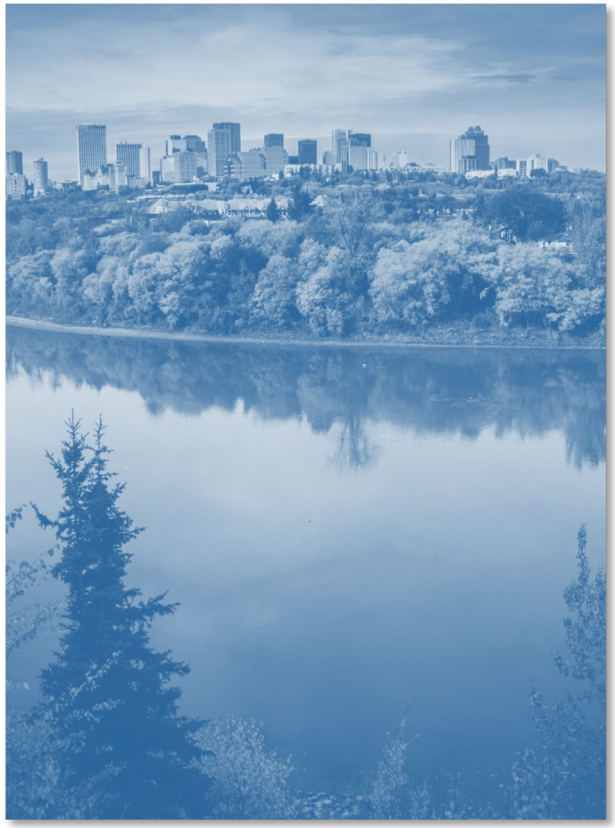
Riparian Health Action Plan (RHAP)

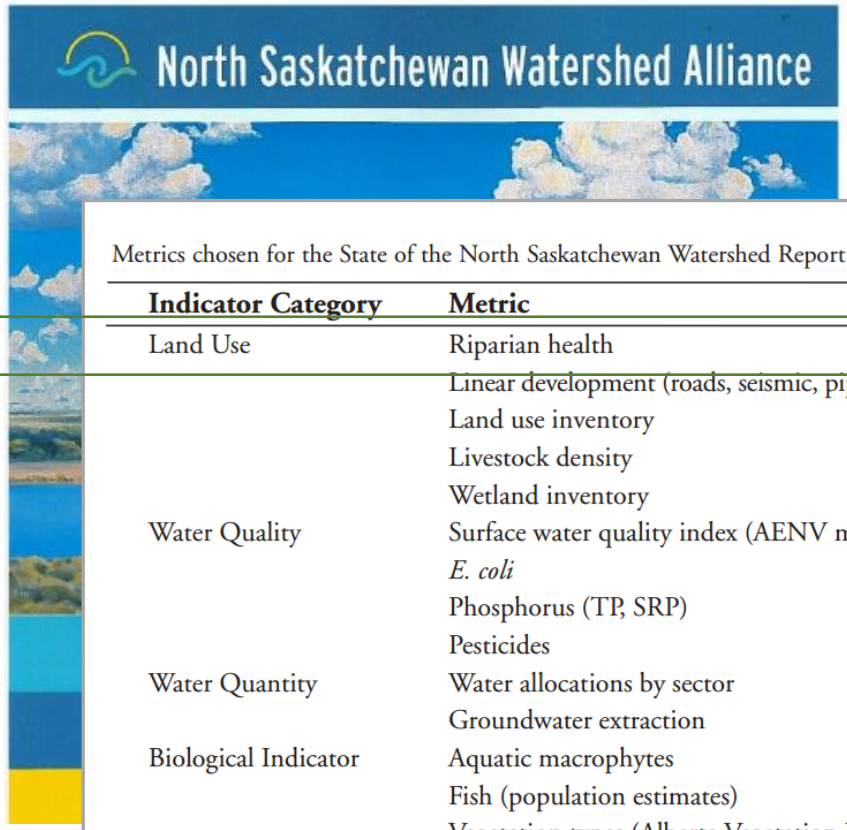
NSWA
NORTH SASKATCHEWAN WATERSHED ALLIANCE



Integrated Watershed Management Plan for the North Saskatchewan River in Alberta

North Saskatchewan Watershed Alliance

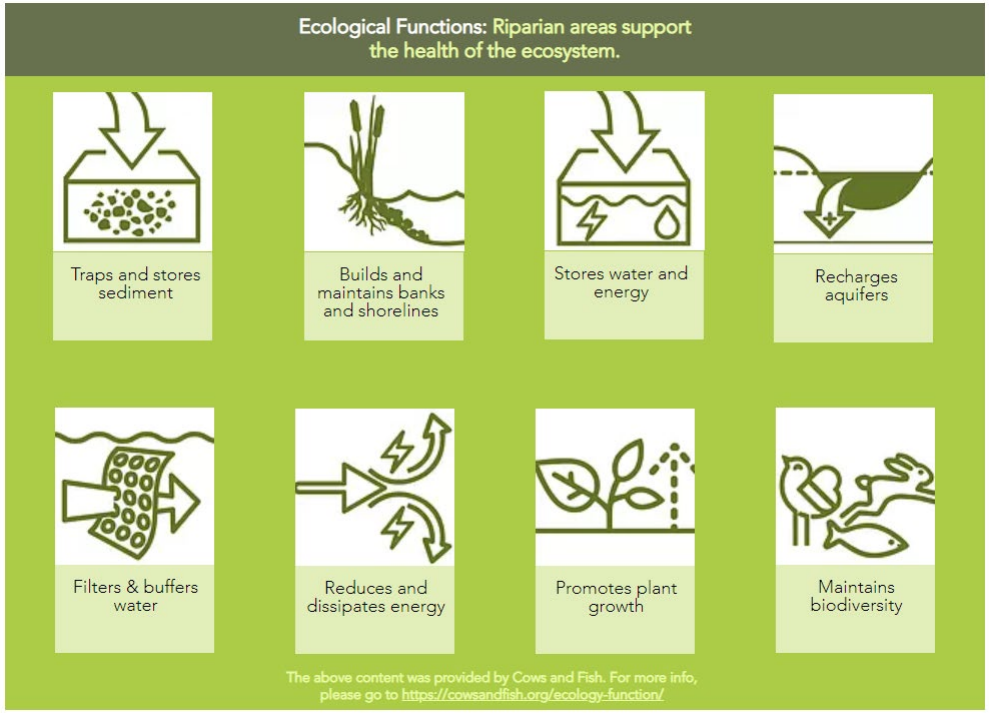
Indicators of Watershed Health



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)
	E. coli
	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 Importance

