

New Alpine Plants to Propagate

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INTRODUCTION

At the Snowline Landscapes Australian alpine wildflower nursery, we have over 100 species in cultivation. Many have perfumed flowers or foliage and most have not been introduced to the horticulture industry.

The nursery is in Alpine Ash Forest at 1000 m altitude, 9 km northwest of Falls Creek, Victoria and is regularly covered by up to 1 m of snow in winter. It covers 1200 m² and includes a solar- and gas-powered greenhouse and automatic-watering system.

When the nursery was established in 1983, little was known of the growth patterns of these plants. Initially, plants were collected from the wild and their growth observed. Those species which flourished were selected for propagation and the remainder are at the experimental stage.

Plants are propagated from wild stock by seed, cuttings, or division. Plants are potted into a standard commercially available mix then grown on in polystyrene boxes to protect the roots from freezing.

Many species have a germination success rate of more than 70% with no treatment. Some species require stratification, as do those in the Leguminosae family.

It has been found (Maclurcan, 1992) that most Australian plants have mycorrhizal associations. These improve plant growth and resistance to drought and disease. Inoculation is achieved by incorporating a small quantity of alpine soil into the seed raising mix.

Suitable cutting material is difficult to obtain in the wild as plant growth form varies according to aspect and exposure. Plants propagated by cuttings generally have short, woody branches with little distance between leaf nodes.

Many ground cover type species are easily propagated by division and have a high growth rate.

The native conditions in which a species flourishes must be considered when attempting to cultivate these plants for the horticulture industry.

Plant communities vary according to soil type, aspect or exposure, altitude, and water.

Bogong High Plains is an old uplifted plain with well-weathered, gently undulating landscape. Sphagnum moss beds are found in the base of the saucer-like land form, surrounded by grasslands, then increasingly taller woody shrubs until there are trees at the apex of the small hills. This pattern arises largely from the effect of 'frost hollows' where colder air sinks to the lowest point of the landscape.

Soils are very shallow, stony, sandy, or organic loams that are fine, porous, highly organic, acidic (pH 5.5 in grasslands, 3.5 in mossbeds), strongly leached, and have low availability of nitrogen, calcium, and phosphorus. Mean annual temperature is 5C and mean annual precipitation is 2250 mm, of which 30% to 50% is from snow.

Plant growth is rapid with species found in the relatively deep, well-watered soils of the grasslands. *Craspedia* spp. and *Gentianella diemensis* sprout from tuberous-type roots to flower in 6 to 10 weeks. Where plants must contend with shallow, stony soils and exposure to cold, desiccating winds, growth is slow and often produces bonsai forms with plant age estimated in hundreds of years.

IMPLICATIONS FOR HORTICULTURE INDUSTRY

These alpine plants are "new" and many are easy to propagate. However, little is known about them.

An important consideration is their ability to survive or, preferably, thrive in environments other than alpine. A few species have been available within the horticulture trade for some years e.g., *Scleranthus biflorus*, *Wahlenbergia gloriosa*, *Helipterum anthemoides* (hybrid form marketed as baby's breath), *Prostanthera cuneata*, *Brachycome rigidula*, and *Hovea montana*.

Over the last 10 years we have tested some species in Victorian environments ranging from coastal to city suburban and inland with mixed results. These informal experiments have indicated that with well-drained soil that is mulched to keep the plant roots cool, alpine plants can do well.

The most common problem in both propagation and growing on has been the tendency for roots and plants to rot, presumably from fungal invasion due to excessive water.

Experimentation with propagation methods has been curtailed by lack of available time and reliability of propagation equipment at the nursery.

For those with the resources and interest to improve propagation methods and test plant performance in a variety of environments, here is an opportunity to introduce a range of new plants to the horticulture industry.

There is currently a proposal being discussed to establish an alpine botanic garden in the north east of Victoria. This garden would be part of a national network of Regional Botanic Gardens and would incorporate facilities for botanical research and support the development of the Australian horticultural industry by introducing appropriate native species to cultivation.

LITERATURE CITED

Maclurcan, M. 1992. Mycorrhizal fungi. *Indigenotes* 5(7):12.