

Shoreline and Riparian Condition Assessment

Beaver County



RIPARIAN
WEB PORTAL

December 2021

Beaver County Summary:

Your Shoreline and Riparian Condition Assessment

Purpose of this Report

This report presents information about the condition of riparian areas in your County. Satellite-based mapping techniques were used to assess riparian intactness, catchment pressure, and prioritization for select waterbodies and areas; some areas were excluded from the assessment. Results can be used to inform planning, conservation, and restoration efforts.

Details about the study scope and results can be found in the Appendix and through the Riparian Web Portal (riparian.info).

Riparian Areas 101: Why They Matter

Riparian areas are transitional areas between a waterbody and the adjacent upland area.



Improve water quality by trapping sediments, filtering nutrients and pollutants, reducing 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

To learn more about the importance of riparian areas, please go to:
riparian.info

Project Partners

This work has been carried out by the Watershed Planning and Advisory Councils (WPACs) in your area:



What is Riparian Intactness?



Illustration by: Terra Simieritsch

Riparian intactness is a measure of how “natural” a shoreline is. Riparian intactness measures riparian condition at a broad scale, using satellite data. This is a new method, which has been scientifically validated, to assess riparian conditions across a large area in Alberta.

How to Use This Information

- To compare the condition of water bodies or watersheds across a region
- To prioritize restoration and conservation efforts
- To complement field-based assessment methods by showcasing broad-scale results
- To guide voluntary stewardship efforts by municipalities, community groups, and landowners

Beneficial Management Practices for Municipal Leaders



Ensure that your municipality has policies for sufficient development setbacks and buffers of native plants to safeguard water bodies



Encourage and support landowners and community initiatives to maintain and improve riparian areas through water and land stewardship groups



Utilize and enforce policy tools such as Environmental Reserves, Conservation Reserves and Conservation Easements to ensure that hazard and sensitive lands are not developed



Eliminate or control invasive species in municipal riparian areas and promote natural and native species along shorelines



Minimize erosion, maintain slopes and prevent disturbance in or close to riparian areas



Educate the public about recreational use impacts and why some activities are restricted to specific places or seasons

What is Intactness?

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


Intactness Results for Beaver County

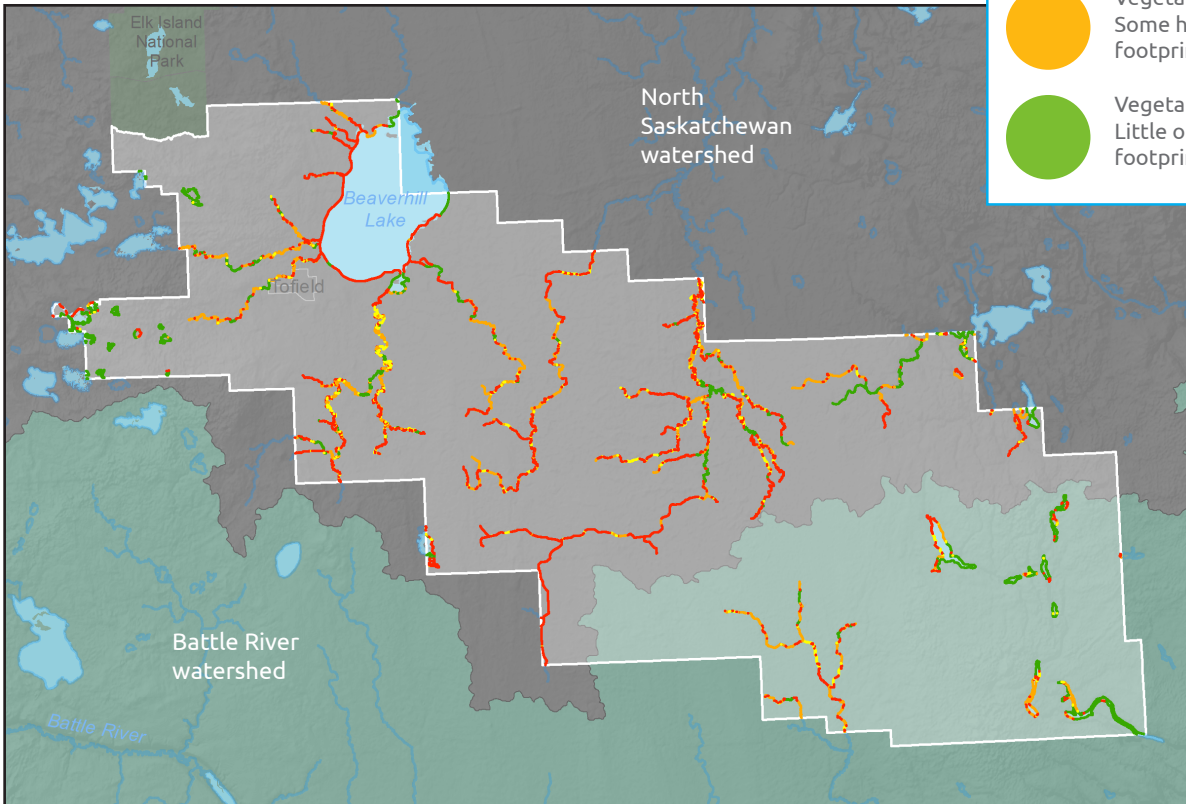
1,489 KM
of shorelines
assessed in Beaver
County

21/31
lakes had 65%+
High Intactness

0/29
creeks had 65%+
High Intactness

Intactness Ratings

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



Map 1: Riparian Intactness in the County.
To view more data, please see the [Appendix](#).

Beaver County Overall Intactness

33%
Very Low

13.5%
Low

28.5%
Moderate

25%
High

What is Catchment Pressure?

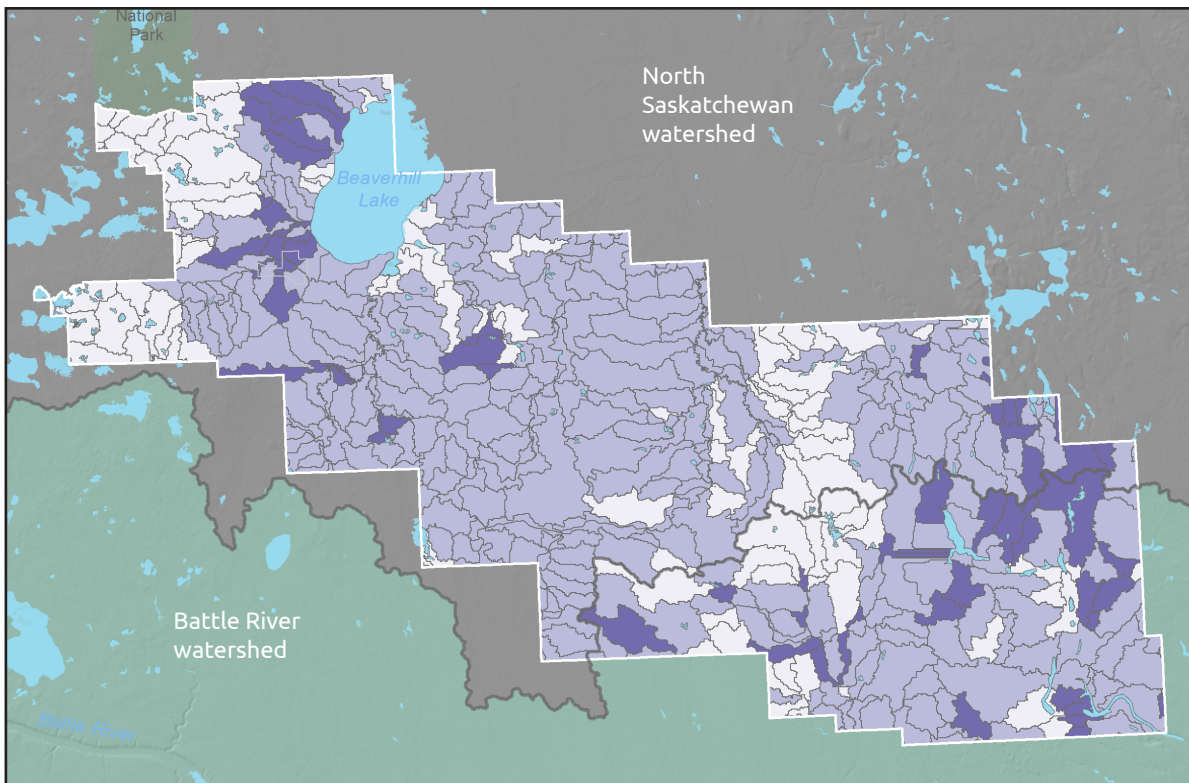
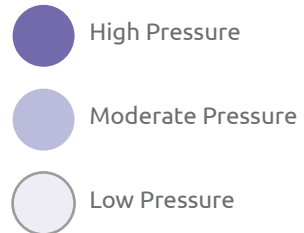
- o Indicates pressures on the landscape that might impact riparian health
- o Includes natural stressors (e.g. slope, forests) and human stressors (e.g. land-use intensity)
- o High pressure = high potential stress for riparian areas. Data was collected to inform prioritization dataset

Catchment Pressure Results for Beaver County

3,455
KM²

of land assessed

Pressure Ratings



*Map 2: Catchment Pressure in the County.
To view more data, please see the [Appendix](#).*

Beaver County Overall Pressure

9%

High

69%

Moderate

22%

Low

What is Prioritization?

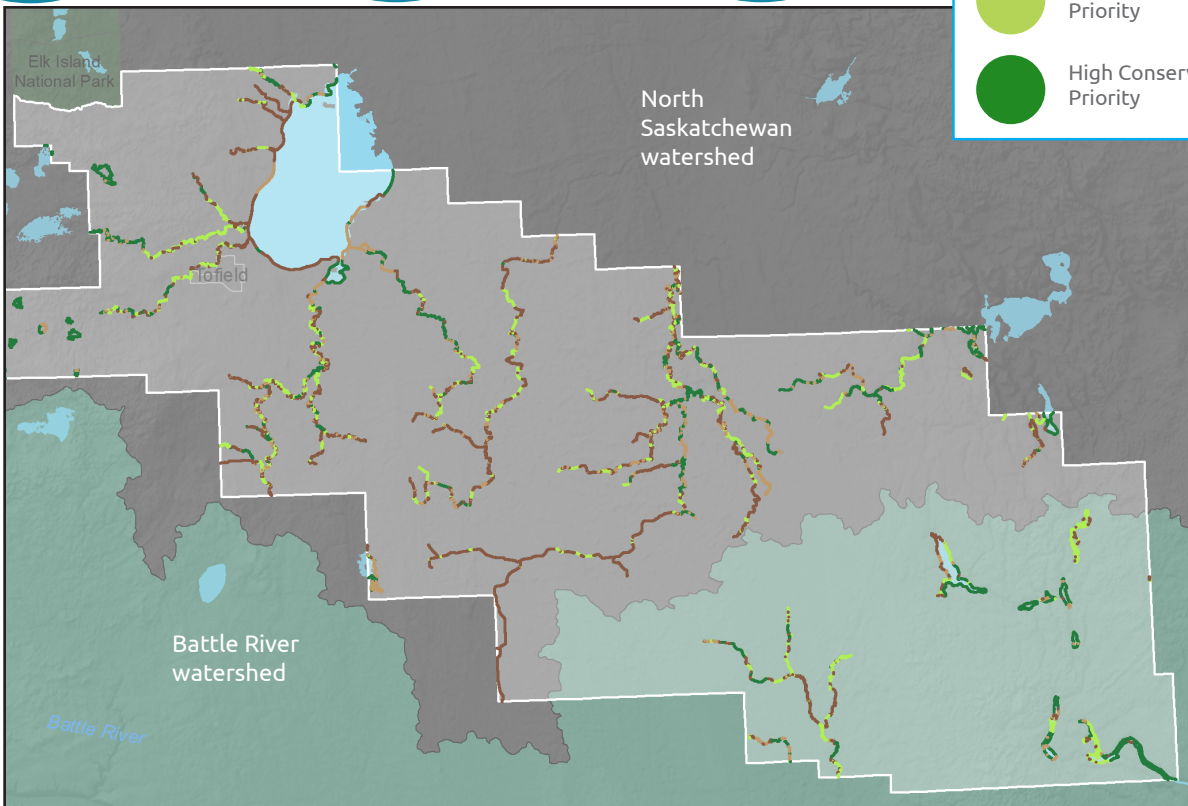
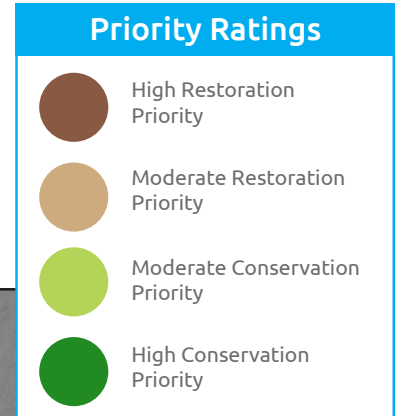
- o Combines intactness scores and pressure scores to highlight which riparian areas are most affected by landscape pressures
- o Conservation rating is prioritized where riparian intactness is high and landscape pressure is low
- o Restoration rating is prioritized where riparian intactness is low and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

Prioritization Results for Beaver County

1,489 KM
of shorelines
assessed in Beaver
County

453 KM
of high
restoration
priority

381 KM
of high
conservation
priority



Map 3: Restoration and Conservation Priorities in the County.
To view more data, please see the [Appendix](#).

Beaver County Overall Prioritization

30%

High Restoration

16%

Moderate Restoration

28%

Moderate Conservation

26%

High Conservation

Top Conservation & Restoration Priorities

Restoration

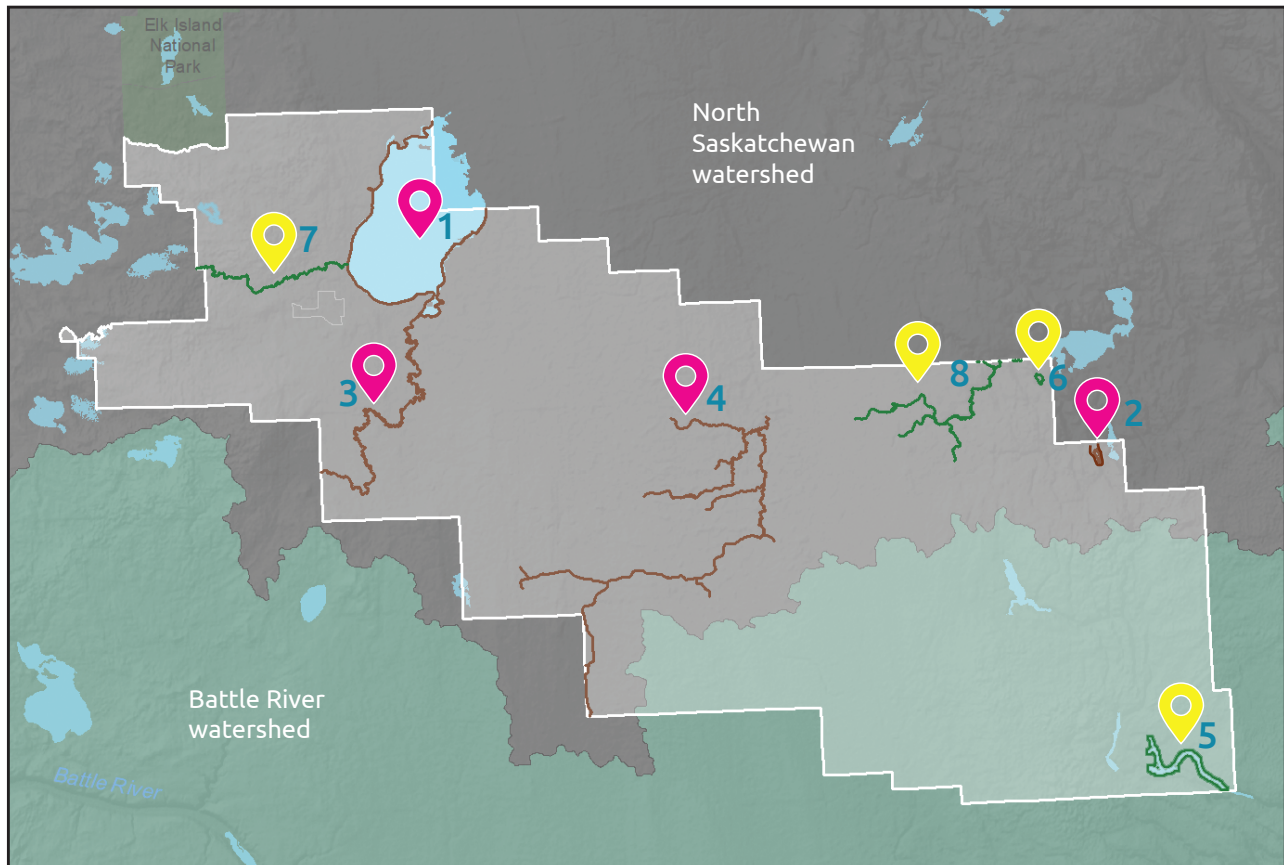


1. **Lake:** Beaverhill Lake
2. **Unnamed Lake:** UL-110402-35
3. **Named Creek:** Amisk Creek
4. **Unnamed Creek:** Vermilion River-02

Conservation



5. **Lake:** Vernon Lake
6. **Unnamed Lake:** UL-110402-29
7. **Named Creek:** Hastings Creek
8. **Unnamed Creek:** Birch Lake-02



Map 4: The top Conservation and Restoration Priorities recommended for the County. Recommendations are based on the top results from the Prioritization assessment shown in Map 3. To view more data, please see the [Appendix](#).