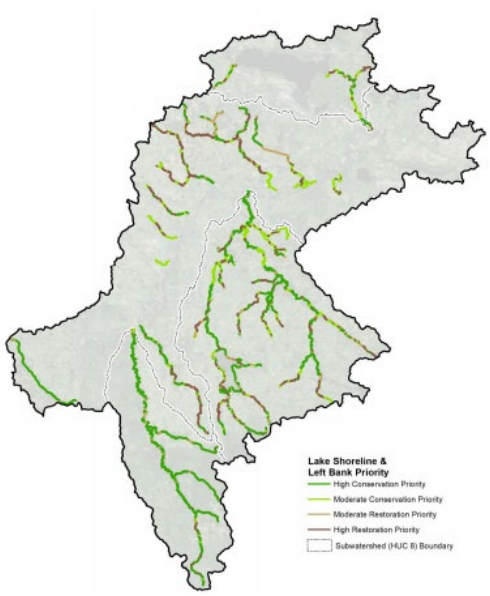


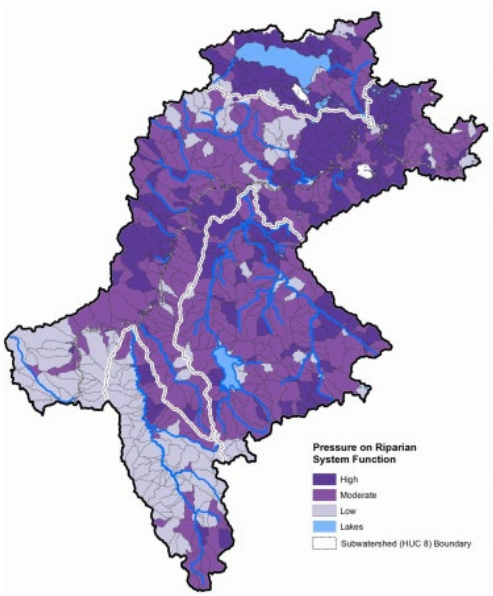
Riparian Health Unknown in NSR

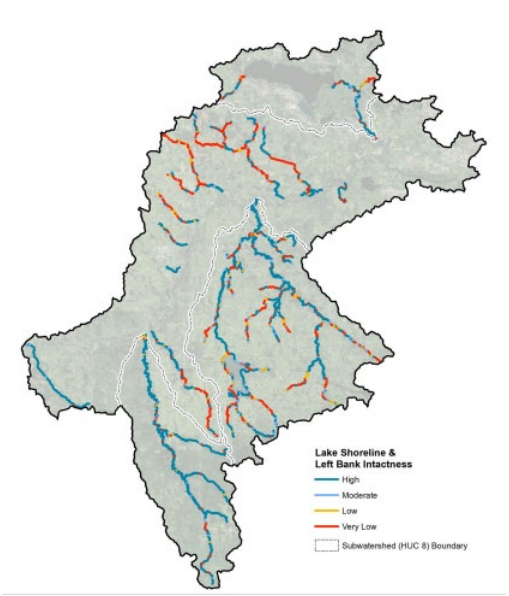
respectively:

Watershed	Area (km^2)	Lake shoreline length (km)	Small stream length (km)	Large river length (km)	Total shoreline length (lentic & lotic) (km)	Shoreline density (Total length/ area) (km/km^2)
Athabasca River	144,406	29,855	125,484	5,364	160,703	1.11
Beaver River	17,775	7,075	10,963	355	18,392	1.03
Hay/Great Slave	65,245	33,090	65,789	3,091	101,970	1.56
Milk	11,885	3,097	13,922	433	17,452	1.47
North Saskatchewan	92,799	41,123	70,757	2,926	114,805	1.24
Peace/Slave River	214,070	95,644	178,925	9,798	284,368	1.33
South Saskatchewan	116,781	26,636	104,618	4,944	136,199	1.17
Provincial total	662,961	236,520	570,457	26,911	833,889	1.26

