



Eucalyptus scoparia



Collecting *Zieria formosa*



NSW Seedbank

Research program

Research provides knowledge to complement and improve seed collection and storage activities, as well as enhancing our understanding of native flora. Researchers investigate the seed biology of NSW native species, targeting groups considered difficult to germinate or store and plants of conservation or horticultural interest, including orchids and native Cumberland Plain Woodland species such as those in woodland remnants at Mount Annan Botanic Garden.

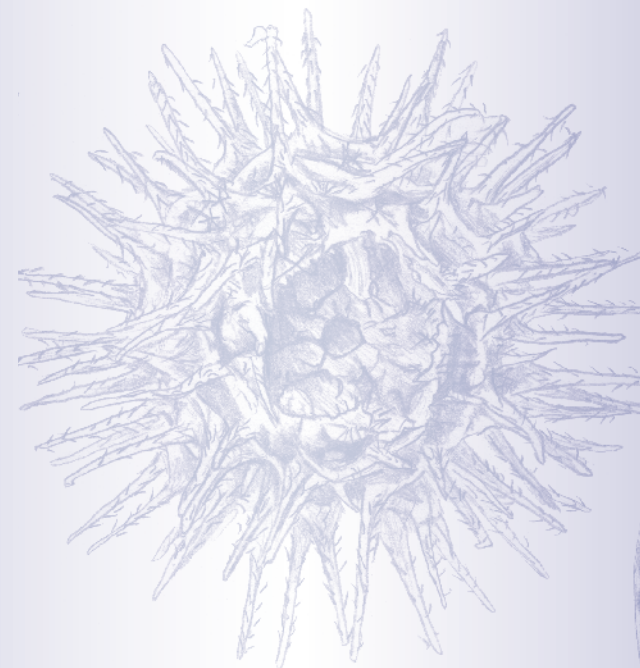
Our research aims to:

- Improve the quality of seed collections held in the NSW Seedbank to ensure optimal long-term storage
- Determine the best methods to germinate seed, including breaking dormancy in some species
- Estimate how long seeds are likely to survive in storage, using rapid ageing techniques
- Identify desiccation sensitive species and investigate alternative storage methods
- Assist with restoration of degraded vegetation and threatened species management by providing information to other government agencies, land managers and the public.

Enquiries

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www.rbgsyd.nsw.gov.au/seedbank



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Grevillea robusta



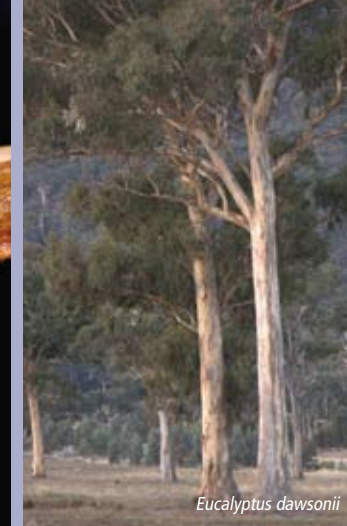
Senecio diaschides



Xanthorrhoea glauca



Acacia paradoxa



Eucalyptus dawsonii



Pittosporum angustifolium

Conserving New South Wales flora

The flora of New South Wales is highly diverse, with over 6,000 species of vascular plants, making it an important component of our national biodiversity. Our native vegetation has changed dramatically since European settlement, with nearly 600 species now considered endangered or vulnerable in the State. Vegetation clearing, weed invasion and climate change are recognised as some of the key threatening processes affecting our native flora, increasing the need for complementary on-site (in situ) and off-site (ex situ) conservation work.

Well sampled and documented seed collections are an efficient means of conserving genetic diversity for future conservation work. For this reason, seedbanking is playing an increasingly important role in plant conservation. The NSW Seedbank, a part of the Botanic Gardens Trust, Sydney, is the leading facility for ex situ seed conservation in New South Wales.

The NSW Seedbank facilities

Established in 1986 as part of Mount Annan Botanic Garden, the NSW Seedbank underwent a major upgrade in 1999. Facilities now include a walk-in freezer and cool room, purpose-built drying room, seed testing room,

temperature controlled germination cabinets and specialised seed cleaning equipment. The Seedbank currently holds over 8,600 collections, making it one of Australia's leading native seed storage facilities.

Most seeds are collected from the wild, with a focus on NSW species. Collection details are linked with associated herbarium specimens, propagation and living plant records in the Botanic Gardens Trust collections management system, providing a central information source.

Seed storage and testing

After collection, seeds are cleaned of debris, dried to a low moisture content, germination tested and stored at low temperatures (-18°C). These conditions extend the storage life of the seed, with some species lasting for potentially hundreds or even thousands of years.

Seed collections are monitored over time to ensure that they maintain viability. If viability falls too low, a new collection of that species will be made, or plants will be regenerated to produce fresh seed for collection and storage.

Using the seed

Since its inception, the Seedbank has been used for living collection development across the Botanic Gardens Trust's sites, and a proportion of seed continues to be used for this

purpose. Seed is also used for a variety of research projects and for regeneration of native plant communities.

Most stored seeds are held as conservation collections, for long-term preservation. The conservation role of the Seedbank is recognised in the Threatened Species Priorities Action Statement developed by the NSW Department of Environment and Climate Change, with seed collections being an important ex situ conservation strategy. Storage and research work at the NSW Seedbank has already contributed to the conservation of several NSW threatened species including the endangered *Eucalyptus copulans*, *Allocasuarina portuensis*, and the Wollemi Pine (*Wollemia nobilis*).

The SeedQuest NSW project

Our current major project is SeedQuest NSW, an international collaborative project between the NSW Seedbank and the Millennium Seed Bank Project of the Royal Botanic Gardens, Kew, UK. This project commenced in 2003, has enhanced seedbanking in New South Wales, and is contributing to the global effort to conserve 10 per cent of the world's flora as seed collections by 2010. In addition to field collecting, funding is provided for seed biology research. Our research team works closely with scientists studying native seed biology in other parts of Australia, as well as with the Millennium Seed Bank Project team in the UK.