



THE NEW ZEALAND POPLAR & WILLOW RESEARCH TRUST

Newsletter - August 2022

STRATEGY REVIEW UPDATE

Thanks for the feedback received on the ideas for inclusion in a one-page publicity document that were set out in our last Newsletter. We have taken these on board and continue to make good progress toward achieving improved funding for the Trust's work.

THE VERSATILITY OF POPLAR INCLUDING USE FOR TIMBER



The Trust will be joining the Forestry Hub at this year's National Fieldays being held on 30 November - 3 December. The focus is on the use of Poplar as timber. We look forward to welcoming Ambassadors but also please let fellow farmers know that we will be there and encourage them to come and visit us.

We still want stories from Ambassadors or other farmers who have harvested poplar for timber.

In May, members of the NZFFA held three pilot workshops in the lower North Island aimed at encouraging hill country farmers to grow more trees. The format was a day of presentations followed by a half-day field trip. The workshops included presentations by Stan Braacksma, a PWRT Trustee and Tim Forde who is on the NZFFA Executive and is a grower and miller and user of poplar for timber. I was interested in all of the poplar slides used in the presentations - this slide gave a good summary on planting material options. Tim is a fan of planting Rooted cuttings which he notes are mainly available from private nurseries. With a good root structure, they can be planted in the spring months and are suitable for variable soil sites and cheaper than poles to purchase. He says they are easy to plant with a conventional spade and a person can reach a daily tally of 120+. In his experience the survival rate is good - 85-95%.

Planting

ROOTED CUTTINGS:

1.5-2m height
Plant with spade
Survival 85 -95%

WANDS:

Small diameter
Suitable wetter sites
Survival 70 -80%
Push in to plant

POLES:

65-70 cm diameter,
2.5-3.5 m tall
Need moisture
Ram to plant
Survival 60 -70%



Tim has two systems for protecting rooted cuttings. For a group of plants, such as planting in a gully, he uses a single hot wire to keep sheep and small cattle out. To protect single plants he uses a 1.2m piece of Novocoil, split and attached to a batten - preferably poplar. He leaves the protector in place for four years and can reuse the Novocoil. Again, this keeps sheep and small cattle from doing damage from day one.

The Trust is undertaking research to better quantify these various planting options as outlined on the next page.



POPLAR FIELD TRIALS

Three poplar field trials were planted on farms in the Whanganui, Hawke's Bay, and Wairarapa regions in July 2021, to compare the establishment and growth of poplar poles, stakes and rooted cuttings (Figure 5). This is part of an MPI 1BT funded project to look at the viability of alternate ways of establishing poplar trees on farms.

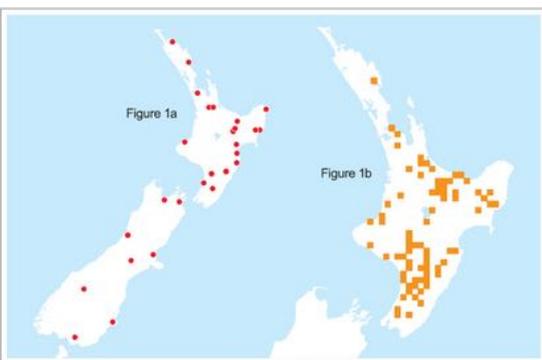
The poles are protected from stock with Dynex sleeves, and the stakes and rooted cuttings are protected with tree guards (Figure 5) attached to wooden battens, or with PVC tubes wired and stapled to wooden battens. Weather stations were installed at all 3 locations to collect rainfall, wind-run and max. and min temperatures.

The locations of the poplar field trials are: Te Awa Awa Station, Te Awa Awa Road, Wairarapa; Poole Farm, 61 Totara Street, Taumarunui, Brooklands Station, 717 Puketitiri Road, Ahuriri, Hawke's Bay.



Figure 1: Above left: Field trial of poplar poles, stakes and rooted cuttings planted in 2021, near Taumarunui. Above right: tree guard stapled to a poplar batten and protecting a rooted cutting.

GIANT WILLOW APHID BIOLOGICAL CONTROL



The biological control agent, *Pauesia nigrovaria*, a tiny parasitoid wasp from California, was released throughout New Zealand in 2020 and 2021 with the aim of controlling the giant willow aphid, and restoring the health of willows. Willow species are important trees for slope and riverbank stabilisation, crop and livestock shelter, fodder, and as a critical early season source of pollen and nectar for honeybees.

Left: Map of New Zealand showing *Pauesia nigrovaria* release sites (red dots), and the North Island showing locations where giant willow aphid mummies have been found and recorded on iNaturalist.

