

# **Visual Landscape Character Classification**

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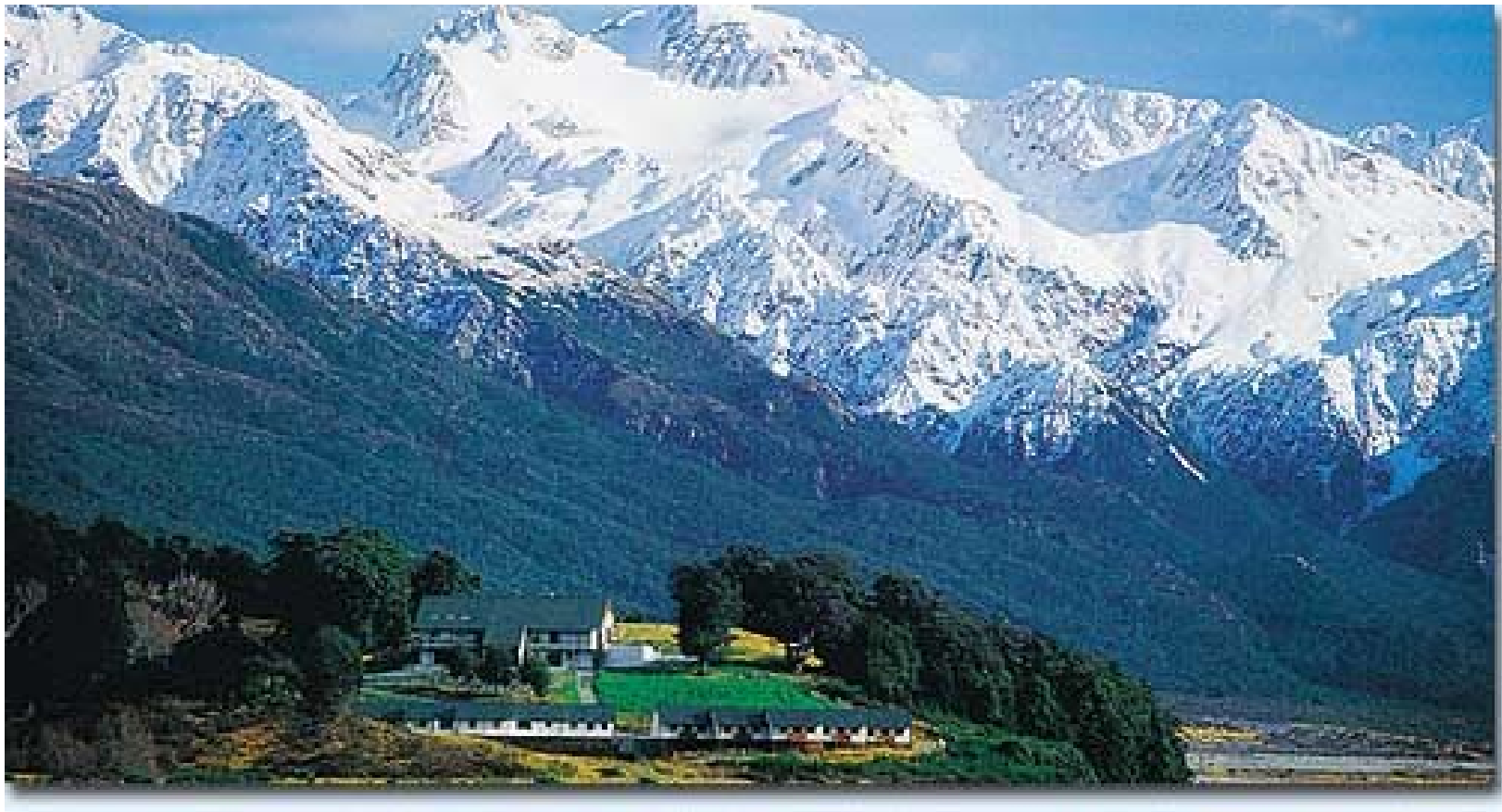
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**Landscape is a multi billion dollar resource. Landscapes are an important part of the tourism industry and contribute to the quality of life.**



**The impact of tourism development on landscape values is highly controversial costing millions of dollars in Environmental Planning court hearings.**





**Landscapes can be modified and their value decreased through modifications.**

**World's Highest Bridge The Millau Viaduct in southern France**



## **What actually is landscape:**

- **the appearance of the land**
- **the environment perceived, especially visually perceived**
- **the spectacle presented by the countryside**
- **an overall impression presented by the land, and involves generalisation and combination.**

## **Different environmental values require different information systems**

**National spatial data sets associated with different environment values:**

- **Biodiversity and Ecology – Landcover2 and LENZ**
- **Soil and Geology – Land Resource Inventory and NZ Soil Classification**
- **Water and Atmosphere – Rivers Classification, Lakes?**
- **Landscape – NZ Landscape Classification - 2006**
- **Heritage – NZ Archaeological Association Site Recording Scheme.**

# **Landscape Values**

**Aesthetic**

**Historical**

**Spiritual**

**Sense of place / Identity / Iconic**

**Naturalness**

**Wilderness and remoteness**

**Economic**

**These values are influenced by rarity and uniqueness (distinctiveness) , and visibility (use).**

**Landscape values are subjective and need to be evaluated through structured consultation with local communities.**

**Psychophysical assessment using photographs and focus groups are methods used to assess aesthetic and cultural values.**

**Consultation can be considerably improved if objective information on the landscapes are provided and used to inform discussion, and help people articulate and identify subjective landscape values.**

**GIS has a role in representing objective information to assist consultation and representing subjective information resulting from consultation.**



# **Landscape Information Requirements**

## **Descriptive Information**

- Landform, landcover, infrastructure, water.
- Dominant landuse
- Visibility from, roads, urban areas, walking tracks
- Visibility of sea, lakes, and rivers
- Catchment boundaries
- Archaeological and heritage sites
- Current Protection Status – district plan zones, reserves, parks, historic sites etc

# **Landscape Information Requirements**

## **Landscape Management Information**

- Landscape classification
- Landscape management units
- Recreation Opportunity Spectrum (DOC has already developed this and will want this included)
- Visual absorption capacity

# **Landscape Information Requirements**

## **Evaluation Information**

- General public's visual landscape preferences
- Sensitive landscapes – highly visible.
- Important landscape features for identity, science, and culture. Also includes iconic landscape features.
- Rarity and uniqueness
- Naturalness
- GDP contribution

