

**PROCEEDINGS OF THE AUSTRALIAN RANGELAND SOCIETY
BIENNIAL CONFERENCE**

Official publication of The Australian Rangeland Society

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Form of Reference

The reference for this article should be in this general form;
Author family name, initials (year). Title. *In*: Proceedings of the nth Australian Rangeland Society Biennial Conference. Pages. (Australian Rangeland Society: Australia).

For example:

Anderson, L., van Klinken, R. D., and Shepherd, D. (2008). Aerially surveying Mesquite (*Prosopis* spp.) in the Pilbara. *In*: 'A Climate of Change in the Rangelands. Proceedings of the 15th Australian Rangeland Society Biennial Conference'. (Ed. D. Orr) 4 pages. (Australian Rangeland Society: Australia).

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CONSERVATION AND RESERVATION OF ENDANGERED SALINE PLANT COMMUNITIES IN SOUTH-WESTERN NEW SOUTH WALES

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INTRODUCTION

Studies in the Scotia country of far-western NSW have revealed the ecological significance of this area, and in particular the importance of plant communities associated with naturally saline lakes (Westbrooke *et al.* 1998). A combination of low grazing pressure and low palatability of species has contributed to the survival, in reasonably intact condition, of a suite of saline plant communities, which are not protected within conservation reserves in NSW. Two vegetation communities are of particular conservation value: *Halosarcia* spp. / *Frankenia* spp. / *Lawrencia* spp. low open-shrubland and *Halosarcia lylei* low open-shrubland, which both occur on the perimeter of larger lakes and across small lakebeds. Five species associated with the salt lake communities have not previously been recorded in the region, or have restricted distribution in western NSW Harden (1990–93).

An ecological community is eligible to be listed under Schedule 1 of the *Threatened Species Conservation Act 1995* (NSW) (TSC Act) as an endangered ecological community if it is 'likely to become extinct in nature in New South Wales, unless the circumstances and factors threatening its survival or evolutionary development cease to operate'.

A proposal will be made to the NSW Scientific Committee to include *Halosarcia* spp. / *Frankenia* spp. / *Lawrencia* spp. low open-shrubland and *Halosarcia lylei* low open-shrubland on Schedule 1 of the TSC Act due to their unique composition, restricted distribution and risk of further depletion.

DISCUSSION

Community descriptions

Halosarcia/Frankenia/Osteocarpum and *Halosarcia lylei* and *Halosarcia lylei* low open-shrubland communities have been described by the authors in previous work (Westbrooke *et al.* 1998). The *Halosarcia/Frankenia/Osteocarpum* low open-shrubland grows to a height of 0.5 m with a cover of between 20 and 40%. The most common shrubs are *Halosarcia pergranulata*, *H. indica*, *H. halocnemoides* subsp. *halocnemoides*, *Frankenia foliosa*, *Osteocarpum acropterum* var. *deminuta*, *Hemichroa diandra* and *Lawrencia squamata*. Other associates include *Atriplex vesicaria*, *Sclerolaena* spp. and *Maireana* spp. The ground layer consists of scattered salt-tolerant herbs and grasses including *Disphyma crassifolium* subsp. *clavellatum*, *Crassula colorata* and *Eragrostis dielsii*. This community has a low level of invasion by exotic species (3% of those recorded).

Halosarcia lylei low open-shrubland is structurally similar to the previous community, but has lower species richness, sometimes occurring as a near mono-specific stand. *H. pergranulata*, *Atriplex vesicaria* and *Osteocarpum acropterum* var. *deminuta* may also be present in low numbers. Both communities appear to consist of several life-stages, sometimes including scattered regenerants.

Distribution

In western New South Wales these communities have a very restricted distribution. They appear to be limited to several Western Lands Leases in the Scotia Country, the most extensive stand on Nanya Station. They have not been recorded during previous broad-scale vegetation studies of south-western NSW, as reviewed by Westbrooke *et al.* (1998). The communities are not included within the current NSW Park system.

Halosarcia/Frankenia/Osteocarpum and *Halosarcia lylei* low open-shrubland appear to be confined to the Huntingfield land system, as described by Walker (1991). These areas comprise small relict groundwater discharge basins, or playas. The playa basin floors are a mosaic of highly saline,

gypseous and calcareous clays. Playas of this type cover approximately 50 000 ha of western NSW (Walker 1991) and are not preserved within conservation reserves.

Benson (1987) analysed state-wide distribution of vegetation associations within conservation reserves and highlights halophytic shrublands of the southern plains as being among those vegetation groups with the poorest conservation status, with some associations being endangered or vulnerable.

Benson (1987) considers that native flora conservation should be addressed equally at the species and community levels. Threatened species, cultivated outside their natural habitat for the purpose of conservation, will only be re-established in the wild if sufficient habitat remains. The presence of several plants with very restricted state-wide distributions within these saline communities gives further strength to the need for their conservation.

Hemichroa diandra, for example, in Victoria is currently known only from a single plant on private land (Sluiter & Cover 1992). The species is thought to occur in all mainland states except Queensland (Jessop & Toelken 1986). It is not known to occur in NSW (Harden 1990–93) (RBGS 2000).

Threatening processes

Mineral exploration is underway at Nanya Station and the mining company has shown some interest in a particular lakebed, half of the margin of which supports *Halosarcia/Frankenia/Osteocarpum* low open-shrubland. The entire lakebed would be cleared and dug out to facilitate excavation of mineral sands. This would devastate one of the seven locations at Nanya known to support *Hemichroa diandra*.

Halophytic shrublands are generally subject to high grazing pressure from stock, goats, rabbits and macropods. Benson (1988) notes that saline shrubland has been 'drastically affected by grazing, which has restricted the abundance and altered composition of some associations'. Grazing exclusion has been proposed to assist survival of *Hemichroa diandra* in Victoria (Sluiter & Cover 1992).

ACKNOWLEDGEMENTS

We would like to acknowledge the assistance of John Miller with field survey, and thank N. Scadding, R. Taylor, G. Rhodda, J. Walmesley, C. Wilhelm and Bemax Pty Ltd for allowing access to sites.

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