

# Shoreline and Riparian Condition Assessment

## Leduc County



RIPARIAN  
WEB PORTAL

December 2021

# Leduc 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](http://riparian.info)).

### Riparian Areas 101: Why They Matter

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



Photo credit: *Images Alberta Camera Club.*



**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](http://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 Leduc County

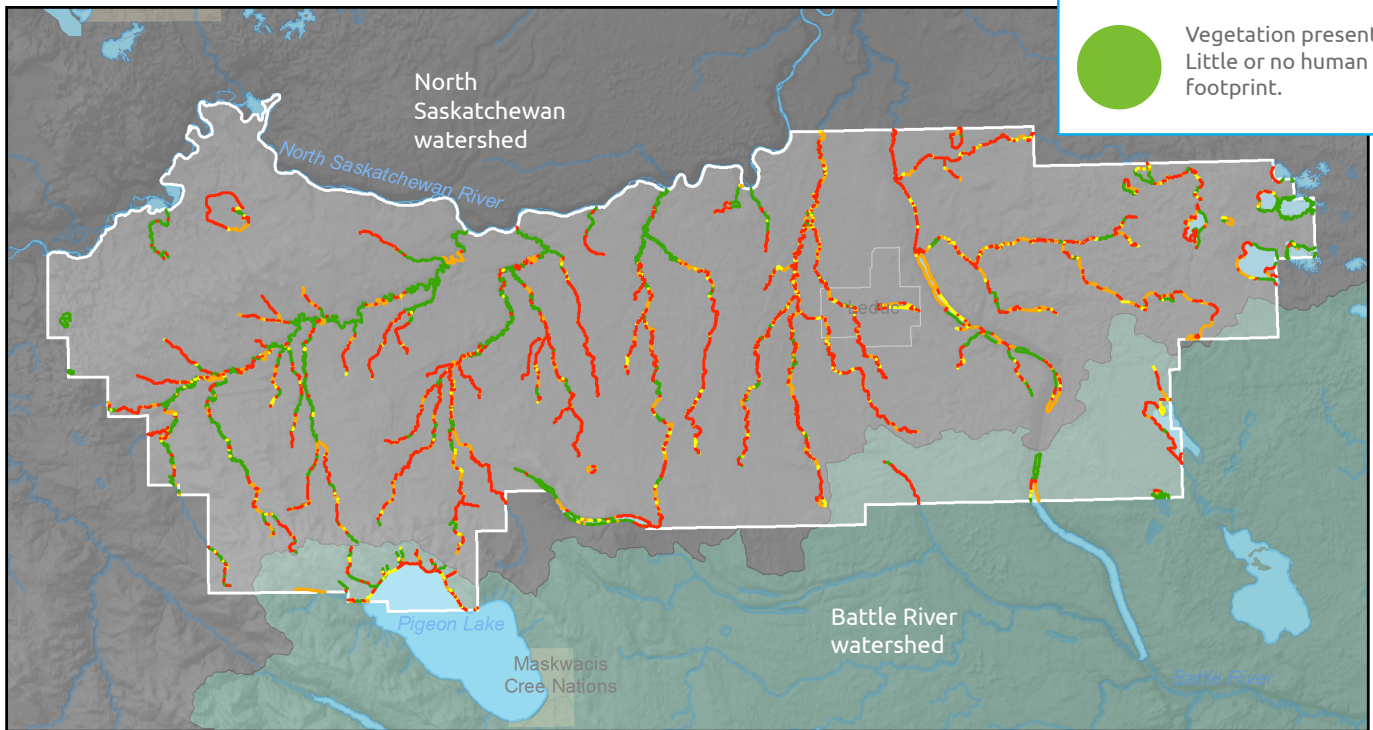
**1,770 KM**  
of shorelines  
assessed in Leduc  
County

**9/30**  
lakes had 65%+  
**High Intactness**

**12/63**  
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](#).*

## Leduc County Overall Intactness

**33%**

Very Low

**10%**

Low

**23%**

Moderate

**35%**

High

# What is Catchment Pressure?

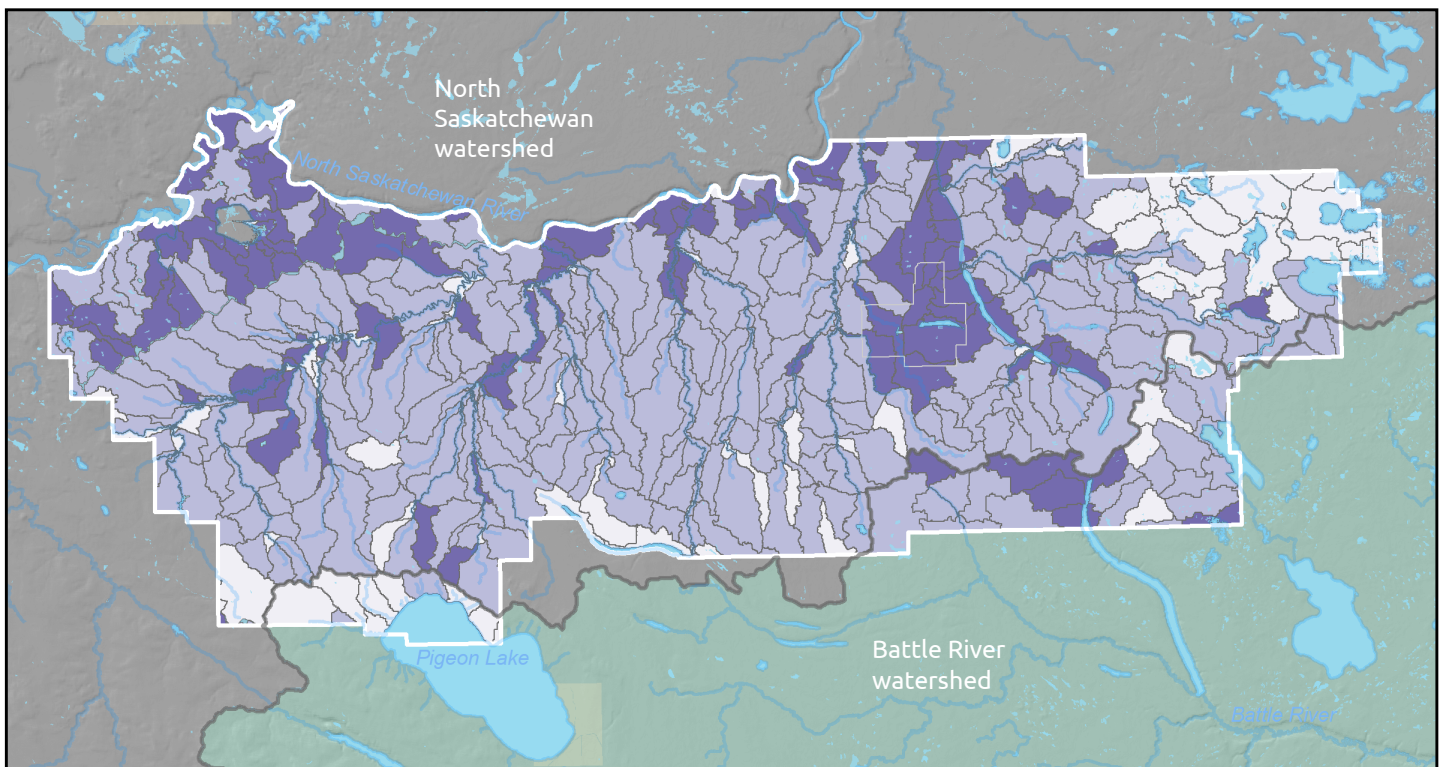
- o Indicates pressures on the landscape that might impact riparian health
- o Includes natural stressors (e.g. slope, forests) and human stressors (e.g. land-use intensity)
- o High pressure = high potential stress for riparian areas. Data was collected to inform prioritization dataset

## Catchment Pressure Results for Leduc County

**2,694**  
**KM<sup>2</sup>**  
of land assessed

### Pressure Ratings

- High Pressure
- Moderate Pressure
- Low Pressure



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

## Leduc County Overall Pressure

17%  
High

70%  
Moderate

13%  
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

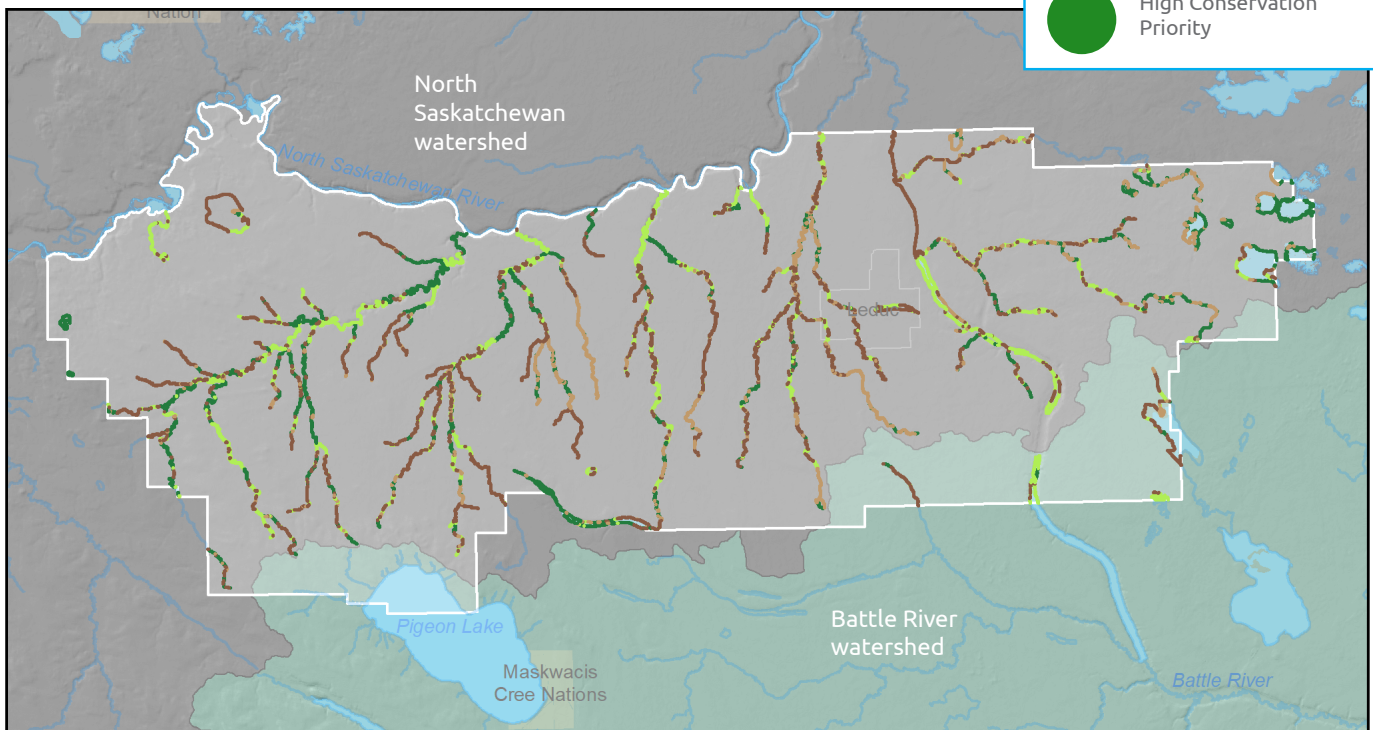
## Prioritization Results for Leduc County

**1,718 KM**  
of shorelines  
assessed in Leduc  
County

**462 KM**  
of high  
restoration  
priority

**478 KM**  
of high  
conservation  
priority

Priority Ratings	
	High Restoration Priority
	Moderate Restoration Priority
	Moderate Conservation Priority
	High Conservation Priority



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

## Leduc County Overall Prioritization

27%

High Restoration

16%

Moderate Restoration

30%

Moderate Conservation

28%

High Conservation

# Top Conservation & Restoration Priorities

## Restoration

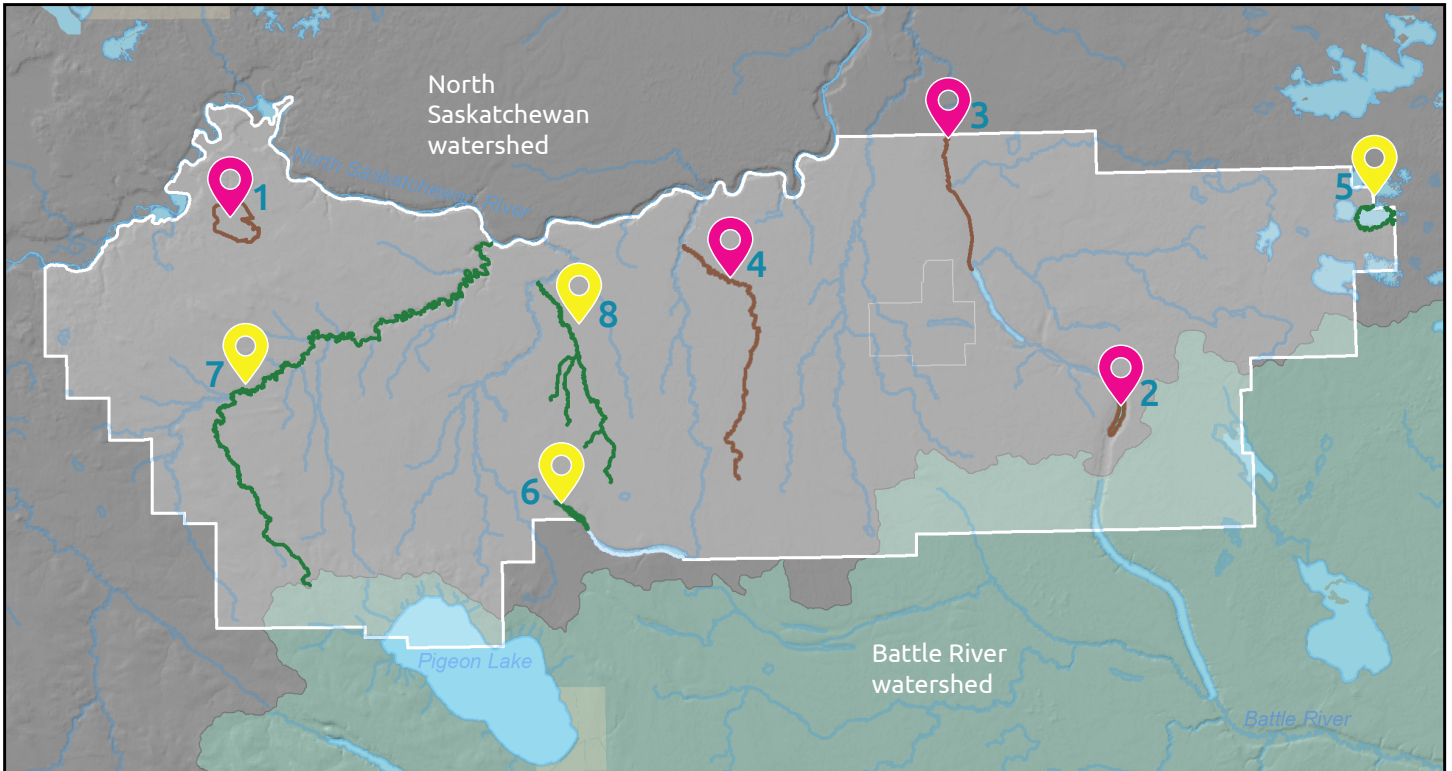


1. **Lake:** Genesee Lake
2. **Unnamed Lake:** Unnamed Lake 03
3. **Named Creek:** Blackmud Creek
4. **Unnamed Creek:** Unnamed Creek 25

## Conservation



5. **Lake:** Ministik Lake
6. **Unnamed Lake:** Unnamed Lake 01
7. **Named Creek:** Strawberry Creek
8. **Unnamed Creek:** Unnamed Creek 22



*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 critical riparian areas:

- 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](http://riparian.info)



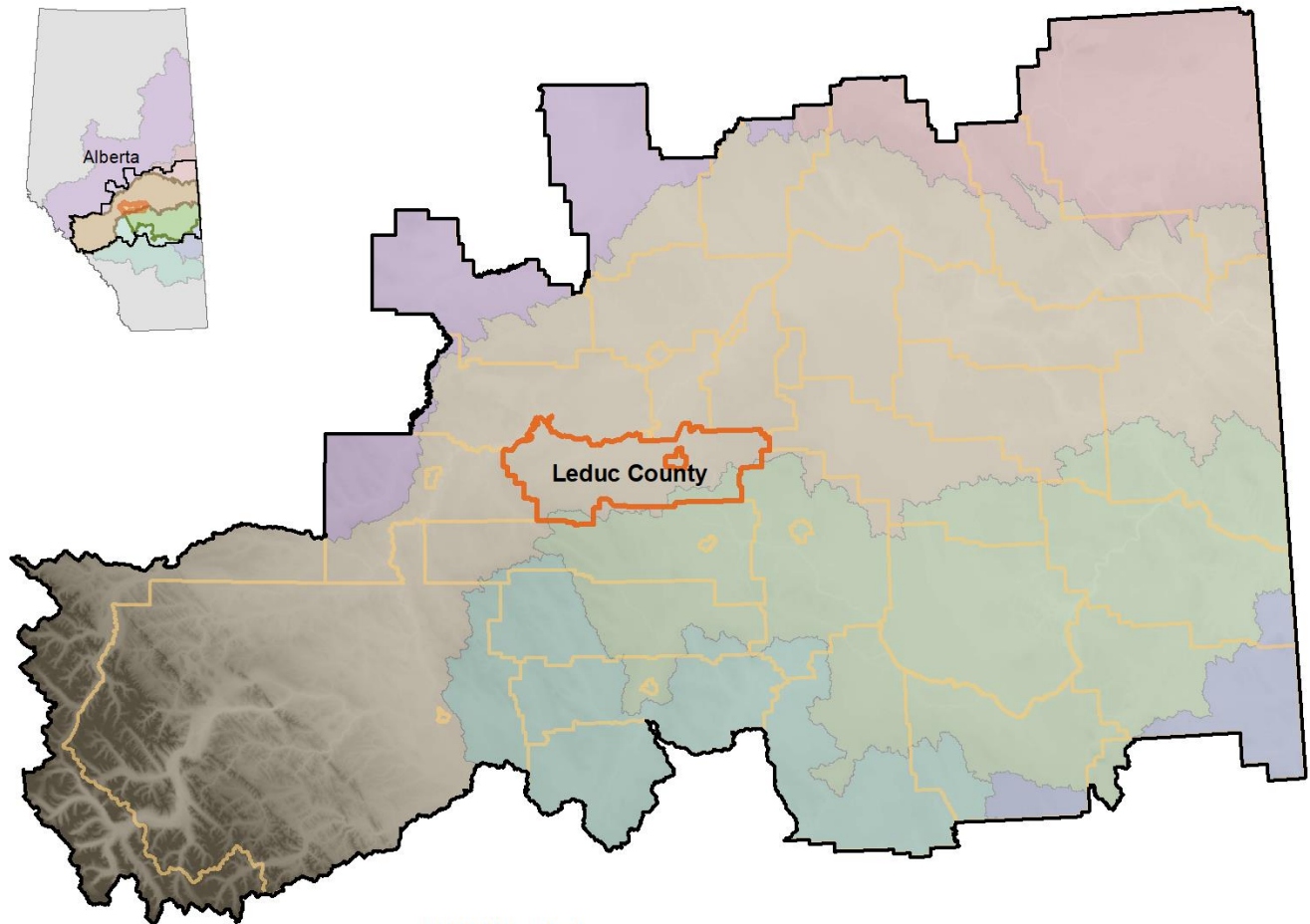
## Acknowledgments

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.



