
Report: Intact Lands In Alberta

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Apropos Information Systems Inc.
Calgary, Alberta
403-973-5901
www.aproposinfosystems.com

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1. Report Contact

Questions regarding this report should be addressed to:

Trevor Wiens

President, Apropos Information Systems Inc.

403-973-5901

trevor.wiens@aproposinfosystems.com

2. Introduction and Summary

In the *Yahey v British Columbia* decision in June of 2021, the Supreme Court of British Columbia ruled that the Province of BC had unjustifiably infringed on the Treaty Rights of Blueberry First Nation. In terms of land disturbance the court accepted that as of 2018 that 85% of Blueberry's territory was within 250 m of industrial disturbance and that 91% was within 500 m of a disturbance. Justice Burke found that the province had taken up lands so extensively that there were not enough or appropriate lands for Blueberry to meaningfully exercise their treat rights (Hamilton and Ettinger 2023).

Apropos works with a variety of Indigenous clients in Alberta and we often hear concerns about cumulative impacts so we decided to do an initial GIS desktop examination of this question with public data from the Alberta Biodiversity Monitoring Institute (ABMI). This analysis describes a situation in Alberta that is very similar to what was found in the Blueberry case with only 9.4% being sufficiently far from development to be considered viable for the meaningful and safe exercise of rights. The situation in Alberta and in the Blueberry case are so similar that it seems reasonable to assert that Indigenous land users in Alberta also suffer from insufficient amounts and insufficient quality of lands to meaningfully exercise their rights.

This report is an update to the original published on 2023-12-06 and includes separate analyses for Treaties 6, 7 and 8. This version also uses numbers instead of letter grade style codes to classify intact lands.

3. Methods

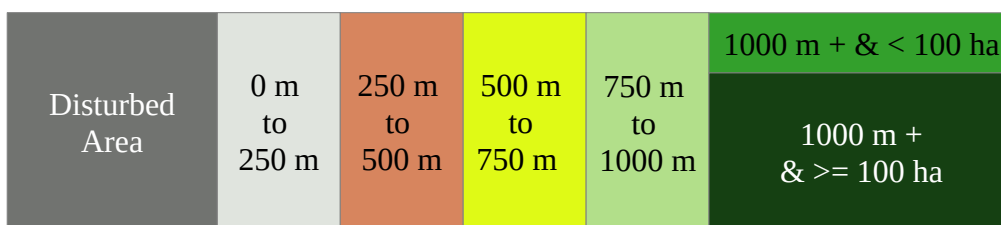
The Alberta Biodiversity Monitoring Institute (ABMI 2023) produces an Human Footprint Index (HFI) GIS layer regularly. This layer is based on provincially accepted data on where there are human footprints or disturbances in the landscape. The most recent of these analysis was released in 2023 based on data from 2021.

The HFI layer was buffered by 250 m, 500 m, 750 m and 1000 m. The first two values were selected to match the metrics in the Blueberry discussion. The second two distances were selected because they were multiples of the initial distances and are similar to some of the setback distances for the province of Alberta for some grassland species such as colonial nesting birds, raptors and some grouse (GOA 2011). These distances also correlated with the general message the author has received over his professional career from Indigenous land users about the need for areas for traditional use to be well removed from disturbances for the plants, air, waters, fish and animals to be healthy and clean.

Discrimination between types of disturbances was not undertaken for this exercise because the primary focus of this exercise was to identify undisturbed lands.

After buffering was completed, areas of water were removed from the buffer results using a GIS difference operation. Next the ABMI disturbance data and each buffered layer were compared against the provincial area using GIS difference operations to create layers of undisturbed areas. The resulting layers were in turn analyzed against the next farthest difference layer to create a series of nested rings around a disturbance. Lastly, areas that were 1000 m or more from a disturbance were grouped into those of 100 ha and more in size and those smaller than 100 ha. This arrangement is illustrated in the figure below.

Figure 1 – Buffer Zones Around Disturbances Based on Distance from the Disturbance



Next the areas within parks and protected areas were removed from each layer using a difference operation and the classification of the 1000 m areas by size was redone to account for areas that might be split along protected area boundaries.

