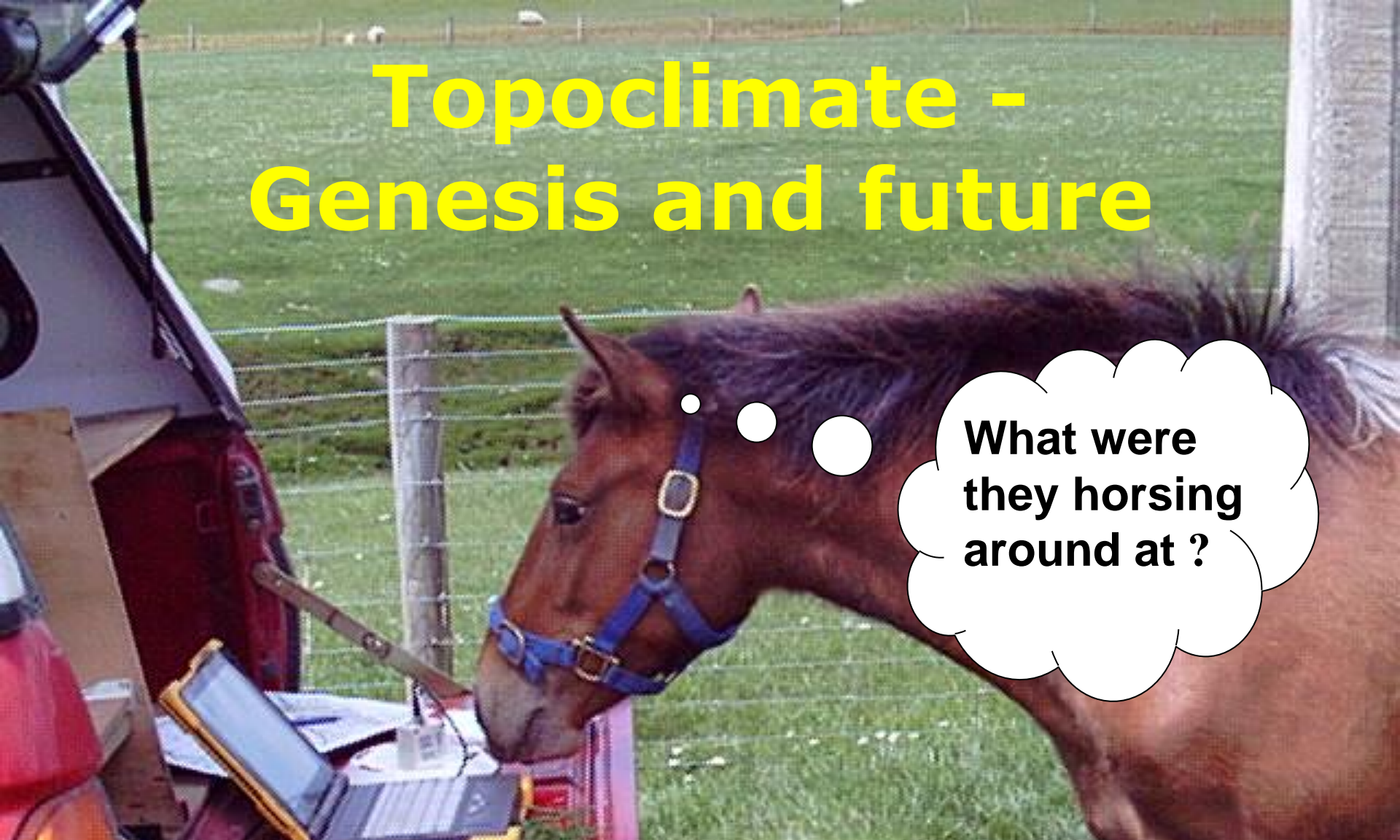
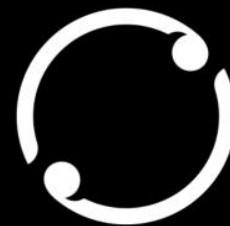


Topoclimate - Genesis and future

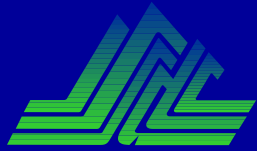


What were
they horsing
around at ?