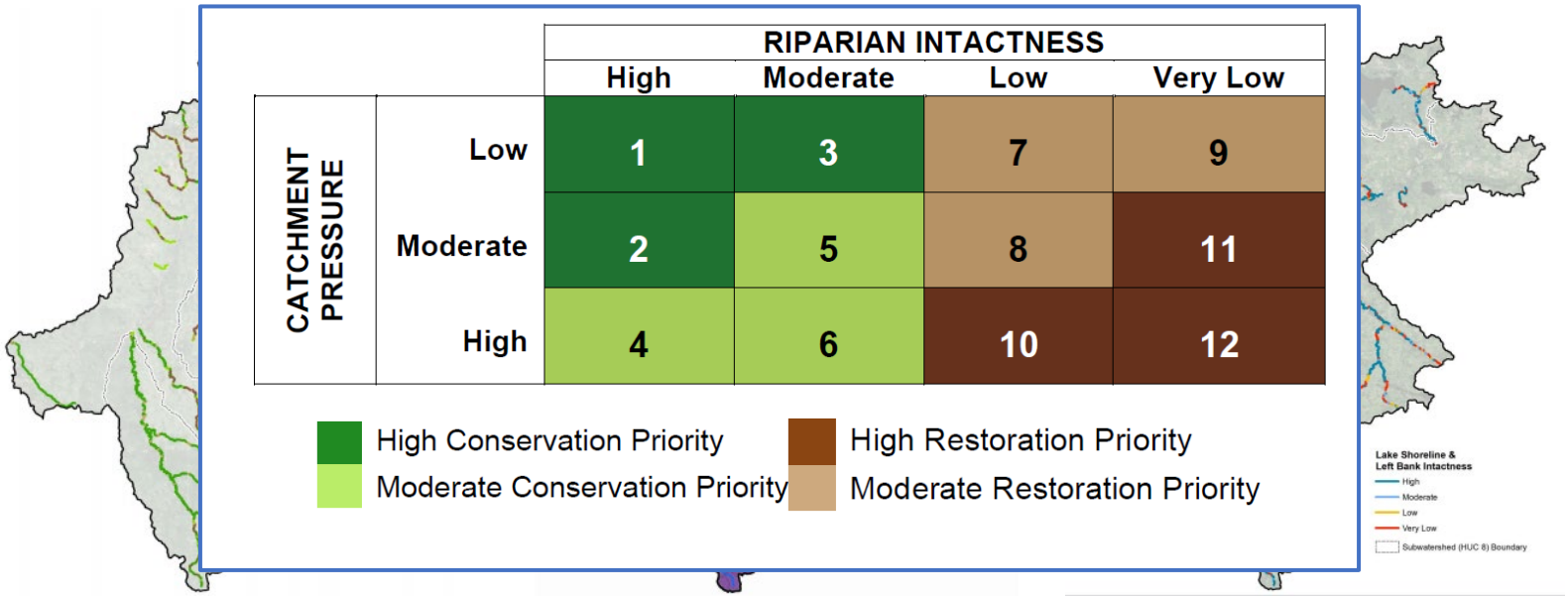
The Data


Lake Shoreline &
Left Bank Priority
High Conservation Priority
Moderate Conservation Priority
Moderate Restoration Priority
High Restoration Priority
Subwatershed (HUC 8) Boundary

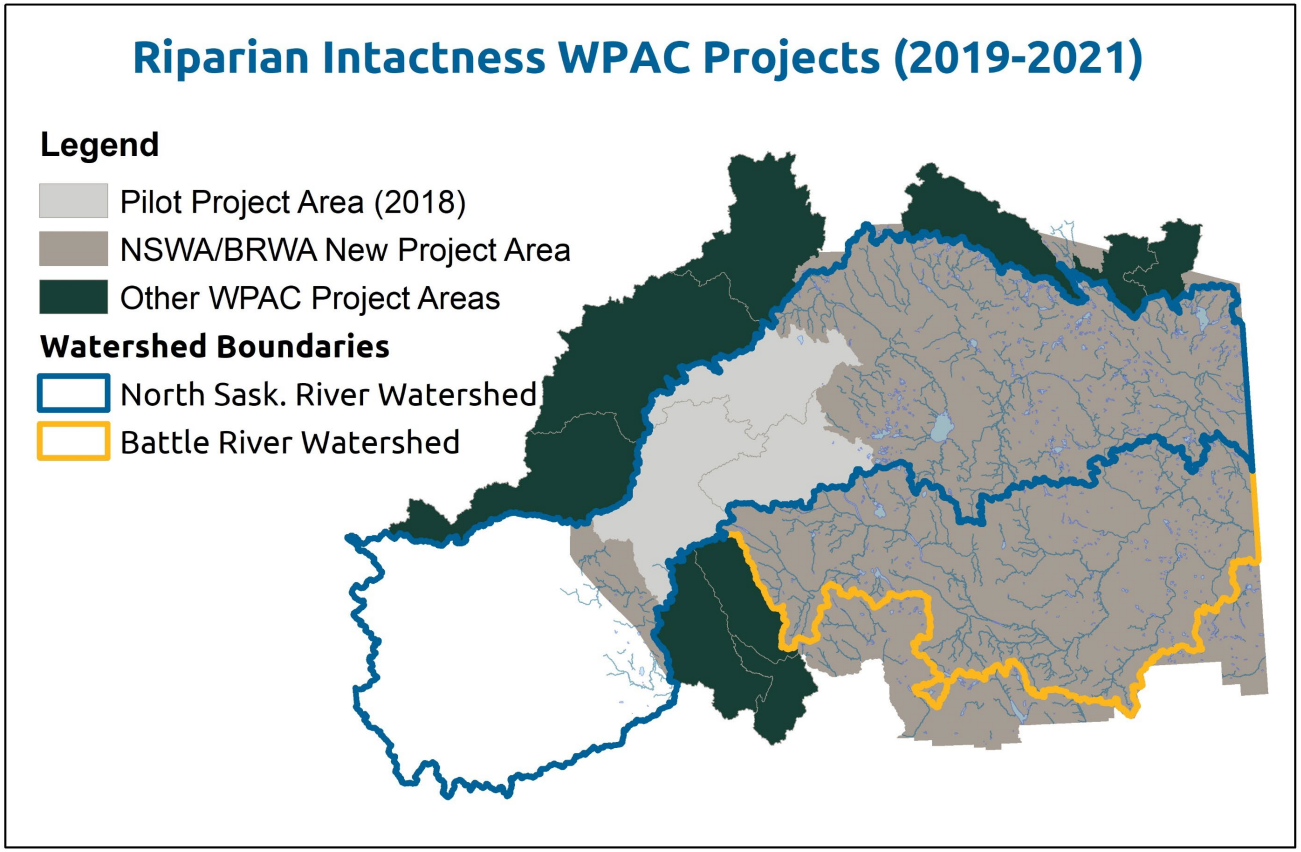

Pressure on Riparian
System Function
High
Moderate
Low
Lakes
Subwatershed (HUC 8) Boundary


Lake Shoreline &
Left Bank Intactness
High
Moderate
Low
Very Low
Subwatershed (HUC 8) Boundary

The Data


RIPARIAN INTACTNESS
High
Moderate
Low
Very Low
CATCHMENT PRESSURE
Low
Moderate
High
1
3
7
9
2
5
8
11
4
6
10
12
High Conservation Priority
Moderate Conservation Priority
High Restoration Priority
Moderate Restoration Priority
Lake Shoreline & Left Bank Intactness
High
Moderate
Low
Very Low
Subwatershed (HUC 8) Boundary