The top four most valuable intact area classes, areas 500 m or more from a disturbance, were merged into a single layer for use within the LOUIS Toolkit platform so that clients can assess each project that they review with LOUIS Planner for its impact against the valuable and rare intact lands in Alberta. To add value to this analysis, this layer was intersected with the ABMI landscape classes so that the general types of habitats within each intact area class can be assessed.

GIS operations were conducted using a combination of ArcGIS Pro 3.2, PostGIS 3.3.4 in PostgreSQL 13.13 and QGIS 3.28.

4. Results

The tabular summaries of this GIS analysis are listed in the tables below.

4.1 Alberta

This section presents a summary of intact lands across Alberta including and excluding areas within parks and protected areas. The reason that parks and protected areas are excluded in most cases is because Indigenous people are not currently permitted to assert their jurisdiction which includes the practice of rights in those areas.

Table 1 – Intact Land Classes Definition and Composition of Alberta in 2021 (excluding water areas)

Label	Description	Percent of Alberta Area Including Parks & Protected Areas	Percent in Alberta Area Excluding Parks & Protected Areas
1	Areas 1000 m from a disturbance and 100 ha in area or larger	13.48	4.78
2	Areas 1000 m from a disturbance and smaller than 100 ha	0.13	0.14
3	Areas between 750 m and 1000 m from a disturbance	1.68	1.42
4	Areas between 500 m and 750 m from a disturbance	3.21	3.06
5	Areas between 250 m and 500 m from a disturbance	8.04	8.36
6	Areas between 0 m and 250 m from a disturbance	41.08	45.44
7	Disturbed Lands	32.38	36.79

It is noteworthy that when protected areas are removed, the proportion of disturbed lands and lands within 250 m or 500 m of a disturbance increases.

If protected areas are considered then 73.5 percent of the province has been disturbed or is within 250 m of a disturbance. If protected areas are removed from consideration then 82.2 percent of the province is disturbed or is within 250 m of a disturbance. For disturbed areas and areas within 500 m of a disturbance the numbers are 81.5% if protected areas are included and 90.6% if protected areas are excluded. This level of disturbance represents a significant loss of use to the exercise of rights.

The lands that will clearly have the most potential for the meaningful practice of rights are those 500 m or greater from a disturbance; for simplicity we will refer to these as priority intact lands. The priority intact lands outside protected areas only constitute 9.4% of the land area outside protected areas in Alberta.

A significant portion of the mostly intact 9.4% is in areas adjacent to the Jasper and Banff National Parks and in the Peace Athabasca delta next to Wood Buffalo National Park as shown in Figure 1. The majority of Indigenous land users do not have ready access to these areas and these areas are not representative of all the ecosystems in Alberta used by Indigenous people. Table 2 provides a breakdown of intact areas by land cover for the priority intact lands.

Figure 1 – Map of Disturbed and Intact Lands in Alberta outside of Protected Areas