Sam Carrick
Portfolio Leader – Characterising
Land Resources



Manaaki Whenua
Landcare Research



Southland District Council

Mid 1990's Threats to Rural Communities

- **Withdrawal of services**
- **Urban drift.**
- **Lack of Employment.**
- **Decline in health services/education services**
- **Loss of Skills.**
- **Reliance on commodity trading.**
- **Farm ownership intergenerational issues**



**CATALYST FOR
DEVELOPMENT OF
ALTERNATIVE CROPS**
*eg meadowfoam,
peonies*

Integrated Rural Economic Development



**RESEARCH
into Soil, climate
& crop information**



**PROMOTION
of land use
alternatives**



**INFORMATION
SERVICES
ON LAND USE
OPTIONS**

**SOUTHLAND, GORE, CLUTHA, INVERCARGILL DISTRICT COUNCILS, &
ENVIRONMENT SOUTHLAND**

**Community Trust of Southland, then in 1998 the
Labour Government**





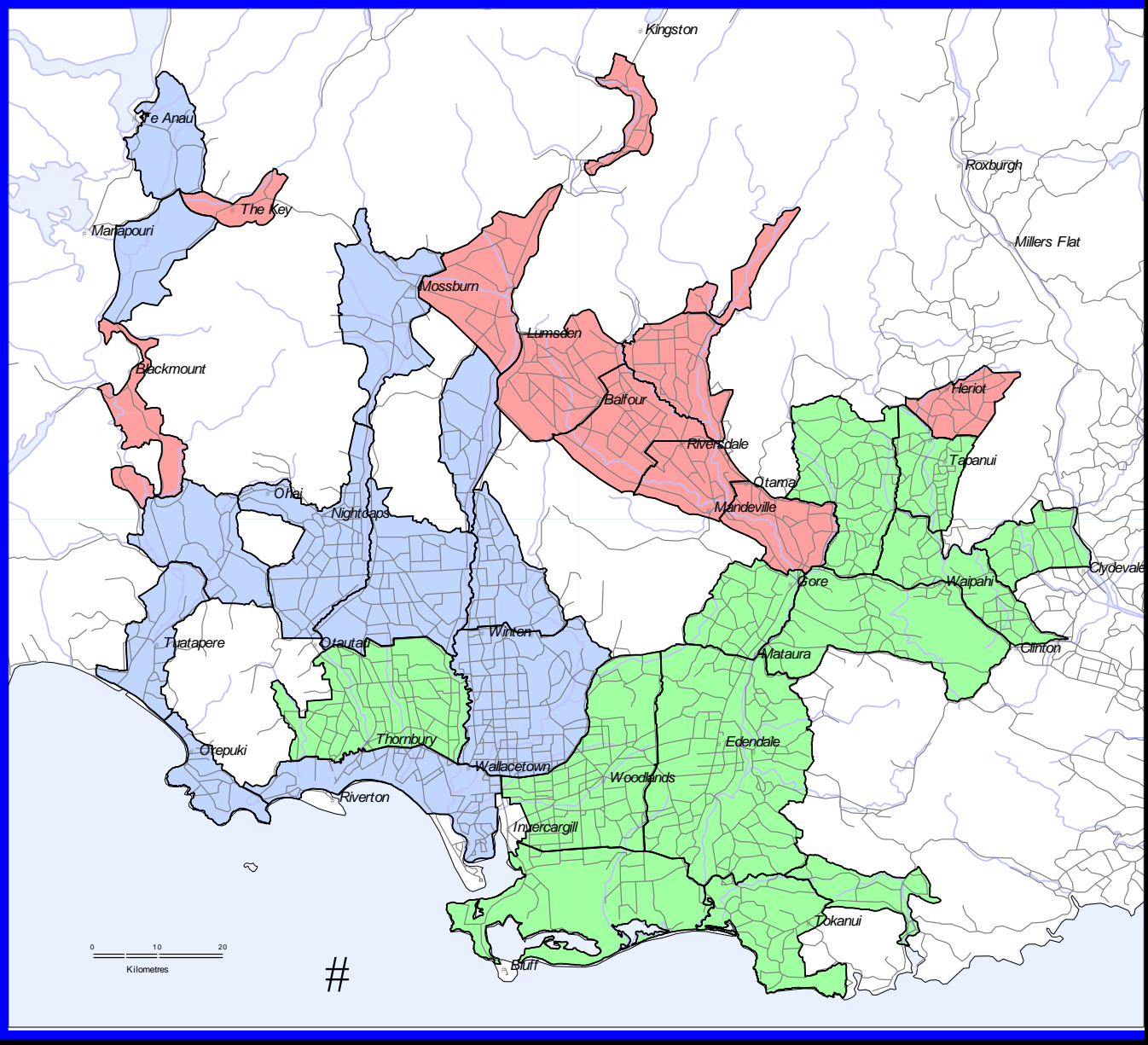
Finding the optimum sites to grow new crops such as Meadowfoam



