Carbon Financed Indigenous Reforestation at Scale

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Indigenous Reforestation For:

- Erosion-prone lands
- Riparian lands
- Marginal farmland

Purpose:

- Climate resilience
- Water quality enhancement
- Biodiversity protection
- Supporting local communities

At Scale

Carbon-Financed Sustainable Land Management

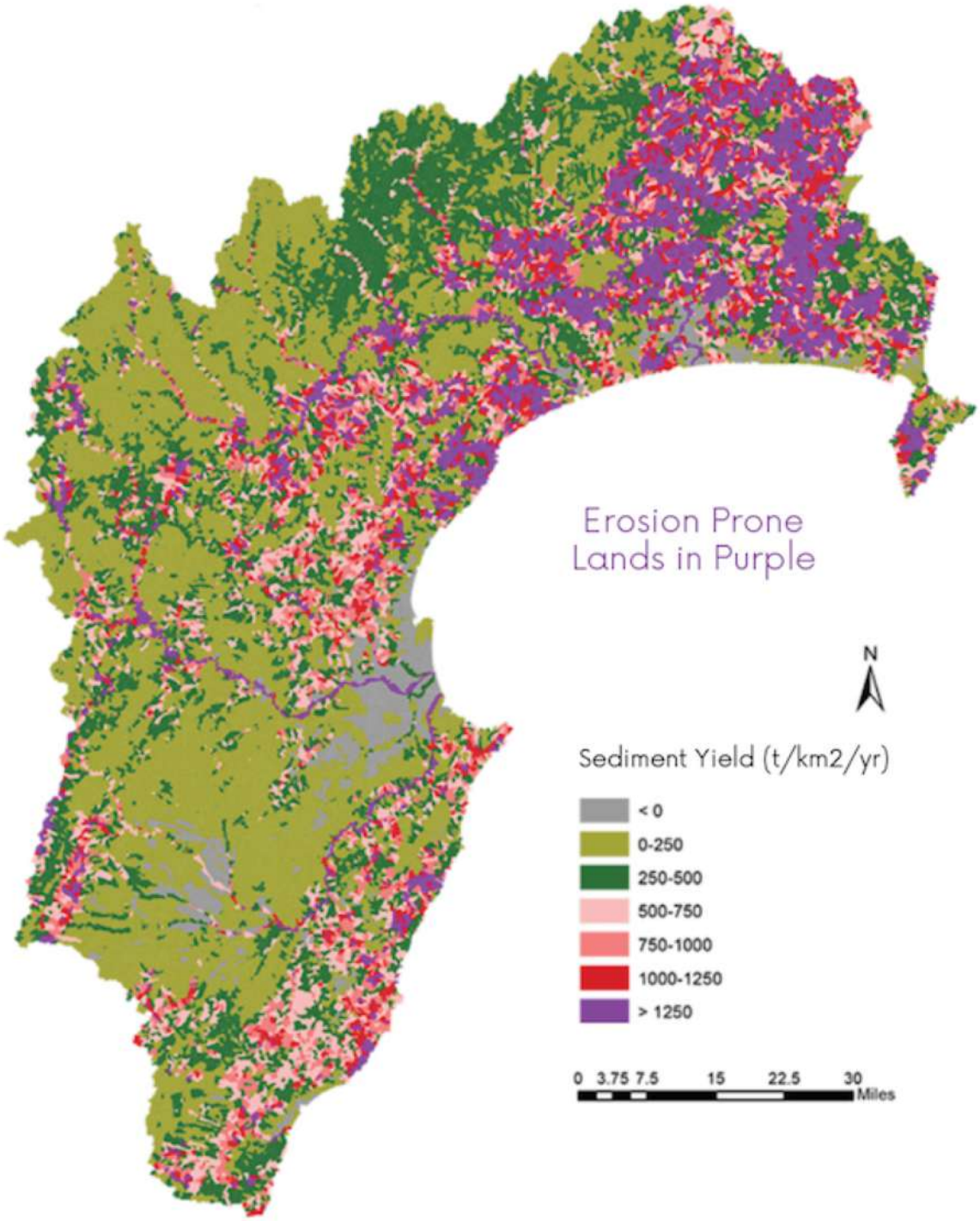
How Does it Work?

The Economics of Indigenous Forest Carbon

Examples:

- Large: Hawke's Bay
- Medium: Corporate insetting
- Small: Tasman District

HAWKE'S BAY SEDIMENT YIELD



Hawke's Bay Example

200,000 ha reforested by 2030

We need to turn this...

Baseline Revenue
= Beef & Lamb

...into this

Project Revenue
= ?

Hawke's Bay Example

200,000 ha reforested by 2030

Problem

The economics of indigenous forest carbon don't work

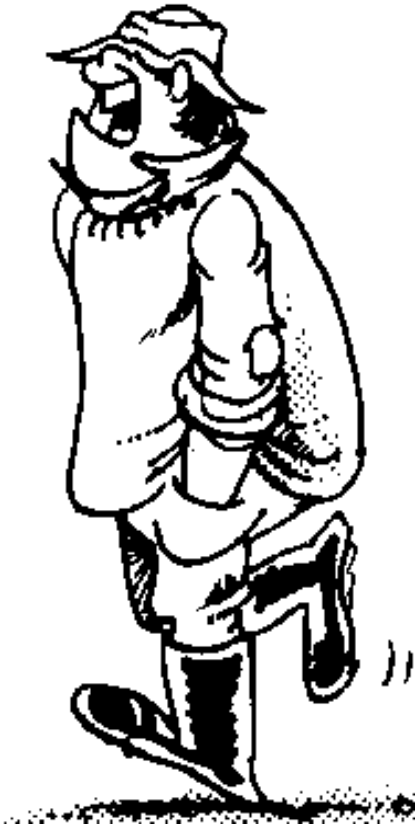
(I wish they did)

Project Revenue = ?

