

# Headwaters Alliance

Background and Update on the Work  
of the Headwaters Alliance

Presentation by: Mary Ellen Shain



# Headwaters Alliance



- Clearwater County
- Brazeau County
- Parkland County
- Leduc County
- Wetaskiwin County

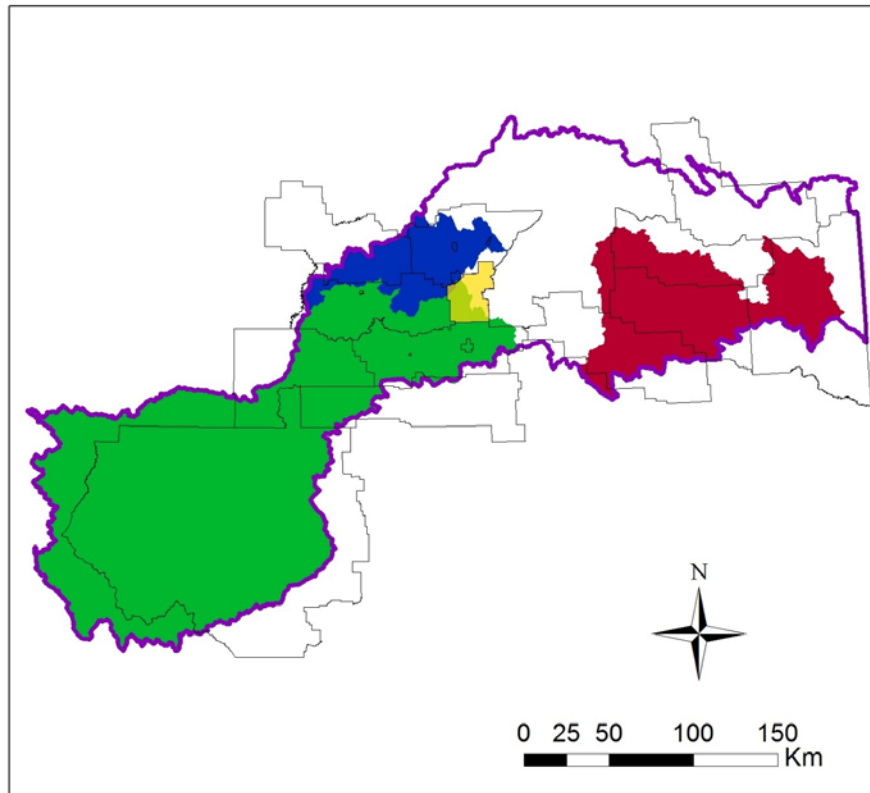
- Rocky Mountain House
- Drayton Valley
- Devon

- O'Chiese First Nation

- Est. 2014
- Platform for communities to collaborate their efforts to achieve a healthy watershed



# NSWA Sub-Watershed Alliances



## Legend

- Municipal Partners
- City of Edmonton
- North Saskatchewan Watershed Alliance
- Headwaters Alliance
- Sturgeon River Watershed Alliance
- Vermilion River Watershed Alliance

This map was created by the North Saskatchewan Watershed Alliance. The data used in this map was provided by Water Survey of Canada. November, 2016



# Indicators of Watershed Health



Metrics chosen for the State of the North Saskatchewan Watershed Report.

Indicator Category	Metric
Land Use	Riparian health
	Linear development (roads, seismic, pipelines, etc.)
	Land use inventory
	Livestock density
	Wetland inventory
Water Quality	Surface water quality index (AENV model)
	<i>E. coli</i>
	Phosphorus (TP, SRP)
	Pesticides
Water Quantity	Water allocations by sector
	Groundwater extraction
Biological Indicator	Aquatic macrophytes
	Fish (population estimates)
	Vegetation types (Alberta Vegetation Inventory)
	Benthic invertebrates



# Riparian Health in the IWMP



## Integrated Watershed Management Plan for the North Saskatchewan River in Alberta

### Watershed Management Direction 3.3: Maintain and restore riparian areas

#### Actions:

##### 3.3.1

Complete an inventory and assess the condition of riparian areas in the NSR watershed.

