

Māori Agribusiness: Collective Approaches to Production Systems and Land Use Change

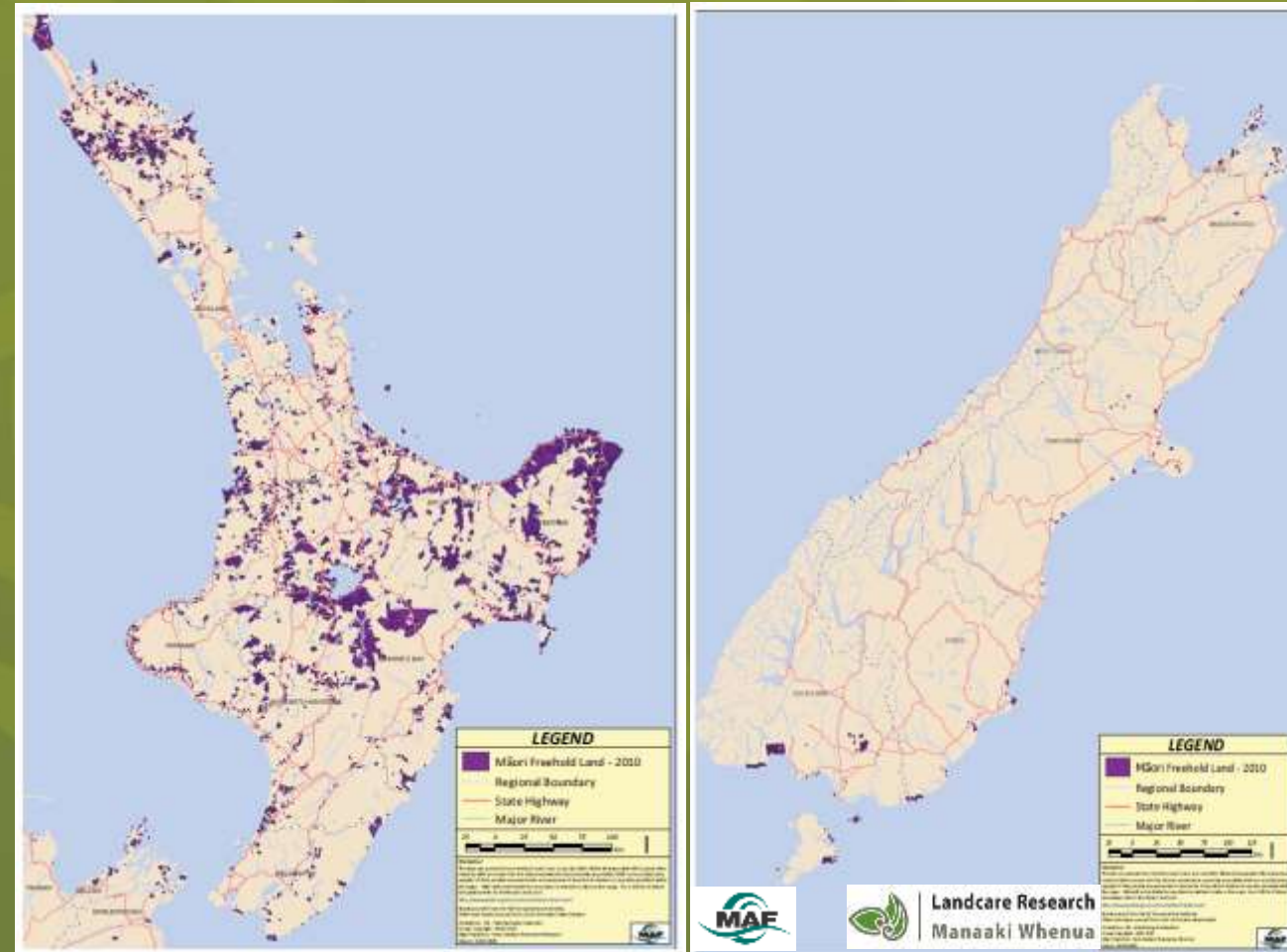


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The Māori Agribusiness Sector

- Maori 'freehold' land (Te Ture Whenua Maori Land Act, 1993)
- 1.7m ha or 7% of NZ's total land area
- 1.35m ha in the primary sector
- 632,000ha in forestry (47%)
- 621,000ha in livestock (46%)

