

# Independent validation of land-use change from pastoral farming to large-scale forestry

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BakerAg

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# Client report

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## Independent validation of land-use change from pastoral farming to large-scale forestry

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# Executive summary

BakerAg has been commissioned by Beef + Lamb New Zealand to:

*“Independently validate the amount of land that has been or will be planted into exotic plantation species in the near future that is likely to take land out of pastoral production”.*

## Whole farms purchased for forestry or partial farm planting

Using the methodology summarised in Stages 1-3, the final results are tabled below:

Whole of Farm Purchase	Year				Grand Total (Hectares)	Percentage by Conversion
	2017	2018	2019	2020		
Honey (Manuka)	3039	7340	1678	2281	14338	10.3%
NZ Sales	2510	11245	26198	11881	51834	37.2%
OIO	1455	8982	10626	4883	25946	18.6%
<b>Total Whole of Farm</b>	<b>7004</b>	<b>27567</b>	<b>38502</b>	<b>19045</b>	<b>92118</b>	<b>66.0%</b>
<b>Partial farm plantings by Landowner through 1BT/JV</b>						
1BT Landowner Grant		12,124 Indigenous + 13,434 Exotic			25560	18.3%
Crown Forestry JV		21822			21822	15.6%
<b>Total Partial farm funded</b>		<b>47382</b>			<b>47382</b>	<b>34.0%</b>
<b>Totals</b>					<b>139500</b>	<b>100.0%</b>

The results of our independent validation therefore estimate:

1. The gross land area of whole farms purchased **between 1/1/2017 and 31/12/2020** for planting is estimated at **92,118 hectares (ha)**.
2. Of that amount, based on an analysis of the 2016 LUCAS layer, 66,665 ha is estimated as ‘plantable (effective) area’.
3. Between 2018 and December 2020 an additional 47,382 ha of land within existing farms was approved for planting, funded by the One Billion Trees programme (1BT) or as part of the Crown Forestry Joint Ventures scheme.
4. Of this area, approximately 12,124 ha is identified for mānuka/indigenous plantings. With the 14,338 ha of whole farm purchases identified for mānuka/indigenous plantings, we have a total close to 26,500 ha or 19% of the total identifiable land conversion likely to be planted with mānuka or indigenous species.
5. In total, it is estimated that **139,500 hectares of land** has been or will be planted in the near future, taking this land predominantly out of sheep and beef production.

The data was based on sales that could be verified during the stated period. The areas identified could potentially be higher if sales occurred outside the methodology used for assessing whole-of-farm sales and within-farm plantings; the area could be less if land is sold back to farming interests and not yet captured in the data. While most sales for 2020 have been recorded, it is possible there could be a small additional number from 2020 that could still emerge.

## LUCAS 2016 layer summary

Analysis of the 2016 LUCAS layers suggest 65.7% of the whole farms sold into forestry was in clear pasture, 6.7% in potentially reverting country and 27.5% in either exotic or indigenous forest species at the time of the 2016 LUCAS update.

LUCAS 2016 Layer	Northland	Gisborne-Hawkes Bay	Rest of North Island	South Island	Grand Total (Hectares)	Percentage by Total
Cropland - Annual				75	75	0.1%
Grassland - High producing	3232	3624	13150	2280	22285	24.2%
Grassland - Low producing	427	7929	21646	8101	38103	41.4%
Grassland - With woody biomass	365	1064	2569	2204	6202	6.7%
Natural Forest	752	1154	8635	4259	14801	16.1%
Planted Forest - Pre 1990	267	293	1114	651	2325	2.5%
Post 1989 Forest	326	907	4221	2731	8185	8.9%
Other		31	0	0	32	0.0%
Settlements or built-up area				1	1	0.0%
Wetland - Open water	3	34	29	6	71	0.1%
Wetland - Vegetated non forest	4	1		34	39	0.0%
<b>Grand Total</b>	<b>5375</b>	<b>15037</b>	<b>51365</b>	<b>20342</b>	<b>92118</b>	<b>100.0%</b>

## LUC classification summary

Analysis of properties found that by far the majority (90.4% in our assessment) of land being converted is land of LUC 6 and above. Some 52% of the area is in LUC 6, 36.7% in LUC 7 and 1.7% in LUC 8.

Regional Areas	Land Use Classification (LUC) Band								Grand Total (Hectares)
	2	3	4	5	6	7	8	Other	
Northland		12	514		3579	1268		1	5375
Gisborne_Hawkes Bay	36	619	157	119	6607	7282	191	25	15036
Wellington	21	1505	2009	215	24820	22087	702	6	51365
South Island	3	759	2285	508	12896	3203	659	30	20342
<b>Grand Total</b>	<b>60</b>	<b>2895</b>	<b>4966</b>	<b>842</b>	<b>47902</b>	<b>33840</b>	<b>1551</b>	<b>61</b>	<b>92118</b>
<b>Percentage by Total Area</b>	<b>0.1%</b>	<b>3.1%</b>	<b>5.4%</b>	<b>0.9%</b>	<b>52.0%</b>	<b>36.7%</b>	<b>1.7%</b>	<b>0.1%</b>	<b>100.0%</b>

Close to 8.5% of land fell into LUC 3 and 4; however, it comprised collective small parcels of land across all sales as opposed to properties where this was the predominant land type.

## Erosion Susceptibility Classification summary

In terms of Erosion Susceptibility Classification (ESC), the land falls into the four main ESC classes as follows:

- Low 28.2%
- Moderate 35.8%
- High 26.0%
- Highly erodible 9.9%

The 9.9% in the highly erodible land category is likely to be spread across the total land area as opposed to whole properties. The NES-PF, where applied, will provide guidance on what will actually be planted. (Note that although previously plantation forestry was guided by the NES-PF, our understanding is that mānuka and trees planted for carbon only - i.e. no expected harvest - is not subject to NES-PF constraints).

Equally the combined 64% of low to moderate erodible land is spread across all farms.

Regional Area	Erosion Susceptibility Class (ESC)					Grand Total (Hectares)
	Low	Moderate	High	Very High	Other	
Northland	610	2641	1006	1117	1	5375
Gisborne_Hawkes Bay	1595	3893	5938	3586	25	15036
Wellington	9539	21944	15975	3901	6	51365
South Island	14246	4474	1045	548	30	20342
<b>Grand Total</b>	<b>25990</b>	<b>32952</b>	<b>23963</b>	<b>9151</b>	<b>61</b>	<b>92118</b>
<b>Percentage by Total Area</b>	<b>28.2%</b>	<b>35.8%</b>	<b>26.0%</b>	<b>9.9%</b>	<b>0.1%</b>	<b>100.0%</b>

### Location

At least twenty-one (21) properties, totalling 12,565 ha were between 150 km and 200 km from the nearest port. At present, this land, which might be considered remote and therefore of lower market value by farmers; in pre carbon/low log price days more remote land was also less attractive as a forestry investment. With the now established carbon (cash) flows available to forest plantings, forestry is an attractive option in these more remote areas. Throughout the life of these more remote forests (if planted in radiata pine) there could be decision points which may result in the forests either being managed for timber and carbon revenues, or for carbon only, depending on the relative values of timber and carbon. Forests closer than 150 km to a port are those most likely to be managed for both timber and carbon revenues (based on current industry log revenues and costs).

### Land-use Change

The project also sought to gain an understanding of why there has been the recent increase in farmland being sold to forestry interests. An unexpected result was a growing understanding of how much land was/is being purchased for mānuka farming/indigenous plantings amounting to 16% of whole of farm sales and 20% of total plantings.

Land prices in some regions have been relatively stable for some years before re-emerging opportunities associated with the Emissions Trading Scheme (ETS) and carbon price resulted in forest investors coming back into the market for land. Hill-country farmers who had been waiting for 'the right time' to sell all or part of their farm have taken the chance to move onto another farm or perhaps retire. Forestry investors were initially prepared to pay more than farmers for land in high LUC classes (and often relatively remote areas) because of:

- (i) a combination of good carbon revenue streams and projected strong long-term returns on investment from forestry in general
- (ii) perceived uncertain times ahead in the short-to-medium term for hill country farmers. However, in the past two years we have seen more competition for land from the farming sector as their equity has increased and willingness to pay more has bedded in.

The strong uptake of the Crown Joint Venture fund and the One Billion Trees Programme (1BT) planting grant by existing landowners provides evidence that many farmers are beginning to assess the long-term benefits associated with putting part of their farm in trees, planting 'the right trees in the right place' - where the right place is one which increases overall farm profitability, reduces net farm emissions and may also confer other sustainable environmental and social benefits.



# 1. Introduction

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BakerAg has been commissioned by Beef + Lamb New Zealand to:

*“Independently validate the amount of land that has been or will be planted into exotic plantation species in the near future that is likely to take land out of pastoral production”.*

The final figures of both whole farm and integration of trees on farms were developed using three stages of investigation as summarised below:

**Stage One** of the project involved a comprehensive review of available land-use-change data to provide up-to-date statistics on the areas of land being converted from pastoral farming into forestry under different ownership models, grant programmes and owner objectives.

To provide a benchmark for ‘whole of farm’ purchase we analysed all sales of 250 Ha or more.

Plantable area (effective forest land) is calculated using declared Overseas Investment Office (OIO) intentions, 100% for honey production and 85% for whole of farm domestic sales.

**Stage Two** looked to analyse the land classes affected in the whole of farm sale land areas and in doing this the areas changed as we ‘desktop’ visited the initial properties, time progressed and other information became available.

**Stage Three** was a final check where we provided maps of all land identified to the Beef + Lamb NZ extension team and asked them to identify any properties they were aware of that we had missed – upon completion of this exercise we added the additional land (circa 6,000 ha) into the land use classification exercise and completed the tables as follow in this report. At this stage, MPI also released more up to date information on grants approved under the One Billion Trees Programme to integrate trees on farms.

An additional updating of the sales information to include all sales that could be identified up until 31/12/2020 was also undertaken in May 2021.

B+LNZ also commissioned BakerAg to look at the land types affected and comment on why land may be being sold.

## 2. Methodology: Stage 1

**Stage One** of the project involved a comprehensive review of available land-use-change data to provide up-to-date statistics on the areas of land being converted from pastoral farming into forestry under different ownership models, grant programmes and owner objectives.

To provide a benchmark for 'whole of farm' purchases, we analysed all sales of 250 Ha or more.

'Plantable area' (effective forest land) is calculated using declared OIO intentions, 100% for honey production and 85% for whole of farm domestic sales for forestry.