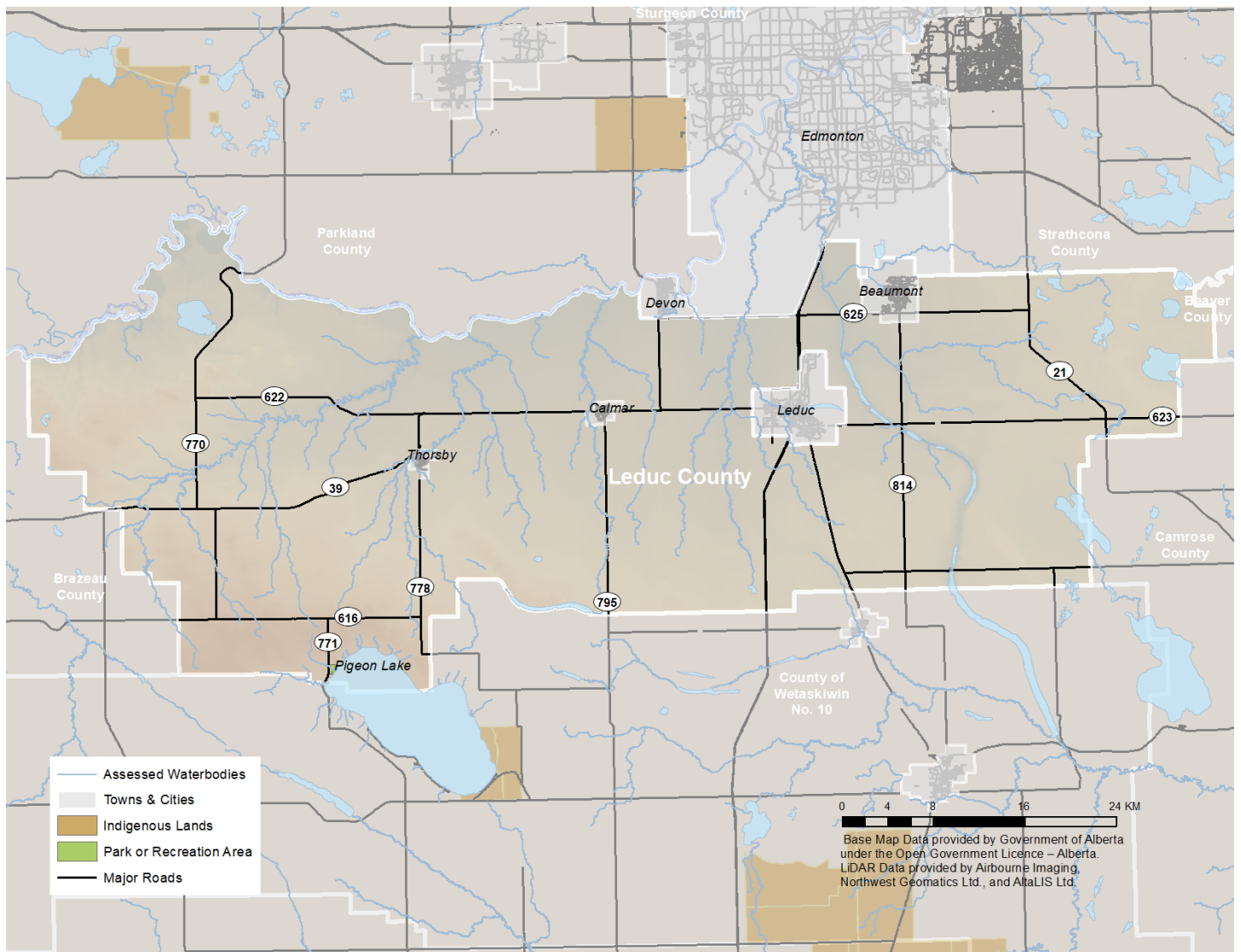
# D16. Leduc County



0 20 40 80 120 KM  
 Base Map Data provided by Government of Alberta under the Open Government Licence – Alberta. LiDAR Data provided by Airbourne Imaging, Northwest Geomatics Ltd., and AltaLIS Ltd.

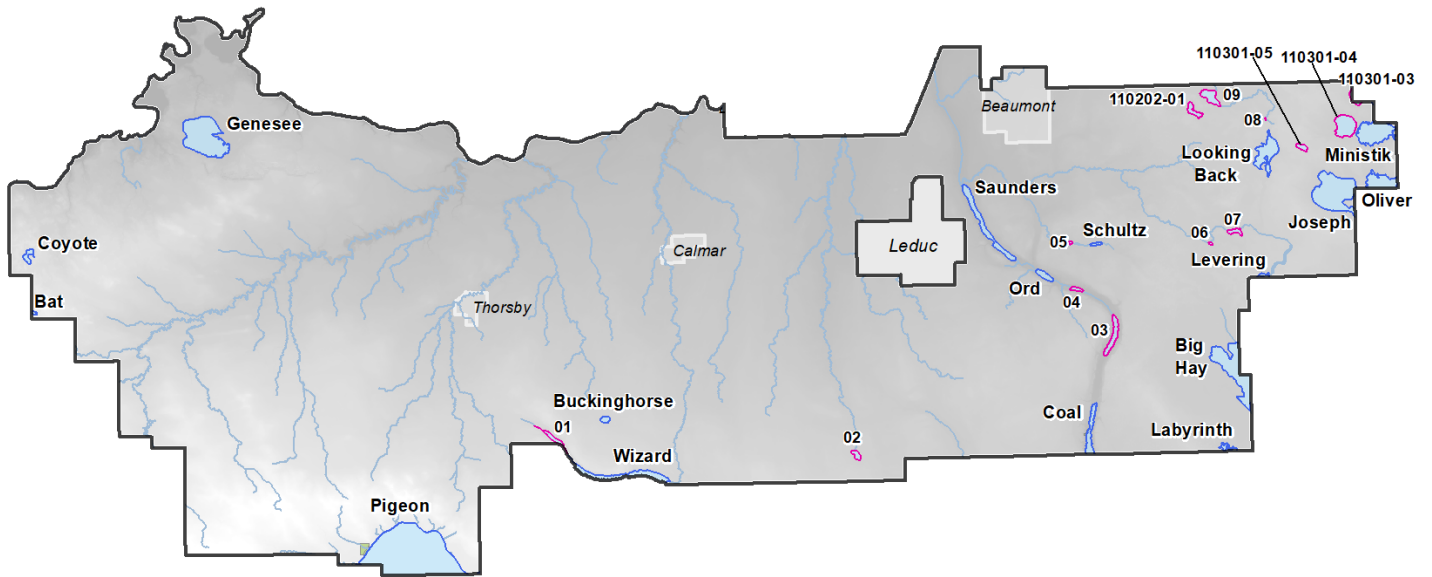
- HUC2 Watershed**
- Athabasca River Basin
  - North Saskatchewan River
  - Battle River
  - Red Deer River
  - Beaver River
  - Sounding Creek
- Study Area Extent
  - Municipality of Interest
  - Municipal Boundaries

# 1.1. Municipal Overview



## 1.2. Shorelines of Interest

### Location of Waterbodies Assessed within the Municipality

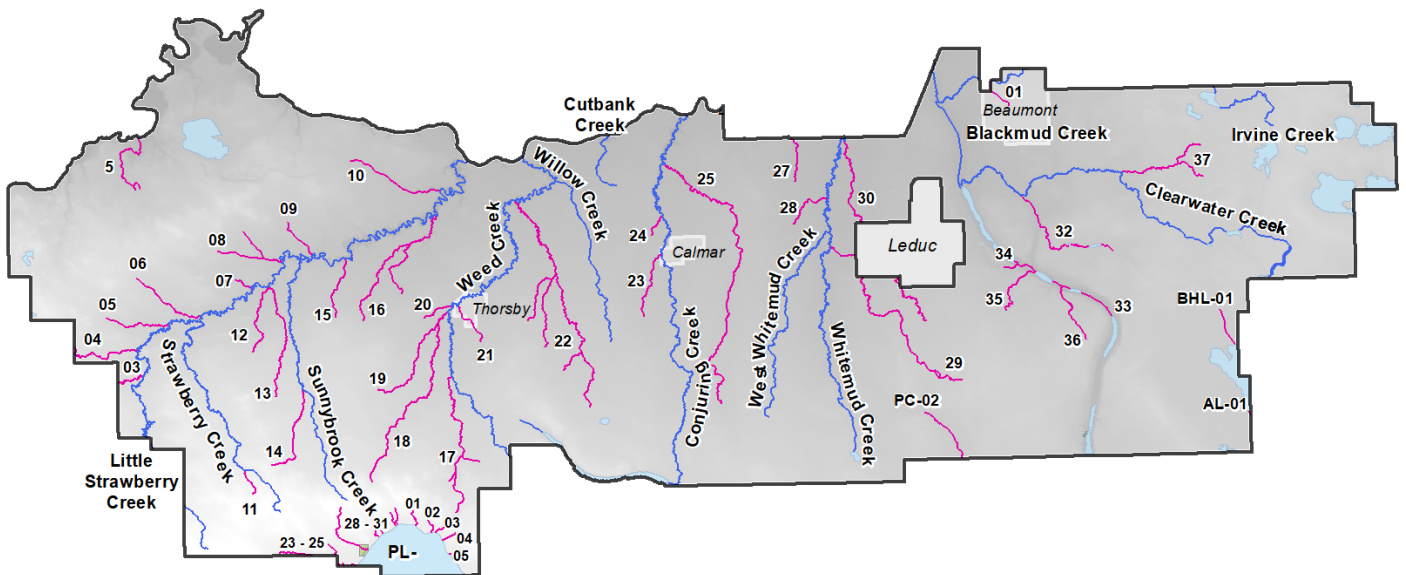


#### Waterbodies Assessed

- 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.



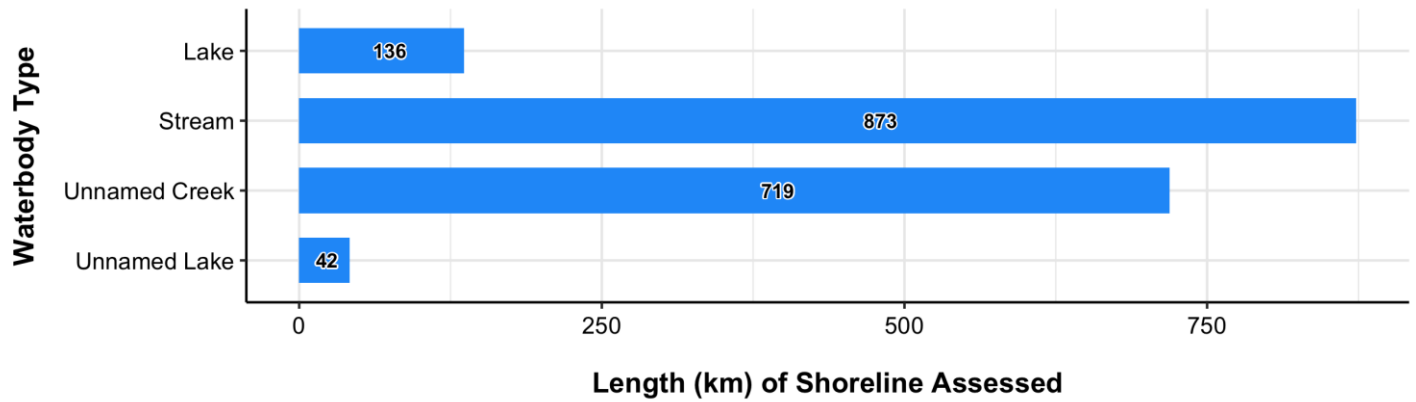
#### Waterbodies Assessed

- Named Stream
- Unnamed Creek



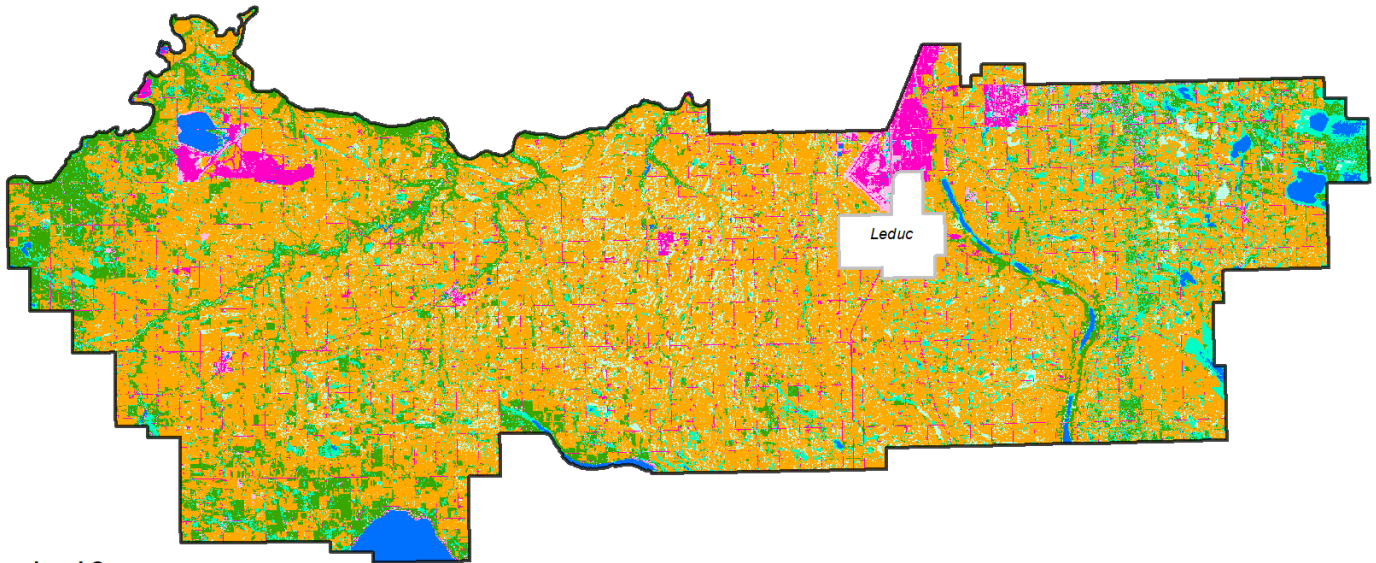
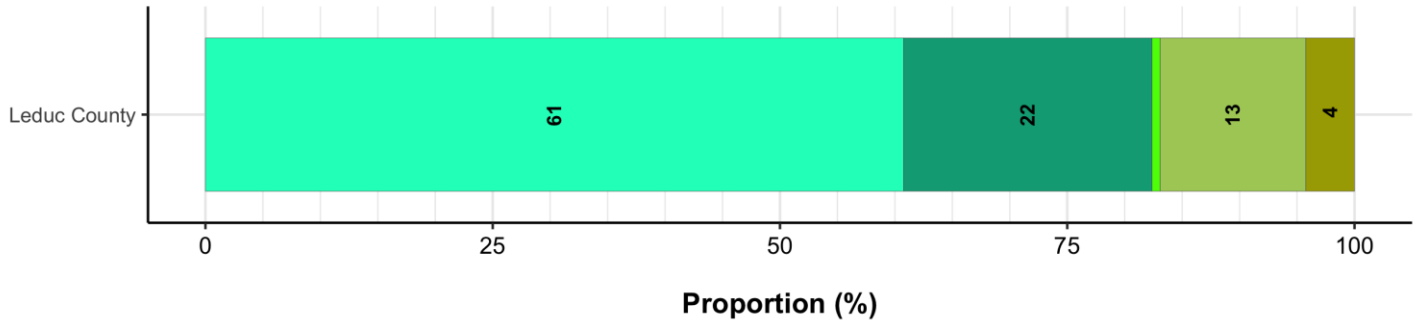
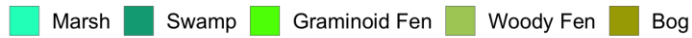
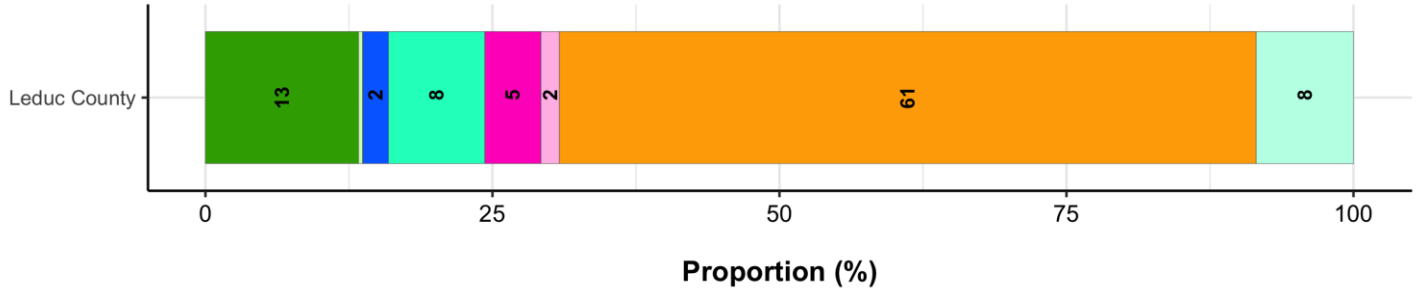
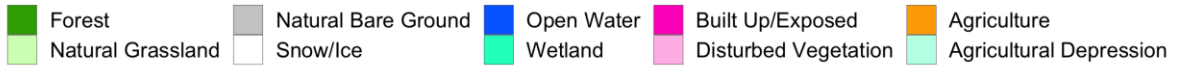
Base Map Data provided by Government of Alberta under the Open Government Licence – Alberta. LIDAR Data provided by Airborne Imaging, Northwest Geomatics Ltd., and AltaLIS Ltd.

