

INNOVATIVE MECHANISMS FOR CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY

CANADIAN CASE STUDIES: INITIATIVES CONTRIBUTING TO CANADA BIODIVERSITY TARGET 13

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1. INTRODUCTION

As a Party to the UN *Convention on Biological Diversity*, Canada developed and adopted the *Canadian Biodiversity Strategy* (CBS) in 1995. In 2010, at the 10th Conference of the Parties (COP10) to the CBD, all Parties (including Canada) adopted a new global strategic plan for biodiversity and agreed upon a set of global biodiversity targets (the Aichi Targets). Parties to the CBD were urged to develop national biodiversity targets using the global targets as a guide. In 2015 the federal, provincial, and territorial governments adopted the aspirational [2020 Biodiversity Goals and Targets for Canada](#).¹ The CBS combined with the new goals and targets comprises Canada's national biodiversity strategy.

Canada's biodiversity Target 13 is:

By 2020, innovative mechanisms for fostering the conservation and sustainable use of biodiversity are developed and applied.

Progress towards the 2020 goals and targets is articulated using key indicators. For Target 13, this indicator is:

Case studies that showcase the conservation and/or sustainable use of biodiversity through innovative mechanisms, in sectors and regions across Canada.

To support Canada's reporting on this target, Environment and Climate Change Canada (ECCC) contracted with the Smart Prosperity Institute (SPI) to gather, analyze, and report on relevant information on innovative mechanisms being used for the conservation and sustainable use of biodiversity.

Two technical reports were identified as the primary deliverables under this contract, including:

1. A scan or long, non-exhaustive list of possible initiatives to be developed into case studies to inform Canada's reporting; and
2. A set of 15 case studies outlining key features of these mechanisms.

This document represents the second technical report under this contract. It includes 15 draft case studies identified in conjunction with Environment and Climate Change Canada, in Section 3. The supplemental list of initiatives for possible further analysis is included in Appendix A.

¹ 2020 Biodiversity Goals and Targets for Canada are available on-line at <http://biodivcanada.ca/default.asp?lang=En&n=9B5793F6-1>

2. METHODOLOGY

As a first step, the consultants compiled a long, non-exhaustive list of innovative mechanisms, based on previous research by SPI, input collated by ECCC, input solicited by SPI partners and experts, and a web-search of relevant initiatives and instruments.

Section 3 outlines supplemental mechanisms identified to date. Additional initiatives may be added to this list as wildlife agencies and other partners identify them; this list is non-exhaustive and is provided as a starting point for discussion.

The proposed approach/criteria for selecting the case studies include:

- a balanced mix of national, provincial/territorial/municipal, Indigenous, and local examples;
- a broad regional distribution of the case studies (to the extent possible);
- a mix of instrument types (e.g. economic instruments, multi-sectoral initiatives, etc.); and
- 1-2 instruments generated outside of Crown or Indigenous governments (i.e. by external groups or stakeholders such as industry).

After reviewing the collection of cases that were identified, six major categories or types of instruments were identified:

- revenue generation mechanisms (municipal levies, revolving funds, etc.);
- conservation offsets (e.g. habitat banking; water quality trading);
- tax and payment instruments (financial incentives, cost-share programs, etc.);
- planning tools (e.g. land or marine use planning);
- voluntary initiatives (e.g. Multi-stakeholder partnerships); and
- other policies or programs (e.g. accounting mechanisms)

Building on work completed on this subject by SPI for ECCC in 2010², the focus of the current report is on efforts initiated in the intervening years. Older initiatives were profiled if they generated significant recent outcomes or are considered leading models of conservation and sustainable use.

² Alex Kenney et al. 2011. Advancing the economics of ecosystems and biodiversity in Canada – a survey of economic instruments for the conservation and protection of biodiversity, Sustainable Prosperity, available on-line at <http://institute.smartprosperity.ca/content/advancing-economics-ecosystems-and-biodiversity-canada>.

3. CASE STUDIES

This section contains a series of 1-2 page case studies for a selection of 15 of the initiatives profiled in the long list. As noted in the methodological section, proposed criteria for selecting these case studies included:

- a balanced mix of national, provincial/territorial, Indigenous, and local examples;
- a broad regional distribution of the case studies (to the extent possible);
- a mix of instrument types (e.g. economic instruments, multi-sectoral initiatives, etc); and
- 1-2 instruments generated outside of Crown or Indigenous governments (i.e. by external groups or stakeholders such as industry).

The list of case studies is summarized in the table below according to the broad thematic categories identified during the search for examples.

Table 1: Case studies examined

Revenue Generation	Conservation Offsets	Tax/payment Instruments	Planning Tools	Voluntary/Multi-stakeholder	Other Policies and Programs
1. South Okanagan Conservation Fund (BC)	3. Lake Simcoe Water Quality Trading (ON)	5. Natural Area Protection Tax Exemption Program (NAPTEP) (BC)	8. Marine Plan Partnership (MaPP) - Haida Gwaii Marine Plan (BC)	10. Mistik Management Ltd. (SK)	15. Municipal natural asset management – Gibsons (BC)
2. Green Bond Fund (ON)	4. North Oakville Natural Heritage System offset regulation (ON)	6. Revolving land purchase program (DU regional)	9. Sahtu Dene and Metis Comprehensive Land Claim Agreement - Sahtu Land Use Plan (NT)	11. Proposed South of the Divide Species at Risk Action Plan (AB)	
		7. Farmland Advantage (BC)		12. Great Bear Rainforest Agreement (BC)	
				13. Approaching Zero Land Disturbance Exploration Challenge (AB)	
				14. Mount Hereford Community Forest (QC)	

