

Integrating forest and agriculture policy options

Motu E-Mission Possible

Roundtable 2: Mitigation in the land sector

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Outline

1. Needs and goals for land-use change
2. Distributional implications from an integrated climate mitigation response
3. Co-benefits and conflicts – water quality and biological emissions
4. Potential for native regeneration
5. Forestry in the ETS



The land quality and use spectrum

Current private rural land uses (area)



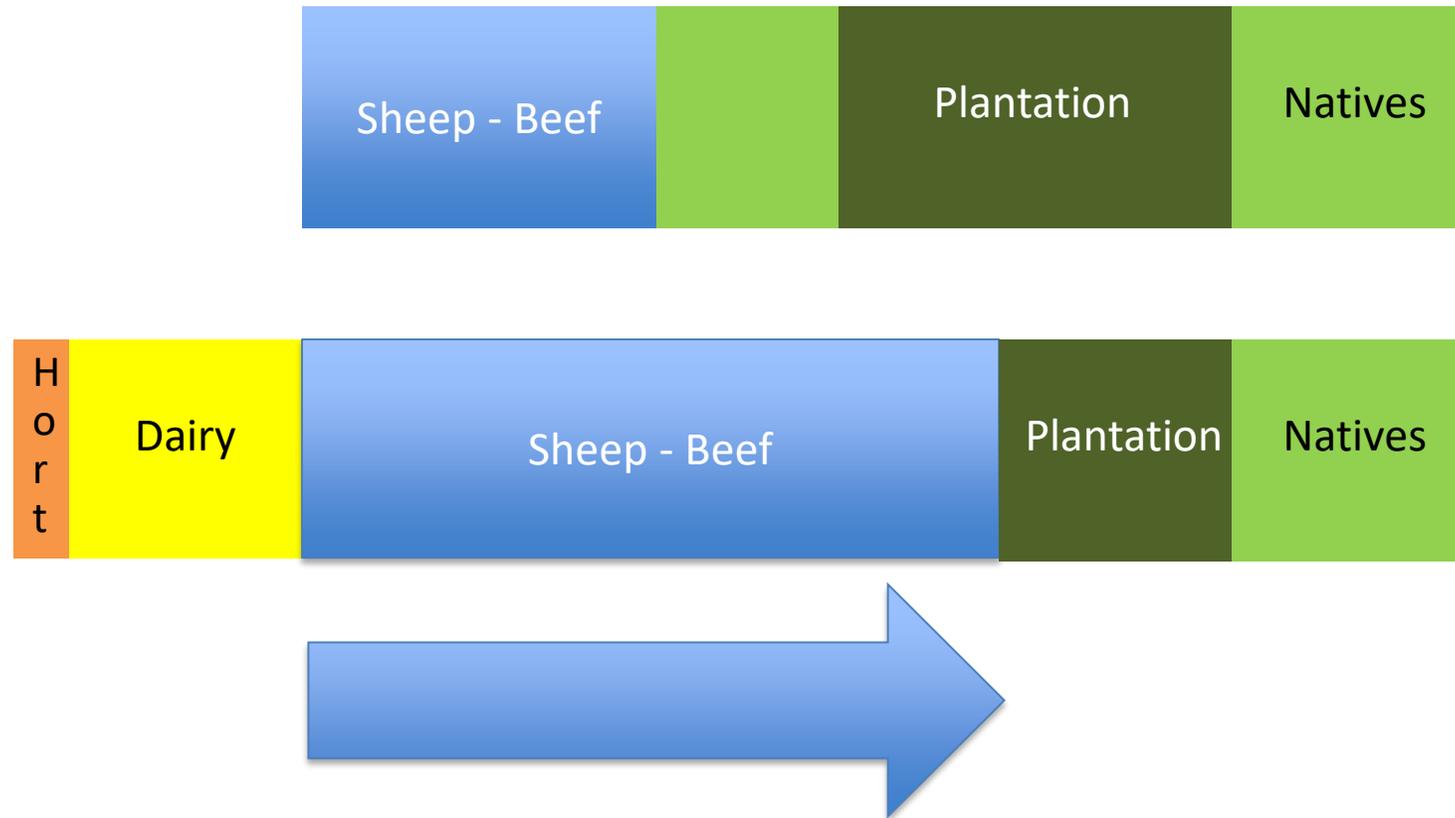
Most productive

Least productive



Movement toward regeneration and plantation forests

?



Land use response seems asymmetric – movement toward a better option may be more responsive than movement away from a poor option



Movement toward horticulture

?



Can we create a pull into horticulture?