Hawke's Bay Example

200,000 ha refor

I'm not gonna retire my back paddocks unless carbon can match my beef & lamb income



Problem

The economics of indigenous forest carbon don't work

(I wish they did)

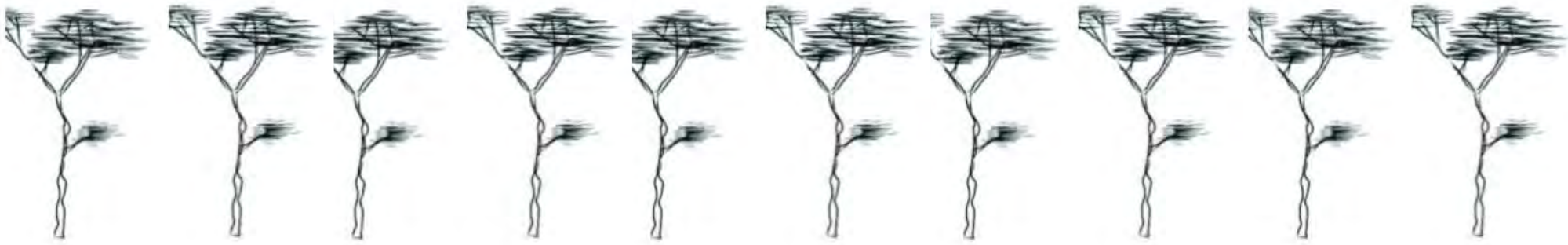
Hawke's Bay Example

200,000 ha reforested by 2030

Net Investment	= $620m
IRR	= 0%
Payed for itself by	= after 2050
Pay farmer & conservation	= -$217m (NPV)

X

Indigenous




Nursery Crop

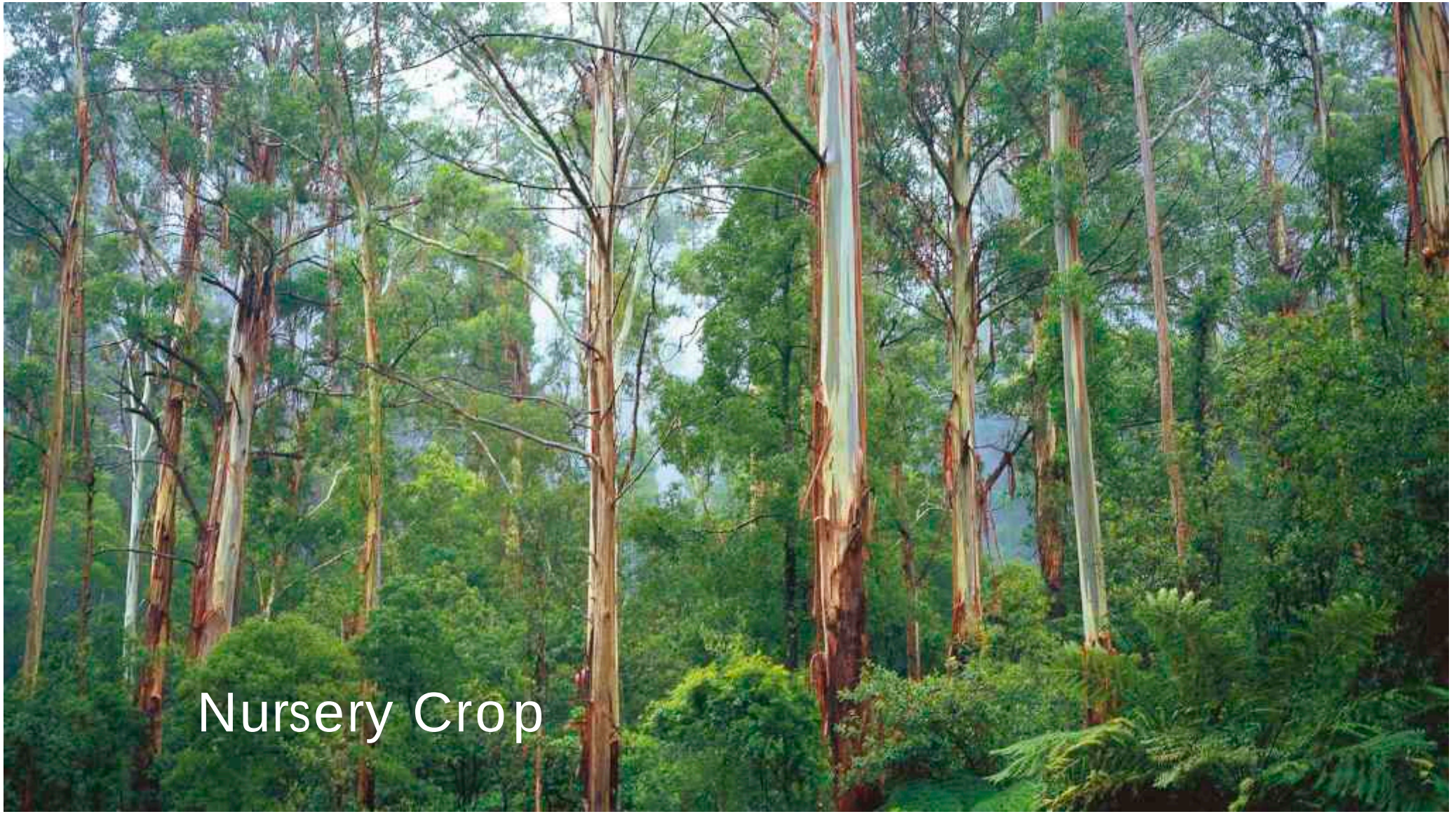
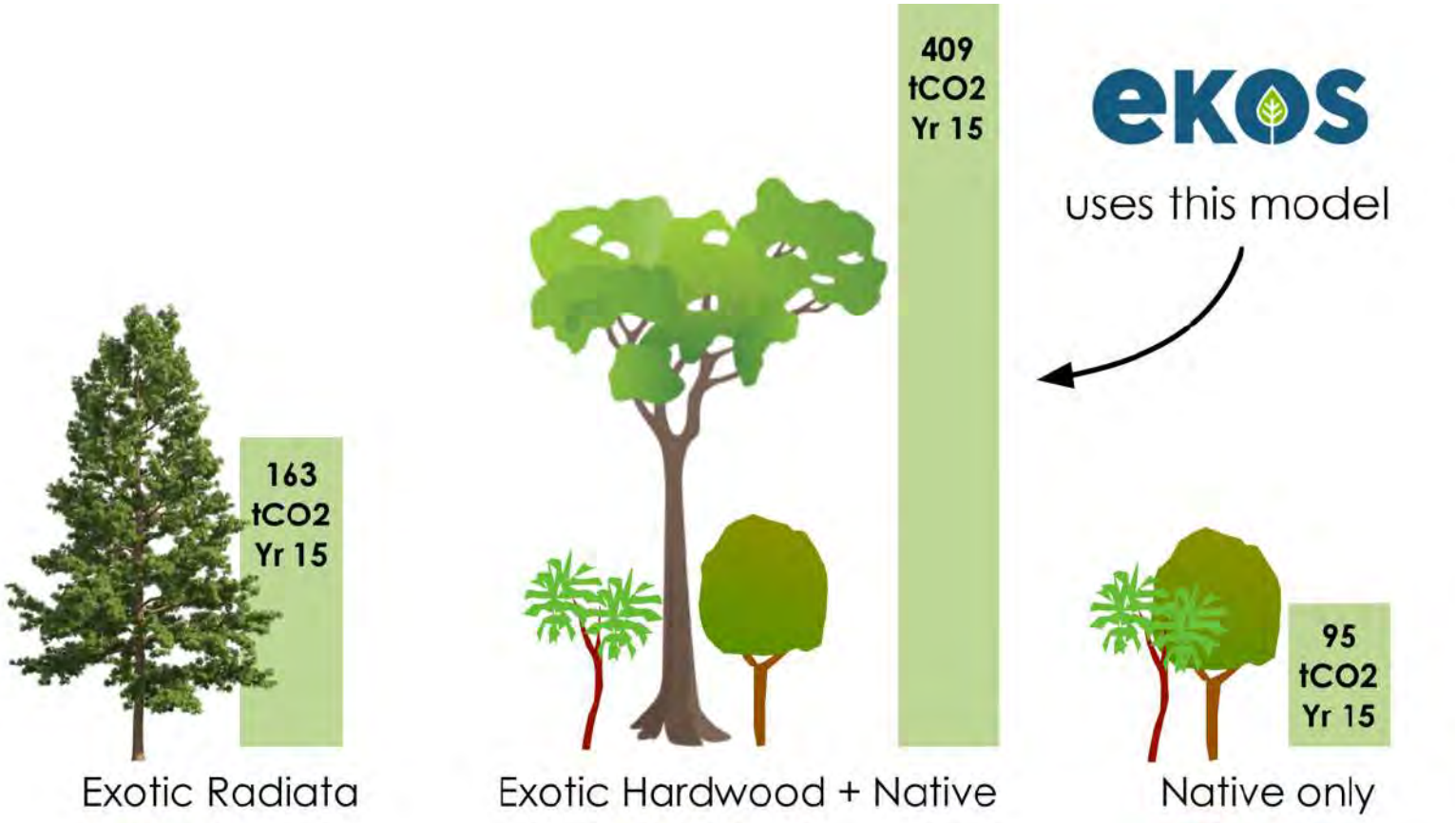

