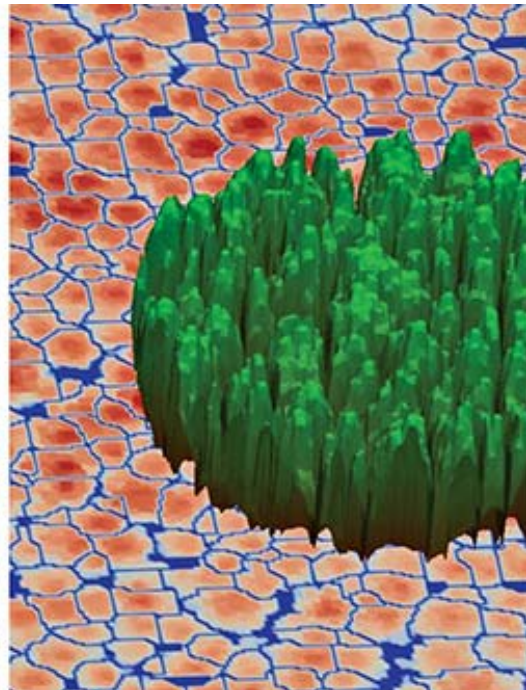


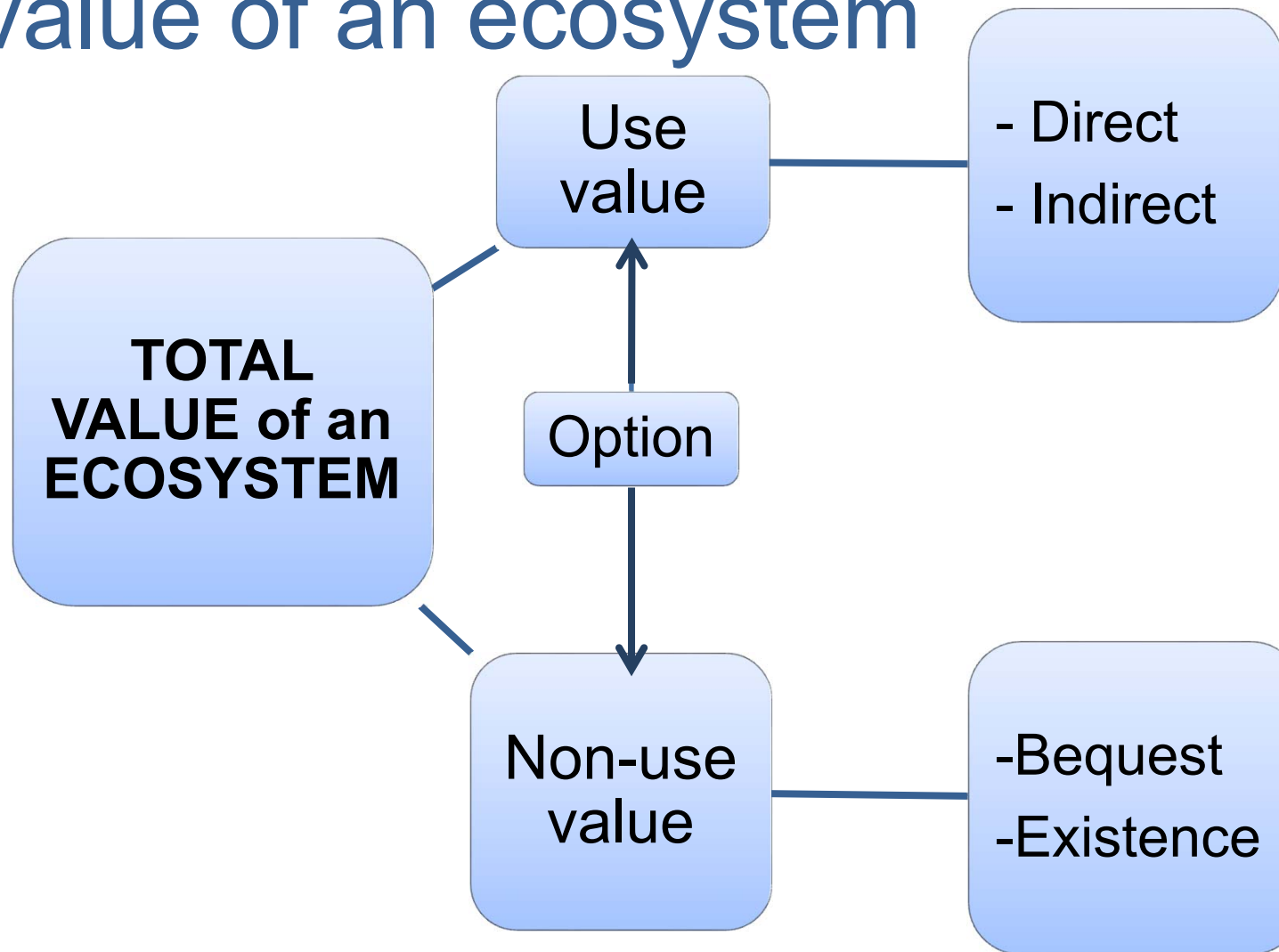
# What is the full value of planted forests in New Zealand? The case of Ōhiwa catchment

Sandra J. Velarde & Richard Yao



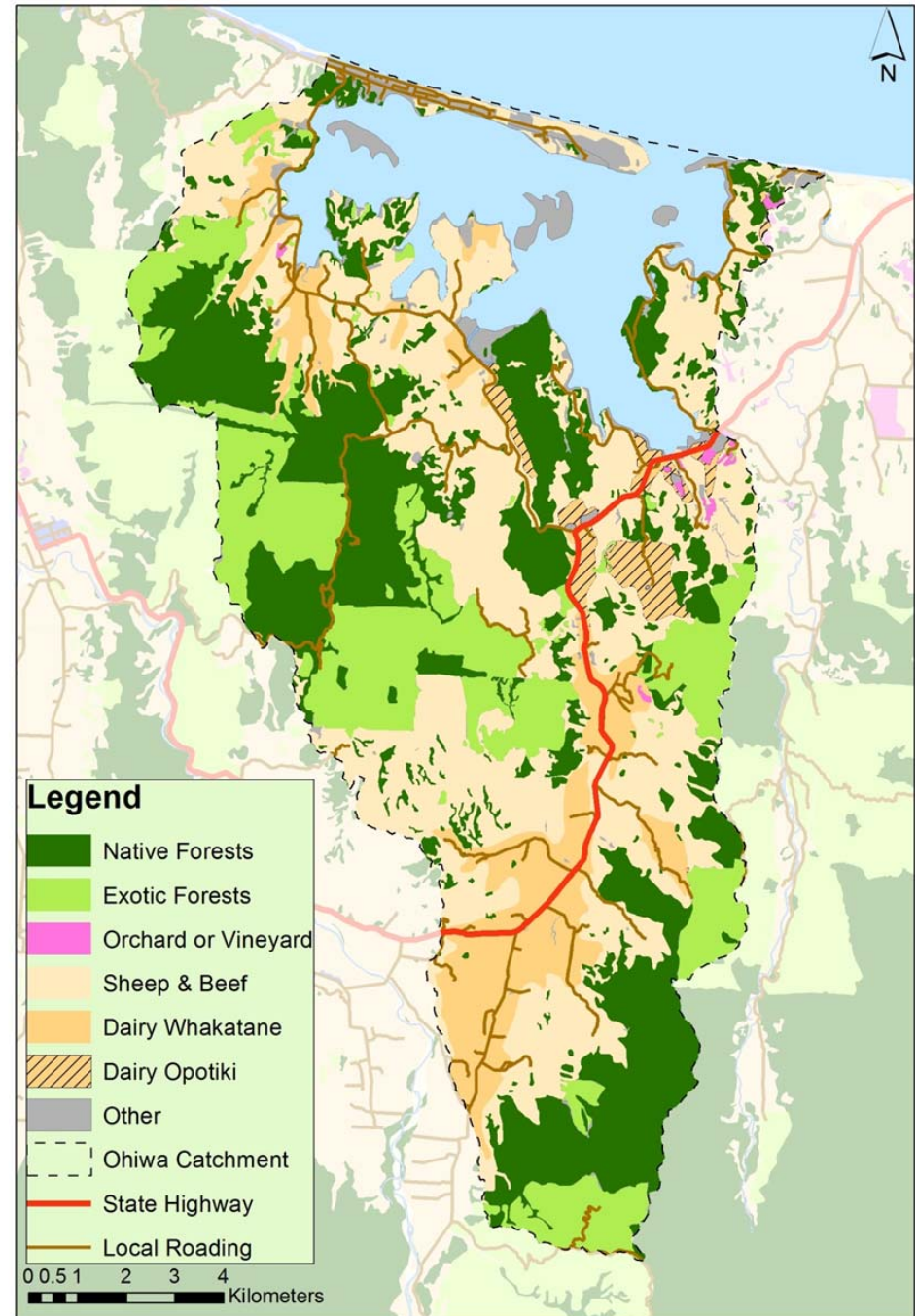
NOTE: This project was funded by the Bay of Plenty Regional Council, not GCFF.