We are not heading toward low-emitting land use

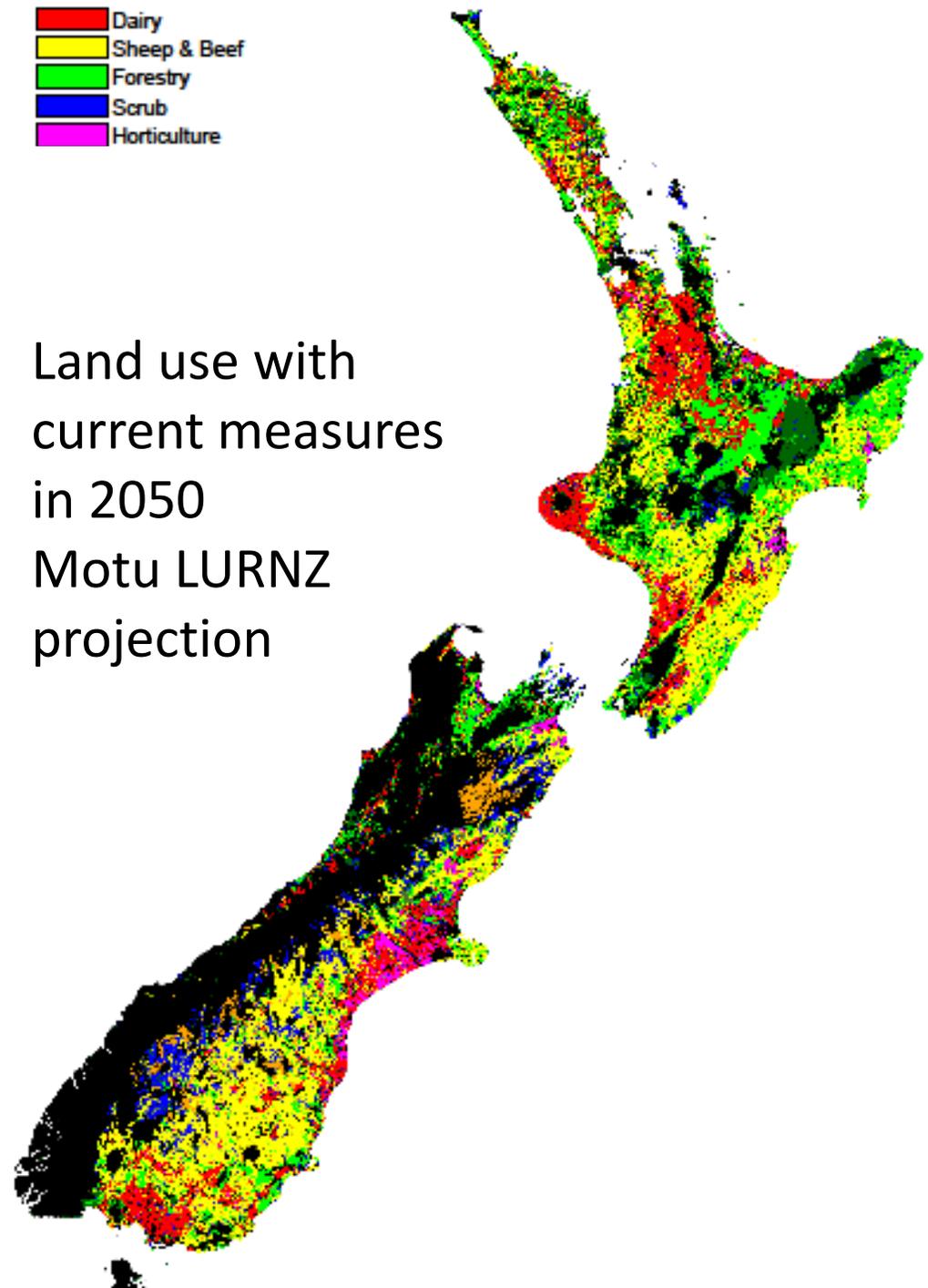
Dairy seems likely to keep increasing

Sheep-beef is likely to decrease

Forests are likely to expand but indigenous/scrub is contracting



Land use with current measures in 2050
Motu LURNZ projection



Does low emissions mean low profit?

Not necessarily

Synthetic meat and milk poses a high risk

Diversification reduces risk to New Zealand

We have not looked seriously for other opportunities

Good policy and early action could maximise opportunities and minimise harm



Who will pay if low-emission land uses are less profitable?

In the long run, evidence strongly suggests that changes in rural land values largely reflect changes in profitability (Allen, Kerr and Owen, forthcoming)

Agricultural land-owners would face losses

Evidence shows that agricultural shocks affect house prices in both rural and urban areas (Grimes and Hyland, 2013)

Rural communities (and NZ as a whole) also affected

If farmers can change land use their transition costs will be lower: North Island hill-country sheep-beef farmers could gain significantly from sequestration at \$25 (Timar, 2016)

Not all landowners are equally affected

Land-use change is more costly if it has to happen fast. (Kerr and Olssen, 2012)

Start now to allow gradual adjustment



Just focus on water quality?

Clean water is good
Does it reduce climate change?
Alas, not that much.

Freshwater reforms could reduce gross agricultural GHGs by 0.5 – 4% (if reforestation is not a key option)

On-farm actions for water quality don't have strong co-benefits for GHGs
(Shepherd et al 2017)

With active afforestation, the gains for net land-based emissions could be four times higher (Daigneault et al, 2017)

Don't think we can wait and do water quality first

Why focus on-farm actions for water quality when GHG co-benefits are small?

