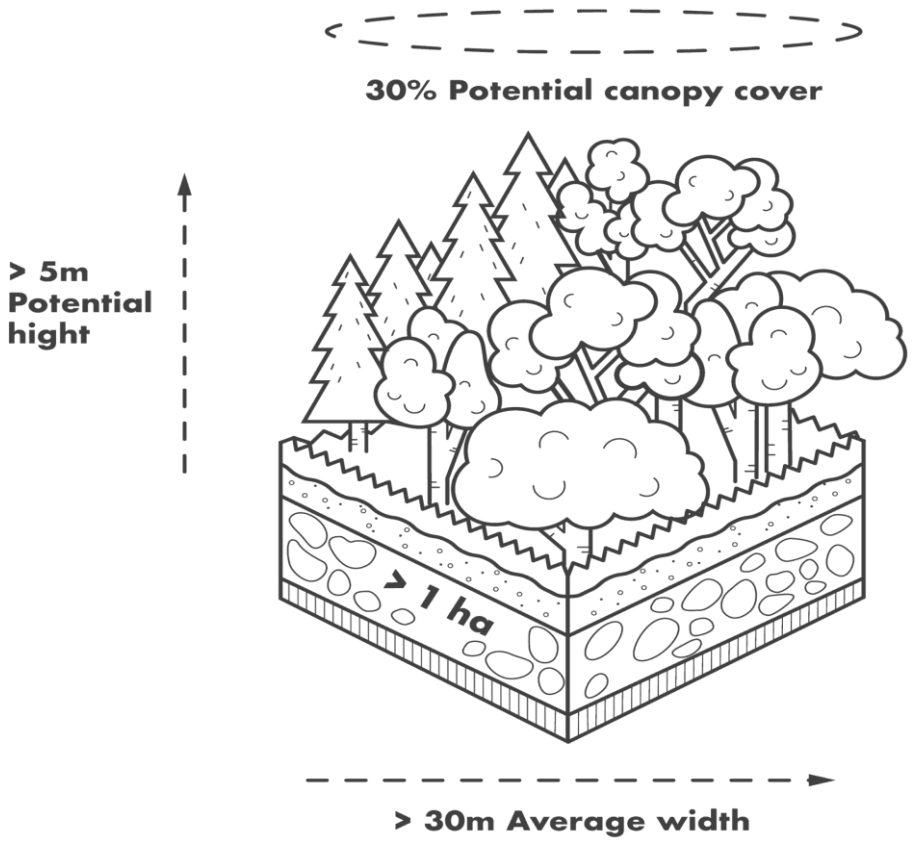
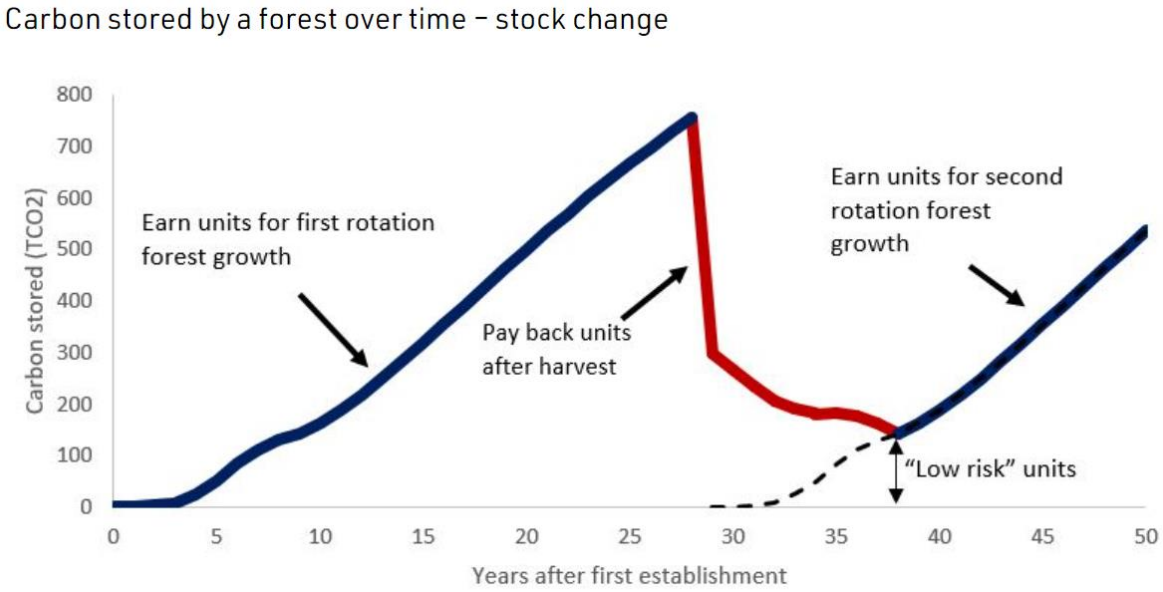