The results for Stage One (1/1/2017 to 31/3/2020) are summarised in the table below:

**Table 1: Area totals from the Stage One report**

Whole of farm purchase	Sum of gross land area (ha)	Sum of revised plantable estimate (ha)	Percentage of Plantable Est.
NZ sales	33,006	27,911	31%
OIO information	26,248	17,706	20%
Honey	5,839	5,839	7%
<b>Total whole of farm</b>	<b>65,093</b>	<b>51,456</b>	<b>58%</b>
<b>Partial farm plantings by landowner</b>			
1BT Landowner Grant	14,013	14,013	15%
Crown Forestry JV	24,000	24,000	27%
<b>Total partial farm</b>	<b>38,013</b>	<b>38,013</b>	<b>42%</b>
<b>Totals</b>	<b>103,106</b>	<b>89,469</b>	<b>100%</b>

## 3. Stage 2

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### 3.1 Assessing the quality of land going into plantation forestry

This stage of the project involved taking two of the data sets acquired in Stage One of the project:

- (i) the Overseas Information Office (OIO) records of properties sold where forestry has been specified as the future land use, and
- (ii) the Property Guru dataset, where we have identified farm sales to new domestic owners who are obviously buying land with the intention of converting some or all of it to plantation forestry or mānuka.

During Stage One all of these properties were identified as a search in the Property Guru system, and their physical boundaries saved district by district. The combined total area of these properties (over 65,000 hectares) comprises all 'whole of farm purchases' over 250 ha and is an estimated 58% of land potentially destined for conversion to forestry as identified in Stage One.

#### **Regional maps of land acquisitions**

Regional maps of almost all properties identified in Stage One from the Property Guru system are included in this report (Appendix A, Maps 1-6). Properties not included are ones that are outlying and were omitted so that maps could be kept at a reasonable scale.

The maps show that in the South Island land acquisitions for forestry are generally widely scattered (Maps 5 and 6).

In contrast, the Lower North Island map (Map 4) shows some major clusters of properties that have recently changed hands and are likely to be converted from sheep and beef farming to radiata pine (and already have been planted in many cases). What should also be noted is that these properties are in areas where in previous relatively recent 'forestry booms' in the 1990s and 2000s, resulted in significant conversion of farmland to pine plantations. This helps to explain the strength of concern about an increase in farms being sold into forestry as members of those communities are often intergenerational sheep and beef farmers who have experienced a marked decline in the number of farming businesses, and loss of farming neighbours and community, within their lifetimes and do not want it to happen again.

#### **Cross-checking data already obtained**

Stage Two of the project involved downloading and collating the shapefiles for all properties described above. These shapefiles were sourced from LINZ NZ Property Titles Including Owners layer, and titles were checked against the information identified in Stage One for any changes to the original database. As a result of checking the data to complete Stage Two of our report, we were able to refine the data used to produce the Stage One results. The revised Table 2 shows a slightly reduced revised estimate, in NZ Sales, of 942ha.

Some of the changes in area came about because some titles were already found to have changed hands – for example, in two instances farms were subdivided and areas believed to be better suited to productive farming were sold on to new owners. As such these sub-areas were deleted during the cross-checking process.

The total area of farm sales was then estimated at 64,287ha, which equates to almost 57% of all estimated plantable land destined for plantation forestry or mānuka (previous totals were 65,093 and 58% respectively).

**Table 2: Amended area totals following Stage Two analyses**

Whole of farm purchase	Sum of gross land area (ha)	Sum of revised plantable estimate (ha)	Percentage of Plantable est.
NZ sales	32,064	27,110	30%
OIO information	26,063	17,706	20%
Honey	6,126	6,126	7%
<b>Total whole of farm</b>	<b>64,287</b>	<b>50,942</b>	<b>57%</b>
<b>Partial farm plantings by landowner</b>			
1BT Landowner Grant	14,013	14,013	16%
Crown Forestry JV	24,000	24,000	27%
<b>Total partial farm</b>	<b>38,013</b>	<b>38,013</b>	<b>43%</b>
<b>Totals</b>	<b>102,266</b>	<b>88,955</b>	<b>100%</b>

### Intersecting Land Use Classification and Erosion Susceptibility Classification layers

We then developed a methodology to determine the quality of land in terms of its production potential. By intersecting two GIS layers describing **Land Use Classification (LUC)** and **Erosion Susceptibility Classification (ESC)** on top of the property title layer, we produced a data set with accurate estimates of the areas of land in different LUC and ESC classes on all the properties identified.

The properties in question are widely spread across the country, so for ease of reporting they have been grouped into four geographic categories – Northland, Gisborne/East Coast, Lower North Island and South Island.

Table 3 below provides an excerpt from the master dataset which contains details of all properties assessed in Stage 2 of the project. Each Title has an identifier #, a breakdown of applicable LUCs, ESC (2018) classification, area (ha) by LUC/title, registered owner, our visual assessment of vegetation cover (subjective), location and region. Existing vegetation was assessed during the visual confirmation of individual titles against the LINZ database. Satellite imagery was used to broadly define the vegetation present, from grass to pasture with regeneration showing up. Existing larger blocks of exotic forested areas, when they were evident on land classified as pastoral, were mapped out where they were identified and removed from the land sales total area.

The visual assessment information is included to provide confirmation of what land may be going into trees, in addition to the LUC information.

**Table 3: Full classification of properties - excerpt from master dataset**

OBJECT ID	LUC	LUC BAND	Individual LUC Area	ESC2018	Property Area	Owner Identifier	Land Cover	Region
61349	7e20	7	110.44	Very High	430	BB	woody Biomass/Pastu	Wellington
61590	8e 3	8	67.64	Very High	331	BB	woody Biomass/Pastu	Wellington
61590	8e 3	8	123.32	Very High	430	BB	woody Biomass/Pastu	Wellington
13071	3e 3	3	13.46	Low	1625	CC	Pasture	Wellington
13158	6e 7	6	0.29	Moderate	1372	CC	forest	Wellington
13159	6e 7	6	1.69	Moderate	1372	CC	forest	Wellington
13159	6e 7	6	37.21	Moderate	1625	CC	Pasture	Wellington
13161	6e 7	6	130.59	Moderate	1625	CC	Pasture	Wellington
13267	7e 6	7	0.40	Very High	648	CC	Forest	Wellington
65482	4e 3	4	5.22	Low	1625	CC	Pasture	Wellington
69281	3w 1	3	0.95	Low	648	CC	Forest	Wellington
69282	3w 1	3	3.19	Low	648	CC	Forest	Wellington
69284	3w 1	3	4.87	Low	561	CC	Pasture	Wellington
69284	3w 1	3	23.03	Low	62	CC	Pasture	Wellington
69284	3w 1	3	1.86	Low	1625	CC	Pasture	Wellington
69350	4e 3	4	30.54	Low	1625	CC	Pasture	Wellington
69415	6e 2	6	0.00	Moderate	561	CC	Pasture	Wellington
69415	6e 2	6	1.63	Moderate	62	CC	Pasture	Wellington
69415	6e 2	6	0.18	Moderate	1625	CC	Pasture	Wellington
69417	6e 2	6	214.79	Moderate	1372	CC	forest	Wellington
69417	6e 2	6	222.72	Moderate	561	CC	Pasture	Wellington
69417	6e 2	6	3.47	Moderate	62	CC	Pasture	Wellington
69417	6e 2	6	786.41	Moderate	1625	CC	Pasture	Wellington
69513	6e 7	6	42.19	Moderate	1625	CC	Pasture	Wellington

**Note:** We have removed owner details and replaced with an 'owner identifier' (A-ZZ) to protect privacy. In later tables we have also used a numerical identifier for property locations. Areas are in hectares.

### 3.2 Cross-checking our data with regional council data

Regional councils have an obligation to assess applications for new plantation forests under the National Environmental Standard for Plantation Forestry (NES-PF).

At the start of this project, our expectation was that all regional councils would be maintaining records of new planting applications as they are legally required to do so under their requirements for the NES-PF. We anticipated that we would be able to gain access to the records and use them as a way of cross-checking other data we had collected on new planting activity.

However, we learnt that there is no standard procedure across regions for collating the information, and in regions where data is recorded, no consistency between regions in what data is recorded. Added to this is that the NES-PF only requires plantation forestry (where a timber harvest is anticipated in future) to be registered with the regional councils. Forests being planted for mānuka or carbon only are not required to register, nor, it seems, even required to go through a consent process to plant on land classified as Very High and High under the Erosion Susceptibility Classification system (ESC). We understand that this is being reviewed.

All available information received from regional councils has been collated in the Table 4. Six regions have not contributed any information, due either to it not being collected or not being collated in a readily available format.

Other regional councils could produce information, but the data would have to be manually extracted from files and there would be a cost associated with this. Given the general inconsistency of the NES-PF data available overall, the costs associated with obtaining data from these councils were difficult to justify. It is interesting to see a trend in improved reporting over the last three years that anecdotally would seem to coincide with an increase in planting activity, and as councils gained a better understanding of the requirements under the NES-PF.

**Table 4: NES-PF records of proposed new planting provided by regional councils**

Region	Area (ha)			Total (ha)
	2018	2019	2020	
Auckland	0	0	0	0
BOP			323.8	323.8
Canterbury	180	623.49	4195.4	4998.89
Gisborne		72.9	1259.9	1332.8
Wellington	675	239.6	0	914.6
Hawkes Bay	0	0	0	0
Horizons RC	1361.1	1588.2	4040.3	6989.6
Marlborough	642.8	686.7	468	1797.5
Northland	0	0	0	0
Otago		465.5	2735.85	3201.35
Southland	0	0	0	0
Taranaki	0	0	0	0
Tasman		80.85	131.22	212.07
Waikato			1177.1	1177.1
West Coast	0	0	0	0
<b>Total (ha)</b>	<b>2858.9</b>	<b>3757.24</b>	<b>14331.57</b>	<b>20947.71</b>

An attempt was also made to correlate regional councils' NES-PF data with data available on successful applications to Te Uru Rākau's One Billion Trees landowner planting grants. Because of the disparities across regions (and district councils) and the inability to align with 1BT information, we were unable to use this approach as a viable cross-referencing tool.

Canterbury provided the most complete data in terms of areas notified and whether 1BT was involved or not, however, the discrepancy mentioned earlier in the NES-PF where only commercial forestry is notifiable has resulted in some areas planted solely for carbon not being notified.

In summary, this part of the project did not provide any data that was robust enough to be of any value in validating our existing datasets at a national level.

# 4. Stage 3: Additional cross-check and final summary of total land

## 4.1 Additional data cross-check with Beef + Lamb New Zealand regional extension team

As a further means of ensuring no large-scale land conversions have been missed, we requested the Beef + Lamb New Zealand project management team to contact members of Beef + Lamb New Zealand's regional extension team. We asked extension officers to review our data of land sales in their region and inform us of any missing properties which they know had been, or were destined for, large-scale conversion from pastoral land to plantation forestry or mānuka.