Nursery Crop

Table 2: Carbon stock per hectare for Douglas-fir, exotic softwoods, exotic hardwoods and indigenous forest (expressed as tonnes of carbon dioxide per hectare)

Age (yrs)	Douglas-fir	Exotic softwoods	Exotic hardwoods	Indigenous forest
0	0	0	0	0
1	0.1	0.2	0.1	0.6
2	0.1	1	3	1.2
3	0.4	3	13	2.5
4	1	12	34	4.6
5	2	26	63	7.8
6	4	45	98	12.1
7	7	63	137	17.5
8	20	77	176	24.0
9	33	87	214	31.6
10	50	95	251	40.2
11	69	106	286	49.8
12	90	118	320	60.3
13	113	132	351	71.5
14	138	147	381	83.3
15	165	163	409	95.5

NZ ETS rules allow for widely spaced exotic hardwoods



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Hawke's Bay Example

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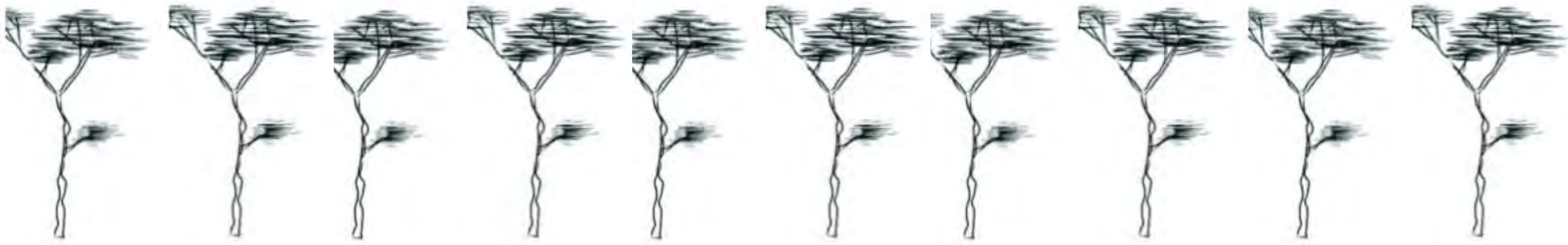
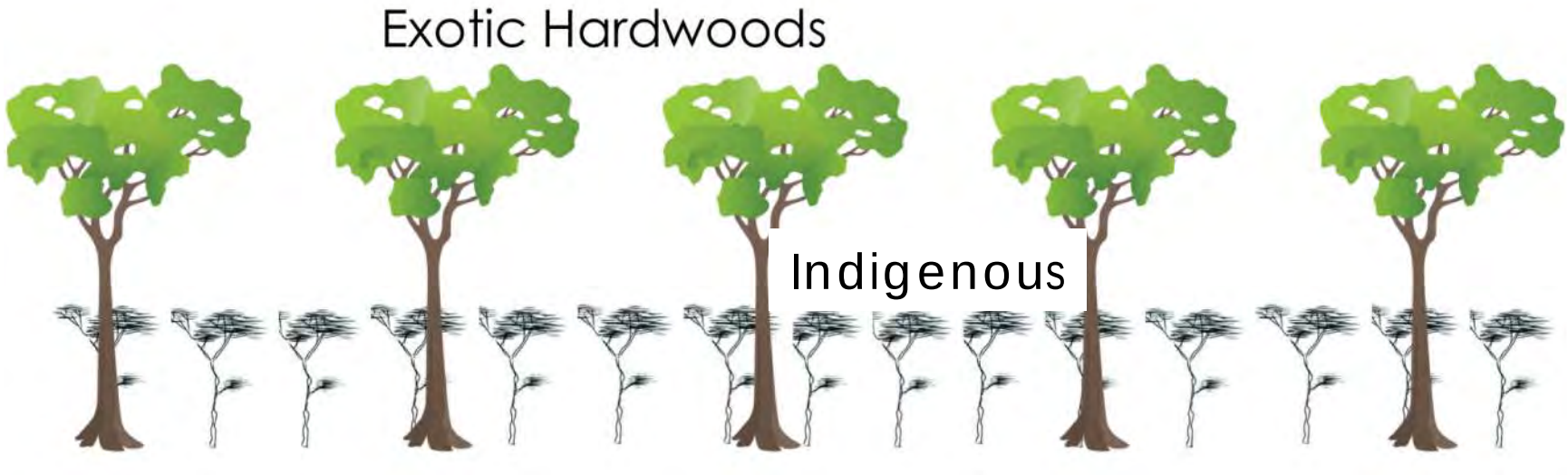