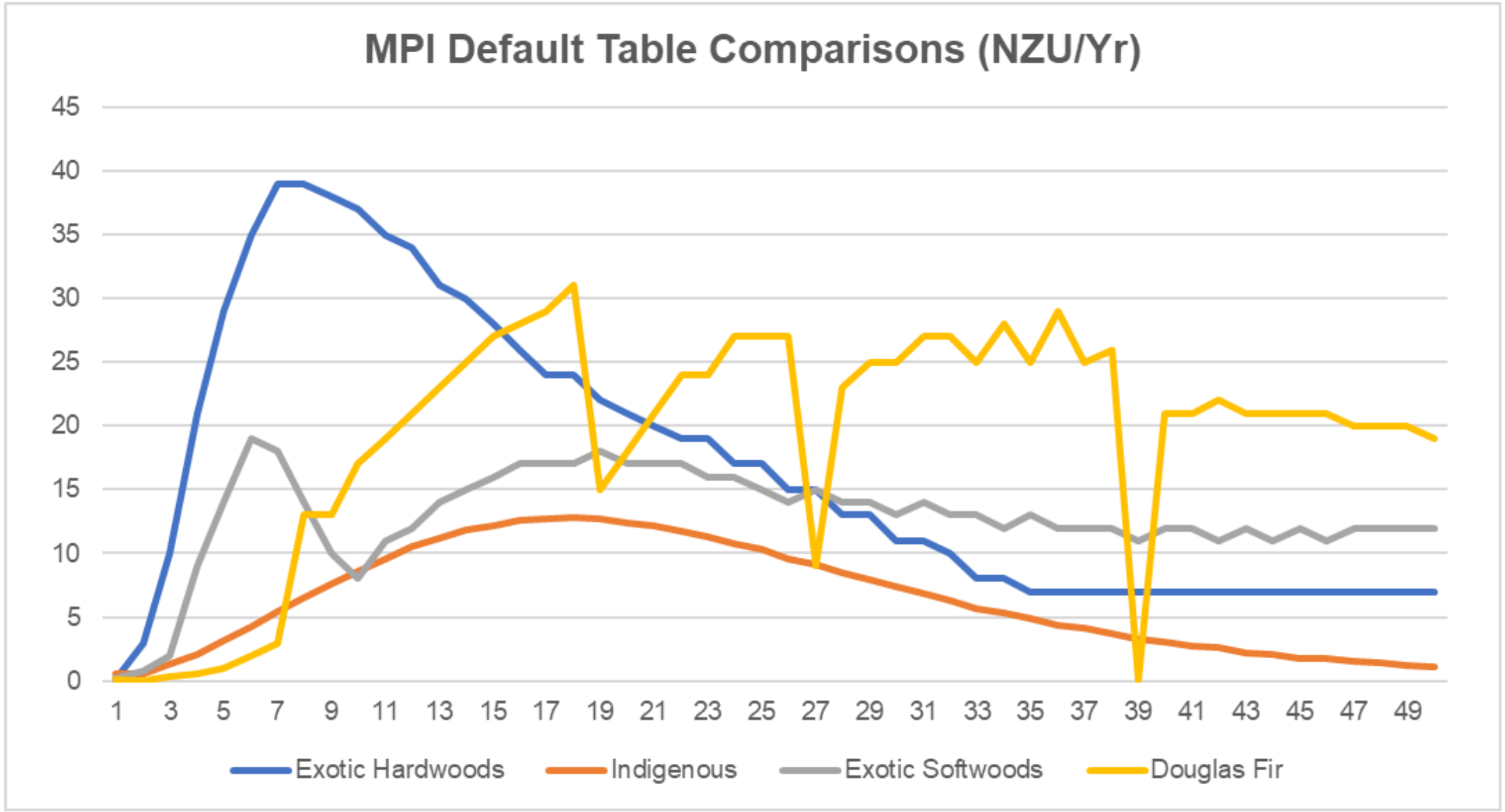

- Tree species (>5m height potential)
- > 1 hectare
- < 15m between potential canopy edge (mapping standard)
- > 30m potential average width
- > 30% potential canopy cover
- > 1 ha gaps removed

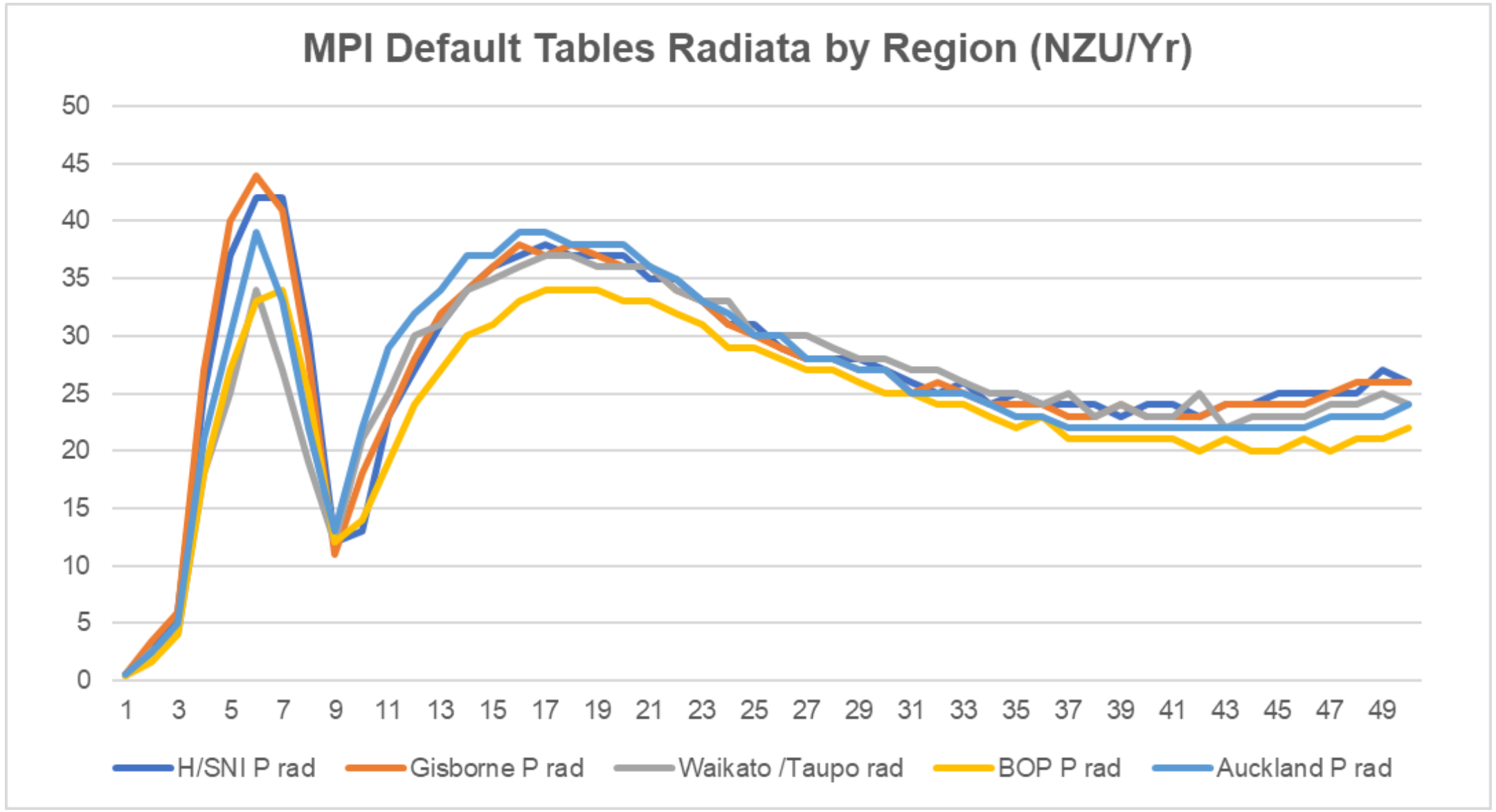
NB. Trees grown primarily for fruit or nuts don’t qualify.