##### 3.3.2

Municipalities, in consultation with landowners groups and other stakeholders, are encouraged to develop riparian set-back guidelines which exceed provincial regulations.

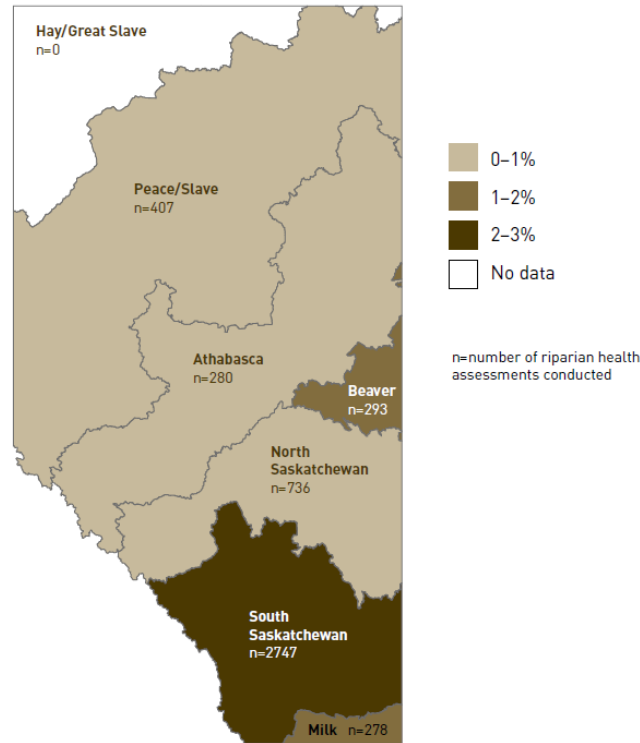
##### 3.3.3

Develop incentive and support programs (financial and expertise) to enable and assist landowners to retain naturally-occurring riparian areas, restore damaged riparian areas and replant riparian vegetation on their own land.