## Total Length of Riparian Shoreline Assessed within the Municipality



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

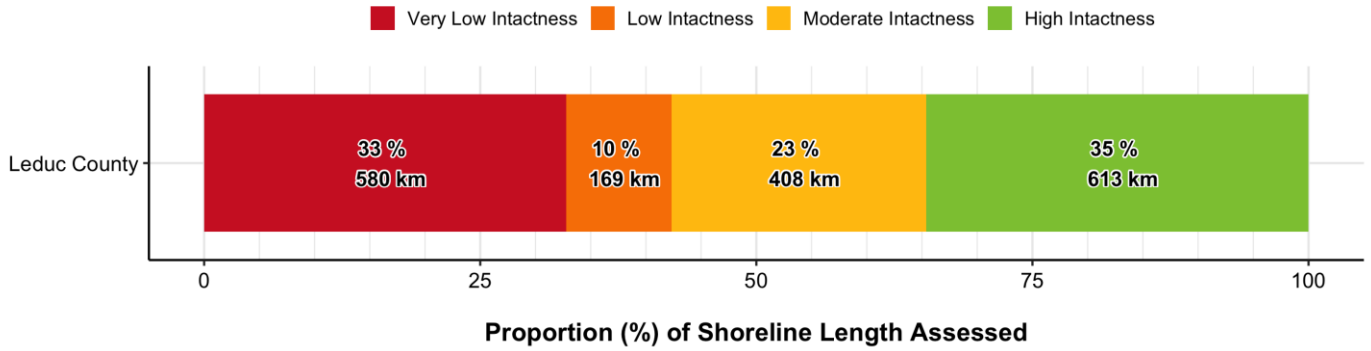
### 1.3. Land Cover



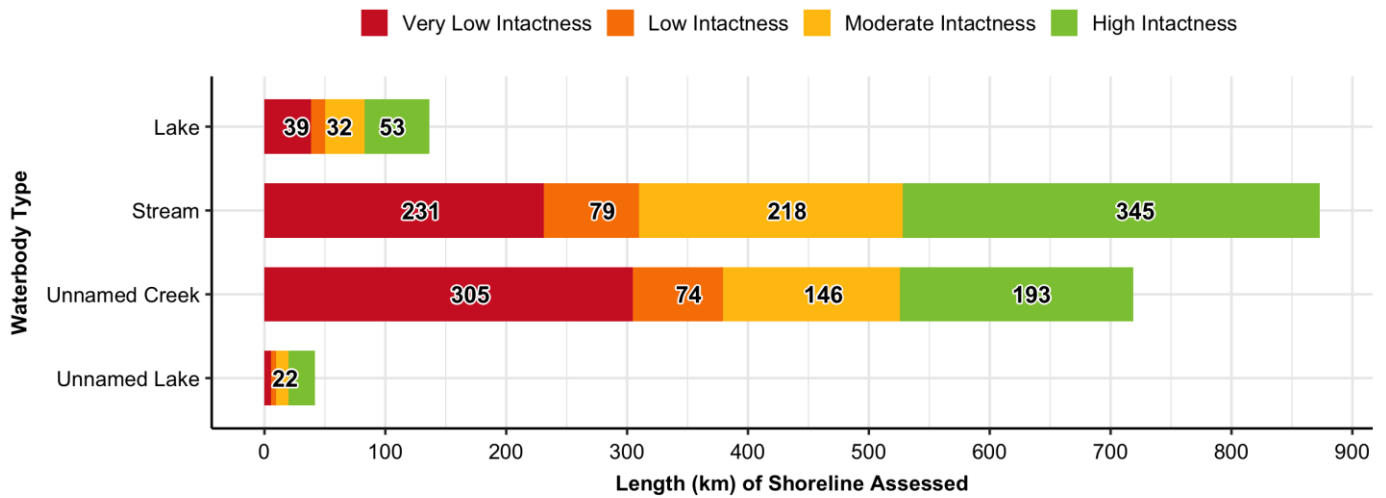
Land Cover Data created by Fiera Biological Consulting Ltd. Base Map Data provided by Government of Alberta under the Open Government Licence – Alberta.

# 1.4. Riparian Management Area Intactness

## Overall Municipal Intactness

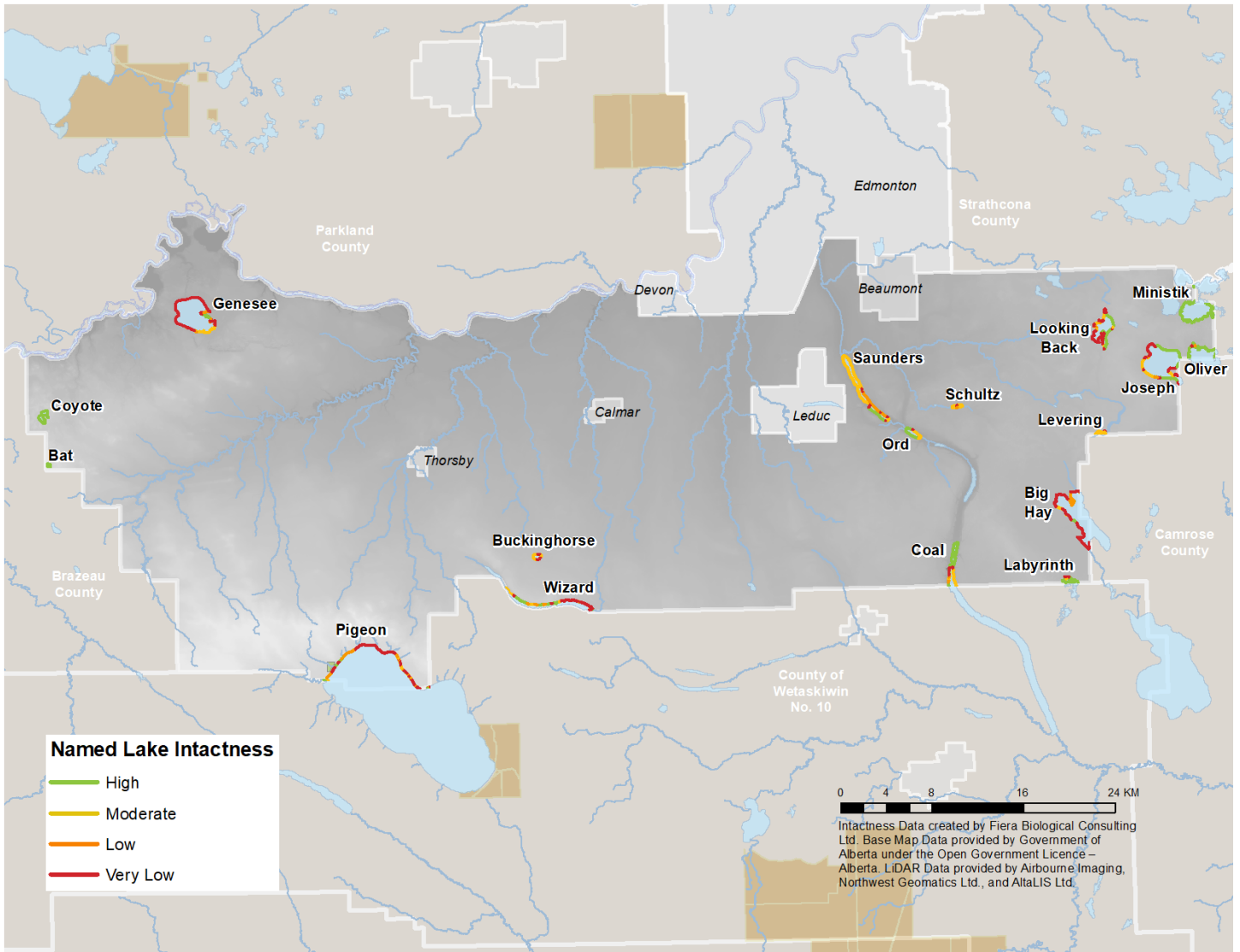


## Intactness By Waterbody Type

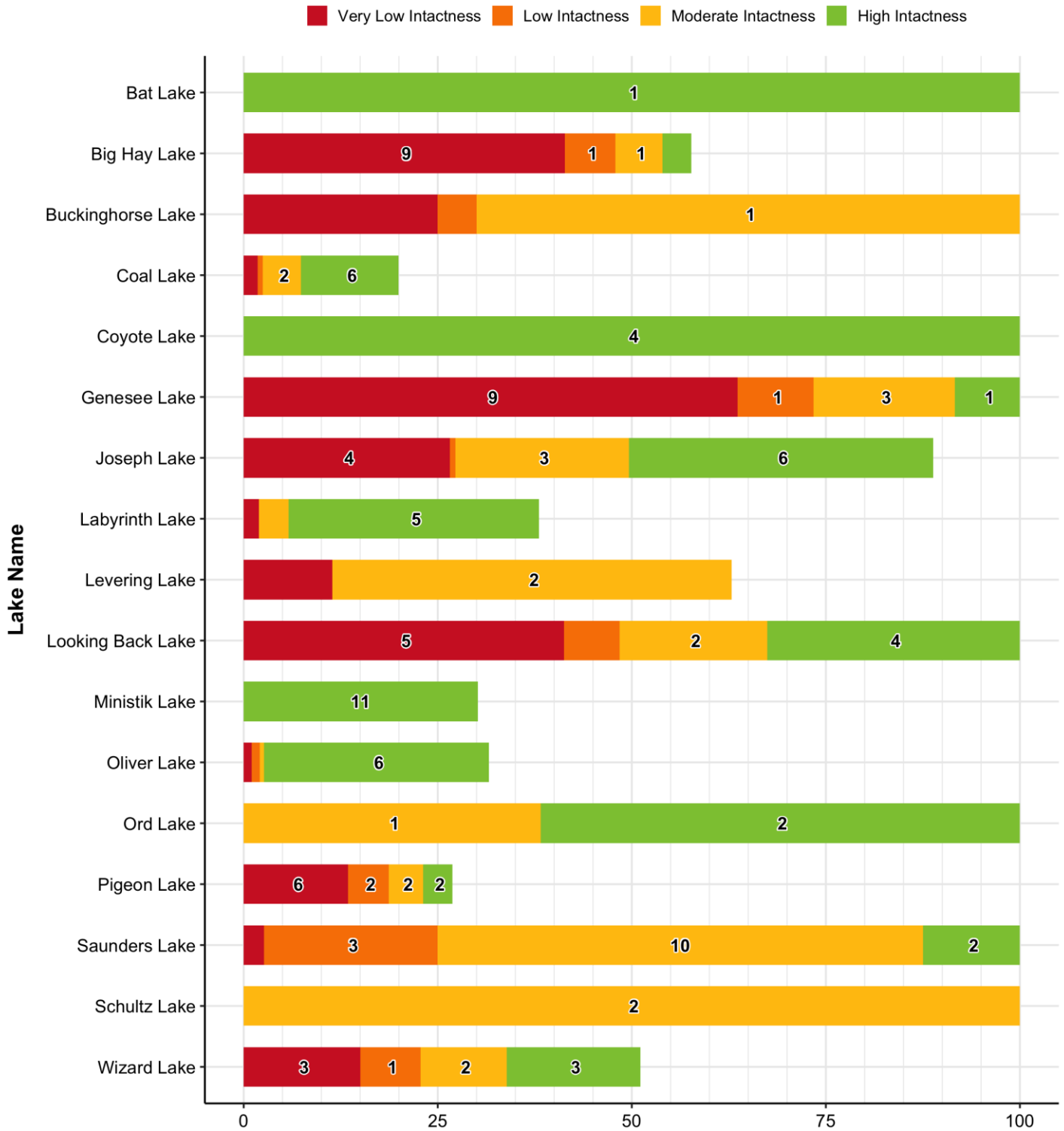


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <15 km of shoreline.

# Intactness - Named Lakes



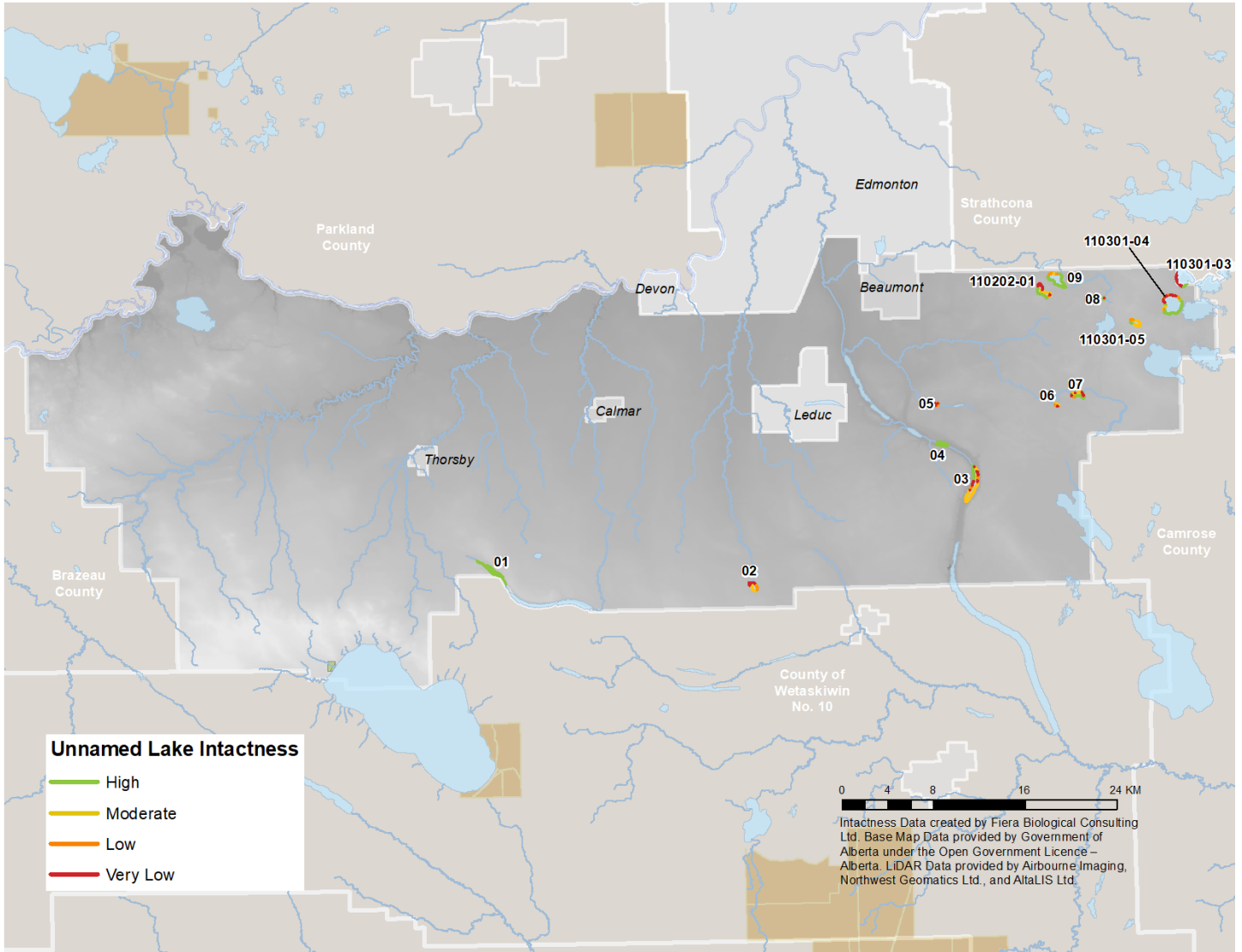
## Intactness - Named Lakes



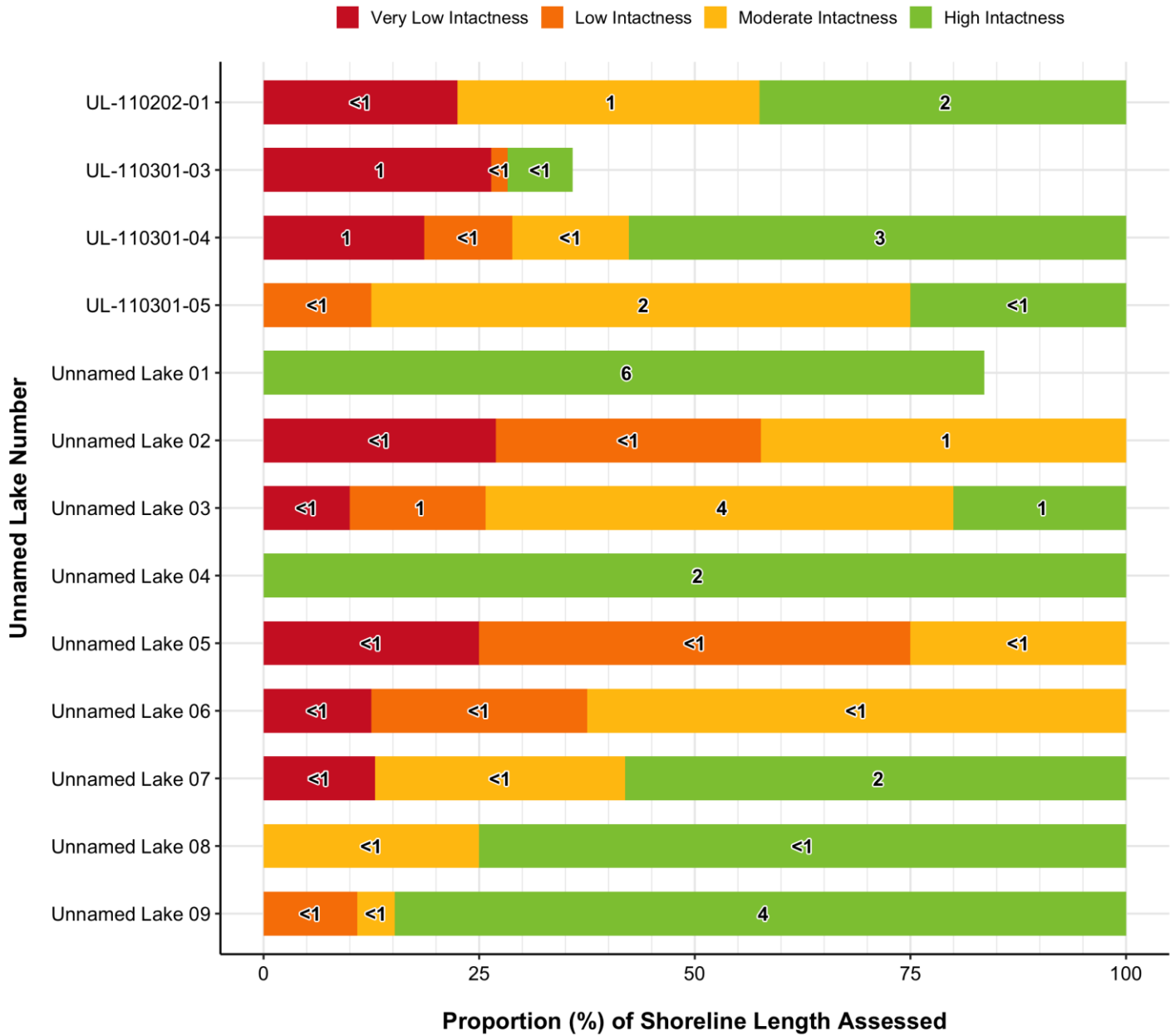
### Proportion (%) of Shoreline Length Assessed