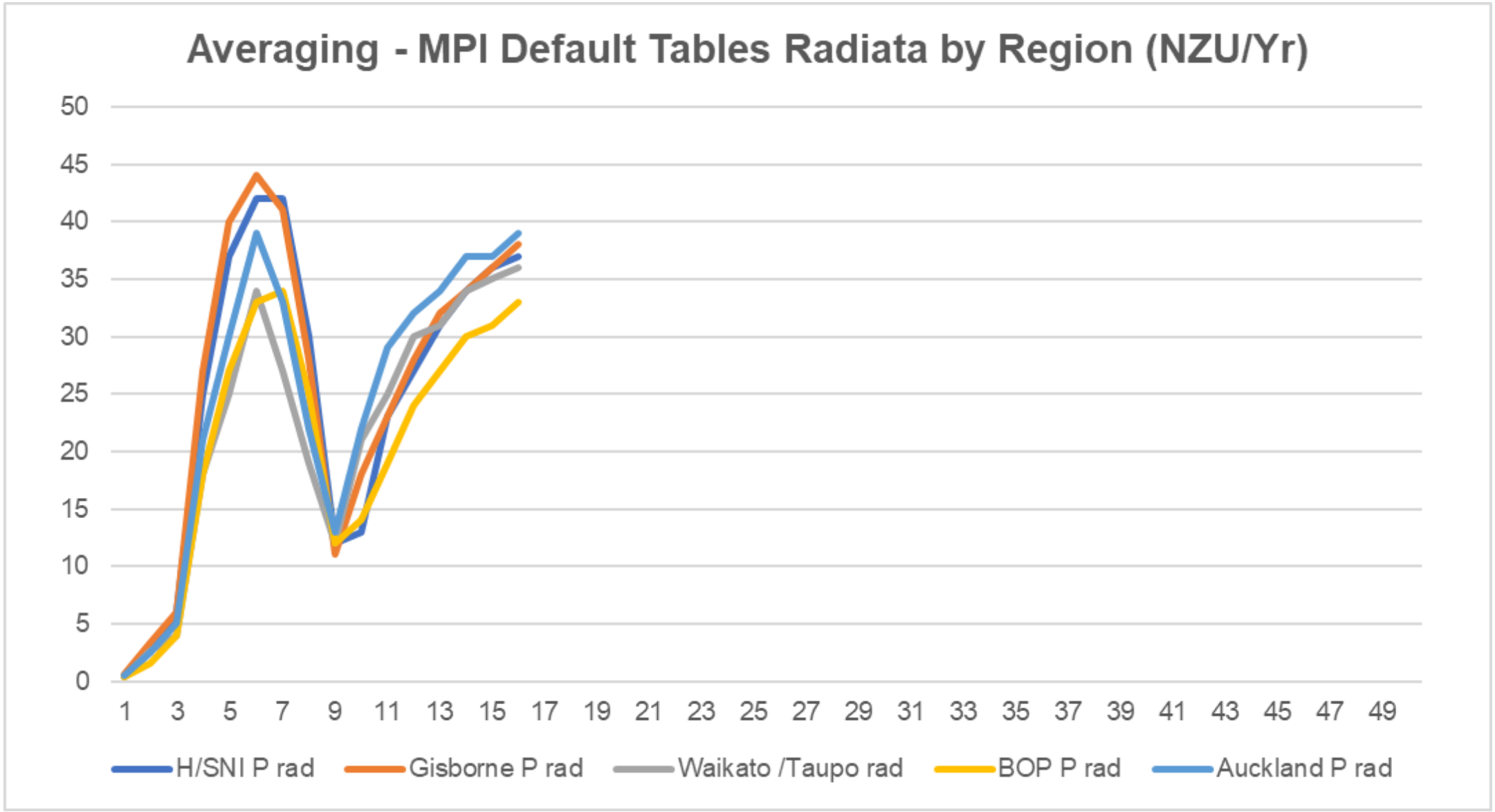
# Carbon Accounting Methods – Stock Change

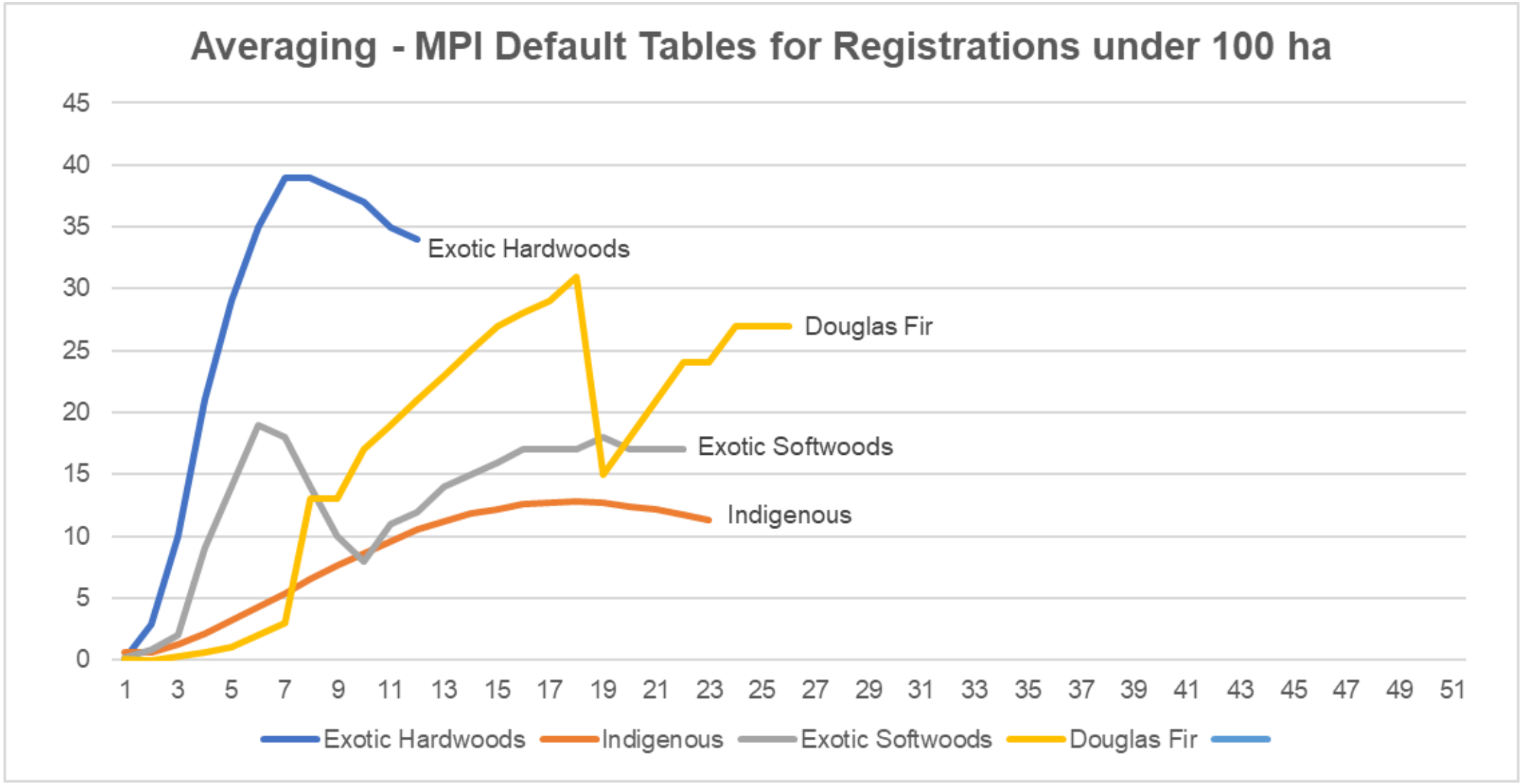
- Earn units as forest grows over multiple rotations. Will need to surrender units if harvesting occurs.
- Used for the Permanent Category.
- Low risk units – the amount (if any) depends on age of forest when registered, and how long you take to replant your second rotation.
- **Pros: Keep earning units as forest grows. Could delay harvesting or not harvest if carbon price strong.**
- **Cons: Must give back units if harvesting. Can be 8-10 years before you start earning units on 2nd rotation.**

