ALBERTA INNOVATES

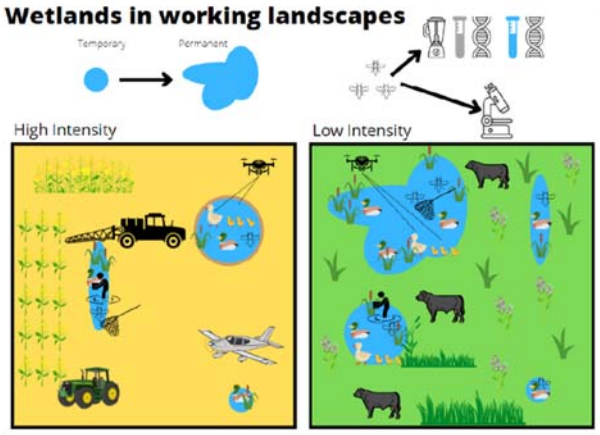
CLEAN RESOURCES

ENVIRONMENTAL INNOVATION

WATER INNOVATION

Maintaining Wetland Resilience in the Context of Agroecosystems and Climate Change

The project addresses key questions about the impact of agricultural practices and climate change on wetland health. Predictive models will be developed using aquatic macroinvertebrates and waterfowl productivity as indicators to relate wetland health to anthropogenic stressors. Innovative genomics methods will be developed as cost-effective tools to: (i) evaluate linkages between agricultural practices and wetland and waterfowl productivity; and (ii) estimate changes in wetland productivity in response to climate change. The work advances environmental genomics as wetland monitoring tools, provides a framework to investigate impacts of climate change and agriculture on wetlands, and informs sustainable agriculture practices that promote conservation.



FUNDING DETAILS

RECIPIENT:
Alberta Biodiversity Monitoring Institute

PARTNERS:
Ducks Unlimited Canada, InnoTech Alberta, Mitacs

TOTAL BUDGET:
$2,783,500

AI FUNDING:
$500,000

PROJECT DATES:
MAR 2023 – APR 2027

PROJECT TRL:
Start: N/A
End: N/A

APPLICATION

The project will help advance the use of innovative technologies, such as environmental genomics, to enhance the ability to sample efficiently and effectively at broader spatial scales. Results of this work will help establish best management practices for sustainable agriculture to maintain healthy wetlands that support ecosystem services. These results will inform conservation programs, land use/agricultural management decisions, and wetland policy.

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PROJECT GOALS

The goals of the project are to:

1. Examine the impact of climate change and agricultural practices on wetland health; and
2. Develop and promote sustainable agricultural practices that facilitate healthy wetlands that are resilient to climate change impacts and support waterfowl and other biota.

Goals will be achieved through use of traditional and novel applied ecological monitoring techniques combined with climate change modeling and advanced statistical analyses.

BENEFITS TO ALBERTA

The proposed project will generate information and guidance including:

- improved methodologies for cost- effective monitoring of wetland health;
- a better understanding of the mechanisms by which agricultural practices, climate change and waterfowl production are linked; and,
- development of best management practices for agriculture that facilitates the persistence of healthy wetlands in a working landscape.

Predictive climate change models will be used to quantify the expected loss of wetland biodiversity and biomass production over time, and to help develop strategies to mitigate the effects of climate change on wetland ecosystems. Results will inform conservation programs, land use/agricultural management decisions, and wetland policy.

6 HQSP

3 Publications

2 Practices/Policies

1 Student Trained

CURRENT STATUS

MAR 2023

The project has been initiated and activities are now underway.