PROJECT 5: PROGRESS REPORT
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IDENTIFYING, GERMPLASM STORAGE AND *IN VITRO* PROPAGATION OF *PHYTOPHTHORA* AND CANKER THREATENED TAXA

A. Cochrane and D. Coates

1. IDENTIFICATION OF RARE AND THREATENED FLORA AT RISK FROM DIEBACK DISEASE

The Department of Conservation and Land Management's recently updated (Ken Atkins 14/09/94) Declared Rare and Prioirty Flora List for Western Australia is now used as the basis for all collections. Consultation with CALM dieback interpretation officers has led to greater knowledge and an increased number of species observed to be susceptible to the dieback fungus *Phytophthora* spp. It is thought that approximately 25% of the declared rare and priority flora of the south west of the State is possibly susceptible to the disease.

2. IN VITRO PROPOGATION

Discontinued (see Year 1 report)

3. CRYOSTORAGE

Discontinued (see Year 1 report)

4. SEED COLLECTION

One hundred and seventy accessions of rare or priority taxa have been incorporated into the Threatened Flora Seed Centre as of 14 September, 1994. This represents 74 taxa in 7 families. Eight of these taxa have accessions for 5 or more populations with the majority having collections from one to three populations. A trip to the northern sandplains has resulted in the collection of a number of accessions of rare and geographically restricted taxa of the genus *Dryandra*. Other collections trips have been in the species-rich south coast and southern sandplains. Collaborative field trips with other CALM staff and collectors from Kings Park and Botanic Gardens have yielded good results. Communication between CALM districts and the TFSC have been excellent with assistance being given for collections and the provision of field advice.

5. SEED STORAGE, VIABILITY TESTING AND INVENTORY SYSTEM

Twenty-five accessions have been or are in the process of being retested for viability after 1 year in storage at -18^{o}C. All subsamples to date have proven to have good germination comparable to initial germination rates prior to storage. Only a minimal loss of viability has been noted. Accessions will continue to be monitored on a yearly, then 5 yearly basis until adequate knowledge of the flora's response to sub-zero storage is attained.

The fruiting-time database is being constantly updated as new information and new species are added to the list of flora being targeted by the TFSC.

A comprehensive and continuously updated library has been established for the TFSC consisting of books, some journals and a large reprint collection of articles on seed germination and dormancy, and storage techniques.

6. FUTURE COLLECTIONS AND PROPOSED DEVELOPMENTS

Research into the after-ripening processes in one of the rare *Dryandra* species has commenced, and a number of other research projects are in the process of being formulated. An additional consultant with a strong background in seed germination techniques has been employed for a number of months to assist in these projects. It is hoped that continued research into seed storage and seed germination and dormancy breaking mechanisms for the south western flora will assist our knowledge of seed biology and enhance the overall effectiveness of the operation of the TFSC.

The success of seed traps erected last year to capture seed of differentially fruiting taxa has led to the constructing of additional traps within populations of other rare *Adenanthos* species.