southland	11		15		17	
	(8-13)				(15-17)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				22-25 22-25

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

3w 1

3w1

DESCRIPTION: Floodplains and low terraces with a moderately high water table, in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury, minor extent in Nelson, Marlborough, Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:018776

AREA: 21880 ha (0.14% of S.I.) + subdominant: 3060 ha

NUMBER OF MAP UNITS: 90 + subdominant: 7

INVENTORY FACTORS:

Slope:	0 - 3 degrees	90%	A
	4 - 8 degrees	10%	B
Rock type:	Greywacke alluvium	94%	A1
Soil:	Gley soils	45%	89, 89a, 89d
	Recent soils	21%	98e, 95
	Gley recent soils	19%	90, 90d
	Yellow-grey earths	7%	-
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	High and low producing	83%	P1
	pasture, cereal and	11%	P2
	forage crops, rushes and sedges		

PRESENT LAND USE: Intensive grazing, cereal cropping, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		16		17	
Nelson	10	20	15	20	18	25
	(7-12)		(12-15)		(17-25)	
Otago	7		11		13	
	(5-8)		(8-12)		(10-14)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	28	28		18-20		17-20

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

3w 2

3w2

DESCRIPTION: Flat, low-lying areas with organic soils on peat, in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Christchurch vicinity.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S103:125989

AREA: 2230 ha (0.01% of S.I.) + subdominant 0 ha

NUMBER OF MAP UNITS: 6

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Peat, alluvium	96%	A1
		-	Pt
Soil:	Organic soils	100%	86a, 86
Erosion:	Present -	Negligible to slight wind	
	Potential -	Negligible to moderate wind when cultivated	
Vegetation:	High producing pasture,	96%	P1
	cereal crops		

PRESENT LAND USE: Intensive grazing, cereal cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	15	16	16	18	17	20
	(14-15)		(15-17)			

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			18-20	

SOIL CONSERVATION MEASURES: Control of water-table levels is critical. Windbreaks.

ADDITIONAL COMMENTS:

3w 3

3w3

DESCRIPTION: Floodplains and low terraces with a moderately high water table, in cool, moist to wet districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south Otago, minor extent in inland Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 75:645882

AREA: 59750 ha (0.39% of S.I.) + subdominant: 15280 ha

NUMBER OF MAP UNITS: 190 + subdominant: 24

INVENTORY FACTORS:

Slope:	0 - 3 degrees	97%	A
Rock type:	Alluvium from greywacke and schist, loess in places	95%	A1
Soil:	Gley soils	49%	89e, 89f
	Gley recent soils	43%	90f, 90b
	Recent soils	7%	-
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High and low producing pasture, forage and cereal crops, rushes and sedges, gorse	94%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping, reverted land.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10 (7-13)		13 (10-16)		18 (17-18)	
Nelson	17		20		25	
Otago	13 (13-15)		17		20 (18-21)	
Southland	13 (11-14)		14		20 (16-20)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	30	30	30	16-18	17-20	17-20

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

3w 4

3w4

DESCRIPTION: Flat, low-lying areas with organic soils on peat in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S182:382951

AREA: 3580 ha (0.02% of S.I.) + subdominant: 200

NUMBER OF MAP UNITS: 12 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Peat	49%	Pt/A1
		49%	A1
Soil:	Organic soils	100%	86c, 86b
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High and low producing pasture, rushes and sedges, forage crops	100%	P1

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Cropping, intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	15		16		19	
Southland	12				20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				17-20 17-20

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

4c 1

4c1

DESCRIPTION: Flat to rolling terraces, moraines and fans with moderately deep soils in cold, high country environments. Climate shortens the growing season and severely restricts cropping.

GEOGRAPHICAL DISTRIBUTION: Upper Buller, Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 33:274689

AREA: 7380 ha (0.05% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 27

INVENTORY FACTORS:

Slope:	4 - 8 degrees	69%	B
	0 - 3 degrees	28%	A
Rock type:	Alluvium from greywacke and shales, loess in places	97%	A1
Soil:	Upland and high country yellow-brown earths	65%	52, 52a, 53b
	Lowland yellow-brown earths	33%	45a
Erosion:	Present - Negligible to slight wind and sheet		
	Potential - Negligible to slight sheet and wind, slight to moderate wind and sheet when cultivated		
Vegetation:	Low and high producing pasture, beech forest,	53%	P2
	short tussock associations	40%	N4

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	8		8		10	
Otago	4				11	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	25-28		15-20	15-18

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Soils are bouldery in places.

4c 2

4c2

DESCRIPTION: Undulating to rolling slopes with moderately deep soils in cold upland districts. Climate reduces potential dry matter yield and severely restricts cropping.

GEOGRAPHICAL DISTRIBUTION: Eastern Otago, Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S163:819862

AREA: 77870 ha (0.51% of S.I.) + subdominant: 5090 ha

NUMBER OF MAP UNITS: 186 + subdominant: 9

INVENTORY FACTORS:

Slope:	9 -15 degrees	57%	C
	4 - 8 degrees	39%	B
Rock type:	Loess on various rock types	70%	(Lo)/St2
Soil:	Upland and high country yellow-brown earths	63%	54b, 54c, 54f, 54e
	Yellow-grey earths	31%	23e
Erosion:	Present - Negligible to slight wind and sheet		
	Potential - Slight wind and sheet when cultivated		
Vegetation:	High and low producing pasture, short tussock associations, forage crops	40%	P1
		34%	P2
		18%	P3

PRESENT LAND USE: Semi-intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	7		10		15	
Otago	7		10		13	
					(8-13)	
Southland	10		12		13	
					(13-14)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				19-22	18-20	15-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4c 3

4c3

DESCRIPTION: Flat to undulating flood plains, fans, and low terraces in districts where high rainfall severely restricts cropping.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 58:584328

AREA: 43380 ha (0.29% of S.I.) + subdominant: 530 ha

NUMBER OF MAP UNITS: 180 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	79%	A
	4 - 8 degrees	18%	B
Rock type:	Alluvium from various rock types	99%	A1
Soil:	Lowland yellow-brown earths	35%	43c, 43
	Gley recent soils	35%	91
	Recent soils	30%	99b
Erosion:	Present - Negligible to moderate streambank		
	Potential - Slight to moderate streambank		
Vegetation:	High and low producing pasture, reverted scrub	60%	P1
	land, podocarp forest,	17%	P2
	beech forest	12%	N3a

PRESENT LAND USE: Semi-intensive to intensive grazing, reverted and undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	13		19		22	
			(16-19)			

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	32	30-32		

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

4e 1

4e1

DESCRIPTION: Rolling to strongly rolling downs with high fertility soils on calcareous rocks.

GEOGRAPHICAL DISTRIBUTION: Nelson, north Canterbury, north-east Otago and Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 20:445124

AREA: 7520 ha (0.05% of S.I.) + subdominant: 2130 ha

NUMBER OF MAP UNITS: 29 + subdominant: 11

INVENTORY FACTORS:

Slope:	9 -15 degrees	59%	C
	16-20 degrees	41%	D
Rock type:	Limestone, calcareous	52%	Ls
	mudstone and sandstone	13%	(Lo)/Ss
		11%	Hs+Ar
		10%	(Lo)/Ls
Soil:	Rendzina and related soils	99%	71a, 73, 71c, 71e, 73bH, 71H
Erosion:	Present -	Negligible to slight sheet and soil slip	
	Potential -	Slight sheet and soil slip, slight to moderate sheet, rill and wind when cultivated	
Vegetation:	High producing pasture, forage crops	98%	P1

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		14		15	
Nelson	10		11		15	
					(15-16)	
Otago	5		9		11	
Southland	14				17	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31		21-24	23-25 21-23

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

4e 2

4e2

DESCRIPTION: Rolling to strongly rolling downs with volcanic soils which are moderately fertile and well structured. Unit generally occurs in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Otago Peninsula, inland Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S164:186699

AREA: 6160 ha (0.04% of S.I.) + 5960 ha

NUMBER OF MAP UNITS: 35 + subdominant: 29

INVENTORY FACTORS:

Slope:	9 -15 degrees	73%	C
	16-20 degrees	24%	D
Rock type:	Basalt, tuffaceous	30%	Lo/Vo
	greywacke, loess in places	27%	Lo/Gw+In
		13%	(Lo)/Vo
Soil:	Brown granular loams and clays	84%	76, 75c, 76a, 75bH
	Brown granular loams and clays to yellow-brown earths inter-grade	15%	81d
Erosion:	Present	-	Slight sheet and soil slip
	Potential	-	Slight sheet and soil slip, moderate sheet and rill when cultivated
Vegetation:	High and low producing	74%	P1
	pasture, forage crops, mixed native scrub, gorse	20%	P2

PRESENT LAND USE: Intensive grazing, forage cropping, reverted land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		8		15	
Nelson	10		14		16	
Otago	8		10		15	
Southland	10				15	

(7-12)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	28-32		20	22-25 22-25

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS: Unit includes small areas of rock outcrops.

4e 3

4e3

DESCRIPTION: Rolling to strongly rolling downs with mainly loessial soils on various rock types in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland, coastal Otago, minor extent in inland Canterbury, Banks Peninsula and Marlborough.

ALTITUDE ZONE: Lowland-Lower montane

TYPICAL LOCALITY: S170:939438

AREA: 118820 ha (0.79% of S.I.) + subdominant: 67690 ha

NUMBER OF MAP UNITS: 429 + subdominant: 147

INVENTORY FACTORS:

Slope:	9 -15 degrees	65%	C
	16-20 degrees	35%	D
Rock type:	Loess on gravels,	-	-
	sandstone, tuffaceous greywacke and schist, gravels		
Soil:	Lowland yellow-brown earths	52%	36c, 36
	Yellow-grey to yellow-brown earths intergrade	47%	28b, 29, 28c
Erosion:	Present -	Negligible to slight sheet and soil slip	
	Potential -	Slight sheet and soil slip, slight to moderate sheet and rill when cultivated	
Vegetation:	High and low producing pasture, forage crops, manuka and gorse scrub, short tussock associations	84%	P1

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	10		11		16	
Nelson	11		13		16	
Otago	10		15		18	
	(9-11)		(13-15)		(15-19)	
Southland	10		14		17	
	(10-11)				(16-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	30	28-30	21-25	20-25 20-25

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

4e 4

4e4

DESCRIPTION: Rolling to strongly rolling downs with dominantly loessial soils on various rock types in the summer moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, Banks Peninsula, South Canterbury, north-east Otago, Balclutha District, minor extent near Blenheim.

ALTITUDE ZONE: Lowland-Lower montane

TYPICAL LOCALITY: S111:579409

AREA: 123820 ha (0.82% of S.I.) + subdominant: 61110 ha

NUMBER OF MAP UNITS: 378 + subdominant: 96

INVENTORY FACTORS:

Slope:	9 -15 degrees	71%	C
	16-20 degrees	26%	D
Rock type:	Loess on sandstone,	11%	Lo/Gw
	mudstone, gravels	11%	Lo/Al
	and basic rocks	11%	Lo/Ss
Soil:	Yellow-grey earths	96%	20, 21, 16c, 15f, 22, 15e
Erosion:	Present	-	Slight to moderate sheet, wind and rill, slight tunnel gully
	Potential	-	Slight to moderate sheet and tunnel gully, moderate to severe sheet, wind and rill when cultivated
Vegetation:	High and low producing	88%	P1
	pasture, forage crops, gorse scrub	10%	P2

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8 (6-10)		11 (7-15)		15 (8-17)	
Nelson	7		10		15	
Otago	8 (6-10)		10 (8-15)		15 (10-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	20-22			18-25	18-23	

SOIL CONSERVATION MEASURES: Contour cultivation and contour works.

ADDITIONAL COMMENTS:

4e 5

4e5

DESCRIPTION: Rolling to strongly rolling downs with low fertility loessial soils on Moutere gravels.

GEOGRAPHICAL DISTRIBUTION: Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 14:439350

AREA: 7910 ha (0.05% of S.I.) + subdominant: 960 ha

NUMBER OF MAP UNITS: 63 + subdominant: 5

INVENTORY FACTORS:

Slope:	9 -15 degrees	80%	C
	16-20 degrees	15%	D
Rock type:	Loess on weathered gravels	98%	A1
Soil:	Yellow-grey to yellow-brown earths intergrade	63%	32
	Lowland yellow-brown earths	37%	37H, 35cH
Erosion:	Present - Slight sheet and soil slip		
	Potential - Slight sheet and soil slip, moderate to severe sheet and rill when cultivated		
Vegetation:	High and low producing pasture, gorse and bracken fern, exotic forest	69%	P1
		23%	N6

PRESENT LAND USE: Intensive grazing, reverted land, production forestry.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		14		17	
	(11-12)				(15-18)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		
Site Index:	26			

SOIL CONSERVATION MEASURES: Contour cultivation and contour works.

ADDITIONAL COMMENTS:

4e 6

4e6

DESCRIPTION: Rolling to strongly rolling downs with low fertility soils on sandstones and mudstones in the cool, moist foothills.
 GEOGRAPHICAL DISTRIBUTION: North Canterbury, Nelson, minor extent in Marlborough and Otago.
 ALTITUDE ZONE: Lowland-lower montane
 TYPICAL LOCALITY: S68:947121
 AREA: 18180 ha (0.12% of S.I.) + subdominant: 9290 ha
 NUMBER OF MAP UNITS: 78 + subdominant: 21

INVENTORY FACTORS:

Slope:	9 -15 degrees	78%	C
	16-20 degrees	12%	D
Rock type:	Sandstones, siltstones, and mudstones, loess in places	26%	A1
		14%	Ss
		13%	Lo/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	73%	28a, 31c, 25, 30dH, 28f
	Lowland yellow-brown earths	19%	34b
	Yellow-grey earths	8%	-
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Moderate sheet and soil slip, moderate to severe sheet and rill when cultivated		
Vegetation:	High and low producing pasture, manuka scrub, gorse	58%	P1
		20%	P2
		11%	P3

PRESENT LAND USE: Intensive grazing, reverted land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		10		14	
	(6-9)		(7-13)		(9-14)	
Nelson	7		11		16	
			(10-12)		(15-17)	
Otago	9		12		14	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26-31	26-31	22-25	

SOIL CONSERVATION MEASURES: Contour cultivation and contour works.

ADDITIONAL COMMENTS:

4e 7

4e7

DESCRIPTION: Rolling to strongly rolling downs with loessial soils on various rock types in cold inland districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury, inland Southland, Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S160:418838

AREA: 65980 ha (0.44% of S.I.) + subdominant: 14700 ha

NUMBER OF MAP UNITS: 248 + subdominant: 31

INVENTORY FACTORS:

Slope:	9 -15 degrees	78%	C
	16-20 degrees	12%	D
	4 - 8 degrees	10%	B
Rock type:	Loess on greywacke,	14%	Lo/Gw
	schist, sandstone and	14%	Lo/A1
	gravels	12%	A1
		11%	Lo/St1
Soil:	Yellow-grey to yellow-brown earths intergrade	75%	29c, 29d, 29a, 32b
	Lowland yellow-brown earths	21%	36d, 33b
Erosion:	Present - Slight to moderate sheet and wind		
	Potential - Slight sheet and wind, moderate to severe sheet, rill and wind when cultivated		
Vegetation:	High and low producing pasture, short tussock	52%	P1
	associations, forage	29%	P2
	crops, gorse, manuka	11%	P3
	scrub, exotic forest		

PRESENT LAND USE: Intensive grazing, forage cropping, reverted land, production forestry.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		10		14	
Otago	6		8		10	
Southland	11		13		15	
	(10-11)				(12-15)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			22-25	20-25 20-25

SOIL CONSERVATION MEASURES: Contour cultivation and contour works.

ADDITIONAL COMMENTS:

4e 8

4e8

DESCRIPTION: Floodplains and recent fans with moderately deep, fertile soils, in the cold, moist high country.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 66:127178

AREA: 2790 ha (0.02% of S.I.) + subdominant: 510 ha

NUMBER OF MAP UNITS: 14 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	63%	A
	4 - 8 degrees	35%	B
Rock type:	Greywacke alluvium, loess in places	100%	A1
Soil:	Recent soils	100%	99, 99a
Erosion:	Present - Slight to moderate wind		
	Potential - Slight to moderate wind, moderate wind when cultivated		
Vegetation:	Low and high producing	73%	P2
	pasture, short tussock	15%	P1
	associations with matagouri scrub	12%	P3

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		6		7	
Nelson	5		6		7	
Otago	5		6		7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			15-20	15-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4e 9

4e9

DESCRIPTION: Undulating to rolling terraces, downs and fans with moderate to high fertility soils formed on loess and colluvium in dry districts with cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago and Waitaki Basin.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S125:555914

AREA: 71560 ha (0.47% of S.I.) + subdominant: 28260 ha

NUMBER OF MAP UNITS: 324 + subdominant: 66

INVENTORY FACTORS:

Slope:	9 -15 degrees	61%	C
	4 - 8 degrees	32%	B
Rock type:	Loess and colluvium over	23%	A1
	sands, gravels and	12%	Lo/A1
	schist	10%	(Lo)/St2
Soil:	Yellow-grey earths	75%	23f, 23e, 8c, 9a, 15a
	Brown-grey earths	20%	2f, 4d
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Slight to moderate wind and sheet, moderate to severe wind and sheet when cultivated		
Vegetation:	High and low producing	56%	P2
	pasture, short tussock	24%	P1
	associations with mata-	18%	P3
	gouri and sweet briar scrub, forage crops, exotic forest		

PRESENT LAND USE: Grazing, forage cropping, production forestry.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		8		10	
Otago	5		8		9	18
			(7-10)		(6-10)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Windbreaks, contour works.

ADDITIONAL COMMENTS: Brown-grey earths in this unit are slightly to moderately salty.

4e10

4e10

DESCRIPTION: Undulating to rolling surfaces with low-fertility soils on schist and greywacke alluvium and glacial till in inland districts with cold winters.

GEOGRAPHICAL DISTRIBUTION: Canterbury, Waitaki, Otago and Southland high country.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S140:837206

AREA: 10610 ha (0.07% of S.I.) + subdominant: 1570 ha

NUMBER OF MAP UNITS: 51 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	61%	C
	4 - 8 degrees	21%	B
	0 - 3 degrees	18%	A
Rock type:	Schist alluvium, glacial till from diorite, granite, and gneiss, loess in places	82%	A1
Soil:	Yellow-brown loams	52%	85a, 85
	Upland and high country yellow-brown earths	42%	52b, 48b, 50b
	Brown granular loams and clays to yellow-brown earths intergrade	6%	80a
Erosion:	Present - Slight sheet and wind		
	Potential - Slight sheet and wind, moderate sheet, rill and wind when cultivated		
Vegetation:	Low and high producing pasture, short tussock associations with	43%	P2
		16%	P3
		16%	N4
	matagouri scrub, forage crops, manuka and bracken fern	11%	P1

PRESENT LAND USE: Grazing, forage cropping, reverted land.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		6		9	
Otago	2		6		10	
Southland	2				14	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			15-20	17-23 15-20

SOIL CONSERVATION MEASURES: Windbreaks, contour cultivation.

ADDITIONAL COMMENTS:

4ell

4ell

DESCRIPTION: Flat to undulating intermediate and high terraces with moderately deep soils in low rainfall districts. Winters are cold.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S124:187923

AREA: 9940 ha (0.07% of S.I.) + subdominant: 210 ha

NUMBER OF MAP UNITS: 28 + subdominant: 2

INVENTORY FACTORS:

Slope:	4 - 8 degrees	50%	B
	0 - 3 degrees	48%	A
Rock type:	Schist and greywacke	65%	A1
	gravels with a thin loess cover	22%	Lo/A1
Soil:	Yellow-grey earths	53%	6b, 6c
	Brown-grey earths	47%	4a, 1b
Erosion:	Present - Slight to moderate wind		
	Potential - Moderate wind, moderate to severe wind when cultivated		
Vegetation:	Low and high producing pasture, short tussock	48%	P1
	associations with mata-gouri scrub, forage crops	46%	P2

PRESENT LAND USE: Grazing, forage cropping.

POTENTIAL LAND USE: Grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		4		6 (5-7)	13
Otago	2		5 (4-6)		6 (5-7)	13

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: High terraces of low priority for irrigation.

4e12

4e12

DESCRIPTION: Flat to gently rolling terraces, fans and outwash plains liable to severe wind erosion and subject to severe winters and dry summers. Unit occurs in the high country environment.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, Marlborough, inland Canterbury.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S109:781627

AREA: 29030 ha (0.19% of S.I.) + subdominant: 6480 ha

NUMBER OF MAP UNITS: 119 + subdominant: 8

INVENTORY FACTORS:

Slope:	4 - 8 degrees	49%	B
	0 - 3 degrees	36%	A
	9 -15 degrees	15%	C
Rock type:	Greywacke gravels and	77%	A1
	till with a thin loess cover	17%	Lo/A1
Soil:	Upland and high country yellow-brown earths	99%	48, 50, 48a, 50c, 52b
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Slight to moderate wind and sheet, severe wind and moderate sheet when cultivated		
Vegetation:	Fescue tussock with mata-	46%	P3
	gouri scrub, low and high	38%	P2
	producing pasture, sweet briar	15%	P1

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		7 (5-7)		8 (6-10)	16
Nelson	1		2		8 (8-10)	15
Otago	2		6	10	8	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland
District:	Nel	Marl			Inv Dun
Site Index:	<15	<15		<15-18	

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS:

4e13

4e13

DESCRIPTION: Rolling to strongly rolling slopes in upland districts.

GEOGRAPHICAL DISTRIBUTION: South-east Otago, inland Southland.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S163:685802

AREA: 56260 ha (0.37% of S.I.) + subdominant: 23520 ha

NUMBER OF MAP UNITS: 179 + subdominant: 52

INVENTORY FACTORS:

Slope:	9 -15 degrees	77%	C
	16-20 degrees	19%	D
Rock type:	Greywacke, schist, sand-	38%	(Lo)/St2
	stone, mudstone and	12%	Lo/St1
Soil:	gravels, loess in places		
	Upland and high country	87%	54b, 54e, 54f, 54h
	yellow-brown earths		
Erosion:	Yellow-grey earths	6%	23e
	Present - Negligible to slight sheet and wind		
	Potential - Slight to moderate sheet, wind and		
Vegetation:	rill when cultivated		
	High and low producing	41%	P1
	pasture, short tussock	20%	P3
	associations with mata-	18%	P2
	gouri scrub, manuka and		
	cassinia scrub, forage		
	crops		

PRESENT LAND USE: Grazing, reverted land, forage cropping.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7		10		13	
	(5-10)					
Southland	10		14		15	
	(7-12)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				15-20 15-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Winters are cold.

4e14

4e14

DESCRIPTION: Plains in inland basins with shallow, stony, low-fertility soils. Past wind erosion has been severe. Dry summers.

GEOGRAPHICAL DISTRIBUTION: North Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 61:243478

AREA: 12620 ha (0.08% of S.I.) + subdominant: 470 ha

NUMBER OF MAP UNITS: 6 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke alluvium with a thin loess cover in places	100%	A1
Soil:	Yellow-grey earths	100%	13b
Erosion:	Present - Moderate wind		
	Potential - Moderate wind, moderate to severe wind when cultivated		
Vegetation:	Exotic forest, high and low producing pasture, forage crops	51% 49%	N6 P1

PRESENT LAND USE: Grazing, forage cropping, production forestry.

POTENTIAL LAND USE: Grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	7		10		11	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				18-19		

SOIL CONSERVATION MEASURES: Irrigation, windbreaks.

ADDITIONAL COMMENTS:

4e15

4e15

DESCRIPTION: Rolling downs with soils of very low fertility on siliceous sandstone and gravels.

GEOGRAPHICAL DISTRIBUTION: Coastal Otago and Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S155:245166

AREA: 5530 ha (0.04% of S.I.) + subdominant: 710 ha

NUMBER OF MAP UNITS: 20 + subdominant: 3

INVENTORY FACTORS:

Slope:	9 -15 degrees	69%	C
	16-20 degrees	31%	D
Rock type:	Siliceous sandstones,	28%	A1
	gravels and clays, thin	26%	(Lo)/Hs
	loess cover in places	22%	Lo/Ss+Cg
Soil:	Lowland yellow-brown	69%	40, 40a
	earths		
	Lowland podzolised	31%	61
	yellow-brown earths and		
	podzols		
Erosion:	Present - Slight sheet and soil slip		
	Potential - Moderate to severe sheet and rill when cultivated		
Vegetation:	High and low producing	54%	P1
	pasture, podocarp-hard-	26%	N3a
	wood forest, manuka and	15%	P2
	gorse scrub, forage		
	crops, exotic forest		

PRESENT LAND USE: Grazing, indigenous forest, reverted land, forage cropping, production forestry.

POTENTIAL LAND USE: Production forestry, grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7		8		13	
	(6-8)				(11-14)	
Southland	10		13		17	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:					20-24	20-23

SOIL CONSERVATION MEASURES: Contour cultivation.

ADDITIONAL COMMENTS:

4e16

4e16

DESCRIPTION: Gently undulating to rolling downs, dissected terraces and fans, with soils of low to very low fertility on greywacke, glacial till and schist alluvium. Unit occurs in the high country and can be subject to severe wind erosion initiated by frost lift.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury, Waitaki Basin, western Otago, northern Southland, Wairau Valley in Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 66:208991

AREA: 25350 ha (0.17% of S.I.) + subdominant: 1890 ha

NUMBER OF MAP UNITS: 101 + subdominant: 4

INVENTORY FACTORS:

Slope:	4 - 8 degrees	53%	B
	0 - 3 degrees	27%	A
	9 -15 degrees	20%	C
Rock type:	Greywacke, tuffaceous	72%	A1
	greywacke, glacial till, schist alluvium, loess in places	15%	Lo/A1
Soil:	Upland and high country	99%	52, 53, 52b, 53b
	yellow-brown earths		
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Moderate wind and sheet, moderate to severe wind and sheet when cultivated		
Vegetation:	Fescue tussock grassland	53%	P3
	with some red tussock,	24%	P2
	snow tussock, matagouri and manuka scrub, low and high producing pasture, forage crops, beech forest		

PRESENT LAND USE: Grazing, forage cropping, indigenous forest.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		4		5	
Nelson	1		4		7	
Otago	2		4		5	
Southland	2				8	

(10)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-25	20-25	15-20	15-18 <15-18

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Frost lift is a problem when bare ground is exposed during winter periods.