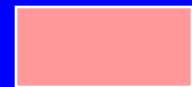
Cool Climate Flowers

A beginner's guide to commercial flower and bulb growing in southern New Zealand





YEAR



1998-99

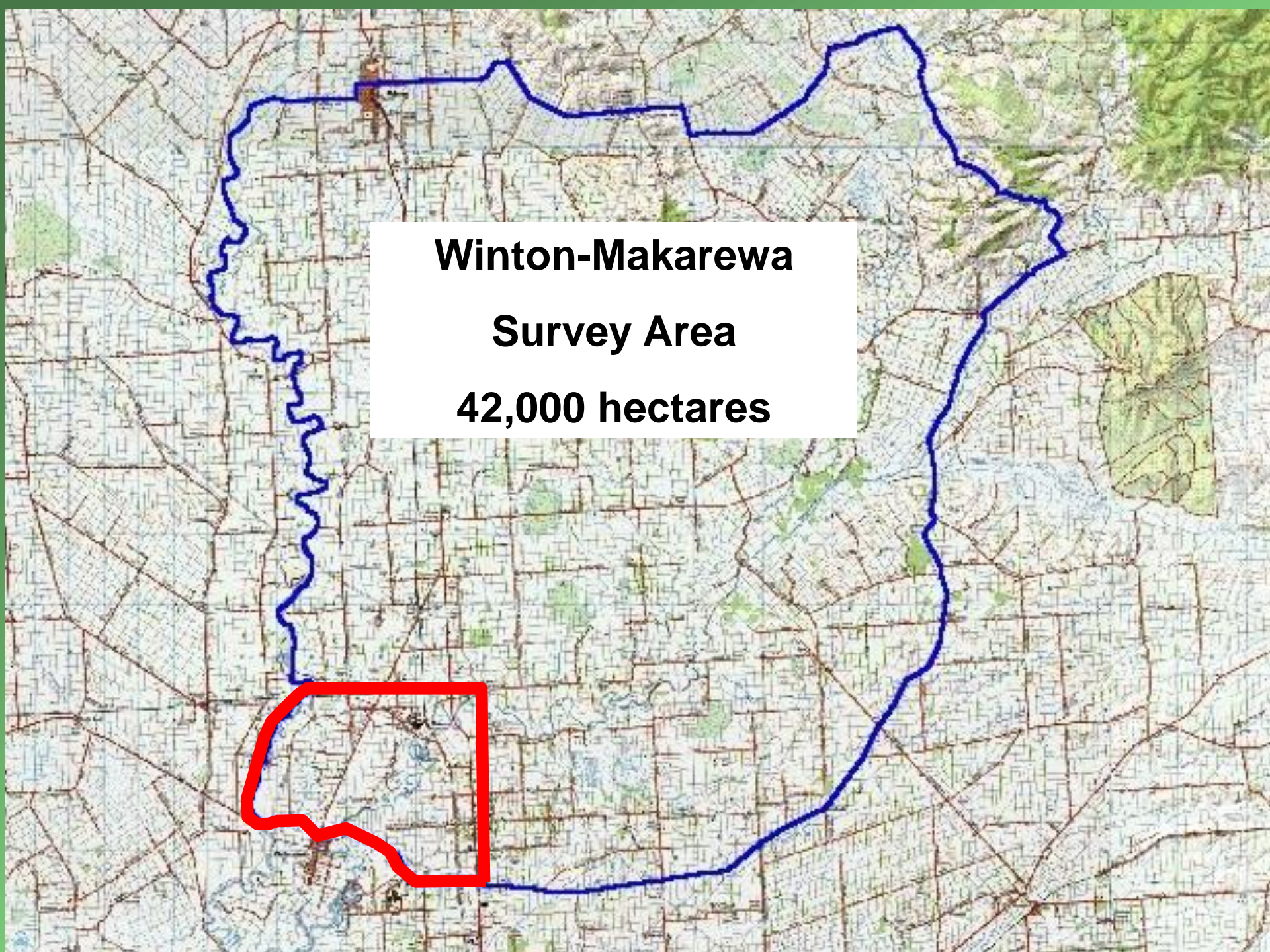


1999-2000



2000-2001

**SOUTHLAND TOPOCLIMATE SURVEY AREAS
1998-2001**

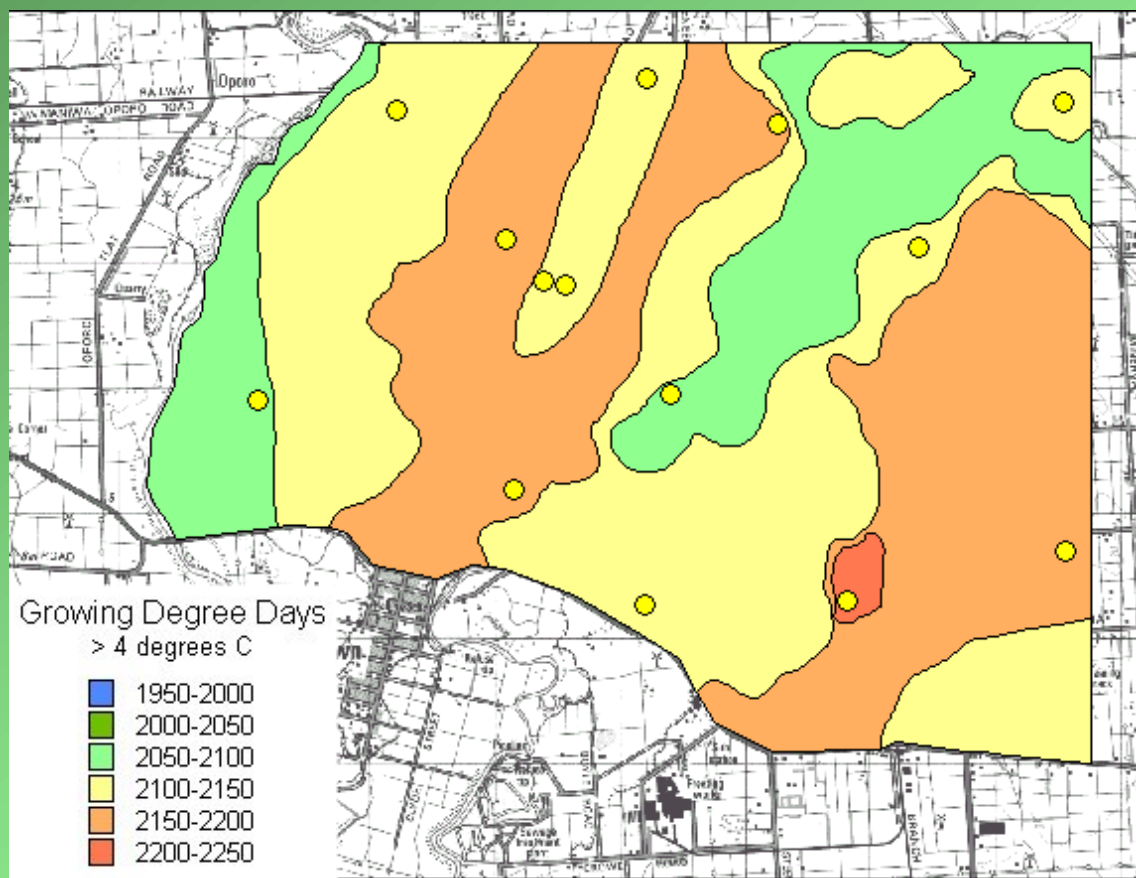
An aerial photograph of a rural landscape with a grid of roads and fields. A large, irregular area is outlined in blue. A smaller, roughly rectangular area in the bottom-left corner of the blue-outlined area is outlined in red. A white text box is centered over the blue-outlined area.