# Riparian Health Unknown in NSR



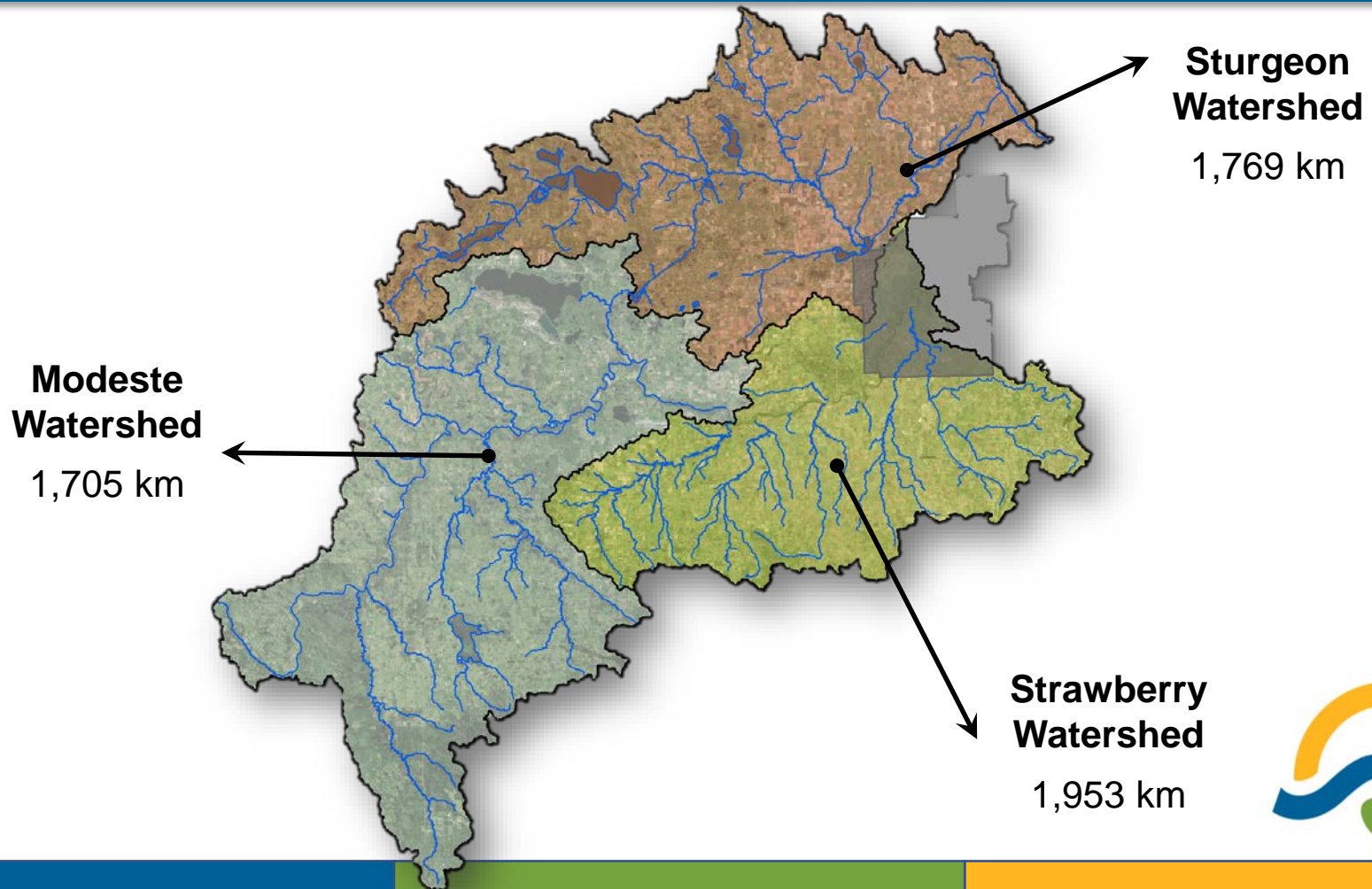
# Project Funders



- Watershed Resiliency & Restoration Program
- Alberta Community Partnership Grant
- Many municipal partners of the NSWA
- EPCOR