Next steps to conserve or restore priority riparian habitats:

- 1 Use priority maps to direct conservation and restoration efforts.
- 2 Develop policies at the municipal level for land management.
- 3 Provide incentives for private landowners to restore degraded riparian habitats.
- 4 Restore and conserve riparian habitats through municipal reserves, land trusts and/or conservation groups.

See the Appendix for a comprehensive list of priorities. To find out more about riparian condition data and resources, go to: riparian.info



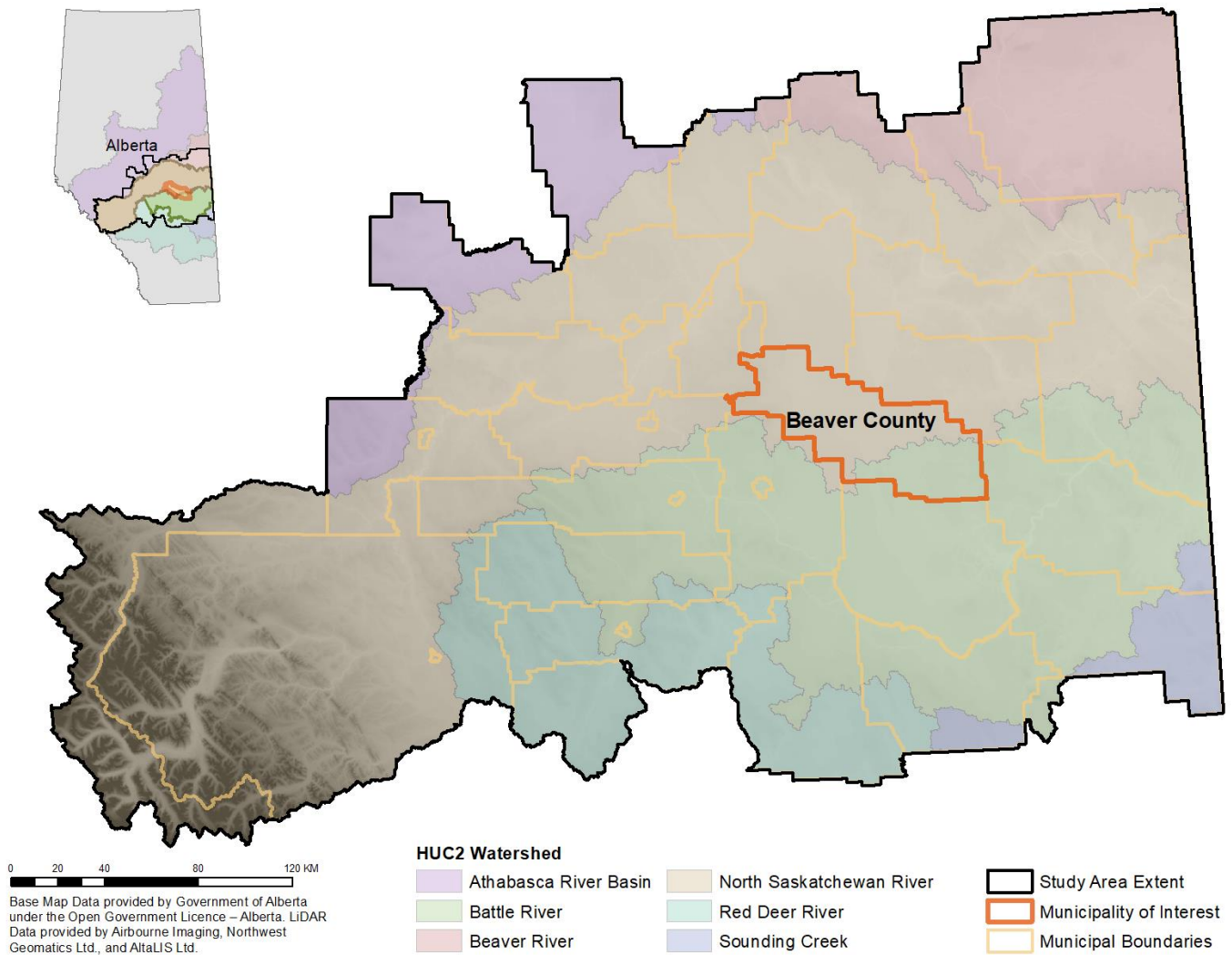
Acknowledgments

This work was an inter Watershed Planning and Advisory Councils (WPAC) project with funding and support from many sources. A special thanks to the Watershed Resiliency and Restoration Program and the governments of Canada and Alberta, through the Canadian Agricultural Partnership.

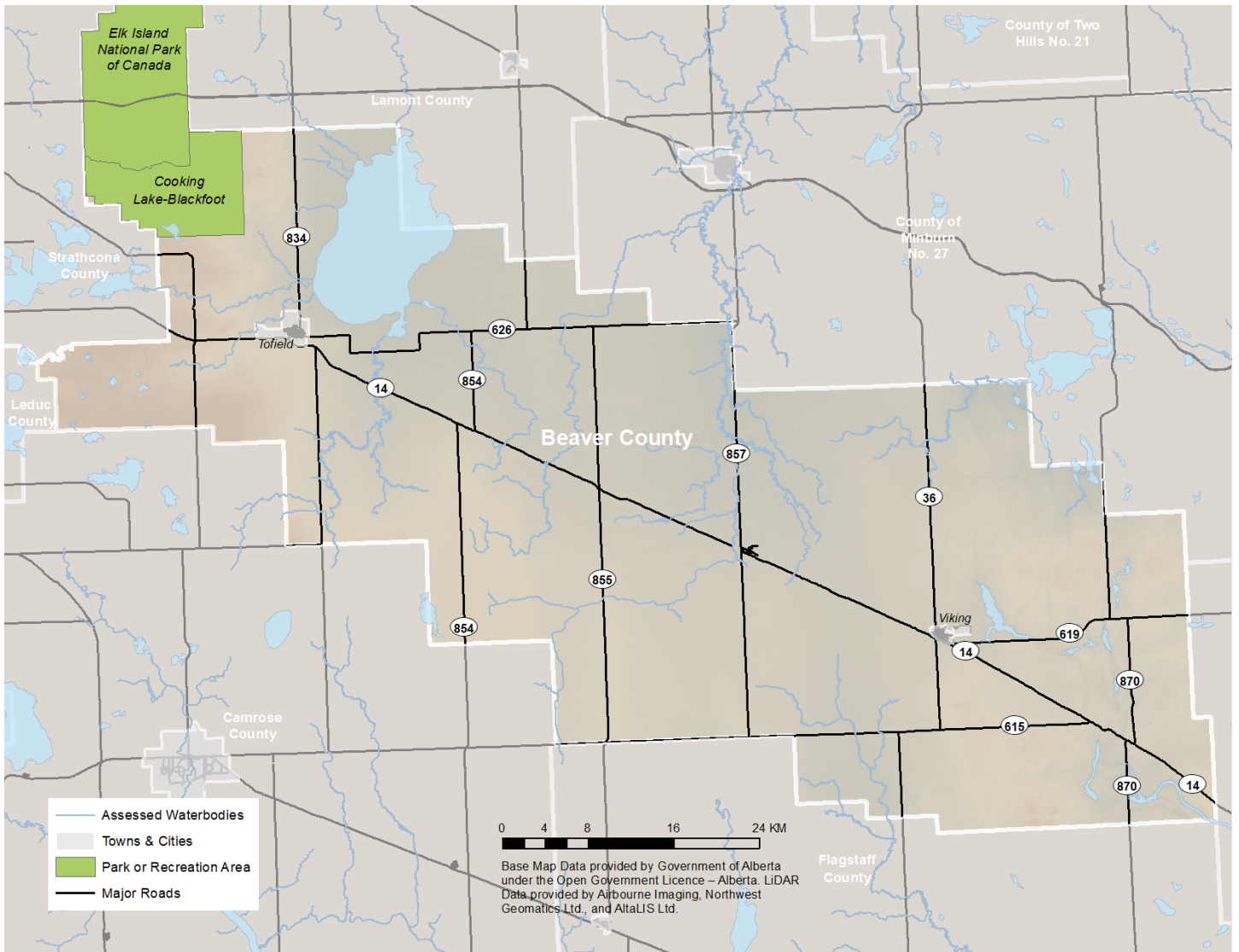
Intactness, Pressure, and Prioritization data was created by Fiera Biological Consulting Ltd. Base Map Data was provided by the Government of Alberta.



D1. Beaver County

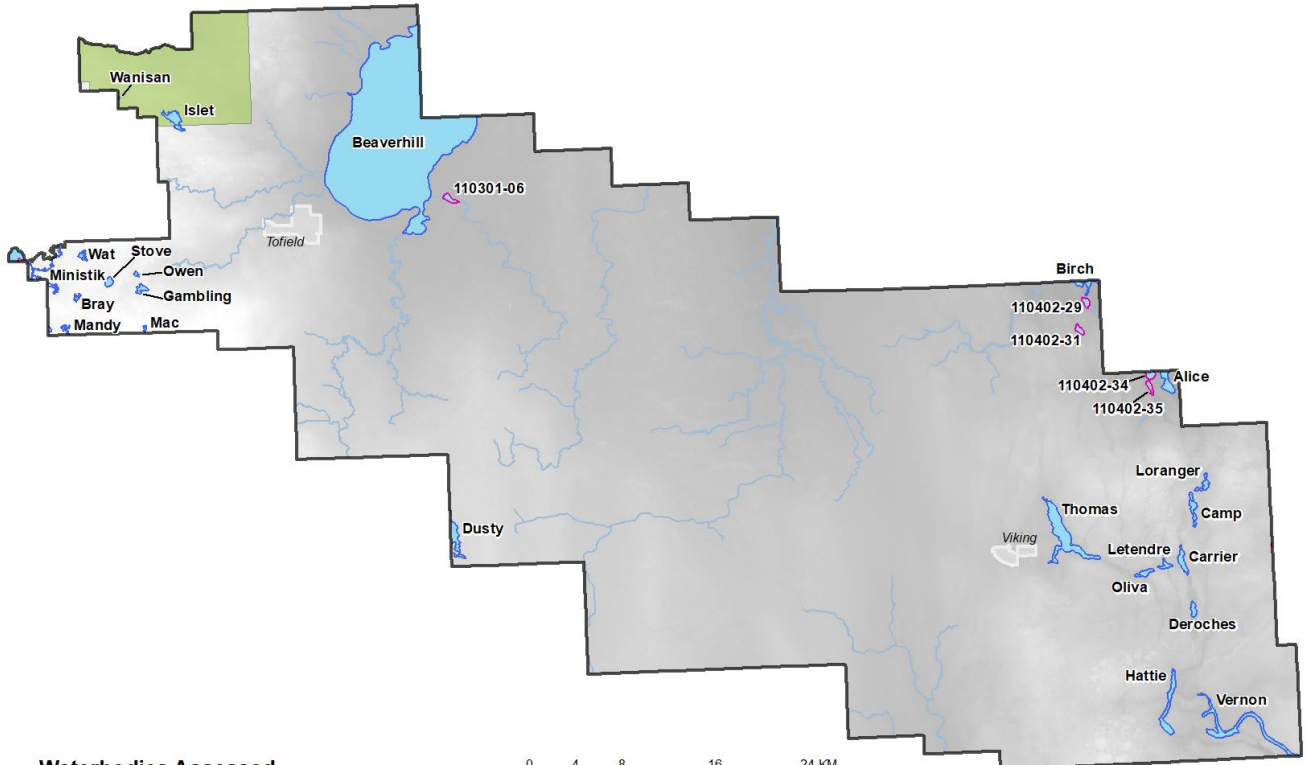


1.1. Municipal Overview



1.2. Shorelines of Interest

Location of Waterbodies Assessed within the Municipality

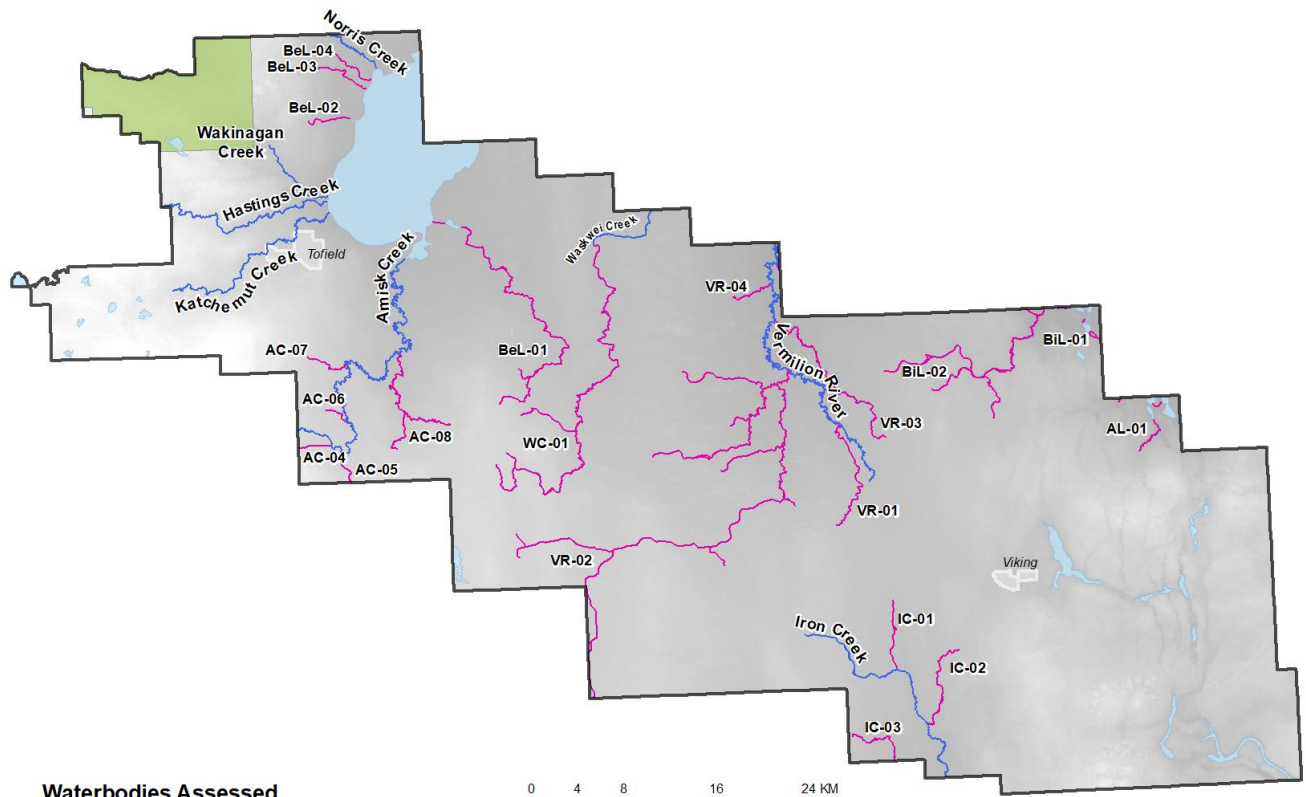


Waterbodies Assessed

- Named Lake
- Unnamed Lake



Base Map Data provided by Government of Alberta under the Open Government Licence – Alberta. LIDAR Data provided by Airborne Imaging, Northwest Geomatics Ltd., and AltaLIS Ltd.



