Ex situ propagation and cultivation; challenges and successes

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Despite idyllic images shown by previous speakers, often the weather and the forest were very wet and we were plant hunting as the clouds wafted around us. This section of the mountain top had not been visited previously by any of the project team but proved productive for finding several of the target threatened species.

Being a joint expedition, it provided the opportunity the horticulturalists to see associated flora and understand the habitat in which the threatened species occur. The *L. wooroonoonan* is a typical overstorey species generally looking like mature specimens of *L. laevigatum* from southern Australia. The fallen trunk of *L. w*. on the right had resprouted and continued to grow vertically and would have been hundreds of years old.

Traditional carers of the land, horticulturalists and botanists worked together and learned from each other.

Collecting seedlings of *Polyscias willmottii*

Small seedlings growing on a moss bed covering a granite boulder were collected, knowing that in nature they would have died due to the unsuitable conditions to sustain the plants to maturity.

Many of the target species had not been propagated nor grown in cultivation before so it was often necessary to experiment to ascertain how the plants could be successfully grown. The *L. australiana* was at first considered probably easy to grow, like most other Gesneriaceae, but after trying to strike softwood cuttings in the nursery it was found they rotted out due to the moisture retention on the hairs on the stems. On a follow-up collecting trip, hardwood cuttings were taken, which struck successfully.

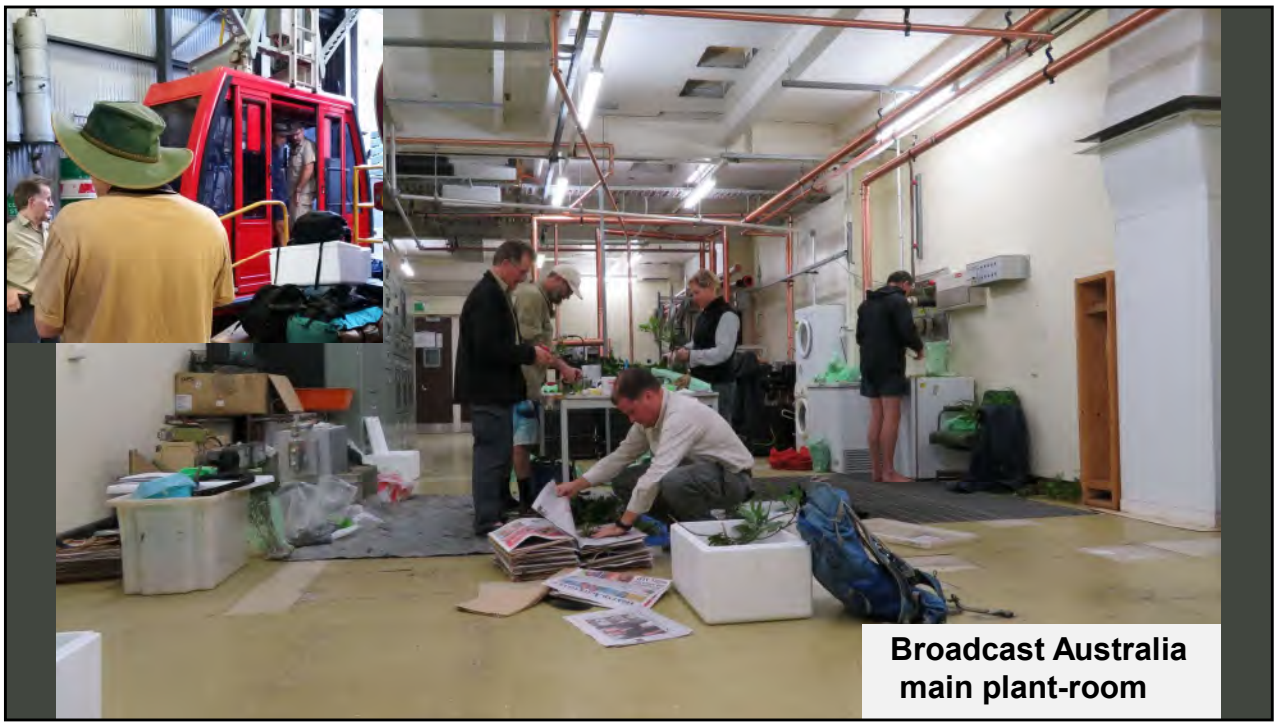
Linospadix apetiolatus
Arecaceae

The *L. apetiolatus* appeared to be many plants growing on the forest floor and appeared to present a challenge on how to collect plants and introduce them into cultivation especially trying to dig through the dense root mat. A scratch around, beneath the soil surface adjacent to the plants demonstrated that the plants had a network of hard woody rhizomatous stems. The image shows a small portion of just one plant. An axe was brought out and sections of the rhizomes were cut off and successfully introduced into the cultivated collections.