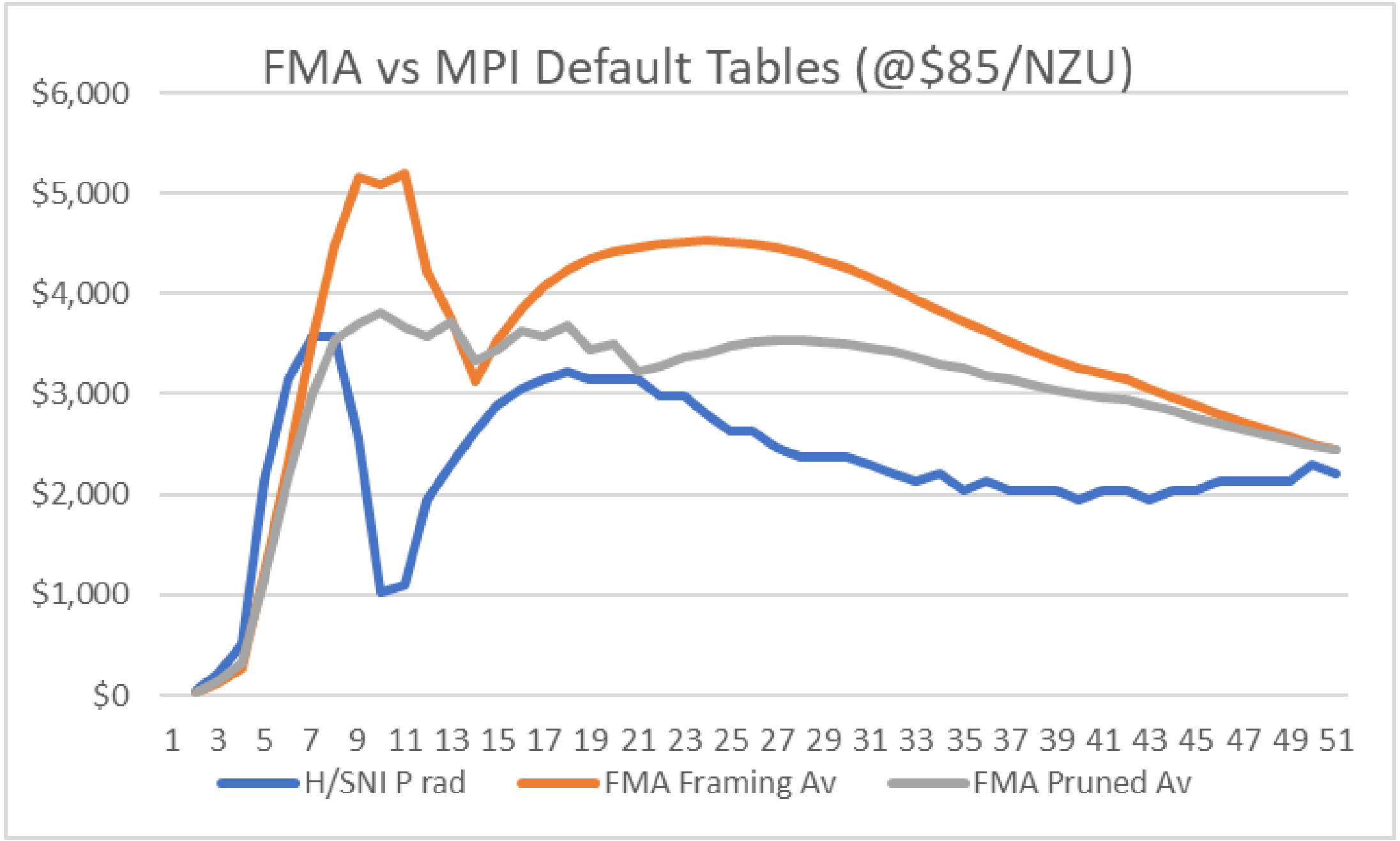



MPI Default Table Comparisons (NZU/Yr)
45
40
35
30
25
20
15
10
5
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49
Exotic Hardwoods
Indigenous
Exotic Softwoods
Douglas Fir


MPI Default Tables Radiata by Region (NZU/Yr)
50
45
40
35
30
25
20
15
10
5
0
1
3
5
7
9
11
13
15
17
19
21
23
25
27
29
31
33
35
37
39
41
43
45
47
49
H/SNI P rad
Gisborne P rad
Waikato /Taupo rad
BOP P rad
Auckland P rad


Averaging - MPI Default Tables Radiata by Region (NZU/Yr)
50
45
40
35
30
25
20
15
10
5
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49
H/SNI P rad
Gisborne P rad
Waikato /Taupo rad
BOP P rad
Auckland P rad


Averaging - MPI Default Tables for Registrations under 100 ha
45
40
35
30
25
20
15
10
5
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
Exotic Hardwoods
Douglas Fir
Exotic Softwoods
Indigenous
Exotic Hardwoods
Indigenous
Exotic Softwoods
Douglas Fir


FMA vs MPI Default Tables (@$85/NZU)
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
H/SNI P rad
FMA Framing Av
FMA Pruned Av