Data Expansion Projects



Riparian Areas in the IWMP

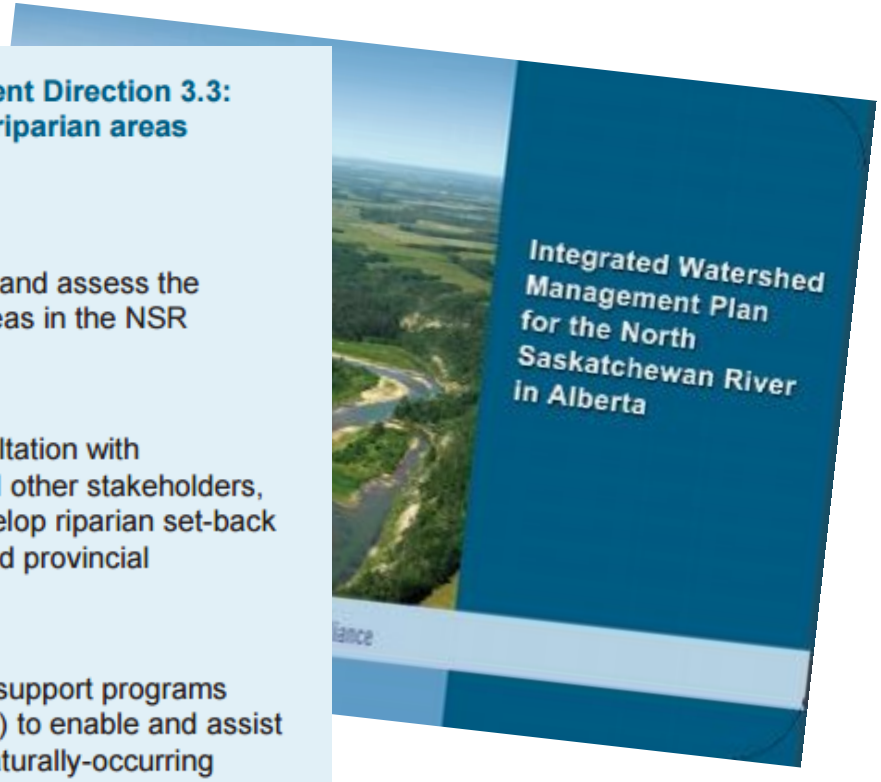
Watershed Management Direction 3.3: Maintain and restore riparian areas

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 Action Plan

1.Data project (pilot)
2.Data expansion project
3.Briefing Notes
4.Municipal summaries (inter-WPAC)

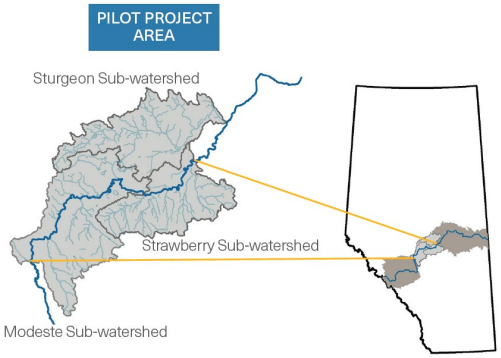
1.Landowner Assessment
2.Set-back Calculator
3.Riparian Health Targets
4.Riparian Literature Review
5.Riparian Strategy

1.Riparian Web-portal
2.BMP Projects
3.Riparian Videos

Phase 2 Projects

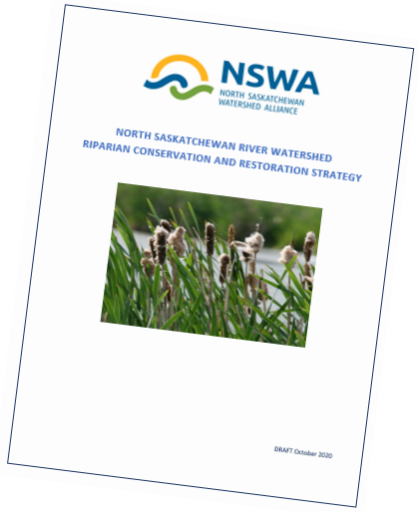
1.Riparian Strategy
2.Landowner Assessment
3. Set-back Calculator
4. Riparian Health Targets
5. Riparian Literature Review

2

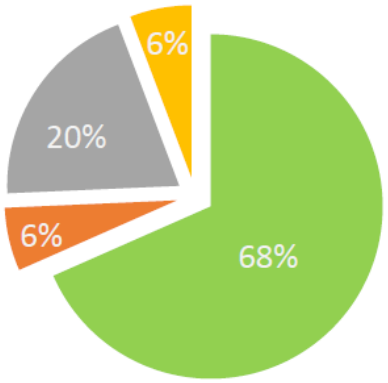


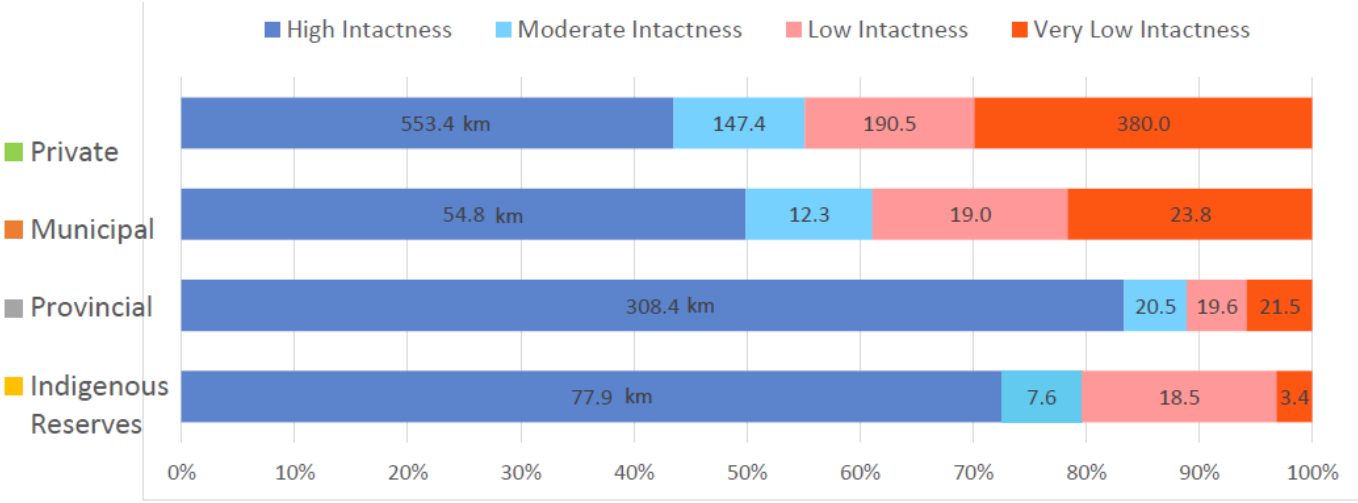
Riparian Strategy (Draft)

"Riparian lands in the North Saskatchewan watershed are recognized as critical for protecting our source waters and for maintaining the water quality, quantity and aquatic health of the North Saskatchewan River and its tributaries, as well as other waterbodies (lakes, wetlands, etc.) in the watershed. As such, riparian areas are identified and protected from the risks associated with development"



Land Ownership Type





Phase 2 Projects

1.Riparian Strategy
2.Landowner Assessment
3. Set-back Calculator
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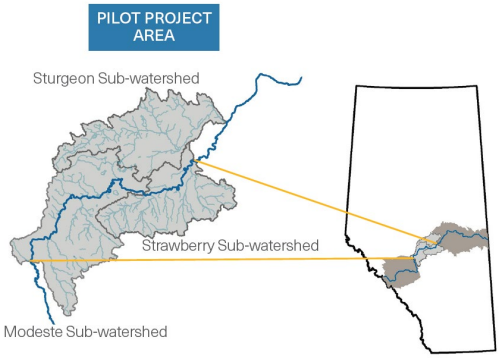
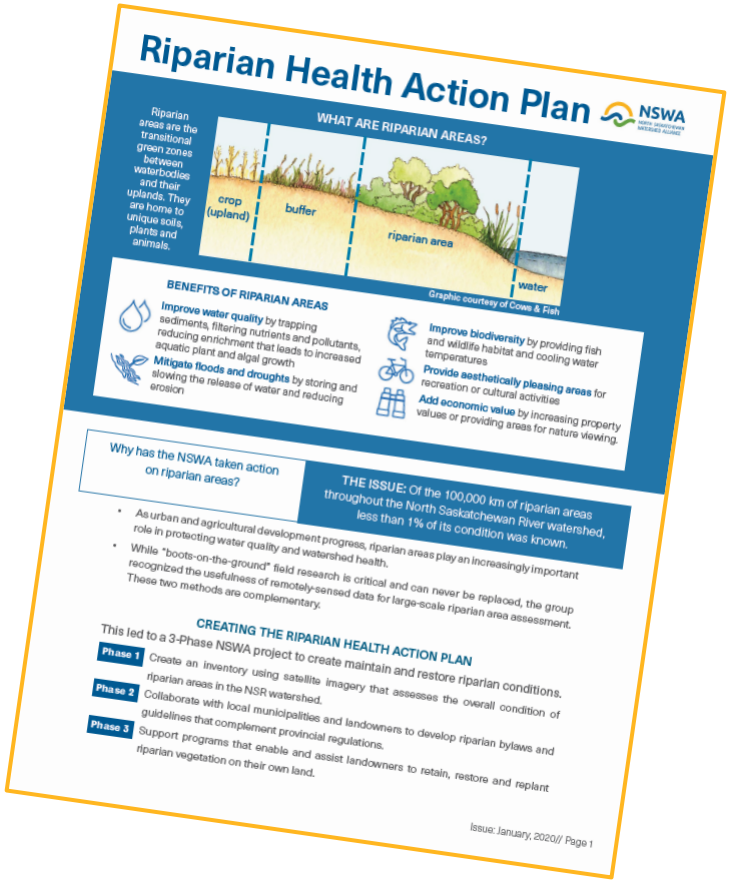
5. Riparian Literature Review

2



RHAP Communication Material



Riparian Health Action Plan

NSWA

WHAT ARE RIPARIAN AREAS?

Riparian areas are the transitional green zones between waterbodies and their uplands. They are home to unique soils, plants and animals.

Graphic courtesy of Cows & Fish

BENEFITS OF RIPARIAN AREAS

Improve water quality by trapping sediments, filtering nutrients and pollutants, reducing enrichment that leads to increased aquatic plant and algal growth

Mitigate floods and droughts by storing and slowing the release of water and reducing erosion

Improve biodiversity by providing fish and wildlife habitat and cooling water temperatures

Provide aesthetically pleasing areas for recreation or cultural activities

Add economic value by increasing property values or providing areas for nature viewing.

Why has the NSWA taken action on riparian areas?

THE ISSUE: Of the 100,000 km of riparian areas throughout the North Saskatchewan River watershed, less than 1% of its condition was known.

- As urban and agricultural development progress, riparian areas play an increasingly important role in protecting water quality and watershed health.
- While "boots-on-the-ground" field research is critical and can never be replaced, the group recognized the usefulness of remotely-sensed data for large-scale riparian area assessment. These two methods are complementary.

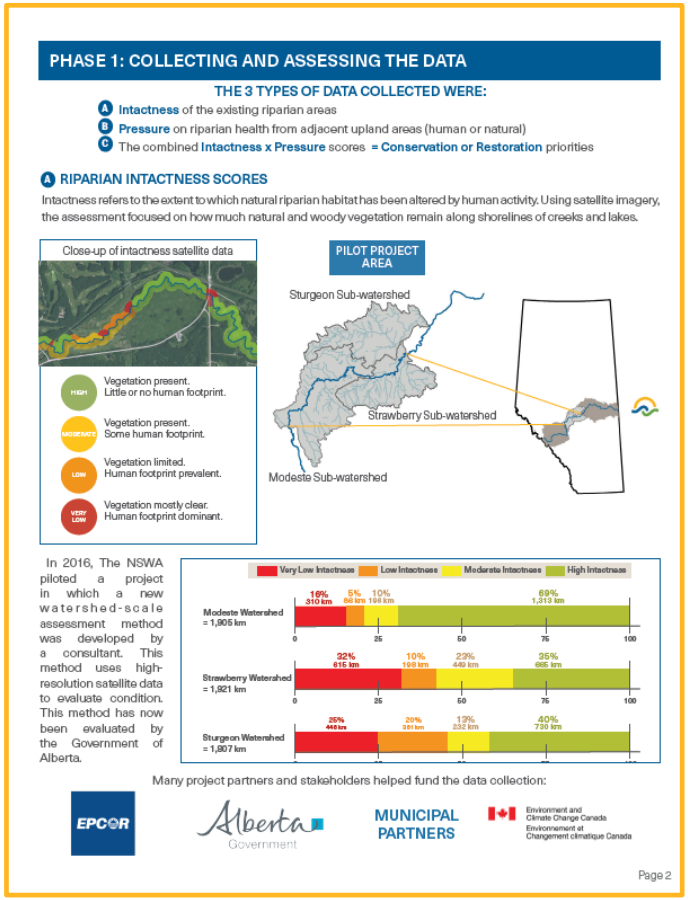
CREATING THE RIPARIAN HEALTH ACTION PLAN

This led to a 3-Phase NSWA project to create maintain and restore riparian conditions.

