

copy 2

SUSTAINABLE LAND USE FOR THE DRY TUSSOCK GRASSLANDS IN THE SOUTH ISLAND

REGISTER OF RESEARCH

Office of the
PARLIAMENTARY COMMISSIONER FOR THE ENVIRONMENT
Te Kaitiaki Taiao a Te Whare Paremata

PO Box 10-241, Wellington, NEW ZEALAND

March 1991

Investigation Team

Helen H R Hughes	MSc(Hons), MS (Plant Science)
Dana Rachelle Peterson	BA (Zoology), MPhil (Soc Sci)
Dr Mary McEwen	BSc, DPhil (Botany)
David Leslie	MSc (Hons) (Soil Sci)

Editor

Barbara Harford

Administration

Jeanette Brooker
Jenny Robertson

Typists

Judith Broadwith
Nicola Kerslake
Kim Monkhouse
Tessa Roach

Maps

Glenys Simmonds
Grant Hunter
Mark Rowse

ACKNOWLEDGEMENTS

The investigation would like to thank the many individuals and groups who helped with their advice and time, particularly the staff and councillors of Otago, Canterbury and Nelson/Marlborough Regional Councils, Government staff and contractors involved with the Rabbit and Land Management Programme, and the landholders of the South Island high country.

ISBN

Register of research 0-908804-24-5

Main report	0-908804-22-9
Summary volume	0-908804-23-7
Set	0-908804-25-3

REGISTER OF RESEARCH RELATED TO DRY TUSSOCK GRASSLANDS

This register lists the research project titles supplied by agencies in response to a request for an outline of all recently completed, current and proposed research projects related to the management of the South Island high country where rabbits are (or have potential to become) a problem. The source material for this table is held in the Office of the Parliamentary Commissioner for the Environment. We acknowledge with thanks the agencies who supplied information for this register. Agency addresses follow.

In the register projects are listed within thirteen categories (A to M), by agency (in alphabetical order), and identified as completed, current or proposed. Direct comparisons between the projects of various agencies should not be made because information was not supplied in a standard format.

Where known, the source of funding and any cooperating agencies are listed. There is no indication of the relative costs of each project.

The register is not considered to be a complete listing of all relevant research but should provide a useful starting point for any compilation of existing information about the dry tussock grasslands. Note that certain projects occur in more than one category as indicated by research category letter(s) e.g. (+ B, C) following the project title. Where several projects are related to each other the relationship is indicated by numbers e.g. (1), (2) etc following the project title.

Research Categories

- A Control of Rabbits
- B Control of Hawkweeds
- C Monitoring Soil Loss/Erosion
- D Impacts of Sheep and Rabbits on Vegetation
- E Alternative Dryland Pasture Species
- F Dryland Trees and Shrubs
- G "Drought-Proofing" Methods
- H Alternative Land Uses
- I Possum Infestation of Drylands
- J Impacts of 1080 on the Environment
- K Alternative Poisons to 1080 for Mammal Control
- L Land Resource Assessment and Evaluation
- M Social Impacts Occurring in the Dryland Parts of the South Island