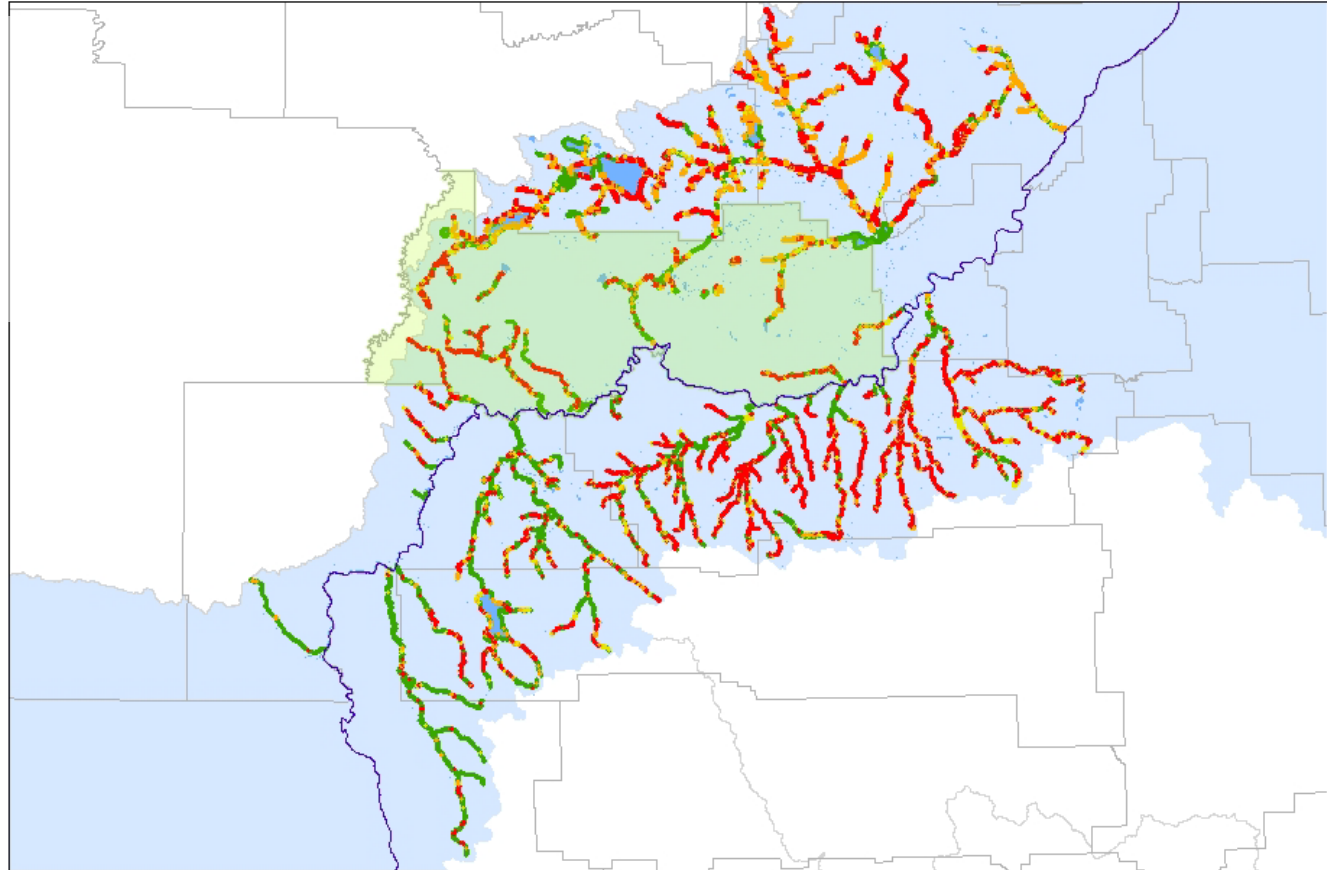
# Project Area





# Project Results (~5,400 km)

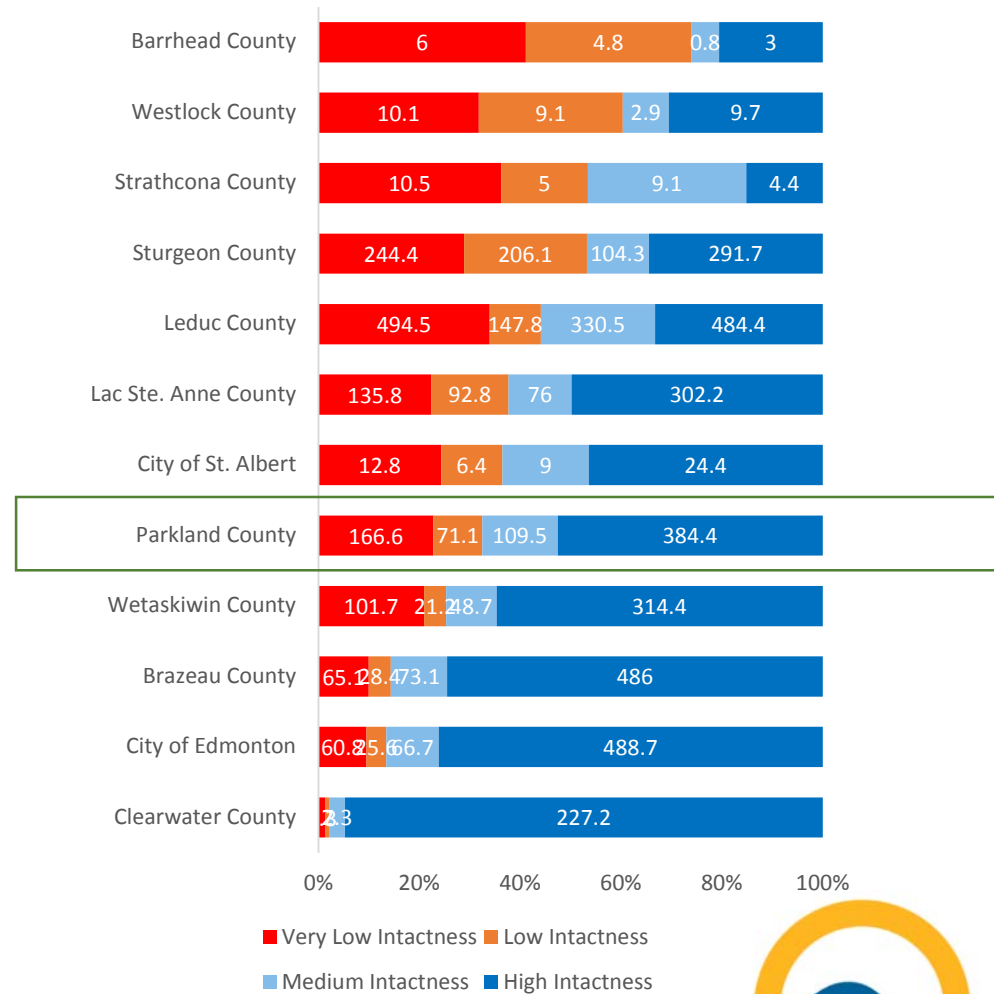
- Total ~5,400 km assessed
- Creeks and Lakes



