



# Forest360

## Poplars, Willows and Carbon Summary for Landowners

June 2019

**Prepared for:**

Grant Cooper  
Land & Partnerships Manager

June 2019  
Report No. 2019/EXT/1673  
ISBN 978-1-99-000910-5

**Prepared by:**

**Forest360**  
[www.forest360.nz](http://www.forest360.nz)  
Telephone 0800 366 700  
Email [info@forest360.nz](mailto:info@forest360.nz)

**CONTACT** 24 hr Freephone 0508 800 800      [help@horizons.govt.nz](mailto:help@horizons.govt.nz)      [www.horizons.govt.nz](http://www.horizons.govt.nz)

---

<b>SERVICE CENTRES</b>	<b>Kairanga</b> Cnr Rongotea and Kairanga-Bunthythorpe Roads Palmerston North	<b>REGIONAL HOUSES</b>	<b>Palmerston North</b> 11-15 Victoria Avenue	<b>DEPOTS</b>	<b>Levin</b> 120 - 122 Hōkio Beach Road
	<b>Marton</b> Hammond Street		<b>Whanganui</b> 181 Guyton Street		<b>Taihape</b> Torere Road Ohotu
	<b>Taumarunui</b> 34 Maata Street				<b>Woodville</b> 116 Vogel Street

---

**POSTAL ADDRESS** Horizons Regional Council, Private Bag 11025, Manawatū Mail Centre, Palmerston North 4442

F 06 9522 929



**horizons**  
REGIONAL COUNCIL



**FOREST360**  
GROWING YOUR FUTURE

Poplars, Willows and Carbon  
Summary for Landowners  
June 2019

## 1 SPACED POPLAR AND WILLOW PLANTINGS AND THE EMISSIONS TRADING SCHEME

Spaced poplar and willow plantings are recognised as an excellent way to protect erodible soils while allowing livestock grazing to continue. In addition to soil conservation, the trees can provide shade, shelter, and fodder for livestock, amenity and biodiversity benefits, and timber for the farm.

If spaced pole plantings and the land they are on meet certain criteria, they can be registered in the Emissions Trading Scheme (ETS) and earn valuable carbon credits.

### 1.1 WHO CAN ENTER THE ETS?

Three types of participant are eligible to join the ETS – the landowner, leasee, or forestry right holder.

### 1.2 IS MY LAND ELIGIBLE FOR THE ETS?

To meet the ETS **forest land definition**, a stand of trees must:

- occupy more than 1 hectare
- be capable of reaching 30% canopy cover
- be a tree species capable of growing taller than 5.0m on that site
- be capable of reaching a width of at least 30m on average
- be on **Post-1989 forest land**

**Post-1989 forest land** is land that meets the forest land definition and either:

- wasn't forest land on 31 December 1989
- was forest land on 31 December 1989, but was deforested between 1 January 1990 and 31 December 2007, or
- was Pre-1990 forest land that was deforested on or after 1 January 2008, and any ETS liability has been paid
- meets other minor conditions for ETS eligibility (ask your forestry consultant or another ETS expert)

### 1.3 HOW CAN I MAXIMISE THE ETS BENEFITS OF MY POPLARS AND WILLOWS?

The objectives should be to maximise the area that is eligible for the ETS, and ensure this area is maintained to meet ETS criteria.

#### 1.3.1 EXISTING PLANTINGS:

Landowners should check the land in question is Post-1989 and then ensure plantings have or have the potential, to meet the ETS criteria above.

- assess trees on the ground – locate the perimeter of groups of spaced trees, estimate the area within the perimeter, average width (especially with gully plantings) and the distance between trees
- use aerial images to assess areas and percentage canopy cover
- check whether dripline/canopy edges of mature perimeter trees are no more than 15 metres apart
- look for ways of extending the perimeter and linking adjacent plantings with extra poles
- ensure perimeter/links are robust, so if trees are lost, the area will not be jeopardised

#### 1.3.2 NEW PLANTINGS:

Check forest land Post-89 eligibility and then ensure:

- proposed plantings meet soil conservation and farming objectives
- the area of each stand/group of trees planted comfortably exceeds one hectare
- the average width of the planting comfortably exceeds 30 metres

- perimeter trees do not exceed 20 metres apart at planting; 15 metres is better
- the species (poplar or willow) and cultivar are borne in mind when considering how many stems per hectare are required and how far apart they should be planted:
  - willows and medium-broad canopy poplars -. Approx. 50- 60 trees per hectare, 12-15 metres apart
  - large areas of narrow canopy poplars - approx. 80-100 trees per hectare, 9-12 metres apart
- poles are well planted and re-rammed during their first summer; losses are replaced as soon as possible
- poles are protected from livestock with sleeves, and cattle excluded for at least 18 months
- pole plantings are checked regularly over their first few years, losses are replaced.

#### 1.4 MANAGING POLES INTO THE LONG-TERM

Poplars can be expected to live for at least 60-70 years, willows somewhat less. Some active intervention will enhance the benefits of the trees over time without risking their ETS eligibility.

Management	Timing	Objective	Safeguards to Ensure ETS Eligibility
<b>Form pruning</b> (mainly poplars)	Years 2-5	Selecting a single leading shoot and removing competing shoots to create a single-stemmed tree.	No risk to ETS eligibility
<b>Clearwood pruning</b> (mainly poplars)	Years 5-10	Removing the lower branches from the stem to lift the crown of the tree and create a clear lower log which has the potential for timber. Generally done to a maximum of 6 metres height, involving 2-3 separate pruning lifts.	No risk to ETS eligibility.
<b>Pollarding</b> (mainly willows)	Year 7-9 onwards	Removal of all branches at about 2 metres height (above cattle browsing height) generating nutritious feed and a useful supplement, especially in dry summers. Also, re-invigorates and maintains the form of the trees.  Can be repeated every 3-5 years.	Trees do not lose <i>the potential</i> to achieve 5m height and 30% canopy cover. .  Possibly some risk to ETS with regular pollarding of large areas - eligibility needs to be clarified with Te uru Rākau.
<b>Thinning</b>	Year 15 onwards (depending on initial spacing and species or cultivar)	Removal of selected trees as their canopies grow and begin to shade out pasture.  Can be done either by poisoning standing trees, ring-barking them, or felling them. Thinning out of pruned trees, especially Kawa poplar could produce timber.	Take care not to remove critical perimeter trees. Maximum allowable distance between canopy dripline of 15 metres for perimeter trees. Remember 30% canopy cover requirement.
<b>Removal/replacement of over-mature trees</b>	As trees begin to deteriorate	Removal of individual trees (e.g. by poisoning or felling standing trees), and replacing with new plantings.	If done carefully, it can be achieved without impacting either on soil erosion risk or ETS eligibility.

## 1.5 HOW MUCH CARBON?

For ETS registrations under 100 hectares, Te Uru Rākau’s standard look-up tables are used. Spaced poplars and willows come under the ‘Exotic Hardwoods’ category. The following table shows the carbon accrued by one hectare of exotic hardwoods (including poplar and willow poles) over a series of five-year periods.

Age of trees (years)	1 - 5	6 – 10	11 -15	16 - 20	21 - 25	26 - 30
NZU/ha for 5-year period	63	188	158	117	92	67
NZU/ha total accrued	63	251	409	526	618	685

In a mixed aged stand, the establishment age considers the age of all the trees mapped producing a weighted average, or sub areas of separate ages.

For ETS registration **over 100 hectares** the participant is required to measure the carbon under the Field Measurement Approach (FMA). It is highly likely that, if measured under the FMA, the amount of carbon per hectare in spaced poles will be significantly less than if the trees had been assessed using the look-up tables.

## 1.6 LIABILITIES ASSOCIATED WITH CARBON CLAIMED ON POPLAR AND WILLOW PLANTINGS

Spaced pole plantings are generally planted with the long-term in mind, and with no intention of harvesting the trees on a commercial or clear-fell basis. So long as the area continues to meet the ‘forest land’ criteria and the ETS mapping standards described, the surrender of the carbon units should never be triggered.