A CONTROL OF RABBITS

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
CANTERBURY UNIV. Zoology Dept	"Biology of the rabbit (<i>Oryctolagus cuniculus</i>)[L] in Central Otago, NZ, with emphasis on behaviour and its relevance to poison control operation", Fraser, 1985, PhD Thesis	Completed		
	Palatability and bait attractiveness; Potential predator food analysis; Rabbit growth analysis	Proposed		MAF
	Establishing an ecosystem model for the Mackenzie Basin (+ B)	Proposed	University	
DSIR Chemistry	Detering pests with predator odours, using pheromones (+ K)			FRI or DSIR Land Resources & Canadian biologists
	Overcoming bait shyness	Proposed		FRI or DSIR Land Resources
DSIR Grasslands	Effects of "Grasslands" Pawera red clover on fecundity of rabbits	Proposed	Massey University	
	CONFIDENTIAL project proposal	Proposed		DSIR Land Resources & DSIR Plant Protection
DSIR Land Resources	Effects of climate change on major pest species - possums and rabbits (+ I)	Completed	MFE	MAF
	Natural decline to extinction of a NZ rabbit population	Completed	Crown	NZFS
	IUCN Lagomorph action plan	Completed	Crown	Utah State University etc.
	Lagomorph newsletter	Current	DSIR & donations	MAFTech (J M Williams)
	Rabbit distribution throughout the world	Current	Crown	Wildlife & Range Ecology, CSIRO (Australia)
	Feral cats in forest and impact on prey populations	Current		
	Rabbit Task Force	Current	Crown	MAFTech
FOREST RESEARCH INSTITUTE, Forest Animal Ecology Section	Demonstration of the effectiveness of cats in controlling rabbit numbers in Central Otago	Proposed		MAFTech
	Rabbit behaviour - 3 papers being prepared from W Fraser's PhD thesis	Current	FRI	

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
Forest Management & Productivity Section	Trials in very low rainfall areas (Mackenzie Basin) using trees to (a) increase the productivity of the land (b) decrease wind erosion (c) avoid problems associated with <u>Heiracium</u> and rabbits	Proposed		
	"The economics of rabbit control in Central Otago, Discussion Paper", Kerr, Costello, Leathers, 1983	Completed		
	"Pest control administration in NZ, the issues and options", McIntyre, Scaife, Leathers, Kerr, 1986	Completed		MFE, MAF, MWD; Department of Lands & Survey
LINCOLN UNIV. NZ Mountain Lands Institute	"The classification of land in Central Otago according to the degree of rabbit infestation", Kerr, Williams, Ross, Pollard, 1987 (+ L)	Completed		
	"Classification of land for rabbit proneness", Kerr, 1988 (+ L)	Completed		
	"Reform of pest administration in NZ", Ross, Kerr, 1988 (+ L)	Completed		
	"Reform of pest administration in NZ or, what are they doing about rabbits?", Kerr, 1989	Completed		
	"Rabbit management in Central Otago: Classification of land for rabbit proneness", Kerr, Ross, 1990 (+ L)	Completed		
	"Classification of land for rabbit proneness, Canterbury Region" Kerr, 1990 (+ L)	Completed		
	The management of rabbit populations and the development of strategies relevant under today's farming conditions in NZ	Completed	MAF Research	
MAFTech	Bait avoidance in Central Otago rabbit populations	Completed	MAF & APDC	A J Oliver, W Australia
	Integrating research techniques with rabbit management practices - Rabbit population monitoring	Completed	MAF Research	
	Developing new and improving current vertebrate control technology - evaluation of green dyes for use in rabbit control operations - development of control strategies using anticoagulant poisons	Completed	MAF Research	
	Mortality factors affecting juvenile rabbits on improved and semi-improved farmland	Completed		
	Economics of rabbit control	Completed	MAF Research	

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
MAFTech (cont'd)	Integrating research techniques with rabbit management practices	Current	MAF Research	
	R & LM Programme (+ C,D,H,K,L,M)	Current	R & LM Programme	
	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ B,C,D,E,G,H)	Current	Vote: Agriculture	
OTAGO UNIVERSITY Zoology Department	The diets, ecology and behaviour of introduced mammalian predators of rabbits	Proposed	MAF	MAF
	Identification of key rabbit "nursery" areas in the ecological landscape	Proposed	MAF	MAF
	Ways of ageing rabbits	Proposed	MAF	MAF
	Evaluation of robustness of rabbit "spotlighting transect" counts as an index of abundance	Proposed	University, MAF? Regional Councils	MAF, Otago and Canterbury Regional Councils
	Survey of public opinion about introduction of biological control agents against rabbits and possums	Proposed		
B CONTROL OF HAWKWEEDS				
CANTERBURY UNIVERSITY Plant & Microbial Science	Protected Natural Areas Programme survey of Waipori Ecological District (Dunedin area) - including impact of <u>Heiracium</u> on areas of high conservation value. MSc study	Proposed	University; DOC; Hellaby	DOC (Canterbury & Otago); Otago University
Zoology Department	Establishing an ecosystem model for the Mackenzie Basin (+ A)	Proposed	University	
DSIR Fruit & Trees	Large-scale oversowing trial - Cluden & Galloway Stations	Completed		
	Reassessing Galloway trials because of devastation by rabbits and hawkweed (+ D)	Current		Dr Scott, DSIR Grasslands; G Hunter, DSIR Land Resources; G C Kerr, Mountain Land Institute
	Trial of tall oat-grass in hawkweed - Galloway Station	Current		Dr Scott, DSIR Grasslands; G Hunter, DSIR Land Resources; G C Kerr, Mountain Land Institute
	Ecological and biochemical work on hawkweed	Proposed		