# Introduction: The total economic value of an ecosystem



# ES for the Ōhiwa Catchment

- ES from key land uses
  - Dairy, S&B, Horticulture
  - **Planted** and native forests
  - Wetlands, indigenous scrub
- Provide indicative ES values for policy discussion.
- Map: Yao, R. T., Velarde, S. J. 2014. Ecosystem services in the Ōhiwa Catchment. Scion: Rotorua. p.7.  
<http://www.boprc.govt.nz/knowledge-centre/our-library/consultant-publications/>



# Ecosystem services values in the Ōhiwa catchment

Service group	Items	Productive				Natural		
		Dry stock	Forestry	Dairy	Hort	Indigenous forest	Scrub	Wetlands/Mangroves
<b>Provisioning</b>	Food, wool, wood, pulp	+	+	+	+			
<b>Social</b>	Recreation and tourism		+			+	+	+
	Species conservation		+			+	+	+
<b>Regulating &amp; supporting</b>	Carbon sequestration	-	+	-				
	Avoided erosion/sedimentation		+			+	+	+
	Nutrient regulation	-	+	-	-	+	+	
	Pollination	+	+	+	+	+	+	
	Water regulation	+	+	+		+	+	+
	Waste treatment		+			+	+	+
	Pest and disease regulation	+	+	+	+	+	+	
	Nutrient cycling		+			+	+	
	Soil formation	+	+	+	+	+	+	

Adapted from Yao and Velarde (2014), page 11.

Yao, R. T., Velarde, S. J. 2014. Ecosystem services in the Ōhiwa Catchment. Scion: Rotorua. 38p.

