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CONSERVATION ASSESSMENT OF REMNANT
VEGETATION IN THE MOUNT LOFTY RANGES,
SOUTH AUSTRALIA

by

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SUMMARY

This study is concerned with programs to conserve remnant stands of native vegetation in the agricultural regions of South Australia and concentrates on the development of explicit evaluation procedures which reflect stated conservation objectives. As botanical data are available for stands of native vegetation in most of the agricultural regions, stands in a particular region are able to be compared rather than assessed in isolation. Based on a review of conservation evaluation schemes in Australia and overseas, a hierarchical evaluation procedure using multiple criteria to compare stands was applied to stands of vegetation in the Mount Lofty Ranges.

The conservation objective, of preserving samples of all plant communities in a region, led to the analysis of existing botanical data from two surveys of the Mount Lofty Ranges, to provide the basis for an inventory of regional plant communities. These surveys included 52 remnant stands of native vegetation and employed a point-centred quarter plotless sampling technique to summarise the vegetation. Numerical classificatory analysis of the raw sampling point data produced a more comprehensive floristic summary than the results from the plotless sampling. These floristic groups were correlated with physical environmental variables to produce an inventory of 45 regional vegetation types, as the first stage in the conservation evaluation of stands.

Evaluation criteria of size, species richness and species rarity were quantified and used to select examples of each vegetation type on the basis of overall satisfaction of the criteria. In addition, the smallest suite of stands, in which all the vegetation types were represented, was determined, and was shown to be 24 stands. All of these were included in the 37 stands chosen using the three criteria. A third evaluation stage used stand parameters such as plant community richness to give a priority ranking of the 37 stands.

A polythetic divisive classification of the vegetation types was developed to provide a means of evaluating communities in stands of native vegetation yet to be sampled in the region, and of comparing

the vegetation types with communities in existing reserves. Examination of species-sampling area relationships led to recommended plot sizes for such future vegetation surveys in the Mount Lofty Ranges. The ease of collecting floristic data and the extensive time involved in quantitative measurements suggest that all perennial plant species be recorded and only estimations be made of vegetation quantity and structure for each sampling plot.

This study demonstrates the usefulness of numerical classification techniques for conservation evaluation, and of continuous variables to quantify criteria of conservation value; and the application of those criteria in an explicit, hierarchical conservation evaluation procedure.

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