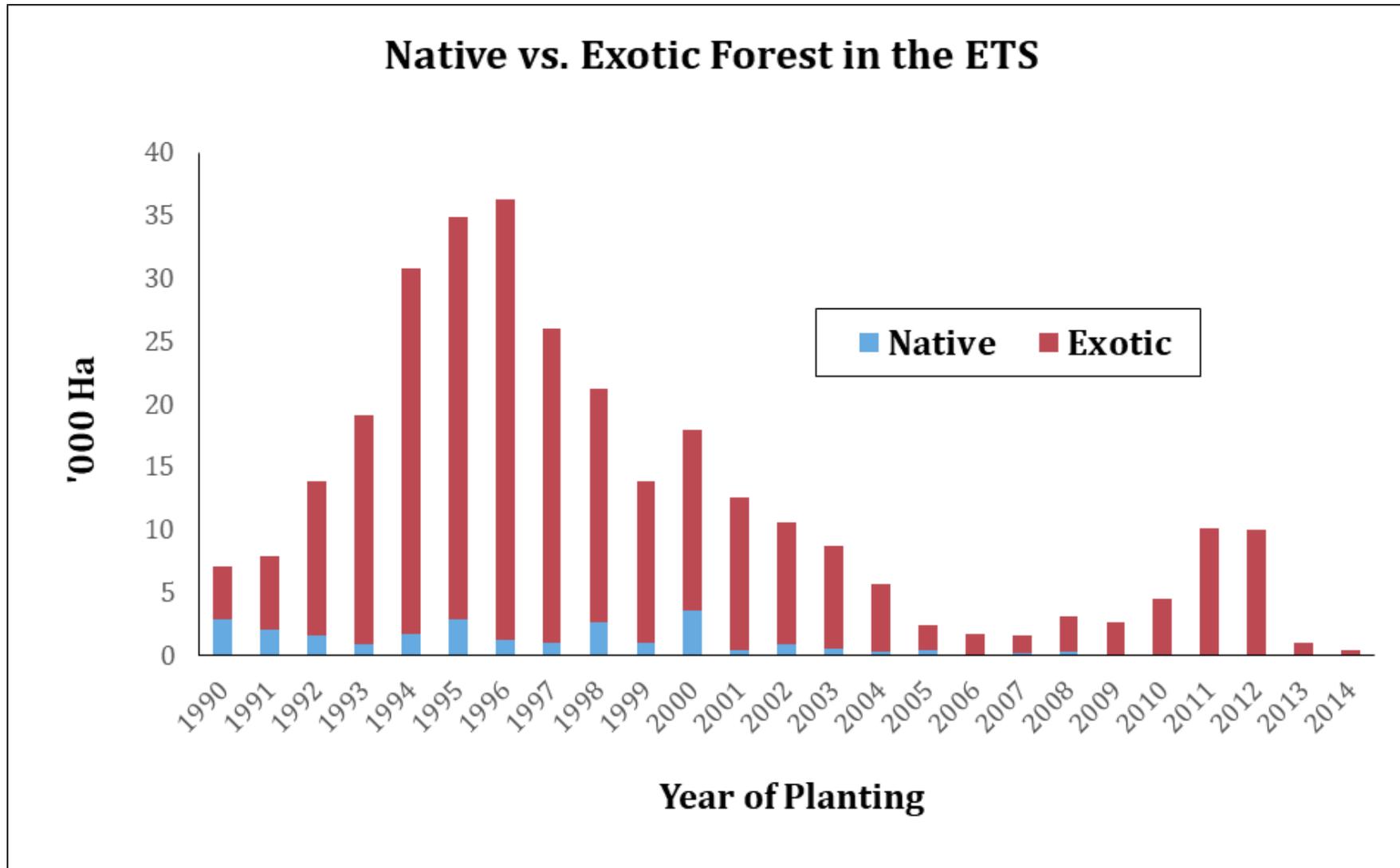
There is a risk that on-farm actions will be overtaken by land-use change to reduce GHGs



Natives get rewards
Can we make it easier?
Birds and climate win



Why are natives not responding to the ETS?



Natural regeneration

Value of carbon:
default tables – \$20 emission price and 5% discount rate

 \$2,500 per ha

Cost:
Fencing, pest control, weed control, opportunity cost of land

 \$0 - \$4,000

1.55 m hectares of marginal pasture available (Shepherd et al 2008)

Significant opportunity for low cost permanent reductions – with co-benefits



Key issues for native regeneration

1. Awareness of opportunity
2. Access to knowledge on regeneration and ETS
3. Finance for up-front costs
4. Proving eligibility of land for ETS
5. Reporting burden – for large areas
6. Accuracy of look-up tables?

Government policy priorities

- provide clear signals – e.g. ETS prices
- reduce complexity

NGOs and private companies could help facilitate this

- innovative financial instruments?