Responses were received, identifying an additional 12,559 hectares of land for consideration. This was checked against our existing database, local consultants, and Real Estate agents to validate. After adjustments for areas already known to us (predominantly Crown Forestry JV areas), this increased the total gross land area by 5,708 ha and our revised estimated afforested area by 4,879 ha.

Te Uru Rākau updates 1BT data, and numbers for both 1BT Direct to Landowner Grants and Crown Forestry JV data to 31/12/2020 was updated into the table. This data showed a big increase in areas approved for planting under the 1BT, since the June 2020 report.

A further review of land sales for the period 1/1/2017-31/12/2020 using the latest information in May 2021 was conducted.

This information was used to arrive at the final summary of total land conversion estimates (Table 5):

**Table 5: Final whole farm and partial farm new planting areas, December 2020**

Whole of Farm Purchase	Year				Grand Total (Hectares)	Percentage by Conversion
	2017	2018	2019	2020		
Honey (Manuka)	3039	7340	1678	2281	14338	10.3%
NZ Sales	2510	11245	26198	11881	51834	37.2%
OIO	1455	8982	10626	4883	25946	18.6%
<b>Total Whole of Farm</b>	<b>7004</b>	<b>27567</b>	<b>38502</b>	<b>19045</b>	<b>92118</b>	<b>66.0%</b>
<b>Partial farm plantings by Landowner through 1BT/JV</b>						
1BT Landowner Grant		12,124 Indigenous + 13,434 Exotic			25560	18.3%
Crown Forestry JV		21822			21822	15.6%
<b>Total Partial farm funded</b>		<b>47382</b>			<b>47382</b>	<b>34.0%</b>
<b>Totals</b>					<b>139500</b>	<b>100.0%</b>

# 5. Land Type Affected

## 5.1 Areas of land being converted to forestry by Land Use Capability Class

We analysed the Land Use Capability Classification (LUC) data for properties identified in several ways, including by owner and by region.

The LUC system is an assessment of the land’s capability for use, which ‘takes into account its physical limitations and its versatility for sustained production’.

Increasing limitations to use	LUC Class	Arable cropping suitability†	Pastoral grazing suitability	Production forestry suitability	General suitability	Decreasing versatility of use
	1	High ↓ Low	High	High	Multiple use land	
	2					
	3					
	4					
	5	Unsuitable	↓ Low	↓ Low	Pastoral or forestry land	
	6					
	7					
	8		Unsuitable	Unsuitable	Conservation land	

**Figure 1: Increasing limitations to use and decreasing versatility of use from LUC Class 1 to LUC Class 8**

As Figure 1 illustrates, LUC Classes 1-4 are considered suitable for arable cropping, horticulture, pastoral grazing, tree crop or production forestry use. Classes 5-7 are considered unsuitable for arable cropping, but are suitable for pastoral grazing, tree crop or production forestry, and in some cases vineyards and berry production. Class 8 land is considered unsuitable for anything other than management for catchment protection and/or conservation.

Table 6 provides an overall summary of areas by LUC on farms which have been sold between 1/1/2017 and 31/12/2020 and which we believe have been, or are intended to be, converted to plantation forestry or mānuka.

The data confirm conclusively that by far the majority (90.4% in our assessment) of land being converted is land of LUC 6 and above. Some 52% of the area is in LUC 6, 36.7% in LUC 7 and 1.7% in LUC 8.



**Table 6: Summary of all LUC areas due for conversion to forestry**

Regional Areas	Land Use Classification (LUC) Band								Grand Total (Hectares)
	2	3	4	5	6	7	8	Other	
Northland		12	514		3579	1268		1	5375
Gisborne_Hawkes Bay	36	619	157	119	6607	7282	191	25	15036
Wellington	21	1505	2009	215	24820	22087	702	6	51365
South Island	3	759	2285	508	12896	3203	659	30	20342
<b>Grand Total</b>	<b>60</b>	<b>2895</b>	<b>4966</b>	<b>842</b>	<b>47902</b>	<b>33840</b>	<b>1551</b>	<b>61</b>	<b>92118</b>
<b>Percentage by Total Area</b>	<b>0.1%</b>	<b>3.1%</b>	<b>5.4%</b>	<b>0.9%</b>	<b>52.0%</b>	<b>36.7%</b>	<b>1.7%</b>	<b>0.1%</b>	<b>100.0%</b>

Tables 7 and 8 provide a breakdown of the areas in LUCs 2-8 by owner for both North and South Island land purchases (generally based on the purchase of a single property) at the end of Stage One, when approximately 65,000 ha had been identified.

**Table 7: Indicative North Island areas by LUC (ha) and owner assumed due for conversion to forestry**

North Island Ownership ID	Land Use Classification (LUC) Band						Total Area By Owner ID
	3	4	5	6	7	8	
AB	5	106		84			195
AC	99	38		1757	181		2075
AD	1	58		438	1178	127	1801
AE		25		1369	313		1707
B	108			1000			1108
BB				113	457	191	761
C		438		461	48	9	957
CC	47	283		4082	1305		5716
DD				308			308
E		61		96			157
G		357					357
GG				708	6		713
H	53			307	7	22	389
HH	15			518			533
JJ	2		76	133	162		372
KK	133	129		3023	2302	68	5654
LL	193	155		1605	2354	1	4307
M	20	61		285	212		578
MM	78	128		1171	205		1583
OO				33	313		346
P	110	0		1837	1569	103	3620
PP	9	41		156	1172	57	1435
R				175	302		477
RR	17		119	80	43		259
S	1			280	26		307
T		77	57	441	6	93	675
TT	256	37		1711	448	87	2539
W	24			275	466		764
WW				134	226		360
XX	15			274	131		420
YY	74	134		672	194	1	1075
Z	9			4	241		255
ZZ		16		407	31		454
<b>Grand Total</b>	<b>1325</b>	<b>2144</b>	<b>253</b>	<b>24510</b>	<b>15495</b>	<b>809</b>	<b>44535</b>

**Table 8: Indicative South Island areas by LUC (ha) and owner assumed due for conversion to forestry**

South Island Ownership ID	Land Use Classification (LUC) Band						Total Area By Owner ID
	3	4	5	6	7	8	
D		1		604	1		606
EE				319	101		420
F		2		1602	713	63	2379
FF		6			379	301	685
I		100		139			239
II	0	160		2056	976		3192
J		2		337			339
K	10	54		461			524
L	163		508	107			778
N	432	490		880			1802
NN				563	41		605
O		583		637	118		1338
OO	18	42		1264			1324
P				930	346	48	1324
Q		0		492	20		513
QQ	0	0		121		232	353
SS	59	591		282	91		1024
X					437	15	452
Y	3	11		357			371
<b>Grand Total</b>	<b>696</b>	<b>2133</b>	<b>508</b>	<b>12572</b>	<b>3223</b>	<b>659</b>	<b>19790</b>

This breakdown by owner ID (and property), combined with a visual assessment of any properties of interest, can provide more information on the likely areas of each property destined for forestry, and areas which would, in theory, be better utilised if retained as farmland. Further analysis on an individual property basis is possible – for example, the location of each property in terms of its proximity to other forests, and its distance to a domestic market and/or log-exporting port, can be important indicators of whether the owner’s objectives are likely to include timber production, or whether the land is being planted purely for carbon farming.

Properties identified in Stage One were analysed and this showed that the majority of the land being bought by forestry and mānuka interests is in LUC classes 6 and above – some 89% of all land in our dataset fell into these land classes, with 58% in LUC 6, 29% in LUC 7, and 2% in LUC 8. This compared with 52% in LUC 6, 36% in LUC 7 and 1.7% in LUC 8 for the final Stage Three summary.

Close to 10% of land fell into LUC 3 and 4 (dropping to 8.5% at Stage Three), however, it reflected collective parcels of land across all sales as opposed to many properties where this was the predominant land type.

Of the 3,722 ha of LUC 5 or better identified in the North Island, only one property destined for exotic planting (483 ha of 957 ha total) had a significant percentage of higher-grade land classes present - the balance being made up of collective parcels across the land sold (noting that property ‘G’, 357 ha, was sold destined for mānuka planting).

There were more cases of higher LUC land sales into forestry in the South Island.

This is illustrated in Table 8, which shows the LUC 4 and above land recorded against recent land transfers in the South Island. A closer look at the larger properties affected shows how some better land may be subsumed into plantation forestry, due to a range of factors which can include the size of the land parcel and its proximity to existing large-scale forestry operations.

Two of the properties bordered an exotic production forest (see Figure 2). As such they will likely become an extension of this larger forest, probably resulting in below average forest infrastructure and harvesting costs and perhaps therefore justifying the likely above average purchase price paid for the LUC 4 land than would normally be paid for land destined to be planted in trees.

Additionally, it is understood that the profitability of some of these properties was not as good as the land class might suggest due to climatic, input requirement and other reasons that made long-term farming a challenging choice.

In some cases where better quality land is included in whole farm sales, there is potential for this land to be managed differently – for example, it could be retained as grazing land, or it could be planted with alternative species. Further investigation would be required if this level of detail is thought to be of benefit to the project; however, we are aware of several ‘on sales’ of better-class land (e.g. associated with farm buildings) that has been, and is, occurring.

