



Project Title: Impacts of cattle grazing on the proliferation of foxtail barley in wet meadow rangeland communities

Project Lead: Dr. Rafael Otfinowski, Assistant Professor, University of Winnipeg

Project Start Date: 2016 **Status:** In Progress

Collaborating Partners: Jane Thornton, Manitoba Agriculture and Resource Development, and Kim Wolfe, Manitoba Agriculture and Resource Development

Purpose:

Wet meadows constitute a large portion of Manitoba's rangelands. Through the diversity of plants they support, wet meadows provide important ecosystem services. Despite the extent of wet meadow rangelands in Manitoba, little is known about the response of these plant communities to cattle grazing. Of special concern is the potential impact of grazing on the proliferation of foxtail barley, a weedy, salt-tolerant grass, that is considered noxious in Manitoba. Once established, foxtail barley reduces rangeland productivity and poses a threat to grazing animals. This research extends an ongoing grazing experiment (2016 - 2018) to evaluate the impacts of grazing on the structure, composition, and function of wet meadow plant communities, including their roots.

Approach:

This research will examine the response of wet meadow plant communities to the intensity and timing of cattle grazing, including the proliferation of foxtail barley. Measurements of the diversity, structure, and composition of plants above-ground will be supplemented with measurements of the architecture and morphology of roots of dominant species. Measurements of soil will include compaction, moisture, and salinity. By evaluating the impacts of cattle grazing on wet meadow plant communities this project will help the sustainable use of wetland meadows in Manitoba, reduce the proliferation of foxtail barley, and help understand links between roots and ecosystem services provided by wet meadow rangelands.

Key Message:

Our results demonstrate that early season, intense grazing of wet meadow rangelands by cattle increased the proliferation of foxtail barley and reduced the richness and diversity of rangeland communities. In contrast, late season and moderate grazing had few negative effects on the structure and composition of wet meadow rangelands, and maintained their diversity and soil properties, including reduced soil compaction. Our results demonstrate that moderate intensities of grazing are important to prevent the proliferation of foxtail barley and to sustain the productivity and healthy condition of soils in wet meadow rangelands.



Project Funders:



