Cluster fence evaluation

MORVEN

The Department of Agriculture and Fisheries (DAF) is evaluating the cost-benefits of cluster fences in order to advise future investment. Benefits are anticipated as producers get on top of their pest problems, pastures respond to reduced grazing by pests and livestock production/profitability improves due to less predation and greater carrying capacity. In November 2013, DAF commenced monitoring vegetation and wildlife population trends inside and outside the Morven cluster fence. Although the fence was not completely finished until early 2015, sections of the fence had been built or were under construction much earlier.

Wildlife

To monitor wildlife population trends we use two commonly-used methods: spotlight counts from which density estimates of kangaroos, rabbits and cats are derived; and an activity index of relative abundance based on identifying animal tracks on tracking stations. These two methods allow us to monitor a broad range of wildlife over time. Not all properties within clusters are being monitored. Survey lines representative of the enclosed cluster area are surveyed the same months (April, August and November) each year to assess the population trends occurring generally.

To provide a comparison we simultaneously monitor population trends occurring outside the cluster fence. Results show that the dry conditions have limited wildlife populations for several years now.
Results from monitoring wild dog activity have shown autumn seasonal peaks during mating season and troughs during whelping and pup rearing on properties outside the cluster. Inside the cluster fence, wild dogs are now scarce due to the effort and resources put into destroying them.

Other wildlife species, inside and outside the cluster fence, show very similar trends.

**Vegetation**

The wide variety of land types within the Morven cluster makes it difficult to assess changes in pastures due to the fencing and associated management. What has been done to date is to set up 90 sites which are revisited several times per year. At 60 sites, data are collected on surface cover, grass
basal area, pasture dry matter, major pasture species, and level of grazing. At another 30 sites, photos only are taken. There are sites within the fenced area and outside the fenced area. These sites are easily accessible from public roads and include a range of cleared and uncleared sites in box, mulga and downs country. Six samplings have been done over the last 18 months.

Sampling locations are distributed throughout the fenced area as well as to the north-west of the enclosed area as shown below.
Cover over time has changed in a similar manner inside and outside the cluster. As expected, the cover is lower during the winter/spring period. After some recent rains, cover should increase from that recorded in December 2015.

The actual values for cover are not directly comparable for inside versus outside the fence as there is a different mix of vegetation types inside and outside. Also, the number of sites has increased over time as the monitoring system was put into place; this may influence the overall cover values above. Since May 2015, the same number of sites has been used.

The series of photos are from one of the first sites elected, a downs site, and shows the variation in cover from sampling 1 (May 2014) till sampling 7 (Dec 2015).
TAMBO

During 2015 DAF’s cluster fence evaluation was extended to include the cluster fence built at Tambo and completed during that year. Parts of the survey lines set up previously by South West Natural Resource Management (Catherine Crowden) outside the Tambo cluster fence had become obsolete, enclosed within new exclusion fences. (Producers outside the cluster have independently connected fences between the cluster and the Wild Dog Barrier Fence). We have relocated the ‘outside’ survey line southwest of this cluster to avoid these developments.

It’s still early days in monitoring wildlife in this area. Preliminary results indicate that kangaroo densities are substantially higher inside the Tambo cluster fence (around 250/km$^2$) compared to outside the fence (around 50/km$^2$) and compared to the Morven region (30-50/km$^2$). Dog activity is also substantially higher around Tambo with little difference inside compared to outside the cluster fence.

DAF is not doing any vegetation assessments at this stage in the Tambo cluster.

Location of the tracking stations (white squares) and 10km spotlight sections (black bands) inside and outside the Tambo cluster.

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