UNIVERSITY OF ALBERTA – MSc Opportunity

Project Title: *Cattle spatiotemporal use patterns under rotational and continuous grazing*

Project Lead: Dr. Edward Bork, Professor and Mattheis Chair, Rangeland Ecology & Management, Dept. of Agricultural, Food & Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.

Timelines: Preferred start date of May 1, 2025. Position will remain open until filled.

Project Description: We are seeking an MSc student to work on a collaborative project examining the patterns and extent of grassland use by cattle under different experimentally-imposed grazing systems, including adaptive multi-paddock rotational grazing, and continuous (season-long) grazing. This work will take place in conjunction with the CAT-G (Climate Action Through Grazing) study being conducted at the University of Alberta Kinsella and Mattheis Research Ranches within the Aspen Parkland and Mixedgrass Prairie, respectively. Field work will combine the use of GPS collars to monitor cattle spatial occupancy and habitat use, drones (UAVs) to evaluate synoptic patterns of forage use/depletion, together with field plots. Work will take place in the summer/fall of 2025 and 2026. Expected primary outcomes of the work include:

- Use of contemporary GPS technology to track and contrast the geospatial distribution of cattle across the landscape under different grazing systems, including in relation to changing seasonal conditions.
- Synoptic assessment of changes in vegetation structure and biomass in grasslands due to cattle in response to different grazing systems, as measured using LiDAR (light detection and ranging) and MSS (multi-spectral scanner) platforms mounted on UAVs (unmanned aerial vehicles).
- Comprehensive integration of information on geospatial cattle presence, with vegetation structure and biomass, to understand the collective impact of grazing systems on the heterogeneity of forage use, including in relation to other ecological datasets being collected in the CAT-G project (soil health, GHG fluxes, plant diversity, avi-fauna, etc.).

Position Requirements: Applicants should meet the following criteria:

- Have a strong academic background and interest in conducting advanced studies in rangeland ecology, landscape ecology, and cattle behavior, together with prior experience collecting field (vegetation) data.
- Candidates should have a minimum GPA ≥ 3.3 in their last 2 years of study.
- Possess excellent communication skills, both verbal and written, and an interest in working with cattle.
- The ability to develop and undertake innovative scientific approaches, including the use of drones (UAVs) for vegetation monitoring, and GPS collars for tracking cattle spatial and temporal use patterns.
- Demonstrate an aptitude to network with other collaborators, including other students and researchers.
- Exhibit strong organizational skills, problem-solving ability, and willingness to work in the field for extended periods of time.
- Willingness to engage in novel data analysis, critical thinking, and comprehensive thesis development.
- Possess a valid, graduated (non-probationary) Canadian drivers' license (or equivalent - if international), with no restrictions.

Annual Stipend: Research Assistantship: $25,000 for MSc (Cdn)

How to Apply: Interested candidates should send a copy of transcripts, CV, and a statement of research experience and interests (2 page limit), with the names of three references, to: ***Dr. Edward Bork*** (Edward.bork@ualberta.ca), Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.

Website: https://rri.ualberta.ca/about-us/our-facilities/