4e17

4e17

DESCRIPTION: Flat to undulating terraces and glacial outwash plains, with soils of low to very low fertility in the cold inland tussock districts. Liable to severe wind erosion when cultivated.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury, western Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 74:243835

AREA: 15570 ha (0.10% of S.I.) _ subdominant: 490 ha

NUMBER OF MAP UNITS: 40 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	86%	A
	4 - 8 degrees	12%	B
Rock type:	Alluvium from greywacke, gneiss, diorite and granite, thin loess in places	72%	A1
		23%	(Lo)/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	73%	27a, 27
	Yellow-brown loams	27%	84
Erosion:	Present - Slight to moderate wind		
	Potential - Slight to moderate wind, moderate to severe wind when cultivated		
Vegetation:	High and low producing pasture, forage crops,	49%	P1
	fescue tussock grassland	39%	P2
	with matagouri and manuka scrub	10%	P3

PRESENT LAND USE: Grazing, forage cropping.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		11		13	
	(7-9)				(11-13)	
Southland	9		12		14	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			19-23	18-22

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4e18

4e18

DESCRIPTION: Stabilised sand dunes and flats in the drier districts, liable to wind erosion when cultivated.

GEOGRAPHICAL DISTRIBUTION: Coastal Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 36:353487

AREA: 590 ha (0.03% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	60%	A
	4 - 8 degrees	40%	B
Rock type:	Sands from various rock types	60%	Wb
		40%	Wb+Al
Soil:	Yellow-brown sands	100%	68b
Erosion:	Present - Slight wind		
	Potential - Moderate to severe wind when cultivated		
Vegetation:	High and low producing	60%	P1
	pasture, manuka scrub,	40%	P2
	exotic forest, sand dune associations		

PRESENT LAND USE: Grazing, production forestry.

POTENTIAL LAND USE: Production forestry, grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		8		10	
Nelson	8		10		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	15-24		19-23	Dun

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4s 1

4s1

DESCRIPTION: Shallow and stony floodplains in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Inland and western Southland, inland south Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S151:560055

AREA: 40340 ha (0.27% of S.I.) + subdominant: 14740 ha

NUMBER OF MAP UNITS: 142 + subdominant: 28

INVENTORY FACTORS:

Slope:	0 - 3 degrees	96%	A
Rock type:	Alluvium from various rock types	98%	A1
Soil:	Recent soils	99%	98f, 98g, 96d
Erosion:	Present - Negligible to slight wind and streambank		
	Potential - Negligible to slight wind and streambank		
Vegetation:	High and low producing pasture, forage and cereal crops, matagouri, manuka and gorse scrub	66%	P1
		18%	P2

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		9		12	
	(5-11)		(7-15)		(8-20)	
Nelson	9		10		12	20
	(9-10)					
Otago	13		15		16	
Southland	11		14		15	
	(10-12)				(14-16)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31		18-20	19-24 19-22

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Soils are shallower and stonier than those in 3s2.

4s 2

4s2

DESCRIPTION: Flood plains with shallow stony soils liable to flooding.

GEOGRAPHICAL DISTRIBUTION: Westland, north-west Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 78:511528

AREA: 52670 ha (0.35% of S.I.) + subdominant: 2930 ha

NUMBER OF MAP UNITS: 237 + subdominant: 16

INVENTORY FACTORS:

Slope:	0 - 3 degrees	93%	A
Rock type:	Alluvium from various rock types	99%	A1
Soil:	Gley recent soils	57%	91
	Recent soils	43%	99b, 99c
Erosion:	Present - Negligible to moderate streambank and deposition		
	Potential - Negligible to moderate streambank and deposition		
Vegetation:	Low and high producing pasture, podocarp	30%	P1
	forest, mixed native	26%	P2
	scrub and gorse	14%	N3a
		11%	N7

PRESENT LAND USE: Extensive to intensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		20		22	
	(12-17)				(20-25)	
Otago	0		0		20	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	30		30			

SOIL CONSERVATION MEASURES: Streambank protection.

ADDITIONAL COMMENTS:

4s 3

4s3

DESCRIPTION: Flat to undulating terraces and fans with shallow stony soils and a mainly cool, moist climate.

GEOGRAPHICAL DISTRIBUTION: Canterbury, Nelson, minor extent in Marlborough, Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 26:276884

AREA: 36490 ha (0.24% of S.I.) + subdominant: 13010 ha

NUMBER OF MAP UNITS: 108 + subdominant: 17

INVENTORY FACTORS:

Slope:	0 - 3 degrees	78%	A
	4 - 8 degrees	13%	B
Rock type:	Alluvium from various rock types, loess in places	97%	A1
Soil:	Yellow-grey to yellow-brown earths intergrade	83%	27, 27e
	Lowland yellow-brown earths	15%	33g
Erosion:	Present - Negligible to slight wind, slight to moderate streambank		
	Potential - Slight to moderate streambank, slight to moderate wind when cultivated		
Vegetation:	High and low producing pasture, forage crops, exotic forest, gorse	81%	P1

PRESENT LAND USE: Intensive grazing, forage cropping, production forestry.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	12		16		19	
	(11-12)		(15-16)			
Nelson	12		12		15	
Southland	11		14		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-26	20-26	17-20	

SOIL CONSERVATION MEASURES: Windbreaks. Streambank protection.

ADDITIONAL COMMENTS:

4s 4

4s4

DESCRIPTION: Flat to gently undulating terraces and outwash plains, with shallow stony, low fertility soils, in cold inland districts. Liable to wind erosion when cultivated.

GEOGRAPHICAL DISTRIBUTION: Western Southland, inland north Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S149:689049

AREA: 62900 ha (0.42% of S.I.) + subdominant: 11480 ha

NUMBER OF MAP UNITS: 193 + subdominant: 14

INVENTORY FACTORS:

Slope:	0 - 3 degrees	68%	A
	4 - 8 degrees	29%	B
Rock type:	Alluvium from various	82%	A1
	rock types, loess in places	14%	(Lo)/A1
Soil:	Yellow-grey to yellow-brown earths intergrade	39%	27b, 27a, 27e
	Yellow-brown loams	35%	85a, 84, 85
	Brown granular loams and clays to yellow-brown earths intergrade	19%	80a
Erosion:	Present - Slight wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High and low producing	51%	P1
	pasture, forage crops,	14%	P3
	short tussock associations,	13%	P2
	manuka scrub	11%	N4

PRESENT LAND USE: Semi-intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9		11		13	
Otago	11		14		15	
Southland	10		14		15	

(10-12)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			18-20	18-23 18-23

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4s 5

4s5

DESCRIPTION: Intermediate and high terraces in high rainfall districts. Soils are shallow and stony but not podzolised.
 GEOGRAPHICAL DISTRIBUTION: Westland, minor extent in north-west Nelson.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 37:839134

AREA: 60090 ha (0.40% of S.I.) + subdominant: 5040 ha

NUMBER OF MAP UNITS: 262 + subdominant: 14

INVENTORY FACTORS:

Slope:	0 - 3 degrees	53%	A
	4 - 8 degrees	42%	B
Rock type:	Greywacke and granite alluvium	100%	A1
Soil:	Lowland yellow-brown earths	99%	43c, 43
Erosion:	Present - Negligible to slight streambank		
	Potential - Slight streambank		
Vegetation:	High and low producing pasture, beech-podocarp forest, mixed native scrub and gorse	32% 28% 17% 14%	N3a P1 P2 N4

PRESENT LAND USE: Intensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		17		22	
	(10-12)		(15-17)			
Otago	0		0		20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	30	30		

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

4s 6

4s6

DESCRIPTION: Floodplains, low terraces and fans with shallow, stony soils of medium fertility in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury, Otago, minor extent in Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S127:122071

AREA: 64010 ha (0.42% of S.I.) + subdominant: 14860 ha

NUMBER OF MAP UNITS: 242 + subdominant: 48

INVENTORY FACTORS:

Slope:	0 - 3 degrees	83%	A
	4 - 8 degrees	15%	B
Rock type:	Greywacke and schist	91%	A1
	alluvium, loess in places		
Soil:	Recent soils	99%	95a, 94a, 95, 96, 94
Erosion:	Present - Slight wind and streambank		
	Potential - Slight wind and streambank, slight to moderate wind when cultivated		
Vegetation:	High and low producing	60%	P1
	pasture, forage crops,	35%	P2
	short tussock associations, with matagouri scrub, cereal crops		

PRESENT LAND USE: Semi-intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6	13	7	14	8	16
	(5-8)	(12-13)	(5-8)		(6-9)	(14-19)
Nelson	5		7		12	25
Otago	5		8		9	17
	(4-7)				(8-10)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	17		16-19	<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4s 7

4s7

DESCRIPTION: Terraces and plains with shallow and stony soils of medium to low fertility in seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury Plains, coastal north Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S128:693980

AREA: 164930 ha (1.10% of S.I.) + subdominant: 73170 ha

NUMBER OF MAP UNITS: 164 + subdominant: 25

INVENTORY FACTORS:

Slope:	0 - 3 degrees	98%	A
Rock type:	Greywacke and sandstone	99%	A1
	alluvium, loess in places		
Soil:	Yellow-grey earths	77%	13
	Recent soils	23%	96c
Erosion:	Present - Slight wind		
	Potential - Slight wind, moderate wind when cultivated		
Vegetation:	High and low producing	92%	P1
	pasture, forage crops, cereal crops		

PRESENT LAND USE: Intensive grazing, forage cropping, cereal cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6	12	9	15	10	17
	(5-7)		(7-9)		(7-10)	(15-18)
Nelson	5		15		20	25
Otago	6		8		10	18

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	17		15-19	15-19

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Soils in this unit dry out more readily than those of 4s6, due to the lower water table. They are also more liable to wind erosion when cultivated.

4s 8

4s8

DESCRIPTION: Salt lake and lagoon margins with soils of moderate to high salinity.

GEOGRAPHICAL DISTRIBUTION: Minor extent Lake Ellesmere in Canterbury, coastal Nelson, Southland and Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 94:973295

AREA: 2840 ha (0.02% of S.I.) + subdominant: 230 ha

NUMBER OF MAP UNITS: 12 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke alluvium and sands	75%	A1
		21%	Wb
Soil:	Saline gley recent soils	100%	92
Erosion:	Present - Negligible		
	Potential - Negligible to slight wind when cultivated		
Vegetation:	Low and high producing	47%	P2
	pasture, salt tolerant associations	45%	P1

PRESENT LAND USE: Intensive grazing.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		12		12	22
Nelson	7		10		20	
Otago	2		2		12	
Southland	3		3		5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	16-18	16-18	16-18	17-20 17-20

SOIL CONSERVATION MEASURES: Desalinisation by irrigation and drainage.

ADDITIONAL COMMENTS: Soils in this unit are more saline than those in 3s11, which significantly increases the limitations for cropping.

4s 9

4s9

DESCRIPTION: Terraces and fans with shallow, stony soils in districts with cold winters and dry summers.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S125:576861

AREA: 101230 ha (0.67% of S.I.) + subdominant: 28180 ha

NUMBER OF MAP UNITS: 461 + subdominant: 70

INVENTORY FACTORS:

Slope:	0 - 3 degrees	44%	A
	4 - 8 degrees	42%	B
	9 - 15 degrees	14%	C
Rock type:	Greywacke and schist	66%	A1
	alluvium, loess in places	13%	(Lo)/St2
Soil:	Yellow-grey earths	45%	9d, 6c, 8
	Brown-grey earths	41%	1a
	Upland and high country	13%	-
	yellow-brown earths		
Erosion:	Present - Slight to moderate wind		
	Potential - Slight to moderate wind, moderate wind when cultivated		
Vegetation:	Low and high producing	61%	P2
	pasture, forage crops,	30%	P1
	short tussock associations with matagouri		
	scrub and sweet briar		

PRESENT LAND USE: Grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		5		6	16
Otago	5		5		6	16
	(2-6)		(3-7)		(3-9)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Windbreaks. Irrigation.

ADDITIONAL COMMENTS: Includes some deeper soils in areas of broken terrain.

4s10

4s10

DESCRIPTION: Flat to rolling terraces and downs in moderately high rainfall districts, with podzolised soils of very low fertility. Drainage is difficult and cropping potential marginal.

GEOGRAPHICAL DISTRIBUTION: Southern Southland, north-west Nelson, south-east Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S175:841193

AREA: 49950 ha (0.33% of S.I.) + subdominant: 450 ha

NUMBER OF MAP UNITS: 152 + subdominant: 1

INVENTORY FACTORS:

Slope:	9 -15 degrees	48%	C
	4 - 8 degrees	29%	B
	0 - 3 degrees	23%	A
Rock type:	Greywacke alluvium, loess	20%	Lo/A1
	on tuffaceous greywacke	20%	Hs
		18%	A1
		17%	Lo/Hs
Soil:	Lowland podzolised	99%	61c, 59d, 61b, 61
	yellow-brown earths and podzols		59
Erosion:	Present	-	Negligible to slight sheet
	Potential	-	Slight sheet, slight sheet and wind when cultivated
Vegetation:	High and low producing	42%	P1
	pasture, forage crops,	36%	N3a
	podocarp forest, mixed native scrub and gorse		

PRESENT LAND USE: Grazing, forage cropping, undeveloped land.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	10		20		21	
					(20-22)	
Otago	10		13		17	
Southland	8		13		16	
	(7-10)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26-30	26-30		20-23 20-23

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

4s11

4s11

DESCRIPTION: Coastal sand flats and undulating dunes in relatively sheltered or moist situations. The low fertility and low moisture-holding capacity, together with poor soil structure, are the main limitations to cropping use.

GEOGRAPHICAL DISTRIBUTION: Coastal Districts.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S182:303972

AREA: 6700 ha (0.04% of S.I.) + subdominant: 1080 ha

NUMBER OF MAP UNITS: 37 + subdominant: 3

INVENTORY FACTORS:

Slope:	0 - 3 degrees	52%	A
	4 - 8 degrees	48%	B
Rock type:	Sands from various rock types	44%	Wb
		25%	Wb+A1
		17%	A1
		14%	A1+Wb
Soil:	Yellow-brown sands	90%	68b, 70, 70c, 70b, 68c
Erosion:	Present - Negligible to slight wind		
	Potential - Slight to moderate wind when cultivated		
Vegetation:	High and low producing pasture, forage crops, rushes and sedges, mixed native scrub, gorse	89%	P1

PRESENT LAND USE: Grazing, forage cropping, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		6		10	
Nelson	13		18		22	
	(13-15)					
Otago	13		15		20	
Southland	10		10		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31	20-25	26	18-22 20-22 20-22

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4s12

4s12

DESCRIPTION: Inland floodplains, terraces and fans with shallow, stony soils and a cool, moist climate.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury, Waitaki Basin, inland Marlborough, western Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 66:218164

AREA: 24220 ha (0.16% of S.I.) + subdominant: 6440 ha

NUMBER OF MAP UNITS: 111 + subdominant: 23

INVENTORY FACTORS:

Slope:	0 - 3 degrees	63%	A
	4 - 8 degrees	35%	B
Rock type:	Greywacke and schist	99%	A1
	alluvium, loess in places		
Soil:	Recent soils	92%	99, 99a
	Upland and high country yellow-brown earths	8%	48b
Erosion:	Present - Negligible to slight wind and stream-bank		
	Potential - Negligible to slight wind and stream-bank, moderate wind when cultivated		
Vegetation:	Low and high producing pasture, short tussock	53%	P2
	grassland with matagouri	18%	P3
	scrub	16%	P1

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	4		6		7	
Nelson	5		6		7	
Otago	9		11		13	
					(13-14)	
Southland	4				14	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	20-25			15-20	18-22	15-20

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

4s13

4s13

DESCRIPTION: Flat to undulating terraces with very low fertility soils. Cool, moist climate.

GEOGRAPHICAL DISTRIBUTION: Coastal Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S176:860100

AREA: 12870 ha (0.09% of S.I.) + subdominant: 1810 ha

NUMBER OF MAP UNITS: 41 + subdominant: 3

INVENTORY FACTORS:

Slope:	4 - 8 degrees	73%	B
	0 - 3 degrees	15%	A
	9 -15 degrees	12%	C
Rock type:	Loess over gravels,	42%	Lo/A1
	sands and silts	10%	Lo/Gw+In
		10%	(Lo)/A1
Soil:	Lowland yellow-brown earths	91%	43d
	Yellow-grey to yellow-brown earths intergrade	8%	28b
Erosion:	Present -	Negligible to slight wind	
	Potential -	Negligible to slight wind, slight sheet, wind and rill when cultivated	
Vegetation:	High and low producing	82%	P1
	pasture, forage crops,		
	podocarp-hardwood		
	forest, mixed native scrub, bracken fern		

PRESENT LAND USE: Grazing, forage cropping, reverted land.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		10		12	
Nelson	7		9		10	
Otago	10		13		18	
Southland	12		15		20	

(10-15)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31			19-23 20-22

SOIL CONSERVATION MEASURES: Contour cultivation. Windbreaks.

ADDITIONAL COMMENTS:

4s 14

4s14

DESCRIPTION: Flat to rolling high country terraces and moraines with shallow, stony, very low fertility soils.

GEOGRAPHICAL DISTRIBUTION: Inland north Canterbury and Marlborough, western Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 66:274113

AREA: 6150 ha (0.04% of S.I.) + subdominant: 330 ha

NUMBER OF MAP UNITS: 31 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	50%	A
	4 - 8 degrees	35%	B
	9 -15 degrees	15%	C
Rock type:	Greywacke gravels and moraines, loess in places	97%	A1
Soil:	Upland and high country yellow-brown earths	100%	53b, 52, 53c, 53
Erosion:	Present - Negligible to slight wind and sheet		
	Potential - Moderate wind and sheet when cultivated		
Vegetation:	Low producing pasture,	45%	P2
	short tussock associ-	30%	P3
	ations with matagouri scrub	13%	M4

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, occasional cropping, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		4		5	
Nelson	1		4		5	
Otago	4				10	
Southland	2				8	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-25	20-25	15-20	15-18 15-18

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

4s 15

4s15

DESCRIPTION: Flat to undulating terraces, fans and floodplains with a seasonally high concentration of soluble salts affecting plant growth.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S145:684467

AREA: 5140 ha (0.03% of S.I.) + subdominant: 1280 ha

NUMBER OF MAP UNITS: 28 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	77%	A
	4 - 8 degrees	21%	B
Rock type:	Alluvium from schist, loess in places	84%	A1
Soil:	Brown-grey earths	89%	2, 2e, 4d
	Recent soils	11%	94
Erosion:	Present - Slight wind		
	Potential - Slight to moderate wind when cultivated		
Vegetation:	Low and high producing	53%	P1
	pasture, rushes and sedges	47%	P2

PRESENT LAND USE: Semi-intensive grazing.

POTENTIAL LAND USE: Semi-intensive grazing. Occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	3	8	5	8	8	12

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl	Inv	Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Care must be taken with irrigation to avoid the translocation or increase in concentration of soluble salts.

4w 1

4w1

DESCRIPTION: Floodplains with high water tables in cool, humid, low-land districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south Otago, minor extent in inland Canterbury.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S163:974719

AREA: 27000 ha (0.18% of S.I.) + subdominant: 3380 ha

NUMBER OF MAP UNITS: 107 + subdominant: 10

INVENTORY FACTORS:

Slope:	0 - 3 degrees	97%	A
Rock type:	Greywacke and schist	45%	A1
	alluvium, peat	41%	Pt/A1
Soil:	Organic soils	55%	86c
	Gley recent soils	34%	90f, 90b
	Gley soils	9%	-
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	High and low producing	48%	P1
	pasture, forage crops, rushes and sedges	32%	P2

PRESENT LAND USE: Intensive grazing, forage cropping.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9		11		13	
	(6-9)				(13-15)	
Otago	12		16		18	
	(11-15)				(13-19)	
Southland	7				18	
					(18-20)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			15-18	17-20 17-20

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

4w 2

4w2

DESCRIPTION: Floodplains with high watertables in districts where summers are dry and winters cold.

ALTITUDE ZONE: Montane

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, Central Otago, minor extent in inland Canterbury.

TYPICAL LOCALITY: S135:891544

AREA: 7350 ha (0.05% of S.I.) + subdominant: 3950 ha

NUMBER OF MAP UNITS: 34 + subdominant: 17

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke and schist alluvium	100%	A1
Soil:	Gley recent soils	74%	90d, 90e
	Recent soils	15%	94
	Gley soils	7%	89
Erosion:	Present - Negligible		
	Potential - Negligible to slight streambank, slight wind when cultivated		
Vegetation:	Low and high producing	47%	P2
	pasture, red tussock,	34%	P1
	rushes and sedges	16%	P5

PRESENT LAND USE: Intensive to extensive grazing.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	4		6		12	
Otago	4		6		12	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			15-18	<15-18

SOIL CONSERVATION MEASURES: Drainage, windbreaks.

ADDITIONAL COMMENTS:

4w 3

4w3

DESCRIPTION: Floodplains with high watertables in cold, humid districts.

GEOGRAPHICAL DISTRIBUTION: Western and north-eastern Southland, minor extent in South Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S149:722012

AREA: 8050 ha (0.05% of S.I.) + subdominant: 4190 ha

NUMBER OF MAP UNITS: 48 + subdominant: 18

INVENTORY FACTORS:

Slope:	0 - 3 degrees	88%	A
	4 - 8 degrees	12%	B
Rock type:	Alluvium from various rock types	83%	A1
Soil:	Gley soils	38%	89g
	Recent soils	27%	98f
	Gley recent soils	21%	90f
	Organic soils	7%	87
Erosion:	Present - Negligible to slight streambank and wind		
	Potential - Negligible to slight streambank and wind		
Vegetation:	Red tussock, low and	39%	P5
	high producing pasture,	30%	P2
	swamp associations,	19%	P1
	manuka scrub, gorse		

PRESENT LAND USE: Extensive to intensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7		11		16	
Southland	7				18	
(16-20)						

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				17-20 17-20

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS: Unit differs from 4w1 due to a colder climate and 4w2 due to a higher rainfall.

4w 4

4w4

DESCRIPTION: Floodplains with high watertables in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 78:429529

AREA: 11660 ha (0.08% of S.I.) + subdominant: 560 ha

NUMBER OF MAP UNITS: 35 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	99%	A
Rock type:	Alluvium from schist, granite and greywacke	98%	A1
Soil:	Gley recent soils	98%	91, 91a
Erosion:	Present - Negligible to slight streambank Potential - Slight streambank		
Vegetation:	High and low producing	51%	P1
	pasture, swamp associ-	28%	P2
	ations, podocarp forest, mixed native scrub, gorse	11%	H1

PRESENT LAND USE: Intensive grazing, extensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, occasional cropping.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	12		16		20	
	(8-16)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	24-28	26		

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

5c 1

5c1

DESCRIPTION: Strongly rolling to moderately steep limestone and volcanic hills with rock outcrops, in the seasonally moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: North Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 54:188528

AREA: 2100 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 7

INVENTORY FACTORS:

Slope:	16-20 degrees	59%	D
	21-25 degrees	37%	E
Rock type:	Hard or sandy limestone,	45%	Ls
	basalt, loess in places	31%	(Lo)/Ls+In
		21%	In
Soil:	Rendzina and related soils	75%	71aH, 71dH, 71H
	Brown granular loams and clays	21%	77eH
Erosion:	Present - Negligible		
	Potential - Negligible to slight sheet and wind		
Vegetation:	Short tussock associations, high and low producing pasture	79%	P3
		17%	P1

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		9		10	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland Canterbury		Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				18-21		

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Soils are fertile and stable.

5c 2

5c2

DESCRIPTION: Strongly rolling to moderately steep hill country, in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Eastern Southland, south-east Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S170:104331

AREA: 65800 ha (0.43% of S.I.) + subdominant: 7540 ha

NUMBER OF MAP UNITS: 234 + subdominant: 27

INVENTORY FACTORS:

Slope:	21-25 degrees	83%	E
	16-20 degrees	16%	D
Rock type:	Tuffaceous greywacke, basalt, weathered trachyte and phonolite, loess in places	60%	(Lo)/Hs
Soil:	Lowland yellow-brown earths	94%	36cH, 35aH, 36H
Erosion:	Present - Negligible to slight sheet		
	Potential - Negligible to slight sheet		
Vegetation:	High and low producing pasture, short and red tussock associations, exotic forests, podocarp-hardwood forests, bracken fern, mixed native scrub and gorse	28%	P1
		26%	P3
		25%	P2

PRESENT LAND USE: Intensive grazing, production forestry, reverted land.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	9		13		17	
Southland	10		13		17	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				22-25 22-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5c 3

5c3

DESCRIPTION: Strongly rolling to moderately steep limestone hills, in cold, moist inland districts.

GEOGRAPHICAL DISTRIBUTION: Southland, south Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S150:967041

AREA: 2290 ha (0.02% of S.I.) + subdominant: 1020 ha

NUMBER OF MAP UNITS: 13 + subdominant: 5

INVENTORY FACTORS:

Slope:	16-20 degrees	91%	D
Rock type:	Limestone and calcareous sandstone, tuffaceous greywacke	85%	Ls
		15%	Ss+A1
Soil:	Rendzina and related soils	85%	73H
	Lowland yellow-brown earths	15%	38aH
Erosion:	Present - Negligible		
	Potential - Negligible to slight sheet		
Vegetation:	High and low producing pasture, mixed native scrub and gorse, short and red tussock associations	37%	P1
		35%	N3a
		20%	P2

PRESENT LAND USE: Intensive grazing, reverted land, extensive grazing.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	5		6		10	
Southland	5		6		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				22-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5s 1

5s1

DESCRIPTION: Rolling to strongly rolling downlands and low hills with soils derived from volcanic rocks which are unsuitable for cultivation because of extensive rock outcrops.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, east Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S164:202701

AREA: 1130 ha (0.01% of S.I.) + subdominant; 430 ha

NUMBER OF MAP UNITS: 9 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	100%	C
Rock type:	Basalt, loess in places	25%	(Lo)/Vo
		24%	Vo
		19%	In+Ls
		17%	Ls+In
		15%	Lo/Vo
Soil:	Brown granular loams and clays	100%	76cH, 75bH, 75c, 77 76a
Erosion:	Present - Negligible		
	Potential - Negligible to slight sheet		
Vegetation:	Low and high producing pasture, manuka and gorse scrub	53%	P2
		47%	P1

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Intensive grazing, exotic forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		9		12	
Otago	7				14	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			18-22	21-24

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5s 2

5s2

DESCRIPTION: Similar land to unit 5s1, but on soils from limestone marble and calcareous sandstones. Sinkholes occur in places.