1. SOUTH OKANAGAN CONSERVATION FUND

Name	South Okanagan Conservation Fund, British Columbia
Responsible organization	Regional District of Okanagan-Similkameen
Partner organizations	<ul style="list-style-type: none"> • South Okanagan Conservation Program – includes almost 50 partner organizations such as: • Regional Indigenous communities and organizations within the territory of the Okanagan Nation Alliance • Regional municipalities, including the City of Penticton • Provincial funding organizations, including the Habitat Conservation Trust Foundation • Regional and national non-profits, including the Nature Trust of BC, the Nature Conservancy of Canada, and Ducks Unlimited Canada
Directly affected geographic area of influence	The 1,040,000 ha South Okanagan Similkameen region of the British Columbia interior
Description	<p>The South Okanagan Conservation Fund is a source of funding for biodiversity conservation established by the regional governmental authority, the Regional District of Okanagan-Similkameen (RDOS), from a small annual levy on regional taxpayers. Annually a maximum of \$450,000 or 3.72¢ per thousand dollars of net taxable value of land and improvements may be requisitioned from regional taxpayers to support the Fund (RDOS, Bylaw #2690-2016, s. 7.1³). The Fund is a government service and is not an independent trust. The non-profit partnership South Okanagan Conservation Program administers an application process, technical review to support disbursement decision of funds to selected proponents and supervises the execution of the funded projects on behalf of the Regional District. The Conservation Program endeavours to leverage the resources of the Fund with complimentary support from third-party funders.</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2000 – 19 local non-profit and governmental organizations found the unincorporated, collaborative partnership – the South Okanagan Conservation Program • 2016 – Following advocacy by the South Okanagan Conservation Program, a local government elector approval process (Alternate Approval Process) in 2016 supported the establishment of a new local government service supported by local property tax increases with the revenues to be allocated to conservation throughout the Regional District. • 2016 - Regional District of Okanagan Similkameen adopted Bylaw #2690 to establish an Environmental Conservation Service for the five South Okanagan

³ Regional District of Okanagan-Similkameen, Bylaw #2690-2016, s. 7.1, available on-line at http://www.rdosmaps.bc.ca/min_bylaws/bylaws/leg_services/RDOS/2016/BL2690.pdf

Name	South Okanagan Conservation Fund, British Columbia
	<p>Electoral Areas and three member municipalities.</p> <ul style="list-style-type: none"> • 2018 – The Fund distributed its first round of grants for seven projects totalling \$400,000. Applications for 2019 will be open in September 2018.
Type of innovative mechanism used	Revenue generation for conservation - Municipal/local government elector approval for new local government services, property tax increases, property taxes – a proponent proposal-based system for distribution of funds to qualified projects
Intended (biodiversity) outcomes	The South Okanagan Similkameen region is rich in species at risk and sensitive ecosystems, and is under significant development pressure. The Fund is intended to support local projects that help restore and preserve the local environment.
Degree of success in achieving outcomes	Early indicators of success are emerging. Initial conservation and sustainable use results have included: Purchase of 80 acres of private land with important ecological values to compliment The Nature Trust of BC’s White Lake Biodiversity Ranch holdings; purchase of a 5 acre parcel of the last remaining black cottonwood riparian forest in the South Okanagan from a Penticton Indian Band Locatee/Certificate of Possession holder to be held in trust, in perpetuity for all Penticton Indian Band members for environmental protection and sustainable cultural use; and engineered plans for the restoration of a sockeye spawning bed and a Chinook salmon rearing pond both connected to the restoration of the Okanagan River led by the Okanagan Nation Alliance.
Other relevant observations	The Fund prioritizes biodiversity conservation issues that are not within the jurisdiction of other orders of government
Other information	<ul style="list-style-type: none"> • Terms of reference for the Fund (Regional District of Okanagan Similkameen, South Okanagan Conservation Fund, Terms of Reference⁴) • The Fund is an example of similar such BC property-tax supported funds, including the 2008 Columbia Valley Local Conservation Fund of the Regional District of East Kootenay and the 2014 Kootenay Lake Local Conservation Fund of the Regional District of Central Kootenay (See South Okanagan-Similkameen Conservation Program. (2017). Local Conservation Funds in British Columbia: A Guide for Local Governments and Community Organizations (2nd ed.). Penticton, B.C.: South Okanagan-Similkameen Conservation Program⁵)

⁴ South Okanagan Conservation Fund (2017) Terms of Reference, available on-line at <https://soconservationfund.ca/wp-content/uploads/2017/08/Conservation-Fund-ToR-FINAL-Approved-June-1-2017.pdf>

⁵ South Okanagan-Similkameen Conservation Program. (2017). Local Conservation Funds in British Columbia: A Guide for Local Governments and Community Organizations (2nd ed.). Penticton, B.C.: South Okanagan-

Name	South Okanagan Conservation Fund, British Columbia
	<ul style="list-style-type: none"> Various BC non-profit and governmental organizations publish a <i>Green Bylaws Toolkit</i> to provide local governments (municipal and regional) and the public with practical tools for protecting the green infrastructure. The Toolkit includes bylaw language that local governments in BC are now using to protect sensitive ecosystems and explains the various legal approaches to protection, their benefits and drawbacks. (Deborah Curran et al (2016) Green Bylaws Toolkit for Conserving Sensitive Ecosystems and Green Infrastructure⁶)