Preparing and packaging cutting material, Mt Bartle Frere

Camp sites and resources varied considerably from the basic, like camping in a creek bed, the only clear flat area near the Mt Bartle Frere peak.

Preparing cutting material collected on Mt. Lewis was more comfortable, with shelter and electric lighting provided by the camping ground.



Broadcast Australia main plant-room

A new meaning for ‘plant room’. We were privileged to use the cable car to ascend the peak and the comfortable facilities managed by Broadcast Australia, servicing much of the Far North Queensland radio and television networks, to collect material and stay for several days on the Mt Bellenden Ker peak during very wet and unwelcoming conditions.

Preforma (peat and coir) Plugs – made by Jiffy. These ‘plugs’ were taken on field trips and the cuttings collected each day were prepared and inserted each night. These provide the cuttings with moisture availability immediately and reduces the stress on the material. Cuttings remain undisturbed in these plugs throughout transport back to the nursery and until root formation and potting up. A lesson learnt about these plugs, remove the upper section of peaty material, without roots present, when potting up, otherwise collar rot may occur. Growth regulator powder was taken on the field trips and used because it is more stable in variable weather conditions, and does not need refrigeration. The advantage is more rapid root initiation, again reducing the stress on the cuttings.

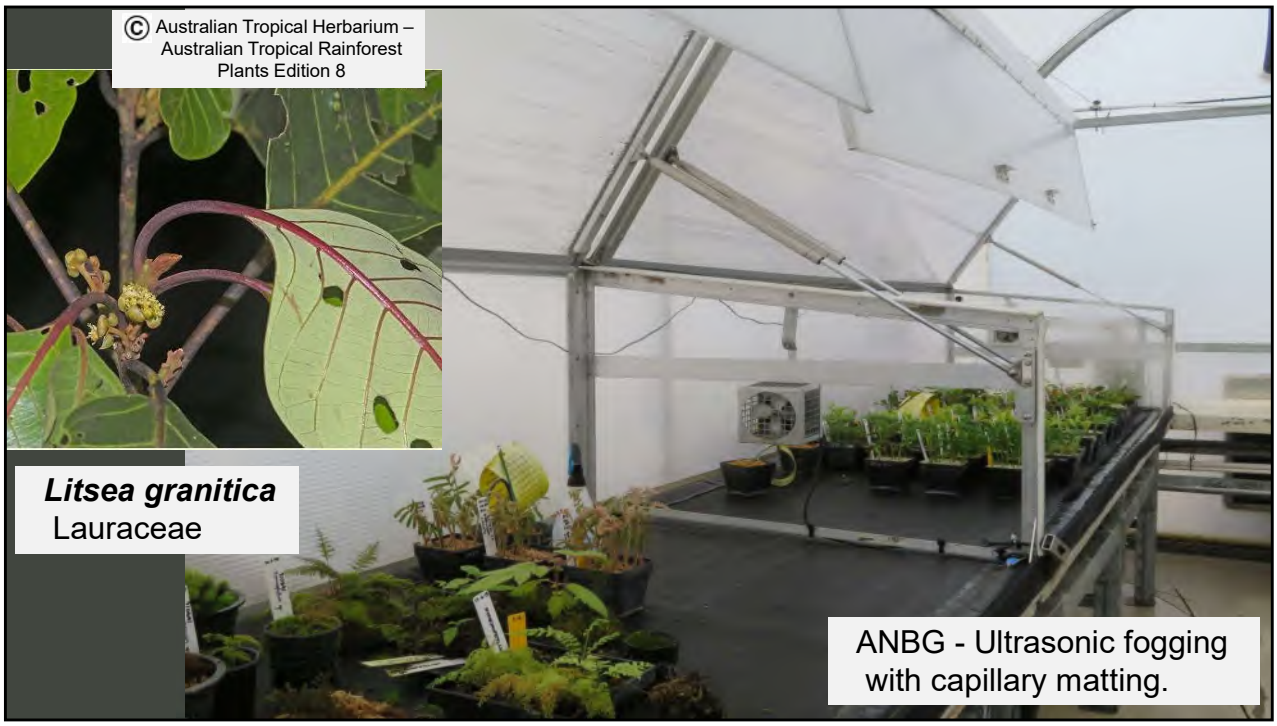
Prepared plugs with cuttings are bundled together in palm sized groups in a clear plastic and held together by an elastic band. The clear plastic bag can be raised or lowered to act as a miniature greenhouse to maintain a high humidity and will retain water when watering of the plugs is necessary. The outer green plastic bag absorbs ethylene helping reduce stress when the bags are wrapped around the cuttings for packaging and transport.

All of these polystyrene boxes and cooler boxes contain plant material and seed collected during a five day field trip. This was just the material being returned to the ANBG.