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

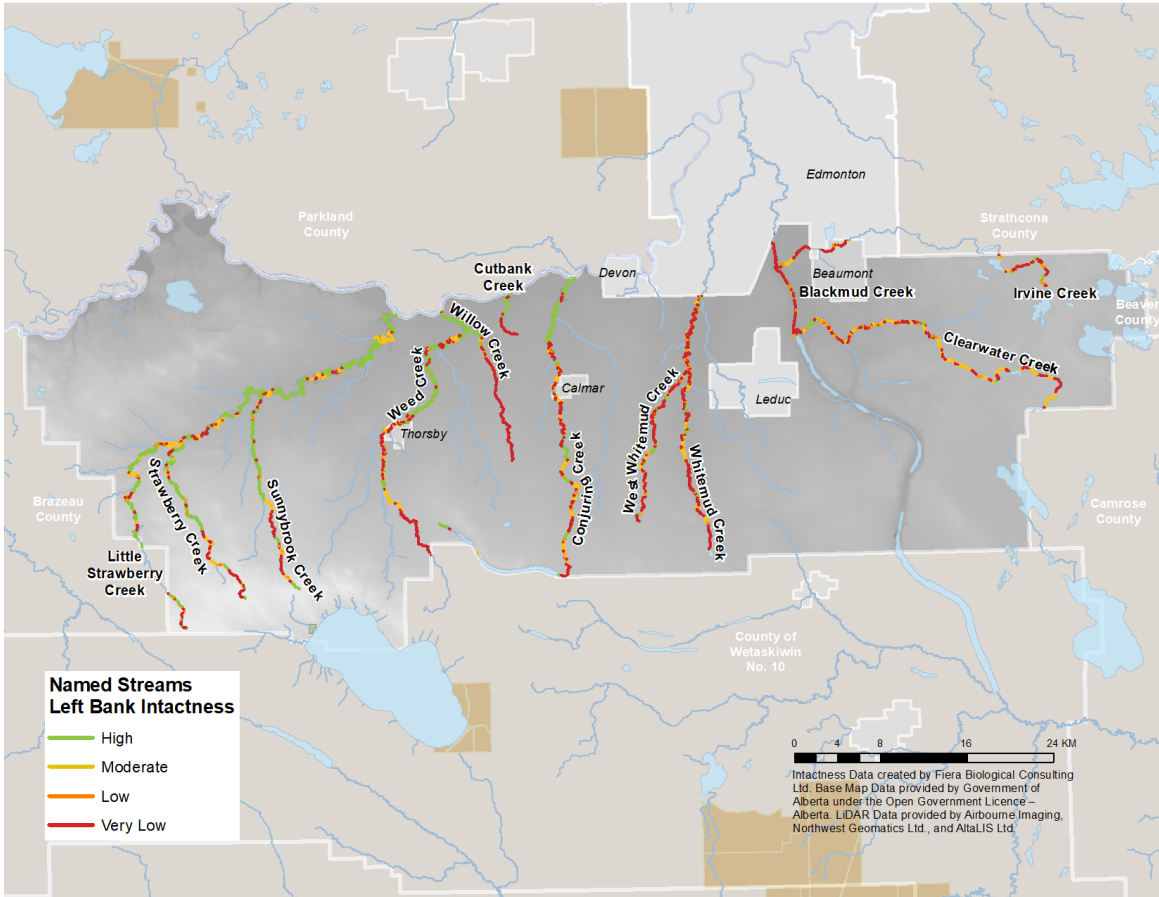


## Intactness - Unnamed Lakes

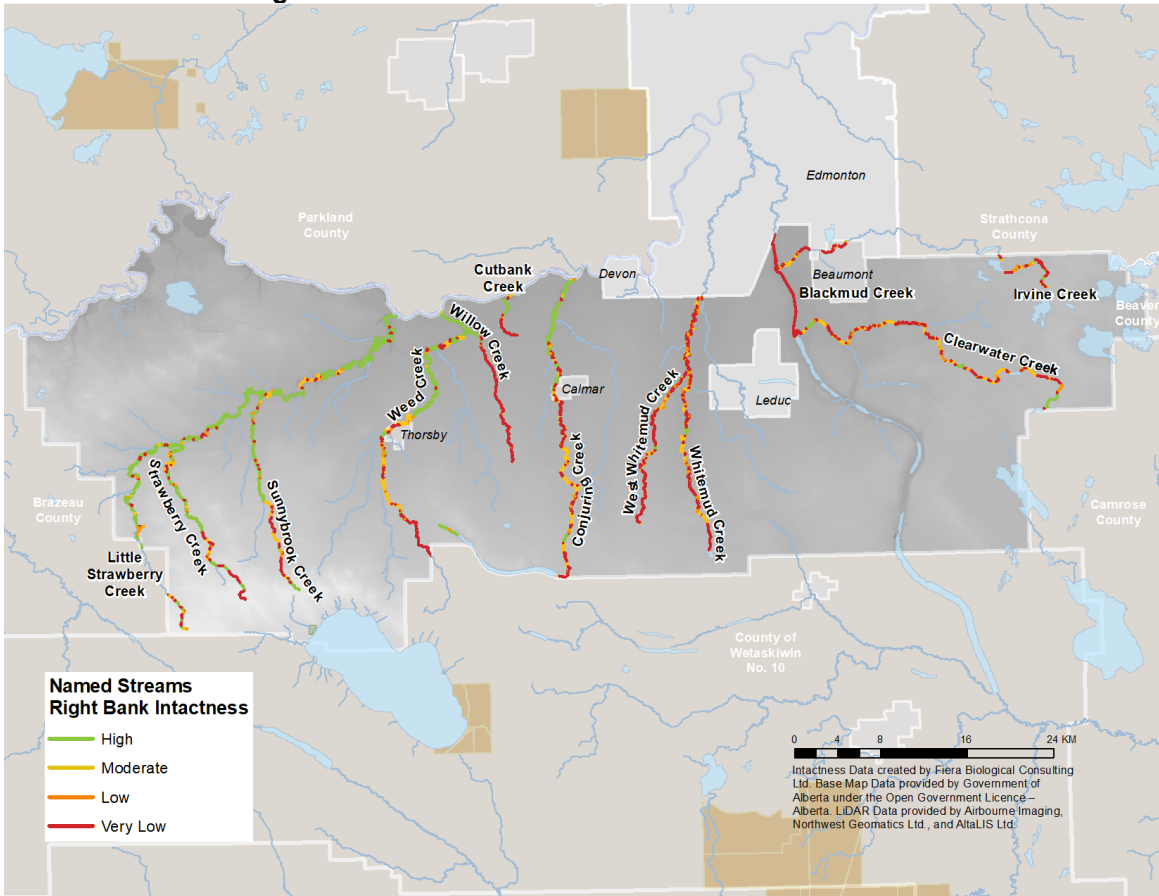


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.

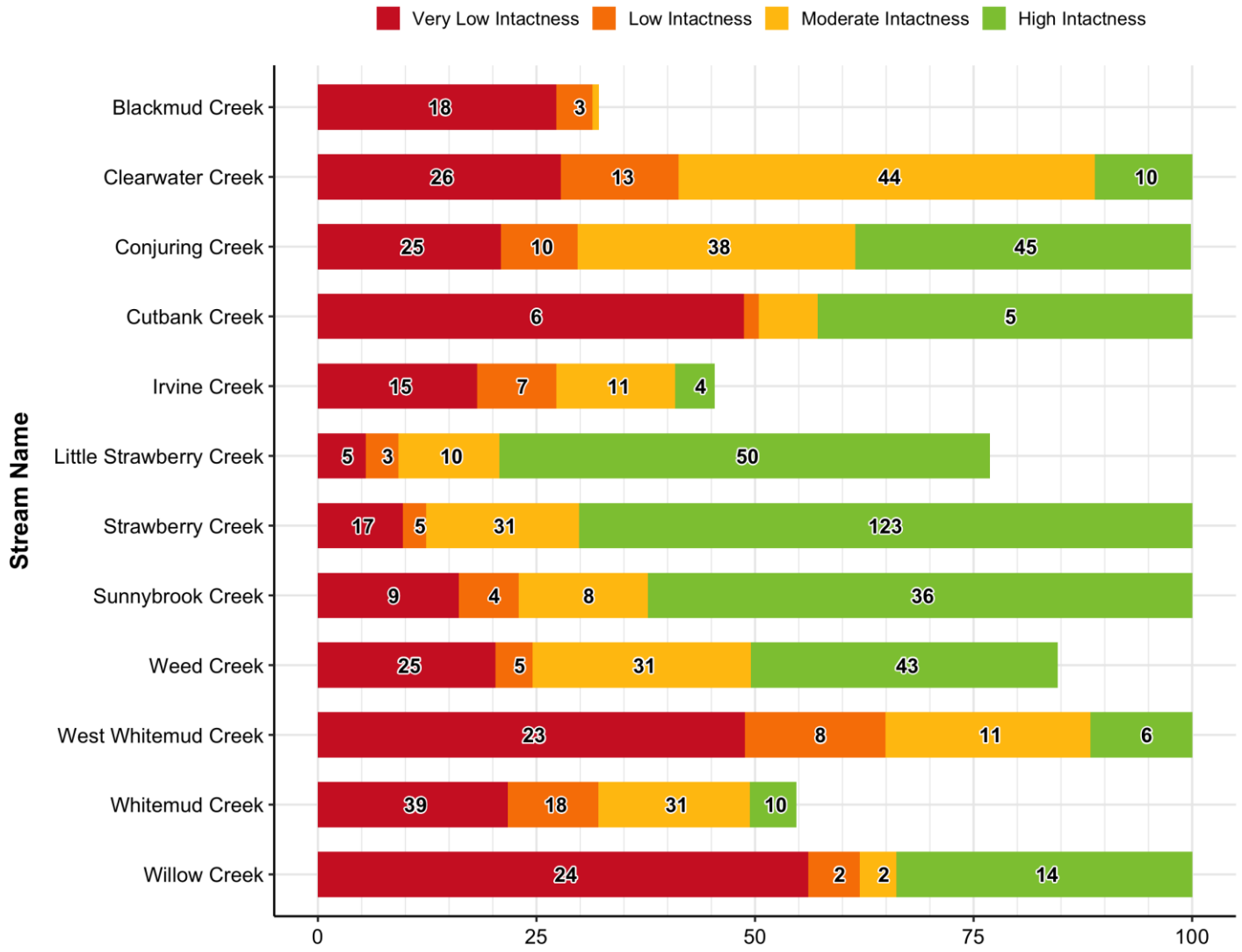
**Intactness – Named Streams: Left Bank**



**Intactness – Named Streams: Right Bank**

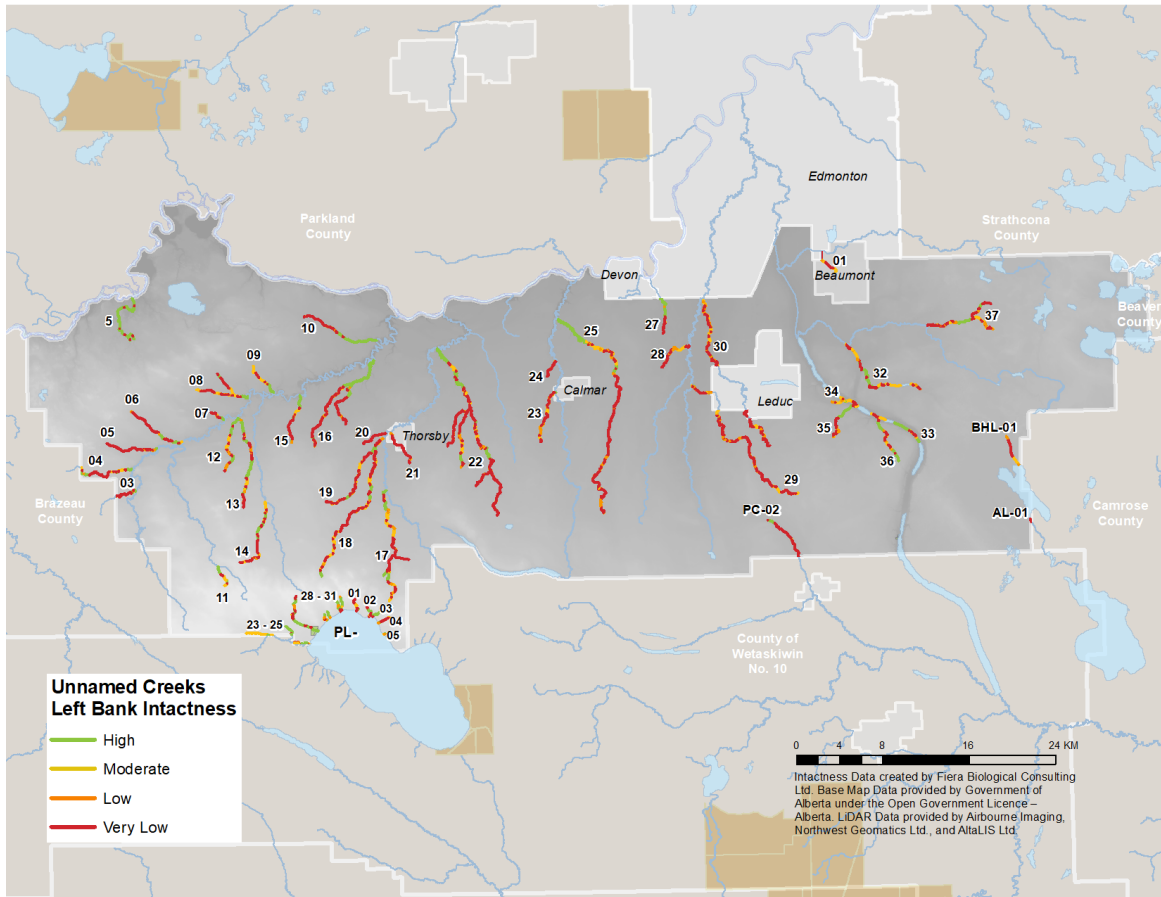


## Intactness – Named Streams

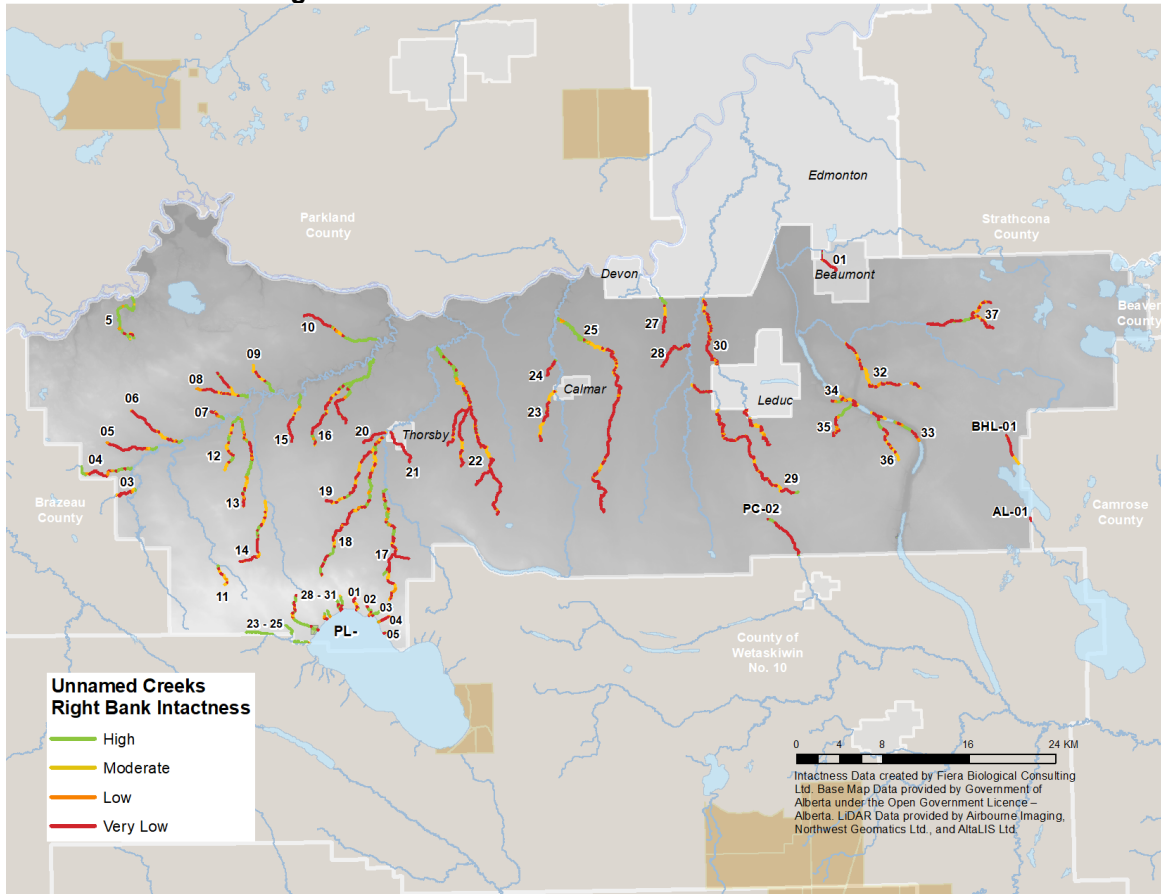


**Proportion (%) of Shoreline Length Assessed**  
 NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.  
 Categories with no label contain <1 km of shoreline.