Hawke's Bay Example

200,000 ha reforested by 2030

Net Investment	= $400m
IRR	= 13.5%
Payed for itself by	= 2035
Pay farmer & conservation	= $136m (NPV)



Hawke's Bay Example

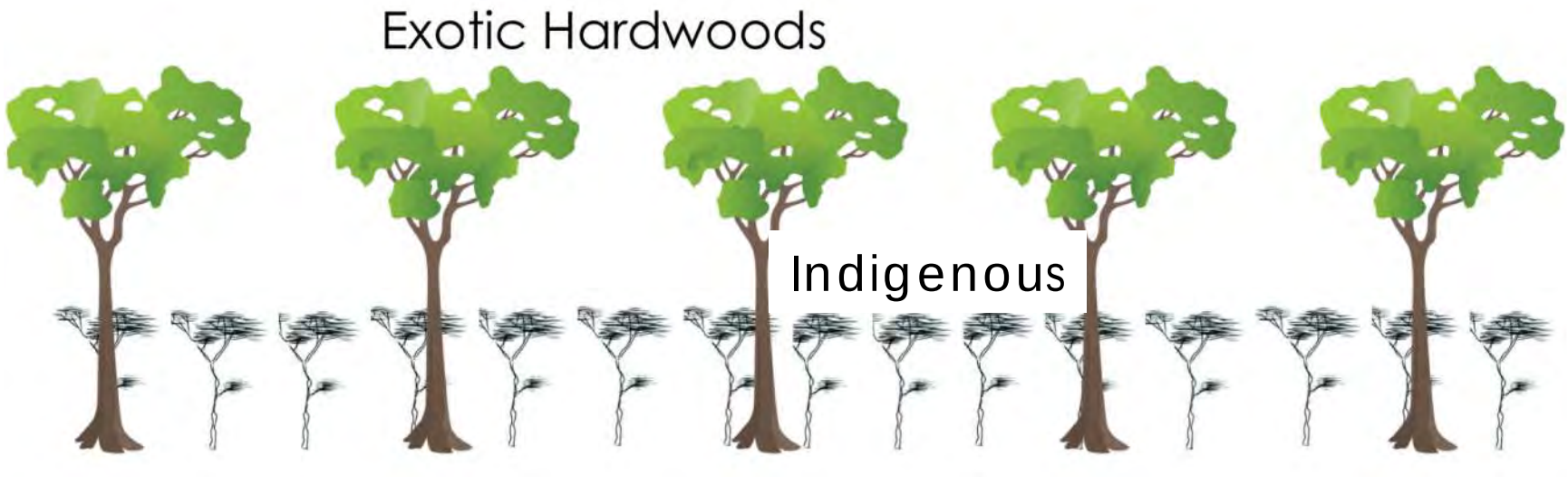
200,000 ha reforested by 2030

Net Investment = $400m

HB Regional Council = $100m

Central Government = $200m

Private Sector = $100m (Green Bond)



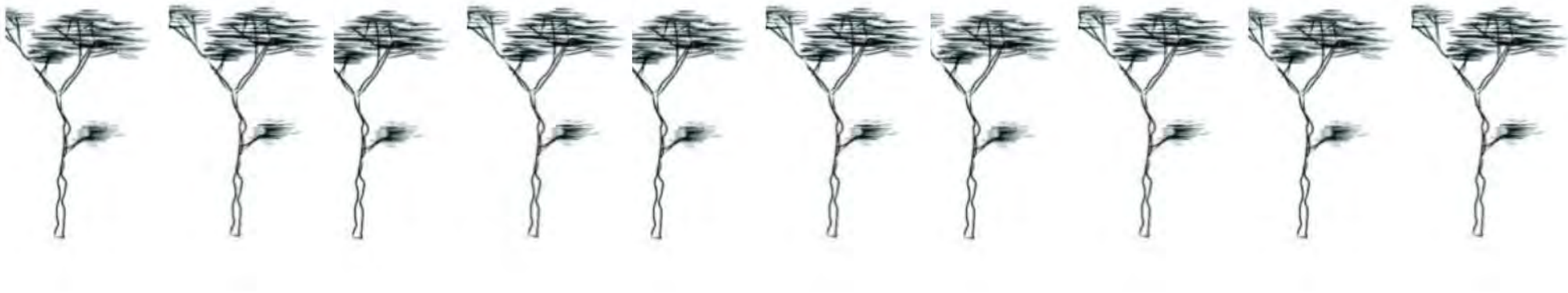
Nelson Example: Wakapuaka

20 ha reforested by 2020

Net Investment	= $190k
IRR	= 0%
Payed for itself by	= never
Pay farmer & conservation	= -$150k (NPV)

