

Alternatives to clearfelling harvests for New Zealand planted forests



Mark Bloomberg
Adjunct Senior Fellow

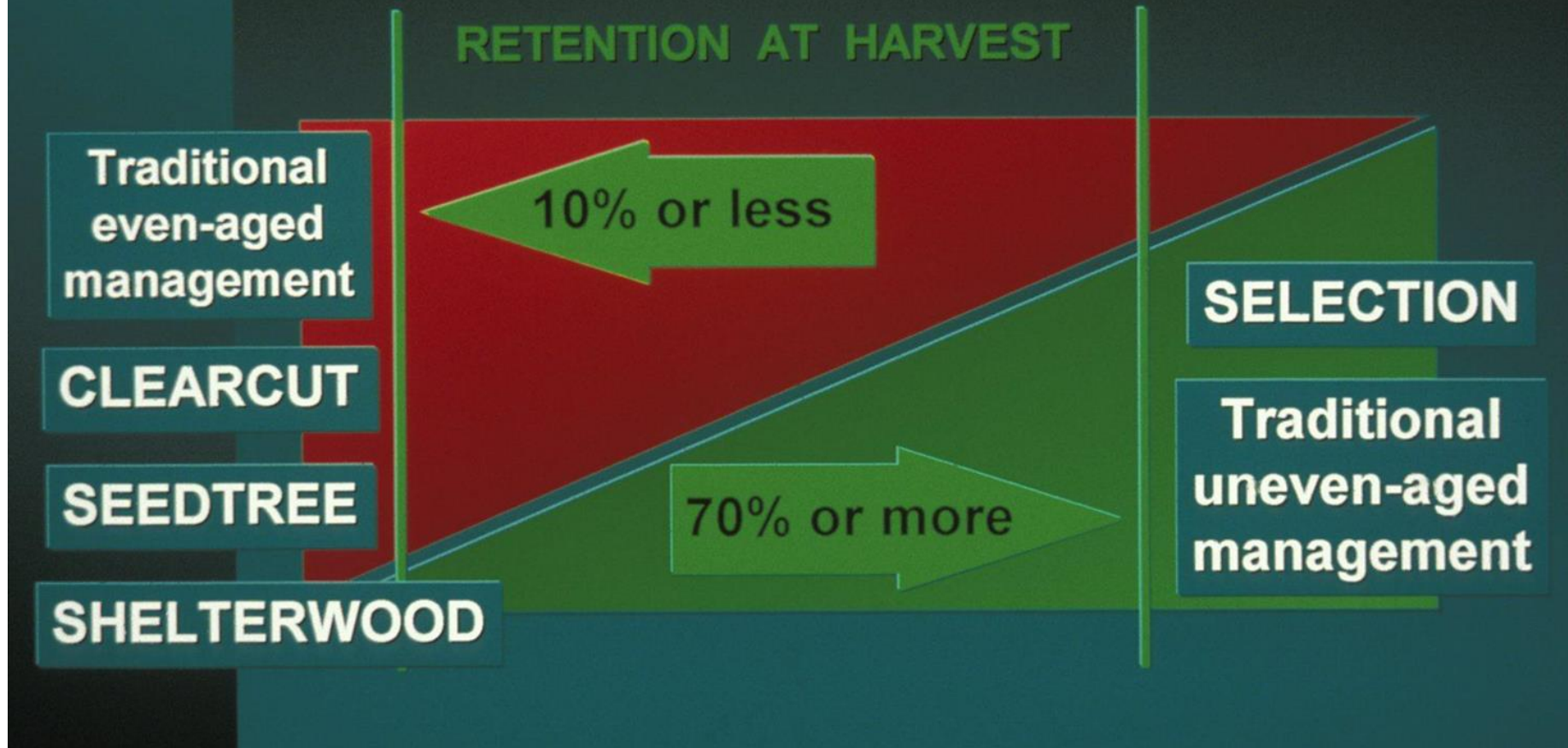
School of Forestry | Te Kura Ngahere, University of Canterbury,
Christchurch 8140, New Zealand

