



Geospatial Artificial Intelligence (GRCA GeoAI)

GANARASKA REGION CONSERVATION AUTHORITY

*Greater Tkaronto (Toronto) Bioregion
www.7GenerationGTB.org*

There's an exciting opportunity to use advanced data in powerful new ways for on-the-ground restoration and regeneration planning, monitoring, and evaluation.

Humanity has become increasingly effective at acquiring geospatial data – through satellites, fixed wing aircraft, remote sensing. Advancements in computational power, big data analytics, and artificial intelligence have converged at a new level: GeoAI.

We can harness the power of GeoAI to mine existing data, as well as analyze and compare new data.

As one of 13 Conservation Authorities in the GTB (Greater Tkaronto Bioregion), the Ganaraska Region Conservation Authority (GRCA) is a holistic, watershed-based organization with conservation and restoration at the core of its legislated mandate. The Conservation Authority (CA) model has a proven track record of success with natural watershed hydrological boundaries enabling truly holistic, science-based decision making. GRCA GeoAI has been designed and refined over the past 10+ years for core conservation and restoration efforts in service to municipalities as well as other partners and stakeholders.

The three pillars to GRCA GeoAI are:

- **Efficiency**
- **Consistency**
- **Repeatability**



GRCA Geospatial Artificial Intelligence

Detailed, consistent, open geospatial data across the bioregion is imperative for holistic planning.

A significant challenge posed by CAs assuming natural boundaries is municipalities often span multiple CA jurisdictions. The ability of GeoAI to generate consistent data for large areas means that instead of having a patchwork of disparate datasets, municipalities will finally have the consistent data coverage they need to meet modern challenges through initiatives like greenhouse gas sequestration, heat island analysis, floodplain management, urban forest management, climate change mitigation, and more. This significant opportunity will enable holistic and interconnected planning, monitoring, and evaluation work needed by CAs, municipalities, and other organizations across the 3 million hectares of the GTB.

The emergence of bioregions around the world enables fractal scale-linking of watershed-based approaches up to the level where planetary processes can be reflected. The efficiency by which GeoAI can produce systemic data at high levels of accuracy is essential in identifying and understanding the dynamics of our planet. By producing consistent, free, and open geospatial data over large areas, decision makers and investors across industries will have access to the current information and map layers they need, when they need it, thereby breaking down barriers to enable a strategic Bioregional Funding Ecosystem to flourish.

GRCA GeoAI repeatable methods enable different vintages of geospatial data to be analyzed for trends of change over time to further reveal the living, breathing nature of our planet. In addition, the map will have an Indigenous layer as well as a sociocultural layer. This mapping will not only tell the story of how we got where we are, but also help chart a regenerative course into a healthy and flourishing future.