X

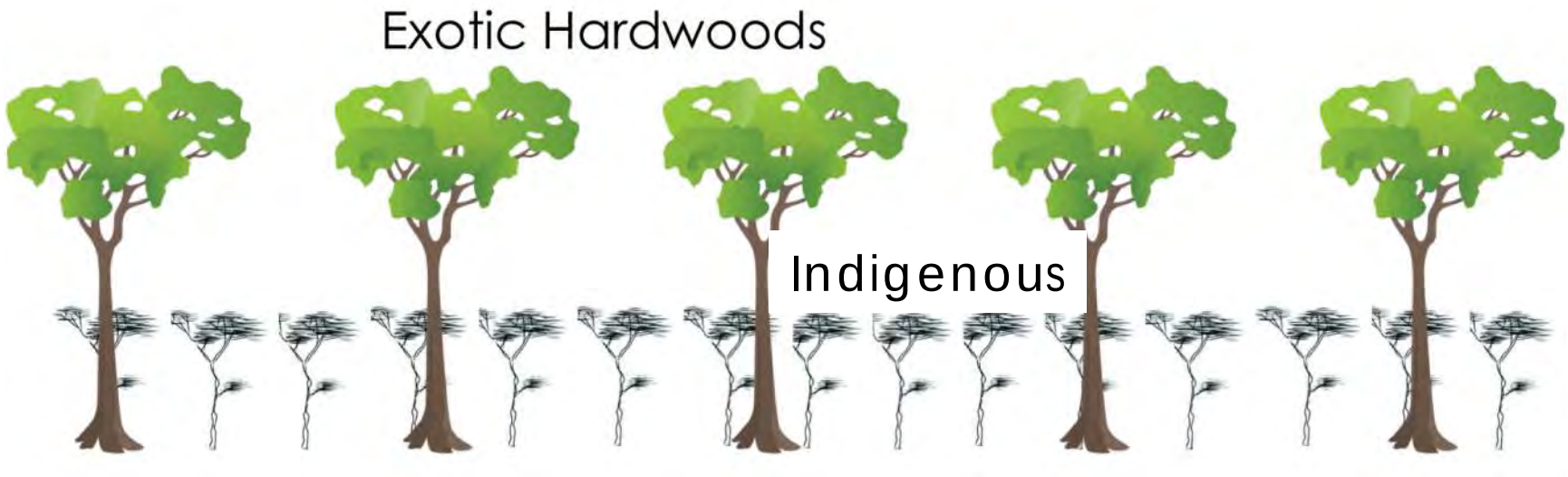
Indigenous



Nelson Example: Wakapuaka

20 ha reforested by 2020

Net Investment	= $170k
IRR	= 5.6%
Payed for itself by	= 2034
Pay farmer & conservation	= $15k (NPV)



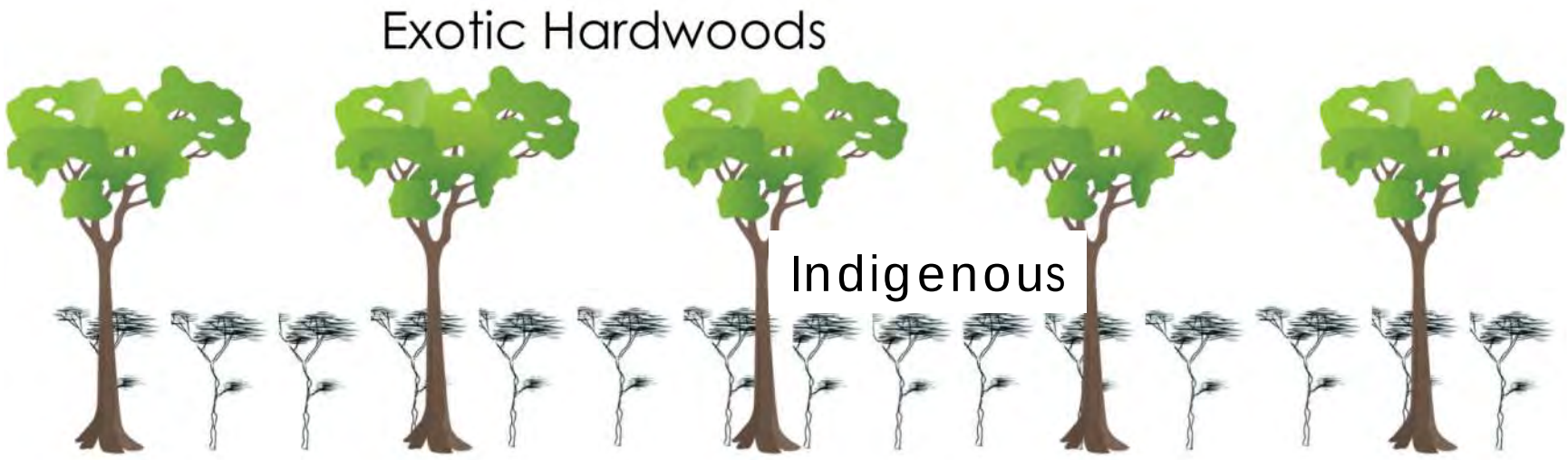
Nelson Example: Wakapuaka

20 ha reforested by 2020

Net Investment	= $120k
IRR	= 8.1%
Payed for itself by	= 2031
Pay farmer & conservation	= $61k (NPV)