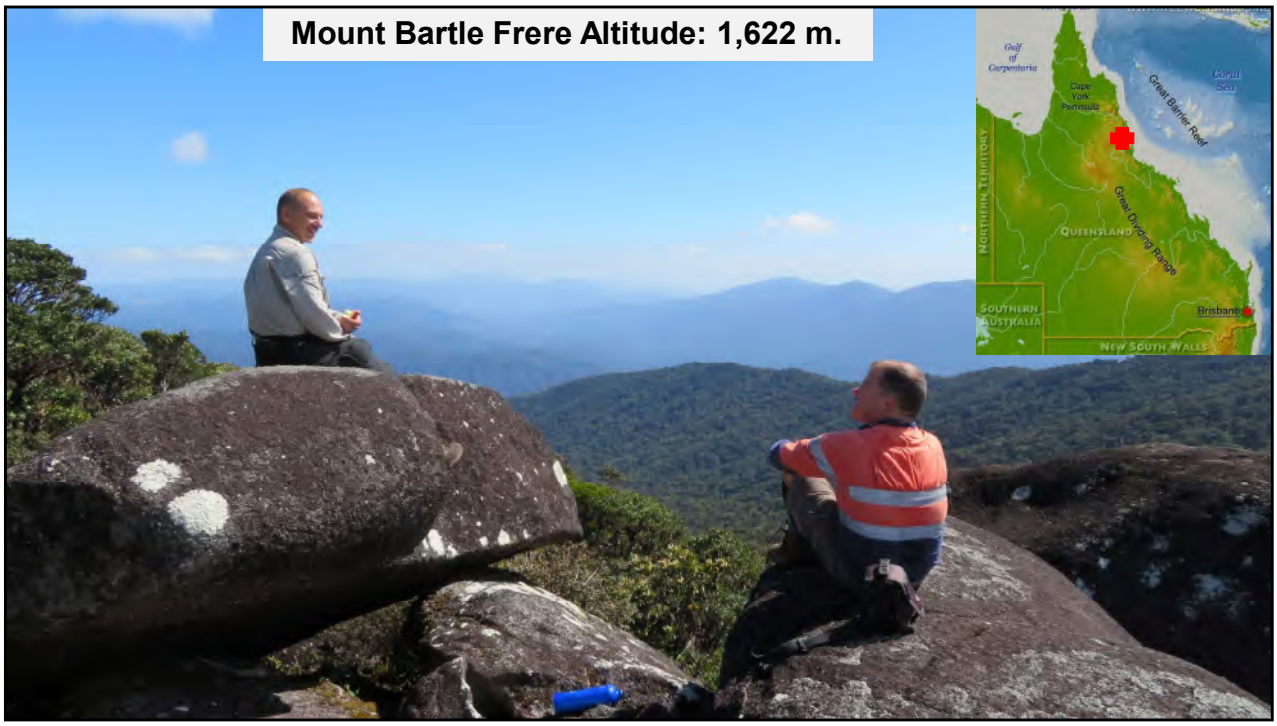
Sniffer dog searching for Electric Ants

Pest and disease translocation from the lower altitude regions surrounding the high mountain peaks is a significant concern and quarantine inspections are essential. This does have advantages. On an expedition to Mt Bellenden Ker, plant material was brought back and inspected and a native ant species that had only ever been recorded once before was found on the plant material .

At the different project participants nurseries, the propagating houses for seed and/or cuttings vary from dedicated propagation glasshouses, to specialized climate control booths within the growth-house, thus providing a variety of conditions for experimenting with the propagation methods.



The ultrasonic fogging units at the ANBG proved invaluable for propagating the large, soft leaved, *Litsea granitica*, and for the successful propagation of softwood cuttings of the *Lenbrassia australiana*.



Mt Bartle Frere is the highest peak in Queensland and the sole habitat of the extremely rare *Eucryphia wilkiei*.

The *Eucryphia wilkiei* only grows in the organic rich substrate trapped between boulders in this granite boulder field. Between the boulders are narrow crevices up to 8 metres deep. The boulders are covered with moss and algae which becomes extremely slimy and dangerous when wet so it was essential to time the collecting trip when there had been several days of dry weather prior to ascending the peak.

Eucryphia wilkiei
Cunoniaceae

Along with the collection of other threatened species, the result of this trip was the collection and successful propagation of cuttings from five maternal plants of *Eucryphia wilkiei*. Cuttings were approximately 100 to 150 mm long but successful growing in the nursery and planting in the ground at the Cranbourne Gardens has resulted in plants up to 800 mm tall within two years. Flowering has occurred continuously for over six months and fruit development has occurred, the seed will be collected and forwarded to the Australian Plantbank for preservation. *Acrotriche baileyana* was also collected and successfully propagated from this boulder field.