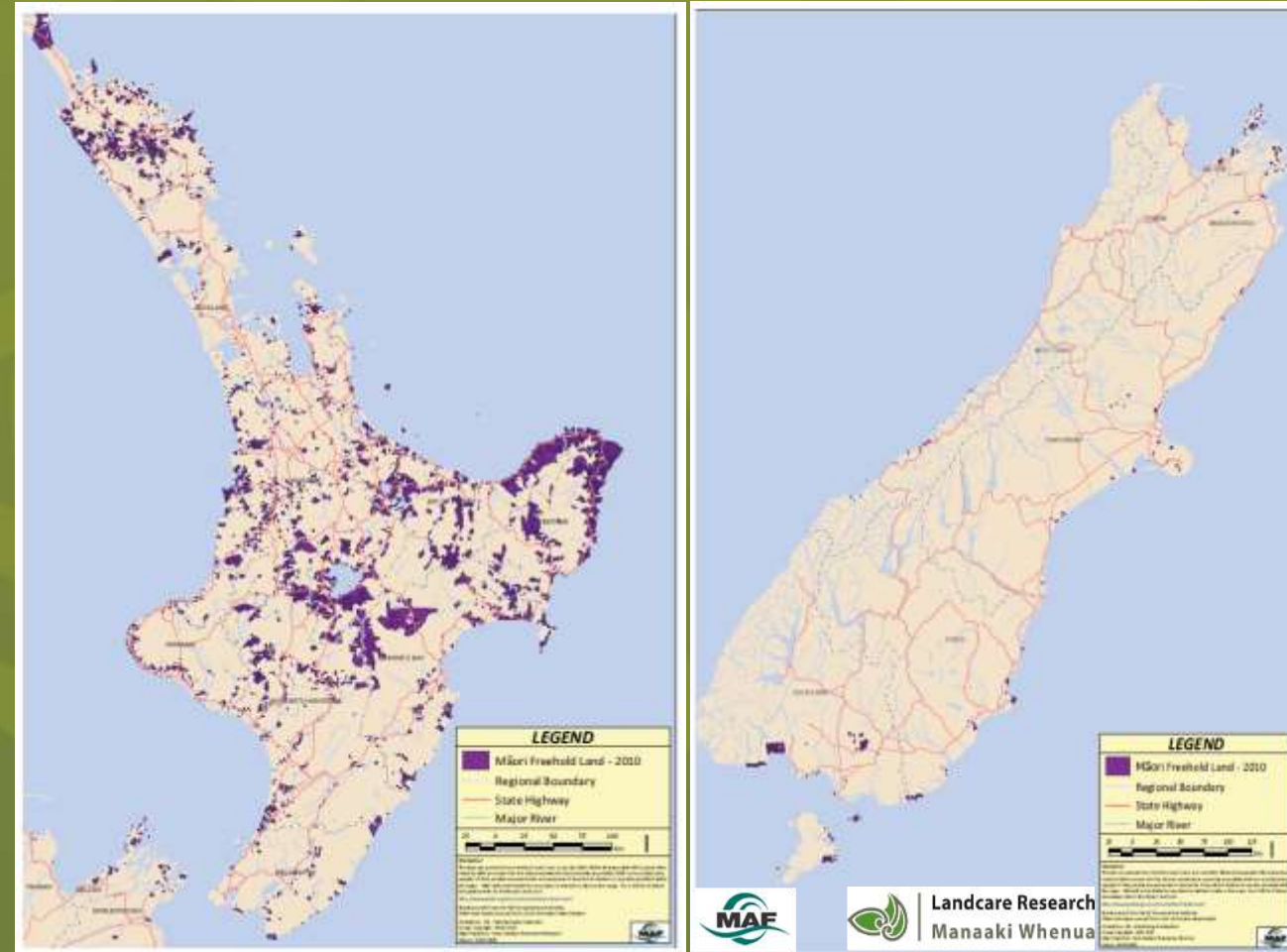
Source: Te Puni Kokiri 2014
2010 data



The Māori Agribusiness Sector

- 142 trusts & incs > 1,500ha (~60% of Māori land)
- Almost 2,000 trusts < 5ha and 2,350 between 5-50ha*
- 20% of Maori land without a structure

* 5,200 total trusts



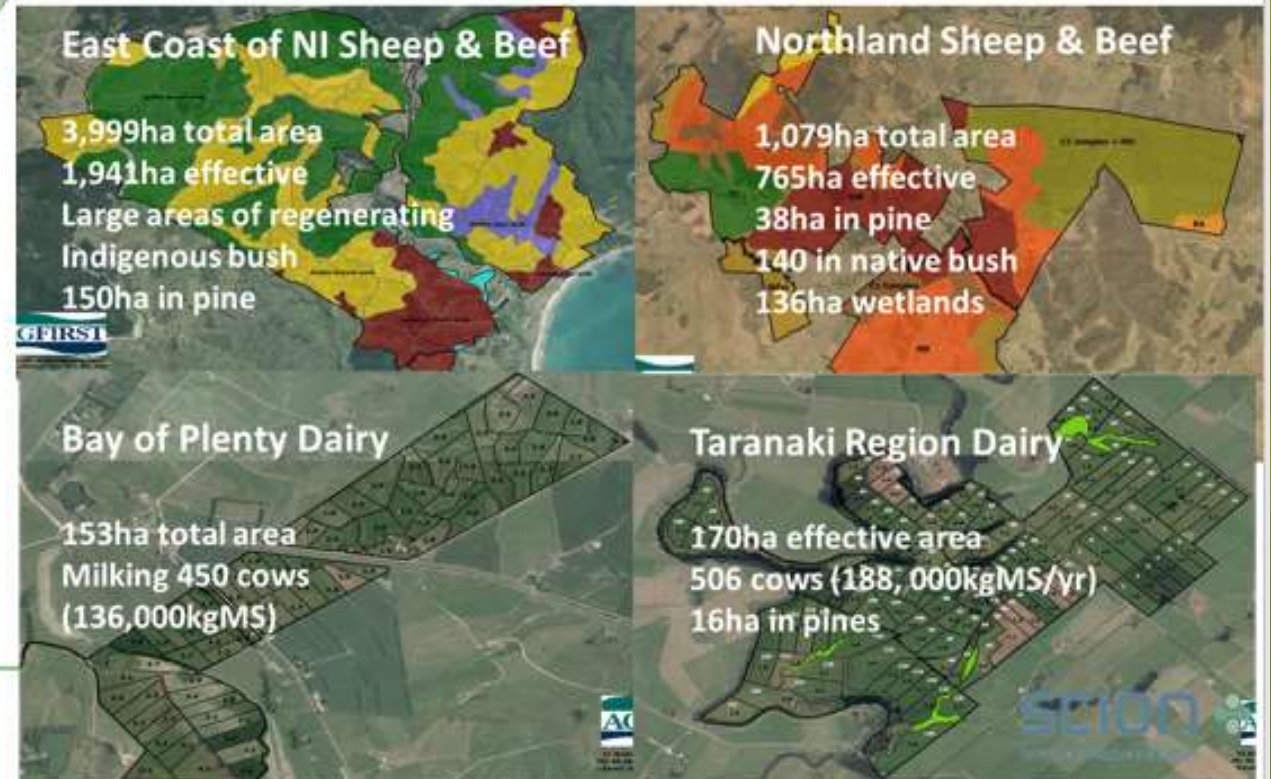
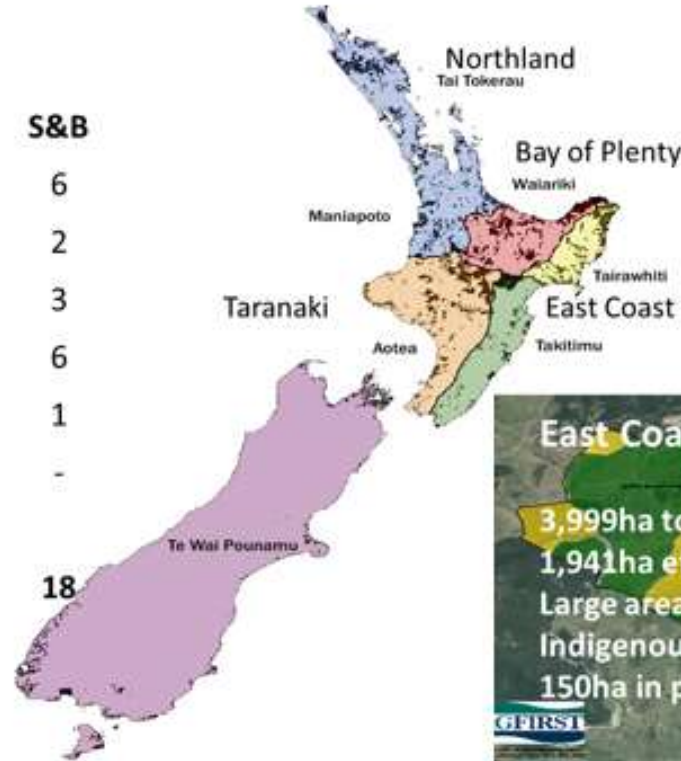
Stage 1 (2014-2017): Network & Case Farms