**Landscapes need to be managed as a resource.**

**We need an inventory of what we have.**

**We need to conduct research on the impacts of different landscape modifications.**

**We need information on people's perception – what do people value – landscape quality.**

**For research to be efficient we need to communicate and compare research results.**

**A landscape classification assists communication and provides an inventory.**

**How would botanist cope without a plant classification.**

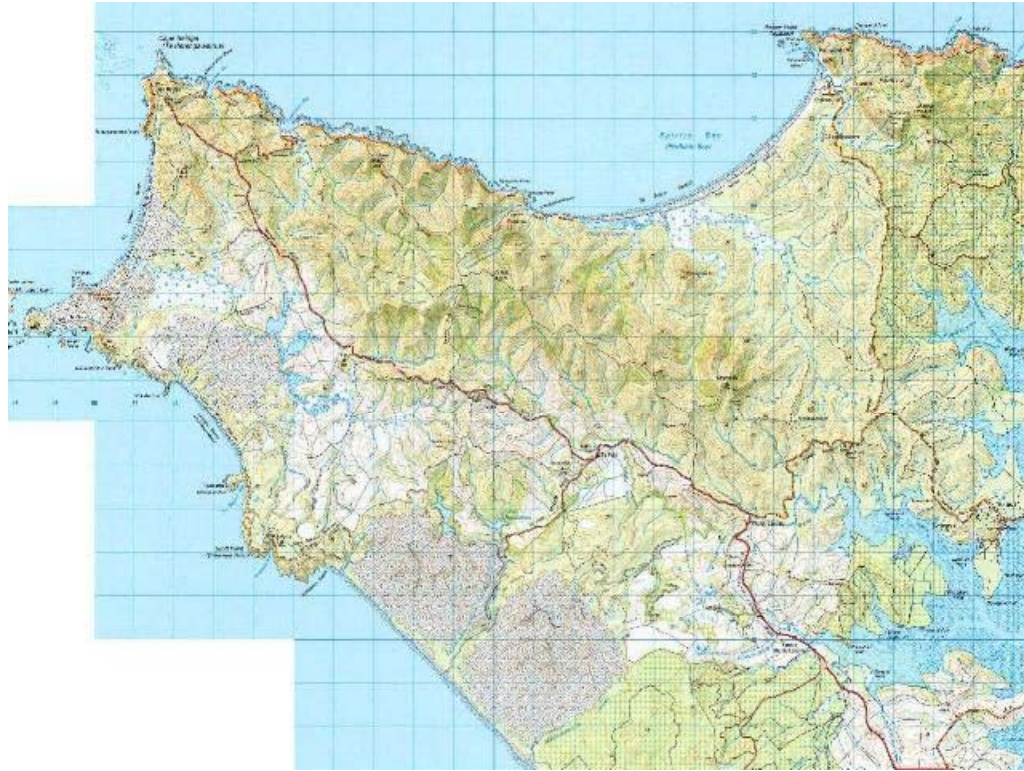
## **Specific Landscape Classification Criteria**

- **The classification should incorporate components of landform, vegetation, naturalness, and water.**
- **The classes should be based on the general public's perception of the above attributes.**
- **The classes should be based on an overall impression of the above attributes in an area from a distance, and involved generalisation and combination.**
- **The classes should recognise that landscapes surround and are experienced from a multiple of geometrical perspectives that can be obtained from movement and exploration.**

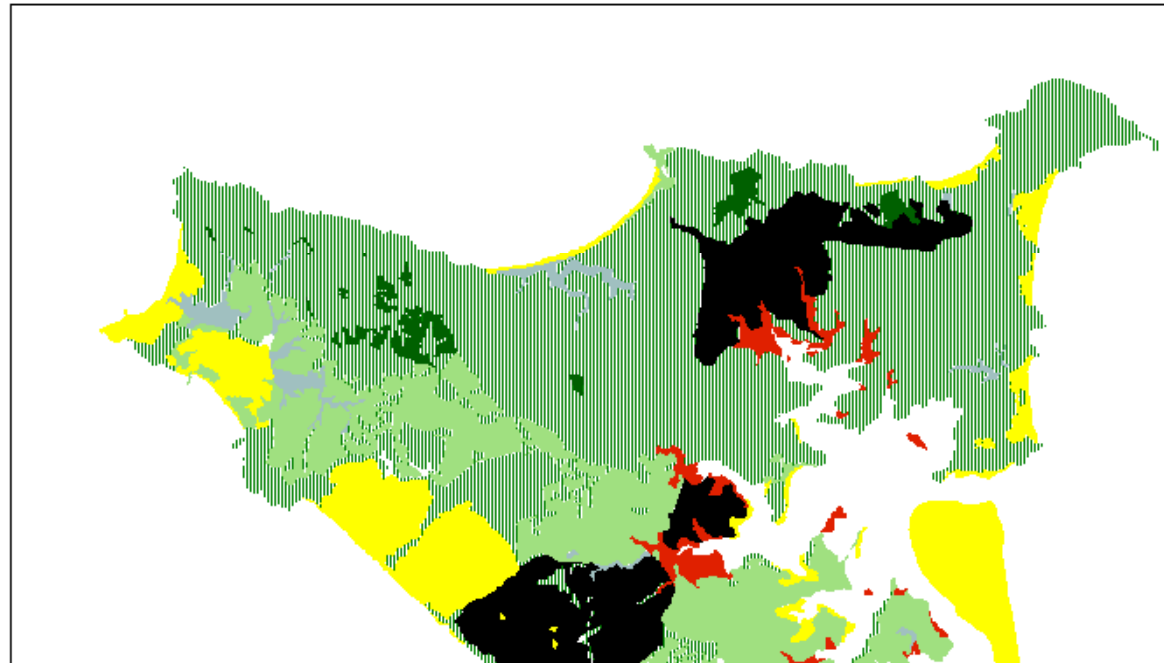
## **General Classification Criteria**

- The classes must be exhaustive and mutually exclusive, i.e. all geographical individuals must be classified, but no individual must fall into more than one class.**
- It needs to be easily understood and applied.**
- It has to produce repeatable results that are independent of the researcher.**
- It has to be hierarchical; to cope with needs at different levels of resolution in different areas.**
- It has to be sufficiently flexible for new interests and tasks to be met from a modified, rather than a completely new, classification.**

