

**CONVENTION ON BIOLOGICAL DIVERSITY  
NOTIFICATION 2018-019**

Mainstreaming of Biodiversity and Other Strategic Actions to Enhance Implementation  
Request for Submission of Relevant Information

**Canadian Case Studies**

**Energy Sector**

→ **Oil sands mine reclamation in the boreal forest**

Long before the landscape is touched by development, comprehensive assessments identify potential environmental impacts, such as those affecting land, air, water and biodiversity. Steps are then taken during the life of a project to minimize any negative effects. Oil sands companies must file a Conservation and Reclamation Plan as part of their initial project application, keep it current, and post financial security bonds for reclamation. The provincial government ensures that all oil sands companies fulfil their legal obligation to reclaim the land. In the oil sands area, the Government of Alberta has committed to conserving and protecting more than 2 million hectares (ha) (20,000 square kilometres [km<sup>2</sup>] or 7,722 square miles [sq. mi.]) of habitat for native species as part of the 2012–2022 Lower Athabasca Regional Plan. In addition, there are almost 4.5 million ha (44,800 km<sup>2</sup>, 17,300 sq. mi.) of federally protected land – Wood Buffalo National Park of Canada – just north of the oil sands.

For more information: <http://www.nrcan.gc.ca/energy/publications/18740>

→ **Canada's oil Sands Innovation Alliance (COSIA)**

***Caribou Habitat Restoration***

Caribou are one of Canada's most recognizable national symbols, but their populations are under threat in Alberta for a number of reasons, including the effects of industrial development on habitat, the effects of global warming and because they're increasingly being hunted by wolves, which have grown in population and range in response to larger numbers of deer and moose, their primary prey.

Oil sands companies are now collaborating to restore caribou habitat in northeastern Alberta. During oil and gas exploration activities over the past decades, fragmentation occurred in the boreal forest as corridors were cut for seismic exploration and access routes for exploration drilling. In recent years, there have been ongoing improvements in exploration and restoration techniques that have allowed oil and gas producers to minimize disturbance and achieve faster recovery of the forest. However, for older linear corridors under passive regeneration, return to forest cover has been very slow and unpredictable; many of these open corridors have not returned to forest cover on their own. Long open stretches within the boreal forest create ideal habitat for deer and moose and make it easier for wolves to hunt their prey, including caribou. This reduces the area's ability to sustain caribou.

Three major COSIA initiatives address legacy linear disturbances and return the boreal forest to high quality caribou habitat. The first major projects were the Algar Historic Restoration Project (Algar) and the Linear Deactivation Project (LiDea), both aimed at rehabilitating seismic lines. Although the two projects involve different approaches and methodologies, they both share learnings across the COSIA companies as the projects progress and results are monitored.

The third initiative is the Cenovus Caribou Habitat Restoration Project, which benefits from the learnings of earlier projects and expands habitat restoration to the landscape scale. This is the largest single area of caribou habitat restoration work undertaken by any company anywhere in the world. The Cenovus Caribou Habitat Restoration Project is collaborative and has benefitted from the participation of a number of COSIA members.

For more information: <http://www.cosia.ca/caribou-habitat-restoration>

### ***Oil Sands Vegetation Cooperative***

COSIA members are committed to progressively reclaiming the surface footprint associated with their developments. A key component of reclamation is to revegetate the land with species characteristic of the boreal forest. The COSIA Oil Sands Vegetation Cooperative (OSVC) is a collaborative effort to harvest and bank seeds from a wide variety of species, supporting this essential step in reclamation.

Seed banking is an age old practice to preserve seeds of those plants that are considered rare or are commercially valuable such as trees or agriculture crops. In 2009, five oil sands companies operating in the northern Athabasca oil sands area founded the OSVC and started to harvest and bank seeds from plants that are considered important for establishing ecological diversity on reclaimed lands. In 2013, the OSVC was expanded to include all COSIA member companies and collection was expanded to include the southern Athabasca oil sands and Cold Lake areas. COSIA members work with the Alberta Tree Improvement and Seed Centre (ATISC) in Smoky Lake, Alberta, which provides seed storage at a stable -18 C in an underground bunker. All seeds are harvested, extracted, registered and then banked in a coordinated effort following the Alberta Forest Genetic Resource Management Standard.

For more information: <http://www.cosia.ca/initiatives/land/land-projects/oil-sands-vegetation-cooperative>

### ***Nikanotee Fen***

Minable oil sands are located in the Regional Municipality of Wood Buffalo (RMWB), with an active mining footprint that covers about 844 square kilometres. The most common wetland type in the RMWB is called a fen. They cover about 50 per cent of the landscape. Fens are peat-forming wetlands, similar to bogs; however, they are fed primarily by groundwater rather than surface water.