Riparian native forests – probably not such a big deal

Not eligible for ETS unless wider than 30m

Not 'additional'

Water quality benefits mostly from fencing, not planting

Biodiversity benefits may not be high

Zero opportunity cost of land

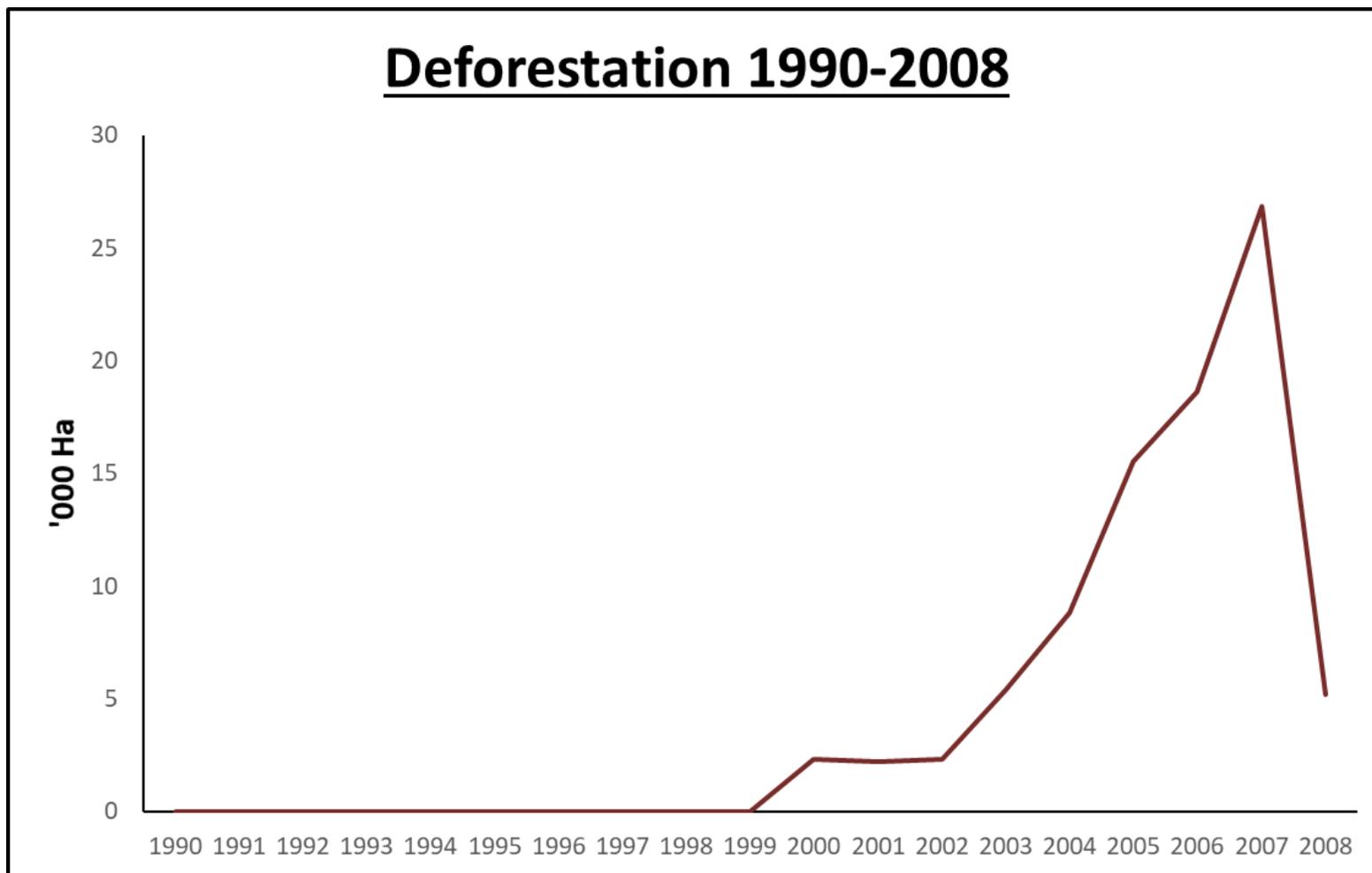
Could be worth encouraging natural regeneration

Forests and the ETS

Few new trees planted
Low price limited effect
Can reform fix this?



