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# CAN PASTORALISM AND NATURE CONSERVATION BE COMPATIBLE? VEGETATION OF STATE SIGNIFICANCE IN THE SCOTIA COUNTRY OF WESTERN NEW SOUTH WALES

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## ABSTRACT

A number of authors have emphasised the importance of areas outside nature reserves in the maintenance of biodiversity. A study of the vegetation of the Scotia country of western New South Wales on pastoral properties grazed for 70 years supported the view that biological refugia can exist under a conservative grazing regime. A survey revealed the presence of 290 plant species, of which nine either had not previously been recorded or have a very restricted distribution in western NSW. Twenty plant communities were identified, of which two, *Halosarcia lylei* low open shrubland and *Hemichroa diandra* low open shrubland, were dominated by species not previously recorded from NSW. These studies have highlighted the ecological significance of the area and that in certain circumstances biodiversity may be maintained under a conservative pastoral regime.

## INTRODUCTION

Maintenance of biological diversity is widely recognised as an essential component of sustainability. A number of authors have emphasised the need for pastoral grazing management to satisfy conservation objectives (e.g. Curry and Hacker 1990, Stafford Smith and Morton 1992). The Scotia is an area of western NSW 150 km north-west of Wentworth, adjacent to the SA border. It has one of the shortest grazing histories of western NSW, the six properties having been opened up for grazing in the 1920s (Withers 1989). Two broad land systems dominate the landscape - dunefields, consisting of low parallel ridges running east-west, and calcareous sandplains. A system of salt lakes also occurs within the area.

## METHODS

Eight hundred 30 × 30 m quadrats were sampled between February 1993 and October 1995. All vascular plant species were recorded, together with a cover abundance value for each species. Quadrats were subjectively located following the method of Gullan (1978). This method ensured that all communities were sampled and provided data on floristic variability within the communities. Quadrat data were analysed via a computer-based numerical classification procedure coupled with a hand sorting procedure of the type outlined in Gullan (1978). A list of all vascular plant species was compiled.

## RESULTS

Twenty communities were identified from the vegetation analysis. The communities included 290 species of which 42 (14%) were exotics. Whilst none of the species recorded are rare or threatened on an Australia-wide basis, nine either had not previously been recorded or have a restricted distribution in western NSW. Of the 20 plant communities, two have dominants not previously recorded from NSW. Identified plant communities and the occurrence of the rare species (in bold) in the Scotia were:

- *Casuarina pauper* low woodland/low open woodland.
- *Myoporum platycarpum* open woodland.
- *Geijera parviflora* open woodland.
- *Alectryon/Hakea* low open woodland with grassy understorey.
- *Callitris glaucophylla* open woodland.
- *Acacia aneura* tall open shrubland.

- *Eucalyptus* spp. shrubland with mixed shrub understorey - *Podotheca angustifolia* occasional, *Ptilotus atriplicifolius* widespread, *Bergia trimera* single record.
- *Eucalyptus* spp. shrubland with *Triodia* understorey - *Acacia acanthoclada* occasional.
- *Eucalyptus* spp. shrubland with *Melaleuca* understorey - *Kippistia suaedifolia* very restricted.
- *Eucalyptus gracilis* shrubland with *Disphyma* understorey.
- *Eucalyptus gracilis* shrubland with *Cratystylis* understorey.
- *Atriplex vesicaria* low open shrubland - *Elachanthus glaber* occasional.
- *Nitraria billardierei* low open shrubland.
- *Acacia burkittii*/*Dodonaea viscosa* open shrubland.
- *Halosarcia pergranulata* low open shrubland.
- *Halosarcia indica* low open shrubland.
- *Halosarcia lylei* low open shrubland - common around salt lakes.
- *Hemichroa diandra*/*Frankenia*/*Lawrenzia* low open shrubland - common around salt lakes.
- *Frankenia*/*Osteocarpum*/*Disphyma* low open shrubland.
- *Bromus*/*Critesion* grassland.

Species not previously recorded or with restricted distribution in western NSW (Harden 1990-93) were:

- |                                   |   |
|-----------------------------------|---|
| • <i>Halosarcia lylei</i>         | Not previously recorded for NSW (Australian distribution: SA, Vic). |
| • <i>Hemichroa diandra</i>        | Not previously recorded for NSW (SA, Vic, WA, NT).                  |
| • <i>Cratystylis conocephala</i>  | Previously only known from a few sites in NSW (SA, WA).             |
| • <i>Kippistia suaedifolia</i>    | Previously only known from one site in NSW (All mainland states).   |
| • <i>Elachanthus glaber</i>       | Not previously recorded for NSW (SA, Vic).                          |
| • <i>Podotheca angustifolia</i>   | Not previously recorded for NSW (Vic rare, SA).                     |
| • <i>Acacia acanthoclada</i>      | Recorded only from the Buronga area in NSW (Vic, SA, WA).           |
| • <i>Bergia trimera</i>           | Not previously recorded for South Far West (Qld, NT, SA, WA).       |
| • <i>Ptilotus atriplicifolius</i> | Not previously recorded for South Far West (Qld, NT, SA, WA).       |

## DISCUSSION

These data suggest that even without specific management strategies pastoral properties are capable of providing refugia for biological diversity. It should however be noted in this case that the area has a relatively short grazing history and, due to the presence of large areas of mallee with a *Triodia* understorey and until recently restricted water supplies, stocking rates have been very low. The advent of PVC pipe enabling cheap reticulation of water may change this and in the future lead to the elimination of such refugia. This study highlights the need for detailed biological surveys to establish baselines against which change may be measured.

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