<http://www.boprc.govt.nz/knowledge-centre/our-library/consultant-publications/>

# Profit from planted forests

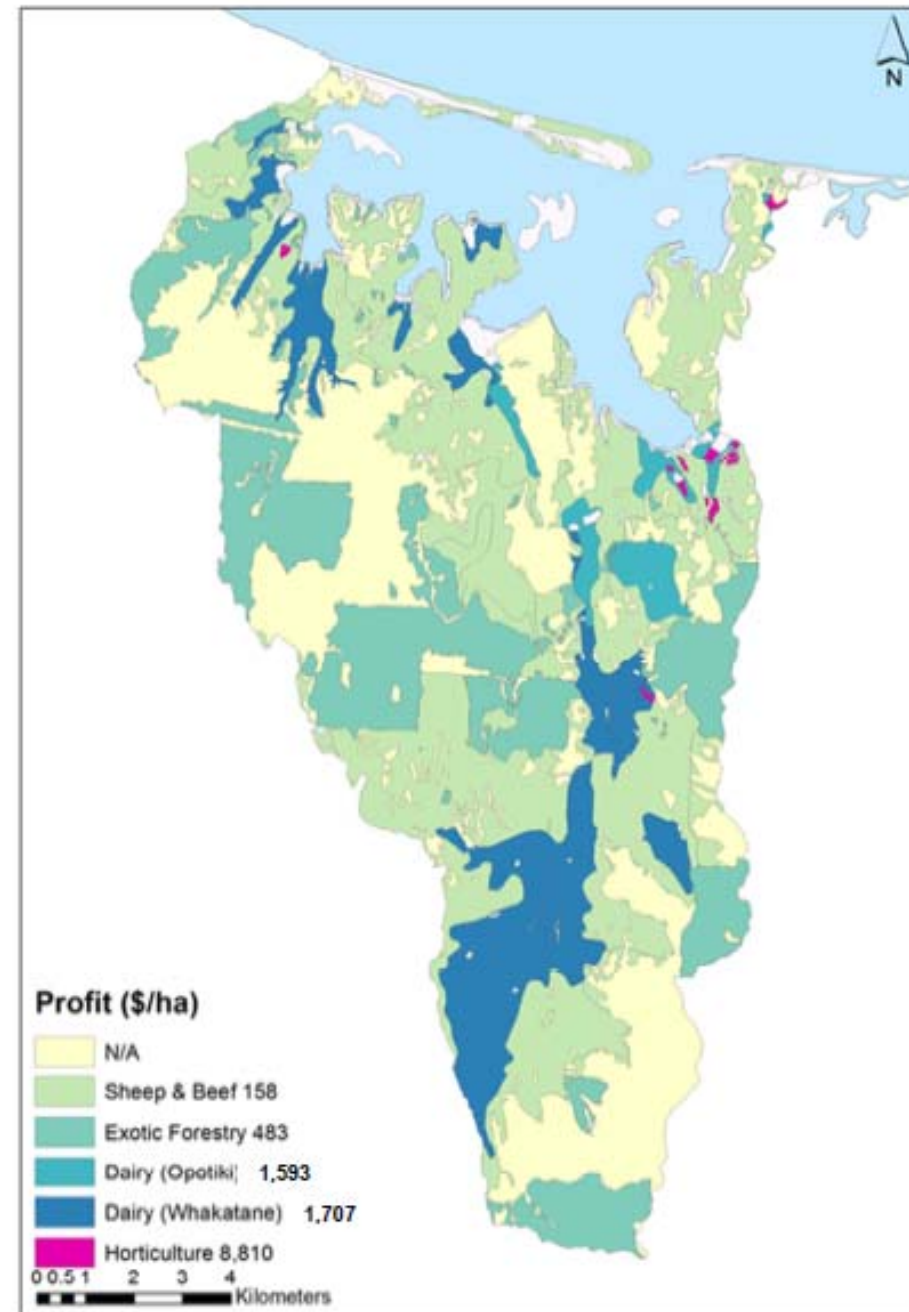
- Forest Investment Finder – spatial economic model
- 28 y rotation
- Profit based on log yields, MPI 12Q average log prices and cost data
- Net present value (NPV) \$/ha

Map showing spatial representation of NPV values (\$/ha) from planted forests in the Ōhiwa catchment which is currently in preparation for publication.

# Profit/ha of key land uses

- Median profit per hectare per year
  - Dairy, sheep and beef, horticulture
  - Native forests
  - **Planted forests**
  - Operating profit in 2012\$/ha/year

Map: Yao, R. T., Velarde, S. J. 2014. Ecosystem services in the Ōhiwa Catchment. Scion: Rotorua. p.24.  
<http://www.boprc.govt.nz/knowledge-centre/our-library/consultant-publications/>



# Carbon (C)

- Avg. C emissions & sequestration
  - Dairy = - 9.35 t/ha
  - S&B = - 3.57 t/ha
  - Planted F = +11 t/ha
  - Native F = 0 t/ha
- C price = \$4.40/tonne of CO<sub>2</sub> equivalent

Map showing spatial representation of Carbon values (\$/ha) which is currently in preparation for publication.

