Shoreline and Riparian Condition Assessment

Red Deer County

RIPARIAN
WEB PORTAL

March 2022

Red Deer County Summary:

Your Shoreline and Riparian Condition Assessment

Purpose of this Report

This report presents information about the condition of riparian areas in your municipality. 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.

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

Project Partners

This work has been carried out by your local Watershed Planning and Advisory Council.

Red Deer River Watershed Alliance

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

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

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

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

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

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

What is Intactness?

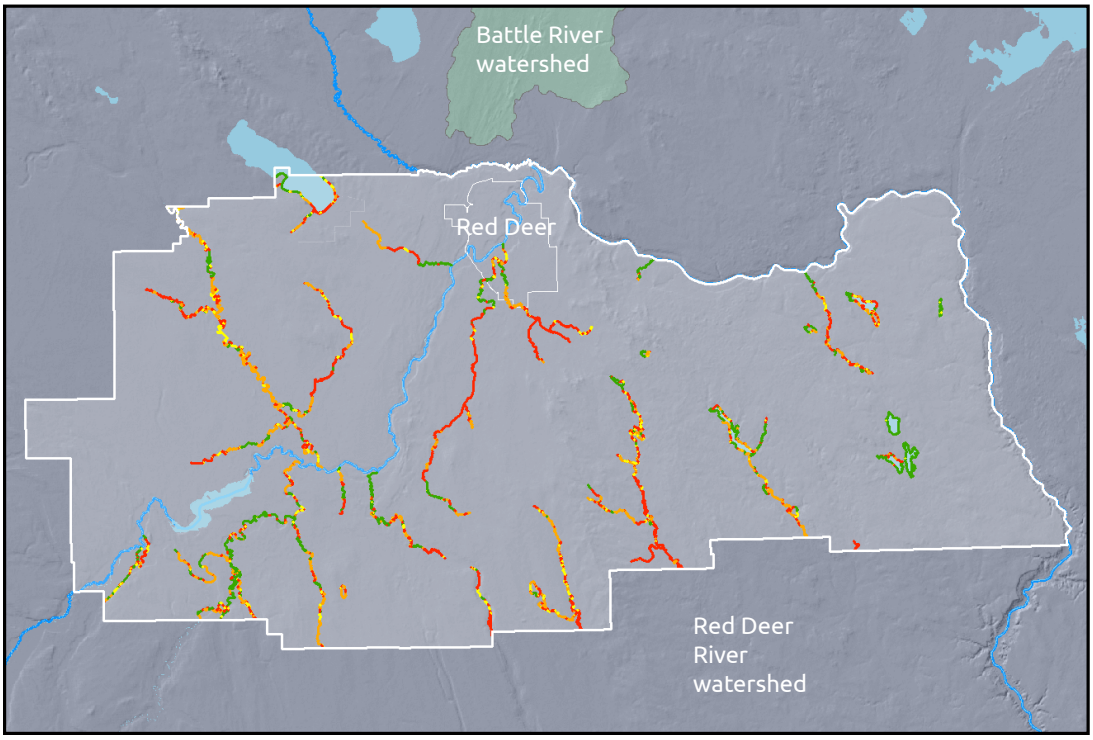
- Intactness is a measure of riparian condition at a broad scale (watershed or region)
- Measures if natural habitat has been altered or impaired by human activity
- Measures the quantity of natural and woody vegetation, as well as human footprint, using satellite data

Intactness Results for Red Deer County

1,241 KM of shorelines assessed in Red Deer County

5/24 lakes had 65%+ **High Intactness**

3/37 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 Red Deer County for assessed shorelines. To view more data, please see the attached **Appendix**.*

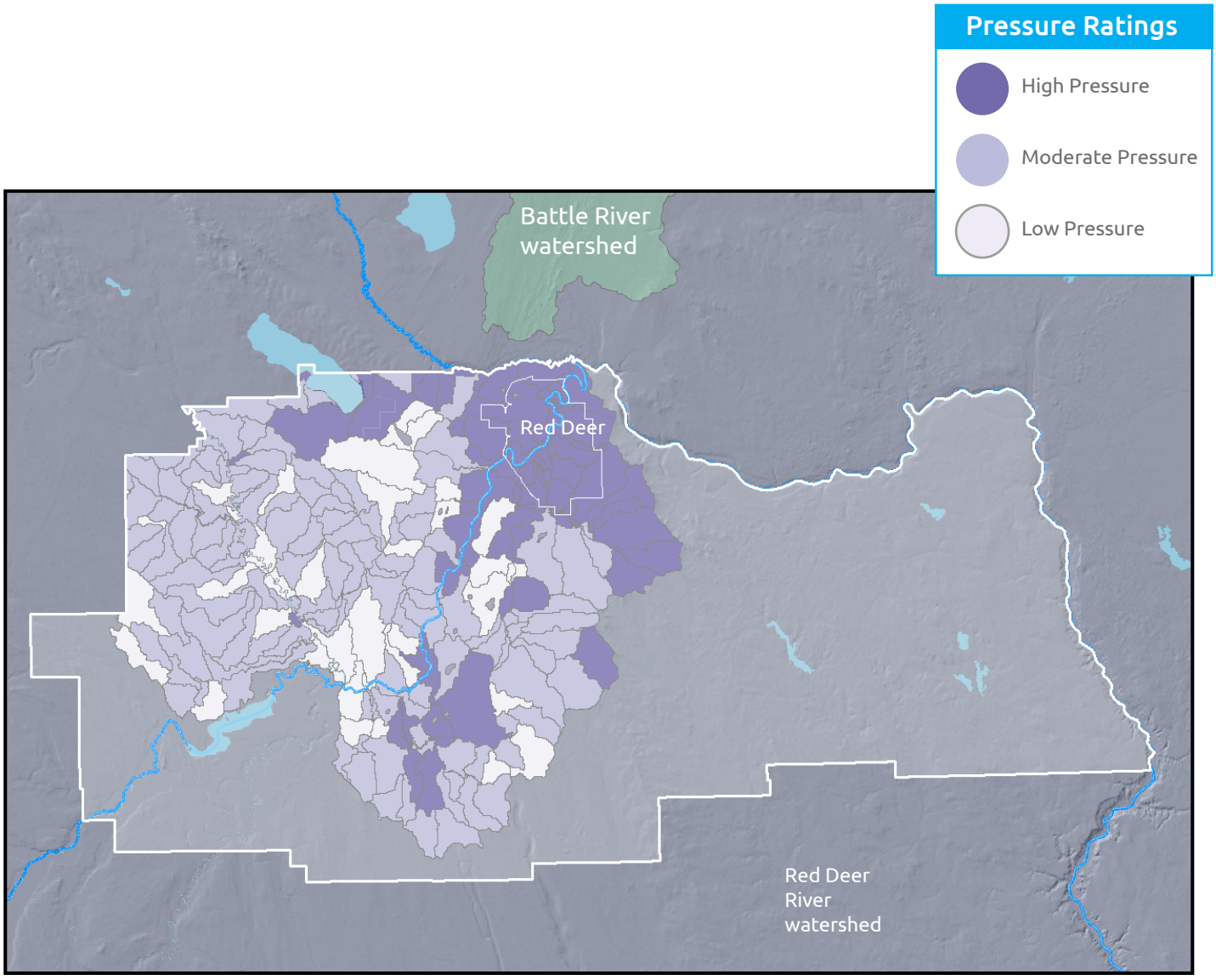
Red Deer County Overall Intactness

Very Low	Low	Moderate	High
33%	11%	30%	26%

What is Catchment Pressure?

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

Catchment Pressure Results for Red Deer County



Map 2: Catchment Pressure in the municipality.
Catchment pressure was only assessed within the Medicine, Blindman and Waskasoo sub-watersheds. To view more data, please see the attached ***Appendix****.*

What is Prioritization?

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

Prioritization Results for Area Assessed

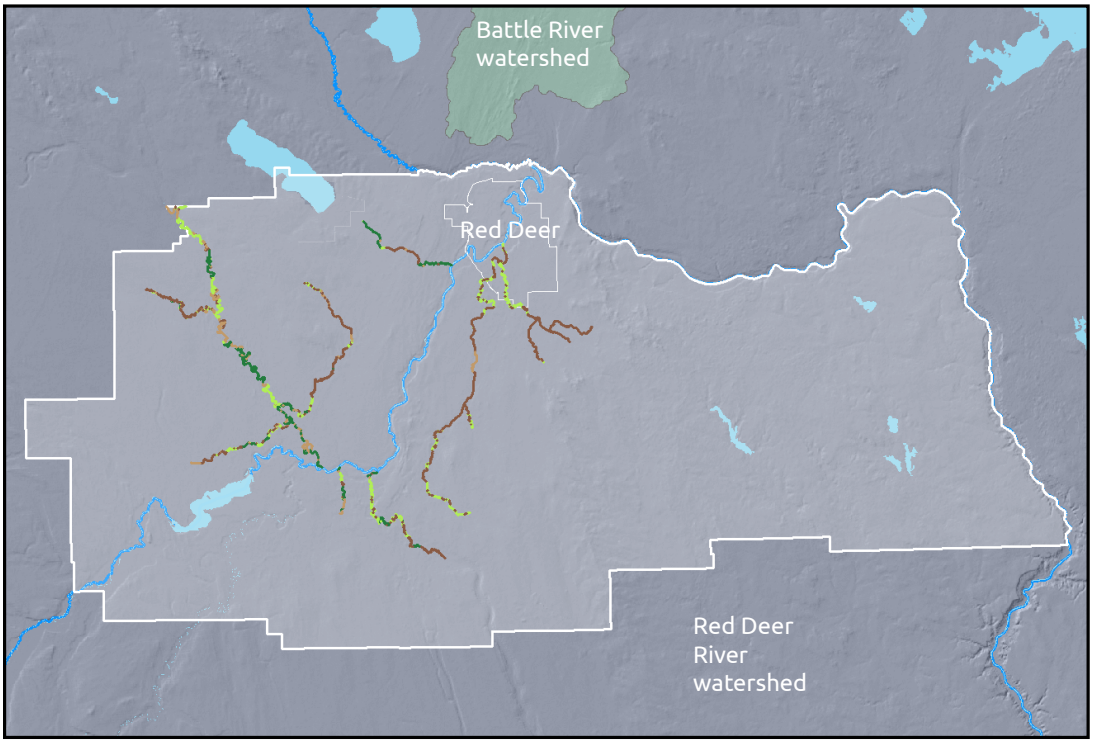
539 KM of shorelines assessed in Red Deer County

191 KM high restoration priority

105 KM 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 municipality. Prioritization was only assessed within the Medicine, Blindman, and Waskasoo sub-watersheds. To view more data, please see the attached **Appendix**.*

Overall Prioritization for Assessed Area

36%	13%	32%	19%
High Restoration	Moderate Restoration	Moderate Conservation	High Conservation

Conservation & Restoration at the County Level

Managing healthy riparian areas is a key strategy for improving water quality and mitigating floods and droughts in the Red Deer River watershed. Information about riparian intactness and catchment pressure can guide efforts related to planning, conservation, restoration and education at the County level.

Areas of high and moderate intactness may be suitable for conservation efforts or beneficial management practices. Areas of very low or low intactness may benefit from restoration or other beneficial management practices.

ReThink Red Deer and partners restore riparian areas along Piper Creek. Photo credit: RDRWA.

Next steps to conserve or restore priority riparian habitats:

1. Use intactness and priority maps to guide 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 a cross Watershed Planning and Advisory Councils (WPAC) project with funding and support from many sources. A special thanks to the provincial Watershed Resiliency and Restoration Program and the governments of Canada and Alberta, through the Canadian Agricultural Partnership.

