

## Preliminary Observations Using GPS on the Grazing Distribution Around Water Points for the Barkly Tablelands

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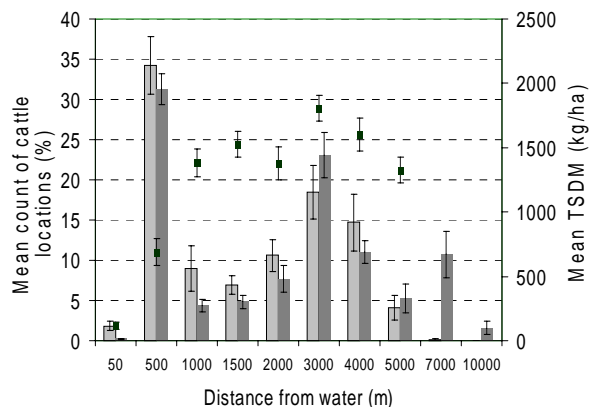
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Grazing distribution is an important measure of how well rangelands are managed. Since water can act as an attractant in the landscape, provision of additional water points would be expected to change grazing distribution as pasture surveys have indicated (Kearins and Bubb, 2006). However, a more direct measure of cattle distribution is required to quantify pasture utilisation in large (>1000 ha) paddocks. The use of GPS provides a reliable method of quantifying animal activity across different landscapes (Rodgers, 2001). The aims of this study were to quantify the spatial distribution of cattle to pasture availability when water is supplied from single or multiple points in large paddocks.

The study site, on Rockhampton Downs Station (18°56'S, 135°11'E), is part of the Barkly Tablelands land-system. A single paddock dominated by *Astrelba* spp. and *Iseilema* spp. grass pastures, was divided into two paddocks; one of 280 km<sup>2</sup> and the other 253 km<sup>2</sup>. In the first paddock 3 water points, 6.8 to 9.6 km apart operated at all times. In the second paddock only one water point was operational at any time. In the first of two deployments, 8 cows (Senepol x Charolais x Santa Gertrudis) from each paddock of ~1000 cows with calves, were randomly selected during a routine muster and fitted with archival GPS units in September 2007, late dry season. Each unit was programmed to collect positional data at 15 min intervals, from ≥4 satellites. The collars were removed after 54 d and positional data downloaded with a wireless interface. Pasture surveys at fixed intervals to 5 km from each operational water point assessed total standing dry matter (TSDM, kg/ha) in October



**Fig 1.** Mean ( $\pm$ sem) count of positional data for collared cows with access to one (○) or three (●) water points and mean ( $\pm$ sem) TSDM (■, kg/ha) with increasing distance from water.

paddock. Based on positional data, animals were mostly 50-500 m or at 3-4 km from water, which may have coincided with camping or peak periods of grazing, respectively. The results from the GPS positional data, collected over only 54 d, indicate that where three water points were available grazing cattle used a similar proportion of a large paddock compared with one water point. The GPS devices have quantified the location of cattle and provided a measure of under utilisation of available area across large paddocks where multiple water points exist. A subsequent deployment of GPS devices will investigate cattle distribution when water availability is managed temporally from seven water points spaced  $9\pm 1.0$  km across the landscape.

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Kearins, S. and Bubb, A. (2006) In; *Proc. Aust. Range. Soc.* 14<sup>th</sup> Biennial Conference Renmark, Sth Aust. 239.

Rodgers, A. (2001) In *Proc Tracking animals with GPS*. The Macaulay Land Use Research Institute, Aberdeen.

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