| | Indigenous | | Softwoods | | Hardwoods (currently poles) | | Redwoods over 100 ha | | Redwoods possible King Country | | Radiata Canterbury | | Canterbury FMA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | NZU/Year | $ 82.00 | NZU/Year | $ 82.00 | NZU/Year | $ 82.00 | NZU/Year | $ 82.0 | NZU/Year | $ 82 | NZU/Year | $ 82.00 | NZU/Year | $ 82 |
| 1 | 0.6 | $ 49.20 | 0.2 | $ 16.40 | 0.1 | $ 8.20 | 0.6 | $ 49.2 | 0 | $ 0 | 0.2 | $ 16.40 | 0 | $ 8 |
| 2 | 0.6 | $ 49.20 | 0.8 | $ 65.60 | 2.9 | $ 237.80 | 1.6 | $ 131.2 | 0 | $ 1 | 0.8 | $ 65.60 | 1 | $ 49 |
| 3 | 1.3 | $ 106.60 | 2 | $ 164.00 | 10 | $ 820.00 | 5.1 | $ 418.2 | 0 | $ 4 | 1 | $ 82.00 | 1 | $ 107 |
| 4 | 2.1 | $ 172.20 | 9 | $ 738.00 | 21 | $1,722.00 | 9.3 | $ 762.6 | 0 | $ 14 | 3 | $ 246.00 | 5 | $ 435 |
| 5 | 3.2 | $ 262.40 | 14 | $1,148.00 | 29 | $2,378.00 | 13 | $1,066.0 | 1 | $ 52 | 10 | $ 820.00 | 10 | $ 836 |
| 6 | 4.3 | $ 352.60 | 19 | $1,558.00 | 35 | $2,870.00 | 16.8 | $1,377.6 | 5 | $ 385 | 16 | $ 1,312.00 | 16 | $ 1,312 |
| 7 | 5.4 | $ 442.80 | 18 | $1,476.00 | 39 | $3,198.00 | 19 | $1,558.0 | 11 | $ 883 | 22 | $ 1,804.00 | 21 | $ 1,706 |
| 8 | 6.5 | $ 533.00 | 14 | $1,148.00 | 39 | $3,198.00 | 21.4 | $1,754.8 | 18 | $ 1,482 | 23 | $ 1,886.00 | 25 | $ 2,075 |
| 9 | 7.6 | $ 623.20 | 10 | $ 820.00 | 38 | $3,116.00 | 24.8 | $2,033.6 | 26 | $ 2,124 | 25 | $ 2,050.00 | 29 | $ 2,411 |
| 10 | 8.6 | $ 705.20 | 8 | $ 656.00 | 37 | $3,034.00 | 27.3 | $2,238.6 | 34 | $ 2,768 | 24 | $ 1,968.00 | 32 | $ 2,616 |
| 11 | 9.6 | $ 787.20 | 11 | $ 902.00 | 35 | $2,870.00 | 28.9 | $2,369.8 | 41 | $ 3,387 | 14 | $ 1,148.00 | 35 | $ 2,845 |
| 12 | 10.5 | $ 861.00 | 12 | $ 984.00 | 34 | $2,788.00 | 30.6 | $2,509.2 | 48 | $ 3,963 | 11 | $ 902.00 | 37 | $ 3,018 |
| 13 | 11.2 | $ 918.40 | 14 | $1,148.00 | 31 | $2,542.00 | 31.4 | $2,574.8 | 48 | $ 3,947 | 8 | $ 656.00 | 38 | $ 3,108 |
| 14 | 11.8 | $ 967.60 | 15 | $1,230.00 | 30 | $2,460.00 | 32.5 | $2,665.0 | 49 | $ 4,025 | 12 | $ 984.00 | 32 | $ 2,616 |
| 15 | 12.2 | $ 1,000.40 | 16 | $1,312.00 | 28 | $2,296.00 | 33.2 | $2,722.4 | 53 | $ 4,386 | 16 | $ 1,312.00 | 35 | $ 2,854 |
| 16 | 12.6 | $ 1,033.20 | 17 | $1,394.00 | 26 | $2,132.00 | 33.8 | $2,771.6 | 57 | $ 4,704 | 19 | $ 1,558.00 | 37 | $ 3,042 |
| 17 | 12.7 | $ 1,041.40 | 17 | $1,394.00 | 24 | $1,968.00 | 34 | $2,788.0 | 61 | $ 4,980 | 21 | $ 1,722.00 | 39 | $ 3,165 |
| 18 | 12.8 | $ 1,049.60 | 17 | $1,394.00 | 24 | $1,968.00 | 34.3 | $2,812.6 | 64 | $ 5,219 | 23 | $ 1,886.00 | 40 | $ 3,280 |
| 19 | 12.7 | $ 1,041.40 | 18 | $1,476.00 | 22 | $1,804.00 | 34.3 | $2,812.6 | 66 | $ 5,423 | 25 | $ 2,050.00 | 41 | $ 3,362 |

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| 1 | 0.6 | $ 49.20 | 0.2 | $ 16.40 | 0.1 | $ 8.20 | 0.6 | $ 49.2 | 0 | $ 0 | 0.2 | $ 16.40 | 0 | $ 8 |
| 2 | 0.6 | $ 49.20 | 0.8 | $ 65.60 | 2.9 | $ 237.80 | 1.6 | $ 131.2 | 0 | $ 1 | 0.8 | $ 65.60 | 1 | $ 49 |
| 3 | 1.3 | $ 106.60 | 2 | $ 164.00 | 10 | $ 820.00 | 5.1 | $ 418.2 | 0 | $ 4 | 1 | $ 82.00 | 1 | $ 107 |
| 4 | 2.1 | $ 172.20 | 9 | $ 738.00 | 21 | $1,722.00 | 9.3 | $ 762.6 | 0 | $ 14 | 3 | $ 246.00 | 5 | $ 435 |
| 5 | 3.2 | $ 262.40 | 14 | $1,148.00 | 29 | $2,378.00 | 13 | $1,066.0 | 1 | $ 52 | 10 | $ 820.00 | 10 | $ 836 |
| 6 | 4.3 | $ 352.60 | 19 | $1,558.00 | 35 | $2,870.00 | 16.8 | $1,377.6 | 5 | $ 385 | 16 | $ 1,312.00 | 16 | $ 1,312 |
| 7 | 5.4 | $ 442.80 | 18 | $1,476.00 | 39 | $3,198.00 | 19 | $1,558.0 | 11 | $ 883 | 22 | $ 1,804.00 | 21 | $ 1,706 |
| 8 | 6.5 | $ 533.00 | 14 | $1,148.00 | 39 | $3,198.00 | 21.4 | $1,754.8 | 18 | $ 1,482 | 23 | $ 1,886.00 | 25 | $ 2,075 |
| 9 | 7.6 | $ 623.20 | 10 | $ 820.00 | 38 | $3,116.00 | 24.8 | $2,033.6 | 26 | $ 2,124 | 25 | $ 2,050.00 | 29 | $ 2,411 |
| 10 | 8.6 | $ 705.20 | 8 | $ 656.00 | 37 | $3,034.00 | 27.3 | $2,238.6 | 34 | $ 2,768 | 24 | $ 1,968.00 | 32 | $ 2,616 |
| 11 | 9.6 | $ 787.20 | 11 | $ 902.00 | 35 | $2,870.00 | 28.9 | $2,369.8 | 41 | $ 3,387 | 14 | $ 1,148.00 | 35 | $ 2,845 |
| 12 | 10.5 | $ 861.00 | 12 | $ 984.00 | 34 | $2,788.00 | 30.6 | $2,509.2 | 48 | $ 3,963 | 11 | $ 902.00 | 37 | $ 3,018 |
| 13 | 11.2 | $ 918.40 | 14 | $1,148.00 | 31 | $2,542.00 | 31.4 | $2,574.8 | 48 | $ 3,947 | 8 | $ 656.00 | 38 | $ 3,108 |
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| 19 | 12.7 | $ 1,041.40 | 18 | $1,476.00 | 22 | $1,804.00 | 34.3 | $2,812.6 | 66 | $ 5,423 | 25 | $ 2,050.00 | 41 | $ 3,362 |