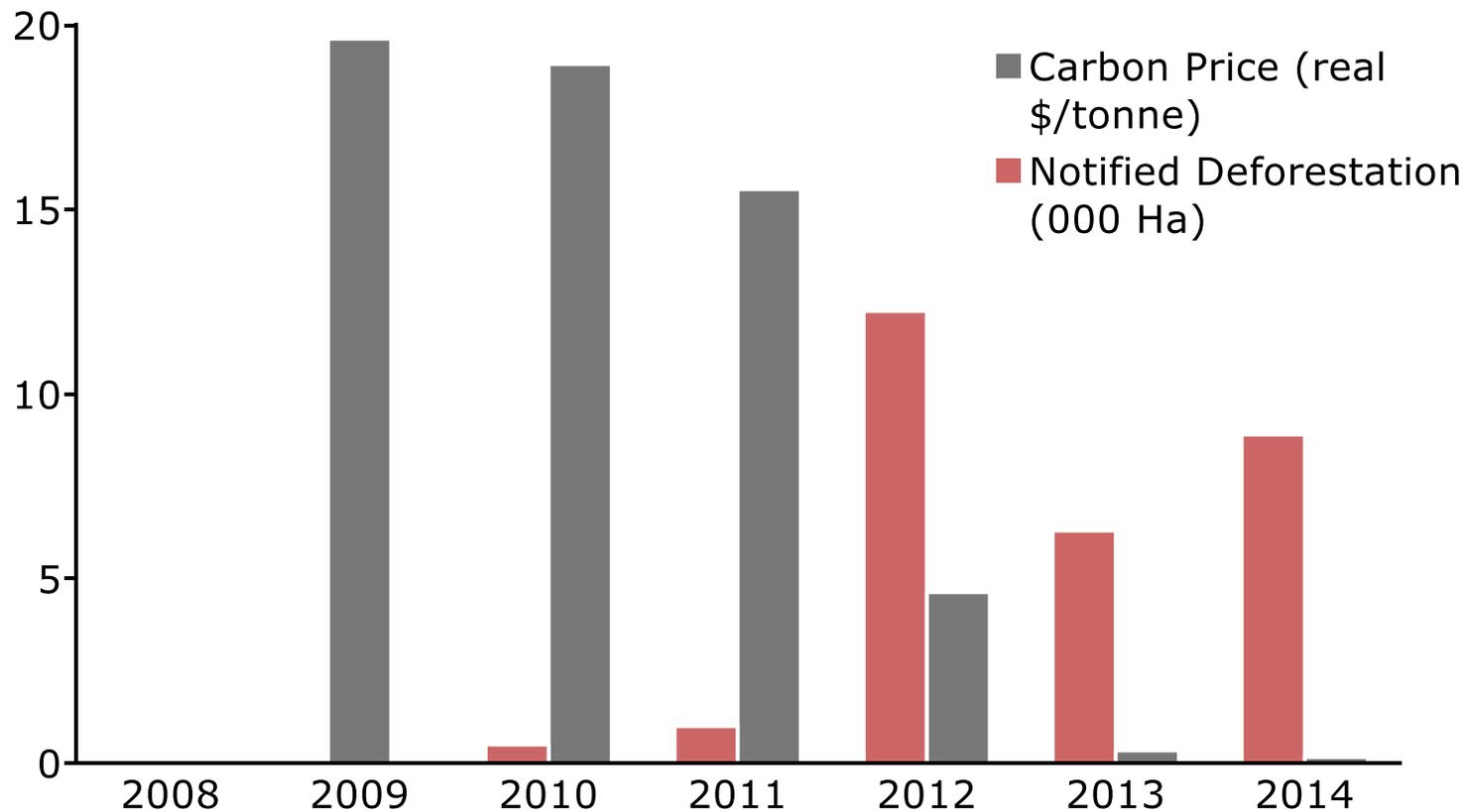
People deforested in advance of facing liabilities – dairy was attractive