**Winton-Makarewa
Survey Area
42,000 hectares**

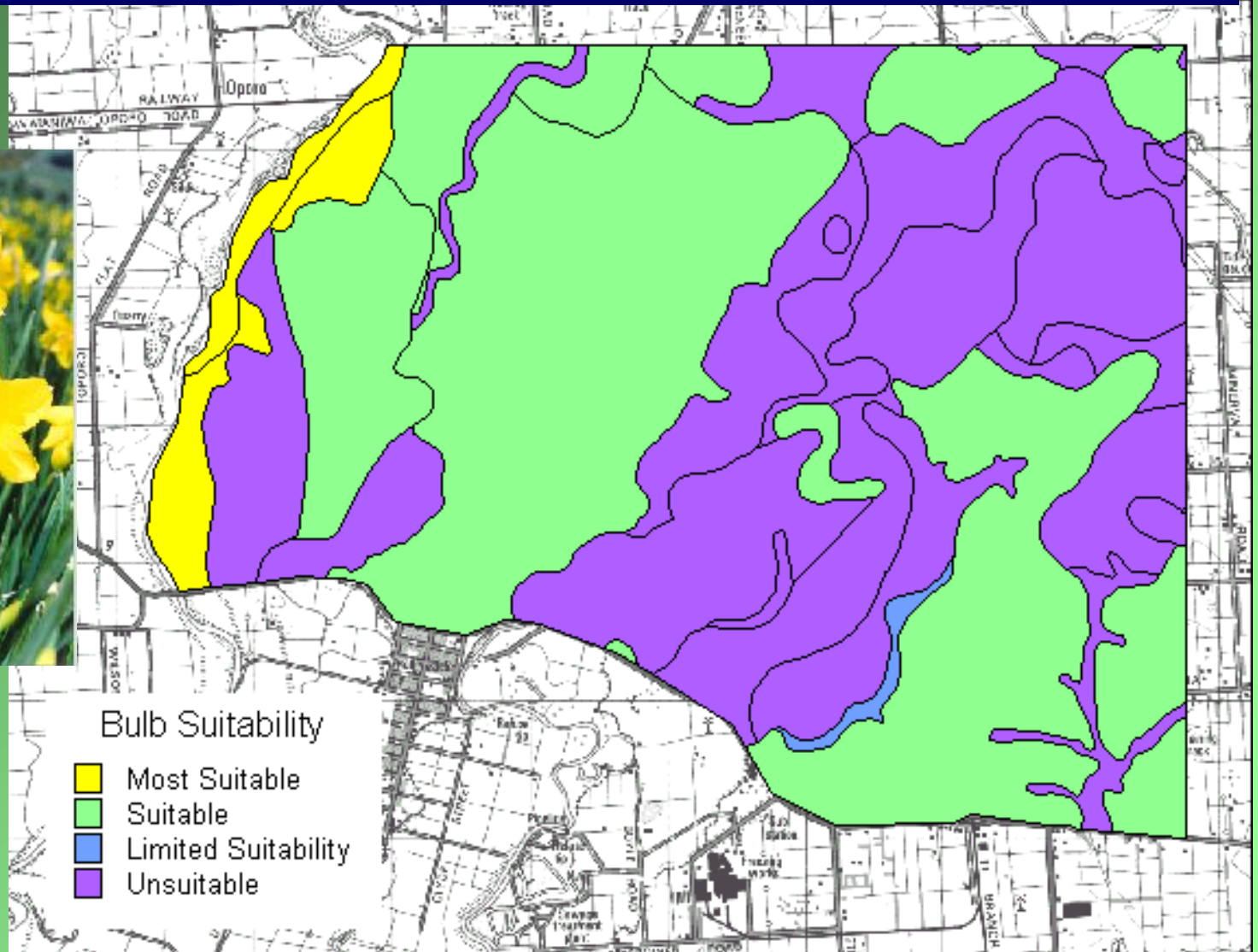
Winton-Makarewa Topoclimate Mapping Heat Pattern of Wallacetown Area

Topoclimate South GDD Heat Map 1:50,000 Scale

- 11 different GDD heat units identified.
- 4 different GDD values based on 30 year averages.
- Information suitable for decision making at the farm scale.