Phase 1 Create an inventory using satellite imagery that assesses the overall condition of riparian areas in the NSR watershed.

Phase 2 Collaborate with local municipalities and landowners to develop riparian bylaws and guidelines that complement provincial regulations.

Phase 3 Support programs that enable and assist landowners to retain, restore and replant riparian vegetation on their own land.



PHASE 1: COLLECTING AND ASSESSING THE DATA

THE 3 TYPES OF DATA COLLECTED WERE:

A **Intactness** of the existing riparian areas
B **Pressure** on riparian health from adjacent upland areas (human or natural)
C The combined **Intactness x Pressure** scores **= Conservation or Restoration** priorities

A RIPARIAN INTACTNESS SCORES

Intactness refers to the extent to which natural riparian habitat has been altered by human activity. Using satellite imagery, the assessment focused on how much natural and woody vegetation remain along shorelines of creeks and lakes.

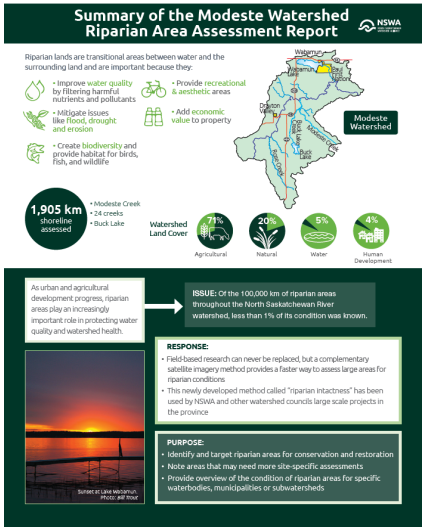
Close-up of intactness satellite data

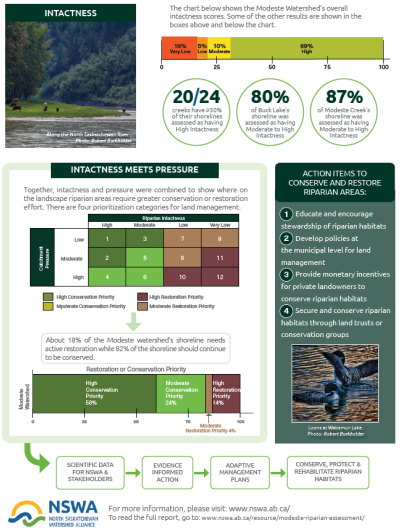
PILOT PROJECT AREA

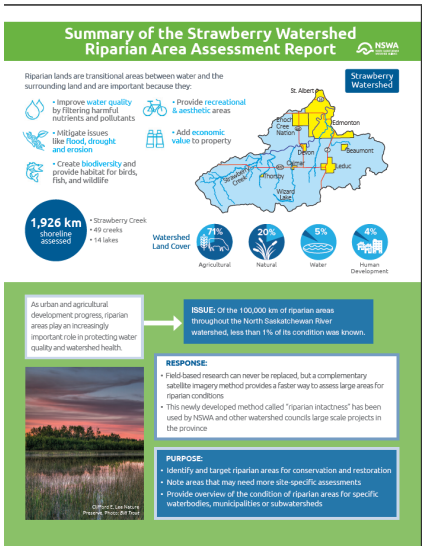
In 2016, The NSWA piloted a project in which a new watershed-scale assessment method was developed by a consultant. This method uses high-resolution satellite data to evaluate condition. This method has now been evaluated by the Government of Alberta.

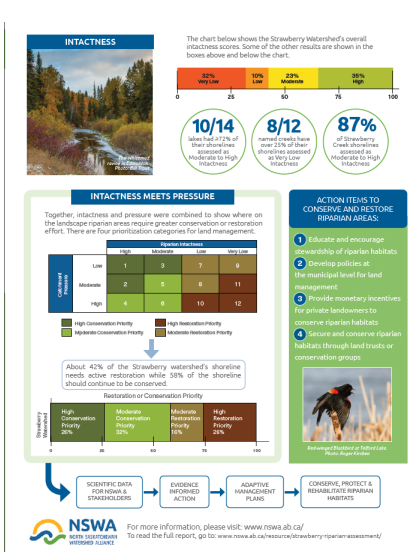
Many project partners and stakeholders helped fund the data collection:

EPCOR · Alberta Government · MUNICIPAL PARTNERS · Environment and Climate Change Canada / Environnement et Changement climatique Canada