Carbon sequestration/ emission and GHG regulation

Dairy = - 16 \$/ha/year

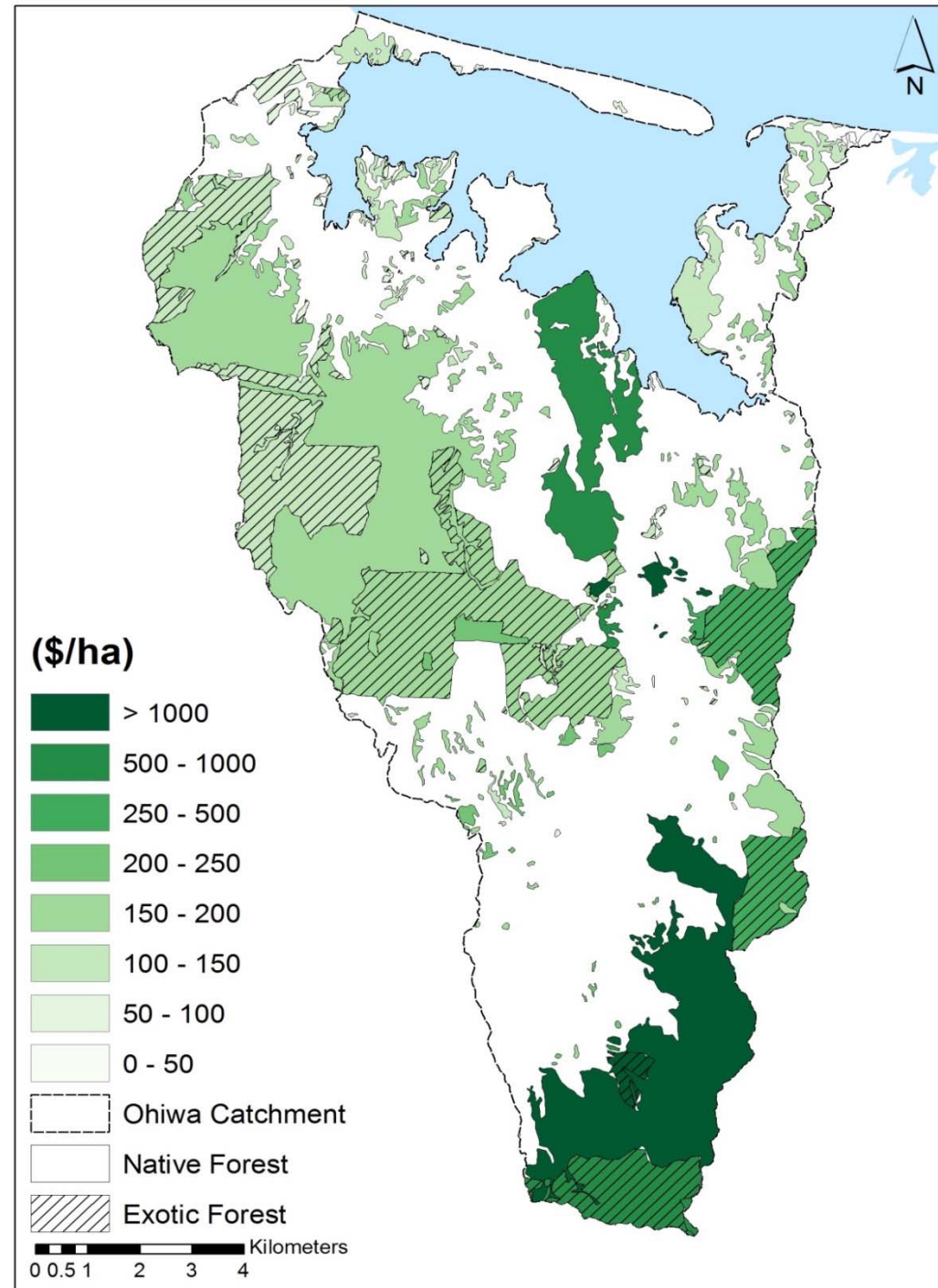
S&B = - 41 \$/ha/year

Planted F = +48 \$/ha/year

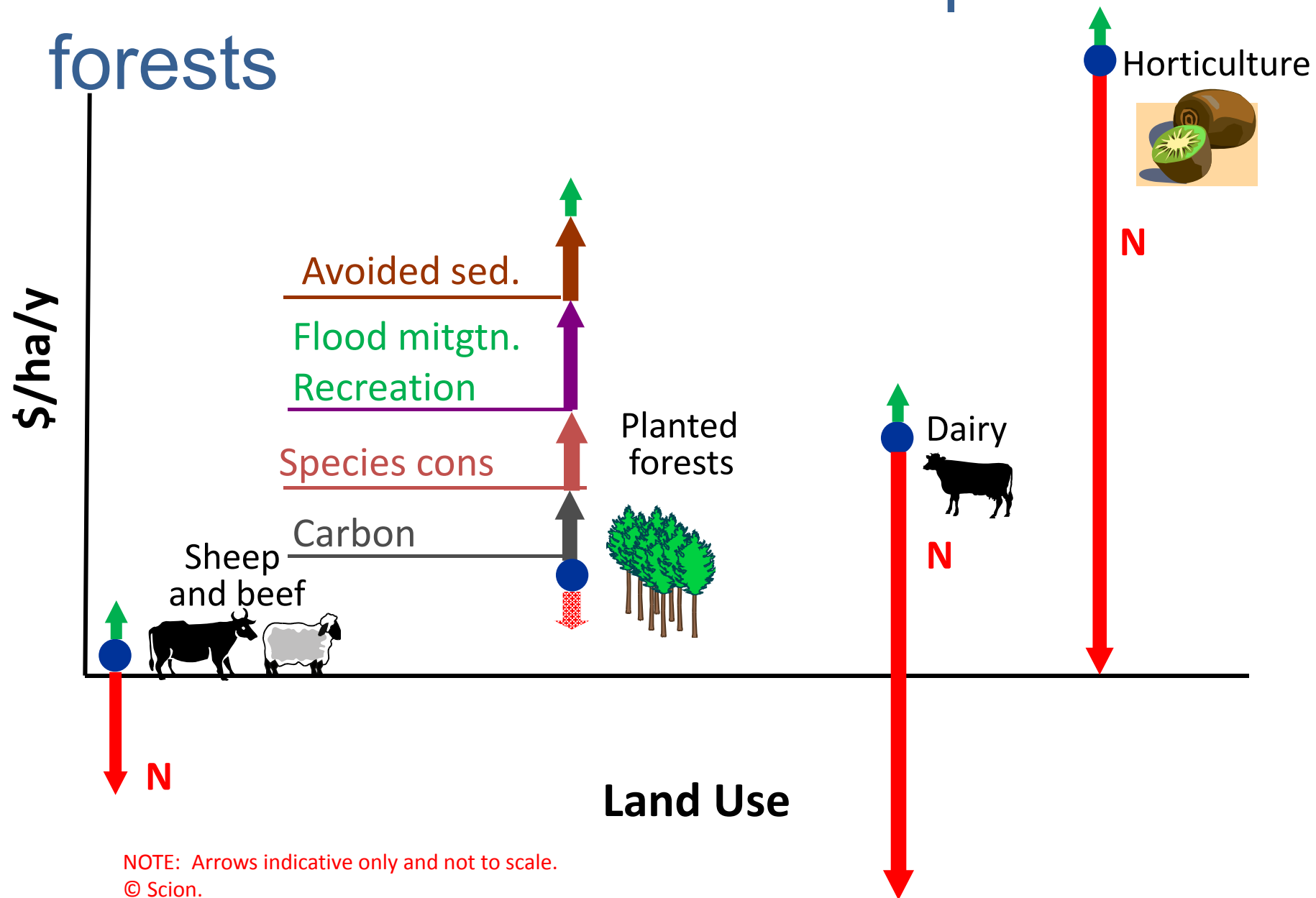
# Avoided sedimentation

- Erosion rate  
Forests < Bare land  
Native F < Planted F
- Erosion rates estimated using NZEEM
- \$6.40 for every tonne of sediment reduced

Map: Yao, R. T., Velarde, S. J. 2014. Ecosystem services in the Ōhiwa Catchment. Scion: Rotorua. p.30.  
<http://www.boprc.govt.nz/knowledge-centre/our-library/consultant-publications/>



# Conclusion: Total value of planted forests





<http://research.nzfoa.org.nz/>  
[www.scionresearch/gcff](http://www.scionresearch/gcff)

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