Winton-Makarewa Soil Suitability for Bulb Production



Environmental Risk



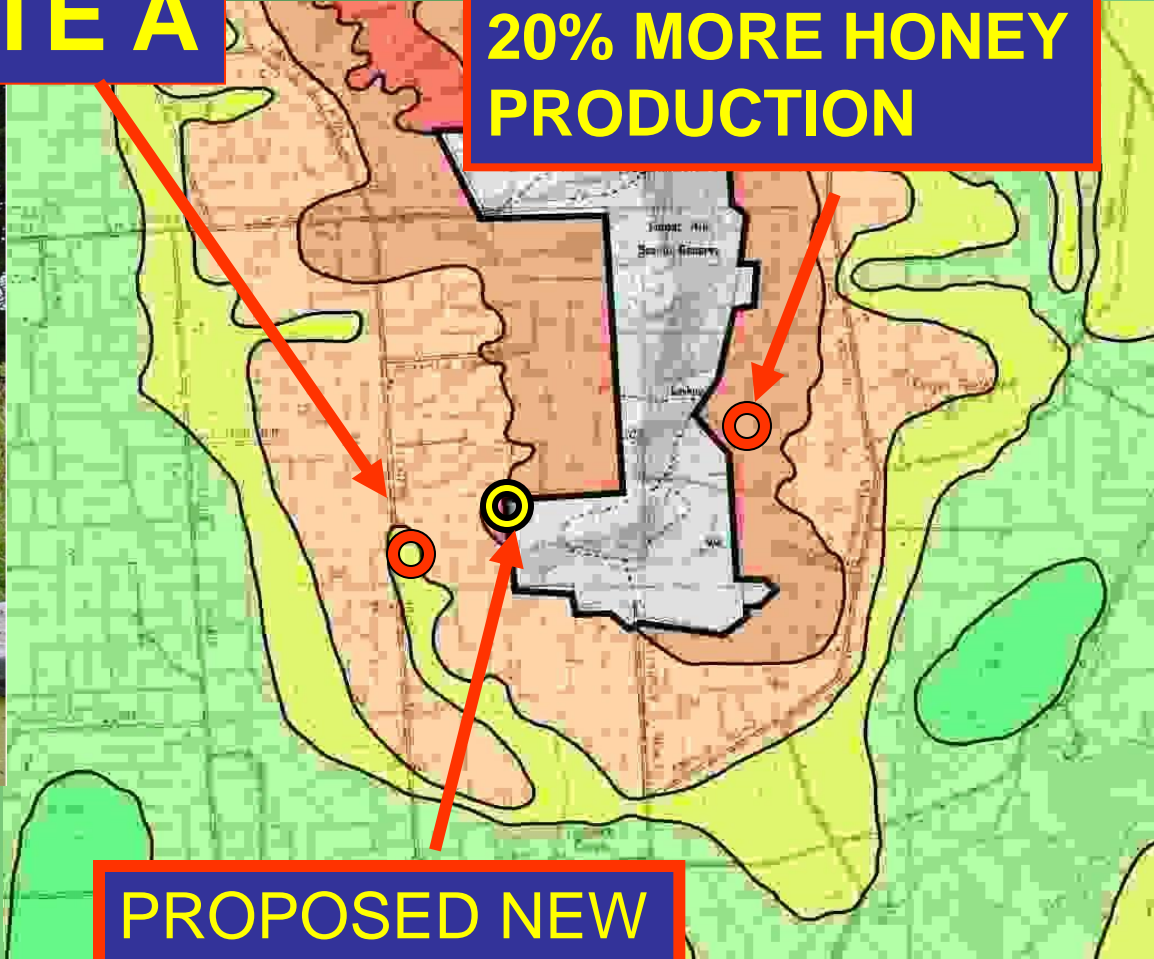
Waikiwi



WAIKOIKOI

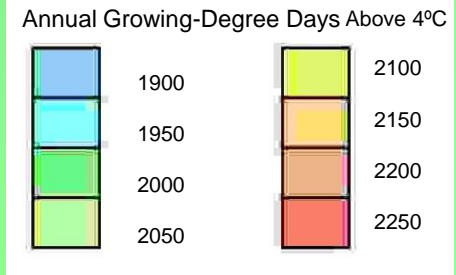
SITE A

SITE B
20% MORE HONEY PRODUCTION



PROPOSED NEW SITE A TO GENERATE MORE HONEY PRODUCTION

“ My bees know where all the good microclimates are!! but the Topoclimate maps will help me to find better sites for hives “



Physical achievements in 3yrs



- 805,000 ha surveyed
- 70 separate soil and GDD maps
- 47,000 plus soil auger points
- Over 680 soil profiles
- 3000 temperature measurement sites with modelled 30 year records
- Project completed on time and budget December 2001



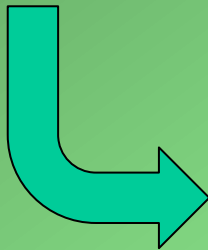
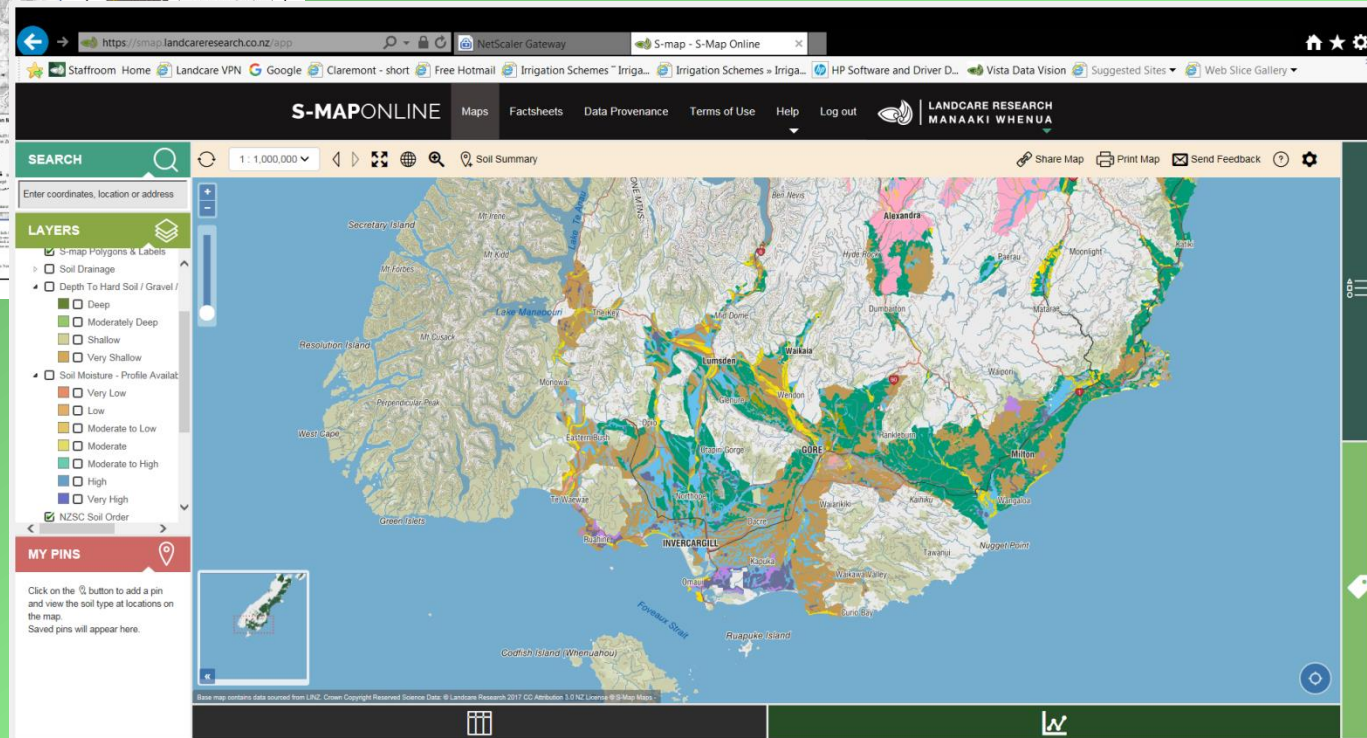
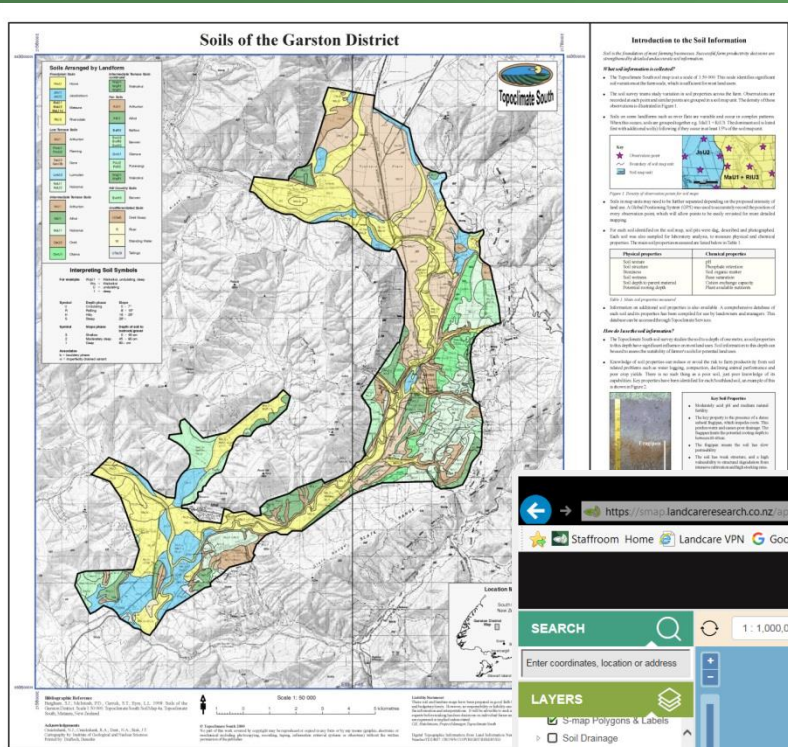
20 years on, lessons learnt