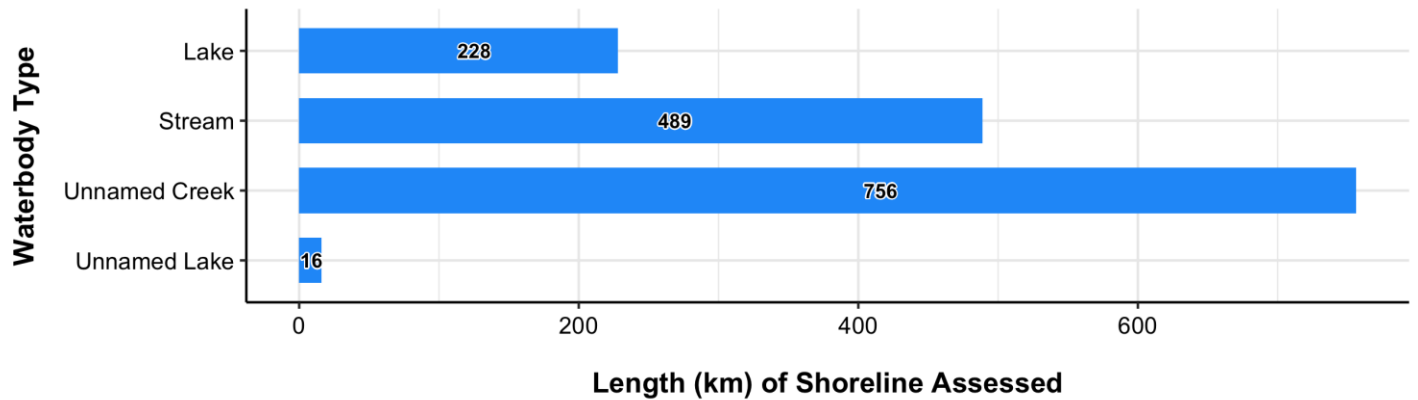
Waterbodies Assessed

- Named Stream
- Unnamed Creek



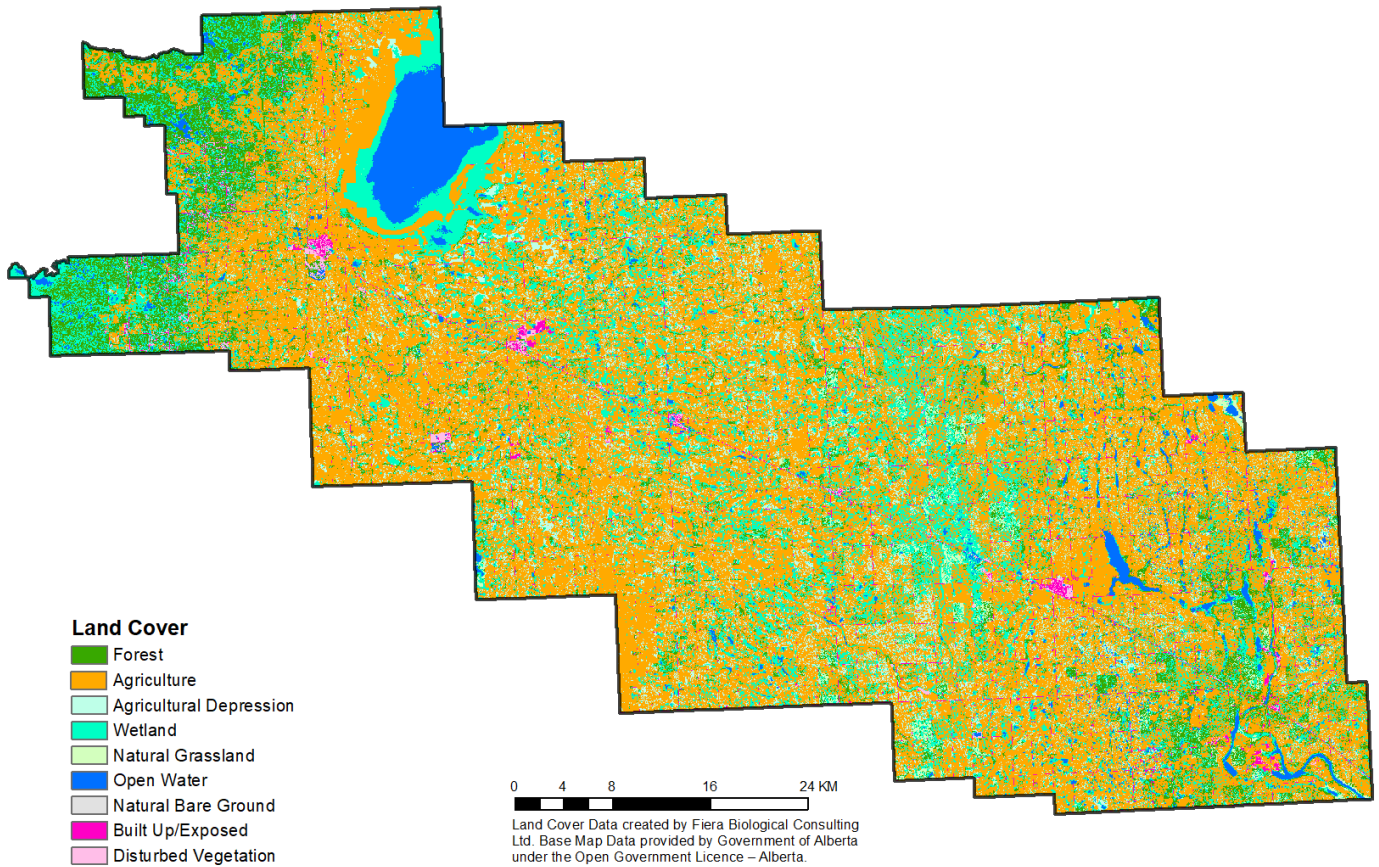
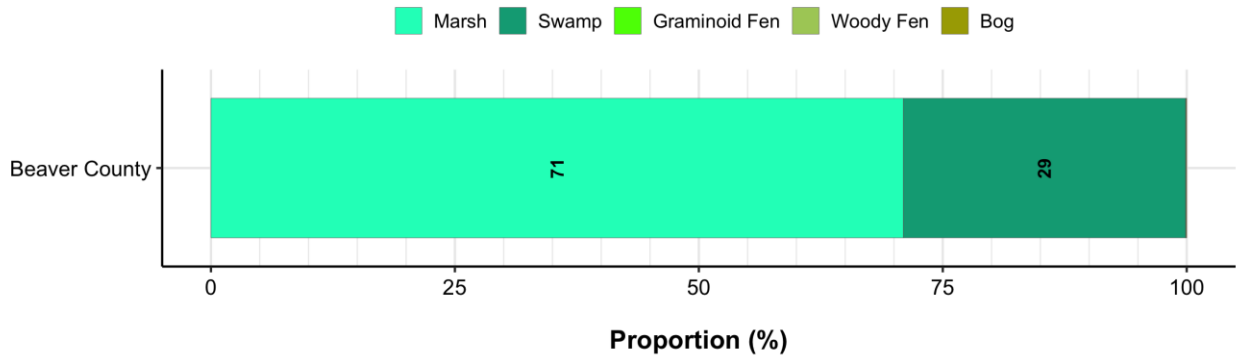
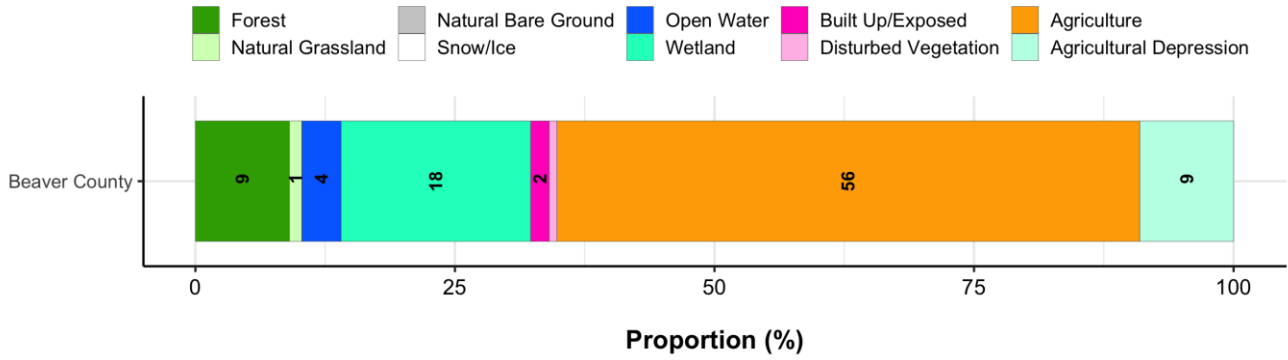
Base Map Data provided by Government of Alberta under the Open Government Licence – Alberta. LIDAR Data provided by Airborne Imaging, Northwest Geomatics Ltd., and AltaLIS Ltd.

Total Length of Riparian Shoreline Assessed within the Municipality



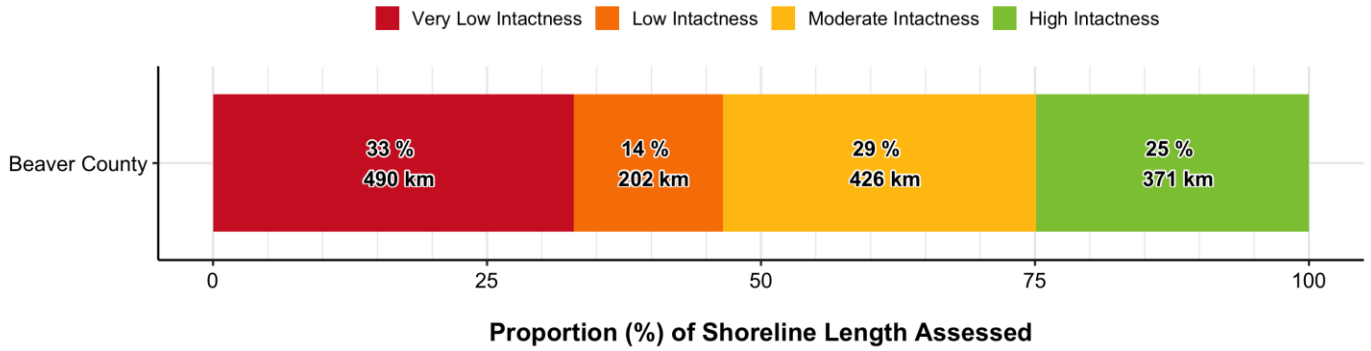
NOTE: Numbers indicate the total length (km) of shoreline assessed by waterbody type.