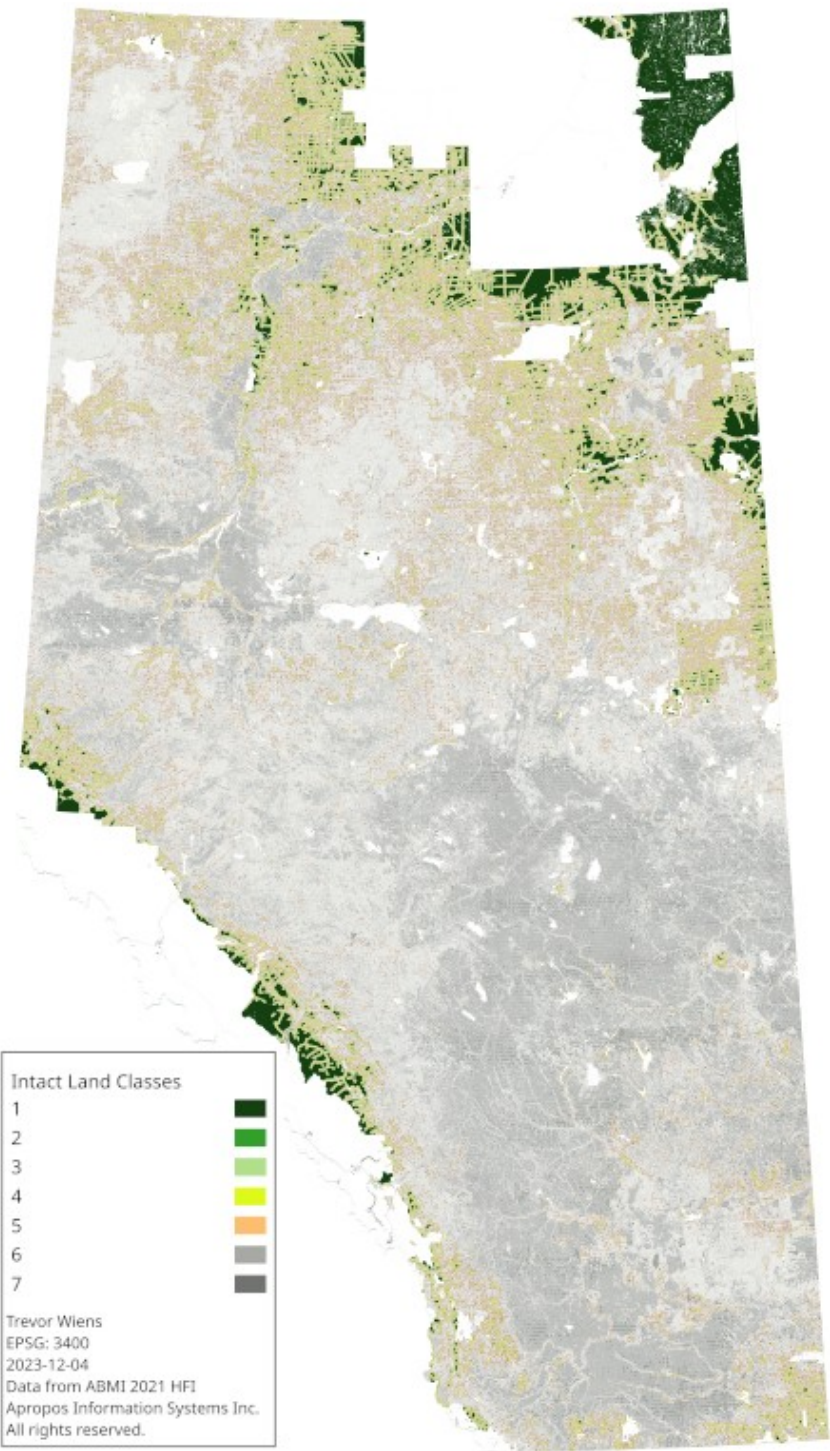


Table 2 – Area of Priority Intact Lands by Intact Class and Land Cover Class (ha)

Land Cover Type / Intact Class	1	2	3	4
Water	2	< 1	< 1	1
Snow / Ice	9	< 1	< 1	< 1
Rock / Rubble	1536	5	150	128
Exposed Land	182	5	47	113
Developed	< 1	< 1	< 1	4
Shrubland	6618	125	1666	3242
Grassland	432	72	552	1675
Agriculture	2	3	15	70
Coniferous Forest	13016	254	3409	7192
Broadleaf Forest	3047	175	1520	3403
Mixed Forest	1750	51	579	1215

Table 3 – Proportion of Priority Intact Lands by Intact Class and Land Cover Class (% of priority intact areas*)

Land Cover Type / Intact Class	1	2	3	4
Water	< 1	< 1	< 1	< 1
Snow / Ice	< 1	< 1	< 1	< 1
Rock / Rubble	3	< 1	< 1	< 1
Exposed Land	< 1	< 1	< 1	< 1
Developed	< 1	< 1	< 1	< 1
Shrubland	14	< 1	3	7
Grassland	1	< 1	1	3
Agriculture	< 1	< 1	< 1	< 1
Coniferous Forest	27	1	7	15
Broadleaf Forest	6	< 1	3	7
Mixed Forest	4	< 1	1	2

* Percentages shown are of the proportion of the 9.4% of Alberta outside of protected area that is most intact

The breakdown of the more 9.4% of Alberta that remains somewhat intact highlights the rarity of certain land cover classes. The most rare land cover classes are grasslands and mixed forests followed by broadleaf forests, shrub lands and lastly coniferous forest which is the most abundant.

