



Influence of Weather and Animal Related Factors on Grazing Distribution of Livestock

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Automated monitoring of animal locations at relatively short time intervals has allowed new insights into how biotic and abiotic factors influence spatial distribution patterns of livestock. We will discuss recently completed and on-going grazing behavior studies using GPS/GIS approaches at sites in New Mexico (USA) and Argentina. These studies seek to determine the influence of weather and animal-related factors (reproductive state and stress coping style) on spatial distribution patterns of cattle and sheep at the scale of days and plant communities. Data from our New Mexico site showed that: a) ambient temperature, relative humidity, wind direction, and short term thermal stress, were significant predictors of day-to-day plant community preference patterns of young cows; b) foraging decisions appeared to be influenced by ambient temperatures that were well within an cow's thermoneutral zone; c) animal physiological state (nursing vs. open non-nursing) had small and transient effects on day-to-day changes in plant community preference of cows; d) young calves appeared to impose very few constraints on their dams' movement patterns; and e) groups of cows classified on the basis of stress coping styles (nervous vs. calm) exhibited different spatial use patterns. On-going research at three sites situated along a latitudinal environmental gradient in Argentina (from hot sub-humid to cold semi-desert) using similar GPS/GIS approaches to those currently being used in NM will also be discussed. NM-Argentina cross-site comparisons are expected to advance current understanding of the foraging decision process of rangeland-raised livestock.

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