MEMBERS ACTIVITIES

RARE PLANT WORK IN WESTERN AUSTRALIA, MAY 1994
Mark Richardson

Before attending the CSIRO Networking Conference in May (Danthonia, Vol 3 No 2) I was fortunate enough to visit two of the ANPC members in Perth.

The Threatened Flora Seed Centre is being set up by the Western Australian Department of Conservation and Land Management. It is located at the WA Herbarium. The Centre is a seed based germplasm collection of rare or threatened WA plants with an initial aim of capturing 75-80% of all genetic variation in each taxon. The Centre is utilizing medium term (4°C) storage to hold collections for 5-50 years and long term storage (-18°C to -22°C) for holding collections for longer than 50 years. It also maintains an integrated database on seed provenances and seed biology for each taxon and intends to link up with the WA database.

The top priority species for the Centre are those that are rare or threatened plants and are susceptible to Phytophthora cinnamomi or aerial canker (Diplodima). Funding is being provided by the Australian Nature Conservation Agency for a five year dieback project.

It is intended that for each species, 100 viable seeds will be held with viability testing being conducted at the time of collection. When I visited the Centre in May it was already holding over 140 accessions which represented 66 species.

The work that is being done at the Rare Plant Laboratory at Kings Park and Botanic Garden is an excellent extension of that being done at the Seed Centre.

Kings Park and Botanic Garden is continuing research into the use of cryopreservation for the long term storage of both seed and plant tissue. This involves the storage of biological material at ultra low temperatures such as that of liquid nitrogen at -196°C (an earlier paper is in Danthonia Vol 1 Number 3). They have successfully cryopreserved shoot-tips of the endangered Grevillea scapigera. The tissue has been thawed and grown to plantlets on regenerative medium. No genetic changes in the regenerated material were shown by tests done. Methods have also been developed for cryopreservation of mycorrhizal fungi from twenty different orchids and species of Epacridaceae and cryostorage of the seed of 68 species has been performed.

It is estimated that using present procedures at least 40% of the rare or threatened species of Western Australia could be maintained in long term storage. In addition to the cryostorage work being done Grevillea scapigera is being artificially propa-
gated by tissue culture and being maintained as living stock in Kings Park's micropropagation unit. Material from this stock has already been used in two species recovery trials as a collaborative effort between researchers and the local community. The aim of this work is the recreation of genetically sound, self-sustaining populations of *G. scapigera*.

The value of having good contacts with other ANPC members has already been demonstrated with the Kings Park work. At one stage *Grevillea scapigera* was thought to be extinct until grafted material was found to be growing at the Royal Botanic Gardens in Sydney and was repropagated in Perth. The ANBG in Canberra is assisting with the cryopreservation work by supplying seed of native plants that are already known to be frost resistant. And where better than Canberra to learn about frost resistance!!

**More on smoke**

We have been asked to point out that the technique of using smoke to break seed dormancy (described in our last issue) was first described by researchers at Kirstenbosch Botanic Garden, South Africa. The discovery was reported in the *South African Journal of Botany* (Vol. 56, pp. 700-703, 1990) under the title ‘Autecological studies on *Audouinia capitata* (Bruniaceae). Plant-derived smoke as a seed germination cue.’ Further tests were carried out on a range of South African species and the results were published by Dr NAC Brown in *The New Phytologist*, vol. 123, pp 575-583, 1993 under the title 'Promotion of germination of fynbos seeds by plant-derived smoke'. A prediction that plants from areas in Europe, North America (California), South America (Chile) and Australia, which also have mediterranean climates and similar vegetation types were also likely to respond to smoke was also made by Brown, Botha, Kotze and Jamieson in *Veld and Flora*, the Journal of the Botanical Society of South Africa (vol. 79 [3], pp. 77-79, 1993).

![Smoke application at King's Park](image)

**SGAP-North Shore**

Letter from Val Wiseman, President, SGAP-North Shore Group (Sydney)

You asked members for suggestions as to how they might get involved at a local level and we thought you might like to hear about what we have been doing.

Firstly, we have compiled from the ROTAP list (1988) and the ANZECC list *Threatened Australian Flora* (June 1993) a list of rare or threatened plants in the Central Coast Botanical Division of New South Wales where we are located. A set of photographs and descriptions of these plants is being put together and shown to our members and the descriptions are put in our newsletter. Anyone finding one of these plants in the bush is instructed to contact the National Parks and Wildlife Service and the local authority. I have spoken to two local conservation societies on the topic and urged a local authority to include descriptions in their Bushcare newsletter.

Secondly, within our Group we propagate some of these plants.

Thirdly, we have supported a local group protesting against a development on land on which there is an endangered plant species; we wrote a protest letter to the developer (a government agency) and sent copies to relevant bodies. We have improved our networking amongst local conservation groups and land managers. We would also support recovery plans.

Fourthly, from knowledge gained at the local level, we have been able to answer questionnaires from the Nature Conservation Council and the National Threatened Species Network; local examples can show what should happen on the larger scale.

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