✓

If no fencing

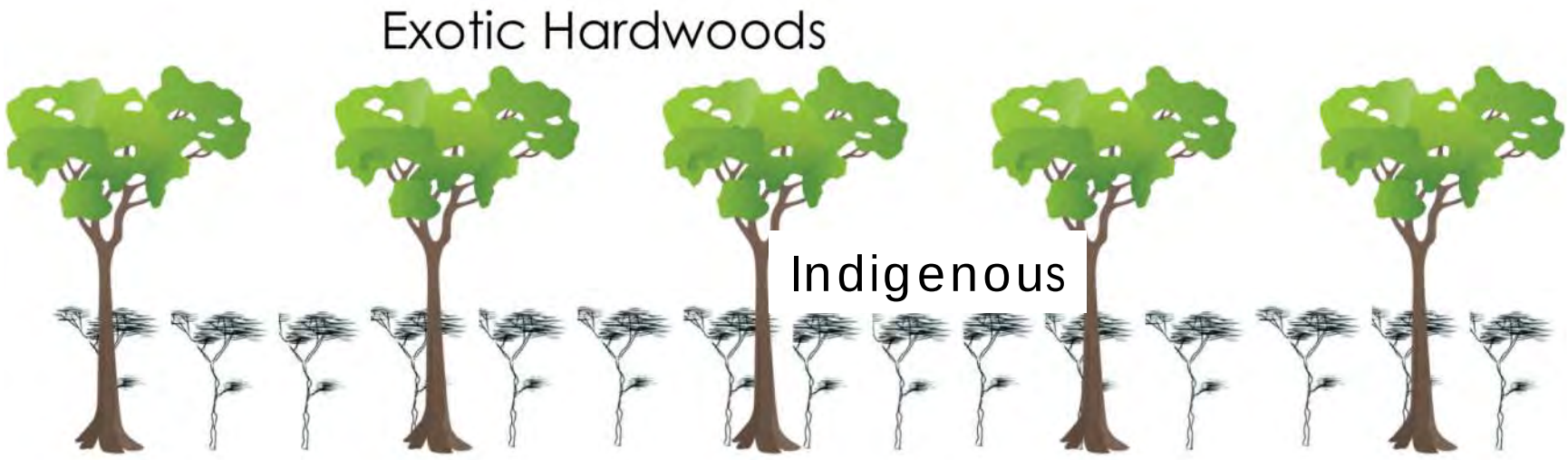


Nelson Example: Wakapuaka

20 ha reforested by 2020

Net Investment	= $120k
IRR	= 9.8%
Payed for itself by	= 2030
Pay farmer & conservation	= $110k (NPV)

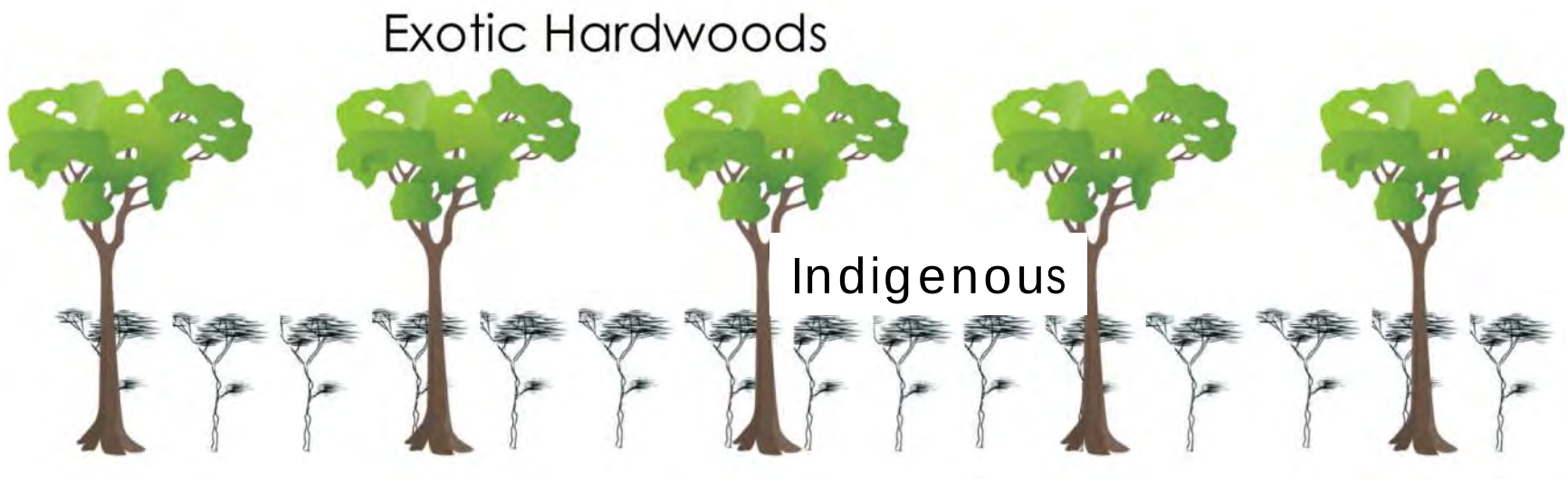
If no fencing + Manuka honey



Tasman Example: 4 Properties

Investment Analysis (no timber harvesting)

Landowner:	A	B	C	D
Area:	3.4 ha	16.8 ha	41 ha	3.9 ha
IRR:	2.3%	14.5%	15.3%	10.5%
NPV:	($7,167)	$94,841	$229,475	$17,190
Capital required:	$16,279	$43,014	$98,912	$16,768
Capital required / ha:	$4,788	$2,560	$2,412	$4,300
Payback period:	26 yrs	9 yrs	9 yrs	11 yrs
Trees Planted:	3,155	8,064	19,680	1,872



Tasman Example: 4,000ha

Project returns summary

Net Present Value	Total Project	Farmer	Private Capital	Public Capital
Present Value of Discrete FCFs	$8,531,069	$2,840,846	$5,986,868	($296,645)
Present Value of Terminal Value	-	-	-	-
Total NPV	**$8,531,069**	**$2,840,846**	**$5,986,868**	**($296,645)**
Internal Rate of Return (IRR)				
IRR (explicit cashflows)	**7.3%**	**7.3%**	**13.0%**	**4.8%**
Payback Period				
Total capital expenditure	$18,276,800	$6,086,208	$3,551,775	$8,629,779
Cashflow breakeven	**14 years**	**14 years**	**9 years**	**18 years**
Discounted cashflow breakeven	**22 years**	**22 years**	**22 years**	
Other tangible project benefits				
Area (ha)	**4,000.0**			
Number of trees planted	**4,240,000**			
Average carbon credits per year (yrs 1-10)	**95,111**			
Average carbon credits per year (yrs 11-20)	**116,400**			
Average carbon credits per year (yrs 21-30)	**72,000**			