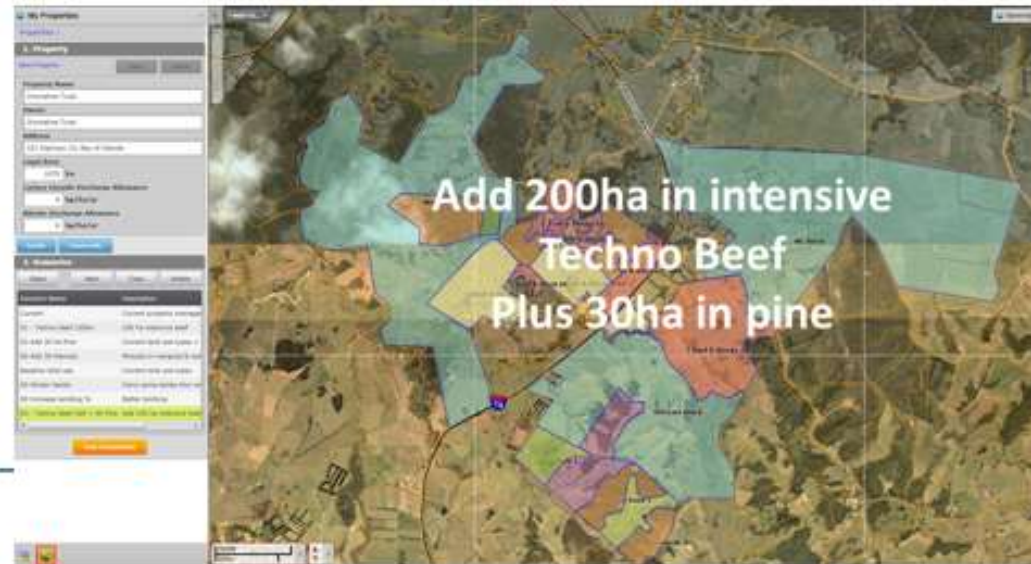
4 Case Study Farms

	Farms	Dairy	S&B
Taitokerau	9	3	6
Maniapoto	4	2	2
Waiariki	5	2	3
Tairawhiti	6	-	6
Takitimu	2	1	1
Aotea	3	3	-
	29	11	18

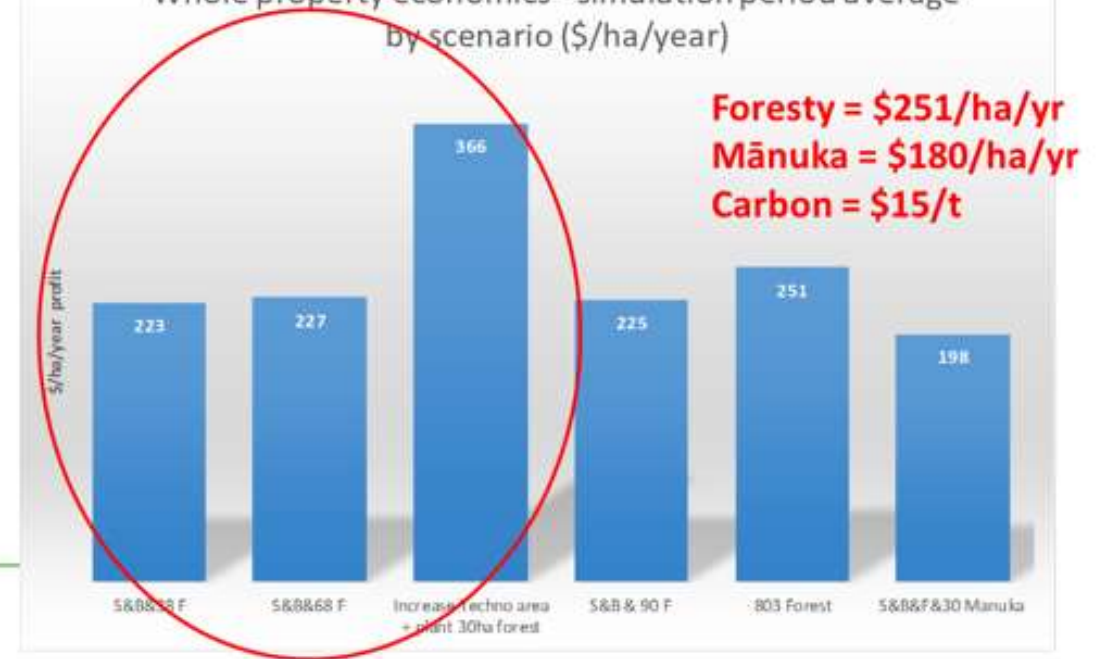
Dairy 13.3t CO₂ eq/ha
S&B 3.9t CO₂ eq/ha