Introduction

- NZ harvests about 37 M m³ per year.
 - 99% of this harvest volume from clearfelling
- Clearfelling = cut and extract all trees on an area more than 0.25 ha
 - Can extend over hundreds of hectares of contiguous harvested area
- Clearfelling cheaper, easier to manage
- Alternatives more complex, expensive



GRADIENT OF FOREST HARVEST



Variable retention and selection harvesting

Small-coupe harvest with group and individual retention in natural *Eucalyptus* forest



<https://www.vicforests.com.au/leadbeaters-possum1/regrowth-retention-harvesting-1>

Selection harvest in NZ indigenous forest



<https://www.nzffa.org.nz/farm-forestry-model/resource-centre/articles/articles-by-species/totara/harvesting-continuous-cover-forestry/>

Why retain crop trees after harvesting?

- Forest ecosystem services impaired by clearfelling (removing most or all crop trees)
 - Soil and water services
 - Habitat and biodiversity services
 - Amenity services

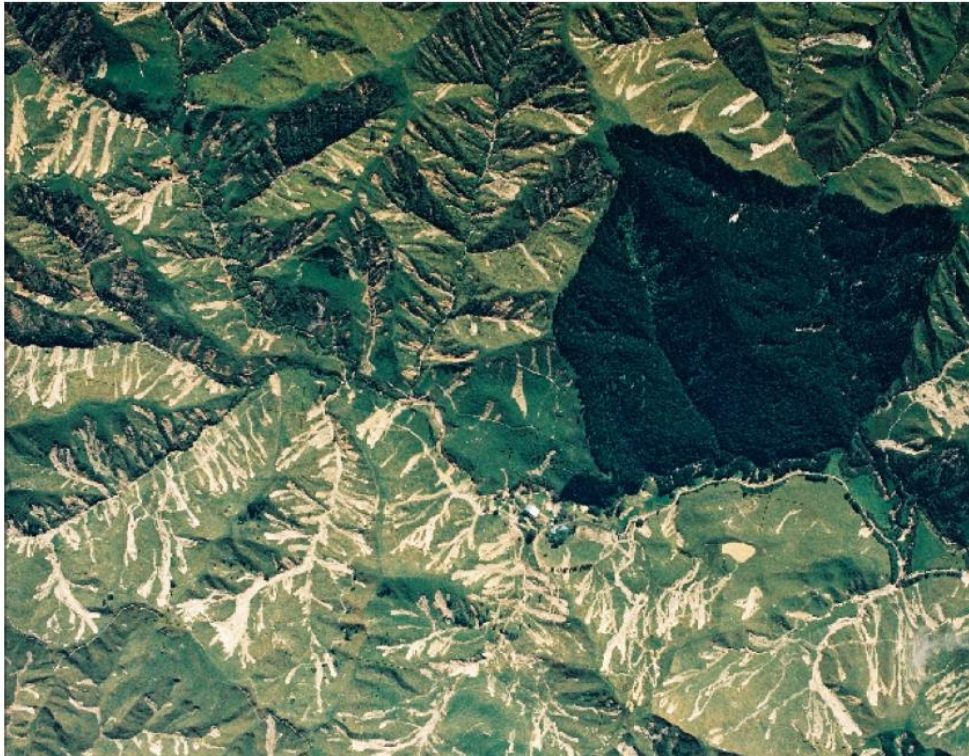


Photo courtesy of Campbell Harvey



Photo courtesy of FRI

Soil erosion and sediment yield



Severe slip erosion from the 2004 storm, inland of Whanganui. The effect of pine forest in reducing erosion compared with neighbouring hillsides with the same aspect and slope is obvious.