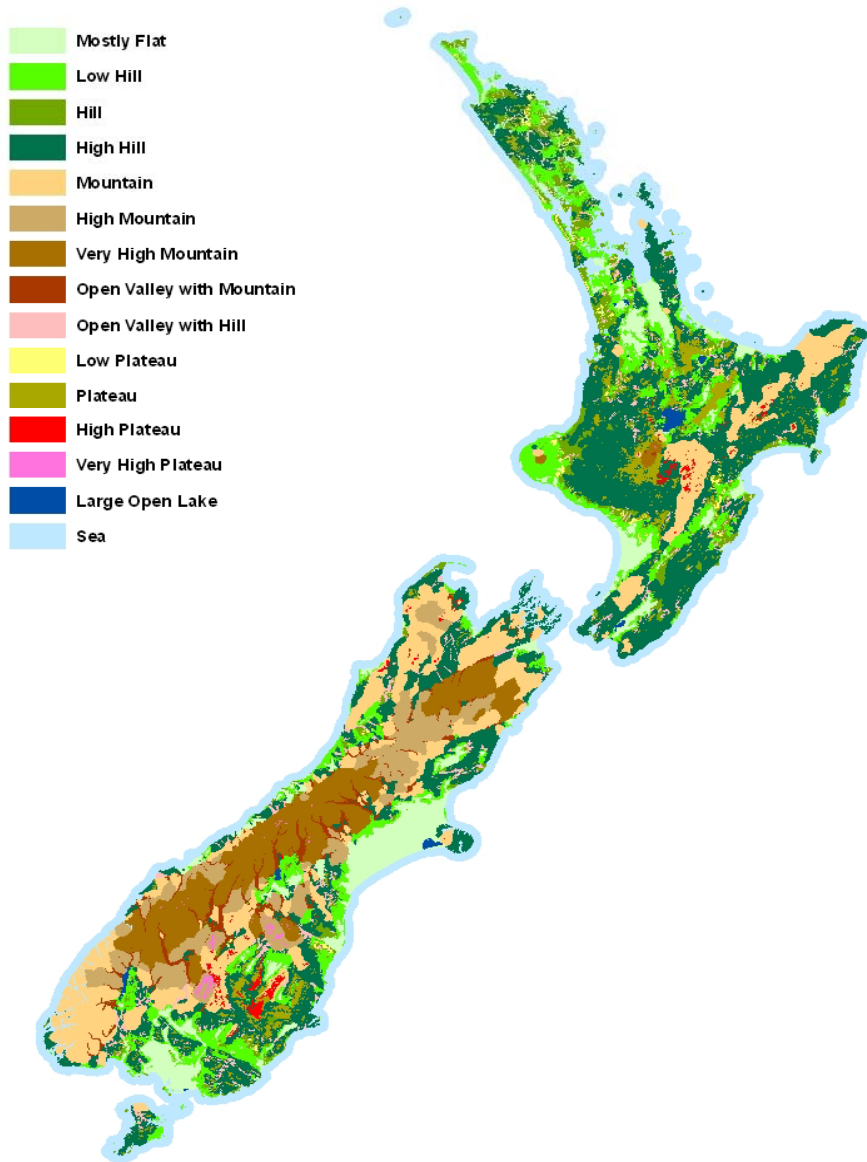




**We can interpret  
the landscape from  
hard copy maps  
and GIS layers**

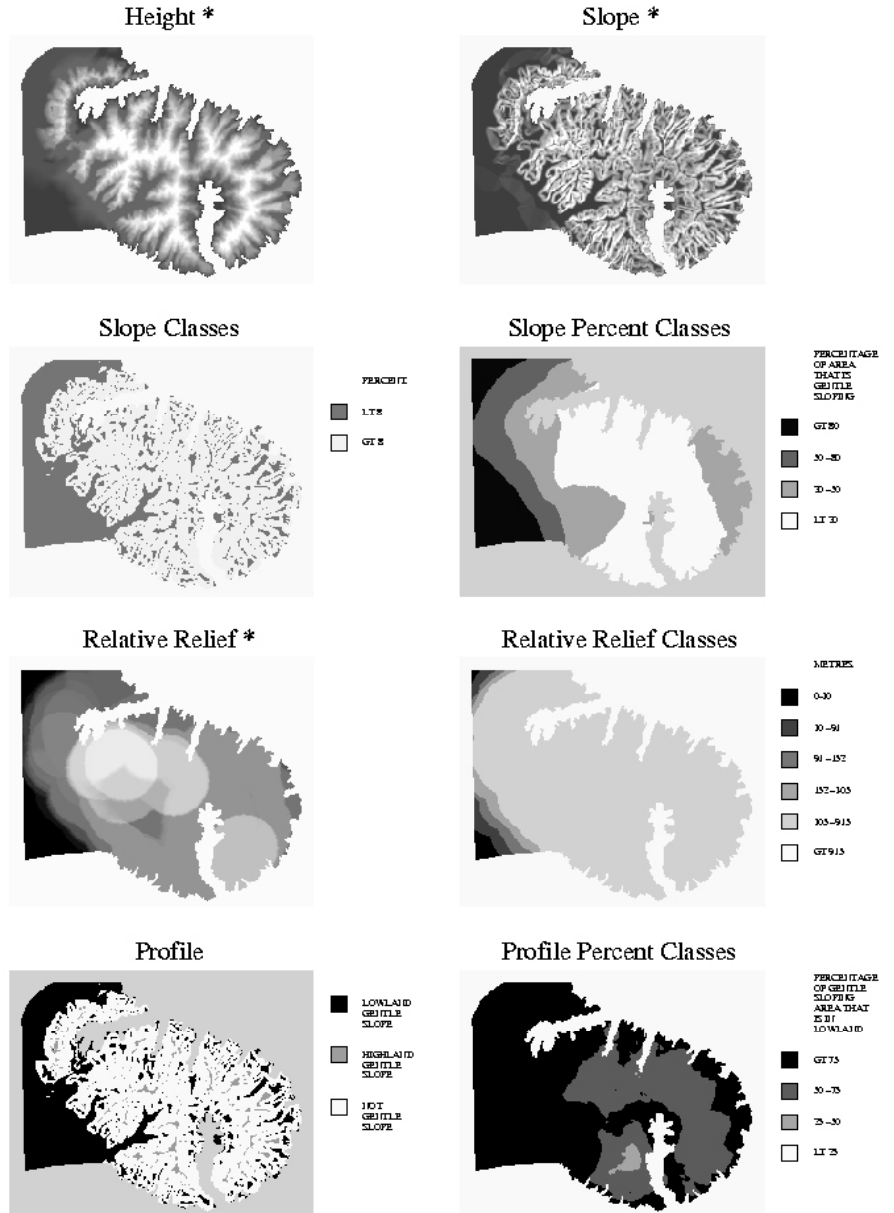


# Landform



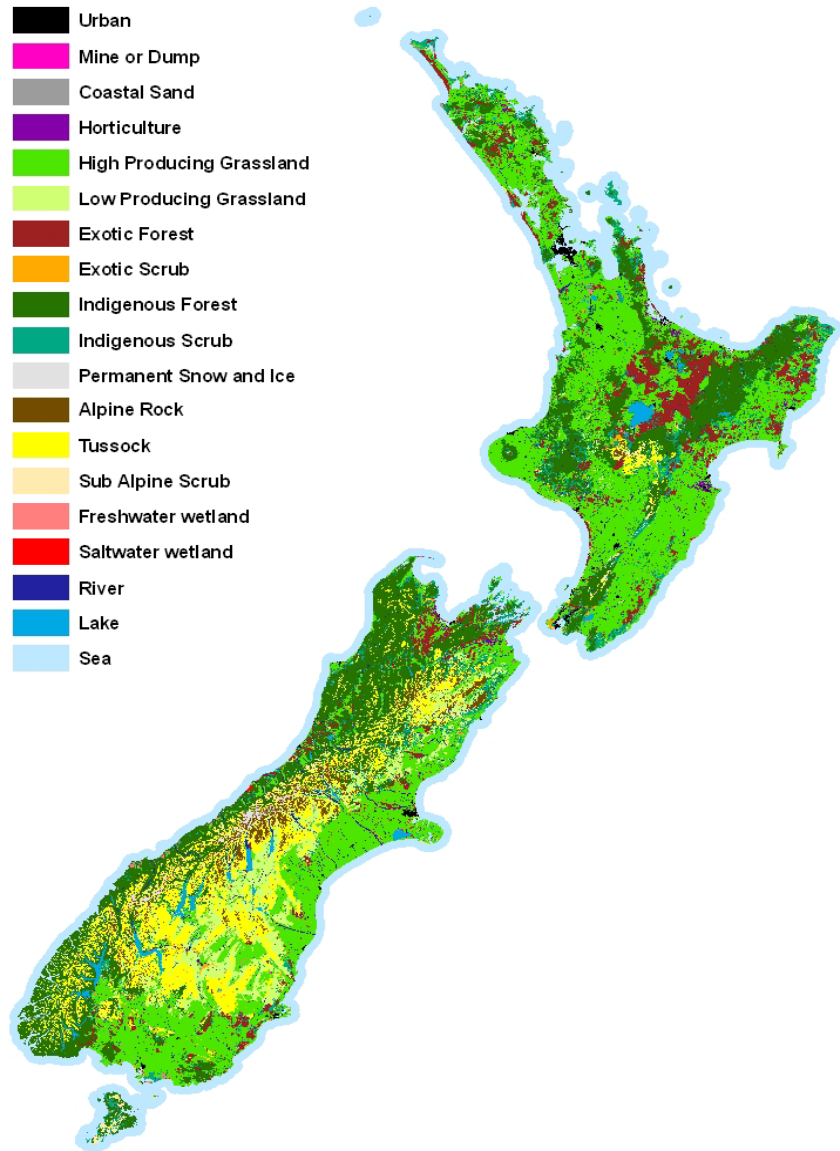
# Classification Process

\* = Continuous grey scale, with dark as low and bright as high.