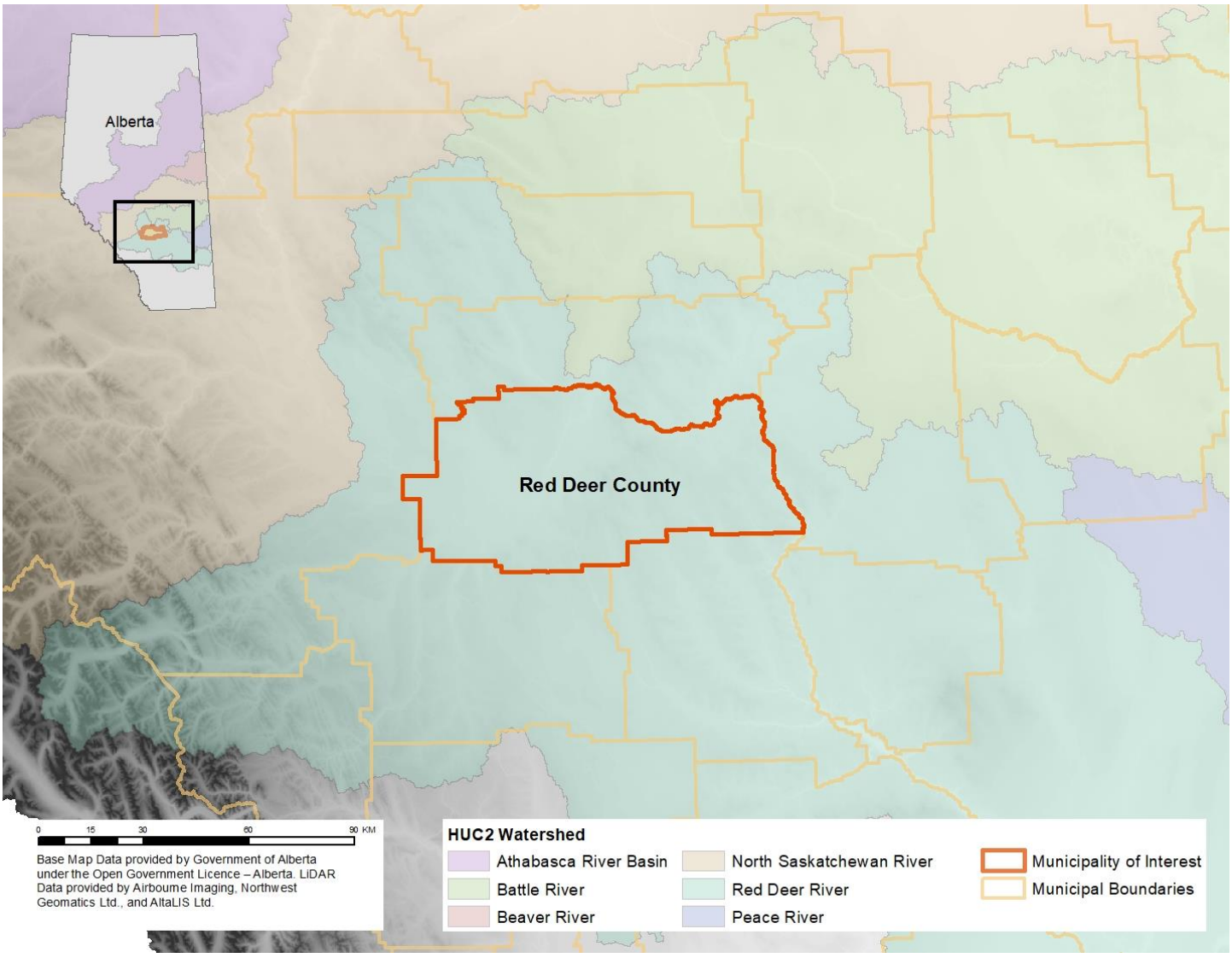
Intactness, Pressure, and Prioritization data were created by Fiera Biological Consulting Ltd. Base Map Data was provided by the Government of Alberta.

The following appendix is a summary of waterbodies assessed in your municipality, and includes results of the intactness, pressure, and prioritization assessments. Please note that the assessment methods were applied to specific waterbodies; some areas were not included. As such, results described in this report apply only to those areas assessed. See the supporting documents for more details.

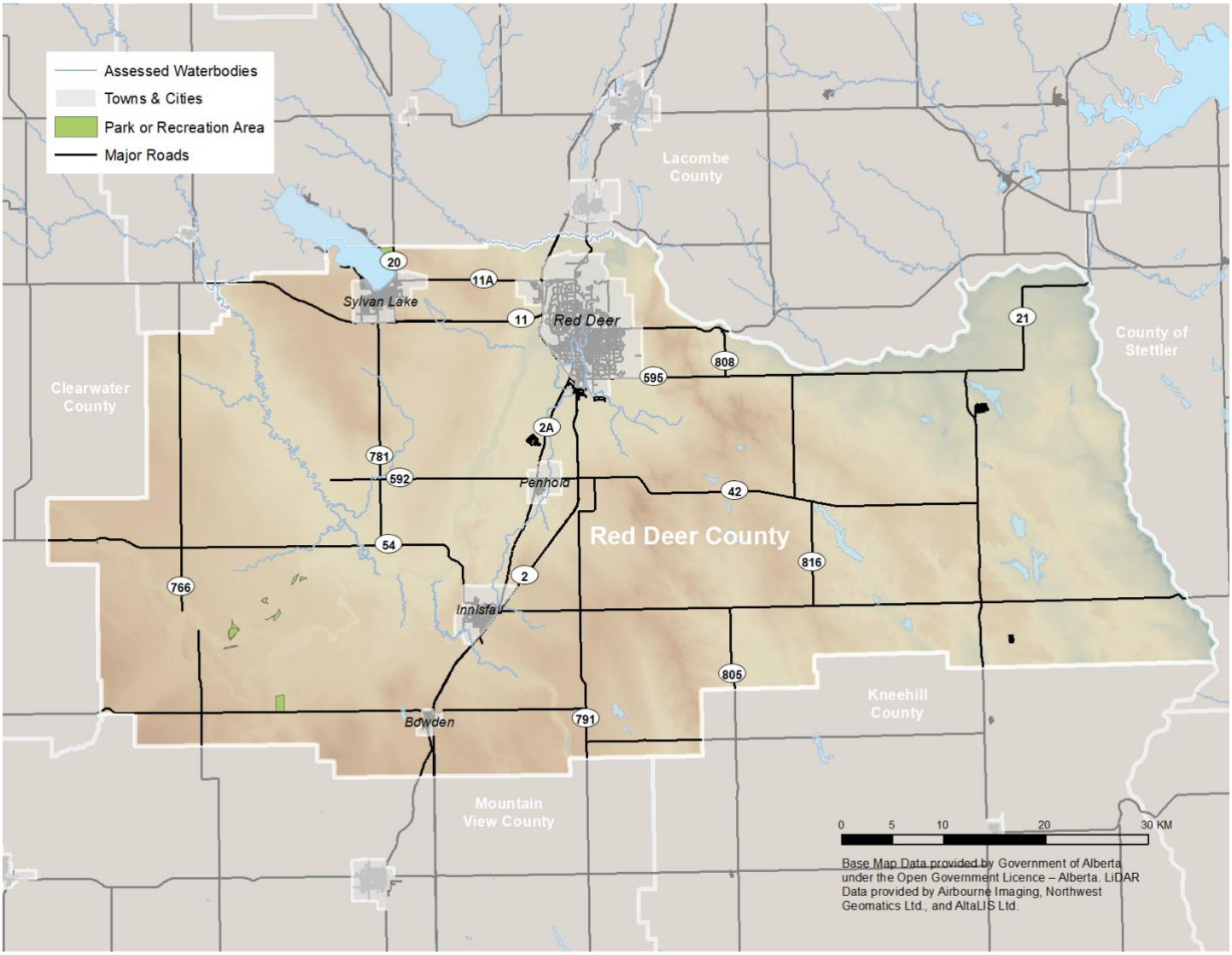
Please note that waterbodies that flow through multiple municipalities have been 'clipped' to demonstrate the portion which applies only to your municipality.

The data has been extracted from the following reports: ***Riparian Area Assessment of the North Saskatchewan and Battle River Watersheds*** (Fiera Biological Consulting Ltd., 2021), ***Riparian area assessment for the Buffalo, Kneehills, Little Red Deer, and Threehills sub-watersheds*** (Fiera Biological Consulting Ltd., 2022), and ***Riparian Area Assessment for the Medicine-Blindman Rivers Watershed*** (Fiera Biological Consulting Ltd., 2020). These reports can be found in the Information section of **riparian.info** or via **www.rdrwa.ca**