# Results for Parkland County

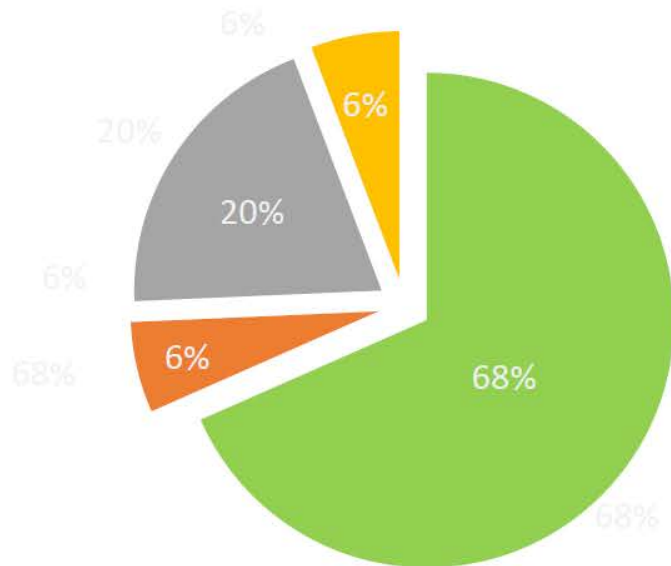
Parkland County  
731 km assessed:

52% High  
15% Moderate  
10% Low  
23% Very Low

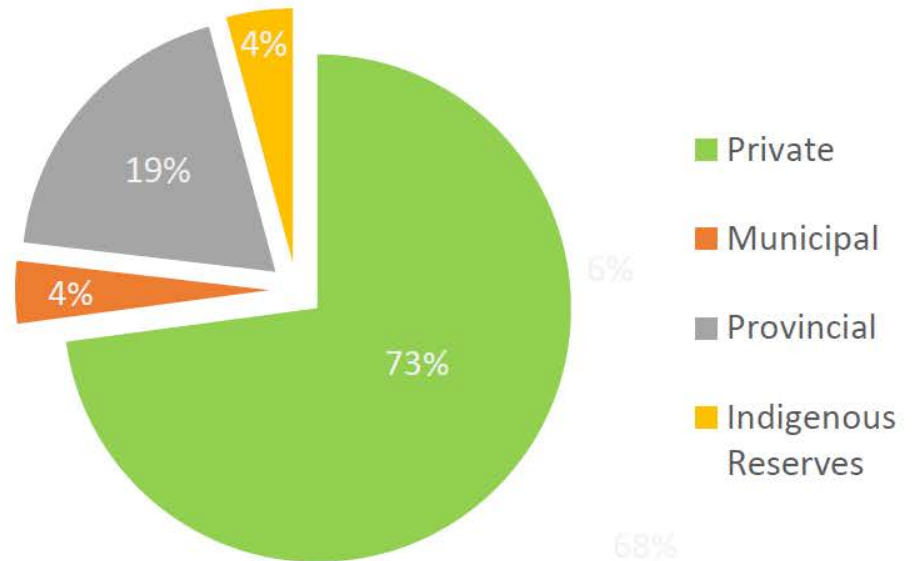


# Land Ownership Type

Left Bank



Right Bank

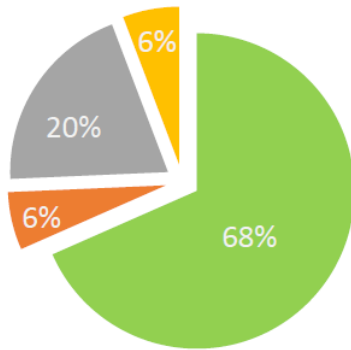


Proportion (%) of Shoreline Length Assessed

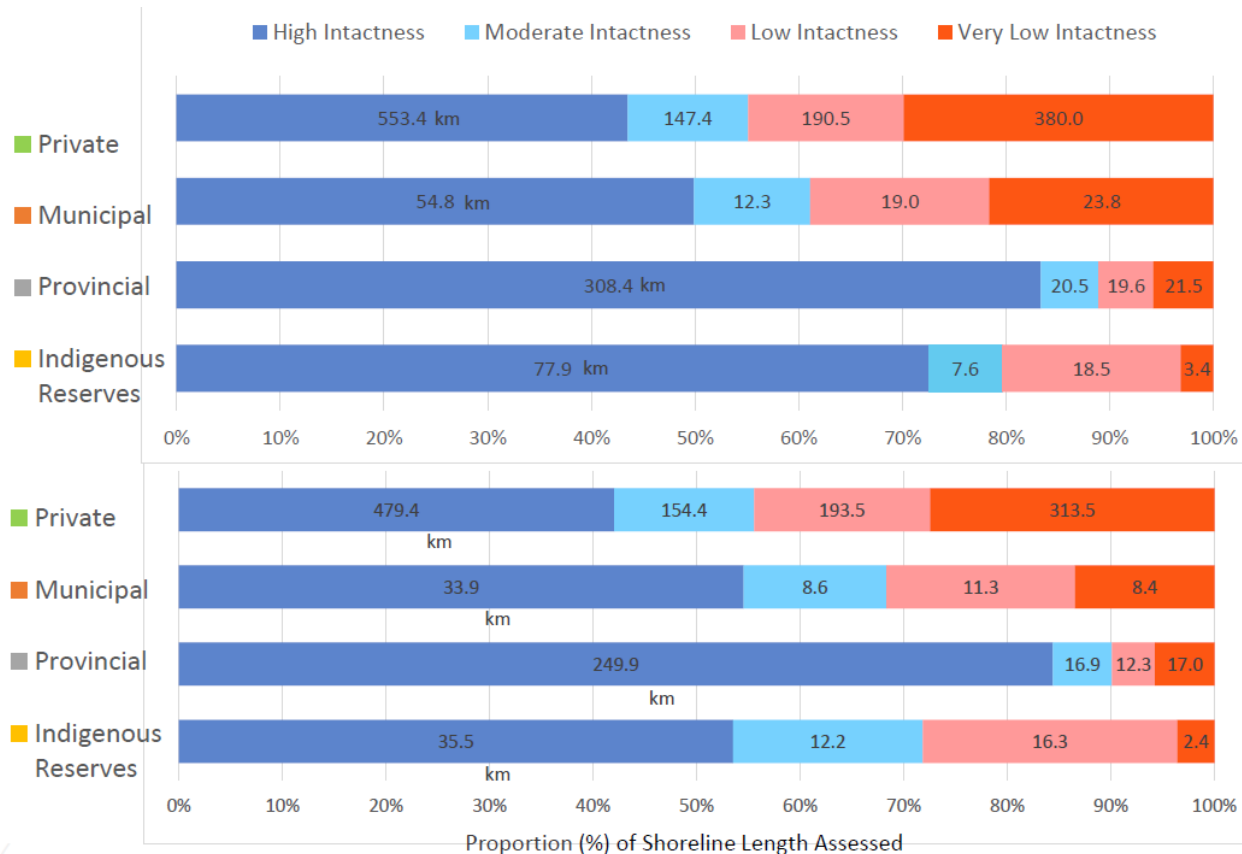
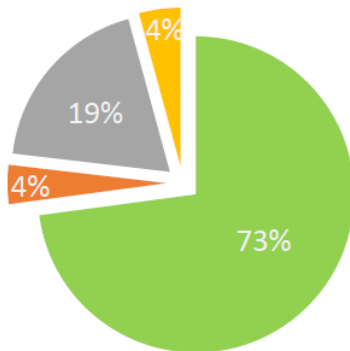