Since 2013, willows in New Zealand have been plagued by the invasive giant willow aphid, with large populations depleting the trees of nutrients and moisture, and resulting in branch dieback and occasionally tree death.

The aphids secrete copious amounts of honeydew as they feed, causing sooty black mould growth on and underneath infested trees. Vespid wasps thrive on this sugary honeydew, and create hazards for people and animals, causing apiary losses, and other ecological impacts.

Adult *Pauesia nigrovaria* females lay their eggs inside the aphids (one egg per aphid) and these hatch into larvae which consume the aphid from within. The aphid dies in roughly 10 days, and the resulting aphid mummy is fixed to the stem (Figure 3) as the parasitoid completes its development. Shortly thereafter, a new adult parasitoid chews a hole through the body of the aphid mummy and exits, ready to start a new cycle.

To quantify the early impact of *Pauesia nigrovaria*, the giant willow aphid population levels were measured at five North Island release sites, at the time of release in 2020 and again one and two years later. An abundance scale from 0 (no aphids) to 4 (one or more large colonies more than 10 cm in length) was



Figure 2 above: *Pauesia nigrovaria* female attacking giant willow aphids.

Figure 3 below: Giant willow aphid mummies parasitised by *Pauesia nigrovaria* in Bay of Plenty.



used to score between 10 and 20 trees at each site, and the proportion of each abundance score at each site was calculated. Figure 4 shows the average proportions across all five sites, illustrating that overall, aphid abundance has decreased each year, and the proportion of aphid-free trees has increased from 30% at the time of release to 86% two years later.

Biological control can be highly effective, but almost always takes many years for the full benefits to be realised. The results to date, however, have exceeded our expectations, and it is phenomenal to see such positive outcomes this early in a biological programme. Continued monitoring for *Pauesia nigrovaria* will be helpful, particularly in the South Island where there are few observations. So, if you see aphid mummies on willow stems, you can help by taking a photo and uploading to the iNaturalist website, or send with the location to Stephanie Sopow at Scion (Stephanie.sopow@scionresearch.com).

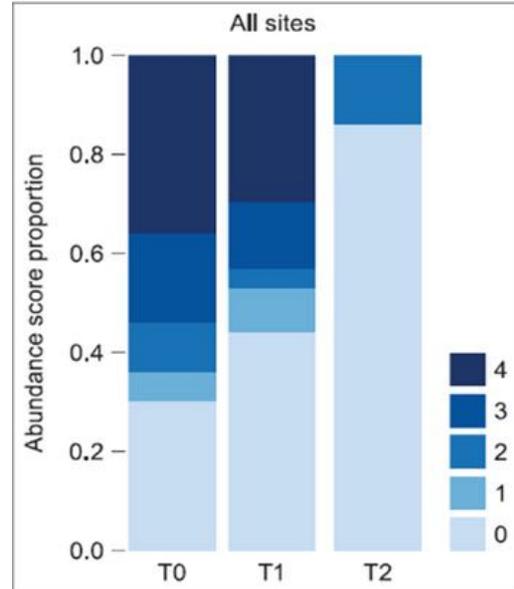


Figure 4 above: Proportion of giant willow aphid abundance scores averaged across all sites over 3 years (T0 = time of release, T1 = after 1 year, T2 = after 2 years). Abundance scored as follows: 0 = no aphids, 1 = one or more lone aphids, 2 = one or more aphid colonies less than 5 cm in length, 3 = one or more aphid colonies between 5 and 10 cm in length, 4 = one or more aphid colonies longer than 10 cm.

COMMUNICATIONS

Kate Taylor has resigned to focus on other responsibilities. Steph Sloan, a former Trustee, has taken over responsibility for maintaining our Facebook and LinkedIn pages. We encourage you to follow or like/connect either to both pages and share as many posts as you can to help spread the word. Also, if you have pics and stories to share, drop a line to Steph at sas.sloan@gmail.com

The earliest posting on our LinkedIn page features a photo of Tim Forde with some of his rooted cuttings – further to the poplar article above. Almost 90 percent of Tim’s farm income comes from beef and sheep, with the balance split between forestry consulting, and timber and nursery sales.

Have a read of the new research briefs recently posted on our website – [click here](#).



CONTACTS

General manager and scientist Ian McIvor: ian.mcivore@plantandfood.co.nz 021 226 8673

Scientist Trevor Jones: trevor.jones@plantandfood.co.nz 021 143 526

Business manager Allan Frazer: allan.frazer@gmail.com 027 450 3861

Media: poplarandwillownz@gmail.com 027 6032200

Website: <https://www.poplarandwillow.org.nz/>