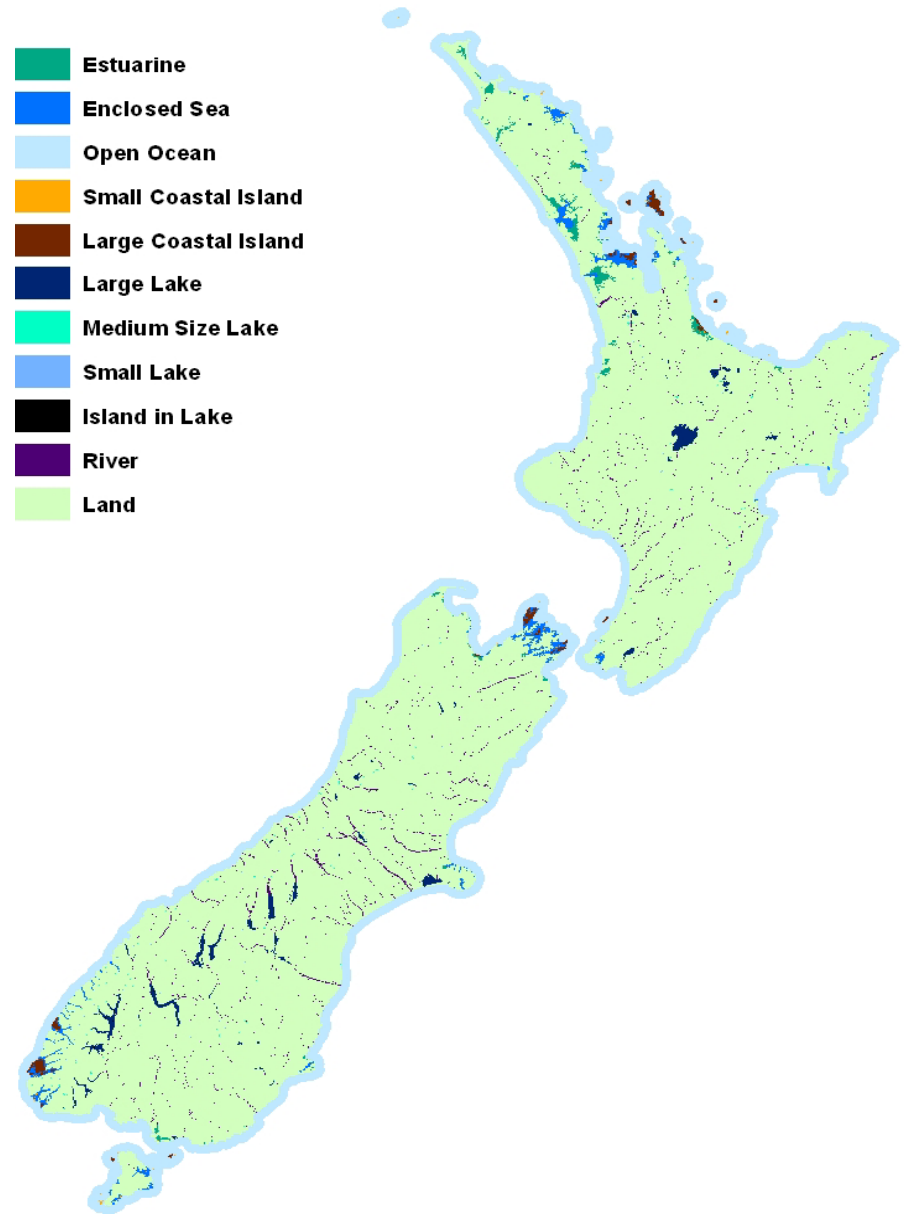
# Landcover

- Urban
- Mine or Dump
- Coastal Sand
- Horticulture
- High Producing Grassland
- Low Producing Grassland
- Exotic Forest
- Exotic Scrub
- Indigenous Forest
- Indigenous Scrub
- Permanent Snow and Ice
- Alpine Rock
- Tussock
- Sub Alpine Scrub
- Freshwater wetland
- Saltwater wetland
- River
- Lake
- Sea