1.3. Land Cover

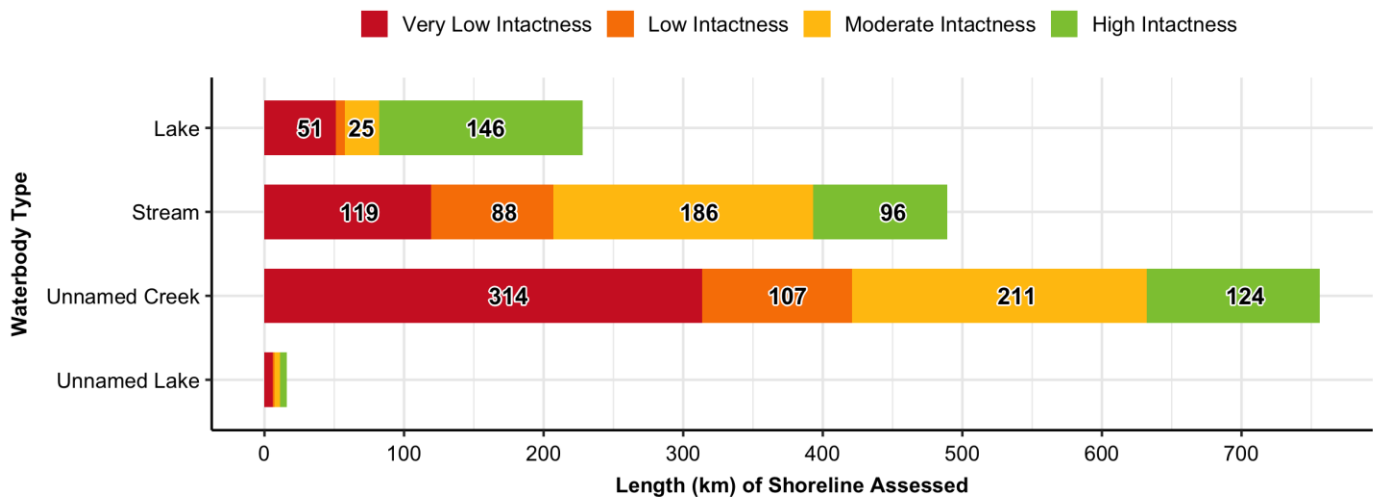


1.4. Riparian Management Area Intactness

Overall Municipal Intactness

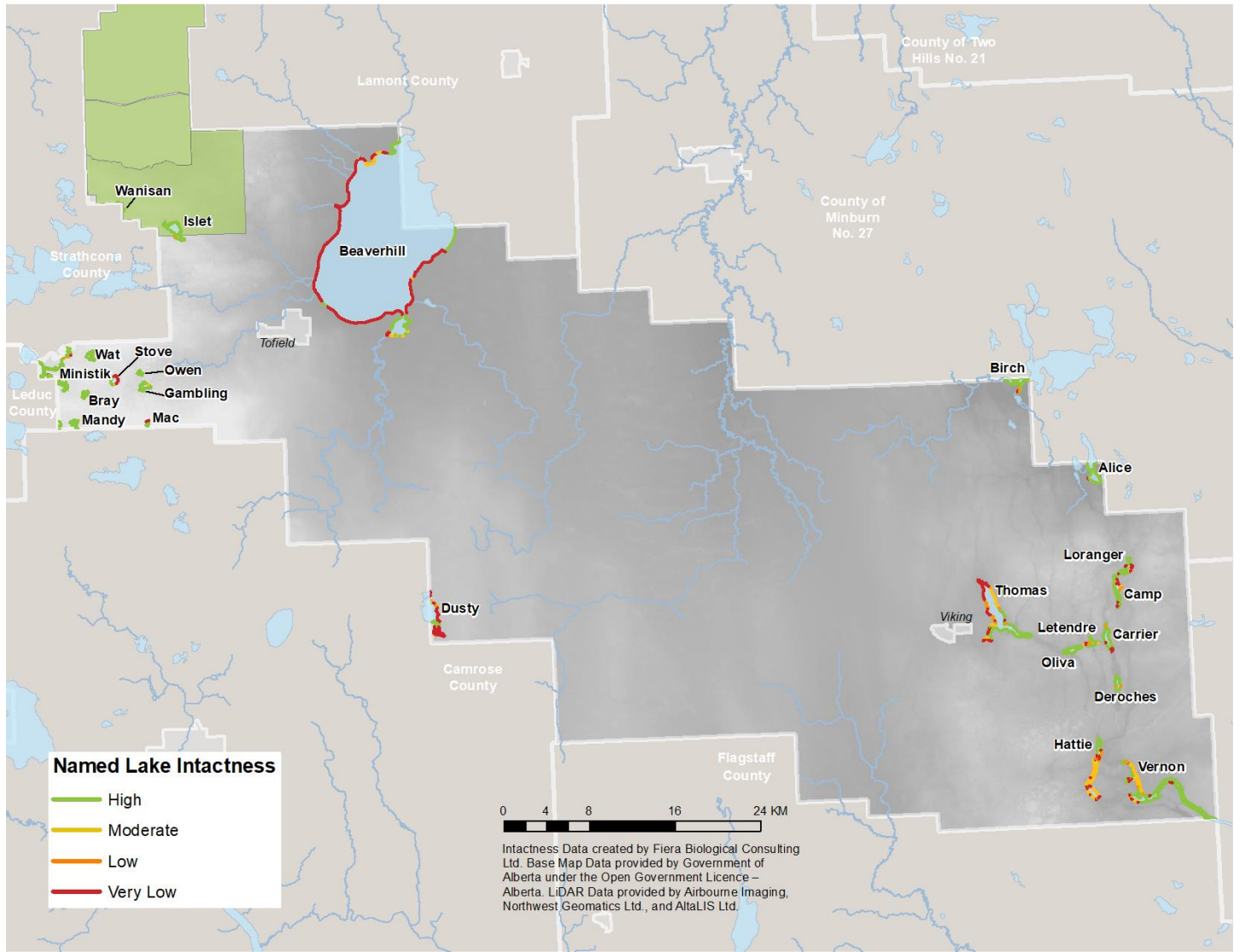


Intactness By Waterbody Type

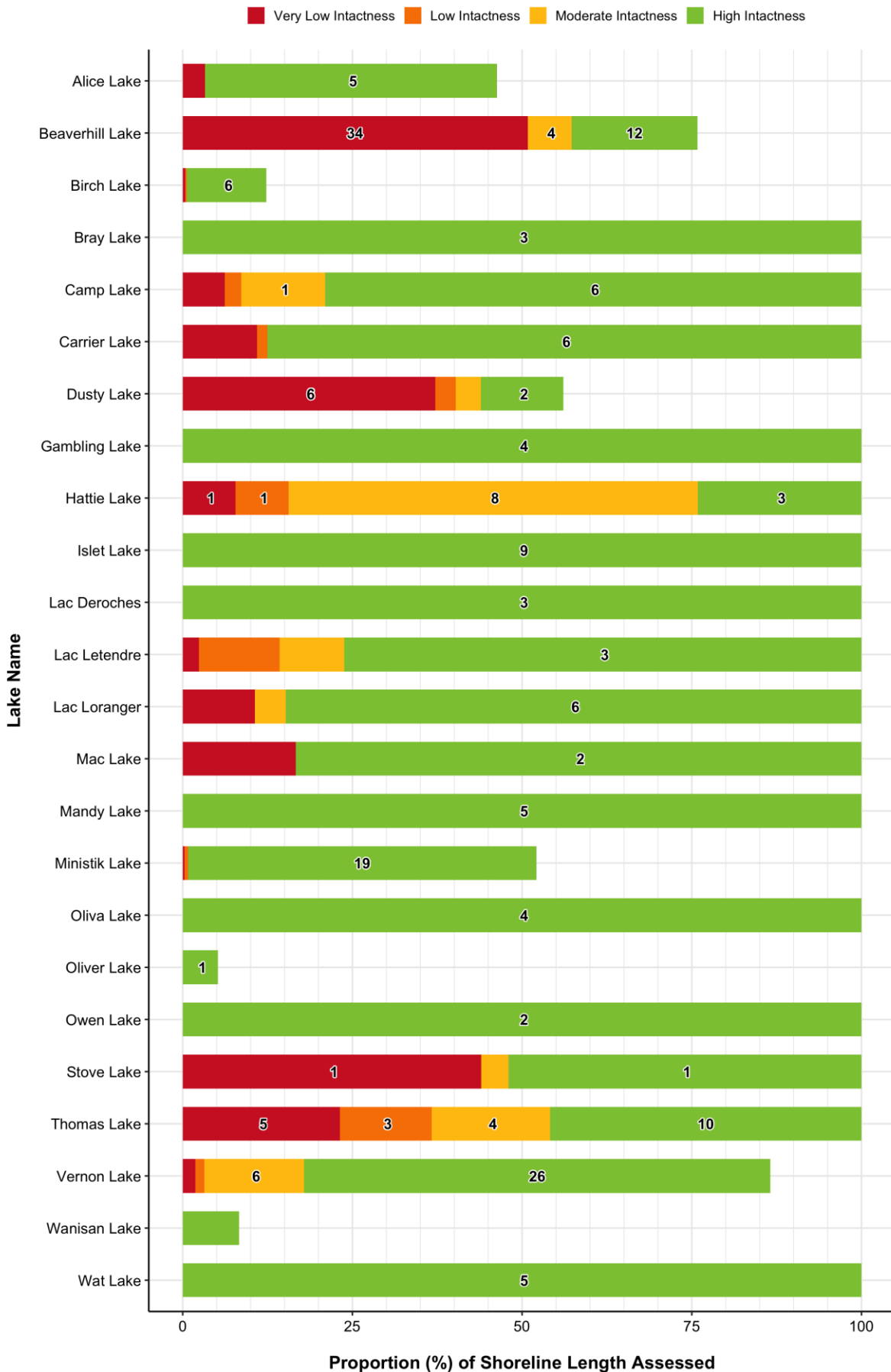


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <15 km of shoreline.

Intactness – Named Lakes

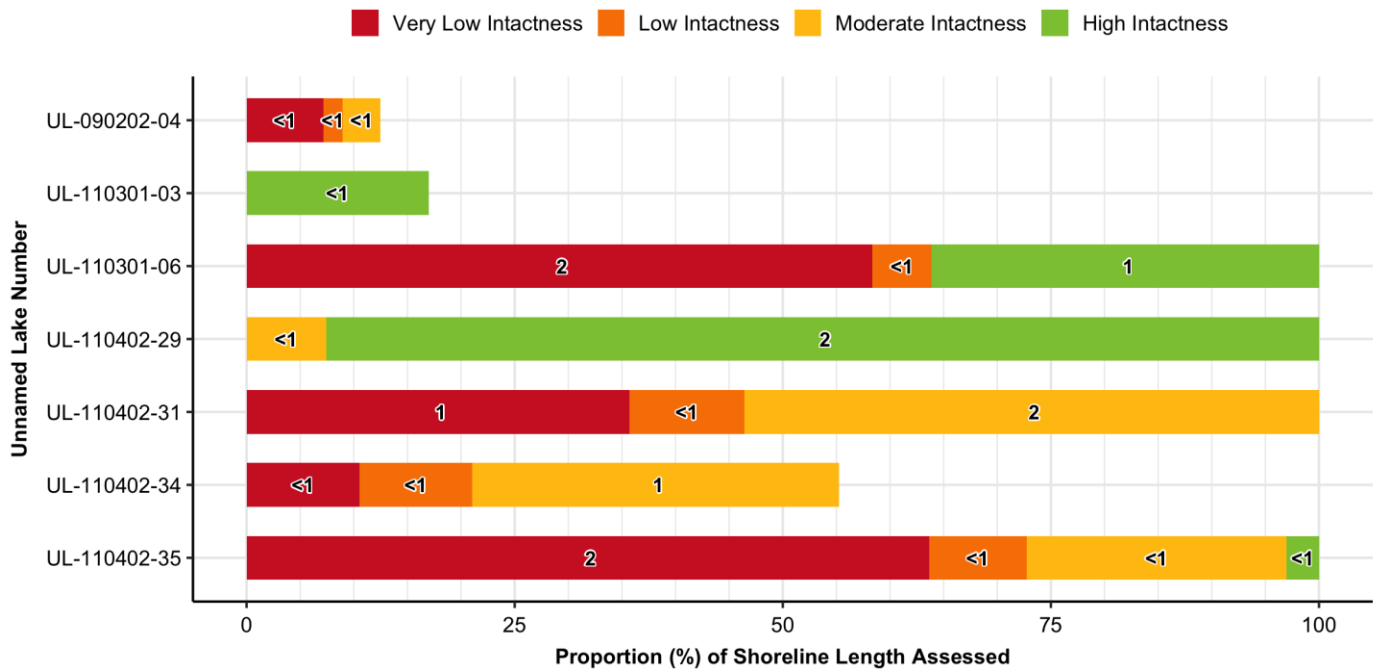
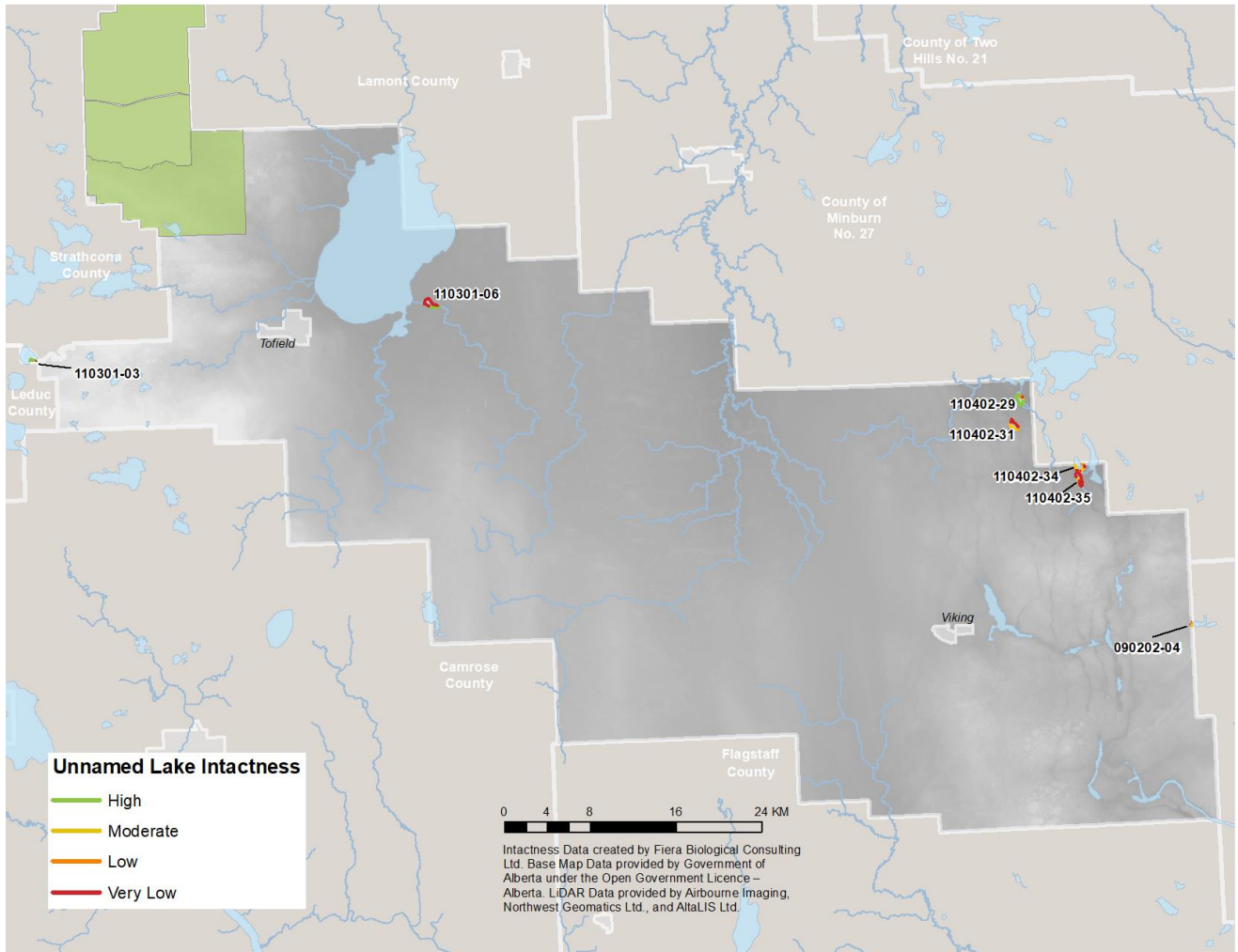


Intactness – Named Lakes



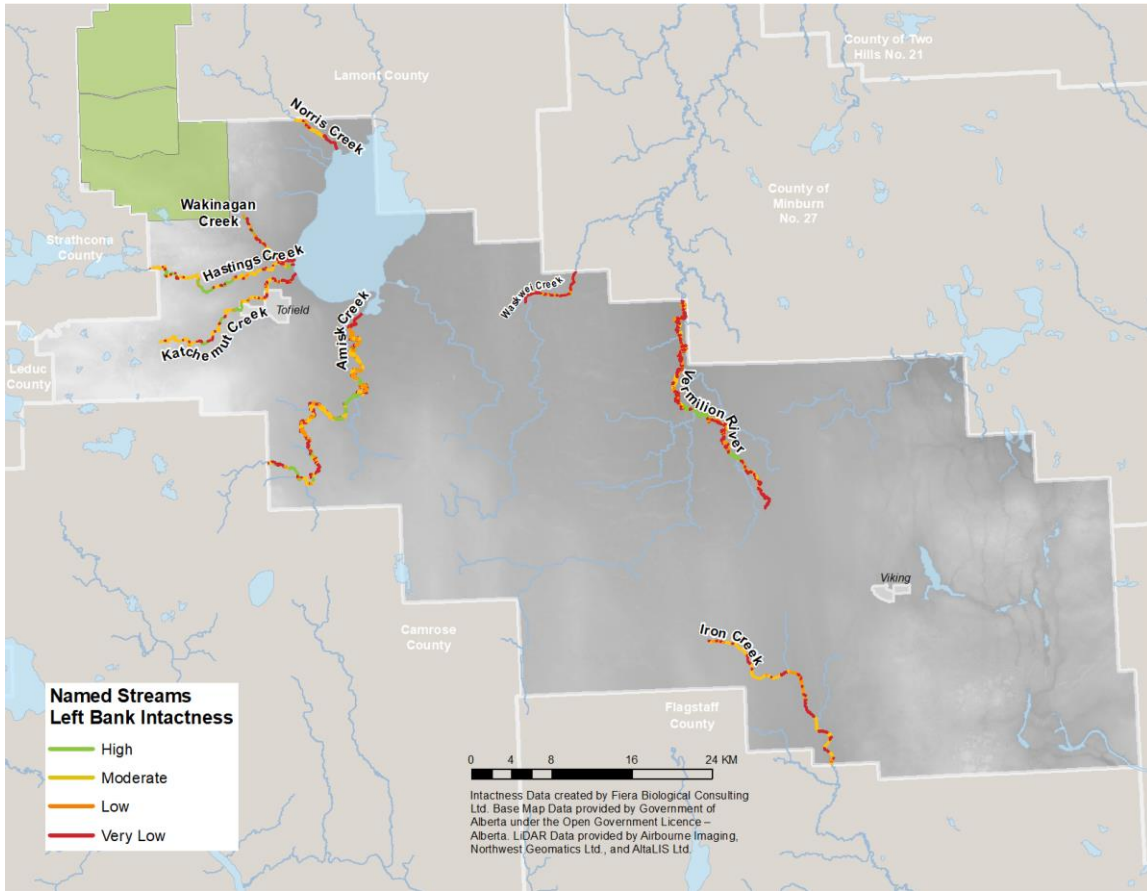
Proportion (%) of Shoreline Length Assessed
 NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.
 Categories with no label contain <1 km of shoreline.

Intactness – Unnamed Lakes

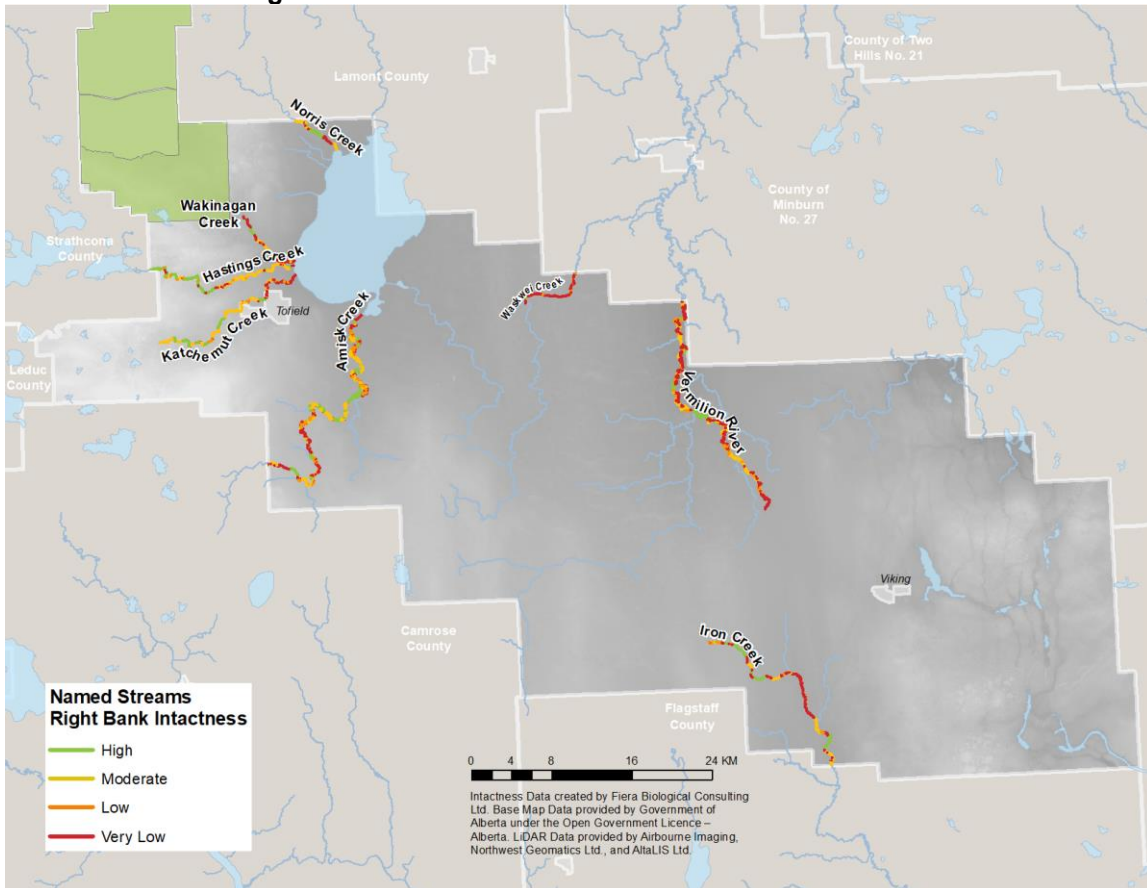


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.

