

Field Trial of Round-leaved Mint Bush (*Prostanthera rotundifolia*)

Introduction:

Since the 19th century there has been extensive mining carried out throughout Tasmania. The normal practice in the past has been, when the resource became unprofitable, the site was abandoned, and this in turn has resulted in widespread degradation. The establishment of the Rehabilitation of Mining Lands Trust Fund has provided funding from mining royalties to rehabilitate abandoned mine sites and land affected by mineral exploration in the past.

The Royal Tasmanian Botanical Gardens (RTBG) in collaboration with the Threatened Species Unit (TSU) have been funded by Tasmanian Electro Metallurgical Co Pty Ltd (TEMCO) plant at Bell Bay and the Tasmanian Minerals Council to establish a database of threatened Tasmanian plants suitable for use in rehabilitation works.

As part of the project selected threatened species were collected from north-eastern Tasmania with the aim of establishing a field trial to assess the viability of reintroduction into disturbed sites along with other locally occurring species. Round-leaved mintbush (*Prostanthera rotundifolia*) has been selected to use in a field trial.



Round-leaved mint bush in unbagged treatment at Argonaut Site 6

Argonaut Field Trial:

Minerals Resources Tasmania (MRT) suggested several sites on old tin mines located to the southwest of St Helens township, less than 10 km distant. All of this area is undulating, fairly low-lying and was for many years exploited for its alluvial and eluvial tin. By far the majority of this mining was surface removal and washing of the ore through a series of sluices. This led to denudation of the vegetation, and subsequent rainfall has, over the last seventy or so years since mining stopped has resulted in widespread dissection of the landscape by some quite substantial erosion gullies.

Broadly speaking, the area has patchy stands of eucalypts (mostly *Eucalyptus amygdalina*) with large tracts of bare soil interspersed with black she-oak (*Allocasuarina littoralis*) of varying ages. A more detailed vegetation list is included below.

The soil itself is mostly coarse granitic sand, with a low nutrient content. Rainfall can be locally quite heavy, but annual precipitation is low and there are few permanent creeks.

Trial Site:

The field trial was established at Argonaut Site 6 (E55597430 / N5425926) in conjunction with Mineral Resources Tasmania. The site was selected, on level ground and sufficiently distant from frequented tracks to make vandalism less likely. The site is directly below a MRT field trial as part of the Rehabilitation of Mining Lands Trust Fund program. In the MRT trial compacted soil in an erosion gully was ripped using a rake attached to a backhoe to loosen the surface for seeding. Jute netting and geo-textile were laid over the surface and the area seeded with species occurring in the area provided by Forestry Tasmania as well as local slash placed on top of the netting.



Mineral resources Tasmania rehabilitation at Argonaut Site 6

RTBG Field Trial

Prostanthera rotundifolia, the round-leaved mintbush, was collected from the dry woodland near the banks of the Upper Scamander River in 2002. Cuttings were propagated in the RTBG nursery using semi-hardwood cuttings treated with root hormone in standard cutting mix. In total 98 plants, up to 15cm tall in 4" tubes, were used. It was thought that the original plants having been taken from a fairly similar site, that they might have a reasonable chance of survival after transplantation.

The field site selected was almost devoid of vegetation, though thinly screened by black she-oak, coral fern and cutting grass. In addition, there was plentiful litter from

the she-oaks and dead wood on the ground. It was clear that there has been no significant bushfire in the area for many years.

The site was divided to provide fenced and unfenced treatments, separated by about a 10 metre area of mainly she-oak and cutting grass. The few native plants occurring in each area were left including a mature she-oak in the fenced area. Each planting area measured 8 metres square: the fenced area enclosed by a 1-metre high chicken wire fence supported by metal droppers and anchored around the base by long metal tent pegs.



Fenced treatment at Argonaut Site 6

Within each area 49 plants were planted at 1 metre space intervals and all were immediately watered in. Fortuitously, a small artificial lake was found nearby, and this was used to supplement the watering.



Unfenced treatment at Argonaut Site 6

In each treatment 25 plants were selected at random and these were surrounded by a standard felt weed mat and polythene sleeve supported by 3 wooden stakes. As ground cover was sparse the matting and bagging treatments were to improve water retention rather than suppress other vegetation.



Bagged treatment at Argonaut Site 6

The most probable loss of plants was thought to be lack of water, particularly in the early stages, and browsing by native marsupials, though rabbits also occur in this area.

Follow-up:

The MRT will assess local rainfall and have given an undertaking to water the plants as needed over the first two months of the trial, which should greatly improve chances of survival.

RTBG staff will then conduct a primary follow-up examination and assessment in 3 months to quantify survival rates. It may be possible even at that early stage to estimate whether the trials are likely to be successful or not.

Vegetation List:

- Eucalyptus amygdalina*
- Allocasuarina littoralis*
- Leptospermum scoparium*
- Kunzea ambigua*
- Hakea nodosa*
- Banksia marginata*
- Acacia genistifolia*
- Epacris impressa*
- Leucopogon ericoides*
- Xanthosia* sp.

Goodenia lanata
Rhytidosporum procumbens
Gahnia grandis
Lomandra longifolia
Orchidaceae
Gleichenia dicarpa