2. CITY OF OTTAWA GREEN BOND FUND

Name	City of Ottawa Green Bond Fund, Ontario
Responsible organization	City of Ottawa, Ontario
Partner organizations	<ul style="list-style-type: none"> Willing subscribers The bond offering was co-led by RBC Capital Markets and TD Securities
Directly affected geographic area of influence	City of Ottawa, Canada's fourth largest city by population, encompasses a relatively large area – 276,000 ha
Description	<p>A green bond is a debt security issued to raise capital to support action to address climate-change and/or biodiversity conservation. Although still relatively new in Canada, beginning in 2014 the green bond market has seen a series of recent successful issues from Export Development Canada (2014, US\$300M at 0.875% coupon; 2015, US\$300M at 1.250%; May 2017 US\$500M at 1.625%; and Sep 2017, CDN\$500M at 1.8%)⁷, the Province of Ontario (2014, \$500M at 1.75%; 2016, \$750 at 1.95%; 2017, \$800 at 1.95%; and 2018, \$1B at 2.65%)⁸, the Province of Quebec (2017, \$500 at 1.65%)⁹, and Toronto Dominion Bank (2014, \$500M at 1.824%)¹⁰. The City of Ottawa Green Bond Fund (2017, \$102M at 3.250%) is the first municipal green bond fund issued in Canada. The Ottawa Green Bond Fund revenues will be invested in projects evaluated and selected by the City's Corporate Service Department according to direction provided in the City's Green</p>

Similkameen Conservation Program, available on-line at <https://soconservationfund.ca/wp-content/uploads/2017/12/Conservation-Fund-Guide-2nd-Edition-2017.pdf>

⁶ Deborah Curran et al (2016) Green Bylaws Toolkit for Conserving Sensitive Ecosystems and Green Infrastructure, available at <http://greenbylaws.ca>

⁷ Export Development Canada, Green Bonds, available on-line at <https://www.edc.ca/EN/Investor-Relations/Pages/green-bonds.aspx>

⁸ Ontario Financing Authority, Green Bonds, available on-line at <http://www.ofina.on.ca/greenbonds/>

⁹ Finances Québec (2017) Inaugural Green Bond Fund, available on-line at http://www.finances.gouv.qc.ca/documents/Autres/en/AUTEN_GreenBondIssue_2022-03-22.pdf

¹⁰ TD Bank (2014) The Toronto-Dominion Bank 3-year fixed deposit notes "Green Bond", available on-line at <https://www.td.com/document/PDF/corporateresponsibility/TD-Green-Bond-Term-Sheet-for-Investors.pdf>

Name	City of Ottawa Green Bond Fund, Ontario
	Debenture Framework.
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2014 – Export Development Bank, Ontario and TD Bank respectively each issue the first Crown corporation, first provincial and first commercial green bonds in Canada • 2016 – October 2016 the Chair of the City of Ottawa’s Environment and Climate Protection Committee asks staff to explore the potential for issuance of City debt in the form of green bonds • 2017 – November 2017 City of Ottawa Bylaw#2017-355 authorizes the first municipal green bond fund in Canada - \$102M at a yield of 3.250% to support the realization of greenhouse gas reductions from implementation of Ottawa’s Light Rail Transit Project
Type of innovative mechanism used	Revenue generation to fund environment-related capital initiatives – green bonds
Intended (biodiversity) outcomes	Under the City’s Green Debenture Framework , funds raised via this mechanism may be available for such activities as, “protection or restoration of forests, wetlands, watercourses (streambank stabilization or naturalization) and other natural assets”; however, this City’s first issuance was targeted at capital for its light-rail transit project which is intended, in part, to reduce City-wide transportation-related GHG emissions.
Degree of success in achieving outcomes	According to the Climate Bonds Initiative the first green bond issuance was significantly oversubscribed. ¹¹ The anticipated GHG mitigation objectives however will take years to materialize.
Other outcomes	The green bond fund saved the City money. Ottawa’s green bond coupon rate of 3.250% represents a more competitive borrowing rate, two basis points lower than a typical City of Ottawa debenture issue, resulting in borrowing costs \$400,000 lower than would otherwise be expected on a \$102 million debenture.
Other relevant observations	The Canadian green bond market is experiencing significant growth (Smart Prosperity Institute (2017) Bonds and Climate Change – Canada Report ¹²)
Other information	<ul style="list-style-type: none"> • City of Ottawa staff report on the issuance of its first green bond (City of Ottawa (2017) Report to Council: Bylaws to offer a \$102 Million debenture issue)

¹¹ Climate Bonds Initiative (2017) Fiji consolidates the ‘year of the sovereigns’: China, L.A. and San Fran issue certified climate bonds; Newcomers aplenty: Latvia, Tokyo, Canada, Europe... plus more from US munis (sic), available on-line at <https://www.climatebonds.net/2017/12/fiji-consolidates-year-sovereigns-china-la-sanfran-issue-certified-climate-bonds-newcomers#Ottawa>

¹² Smart Prosperity Institute (2017) Bonds and Climate Change – Canada Report, available on-line at <https://www.climatebonds.net/files/files/CBI-SotM-Canada-Nov2017-English-French.pdf>