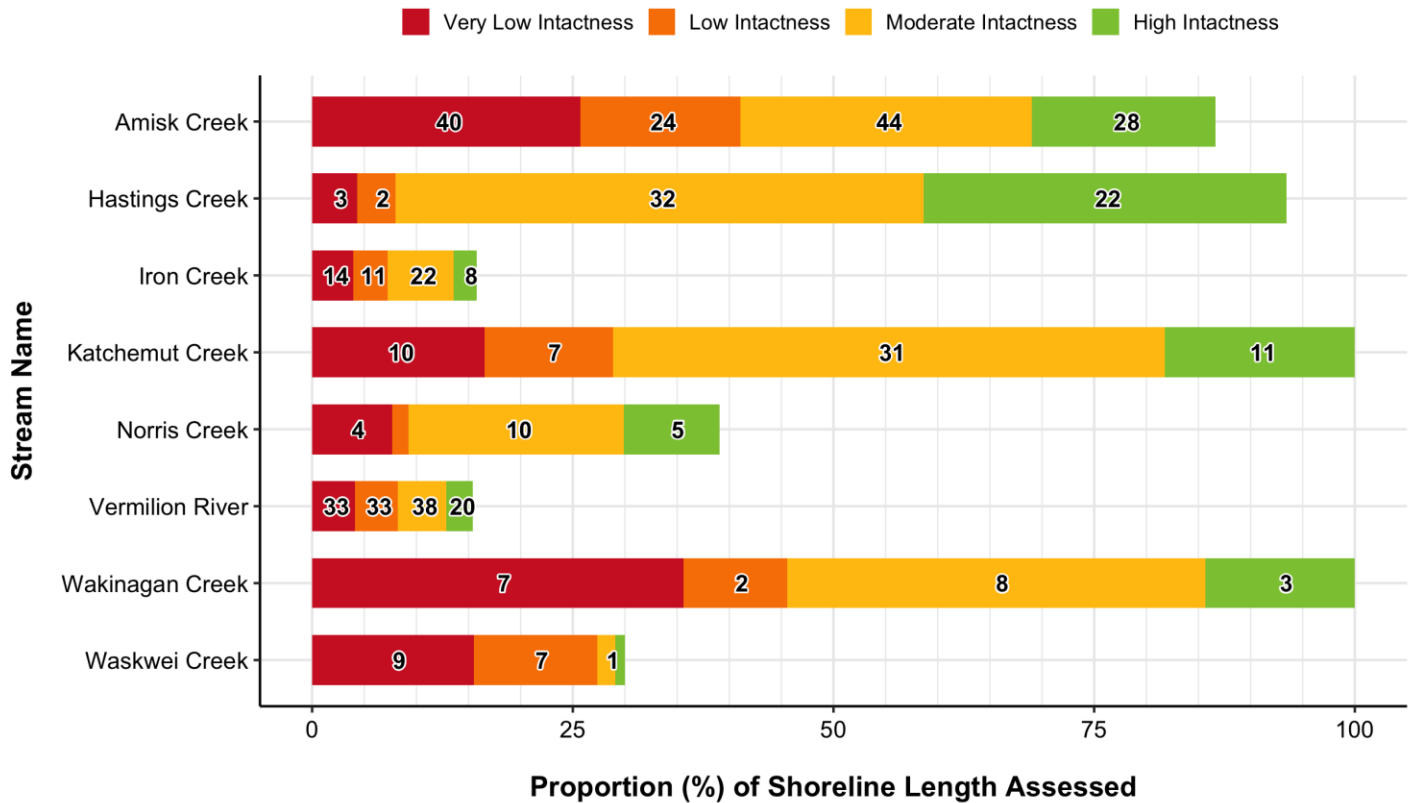
Intactness – Named Streams: Left Bank



Intactness – Named Streams: Right Bank

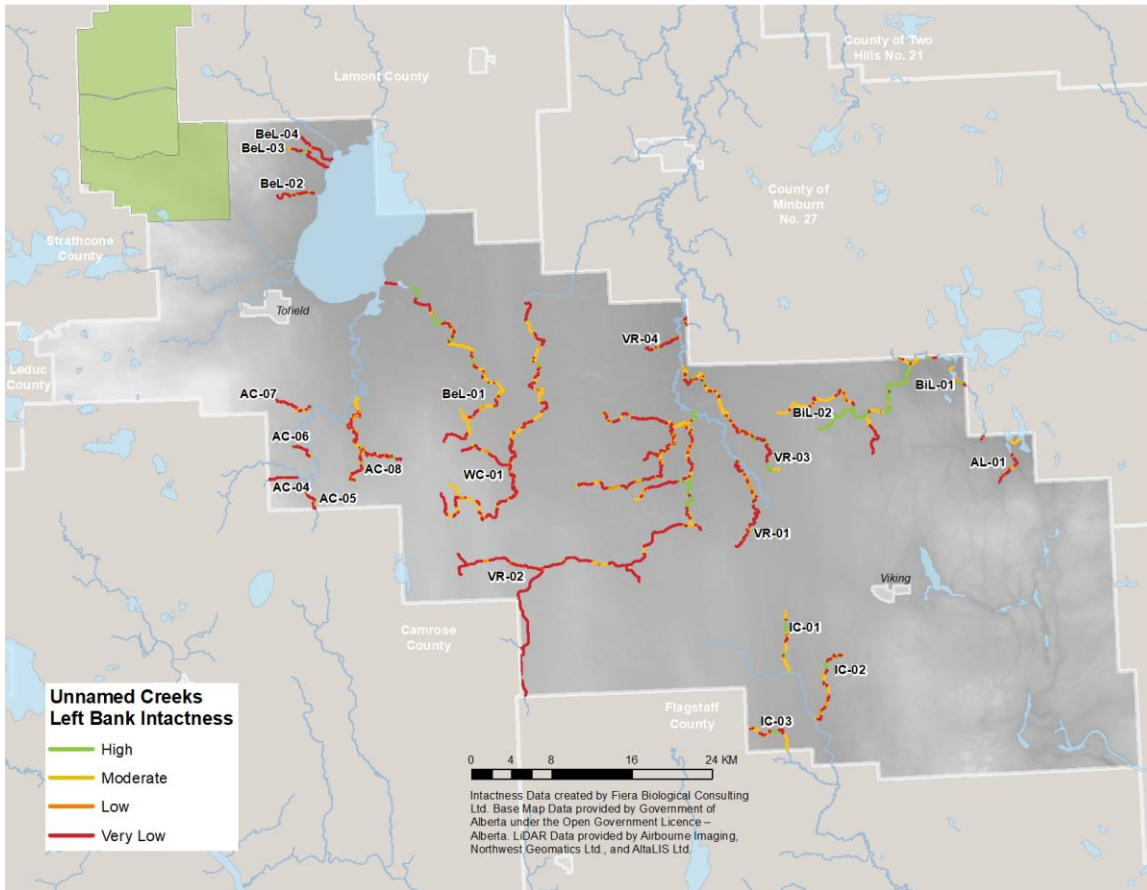


Intactness – Named Streams

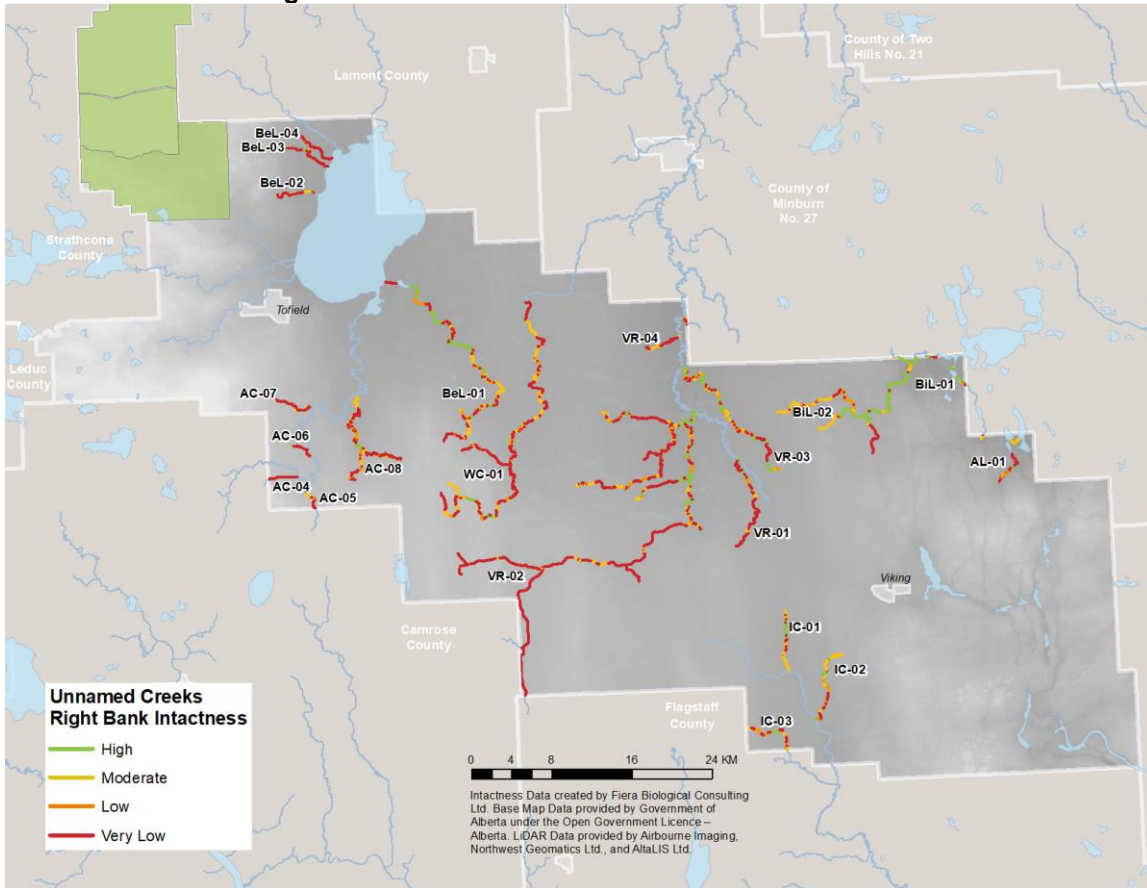


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <1 km of shoreline.