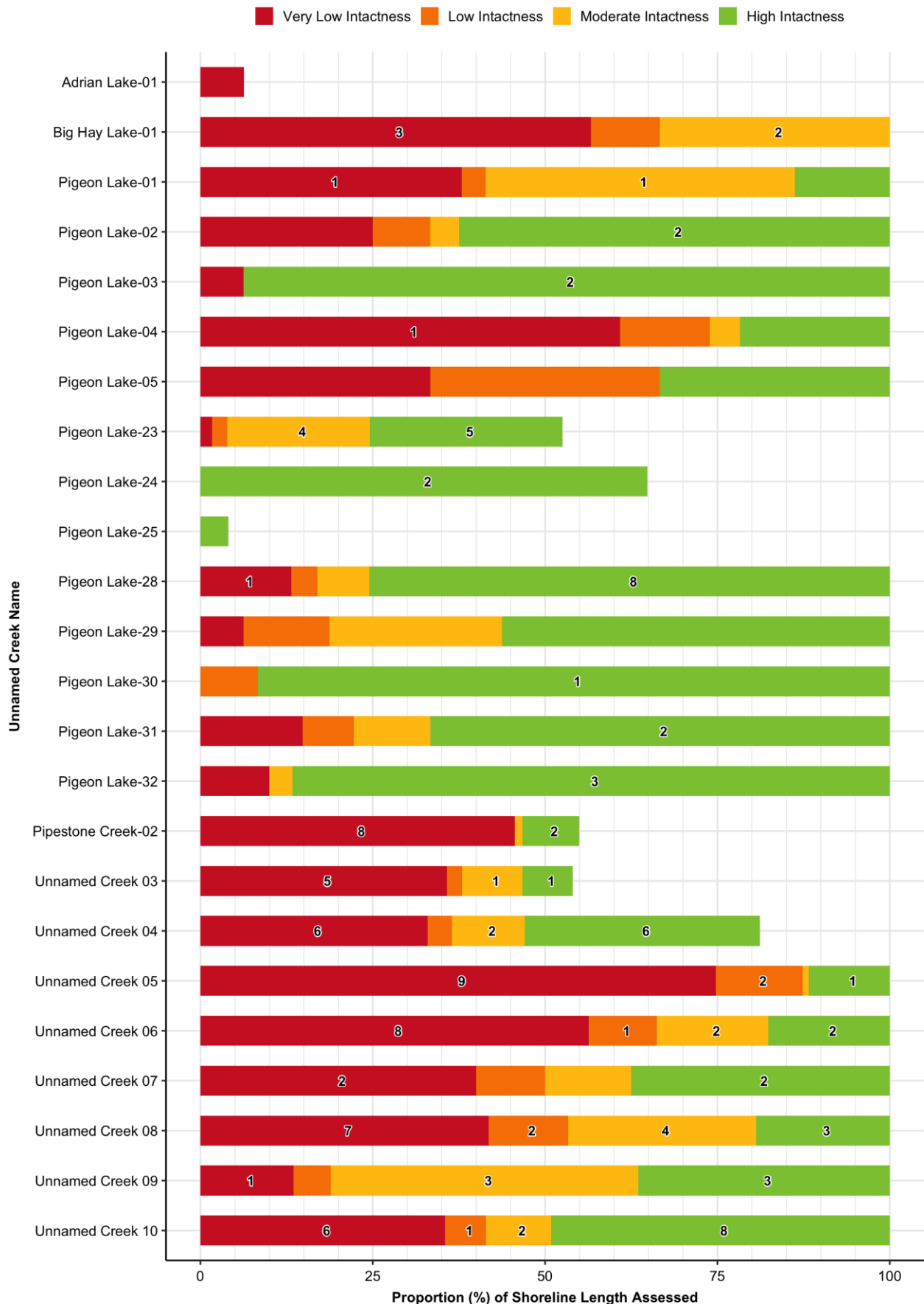
**Intactness – Unnamed Creeks: Left Bank**



**Intactness – Unnamed Creeks: Right Bank**

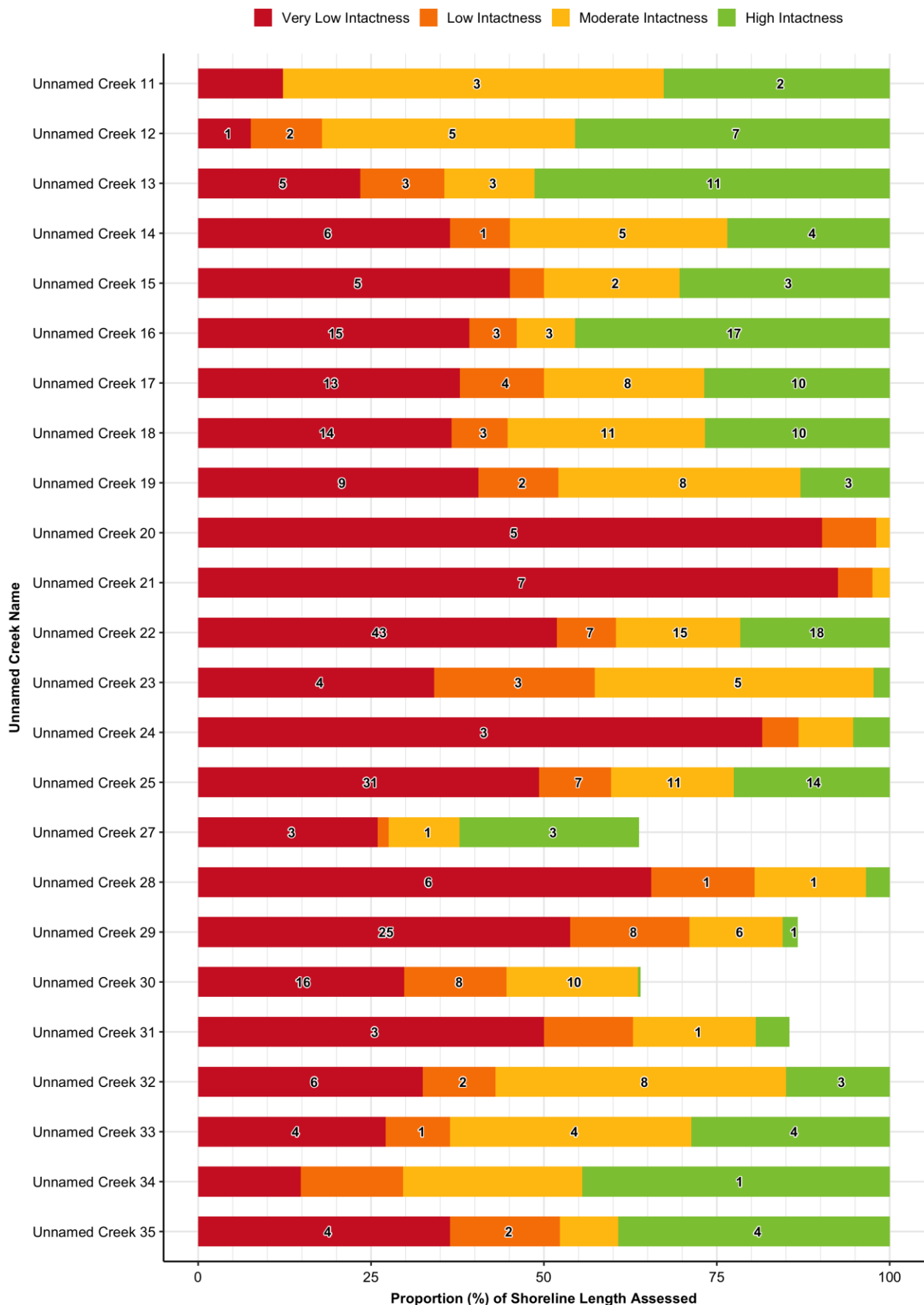


# Intactness – Unnamed Creeks



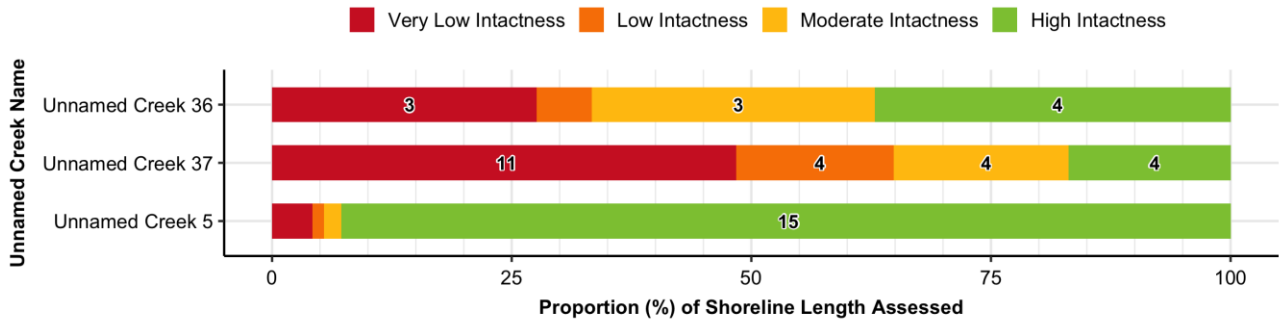
NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <1 km of shoreline.

## Intactness – Unnamed Creeks Continued



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

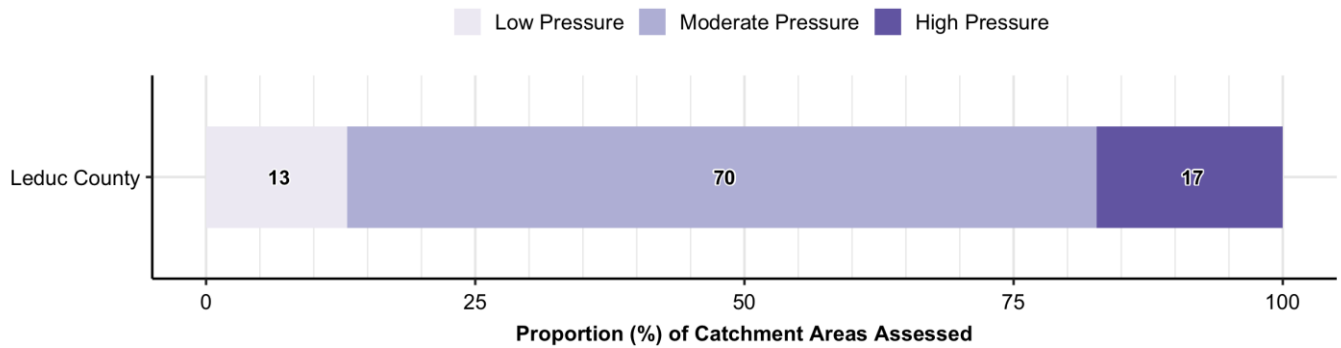
## Intactness – Unnamed Creeks Continued



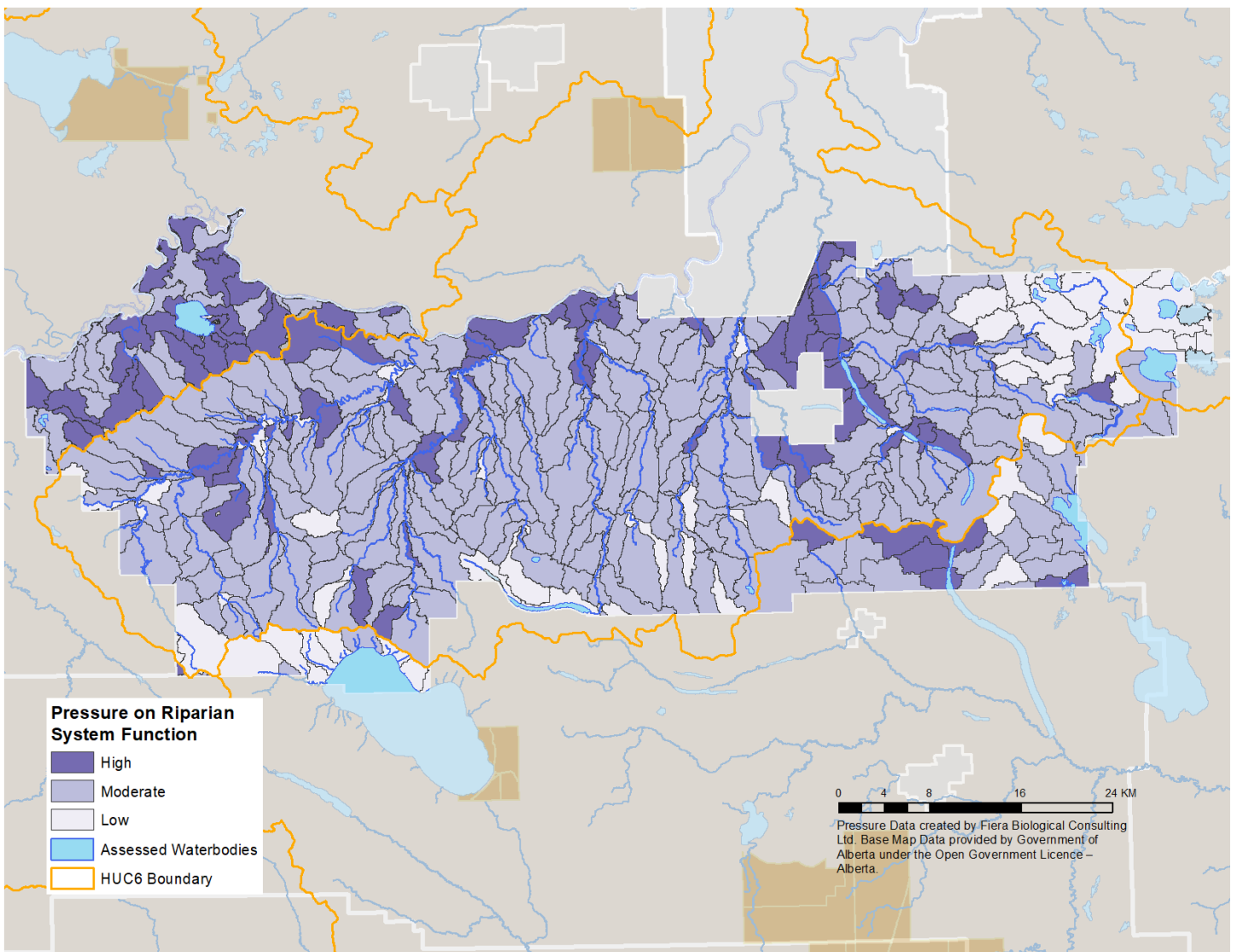
NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <1 km of shoreline.