Name	City of Ottawa Green Bond Fund, Ontario
	<ul style="list-style-type: none"> • There are now widely-accepted international voluntary guidelines for the issuance of green bonds that endeavour to promote transparency, disclosure and reporting (International Capital Market Association (2017) Green Bond Principles¹³) • Moody's rating services have introduced a Green Bond Assessment Methodology to promote rigour in the assessment of objectives of green bond issuances (Moody's (2017) Green Bond Assessment Methodology¹⁴) • Third-party describes the City of Ottawa's Green Debenture Framework as "robust and credible" (Sustainalytics (2017) City of Ottawa Green Debenture – A second opinion¹⁵)

3. LAKE SIMCOE WATER QUALITY TRADING

Name	Lake Simcoe Water Quality Trading, Ontario
Responsible organization	Lake Simcoe Region Conservation Authority, Ontario¹⁶
Partner organizations	<ul style="list-style-type: none"> • Local municipalities, including: Barrie, Kawartha Lakes, Brock, Scugog, Uxbridge, Bradford/West Gwillimbury, Innisfil, New Tecumseth, Oro-Medonte, Ramara, Aurora, East Gwillimbury, Georgina, King, Newmarket and Whitchurch-Stouffville • Chippewas of Georgina Island First Nation • Building Industry and Land Development Association • Ontario Federation of Agriculture
Directly affected geographic area of influence	Lake Simcoe and its surrounding watershed, an area of 340,000 ha
Description	Water Quality Trading (WQT) is a version of pollution trading or tradable development permitting designed to address issues of water quality and aquatic ecosystem health. After almost ten years of policy development, starting January 1, 2018, the Lake Simcoe Regional Conservation Authority, under its regional land use planning authority, has initiated implementation of a targeted form of water quality trading, a Phosphorus Offset Policy that requires new land use developments in the Lake Simcoe watershed to achieve zero storm-water related phosphorus discharge to protect the aquatic biodiversity and the quality of the

¹³ International Capital Market Association (2017) Green Bond Principles, available on-line at <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf>

¹⁴ Moody's (2017) Green Bond Assessment Methodology, available on-line at https://www.moodys.com/research/Moodys-publishes-methodology-on-Green-Bonds-Assessment--PR_346585

¹⁵ Sustainalytics (2017) City of Ottawa Green Debenture, available on-line at <https://www.sustainalytics.com/wp-content/uploads/2017/10/City-of-Ottawa-Green-Debenture-Sustainalytics-Second-Opinion-10-27-2017.pdf>

¹⁶ Lake Simcoe Region Conservation Authority, available on-line at <https://www.lsrca.on.ca>

Name	<u>Lake Simcoe Water Quality Trading, Ontario</u>
	water in Lake Simcoe. If zero discharge is not achievable on site through best available technologies, the storm-water phosphorus output has to be offset at a location within the same sub-watershed, at an offset ratio of 2.5 to 1 and an offset value of \$35,000 kg/y. Offsets may take the form of engineered wetlands, streambank restoration, enhanced swales, rain-gardens, permeable surfaces, and other low impact development technologies.
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 1999 - The South Nation River Total Phosphorus Management is established in 1999 and represents Ontario’s – and Canada’s – first experience with water quality trading • 2008 – Lake Simcoe Protection Act¹⁷ to protect and restore the ecological health of the Lake Simcoe watershed passes in the legislature • 2008 – Amendments passed to the Ontario Water Resources Act¹⁸ introduce provisions enabling the establishment of water quality trading regimes (<i>Ontario Water Resources Act, s. 75(1.7)(b)</i>) • 2009 - Pursuant to the Protection Act, the Lake Simcoe Protection Plan¹⁹ comes into effect and calls for the development of an “innovative” Phosphorus reduction strategy to ensure requires that future population growth is accommodated without increasing phosphorus loads • 2010 - Ontario Ministry of the Environment study of a water quality trading approach to phosphorus load reduction in the Lake Simcoe watershed determines that the approach is feasible (XCG and Kieser and Associates. 2010. Water Quality Trading in the Lake Simcoe Watershed: Feasibility Study (EBR Number: 010- 8989) • 2014 – A detailed pilot for the implementation of the water quality trading / phosphorus offsetting program is designed and then implemented • 2017 - September 22, 2017, after extensive consultations on the pilot phase, the policy framework for the water quality trading / phosphorus offsetting program²⁰ is adopted by the Conservation Authority • 2018 – January 1, 2018, the Conservation Authority begins implementation of the policy and water quality trading
Type of innovative mechanism used	Conservation offset/phosphorous offset – Tradable development permit/Water quality trading
Intended (biodiversity)	Intending to attain an approximate 7 T/year reduction in the phosphorus load in

¹⁷ *Lake Simcoe Protection Act*, S.O. 2008, c. 23, available on-line at <https://www.ontario.ca/laws/statute/08I23>

¹⁸ *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, available on-line at <https://www.ontario.ca/laws/statute/90o40/v14>

¹⁹ *Lake Simcoe Protection Plan*, available on-line at <https://www.ontario.ca/page/lake-simcoe-protection-plan>

²⁰ *Lake Simcoe Region Conservation Authority (2017) Phosphorus offsetting policy*, available on-line at [https://www.lsrca.on.ca/Shared%20Documents/Phosphorus Offseting Policy.pdf](https://www.lsrca.on.ca/Shared%20Documents/Phosphorus%20Offsetting%20Policy.pdf)