Note: Includes pre-90 and post-89 deforestation

Source: New Zealand's Greenhouse Gas Inventory 1990-2013

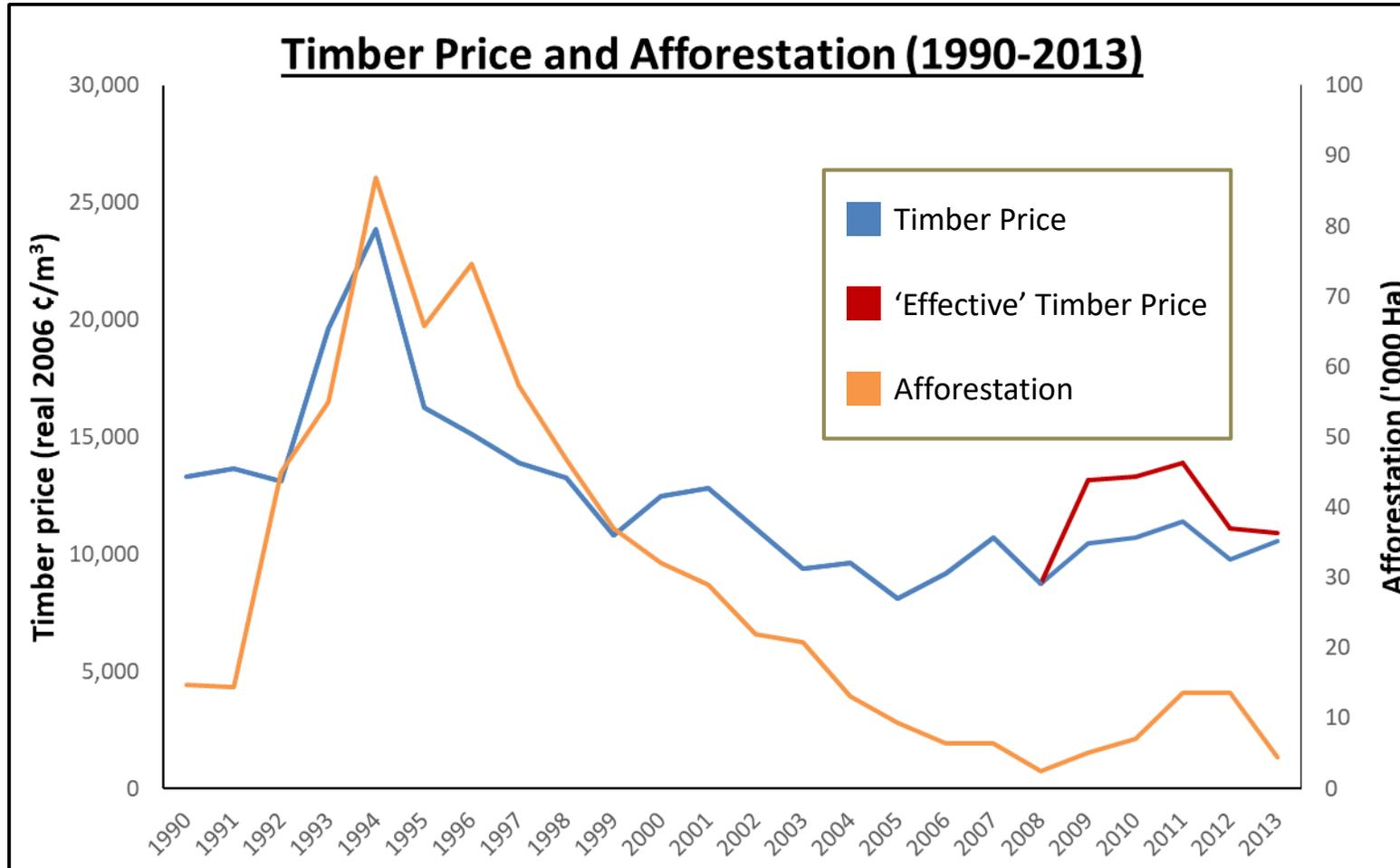
Less deforestation when carbon price was high



Note: Deforestation figures 'extracted' from EPA graph
 Source: EPA ETS Facts & Figures 2014; OM Financial



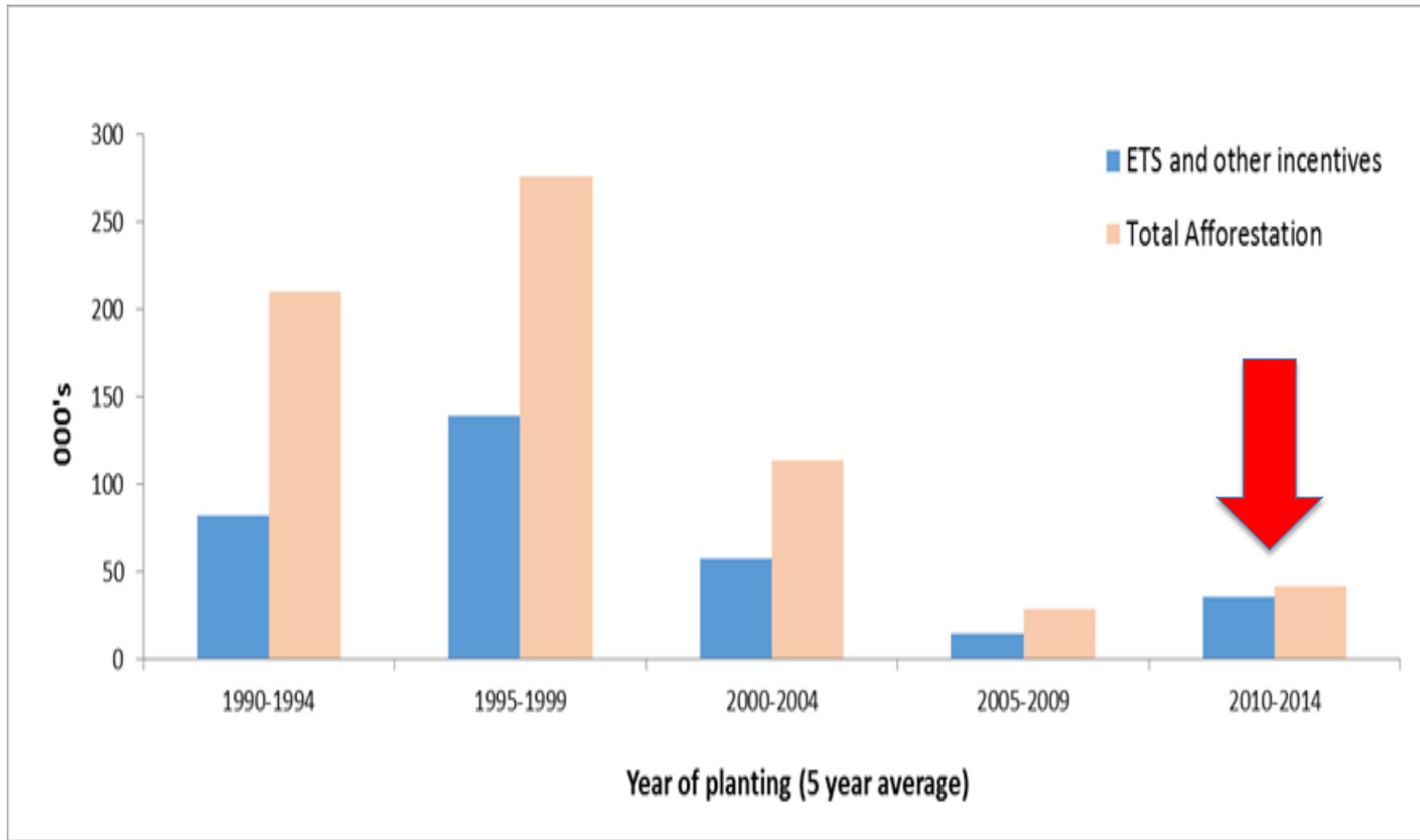
(Slightly) more afforestation when carbon price was high