# 1.5. Pressure on Riparian System Function

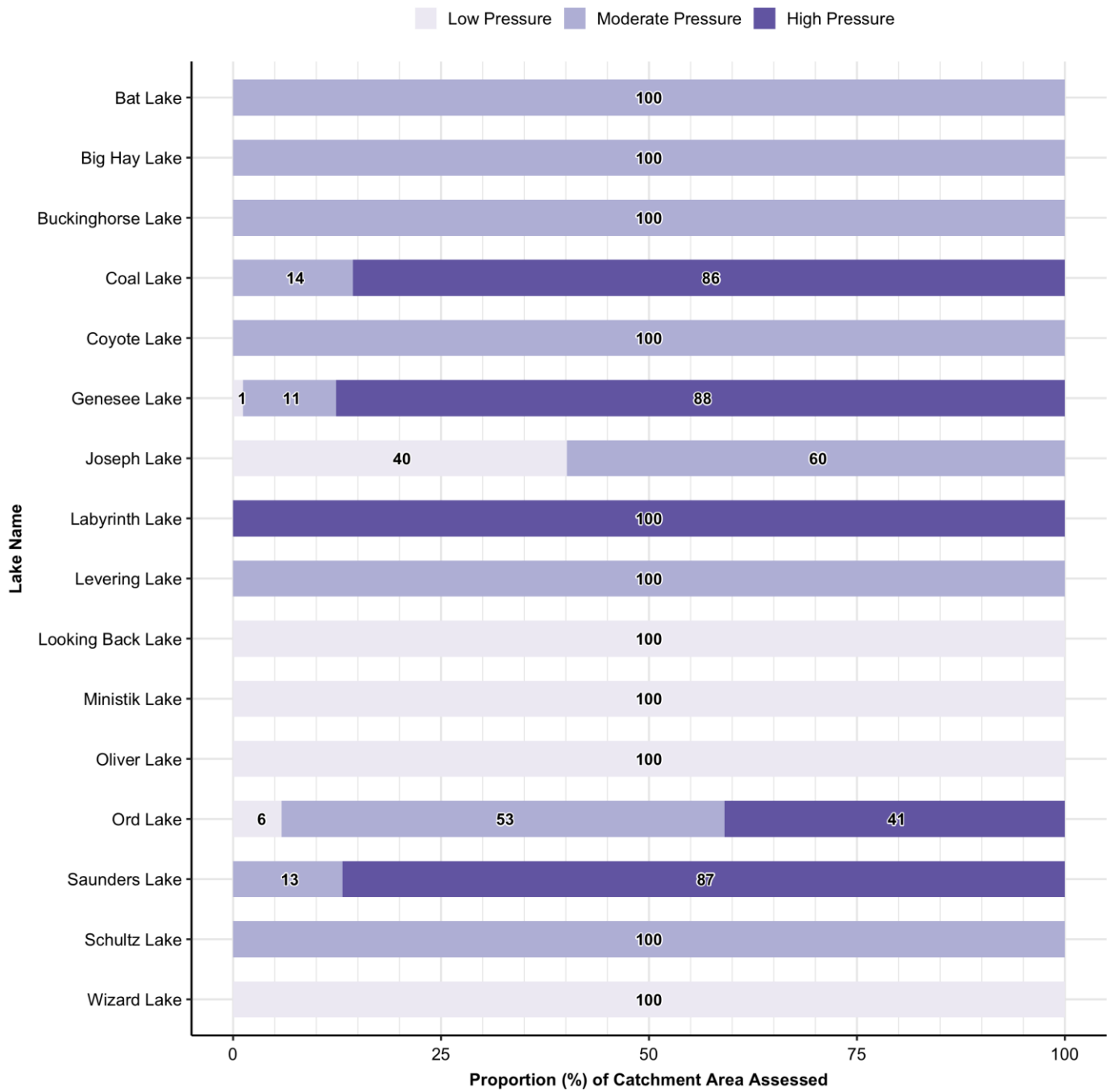
## Overall Municipal Pressure



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

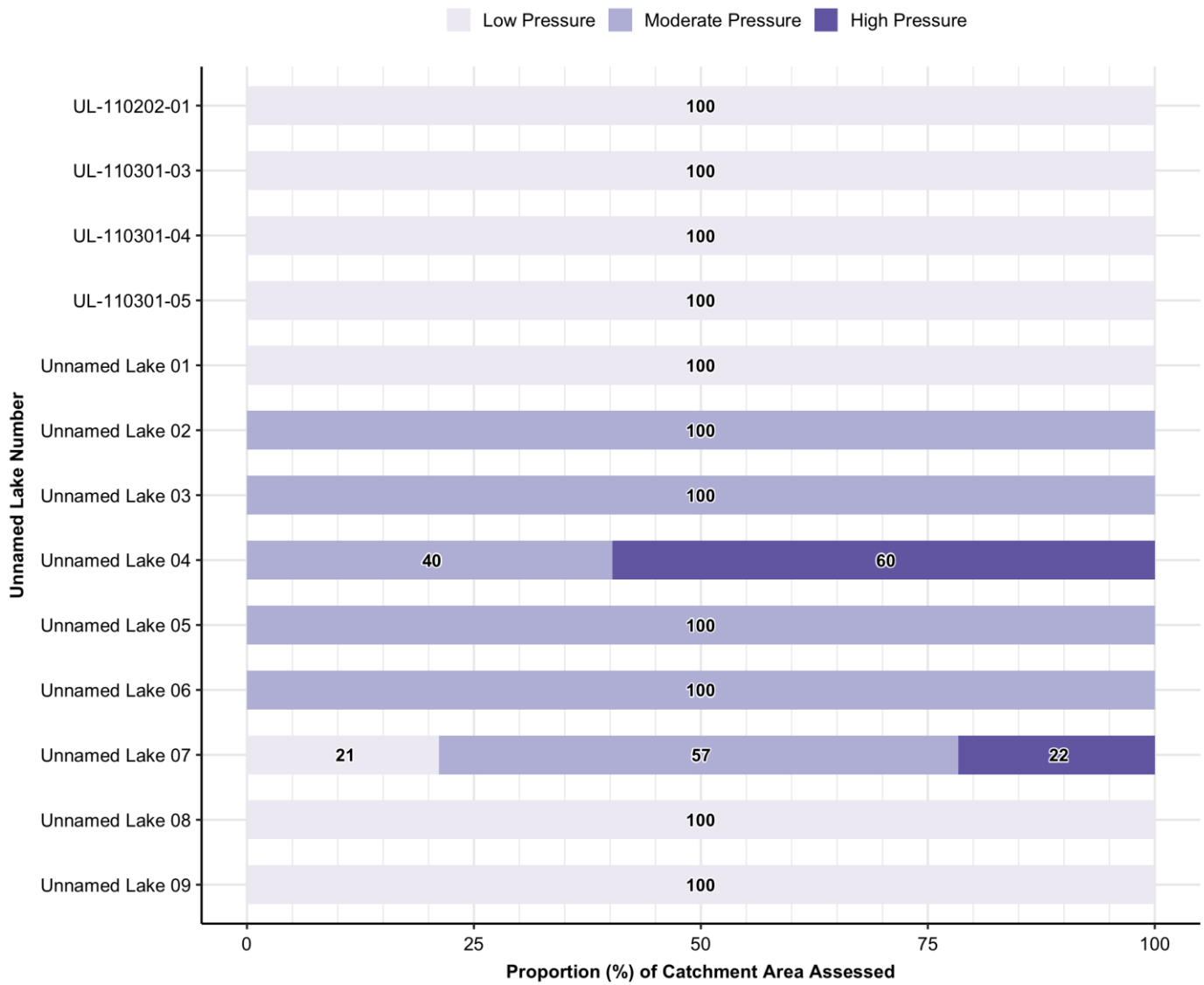


## Pressure - Named Lakes



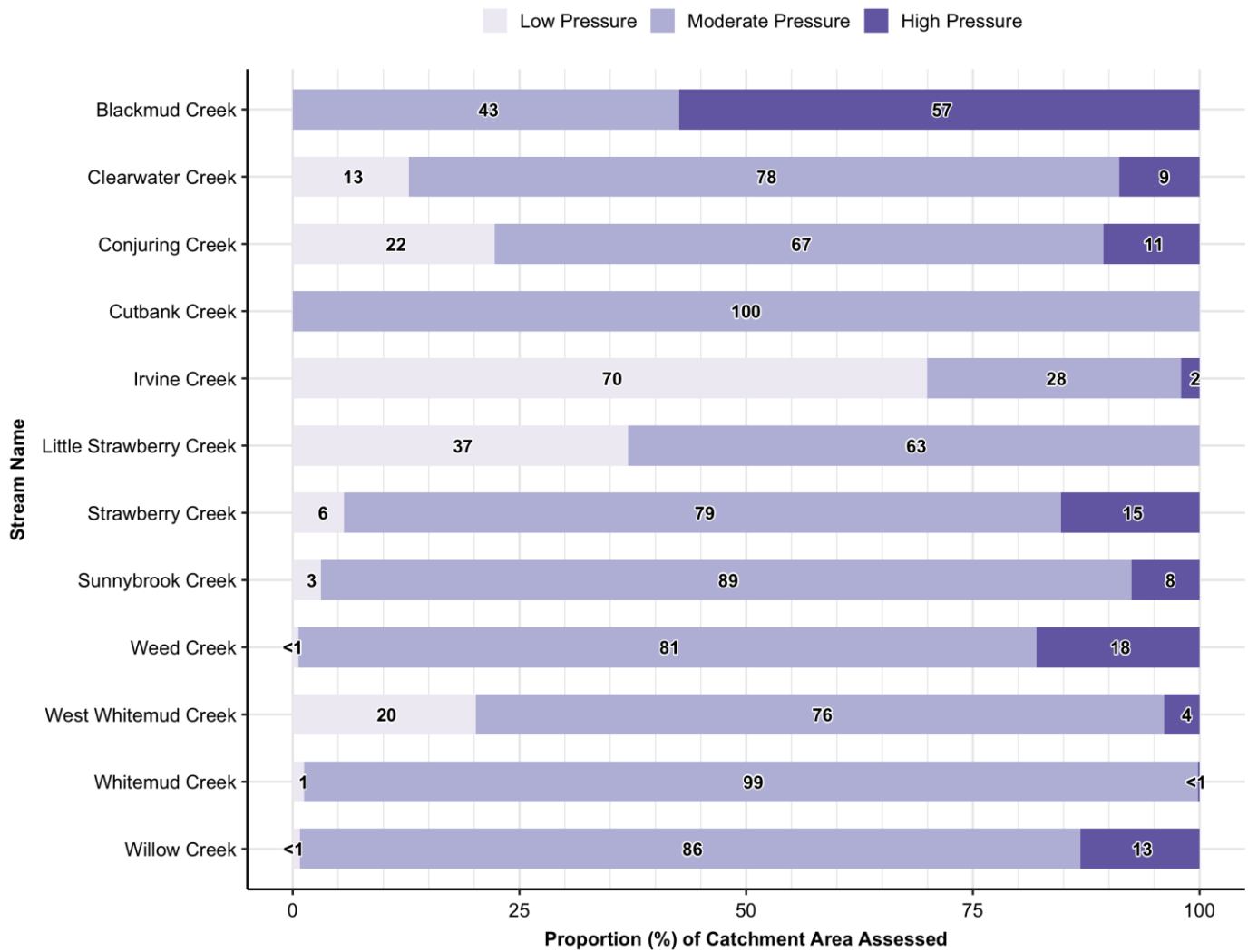
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

## Pressure - Unnamed Lakes



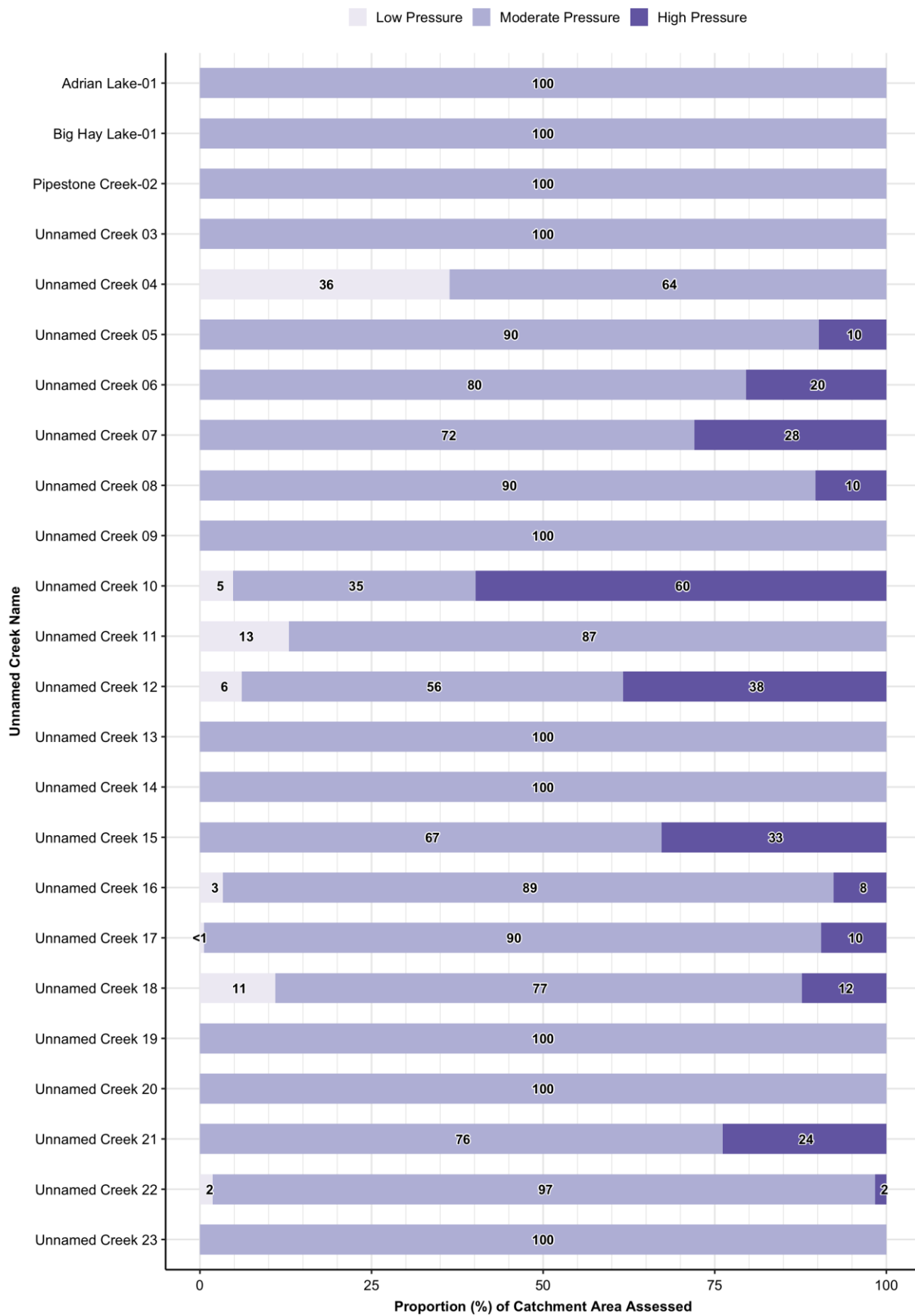
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

## Pressure - Named Streams



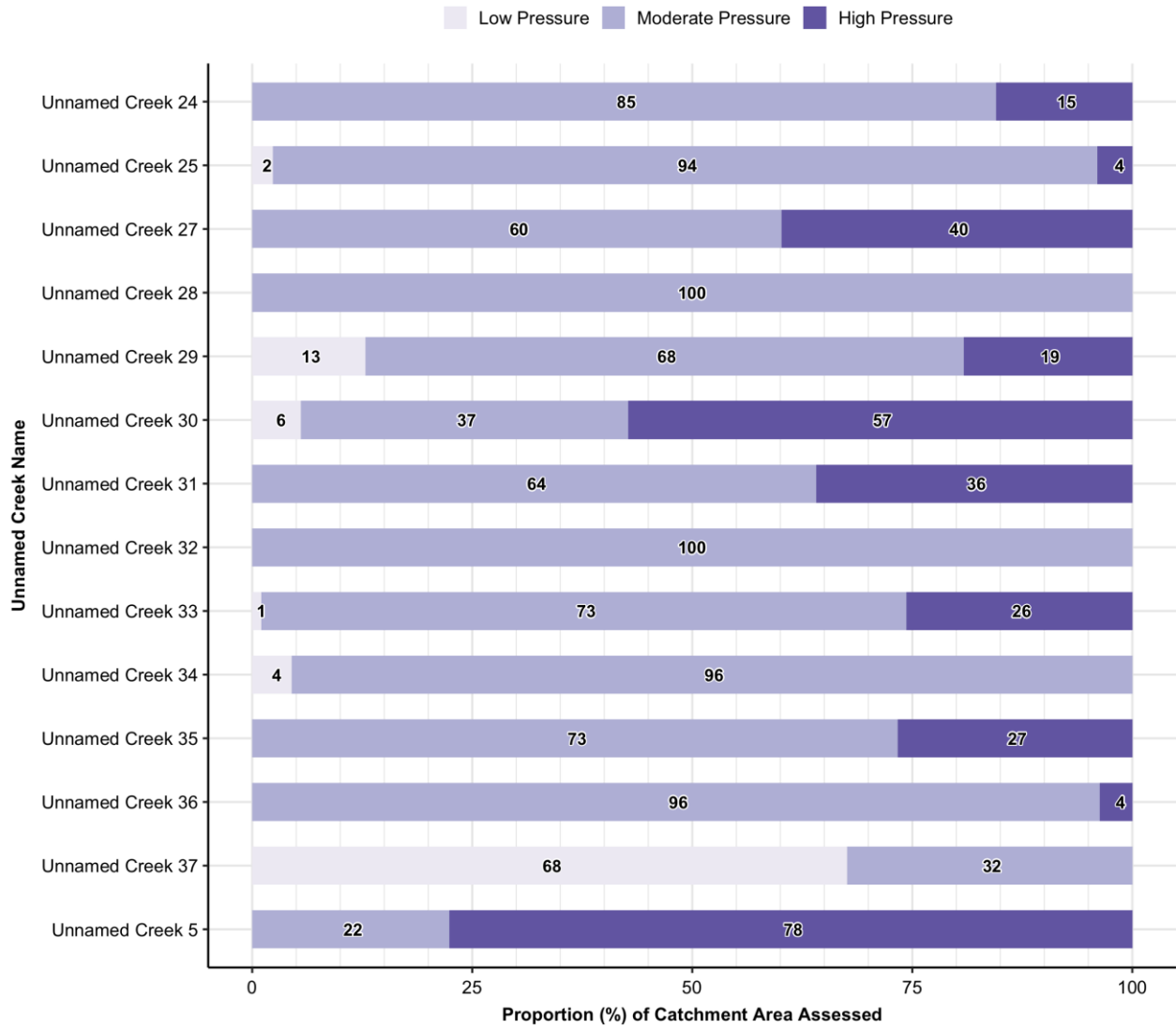
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

## Pressure - Unnamed Creeks



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

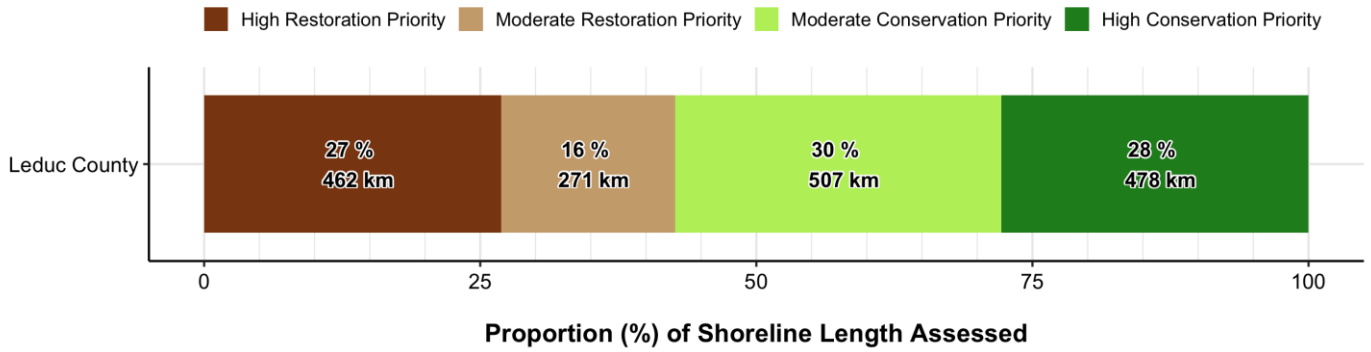
## Pressure - Unnamed Creeks Continued



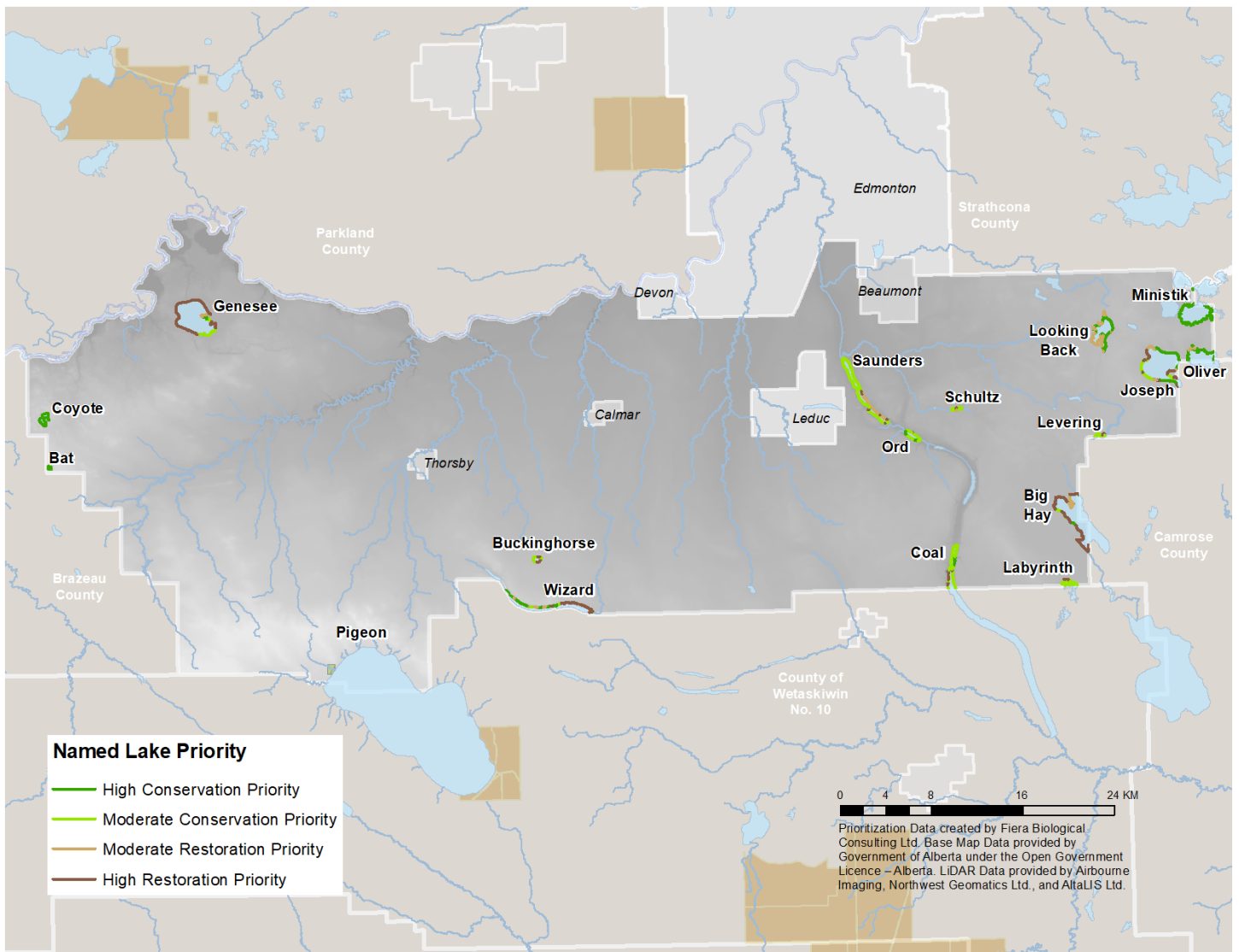
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