Peat-forming wetlands – or wetlands that accumulate organic matter – are ecologically important because they accumulate and store carbon. They also provide a very specific habitat for wildlife and plant species, many of which are of cultural significance to Aboriginal communities.

COSIA member companies with oil sands mining operations have committed to returning the landscape to an equivalent capacity at the end of a mine's life. This includes reclaiming wetlands such as fens and marshes.

In 2013, Suncor Energy, with the help of joint industry project (JIP) partners Imperial Oil Limited and Shell Canada, completed construction of a three-hectare fen, named the Nikanotee Fen (pronounced Nee-ga-no-tee; Cree word for "future"). This achievement established Suncor as one of the first companies in the world to complete reconstruction of this type of wetland in co-operation with a number of university researchers and consultants from across the continent.

For more information: <http://www.cosia.ca/initiatives/land/land-projects/nikanotee-fen>

### **→ Biodiversity program in Ontario's energy Sector**

With 99 per cent of the power it produces free of smog and carbon emissions, Ontario Power Generation (OPG) is Ontario's largest producer of clean electricity. In addition to its clean power, OPG's biodiversity program demonstrates leadership and innovation at both its sites and its support of programs and partnerships across Ontario. OPG is committed to operating in a manner that strives to maintain or enhance significant natural areas and associated species of concern. OPG's Regional Biodiversity Program is strategically focused on funding and promoting efforts that contribute to the protection and restoration of habitat cores and corridors across Ontario. Since 2000, OPG and its conservation partners have planted more than 6.5 million native trees and shrubs. OPG is a member of the Ontario Biodiversity Council and supports Ontario's Biodiversity Strategy.

The biodiversity program at Hydro One aligns environmental priorities with business activities and regulatory / legal requirements. Adding value through internal and external partnerships drives continual improvement of their work in an effort to support Ontario's naturally rich biodiversity and customers who are a part of it. The scope of the program is quite broad and includes (but is not limited to): planting of pollinator friendly seed on Right of Ways, Avian Protection (e.g. Osprey nesting boxes, Bird diverters on transmission lines), Invasive plant species management, and collaborating with external partners on biodiversity initiatives that are important to local communities. In addition, biodiversity is formally addressed in the site selection studies and as part of the Environmental Impact Assessment approvals process.

#### → **Renewable Energy in Québec**

Québec has extensive freshwater resources, some of which has been harnessed to generate electricity. Hydroelectric development is based on the principles of sustainable development, and takes environmental, social and economic concerns into account. Hydroelectric projects are subject to Québec environmental impact assessment procedures. The public hearings held as part of the assessment procedure provide an opportunity for the project to be presented to the general public, along with its environmental, social and economic impacts and the planned mitigation and environmental monitoring measures. At the same time, citizens can express their concerns and give their opinion about the project. Hydroelectric projects are subject to various environmental requirements, ensuring that the best possible design is used and that the mitigation and environmental monitoring measures are adapted to the host environment. For example, the requirements include maintaining reserved flows downstream from dams, maintaining an operating water level in reservoirs that takes various uses into account, developing fish spawning grounds and the wetlands used by wildfowl, constructing boat launching ramps. For each new project, agreements are signed with the local authorities (regional county municipality or local municipality) and Native communities affected. Where necessary, the agreements provide for the creation of funds for regional development and the promotion of traditional activities, as well as corrective work. Hydroelectric projects generate major regional benefits and support the development of expertise in Québec that can then be applied worldwide. For example, Hydro-Québec supports the establishment of regional economic benefit committees, which work to ensure that contracts, hiring, and the supply of goods and services are kept within the region.

#### **Mining Sector**

##### → **MAC's Biodiversity Conservation Management Protocol**

The Mining Association of Canada (MAC) has developed its "Towards Sustainable Mining (TSM) Guiding Principles", which include the conservation of biodiversity. MAC members have committed to develop and implement responsible policies and practices to integrate biodiversity conservation into mining and land-use planning and management strategies. TSM includes a series of tools, referred to as TSM Assessment Protocols (or Protocols), that assist mining companies in understanding and achieving the TSM Guiding Principles. The Biodiversity Conservation Management Protocol contains a series of indicators that help determine whether a facility a) has made formal commitments to manage biodiversity at their site; b) has identified significant biodiversity aspects, is implementing action plans for them and partners with interested stakeholders on conservation planning; and c) publicly reports on its biodiversity activities and performance. This program has also been adopted by national mining associations in Argentina, Finland and Botswana.