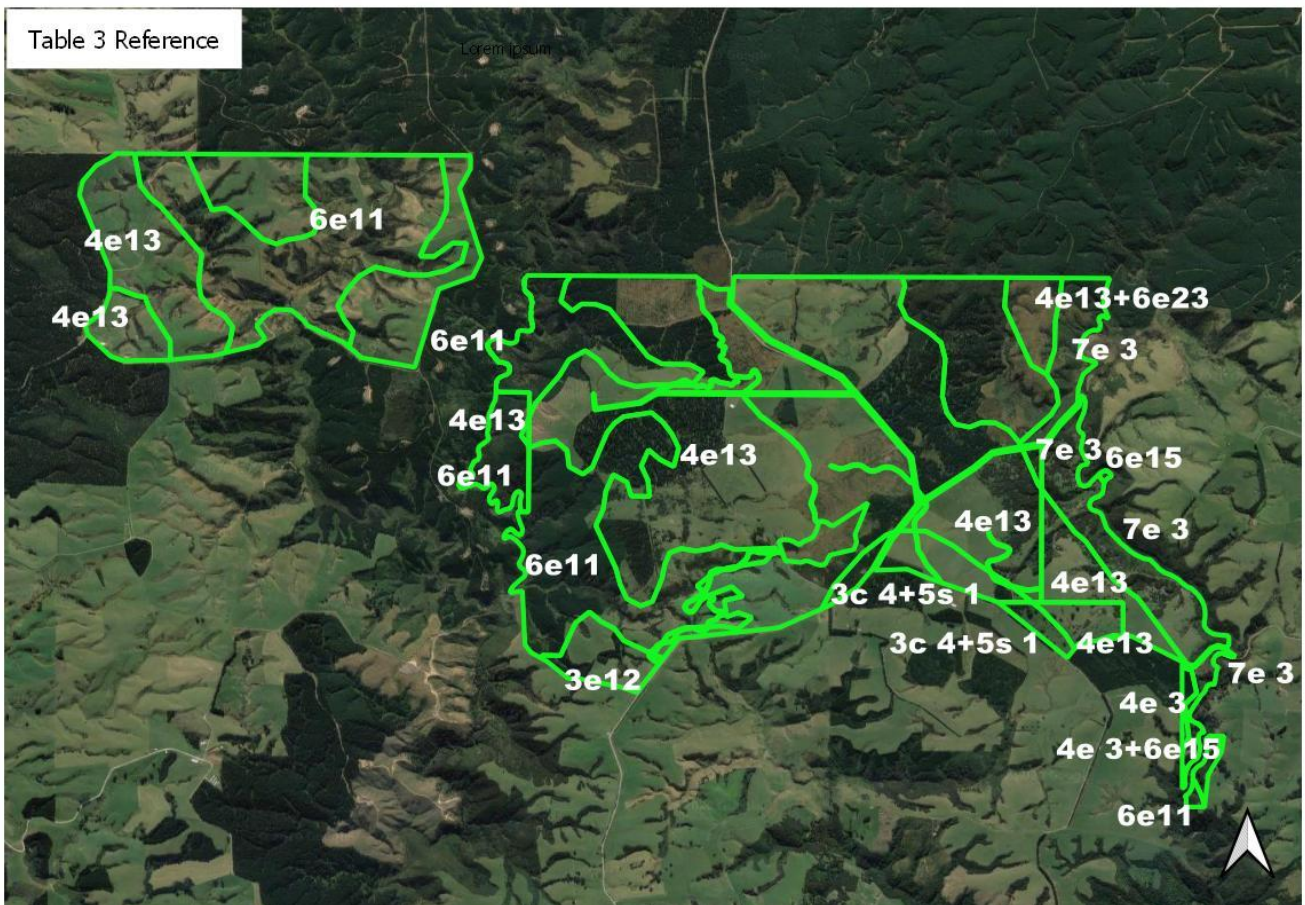


Figure 2: Two properties with LUC Class 4 land adjacent to a large Port Blakely forest, Otago

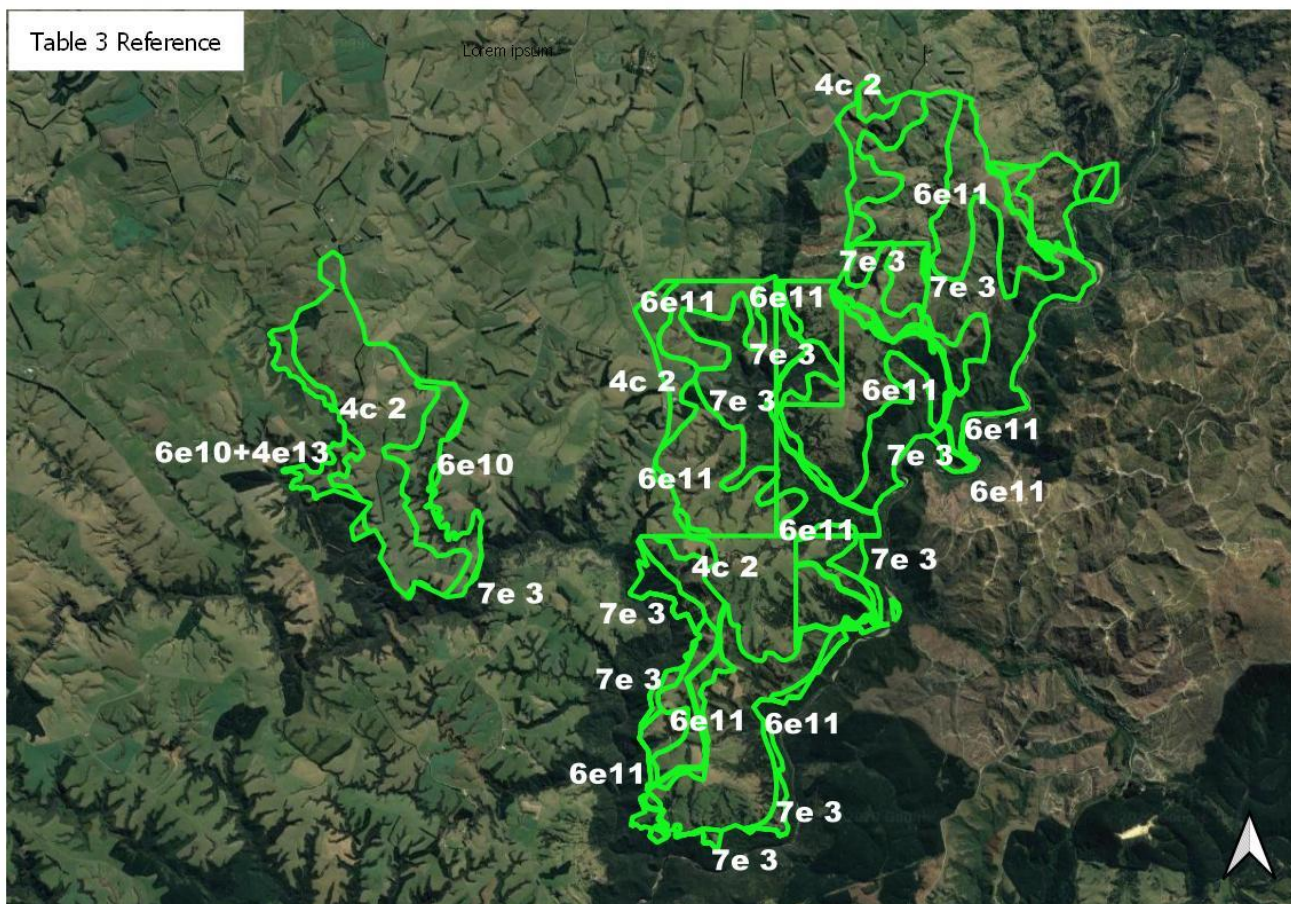


Figure 3: A third property with LUC Class 4 land (left-hand property), probably too small to be an economic farming unit; also close to other larger forested areas

## 5.2 Areas of land being converted to forestry by Erosion Susceptibility Classification

Table 9 shows the areas of land by region under different ESC categories going into forestry. Here we see a more even split between land in the three main ESC classes – low, moderate and high – with only a small percentage of ‘Very high’ (i.e. highly erodible land) being destined for planting.

Table 9 : Areas of land (ha) being converted to plantation forestry by Erosion Susceptibility Classification

Regional Area	Erosion Susceptibility Class (ESC)					Grand Total (Hectares)
	Low	Moderate	High	Very High	Other	
Northland	610	2641	1006	1117	1	5375
Gisborne_Hawkes Bay	1595	3893	5938	3586	25	15036
Wellington	9539	21944	15975	3901	6	51365
South Island	14246	4474	1045	548	30	20342
<b>Grand Total</b>	<b>25990</b>	<b>32952</b>	<b>23963</b>	<b>9151</b>	<b>61</b>	<b>92118</b>
<b>Percentage by Total Area</b>	<b>28.2%</b>	<b>35.8%</b>	<b>26.0%</b>	<b>9.9%</b>	<b>0.1%</b>	<b>100.0%</b>

Historically steeper land has been purchased by forestry interests due to its availability/lesser interest from farming and/or for environmental reasons. Carbon forestry (where radiata pine is planted but there is no intention to harvest the trees) and mānuka are two further options which are now attractive on some of this most challenging of ESC classes.

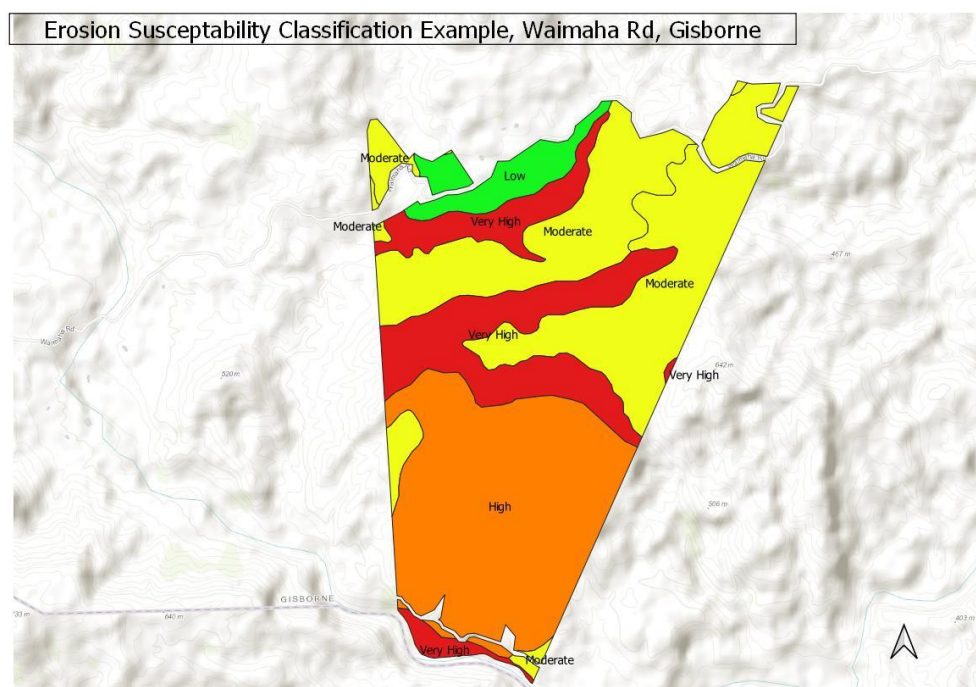
Post Cyclone Bola, much land in the East Coast region was planted to secure the 'hills' that were deemed unsustainable for farming and required cementing in place to protect downstream infrastructure and livelihoods.

Fast forward to today and under the National Environmental Standard for Plantation Forestry (NES-PF) assessment, some of this land in Very High (red) and High (orange) zones cannot be planted without resource consent – which would likely be given once roading and harvest plans were affirmed as being adequate to avoid the consequences of questionable steep land forestry practice seen in recent years in, for example, the Tolaga Bay and Nelson areas.

Additionally, whereas three to four decades ago mānuka was being cleared to plant forest and create clear farmland, today planting mānuka offers a potential economic use on the same exposed land, providing an alternative species to *Pinus radiata*.

To support pastoral farming, traditionally regional councils have targeted the Very High erosion class land (LUC 8), some LUC 7e and occasionally some LUC 6e land on farms for erosion control planting with poplar and willow poles or full 'retirement' into both production and/or protection forest. Unfortunately, this type of support for farmers wanting to continue farming has not always extended into the better LUC 6 and 7 country, possibly making it difficult for farmers with mixed land types to economically protect their land from erosion in a way which makes sense for livestock production (see Figure 4).

