

## **Biological Survey of the Gammon Ranges National Park**

Boulderstone, C. S., Owens, H. M., Possingham, M. L. and Possingham, H. P. (1999). *Gammon Ranges National Park: Flora and Fauna Survey and Vegetation Monitoring, 1993-1995*. Nature Conservation Society of South Australia Inc.

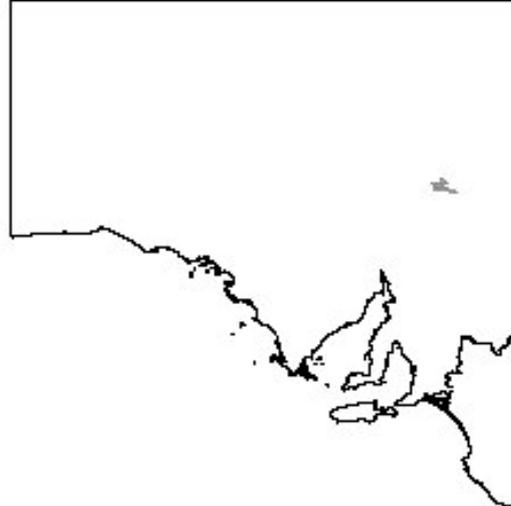
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### Summary:

This paper reports on the findings of an ongoing vegetation monitoring program in the Gammon Ranges National Park, South Australia.

Permanent monitoring sites for flora were established in 1983 and assessments have been undertaken several times since.

This monitoring program aims to assess the effect of the removal of stock on changes in perennial vegetation and litter cover, and the extent of bare ground.

Prior to 1981 the area was under pastoral lease and was used to graze sheep.

A total of 22 permanent sites set up in 1983 and monitored in 1987, were re-monitored in 1993 and in 1994.

A Biological Survey of plants, mammals, reptiles, amphibians and birds was carried out in 1993.

An enclosure to monitor a population of the 'Vulnerable' spidery wattle (*Acacia araneosa*) was set up and monitored in 1992, and re-monitored and perennial species mapped in 1995.

A new enclosure was set up in 1995 to monitor a population of the 'Rare' ashy-haired swainsona pea (*Swainsona tephrotricha*).

This paper addresses the commonly held perception that following removal of stock, grazing pressure would be reduced and this would lead to increases in perennial vegetation, litter cover, a reduction in bare ground and therefore lead to restoration of ecosystems and their habitat value.

Total grazing pressure from feral animals appears to have a significant effect on the perennial native vegetation after the removal of stock.

Goats had a very significant detrimental effect on the survival of the 'Vulnerable' spidery wattle (*Acacia araneosa*).

The effects of high total grazing pressure are graphically demonstrated by enclosures in the hill country, where *Acacia araneosa* individuals have increased from 3 to 49 individuals in the rabbit

and large herbivore proof enclosure and 1 to 15 individuals where rabbits have access. However in the five control plots where access is not restricted, a decrease from a total of 14 to 9 individuals has occurred.

Significant increases in ground cover were measured in the mitchell grass (*Astrelba lappacea*) plains; less increase in other plains sites; and little change in the hill sites. This appears to correlate directly with the total level of grazing pressure in these areas, namely kangaroos in the *Astrelba lappacea* plains, plus rabbits on other plains sites, plus goats and euros in the hill country.

An existing large rabbit-proof enclosure, set up by NPWS in 1983 was repaired and photo-point photographs retaken. This area is now being utilised by the Animal and Plant Control Commission for a long-term study of the effects of Rabbit Calici-virus Disease.

As the result of the Biological Survey in 1993 the following were found:

- 92 species of bird;
- 17 species of mammals;
- 37 species of reptiles;
- 3 amphibians;
- 276 species of plants.

Of these there are 2 species which are classified as 'Vulnerable', 3 as 'Rare', 1 as 'uncommon' and 1 as 'Possibly Significant'.

This gives only an indication of the biodiversity of the park, as a semi-arid region such as this requires repeated surveys over a range of climatic conditions. Different species respond to rainfall events of differing quantity and duration, at different times of the year with different evaporation rates and all on soil types of differing characteristics.