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## **Biomonitoring 2.0: A High-Throughput Genomics Approach for Comprehensive Biological Assessment of Environmental Change**

<b>Status</b>	Approved
<b>Competition</b>	2010 Large-Scale Applied Research Project Competition
<b>Sector</b>	Environment
<b>Genome Centre</b>	Ontario Genomics Institute
<b>Project Leaders</b>	Mehrdad Hajibabaei, University of Guelph

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### **Project Description**

**Early Warning System.** Canada is an international leader in biomonitoring - analyzing the biological diversity of plant and animal life in a particular region. This allows scientists to establish early warning systems to alert us to environmental stresses before there is a catastrophic loss of habitat. Previous research funded by Genome Canada developed new protocols based on the next generation of sequencing tools that enable genomic analysis of biomonitoring samples and enable a thorough assessment of ecosystem health. Now, Canadian scientists are applying these tools in a natural environment, Wood Buffalo National Park, which is threatened by encroaching industrial development. With funding from Genome Canada, researchers will use cutting edge DNA sequencing technologies as well as state-of-the-art computational analysis to create a revolutionary biomonitoring approach covering the entire spectrum of life in an ecosystem. This will reduce monitoring costs while greatly increasing the quantity and scope of derived data derived. The project has already attracted the support of major corporations, opening the door to significant commercialization opportunities. Project leaders are working closely with stakeholders, including environmental groups, industry, government, First Nations and Metis. A sophisticated website enables end-users to customize information and provides rich summaries of environmental health.