Further analysis of this data could for example provide more information on which land types are destined for mānuka planting/natural regeneration, and whether very highly erodible land is going into permanent (carbon) forests.



**Figure 4: Example of an ESC classification**

### 5.3 Comment: the value of LUC ESC and LUCAS information

The LUC and ESC systems are both now well-established as descriptors of topography and erosion susceptibility and are used extensively to regulate and guide land use. They also inevitably influence the perceived and actual value of land on the open market.

Hill country farms in NZ are made up of a large percentage of LUC Classes 5, 6 and 7 land and some of these are very profitable. It is fair to say, however, that the steeper the land (i.e. higher LUC and ESC classes), the higher the production costs to generate the same farming output per hectare compared with land in lower LUC/ESC classes. The same can be said of forestry, where, within reason, while land productivity is less sensitive to topography and erosion potential, costs of production are sensitive to these site factors. Some of the country's best forest growth rates are seen on steep to very steep land in areas of moderate to high erodibility in the eastern North Island.

Equally, there are farms on lower LUC land that due to climatic conditions, choice of farming approach and other factors, are not as profitable as might be expected. However, the data suggests that forestry investors understand and are confident of the potential of land in high LUC/ESC classes in the price range at which the land is currently available. Land which is sometimes considered over-priced by farmers because of its LUC class, production history (and the realistic short-to-medium term expectations of those farmers) may well currently be within the price range of forestry investors, who are judging it on its long-term potential in an environment where carbon returns add significantly to returns from timber. Land classified as 'High' in the ESC currently appears to have significantly better projected return on investment per hectare in plantation or permanent/carbon forestry, than in pastoral use.

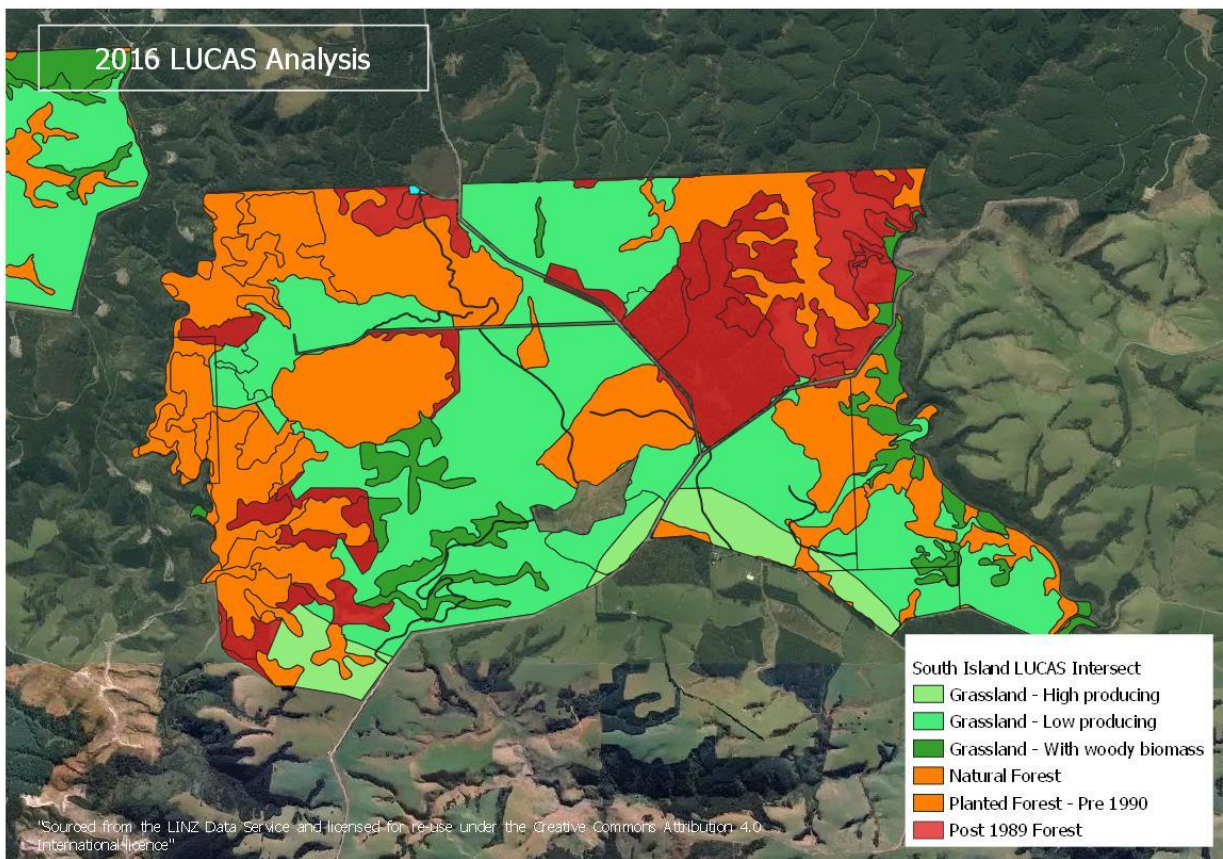
### 5.4 LUCAS Layer Analysis

As well as the ESC and LUC analysis undertaken, property shapefiles were intersected with the 2016 LUCAS Layer.

The LUCAS Land Use Map comprises New Zealand-wide land use classifications (11) nominally at 31 December 2016. This provides additional broad information on the land use and potential changes to the Pastoral Grazing estate identified. A total of 16.1% was recorded as being in natural forest with an additional 11.4% already in some form of exotic forest.

**Table 10 : LUCAS 2016 layer**

LUCAS 2016 Layer	Northland	Gisborne-Hawkes Bay	Rest of North Island	South Island	Grand Total (Hectares)	Percentage by Total
Cropland - Annual				75	75	0.1%
Grassland - High producing	3232	3624	13150	2280	22285	24.2%
Grassland - Low producing	427	7929	21646	8101	38103	41.4%
Grassland - With woody biomass	365	1064	2569	2204	6202	6.7%
Natural Forest	752	1154	8635	4259	14801	16.1%
Planted Forest - Pre 1990	267	293	1114	651	2325	2.5%
Post 1989 Forest	326	907	4221	2731	8185	8.9%
Other		31	0	0	32	0.0%
Settlements or built-up area				1	1	0.0%
Wetland - Open water	3	34	29	6	71	0.1%
Wetland - Vegetated non forest	4	1		34	39	0.0%
<b>Grand Total</b>	<b>5375</b>	<b>15037</b>	<b>51365</b>	<b>20342</b>	<b>92118</b>	<b>100.0%</b>



**Figure 5: Example of a LUCAS classification**

## 5.5 Distance to the nearest port

Around 50% of New Zealand’s radiata pine crop goes ‘over the wharf’ as logs into export markets. All forest harvests produce logs of varying quality, the vast majority of which must be sold at a profit if the harvesting operation is to be financially worthwhile. Often a large proportion of lower quality logs are sold to export, as overseas demand is strong and there are few markets in New Zealand that want these logs and/or pay the prices received in the export market.

Beyond a certain distance and depending on a range of variable factors including the log price, harvesting costs, transport costs and shipping costs, it becomes uneconomic to transport logs. Historically the margins of this distance have been considered to be around 200 km, but less when any of the costs increase or log prices are low.

At least 21 properties, totalling 12,565 ha, were identified between 150 km and 200 km from the nearest port. At present, this land, which might be considered remote and therefore of lower market value by farmers and pre carbon/‘low log price’ days was also less attractive as a forestry investment. With the now established carbon (cash) flows available to forests plantings in these higher distance to market areas, forestry is now an attractive option. Forests closer than 150 km to a port are those most likely to be managed for both timber and carbon revenues (based on current industry log revenues and costs) unless purchased by entities that have a carbon-only focus from the outset. In this respect it is estimated that a gross area of 26,547 Ha (20,110 Ha Nett) of total sales identified during the period, were to carbon focused companies – i.e. forestry that is not intended to be harvested.

There may be several opportunities during the life of the crop to decide whether to manage the crop for timber or solely for carbon. The fall-back position for these forests – no harvest – is still an attractive investment proposition at present: the current ETS review and associated new ‘averaging’ rules have the potential to significantly influence future decisions around whether to harvest forests or retain them purely as carbon assets.

Forests less than 150 km – 200 km from the port are generally believed to be suitable for timber production and should benefit from both timber and carbon revenues. These forests will generate employment at certain times during their rotation especially at harvest and replanting.

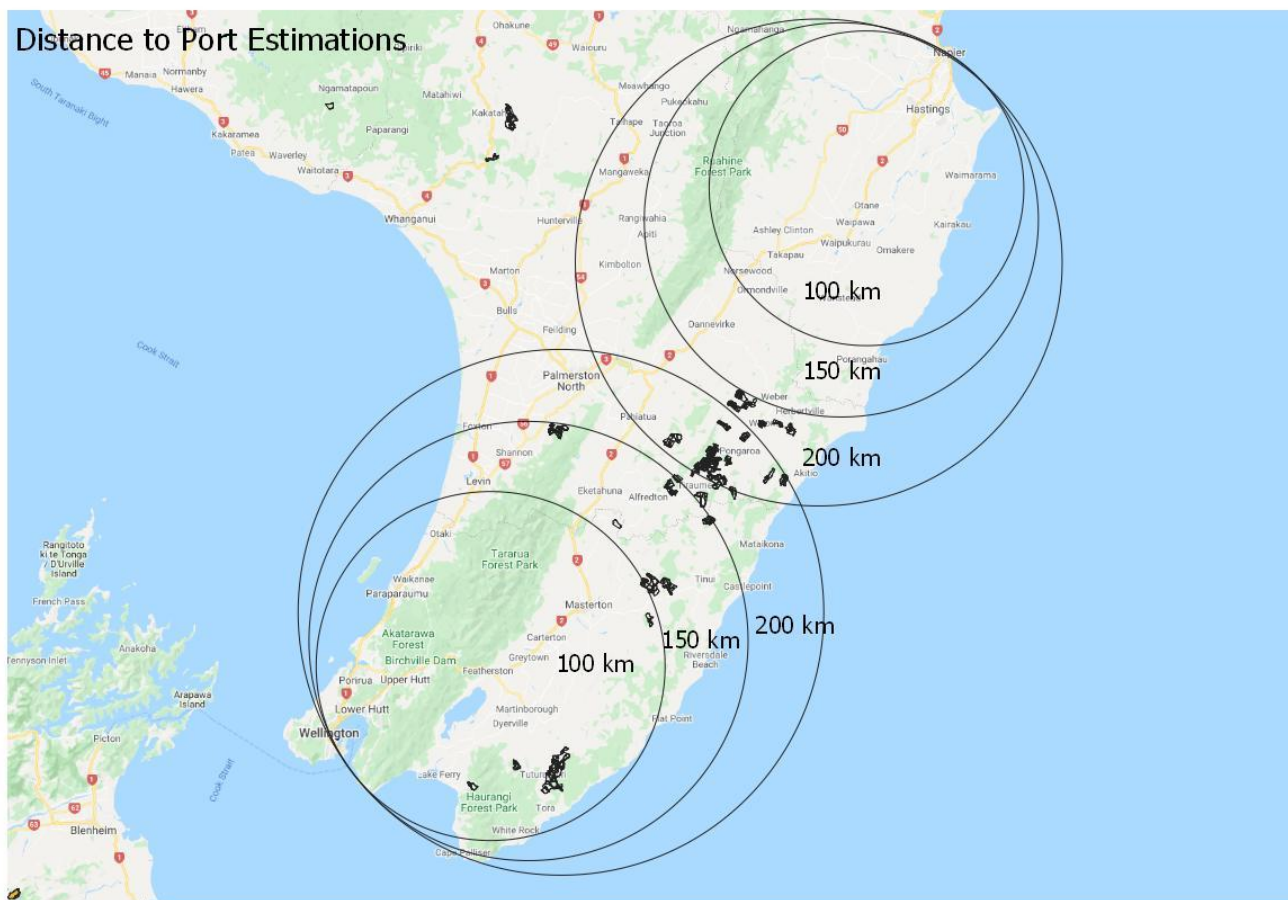
We have calculated the distance to the nearest log-exporting port for all whole-of-farm properties at the end of stage two (Appendix B). Table 11 below shows this data for properties in the Greater Wellington Region, and highlights that some of these properties are closer to the Port of Napier than Centre Port in Wellington.