GEOGRAPHICAL DISTRIBUTION: Takaka district near Nelson, minor extent in Canterbury and Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S136:497605

AREA: 1430 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 8

INVENTORY FACTORS:

Slope:	9 -15 degrees	38%	C
	16-20 degrees	34%	D
	4 - 8 degrees	28%	B
Rock type:	Limestone, marble and calcareous sandstone	54%	Ma
		17%	Ma+A1
		16%	(Lo)/Ls
Soil:		13%	Ls
	Lowland yellow-brown earths	55%	44d
	Rendzina and related soils	45%	74cH, 71a, 71
Erosion:	Present - Negligible		
	Potential - Negligible to slight sheet		
Vegetation:	Low and high producing	83%	P2
	pasture, bracken fern, mixed native scrub	17%	P1

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		10		11	
Nelson	6		8		12	
Otago	5				14	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-25		21-24	21-23

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5s 3

5s3

DESCRIPTION: Flat to gently rolling moraines, fans and terraces, with soils too bouldery for cultivation but with a good vegetative cover.

GEOGRAPHICAL DISTRIBUTION: Kaikoura, Marlborough and Wakatipu district in Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S142:612321

AREA: 7070 ha (0.05% of S.I.) + subdominant: 720 ha

NUMBER OF MAP UNITS: 26 + subdominant: 2

INVENTORY FACTORS:

Slope:	4 - 8 degrees	70%	B
	0 - 3 degrees	15%	A
	9 -15 degrees	14%	C
Rock type:	Alluvium from various rock types, loess in places	76%	A1
		14%	A1/St1
Soil:	Lowland yellow-brown earths	49%	34d
	Upland and high country yellow-brown earths	28%	50b
	Recent soils	14%	95a
	Yellow-grey earths	8%	-
Erosion:	Present - Negligible to slight deposition, negligible to slight wind		
	Potential - Negligible to slight deposition, negligible to slight wind		
Vegetation:	Low and high producing pasture, short tussock	49%	P2
	associations with mata-gouri scrub, manuka scrub	32%	P1
		11%	M4

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.5		3		4.5	
Nelson	9		20		25	
Otago	5		7		11	
	(7)					
Southland	5		5		11	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:		NA	21-24	18-20

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5s 4

5s4

DESCRIPTION: Rolling sand dunes and flats in high rainfall districts. Stable and high producing under grassland.

GEOGRAPHICAL DISTRIBUTION: Coastal Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S18:538249

AREA: 3880 ha (0.03% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 11

INVENTORY FACTORS:

Slope:	4 - 8 degrees	78%	B
	0 - 3 degrees	22%	A
Rock type:	Sands from greywacke,	68%	Wb
	granite and schist	28%	Wb+A1
Soil:	Yellow-brown sands	100%	70b, 70c
Erosion:	Present - Negligible		
	Potential - Negligible to slight wind		
Vegetation:	High and low producing	67%	P1
	pasture, podocarp-hard-	18%	P2
	wood forest, marram	15%	N3a
	grassland with coastal scrub, gorse		

PRESENT LAND USE: Intensive grazing, extensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	15		18		21	
Otago	0		0		21	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	26	26		

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: The well-distributed rainfall enables a high producing cover to be maintained.

5s 5

5s5

DESCRIPTION: Floodplains and fans with shallow bouldery soils in moist to wet districts.

GEOGRAPHICAL DISTRIBUTION: Inland Marlborough, western Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 99:304842

AREA: 1530 ha (0.01% of S.I.) + subdominant: 140 ha

NUMBER OF MAP UNITS: 11 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	85%	A
	4 - 8 degrees	15%	B
Rock type:	Greywacke and schist	100%	A1
	alluvium, loess in places		
Soil:	Recent soils	92%	99
	Gley recent soils	8%	90e
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	Low producing pasture,	100%	P2
	short tussock associations with matagouri scrub, beech forest, manuka scrub		

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	2		5		10	
Otago	7		7		11	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl	Inv	Dun
Site Index:	18-24			15-18

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

5s 6

5s6

DESCRIPTION: Strongly saline lake and lagoon margins unsuitable for cropping. Occurs in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Eastern coastal districts.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S119:711296

AREA: 1700 ha (0.01% of S.I.) + subdominant: 890 ha

NUMBER OF MAP UNITS: 12 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Greywacke alluvium	55%	A1
		45%	Wb
Soil:	Saline gley recent soils	87%	92
	Gley soils	8%	89
	Recent soils	5%	95
Erosion:	Present - Negligible		
	Potential - Negligible to slight wind		
Vegetation:	High and low producing	77%	P1
	pasture, salt tolerant	18%	P
	associations		

PRESENT LAND USE: Grazing, some undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	8		9		10	
Nelson	5		7		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:		US	US	

SOIL CONSERVATION MEASURES: Drainage, windbreaks.

ADDITIONAL COMMENTS:

5w 1

5w1

DESCRIPTION: Lowland floodplains with cool winters and a high water-table which precludes cropping.

GEOGRAPHICAL DISTRIBUTION: Minor extent in south Canterbury, Waitaki Basin, western and southern Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S163:957716

AREA: 2230 ha (0.01% of S.I.) + subdominant: 1170 ha

NUMBER OF MAP UNITS: 18 + subdominant: 6

INVENTORY FACTORS:

Slope:	0 - 3 degrees	86%	A
	4 - 8 degrees	14%	B
Rock type:	Peat, greywacke and	40%	A1
	schist alluvium	18%	Pt/A1
		11%	A1+Pt
		11%	Pt+(Lo)/A1+Wb
Soil:	Gley recent soils	45%	90a, 90f, 90
	Organic soils	37%	86c, 86, 87
	Gley soils	18%	89, 89e
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Low and high producing	37%	P2
	pasture, rushes and	35%	P1
	sedges	11%	H2

PRESENT LAND USE: Intensive grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9		11		13	
Nelson	10		15		25	
Otago	5				15	
Southland	5				18	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			US	US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

5w 2

5w2

DESCRIPTION: Floodplains and narrow valleys with a high water-table which precludes cropping. Winters are cold and summers dry.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, central Otago, inland Canterbury and inland Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S135:825540

AREA: 16980 ha (0.11% of S.I.) + subdominant: 10740 ha

NUMBER OF MAP UNITS: 69 + subdominant: 23

INVENTORY FACTORS:

Slope:	0 - 3 degrees	92%	A
Rock type:	Greywacke and schist alluvium, loess in places	92%	A1
Soil:	Gley recent soils	96%	90d, 90e
Erosion:	Present - Negligible Potential - Negligible		
Vegetation:	Low and high producing pasture, red tussock associations, short tussock associations, rushes and sedges	43% 17% 13% 12% 10%	P2 P5 P3 H2 H1

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		5 (3-5)		8 (7-8)	
Nelson	1		5		8	
Otago	1		5		8	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			US	US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

5w 3

5w3

DESCRIPTION: Floodplains and narrow valleys in the cold, moist inland districts.

GEOGRAPHICAL DISTRIBUTION: Te Anau-Manapouri Basin, Southland, Wakatipu vicinity and Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S149:748997

AREA: 1780 ha (0.01% of S.I.) + subdominant: 800 ha

NUMBER OF MAP UNITS: 14 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	97%	A
Rock type:	Alluvium from various rock types	57%	A1
		33%	A1+Pt
		10%	(Lo)/A1
Soil:	Gley soils	56%	89g
	Recent soils	41%	99a
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Low and high producing pasture, red tussock associations, swamp associations, manuka scrub	43%	P2
		33%	P5

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Otago	2				12	
Southland	1				15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

5w 4

5w4

DESCRIPTION: Floodplains and lake margins in wet districts.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S51:563588

AREA: 8410 ha (0.06% of S.I.) + subdominant: 2000 ha

NUMBER OF MAP UNITS: 26 + subdominant: 4

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium from various rock types	100%	A1
Soil:	Gley recent soils	98%	91a, 91
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Low and high producing	38%	P2
	pasture, swamp associ-	20%	M6
	ations, mixed native	16%	P1
	scrub	13%	H2

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Intensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		10		18	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	22		22			

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

6c 1

6c1

DESCRIPTION: Flat to rolling stable uplands up to 1,000m a.s.l. in cold inland districts.

GEOGRAPHICAL DISTRIBUTION: Otago, Southland, inland Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 80:196311

AREA: 85070 ha (0.56% of S.I.) + subdominant: 2170 ha

NUMBER OF MAP UNITS: 276 + subdominant: 4

INVENTORY FACTORS:

Slope:	9 -15 degrees	61%	C
	4 - 8 degrees	26%	B
Rock type:	Greywacke alluvium,	30%	(Lo)/St2
	greywacke and schist,	21%	A1
	loess in patches	16%	St2
Soil:	Upland and high country	79%	54b, 55, 54g, 53,
	yellow-brown earths		55a
	Yellow-grey earths	10%	23e
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Slight to moderate wind and sheet		
Vegetation:	Snow tussock associ-	44%	P4
	ations, short tussock	39%	P3
	associations with		
	matagouri scrub, low		
	producing pasture		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.5		2		4	
			(1-2)		(2.5-5)	
Nelson	1		2		10	
Otago	4		5		7	
	(2-5)				(4-10)	
Southland	.5		4		8	
	(-8)				(8-10)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15		<15	<15 <15

SOIL CONSERVATION MEASURES: Oversewing and topdressing.

ADDITIONAL COMMENTS: Altitude makes cropping hazardous.

6c 2

6c2

DESCRIPTION: Undulating to strongly rolling coastal downs with strong salt-laden winds which preclude cropping and retard pasture growth.

GEOGRAPHICAL DISTRIBUTION: Coastal Southland and Otago, minor extent in Marlborough Sounds.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S181:262875

AREA: 7140 ha (0.05% of S.I.) + subdominant: 40 ha

NUMBER OF MAP UNITS: 33 + subdominant: 1

INVENTORY FACTORS:

Slope:	4 - 8 degrees	32%	B
	9 -15 degrees	28%	D
	0 - 3 degrees	27%	A
Rock type:	Terrace gravels and	32%	Lo/Al
	dune sands from loess	13%	Um+Gn
	over soft sand and silt-	10%	Gn+In
	stone, fiordland complex,	10%	In+Um
Soil:	igneous rocks		
	Lowland podzolised	89%	60b, 63c, 63ch
	yellow-brown earths and podzols		
	Lowland yellow-brown	10%	43d
	earths		
Erosion:	Present -	Negligible to slight wind and sheet	
	Potential -	Slight wind and sheet	
Vegetation:	Low and high producing	50%	N3a
	pasture with manuka,	34%	P2
	matagouri and gorse scrub,	15%	P1
	coastal forest and mixed native scrub		

PRESENT LAND USE: Grazing, coastal forest and scrubland.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	2		2		2	
Otago	2				7	
Southland	2				7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-26			15-20 15-18

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Soils are mostly of low to very low fertility.

6c 3

6c3

DESCRIPTION: Flat to undulating high terraces with shallow soils in semi-arid districts. Cold winters.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin and Central Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S124:174977

AREA: 4170 ha (0.03% of S.I.) + subdominant: 5810 ha

NUMBER OF MAP UNITS: 14 + subdominant: 6

INVENTORY FACTORS:

Slope:	4 - 8 degrees	54%	B
	0 - 3 degrees	36%	A
	9 -15 degrees	10%	C
Rock type:	Schist and greywacke	53%	A1
	alluvium, loess in places	16%	A1/(Ss)
		10%	St2
Soil:	Brown-grey earths	57%	1a, 4, 1
	Upland and high country yellow-brown earths	35%	48a, 55a
	Yellow-grey earths	8%	15a
Erosion:	Present - Slight to moderate wind		
	Potential - Slight to moderate wind		
Vegetation:	Low producing pasture	53%	P2
	with sweet briar and semi-arid herb associations, short tussock associations with mata-gouri scrub	35%	P3

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.5		.5		3	
					(2.5-4)	
Otago	.2		.2		1.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Very dry summers and cold winters.

6c 4

6c4

DESCRIPTION: Undulating to rolling slopes with rock outcrops in a dry climate.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S143:147299

AREA: 15210 ha (0.10% of S.I.) + subdominant: 1110 ha

NUMBER OF MAP UNITS: 43 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	60%	C
	4 - 8 degrees	40%	B
Rock type:	Schist, loess in places	67%	(Lo)/St2
		25%	St2
Soil:	Yellow-grey earths	92%	9, 9d
	Upland and high country yellow-brown earths	5%	54b
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Slight to moderate wind and sheet		
Vegetation:	Short tussock associ-	81%	P3
	ations and low producing	19%	P2
	pasture with matagouri scrub		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.2		.5		2	
					(2-3)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Dry climate and rock outcrops preclude cropping and restrict pasture growth.

6e 1

6e1

DESCRIPTION: Strongly rolling to moderately steep hill country on hard limestone in seasonally moisture-deficient districts. Soils have a high fertility.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, coastal Otago, minor extent in Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S136:467716

AREA: 10390 ha (0.07% of S.I.) + subdominant: 2000 ha

NUMBER OF MAP UNITS: 36 + subdominant: 7

INVENTORY FACTORS:

Slope:	21-25 degrees	53%	E
	16-20 degrees	36%	D
	26-35 degrees	11%	F
Rock type:	Limestone, loess in places	62%	Ls
		22%	(Lo)/Ls
Soil:	Rendzina and related soils	100%	71aH, 71H, 71bH
Erosion:	Present - Slight sheet and scree		
	Potential - Slight to moderate sheet and scree		
Vegetation:	High and low producing pasture, short tussock associations with mata-gouri scrub and some manuka	52%	P1
		30%	P3
		18%	P2

PRESENT LAND USE: Intensive grazing, extensive grazing.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		9		12	
	(5-8)		(7-12)		(10-14)	
Nelson	4		6		9	
	(2-5)				(7-10)	
Otago	6		9		11	
	(5-7)				(7-11)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	18		19-23	21-24

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Unit includes escarpments. Sheet erosion is more prevalent on steeper, sunny faces.

6e 2

6e2

DESCRIPTION: Strongly rolling to moderately steep hill country with soils of medium fertility on soft limestone in seasonally moisture-deficient districts. Unit is subject to slight slip and slump erosion.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, north Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S68:003138

AREA: 6490 ha (0.04% of S.I.) + subdominant: 5830 ha

NUMBER OF MAP UNITS: 29 + subdominant: 8

INVENTORY FACTORS:

Slope:	21-25 degrees	44%	E
	16-20 degrees	44%	D
	26-35 degrees	11%	F
Rock type:	Sandy limestones, calcareous sandstones and marls, loess in places	44%	Ls
		13%	(Lo)/Ss
		10%	Ss+Ls
Soil:	Rendzina and related soils	79%	7ldH, 7lcH
	Yellow-grey to yellow-brown earths intergrade	13%	30H
	Brown granular loams and clays	8%	76bH
Erosion:	Present	-	Slight to moderate sheet, soil slip and scree
	Potential	-	Slight to moderate sheet, soil slip and scree
Vegetation:	High and low producing pasture, short tussock associations with mata-gouri scrub	77%	P1
		13%	P2

PRESENT LAND USE: Intensive grazing, extensive grazing.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		9		12	
	(5-10)		(6-11)		(7-14)	
Otago	7		10		13	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland Canterbury		Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				19-23		21-24

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e 3

6e3

DESCRIPTION: Strongly rolling to moderately steep Tertiary hill country in a mild wet climate.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S3:011950

AREA: 9490 ha (0.06% of S.I.) + subdominant: 130 ha

NUMBER OF MAP UNITS: 63 + subdominant: 2

INVENTORY FACTORS:

Slope:	16-20 degrees	40%	D
	21-25 degrees	40%	E
	9 -15 degrees	20%	C
Rock type:	Calcareous sandstone,	23%	Ls+Ss
	limestone and mudstone	21%	Ms+Al
		16%	Ms
		12%	Ss+Ls
		10%	Ls+Ms
Soil:	Lowland yellow-brown earths	89%	44H, 38bH, 44
	Rendzina and related soils	11%	73bH
Erosion:	Present - Slight to moderate soil slip, slight sheet		
	Potential - Moderate soil slip, earthflow and sheet		
Vegetation:	Manuka scrub, low producing pasture, beech-	53%	M1
	podocarp forest, bracken	19%	P2
	fern and gorse		

PRESENT LAND USE: Reverted and undeveloped land, semi-intensive grazing.

POTENTIAL LAND USE: Intensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		10		12	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index: 28-32						

SOIL CONSERVATION MEASURES: Oversow and topdress soil slips.

ADDITIONAL COMMENTS:

6e 4

6e4

DESCRIPTION: Strongly rolling to moderately steep limestone and marble hill country in moist districts.

GEOGRAPHICAL DISTRIBUTION: Takaka district in Nelson.

ALTITUDE ZONE: Lowland-Lower montane

TYPICAL LOCALITY: S8:183715

AREA: 6950 ha (0.05% of S.I.) + subdominant: 480 ha

NUMBER OF MAP UNITS: 38 + subdominant: 3

INVENTORY FACTORS:

Slope:	16-20 degrees	55%	D
	21-25 degrees	36%	E
Rock type:	Limestone and marble	66%	Ma
Soil:	Rendzina and related soils	88%	74cH, 74c
	Lowland yellow-brown earths	8%	-
Erosion:	Present - Slight soil slip and sheet		
	Potential - Moderate soil slip, sheet and scree		
Vegetation:	Beech and some podocarp forest, bracken fern and manuka scrub, low producing pasture	35% 30% 11% 10%	M4 N4 M6 P2

PRESENT LAND USE: Indigenous forest, reverted and undeveloped land, grazing.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	8		10		14	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	20-25		22-25			

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e 5

6e5

DESCRIPTION: Strongly rolling to steep volcanic and limestone hill country.

GEOGRAPHICAL DISTRIBUTION: Nelson, eastern Marlborough, Banks Peninsula, coastal Otago, western Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S164:227848

AREA: 84320 ha (0.56% of S.I.) + subdominant: 5210 ha

NUMBER OF MAP UNITS: 354 + subdominant: 15

INVENTORY FACTORS:

Slope:	26-35 degrees	44%	F
	21-25 degrees	36%	E
	16-20 degrees	18%	D
Rock type:	Limestone, basalt and other volcanic rocks	24%	(Lo)/Vo
		14%	In
		14%	Vo
		12%	Ls
Soil:	Brown granular loams and clays	74%	77a, 77c, 76H, 76cH
	Rendzina and related soils	18%	74a
	Brown granular loams and clays to yellow-brown earths intergrade	7%	-
Erosion:	Present	-	Slight to moderate sheet and soil slip
	Potential	-	Slight to moderate sheet and soil slip
Vegetation:	Short tussock associations, high and low producing pasture, gorse and mixed native scrub, manuka scrub and bracken fern, beech-podocarp forest	36%	P2
		35%	P3
		10%	P1

PRESENT LAND USE: Grazing, reverted land, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		8		11	
Nelson	8		12		14	
Otago	7		10		14	
	(5-10)				(14-15)	
Southland	5		10		12	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland	
District:	Nel	Marl		Inv	Dun
Site Index:	28-32	26-30	22-25	20-25	22-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e 6

6e6

DESCRIPTION: Strongly rolling to steep hill country on harder rocks in cool, wet districts.

GEOGRAPHICAL DISTRIBUTION: Central and eastern Southland, South Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S179:227168

AREA: 70580 ha (0.47% of S.I.) + subdominant: 3120 ha

NUMBER OF MAP UNITS: 168 + subdominant: 8

INVENTORY FACTORS:

Slope:	21-25 degrees	58%	E
	16-20 degrees	29%	D
	26-35 degrees	13%	F
Rock type:	Tuffaceous greywacke,	28%	Gw
	loess in places	20%	(Lo)/Hs
		19%	Hs+Gw
Soil:	Lowland yellow-brown earths	99%	35aH, 36cH, 36H
Erosion:	Present - Slight sheet		
	Potential - Slight to moderate sheet and soil slip		
Vegetation:	Short and red tussock	52%	P3
	associations, low and	19%	P2
	high producing pasture,	14%	P5
	mixed native scrub,		
	podocarp-hardwood forest,		
	manuka scrub and bracken fern		

PRESENT LAND USE: Grazing, undeveloped land, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Otago	8		11		15	
Southland	8		13		14	
	(7-10)					

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				20-25 20-25

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e 7

6e7

DESCRIPTION: Strongly rolling to moderately steep Tertiary hill country in cool, moist inland districts.

GEOGRAPHICAL DISTRIBUTION: Western Southland, Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S167:781582

AREA: 24930 ha (0.16% of S.I.) + subdominant: 4690 ha

NUMBER OF MAP UNITS: 115 + subdominant: 16

INVENTORY FACTORS:

Slope:	21-25 degrees	66%	E
	16-20 degrees	31%	D
Rock type:	Mudstone, siltstone,	20%	Ss+Ms
	sandstone and limestone,	14%	Al/Ss+Ms
	loess in places		
Soil:	Lowland yellow-brown	85%	36dH, 38aH
	earths		
	Upland and high country	12%	54jH
	yellow-brown earths		
Erosion:	Present - Slight sheet, soil slip and slump		
	Potential - Moderate soil slip and slump		
Vegetation:	Short, red and snow	36%	P3
	tussock associations,	35%	P2
	low producing pasture,	13%	M4
	bracken fern and manuka		
	scrub, beech-podocarp		
	forest		

PRESENT LAND USE: Grazing, undeveloped land, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7		2		12	
Southland	5		6		9	

(8-10)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				18-25 18-25

SOIL CONSERVATION MEASURES: Plant slips and slumps.

ADDITIONAL COMMENTS:

6e 8

6e8

DESCRIPTION: Strongly rolling to moderately steep, loess-covered downlands and hill country in the summer moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury, coastal Marlborough, coastal Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S111:619540

AREA: 111190 ha (0.73% of S.I.) + subdominant: 54190 ha

NUMBER OF MAP UNITS: 307 + subdominant: 122

INVENTORY FACTORS:

Slope:	21-25 degrees	57%	E
	16-20 degrees	40%	D
Rock type:	Loess on sandstone,	10%	Ss
	mudstone and silt-stone	10%	Lo/Al
Soil:	Yellow-grey earths	99%	21H, 16eH, 20H, 17b, 22bH, 16fH, 15H, 22cH
Erosion:	Present	-	Slight to moderate sheet, soil slip and tunnel gully
	Potential	-	Moderate sheet, soil slip and tunnel gully
Vegetation:	High and low producing	46%	P1
	pasture, short tussock	25%	P2
	associations with mata-gouri scrub, gorse and manuka scrub	23%	P3

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		8		14	
	(4-8)		(4-13)		(8-14)	
Nelson	7		10		12	
Otago	4		8		10	
	(3-5)				(8-11)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	22-24		19-25	18-23

SOIL CONSERVATION MEASURES: Oversowing and top-dressing of eroded areas.

ADDITIONAL COMMENTS: Care is needed in the management of ephemeral stream courses to prevent soil slip and sheet erosion.

6e 9

6e9

DESCRIPTION: Strongly rolling to steep gravel hill country with a variable loess cover. Unit occurs in eastern seasonally moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: South Canterbury, north Otago, minor extent in north Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S128:564994

AREA: 31600 ha (0.21% of S.I.) + subdominant: 11820 ha

NUMBER OF MAP UNITS: 80 + subdominant: 28

INVENTORY FACTORS:

Slope:	16-20 degrees	50%	D
	21-25 degrees	43%	E
Rock type:	Greywacke gravels, with	21%	Lo/Ss
	some sandstone, loess	14%	A1
	in places	10%	Lo/Ss+Cg
Soil:	Yellow-grey earths	95%	16cH, 16H, 22fH,
			15cH, 16aH
Erosion:	Present	-	Slight to moderate sheet and gully
	Potential	-	Moderate sheet and gully
Vegetation:	High and low producing	64%	P1
	pasture with gorse and matagouri scrub	31%	P2

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		8		10	
			(7-10)		(8-11)	
Otago	4		6		9	
	(4-5)				(8-9)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			20-25	20-23

SOIL CONSERVATION MEASURES: Oversowing and top-dressing of eroded areas. Gully control.

ADDITIONAL COMMENTS:

6e10

6e10

DESCRIPTION: Strongly rolling to steep exposed hill country on harder rocks in moist districts.

GEOGRAPHICAL DISTRIBUTION: Otago, Southland, Banks Peninsula.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S163:825762

AREA: 118260 ha (0.78% of S.I.) + subdominant: 14110 ha

NUMBER OF MAP UNITS: 372 + subdominant: 31

INVENTORY FACTORS:

Slope:	21-25 degrees	65%	E
	16-20 degrees	26%	D
Rock type:	Greywacke, tuffaceous	26%	St2
	greywacke, schist and	21%	(Lo)/St2
	basalt, loess in places	18%	Gw
Soil:	Upland and high country	90%	54bH, 54hH, 54eH
	yellow-brown earths		
Erosion:	Present - Slight to moderate sheet		
	Potential - Moderate sheet		
Vegetation:	Short, snow and red	49%	P3
	tussock associations,	16%	P4
	with bracken fern, mata-	14%	P2
	gouri, manuka, gorse		
	scrub in places, low and		
	high producing pasture		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		7		9	
Otago	4		10		10	
	(3-7)				(6-11)	
Southland	4		8		9	
	(4-8)				(7-12)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			18-23	15-22 16-22

SOIL CONSERVATION MEASURES: Oversowing and top-dressing of eroded areas.

ADDITIONAL COMMENTS:

6ell

6ell

DESCRIPTION: Strongly rolling to steep hill country on harder rocks in moderate rainfall areas.

GEOGRAPHICAL DISTRIBUTION: Eastern districts from Marlborough to Southland.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 54:157689

AREA: 484540 ha (3.20% of S.I.) + subdominant: 8660 ha

NUMBER OF MAP UNITS: 1080 + subdominant: 16

INVENTORY FACTORS:

Slope:	26-35 degrees	56%	F
	21-25 degrees	36%	E
Rock type:	Various rock types,	43%	Gw
	loess in places	14%	St2
Soil:	Lowland yellow-brown earths	100%	41a, 41cH, 41aH, 41c
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Moderate sheet, soil slip and scree		
Vegetation:	Short tussock associations, low producing pasture, bracken fern and manuka scrub, snow tussock associations, high producing pasture, exotic forest, beech forest	54%	P3
		18%	P2

PRESENT LAND USE: Grazing, reverted land, production forestry, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		7		7	
	(.5-2.5)		(6-8)		(5-10)	
Nelson	4		5		11	
	(2-5)				(9-13)	
Otago	2		5		6	
					(5-7)	
Southland	3				7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26-30	24-30	22-25	18-24 18-24

SOIL CONSERVATION MEASURES: Conservation fencing, oversowing and top-dressing of eroded areas.