Reforestation area delivered by public grant

Reforestation area delivered by PPP

Carbon Insetting Project

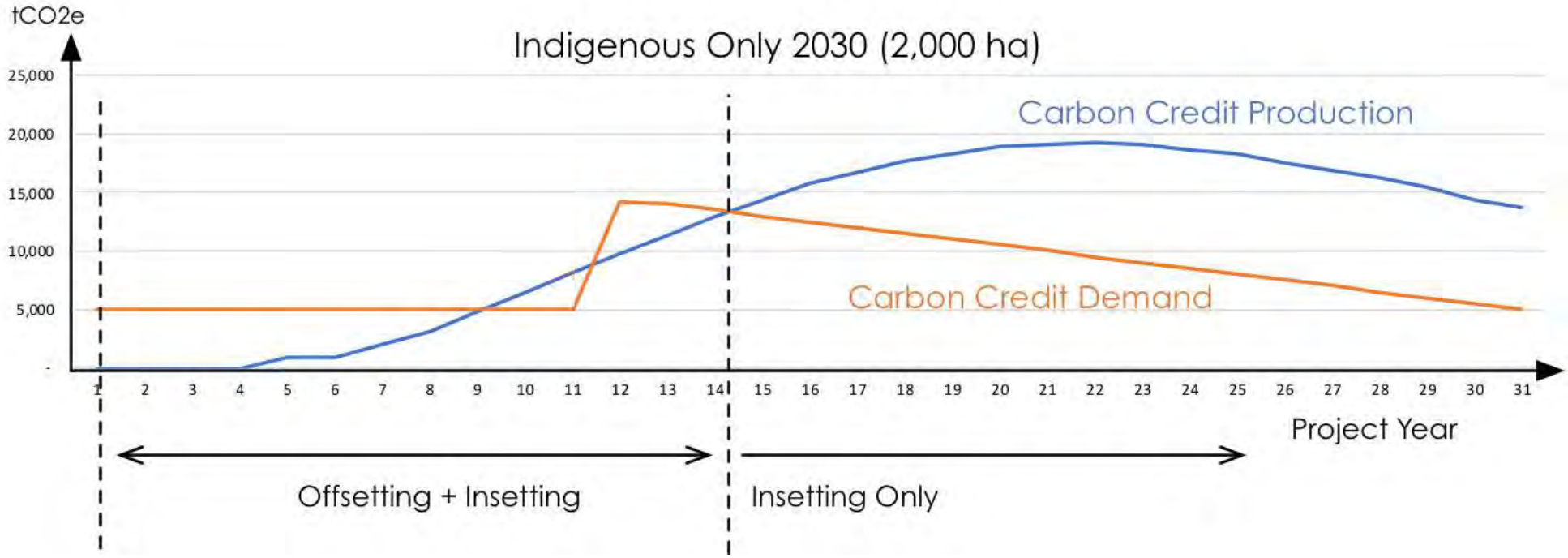


Table 3.2.2.2a: NPV Net Zero Carbon by 2030 on 2,000 ha

Total Insetting Project Costs (NPV)	($15,858,570)
Total Offsetting costs (NPV) (i.e. buying offsets only)	($2,936,691)
Cash Flow Winner: Offsetting (NPV benefit)	$12,921,879
Effective insetting carbon price	$58.25