Source: M. Todd (2018)

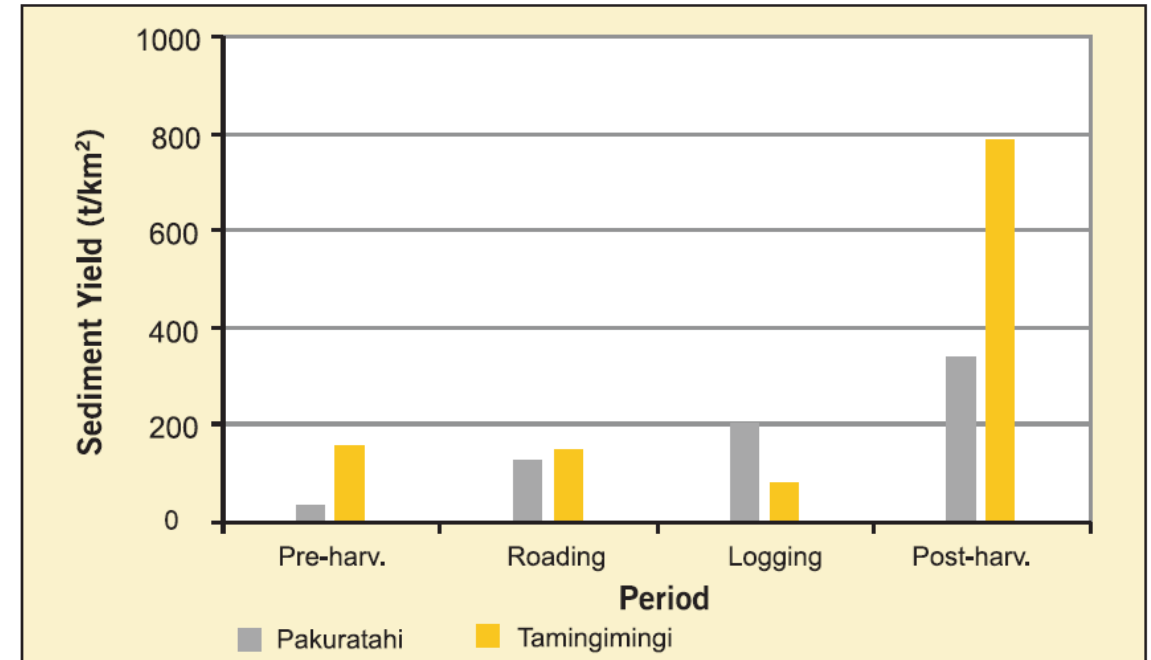
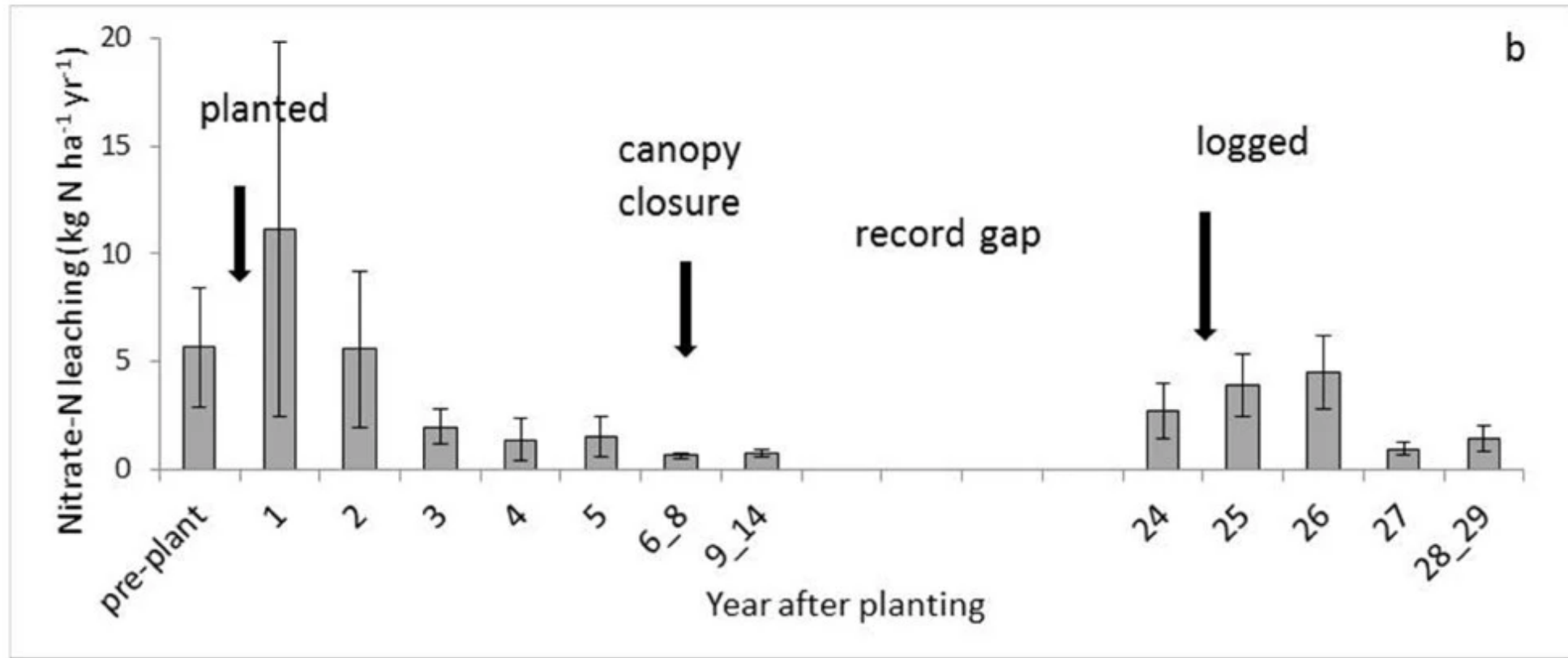