Red Deer County

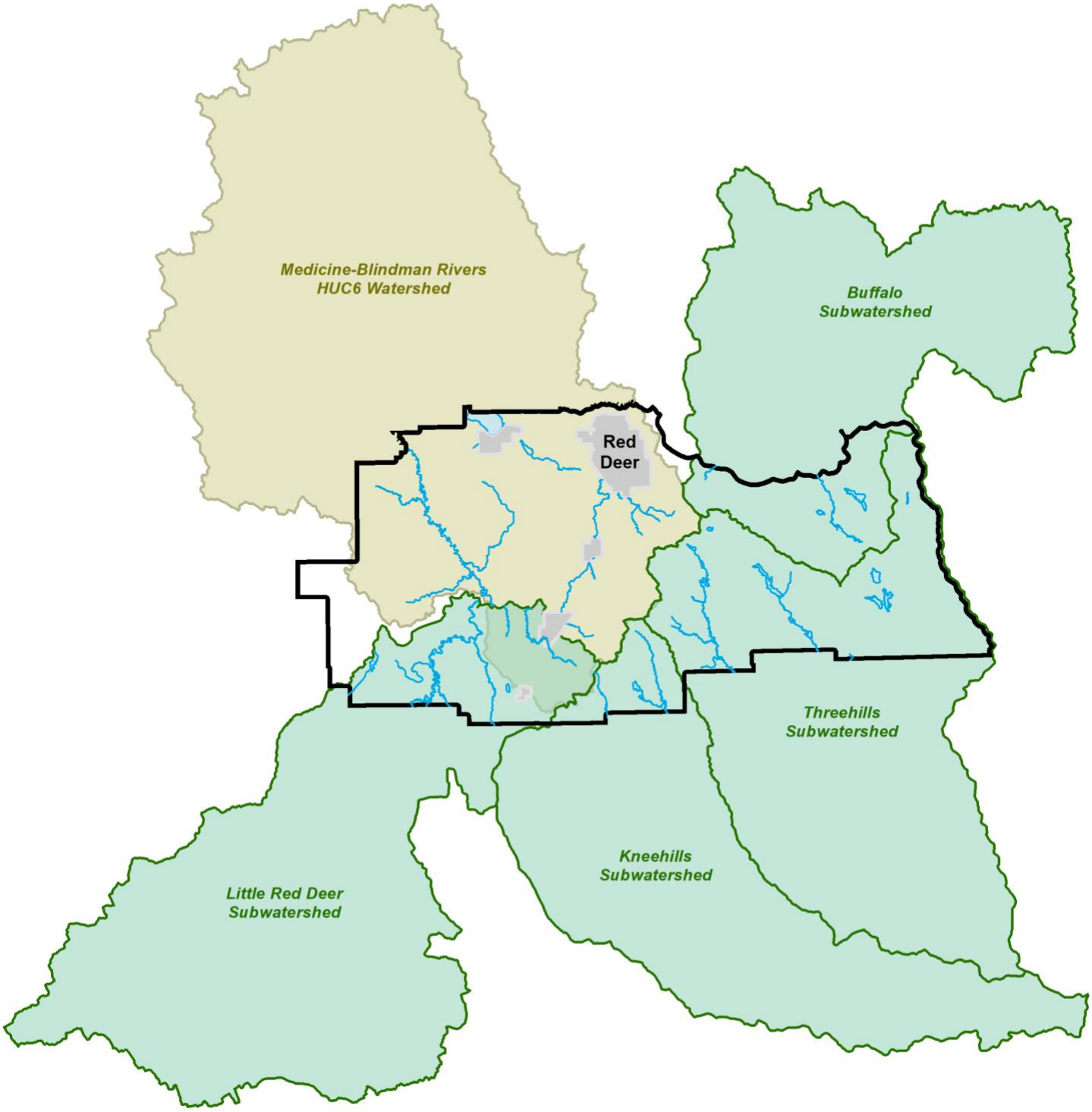


1.1. Municipal Overview



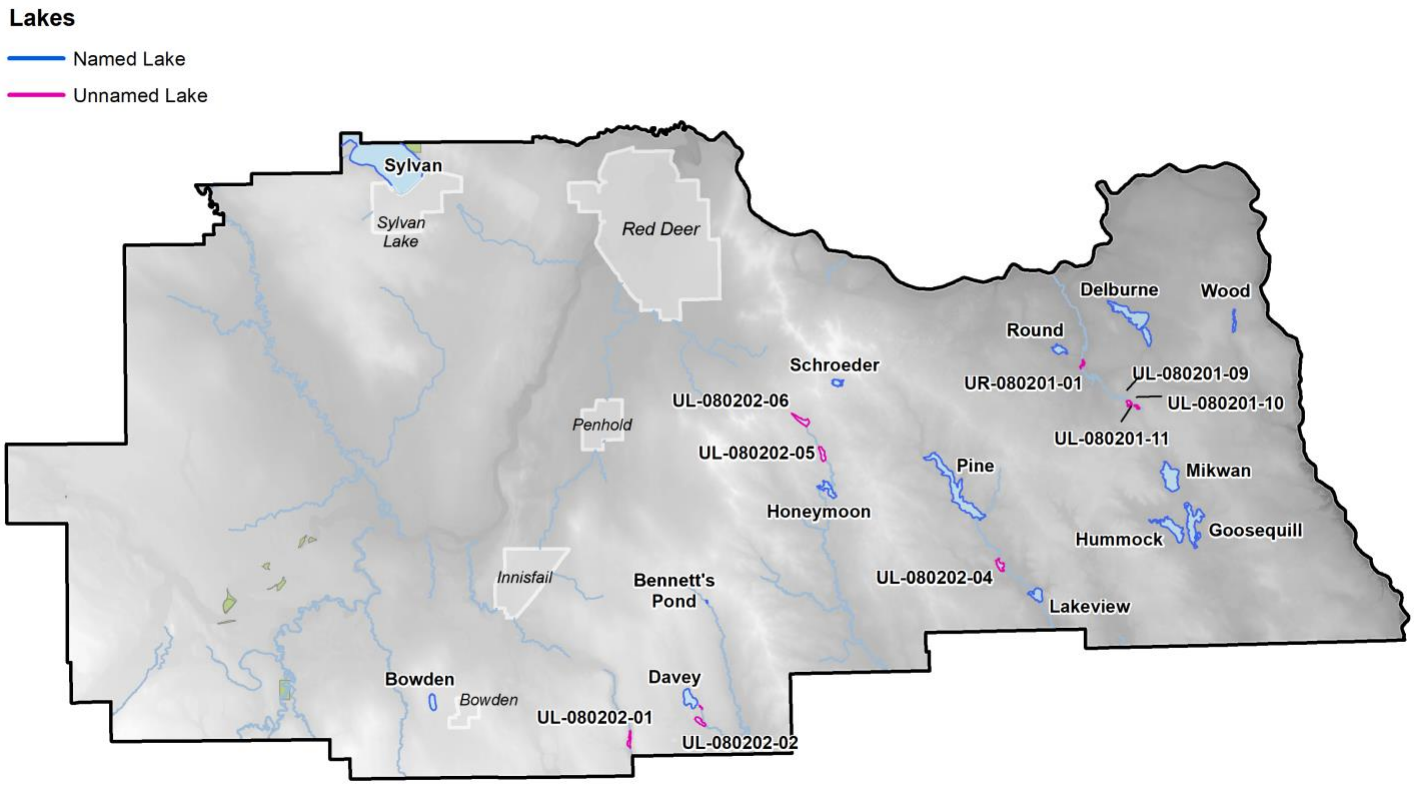
1.2. Shorelines of Interest

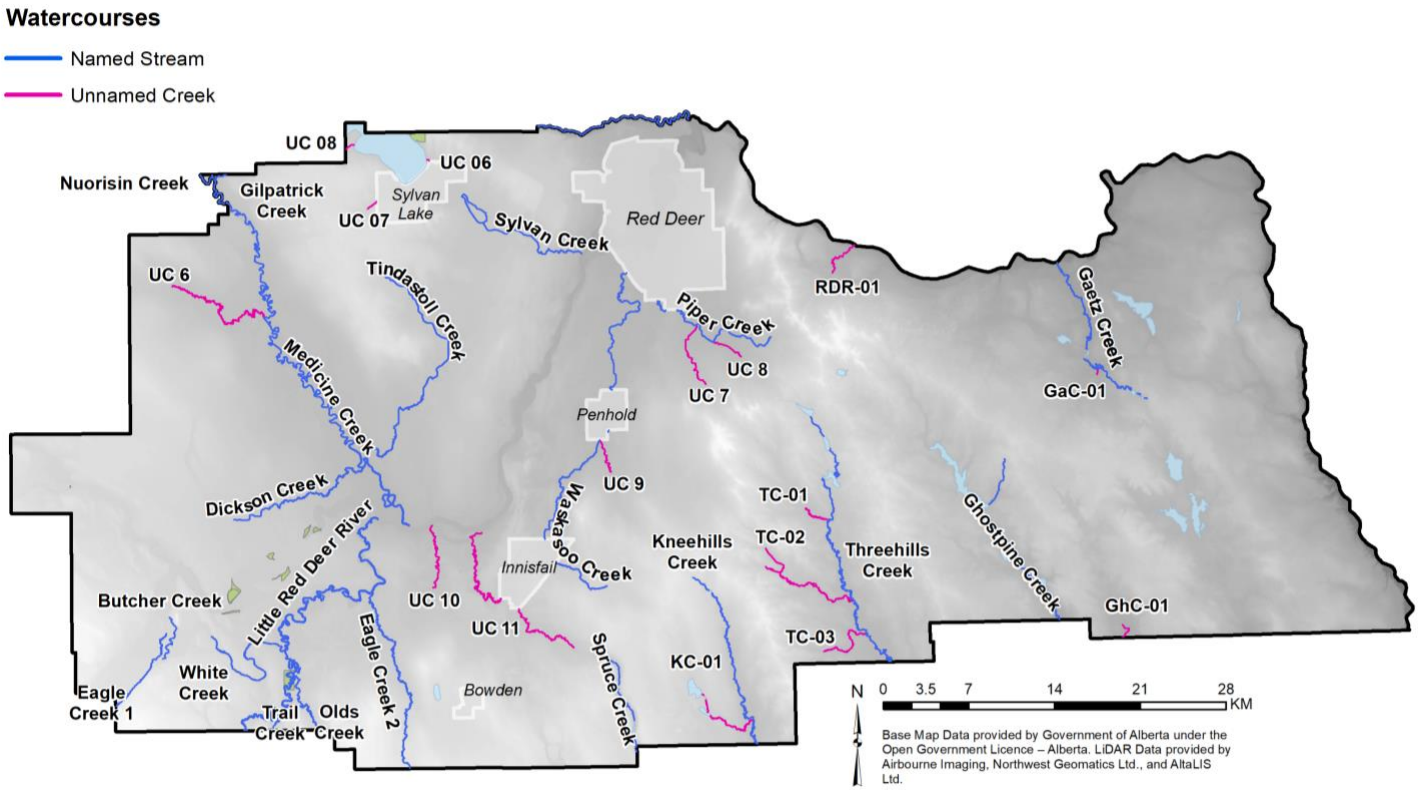
Areas Assessed Using Satellite-based Method[1]



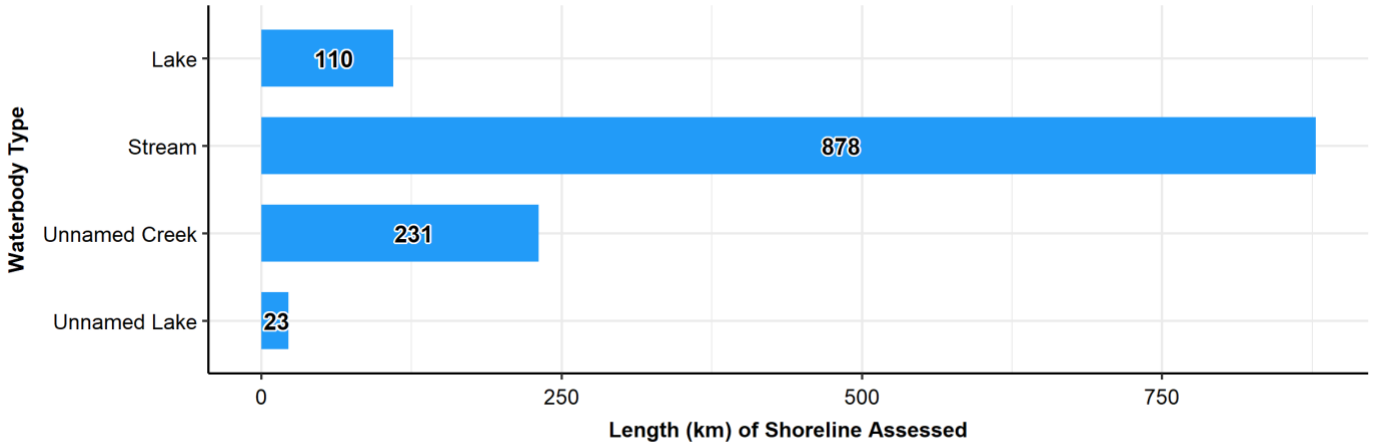
NOTE[1]: Approximately 95% of Red Deer County overlaps with watersheds that have been assessed using the satellite-based method.

Location of Waterbodies Assessed within the Municipality





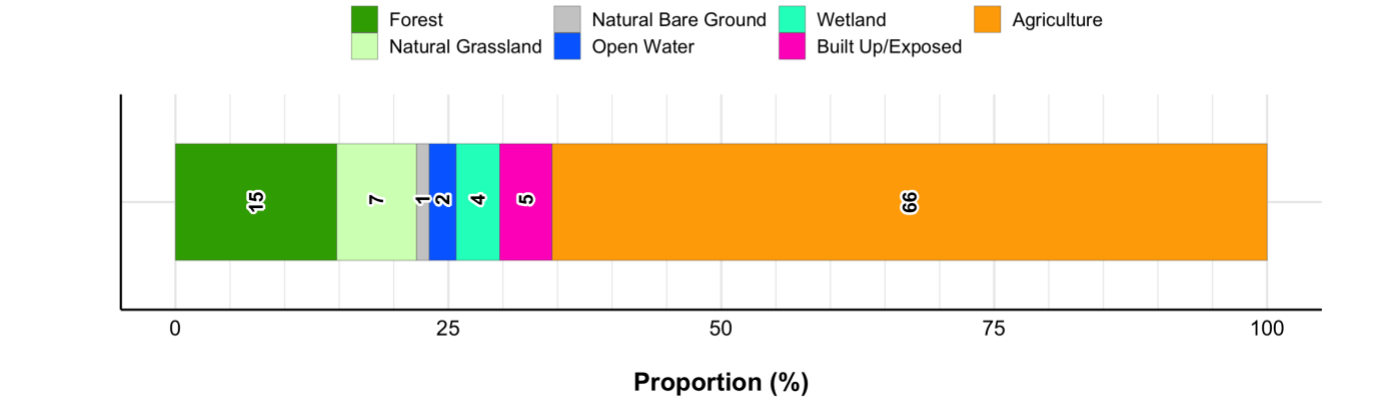
Total Length of Riparian Shoreline Assessed within the Municipality