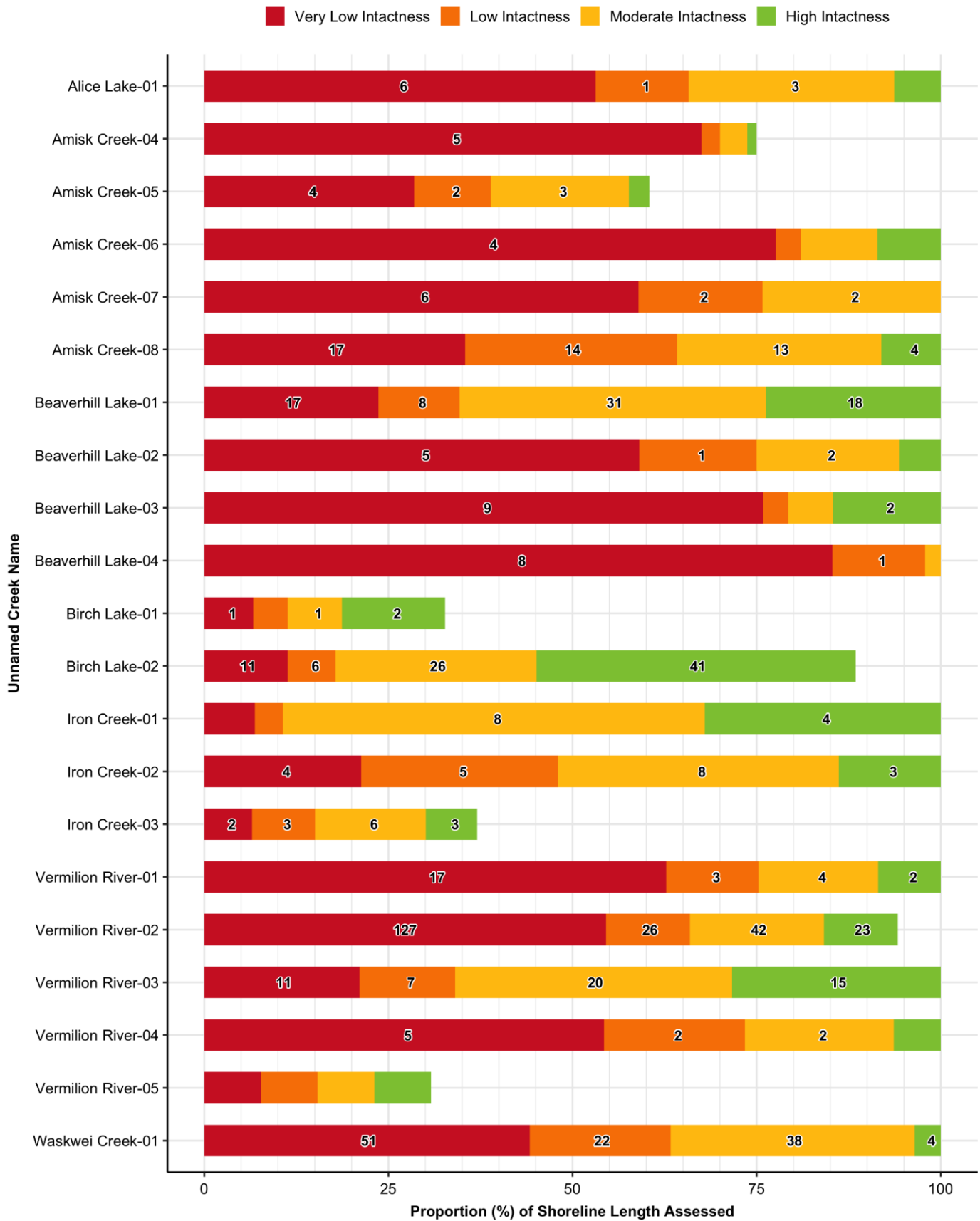
Intactness – Unnamed Creeks: Left Bank



Intactness – Unnamed Creeks: Right Bank



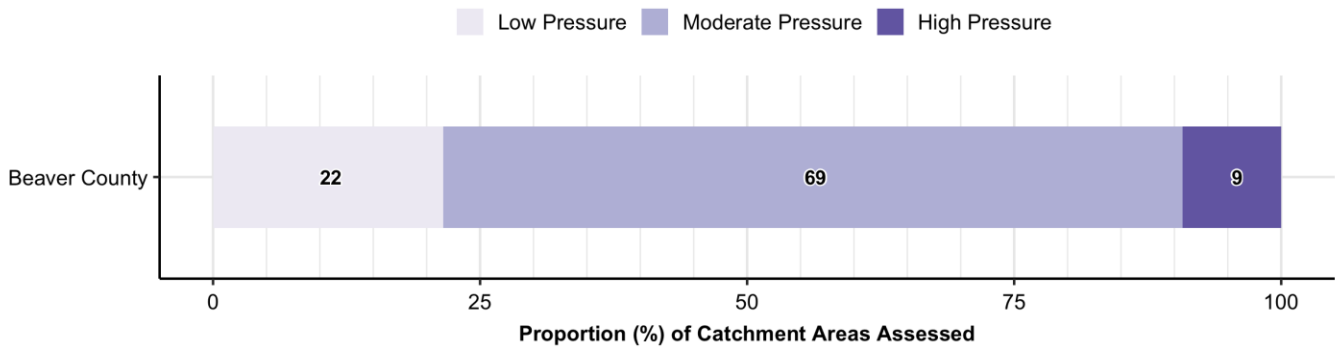
Intactness – Unnamed Creeks



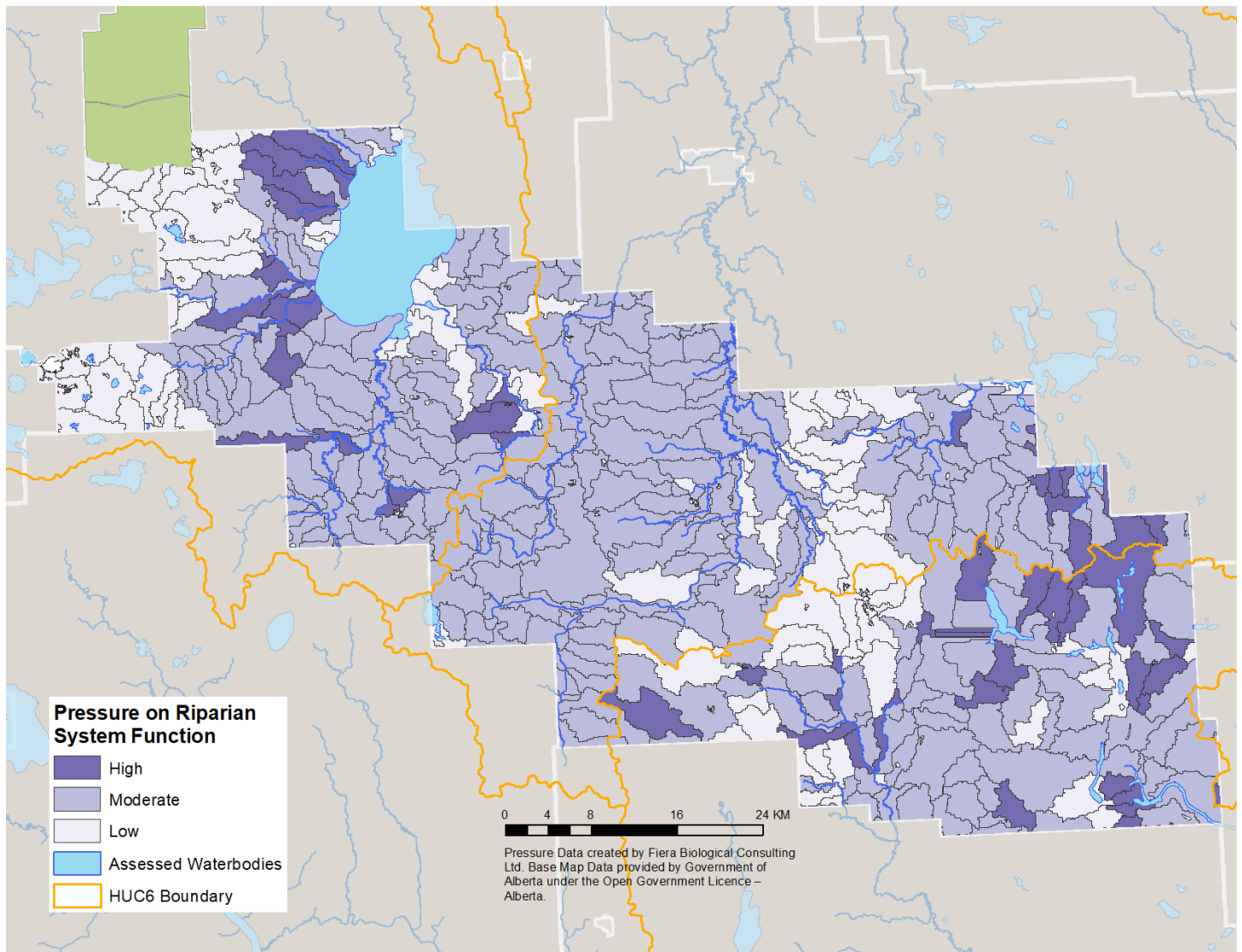
NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <1 km of shoreline.

1.5. Pressure on Riparian System Function

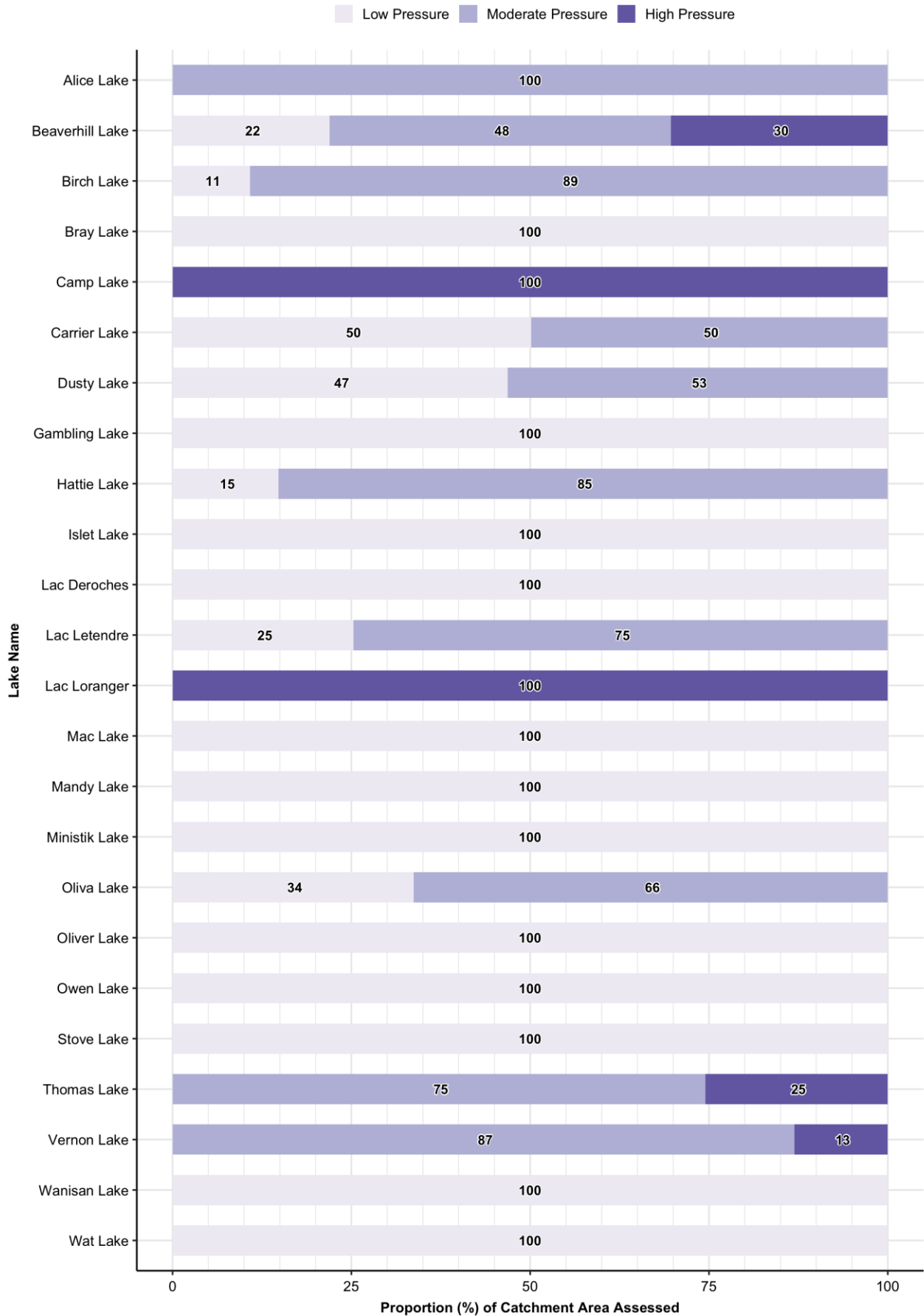
Overall Municipal Pressure



NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

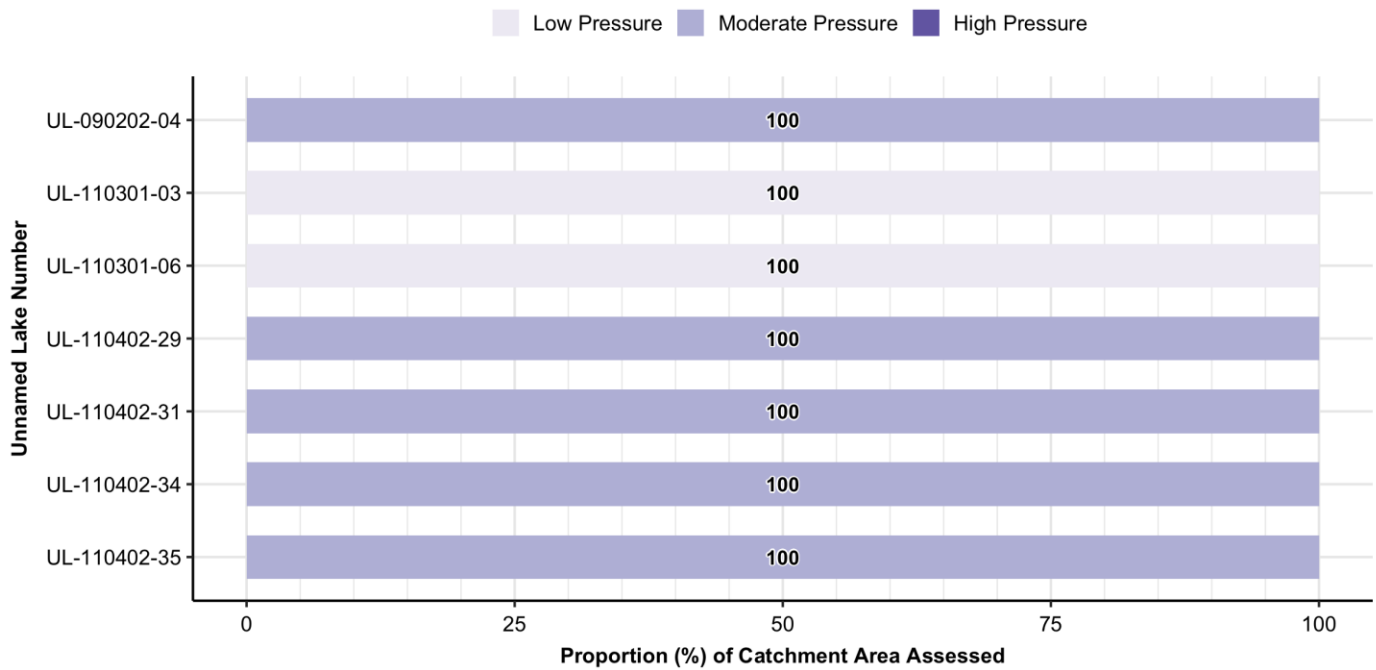


Pressure – Named Lakes



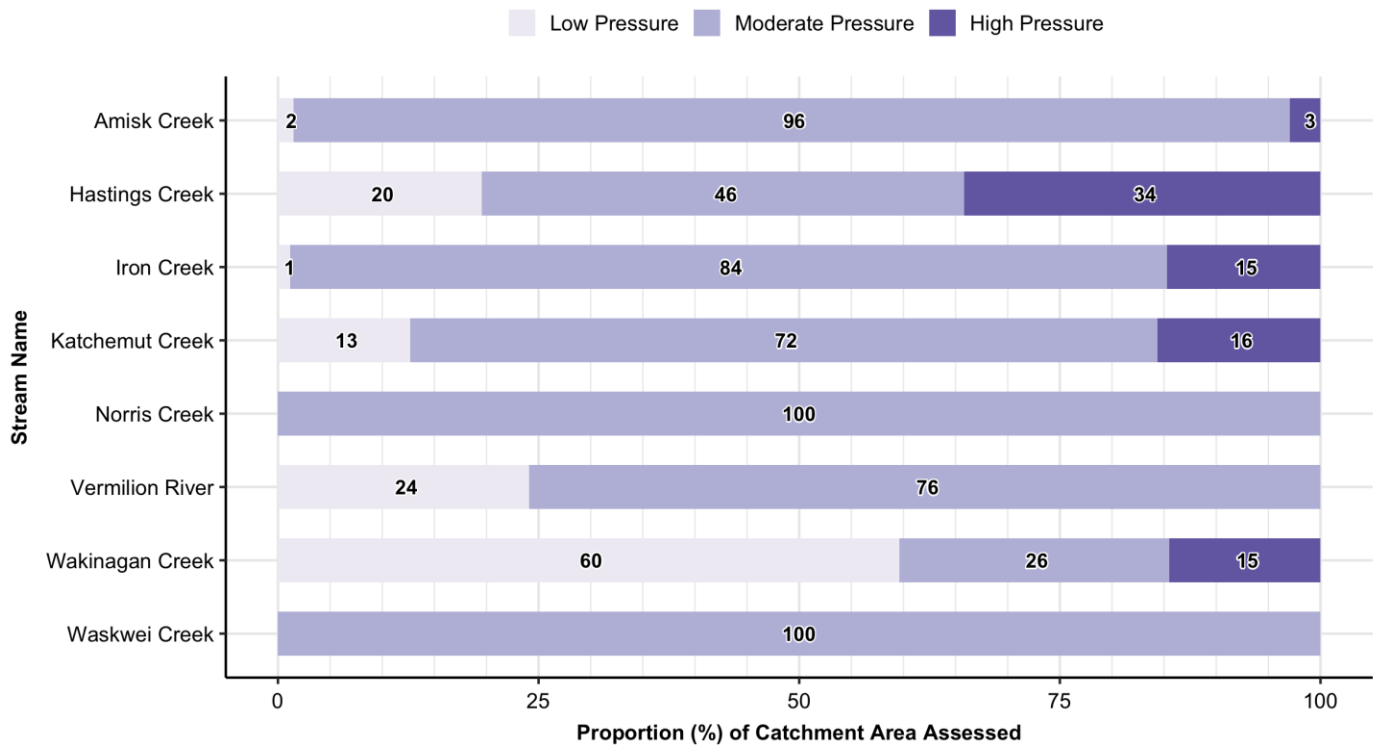
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

Pressure – Unnamed Lakes



NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

Pressure – Named Streams



NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

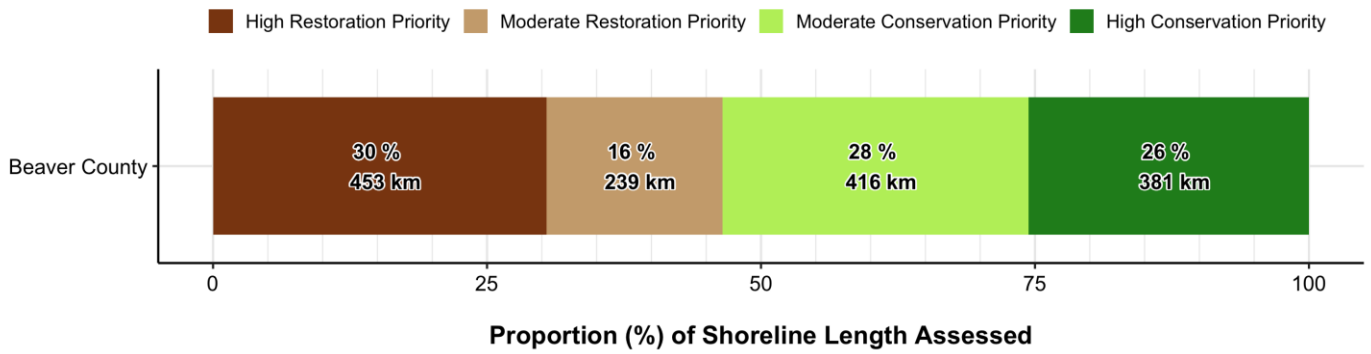
Pressure – Unnamed Creeks



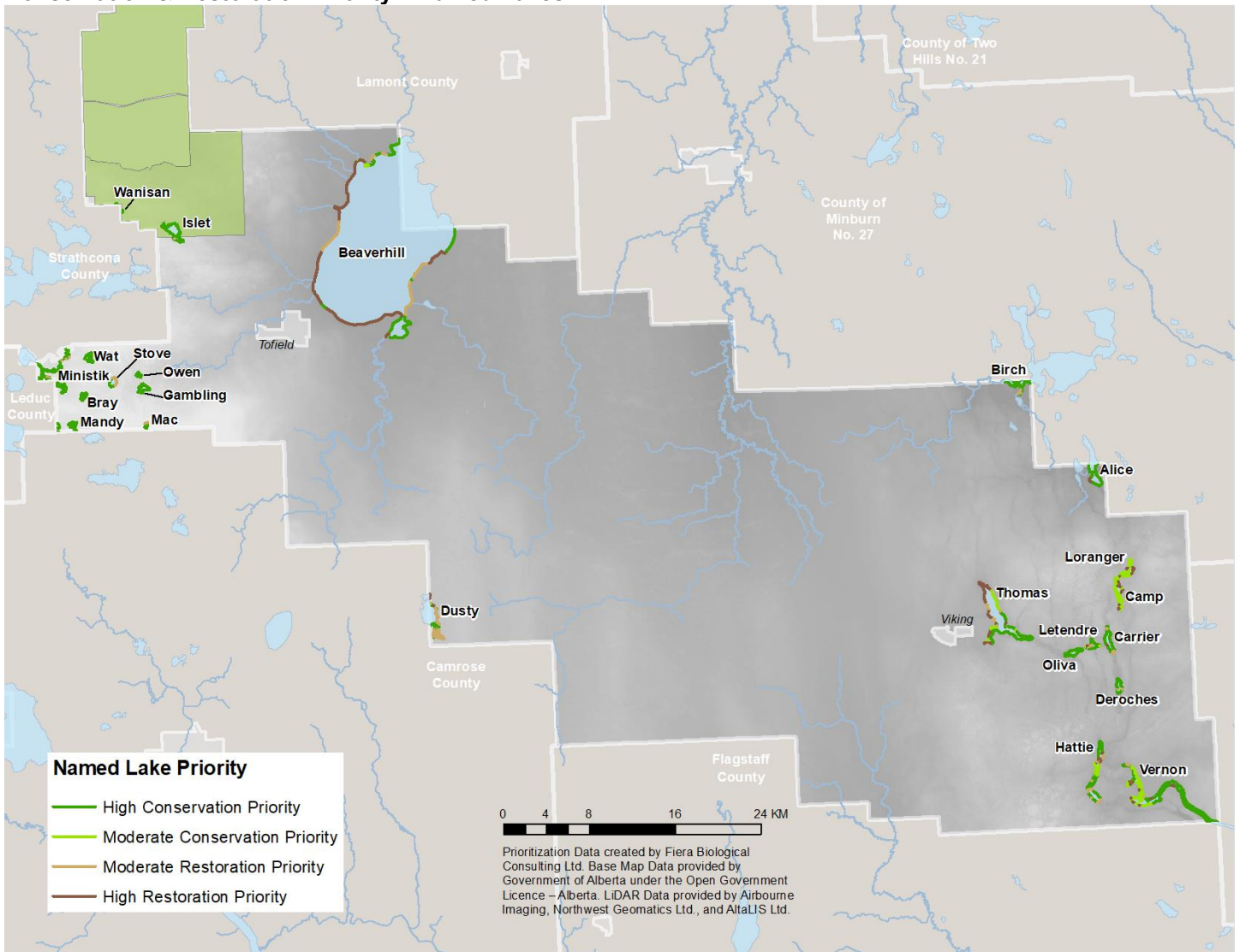
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