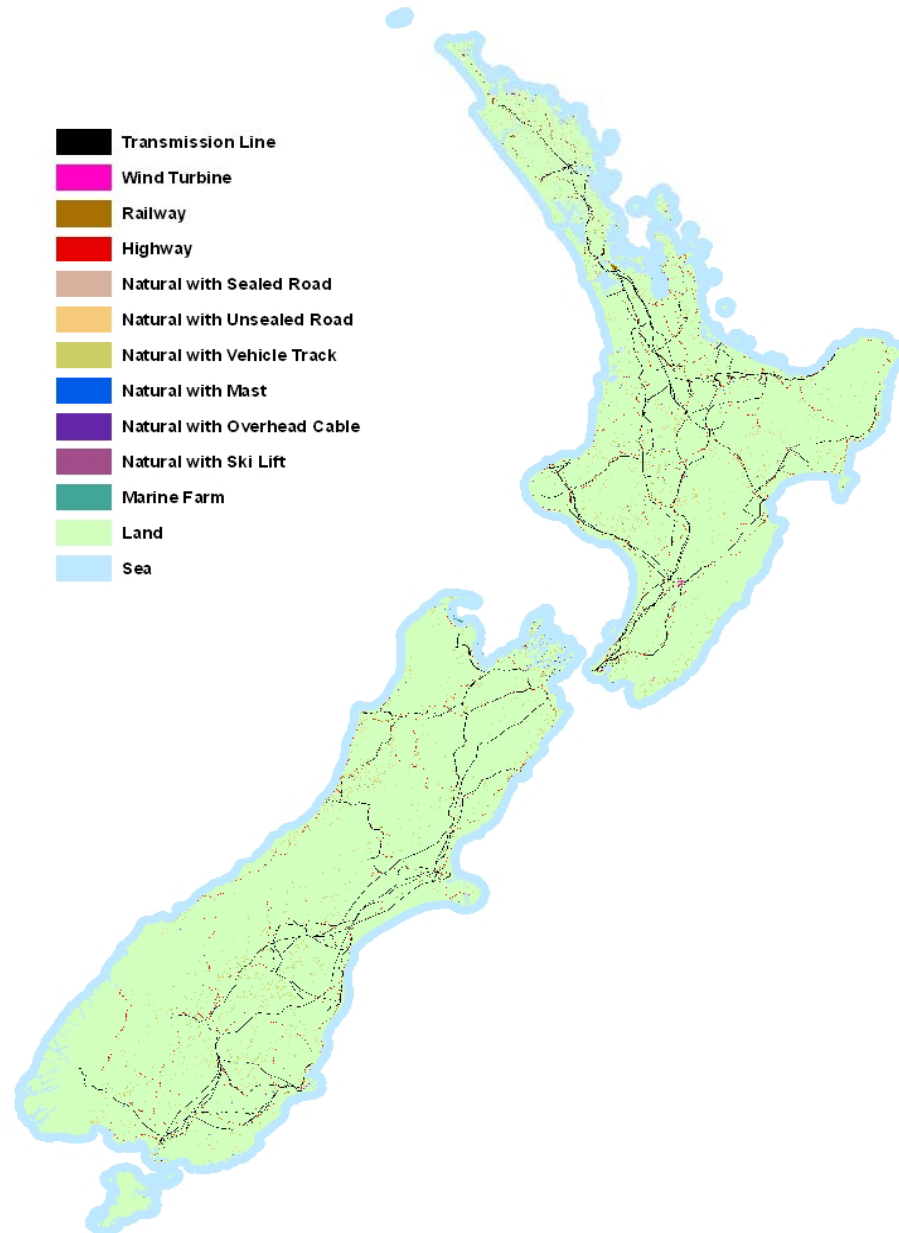


# Influence of Water

- Estuarine
- Enclosed Sea
- Open Ocean
- Small Coastal Island
- Large Coastal Island
- Large Lake
- Medium Size Lake
- Small Lake
- Island in Lake
- River
- Land