**Table 11 : Examples of distance to port for a selection of Greater Wellington properties**

Greater Wellington Area Location ID	Distance to Port (km)	
	Napier	Wellington
201	169	
202		165
204		131
205	204	
206		174
208		116
209		181
210	169	
212		154
214		126
216		107
217		131
218		153
219		98
220		202
221	170	
222		172
223		201
224	198	
225	161	
226		206
230		181
231		178
232		133
233		154
234		82
235		139
236		173
237		175
238		116
239	177	



Figure 6 illustrates the same data geographically and confirms that many of the recent property purchases in the northern Wairarapa are in the zone which could become marginal if costs increase. Again, this goes some way to explaining the concerns of some who live and farm in these areas, and who are no doubt aware of the potential for these properties to simply be allowed to grow 'forever' with very low labour inputs or tangible benefits for the district.



**Figure 6: Distance to port of Lower North Island land acquisitions**

# 6. Discussion

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## 6.1 Why is farmland being sold?

Of the whole of farm sales identified, 90% of the land is in Land Use Class 6 or higher. We have not identified the LUC under partial farm sales and plantings, but anecdotal evidence suggests that similar land has mainly been planted.

Much of the land sold has been identified as being a considerable distance from the nearest port (and hence a larger city centre) and often a reasonable distance from a larger population centre. Both high LUC and remoteness have long been known to affect underlying land values, but more so for farming than forestry. As discussed in Section 5.5, forests can be planted 200 km from the nearest port and still be an attractive economic investment as long as log prices and operational costs align. Farming this far from a major population centre can be difficult, especially where rural communities are struggling to keep their schools and other amenities open. This again influences the relative value of land in the eyes of farming and forestry purchasers.

It is important to acknowledge that many farmers love what they do, and many 'make money to farm, rather than farm to make money'. However, with projected returns on forestry investment increasing due to the addition of carbon revenues, 'forestry' has been prepared to pay more for the land than 'farming', and as forestry buyers have arrived on the scene, some landowners have chosen to take the opportunity to benefit with the time being right to move on to the next farm or next stage in life.

In our experience, land sales and partial farm conversions from farming to forestry in recent times have been made for many reasons, but two predominant ones are as follows:

**A. Land sales - achieve an acceptable capital gain on land that allows transition to another farm elsewhere or stage in life**

The following have been observed:

- a. many properties sold have been marketed or were being developed with a view to being on-sold at some stage to allow movement up the farming ladder or retirement.
- b. land prices had been relatively static until the recent interest from forest investors with ability to pay more for the more remote and possibly less productive land than farming interests. Forestry investors have been able to pay thanks to strong log prices, a rise in the carbon price, and expectations this will continue to rise, particularly following the amendments to the Emissions Trading Scheme in 2020. Key drivers influencing the carbon price include an increase in the Fixed Price Option for surrender to \$35/NZU (from \$25/NZU) and the move to auctioning. Introduction of averaging, equating to 16 years of 'enduring carbon' for *P.radiata* and also the introduction of a Permanent Forest Category, which allocates carbon for 50 years initially, will also add to the attractiveness of forestry from 2023 onwards.

**B. Partial farm plantings - increasing returns from poorer performing land, allowing more resources to be targeted at better land on the farm**

Here the aim has been to optimise resource inputs and improve on farm financial and environmental returns. Change levels may be affected in many ways including:

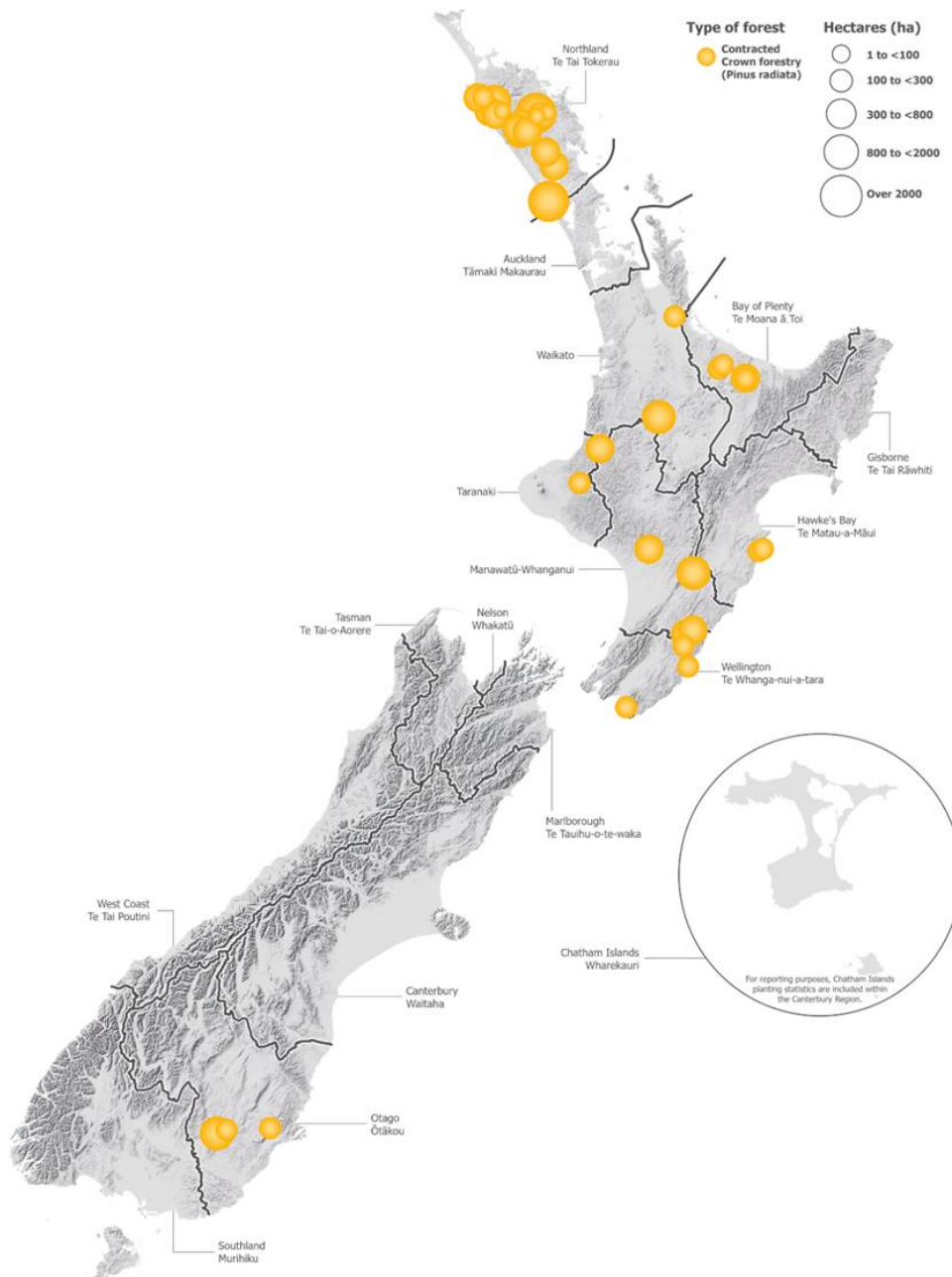
- a. the ability of the land to be sustainable long-term as a pastoral operation.
- b. the management approach the owner is prepared to operate under.
- c. the governance ability of the owner/s to change direction.
- d. the above factors affect the willingness of the bank to 'underwrite' the funding of required changes.

## 6.2 Partial farm plantings and mixed land use: a new era?

Judicious planting within the farm boundary is now being perceived to add value through improved cashflow along with a reduction in net farm emissions, reducing the risk and costs associated with emissions that a farm might face going forward.

Evidence of this can be seen in the uptake of two Government initiatives designed to encourage new planting with both national carbon targets and environmental benefits in mind.

The Crown Joint Venture forest plantings launched in 2017 were initially oversubscribed at their target of 24,000 ha. As at 16/11/20, 21,822 ha were declared actually contracted and the tables have been adjusted to reflect the official count.