Through TSM, MAC members have made important commitments to the way they manage biodiversity conservation at the mine-site level. MAC member facilities annually assess their performance against the TSM Biodiversity Conservation Management Protocol, using a 5-level scale (C, B, A, AA and AAA) with performance criteria established at each level, increasing in breadth and scope as the levels increase from C to AAA. To achieve Level A performance (considered good practice) in this area, a facility must make a formal public commitment to manage biodiversity. It must engage with key communities of interest – government, Aboriginal communities, and conservation organizations – to understand what elements of biodiversity are important to conserve (e.g. endangered species, keystone or indicator

species and culturally significant species). Once identified, facilities must implement mitigation and compensation measures to address impacts. Level A facilities will also publicly report on their biodiversity conservation activities and performance.

It is to note that this case study has been submitted to the secretariat in preparation for the 21st Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-21). It can be found in the *Information Document for the 21st Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-21)*<sup>1</sup>.

For more information: <http://mining.ca/towards-sustainable-mining/protocols-frameworks/biodiversity-conservation-management>

#### → **Cornerstone Standards Council**

The Cornerstone Standards Council was created to improve the conservation of the environment and community health and well-being in Canada by developing and implementing certification standards for aggregate extraction (stone, sand and gravel) and use by the aggregate and construction industries.

The Council is a collaboration of community, environmental and industry stakeholders committed to developing a world-class certification program that breaks new ground and establishes a leadership standard for the responsible siting and operation of all pits and quarries in Ontario. The Council's voluntary, third-party certification system provides independent auditing and monitoring of aggregate sites with the outcome being that developers, municipalities and construction companies are able to buy stone, sand and gravel that has been independently verified as socially and environmentally responsible. The

Council formally addresses biodiversity in their certification system. Certified sites must adopt the formal "mitigation hierarchy" in the selection of sites with a 'protect first' approach for High Conservation Value lands, followed by reduce impacts, mitigate, restore and offset residual impacts to biodiversity. Biodiversity is also integrated into on-going operations and site reclamation.

#### → **Québec's Mining Act**

Québec has a great potential for mining extraction, especially in the northern part of its territory. The commodities extracted include gold, iron, niobium, copper, titanium, salt, chrysotile, graphite, dimension stone and construction materials. There are approximately 200 active mines, quarries and sandpits throughout the territory. Of that number, about twenty are metal mines, including several world-class producers: the Raglan (nickel) and La Ronde (gold, zinc, copper and silver) mines. Under Québec's Mining Act (Loi sur les mines), a person who carries out mining exploration or extraction must submit a plan to restore the lands affected by his activities. To facilitate the preparation of restoration plans, the government has produced a guide which specifies the requirements to be respected for the rehabilitation and the restoration of the affected lands, the information that must be part of the restoration plan submitted to the government, as well as the different steps for its approval. The guide was updated in 2016 and is now adapted to the recent legislative and regulatory changes in the Mining Act. It also reflects the last technical and scientific developments in post-extraction ecosystem restoration.

### **Infrastructure Sector**

#### → **British Columbia's Invasive Mussel Defence Program**

While most people think of infrastructure's potentially negative impact on biodiversity, there are also cases when unwanted, non-native wildlife can adversely affect public infrastructure. Zebra and quagga mussels are a real and imminent threat to British Columbia's freshwater ecosystems, hydropower

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<sup>1</sup> <https://www.cbd.int/doc/c/d9d0/7a53/95df6ca3ac3515b5ad812b04/sbstta-21-inf-09-en.pdf>

dams, agricultural irrigation infrastructure, municipal water supplies and recreational boating community. If established in BC, the economic impact of these highly invasive, freshwater mussels would be more than \$43 million per year. The risk is significant, the costs staggering and the public attention and demand for action is at an all-time high. In 2015, a crackerjack team at Ministry of Environment piloted the Invasive Mussel Defense Program. This Program is a true public/private partnership in action as it represents collaboration across provincial ministries, domestic and state governments, as well as industry and nongovernment organizations. The Program's goal is to ensure BC remains zebra and quagga "mussel free" by inspecting boats, monitoring lakes, educating the public and coordinating actions with neighbouring jurisdictions.