Land Use Change Scenarios



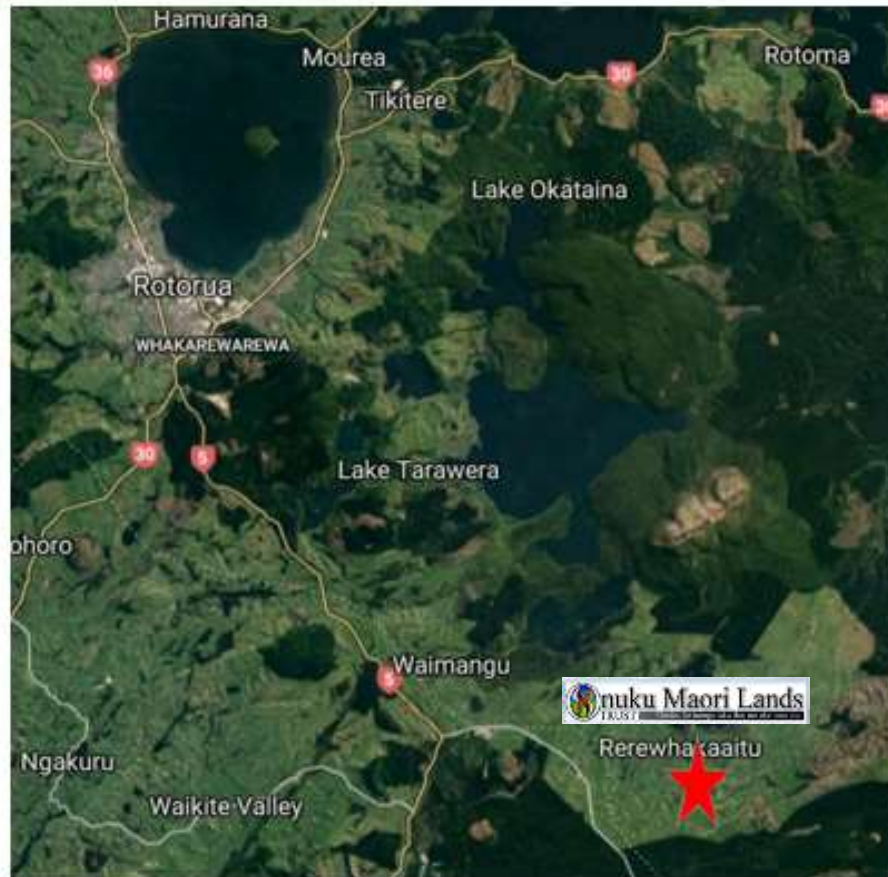
Whole property economics - simulation period average
by scenario (\$/ha/year)



Stage II Programme (2017-2019): Diversified Multi-Enterprise Entities

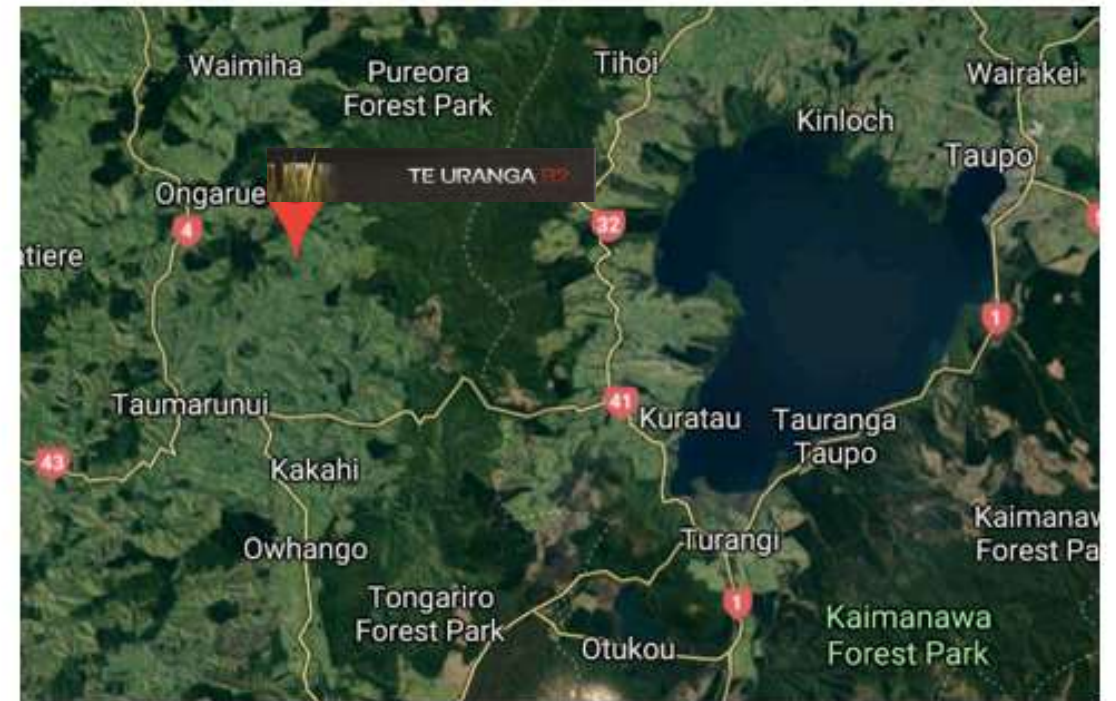
Te Arawa Ahuwhenua Trust

2,362ha



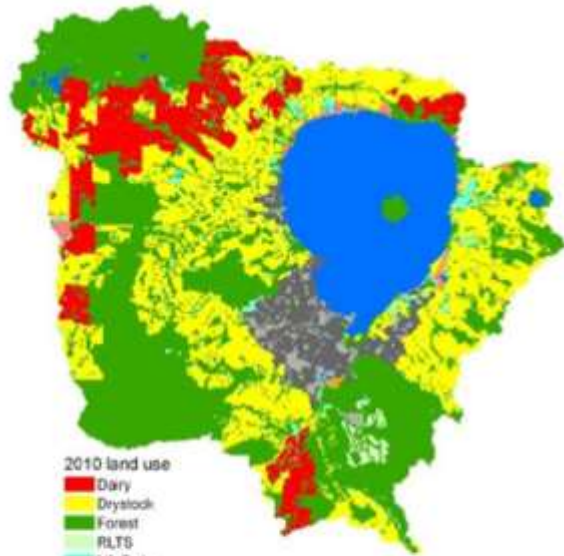
Ngati Maniapoto
Incorporation

2,369ha



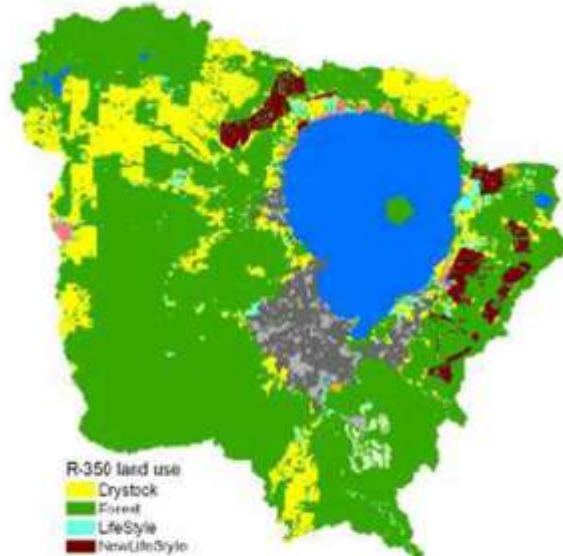
Land use change scenario for Lake Rotorua