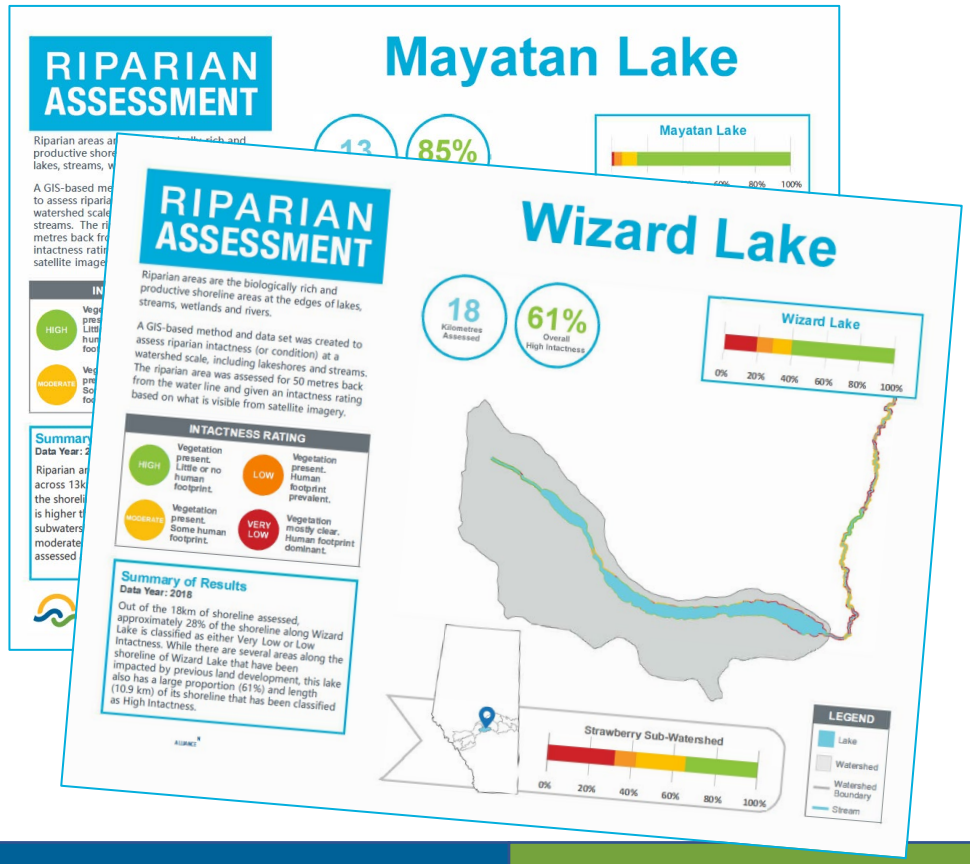




Sub-watershed Report Cards

Waterbody Report Card

Page 1



Page 2

Template

Municipal Report Card

LSA County: **Intactness**

What is Intactness?

- Intactness is a measure of riparian condition at a broad scale (watershed or region)
- Measures how natural habitat has been altered or impaired by human activity
- Measures the quantity of natural, woody, and human footprint using satellite data

Intactness Results for LSA County

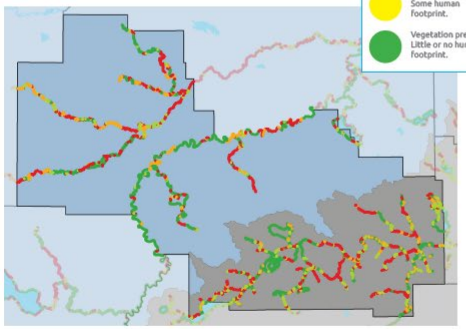
2/7 lakes had 75%+ High Intactness

38% Very High Intactness for lakes overall

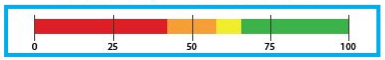
520 KM of lake shorelines assessed in LSA County

Intactness Rating

- Vegetation mostly cleared. Human footprint dominant.
- Vegetation limited. Human footprint prevalent.
- Vegetation present. Some human footprint.
- Vegetation present. Little or no human footprint.



LSA County Intactness Overall

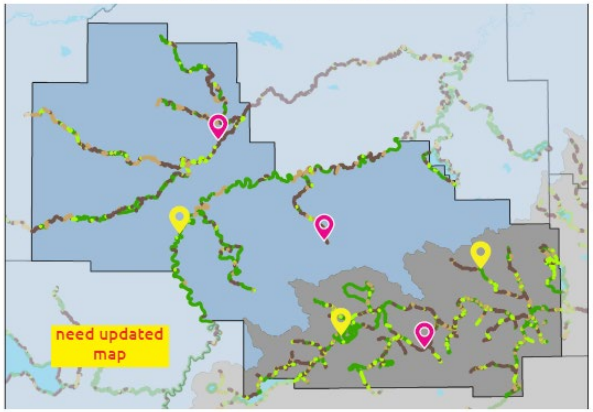


LSA County: **Catchment Pressure**

What is

- Coarse indicator of what pressures exist on the landscape that impact riparian health

Conservation & Restoration Priorities: Within a watershed context



LSA's Top 3 Conservation & Restoration Priorities

Restoration

- Lake: Sandy Lake
- Named Creek: Toad Creek
- Unnamed Creek: Unnamed Creek #15

Conservation

- Lake: Toad Lake
- Named Creek: Kilini Creek
- Unnamed Creek: Unnamed Creek #12

Next steps to conserve or restore impacted or impaired riparian habitats:

1. Educate and encourage stewardship of riparian habitats
2. Develop policies at the municipal level for land management
3. Provide monetary incentives for private landowners to conserve riparian habitats
4. Secure and conserve riparian habitats through land trusts or conservation groups

I added this. Thoughts?

LSA County: **Prioritization**

What is Prioritization?

- Combines intactness scores and pressure scores to highlight which riparian areas are most affected by landscape pressures
- Conservation efforts are prioritized where riparian intactness is high and landscape pressures are low
- Restoration efforts are prioritized where riparian intactness is low and landscape pressures are high

Prioritization Results for LSA County

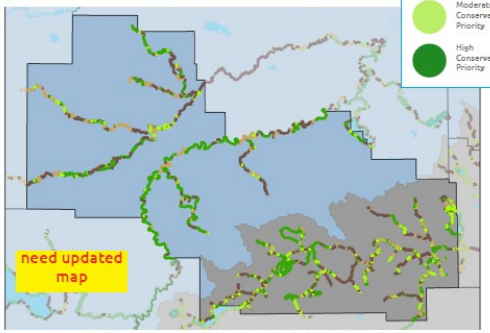
520 KM high restoration priority

444 KM high conservation priority

?? remove??

