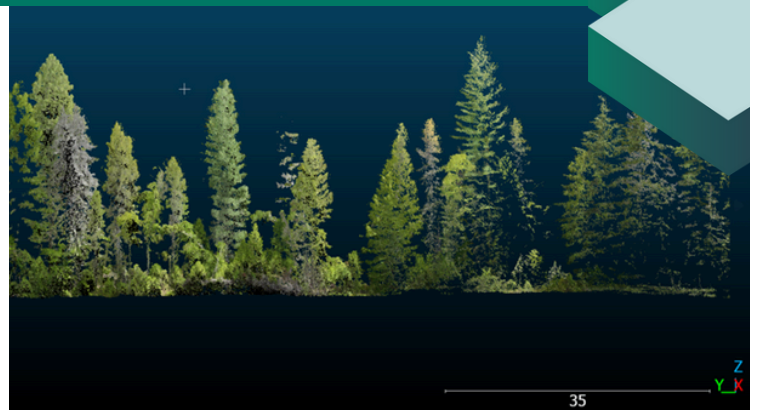


Innovative Environmental Research for the Natural Resource Sector

GIS & NATURAL RESOURCE MANAGEMENT



We conduct applied environmental and geospatial research focused on solving real-world challenges across the mining, forestry, fisheries, and water resource sectors.

Our team integrates drone technology, remote sensing, and advanced spatial analysis to push the boundaries of what is possible in monitoring, assessment, and environmental planning.

Our research is designed to be modular, scalable, and transferable across sectors. Whether it's improving restoration design, understanding carbon storage potential, or enhancing biodiversity mapping, our methods offer powerful tools for future-ready natural resource management.

We welcome inquiries from academic institutions, Indigenous partners, utilities, land managers, and industry seeking to explore collaborative research in environmental monitoring, resource assessment, and geospatial science.

 **LEARN ABOUT
OUR RESEARCH**



RESEARCH HIGHLIGHTS

ADVANCED REMOTE SENSING & DRONE WORKFLOWS

LiDAR & Multi-Spectral Analytics for Forest Structure & Wildfire Risk

- Developed forest biomass estimation methods using airborne LiDAR and spectral imaging to evaluate fuel treatments in Wildland Urban Interfaces (WUIs).
- Designed long-term monitoring in partnership with community forests and Columbia Basin Trust-funded fuel treatments.

Tree Species Classification & Stress Detection

- Developed workflow integrating drone LiDAR, multispectral, and hyperspectral sensors for single-tree species identification and stress signature detection.

Drone-Based Thermal Imaging for Aquatic Habitat Monitoring

- Designed protocols to track thermal refugia for fish in response to streamflow and seasonal variation using thermal infrared sensors.

Automated Fish & Redd Enumeration

- Integrated drone-based imaging with computer vision and object-based image classification to support accurate, scalable fish habitat inventories.

SUBSURFACE SENSING & WATER RESOURCE RESEARCH

Ground Penetrating Radar (GPR) Applications

- Developed workflows for airborne GPR to:
 - Map subsurface peat depth in remote wetlands for carbon accounting.
 - Detect fish and bathymetry in turbid waters near hydroelectric turbines.
 - Investigate Kokanee spawning shoals and white sturgeon presence in deep, low-visibility channels.

Snowpack & Watershed Recovery Monitoring

- Designed repeatable LiDAR acquisition workflows to quantify forest cover, snow retention, and runoff effects following wildfire risk reduction treatments.

GEOSCIENCE & CLIMATE-RESILIENT PLANNING

Geothermal Feature Mapping

- Applied drone-based remote sensing and geospatial modeling to identify geothermal anomalies associated with deep faults in southeastern BC.
- Conducted multi-phase study combining bedrock chemistry, temperature modeling, and UAV-supported surface data collection.

Avalanche Risk Mapping

- Developed drone-LiDAR and photogrammetry-based protocols for remote avalanche risk monitoring in complex alpine terrain.