Removal/Reduction of pastoral farms (2010)



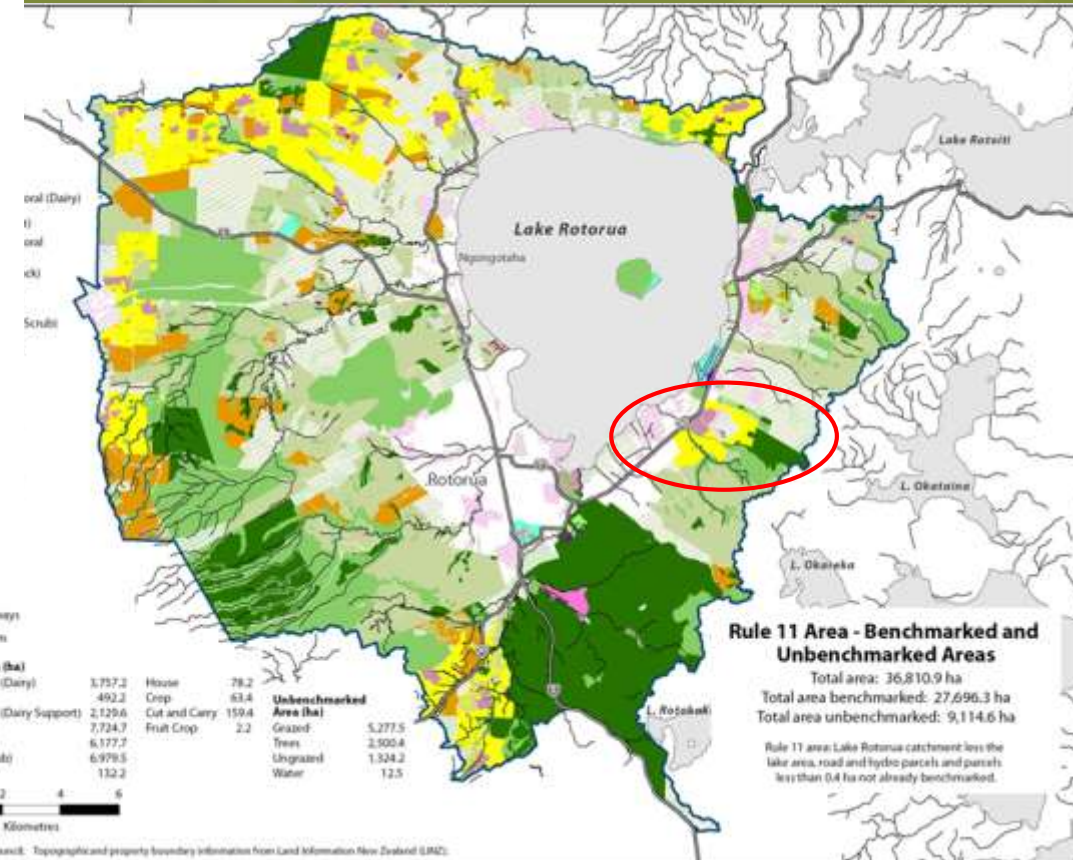
2010 land use

- Dairy
- Drystock
- Forest
- RLTS
- LifeStyle
- Septic Tanks
- Tikitere
- Urban
- UOS
- Water
- Whaka