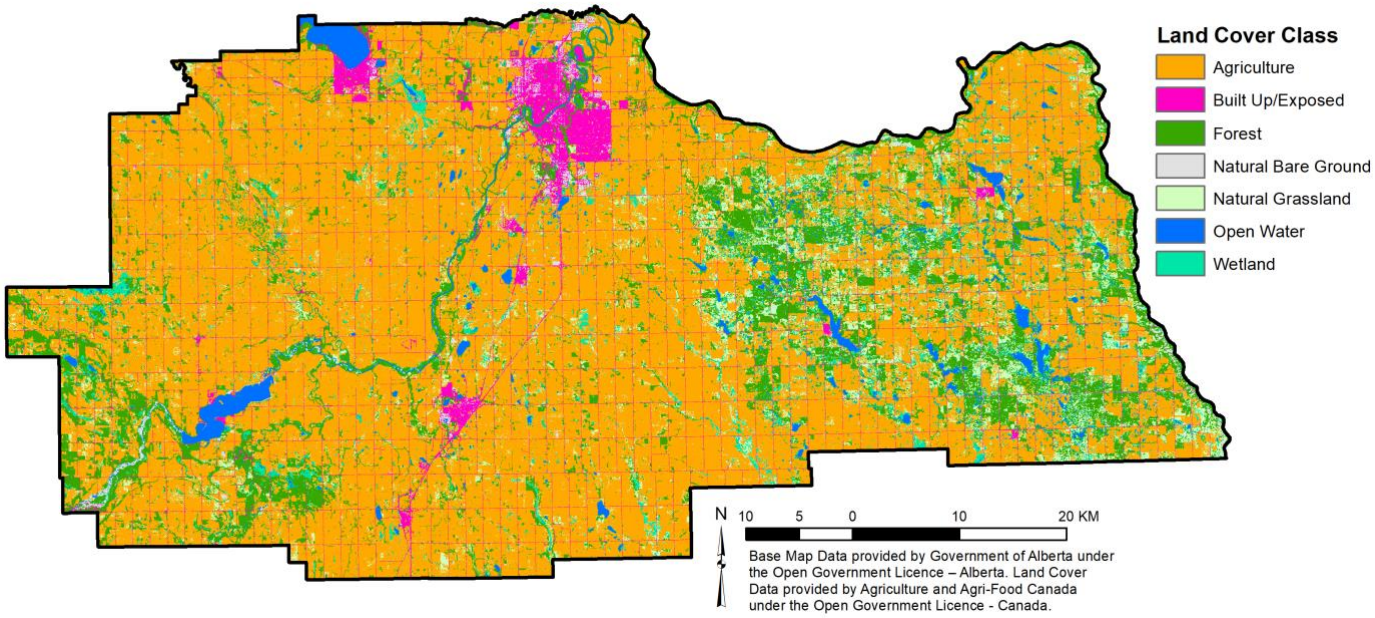


NOTE: Numbers indicate the total length (km) of shoreline assessed by waterbody type.

1.3. Land Cover

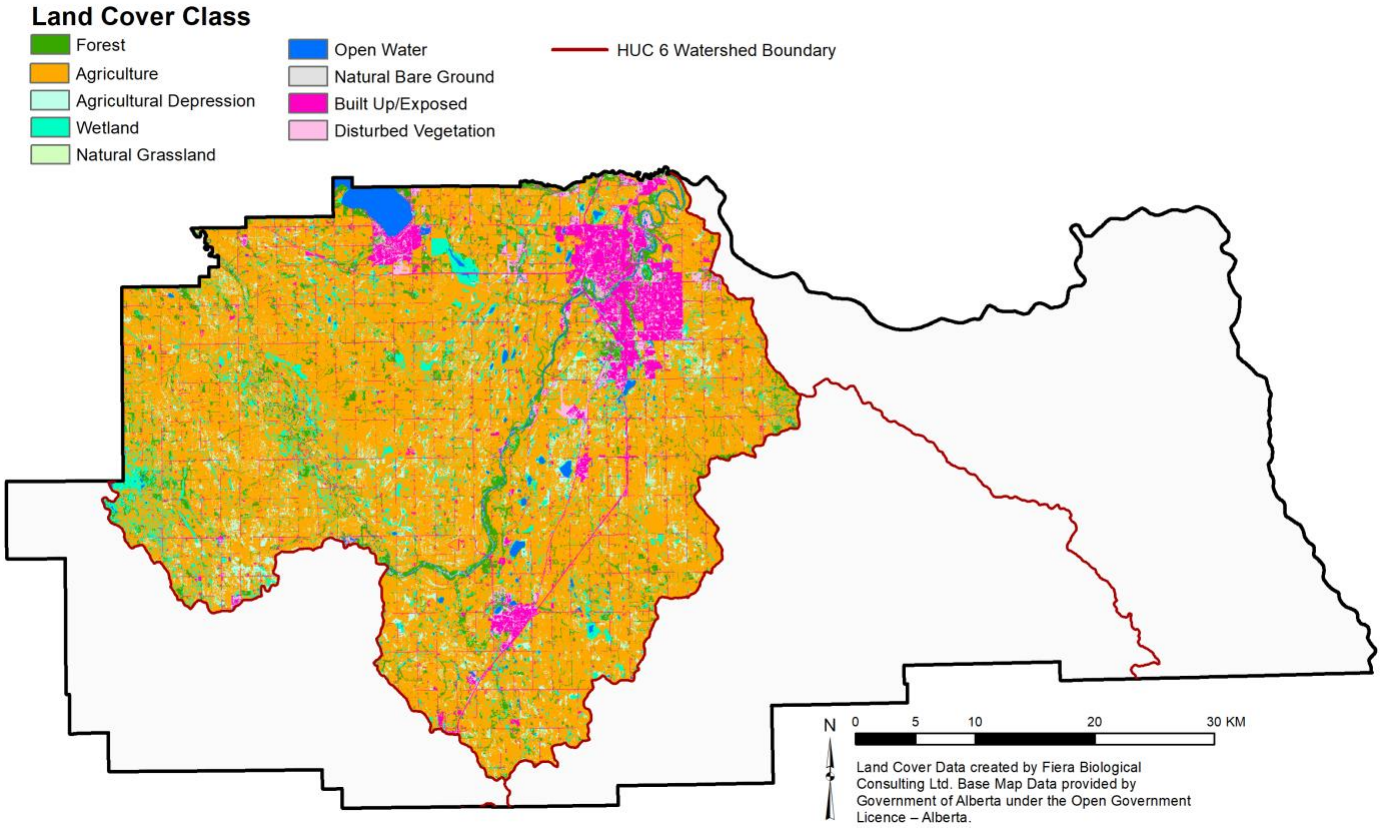
Landsat-Derived[2] Land Cover (30m resolution)





NOTE[2]: Land cover summary and map created using the 2020 Agriculture and Agri-Food Canada (AAFC) land cover dataset.

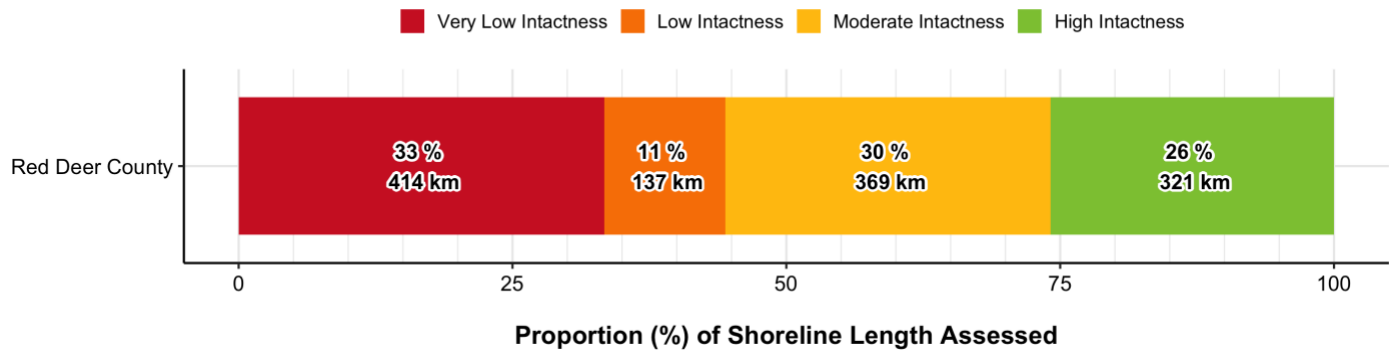
SPOT-Derived[3] Land Cover (6m resolution)



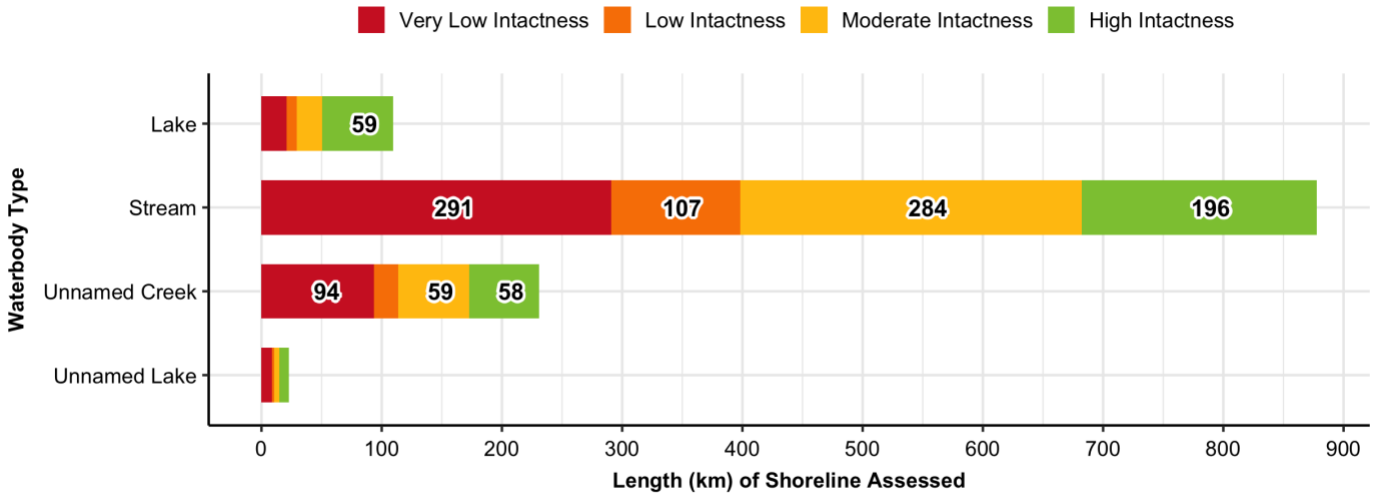
NOTE[3]: A 6 m resolution wall to wall land cover only exists for the Medicine-Blindman Rivers HUC 6 watershed. The wall to wall land cover was used to assess intactness and pressure for selected waterbodies within this HUC 6 watershed. For all other waterbodies assessed in the County, a 6 m land cover layer was created within a 50 m buffer of the shorelines of interest, and this land cover was used to assess intactness.