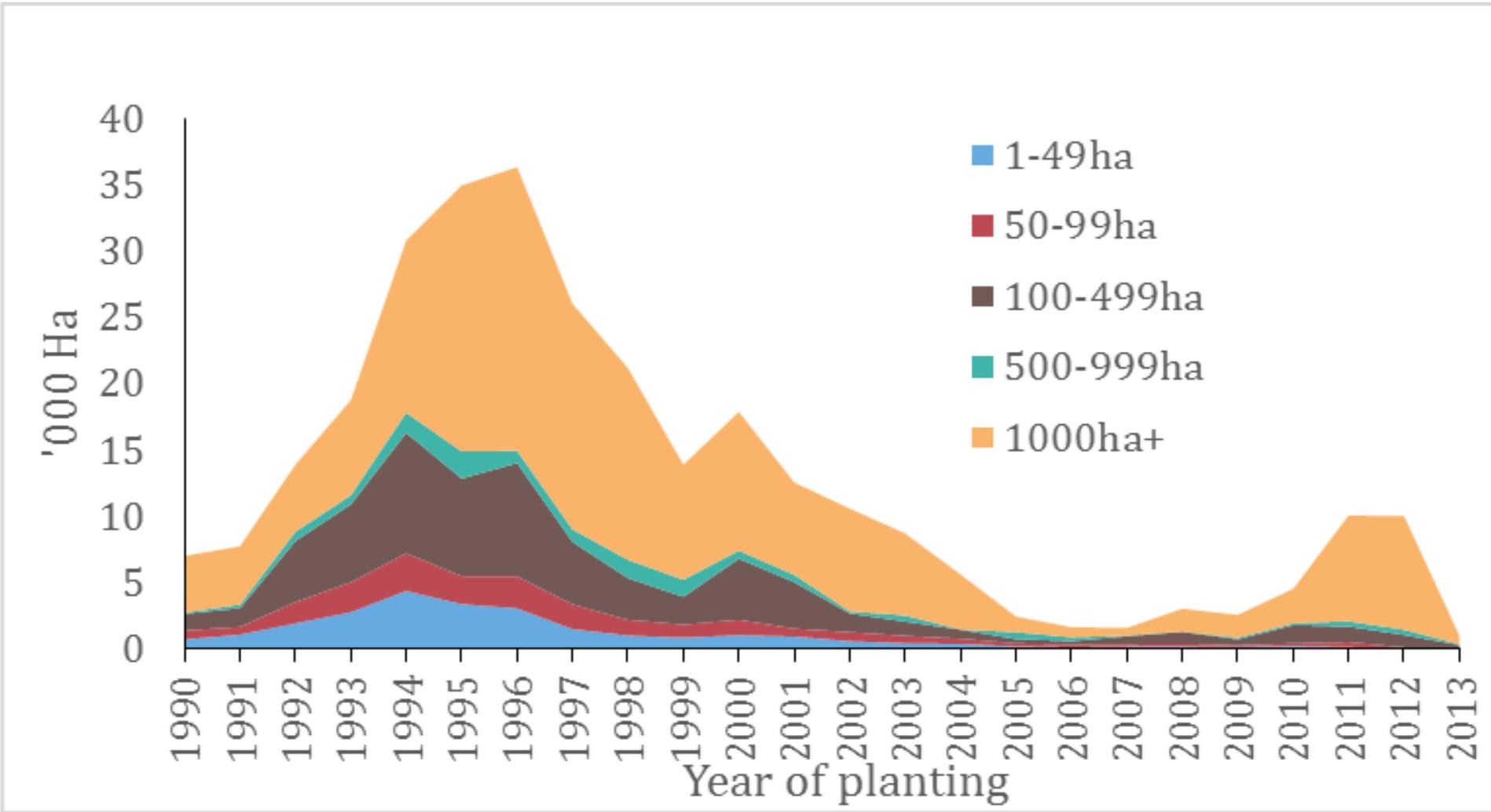
Source: Annual Forest Export Statistics 1981-2015; National Exotic Forest Description 2014; NZ's Greenhouse Gas Inventory 1990-2013