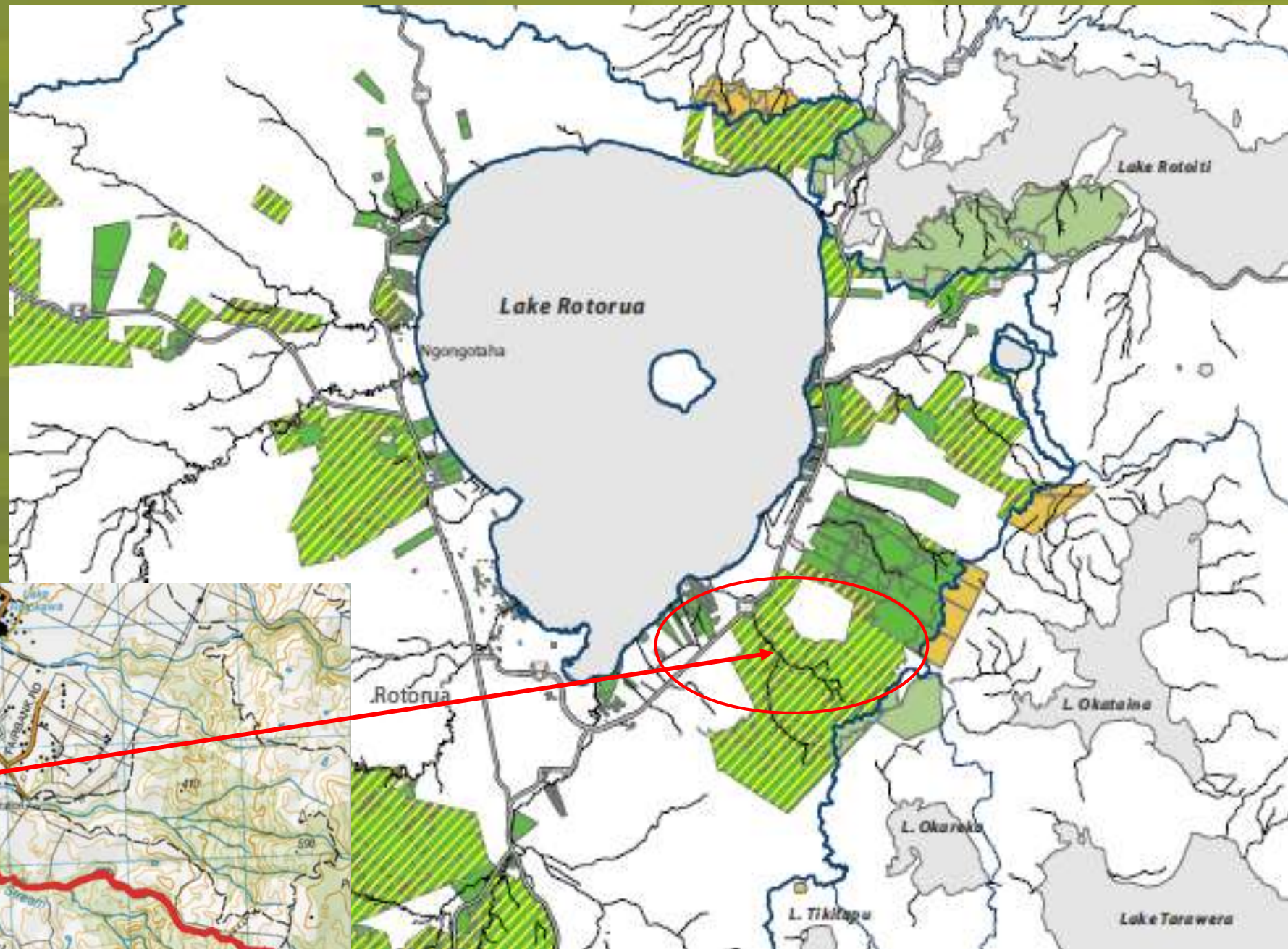
R-350 land use

- Drystock
- Forest
- LifeStyle
- New LifeStyle
- RLTS
- Septic Tanks
- Tikitere
- Urban
- UOS
- Water
- Whaka

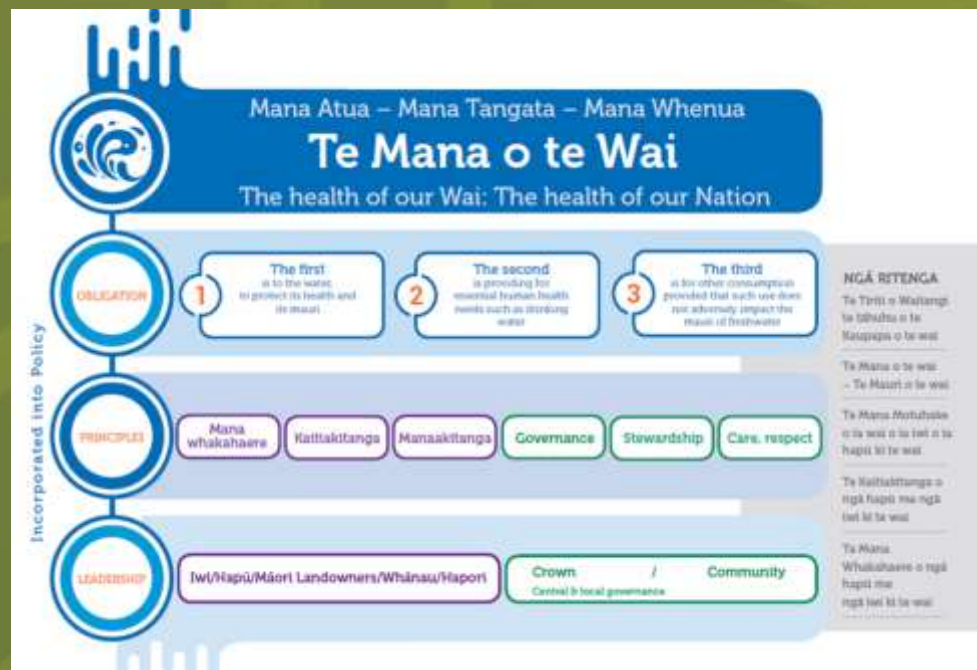


Waingaehe awa

Ngati Hurangaterangi
Owhata marae
Ngāti Te Roro-o-te-rangi
Ngāti Hei
Ngāti Korouateka
Ngāti Tukutahi



Responding to Environmental Legislation and Regulations



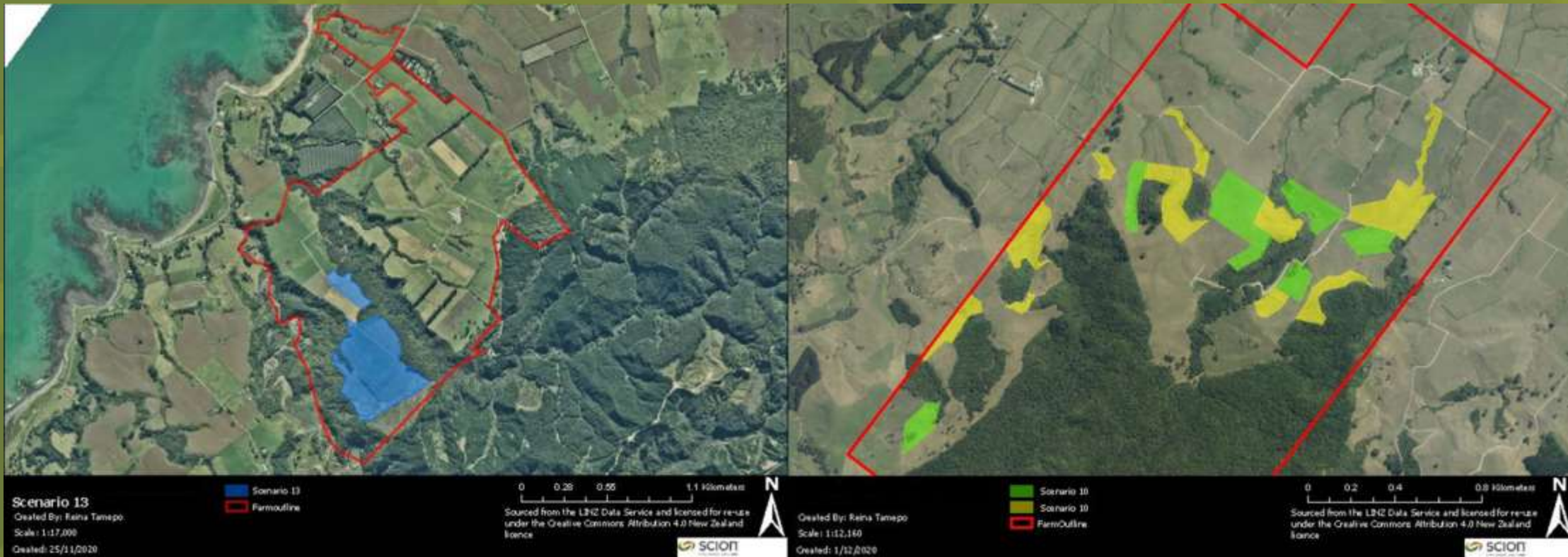
Greenhouse gases: Farm Planning Guidance