Figure 4. Suspended sediment yields for the pre-harvest period (Jan 1995 to Jun 1997), the road construction phase (Jul to Dec 1997), the logging phase (Jan 1997 to Dec 1999), and the post-harvesting period (Jan 2000 to Dec 2005).

Pakuratahi=forest, Tamingimingi=pasture
 Source: Fahey and Marden (2006)

Nutrient losses by leaching from a planted pine forest



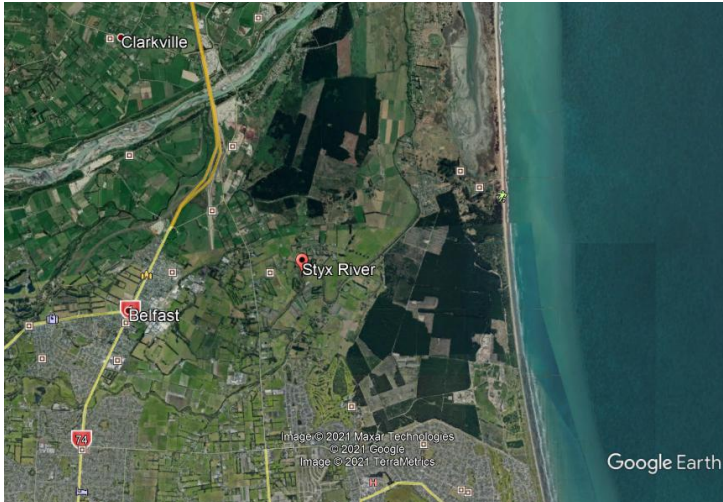
Habitat and biodiversity

Native broadleaf species regenerating under radiata pine and manuka



- Planted forests are still forests!
- Forests are diverse ecosystems ranging from canopy to deep in the soil
- 80% of terrestrial biodiversity in forests
- Cover, food, nesting, roosting, shade and shelter.....

