

Improving Human Disturbance Data in Northeast BC

Effective restoration begins with an accurate understanding of existing conditions on the land.

What is Human Disturbance

Human Disturbance is the alteration or conversion of native ecosystems to temporary or permanent residential, recreational, agricultural, or industrial landscapes. This includes land periodically reset to earlier successional conditions by industrial activities like forestry cut blocks, seismic lines and resource roads. This does not include natural disturbances like wildfire, pests, and landslides, nor the unaltered natural land base.



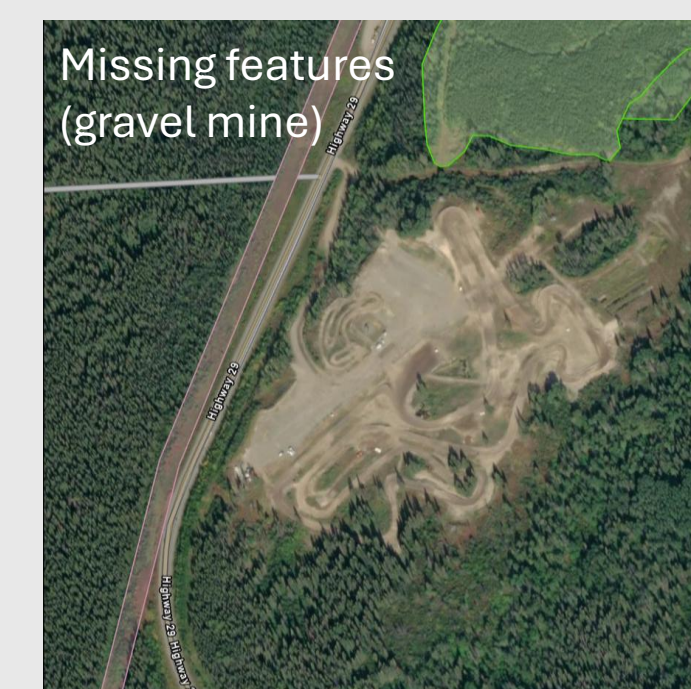
Project extent: Northeast Region, BC

Why Human Disturbance Information Matters

The Human Disturbance Datasets support data-informed decision-making by showing where and how human activity has altered the landscape. The datasets are intended for a wide range of audiences, including decision-makers, qualified professionals, First Nations, and local communities. They can be used in various applications such as cumulative effects assessment, land-use planning, permitting, conservation, and restoration planning.

The Challenges

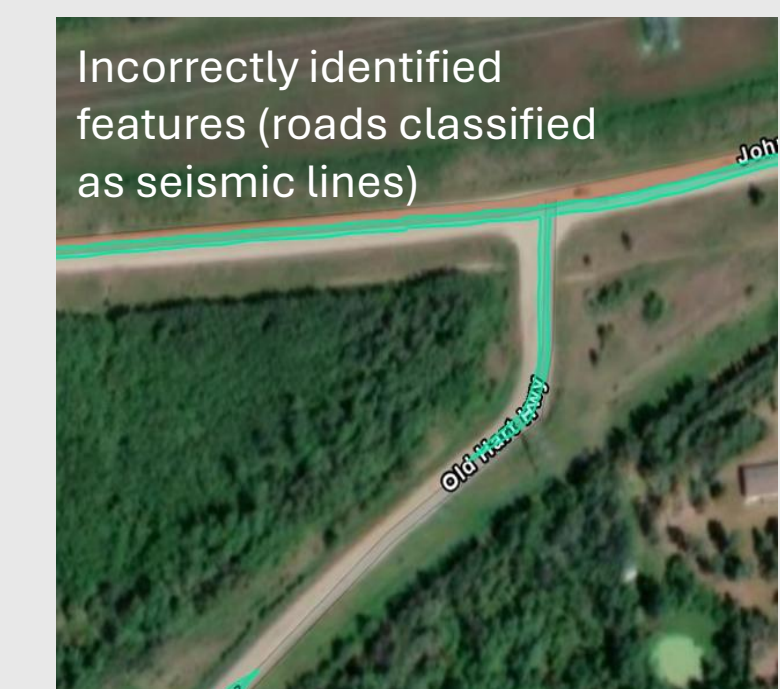
Previous Human Disturbance datasets relied entirely on the consolidation of existing base datasets of varying quality, completeness and temporal currency. These datasets contain missing or obsolete disturbances, and features that are incorrectly delineated or categorized. These inaccuracies affect data analysis and decision-making, limiting dataset use to only a coarse landscape scale.