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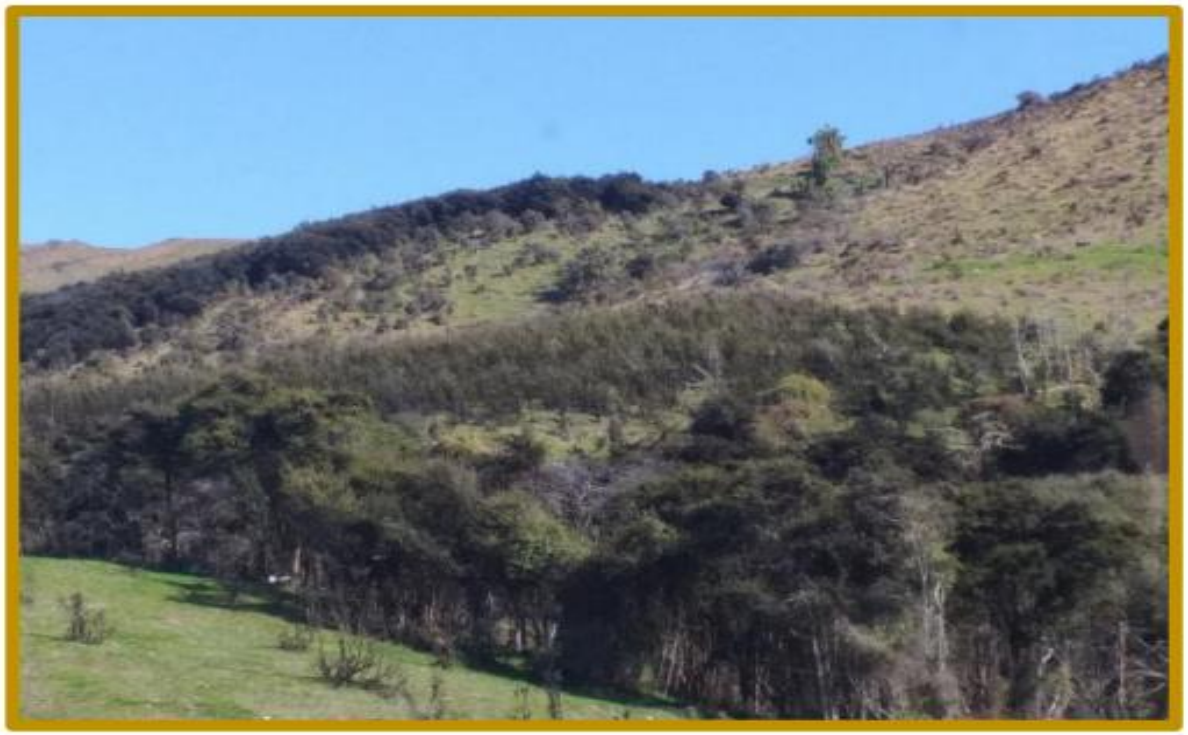
# 30% potential canopy cover