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
DSIR Fruit & Trees (cont'd)	Evaluation of plant species capable of growing in and with hawkweed	Proposed		
	Extension of work with tall oat-grass, sheep's fescue & birdsfoot trefoil	Proposed		
	Biological control of <u>Heiracium</u> [Project related to (1)]	Proposed		
DSIR Grasslands	A review of weeds in NZ protected natural areas	DSIR, DOC	DOC project	
	Invasion and spread of hawkweeds in tall tussock grasslands	Proposed		
	Development of remote sensing techniques to assist in <u>Heiracium</u> survey [Project related to (2)]	Proposed		Runholders; Regional Councils
DSIR Plant Protection	Biological control of broom, <u>Cytisus scoparius</u>	Current		
	Biological control of <u>Heiracium</u> - invertebrate and pathogens ⁽¹⁾	Proposed	Limited Crown	DSIR Land Resources & DSIR Grasslands
	An economic evaluation of biological control of <u>Heiracium</u>	Completed	DSIR (?)	Entomology Division, DSIR
LINCOLN UNIVERSITY, Agribusiness & Economics Unit	"Rhizomatous clovers for Hawkweed dominated grasslands", Mason, 1987 (+ E)	Completed		
	"Performance of Caucasian & Zig-Zag clovers", Daly & Mason 1978 (+ E)	Completed		
	Investigation of rhizomatous clovers to establish in high country (+ E)	Current(?)		
NZ Mountain Land Institute	"Hawkweeds: Report and recommendations from NZMLI Workshop", Kerr, 1990	Completed		
	" <u>Heiracium</u> : Summary of papers presented at NZMLI Hawkweeds Workshop Tekapo", Robertson, 1990	Completed		
	Investigation programme & strategy for management of land impacted by hawkweeds	Proposed		Minister for the Environment
FOREST RESEARCH INSTITUTE, Forest & Grassland Ecology Section	Review of research requirements relating to <u>Heiracium</u> , as it affects the Conservation Estate	Current	DOC	DOC
	Assess the extent of hawkweed (<u>Heiracium</u> spp.) invasion of tussock grasslands in the eastern South Island and central North Island, the factors influencing hawkweed establishment and spread. Investigate the options for limiting hawkweed spread/dominance and implications for sustainability of tussock grasslands	Proposed		DOC