# 1.6. Conservation & Restoration Priority

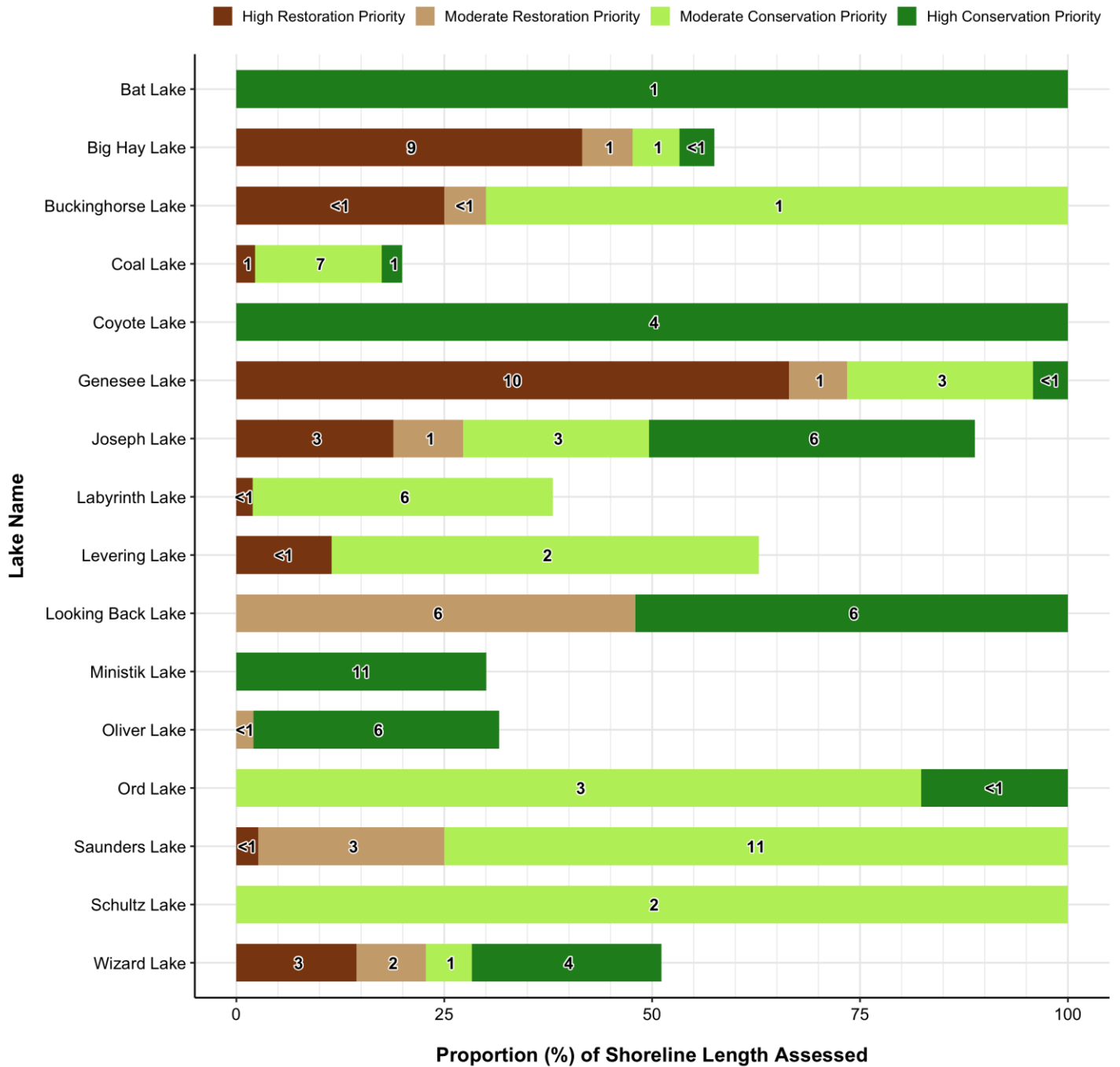
## Overall Municipal Conservation & Restoration Priority



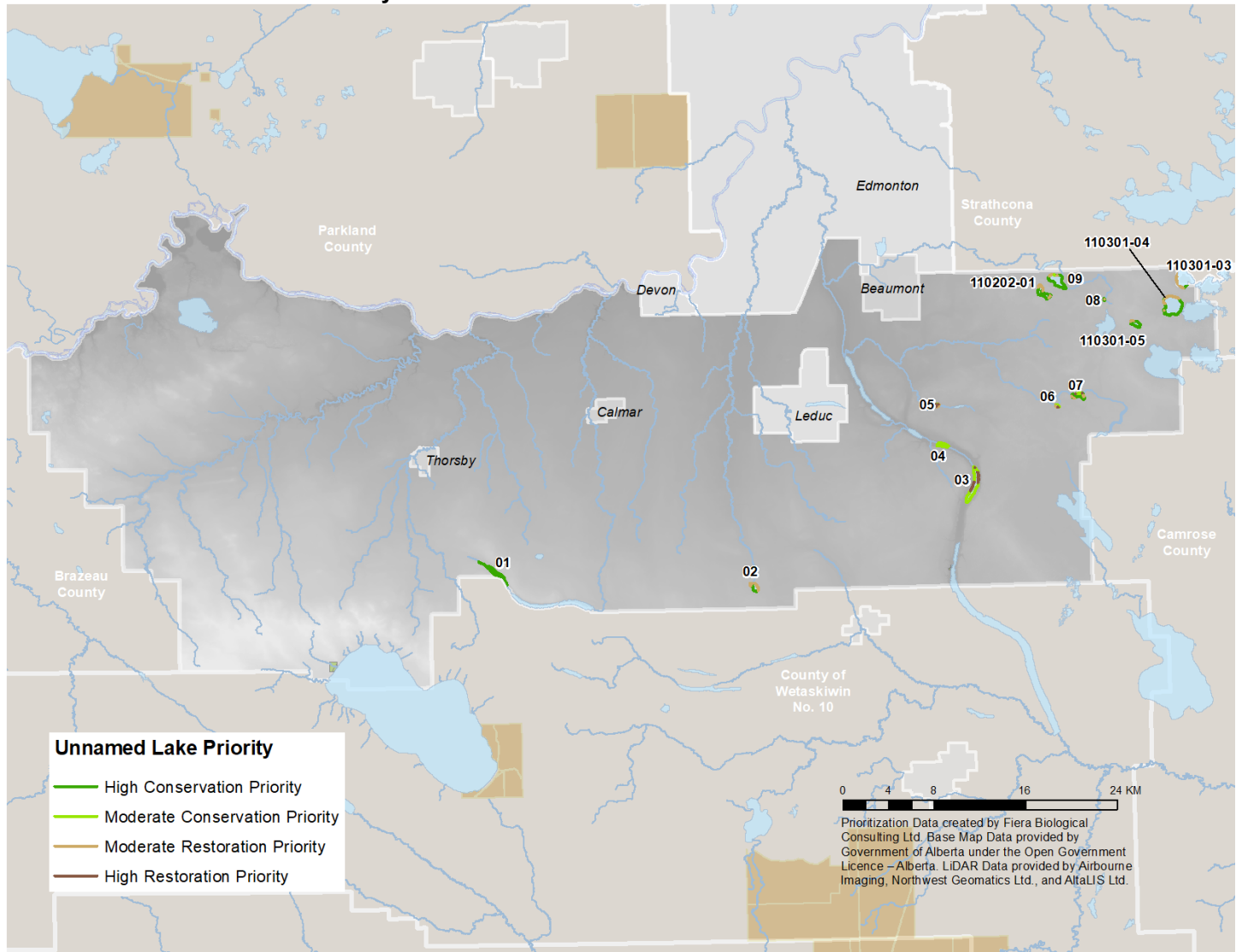
## Conservation & Restoration Priority – Named Lakes



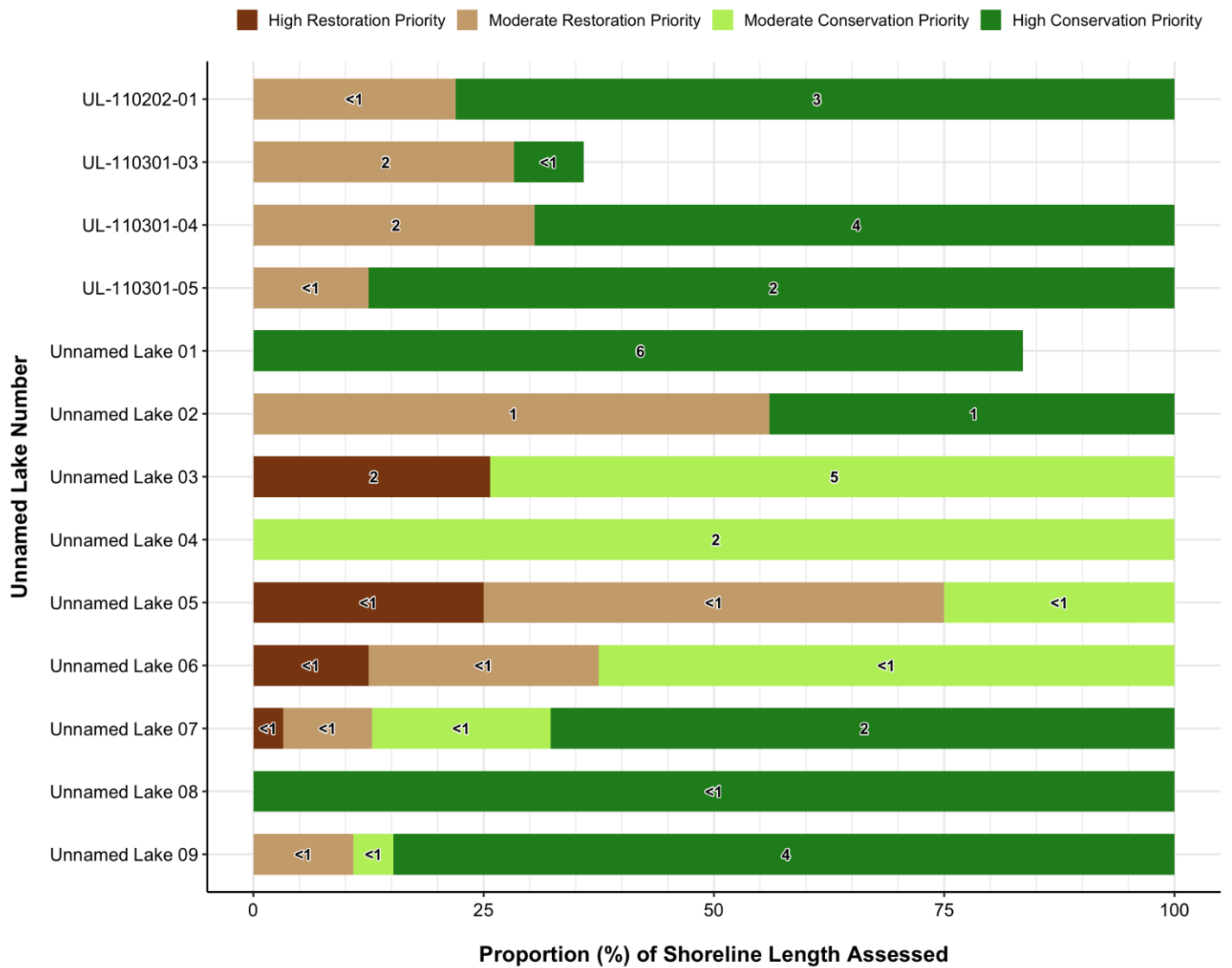
## Conservation & Restoration Priority – Named Lakes



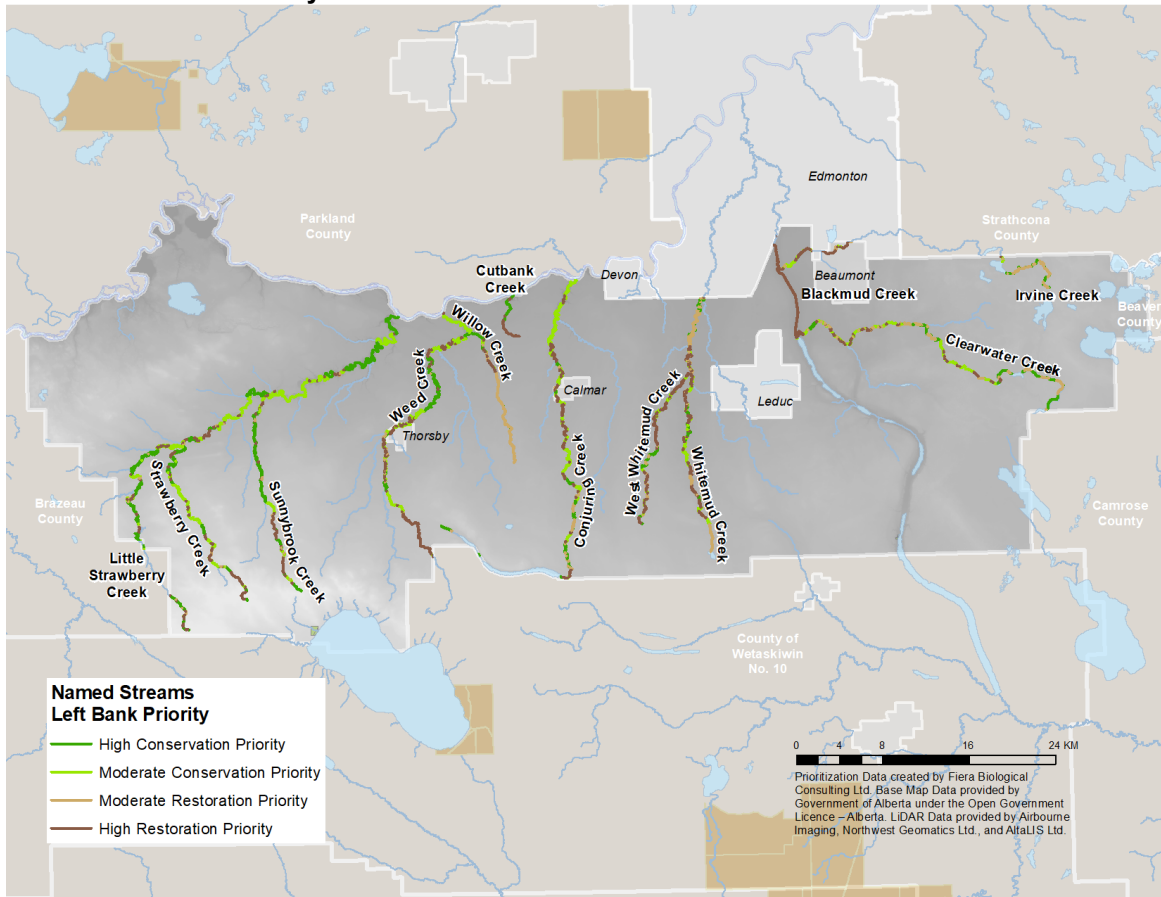
# Conservation & Restoration Priority – Unnamed Lakes



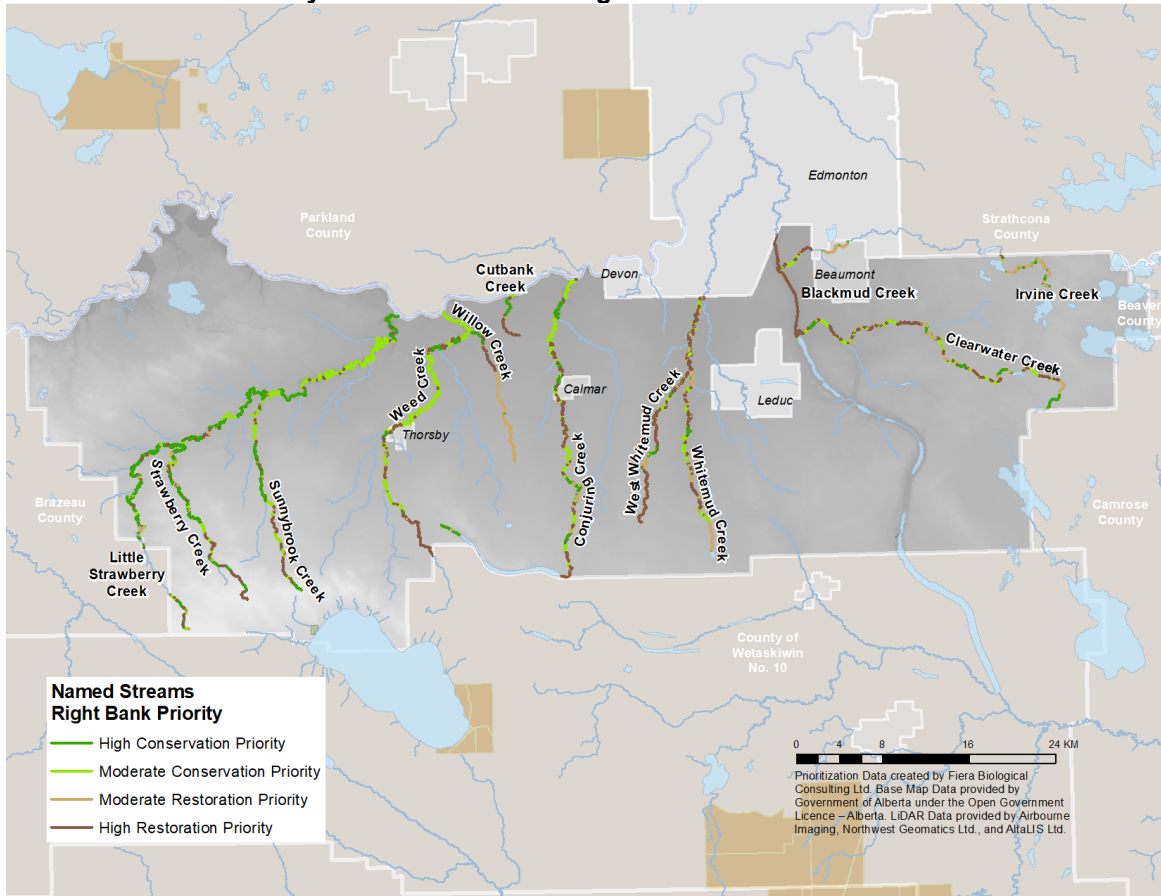
## Conservation & Restoration Priority – Unnamed Lakes