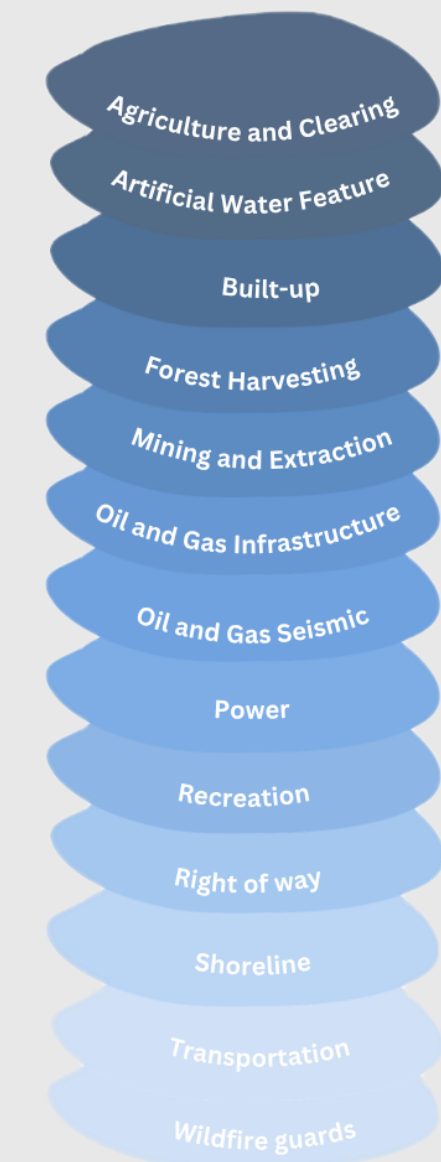
Missing features (gravel mine)



Generalized disturbance (mining footprint shown larger than the actual mining extent)



Incorrectly identified features (roads classified as seismic lines)



Disturbance Groups

What are the Northeast Human Disturbance Datasets

The Northeast Human Disturbance Datasets are a series of spatial datasets that show where human activities have altered the landscape in Northeast BC. Disturbances are divided by disturbance type into 13 groups and 37 sub-group categories. The data suite now includes an individual polygon dataset for each Group type in addition to a consolidated dataset with disturbance group types organized by a ranked hierarchy, determined by permanence on the landscape.

The Key Issue: Current human disturbance datasets may not fully reflect the extent of human-caused landscape disturbance because of inconsistencies in the quality and availability of source data.

The Project and Manual Data Review Process

Review existing data



Digitize missing features



Update footprints & categorization



Improve accuracy and useability



Support informed planning and management

Manual Disturbance Digitization

Developed in discussion with representatives from the Treaty 8 Disturbance Group (Treaty 8 Collaborative Stewardship Forum), this project involves manually reviewing, digitizing, and updating human disturbance footprints across the Northeast region.

Human disturbance footprints will be digitized from satellite imagery using standardized specifications:

- **Digitization Scale** - Features visible at 1:5,000 scale or greater.
- **Minimum Mapping Unit** - Applied by disturbance type.
- **Field Validation** - In September 2026, sites near Fort St. John were field-verified to validate mapping accuracy and compare imagery-based classifications with on-the-ground observations.

Data Model Improvements

Based on input from end users, including the Treaty 8 Disturbance Group, the project adds enhanced disturbance attribution and preserves individual disturbance groups to support more detailed analysis, including:

- Improve attribution and disturbance classification.
- Expand descriptive information by disturbance type.
- Report undissolved disturbance groups to better support analysis of disturbance history and cumulative effects.



Original dataset

Province of BC Human Disturbance Dataset (2025)

Imagery Specifications

Source: Geophoton LuscidEye AI super-resolution (Sentinel-2), 2.5 meter ground pixel size
Timeframe: May to September 2025



Updated dataset

Complementary Efforts in Research Stage

Restoration Data Amalgamation: Development of a centralized restoration project tracking dataset is currently underway and is being coordinated with other provincial restoration initiatives.

Regeneration Monitoring: The use of remote sensing techniques, including satellite imagery and lidar, to identify disturbed areas that are potentially undergoing regeneration is being explored.

Incorporation of Lidar: Opportunities to leverage the LidarBC data collection initiative are being evaluated, with lidar technology being incorporated where feasible to enhance disturbance mapping and analysis.

Linear Feature Detection: Artificial intelligence and machine learning approaches are being explored to improve the detection and mapping of resource roads and other linear disturbances.

Better Data



Better Understanding



Better Restoration

Desired Outcomes

- Support stewardship
- Guide restoration planning
- Inform land-use decisions
- Depict landscape conditions
- Build relationships by working together

Supporting Restoration

- Understand current conditions
- Identify restoration opportunities
- Prioritize restoration efforts
- Support informed planning
- Integrate Treaty 8 knowledge

Key Takeaway: A more accurate picture of human disturbance will provide a stronger foundation for restoration, stewardship, and informed land management across Northeast BC.