1.6. Conservation & Restoration Priority

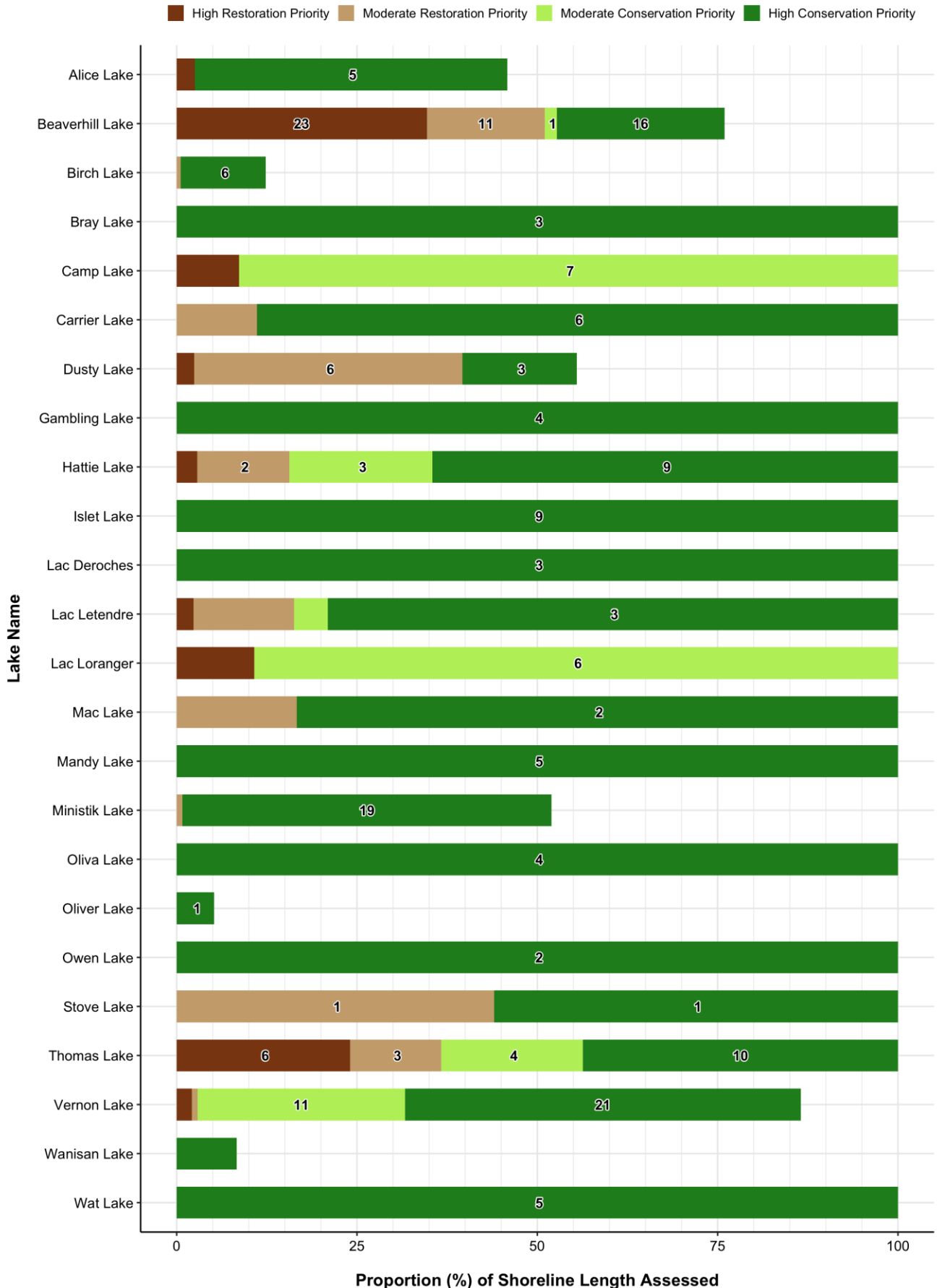
Overall Municipal Conservation & Restoration Priority



Conservation & Restoration Priority – Named Lakes

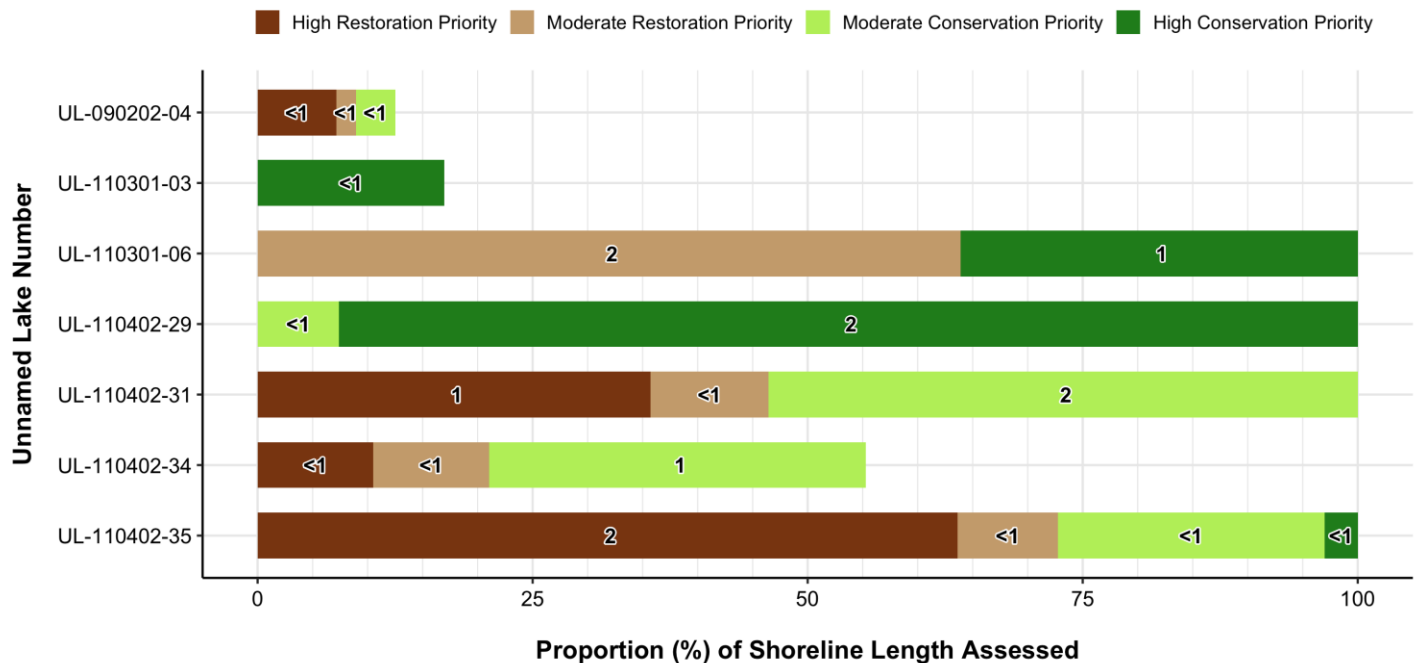
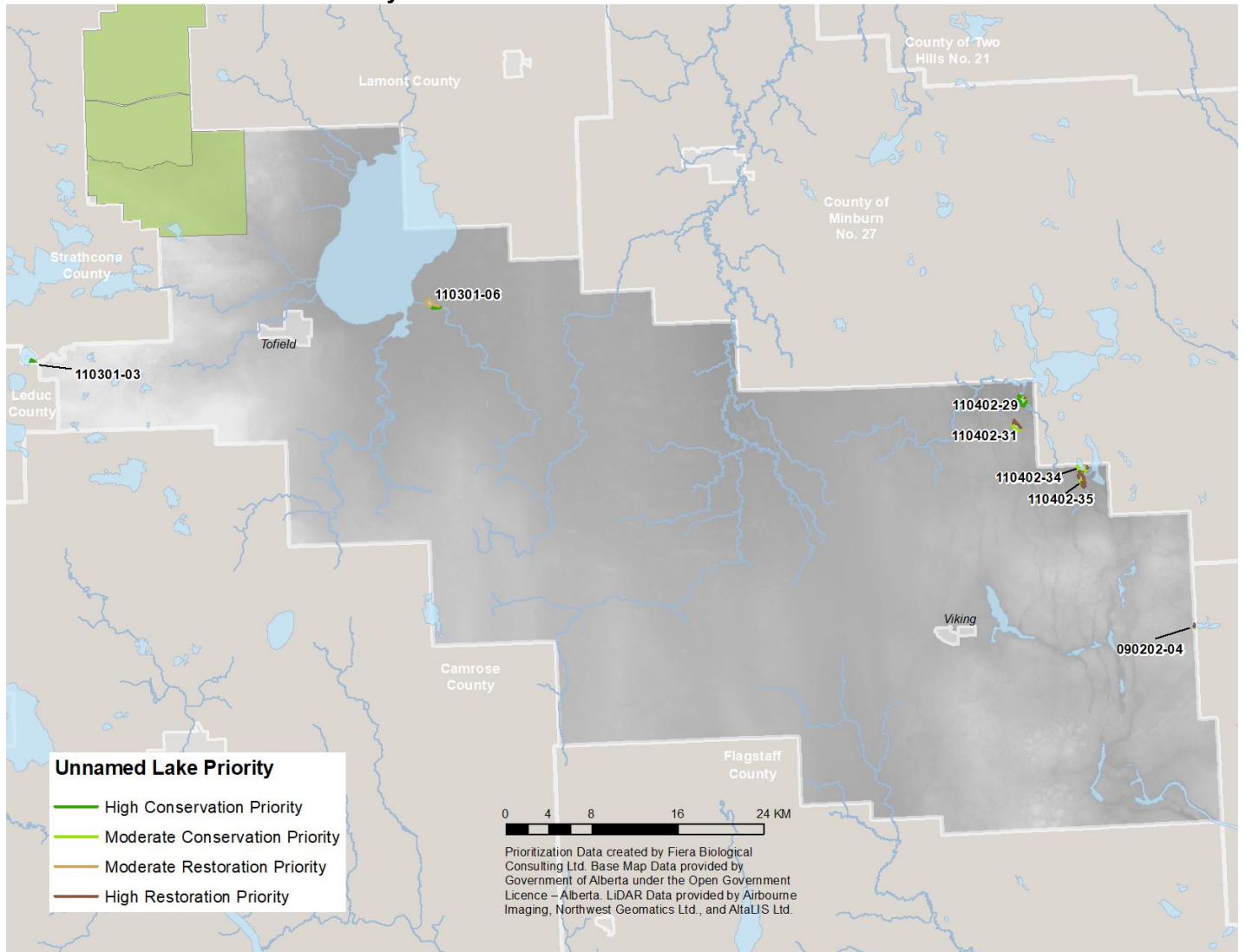


Conservation & Restoration Priority – Named Lakes

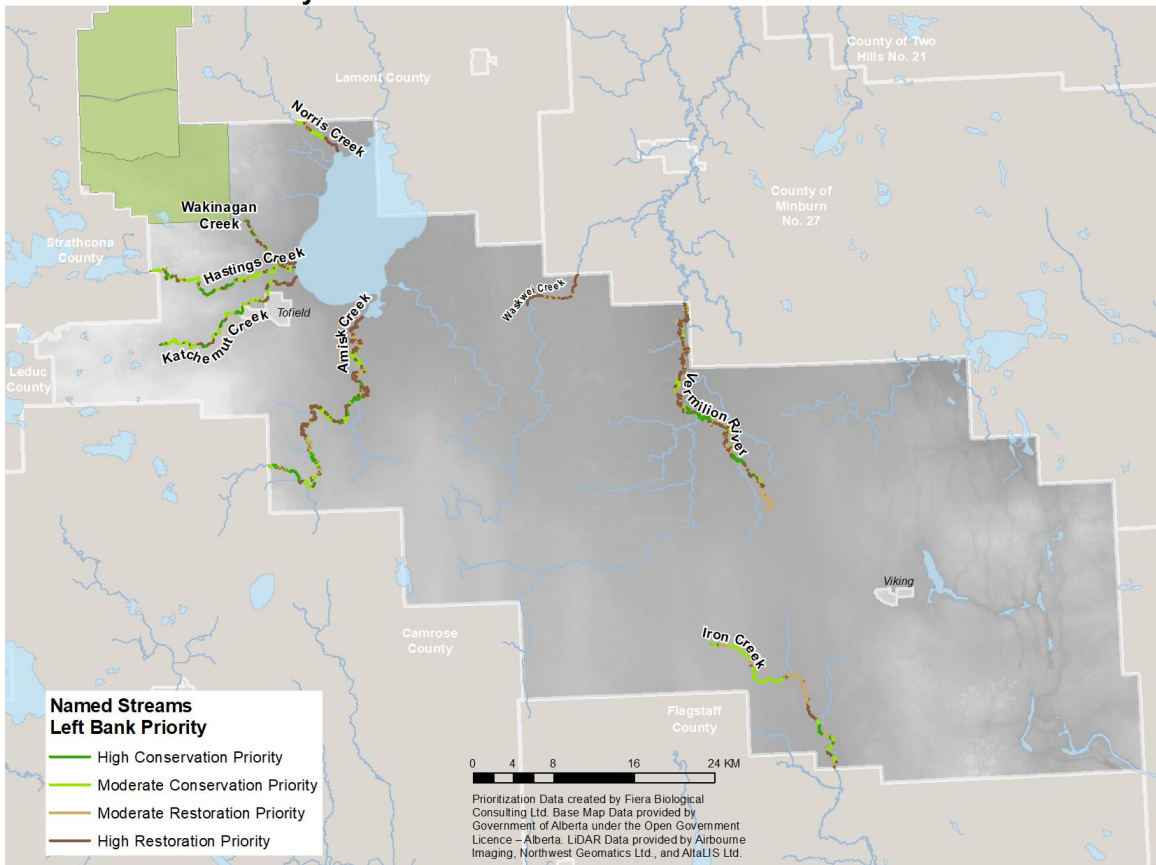


NOTE: Numbers indicate the total length (km) of shoreline associated with each prioritization category. Categories with no label contain <1 km of shoreline.