4.2 Treaty 8 in Alberta

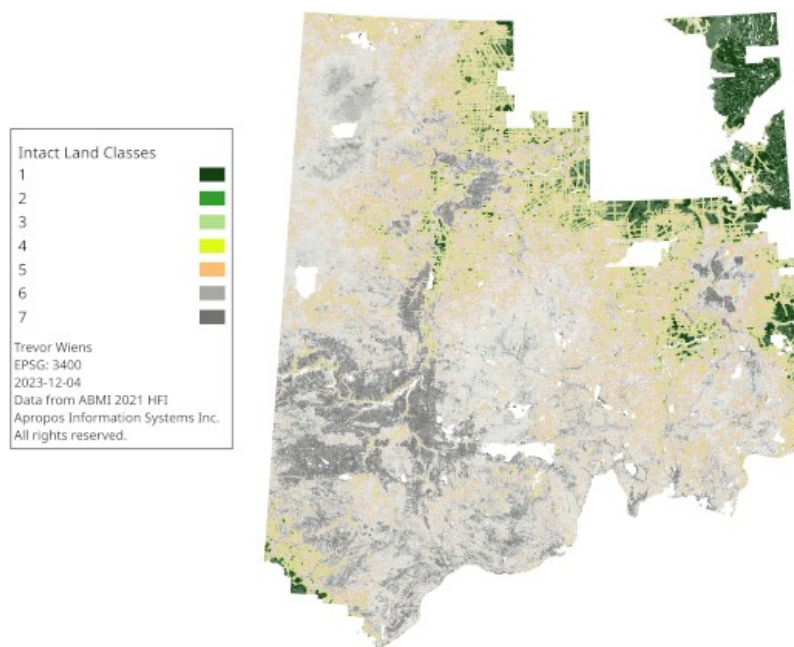
In this region 74.31% of the land is disturbed or within 250 m of a disturbance if protected areas are excluded from consideration. In this region 85.92% of the land is disturbed or within 500 m of a disturbance. This level of disturbance represents a significant loss of use to the exercise of rights. The details are found in Table 4.

Table 4 – Treaty 8 Intact Land Classes Definition and Composition in 2021 (excluding water areas)

Label	Description	Percent of Area Excluding Parks & Protected Areas
1	Areas 1000 m from a disturbance and 100 ha in area or larger	7.46
2	Areas 1000 m from a disturbance and smaller than 100 ha	0.18
3	Areas between 750 m and 1000 m from a disturbance	2.05
4	Areas between 500 m and 750 m from a disturbance	4.38
5	Areas between 250 m and 500 m from a disturbance	11.61
6	Areas between 0 m and 250 m from a disturbance	54.95
7	Disturbed Lands	19.36

At first glance, the resulting value of 14.08% of the lands in Treaty 8 in Alberta outside of parks and protected areas looks promising when compared to the rest of the province. However examination of the map in Figure 2 clearly shows that the majority of these lands are near Lake Athabasca and not representative of all the ecosystems in the Treaty 8 region. If those intact lands near Lake Athabasca are removed from the calculation it leaves roughly 12% of lands in Treaty 8 that could be considered intact. For this region the protection of intact lands and the identification of lands suitable for restoration is critical for the continued safe and meaningful exercise of rights by Indigenous people.