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
FOREST RESEARCH INSTITUTE, Forest & Grassland Ecology Section (cont'd)	Nitrogen uptake, water relations and root growth of <u>Heiracium</u> spp. (Research Programme 171; objective 3)	Proposed		
	Trees as an alternative land use in degraded grasslands now dominated by <u>Heiracium</u> (+ F,H)	Proposed		
	Trials in very low rainfall areas (Mackenzie Basin) using trees to (a) increase the productivity of the land (b) decrease wind erosion (c) avoid problems associated with <u>Heiracium</u> and rabbits (+ A,C,F,H)	Proposed		
	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ A,C,D,E,G,H) Control of Hawkweeds by plant competition - a low input sustainable approach	Current Current	Vote: Agriculture MAF Invermay	
C MONITORING SOIL LOSS/EROSION				
DSIR Fruit & Trees	Interest in effects of rabbits, wind, frost heave, droughts and hawkweed on soil degradation in non-arable hill country	Current		
DSIR Land Resources	Review of effects of burning on soil properties and vegetation	Completed	DSIR, Land Resources; DOC; Regional Councils;	DOC; Regional Councils; Lincoln University, Mountain Lands Institute; Land Corp
	Decomposition rates and microbial activity as indicators of soil recovery following rabbit and sheep exclusion from 3 sites on Earnsclough Station (+ D)	Completed	DSIR	Otago Regional Council (for RLMP)
	Review of mountainland erosion in the South Island	Completed	Crown	
	Proposed soil vegetation reference sites in E. Otago uplands	Completed	DOC	DOC
	Surface erosion (arable downlands in S. Canterbury lowlands)	Current	DSIR	National Radiation Lab. (at cost)
	Semi-arid land degradation (Conroy and Alexandra Soils)	Current	DSIR	Otago Regional Council; potential cooperation MAF
	Assessment of use of erosion pins for determining soil loss in Otago pastoral lands	Current	DSIR	Otago Regional Council

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
DSIR Land Resources (cont'd)	Effects of burning on sustainability of low-fertility grasslands - a preliminary assessment	Proposed		
FOREST RESEARCH INSTITUTE - Forest Management and Productivity Section	Trials in very low rainfall areas (Mackenzie Basin) using trees to: (a) increase the productivity of the land (b) decrease wind erosion (c) avoid problems associated with <u>Heiracium</u> and rabbits (+ A,B,F,H)	Proposed		
LINCOLN UNIVERSITY, NZ Mountain Lands Institute	"The role of soil conservators in regional government", Kerr, 1989	Completed		
MAFTech	R & LM Monitoring Programme (+ A,D,K,L,M)	Current	R & LM Programme	
	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, droughts and soil depletion (+ A,B,D,E,G,H)	Current	Vote: Agriculture	
D IMPACTS OF SHEEP AND RABBITS ON VEGETATION				
DSIR Fruit & Trees	Reassessing Galloway trials because of devastation by rabbits and hawkweed (+ B)	Current		Dr Scott, DSIR Grasslands; G Hunter, DSIR Land Resources; G Kerr, Mountain Lands Institute
DSIR Grasslands	Winter feed crops	Current		
	Irrigation and N fertiliser of tall fescue for in situ winter feed	Current		
	Factors affecting summer-autumn herbage accumulations	Current		
	Winter feed from summer-autumn saved pasture	Current		
	Grasses for winter feed on sunny slopes	Current		
	Grazing and fertiliser selection of species	Current		
	Comparison of multi-species mixtures	Current		
	Rate of spread of rhizomatous legumes	Current		
	Sheep performance on red clover, alsike and perennial lupin	Current		
	Options for late autumn and early spring pasture in drier areas (+ E)	Current		

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
DSIR, Grasslands (cont'd)	Companion species for alsike clover, birdsfoot trefoil & tall fescue	Current		
	Regrowth characteristics of pasture species	Current		
	Comparison of lucerne lines	Current		
	Comparison of timothy lines	Current		
	Correlation of characteristics in perennial lupin	Current		
	Role of subterranean clover in high country	Current		
	Caucasian clover evaluation (+ E)	Current		
	Decomposition rates and microbial activity as indicators of soil recovery following rabbit and sheep exclusion from 3 sites on Ernsclough Station (+ C)	Completed	DSIR	Otago Regional Council (for RLMP)
	Changes in extent of bare ground and vegetative cover in tussock grasslands	Completed	Crown	Catchment Boards; FRI; Department of Lands & Survey; runholders
DSIR Land Resources	Recovery index for tall tussock (following burning)	Current	DSIR, DOC, & Hellaby	
	Tussock grasslands management research programme. Effects of grazing on tussock grasslands in Waitaki Basin [NB: This is the same project as ⁽³⁾]	Current	DOC, MAF	DOC, MAF; FRI; Victoria University; runholders
	Effects of sheep grazing in high rainfall, alpine tall tussock grassland [Project complements ⁽³⁾]	Current	DOC	DOC
	Experimental assessment of scrub management options in hill and high country	Proposed		Planned cooperation with other divisional tussock grassland projects; DOC; Landcorp; runholders
	"Fescue tussock grassland on grazed and retired hillslopes, Harper-Avoca catchment, Canterbury. I Composition & biomass. II Snow tussock population dynamics in mixed fescue-snow tussock stands. III Impact of hares on a low altitude fescue-snow tussock stand"	Completed	DOC	DOC
FOREST RESEARCH INSTITUTE, Forest & Grassland Ecology Section	Mackenzie Basin Tussock Management Trial [NB: This is the same project as ⁽³⁾]	Current		DSIR Land Resources; DOC; MAFTech, Victoria University
	"The ecology of tussock grasslands for production and protection" McKendry and O'Connor, 1990 (+ L)	Completed		