The Mussel Defence Program is based on four fundamental elements: boat inspection, public education, lake monitoring, and partner collaboration. Roadside boat inspections are highly visible points of contact, inspection and when necessary boat decontamination. The public outreach component is key; asking visitors and residents of British Columbia to be aware of their contribution to promoting the spread of these highly opportunistic invaders. In terms of lake monitoring, through ongoing partnerships with ministry staff and regional invasive species committees the Program continues to expand early detection monitoring in lakes across the province. Partner collaboration is the final, and perhaps most important program element. The Program is built on a foundation of collaboration across government agencies, industry and the non-governmental community including our funding partners BC Hydro, Fortis, Columbia Basin Trust and Columbia Power Corporation. The Program also works closely with neighbouring jurisdictions and the Canada Border Services Agency (CBSA) to receive notifications of any high risk boats either destined for or travelling through B.C.

#### → **Ontario Road Ecology Group**

Supporting Ontario's Biodiversity Strategy actions to reduce threats, the Ontario Road Ecology Group (OREG) is a not-for-profit conservation organization that formed in 2009 to ensure wildlife thrives in the face of an ever-growing road network. New roads eliminate habitat for wildlife, create barriers for safe movement and result in the death of many animals from wildlife/vehicle collisions.

OREG achieves its goals by working closely with a diverse membership that includes government and non-government transportation planners, developers, scientists, educators and organizations dedicated to resolving road ecology issues through data collection, policy and public engagement.

Green Infrastructure Ontario (GIO) is an alliance of organizations that share a common vision for a healthy, green Ontario where the economic, social, environmental and health benefits of green infrastructure are fully realized. GIO is a member of the Ontario Biodiversity Council and works to promote awareness and understanding of green infrastructure, and to support policy and activities that increase implementation of green infrastructure across Ontario. GIO's current policy area focus include green infrastructure investment, strategic investment in infrastructure for climate change mitigation and adaptation, urban forests and using an asset management approach for managing ecological systems.

#### → **Ontario Ministry of Transportation**

The Ontario Ministry of Transportation (MTO) strives to be a world leader in moving people and goods safely, efficiently and sustainably to support a globally competitive economy and a high quality of life. The MTO recognizes the potential threats of the transportation network to ecosystems. The ministry supports conservation by seeking opportunities to mitigate environmental impacts in the highway right-of-way (ROW) during highway planning, design, construction, and maintenance operations.

Examples of recent major projects where the ministry has incorporated extensive biodiversity conservation include major provincial highway construction projects that collectively include conservation for reptiles, birds, aquatic species, and mammals, protection of habitats, the preservation of native plant species and the rehabilitation of degraded aquatic and terrestrial ecosystems. Ontario's expansion of Highway 69 from Parry Sound to Sudbury includes several measures for reducing wildlife collisions. In particular, the ministry installed approximately 30 kilometers of large mammal fencing with 15 more kilometers of fencing currently underway, to divert animals such as deer, moose, bears and wolves from

crossing Highway 69. In the Burwash area, the fencing directs animals toward a wildlife overpass, a unique bridge located 1km north of Highway 637. The wildlife overpass, built in 2012, is the only one of its kind in Ontario; it traverses Highway 69 and is monitored by motion sensor cameras, which show its extensive use by wildlife, including bobcats and deer. Five large wildlife underpasses on Highway 69 are completed, improving driver safety and promoting habitat connectivity for large wildlife and small animals. The remaining sections of the Highway 69 expansion project incorporate plans for an additional ten large wildlife underpasses and 68 kilometers of large mammal fencing.

There were several conservation opportunities for the preservation and restoration of tallgrass prairie throughout the planning and construction of the Right Honourable Herb Gray Parkway project. During the project, the ministry established a successful partnership with a Walpole Island First Nation-based ecological restoration business, and the Essex Region Conservation Authority, to protect rare native plants. Plants, grown from seeds collected in the future highway footprint, were grown in a greenhouse and transplanted to three Conservation Authority restoration areas. Partner Danshab Enterprises undertook a significant portion of the species at risk plant relocation and the ecological restoration efforts on the Parkway. A population in excess of 700,000 species at risk plants are currently being monitored. At year seven of a ten year monitoring program, the relocation efforts are a resounding success.

In the Parkway's design phase, MTO reduced construction impacts to the Ojibway Prairie Complex, a 350-hectare area of parks and nature reserves on the west side of Windsor, representing a collection of five closely situated natural areas. Overall, the Parkway project preserved and restored an estimated 100 hectares of tallgrass prairie, a globally rare ecosystem.

As MTO moves forward with the planning, design, construction, operations and maintenance of future projects, it will continue to seek opportunities to reestablish habitats, enhance and protect the environment and native species and explore opportunities to collaborate with provincial partners to advance the Ontario government's biodiversity vision, goals and objectives.