Figure 2 – Map of Disturbed and Intact Lands in Treaty 8 in Alberta outside of Protected Areas



4.3 Treaty 6 in Alberta

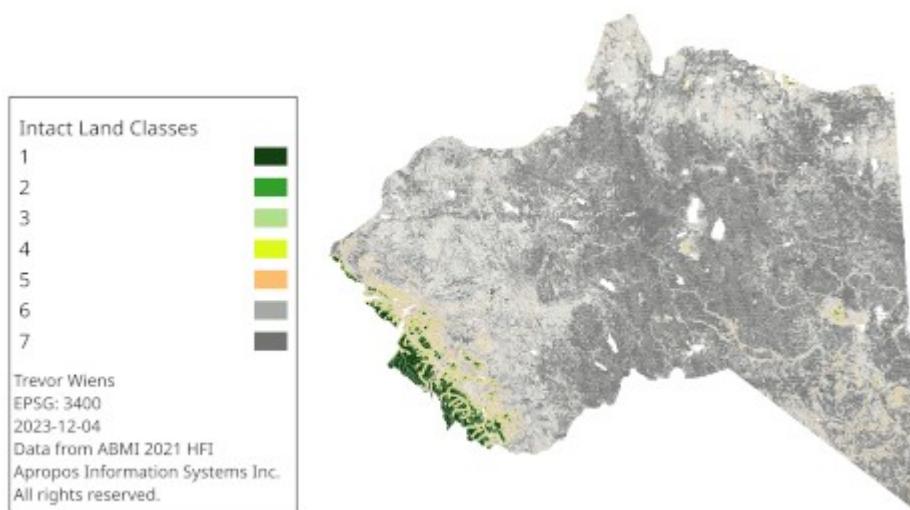
Treaty 6 in Alberta has experienced a great deal of development and thus has very little intact land. In this region 94.4% of the land is disturbed or within 250 m of a disturbance if protected areas are excluded from consideration. Also in this region 96.86% of the land is disturbed or within 500 m of a disturbance. This level of disturbance represents a significant loss of use to the exercise of rights. The details are found in Table 5.

Table 5 – Treaty 6 Intact Land Classes Definition and Composition in 2021 (excluding water areas)

Label	Description	Percent of Area Excluding Parks & Protected Areas
1	Areas 1000 m from a disturbance and 100 ha in area or larger	1.94
2	Areas 1000 m from a disturbance and smaller than 100 ha	0.02
3	Areas between 750 m and 1000 m from a disturbance	0.43
4	Areas between 500 m and 750 m from a disturbance	0.74
5	Areas between 250 m and 500 m from a disturbance	2.46
6	Areas between 0 m and 250 m from a disturbance	33.67
7	Disturbed Lands	60.73

With only 3.14% of the area within Treaty 6 in Alberta outside of parks and protected areas it is clear that there are insufficient lands for the safe and meaningful exercise of rights for Indigenous people in this region. With so little left the the protection of intact lands is critical. Equally important is the identification of lands suitable for restoration and funding for Indigenous led restoration is critical for the continued safe and meaningful exercise of rights by Indigenous people.

Figure 3 – Map of Disturbed and Intact Lands in Treaty 6 in Alberta outside of Protected Areas



4.4 Treaty 7 in Alberta

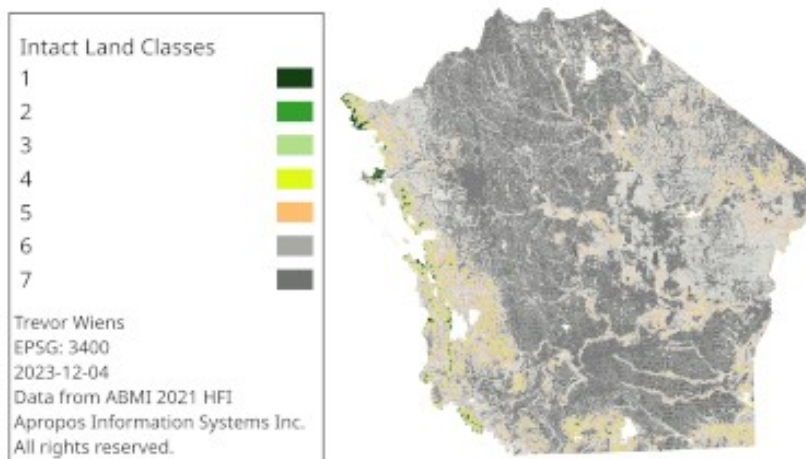
Treaty 7 in Alberta has experienced a great deal of development and thus has very little intact land. In this region 92.39% of the land is disturbed or within 250 m of a disturbance if protected areas are excluded from consideration. Also in this region 97.42% of the land is disturbed or within 500 m of a disturbance. This level of disturbance represents a significant loss of use to the exercise of rights. The details are found in Table 6.