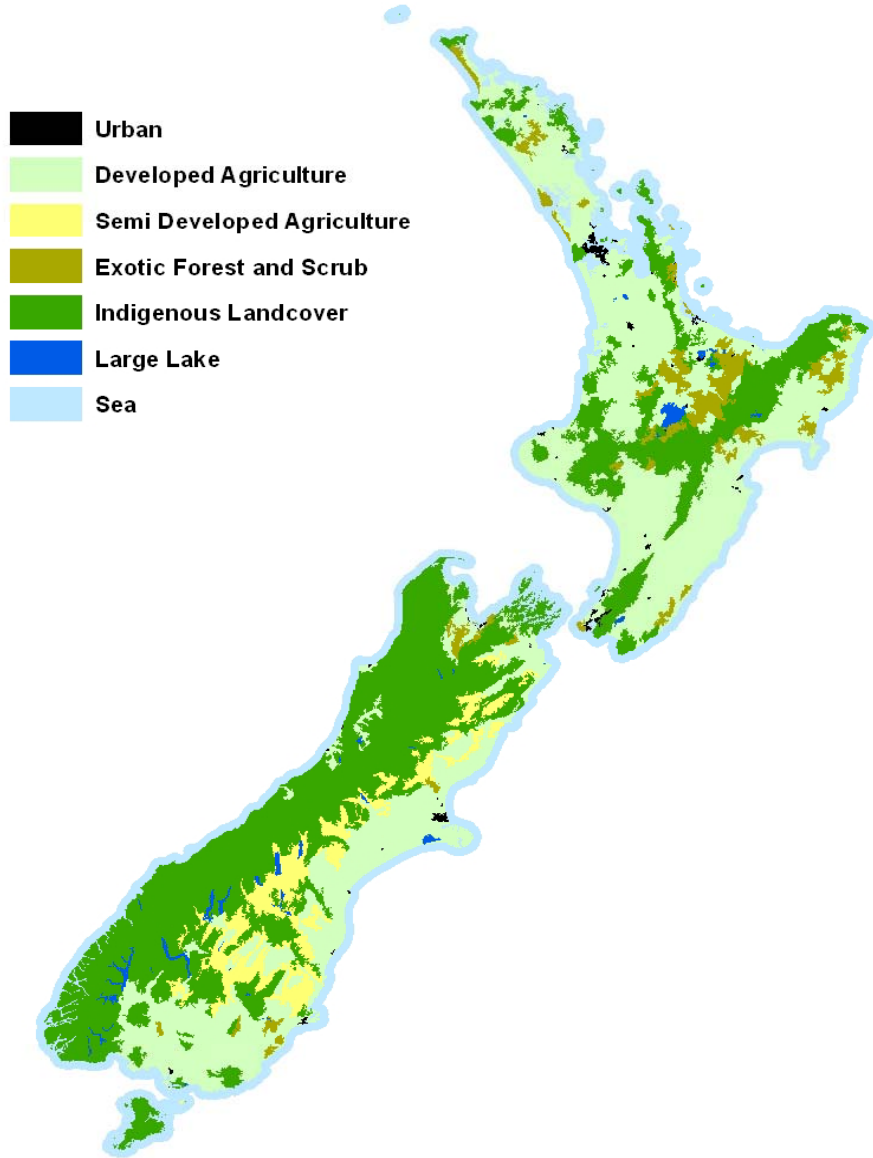


# Infrastructure

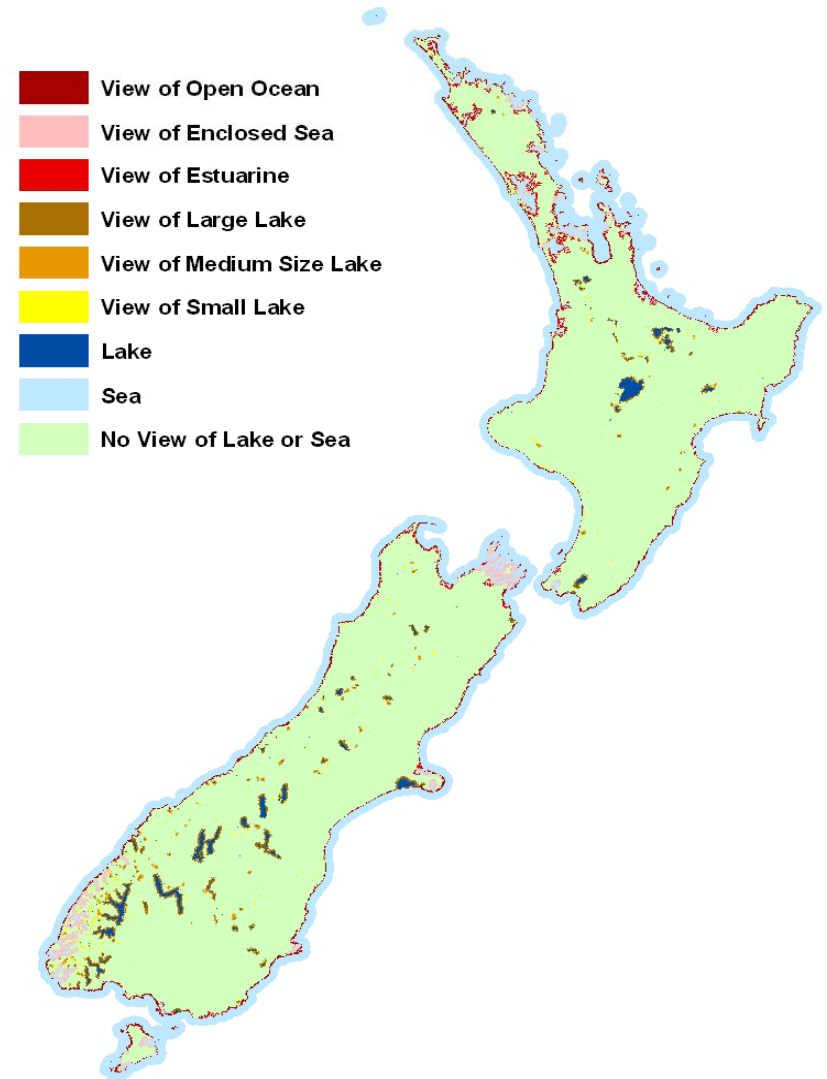




## Dominant Landcover

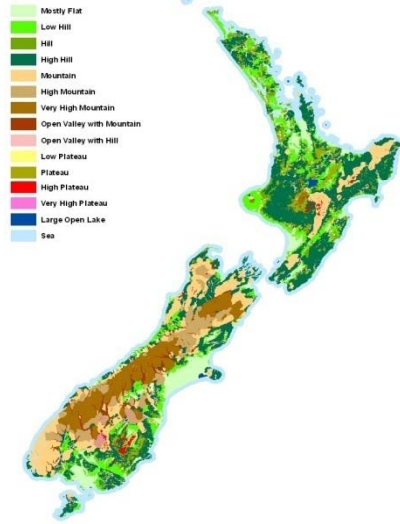


## Water View

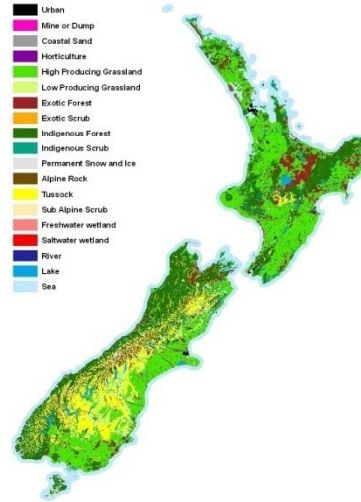


# Landscape 3 – Experiential / Human / Biophysical Classification

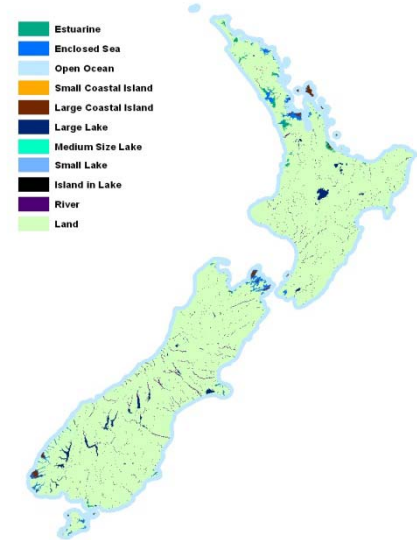
## Landform



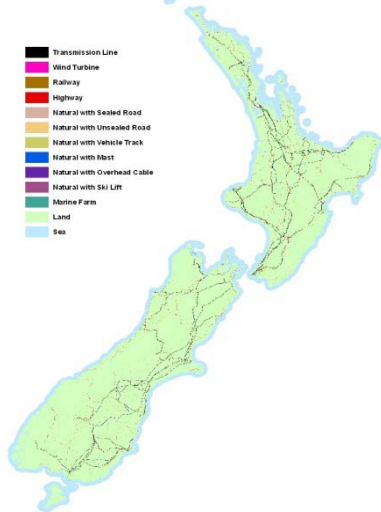
## Landcover



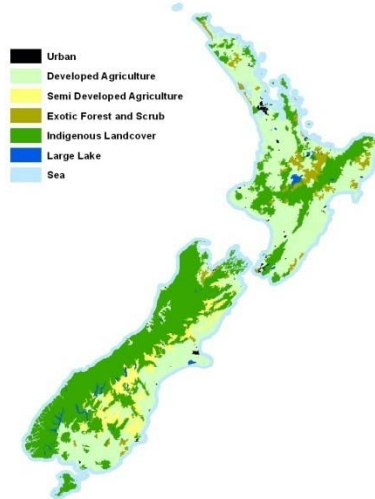
## Water



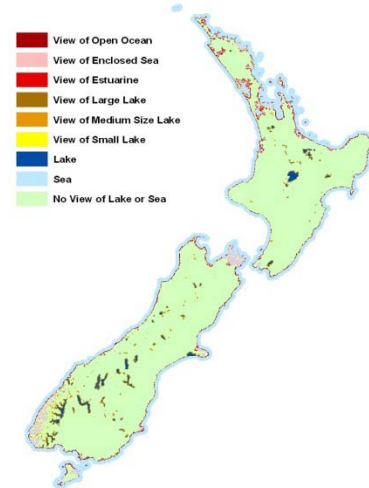
## Infrastructure



## Dominant Landcover



## Water View



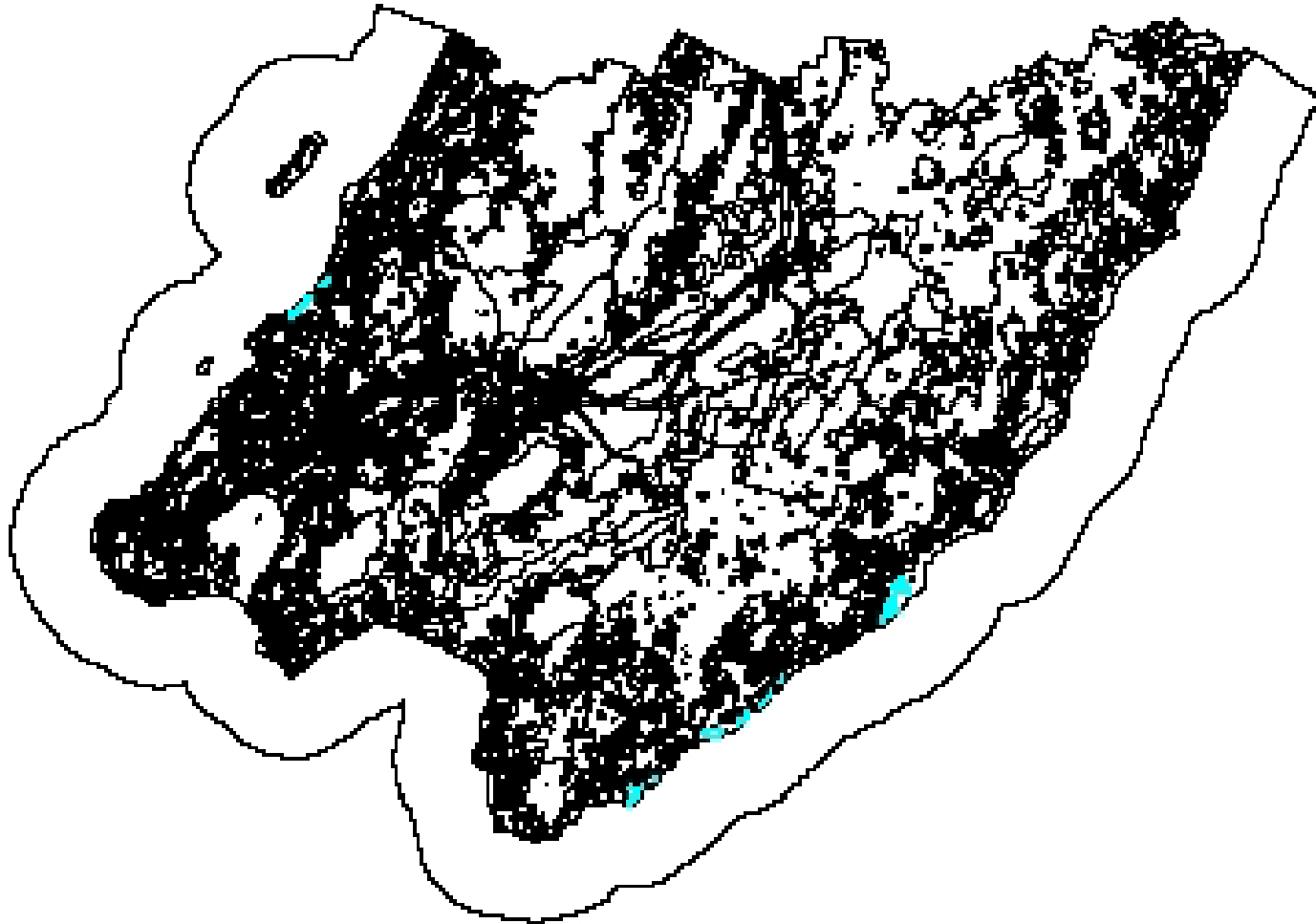


# The NZ Landscape Classification



A GIS database that provides a national inventory of landscape character that can be analysed at the local, regional and national scales.