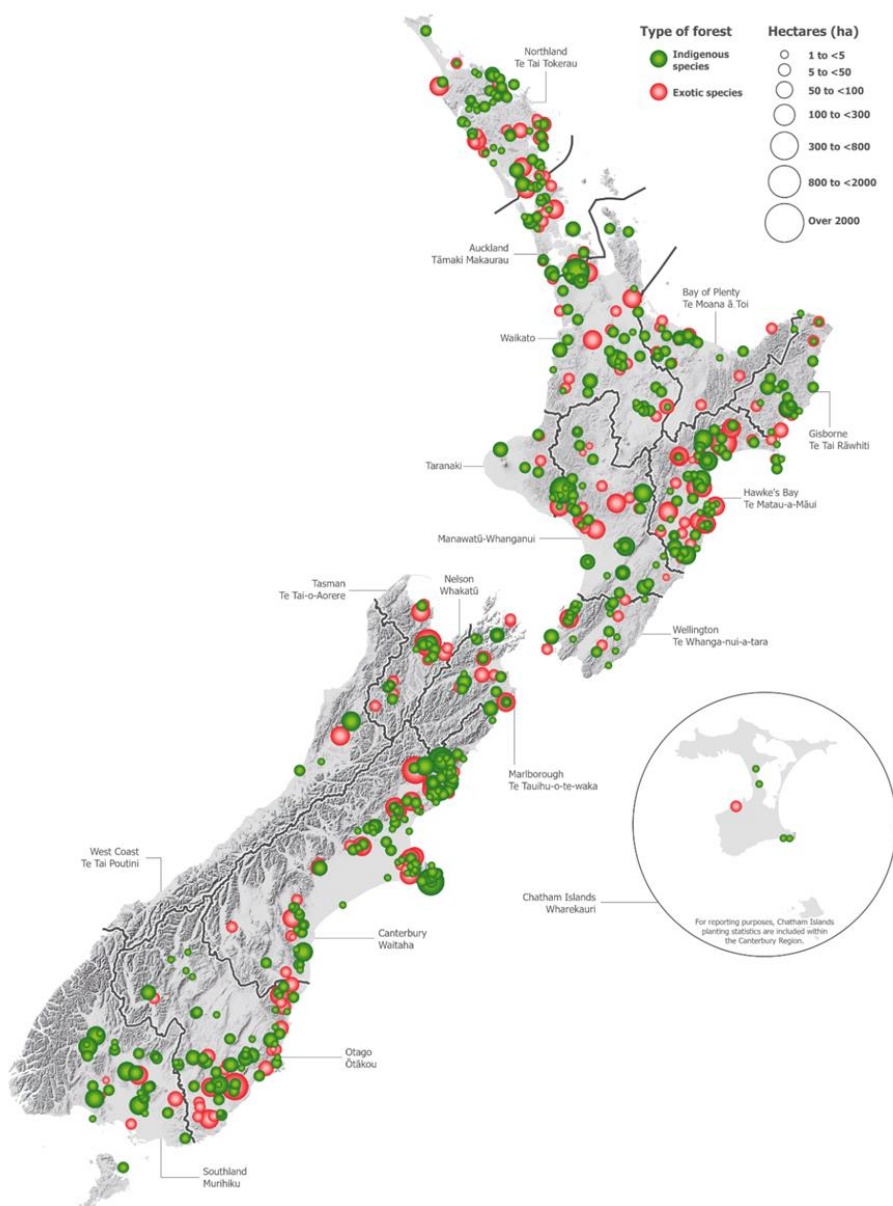
**Figure 1: Location of Crown Joint Venture plantings**  
 (Source: MPI Contracted Crown Forestry Projects 16/11/20)

The Joint Venture initiative enabled some whole farm plantings prior to a policy change but also some partial farm plantings where quite large areas (from a 'within farm' perspective) have been planted on less favoured land. Outcomes expected include increased overall farm income (both in the short and longer term), better environmental and emission outcomes, a reduction in costs, and often, less labour input. Our anecdotal evidence suggests that several whole-of-farm sales have been avoided thanks to this fund.

The One Billion Trees programme (targeted at current farm owners) has been remarkably successful.

Initial funding for *Pinus radiata* was stopped and funding for other exotic species reduced as the quotas for these species were filled. The 1BT programme appears now to be on hold as MPI reassess how they will go forward but it is hoped that grants will re-start, to continue the upsurge in in farm plantings that they clearly catalysed.

An impressive spread in the uptake of 1BT by landowners planting smaller marginal areas on their properties is demonstrated in Figure 8 below:



**Figure 2: Location of approved 1BT grants**

(Source: MPI Approved One Billion Trees applications 16/11/20)

Interesting regional differences in 1BT plantings are evident.

South Island 1BT grants were heavily weighted in favour of exotic plantings (72%). This is potentially a function of the lower levels of carbon allocated using the MPI sequestration tables in the South Island meaning that the six-year stand down period from the ETS for *P.radiata* works out at less than the grant received.

The North Island regional tables in general meant that the six-year stand down period for *P.radiata* reduced the carbon income for landowners by more than the value of the grant, resulting in only 29% of the total currently allocated. Native plantings which received \$4,000/ha were more heavily favoured (71%).

This aspect of the scheme should be encouraged, especially to help landowners with their obligations under the new Freshwater regulations alongside the emerging emissions reduction targets.

At the same time, we are seeing increasing recognition within the hill-farming community that mixed land-use, where 'the right trees in the right place' form part of the overall farming business, may be one positive way of diversifying and increasing the economic, environmental and social sustainability of the land. If farmers already have experience with trees and forestry, or are confident of the support available in what may not be core business to date, then indications are this will provide further confidence to consider investing in forestry as part of the land-use mix.

If farmers looking to compete in land purchase understand the benefits of multiple land-use better, it may also change what they are comfortably prepared to offer for land when it does come on the market.

The following link is to the MPI 1BT Summary as at 31/12/20:

<https://www.mpi.govt.nz/dmsdocument/44911-One-Billion-Trees-Fund-24-Month-Monitoring-and-Evaluation-Report>

# 7. Summary

Throughout the project it was evident that the data was continually changing as land was purchased, on-sold, approved or disapproved by the OIO office and simply in relation to the timing of available information, whether it be registered into 'Property Guru' or when MPI were able to release information.

Our original objective was to:

*"Independently validate the amount of land that has been or will be planted into exotic plantation species in the near future that is likely to take land out of pastoral production".*

The results of our independent validation estimate:

1. The gross land area of whole farms purchased for planting is **92,118 ha between 1/1/2017 and 31/12/2020**.
2. Of that amount, 66,665 ha of this is 'plantable (effective) area' that can be planted through analysis of the 2016 LUCAS layer, and is land that was acquired as a result of the purchase of a whole farm.
3. That between 2018 and 31/12/20 an additional 47,382 ha of land within existing farms has or will be planted and was funded by One Billion Trees programme (1BT) or as part of a Crown Forestry Joint Venture. The aim of these programmes is to increase planted areas within a farm by existing landowners.
4. Of this area, approximately 12,124 ha is intended for mānuka/indigenous plantings. If we add this to the identified 14,338 ha in farm purchases for mānuka/indigenous plantings we get close to 26,500 ha or 19% of the total identifiable land conversion.
5. As a result of the above, it is estimated that **139,500 ha of land**, has been or will be planted in the near future, taking this land out of sheep and beef production.

Whole of Farm Purchase	Year				Grand Total (Hectares)	Percentage by Conversion
	2017	2018	2019	2020		
Honey (Manuka)	3039	7340	1678	2281	14338	10.3%
NZ Sales	2510	11245	26198	11881	51834	37.2%
OIO	1455	8982	10626	4883	25946	18.6%
<b>Total Whole of Farm</b>	<b>7004</b>	<b>27567</b>	<b>38502</b>	<b>19045</b>	<b>92118</b>	<b>66.0%</b>
<b>Partial farm plantings by Landowner through 1BT/JV</b>						
1BT Landowner Grant		12,124 Indigenous + 13,434 Exotic			25560	18.3%
Crown Forestry JV		21822			21822	15.6%
<b>Total Partial farm funded</b>		<b>47382</b>			<b>47382</b>	<b>34.0%</b>
<b>Totals</b>					<b>139500</b>	<b>100.0%</b>

Of interest was the amount of land that has been and continues to be purchased for mānuka planting, a land-use change that was not necessarily on the table at the start of the project but one that will continue and have a bearing on livestock numbers, associated land use and potential community change.

The economics of forestry with carbon cashflows are attractive and the demand for potential forestry land from investors remains strong. There is also an increasing interest/commitment from farmers to consider within-farm plantings. We have noted a slowdown in properties being sold for conversion to forestry in 2020, in part due to COVID-19 affecting the ability to transact but also as competition increases from pastoral farming (possibly reflected in the growing percentage of steeper land that has been bought as time has progressed and/or a more diverse approach where purchasers are looking to buy land that can both be farmed and afforested).

Over recent times many less attractive (to farming) properties have been sold and new land now coming onto the market is in demand from the farming industry for both agricultural production and as an investment for money that to date may have been in higher earning investments off farm.

In total, some 47,382 ha of land have received funding from the Crown for partial farm planting, predominantly undertaken by the existing farming landowners.

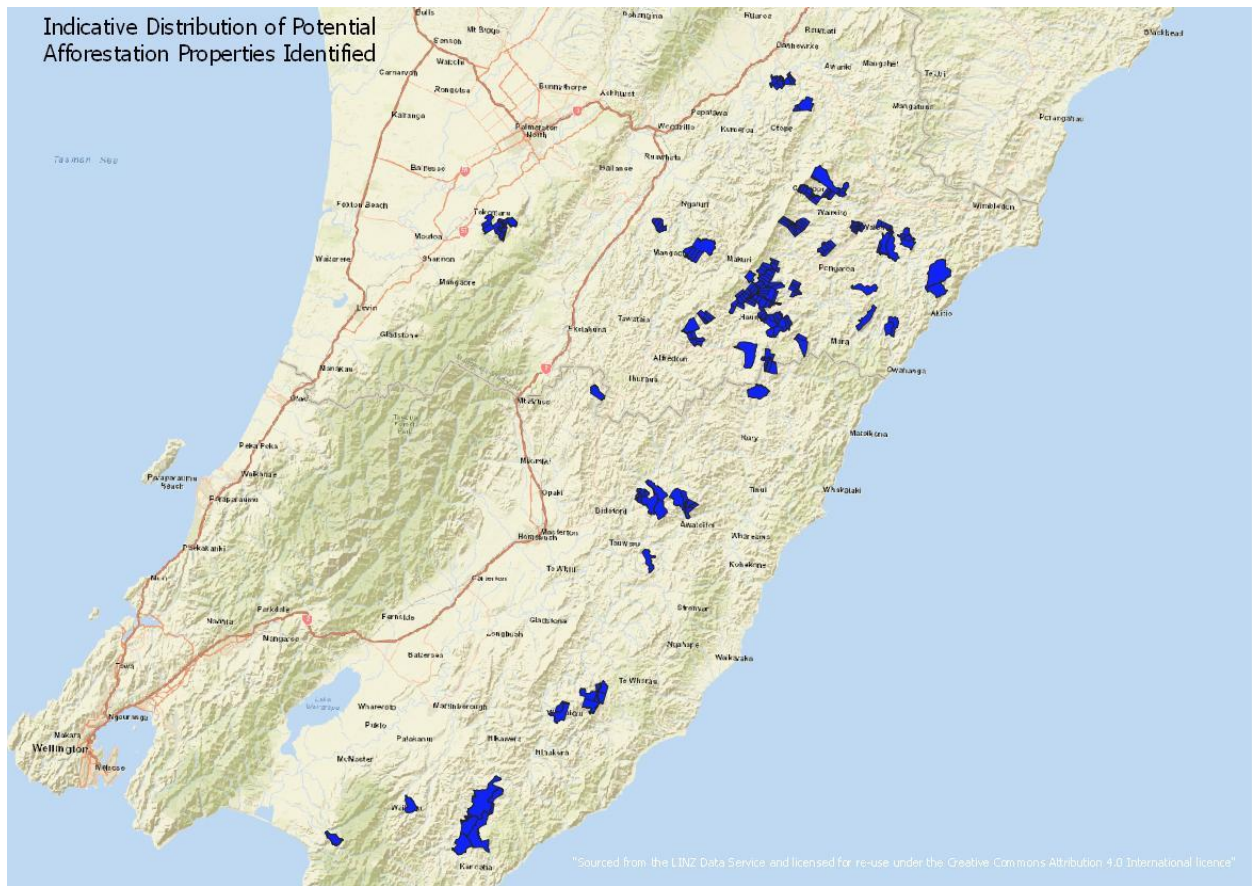
The Crown Joint Venture scheme has been halted as the original target of 24,000 ha was under negotiation, and the 1BT programme has ceased taking applications as the initial monies allocated are assigned. Both schemes were ultimately very successful in increasing establishment rates for both exotic and native plantings.

