# Prairie Pastures: Grassland Vigour and Grazing Effects as Observed by Satellites, 2000 to 2023.
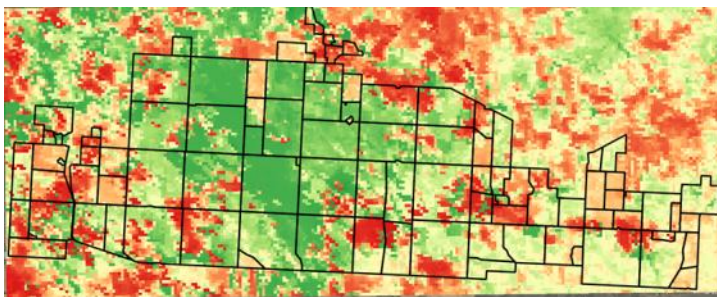


Modis NDVI June 2001
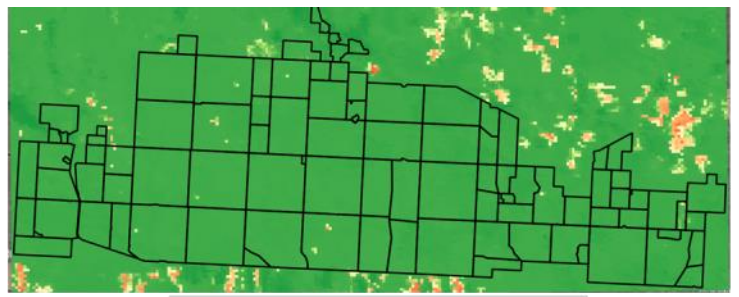
Modis NDVI June 2011

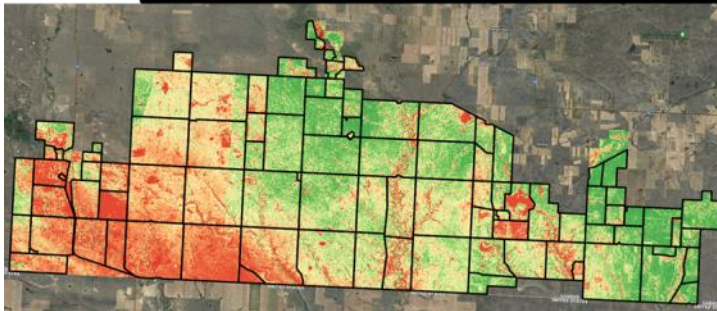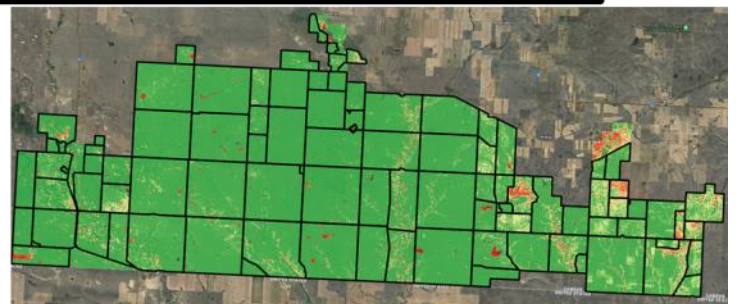**Prairie Pastures Conservation Area, SW SK**

Sentinel-2 NDVI May 2022

Sentinel-2 NDVI May 2023

## Wednesday October 30th, 2024 at 12:00pm

**Speakers: Michael Fitzsimmons, Environment and Climate Change Canada and Xiaolei (Stephen) Yu, University of Saskatchewan and Environment and Climate Change Canada**

**Register Free: https://shorturl.at/B6DWz**

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More Information: SK PCAP at 306.352.0472 or pcap@sasktel.net

**This Webinar is Presented By:**

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**Speakers:** Michael Fitzsimmons, Environment and Climate Change Canada and Xiaolei (Stephen) Yu, University of Saskatchewan and Environment and Climate Change Canada

## About this Webinar:

Data from satellites can inform the management of large-scale pasture areas for which detailed ground measurements will always be scarce. Normalized Difference Vegetation Index (NDVI) is a proxy measure for vegetation vigour, a key attribute of grassland ecosystem health. NDVI, based on red and near-infrared reflectance data collected by satellites, has been in common use since the 1970s. Satellites detect growing green and dense vegetation as high NDVI values and dead and thin vegetation as low index values. For the 800 km$^2$ Prairie Pastures Conservation Area (PPCA) in SW Saskatchewan, we investigated freely available satellite NDVI data for the 2000 to 2023 growing seasons. We compared these data to stocking records, interpolated weather data and physical characteristics of each specific field. Recent precipitation had the strongest correlations with native field NDVI values. Associations with temperature, elevation and latitude were also evident. Relationships with other factors such as longitude and cattle grazing were difficult to detect. At the observed range of stocking rates, managed grazing in the PPCA was associated with only minor differences in NDVI among fields over both multi-year and multi-decade time frames. Based on the observed NDVI responses to past weather conditions, we outline the circumstances that might result in future NDVI peaks and troughs at the PPCA. We also make recommendations on how NDVI might be used operationally to evaluate the status of native grasslands and effects of future grazing prescriptions that might be implemented for wildlife habitat or other management purposes.

## About the Speakers:

Michael Fitzsimmons, PhD, PAg, worked on numerous vegetation and wildlife management programs on federal lands within Saskatchewan over the past 38 years. Currently in the process of retiring from his current position at the Canadian Wildlife Service, he hopes to continue working in support of wild habitats with Typha Environmental Research and Consulting.

Xiaolei (Steven) Yu, Ph.D., is a remote sensing specialist dedicated to advancing the monitoring and management of grassland ecosystems. He is currently a Living Skies Postdoctoral Fellow at the University of Saskatchewan. He conducted field research at the Prairie Pastures Conservation Area and other Saskatchewan rangelands while completing his PhD in Geography.

PCAP's Native Prairie Speaker Series is a monthly webinar about prairie conservation or species at risk.
**Hosted by:** Caitlin Mroz-Sailer, Stewardship Coordinator, Saskatchewan Prairie Conservation Action Plan

*We respectfully acknowledge that we are on the traditional territories of many Indigenous Nations and communities, past and present. For a millennia, they have worked to protect these landscapes and the life these areas sustain. I would like to thank these original caretakers, and acknowledge the ongoing work and presence of Indigenous Peoples in Canada today.*