# Application 1: GIS Query and Similar Landscapes Identification



High Hill, Low Producing Grassland, Dominated by Developed Agriculture, View of Open Ocean

## **Application 2: Descriptive Reports**

### **Canterbury Coastal Landscapes (sample)**

**Hills / Grassland / Highway / Open Ocean**

**AREA = 5225 ha      % of NZ = 59**

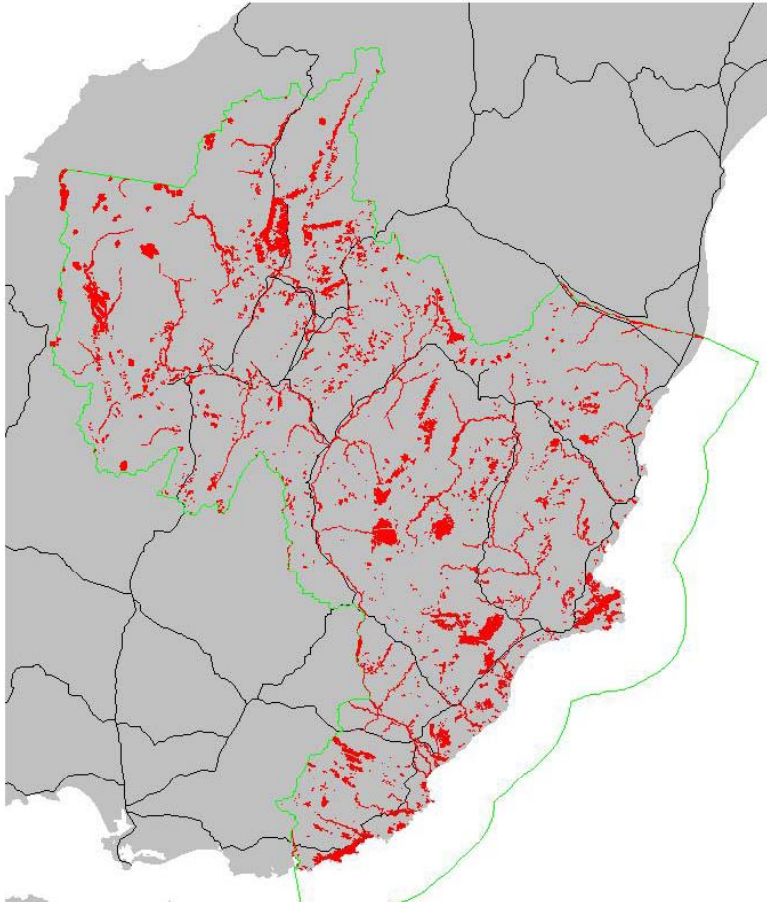
**Mountains / Indigenous forest / Remote / Open Ocean**

**AREA = 775 ha      % of NZ = 3**

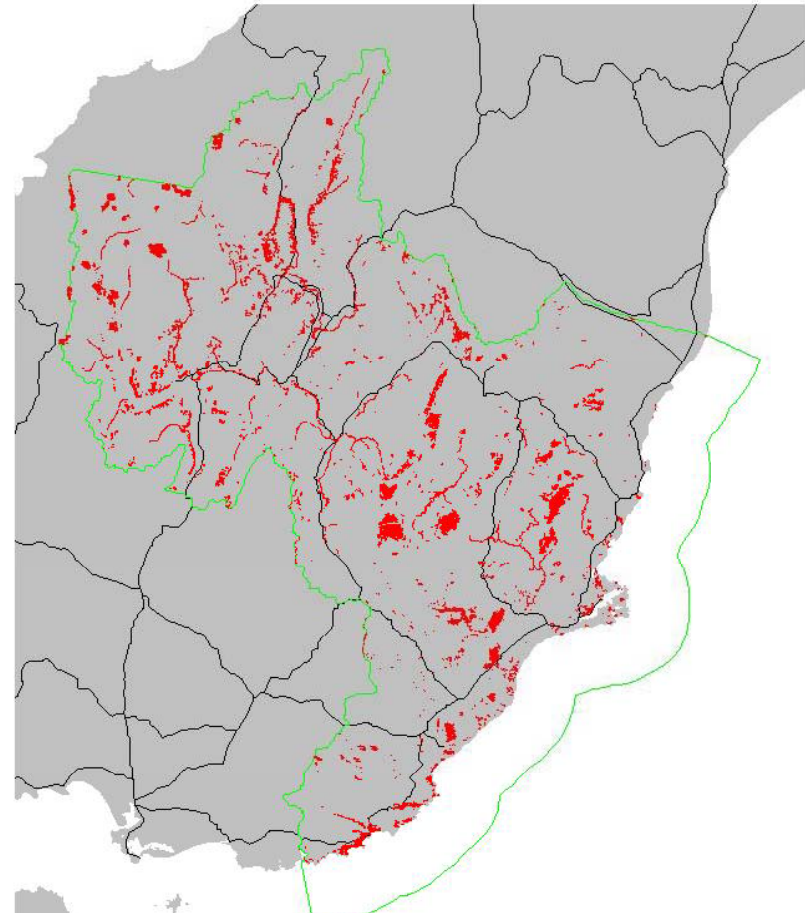
**Mountains / Indigenous forest / Highway / Open Ocean**

