Te Uru Rākau
Forestry New Zealand

Ministry for Primary Industries
Manatū Ahu Matua

Trees for Climate Change Adaptation

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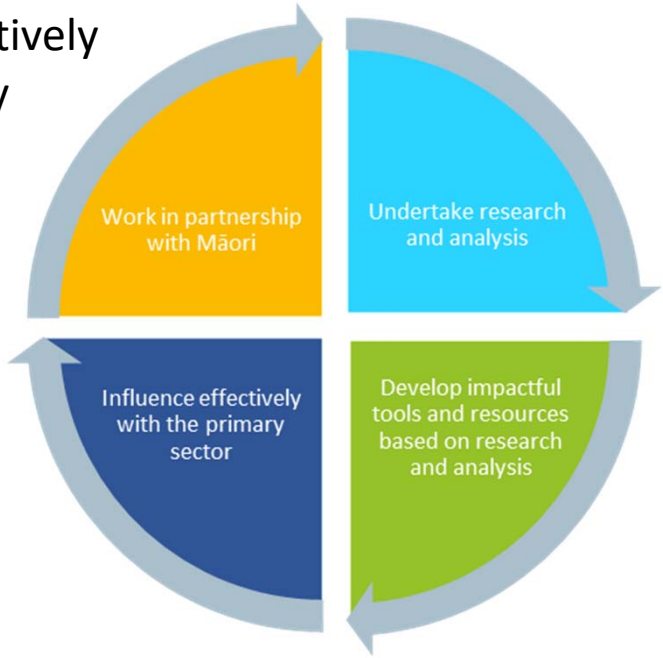
Overview

- Introduction
- Projected climate change impacts in NZ
- Two dimensions to adaptation
    1. The forestry sector adapting to climate change
    2. Trees helping other areas/sectors to adapt
- Key Questions
    - Areas for policy growth – e.g. urban landscapes

Climate Change Adaptation, Reporting & Evidence Team Overview

Our Goal: The primary sector and rural communities proactively reduce risks and respond to the opportunities presented by climate change

- Research and Analysis
- Developing Tools & Resources
- Influence effectively with the primary sector
- Working in partnership with Māori



Impacts of Climate Change in NZ

Drier
e.g. decreased annual rainfall, increased severity or drought

Wetter
e.g. increased precipitation, increased soil erosion

Coastal
e.g. sea level rise, increased coastal erosion and storm surge

Ex-tropical cyclones
e.g. increased intensity (wind, waves etc)

Wind
e.g. increased westerly winds in winter and spring, increased north-easterlies in summer and autumn

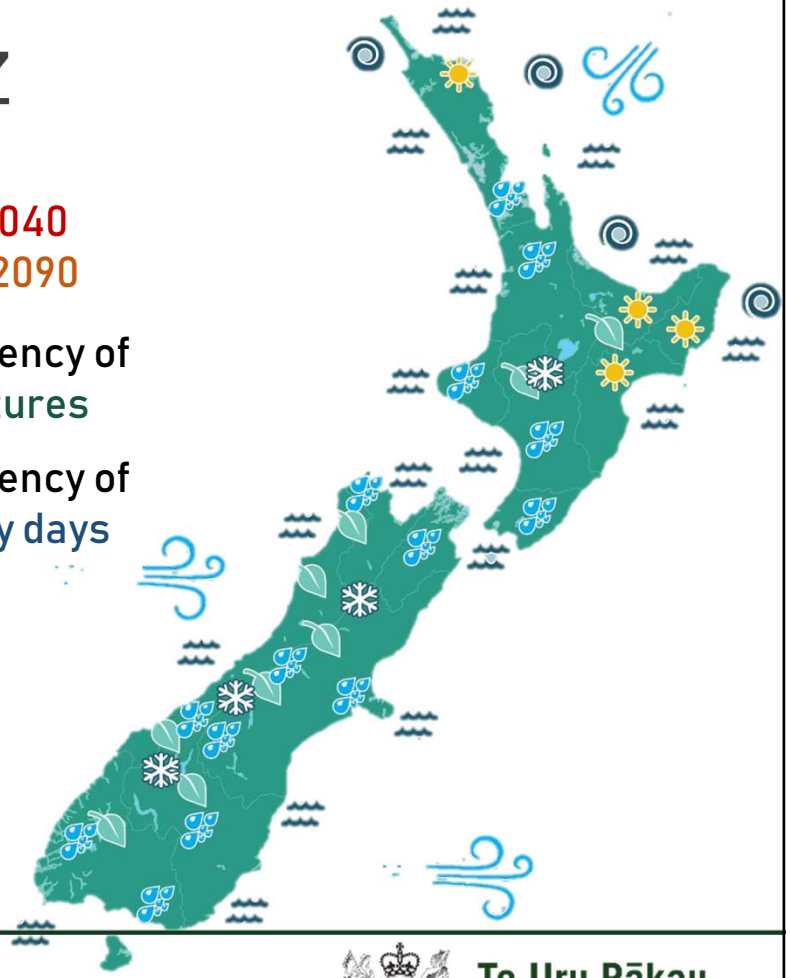
Snowlines and glaciers
e.g. changes in lengths of glaciers, reduction in snow days

Natural areas
e.g. changes to/loss of habitat, increased pressure from pests

0.2 – 2°C by 2040
0.7 – 5.1°C by 2090

Increased frequency of high temperatures

Increased frequency of extremely rainy days



Source: Ministry for the Environment

Helping the forestry sector adapt

*How can we help the forestry sector **proactively prepare** for the **risks**, and **take advantage** of the **opportunities** associated with climate change?*

1. Review of forest fire management in Te Uru Rākau

2. Ensuring climate change adaptation is considered when developing the new forest strategy

3. Primary sector adaptation “handbook and tool-kit” – Forestry sector chapter

The role of trees in adaptation

Potential climate change impact:

- Increased intensity of weather events (droughts and floods)
- Stronger westerly winds in the winter, north-easterly winds in the summer

How trees can help:

- Shelter belts
  - screen livestock from prevailing weather
  - provide shade in summer
  - reduce moisture loss from drying winds

The role of trees in adaptation

Potential climate change impact:

- Increased soil erosion from higher annual rainfall
- Increase in extremely rainy days
- Higher frequency of severe storm events

How trees can help:

- Poplars and willows to increase hillslope stability
- Planting of gullies
- Hawkes Bay April 2011 storm event

  - erosion scars could take 40 to 80 years to heal

Photo source: NZ Farm Forestry website

The role of trees in adaptation

Potential climate change impact:

- Increase in larger rainfall events leading to a decrease in water quality in streams

How trees can help:

Riparian planting

- water quality benefits
- decrease in soil erosion
- filter for nutrient run-off
- flood buffer zone
- canopy will reduce temperatures which will limit algal growth

The role of trees in adaptation

Potential climate change impact:

- Increased weather extremes (particularly drought) – can cause income vulnerability from low yield years
- Government regulations

How trees can help:

- Land use and income diversity
- Carbon emissions offsetting
- Biodiversity in the catchment

The role of trees in adaptation

Potential climate change impact:

- The need to transition, across all sectors, to a low-emissions and climate resilient economy

How trees can help:

- Wood as an alternate, low-emissions material
- Carbon sequestration
- Bio-fuels
- Bio-circular economies

Key Questions

- How can we take the learnings from where trees have been integrated successfully (i.e. urban settings) and apply them elsewhere?
- What research gaps and opportunities exist?
- Is there the appetite to expand scope to include the benefits of a wider variety of plants?
- What does the forestry sector need to adapt? Would a ‘one-stop-shop’ resource/tool be useful?