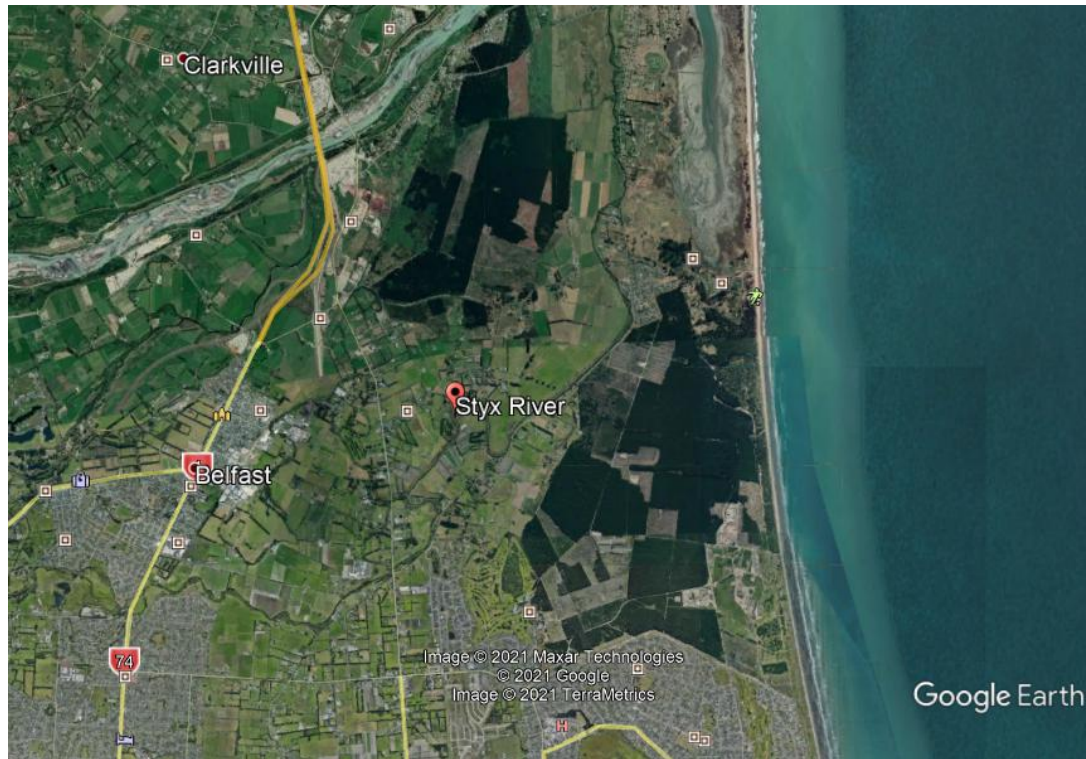
Bottle Lake Plantation-a dry sand dune forest on the outskirts of Christchurch



- NZ Bush Falcon
- Bellbird
- Fantail
- Silvereye
- Grey Warbler
- Shining Cuckoo
- Tui
- and a suite of exotic bird species

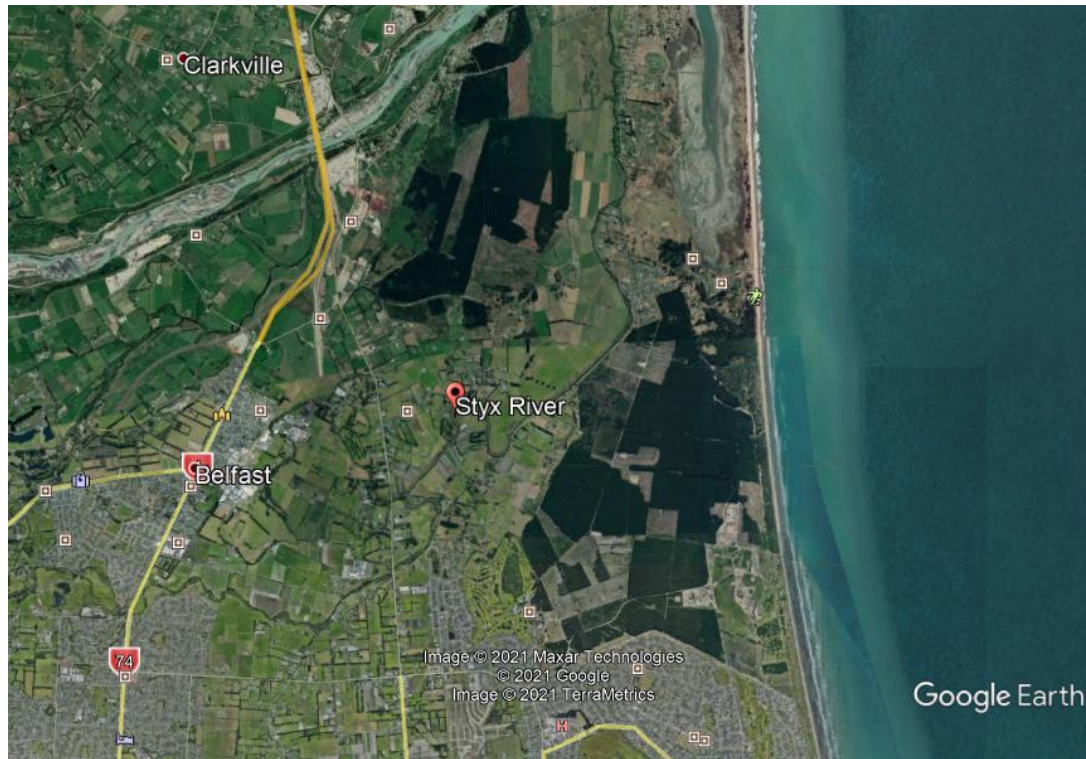
Antony Shadbolt, pers. comm.