**AREA = 4650 ha      % of NZ = 48**

## **Application 3: Identifying Rare Natural Landscapes – both regionally and nationally**



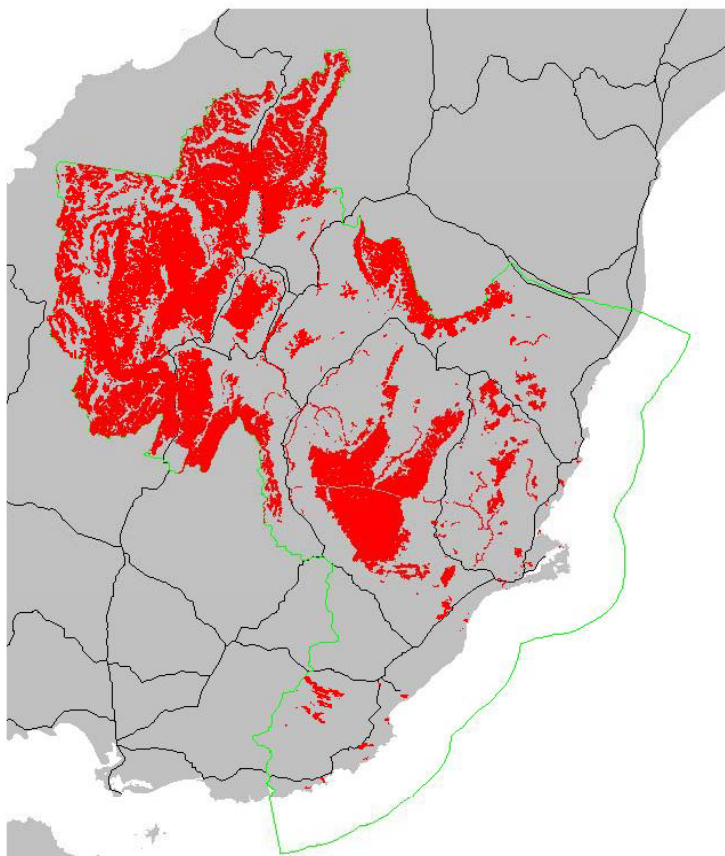
**Natural Landscapes in the Otago Conservancy that are rare at the regional scale- < 5,000ha in region**



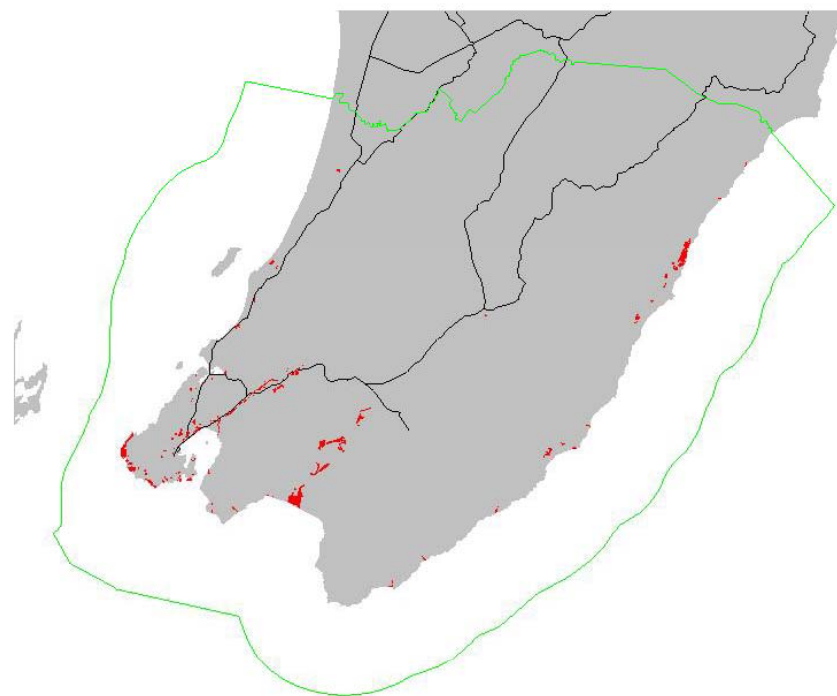
**Natural Landscapes in the Otago Conservancy that are rare at the NZ scale- < 10,000ha in NZ**

## **Application 4: Identifying Regionally Unique Natural Landscapes**

**(greater than 25% of landscape type found in the region)**



**Natural Landscapes in the Otago Conservancy that are unique to the Otago Conservancy**



**Natural Landscapes in the Wellington Conservancy that are unique to the Wellington Conservancy**

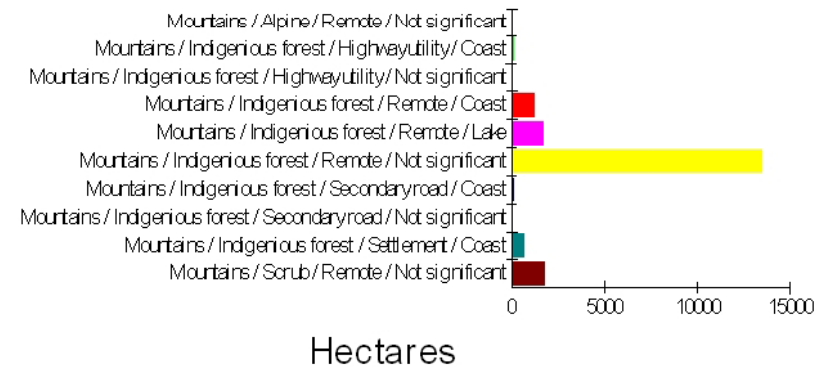
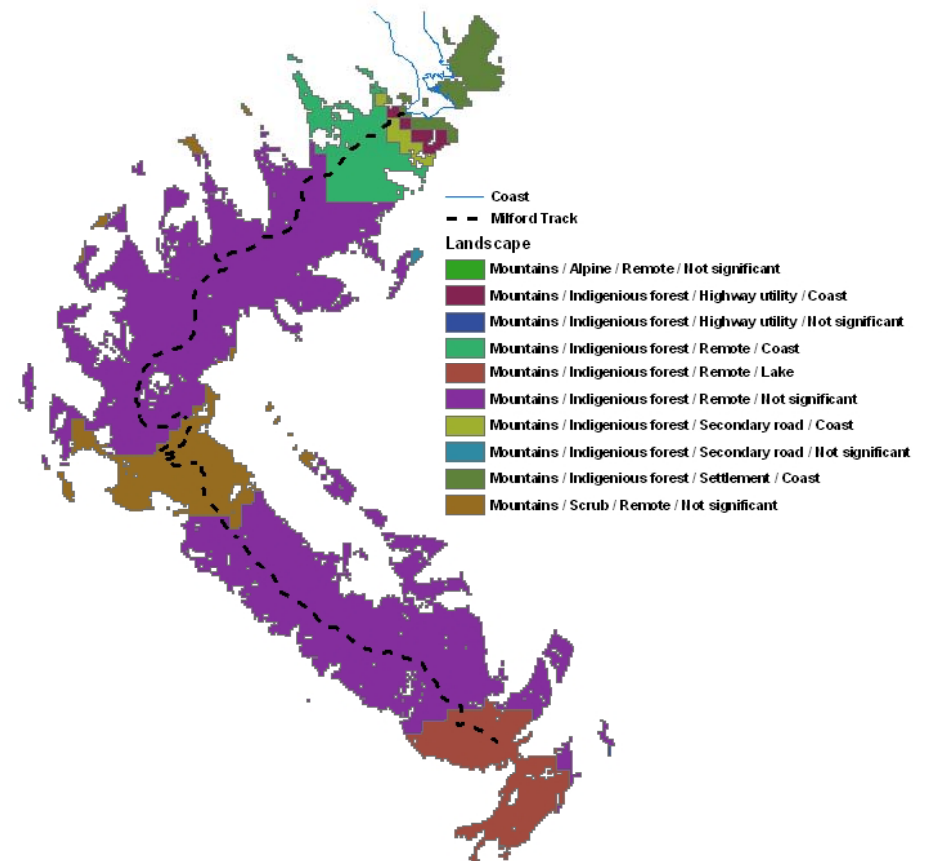


## **Application 5: Local analysis of Track Experience using visibility analysis**





# Landscapes Experienced on the Milford Track



**Landscape is immensely important to tourism in NZ and many other locations around the world.**

**The challenge for Geographers and GI Scientists is to represent the values associated with landscapes so that appropriate landuse decisions are made.**