Name	Lake Simcoe Water Quality Trading, Ontario
outcomes	Lake Simcoe thereby reducing eutrophication and the proliferation of toxic algae blooms, which have been identified as the primary challenge to the recovery of the aquatic ecosystem health of Lake Simcoe (See Lake Simcoe Region Conservation Authority (2015) Presentation “Phosphorus Offsetting Program”)
Degree of success in achieving outcomes	It is too early to assess the success of achieving its intended outcomes; however the success of similar programs in the United States and elsewhere, including on the South Nation River, suggest that observers should be optimistic (Forest Trends (2012) Charting new waters – State of watershed payments)
Other outcomes	The Policy anticipates many potential ancillary benefits or co-benefits, including beautification of the urban landscapes, reduction of flood frequency and severity, increased community resilience to climate change, enhanced storm-water recharge, and the creation of green jobs, amongst others
Other relevant observations	Environmental Commissioner of Ontario has recommended expansion of water quality trading approaches across the province (ECO (2017) Good Choices, Bad Choices – Environmental rights and environmental protection in Ontario, pp. 9-10)

4. CONSERVATION OFFSET NATURAL HERITAGE SYSTEM – NORTH OAKVILLE, ON

Name	North Oakville Natural Heritage System Conservation Offset, Ontario
Responsible organization	Town of Oakville, Ontario
Partner organizations	<ul style="list-style-type: none"> • Conservation Halton • Developers • Provincial government including the Ministry of Natural Resources and Forestry and • Métis Nation of Ontario
Directly affected geographic area of influence	Former agricultural and forested lands north of the Town of Oakville’s northern boundary before the lands were amalgamated with the town in 2002. The area is now known as North Oakville – North of Dundas Street and south of Highway 407
Description	Development that impinges upon identified biodiversity features in the North Oakville landscape must be offset from lands identified for restoration in a planned future Natural Heritage System or park system. The designed offset landscape will leave a post-development legacy of an interconnected set of restored stream corridors and more ecologically resilient park lands rather than an uncoordinated series of disconnected offset projects. This innovative systematic approach to coordinating offset projects was described by the Ontario Municipal Board as “a superior and forward-looking method of protecting the Province’s natural heritage.”

Name	North Oakville Natural Heritage System Conservation Offset, Ontario
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2003 – Developers of lands recently amalgamated with the Town of Oakville apply for Official Plan amendment • 2005 – Oakville adopts an Environmental Strategic Plan which in its 2011 version places as its first objective “sustain and enhance our natural resources – airsheds, watersheds, shoreline, landscapes, flora and fauna” • 2006 – Oakville announced agreement with major developers of North Oakville for the outlines of a Natural Heritage System and a commitment from the developers to transfer ownership of the NHS lands to Conservation Halton • 2007 – Ontario Municipal Board upheld the earlier agreement • 2009 – Oakville adopts an Environmental Sustainability Policy to protect and enhance our ecological environment while maintaining a vibrant cultural, social and economic base • 2009 – Development of North Oakville commences • 2013 – The first required offsets were developed in the NHS lands and additional offsets continue to present, slowly assembling the planned park system
Type of innovative mechanism used	Conservation offsets – a systems approach to amalgamating uncoordinated offset projects into a future Natural Heritage System
Intended (biodiversity) outcomes	900 ha of terrestrial and aquatic habitats conserved in an interconnected system plan and best practices for sustainable development on the remaining 2,200 ha, will include neighbourhood parkettes, community squares, and sports fields amongst other amenities
Degree of success in achieving outcomes	The Ontario Municipal Board in its 2007 review referred to the systems-based approach to Natural Heritage System planning as “a superior and forward-looking method of protecting the Province’s natural heritage” (See Ontario Nature (2016) Biodiversity Offsetting in Ontario: Issues, accomplishments and future directions at pp. 21-25)
Other outcomes	<ul style="list-style-type: none"> • Town of Oakville is promoting the Natural Heritage System for environmental objectives but also to promote more liveable and desirable neighbourhoods • Stanley Park in Vancouver is about 400 ha whereas this North Oakville park system will create an interconnected network of conservation areas of approximately 900 ha.
Other information	<ul style="list-style-type: none"> • A 2015 review of conservation offsetting in six jurisdictions includes a review of the British Columbia (2014) <i>Policy for Mitigating Impacts on Environmental Values</i> and the then recent amendments to the federal <i>Fisheries Act</i> which added statutory language authorizing conservation offsetting (s. 6(2)) • A 2016 review of conservation offsetting in Ontario - while noting that it was

Name	North Oakville Natural Heritage System Conservation Offset, Ontario
	<p>premature to assess the effectiveness of four case studies, including the North Oakville approach - concluded that there was reason for optimism and made a series of recommendations to improve the practice of conservation offsetting (See Ontario Nature (2016) Biodiversity Offsetting in Ontario: Issues, accomplishments and future directions.)</p>