Bottle Lake Plantation-surrounding farm land



- House sparrow
- Goldfinch, chaffinch, redpoll,
- Yellowhammer, hedge sparrow
- Starling
- Blackbird, thrush
- Skylark
- *Harrier hawk, NZ bush falcon, welcome swallow*

Amenity values-recreational, aesthetic, cultural, spiritual



<https://newsline.ccc.govt.nz/news/story/celebrating-bottle-lake-forest>

The future?

- Biodiversity, amenity values important but.....
- Alternatives to clearfelling driven by need to retain **soil & water services**
- Loss of soil & water services after clearfelling increasingly controversial
- Over the last ten years
 - Prosecutions of forest companies into double figures
 - Fines now totalling more than one million dollars.

06/12/2019

Company to pay \$60,000 after damage to family's house | RNZ News



[BUSINESS \(/NEWS/BUSINESS\)](#)

Company to pay \$60,000 after damage to family's house

11:45 am on 16 May 2018

A forest management company has been ordered to pay almost \$60,000 after its practices led to flooding and damage to a property in Marlborough in November 2016.



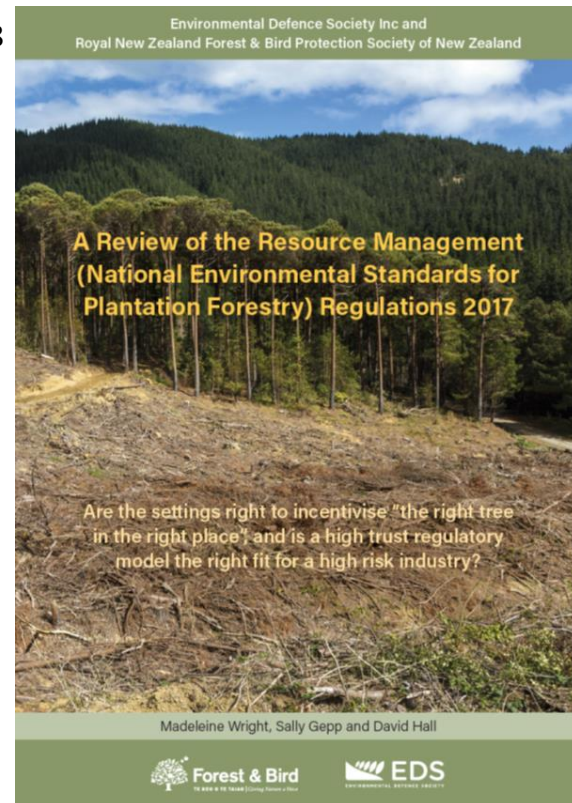
Photo: Marlborough District Council

The future?

- Large-coup clearfelling on erosion-susceptible land
 - incidence of landslide events is not going to abate.
 - 25% of our planted forests are on erosion-susceptible land
- For erosion-susceptible land
 - Voluntarily adopt alternative harvesting?
 - Or will change this be enforced by societal pressure?
 - Exit from harvesting?



Nelson Mail 21/5/18



Thank you....and happy to discuss



Photo courtesy of Ryan McDonald, MoMac