ADDITIONAL COMMENTS: Scrub reversion is a problem.

6e12

6e12

DESCRIPTION: Strongly rolling to moderately steep fertile mudstone hill country, with arid conditions and cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S125:616855

AREA: 8940 ha (0.06% of S.I.) + subdominant: 7080 ha

NUMBER OF MAP UNITS: 36 + subdominant: 21

INVENTORY FACTORS:

Slope:	16-20 degrees	55%	D
	21-25 degrees	41%	E
Rock type:	Sandstone, mudstone and siltstone, slope deposits, loess in places	33%	Ss+Ms
Soil:	Yellow-grey earths	92%	8cH
	Brown-grey earths	8%	4dH
Erosion:	Present - Slight to moderate sheet, soil slip and gully		
	Potential - Slight to moderate sheet, soil slip and gully		
Vegetation:	Low producing pasture	54%	P3
	and short tussock associations with mata-gouri and sweet briar scrub	44%	P2

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	4		5		6	
					(4-7)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing, close planting on mass movements.

ADDITIONAL COMMENTS:

6e13

6e13

DESCRIPTION: Strongly rolling to steep hill country with a seasonal moisture deficiency and liable to tunnel gully erosion in the loess mantle. Unit occurs in eastern districts.

GEOGRAPHICAL DISTRIBUTION: Blenheim district, Port Hills/Banks Peninsula, central Clutha in Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 29:346853

AREA: 44520 ha (0.29% of S.I.) + subdominant: 6810 ha

NUMBER OF MAP UNITS: 142 + subdominant: 26

INVENTORY FACTORS:

Slope:	21-25 degrees	53%	E
	16-20 degrees	23%	D
	26-35 degrees	22%	F
Rock type:	Loess over various rock types	29%	Lo/Vo
		24%	Lo/St2
		17%	Lo
Soil:	Yellow-grey earths	100%	15gH, 8aH, 15dH
Erosion:	Present - Slight to moderate tunnel gully, sheet and soil slip		
	Potential - Moderate tunnel gully and sheet, slight soil slip		
Vegetation:	Low and high producing pasture, short tussock	43%	P2
	associations with mata-gouri, gorse and manuka in places	32%	P1
		21%	P3

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	6		9		10	
	(5-7)		(7-9)		(9-10)	
Nelson	5		7		12	
Otago	6		7		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20-24		19-23	18-23

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Tunnel gully control by mechanical means.

ADDITIONAL COMMENTS:

6e14

6e14

DESCRIPTION: Strongly rolling to steep hill country on greywacke and schist in seasonally moisture-deficient parts of eastern districts.

GEOGRAPHICAL DISTRIBUTION: Marlborough, Canterbury, eastern Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 61:332416

AREA: 185100 ha (1.22% of S.I.) + subdominant: 7240

NUMBER OF MAP UNITS: 319 + subdominant: 15

INVENTORY FACTORS:

Slope:	26-35 degrees	47%	F
	21-25 degrees	42%	E
	16-20 degrees	10%	D
Rock type:	Greywacke and schist,	49%	Gw
	loess in places	17%	(A1)/Gw
Soil:	Yellow-grey earths	99%	24, 24aH, 24a, 23eH, 17a
Erosion:	Present - Slight to moderate		sheet and soil slip
	Potential - Moderate		sheet and soil slip
Vegetation:	Short tussock associ-	72%	P3
	ations with bracken fern	15%	P2
	and matagouri scrub, low		producing pasture

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		1.5		3 (3-5)	
Nelson	2		7		10	
Otago	1		1		3 (3-5)	
Southland	2		3		7	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	20-24		18-23		18-23	18-22

SOIL CONSERVATION MEASURES: Conservation fencing. Oversewing and top-dressing.

ADDITIONAL COMMENTS: Similar in many respects to unit 6e11, but occurs in drier environments. Erosion on sunny faces is aggravated by dry foehn winds.

6e15

6e15

DESCRIPTION: Strongly rolling to steep, low-fertility Tertiary and hard rock hill country with moderate rainfall in eastern districts.

GEOGRAPHICAL DISTRIBUTION: Eastern and southern Marlborough, inland Canterbury, Banks Peninsula, eastern and southern Otago and Southland.

ALTITUDE ZONE: Lowland-Lower montane

TYPICAL LOCALITY: S 36:332584

AREA: 191520 ha (1.27% of S.I.) + subdominant: 36520 ha

NUMBER OF MAP UNITS: 570 + subdominant: 94

INVENTORY FACTORS:

Slope:	21-25 degrees	60%	E
	16-20 degrees	30%	D
Rock type:	Sandstone, siltstone, mudstone, conglomerate and argillite, loess in places	-	-
Soil:	Yellow-grey to yellow-brown earths intergrade	71%	28eH, 29dH, 29cH, 29H, 31bH
	Yellow-grey earths	15%	22gH, 22dH
	Lowland yellow-brown earths	13%	40aH
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Moderate sheet and soil slip		
Vegetation:	Low and high producing pasture, short tussock associations, manuka scrub, bracken fern, gorse, mixed native scrub, exotic forest	34% 27% 19%	P2 P1 P3

PRESENT LAND USE: Grazing, reverted land, production forestry.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5 (3-5)		8		12 (9-12)	
Nelson	8 (5-10)		12 (10-12)		15 (14-15)	
Otago	2		3		7 (4-10)	
Southland	8 (8-11)		12		13 (10-16)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26-30	26-30	23-25	20-25 21-25

SOIL CONSERVATION MEASURES: Conservation fencing, oversowing and top-dressing, space planting.

ADDITIONAL COMMENTS: Scrub reversion is a problem.

6e16

6e16

DESCRIPTION: Strongly rolling to steep, low-fertility hill country mainly on gravels, and colluvium with moderate rainfall.

ALTITUDE ZONE: Lower montane

GEOGRAPHICAL DISTRIBUTION: Nelson, Kaikoura district, inland Canterbury, eastern Otago, central Southland.

TYPICAL LOCALITY: S 20:442196

AREA: 81630 ha (0.54% of S.I.) + subdominant: 17870 ha

NUMBER OF MAP UNITS: 298 + subdominant: 47

INVENTORY FACTORS:

Slope:	21-25 degrees	55%	E
	16-20 degrees	31%	D
	26-35 degrees	11%	F
Rock type:	Gravels and colluvium, loess in places	59%	A1
Soil:	Lowland yellow-brown earths	47%	37H, 45bH, 35cH, 37aH
	Yellow-grey to yellow-brown earths intergrade	45%	29cH, 32, 31aH
	Yellow-grey earths	7%	22hH
Erosion:	Present - Slight to moderate sheet, soil slip and gully		
	Potential - Moderate sheet, soil slip and gully		
Vegetation:	Low and high producing pasture, exotic forest,	30%	P2
	gorse, short tussock	29%	N6
	associations, bracken fern, manuka scrub,	14%	P1
	beech forest		

PRESENT LAND USE: Production forestry, reverted land, grazing.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	9		13		14	
Nelson	9		11		13	
	(7-10)				(11.5-14)	
Otago	5		6		7	
Southland	11		15		16	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31	27-31	22-25	21-25 21-25

SOIL CONSERVATION MEASURES: Conservation fencing, oversowing and top-dressing, gully protection works.

ADDITIONAL COMMENTS: Scrub reversion is a problem.

6e17

6e17

DESCRIPTION: Strongly rolling to moderately steep mudstone hill country with a moderate potential for earthflow erosion. Climate is generally cool and moist.

GEOGRAPHICAL DISTRIBUTION: North Canterbury, coastal Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S155:205917

AREA: 9560 ha (0.06% of S.I.) + subdominant: 4100 ha

NUMBER OF MAP UNITS: 37 + subdominant: 13

INVENTORY FACTORS:

Slope:	21-25 degrees	52%	E
	16-20 degrees	31%	D
	26-35 degrees	17%	F
Rock type:	Mudstone, loess in places	21%	Lo/Ms
		14%	Ss
		12%	(Lo)/Ms
		11%	Lo/Ar
Soil:	Yellow-grey earths	58%	22iH, 22gH, 24
	Yellow-grey to yellow-grey earths intergrade	42%	30bH, 28bH
Erosion:	Present	Slight to moderate soil slip, earthflow and sheet	
	Potential	Moderate soil slip, earth flow and sheet	
Vegetation:	Low and high producing pasture, short tussock associations, mixed	53%	P2
	native scrub, manuka scrub	23%	P3
		21%	P1

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5		6		9	
Nelson	5		6		9	
Otago	6		11		12	
	(5-9)				(9-12)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			22-25	21-25

SOIL CONSERVATION MEASURES: Space and close planting on areas of mass movement.

ADDITIONAL COMMENTS:

6e18

6e18

DESCRIPTION: Strongly rolling to moderately steep Tertiary hill country with a moderate potential for soil slip and sheet erosion under a grassland regime. Moderately high rainfall.

GEOGRAPHICAL DISTRIBUTION: Nelson, North Westland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 26:051842

AREA: 26780 ha (0.18% of S.I.) + subdominant: 4010 ha

NUMBER OF MAP UNITS: 91 + subdominant: 4

INVENTORY FACTORS:

Slope:	21-25 degrees	73%	E
	16-20 degrees	21%	D
Rock type:	Mudstone, sandstone and siltstone, some calcareous	19%	Ss+Ms
		16%	Ms
		14%	Ms+Ss
Soil:	Lowland yellow-brown earths	72%	44cH, 44bH, 42cH, 47fH
	Upland and high country podzolised yellow-brown earths and podzols	28%	65fH
Erosion:	Present - Slight soil slip and sheet		
	Potential - Moderate soil slip and sheet		
Vegetation:	Podocarp-beech forest,	52%	N3a
	low producing pasture,	14%	N4
	bracken fern and manuka scrub	14%	P2

PRESENT LAND USE: Indigenous forest, grazing, reverted land.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0				12	
(10-12)						

Exotic forest growth potential (P. radiata site index) :

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31	28		

SOIL CONSERVATION MEASURES: Oversowing and top-dressing.

ADDITIONAL COMMENTS:

6e19

6e19

DESCRIPTION: Strongly rolling to moderately steep hill country on various rock types in districts with dry summers and a cold winter climate.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin, minor extent in inland south Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S145:865464

AREA: 218990 ha (1.45% of S.I.) + subdominant: 21760 ha

NUMBER OF MAP UNITS: 688 + 56

INVENTORY FACTORS:

Slope:	21-25 degrees	45%	E
	16-20 degrees	40%	D
	9 -15 degrees	10%	C
Rock type:	Greywacke, schist,	32%	St2
	glacial till and	16%	Al
	alluvial gravels,	11%	(Lo)/St2
	loess in places	10%	Gw
Soil:	Yellow-grey earths	75%	9H, 9aH, 23f
	Upland and high country	15%	50H
	yellow-brown earths		
	Brown-grey earths	10%	-
Erosion:	Present - Slight to moderate sheet and wind		
	Potential - Slight to moderate sheet and wind		
Vegetation:	Short tussock associ-	65%	P3
	ations, with matagouri	28%	P2
	scrub, bracken fern		
	and sweet briar, low		
	producing pasture, semi-		
	arid herb associations		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		2		3.5	
					(2-4.5)	
Otago	1		2		3	
	(1-6)				(3-10)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			14-18	15-18 15-20

SOIL CONSERVATION MEASURES: Conservation fencing, oversowing and top-dressing.

ADDITIONAL COMMENTS:

6e20

6e20

DESCRIPTION: Strongly rolling to moderately steep hill country on basalt with very shallow and droughty soils containing many rock outcrops. Summers are very dry and hot. Winters are cold.

GEOGRAPHICAL DISTRIBUTION: North Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S135:896516

AREA: 5540 ha (0.04% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 32

INVENTORY FACTORS:

Slope:	16-20 degrees	51%	D
	21-25 degrees	49%	E
Rock type:	Basalt, loess in places	81%	(Lo)/Vo
		11%	Vo
Soil:	Brown granular loams and clays	100%	75aH, 76aH, 75H
Erosion:	Present - Slight to moderate sheet, scree and wind		
	Potential - Moderate sheet		
Vegetation:	Low producing pasture,	80%	P2
	short tussock associations with matagouri scrub and sweet briar	14%	P3

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	4		4		5	
					(4-6)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				21-23

SOIL CONSERVATION MEASURES: Oversowing and top-dressing.

ADDITIONAL COMMENTS:

6e21

6e21

DESCRIPTION: Strongly rolling to steep low-fertility hill country on harder rocks.

GEOGRAPHICAL DISTRIBUTION: Southland and Otago, mainly coastal and Marlborough Sounds, Nelson, minor extent in inland Canterbury.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S 16:277330

AREA: 183250 ha (1.21% of S.I.) + subdominant: 18360 ha

NUMBER OF MAP UNITS: 552 + subdominant: 36

INVENTORY FACTORS:

Slope:	21-25 degrees	59%	E
	16-20 degrees	25%	D
	26-35 degrees	15%	F
Rock type:	Greywacke, tuffaceous greywacke and subschist, granite, shales, sandstones and slates	47%	Hs
Soil:	Lowland yellow-brown earths	51%	39H, 36fH, 37fH
	Lowland podzolised yellow-brown earths and podzols	34%	61H, 61cH, 61bH
	Upland and high country podzolised yellow-brown earths and podzols	12%	64dH
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Moderate to severe sheet and soil slip		
Vegetation:	Low producing pasture,	35%	N3a
	podocarp-beech hardwood forest, bracken fern with mixed native scrub, high producing pasture, manuka and gorse scrub, exotic forest	17%	N4
		16%	P2

PRESENT LAND USE: Grazing, indigenous forest, reverted land, production forestry.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		8		12	
Nelson	4		7		12	
Otago	8		10		13	
Southland	8				13	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31	27-31	22-25	20-25 21-25

SOIL CONSERVATION MEASURES: Pasture management requires the careful application of soil conservation techniques.

ADDITIONAL COMMENTS: Scrub reversion is a continuing problem.

6e22

6e22

DESCRIPTION: Moderately steep to steep slopes on harder rocks on lower mountain ranges in districts with dry summers and cold winters.

GEOGRAPHICAL DISTRIBUTION: Otago, inland south Canterbury, minor extent in northern Southland, Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S109:770611

AREA: 194680 ha (1.29% of S.I.) + subdominant: 6940 ha

NUMBER OF MAP UNITS: 570 + subdominant: 14

INVENTORY FACTORS:

Slope:	26-35 degrees	70%	F
	21-25 degrees	25%	E
Rock type:	Greywacke and schist,	48%	St2
	colluvium and loess in	21%	Gw
	places	11%	St1
		11%	(Al)/Gw
Soil:	Yellow-grey earths	99%	10, 10a, 24a, 24aH
Erosion:	Present - Slight to moderate sheet, scree, wind and gully		
	Potential - Moderate sheet, scree, wind and gully		
Vegetation:	Short tussock associations, with matagouri and sweet briar scrub, low producing pasture, snow tussock associations, bracken fern and manuka scrub	79%	P3

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		5		8	
Nelson	.4		.4		2	
Otago	2		4		6	
Southland	2				7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15	<15	15-18	15-20 <15-20

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Gully control.

ADDITIONAL COMMENTS:

6e23

6e23

DESCRIPTION: Strongly rolling to moderately steep hill country in upland districts. Cold winters, with some snow-lie.

GEOGRAPHICAL DISTRIBUTION: Otago, northern Southland, inland Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S162:531702

AREA: 45970 ha (0.30% of S.I.) + subdominant: 6930 ha

NUMBER OF MAP UNITS: 135 + subdominant: 11

INVENTORY FACTORS:

Slope:	16-20 degrees	46%	D
	21-25 degrees	44%	E
Rock type:	Schist, greywacke,	41%	St2
	loess in places	23%	(Lo)/St2
		15%	St1
		10%	Gw
Soil:	Upland and high country	98%	55H, 54fH, 55aH, 55a, 55cH
	yellow-brown earths		
Erosion:	Present - Slight to moderate sheet and wind		
	Potential - Moderate sheet and wind		
Vegetation:	Snow tussock associ-	54%	P4
	ations, short tussock	39%	P3
	associations with bracken		
	fern and manuka scrub,		
	low producing pasture		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2				5	
Otago	2				5	
					(2)	
Southland	2				5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			19-22	<15-18 15-18

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing.

ADDITIONAL COMMENTS:

6e24

6e24

DESCRIPTION: Sand flats and rolling sand dunes with a moderate wind erosion potential under pasture.

GEOGRAPHICAL DISTRIBUTION: Coastal districts.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:057816

AREA: 5450 ha (0.04% of S.I.) + subdominant: 630 ha

NUMBER OF MAP UNITS: 26 + subdominant: 2

INVENTORY FACTORS:

Slope:	4 - 8 degrees	55%	B
	9 -15 degrees	26%	C
	16-20 degrees	11%	D
Rock type:	Dune sands	68%	Wb
		29%	Al+Wb
Soil:	Yellow-brown sands	98%	68, 68c, 70a, 68b, 70c
Erosion:	Present - Slight to moderate wind		
	Potential - Moderate wind		
Vegetation:	Exotic forest, high and	23%	P6
	low producing pasture,	23%	N6
	sand dune associations	22%	P1
		12%	H3

PRESENT LAND USE: Production forestry, grazing.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	3		3		5	
			(9)		(11)	
Nelson	3		9		11	
Otago	4		4		4	
Southland	1				4	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	27-31	27-31	25-28	18-20 18-20

SOIL CONSERVATION MEASURES: Good pasture management critical in this unit.

ADDITIONAL COMMENTS:

6e25

6e25

DESCRIPTION: Strongly rolling to moderately steep dissected terraces and hill country in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S51:661516

AREA: 88360 ha (0.58% of S.I.) + subdominant: 11950 ha

NUMBER OF MAP UNITS: 286 + subdominant: 17

INVENTORY FACTORS:

Slope:	21-25 degrees	48%	E
	26-35 degrees	41%	D
Rock type:	Gravels and conglomerate, sandstone, granite and schist	71%	A1
Soil:	Lowland yellow-brown earths	90%	46H, 46aH
	Upland and high country podzolised yellow-brown earths and podzols	10%	-
Erosion:	Present - Negligible to slight sheet and soil slip		
	Potential - Slight to moderate sheet and soil slip		
Vegetation:	Podocarp-beech hardwood forest, mixed native scrub, low producing pasture and bracken fern, exotic forest	55%	N3a
		26%	N4

PRESENT LAND USE: Indigenous forest, reverted land, grazing, production forestry.

POTENTIAL LAND USE: Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		10		13	
Otago	0		0		13	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	24-28	26-30		

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e26

6e26

DESCRIPTION: Flat to rolling plains, terraces and moraines with a severe potential for wind erosion under a pastoral regime in the dry inland basins.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, minor extent in inland South Canterbury, Central Otago and inland Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 90:174149

AREA: 42800 ha (0.28% of S.I.) + subdominant: 4950 ha

NUMBER OF MAP UNITS: 87 + subdominant: 14

INVENTORY FACTORS:

Slope:	4 - 8 degrees	55%	B
	9 -15 degrees	33%	C
Rock type:	Greywacke and schist	87%	A1
	alluvium, loess in places		
Soil:	Upland and high country	96%	50, 48, 48a
	yellow-brown earths		
Erosion:	Present - Slight to moderate wind		
	Potential - Moderate to severe wind		
Vegetation:	Short tussock associ-	83%	P3
	ations with matagouri	16%	P2
	and sweet briar scrub,		
	low producing pasture		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing, erosion control, forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.5		3		5	
Nelson	.6		3		5	
Otago	.5				5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		
Site Index:	<15		<15(-19)	Inv Dun 15-18

SOIL CONSERVATION MEASURES: Windbreaks. Irrigation.

ADDITIONAL COMMENTS:

6e27

6e27

DESCRIPTION: Flat to rolling moraines and fans with low-fertility, often bouldery soils in the eastern high country districts.
 GEOGRAPHICAL DISTRIBUTION: High country in Marlborough, Canterbury, Otago, northern Southland.
 ALTITUDE ZONE: Montane
 TYPICAL LOCALITY: S 66:402161
 AREA: 81240 ha (0.54% of S.I.) + subdominant: 5690 ha
 NUMBER OF MAP UNITS: 286 + subdominant: 19

INVENTORY FACTORS:

Slope:	9 -15 degrees	54%	C
	4 - 8 degrees	23%	B
	16-20 degrees	15%	D
Rock type:	Greywacke and schist	68%	A1
	gravels and moraines,	12%	Lo/A1
	loess in places	10%	A1/Gw
Soil:	Upland and high country	97%	53, 53b, 52, 52b
	yellow-brown earths		
Erosion:	Present - Slight to moderate sheet and wind		
	Potential - Moderate sheet and wind		
Vegetation:	Short tussock associ-	61%	P3
	ations with matagouri	15%	P2
	and sweet briar scrub,	13%	N4
	low producing pasture,		
	beech forest, snow tussock		
	associations, bracken		
	fern and manuka scrub		

PRESENT LAND USE: Grazing, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		4		5	
	(.5-2)				(3-7)	
Nelson	2		4		7	
Otago	4				7	
Southland	2				7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland		
District:	Nel	Marl		Inv	Dun	
Site Index:	18-24	18-24	20-24	15-20	<15	15-18

SOIL CONSERVATION MEASURES: Windbreaks. Oversowing and top-dressing.

ADDITIONAL COMMENTS: Cold winters.

6e28

6e28

DESCRIPTION: Strongly rolling to steep, low-fertility hill country, in the cold, moist, inland districts of Southland and Otago.

GEOGRAPHICAL DISTRIBUTION: Western and northern Southland, South Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S141:924258

AREA: 98400 ha (0.65% of S.I.) + subdominant: 21200 ha

NUMBER OF MAP UNITS: 256 + subdominant: 27

INVENTORY FACTORS:

Slope:	21-25 degrees	45%	E
	16-20 degrees	39%	D
	26-35 degrees	15%	F
Rock type:	Greywacke and schist,	23%	Ss+Ms
	loess in places, gravels	19%	Stl
	from various rock types, sandstone and mudstone in places		
Soil:	Upland and high country yellow-brown earths	35%	54iH, 57f
	Lowland yellow-brown earths	33%	44aH, 46bH
	Yellow-brown loams	17%	85aH
	Brown granular loams and clays	9%	76dH
	Lowland podzolised yellow-brown earths and podzols	6%	61aH
Erosion:	Present - Slight to moderate sheet, negligible to slight soil slip		
	Potential - Moderate sheet, slight soil slip		
Vegetation:	Beech forest, short tussock associations,	53%	N4
	low producing pasture,	15%	P3
	bracken ferns and manuka scrub, exotic forest	14%	P2

PRESENT LAND USE: Indigenous forest, grazing, production forestry.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	2				6	
Southland	2				8	

(6-12)

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				18-24 15-18

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6e29

6e29

DESCRIPTION: Strongly rolling to steep, short slopes with low-fertility soils in the eastern high country districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury and Otago high country, inland Southland, minor extent in Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 54:156791

AREA: 185260 ha (1.22% of S.I.) + subdominant: 7420 ha

NUMBER OF MAP UNITS: 616 + subdominant: 21

INVENTORY FACTORS:

Slope:	21-25 degrees	46%	E
	26-35 degrees	39%	F
	16-20 degrees	13%	D
Rock type:	Greywacke, schist and colluvium, loess in places	27%	Gw
		21%	St1
		20%	St2
Soil:	Upland and high country yellow-brown earths	98%	57c, 57aH, 53H, 57d, 57e
Erosion:	Present - Slight to moderate sheet, soil slip, wind and gully		
	Potential - Moderate sheet, soil slip, wind and gully		
Vegetation:	Short tussock associations with matagouri,	61%	P3
	bracken fern or manuka scrub, low producing pasture, snow tussock associations, beech forest	13%	M4
		10%	P2

PRESENT LAND USE: Extensive grazing, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1 (.5-2)		1		2	
Nelson	.5		1		3 (7)	
Otago	4				8 (6-10)	
Southland	1		1		6 (4-6)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	22-26	22-26	15-25	<15-20 15-18

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing.

ADDITIONAL COMMENTS:

6s 1

6sl

DESCRIPTION: Floodplains with very shallow, stony recent soils in cool, moist districts.

GEOGRAPHICAL DISTRIBUTION: Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S140:777218

AREA: 7720 ha (0.05% of S.I.) + subdominant: 4120 ha

NUMBER OF MAP UNITS: 74 + subdominant: 21

INVENTORY FACTORS:

Slope:	0 - 3 degrees	93%	A
Rock type:	Alluvium	95%	A1
Soil:	Recent soils	99%	98g, 98f
Erosion:	Present -	Slight to moderate streambank and deposition, slight wind	
	Potential -	Slight to moderate streambank and deposition, slight wind	
Vegetation:	Low producing pasture,	44%	P2
	short tussock associ-	18%	P3
	ations, beech forest,	11%	N4
	manuka scrub, broom and gorse, high producing pasture		

PRESENT LAND USE: Grazing, indigenous forest, reverted land.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	5				8	
Otago	8				10	
Southland	8		8		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				15-22 18-20

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6s 2

6s2

DESCRIPTION: Rolling downs and dissected terraces with very low fertility soils in moist districts.

GEOGRAPHICAL DISTRIBUTION: Western Southland, coastal Otago and eastern Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S164:162796

AREA: 7760 ha (0.05% of S.I.) + subdominant: 3100 ha

NUMBER OF MAP UNITS: 25 + subdominant: 6

INVENTORY FACTORS:

Slope:	9 -15 degrees	93%	C
Rock type:	Tuffaceous greywacke, schist colluvium and alluvial silts, gravels, loess in places	33%	Ms
		18%	Ss+Ms
Soil:	Lowland yellow-brown earths	50%	46b
	Lowland podzolised yellow-brown earths and podzols	37%	60b, 61, 61b
	Upland and high country podzolised yellow-brown earths and podzols	11%	64b
Erosion:	Present - Negligible to slight sheet Potential - Slight to moderate sheet		
Vegetation:	Beech-podocarp forest, short tussock associations, exotic forest, high and low producing pasture	67%	N4
		14%	N3a

PRESENT LAND USE: Indigenous forest, grazing, production forestry.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	7				14	
Southland	8		10		14	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland Canterbury		Southland	
District:	Nel	Marl			Inv	Dun
Site Index:					19-21	18-20

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

6s 3

6s3

DESCRIPTION: Floodplains with very shallow, stony recent soils in wet districts.