- **Soils data still widely used. Climate data ?**
- **Capability investment still in the industry**
- **Original economic development aim ?**
- **Environmental management has, and continues to be, the main application**
- **Applications may change, but good quality investment in platform data will keep returning**

The current challenge...

Land resource data shouldn't be seen as a static dataset

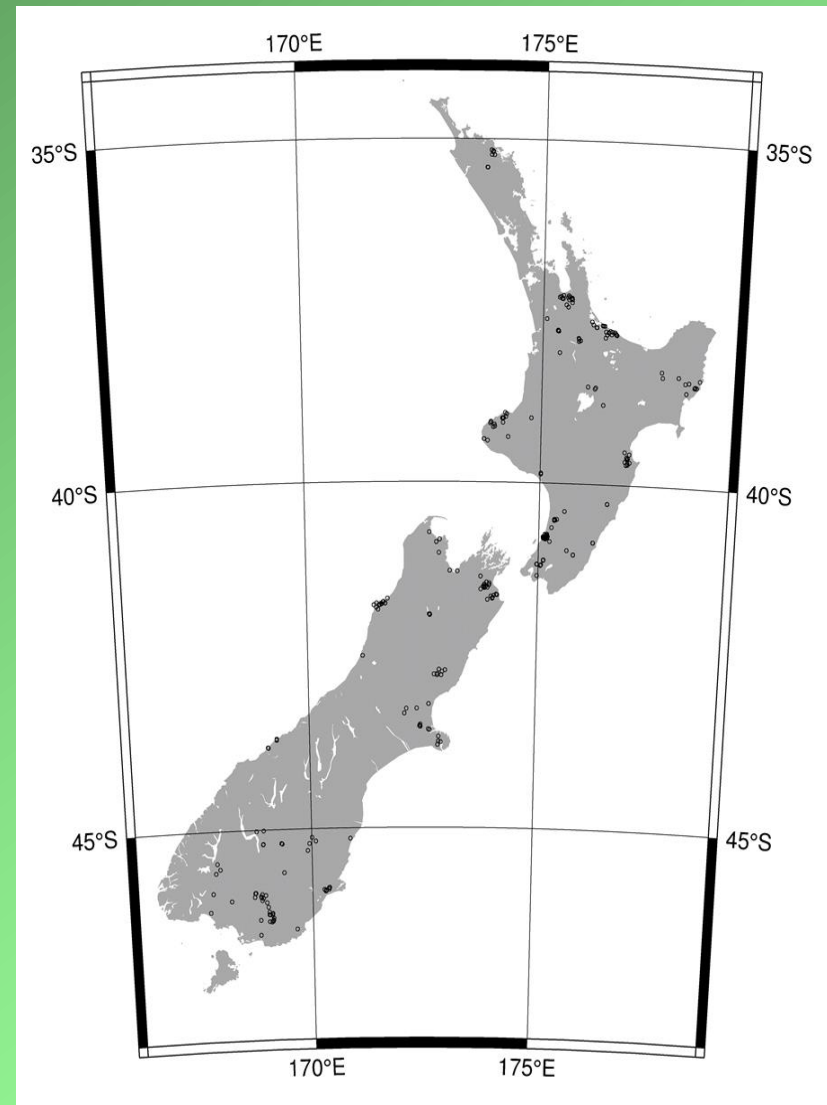
Environmental pressures continue as the main driver – maybe landuse change motive will return?



The current challenge...

Filling the soil water knowledge gap :

- **only 313 measured sites in National Soil Data Repository**
- **24 sites in Southland**



Filling the soil water knowledge gap through:

- characterisation of soil hydrological attributes
- system dynamics (ie Physiographics analysis)
- farm level understanding



20% of mapped area
c. 160,000 ha



11-5-99

PCT 11
09/05/01

MWT 5
8/08/01

PCT 06
08/05/01

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