The strong uptake of the Joint Venture fund and the One Billion Trees (1 BT) planting grant by existing landowners provides evidence that many farmers are assessing the long-term benefits associated with putting part of their farm in trees, planting 'the right trees in the right place' - where the right place is one which increases overall farm profitability, reduces total farm emissions and may also confer other sustainable environmental and social benefits.

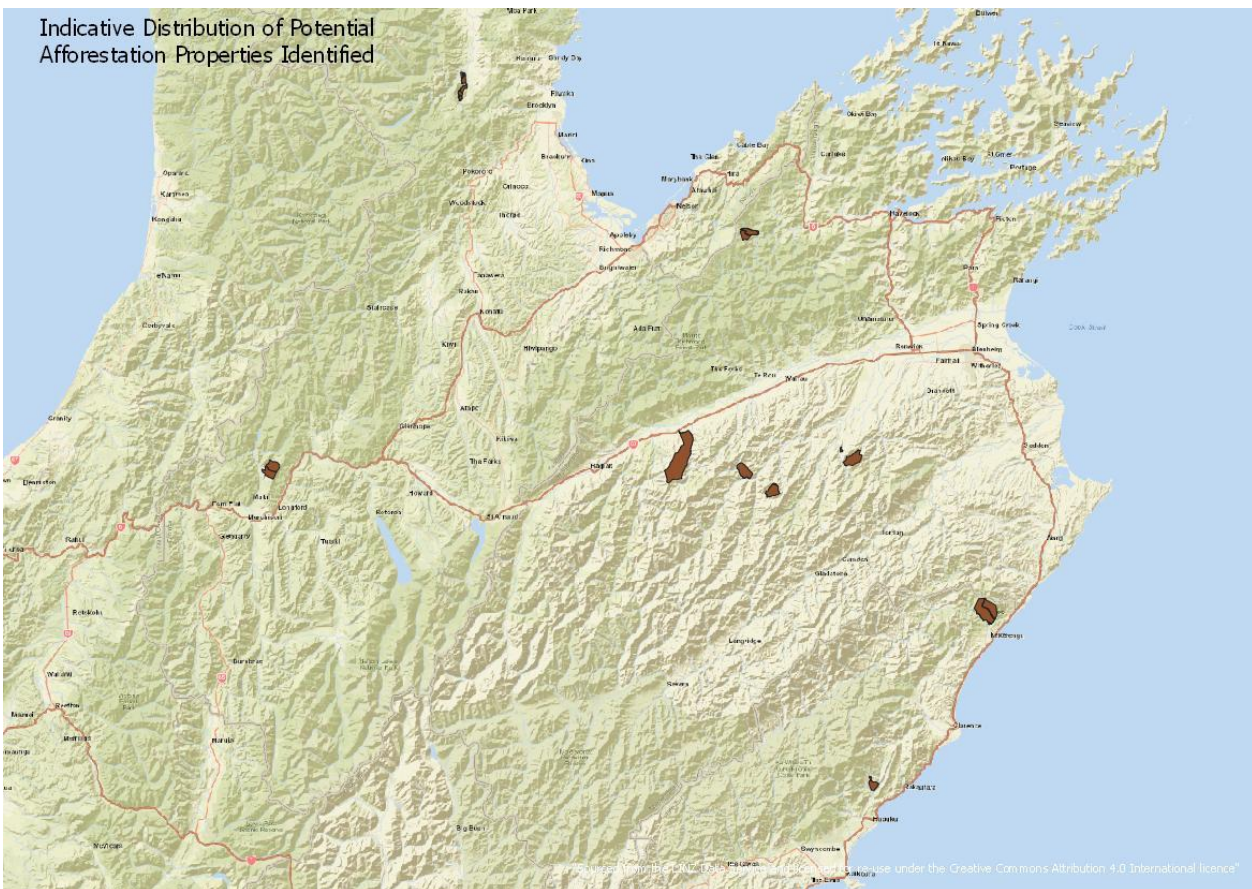




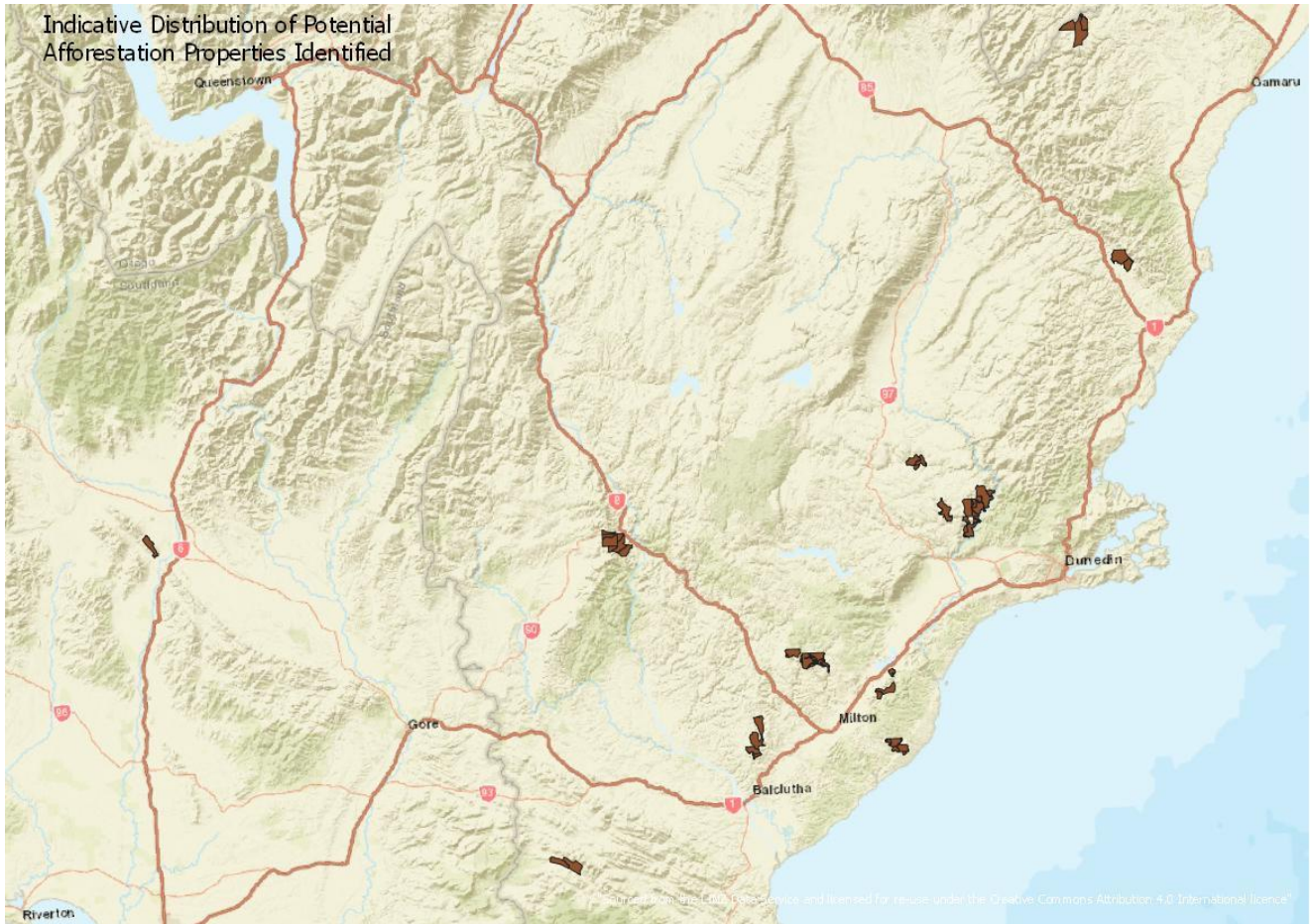




**Map 4: Lower North Island land acquisitions for forestry**



**Map 5: Top of the South land acquisitions for forestry**



Map 6: Otago land acquisitions for forestry.

## 8.2 Appendix B: Distance to port of all whole-of-farm acquisitions

### 8.3 B.1 North Island: Distance to port of whole-of-farm acquisitions

#### Example 1: Northland and Gisborne-Hawke's Bay

Property Location ID	Distance to Port (km)		
	Gisborne	Napier	Wellington
<b>Gisborne-Hawkes Bay</b>			
301	112		
302	87		
303	29		
304		60	
305	75		
306		69	
307	148		
308		41	
309	83		
310		80	
311			181
312		85	
313		34	
314	62		
<b>Northland</b>			
		<b>Marsden Point</b>	
401		90	
402		192	
403		102	
404		70	
405		119	
406		192	

**Example 2: Greater Wellington**

Greater Wellington Area Location ID	Distance to Port (Km)	
	Napier	Wellington
201	169	
202		165
204		131
205	204	
206		174
208		116
209		181
210	169	
212		154
214		126
216		107
217		131
218		153
219		98
220		202
221	170	
222		172
223		201
224	198	
225	161	
226		206
230		181
231		178
232		133
233		154
234		82
235		139
236		173
237		175
238		116
239	177	
241		118
243		166
235		
236		
237		
238		
239	177	
240		140
241		
242		213
243		

## 8.4 B.2 South Island: Distance to port of whole-of-farm acquisitions

South Island Property ID	Distance to Port (km)					
	Bluff	Lyttleton	Nelson	Picton	Port Chalmers	Timaru
101					130	
102				70		
103			91			
104				153		
105				153		
106		91				
107					111	
108					78	
109					86	
110					87	
111					52	
112					76	
113					72	
114				98		
115				87		
116				76		
117	113					
118				87		
119			127			
120					52	
121					65	
122			167			
123						108
124			84			
125					73	