



Saskatchewan
Prairie Conservation
Action Plan

Native Prairie Speaker Series Webinar

Woody Encroachment in Saskatchewan



Tuesday January 31st, 2023 at 12:00pm

Speaker: Dr. Xulin Guo, University of Saskatchewan

Register Free: <https://attendee.gotowebinar.com/register/9170897171571485456>

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Native Prairie Speaker Series *Webinar*

Speaker:

Dr. Xulin Guo, Department Head of Geography & Planning, University of Saskatchewan

Presentation summary:

Grasslands provide vital global ecosystem services, are sensitive to disturbance and invasion, and are prone to rapid functional collapse. Grasslands worldwide have been degraded in recent decades due to intense human activity and climate change, and this degradation not only threatens ecosystems but negatively affects ecosystem services. A comprehensive grassland assessment is hindered by uncertainties of understanding the expansion of unwanted species and the methods to detect and effectively assess their impacts using remote sensing and geospatial methods. Woody Plant Encroachment (WPE) is a natural ecosystem process. Still, it has become a threat to grassland ecosystem health because of the effects of climate change and the lack of a clear understanding of the WPE mechanisms, especially in Canadian prairies, a location where WPE was not an issue in the past. There are two major challenges to understanding WPE in grasslands using remote sensing and spatial techniques. First, woody plant cover is highly heterogeneous, leading to mixed pixels that include various types of cover. This is because grasslands appear in various WPE stages. Second, a woody plant has typical healthy vegetation spectral features that are hard to separate from healthy, productive grass species. My research aims to reveal the driving factors of WPE in the Canadian prairies, provide potential solutions for the issues, and gain new knowledge in maintaining grassland ecosystem services.

About the Speaker:

Dr. Xulin Guo is a professor at the Department of Geography and Planning. She has a BSc in Forest Management, a MSc. in Forest Economics from Beijing Forest University, and a Ph.D. in Remote Sensing and Biogeography from the University of Kansas. Her research focuses on remote sensing of grasslands since her Ph.D. program in the tall grass prairie and moved to the mixed grass prairie in 2001. Her passion is for native prairie conservation. For decades, her studies have used remote sensing tools to determine solitary measures of grassland growth and productivity, such as cover, biomass, leaf area index, canopy height, and structural heterogeneity. In addition, she has investigated the effects of climate variation, burn, and grazing in grassland ecosystems, as well as species at risk habitat assessment. A barrier to continued progress in assessing ecosystem health and its services is to integrate different elements and approaches holistically. Therefore, she aims to contribute to achieving optimal and high-quality ecosystem services while maintaining sustainable grassland ecosystems.