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
LINCOLN UNIVERSITY Centre for Resource Management	"Changes in the structure of tall-tussock grasslands in the Mackenzie Country, NZ", 'Treskonova, 1990, in press (+ L)	Completed		
	A study of changes in the structure of tall-tussock grasslands in the Mackenzie Country	Current	Hellaby	
Plant Science	"Vegetation and sheep grazing patterns on a dry North Canterbury tussock grassland property,, 'Hunua", Daly 1984	Completed		
MAFTech	R & LM Programme (+ A,C,H,K,L,M)	Current	R & LM P	
	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ A,B,C,E,G,H)	Current	R & LM P	
E ALTERNATIVE DRYLAND PASTURE SPECIES				
DSIR Fruit & Trees	Network of trial sites since 1972, Mackenzie Country, Central Otago and Southland	Completed		
	Direct drilling of alternative species at Bendigo and Mataura	Current		NZ Agricultural Engineering Institute; and MAF
	Space-planted trials of pasture plants	Current		
	Work on pasture species at Eamsdeugh Research Nursery	Current		
	Maintain and expand current project on alternative dryland pasture plants	Proposed		DSIR Grasslands
	Proposed National Dryland Research Centre, Alexandra (+ F)	Proposed		DSIR Grasslands
	Options for late autumn and early spring pasture in drier areas (+ D)	Current		
DSIR Grasslands	Caucasian clover evaluation (+ D)	Current		
	Initial of Caucasian and other introductions (+ D)	Current		
	Economic evaluation of Matua Prairie Grass as a pasture species on Canterbury sheep farms	Completed		DSIR Grasslands
LINCOLN UNIVERSITY, Agribusiness & Economics Research Unit	1977-84 work on new species - reports available (+ G)	Completed	NWASCO	NWASCO
	Introduction of new species into semi-arid lands (+ G)	Current	FORST, MAF	MAF Invermay, Forage Systems Group

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
LINCOLN UNIVERSITY, Plant Science	"Performance of Caucasian & Zig-Zag clovers", Daly & Mason, 1978 (+ B)	Completed		
	"Lotus, white clover and Caucasian clover oversowing, Mesopotamia, South Canterbury" Lucas, White, Daly, Jarvis, Meijer, 1981	Completed		
	"Rhizomatous clovers for Hawkweed dominated grasslands" Mason, 1987 (+ B)	Completed		
	Investigation of rhizomatous clovers to establish in high country (+ B)	Current?		
	Control of Hawkweeds by plant competition - a low input sustainable approach	Current	MAF Invermay	
MAFTech	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ A,C,E,F,H)	Current	R & LM Programme	
F DRYLAND TREES AND SHRUBS				
DSIR Fruit & Trees	Recent evaluation of Cockayne Trials on Northburn Station	Completed		
	Plantings at Bendigo and Oltig	Current		
	Large-scale plantings of saltbush (<i>Atriplex halimus</i>) at Chatto Creek and Riverside; two-tier "shrub-forage bank"	Current		
	Long-term evaluation at Ernsclough Nursery	Current		
	Proposed National Dryland Research Centre, Alexandra (+ E)	Proposed		DSIR Grasslands
DSIR Land Resources	Wilding Conifers	Near completion	DSIR; DOC; Hellaby; Otago University	
	Assessment of trees and shrubs for land and habitat restoration in Canterbury dry country	Current	Crown & Waiora Trust; Canterbury Regional Council	Canterbury Regional Council; DOC

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
FOREST RESEARCH INSTITUTE, Forest Management & Productivity Section	Trials in Mackenzie Basin testing growth and silvicultural regimes in a range of tree species (+ H)	Current		
	Trials in very low rainfall areas (Mackenzie Basin) using trees to (a) increase the productivity of the land (b) decrease wind erosion (c) avoid problems associated with <u>Heiracium</u> and rabbits (+ A,B,C,H)	Proposed		
	Trees as an alternative landuse in degraded grasslands now dominated by <u>Heiracium</u> (+ B,H)	Proposed		
LINCOLN UNIVERSITY, Plant Science	Assessment of productivity and seasonal growth patterns in a range of shrub legumes e.g. Tagasaste, gorse, tree lupin, Russell lupin. Daly, Lucas, Gyamtsho, McKendry (+ G)	Completed		
MAFTech	Development of techniques to minimise drought impact on semi-arid areas of the South Island (+ F)	Current	Vote: Agriculture	
	New forage plants and systems for South Island hill and high country	Proposed		
G "DROUGHT-PROOFING" METHODS				
DSIR Fruit & Trees	Regular field days at trial sites	Current		
LINCOLN UNIVERSITY Agricultural Engineering Institute	1977-84 work on new species - reports available (+ E)	Completed	NWASCO	NWASCO
	Introduction of new species into semi-arid lands (+ E)	Current	FORST; MAF	MAF Invermay, Forage Systems
MAFTech	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ A,C,D,E,F)	Current	Vote: Agriculture	
	On-farm investigative development trials - searching for more sustainable system which are often rabbit and <u>Heiracium</u> prone (+ H)	Current	MAF Research	
	New forage plants and systems for South Island hill and high country (+ F)	Proposed		
H ALTERNATIVE LAND USES				
DSIR Land Resources	Land evaluation for irrigation and soil relocation	Completed	DSIR; MWD	MWD
FOREST RESEARCH INSTITUTE, Forest & Grassland Ecology Section	Trees as an alternative land use in degraded grasslands dominated by <u>Heiracium</u> (+ B,F)	Proposed		

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
FOREST RESEARCH INSTITUTE, Forest Management & Productivity Section	Trials in Mackenzie Basin testing growth and silvicultural regimes in a range of tree species (+ F)	Current		
	Trials in very low rainfall areas (Mackenzie Basin) using trees to: (a) increase the productivity of the land (b) decrease wind erosion (c) avoid problems associated with <u>Heiracium</u> and rabbits (+ A,B,C,F)	Proposed		
	Model to evaluate alternative land uses for tussock grasslands of NZ	Proposed		With several other agencies
LINCOLN UNIVERSITY, NZ Mountain Lands Institute				
Plant Science	Research in agro-forestry	Current		School of Forestry
MAFTech	R & LM Monitoring Programme (+ A,C,D,L,M)	Current	R & LM Programme	
	Sustainable use of semi-arid ecosystems under threat from rabbits, hawkweeds, poor grazing management, drought and soil depletion (+ A,B,C,D,E,G)	Current	Vote: Agriculture	
	On-farm investigative development trials - searching for more sustainable systems in drought prone areas which are often rabbit and <u>Heiracium</u> prone (+ G)	Current	MAF Research	
	New Crop Production in New Zealand	Proposed		
I POSSUM INFESTATION OF DRYLANDS				
DSIR Land Resources	Effects of climate change on major pest species - possums and rabbits (+ A)	Completed	MFE	MAF
FOREST RESEARCH INSTITUTE Forest Animal Ecology Section	Evaluation of suitability of Calciferol, Cholecalciferol, Warfarin, Brodifacoum, Gliflor and Bromethalin for the destruction of possums, cats and pigs (+ K)	Current	Animal Health Board, MORST, Wellcome Env. Health	Ciba-Geigi; Wellcome Environmental Health
MAFTech	Possum movements and behaviour in response to self feeding bait stations	Completed	MAFQuality Management	
	Bait stations for assessment and control of possum population - an evaluation in the Mackenzie Basin	Completed	Vote: Agriculture	