## Qualifies

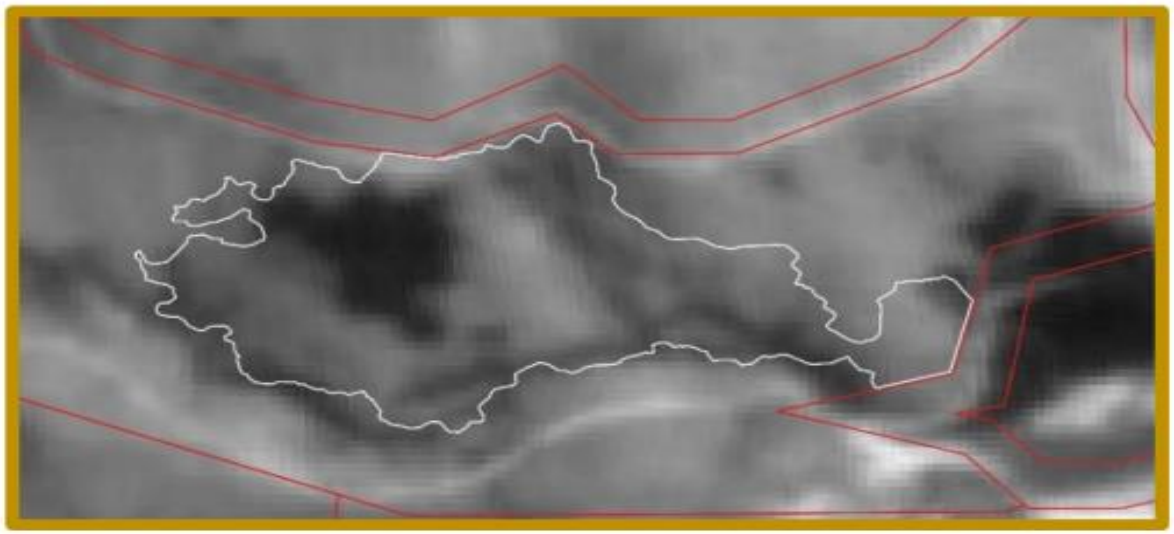
## Doesn’t qualify

Ground photo



Ground Photo

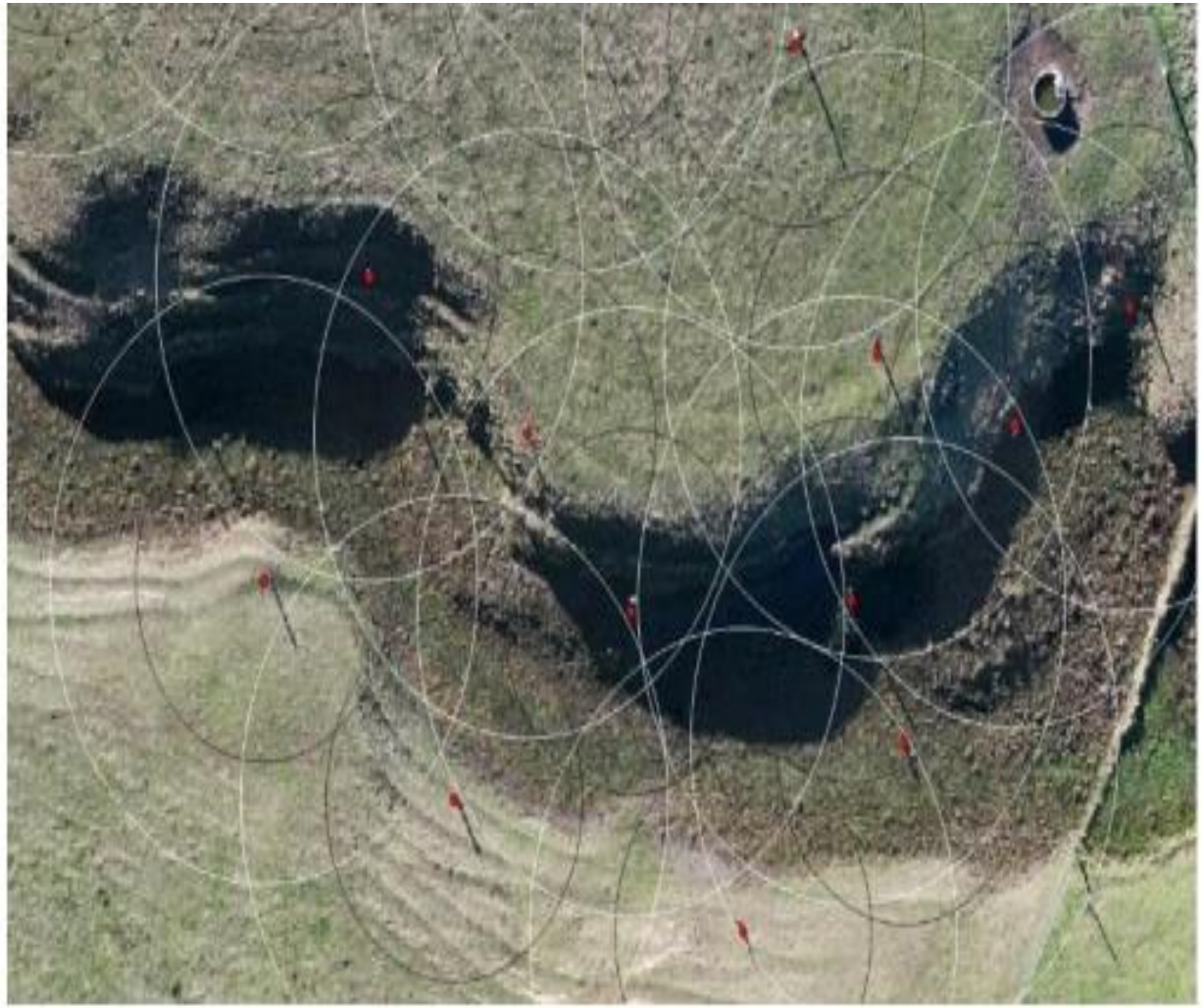
1985



1995

Older (Pre-1990 trees, dark shade in 1985 image) captured and included as Post-1989 forest land, as less than 1 hectare in 1985.

# The owners have planted 790 poles in a connected series of gullies on their property.



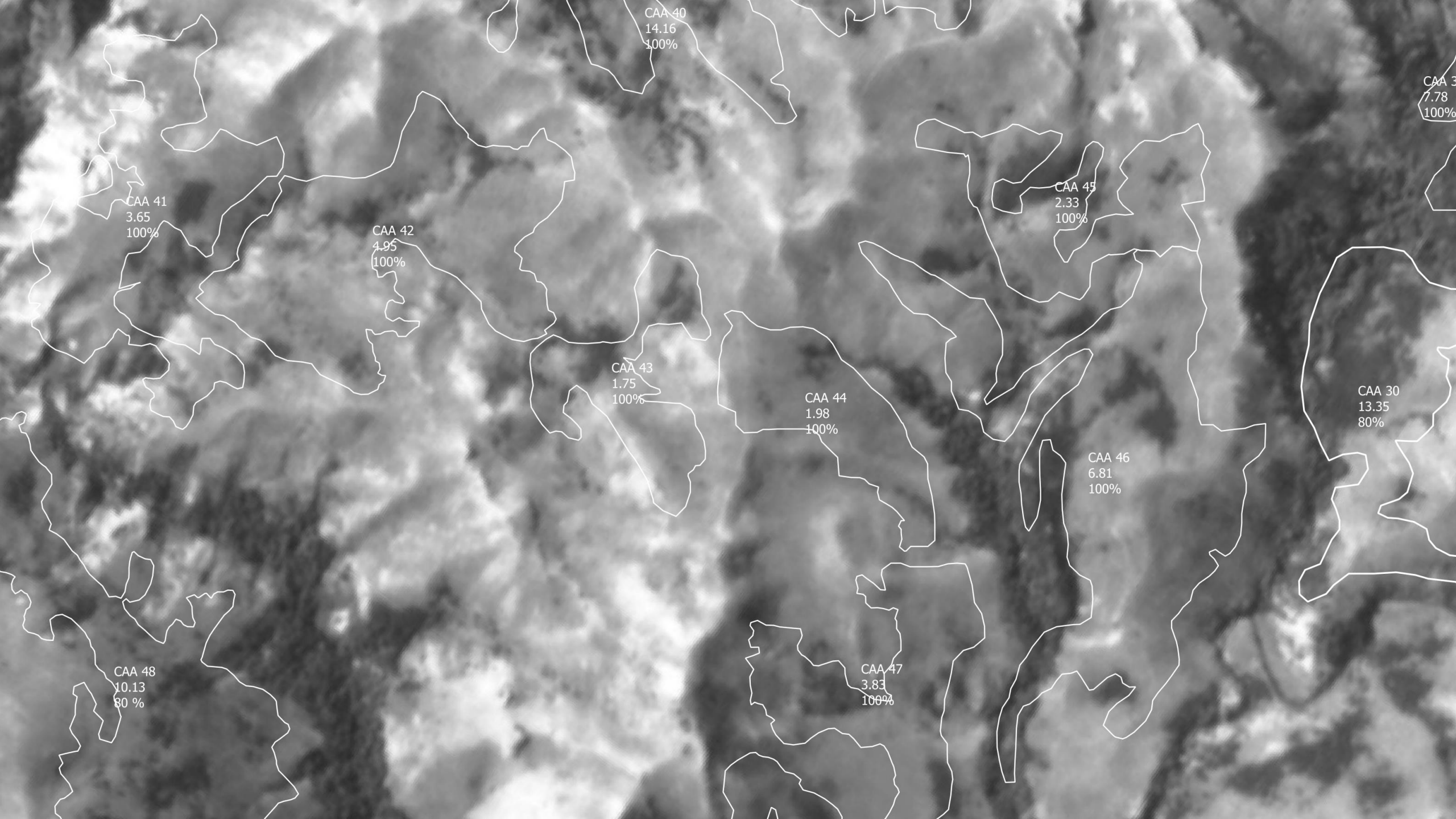
The poles were inspected and flown with a drone to produce a map as part of the evidence for the ETS application process. From this map and these images, each poles location was established using a dot and 10m radius circle to judge overlap and distance apart parameters.



