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Seed biology, seedbank dynamics and collection and storage of seed of rare and threatened Western Australian taxa

Plant Science and Herbarium

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Project Team	granted
Program Leader	granted
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Context

Seed conservation is a specific and targeted action to conserve biodiversity and entails the banking of genetic material in the form of seed. Seed banking provides an important opportunity for assessing and utilising genetic material for *in situ* recovery actions, and for seed research. Understanding the seed biology and ecology of plant species is important for the conservation and management of conservation-significant Western Australian taxa and for developing and implementing recovery plans for rare and threatened flora.

Aims

- Provide a cost effective and efficient interim solution to the loss of plant genetic diversity by collecting and storing seed of rare and threatened Western Australian plant species, and thereby provide a focus for flora recovery.
- Increase knowledge of seed biology, ecology and longevity.
- Incorporate all information into a corporate database (WASEED) and provide relevant information on seed availability, seed biology, storage requirements and viability of seed of rare and threatened taxa to assist the development of management prescriptions and preparation of interim recovery plans and translocation plans.

Progress

- A total of 202 seed collections representing 107 species were accessioned into the Threatened Flora Seed Centre in the past year, of which 46 collections (29 species) were Critically Endangered.
- 283 accessions representing 216 Declared Rare Flora (DRF) collections (80 species), 31 Priority species and 36 common species were banked.
- Duplicates of 40 collections were sent to Millennium Seed Bank Kew as a risk management strategy.
- 353 accessions from the *Banksia* Woodland Restoration Project in the Swan Region were stored, with 171 of stored collections being removed for use in direct seeding.
- 66 germination tests conducted.
- Provision of seedlings of six Critically Endangered species for translocation.
- The seed bank now contains collections of 330 Threatened flora, 704 Priority flora and 810 key restoration species.

Management implications

- Seed conservation supports the survival of species in the wild by providing the genetic material for reintroduction; seed is provided for translocations of rare species and for restoration of *Banksia* woodland.
- Provision of seed biology and ecology data increases the success of threatened flora recovery actions, particularly through knowledge of how pre-treatments may stimulate seed germination.

Future directions

- Ongoing collection of seed of threatened species for long-term conservation and use in re-introductions.
- Ongoing processing and storage of collection backlog.
- Germination testing, storage and monitoring of existing collections.
- Ongoing research into seed biology and seed storage behaviour of threatened plant taxa.

- Continued collaboration with other Australian seed banks through the Australian Seed Bank Partnership and finalise funding from the Australian Seed Bank Partnership.
- Continue collaboration with the Millennium Seed Bank Project, Royal Botanic Gardens, UK.