GEOGRAPHICAL DISTRIBUTION: Westland, Fiordland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 70:610606

AREA: 47180 ha (0.31% of S.I.) + subdominant: 5410 ha

NUMBER OF MAP UNITS: 209 + subdominant: 18

INVENTORY FACTORS:

Slope:	0 - 3 degrees	66%	A
	4 - 8 degrees	30%	B
Rock type:	Alluvium	94%	A1
Soil:	Recent soils	83%	99d, 99b, 99c
	Gley recent soils	16%	91
Erosion:	Present -	Negligible to moderate streambank and deposition	
	Potential -	Negligible to moderate streambank and deposition	
Vegetation:	Beech forest, podocarp-	41%	N4
	hardwood forest, low and	19%	N3a
	high producing pasture,	18%	P2
	short tussock associations, gorse and mixed native scrub		

PRESENT LAND USE: Indigenous forest, grazing, reverted land.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	8		13		18	
Otago	0		2		18	
Southland	0		0		18	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	US		US		US	US

SOIL CONSERVATION MEASURES: Streambank protection.

ADDITIONAL COMMENTS:

6s 4

6s4

DESCRIPTION: Intermediate and high terraces and fans with shallow soils containing many stones and boulders in high rainfall districts. Soils are of low fertility but not podzolised.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 78:514502

AREA: 29870 ha (0.20% of S.I.) + subdominant: 6620 ha

NUMBER OF MAP UNITS: 100 + subdominant: 26

INVENTORY FACTORS:

Slope:	9 -15 degrees	45%	C
	4 - 8 degrees	41%	B
	0 - 3 degrees	11%	A
Rock type:	Greywacke and granite alluvium	96%	A1
Soil:	Lowland yellow-brown earths	98%	43c, 43
Erosion:	Present - Negligible to slight streambank and deposition		
	Potential - Negligible to slight streambank and deposition		
Vegetation:	Podocarp-hardwood forest,	70%	N3a
	beech forest, high and low producing pasture	19%	N4

PRESENT LAND USE: Indigenous forest. Grazing.

POTENTIAL LAND USE: Grazing. Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		8		15	
Otago	0		0		15	
Southland	0		0		15	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	22-24	22-24		16-18 16-18

SOIL CONSERVATION MEASURES: Streambank protection. Drainage.

ADDITIONAL COMMENTS:

6s 5

6s5

DESCRIPTION: Rolling dunes and sand flats in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Central coastal Westland, coastal Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S50:544583

AREA: 14700 ha (0.10% of S.I.) + subdominant: 340 ha

NUMBER OF MAP UNITS: 88 + subdominant: 2

INVENTORY FACTORS:

Slope:	4 - 8 degrees	64%	B
	9 -15 degrees	18%	C
	0 - 3 degrees	12%	A
Rock type:	Dune sands	94%	Wb
Soil:	Yellow-brown sands	85%	70a, 70c, 70b
	Lowland podzolised yellow-brown earths	15%	63b
Erosion:	Present - Negligible to slight wind		
	Potential - Slight to moderate wind		
Vegetation:	Sand dune grassland and	46%	P6
	scrub associations, low	22%	P2
	and high producing	14%	P1
	pasture, gorse and mixed native scrub		

PRESENT LAND USE: Grazing, undeveloped land.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	10		12		16	
Otago	8		10		12	
Southland	1		3		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	25		26		18-20	18-20

SOIL CONSERVATION MEASURES: Windbreaks:

ADDITIONAL COMMENTS: Soils are generally less developed and of lower fertility than unit 5s4, and with a higher erosion potential.

6s 6

6s6

DESCRIPTION: Flat to rolling moraines and terraces with podzolised, low-fertility soils, with a sub-surface pan which impedes drainage. Unit occurs in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland, western Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S51:991729

AREA: 142900 ha (0.94% of S.I.) + subdominant: 11680 ha

NUMBER OF MAP UNITS: 397 + subdominant: 30

INVENTORY FACTORS:

Slope:	9 -15 degrees	42%	C
	0 - 3 degrees	32%	A
	4 - 8 degrees	25%	B
Rock type:	Granite and greywacke alluvium and glacial till	81%	A1
Soil:	Lowland podzolised yellow-brown earths and podzols	98%	62, 60a, 62d, 60b
Erosion:	Present - Negligible to slight sheet		
	Potential - Negligible to slight sheet and streambank		
Vegetation:	Podocarp-beech hardwood forest, mixed native	34%	N4a
	scrub, pakihi associations, low producing	14%	N4
		12%	N7
	pasture, gorse	10%	M6

PRESENT LAND USE: Indigenous forest, undeveloped land, grazing.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		12		17	
					(16-18)	
Otago	0		0		17	
Southland	0		0		15	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	20-22		22		15-20 15-20	

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS: The unit includes the better 'Pakihi' soils.

6s 7

6s7

DESCRIPTION: Plains and terraces with very shallow, stony soils, also bouldery moraines, in dry inland districts.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin, inland southern Marlborough, minor extent in inland south Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S109:700423

AREA: 90780 ha (0.60% of S.I.) + subdominant: 14290 ha

NUMBER OF MAP UNITS: 232 + subdominant: 53

INVENTORY FACTORS:

Slope:	0 - 3 degrees	72%	A
	4 - 8 degrees	21%	B
Rock type:	Greywacke and schist	88%	A1
	alluvium, loess in places		
Soil:	Upland and high country	69%	48, 49,
	yellow-brown earths		
	Recent soils	13%	94a
	Brown-grey earths	9%	-
Erosion:	Yellow-grey earths	8%	-
	Present - Slight to moderate wind		
	Potential - Slight to moderate wind		
Vegetation:	Short tussock associ-	47%	P3
	ations with sweet briar	46%	P2
	and matagouri scrub,		
	low and high producing		
	pasture		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.5		1		4	10
	(.2-1)				(2-7)	
Nelson	.5		1.5		3	
Otago	.5		1		5	
					(3-8)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	<15	<15		<15		<15

SOIL CONSERVATION MEASURES: Windbreaks, irrigation.

ADDITIONAL COMMENTS: Unit includes some rolling morainic surfaces.

Most brown-grey earths and some recent soils in this unit are slightly to moderately salty.

6s 8

6s8

DESCRIPTION: Floodplains with very shallow and stony soils in the summer moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: Canterbury, lower Waitaki Basin, Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 61:161380

AREA: 28700 ha (0.19% of S.I.) + subdominant: 9680 ha

NUMBER OF MAP UNITS: 120 + subdominant: 29

INVENTORY FACTORS:

Slope:	0 - 3 degrees	80%	A
	4 - 8 degrees	20%	B
Rock type:	Greywacke alluvium, loess in places	99%	A1
Soil:	Recent soils	100%	95a, 96c, 95
Erosion:	Present - Slight to moderate wind and streambank		
	Potential - Slight to moderate wind and streambank		
Vegetation:	High and low producing	44%	P1
	pasture, short tussock	24%	P2
	associations with broom and gorse, exotic forest	10%	M

PRESENT LAND USE: Grazing. Production forestry.

POTENTIAL LAND USE: Grazing. Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	3		6		7	
Nelson	5		6		7	16
Otago	3		6		7	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	16		15-17	15-17

SOIL CONSERVATION MEASURES: Windbreaks. Irrigation.

ADDITIONAL COMMENTS:

6s 9

6s9

DESCRIPTION: Undulating to rolling areas with numerous rock outcrops which preclude cultivation for cropping. Unit occurs in low rainfall districts with cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S154:870055

AREA: 32060 ha (0.21% of S.I.) + subdominant: 12460 ha

NUMBER OF MAP UNITS: 82 + subdominant: 19

INVENTORY FACTORS:

Slope:	9 -15 degrees	70%	C
	4 - 8 degrees	26%	B
Rock type:	Schist and greywacke,	71%	St2
	basalt, loess in places	21%	(Lo)/St2
Soil:	Yellow-grey earths	86%	9d, 9, 23e
	Brown-grey earths	14%	4a
Erosion:	Present - Slight to moderate sheet and wind		
	Potential - Slight to moderate sheet and wind		
Vegetation:	Low producing pasture,	65%	P2
	short tussock associ-	31%	P3
	ations with matagouri		
	and sweet briar scrub		

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	1		1		2	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				<15		<15

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS: Cold winters.

6s10

6s10

DESCRIPTION: Relatively stable coastal dunes and sand flats in dry to moist districts.

GEOGRAPHICAL DISTRIBUTION: Coastal Nelson, Canterbury and Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:035632

AREA: 9050 ha (0.06% of S.I.) + subdominant: 4800 ha

NUMBER OF MAP UNITS: 50 + subdominant: 5

INVENTORY FACTORS:

Slope:	4 - 8 degrees	53%	B
	0 - 3 degrees	46%	A
Rock type:	Dune sands and alluvium	62%	Wb
		35%	A1
Soil:	Yellow-brown sands	66%	68, 68a, 68b, 68c
	Saline gley recent soils	34%	92
Erosion:	Present - Slight wind		
	Potential - Slight wind		
Vegetation:	Low and high producing	49%	P2
	pasture with gorse	14%	P6
	scrub, sand dune	13%	N6
	associations, salt-	11%	P1
	tolerant associations	10%	H5

PRESENT LAND USE: Grazing, undeveloped.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	2		4		5	
	(1-4)					
Nelson	4		5		7	
Otago	1				4	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	18-25	18-25	25-28	18-20

SOIL CONSERVATION MEASURES: Windbreaks.

ADDITIONAL COMMENTS:

6s11

6s11

DESCRIPTION: Flat to rolling flood-plains, low terraces and fans with very shallow and stony recent soils in high country districts.

GEOGRAPHICAL DISTRIBUTION: High country in Southland, Otago, Canterbury, Marlborough and Nelson.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 53:742680

AREA: 85300 ha (0.56% of S.I.) + subdominant: 7060 ha

NUMBER OF MAP UNITS: 397 + subdominant: 25

INVENTORY FACTORS:

Slope:	0 - 3 degrees	61%	A
	4 - 8 degrees	33%	B
Rock type:	Alluvium from various rock types	99%	A1
Soil:	Recent soils	99%	99, 99a
Erosion:	Present - Slight to moderate wind, streambank and deposition		
	Potential - Slight to moderate wind, streambank and deposition		
Vegetation:	Short tussock associations with matagouri and sweet briar scrub, beech forest	52%	P3
		38%	P2

PRESENT LAND USE: Grazing, indigenous forest.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		7		6	
	(.5-1)				(6-9)	
Nelson	.7		7.5		8	
Otago	1				4	
					(2-6)	
Southland	2		7		11	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	20	20	US	<15(-18) <15-18 15-18

SOIL CONSERVATION MEASURES: Streambank protection. Windbreaks.

ADDITIONAL COMMENTS:

6sl2

6sl2

DESCRIPTION: Very shallow, stony terraces, fans and moraines generally in the eastern high country districts. Soils are of low to very low fertility.

GEOGRAPHICAL DISTRIBUTION: Inland Canterbury, Waitaki Basin, western Otago, western Southland.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 66:267145

AREA: 55730 ha (0.37% of S.I.) + subdominant: 12660 ha

NUMBER OF MAP UNITS: 217 + subdominant: 29

INVENTORY FACTORS:

Slope:	9 -15 degrees	44%	C
	4 - 8 degrees	40%	B
	0 - 3 degrees	13%	A
Rock type:	Greywacke alluvium,	67%	A1
	loess in places	12%	(Lo)/A1
Soil:	Upland and high country	51%	53b, 53
	yellow-brown earths		
Erosion:	Yellow-brown loams	47%	85a, 84, 85
	Present - Slight to moderate sheet, wind and streambank		
	Potential - Slight to moderate sheet, wind and streambank		
Vegetation:	Beech forest, short	40%	N4
	tussock associations with	26%	P3
	matagouri and sweet briar	14%	M1
	scrub, manuka scrub, bracken fern, low producing pasture		

PRESENT LAND USE: Indigenous forest, reverted land, extensive grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1				5	
Nelson	7		8		10	
	(5-10)				(8-13)	
Otago	5		6		7	
Southland	2		4		7	
					(7-9)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	18-24	18-24	20-24	<15(-18) <15-20 15-18

SOIL CONSERVATION MEASURES: Oversowing and top-dressing.

ADDITIONAL COMMENTS: This unit contains older soils of lower fertility than those in 6sl1.

6w 1

6w1

DESCRIPTION: Wet floodplains in moist, cool districts.

GEOGRAPHICAL DISTRIBUTION: Southland, coastal Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S172:880437

AREA: 4040 ha (0.03% of S.I.) + subdominant: 6450 ha

NUMBER OF MAP UNITS: 18 + subdominant: 11

INVENTORY FACTORS:

Slope:	0 - 3 degrees	99%	A
Rock type:	Peat, alluvium	44%	Pt
		22%	Pt/A1
		18%	A1
		11%	Pt/A1+Wb
Soil:	Organic soils	87%	86c, 86b
	Gley soils	9%	89e
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	Swamp associations	62%	H1
		20%	H2

PRESENT LAND USE: Grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	5		7		16	
Otago	3				10	
Southland	2				10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

6w 2

6w2

DESCRIPTION: Wet and swampy floodplains in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland, north-west Nelson.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 78:542575

AREA: 12630 ha (0.08% of S.I.) + subdominant: 630 ha

NUMBER OF MAP UNITS: 59 + subdominant: 3

INVENTORY FACTORS:

Slope:	0 - 3 degrees	90%	A
	4 - 8 degrees	10%	B
Rock type:	Alluvium from schist, greywacke and granite, peat in places	89%	A1
Soil:	Gley recent soils	85%	91a, 91
	Organic soils	7%	87a
	Recent soils	6%	-
Erosion:	Present - Negligible to slight streambank		
	Potential - Negligible to slight streambank		
Vegetation:	Swamp associations,	50%	H1
	podocarp-hardwood	14%	N3a
	forest, low producing	14%	N7
	pasture	13%	P2

PRESENT LAND USE: Swamp, indigenous forest, grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	1		12		16	
Otago	0		0		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US		US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

6w 3

6w3

DESCRIPTION: Swamp areas and raised bogs in the cold inland southern districts.

GEOGRAPHICAL DISTRIBUTION: Southland, Central Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S149:770146

AREA: 9320 ha (0.06% of S.I.) + subdominant: 8730 ha

NUMBER OF MAP UNITS: 42 + subdominant: 24

INVENTORY FACTORS:

Slope:	0 - 3 degrees	88%	A
	4 - 8 degrees	12%	B
Rock type:	Peat, alluvium from various rock types	76%	A1
Soil:	Gley recent soils	63%	90e, 90f
	Organic soils	20%	88, 87
	Gley soils	13%	89g
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Beech-podocarp forest,	25%	N4
	low producing pasture,	25%	P2
	short and red tussock	15%	P3
	associations, swamp associations	12%	P5

PRESENT LAND USE: Indigenous forest, grazing, swamp.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		3		8	
Otago	1		5		10	
Southland	0		0		9	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			US	US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

6w 4

6w4

DESCRIPTION: Wet, saline areas adjacent to salt lakes and lagoons.

GEOGRAPHICAL DISTRIBUTION: Coastal Otago, Southland, Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 29:443703

AREA: 990 ha (0.01% of S.I.) + subdominant: 480 ha

NUMBER OF MAP UNITS: 17 + subdominant: 5

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium	46%	A1
		28%	Wb
		20%	Pt/A1
Soil:	Saline gley recent soils	94%	92
	Yellow-brown sands	6%	70b
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Low producing pasture	38%	P2
	with rushes and sedges,	32%	H1
	swamp associations with	19%	H5
	mixed native scrub, salt tolerant associ- ations		

PRESENT LAND USE: Grazing, swamp.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	1		1		4	
Otago	1				4	
Southland	1				5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US		US US

SOIL CONSERVATION MEASURES: Drainage and desalinisation.

ADDITIONAL COMMENTS:

7c 1

7c1

DESCRIPTION: Rolling to strongly rolling slopes in southern high country districts above 600m a.s.l. on basalt. Soils are relatively stable, the main limitation to use being the very cold, exposed situation.

GEOGRAPHICAL DISTRIBUTION: Dunedin district.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S164:134808

AREA: 1660 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 3

INVENTORY FACTORS:

Slope:	16-20 degrees	62%	D
	9 -15 degrees	38%	C
Rock type:	Basalt, loess in places	62%	(Al)/In
		30%	Vo
Soil:	Brown granular loams and clays	100%	76bH, 76a, 76aH
Erosion:	Present - Slight sheet, scree and wind		
	Potential - Slight sheet, scree and wind		
Vegetation:	Snowgrass associations with subalpine scrub	100%	P4

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.3				2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Fire control.

ADDITIONAL COMMENTS:

7c 2

7c2

DESCRIPTION: Strongly rolling to steep slopes above 1000m a.s.l. in high rainfall districts. Soils are relatively stable, with a marble parent material. Capability is restricted by climatic conditions.

GEOGRAPHICAL DISTRIBUTION: Nelson.

ALTITUDE ZONE: Subalpine

TYPICAL LOCALITY: S8:097812

AREA: 3430 ha (0.02% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 10

INVENTORY FACTORS:

Slope:	4 - 8 degrees	51%	B
	16-20 degrees	22%	D
	21-25 degrees	15%	E
	26-35 degrees	12%	F
Rock type:	Marble	76%	Ls
		24%	Ma
Soil:	Lowland yellow-brown earths	70%	42cH, 44cH
	Rendzina and related soils	30%	74c
Erosion:	Present - Slight to moderate sheet		
	Potential - Moderate sheet		
Vegetation:	Snowgrass associations	51%	P4
	with subalpine scrub, beech forest, mixed native scrub and bracken fern.	44%	N4

PRESENT LAND USE: Undeveloped land. Extensive grazing.

POTENTIAL LAND USE: Extensive grazing. Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		0		.2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	<15			

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7c 3

7c3

DESCRIPTION: Undulating to rolling terraces, moraines, fans and floodplains in eastern high country districts above 1000m a.s.l. where climate is the dominant limitation.

GEOGRAPHICAL DISTRIBUTION: Inland Marlborough.

ALTITUDE ZONE: Subalpine

TYPICAL LOCALITY: S 41:529276

AREA: 14910 ha (0.10% of S.I.) + subdominant: 460 ha

NUMBER OF MAP UNITS: 62 + subdominant: 1

INVENTORY FACTORS:

Slope:	9 -15 degrees	65%	C
	4 - 8 degrees	24%	B
	0 - 3 degrees	11%	A
Rock type:	Greywacke alluvium	59%	A1
		15%	A1/(Gw)
		15%	A1/Gw
Soil:	Upland and high country yellow-brown earths	89%	53b, 50a, 53
	Recent soils	11%	99
Erosion:	Present - Slight to moderate sheet and wind, moderate to severe deposition		
	Potential - Moderate to severe sheet, wind and deposition		
Vegetation:	Short tussock associations, with sweet briar	57%	P3
	and matagouri scrub,	20%	N4
	snowgrass with subalpine herb associations,	10%	P4
	beech forest and mixed native scrub.		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	.5		1		4	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	<15		<15			

SOIL CONSERVATION MEASURES: Careful management of pasture, ensuring that a complete ground cover is maintained to prevent frost lift.

ADDITIONAL COMMENTS:

7c 4

7c4

DESCRIPTION: Undulating to strongly rolling tops in tussock-covered districts with a severe winter climate.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin, inland Marlborough, Southland.

ALTITUDE ZONE: Subalpine

TYPICAL LOCALITY: S 90:250197

AREA: 175650 ha (1.16% of S.I.) + subdominant: 9680 ha

NUMBER OF MAP UNITS: 418 + subdominant: 18

INVENTORY FACTORS:

Slope:	9 -15 degrees	52%	C
	4 - 8 degrees	32%	B
	16-20 degrees	13%	D
Rock type:	Greywacke and schist with colluvium, glacial till, loess in places	63%	St2
Soil:	Upland and high country yellow-brown earths	95%	55, 55c, 55b
Erosion:	Present - Slight to moderate wind and sheet Potential - Moderate wind and sheet		
Vegetation:	Snowgrass and short tussock associations, with subalpine herb-fields and scrub in places	78%	P4
		18%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.5		.5	
Nelson	.2		.5		2	
Otago	.3		.5		.5	
Southland	.2		.2		.2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	<15		US	<15	US	US

SOIL CONSERVATION MEASURES: Conservation fencing.

ADDITIONAL COMMENTS:

7c 5

7c5

DESCRIPTION: Flat to undulating high terraces with very shallow soils in semi-arid districts with cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S133:180505

AREA: 1730 ha (0.01% of S.I.) + subdominant: 60 ha

NUMBER OF MAP UNITS: 8 + subdominant: 1

INVENTORY FACTORS:

Slope:	4 - 8 degrees	88%	B
	0 - 3 degrees	12%	A
Rock type:	Schist and greywacke	100%	A1
	alluvium, loess in places		
Soil:	Brown-grey earths	100%	1, 4a
Erosion:	Present - Slight to moderate wind		
	Potential - Moderate wind		
Vegetation:	Low producing pasture	100%	P2
	with semi-arid herb associations		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.3		.5		1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl	Inv	Dun
Site Index:				<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Low priority for irrigation.

7c 6

7c6

DESCRIPTION: Undulating to strongly rolling downs above 700m a.s.l. in high rainfall districts, where the climate combined with the low-fertility soils severely limits use.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson, western Southland.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 33:123608

AREA: 12780 ha (0.08% of S.I.) + subdominant: 3030 ha

NUMBER OF MAP UNITS: 33 + subdominant: 4

INVENTORY FACTORS:

Slope:	9 -15 degrees	65%	C
	16-20 degrees	29%	D
Rock type:	Alluvium with loess in places, weathered	48%	Gn
	granite and greywacke	15%	Ar+Hs+Ls
		12%	Gn+In
Soil:	Upland and high country podzolised yellow-brown earths and podzols	85%	64f, 64e, 66H
	Lowland yellow-brown earths	13%	45a
Erosion:	Present - Negligible to slight sheet		
	Potential - Slight to moderate sheet		
Vegetation:	Mid-altitude podocarp-hardwood forest, red tussock associations, beech forest, snowgrass associations with sub-alpine scrub	43%	N3b
		23%	N4
		19%	P5

PRESENT LAND USE: Undeveloped.

POTENTIAL LAND USE: Extensive grazing, catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		0		1	
Southland	0		0		.2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15	US		US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Includes some areas at lower altitudes in exposed coastal situations.

7c 7

7c7

DESCRIPTION: Undulating to strongly rolling slopes with rock outcrops in the semi-arid zone, where the very dry climate severely limits use.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S144:453464

AREA: 11990 ha (0.08% of S.I.) + subdominant: 2790 ha

NUMBER OF MAP UNITS: 35 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	66%	C
	16-20 degrees	20%	D
	4 - 8 degrees	12%	B
Rock type:	Schist and schist colluvium, loess in places	91%	St2
Soil:	Brown-grey earths	96%	4, 4h
Erosion:	Present - Moderate wind and sheet		
	Potential - Moderate to severe wind and sheet		
Vegetation:	Low producing grassland, semi-arid herbfield associations, short tussock associations with matagouri and sweet briar scrub.	71%	P2
		22%	H7

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.2		.2		.4	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:						<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7e 1

7e1

DESCRIPTION: Steep to very steep volcanic hill country.

GEOGRAPHICAL DISTRIBUTION: Nelson, Marlborough, Banks Peninsula,
minor extent in Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 14:695329

AREA: 24310 ha (0.16% of S.I.) + subdominant: 9330 ha

NUMBER OF MAP UNITS: 108 + subdominant: 15

INVENTORY FACTORS:

Slope:	26-35 degrees	63%	F
	21-25 degrees	19%	E
	> 35 degrees	17%	G
Rock type:	Basalt and andesite,	26%	Gn+In
	loess in places	26%	Vo
		25%	In
Soil:	Brown granular loams	97%	77d, 77e, 77, 77a,
	and clays		77dH, 77c, 77eH
Erosion:	Present - Slight to severe sheet, soil slip and		
	scree		
	Potential - Moderate to severe sheet, soil slip and		
	scree		
Vegetation:	Short tussock associ-	32%	P3
	ations, beech forest,	23%	N4
	bracken fern, low	18%	M4
	producing pasture	17%	P2

PRESENT LAND USE: Extensive grazing, indigenous forest.

POTENTIAL LAND USE: Grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		1		3	
					(2.5-4)	
Nelson	8		12		12	
Otago	.5				3	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	25-29	19-25	17-20	18-23

SOIL CONSERVATION MEASURES: Conservative fencing. Oversowing and
top-dressing.ADDITIONAL COMMENTS: This unit has a more severe erosion potential
and is generally steeper than 6e5.

7e 2

7e2

DESCRIPTION: Steep to very steep depleted hill country on harder rock in summer moisture-deficient districts.

GEOGRAPHICAL DISTRIBUTION: Inland Otago, inland South Canterbury, minor extent in north Canterbury, Marlborough.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 81:718459

AREA: 7850 ha (0.05% of S.I.) + subdominant: 3090 ha

NUMBER OF MAP UNITS: 31 + subdominant: 3

INVENTORY FACTORS:

Slope:	26-35 degrees	83%	F
Rock type:	Greywacke and schist,	48%	Gw
	loess and colluvium	18%	(A1)/Gw
	in places	15%	(Lo)/St2
		14%	St2
Soil:	Yellow-grey earths	98%	24a, 17, 24, 24aH
Erosion:	Present - Moderate to severe sheet and soil slip		
	Potential - Moderate to severe sheet and soil slip		
Vegetation:	Short tussock associ-	44%	P3
	ations with matagouri	27%	P4
	scrub, snow tussock	17%	P2
	associations, low	10%	M1
	producing pasture,		
	manuka scrub		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		2		3	
					(1-5)	
Nelson	2		2		3	
Otago	.5				3	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	18		16-18	<15

SOIL CONSERVATION MEASURES: Conservative fencing. Oversewing and top-dressing.

ADDITIONAL COMMENTS: The unit comprises land that is steeper and more eroded than 6e14.

7e 3

7e3

DESCRIPTION: Steep to very steep eroded hill country on harder rock in moderate rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Marlborough, Canterbury, east and south Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 67:735104

AREA: 146250 ha (0.97% of S.I.) + subdominant: 15650 ha

NUMBER OF MAP UNITS: 414 + subdominant: 34

INVENTORY FACTORS:

Slope:	26-35 degrees	87%	F
Rock type:	Graywacke, schist,	51%	Gw
	argillite and slates,	11%	St1
	colluvium and loess	10%	(A1)/Gw
	in places		
Soil:	Lowland yellow-brown	100%	41a, 42b, 47
	earths		
Erosion:	Present - Moderate to severe sheet, soil slip and scree		
	Potential - Moderate to severe sheet, soil slip and scree		
Vegetation:	Short tussock associ-	26%	P3
	ations with matagouri	17%	N4
	scrub, low producing	14%	P2
	pasture, beech forest,	14%	M1
	manuka scrub, bracken		
	fern, gorse		

PRESENT LAND USE: Extensive grazing, indigenous forest, reverted land.

