WESTERN AUSTRALIA'S THREATENED FLORA SEED BANK

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In late 1992 the Department of Conservation and Land Management established the Threatened Flora Seed Centre (TFSC) for the purpose of contributing to the survival of Western Australia's rare and endangered plant species susceptible to the dieback disease *Phytophthora* spp. and to aerial canker. The principal objective of the TFSC is to ensure the maintenance of genetically representative seed collections of West Australian threatened flora under medium and long term (>50 years) storage conditions as an interim solution for the prevention of genetic degradation or local extinction of critical populations. The germplasm will be made available for regeneration programs and for molecular genetic studies on population structure and mating systems to enhance the management and conservation of threatened taxa.

Seed collection attempts to systematically capture 90-95% of the common alleles from a threatened taxon on a representative range-wide basis (Brown and Briggs, 1991). However, many threatened taxa are not well known either taxonomically, geographically and/or phenologically. Poorly known seed biology and ecology also contribute to make effective systematic sampling difficult. This is often exacerbated by small population size or low and sporadic seed production or high seed predation levels. The TFSC seed collection protocols are primarily derived from work by Brown (1978) and Brown *et al* (1989a, 1989b, 1991) and based on guidelines used by CSIRO's, Australian Tree Seed Centre (ATSC) and the Royal Botanic Gardens, Kew Seed Bank. The design of genebanks and protocols recommended for use in genebanks have been formulated by the International Board for Plant Genetic Resources (IBPGR) (Cromarty *et al* 1985, Ellis *et al* 1985a and Ellis *et al* 1985b).

Seed collection has focused on the South West Botanical Province, particularily the south coast regions where dieback disease is more prevalent due to higher rainfall. Seed is brought back to the laboratory, fumigated, cleaned, counted and samples taken out for germination testing. The bulk of the seed is stored either at room temperature in airtight plastic barrels, in the refrigerator at 4^{o}C, or stored in a freezer at -18^{o}C. All storage is in laminated foil, heat sealed and using carbon dioxide as a storage medium.

The seed centre has over 240 accessions from over 100 taxa with relevant collection details and storage and germination data. The seed is monitored, at first on a yearly basis, then on a 5 year basis, to ascertain its response to long term storage. Subsamples of seed are unfrozen and re-germinated to check viability.

Currently the TFSC provides the only means for conserving the genetic resources of a large number of rare and geographically restricted taxa critically threatened by *Phytophthora* spp.