5. NATURAL AREA PROTECTION TAX EXEMPTION PROGRAM (GULF ISLANDS, BC)

Name	Natural Area Protection Tax Exemption Program (NAPTEP), British Columbia
Responsible organization	British Columbia's Islands Trust
Partner organizations	<ul style="list-style-type: none"> • Islands Trust Conservancy, a statutory land trust dedicated to conservation of the islands of the Salish Sea • Islands Trust Council which is the statutory decision-maker charged with authorizing the conservation tax exemptions • 13 Local Trust Committees of the Islands Trust and the Bowen Island Municipality • 7 regional districts • Island communities and land trusts
Directly affected geographic area of influence	Islands in the Salish Sea, British Columbia, including Bowen, Denman, Hornby, Gabriola, Galiano, Gambier, Lasqueti, Mayne, North Pender, Salt Spring, Saturna, South Pender, and Thetis Islands, and approximately 450 other lesser islands
Description	The Natural Area Protection Tax Exemption Program (NAPTEP) is a tax exemption mechanism that provides landowners with an annual 65% exemption on property taxes for qualifying natural areas of their private property that are protected with a NAPTEP conservation covenant. The covenant is register on the title for the property. (Islands Trust Act, part 7.1)
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 1972 – International Joint Commission recommends the conservation of the islands in what would become to be known as the Salish Sea • 1974 – British Columbia government enacts the <i>Island Trust Act</i> to help conserve the biodiversity and fragile ecosystems of over 450 islands in the Salish Sea, including certain islands in the southern Strait of Georgia and Howe Sound • 1990 – British Columbia government establishes the statutory Island Trust Fund (now Islands Trust Conservancy) to act as a land trust in support of the mission of the <i>Island Trust Act</i> • 2002 – British Columbia government enables and initiates the NAPTEP via a regulation under the <i>Island Trust Act</i> • 2016 – Based on the success of the program the Land Trust Alliance of British

Name	Natural Area Protection Tax Exemption Program (NAPTEP), British Columbia
	Columbia advocate for expansion of a NAPTEP-like program across the province
Type of innovative mechanism used	Tax/payment instrument – tax exemption by conservation covenant registered on the land title
Intended (biodiversity) outcomes	The explicit biodiversity goal of the Island Trust Council is “to foster preservation and protection of the Island Trust Area’s ecosystems” (Island Trust (2013) Island Trust Policy Statement at p. 7)
Degree of success in achieving outcomes	As of 2017, 24 properties, ranging from <1ha to 24 ha, have been conserved, protecting a total of 77.5 ha – Given the high percentage of private land ownership in the islands, NAPTEP conservation covenants are an important complimentary mechanism to assist the Island Trust in pursuit of its biodiversity conservation goal. At present the NAPTEP conservation covenants represent approximately 13% of the total land area covenanted by the Islands Trust Conservancy (Pers. Comm., Island Trust Conservancy, 2017).
Other information	<ul style="list-style-type: none"> • See also <ul style="list-style-type: none"> ○ Nova Scotia’s 2008 Conservation Property Tax Exemption ○ Ontario’s 1998 Conservation Land Tax Incentive Program

6. REVOLVING LAND PURCHASE PROGRAM

Name	Revolving Land Purchase Program, National
Responsible organization	Ducks Unlimited Canada
Partner organizations	<ul style="list-style-type: none"> • Willing buyer/willing seller • Original philanthropic support from The Conservation Fund • Financial partners include <ul style="list-style-type: none"> ○ Alberta Treasury Branch (ATB) Financial ○ Canadian Imperial Bank of Commerce
Directly affected geographic area of influence	Wetland, upland and grassland habitats across the private properties of the prairie, in Alberta, Saskatchewan and Manitoba, as well as in Ontario
Description	Ducks Unlimited Canada’s Revolving Land Conservation Program purchases prioritized properties, restores wetland habitats where necessary and then secures the permanent conservation of the wetland ecosystems via a legal easement registered on the property title and, where available, certain conservation easement registries. The property is subsequently resold subject to the easement and the funds secured from the sale are reinvested to further the program; hence, the description of the instrument as a “revolving land purchase”.

Name	Revolving Land Purchase Program, National
	According to Ducks Unlimited Canada, this revolving fund is “the first program of its kind in Canada [and] the RLCP model conserves three times more land compared to traditional buy-and-hold conservation programs.”
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 1938 – Ducks Unlimited Canada is established in Canada and commences land purchases for wetland biodiversity conservation • 2015 – The program was initiated in 2015 with the first revolving land purchase of the Tufts Restoration Project in Manitoba • 2017 – The program had outstanding balances on its revolving loans of \$20,138,000 as follows: ATB Financial loan secured by DUC conservation lands of ~\$5M at 1.34%; and, CIBC credit facility of \$15.5M at 2.2% secured by DUC pledged investments. The maximum amount presently available to support the program from these instruments is \$35M (DUC (2017) Financial Statements of Ducks Unlimited Canada at March 31, 2017, n. 9, pp. 13-14)
Type of innovative mechanism used	Economic instrument – Payment for ecosystem services - Fee simple ownership – Revolving fund for securing conservation easements
Intended (biodiversity) outcomes	Wetland, upland and/or grassland habitat restoration, conservation and sustainable use.
Degree of success in achieving outcomes	Conserved a total of 9,416 ha 2015-2017, as follows: 4,516 ha in 2017, 2,456 ha in 2016 and 2,444 ha in 2015 (Ducks Unlimited Canada, 2017 annual Report, p. 61). Ensured the sustainable use of the balance of the lands acquired by placing “no break/no drain” conservation easements ensuring their perpetual use for moderate grazing and other sustainable agricultural practices.
Other relevant observations	On the relative cost effectiveness and program efficiency of the revolving land purchase program (Warren Noga (2014) Two papers on the cost effectiveness of conservation programs (Master’s Thesis) University of Alberta)

7. FARMLAND ADVANTAGE (BRITISH COLUMBIA)

Name	Payment for Ecosystem Services – Farmland Advantage, British Columbia
Responsible organization	Farmland Advantage
Partner organizations	<ul style="list-style-type: none"> • 60 farmers in British Columbia • Province of British Columbia • ARDCorp and the Environmental Farm Plan (EFP) program • BC Agriculture Council • Township of Langley • Investment Agriculture Foundation BC • Columbia Basin Trust and the Fish and Wildlife Compensation Program as funders of year 1 of the current pilot

