

Saving plant diversity, one seed at a time

The first milestone in an international seed collection project has been reached after eight years, resulting in the safekeeping of seeds from 1,100 Western Australian plant species. What is the significance of the project and what happens from here? by Anne Cochrane

Safekeeping native seeds has been a key focus of Western Australia's international partnership with the Royal Botanic Gardens' Millennium Seed Bank (MSB) Project in Kew, the United Kingdom, since 2001 (see 'Our frozen future', *LANDSCOPE*, Winter 2001). The Department of Environment and Conservation's (DEC's) participation in the project draws to a close in December 2009 after the collection and storage of seeds of more than 1,100 native plant species from across Western Australia. DEC's conservation seed bank, the Threatened Flora Seed Centre, has stored seeds in Perth and sent duplicate samples of each collection to the UK for safekeeping. Currently, one third of all collections held in DEC's seed bank are duplicated at the MSB. The Botanic Gardens and Parks Authority in Perth, and conservation agencies and botanic gardens across Australia, have also taken part in the international project. The goal of securing 10 per cent of the world's dry-land flora in seed banks by 2010 has been achieved, with Australian

conservation organisations contributing seeds of one third of the total numbers of banked species.

Project results

In WA, DEC's seed collection and storage efforts have assisted in safeguarding some of our most iconic flora species and helped to secure long-term commitment to seed conservation in the State. Evidence of this commitment is demonstrated by State Government funding for a large, modern seed conservation facility in DEC's Biodiversity Science Centre and Western Australian Herbarium building in Kensington, due for completion in mid-2010. This state-of-the-art seed conservation facility will house more than 3,000 of the Threatened Flora Seed Centre's collections, representing samples of about 1,000 of WA's rarest, most threatened and poorly known

Right Fairall's honeysuckle (*Lambertia fairallii*) is threatened by *Phytophthora* dieback in Stirling Range National Park. Photo - Todd Erickson







Left Collecting seed of the poorly known *Banksia strictifolia* for banking.
Photo – Anne Cochrane/DEC

Below Mount Lesueur grevillea (*Grevillea batrachioides*) is known from a single population in Lesueur National Park.
Photo – Andrew Crawford/DEC

across a species' geographic range. It aims to consolidate existing collections to ensure there is adequate material available for current and future flora recovery actions. By 2020 the department aims to have stored 90 per cent of Western Australian seed-bearing threatened and rare plant species across their geographic range in the seed bank, and conserved at least one population of 50 per cent of WA's poorly known flora. In addition to conservation-listed flora, seed will be collected from species that occur in threatened ecological communities and the eight national biodiversity hotspots in WA, in particular where management plans specify seed conservation and recovery.

All human life depends on plants, and most flowering plants depend on seeds for regeneration. Saving seeds helps save plant diversity. The Western Australian–MSB partnership has helped achieve a secure future for many of the State's conservation-listed flora. The important challenge in the future will be to mobilise sufficient resources in WA to continue seed collection and research, and to enable these seeds to underpin wild plant survival through species reintroduction and habitat restoration.

taxa. DEC's seed resources have also been used in helping populations of threatened flora to recover, and in research that supports the collections. The collections have also helped DEC meet both goals of Target 8 of the Global Strategy for Plant Conservation—that is, having 60 per cent of threatened flora in *ex situ* collections and 10 per cent used in recovery or restoration.

The Western Australian–MSB partnership has also helped raise awareness of plant conservation issues across Australia, and has helped galvanise additional funding for seed conservation and research at DEC. In addition, DEC has provided technical input into the revised edition of the Australian Network for Plant Conservation's *Plant Germplasm Conservation in Australia*. Through the collecting efforts and the research of DEC conservation geneticist David Coates, seed banking has become recognised as of utmost importance in saving plant genetic diversity for

future generations. Seeds secured from now-extinct populations appear to be genetically distinct from plants of the same species still alive in the wild. Seed by seed, we are saving plant diversity for future generations.

Where to now?

DEC will now focus on increasing the genetic diversity of the seed holdings by making collections from



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