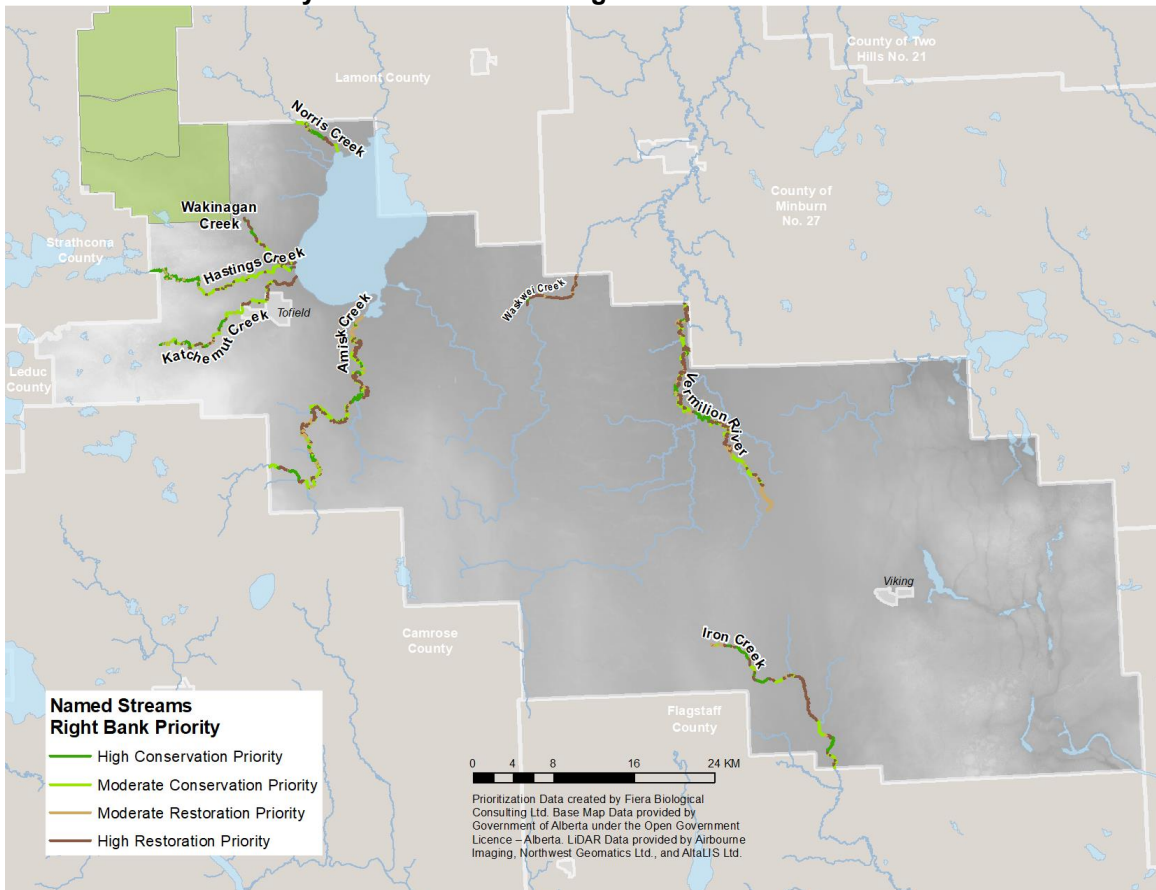
Conservation & Restoration Priority – Unnamed Lakes



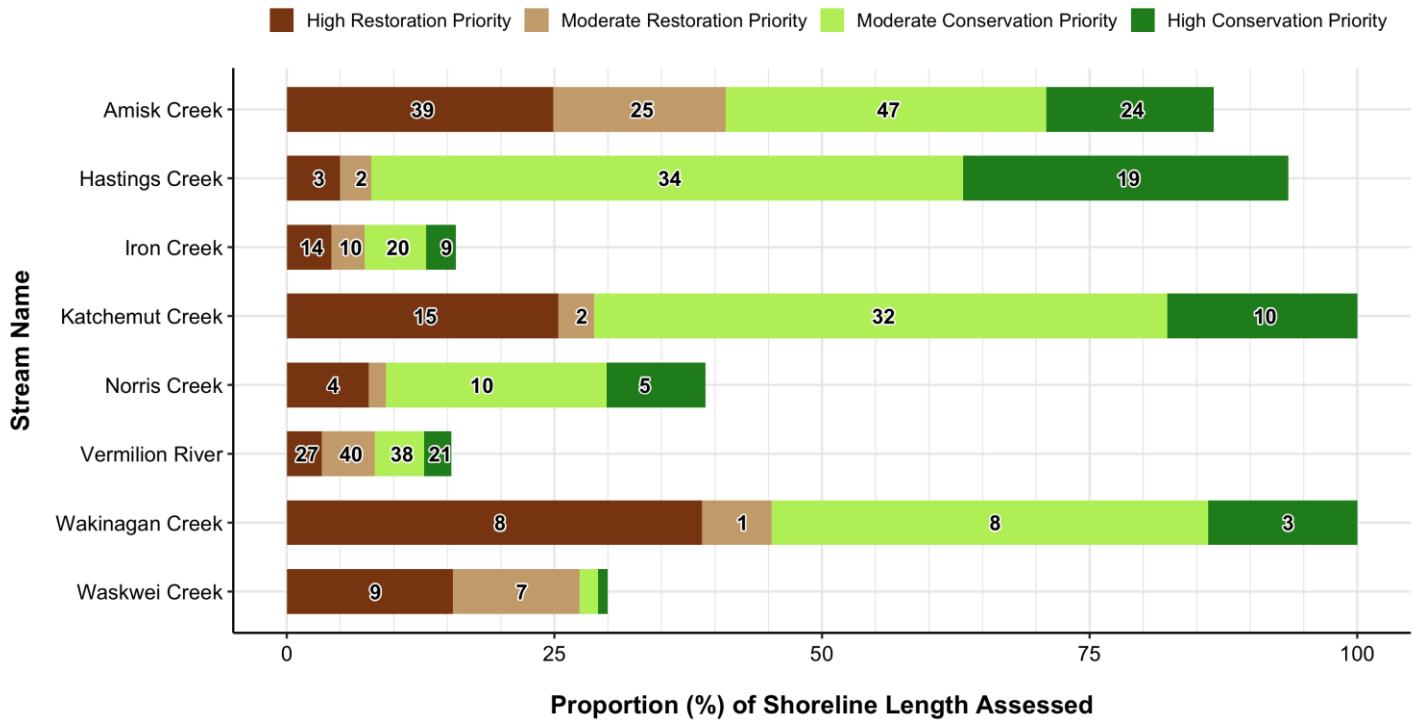
Conservation & Restoration Priority – Named Streams: Left Bank



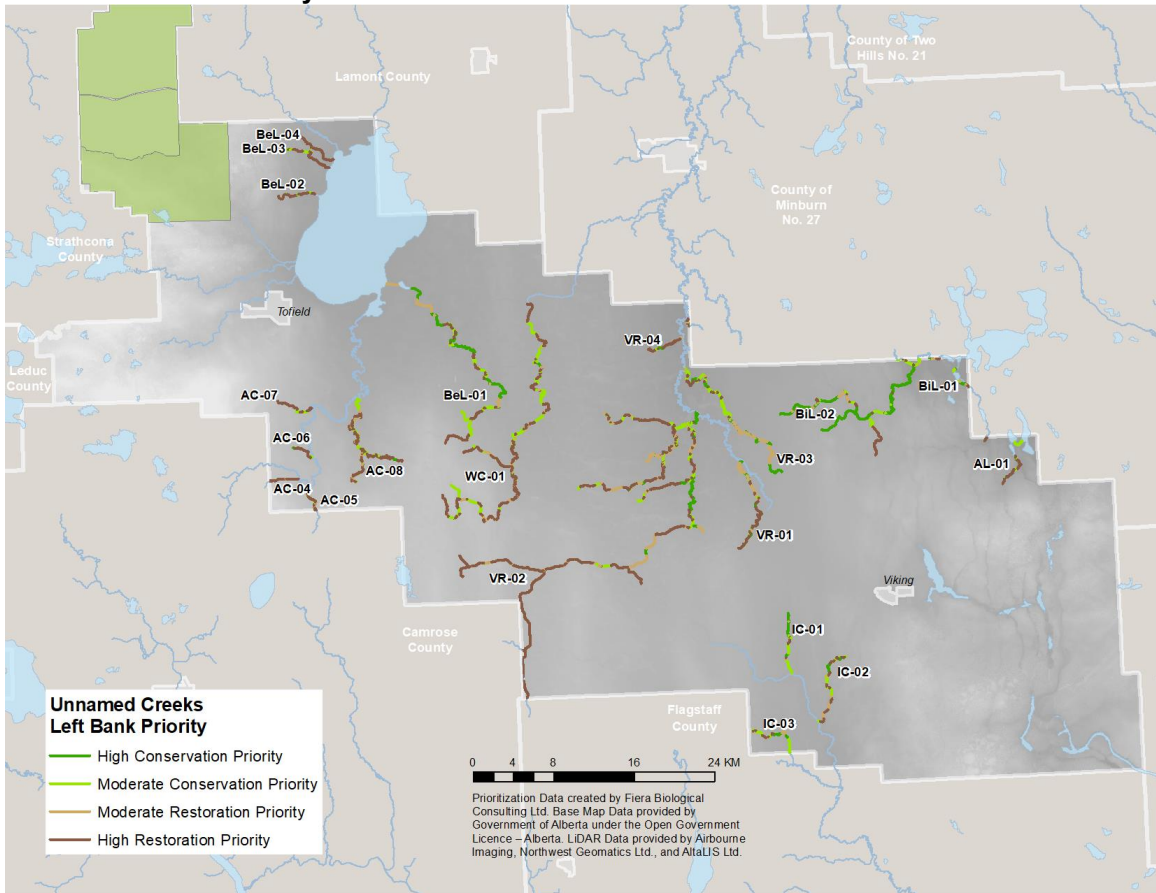
Conservation & Restoration Priority – Named Streams: Right Bank



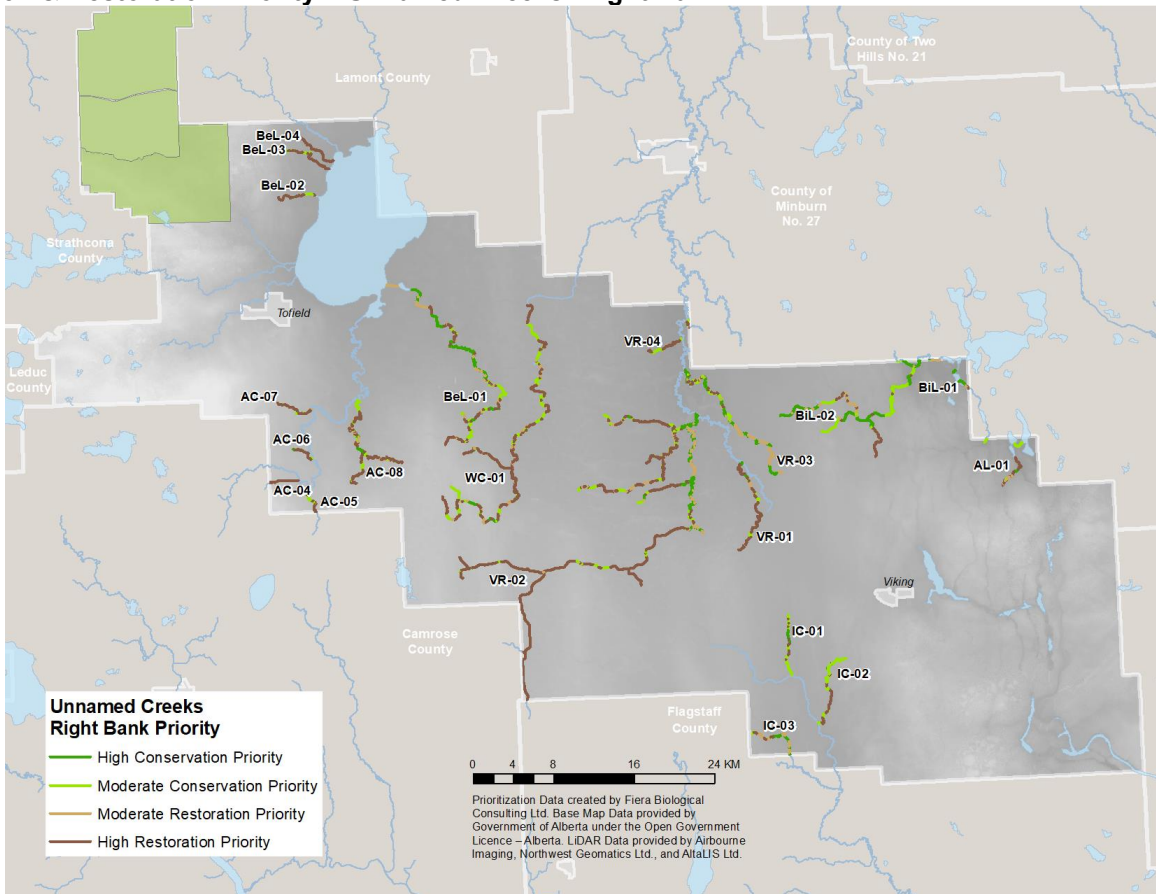
Conservation & Restoration Priority – Named Streams



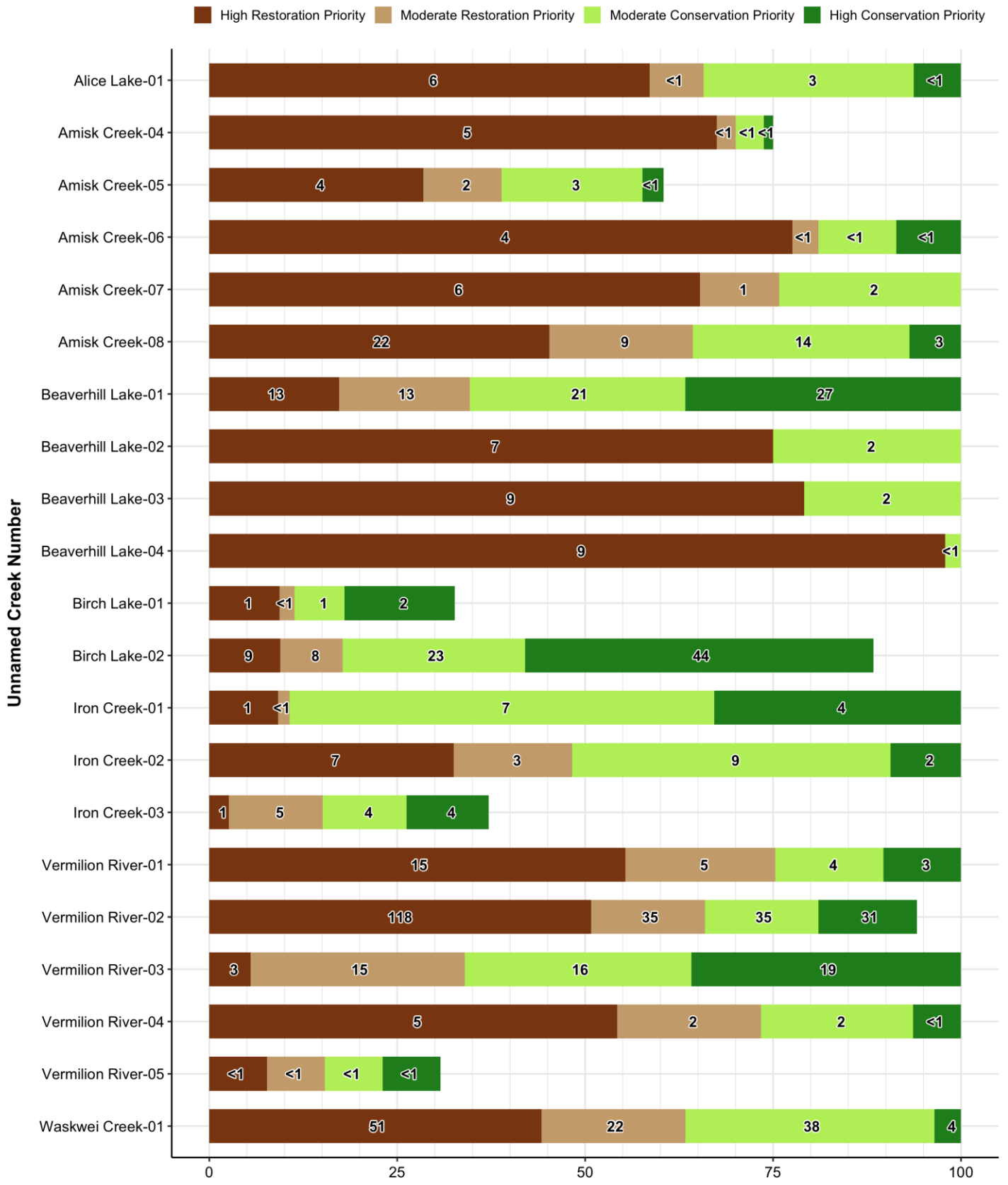
Conservation & Restoration Priority – Unnamed Creeks: Left Bank



Conservation & Restoration Priority – Unnamed Creeks: Right Bank



Conservation & Restoration Priority – Unnamed Creeks



NOTE: Numbers indicate the total length (km) of shoreline associated with each prioritization category.