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
J IMPACTS OF 1080 ON THE ENVIRONMENT				
CANTERBURY UNIV. Plant & Microbial Science	"The effects of Sodium Fluoroacetate (1080) on the soil microflora" Bong, Cole, Walker, Peters, 1979	Completed	APDC	APDC
	"The effects of Fluoroacetate and Fluoride upon duckweeds", Bong, Walker, Peters, 1980	Completed	APDC	APDC
	"Metabolism of Fluoroacetate by a soil <i>Pseudomonas</i> sp. and <i>Fusarium solani</i> ", Walker, Bong, 1980	Completed	APDC	APDC
FOREST RESEARCH INSTITUTE, Forest Animal Ecology Section	Literature review of environmental fate of 1080	Current	MORST	
	Fate of 1080 in soil and stream waters, in non-target invertebrates, and in soil samples	Proposed	DOC	DOC
K ALTERNATIVE POISONS TO 1080 FOR MAMMAL CONTROL				
DSIR Chemistry	Detering pests with predator odours, using pheromones (+ A)	Proposed		FRI or DSIR Land Resources & Canadian biologists
FOREST RESEARCH INSTITUTE, Forest Animal Ecology Section	Evaluation of suitability of Calciferol, Cholecalciferol, Warfarin, Brodifacoum, Gliflor and Bromethalin for the destruction of possums, cats and pigs (+ I)	Current	Animal Health Board; MORST; Wellcome Env. Health	Ciba-Geigy; Wellcome Environmental Health
	Extension of current work to include pen and field testing of acceptance of toxic baits	Proposed		DSIR Grasslands; DSIR Chemistry; Inctec? (Australia)
LINCOLN UNIVERSITY, Animal & Vet. Sciences Group	Evaluation of an orally active contraceptive for control of wild rabbits (medroxy progesterone acetate, MPA)	Current	Lincoln & private	MAFTech & Christchurch Clinical School
MAFTech	Developing new and improving current vertebrate control technology - development of control strategies using anti-coagulant poisons (+ A)	Completed	MAF Research	
	R & LM Monitoring Programme (+ A,C,D,L,M)	Current	R & LM Programme	

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
L LAND RESOURCE ASSESSMENT AND EVALUATION				
DSIR Land Resources	Matching pasture improvement to land type for inland basins (Waitaki) ⁽²⁾	Completed	DSIR	DSIR Grasslands
	Map of percentage vegetative cover in Waitaki Basin: [NB project related to ⁽⁴⁾]	Completed	DSIR	Runholders & Regional Councils
	Horticultural soils of Otago and Southland	Current	Crown, DSIR	MAFTech (Invermay) & DSIR, Fruit & Trees
	Marlborough NZLRI upgrade	Current	DSIR	Nelson/Marlborough Regional Council
	Soil-Landscape descriptions for Canterbury & Otago hill and high country	Current	DSIR	Integrated with "Semi-arid land degradation" project
	Enhanced farm plans	Current	DSIR	Regional Councils
	Land resource information to promote sustainable use in Crown pastoral land ⁽⁴⁾	Proposed	Limited DSIR	MOF; DOC, Canterbury Regional Council; MAF; DSIR Grasslands; DSIR Fruit & Trees; Runholders; Mountain Lands Institute
	"Satellite remote sensing for tussock grassland survey", Espie, 1988	Completed	DOC	DOC
	"The effects of legumes and fertilizer on fescue tussock grassland", Espie, 1990	Completed	DOC	DOC
	"The classification of land in Central Otago according to the degree of rabbit infestation", Kerr, Williams, Ross, Pollard, 1987 (+ A)	Completed		
FOREST RESEARCH INSTITUTE, Forest & Grassland Ecology Section LINCOLN UNIVERSITY, NZ Mountain Lands Institute & Centre for Resource Management	"Classification of land for rabbit proneness", Kerr, Ross, 1988 (+ A)	Completed		
	"Reform of pest administration in NZ", Ross, Kerr, 1988 (+ A)	Completed		
	"Rabbit management in Central Otago: Classification of land for rabbit proneness", Kerr, Ross, 1990 (+ A)	Completed		
	"Classification of land for rabbit proneness, Canterbury Region" Kerr, 1990 (+ A)	Completed		
	"The ecology of tussock grasslands for production and protection", McKendry and O'Connor, 1990 (+ D)	Completed	DOC	
	"Changes in the structure of tall-tussock grasslands in the Mackenzie Country, NZ", Treskonova, 1990, in press (+ D)	Completed		