Name	Payment for Ecosystem Services – Farmland Advantage, British Columbia
	<ul style="list-style-type: none"> • And others
Directly affected geographic area of influence	Farms to be identified in the Lower Mainland, Okanagan, and Kootenays regions of British Columbia
Description	<p>Farmland Advantage is a producer-led initiative made up of a team of experts that are focused on demonstrating, analyzing, and communicating the concept of Payments for Ecosystem Services (PES). The project works with farmers to conserve and enhance critical natural values on their land. These natural values are often referred to as ecosystem services since they have the ability to benefit society as a whole. Examples include wetlands that filter and purify water and forests that clean air and provide habitat for wildlife through practices such as water or stream setbacks, strategic fencing, reforestation, or rangeland enhancement. The program is in a five-year “proof of concept” phase to assess the interest in, and effective means of, implementing, monitoring, and verifying a payment for ecosystem services strategy in the farming communities of British Columbia.</p> <p>The program is working with ARDCorp, who is the delivery agent for the province’s Environmental Farm Plan (EFP) program, to fund the implementation of proscribed beneficial management practices. The Farmland Advantage project and the EFP program work synergistically in that EFP Planning Advisors assist producers to develop a farm plan and provide a range of planning services that can then allow access to incentives that enable producers to implement BMPs. After implementation, Farmland Advantage develops necessary contractual arrangements to assist with the cost of maintaining the projects and their ongoing assessments.</p> <p>Pilot projects have been initiated in regions such as the Kootenays and the Township of Langley to date. This “proof of concept” phase aims to take this and other initial pilot successes and lessons learned and extend the program throughout BC. The intent is to develop a solid, replicable program model capable of being administered independently and sustainably, and show tangible successes. Working groups made up of farmers, technical experts, and funders act in an advisory capacity to develop the project at the regional scale.</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2010 – Initial exploration of the payment for ecosystem services concept • 2011 – BC Agriculture Council (BCAC) supports the initiative. Reg Ens, Executive Director, BCAC, said “Clean air and water are important to all of us – and that’s no bull” • 2014 – Initiation of a five-year pilot program entitled Ecological Services Initiative

Name	Payment for Ecosystem Services – Farmland Advantage, British Columbia
	<ul style="list-style-type: none"> • 2015 – Publication of a comprehensive review of the payment for ecological services concept and the Ecological Services Initiative model • 2016 – January 15, 2016, the Township of Langley, BC, endorses the Initiative • 2016 - Ecological Services Initiative renamed Farmland Advantage
Type of innovative mechanism used	Tax/payment incentive – Payments for ecosystem services
Intended (biodiversity) outcomes	Conserve and enhance conservation values and sustainable use on British Columbia farms using such best management practices as water or stream setbacks, strategic fencing, reforestation, or rangeland enhancement.
Degree of success in achieving outcomes	300 ha and 30 km - In its first year, Farmland advantage had conserved 300 ha of terrestrial and aquatic habitats and 30 km of shoreline riparian habitat restored and conserved
Other information	<ul style="list-style-type: none"> • See a comprehensive review of the payment for ecological services concept and the Ecological Services Initiative model (Powell (2015) Agriculture and Ecological Services: Recommendations for support programming in British Columbia) • See the report of the first year of Farmland Advantage’s current five-year pilot (Farmland Advantage (2016) Five year pilot – Year 1 report)

8. HAIDA GWAII MARINE PLAN - MARINE PLAN PARTNERSHIP (MAPP)

Name	Haida Gwaii Marine Plan - Marine Plan Partnership (MaPP) for the North Pacific Coast
Responsible organization	Marine Plan Partnership (MaPP) for the North Pacific Coast, British Columbia
Partner organizations	<ul style="list-style-type: none"> • Council of the Haida Nation • Province of British Columbia
Directly affected geographic area of influence	The ocean estate surrounding Haida Gwaii, the Haida Nation homeland, is a significant sub-region of the larger 10,200,000 hectare MaPP planning region
Description	The MaPP initiative is a partnership between the Province of British Columbia and 16 First Nations that developed, and is now implementing four marine use plans and a Regional Action Framework for the North Pacific Coast of British Columbia. The Haida Gwaii Marine Plan was co-developed by the Council of the Haida Nation and the Province of British Columbia. The Plan provides recommendations for achieving ecosystem health, social and cultural well-being, and sustainable economic development through an ecosystem-based management approach. The spatial component of the plan includes zoning for protection of the area’s rich ecological, cultural, and social values.