1.4. Riparian Management Area Intactness

Overall Municipal Intactness

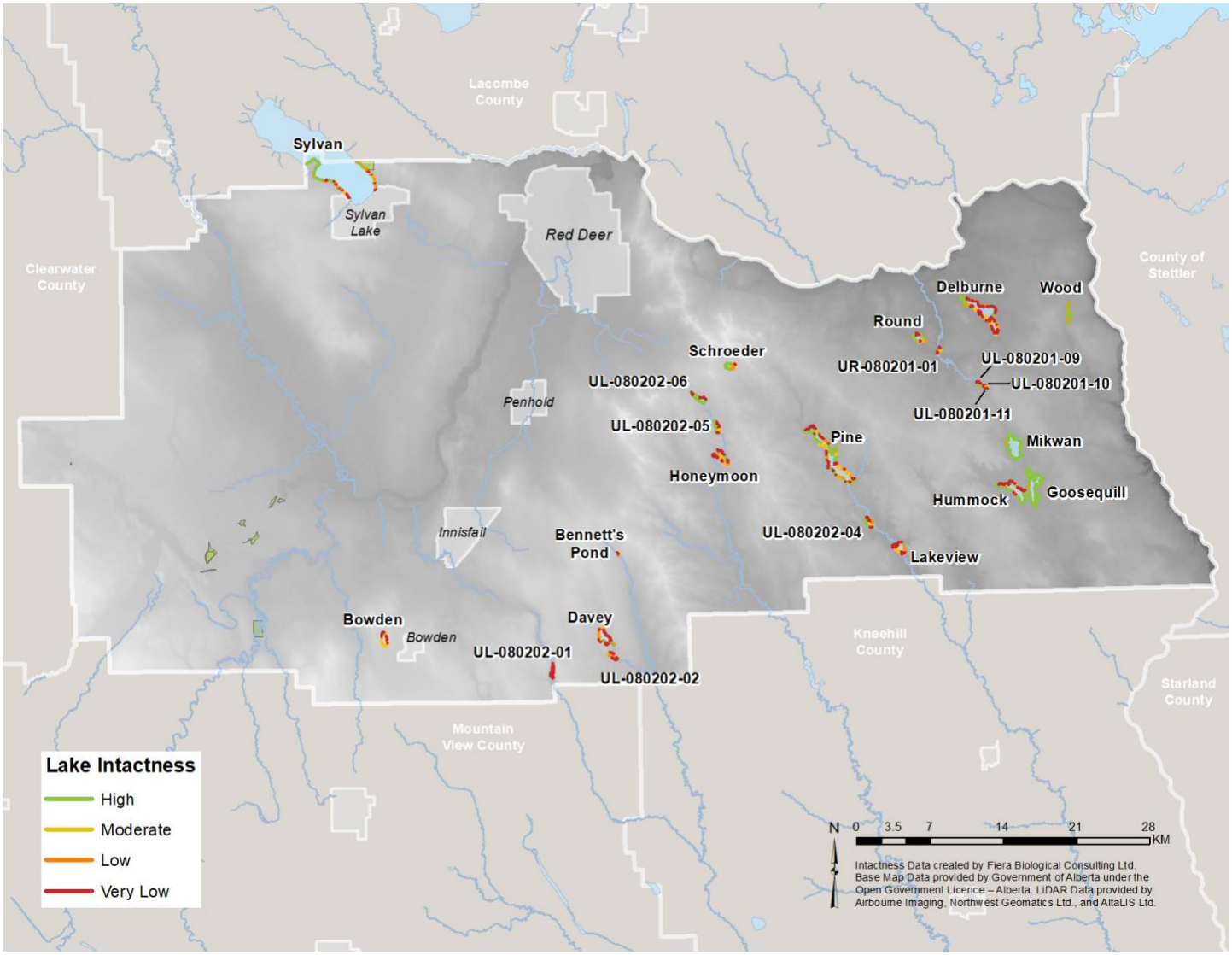


Intactness By Waterbody Type

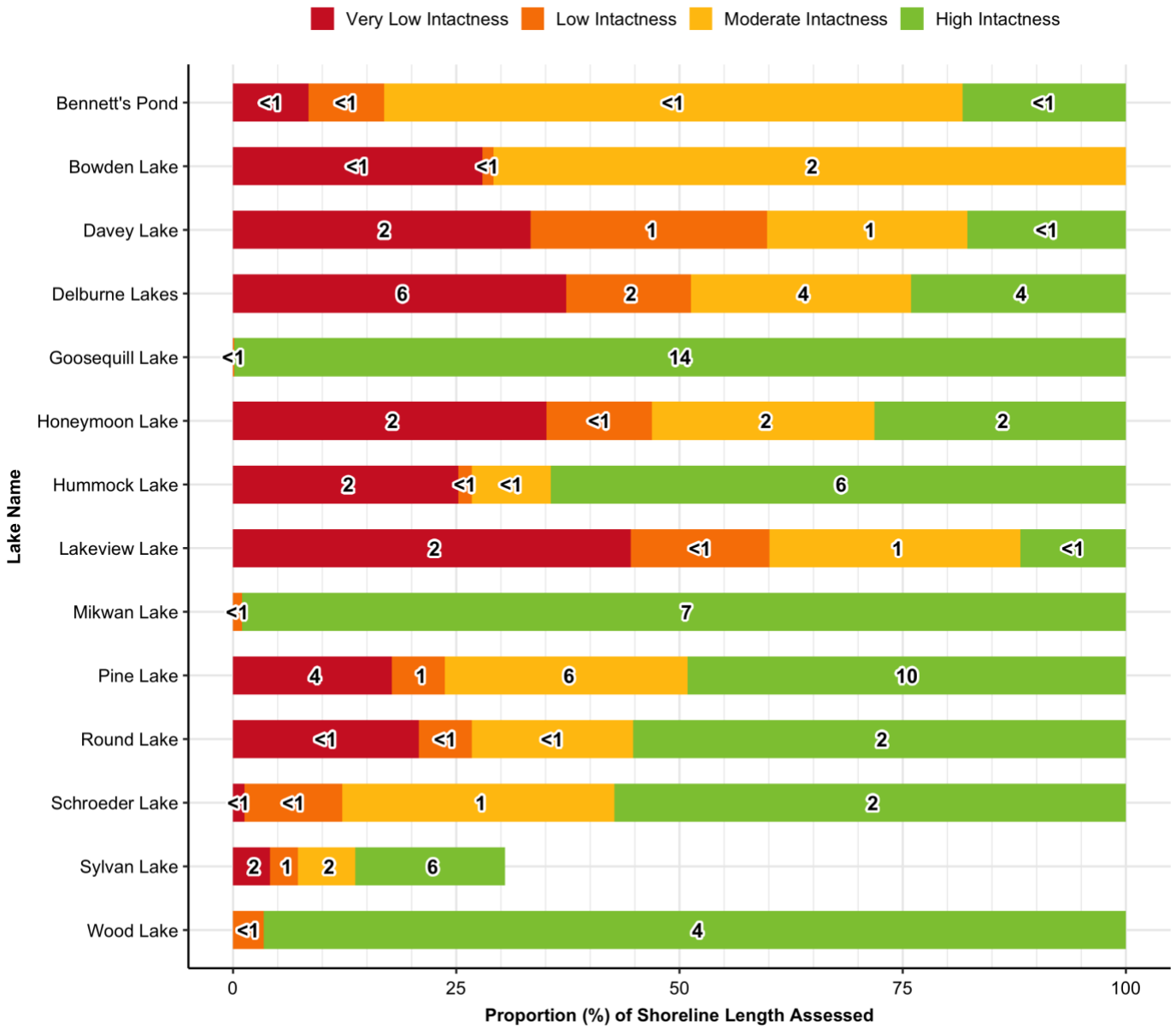


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <20 km of shoreline.

Intactness – Named & Unnamed Lakes

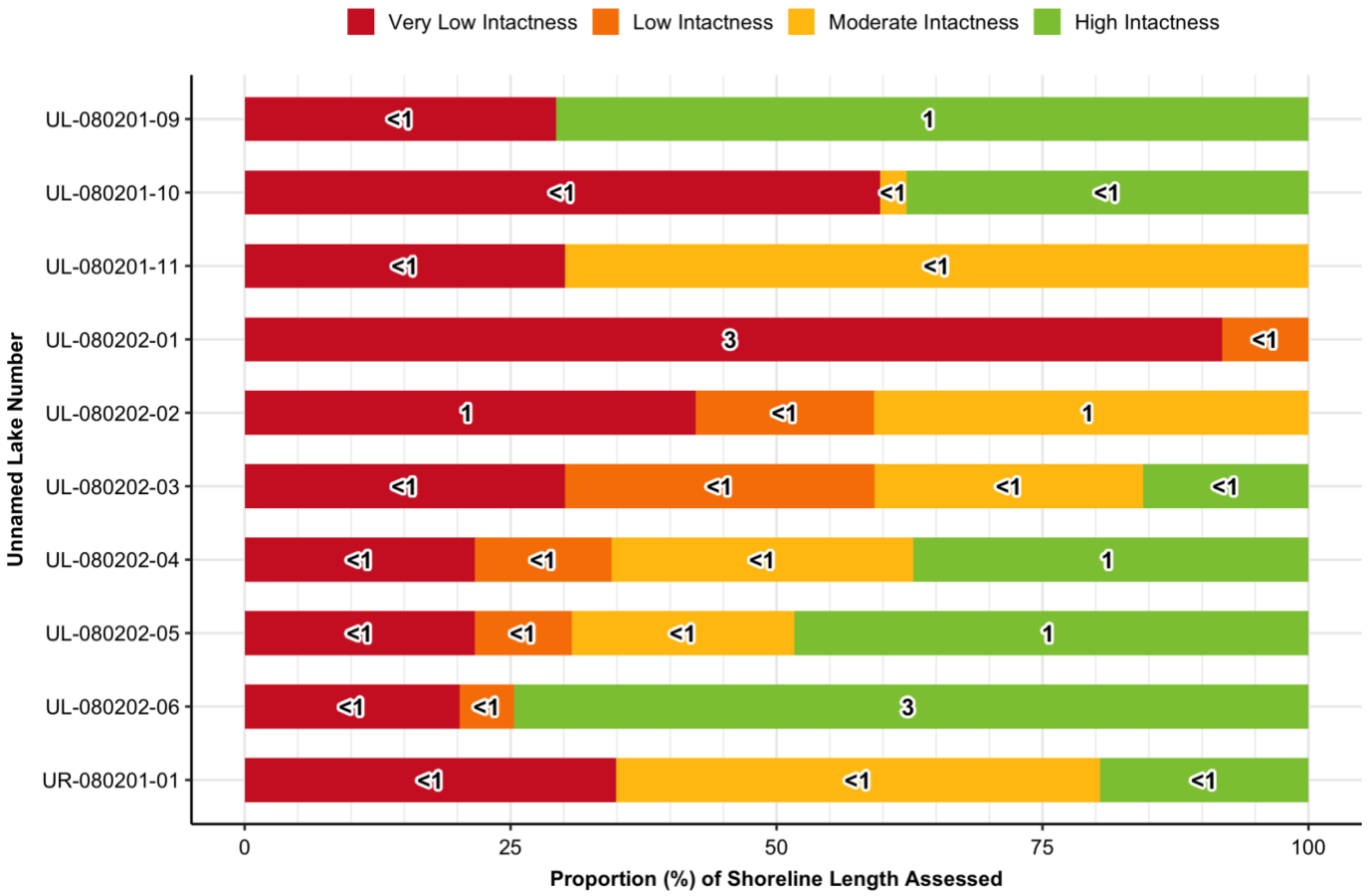


Intactness – Named Lakes



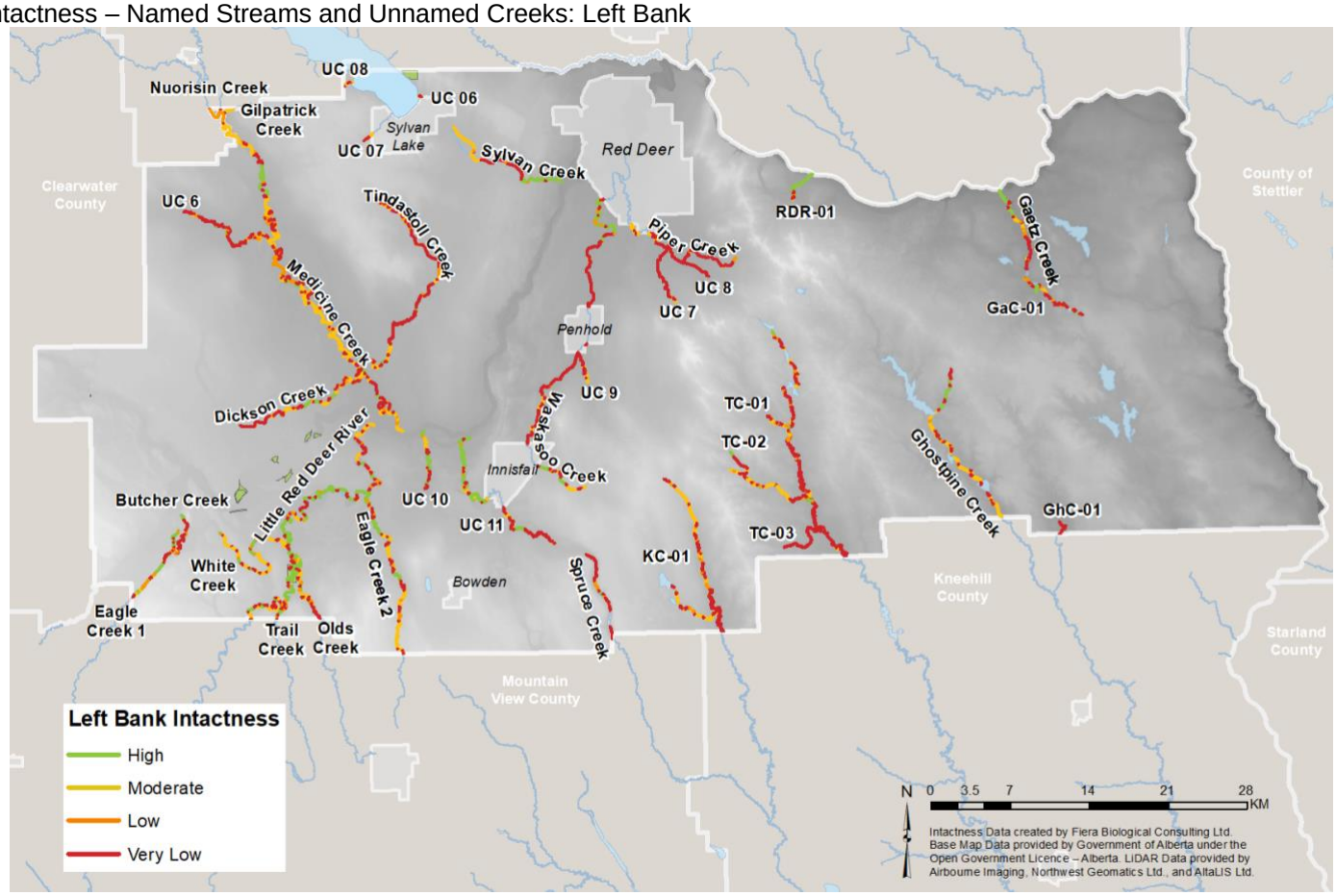
NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.

