Use of shelter by Merino sheep

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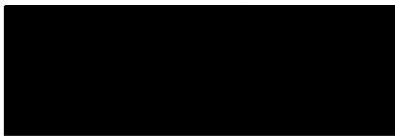Graduate Dip. Science, University of New England, Australia, 2008

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DECLARATION

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification at any university. I certify that all help received in preparing this thesis, and all sources used, have been duly acknowledged.

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ABSTRACT

The objectives of the studies conducted in this thesis were to improve knowledge of pregnant and lambing Merino ewes sheltering behaviour and to investigate an alternative means of moving sheep flocks within paddocks or to protected areas. Animal collar tracking devices with global positioning system (GPS) capabilities enabled continuous, unobtrusive tracking of sheltering behaviour throughout two lambing seasons in two nearby paddocks. Behavioural measures such as shelter-seeking was observed throughout the two experimental years and in both paddocks. The ewes consistently used shelter more than expected and more than the remainder of the paddock which was devoid of shelter. Extensive use of the leeward and windward side of shelter during high sheep chill days, suggests there may be wellbeing issues associated with inadequate provision of shelter for sheep throughout the year. Night camping in this study did not occur at the highest altitude, but rather at a high altitude where shelter was located. Bayesian change-point (bcp) analysis successfully identified change-points (reduced velocity) that could be associated with lambing in the majority of the closely monitored ewes. Based on this analysis the time period of morning grazing appeared to be the best in which to identify lambing. The feasibility of training Merino sheep and using these trained sheep to move flocks of naive sheep was also investigated. The sheep learned to approach the visual, auditory and visual+auditory stimuli and T-maze tests indicating that the sheep retained memory of the cues for over 130 days without reinforcement. The sheep were able to transfer the learned task from a familiar location to a novel one. Individual temperament of these animals was not related to their learning. This study demonstrated that sheep trained to respond to a stimulus do provide leadership when mixed with naive sheep flocks causing a flock to rapidly change position to congregate around an activated stimulus. These findings suggest that trained animals could be used to manipulate animal movement for farm management purposes such as movement to shelter.

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