It is important to remember that the credits are attached to the standing trees and the land. If the land or forest is sold or otherwise changes ownership, the new owners would need to take into consideration the carbon accounting record (CAR) against the registered land.

## 1.7 POSSIBLE CHANGES TO CARBON ACCOUNTING FOR SPACED POPLARS AND WILLOWS

ETS carbon accounting for poplars and willows plantings using the Te Uru Rākau ‘look-up tables’ is currently known to over-estimate the actual amount of carbon being captured by the trees.

At some stage in the future it is likely that new tables will be issued which more accurately represent the actual amount of carbon captured by spaced plantings. If new poplar and willow tables are issued, landowners will need to adjust their expectations.

## 1.8 ETS REGISTRATION AND ADMINISTRATION

Registering for the ETS is likely to be the point when landowners require some professional help. The registration process involves:

- checking that the land on which the trees are growing meets the ETS Post-1989 forest land definition by a desk-based assessment, using historical imagery and other records
- desk-based GIS mapping of planted trees – best done by someone with a good understanding of ETS eligibility criteria and mapping standards. Age of trees is all-important
- if trees on the ground cannot be seen on the available aerial imagery (very likely if recently planted), then supporting evidence will be needed e.g. pole locations captured by GPS, geo-referenced photos or drone footage, receipts/records of planting
- submitting an application plus Te Uru Rākau fee via the Te Uru Rākau website

## 1.9 REQUIREMENTS AND COSTS OF ENTRY AND PARTICIPATION IN THE ETS

Requirement	Description	Further Information	Estimated cost (ex GST)
<b>NZETR account</b>	Provides an account number required prior to an ETS registration and holds carbon units as issued	EPA site address: <a href="http://www.eur.govt.nz/Common/Guidance.aspx">www.eur.govt.nz/Common/Guidance.aspx</a> Forest360: <a href="http://www.Forest360.nz">www.Forest360.nz</a>	If completed by owner: Nil cost If outsourced to Forest360: \$500
<b>ETS Registration</b>	Registered Post 1989 eligible vegetation	Te Uru Rakau (MPI): <a href="http://www.mpi.govt.nz/funding-and-programmes/forestry/emissions-trading-scheme">www.mpi.govt.nz/funding-and-programmes/forestry/emissions-trading-scheme</a> Forest360: <a href="http://www.Forest360.nz">www.Forest360.nz</a>	If completed by owner: \$488.89 Te Uru Rākau fee If outsourced to Forest360 \$488.89 Te Uru Rākau fee \$1,500 Forest360 services
<b>ETS Emission Returns</b>	Voluntary return in years 1 - 4 and mandatory return in year 5 year of compliance period (next being end of 2022)	Te Uru Rakau (MPI): <a href="http://www.mpi.govt.nz/funding-and-programmes/forestry/emissions-trading-scheme">www.mpi.govt.nz/funding-and-programmes/forestry/emissions-trading-scheme</a> Forest360: <a href="http://www.Forest360.nz">www.Forest360.nz</a>	If completed by owner \$88.89 per return Te Uru Rākau fee If outsourced to Forest360: \$88.89 Te Uru Rākau fee \$200 (plus \$10 per CAA for above 5 CAAs) Forest360 services

### 1.10 FURTHER INFORMATION

Poplar and Willow Research Trust website <http://www.poplarandwillow.org.nz/>

Te Uru Rākau website: [www.mpi.govt.nz/growing-and-harvesting/forestry/forestry-in-the-emissions-trading-scheme/](http://www.mpi.govt.nz/growing-and-harvesting/forestry/forestry-in-the-emissions-trading-scheme/)

Horizons Regional Council Trees for our Region guide

<http://www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=8800df0d-01d8-4144-9417-0964d584d849>



**horizons**  
REGIONAL COUNCIL



[horizons.govt.nz](https://horizons.govt.nz)

**24 hour freephone** 0508 800 800  
**fax** 06 952 2929 | **email** [help@horizons.govt.nz](mailto:help@horizons.govt.nz)  
Private Bag 11025, Manawatu Mail Centre, Palmerston North 4442