#### → **Québec environmental impact assessment**

Infrastructure projects are subject to Québec environmental impact assessment procedures. With the modernization of the Environment Quality Act and the adoption of Act respecting the conservation of wetlands and bodies of water in 2017, the use of mitigation hierarchy, the possibility of requiring financial offsets and the objective of no-net loss of wetlands have been reinforced. Land-use spatial planning that integrate sustainable use and conservation of wetlands for urban infrastructure developments is a major development that will be implemented in the next two years, as requested by the Wetlands Conservation Act. The expertise of the Transports Ministry (MTMDDET) is important in reducing the impacts of linear infrastructure developments in the province of Québec and takes in account different concerns when building new linear infrastructure: water quality of lakes and rivers, protection of small and large wildlife, preservation of fish habitats, soil stabilization and general enhancement of landscapes. Examples of great work is available.

### **Health Sector**

#### → **EcoHealth Ontario**

There is an action in Ontario's Biodiversity Strategy 2011 to develop a strong network of partners engaged in acquiring a deeper understanding of the linkages between biodiversity and human health and well-being. This action was realized through the creation of the EcoHealth Ontario which brings together professionals in the fields of public health, medicine, education, planning and the environment. EcoHealth Ontario is a working group of the Ontario Biodiversity Council and its outputs have included conferences and workshops as well as several research reports including: *Conserving Biodiversity: A Public Health Imperative*; *Greenspace and Ecohealth Toolkit: Improving Health and Wellbeing Through Greenspace Provision, Design, and Access*, and; *Green City: Why Nature Matters to Health - An Evidence Review*.

### → **My climate, my health**

The National Institute on Public Health of Québec (INSPQ) has developed a program called “My climate, my health”, to promote actions leading to air quality improvement, temperature regulation, green infrastructure promotion, habitat connectivity reflexing in planning and zoning considering, etc. However, the implementation of these actions are mostly at the municipal level.

### **Forestry Sector**

In another vein, Canada would also like to show case some of the work that has been carried out in another important sector, the forestry industry. In 2013, production in the forest sector contributed \$19.8 billion or 1.25% to Canada’s real gross domestic product (GDP). In a global context, Canada has the world’s largest forest product trade balance, C\$19.3 billion (2013), a position it has held for as long as trustworthy trade statistics have been compiled. Below are some cases studies featuring the relation between biodiversity and the Canadian forestry industry.

### → **Prescribed fire to achieve landscape values**

Alberta’s prescribed fire program is designed and implemented within the forested area of Alberta to deliver upon multiple environmental and social outcomes. A key driver of how and where prescribe fire is targeted is the reduction of the risk of unwanted wildfire in order to sustain forests (e.g. critical habitats, resources values) and protect the public safety (e.g. human life, infrastructure). Wildfire management planning, therefore, looks at landscape values and wildfire risk and where prescribed fire can be used as a tool to support public land management outcomes.

### → **Alberta Forest Management Plans within the context of Regional Landuse Planning**

The Alberta Forest Management Planning Standard requires a 10-year cycle for forest management plan be submitted by Forest Management Agreement holders. The Standard is based upon the CSA sustainable forest management planning system as informed by the CCFM Criterion and Indicators. The Standard requires that forest management plans explicitly document Values, Objectives, Indicators and Targets (VOITs) that speak to a range for forest values including the protection of biological diversity. Specifically (see appendix 4, Planning Standards) the following values are minimally required (more can be added by proponents) including: 1) Ecosystem Diversity Conservation at (A) landscape scale (e.g. through maintain full range of cover types and seral stages, avoid landscape fragmentation, etc.) and (B) Local/stand scale biodiversity (e.g. through retain stand level structure, maintain integrity of sensitive sites, etc.), 2) Conserve species diversity and 3) Conserve Genetic Diversity (through e.g. genetic integrity of natural tree populations maintained, retain areas of minimal human disturbance. Alberta Land use Framework sets out process for regional land use planning to support delivery of economic, ecological and social outcomes. Two plans are now complete, the Lower Athabasca Regional Plan (LARP) and the South Saskatchewan Regional Plan (SSRP) that have more specific objectives of the maintenance of biodiversity.

### **Additional Examples**

Further examples of Canadian initiatives to mainstream biodiversity were provided in [Canada’s 5<sup>th</sup> National Report](#).

For more information: <https://www.cbd.int/doc/world/ca/ca-nr-05-en.pdf>