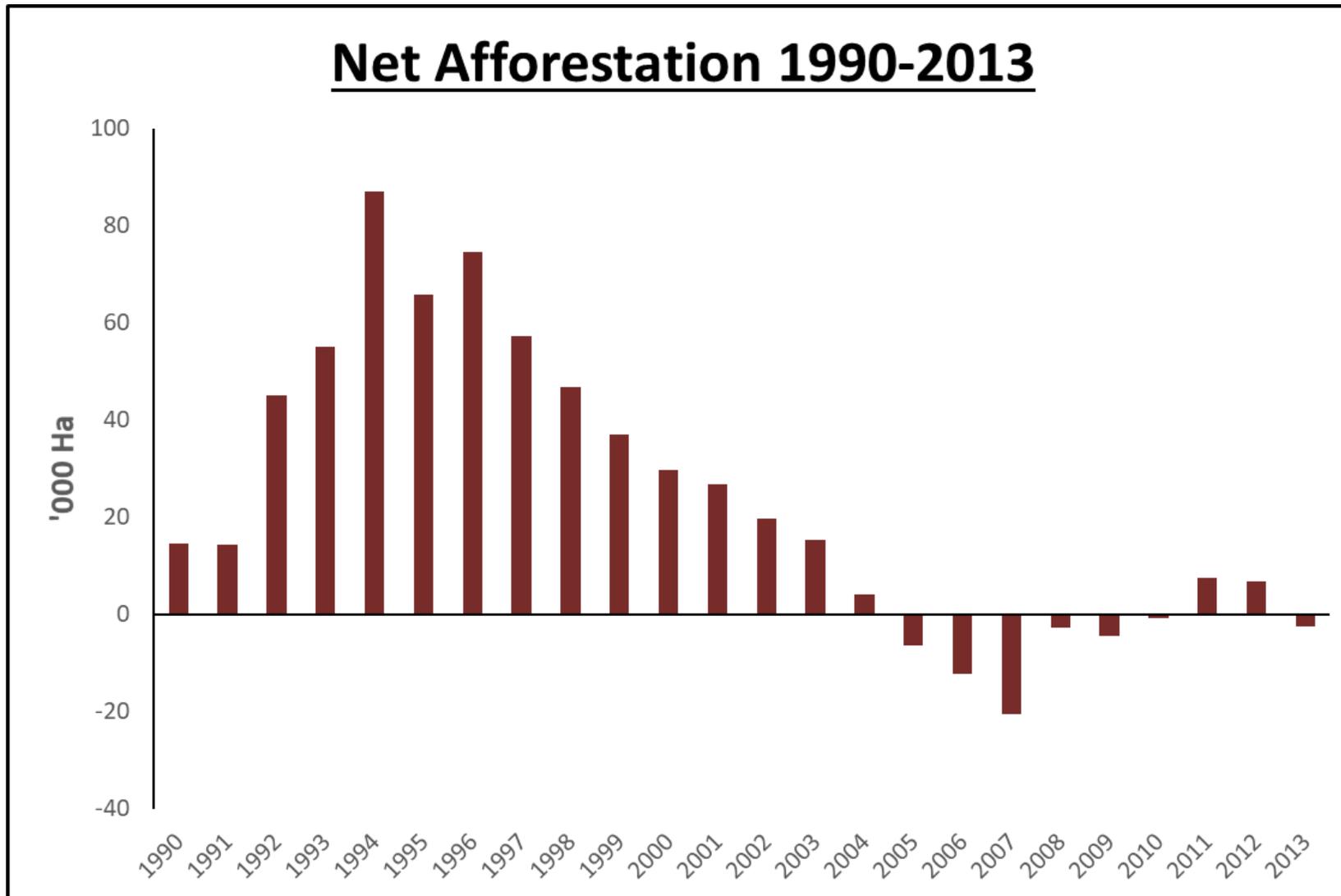
Most foresters who could profit joined



The afforestation in the ETS is in big forests



Overall, the ETS has had a limited positive impact on forestry



What should we do?

1. Create a clear predictable price signal
2. Make it simpler and less risky for small players
3. Help plantation foresters manage sequestration cycles
 - ‘averaging’ or carbon leasing are both options that could in principle be offered privately
 - Government could provide a market-maker role
 - May want to offer simplest option as a ‘default’ to encourage participation by small players
 - Option to continue with current system would be attractive to some, particularly permanent forests.



Final thoughts

1. Start land-use change now – and toward horticulture as well as natives and pine
2. Costs of delay could be high to landowners, rural communities and New Zealand
3. Improve and complement the ETS to facilitate natives and plantations
4. Prepare for and enable diverse land-use changes