Carbon Insetting Project

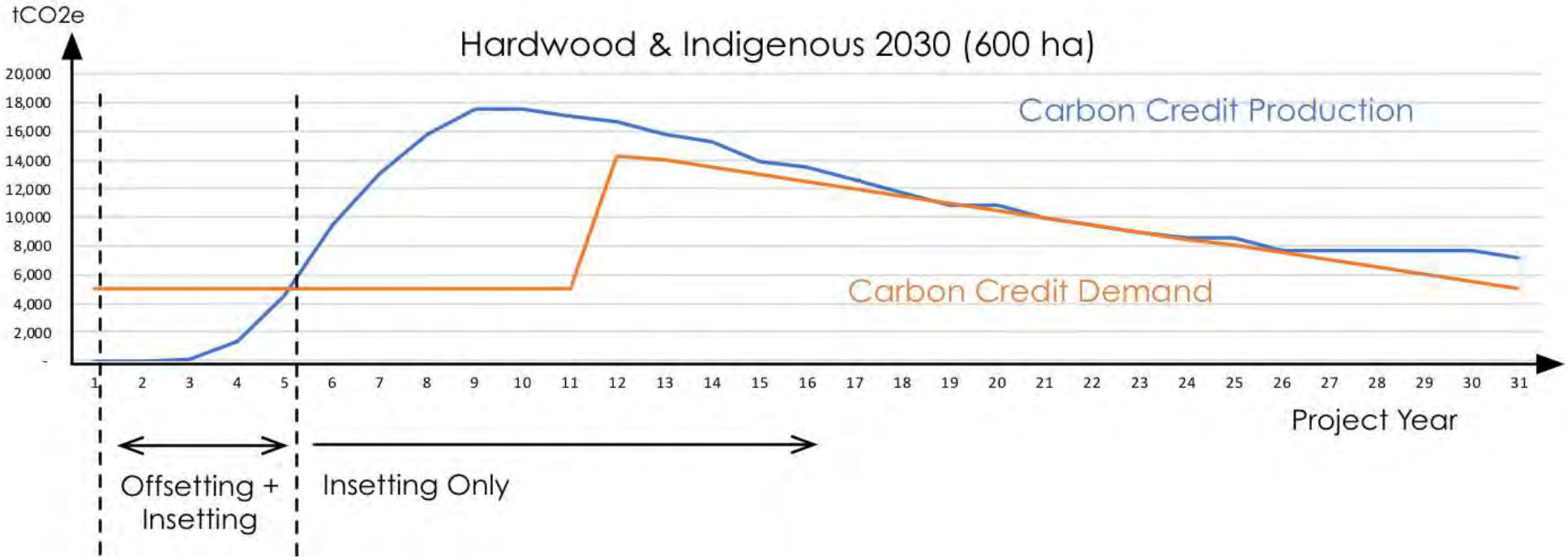
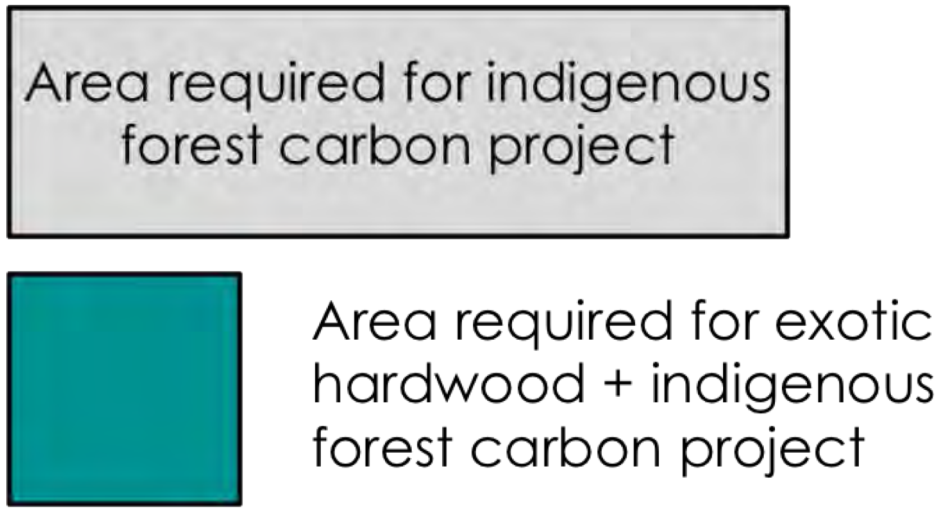
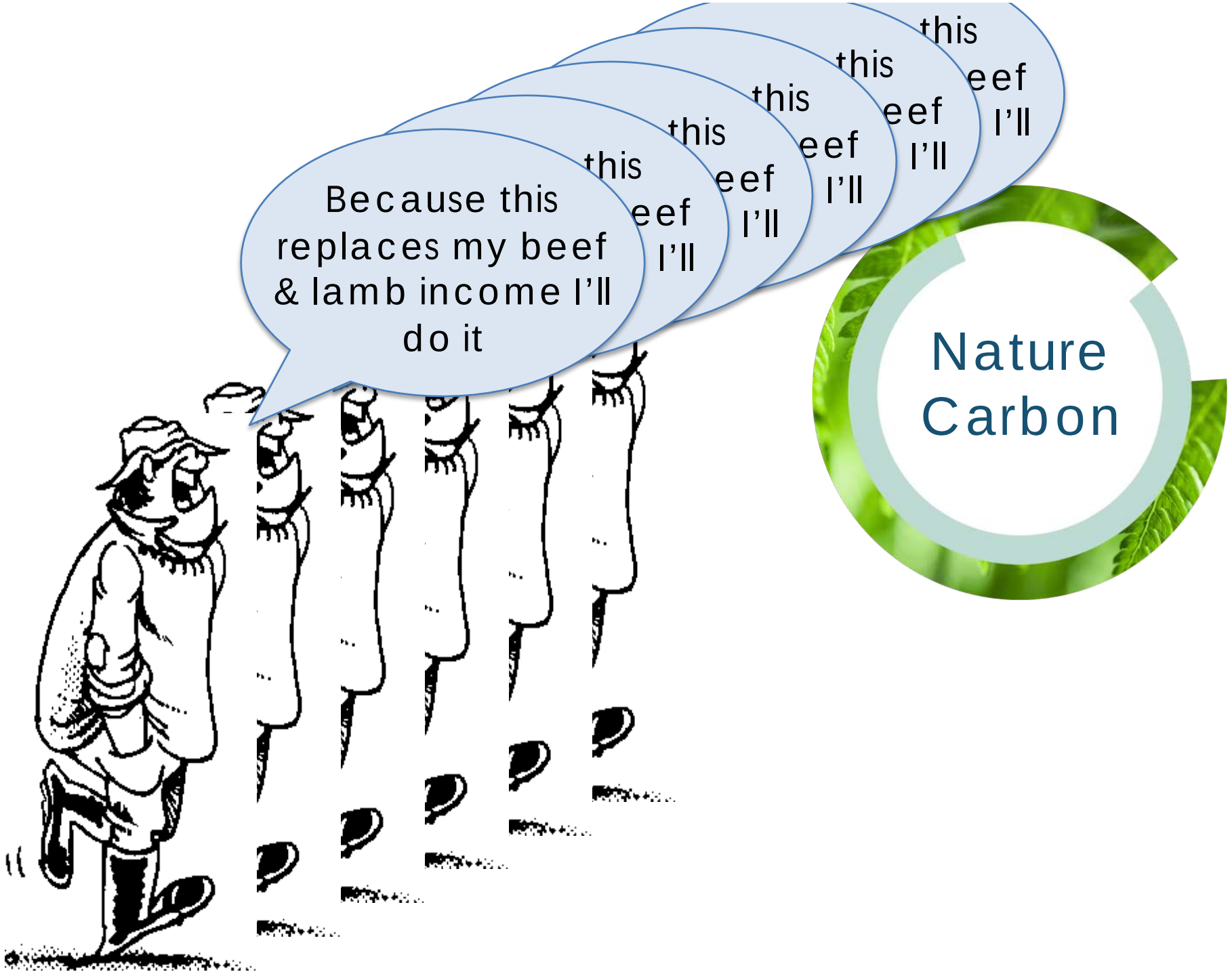


Table 3.2.3.1b: Leased Land - NPV Net Zero Carbon by 2025 on 600 ha (exotic hardwood & indigenous)

Scenario	Insetting NPV $m	Offsetting NPV $m	Effective Insetting Carbon Price[5]
Base Case[1]	($4.2)	($3.7)	$13.04
Severe downside[2]	($4.5)	($1.9)	$13.91
Moderate downside[3]	($4.3)	($2.8)	$13.48
Moderate upside[4]	($4.1)	($4.6)	$12.61

Carbon Insetting Project




Because this replaces my beef & lamb income I'll do it
this
eef
I'll
Nature
Carbon

Thanks

INVESTING IN NATURE

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