# Land Ownership Type

Left Bank



Right Bank

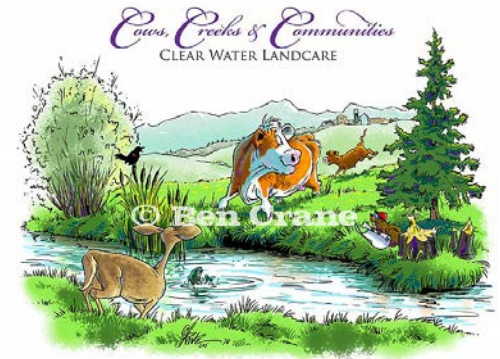


# Parkland County's Programs





# Riparian Health Agencies



# What can we do with this information?

- Public Education: make the data publicly accessible
- Voluntary sphere: ALUS, Green Acreages, Land Trust, other conservation groups, priority area for grants
- Regulatory sphere: ER, Conservation reserve, inter-municipal collaboration on decision making



# Investing in and Quantifying the Benefits of Natural Infrastructure on Agricultural Lands in the Modeste Subwatershed



Dr. Marian Webber

InnoTech Albetra

# Partners

- Partner Organizations: ALUS Leduc-Wetaskiwin, ALUS Parkland, ALUS Brazeau, Parkland County, North Saskatchewan Watershed Alliance, Headwaters Alliance
- Collaborators: University of Guelph, InnoTech Alberta
- Funders: Alberta Environment and Parks (750K), NRCAN (180K), Private Doner

# Project Summary

- Modeste watershed as a case study to understand how wetland and riparian restoration and enhancement contributes to flood and drought mitigation, and water quality improvements in rural municipalities
  - Fund and monitor on the ground wetland and riparian restoration and enhancement projects in the Modeste sub-watershed;
  - Develop IMWEBS model to quantify contributions of natural infrastructure for flood and drought mitigation and water quality improvements for municipalities.
  - Cost benefit analysis of grey-natural infrastructure investments



# Research Outcomes

- Understand the cost effectiveness of natural versus built infrastructure;
- Demonstrate the scale at which wetland and riparian areas must be restored and enhanced to deliver benefits at a scale which can complement and support, or substitute for grey and built infrastructure;
- Provide guidance for project proponents, stakeholders and decision-makers to incorporate natural infrastructure into their immediate and long-term infrastructure needs under a changing climate; and
- Support the communications, technology transfer and development work of ALUS Canada and regional ALUS partners to create sustainable revenue streams.

# What we are looking for

- Historical data on flood and drought
  - Events, costs, other
- Advisory Committee and Broader Engagement
  - Feedback on approach and direction
  - Civil engineers / small municipal water treatment system design options
  - Policy/decision makers and alignment with county initiatives and budgeting processes
- Data/maps/etc.
  - Capital, operating and maintenance costs for engineered alternatives
  - Hydrology and other data inputs for IMWEBS
  - Municipal Expenditures