Table 6 – Treaty 7 Intact Land Classes Definition and Composition in 2021 (excluding water areas)

Label	Description	Percent of Area Excluding Parks & Protected Areas
1	Areas 1000 m from a disturbance and 100 ha in area or larger	0.54
2	Areas 1000 m from a disturbance and smaller than 100 ha	0.05
3	Areas between 750 m and 1000 m from a disturbance	0.54
4	Areas between 500 m and 750 m from a disturbance	1.44
5	Areas between 250 m and 500 m from a disturbance	5.03
6	Areas between 0 m and 250 m from a disturbance	30.85
7	Disturbed Lands	61.54

With only 2.58% of the area within Treaty 7 in Alberta outside of parks and protected areas it is clear that there are insufficient lands for the safe and meaningful exercise of rights for Indigenous people in this region. With so little left the the protection of intact lands is critical. Equally important is the identification of lands suitable for restoration and funding for Indigenous led restoration is critical for the continued safe and meaningful exercise of rights by Indigenous people.

Figure 4 – Map of Disturbed and Intact Lands in Treaty 7 in Alberta outside of Protected Areas



5. Discussion and Recommendations

Using the metrics from the Blueberry decision, this analysis suggests that Province of Alberta has failed in to ensure that there sufficient lands of adequate quality for Indigenous land users to meaningfully exercise their rights.

The treaty region analyses highlight the general the lack of suitable lands for most Indigenous land users. These numbers align with the author's professional experience of being told by many Indigenous land users that they need to travel long distances each year to find suitable areas to practice rights.

First Nations are the fastest growing population within Canada and there is a concerted effort within Indigenous communities to reclaim their languages, culture and practices. These laudable goals requires more lands in the future than are needed today which pushes against the trend of less and less suitable land over time.

This confluence of currently insufficient lands and the need for more land in the future requires immediate action potentially including:

1. Legal protection for remaining intact lands so they are not lost.
2. Previously disturbed lands that can be restored should be identified by Indigenous people. The cost of restoration should be funded by the industry operator responsible for the disturbance and degradation of those lands. Indigenous people of those areas should be funded to do that restoration work to ensure its quality and to support the rightful land stewardship by Indigenous people. Note that Indigenous metrics of restoration are much more robust than the legal requirements of reclamation which do not meet the need of lands of sufficient quality for the safe and meaningful exercise of rights.
3. Future developments must include an assessment of cumulative impacts and as such there should be a moratorium placed on all new oil, gas and forestry in province until such time that a robust cumulative impact assessment framework can be developed. Such a framework would need to be developed in close collaboration with Indigenous land users and knowledge holders.
4. As part of the moratorium recommended above, adjustments should be made to the amount of funds needed to get development permits. Ideally the full cost of cleanup is secured up front and managed conservatively to ensure funds are available to clean-up abandoned projects.
5. Forestry rotation periods should be extended to 120 years to allow for a more natural forest structure. At time of writing some forest management plans in Alberta plans have rotation periods as short as 60 years.
6. Indigenous led burning practices should be implemented to help mitigate fire risk which threatens both commercial and intact areas.

6. Summary

As stated in the methods, this analysis was done with a focus on intact lands. More complex analyses could be done to look at issues such as the variation in impact of different types of disturbance or the ecological connectivity for different species. Those more complex analyses would add nuance to this message, but the core problem remains that very little of Alberta remains undisturbed and this creates significant challenges for the ecological integrity of the land.

Some technical solutions have been suggested to address the significant loss of use to the exercise of rights. It should be noted however that a key theme of the recommendations involves by federal and provincial leadership engaging with Indigenous people's in good faith and working with them in a collaborative and respectful manner.

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