

Where's the P in Prairie Potholes?

The role of wetlands in phosphorus retention and release

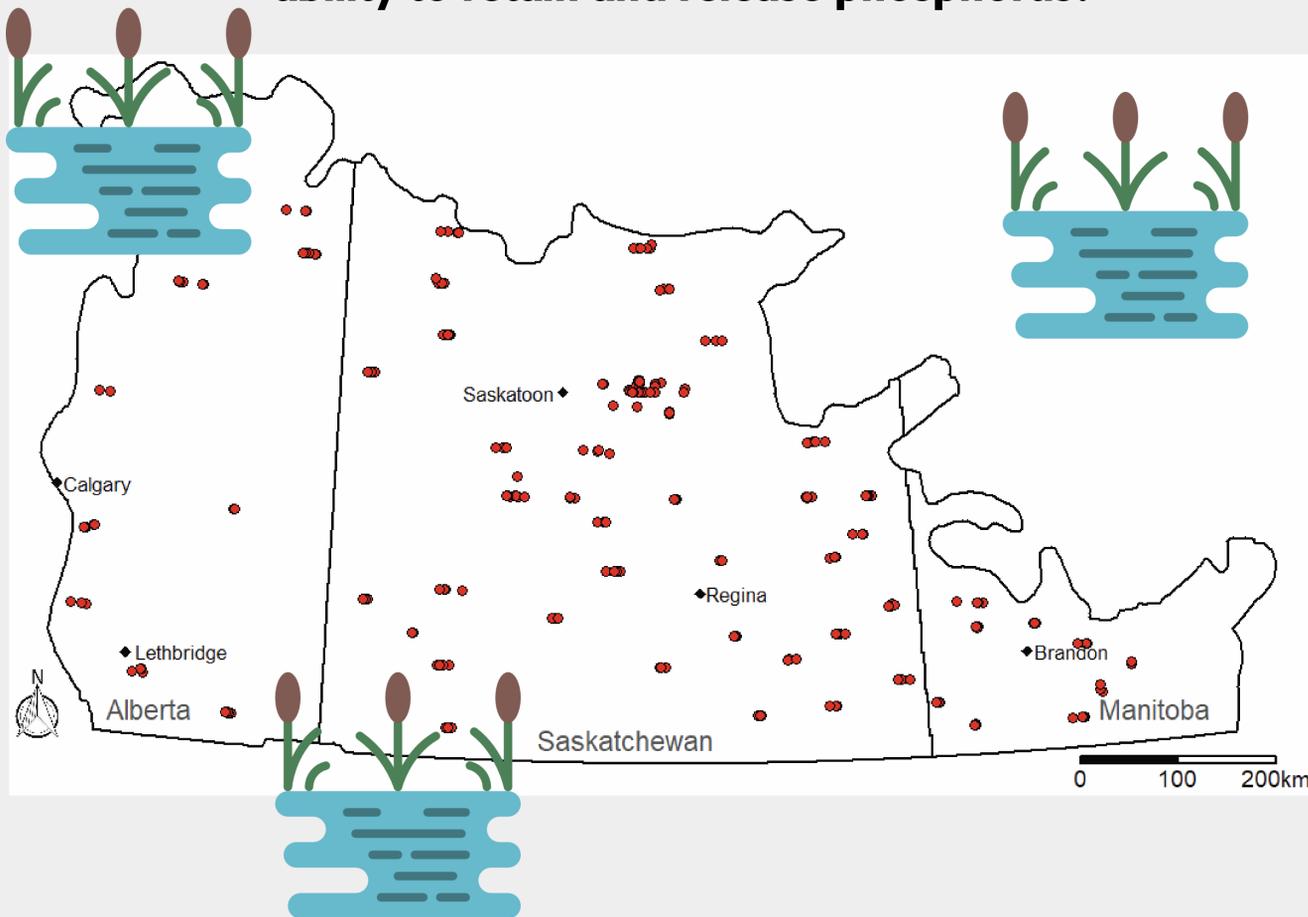
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The Problem

- Wetlands in the Prairie Pothole Region have been disappearing at a rapid rate since the early 1900s
- As wetlands disappear the services they provide like habitat, carbon storage and nutrient retention disappear
- An excess of nutrients like phosphorus is causing algae blooms and decreasing water quality in water bodies across the Prairies
- We need to better understand the controls on phosphorus retention and release in Prairie wetlands and the differences in the properties linked to such controls

How much difference is there in Prairie wetlands ability to retain and release phosphorus?



Answering the Question

To answer this question, I will use a field and laboratory-based investigation that includes comprehensive data from > 100 pothole wetland sites.

Though this work I will tackle the following specific objectives:

- determine how concentrations of total P in wetland surface waters vary spatially in the Prairie ecozone
- determine if there are patterns of geomorphic, soil, and sediment properties and surface water characteristics driving observed variation,
- determine how the forms of P in wetland soils vary between freshwater and saline wetlands

Implications and Applications

- Develop a well-rounded understanding of the variability of wetland phosphorus retention and release across the Prairies, while identify the contributing controls
- Contribute to informed decisions in regards to wetland drainage and wetland preservation, by understanding the role specific types of wetlands play in phosphorus retention
- Facilitate predictions about the potential changes in rates of eutrophication should wetlands disappear



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