Intactness – Unnamed Lakes

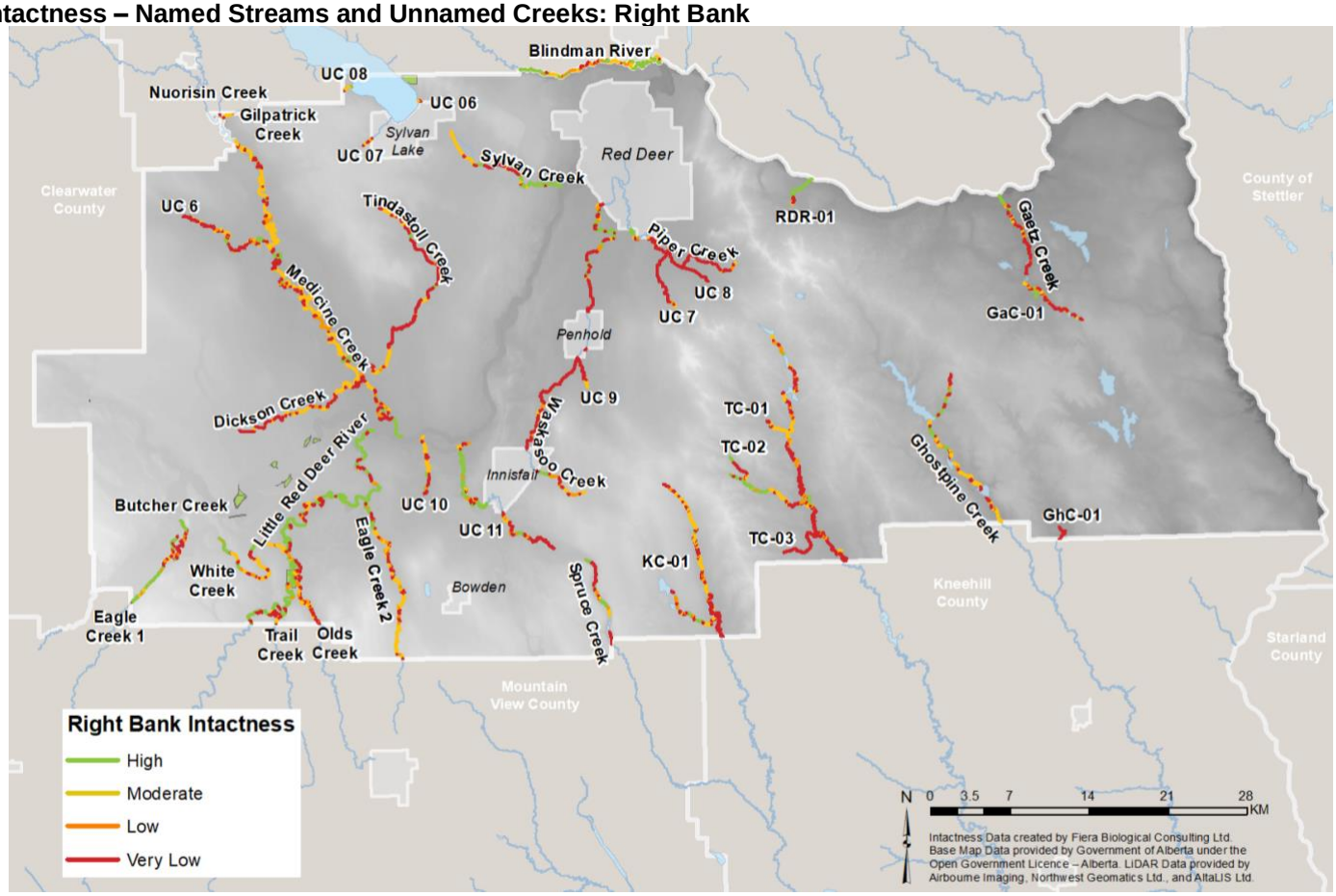


NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.

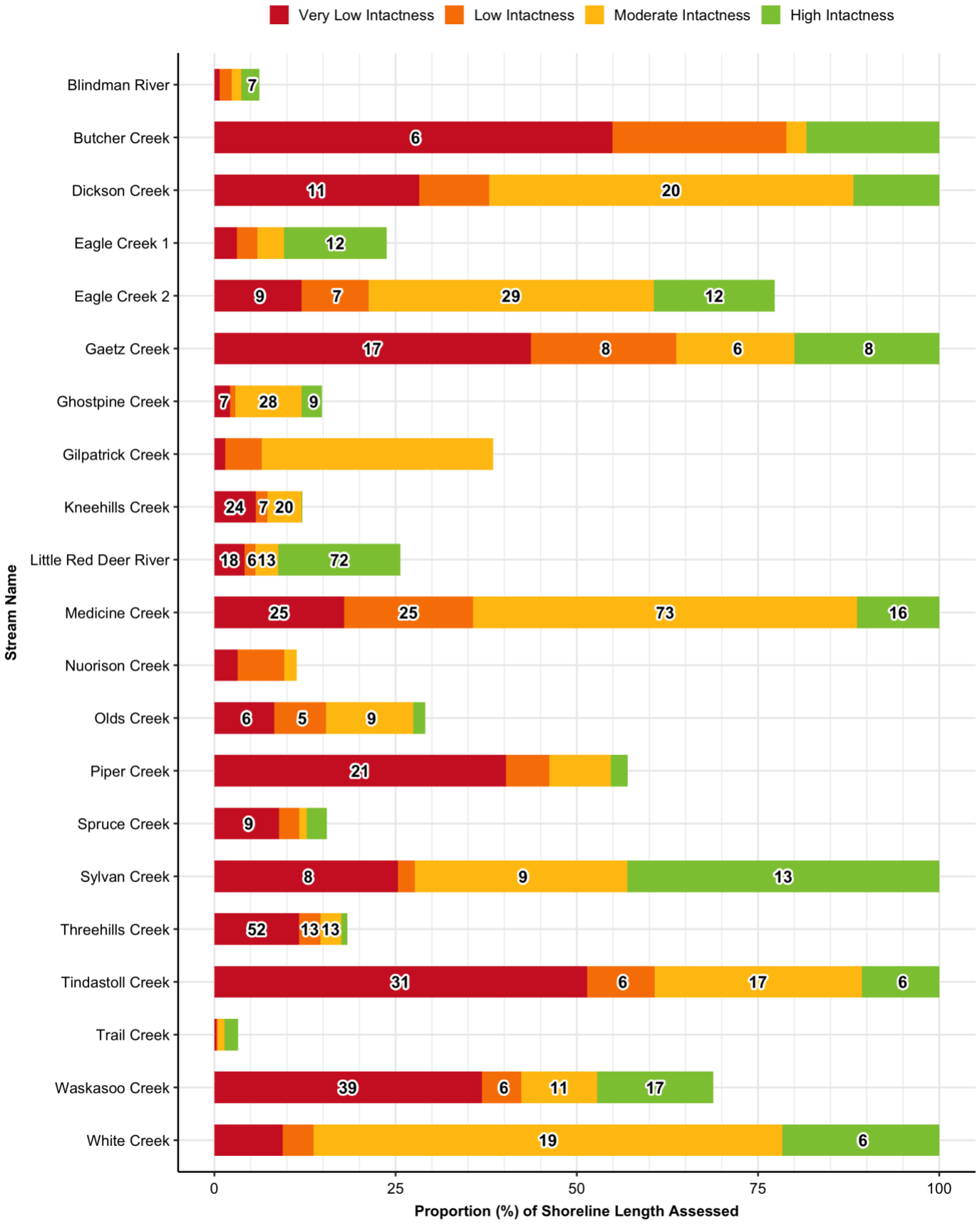
Intactness – Named Streams and Unnamed Creeks: Left Bank



Intactness – Named Streams and Unnamed Creeks: Right Bank

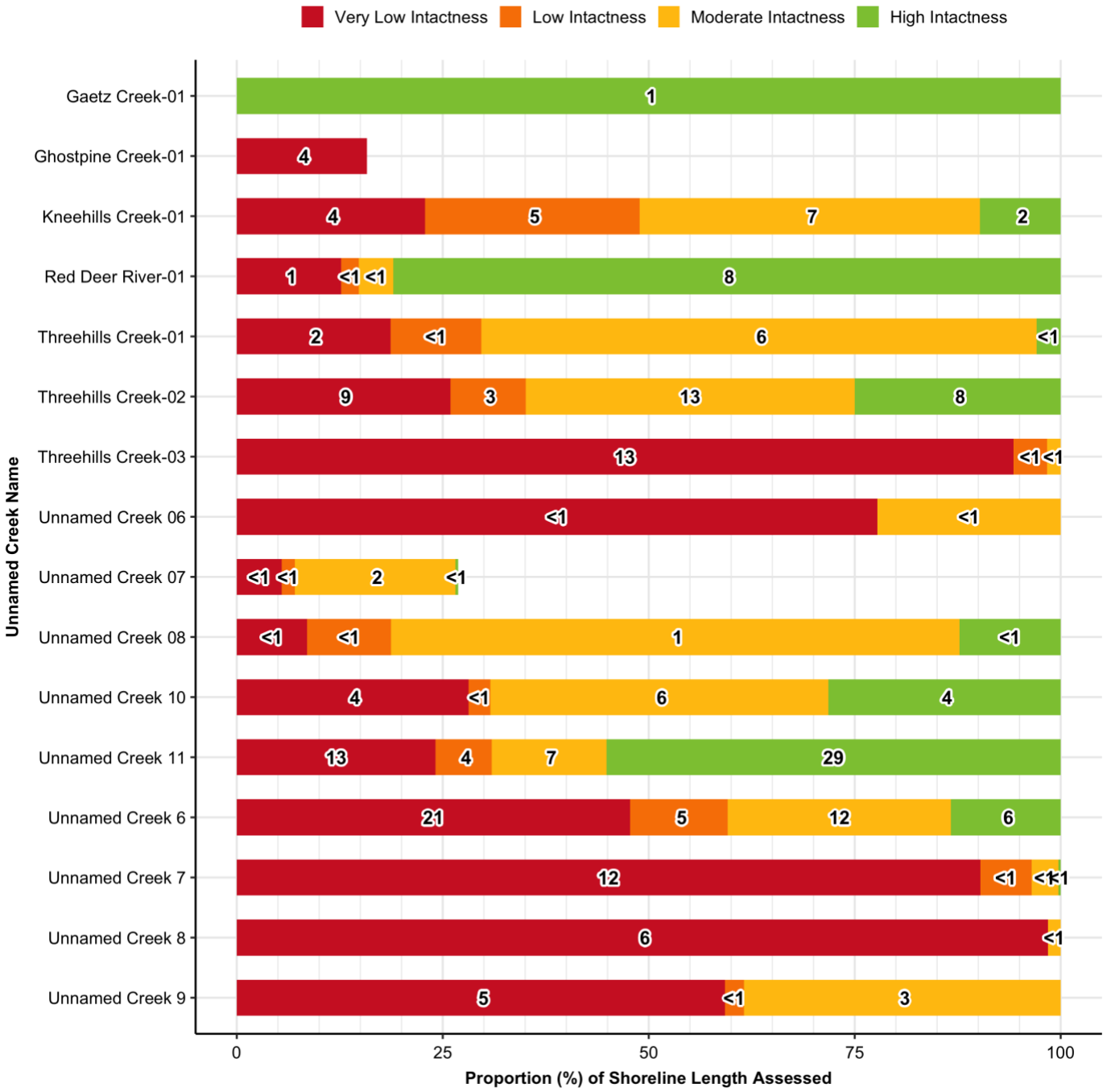


Intactness – Named Streams



NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category. Categories with no label contain <5 km of shoreline.