POTENTIAL LAND USE: Grazing, erosion control, forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		2		4	
	(1.5-2)					
Nelson	.5		3		5	
					(2-7)	
Otago	.5				2	
Southland	.5				3	
					(4-5)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	26-30	22-28	18-22	15-18 16-22

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Close planting of severely eroded areas.

ADDITIONAL COMMENTS: The unit comprises land that is steeper or more eroded than 6ell.

7e 4

7e4

DESCRIPTION: Steep Tertiary hill country in high rainfall western districts with a severe potential for soil slip and sheet erosion.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S51:872770

AREA: 19480 ha (0.13% of S.I.) + subdominant: 3480 ha

NUMBER OF MAP UNITS: 40 + subdominant: 1

INVENTORY FACTORS:

Slope:	26-35 degrees	89%	F
	21-25 degrees	11%	E
Rock type:	Mudstone, sandstone and siltstone	52%	Ms
		15%	Ms+Ss
		10%	(A1)/Ms
Soil:	Lowland yellow-brown earths	95%	42c, 44bH, 42cH, 44cH
	Upland and high country podzolised yellow-brown earths and podzols	5%	65f
Erosion:	Present - Slight to moderate soil slip and sheet		
	Potential - Severe soil slip and sheet		
Vegetation:	Beech and podocarp- hardwood forest, bracken	42%	N4
	fern and mixed native scrub, low producing	24%	M4
	pasture, exotic forest	17%	N3a

PRESENT LAND USE: Indigenous forest, reverted land, extensive grazing, production forestry.

POTENTIAL LAND USE: Erosion control forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		3		8	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	25-29		24			

SOIL CONSERVATION MEASURES: Forest and pasture management require the careful application of soil conservation techniques.

ADDITIONAL COMMENTS: Soils are of low to moderate fertility. High annual rainfall.

7e 5

7e5

DESCRIPTION: Rolling to steep fertile hill country with moderate to very severe earthflow.

GEOGRAPHICAL DISTRIBUTION: Coastal north Canterbury, Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S69:374166

AREA: 980 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 6

INVENTORY FACTORS:

Slope:	21-25 degrees	62%	E
	9 -15 degrees	32%	C
Rock type:	Sandstone, limestone	54%	Lo/Ar
		35%	Ss
Soil:	Yellow-grey earths	60%	22iH, 16dH
	Rendzina and related soils	32%	71a, 71aH
	Yellow-grey to yellow-brown earths intergrade	8%	31aH
Erosion:	Present -	Moderate to very severe earthflow, slump and soil slip	
	Potential -	Moderate to very severe earthflow, slump and soil slip	
Vegetation:	Short tussock associations with matagouri	62%	P3
	scrub and bracken fern, high producing pasture, hardwood forest and manuka scrub	32%	P1

PRESENT LAND USE: Grazing, reverted land.

POTENTIAL LAND USE: Grazing, erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	3		4		7	
Nelson	3		6		9	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	22-25		18-22	

SOIL CONSERVATION MEASURES: Close planting of poplars on eroded areas.

ADDITIONAL COMMENTS:

7e 6

7e6

DESCRIPTION: Strongly rolling to moderately steep foothills in low rainfall districts with cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago, minor extent in inland Canterbury.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S134:372574

AREA: 33410 ha (0.22% of S.I.) + subdominant: 5030 ha

NUMBER OF MAP UNITS: 78 + subdominant: 8

INVENTORY FACTORS:

Slope:	21-25 degrees	60%	E
	16-20 degrees	38%	D
Rock type:	Greywacke, schist and colluvium, loess in places	85%	St2
Soil:	Brown-grey earths	87%	4H
	Yellow-grey earths	13%	9H
Erosion:	Present - Moderate to severe sheet, wind and gully		
	Potential - Severe sheet, wind and gully		
Vegetation:	Low producing pasture,	51%	P2
	semi-arid herb associations, short tussock	34%	H7
	associations with sweet briar and matagouri scrub	12%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.2		1	
Otago	.2		.2		1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:			<15	<15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Close planting of poplars on eroded areas.

ADDITIONAL COMMENTS:

7e 7

7e7

DESCRIPTION: Moderately steep to steep hill country with mostly low-fertility soils from Tertiary rocks.

GEOGRAPHICAL DISTRIBUTION: Southern Marlborough, minor extent in Canterbury.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 49:020042

AREA: 13510 ha (0.09% of S.I.) + subdominant: 5920 ha

NUMBER OF MAP UNITS: 42 + subdominant: 16

INVENTORY FACTORS:

Slope:	21-25 degrees	47%	E
	26-35 degrees	42%	F
Rock type:	Sandstone (some siliceous)	22%	Hs
	and siltstone, loess in places	16%	Ms
		11%	Ms+Ss
		11%	Ar
		11%	Al
		10%	Cg
Soil:	Yellow-grey to yellow-brown earths intergrade	66%	30eH, 30dH
	Yellow-grey earths	19%	22dH, 22eH
	-	11%	Sk
Erosion:	Present - Moderate to severe sheet, soil slip and gully		
	Potential - Moderate to severe sheet, soil slip and gully		
Vegetation:	Low producing pasture,	28%	P2
	manuka scrub, bracken	21%	M1
	fern, short tussock	16%	M4
	associations, gorse	12%	P4
		11%	P3

PRESENT LAND USE: Extensive grazing, reverted land.

POTENTIAL LAND USE: Erosion control forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	3		3		6	
Nelson	6		6		9	
Otago	.2		.2		.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	14-18	20-24	20-24	Dun

SOIL CONSERVATION MEASURES: Close planting of severely eroded areas.

Forest and grazing management require the careful application of soil conservation techniques.

ADDITIONAL COMMENTS:

7e 8

7e8

DESCRIPTION: Moderately steep to very steep limestone country with a moderate to severe erosion potential. Unit occurs in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: North Westland, Nelson, southern Marlborough.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 31:388614

AREA: 24260 ha (0.16% of S.I.) + subdominant: 4610 ha

NUMBER OF MAP UNITS: 105 + subdominant: 6

INVENTORY FACTORS:

Slope:	26-35 degrees	53%	F
	> 35 degrees	23%	G
	21-25 degrees	23%	E
Rock type:	Limestone and marble	45%	Ls
		26%	Ma
Soil:	Rendzina and related soils	69%	74c, 74a, 74
	Lowland yellow-brown earths	29%	47f, 38bH, 47fH
Erosion:	Present -	Slight to severe sheet and soil slip	
	Potential -	Moderate to severe soil slip, sheet and debris avalanche	
Vegetation:	Podocarp, beech and	28%	N3a
	hardwood forest, bracken	23%	M4
	fern, low producing	17%	P2
	pasture, short tussock	13%	N4
	associations, mixed native scrub		

PRESENT LAND USE: Indigenous forest, extensive grazing, reverted land.

POTENTIAL LAND USE: Erosion control forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		8		10	
Southland	1				4	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	19-25	19-25	US	19-22		

SOIL CONSERVATION MEASURES: Close planting of severely eroded areas. Forest and grazing management require the careful application of soil conservation techniques.

ADDITIONAL COMMENTS:

7e 9

7e9

DESCRIPTION: Moderately steep to steep hill country on harder rocks with soils of low fertility.

GEOGRAPHICAL DISTRIBUTION: Marlborough Sounds, Nelson.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 21:059270

AREA: 209310 ha (1.38% of S.I.) + subdominant: 2850 ha

NUMBER OF MAP UNITS: 550 + subdominant: 3

INVENTORY FACTORS:

Slope:	26-35 degrees	79%	F
	21-25 degrees	16%	E
Rock type:	Greywacke, schist,	25%	Gw
	granite and slate	21%	Gn
		19%	St1
		12%	St2
Soil:	Lowland yellow-brown earths	87%	47b, 47a, 41e, 47c, 37cH
	Upland and high country podzolised yellow-brown earths and podzols	8%	65c
Erosion:	Present - Slight to severe sheet and soil slip		
	Potential - Severe sheet and soil slip		
Vegetation:	Beech, podocarp and	37%	N4
	hardwood forest, bracken fern, gorse, broom and Spanish heath, mixed native scrub, low producing pasture, exotic forest	28%	M4

PRESENT LAND USE: Indigenous forest, reverted land, extensive grazing, production forestry.

POTENTIAL LAND USE: Erosion control, forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	1		2		6	
					(5-10)	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	26-30	25-29		

SOIL CONSERVATION MEASURES: Forest management requires the careful application of soil conservation techniques.

ADDITIONAL COMMENTS: Scrub reversion is a serious problem. Unit includes small areas of 8e2.

7e10

7e10

DESCRIPTION: Strongly rolling to moderately steep upland tussock hill country in southern districts.

GEOGRAPHICAL DISTRIBUTION: Eastern central Otago.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S154:701183

AREA: 40770 ha (0.27% of S.I.) + subdominant: 4970 ha

NUMBER OF MAP UNITS: 92 + subdominant: 7

INVENTORY FACTORS:

Slope:	16-20 degrees	70%	D
	21-25 degrees	30%	E
Rock type:	Greywacke, schist and	81%	St2
	basalt, loess in places	16%	(Lo)/St2
Soil:	Upland and high country	100%	55H
	yellow-brown earths		
Erosion:	Present - Slight to severe sheet and soil slip		
	Potential - Moderate to severe sheet and soil slip		
Vegetation:	Snow tussock with sub-	90%	P4
	alpine herb and scrub		
	associations, short and		
	red tussock associations		
	with matagouri scrub		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing, water resource management, erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.2				2	
Southland	.2				2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				<15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing.

ADDITIONAL COMMENTS: Unit is similar to 6e23 but with a lower capability due to conditions imposed by the high altitude. Winters are cold.

7ell

7ell

DESCRIPTION: Moderately steep to steep hill country on gravels with low-fertility soils and subject to a severe erosion problem under a grassland regime.

GEOGRAPHICAL DISTRIBUTION: Nelson, coastal North Canterbury.

ALTITUDE ZONE: Lowland-montane

TYPICAL LOCALITY: S 26:100877

AREA: 50970 ha (0.34% of S.I.) + subdominant: 4190 ha

NUMBER OF MAP UNITS: 96 + subdominant: 9

INVENTORY FACTORS:

Slope:	26-35 degrees	76%	F
	21-25 degrees	24%	E
Rock type:	Greywacke gravels, loess in places	91%	A1
Soil:	Lowland yellow-brown earths	97%	37aH, 45H, 45bH
Erosion:	Present - Slight to severe sheet and soil slip, slight gully		
	Potential - Moderate to severe sheet, soil slip and gully		
Vegetation:	Beech forest, low producing grassland,	47%	N6
	bracken fern and gorse,	18%	N4
	exotic forest, manuka scrub	12%	P2
		10%	M4

PRESENT LAND USE: Indigenous forest, extensive grazing, reverted land, production forestry.

POTENTIAL LAND USE: Production forestry, grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	4		4		10	
Nelson	5		10		11	
	(2-7)					
Otago	2				10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	25-30		20-22	

SOIL CONSERVATION MEASURES: Forest and grassland management require the careful application of soil conservation techniques.

ADDITIONAL COMMENTS:

7e12

7e12

DESCRIPTION: Steep to very steep slopes on harder rocks on the lower mountain ranges of dry inland districts.

GEOGRAPHICAL DISTRIBUTION: Central and western Otago, Waitaki Basin, minor extent in inland Canterbury and inland Marlborough.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S133:899719

AREA: 125890 ha (0.83% of S.I.) + subdominant: 12780 ha

NUMBER OF MAP UNITS: 456 + subdominant: 23

INVENTORY FACTORS:

Slope:	26-35 degrees	89%	F
Rock type:	Greywacke, schist and	45%	St2
	colluvium, loess in	30%	Gw
	places	11%	(A1)/Gw
Soil:	Yellow-grey earths	96%	10, 10a, 24a
Erosion:	Present	Moderate to severe sheet, scree and wind, slight to moderate soil slip on solifluction slopes	
	Potential	Severe sheet, scree and wind, moderate to severe soil slip on solifluction slopes	
Vegetation:	Short tussock associations with matagouri	70%	P3
	and sweet briar scrub,	12%	P4
	snow tussock associations, low producing pasture	10%	P2

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.2		1	
					(1-2)	
Nelson	.5		.1		2	
Otago	.2		1		1	
					(1-2)	
Southland	.3				2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	<15	<15		<15	<15	<15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Close planting of severely eroded areas.

ADDITIONAL COMMENTS: Winters are cold, summers dry. Similar in location to 6e22, but steeper and more eroded.

7e13

7e13

DESCRIPTION: Moderately steep to steep hill country on dissected gravels and conglomerates with low fertility soils. Unit occurs in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 38:347355

AREA: 73280 ha (0.48% of S.I.) + subdominant: 4430 ha

NUMBER OF MAP UNITS: 209 + subdominant: 9

INVENTORY FACTORS:

Slope:	26-35 degrees	74%	F
	21-25 degrees	25%	E
Rock type:	Gravels and conglomerates from various rock types, sandstone	70%	A1
Soil:	Lowland yellow-brown earths	99%	46aH, 46H, 45aH
Erosion:	Present - Slight to moderate soil slip and sheet		
	Potential - Severe soil slip, sheet and gully		
Vegetation:	Podocarp, beech and hardwood forest,	49%	N3a
	bracken fern, exotic forest	38%	N4

PRESENT LAND USE: Indigenous forest, reverted land, production forestry.

POTENTIAL LAND USE: Erosion control, forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		0		5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl		Inv	Dun
Site Index:	24-28	26-30		

SOIL CONSERVATION MEASURES: Forestry management requires the careful application of soil conservation measures.

ADDITIONAL COMMENTS: Similar in location to 6e25 but is steeper and has a more severe erosion potential. Included in the unit are small areas of 8e2.

7e14

7e14

DESCRIPTION: Steep to very steep loess-covered hill country in summer moisture-deficient eastern districts. Unit has a moderate to severe tunnel gully erosion potential.

GEOGRAPHICAL DISTRIBUTION: Blenheim district in Marlborough; Port Hills/Banks Peninsula.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 29:349908

AREA: 8670 ha (0.06% of S.I.) + subdominant: 1130 ha

NUMBER OF MAP UNITS: 35 + subdominant: 4

INVENTORY FACTORS:

Slope:	21-25 degrees	49%	E
	26-35 degrees	47%	F
Rock type: Greywacke loess		52%	Lo/Cg
		14%	Lo/Cg+Ms
		11%	Lo/Vo
		10%	Ss+Ms
Soil:	Yellow-grey earths	99%	15dH, 15gH, 16eH
Erosion:	Present - Moderate to very severe tunnel gully and sheet		
	Potential - Moderate to very severe tunnel gully and sheet		
Vegetation:	Short tussock associations, low producing	41%	P3
	grassland, manuka scrub	33%	P2
		16%	P

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	4		6		8	
Nelson	4		6		10	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	15		14-18			

SOIL CONSERVATION MEASURES: Restoration of tunnel-gullied land by mechanical means. Conservation fencing. Oversowing and top-dressing.

ADDITIONAL COMMENTS: Unit is similar in location to 6e13 but is steeper and more severely eroded.

7e15

7e15

DESCRIPTION: Sand flats and rolling dunes with a severe wind erosion potential under pasture.

GEOGRAPHICAL DISTRIBUTION: Coastal districts.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:067648

AREA: 5670 ha (0.04% of S.I.) + subdominant: 210 ha

NUMBER OF MAP UNITS: 40 + subdominant: 2

INVENTORY FACTORS:

Slope:	4 - 8 degrees	46%	B
	9 -15 degrees	19%	C
	16-20 degrees	15%	D
	0 - 3 degrees	15%	A
Rock type:	Dune sands	80%	Wb
		11%	Wb/A1
Soil:	Yellow-brown sands	89%	68a, 68, 70a, 70c, 68b
	Brown-grey earths	11%	3
Erosion:	Present - Slight to severe wind		
	Potential - Severe wind		
Vegetation:	Sand dune grassland and	46%	P6
	scrub associations,	13%	N6
	exotic forest	12%	h5
		11%	H7

PRESENT LAND USE: Erosion control forestry and minor extensive grazing. Much unused.

POTENTIAL LAND USE: Erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	0		0		0	
Nelson	0		0		0	
Otago	0		0		0	
Southland	0		0		0	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	15-18	<15	20-25	15-18 15-18

SOIL CONSERVATION MEASURES: Maintain permanent vegetative cover to retain dune stability.

ADDITIONAL COMMENTS: Stability of the dunes is critical to prevent the encroachment of sand on to adjacent higher class land.

7e16

7e16

DESCRIPTION: Moderately steep to steep lower slopes in drier districts of the high country.

GEOGRAPHICAL DISTRIBUTION: Inland Marlborough.

ALTITUDE ZONE: Subalpine

TYPICAL LOCALITY: S 41:678323

AREA: 18270 ha (0.12% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 50

INVENTORY FACTORS:

Slope:	26-35 degrees	65%	F
	21-25 degrees	35%	E
Rock type:	Greywacke and colluvium,	52%	A1/Gw
	loess in places, cal-	17%	Gw
	careous sandstone	15%	(A1)/Gw
		10%	Ss
Soil:	Upland and high country yellow-brown earths	100%	51, 51b
Erosion:	Present - Moderate to severe sheet and debris avalanche		
	Potential - Severe sheet, debris avalanche and gully		
Vegetation:	Short tussock and low	62%	P3
	producing grassland	21%	P2
	associations with	14%	p3
	sweet briar and matagouri scrub		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	.2		.2		2	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:	<15	<15			<15	

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Close planting in gullies.

ADDITIONAL COMMENTS: Soils are of medium to high fertility.

7e 17

7e17

DESCRIPTION: Strongly rolling to steep eroded moraines and fans in the moist high country districts.

GEOGRAPHICAL DISTRIBUTION: High country in Marlborough, Canterbury, Otago.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 66:214022

AREA: 46220 ha (0.31% of S.I.) + subdominant: 2940 ha

NUMBER OF MAP UNITS: 159 + subdominant: 8

INVENTORY FACTORS:

Slope:	21-25 degrees	58%	E
	16-20 degrees	29%	D
	26-35 degrees	12%	F
Rock type:	Greywacke, glacial till	32%	A1/Gw
	and gravels, loess in places	31%	A1
		17%	Gw
		10%	(A1)/Gw
Soil:	Upland and high country yellow-brown earths	100%	53H, 53bH, 57bH, 57aH
Erosion:	Present - Moderate to severe sheet, wind and scree		
	Potential - Severe sheet, wind and scree		
Vegetation:	Short tussock associations with matagouri	49%	P3
	scrub, snow tussock	21%	P4
	associations, beech forest	16%	N4

PRESENT LAND USE: Extensive grazing. Indigenous forest.

POTENTIAL LAND USE: Extensive grazing. Erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.2		1	
Nelson	.2		.2		1	
Otago	.2		.2		1	
Southland	.2				.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15	<15	US	<15 <15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Close planting of severely eroded areas.

ADDITIONAL COMMENTS: Soils are of low to very low fertility. Unit is steeper and more severely eroded than 6e29.

7e18

7e18

DESCRIPTION: Rolling to strongly rolling tussock-covered slopes in high country range areas with a low to moderate rainfall. Unit has a severe erosion potential.

GEOGRAPHICAL DISTRIBUTION: Inland Marlborough, Waitaki Basin, Otago.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S109:789573

AREA: 23030 ha (0.15% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 80

INVENTORY FACTORS:

Slope:	16-20 degrees	50%	D
	9 -15 degrees	32%	C
	4 - 8 degrees	15%	B
Rock type:	Greywacke, schist and solifluction detritus,	42%	St2
	loess in places	19%	Gw
		14%	A1
		11%	St1
Soil:	Upland and high country yellow-brown earths	95%	55b, 55c, 55cH, 55a, 53
Erosion:	Present - Moderate to severe wind and sheet		
	Potential - Severe wind and sheet		
Vegetation:	Snow tussock and short tussock associations	70%	P4
		26%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.5		1	
Nelson	.2		.5		2	
Otago	.1		.1		.5	
					(.2-.8)	
Southland	.1		.1		.2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15		<15	US US

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing. Revegetation of severely eroded areas.

ADDITIONAL COMMENTS: Careful management is needed to ensure a complete ground cover, otherwise frost lift can initiate severe erosion.

7e19

7e19

DESCRIPTION: Moderately steep to steep very low-fertility hill country in moist southern districts.

GEOGRAPHICAL DISTRIBUTION: Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S178:129029

AREA: 3630 ha (0.02% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 13

INVENTORY FACTORS:

Slope:	26-35 degrees	57%	F
	21-25 degrees	43%	E
Rock type:	Greywacke, schist and	57%	Hs
	tuffaceous sandstone,	21%	St2
	loess in places	14%	(Lo)/St1
Soil:	Upland and high country	40%	54iH
	yellow-brown earths		
	Upland and high country	31%	64dH
	podzolised yellow-brown		
Erosion:	earth and podzols		
	Lowland yellow-brown	29%	37fH
	earth		
Vegetation:	Beech forest, podocarp-	63%	N4
	hardwood forest, short	28%	N3a
	tussock associations,		
	mixed native scrub.		

PRESENT LAND USE: Indigenous forest, extensive grazing, reverted land.

POTENTIAL LAND USE: Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	0		2		10	
Southland	0		.02		10	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl	Inv	Dun
Site Index:			16-18	18-23

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Severe reversion problems make the majority of this unit unsuitable for grassland management.

7e20

7e20

DESCRIPTION: Strongly rolling to steep forested hill country with soils of very low fertility and a severe erosion potential under a grassland regime.

GEOGRAPHICAL DISTRIBUTION: Western Southland.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S167:473416

AREA: 47110 ha (0.31% of S.I.) + subdominant: 820 ha

NUMBER OF MAP UNITS: 121 + subdominant: 3

INVENTORY FACTORS:

Slope:	21-25 degrees	55%	E
	16-20 degrees	33%	D
	26-35 degrees	11%	F
Rock type:	Sandstone, mudstone, tuffaceous greywacke and granite, gravels from various rock types	49%	Ss+Ms
		19%	Gn+In
Soil:	Lowland yellow-brown earths	65%	46bH, 47gH
	Upland and high country podzolised yellow-brown earths and podzols	16%	64eH
	Lowland podzolised yellow-brown earths and podzols	12%	61bH
	Yellow-brown loams	7%	85aH
	Yellow-brown loams	7%	85aH
Erosion:	Present - Negligible to slight soil slip and sheet		
	Potential - Severe soil slip and sheet		
Vegetation:	Beech forest, podocarp-hardwood forest	90%	N4

PRESENT LAND USE: Indigenous forestry (selective timber extraction).

POTENTIAL LAND USE: Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Southland	0		0		5	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland Canterbury		Southland	
District:	Nel	Marl			Inv	Dun
Site Index:					18-22	

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7e21

7e21

DESCRIPTION: Moderately steep to steep slopes above 1000m a.s.l in dry mountain areas.
 GEOGRAPHICAL DISTRIBUTION: Central and western Otago, Waitaki, minor extent in inland Canterbury and inland Marlborough.
 ALTITUDE ZONE: Subalpine-alpine
 TYPICAL LOCALITY: S109:323495
 AREA: 383350 ha (2.53% of S.I.) + subdominant: 11750 ha
 NUMBER OF MAP UNITS: 1118 + subdominant: 28

INVENTORY FACTORS:

Slope:	26-35 degrees	62%	F
	21-25 degrees	28%	E
Rock type:	Greywacke and schist	71%	St2
	detritus and rock, loess in places	11%	Gw
Soil:	Upland and high country yellow-brown earths	99%	57d, 55cH, 51a, 57e
Erosion:	Present - Slight to severe sheet, scree, wind and gully, slight to moderate soil slip on solifluction slopes		
	Potential - Moderate to severe sheet, scree, wind and gully, moderate to severe soil slip on solifluction slopes		
Vegetation:	Snowgrass associations	75%	P4
	and short tussock with subalpine scrub and herb fields; short tussock associations, with sweet briar and matagouri scrub	23%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.4		.5	
					(1)	
Nelson	.5		.5		1	
Otago	.2		.2		.5	
Southland	.2		.3		.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:		<15		US	US	US

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing of eroded areas. Close planting of poplars on eroded areas.

ADDITIONAL COMMENTS:

7e22

7e22

DESCRIPTION: Moderately steep to steep hill country in higher rainfall districts. Fertility is very low, and erosion potential under grassland severe.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson, Richmond Range in Marlborough, Westland, western Southland, western Otago.

ALTITUDE ZONE: Lowland-montane

TYPICAL LOCALITY: S 26:317967

AREA: 223860 ha (1.48% of S.I.) + subdominant: 16430 ha

NUMBER OF MAP UNITS: 419 + subdominant: 22

INVENTORY FACTORS:

Slope:	26-35 degrees	54%	F
	21-25 degrees	35%	E
	16-20 degrees	11%	D
Rock type:	Sandstones, conglomerates and coal measures, shale and argillite detritus	13%	Ms+Ss
Soil:	Upland and high country podzolised yellow-brown earths and podzols	64%	65fH, 65f, 65c
	Lowland yellow-brown earths	24%	47gH
	Lowland podzolised yellow-brown earths and podzols	10%	62bH
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Severe sheet and soil slip		
Vegetation:	Podocarp, beech and	49%	N3a
	hardwood forest, bracken fern and mixed native scrub	40%	N4

PRESENT LAND USE: Selective milling of indigenous forest.

Indigenous forest.

POTENTIAL LAND USE: Erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	0		0		.5	
Nelson	0		5		9	
					(5-10)	
Otago	0		0		9	
Southland	0		0		4	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	24-28	21-25	24	NA	<15	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7e23

7e23

DESCRIPTION: Steep mountain slopes below the timber line in the moist high country areas of eastern districts. Soils, formed under forest, are susceptible to severe erosion under a grassland regime.

GEOGRAPHICAL DISTRIBUTION: Marlborough, Canterbury, Otago and Southland high country.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 66:261089

AREA: 376950 ha (2.49% of S.I.) + subdominant: 19320 ha

NUMBER OF MAP UNITS: 1139 + subdominant: 31

INVENTORY FACTORS:

Slope:	26-35 degrees	87%	F
Rock type:	Greywacke and schist, colluvium and loess in places	55%	Gw St2
Soil:	Upland and high country yellow-brown earths	92%	57a, 57e, 57b, 57f, 57c
	Brown granular loams and clays to yellow-brown earths intergrade	5%	-
Erosion:	Present - Moderate to severe sheet, scree, soil slip, debris avalanche and wind		
	Potential - Severe to very severe sheet, scree, soil slip, debris avalanche and wind		
Vegetation:	Short tussock and snow tussock associations	36%	P3
	with manuka or sub-alpine scrub, beech forest, low producing grassland	27%	N4
		17%	P4

PRESENT LAND USE: Extensive grazing, indigenous forest.