AGENCY	PROJECT TITLE	STATUS	FUNDING	COOPERATING AGENCIES
LINCOLN UNIVERSITY, NZ Mountain Lands Institute & Centre for Resource Management (cont'd)	"Land evaluation for nature conservation. A scientific review compiled for application in NZ", O'Connor, Overmars and Ralston, 1990	Completed	DOC	
	A study of changes in the structure of short-tussock grasslands in the Mackenzie Country (+ D)	Current	Hellaby	
	Workshop on guidelines for management of high country landscapes	Proposed		
	Workshop on development of principles on which public policies for management of mountain land resources may be based	Proposed		
	Mountain Lands Policy Statement (under provisions of the Resource Management Bill)	Proposed		
MAFTech	Classification of land for rabbit proneness	Completed	MAF-funded contract	NZ Mountain Lands Institute
	R & LM Monitoring Programme (+ A,C,D,H,K,M)	Current	R & LM Programme	
M SOCIAL IMPACTS OCCURRING IN THE DRYLAND PARTS OF THE SOUTH ISLAND				
MAFTech	R & LM Monitoring Programme (+ A,C,D,H,K,L)	Current	R & LM Programme	

LIST OF ADDRESSES OF AGENCIES FROM WHOM INFORMATION WAS REQUESTED FOR RESEARCH REGISTER

Regional Science Manager
Canterbury Ag & Science Centre
Ministry of Agriculture and Fisheries
PO Box 24
LINCOLN

Director
DSIR Crop Research
DSIR Lincoln
Private Bag
CHRISTCHURCH

Director
Centre for Resource Management
Lincoln University
PO Box 56
LINCOLN

Director
DSIR Fruit and Trees
Private Bag
PALMERSTON NORTH

Director
Science and Research Division
Department of Conservation
PO BOX 10-420
WELLINGTON

Director
DSIR Grasslands
Private Bag
PALMERSTON NORTH

Director
Forest Research Institute
Private Bag
ROTORUA

Director
DSIR Land Resources
Land and Soil Science
Private Bag
LOWER HUTT

Programme Manager
Foundation for Research Science
and Technology
PO Box 12-240
WELLINGTON

Director
DSIR Plant Protection
Private Bag
AUCKLAND

Ministry of Research Science
and Technology
PO Box 5336
WELLINGTON

Manager
DSIR Social Science
Ilam Research Centre
PO Box 29-182
CHRISTCHURCH

Environmental Co-ordinator
DSIR Head Office
PO Box 1578
WELLINGTON

The Dean of Science
Auckland University
Private Bag
AUCKLAND

Director
DSIR Chemistry
Private Bag
PETONE

The Dean of Science
Canterbury University
Ilam
CHRISTCHURCH

The Dean of Science
Lincoln University
LINCOLN

The Dean of Science
Massey University
Private Bag
PALMERSTON NORTH

The Dean of Science
Otago University
PO Box 56
DUNEDIN

The Dean of Science
Victoria University
PO Box 600
WELLINGTON

The Dean of Science
Waikato University
Private Bag
HAMILTON