From this, the perimeter of the poles was mapped and produced an area of approximately **7.4ha**.

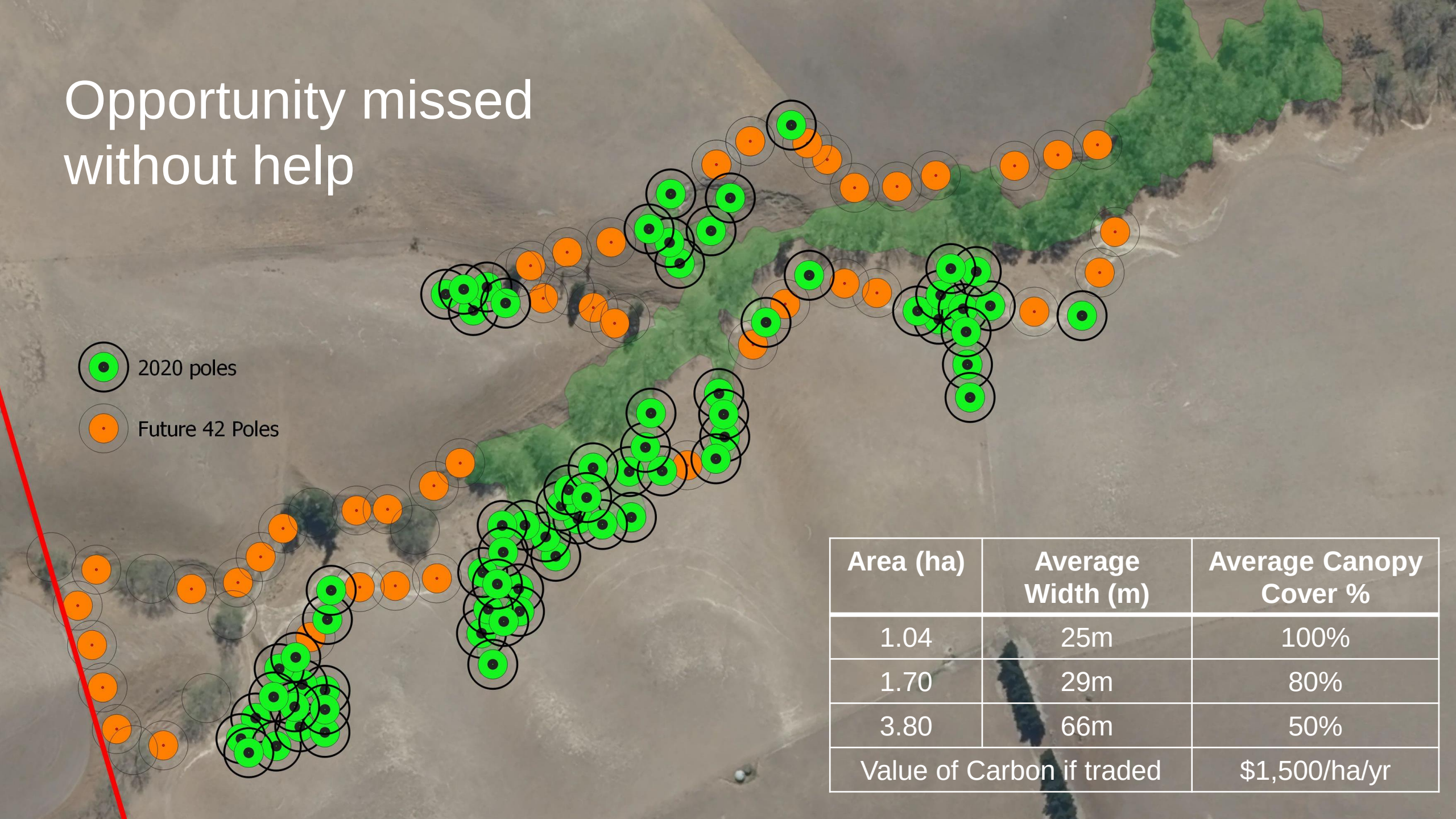
The area then had a 4m buffer radius applied as per the mapping standard, (you can add to reflect the growth of the tree crown at maturity) to determine the external perimeter. This was checked for issues around the possible 15m maximum distance between driplines (trees) at maturity and the Carbon Accounting Area (CAA) shape/area confirmed. The application of the buffer resulted in **10.3ha** being applied for and this was approved by MPI and is now registered in the ETS.


CAA 40
14.16
100%
CAA 3
7.78
100%
CAA 41
3.65
100%
CAA 42
4.95
100%
CAA 45
2.33
100%
CAA 43
1.75
100%
CAA 44
1.98
100%
CAA 30
13.35
80%
CAA 46
6.81
100%
CAA 48
10.13
80 %
CAA 47
3.83
100%


CAA 40
14.16
100%
CAA 41
3.65
100%
CAA 42
4.95
100%
CAA 43
1.75
100%
CAA 44
1.98
100%
CAA 45
2.33
100%
CAA 46
6.81
100%
CAA 47
3.83
100%
CAA 48
10.13
80 %
CAA 30
13.35
80%


41
3.62
42
5.03
43
2.04
44
1.98
45
4.06
46
6.21
31
2.28
47
3.59
48
10.51

# Opportunity missed without help




| Area (ha) | Average Width (m) | Average Canopy Cover % |
|---|---|---|
| 1.04 | 25m | 100% |
| 1.70 | 29m | 80% |
| 3.80 | 66m | 50% |
| Value of Carbon if traded | | $1,500/ha/yr |

# PRICE HISTORY

# SPOT NZUS


https://www.commtrade.co.nz/

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# Farm Profile - Add 100Ha new forest - est 2022

| Framing Regime | Cashflow: Years 0 -10 | Cashflow: Years 11 - 20 | Cashflow: Years 21 - 29 (incl. log revenue and replanting) | Cashflow: Years 30 - 50 | IRR | NPV (8.5%) | Total Cost | Total Revenue | Surplus |
|---|---|---|---|---|---|---|---|---|---|
| Forestry - no carbon | -$426,300 | -$70,000 | $2,128,465 | | 6.3% | -$137,639 | $801,600 | $2,433,765 | $1,632,165 |
| Sale of first 16 years carbon | $1,116,180 | $1,629,480 | $2,108,265 | | 31.8% | $1,199,116 | $867,600 | $5,721,525 | $4,853,925 |
| 28 Yrs Carbon Only | $1,350,920 | $2,538,540 | $2,284,480 | | 32.4% | $1,527,099 | $618,300 | $6,792,240 | $6,173,940 |
| 50 Yrs Carbon Only | $1,350,920 | $2,538,540 | $2,544,560 | $4,271,100 | 32.4% | $1,733,033 | $838,300 | $11,543,420 | $10,705,120 |