POTENTIAL LAND USE: Erosion control forestry, extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.3		.3		.5	
					(2-4)	
Nelson	.2		.2		.5	
Otago	.1		.1		.3	
Southland	.1		.2		.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	15-23		US	<15 <15
	+US			

SOIL CONSERVATION MEASURES: Revegetation of eroded areas. Maintenance of good grassland or forest cover.

ADDITIONAL COMMENTS: The severe winters and low fertility soils make revegetation difficult.

7e24

7e24

DESCRIPTION: Steep, rocky river valley and lakeside slopes, and dissected lower slopes of block mountains in the dry inland districts. Cold winters.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S117:870283

AREA: 40940 ha (0.27% of S.I.) + subdominant: 1610 ha

NUMBER OF MAP UNITS: 147 + subdominant: 4

INVENTORY FACTORS:

Slope:	26-35 degrees	75%	F
	21-25 degrees	20%	E
Rock type:	Schist and greywacke,	58%	St2
	loess in places	11%	(A1)/Gw
		11%	Gw
		10%	A1
Soil:	Brown-grey earths	98%	5, 5a, 1
Erosion:	Present - Moderate to severe sheet, wind, scree and gully		
	Potential - Moderate to severe sheet and wind, moderate scree and gully		
Vegetation:	Low producing grassland	35%	P2
	and short tussock as-	23%	H7
	sociations with mata-	20%	P3
	gouri and sweet brian	12%	p2
	scrub, semi-arid herb associations		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.1		.1		.2	
					(1)	
Otago	.1		.1		.2	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:				<15		<15

SOIL CONSERVATION MEASURES: Conservation fencing. Oversowing and top-dressing of severely depleted areas. Close planting of poplars on eroded areas.

ADDITIONAL COMMENTS:

7e25

7e25

DESCRIPTION: Moderately steep to steep hill country on harder rocks with low fertility soils, in high rainfall districts. Liable to severe erosion under a grassland regime.

GEOGRAPHICAL DISTRIBUTION: North-west Nelson, Westland, Fiordland.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 26:041854

AREA: 164140 ha (1.08% of S.I.) + subdominant: 33200 ha

NUMBER OF MAP UNITS: 648 + subdominant: 71

INVENTORY FACTORS:

Slope:	26-35 degrees	38%	F
	21-25 degrees	37%	E
	16-20 degrees	23%	D
Rock type:	Diorite, granite, grey-wacke, conglomerate and ultrabasic rocks, with colluvium in places	34%	Gn
Soil:	Upland and high country podzolised yellow-brown earths and podzols	69%	66H, 65d, 65e, 66a
	Lowland podzolised yellow-brown earths and podzols	20%	62eH
	Lowland yellow-brown earths	6%	-
Erosion:	Present - Slight to moderate sheet and soil slip		
	Potential - Severe sheet and soil slip		
Vegetation:	Beech and podocarp-hardwood forest,	53%	N4
	bracken fern and mixed native scrub	32%	N3a

PRESENT LAND USE: Indigenous forest, reverted land.

POTENTIAL LAND USE: Erosion control, forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		0		2	
Otago	0		0		.5	
Southland	0		0		.1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel Marl			Inv Dun
Site Index:	21-25 19-23	20-24		US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7e26

7e26

DESCRIPTION: Moderately steep to steep snowgrass-covered ranges above the timber line in eastern districts; also strongly rolling to moderately steep, high cirques in South Westland.

GEOGRAPHICAL DISTRIBUTION: High country in Marlborough, Canterbury, Otago and northern Southland, minor extent in South Westland.

ALTITUDE ZONE: Subalpine-alpine

TYPICAL LOCALITY: S 90:239146

AREA: 270520 ha (1.79% of S.I.) + subdominant: 6890 ha

NUMBER OF MAP UNITS: 756 + subdominant: 13

INVENTORY FACTORS:

Slope:	26-35 degrees	88%	F
Rock type:	Greywacke, colluvium in places, schist colluvium	61%	Gw
		15%	St1
Soil:	Upland and high country yellow-brown earths	97%	57
Erosion:	Present - Moderate to severe sheet, scree, gully and wind; slight to moderate sheet, scree and debris avalanche		
	Potential - Severe sheet, scree, gully and wind; moderate to severe sheet, scree and debris avalanche		
Vegetation:	Snowgrass and short tussock associations with subalpine scrub	86%	P4
		10%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing. Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.1		.1		.2	
					(.2-2)	
Nelson	.1		.1		.2	
Otago	.1		.1		.2	
Southland	.1		.1		.2	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:		US	US	US	US	US

SOIL CONSERVATION MEASURES: Revegetation of severely eroded areas. Noxious animal control.

ADDITIONAL COMMENTS: The severe climate, with much frostlift, makes revegetation difficult.

7s 1

7s1

DESCRIPTION: Very stony and bouldery flood plains and fans with little soil development in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Fiordland, Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 64:223032

AREA: 27050 ha (0.18% of S.I.) + subdominant: 9440 ha

NUMBER OF MAP UNITS: 220 + subdominant: 36

INVENTORY FACTORS:

Slope:	4 - 8 degrees	47%	B
	0 - 3 degrees	36%	A
	9 -15 degrees	11%	C
Rock type:	Alluvium from various rock types	88%	A1
Soil:	Recent soils	94%	99d
	Lowland podzolised yellow-brown earths and podzols	5%	62eH
Erosion:	Present - Slight to moderate streambank and deposition		
	Potential - Slight to moderate streambank and deposition		
Vegetation:	Beech forest, low producing grassland with mixed native scrub and gorse	89%	N4

PRESENT LAND USE: Indigenous forest. Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	2		2		8	
Otago	0		0		2	
Southland	0		0		8	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland	
District:	Nel	Marl		Inv	Dun
Site Index:	US	US		US	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s 2

7s2

DESCRIPTION: Very shallow and stony flood plains in areas with a dry to moist climate.

GEOGRAPHICAL DISTRIBUTION: Kaikoura, Wairau Valley in Marlborough, north Canterbury, western Southland, Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S55:559540

AREA: 5090 ha (0.03% of S.I.) + subdominant: 310 ha

NUMBER OF MAP UNITS: 31 + subdominant: 2

INVENTORY FACTORS:

Slope:	0 - 3 degrees	73%	A
	4 - 8 degrees	27%	B
Rock type:	Alluvium from various rock types	100%	A1
Soil:	Recent soils	100%	95a, 94a, 98g
Erosion:	Present - Slight to moderate deposition, wind and streambank		
	Potential - Slight to moderate deposition, wind and streambank		
Vegetation:	Manuka scrub with hard-wood forest, short tussock associations	31%	M1
	with sweet briar and matagouri scrub, broom and gorse, willows, low producing pasture	17%	P3
		17%	M7
		12%	N6

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		4		6	
Nelson	2		10		12	16
Otago	1		1		7	
Southland	2		0		6	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15		15-19	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s 3

7s3

DESCRIPTION: Very stony and bouldery flood plains and fans, with little soil development in high country districts.
 GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, inland Canterbury, inland Marlborough.
 ALTITUDE ZONE: Montane
 TYPICAL LOCALITY: S 66:159179
 AREA: 7790 ha (0.05% of S.I.) + subdominant: 460 ha
 NUMBER OF MAP UNITS: 63 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	57%	A
	4 - 8 degrees	36%	B
Rock type:	Alluvium from various rock types	93%	A1
Soil:	Recent soils	95%	99, 99a
Erosion:	Present - Slight to severe wind, deposition and streambank		
	Potential - Moderate to severe wind, deposition and streambank		
Vegetation:	Short tussock associations with matagouri	46%	P3
	scrub, low producing	16%	p2
	pasture, broom	11%	P2

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.2		.2		.5	
Nelson	.2		.2		.5	
Otago	.2		.2		.4	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15	<15	US	<15

SOIL CONSERVATION MEASURES: Streambank protection.

ADDITIONAL COMMENTS:

7s 4

7s4

DESCRIPTION: Flat to rolling terraces with very low-fertility, podzolised soils in cool, wet districts.

GEOGRAPHICAL DISTRIBUTION: Western and coastal Southland.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S174:323215

AREA: 5130 ha (0.03% of S.I.) + subdominant: 1630 ha

NUMBER OF MAP UNITS: 25 + subdominant: 5

INVENTORY FACTORS:

Slope:	4 - 8 degrees	47%	B
	0 - 3 degrees	23%	A
	9 -15 degrees	19%	C
	16-20 degrees	11%	D
Rock type:	Terrace gravels from	41%	Lo/A1
	Fiordland complex,	15%	A1/Ss+Ms
	often over sandstones	11%	A1
	and mudstones, loess	11%	Gn+Um
Soil:	in places		
	Lowland and podzolised	81%	60b, 63cH
	yellow-brown earths		
and podzols	Lowland yellow-brown	19%	46b
	earths		
Erosion:	Present	-	Negligible to slight streambank, wind and sheet
	Potential	-	Slight to moderate sheet, streambank and wind
Vegetation:	Beech-podocarp forest,	77%	N4
	some cutover, mixed	16%	N3a
	native scrub		

PRESENT LAND USE: Extensive grazing, indigenous forest.

POTENTIAL LAND USE: Extensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		7		14	
					(12-15)	
Southland	0		0		.1	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland		Canterbury	
District:	Nel	Marl			Inv	Dun
Site Index:			22		15-20	

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s 5

7s5

DESCRIPTION: Rolling slopes in semi-arid districts where extensive rock outcrops severely restrict use.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lower montane

TYPICAL LOCALITY: S134:439668

AREA: 1470 ha (0.01% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 7

INVENTORY FACTORS:

Slope:	9 -15 degrees	69%	C
	4 - 8 degrees	31%	B
Rock type:	Schist, loess in places	100%	St2
Soil:	Brown-grey earths	100%	4
Erosion:	Present - Slight to moderate wind and sheet		
	Potential - Moderate wind and sheet		
Vegetation:	Short tussock associ-	51%	P3
	ations with matagouri	37%	P2
	scrub and semi-arid	12%	P1
	herbfield associations,		
	low and high producing		
	grassland		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	2		2		3	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl	Inv	Dun
Site Index:				<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s 6

7s6

DESCRIPTION: Gently undulating raised bogs with very low fertility soils in southern districts.

GEOGRAPHICAL DISTRIBUTION: Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S182:473885

AREA: 19640 ha (0.13% of S.I.) + subdominant: 940 ha

NUMBER OF MAP UNITS: 47 + subdominant: 1

INVENTORY FACTORS:

Slope:	0 - 3 degrees	90%	A
	4 - 8 degrees	10%	B
Rock type:	Peat on alluvium	98%	Pt
Soil:	Organic soils	99%	87
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Swamp associations, especially wire rush and sphagnum moss with some manuka, gorse, bracken fern and red tussock	99%	H1

PRESENT LAND USE: Undeveloped land, extensive grazing.

POTENTIAL LAND USE: Extensive grazing, water management.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	8		10		15	
Southland	0		8		20	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Suitable only for rough grazing.

7s 7

7s7

DESCRIPTION: Flat to undulating terraces, moraines and beach ridges with very low fertility podzolised soils in high rainfall districts. Development is marginal.

GEOGRAPHICAL DISTRIBUTION: Westland, Fiordland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 57:422378

AREA: 141140 ha (0.93% of S.I.) + subdominant: 28810 ha

NUMBER OF MAP UNITS: 432 + subdominant: 31

INVENTORY FACTORS:

Slope:	0 - 3 degrees	58%	A
	4 - 8 degrees	34%	B
Rock type:	Gravels and sands from various rock types	86%	A1
Soil:	Lowland podzolised yellow-brown earths and podzols	95%	60, 60a, 60b
Erosion:	Present - Negligible to slight sheet and stream-bank		
	Potential - Negligible to slight sheet and stream-bank		
Vegetation:	Podocarp-hardwood,	26%	N7
	beech forest, pakihi	22%	N3a
	associations, mixed	19%	H6
	native scrub and gorse, low producing grassland	11%	N4

PRESENT LAND USE: Selective milling of indigenous forest, undeveloped land, extensive grazing.

POTENTIAL LAND USE: Production forestry (indigenous and exotic), extensive grazing, water management.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		7		14	
					(12-15)	
Otago	0		0		14	
Southland	0		0		14	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	20-22		22		15-20	18-20

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: This unit is more difficult to develop and than 6s6.

7s 8

7s8

DESCRIPTION: Rolling dredge tailings in high rainfall districts with little or no soil development, but capable of forestry production.

GEOGRAPHICAL DISTRIBUTION: Central Westland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 45:160097

AREA: 3300 ha (0.02% of S.I.) + subdominant: 240 ha

NUMBER OF MAP UNITS: 22 + subdominant: 2

INVENTORY FACTORS:

Slope:	9 -15 degrees	95%	C
Rock type:	Alluvium from various rock types	100%	A1
Soil:	-	100%	DT
Erosion:	Present - Negligible to slight scree		
	Potential - Negligible to slight scree		
Vegetation:	Mixed native scrub,	45%	M6
	gorse and broom,	15%	M8
	exotic forest	10%	N6

PRESENT LAND USE: Undeveloped, production forestry.

POTENTIAL LAND USE: Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		5		5	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:			20			

SOIL CONSERVATION MEASURES: Mechanical land shaping to expose finer sediments. Tree planting.

ADDITIONAL COMMENTS: The high, evenly spread rainfall aids in establishment of ground cover.

7s 9

7s9

DESCRIPTION: Mining tailings on undulating to rolling slopes, with some soil development. Hot, dry summers and cold winters.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland-Montane

TYPICAL LOCALITY: S133:029726

AREA: 2580 ha (0.02% of S.I.) + subdominant: 1790 ha

NUMBER OF MAP UNITS: 30 + subdominant: 8

INVENTORY FACTORS:

Slope:	4 - 8 degrees	52%	B
	9 -15 degrees	27%	C
	26-35 degrees	11%	F
Rock type:	Alluvium, mainly from	45%	Al
	schist	14%	Ms
		13%	Al/Ms+Ss
		11%	Lo+Al/Ms+Ss
Soil:	-	69%	DT, OW
	Brown-grey earths	17%	4d, 2d
	Yellow-grey earths	10%	23f
Erosion:	Present - Slight to moderate gully, wind and sheet		
	Potential - Slight to moderate gully, wind and sheet		
Vegetation:	Low producing pasture,	49%	p2
	with sweet briar, wild thyme and broom	21%	P2

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing, production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	0		0		.1	
Southland	0		0		.5	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:				18 <15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: The climate hinders the establishment of a more productive cover.

7s10

7s10

DESCRIPTION: Flat to very gently sloping depressions in dry districts with saline soils.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S124:094860

AREA: 80 ha (0.00% of S.I.) + subdominant: 1870 ha

NUMBER OF MAP UNITS: 1 + subdominant: 9

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium, mainly from schist	100%	A1
Soil:	Brown-grey earths	100%	2b
Erosion:	Present - Slight wind		
	Potential - Slight to moderate wind		
Vegetation:	Low producing pasture	100%	P2

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Otago	.5				2	
Exotic forest growth potential (P. radiata site index):						
Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:						<15

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s11

7s11

DESCRIPTION: Flat to undulating very stony, old beaches and boulder banks with little soil development. This unit occurs mainly in the seasonally moisture-deficient eastern districts.

GEOGRAPHICAL DISTRIBUTION: Coastal districts in Marlborough, Canterbury, Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 22:307083

AREA: 8640 ha (0.06% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 15

INVENTORY FACTORS:

Slope:	0 - 3 degrees	78%	A
	4 - 8 degrees	22%	B
Rock type:	Gravels and sands	58%	A1
		42%	Wb
Soil:	Yellow-brown sands	100%	68b, 70a
Erosion:	Present - Slight to moderate wind		
	Potential - Slight to moderate wind		
Vegetation:	Low producing pasture,	55%	P2
	red tussock associations	34%	P5
	with bracken fern, salt-tolerant associations,		
	mixed native scrub		

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	1		1		1	
Nelson	1		1		2	
			(7)		(15)	
Otago	1		1		1	
Southland	.1		.5		1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	18		US	14-18	15-18	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

7s12

7s12

DESCRIPTION: Very shallow and stony terraces and plains in dry, inland districts. Light, low fertility soils, coupled with the arid, severe climate makes pasture establishment difficult.

GEOGRAPHICAL DISTRIBUTION: Waitaki Basin, minor extent in inland Marlborough, Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S101:122861

AREA: 18160 ha (0.12% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 32

INVENTORY FACTORS:

Slope:	4 - 8 degrees	62%	B
	0 - 3 degrees	38%	A
Rock type:	Greywacke gravels, thin loess cover in places	99%	A1
Soil:	Upland and high country yellow-brown earths	96%	49a, 49
Erosion:	Present - Moderate to severe wind Potential - Moderate to severe wind		
Vegetation:	Low producing grassland, short tussock associations with sweet briar and matagouri scrub, semi-arid herb associations	72%	P2
		25%	P3

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Extensive grazing, erosion control forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Canterbury	.1		.1		.1	
Nelson	.1		.1		.1	
Otago	.1		.1		.1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	<15		<15	<15

SOIL CONSERVATION MEASURES: Oversowing and top-dressing.

ADDITIONAL COMMENTS: Past wind erosion has significantly reduced the capability of this unit.

7w 1

7w1

DESCRIPTION: Swamp land and raised bogs marginal for draining in cool, moderate rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Southland, minor extent in Marlborough and Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S149:712036

AREA: 3440 ha (0.02% of S.I.) + subdominant: 4510 ha

NUMBER OF MAP UNITS: 36 + subdominant: 20

INVENTORY FACTORS:

Slope:	0 - 3 degrees	92%	A
Rock type:	Peat	52%	A1
		12%	Pt
		12%	A1+Pt
		12%	(Lo)/A1+Pt
Soil:	Organic soils	44%	87
	Gley soils	40%	89g
	Gley recent soils	12%	90d
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Swamp associations,	45%	H1
	red tussock associ-	25%	P5
	ations, low producing	12%	P2
	grassland and manuka	10%	H2
	scrub		

PRESENT LAND USE: Undeveloped land, extensive grazing.

POTENTIAL LAND USE: Water reserves, extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	0		0		9	
Otago	0		0		9	
Southland	0		0		9	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:		US		US US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

7w 2

7w2

DESCRIPTION: Swamp land in high rainfall, lowland districts.

Very difficult to drain.

GEOGRAPHICAL DISTRIBUTION: Westland, Fiordland, western Southland.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 63:060976

AREA: 19450 ha (0.13% of S.I.) + subdominant: 8360 ha

NUMBER OF MAP UNITS: 104 + subdominant: 17

INVENTORY FACTORS:

Slope:	0 - 3 degrees	98%	A
Rock type:	Peat, alluvium from	39%	A1
	schist, granite and	15%	Pt/A1
	greywacke	13%	A1+Pt
		12%	Pt+A1
Soil:	Gley recent soils	57%	91a
	Organic soils	28%	87a
	Lowland and podzolised	11%	60b
	yellow-brown earths and podzols		
Erosion:	Present - Negligible to slight streambank		
	Potential - Slight streambank		
Vegetation:	Swamp associations,	40%	H1
	beech, podocarp and	13%	N4
	hardwood forest,	13%	N3a
	manuka scrub	10%	N7

PRESENT LAND USE: Swamp land, indigenous forest and scrub land.

POTENTIAL LAND USE: Extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	1		1		12	
Otago	0		0		12	
Southland	0		0		12	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	US	US		US

SOIL CONSERVATION MEASURES: Drainage.

ADDITIONAL COMMENTS:

7w 3

7w3

DESCRIPTION: Tidal salt-marsh districts.

GEOGRAPHICAL DISTRIBUTION: Coastal Otago, Nelson, Marlborough.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 29:326968

AREA: 2770 ha (0.02% of S.I.) + subdominant: 1340 ha

NUMBER OF MAP UNITS: 18 + subdominant: 3

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Alluvium	94%	A1
Soil:	Saline gley recent soils	95%	92
	Gley recent soils	5%	90a
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Low producing grassland,	60%	P2
	salt tolerant swamp	19%	H5
	associations		

PRESENT LAND USE: Extensive grazing, swamp land.

POTENTIAL LAND USE: Wildlife management, extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

	Present Average		Top Farmer		Attainable Physical Potential	
DISTRICT	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	2				12	
Otago	.1		.1		.1	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US		US

SOIL CONSERVATION MEASURES: Reclamation.

ADDITIONAL COMMENTS: Some areas should remain undeveloped for scientific purposes.

7w 4

7w4

DESCRIPTION: Bogs on high ridges and upland districts.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S154:652115

AREA: 5380 ha (0.04% of S.I.) + subdominant: 10450 ha

NUMBER OF MAP UNITS: 26 + subdominant: 10

INVENTORY FACTORS:

Slope:	0 - 3 degrees	57%	A
	4 - 8 degrees	19%	B
	9 -15 degrees	18%	C
Rock type:	Peat	39%	A1+Pt
		25%	A1
		14%	Pt/Hs
Soil:	Organic soils	98%	88
Erosion:	Present - Negligible to slight sheet		
	Potential - Slight sheet		
Vegetation:	snow tussock with sub-	70%	P4
	alpine herb and scrub	13%	H4
	associations; subalpine		
	scrub associations		

PRESENT LAND USE: Extensive grazing, swamp land.

POTENTIAL LAND USE: Wildlife management, extensive grazing.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha):

DISTRICT	Present Average		Top Farmer		Attainable Physical Potential	
	DRY	IRR	DRY	IRR	DRY	IRR
Nelson	.2		.2		.3	
Otago	.2		.2		.3	

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:		US		US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8c 1

8c1

DESCRIPTION: Undulating to strongly rolling slopes, with peaty soils on wet, cold mountain tops; shallow stony soils at high altitudes with a severe climate and severely exposed areas.

GEOGRAPHICAL DISTRIBUTION: Fiordland, Otago.

ALTITUDE ZONE: Subalpine, alpine

TYPICAL LOCALITY: S143:035356

AREA: 29910 ha (0.20% of S.I.) + subdominant: 3310 ha

NUMBER OF MAP UNITS: 123 + subdominant: 19

INVENTORY FACTORS:

Slope:	4 - 8 degrees	38%	B
	9 -15 degrees	34%	C
	16-20 degrees	22%	D
Rock type:	Schist with loess in places, granite, diorite, gniess, schist with colluvium and alluvium, peat	35%	St2
		13%	Gn
		12%	Al
Soil:	Upland and high country yellow-brown earths	38%	56, 55c, 55cH
	Upland and high country podzolised yellow-brown earths and podzols	33%	66c, 67eH, 67b
	Lowland podzolised yellow-brown earths and podzols	25%	60b
Erosion:	Present - Negligible to moderate sheet, scree and wind		
	Potential - Negligible to moderate sheet, scree and wind		
Vegetation:	Beech forest and upland podocarp-hardwood forest, snow tussock and sub-alpine herbfields, sub-alpine scrub associations, short tussock associations	24%	P4
		24%	N4
		22%	H4

PRESENT LAND USE: Catchment protection.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland	
District:	Nel	Marl		Inv	Dun
Site Index:	US	US	US	US	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8c 2

8c2

DESCRIPTION: Areas under perennial ice and snow.
GEOGRAPHICAL DISTRIBUTION: Central Alps from Canterbury to
Fiordland.
ALTITUDE ZONE: Alpine
TYPICAL LOCALITY: S 71:870615
AREA: 159680 ha (1.06% of S.I.) + subdominant: 1490 ha
NUMBER OF MAP UNITS: 284 + subdominant: 2

INVENTORY FACTORS:

Slope: Not recorded
Rock type: Not recorded
Soil: Not recorded
Erosion: Present - Nil
Potential - Nil
Vegetation: Nil

PRESENT LAND USE: Water conservation.

POTENTIAL LAND USE: Water conservation.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland	
District:	Nel	Marl		Inv	Dun
Site Index:	US	US	US	US	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: Includes areas shown as glaciers on base
sheets, the lower end of which may be rock detritus where the
ice has retreated.

8e 1

8e1

DESCRIPTION: Steep to very steep limestone scarps with numerous rock outcrops, mainly in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: North Westland, Nelson, southern Marlborough.

ALTITUDE ZONE: Lowland-montane

TYPICAL LOCALITY: S 37:911390

AREA: 26230 ha (0.17% of S.I.) + subdominant: 5190 ha

NUMBER OF MAP UNITS: 77 + subdominant: 13

INVENTORY FACTORS:

Slope:	> 35 degrees	56%	G
	26-35 degrees	44%	F
Rock type:	Limestone, marble	48%	Ls
		37%	Ma
Soil:	Rendzina and related soils	64%	74c, 74a
	Lowland yellow-brown earths	36%	47f
Erosion:	Present - Moderate to very severe sheet, soil slip and debris avalanche		
	Potential - Very severe sheet, soil slip and debris avalanche		
Vegetation:	Beech and podocarp-hardwood forest, short tussock associations	43%	N4
		39%	N3a

PRESENT LAND USE: Indigenous forest.

POTENTIAL LAND USE: Protection forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US

SOIL CONSERVATION MEASURES: Maintenance of present cover.

ADDITIONAL COMMENTS:

8e 2

8e2

DESCRIPTION: Very steep slopes and cliffs, mainly coastal in location.

GEOGRAPHICAL DISTRIBUTION: Marlborough Sounds, southern Marlborough, minor extent in Canterbury and north Otago.

ALTITUDE ZONE: Lowland-lower montane

TYPICAL LOCALITY: S 22:433193

AREA: 32460 ha (0.21% of S.I.) + subdominant: 15520 ha

NUMBER OF MAP UNITS: 167 + subdominant: 37

INVENTORY FACTORS:

Slope:	> 35 degrees	81%	G
	26-35 degrees	19%	F
Rock type:	Greywacke, schist,	33%	St1
	granite, sandstone,	26%	Gw
	shales and argillite	10%	St2
Soil:	Lowland yellow-brown earths	82%	47a, 41a, 47c, 47b
	-	9%	SK
Erosion:	Present - Slight to very severe sheet, soil slip and gully		
	Potential - Extreme sheet, soil slip and gully		
Vegetation:	Beech, hardwood and	37%	N4
	podocarp forest, manuka	17%	M1
	scrub and bracken fern,	11%	M4
	low producing grassland		

PRESENT LAND USE: Undeveloped, protection forestry, limited extensive grazing.