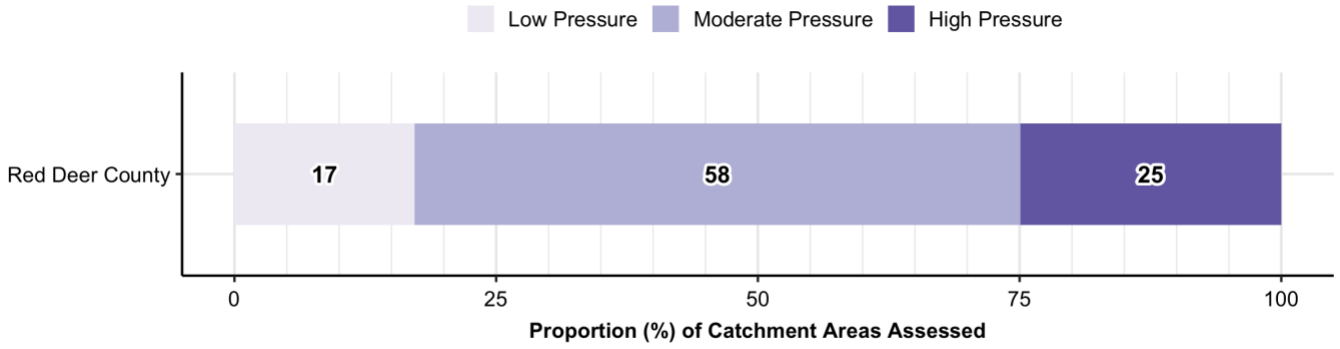
Intactness –Unnamed Creeks



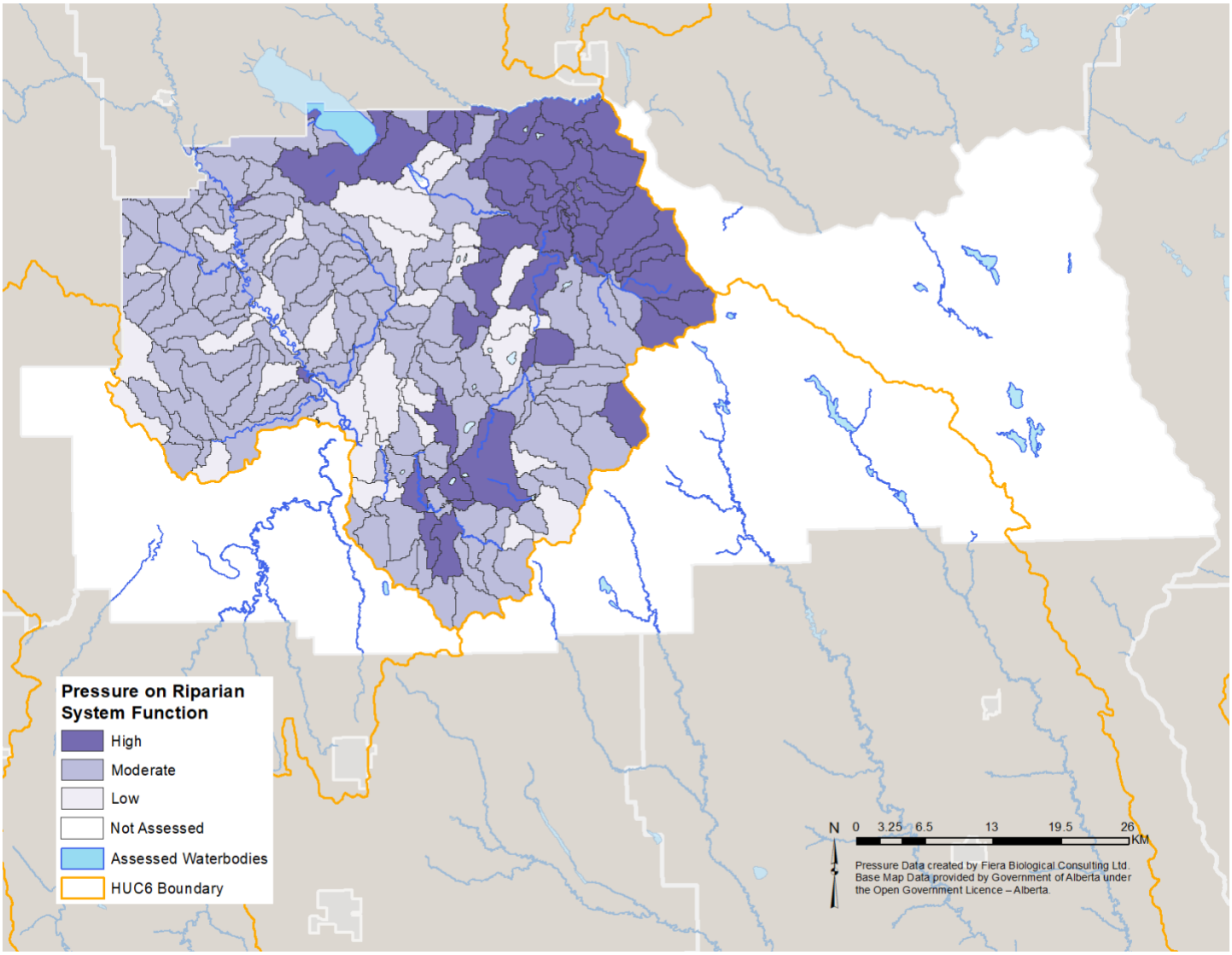
NOTE: Numbers indicate the total length (km) of shoreline associated with each intactness category.

1.5. Pressure on Riparian System Function

Overall Municipal Pressure[4]

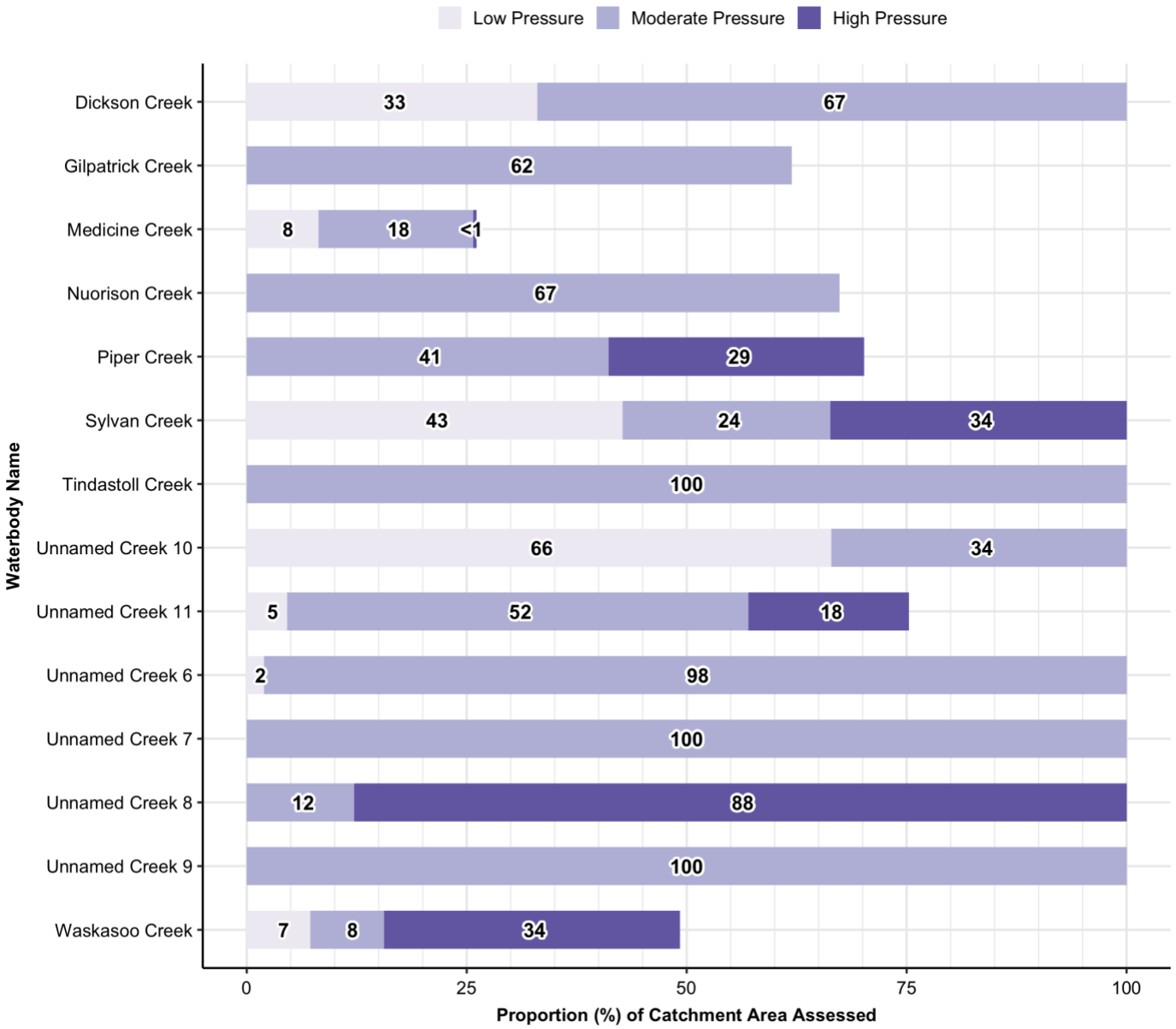


NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.



NOTE[4]: The Pressure assessment was completed using the 6 m resolution wall to wall land cover, which only exists for the Medicine-Blindman Rivers HUC 6 watershed.

