Seed Banking for Plant Conservation in Northern Chile©

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INTRODUCTION

This paper results from a period of study in Chile that was part funded by the IPPS GB&I Mary Helliar Travel Scholarship and undertaken as part of the author's Royal Botanic Garden (RBG) Kew Diploma course. The author spent 21 days with the Instituto de Investigaciones Agropecuarias (INIA) (<http://www.inia.cl>) in Chile studying ex situ plant conservation. The study was conducted partly at the INIA base and Seed Bank in La Vicuna and in the Altiplano region in northern Chile.

The seed bank includes a nursery which is used to bulk up stocks of target species as part of a conservation project funded by the mining company Rio Tinto and supported by RBG Kew. The author worked as a volunteer at the nursery to gain experience of the horticultural methods, equipment, and resources being used and assisted the project's research team in field work in the Altiplano region.

In addition to improving the author's knowledge of the Chilean flora and its conservation, the study tour resulted in a report for RBG Kew on the current progress of the Rio Tinto project and the seed bank nursery.

THE SEED BANK NURSERY

The nursery is used to bulk up stocks of target species for conservation as part of the Rio Tinto Project "Ex situ Conservation of Threatened Chilean Flora through Propagation." This project aims to achieve ex situ conservation through the propagation of five priority species in 2 years. It also aims to improve knowledge of propagation methods for the species. The seed bank's work additionally includes in situ botanical and ecological study and seed collection of threatened species.

Nursery facilities include two small polytunnels, a propagation unit (in the seed bank), some standing-out areas, and a potting bench (Figs. 1 to 3). The staff is just one full-time propagator and a part-time helper.

The main tasks in the nursery are to maintain a living collection of species for conservation and to propagate newly collected species such as *Metharme lanata*. Most of the plants in the nursery are part of the Rio Tinto project but the site also includes trials work on other species.

One of the major jobs on the study tour was the development of a propagation record book and data base to record work carried out. A stock list template was also devised for tracking and locating plants after propagation.

The author was also able to provide advice on general nursery practice including;
- Leaving no rim on pots to stop over watering.
- Sinking certain species in sand to keep roots cool.
- Using gravel on top of media to stop mess.
- Level pots for even watering.
- Simple softwood cutting methods.
- Lifting and division of certain species, e.g., Alstromeriaceae.
- Single-pot sowing of Alstromeriaceae to avoid later root damage.

Cultivation of *Matharme lanata*. Information for a cultivation protocol was collected for this species. This information will be used to advise the Seed Bank on how best to propagate and cultivate the plant.

Matharme lanata potting process (see Fig. 4 for close-up of propagule):

1) Plant material is taken out of storage and cleaned.
2) Tall clay pots are selected.
3) A 10-mm coarse grit is placed in bottom of pot.
4) A 60-mm layer of media compost and grit (1 : 1, v/v) are placed around tuber.
5) Pot is filled to 10 mm below rim with sand taken from the site.
6) Pot is topped with gravel to rim.
7) Pot is watered in fully.
8) Pot is labelled date/ species/ collection number.
9) Pot is plunged ⅔ in sand on bench.
10) No watering to be carried out until pot had dried out.
11) Plants placed in an open well-ventilated part of the shade house.

Figure 1. New larger glasshouse.

Figure 2. Shade house.

Figure 3. Potting bench with *Metharme lanata* a very rare species form the Atacama region.

Figure 4. Close up of *Metharme lanata* a very rare species form the Atacama region.