

Phd on rare eucalyptus honoured

Recently, the Ph.D. Committee of the University of Western Australia wrote to CALM's consultant botanist Jane Sampson to convey special congratulations to her on her Ph.D. thesis being passed.

The thesis, titled "The population genetic structure of *Eucalyptus rhodantha* and its allies *Eucalyptus crucis* and *Eucalyptus lanepoolei*", was considered to be one of "outstanding distinction" by the Ph.D. Committee.

The Committee took the rare step of formally recording in the Minutes of its May 23, 1989, meeting "its special congratulations".

Jane undertook her project between 1986-88 in the Department of Botany under the co-supervision of Dr Sid James and myself.

CALM provided a small annual grant for three years through the Flora Conservation Research Program to cover costs for travel and laboratory expenses.

The technique of starch gel electrophoresis was used by Jane to study genetic variation and the mating system of the three eucalyptus.

Eucalyptus rhodantha was in special need of such research, being one of the State's rarest eucalypts and confined to remnant stands on farm and road verges.

by STEVE HOPPER

Were these populations still viable? Should CALM actively manage them to enhance numbers by replanting? If so, what prescription should apply?

Jane's studies established that the outcrossing rate was between 59-67 percent in an undisturbed population of *E. rhodantha*.

This rate was at the low end of the range reported for other eucalypts.

Moreover, outcrossing declined to 26 percent in a remnant clump in a sheep paddock, suggesting little prospect of a long-term future for this clump as the effects of inbreeding became apparent.

Restoration to a viable population will require fencing from stock, replanting more *E. rhodantha*, and establishment of other plants as an understorey that will enhance numbers of honeyeaters that pollinate *E. rhodantha*.

Such strategies are proposed in a draft Wildlife Management Program prepared by Jane and others for the species.

Recruitment of seedling *E. rhodantha* did not occur following a small experimental burn in part of one population, despite seed release from capsules.

Predation of seeds may have been the cause of this problem.

Consequently, caution in the use of experimental burns on rare eucalypts was advocated.

The granite rock species *E. crucis* was found to have a similar pattern of genetic variation to that found in *E. caesia* by Dr Gavin Moran and myself.

Relatively low variation occurred within populations, while unusually large differences occurred between populations.

This finding highlights the importance of acquiring many reserves evenly distributed across the landscape to conserve granite rock plants.

In both *E. rhodantha* and *E. lanepoolei*, gene flow between populations appeared to be an important component of their structure.

Isolated reserves would need to be complemented by corridors for these species.

A copy of Dr Sampson's Ph.D. thesis have been donated to the CALM library.

Her work exemplifies the benefit to CALM and the Department maintaining a close liaison with researchers in tertiary institutions, and of the provision of a small amount of seed money to facilitate relevant research.