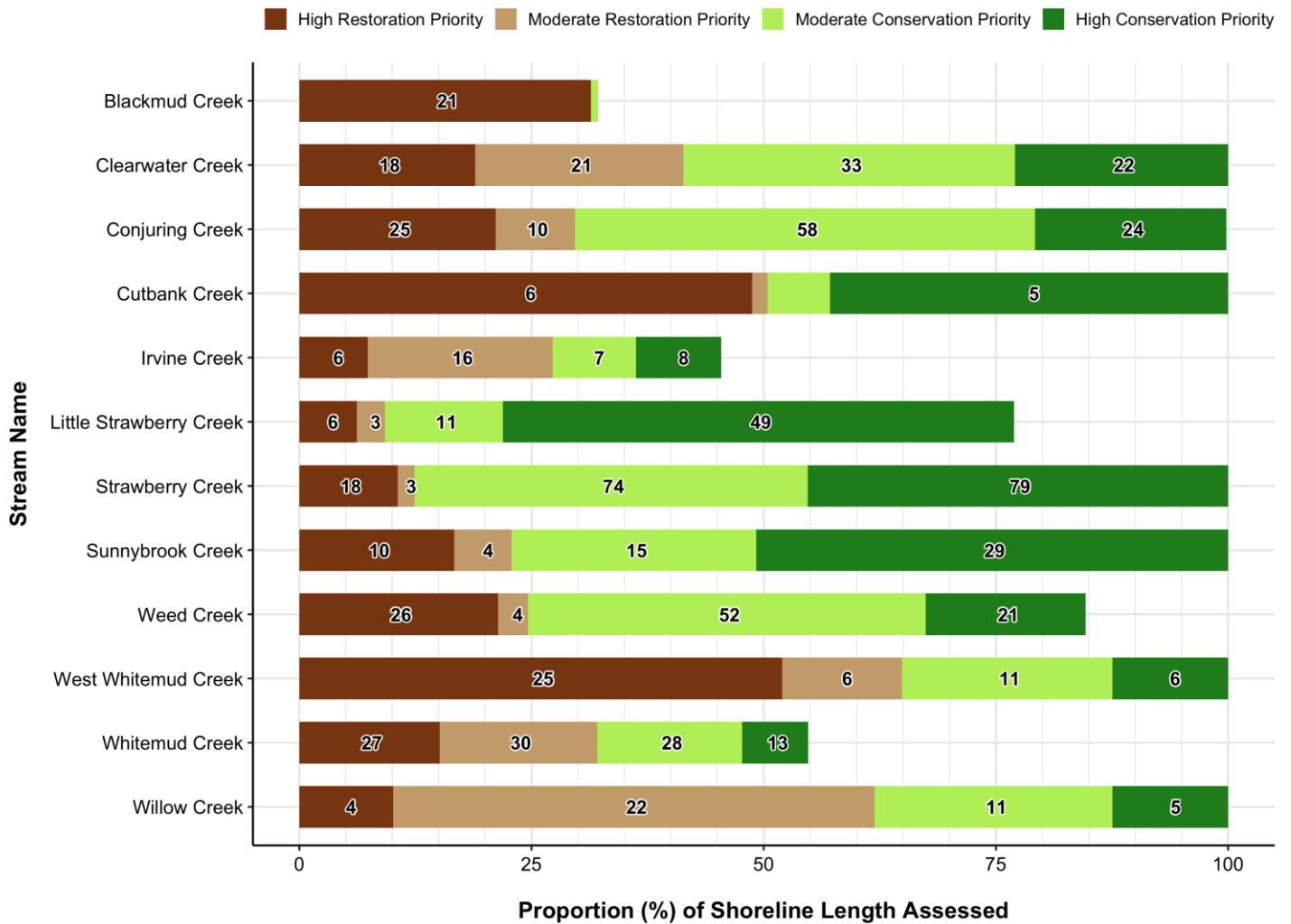
### Conservation & Restoration Priority – Named Streams: Left Bank



### Conservation & Restoration Priority – Named Streams: Right Bank

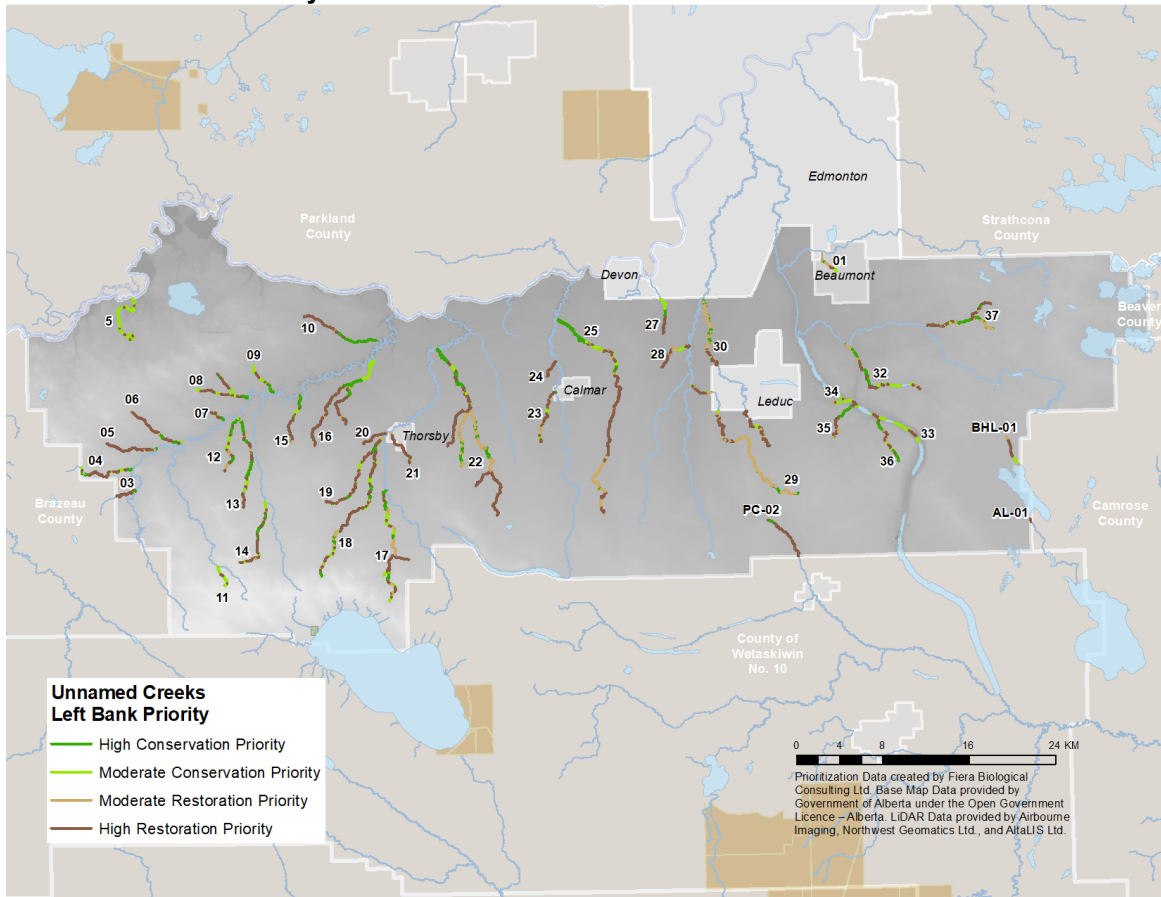


## Conservation & Restoration Priority – Named Streams

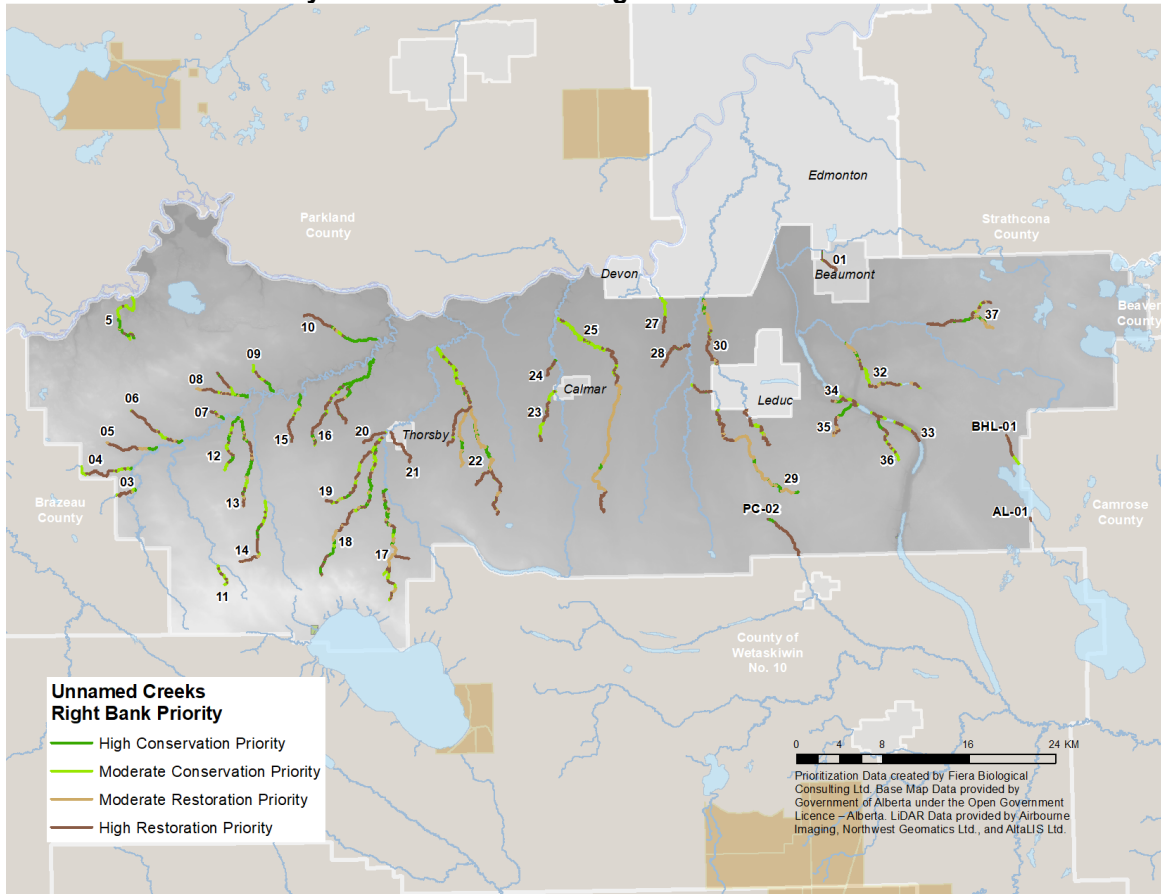


NOTE: Numbers indicate the total length (km) of shoreline associated with each prioritization category. Categories with no label contain <1 km of shoreline.

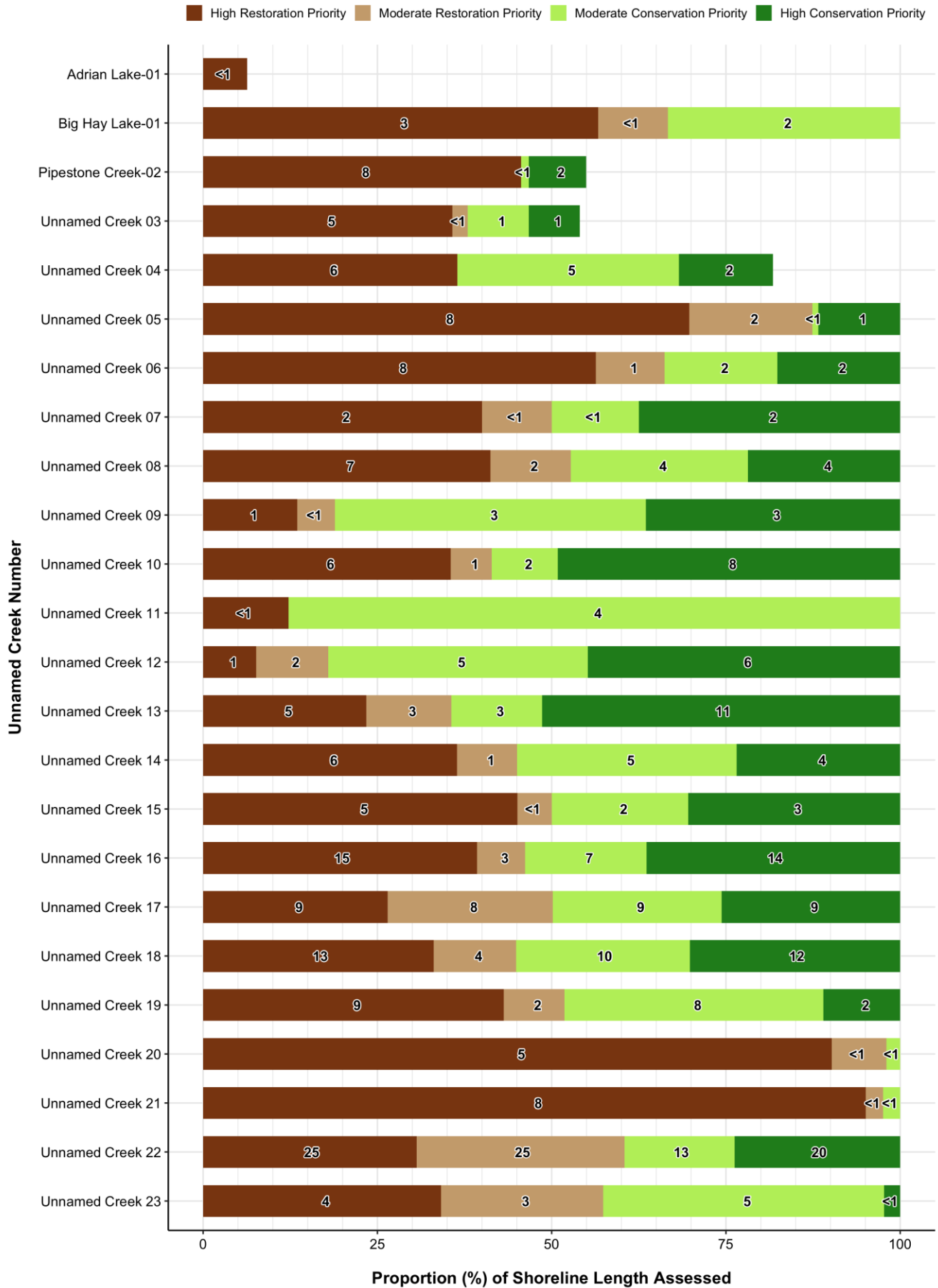
### Conservation & Restoration Priority – Unnamed Creeks: Left Bank



### Conservation & Restoration Priority – Unnamed Creeks: Right Bank

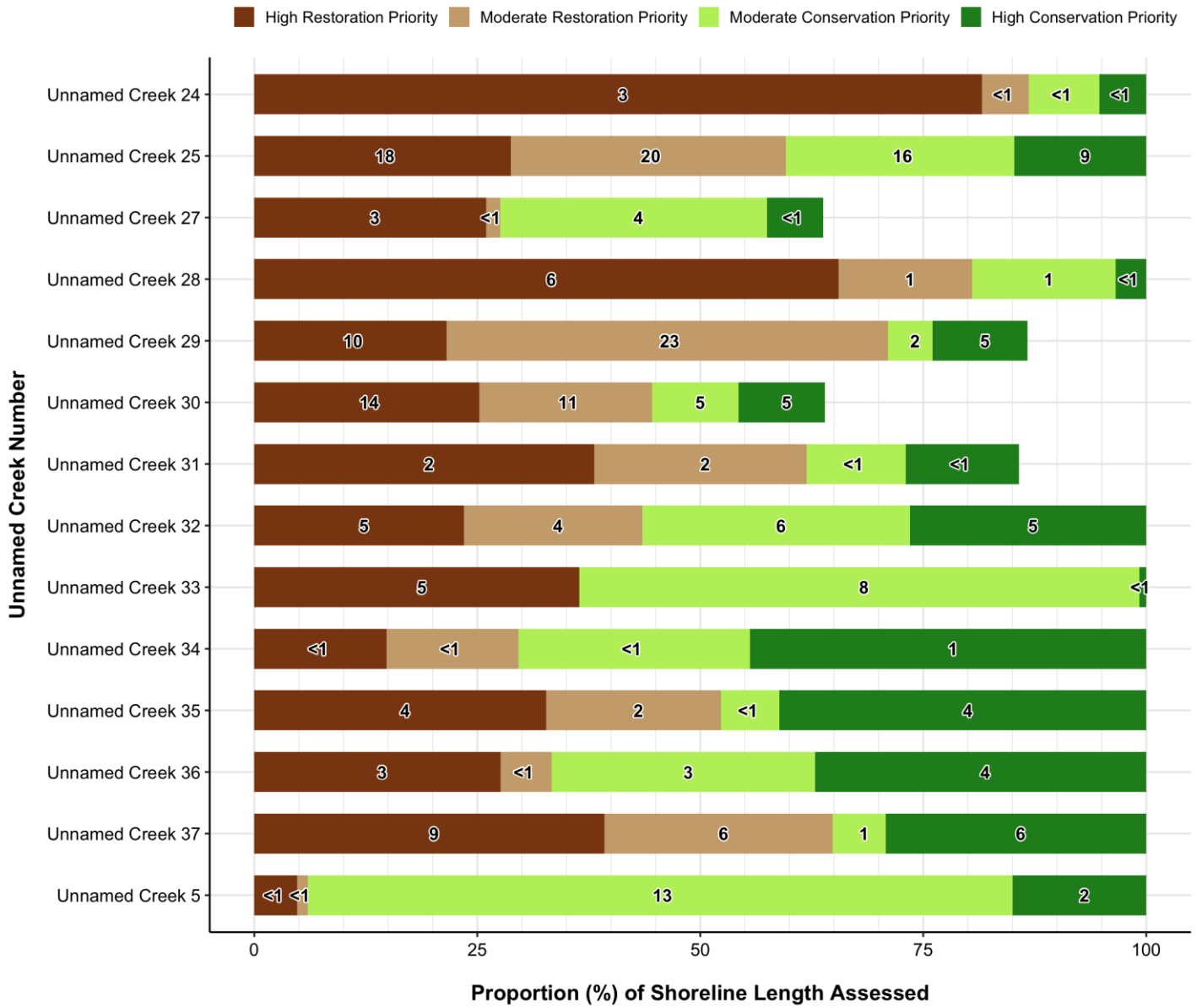


# Conservation & Restoration Priority – Unnamed Creeks



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

## Conservation & Restoration Priority – Unnamed Creeks Continued



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