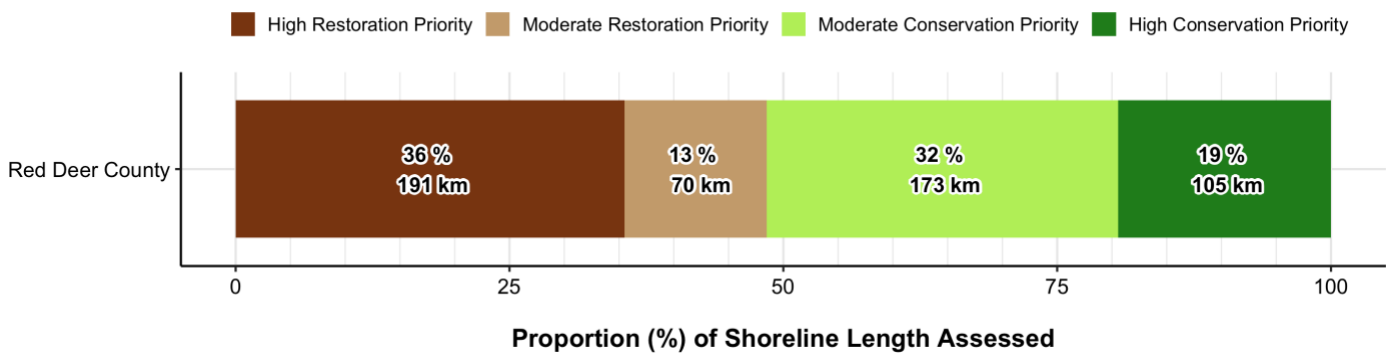
Pressure – All Waterbody Types



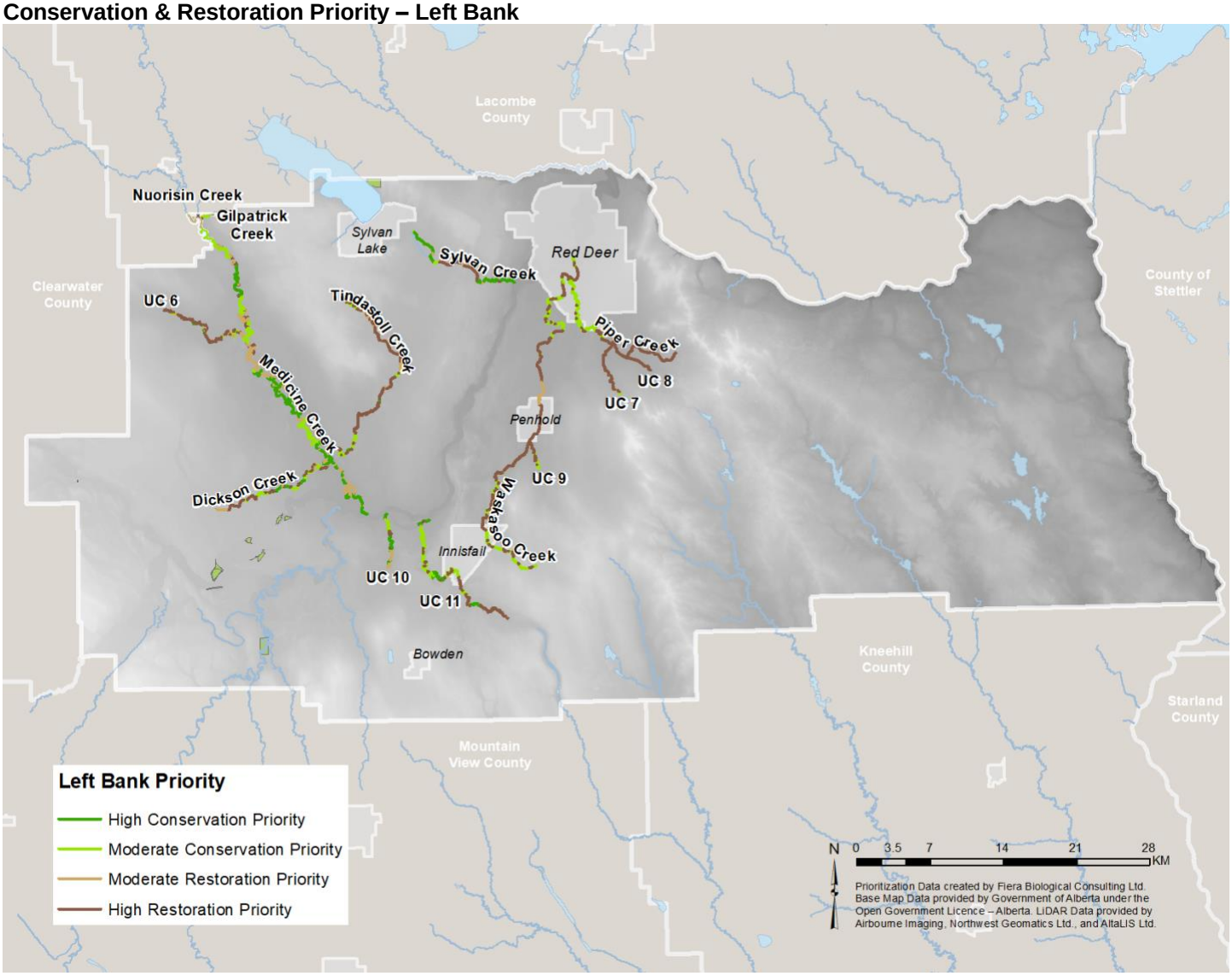
NOTE: Numbers indicate the proportion (%) of shoreline associated with each pressure category.

1.6. Conservation & Restoration Priority

Overall Municipal Conservation & Restoration Priority[5]

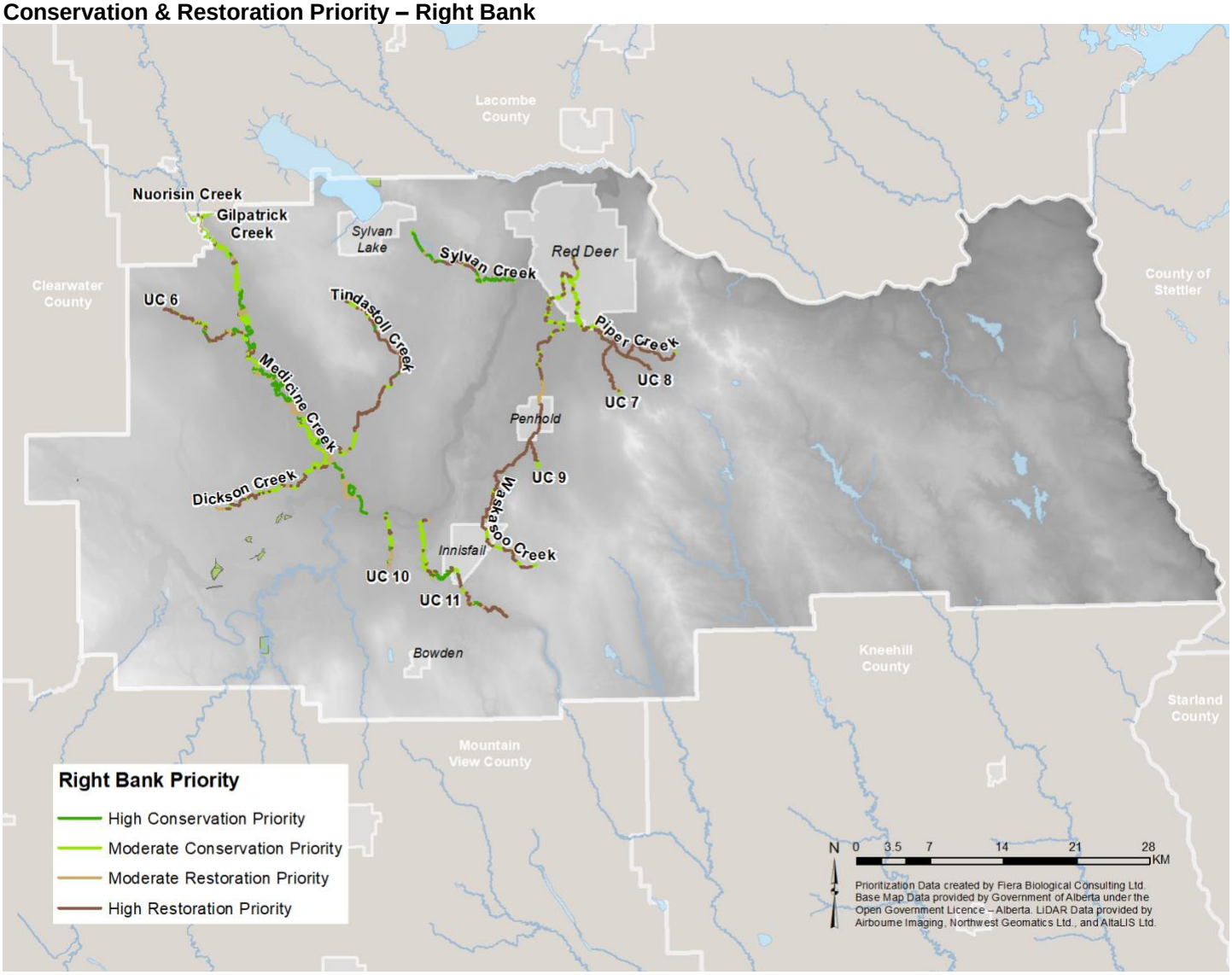


Conservation & Restoration Priority – Left Bank

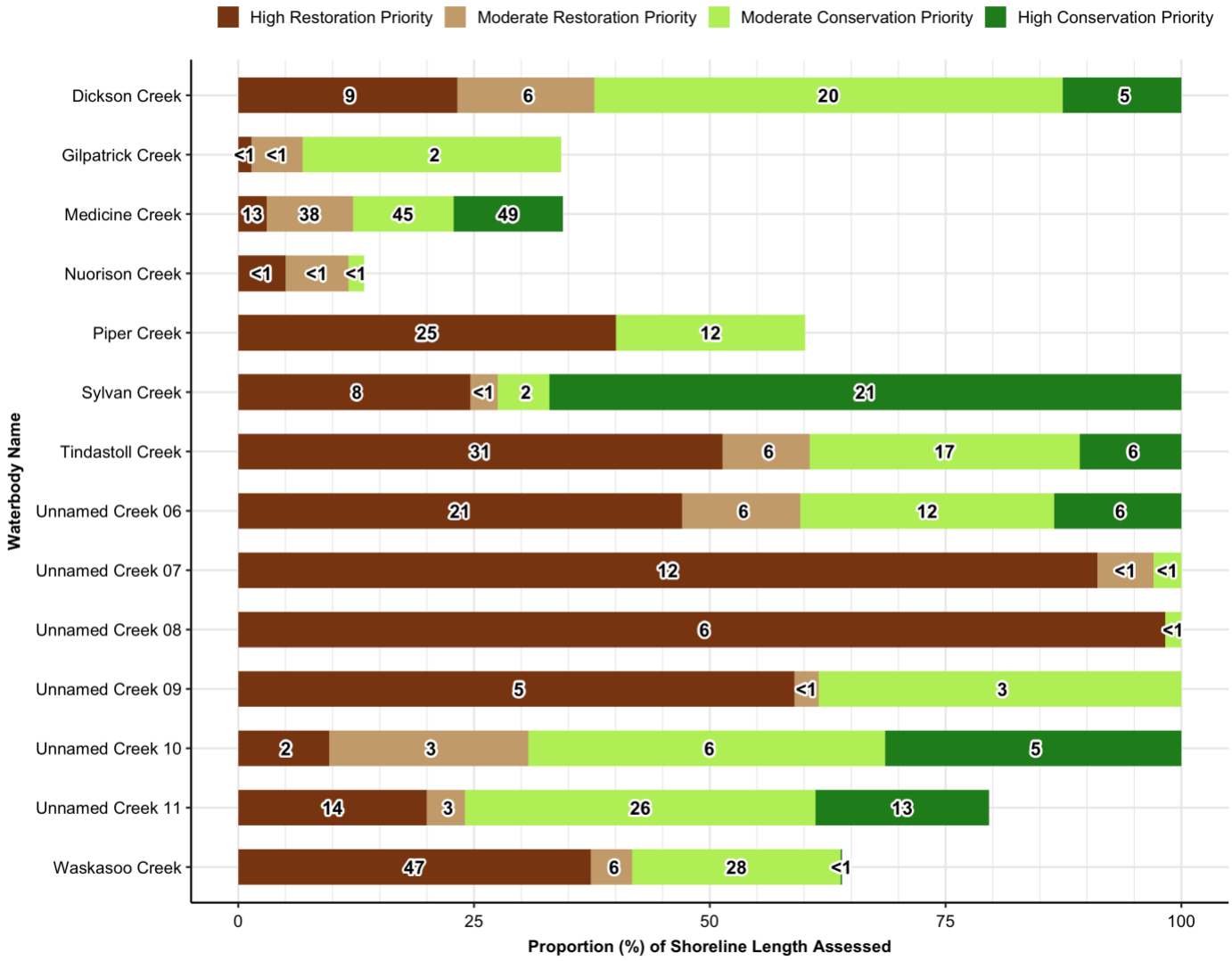


NOTE[5]: Conservation and Restoration Priority is assessed using a combination of Intactness and Pressure. Because the Pressure assessment was only completed for areas that have a 6 m resolution wall to wall land cover dataset (i.e., the Medicine-Blindman Rivers HUC6 watershed), the Conservation and Restoration Priority assessment as limited to waterbodies that intersect the 6 m land cover layer. Results from the Intactness assessment can also be used to prioritize locations for conservation and/or restoration.

Conservation & Restoration Priority – Right Bank



Conservation & Restoration Priority – All Waterbody Types



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