Opportunity	Greenhouse Gas	Potential Reduction	Page
Improve the efficiency of pasture and crop production			10
Minimise N-Surplus through reduced N-fertiliser use	N ₂ O	Med	
Reduce N-Surplus through reduced use of supplementary feed	N ₂ O	Med	
Use inhibitor coated N-fertilisers	N ₂ O	Med – Low	
Improve crop husbandry	N ₂ O	Low	
Optimise soil pH levels	N ₂ O	Low	
Reduce total feed eaten			12
Convert less productive land to indigenous or exotic trees	CH ₄ , N ₂ O	Med	
Cull less productive stock early	CH ₄ , N ₂ O	Med – Low	
Adjust stocking policy	CH ₄ , N ₂ O	Med – Low	
Reduce stock losses and optimise replacement rates	CH ₄ , N ₂ O	Low	
Increase animal performance through genetic selection	CH ₄ , N ₂ O	Low	
Convert more productive land to high value crops	CH ₄ , N ₂ O	Low	
Match feed demand with pasture growth and utilisation			14
Reduce bought-in supplementary feed	CH ₄ , N ₂ O	Med	
Use of lower protein forages	N ₂ O	Med – Low	
Optimise pasture quality and production	CH ₄	Low	
Improve the management of livestock effluent			16
Use captured effluent as a fertiliser	N ₂ O	Low	
Capture and store carbon in vegetation			17
Plant indigenous or exotic trees	CO ₂	Med	
Minimise periods of bare land	CO ₂	Med	



Production system optimisation and land use change scenarios

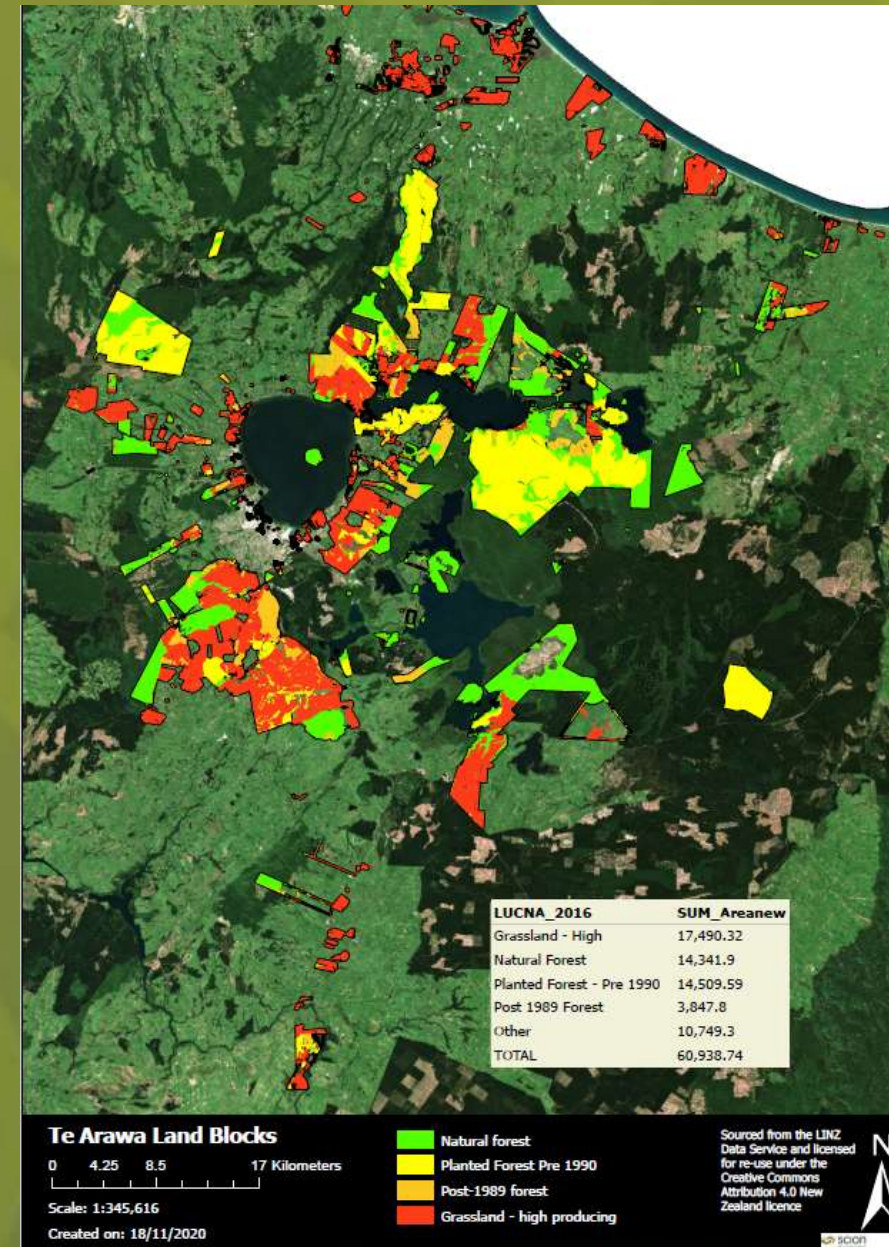
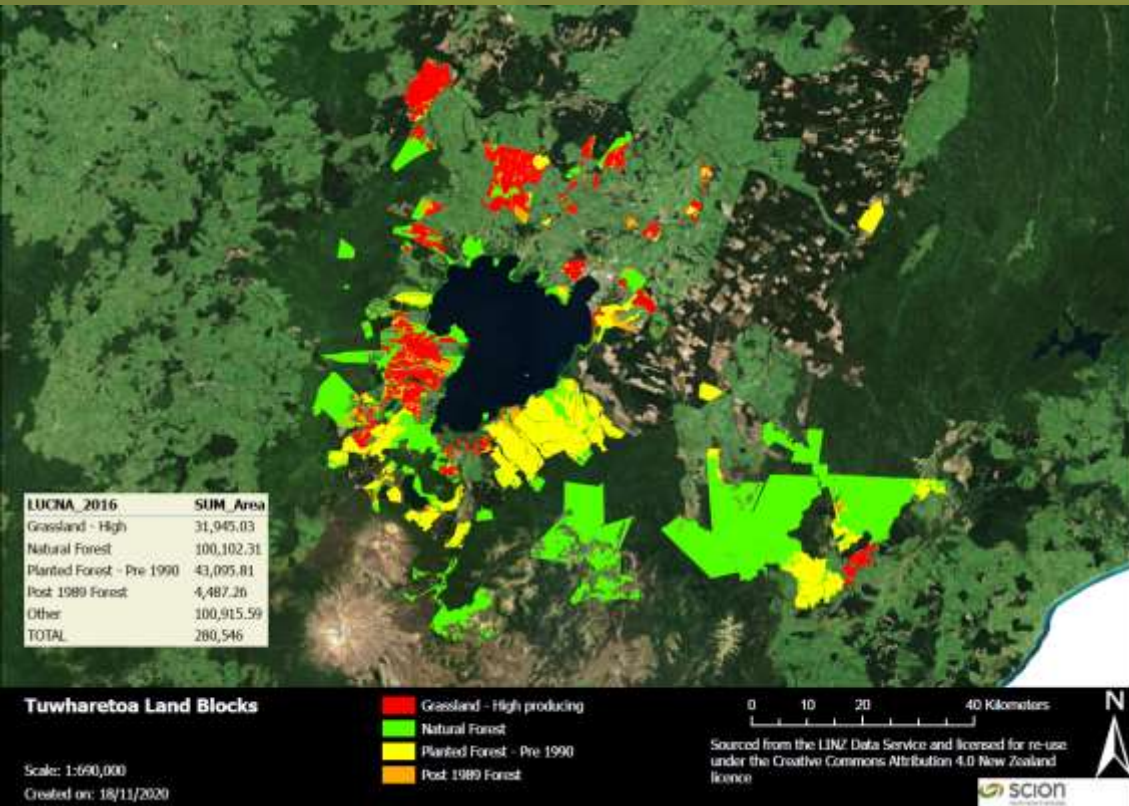
- Increasing area in forestry, either pines or indigenous
- Decreasing ewe numbers and increasing lambing percentages and beef weights
- Changing stocking rate and/or performance
- Increasing sub-divisional fencing
- Diversifying a proportion of the dairy farm into kiwifruit