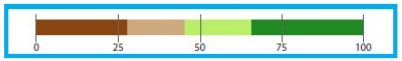
Priority Rating

- High Restoration Priority
- Moderate Restoration Priority
- Moderate Conservation Priority
- High Conservation Priority



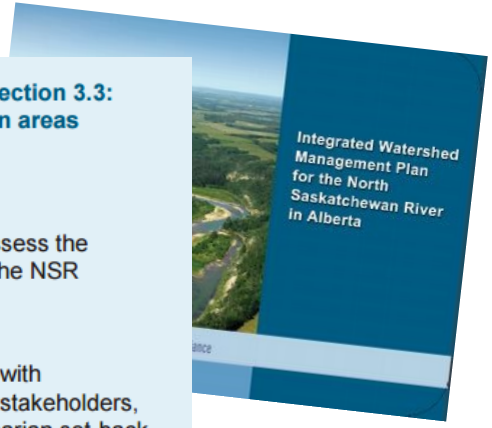
Lac Ste Anne County: Lake shoreline & Left bank Prioritization

LSA County Prioritization Overall



Draft Template

Phase 3 Projects



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RIPARIAN WEB PORTAL

3

Web-portal

Three key purposes:

- Riparian data access x2
- Resources
- Projects on the ground

Riparian Data Access (x2)

1. Public

Limited zoom

Summarization tools

Access intactness

View projects on the round

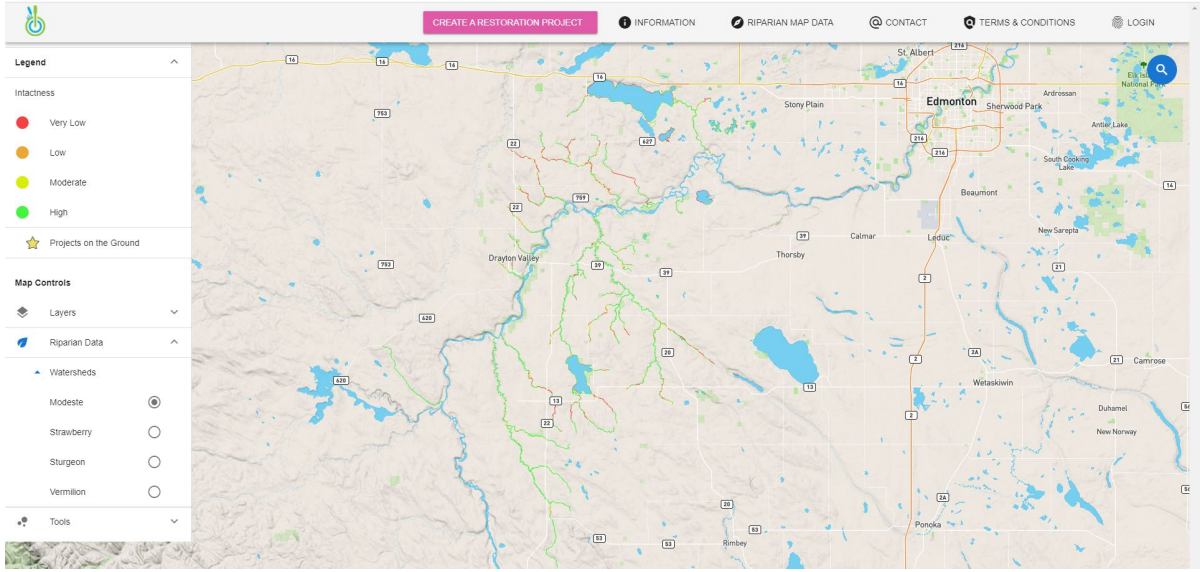
2. Administrator

Unlimited zoom

Summarization tools

Access intactness, pressure, prioritization

Upload projects on the ground



3

RIPARIAN WEB PORTAL

Check it out!

Riparian Videos

Series of Riparian videos

- Riparian 101
- Landowner Projects
- Riparian Web-portal how-to
- Riparian areas “from above”

Special Thanks

1

1.Fiera Biological (data creation)
2.Headwaters Alliance (reviewing)
3.Sturgeon Alliance (reviewing)

2

1. Michelle Gordy (GIS)
2. Rachel Bootsma (Literature review)
3. Dr. Wanhong Yang (target Modelling)
4. Petra Rowell (Riparian Strategy)

3

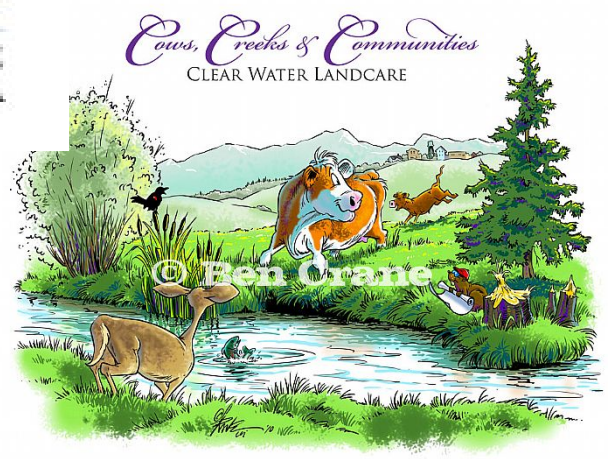
1. Devon Cairns (web-portal)
2. Heather Marshall (web-portal)
3. Arin McFarlane-Dyer, Janine Higgins, Andre (education material)
4. Norine Ambrose (education)
5. Battle River WA (Riparian Videos, communications)

Funding


1
2
3
EPCOR
Environment and Climate Change Canada
Canada
Alberta
Alberta Municipalities
Alberta
Environment and Climate Change Canada
Canada
Alberta

NGO Riparian Network

NATURE ALBERTA



Land Stewardship Centre

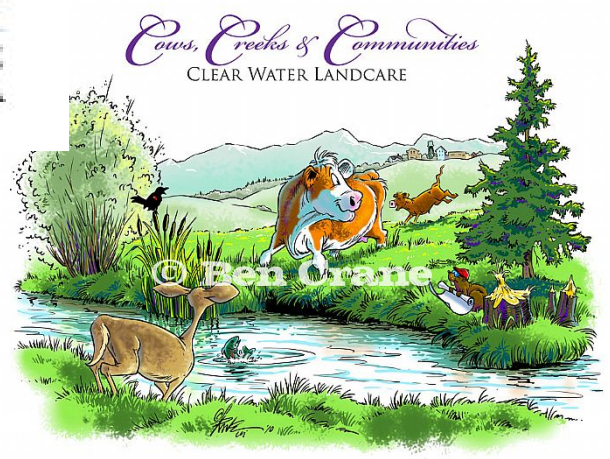
Alberta Conservation Association

Conserving Alberta's Wild Side

ALUS

Network of Riparian Organizations

NATURE ALBERTA



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