POTENTIAL LAND USE: Production forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson		Westland	Canterbury	Southland	
District:	Nel	Marl			Inv	Dun
Site Index:	US	US	US	US	US	US

SOIL CONSERVATION MEASURES: Protection planting.

ADDITIONAL COMMENTS:

8e 3

8e3

DESCRIPTION: Moderately steep to very steep hills and steeplands below 1000m a.s.l. in high rainfall districts.
 GEOGRAPHICAL DISTRIBUTION: North-west Nelson, Westland, Fiordland.
 ALTITUDE ZONE: Lowland-montane
 TYPICAL LOCALITY: S 25:781717
 AREA: 324530 ha (2.14% of S.I.) + subdominant: 36420 ha
 NUMBER OF MAP UNITS: 752 + subdominant: 56

INVENTORY FACTORS:

Slope:	26-35 degrees	54%	F
	> 35 degrees	29%	G
	21-25 degrees	12%	E
Rock type:	Granite, gneiss, diorite, schist, sandstones and conglomerates	20%	Gn
		19%	Gw
Soil:	Upland and high country podzolised yellow-brown earths and podzols	88%	65f, 66c, 66, 65d, 65e
	Lowland yellow-brown earths	9%	-
Erosion:	Present - Slight to moderate soil slip and sheet Potential - Very severe to extreme soil slip, sheet and debris avalanche		
Vegetation:	Beech podocarp and hardwood forest, bracken fern, mixed native scrub	56%	N4
		34%	N3a

PRESENT LAND USE: Protection forestry, undeveloped and reverted land.

POTENTIAL LAND USE: Protection forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Maintenance of present cover. Noxious animal control.

ADDITIONAL COMMENTS:

8e 4

8e4

DESCRIPTION: Steep to very steep, severely eroded tussock slopes in dry inland districts.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin, inland Marlborough.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S110:181563

AREA: 41110 ha (0.27% of S.I.) + subdominant: 1140 ha

NUMBER OF MAP UNITS: 111 + subdominant: 3

INVENTORY FACTORS:

Slope:	26-35 degrees	86%	F
Rock type:	Greywacke colluvium and	52%	Gw
	greywacke, calcareous	20%	(A1)/Gw
	sandstones	16%	A1/Gw
Soil:	Upland and high country	85%	51a, 51
	yellow-brown earths		
	Yellow-grey earths	10%	10a
Erosion:	Present - Severe to extreme sheet, scree, gully and wind		
	Potential - Extreme sheet, scree, gully and wind		
Vegetation:	Short tussock and	43%	p3
	snowgrass associations	20%	P3
	with subalpine scrub,	17%	p4
	sweet briar, matagouri	11%	P4
	and semi-arid herb-fields		

PRESENT LAND USE: Extensive grazing, some retired land.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Revegetation. Fire control. Noxious animal control.

ADDITIONAL COMMENTS:

8e 5

8e5

DESCRIPTION: Long slopes in steep to very steep forested mountain country in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Central Alps and western districts from Nelson to Fiordland.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 71:710629

AREA: 1681010 ha (11.11% of S.I.) + subdominant: 12770 ha

NUMBER OF MAP UNITS: 2810 + subdominant: 43

INVENTORY FACTORS:

Slope:	26-35 degrees	52%	F
	> 35 degrees	47%	G
Rock type:	Greywacke, schist and detritus, shale and argillite detritus, sandstones and conglomerates, granite and slope deposits, olivine serpentine, basic volcanic rocks	21%	Gn
		13%	Gs
		11%	Gw
Soil:	Upland and high country podzolised yellow-brown earths and podzols	94%	66c, 66, 65e, 65, 65d, 65a
Erosion:	Present - Slight to severe soil slip, debris avalanche and sheet		
	Potential - Extreme soil slip, debris avalanche, gully and sheet		
Vegetation:	Beech forest, hardwood-podocarp forest, sub-alpine scrub	84%	N4

PRESENT LAND USE: Protection forestry.

POTENTIAL LAND USE: Protection forestry.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Maintenance of present cover. Noxious animal control.

ADDITIONAL COMMENTS:

8e 6

8e6

DESCRIPTION: Rolling to moderately steep severely eroded mountain tops in the tussock zone.

GEOGRAPHICAL DISTRIBUTION: Central Otago, Waitaki Basin, inland southern Canterbury, Lake Rotoiti vicinity.

ALTITUDE ZONE: Subalpine-alpine

TYPICAL LOCALITY: S110:152417

AREA: 44840 ha (0.30% of S.I.) + subdominant: 440 ha

NUMBER OF MAP UNITS: 200 + subdominant: 2

INVENTORY FACTORS:

Slope:	21-25 degrees	41%	E
	9 -15 degrees	29%	C
	16-20 degrees	24%	D
Rock type:	Greywacke, schist and	36%	Gw
	solifluction detritus	20%	St2
		15%	Al/Gw
Soil:	Upland and high country	99%	57, 55bH, 55b, 55cH,
	yellow-brown earths		56, 55aH, 58,
Erosion:	Present -	Severe to extreme scree, wind and sheet	
	Potential -	Extreme scree, wind and sheet	
Vegetation:	Snowgrass and short	46%	P4
	tussock associations,	17%	p4
	with some subalpine	13%	H4
	scrub, fell field	12%	h4
		10%	p3

PRESENT LAND USE: Extensive grazing, some retired land.

POTENTIAL LAND USE: Catchment protection (water quality and resources management)

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Revegetation. Fire control. Noxious animal control.

ADDITIONAL COMMENTS: Intense frost action hinders revegetation.

This unit is the easier sloping equivalent of 8e9.

8e 7

8e7

DESCRIPTION: Moderate to very steep slopes above the timber line in high rainfall districts. Normally unit has a good grassland cover.

GEOGRAPHICAL DISTRIBUTION: Central Alps, generally west of Main Divide and Fiordland, and North-west Nelson.

ALTITUDE ZONE: Alpine

TYPICAL LOCALITY: S 88:369104

AREA: 816950 ha (5.40% of S.I.) + subdominant: 1100 ha

NUMBER OF MAP UNITS: 1550 + subdominant: 10

INVENTORY FACTORS:

Slope:	> 35 degrees	57%	G
	26-35 degrees	38%	F
Rock type:	Greywacke, schist, granite, gniess and diorite; Olivine-rich rocks, serpentine, gabbro, peridotite, basic volcanics	13%	Gs
		11%	Gn
Soil:	Upland and high country podzolised yellow-brown earths and podzols	79%	67a, 67e, 67, 67b
	-	16%	BR
Erosion:	Present - Slight to severe scree, sheet and debris avalanche		
	Potential - Very severe scree, sheet, debris avalanche and soil slip		
Vegetation:	Snow tussock associations, subalpine scrub	68%	P4
	associations, alpine herbfields	17%	p4
		10%	M5

PRESENT LAND USE: Catchment protection.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Noxious animal control.

ADDITIONAL COMMENTS: This unit occurs above 8e5 and is the high rainfall equivalent of 8e9.

8e 8

8e8

DESCRIPTION: Extremely erodible steep mountain slopes between 1000m a.s.l. and the timber line in moderate rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Southern Alps, east of Main Divide from Marlborough to Southland.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 66:262068

AREA: 339500 ha (2.24% of S.I.) + subdominant: 11410 ha

NUMBER OF MAP UNITS: 852 + subdominant: 16

INVENTORY FACTORS:

Slope:	26-35 degrees	80%	F
	> 35 degrees	19%	G
Rock type:	Greywacke, schist, argillite, rhyolite and colluvium	66%	Gw
Soil:	Upland and high country country yellow-brown earths	93%	57a, 57b, 57g, 57e
Erosion:	Present - Moderate to very severe sheet, scree, debris avalanche, soil slip and wind		
	Potential - Extreme sheet, scree, debris avalanche, soil slip, gully and wind		
Vegetation:	Beech forest, fescue tussock and snow tussock associations, montane scrub, especially manuka	56% 11%	N4 P3

PRESENT LAND USE: Protection forestry, extensive grazing, retired land.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Tree planting on eroded areas. Noxious animal control. Fire control.

ADDITIONAL COMMENTS: Important to minimise erosion, because it is a collection zone for water resources east of the Main Divide.

8e 9

8e9

DESCRIPTION: Steep to very steep, extremely erodible slopes and mountain tops, in the tussock zone, above the timber line.

GEOGRAPHICAL DISTRIBUTION: Southern Alps east of Main Divide from Marlborough to Southland.

ALTITUDE ZONE: Alpine

TYPICAL LOCALITY: S 74:201877

AREA: 990050 ha (6.54% of S.I.) + subdominant: 19340 ha

NUMBER OF MAP UNITS: 2189 + subdominant: 40

INVENTORY FACTORS:

Slope:	26-35 degrees	78%	F
	> 35 degrees	20%	G
Rock type:	Greywacke, schist and colluvium	60%	Gw
		10%	St2
Soil:	Upland and high country yellow-brown earths	90%	57, 58, 57e
		7%	BR
Erosion:	Present - Severe to extreme scree, sheet, debris avalanche, gully and wind		
	Potential - Very severe to extreme scree, sheet, debris avalanche, gully and wind		
Vegetation:	Snow grass and short tussock associations,	51%	p4
	fell field	34%	P4

PRESENT LAND USE: Extensive grazing, retired land.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Revegetation. Noxious animal control.

ADDITIONAL COMMENTS: Typically found above unit 8e8. It is important to minimise erosion for the same reasons as on 8e8 land.

8e10

8e10

DESCRIPTION: Coastal foredunes and gravel beaches.

GEOGRAPHICAL DISTRIBUTION: Coastal districts.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S 76:069759

AREA: 4330 ha (0.03% of S.I.) + subdominant: 300 ha

NUMBER OF MAP UNITS: 22 + subdominant: 1

INVENTORY FACTORS:

Slope:	9 -15 degrees	73%	C
	16-20 degrees	16%	D
	4 - 8 degrees	11%	B
Rock type:	Sands and gravels from greywacke, granite and schist	98%	Wb
Soil:	Yellow-brown sands	99%	68, 68b, 70a
Erosion:	Present - Moderate to extreme wind		
	Potential - Extreme wind		
Vegetation:	Marram grassland, unvegetated, low producing	43%	p6
	grassland and gorse	35%	-

PRESENT LAND USE: Coastal protection.

POTENTIAL LAND USE: Coastal protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES: Marram planting. Coastal protection works.

ADDITIONAL COMMENTS:

8e 11

8e11

DESCRIPTION: Alpine tops with high rates of geological erosion.

GEOGRAPHICAL DISTRIBUTION: Central Alps from Marlborough to Fiordland.

ALTITUDE ZONE: Alpine

TYPICAL LOCALITY: S 66:115932

AREA: 331900 ha (2.19% of S.I.) + subdominant: 100 ha

NUMBER OF MAP UNITS: 735 + subdominant: 1

INVENTORY FACTORS:

Slope:	> 35 degrees	59%	G
	26-35 degrees	38%	F
Rock type:	Greywacke, schist,	48%	Gw
	granite and diorite	19%	St2
Soil:	-	51%	BR
	Alpine steepland soils	45%	100
Erosion:	Present - Extreme geological; moderate to extreme scree		
	Potential - Extreme geological; extreme scree		
Vegetation:	Very sparse alpine	60%	h4
	herbfields, scattered	17%	p4
	snowgrass, unvegetated	15%	-

PRESENT LAND USE:

POTENTIAL LAND USE:

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv
Site Index:	US	US	US	US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8s 1

8s1

DESCRIPTION: Undulating to rolling extremely low fertility or toxic gravel or rocky areas.

GEOGRAPHICAL DISTRIBUTION: Fiordland.

ALTITUDE ZONE: Montane-subalpine

TYPICAL LOCALITY: S 97:360911

AREA: 51940 ha (0.34% of S.I.) + subdominant: 8530 ha

NUMBER OF MAP UNITS: 274 + subdominant: 58

INVENTORY FACTORS:

Slope:	9 -15 degrees	37%	C
	4 - 8 degrees	29%	B
	16-20 degrees	23%	D
	21-25 degrees	10%	E
Rock type:	Till from serpentine	29%	A1
	peridotite and schist;	25%	A1/Gs
	hard siliceous sand-	14%	Hs
	stones and coal measures		
Soil:	Upland and high country	63%	66c, 64f, 64fH
	podzolised yellow-brown		
	earths and podzols		
	Recent soils	19%	99d
Erosion:	Brown granular loams and	17%	78
	clays		
	Present -	Negligible to moderate sheet; slight to moderate streambank, sheet, deposition and scree	
	Potential -	Slight to moderate sheet; slight to moderate streambank, sheet, deposition and scree	
Vegetation:	Beech forest with some	60%	N4
	podocarp-hardwood forest	17%	P4
	and mixed native scrub,	15%	M1
	snowgrass associations,		
	manuka scrub		

PRESENT LAND USE: Nil. Coal mining in places.

POTENTIAL LAND USE: Catchment protection.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Iny Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8s 2

8s2

DESCRIPTION: Recent dredge tailings with strongly rolling slopes
in dry districts.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Lowland

TYPICAL LOCALITY: S143:159471

AREA: 250 ha (0.00% of S.I.) + subdominant: 360 ha

NUMBER OF MAP UNITS: 1 + subdominant: 2

INVENTORY FACTORS:

Slope:	16-20 degrees	100%	D
Rock type:	Colluvium and alluvium from gneiss, schist, diorite and granite, alluvium from schist	100%	A1
Soil:	-	100%	DT
Erosion:	Present - Slight wind Potential - Slight wind		
Vegetation:	Nil		

PRESENT LAND USE: Nil.

POTENTIAL LAND USE: Catchment protection. Nil.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS: The dry climate limits the establishment of
vegetation.

8s 3

8s3

DESCRIPTION: Very steep dissection slopes with extensive rock faces in the semi-arid zone.

GEOGRAPHICAL DISTRIBUTION: Central Otago.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S144:205430

AREA: 730 ha (0.00% of S.I.) + subdominant: 0 ha

NUMBER OF MAP UNITS: 1

INVENTORY FACTORS:

Slope:	> 35 degrees	100%	G
Rock type:	Schist	100%	St2
Soil:	Brown-grey earths	100%	5
Erosion:	Present - Moderate sheet and scree		
	Potential - Moderate to severe sheet and scree		
Vegetation:	Low producing and short tussock grassland with some sweet briar and matagouri scrub	100%	P2

PRESENT LAND USE: Extensive grazing.

POTENTIAL LAND USE: Nil.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8w 1

8w1

DESCRIPTION: Swamps and bogs not feasible to drain in high rainfall districts.

GEOGRAPHICAL DISTRIBUTION: Westland, western Southland.

ALTITUDE ZONE: Montane

TYPICAL LOCALITY: S 87:893179

AREA: 10770 ha (0.07% of S.I.) + subdominant: 1690 ha

NUMBER OF MAP UNITS: 59 + subdominant: 6

INVENTORY FACTORS:

Slope:	0 - 3 degrees	99%	A
Rock type:	Peat	58%	Pt/A1
		15%	Pt
		13%	A1
Soil:	Organic soils	98%	87a, 87
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Swamp and bog associ-	45%	H1
	ations, manuka scrub	27%	H2
		24%	M1

PRESENT LAND USE: Water reserves. Wildlife reserves.

POTENTIAL LAND USE: Water reserves. Wildlife reserves.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

8w 2

8w2

DESCRIPTION: Saline mudflats in estuaries and sounds.
 GEOGRAPHICAL DISTRIBUTION: Coastal districts.
 ALTITUDE ZONE: Lowland
 TYPICAL LOCALITY: S 21:051287
 AREA: 2180 ha (0.01% of S.I.) + subdominant: 0 ha
 NUMBER OF MAP UNITS: 13

INVENTORY FACTORS:

Slope:	0 - 3 degrees	100%	A
Rock type:	Various fine sediments	79%	A1
		16%	Wb
Soil:	Saline gley recent soils	100%	92
Erosion:	Present - Negligible		
	Potential - Negligible		
Vegetation:	Saline swamp associ-	60%	H2
	ations	21%	H1
		19%	H5

PRESENT LAND USE: Wildlife reserves.

POTENTIAL LAND USE: Wildlife reserves.

PRODUCTIVITY INDICES:

Stock carrying capacities (su/ha): Unsuitable.

Exotic forest growth potential (P. radiata site index):

Conservancy:	Nelson	Westland	Canterbury	Southland
District:	Nel	Marl		Inv Dun
Site Index:	US	US	US	US US

SOIL CONSERVATION MEASURES:

ADDITIONAL COMMENTS:

THE DISTRIBUTION OF LUC UNITS, USED IN THE NEW ZEALAND LAND
RESOURCE INVENTORY, IN THE SOUTH ISLAND LANDSCAPE

RON-	LANDFORM	RAINFALL ZONE*	OTHER FEATURES	LUC UNITS	*low moderate high	<800 mm 800-1600 mm >1600mm
LANDS	flat to gently sloping terraces, floodplains, fans (0-7°)	low rainfall	deep soils	1c1 1s1 2c1 2e1 2s2 2s3		
			shallow soils	3e5 3s5 3s9 4e14 4s6 4s7 6s8 (7s2)		
		moderate rainfall	deep soils	1c2 1s2 2c2 2e2 2s1 3c2 3s12 4s13		
			shallow soils	3e7 3s1 3s2 3s3 3s7 4s1 4s3 5s3 6s1 7s2		
		high rainfall	on floodplains	3s8 4c3 4s2 6s3 7s1 7s8		
			on low to intermediate terraces	3c2 3s10 4s5 6s4		
			podzol soils on high terraces	4s10 6c2 6s6 7s4 7s7		
		low rainfall	alluvial soils	1w1 2w1 3w1		
		moderate rainfall	organic soils	3w2		
		high rainfall	alluvial soils	1w2 2w2 3w3 4w3 5w1 5w3 6w3 7w1		
			organic soils	3w4 4w1 6w1 4w2 5w4 6w2 7w2		
		various	saline coastal sands, silts	3s11 4s8 5s6 6s10 6w4 7w3 8w2		
		various	coastal dunes and sandflats	4e18 4s11 5s4 6s5 6e24 6s10 7s11 7e15 8e10		
			coastal sands, silts, gravels			
			on loess	3e4 3e8 4e4		
LANDS	moderately sloping land, mainly downland (8-20°)	low rainfall	on calcareous or basaltic rocks	3e1 3e2 4e1		
			on loess	3e6 3e10 3e12 3e14 4e3 4e5 4e6 4e7 4e15 6s2		
		moderate to high rainfall	on calcareous or basic igneous rocks	3e3 3e9 4e2 5s1 5s2		
			on loess overlying weakly indurated rocks	6e8 6e9 6e13 6e17 7e14		
		low rainfall	on strongly indurated rocks	6e14 7e2		
			on calcareous or basic igneous rocks	6e1 6e2 6e20		
			on weakly indurated rocks	6e7 6e16 7e5 7e7 7e11		
		moderate rainfall	on strongly indurated rocks	5c2 6e6 (6e10) 6e11 6e15 6e21 7e3 8e2		
			on calcareous or basic igneous rocks	5c1 5c3 6e5 7e1		
			on weakly indurated rocks	6e3 6e18 6e25 7e4 7e13 7e20 7e22		
		high rainfall	on strongly indurated rocks	7e9 8e3		
			on limestone and marble	6e4 7e8 8e1		
		low rainfall (semi-arid intermontane basins)	deep soils	(2e1) 3c3 3e11		
			shallow soils	3s4 3s6 4e11 4s6 4s9 4s15 6c3 6s7 7c5 7s10 7s12		
			associated disturbed ground	7s9 8s2		
HILLS, STEEP LANDS	flat to gently sloping terraces, outwash plains floodplains, fans and subdued moraines (0-7°)	variable rainfall	deep soils	3c1 3e15 4e8* 4e12* 4e16* 4c1*		
			shallow soils	4s12 5s5 6s11 7s3		
			- on floodplains, fans	4s4 4s14 4e17		
			low lying, drainage impeded land	4w2 5w2		
		low rainfall		3e13 4e9 6e26		
		moderate to high rainfall		4e10 6e27 6s12 7c3 8s1		
		low rainfall		4c2 6c4 6s9 7c7 7s5		
		moderate to high rainfall		3c4 4e13 6c1 7c1 7c6 (8s1)		
		moderate to high rainfall		7c2 7c4 7e18 7w4 8c1 8e6		
		low rainfall		6e12 6e19 6e22 7e6 7e12 7e24 8s3		
				7e16 8e4		
		moderate to high rainfall	below indigenous tree limit	6e10 6e23 6e28 6e29 7e10 7e25 8e5 8e8 7e17 7e19 7e23		
			above indigenous tree limit	7e21 7e26 8c2 8e7 8e9 8e11		
		low rainfall				

Fig. 1.

* 4c1 4e8 4e12 4e16 have variable depths and may sometimes be shallow

Distribution of LUC Units used in the South Island extended legend of the New Zealand Land Resource Inventory

Environment	Landform		Rainfall zone ¹	Other features	LUC Units
Lowlands	Flat to gently sloping terraces, floodplains, and fans (0-7°)	Well and moderately well drained	Low rainfall	Deep soils Shallow soils	1c1, 1s1, 2c1, 2e1, 2s2, 2s3, 3e5, 3s5, 3s9, 4e14, 4s6, 4s7, 6s8, (7s2)
			Moderate rainfall	Deep soils Shallow soils	1c2, 1s2, 2c2, 2e2, 2s1, 3c2, 3s12, 4s13 3e7, 3s1, 3s2, 3s3, 3s7, 4s1, 4s3, 5s3, 6s1, 7s2
			High rainfall	On floodplains On low to intermediates terrace Podzol soils on high terraces	3s8, 4c3, 4s2, 6s3, 7s1, 7s8 3c2, 3s10, 4s5, 6s4 4s10, 6c2, 6s6, 7s4, 7s7
		Low lying drainage impeded land	Low rainfall	Alluvial soils Organic soils	1w1, 2w1, 3w1 3w2
			Moderate rainfall	Alluvial soils Organic soils	1w2, 2w2, 3w3, 4w3, 5w1, 5w3, 6w3, 7w1 3w4, 4w1, 6w1
			High rainfall	Alluvial soils Organic soils	4w4, 5w4, 6w2, 7w2 8w1
		Saline	Various	Coastal sands & silts	3s11, 4s8, 5s6, 6s10, 6w4, 7s3, 8w2
		Coastal dunes and sandflats	Various	Coastal sands, silts & gravels	4e18, 4s11, 5s4, 6s5, 6e24, 6s10, 7s11, 7e15, 8e10
	Moderately sloping land mainly downland (7-20°)		Low rainfall	On loess On calcareous or basaltic rock	3e4, 3e8, 4e4 3e1, 3e2, 4e1
			Moderate to high rainfall	On loess On calcareous or basaltic rock	3e6, 3e10, 3e12, 3e14, 4e3, 4e5, 4e6, 4e7, 4e15, 6s2 3e3, 3e9, 4e2, 5s1, 5s2
			Low rainfall	On loess overlying weakly indurated rocks On strongly indurated rocks On calcareous or basaltic rock	6e8, 6e9, 6e13, 6e17, 7e14 6e14, 7e2 6e1, 6e2, 6e20
				On loess overlying weakly indurated rocks On strongly indurated rocks On calcareous or basaltic rock	6e7, 6e16, 7e5, 7e7, 7e11 5c2, 6e6, (6e10), 6e11, 6e15, 6e21, 7e3, 8e2 5c1, 5c3, 6e5, 7e1
			High rainfall	On weakly indurated rocks On strongly indurated rocks On limestone and marble	6e3, 6e18, 6e25, 7e4, 7e13, 7e20, 7e22 7e9, 8e3 6e4, 7e8, 8e1
		Hills and Steeplands (>20°)	Moderate rainfall	On loess overlying weakly indurated rocks On strongly indurated rocks On calcareous or basaltic rock	6e7, 6e16, 7e5, 7e7, 7e11 5c2, 6e6, (6e10), 6e11, 6e15, 6e21, 7e3, 8e2 5c1, 5c3, 6e5, 7e1
				On weakly indurated rocks On strongly indurated rocks On limestone and marble	6e3, 6e18, 6e25, 7e4, 7e13, 7e20, 7e22 7e9, 8e3 6e4, 7e8, 8e1
			High rainfall	On weakly indurated rocks On strongly indurated rocks On limestone and marble	6e3, 6e18, 6e25, 7e4, 7e13, 7e20, 7e22 7e9, 8e3 6e4, 7e8, 8e1
High country	Flat to gently sloping terraces, outwash plains floodplains, fans and moraines (0-7°)		Low rainfall (semi-arid intermontane basins)	Deep soils Shallow soils associated disturbed ground	(2e1), 3c3, 3e11 3s4, 3s6, 4e11, 4s6, 4s9, 4s15, 6c3, 6s7, 7c5, 7s10, 7s12 7s9, 8s2
			Variable rainfall	Deep soils Shallow soils - on floodplains and fans - on terraces Lowlying, drainage impeded land	3c1, 3e15, 4e8*, 4e12*, 4e16*, 4c1* 4s12, 5s5, 6s11, 7s3 4s4, 4s14, 4e17 4w2, 5w2
		Moraines, fans in enclosed basins	Low rainfall		3e13, 4e9, 6e26
			Moderate to high rainfall		4e10, 6e27, 6s12, 7c3, 8s1
		Exposed mid-altitude uplands < 950 m a.s.l.	Low rainfall		4c2, 6c4, 6s9, 7c7, 7s5
			Moderate to high rainfall		3c4, 4e13, 6c1, 7c1, 7c6, (8s1)
		Exposed high altitude uplands & crests > 950 m a.s.l.	Moderate to high rainfall		7c2, 7c4, 7e18, 7w4, 8c1, 8e6
	Hills and Steeplands (>20°)		Low rainfall		6e12, 6e19, 6e22, 7e6, 7e12, 7e16, 7e24, 8e4, 8s3
			Moderate to high rainfall	Below indigenous treeline	6e10, 6e23, 6e28, 6e29, 7e10, 7s17, 7e19, 7e23, 7e25, 8e5, 8e8
				Above indigenous treeline	7e21, 7e26, 8c2, 8e7, 8e9, 8e11

¹ Annual rainfall; low, <800 mm; moderate >800<1600 mm; high >1600 mm. * Luc units 4c1, 4e8, 4e12, 4e16 have vriaible depths and may sometimes be shallow