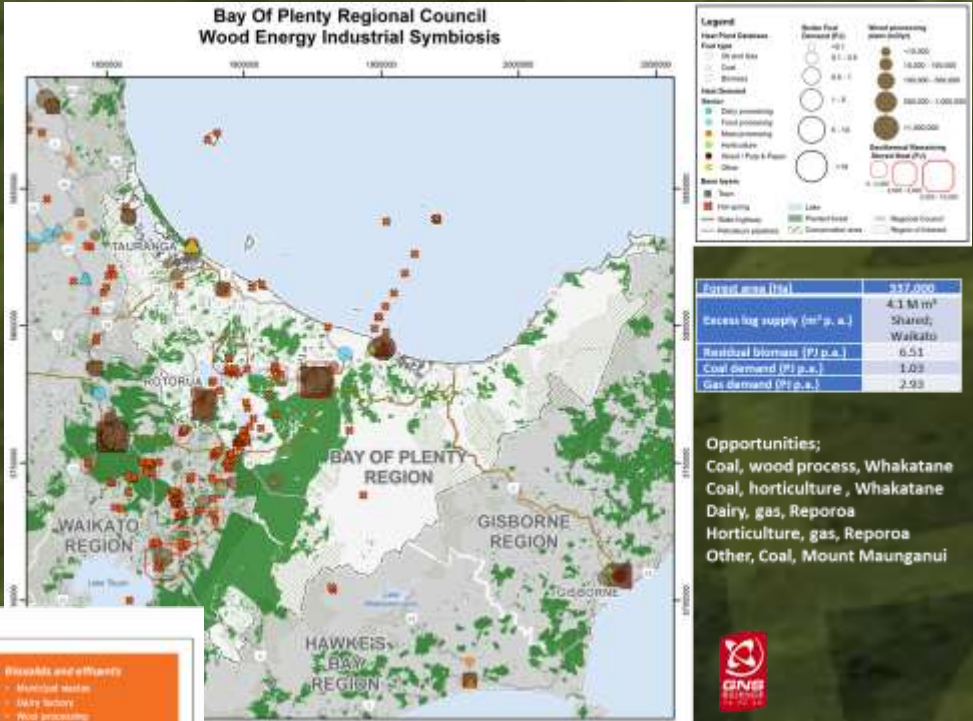
‘Collective Approaches to Mitigation and Land Use Change’

Pasture 32,000ha
Native 102,000ha
Pre-1990 44,000ha
Post 6,000ha
TOTAL 281,000ha

Pasture 18,000ha
Native 15,000ha
Pre-1990 15,000ha
Post 6,000ha
TOTAL 61,000ha



How does the Māori primary sector transition from high emission to high value low emission supply chains and marketing channels?



Developing new supply networks and market channels requires investment into processing and logistics infrastructure

- Discrete representation of space
 - Squared cells: 25x25km
 - Rectangular cells: 25x50km or 50x25km
- Cells are useful to represent:
 - Separation of geo-climatic regions
 - Transport distances
 - Location of current plant capacity
 - Optimal location of new capacity
 - Location of ports
- Every cell is further subdivided into:
 - Land use
 - Terrain impediments
 - Crop maturity for perennial crops
 - Land ownership
 - Categories for product quality

