

Reducing the Impact of Cattle on Riparian Areas using Automated Animal Control Devices

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The ability to modify the distribution of grazing livestock is a common desire among farmers, either to protect sensitive areas or to more closely match stocking rate with carrying capacity. Virtual fencing (VF) technology offers an alternative method of controlling both where and when animals graze without the need for physical barriers, which are costly to erect and maintain, particularly along riparian areas (Bishop-Hurley et al. 2007). To evaluate the potential for automated animal control collars to reduce the impact of cattle on riparian areas for up to 3 months a replicated experiment was run with four groups of ten cattle, each group being allocated to a separate 24 ha paddock. Automated animal control collars utilise GPS to monitor position and provide cue (audio) and control (mild electric shock) stimuli to deter animals from entering an exclusion zone. When the cattle were familiar with the paddock, duty cycled GPS collars were fitted to the individual animals for two weeks and background-monitoring data collected. Once the background data had been collected, the coordinates of the exclusion zone were sent to the collars to start the control phase of the experiment. The collars were removed from the animals 4 weeks after being fitted. Cattle were observed from a distance regularly and had access to *ad-libitum* grazed forage and trough water throughout the experiment.

During the monitoring phase of the experiment cattle spent 6% of their time in the exclusion zone, but less than 0.01% of their time in the exclusion zone after the virtual fence was enabled (Figure 1). However, due to the GPS units taking longer than expected to obtain lock and the unsuitability of the current control collars for long duration trials, the goal of 3 months of exclusion from the riparian area was not achieved.

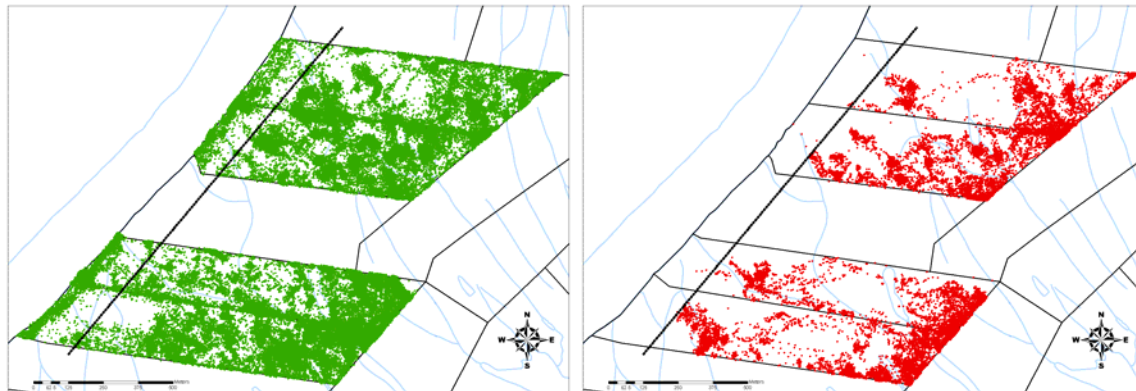


Figure 1. Distribution of animals before (left) and after (right) the automated animal control devices were activated. The thick line represents the location of the virtual fence line that removes access to the riparian area.

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