Name	Haida Gwaii Marine Plan - Marine Plan Partnership (MaPP) for the North Pacific Coast
<p>Timeline/ History (i.e. how long mechanism has been in operation / use)</p>	<ul style="list-style-type: none"> • 1985 – Haida Nation declares a Haida Heritage Site on the lands and waters of the southern portion of Haida Gwaii archipelago • 1993 – The federal government and the Council of the Haida Nation sign the <i>Gwaii Haanas Agreement</i> establishing the Gwaii Haanas National Park Reserve and Haida Heritage Site conserving terrestrial portions of the earlier declared Haida Heritage Site. Discussions commence regarding marine-use planning around Gwaii Haanas. • 2005 – Canada initiated an Ocean Action Plan identifying the Pacific North Coast as a priority large ocean management area for marine-use planning • 2006 - Council of the Haida Nation establish a strategic-level Haida Marine Working Group and a technical-level Haida Ocean Technical TEam to commence marine-use planning across the Haida Gwaii ocean estate • 2010 - Gwaii Haanas National Marine Conservation Area Reserve established on the ocean estate surrounding Gwaii Haanas • 2011 - The federal, provincial and territorial governments released the National Framework for Canada’s Network of Marine Protected Areas • 2011 - MaPP was formalized in a Letter of Intent to Collaborate on Coastal and Marine Planning in the Pacific North Coast and the Haida Gwaii Marine Advisory Committee struck to commence collaborative marine-use planning in the Haida Gwaii ocean estate • 2014 – Canada-British Columbia Marine Protected Area Network Strategy released, providing a framework to guide action to conserve British Columbia’s marine biodiversity. It is consistent with the National Framework for Canada’s Network of Marine Protected Areas, but reflects characteristics that are unique to the region. • 2015 – British Columbia and the Council of the Haida Nation announce the completion of the Haida Gwaii Marine Plan • 2016 – British Columbia and the Council of the Haida Nation sign an implementation agreement that identifies general implementation priorities, structures and mechanisms for implementation of the Haida Gwaii marine plan
<p>Type of innovative mechanism used</p>	<p>The Haida Gwaii Marine Plan addresses key issues, concerns and opportunities through a suite of objectives and strategies complemented by spatial designations for conservation and sustainable economic development. The Marine Plan is the product of a cooperative planning process guided by an ecosystem based management framework <i>and</i> Haida ethics and values that are fundamental to Haida culture and society. Respect, responsibility, interconnectedness, balance, seeking wise counsel, and giving and receiving are all elements that define the Haida world view.</p>

Name	Haida Gwaii Marine Plan - Marine Plan Partnership (MaPP) for the North Pacific Coast
Intended (biodiversity) outcomes	<p>900,500 ha of the coastal waters surrounding Haida Gwaii zoned as Protection Management to maintain or enhance ecological and Haida cultural values. The balance of the Haida Gwaii planning area is subject to an ecosystem-based management approach to ensuring sustainable use.</p> <p>The MaPP partners are working with the Government of Canada to collaboratively plan a network of marine protected areas in the Northern Shelf Bioregion. Through this process, all three levels of government will collaboratively identify where new conservation areas are needed to achieve MPA network goals and objectives. Some Protection Management Zones in the Haida Gwaii Marine Plan may be considered for future legal designation under provincial, federal or Indigenous law. In the interim, the MaPP partners will continue to use a suite of tools available to achieve biodiversity outcomes, including permitting, management planning, application of Indigenous customs and laws, and restoration.</p>
Degree of success in achieving outcomes	<p>The Haida Gwaii Marine Plan recommendations represent a successful collaborative approach to marine-use planning in respect of the asserted jurisdictions of British Columbia and the Council of the Haida Nation. These recommendations need to be affirmed by the federal government in respect of its asserted jurisdiction in the Haida Gwaii ocean estate. Discussions to that end are continuing.</p>
Other outcomes	<p>The Haida Gwaii Marine Plan is intended to</p> <ul style="list-style-type: none"> • provide a framework for joint or shared management of marine and coastal areas in and around Haida Gwaii • support First Nations cultural and social well-being and continuity through the protection of cultural values, resources, and practices; • support sustainable marine economic activity, including aquaculture, renewable energy development, tourism and recreation, etc.
Other relevant observations	<p>The collaborative approach to the development of the Haida Gwaii Marine Plan and other marine plans developed under the MaPP initiative recognizes the important role of coastal First Nations as stewards of the marine environment, and represents a progressive evolution of Indigenous-Crown relations in Canada.</p> <p>The plans blend the best available science <i>and</i> traditional knowledge. First Nations contemporary and historical knowledge of the area was fundamental to the creation of plans that integrate First Nations' perspectives and aspirations.</p>

9. LAND USE PLANNING – SAHTU LAND USE PLAN

Name	Land use planning – Sahtu Land Use Plan, Northwest Territories
Responsible organization	Sahtu Dene First Nation and Metis communities of Fort Good Hope, Fort Norman and Norman Wells
Partner organizations	<ul style="list-style-type: none"> • Federal government • Government of Northwest Territories
Directly affected geographic area of influence	Sahtu Dene traditional territories in the mid-north Northwest Territories. An area of 31,226,900 ha.
Description	Most modern treaties settling unresolved land claims issues between the Crown in right of Canada and Indigenous Peoples recognize the key role of land use planning. Pursuant to the Sahtu Dene and Metis Comprehensive Land Claim Agreement , the Sahtu Land Use Plan was developed as a tri-partite agreement between Sahtu Secretariat Inc. (land claim body), GNWT, and Canada to identify and manage land use zones consistent with the Sahtu vision for the land.
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • In 1993, the Sahtu Dene and Metis Comprehensive Land Claim Agreement was approved. • In 2013 the Sahtu Land Use Plan authorized by the Agreement was approved. • In 2014, Nááts'ihch'oh National Park Reserve of Canada, a Plan proposed conservation initiative, was formally approved. • In 2018, the Sahtu Land Use Planning Board produced a required 5-year review report on the implementation of the Plan
Type of innovative mechanism used	Land use planning
Intended (biodiversity) outcomes	5,549,900 ha of terrestrial and aquatic habitats were conserved as follows: 3,038,400 ha of additional habitat conservation zones established and 2,511,500 of new protected areas proposed; additionally, a suite of special management rules, or “conformity requirements”, for the sustainable use of the balance of the landscape were proposed. All subsequent developments are subject to permitting by regulators under the Mackenzie Valley Resource Management Act (MVRMA); these include the federal and territorial governments, local land corporations, and the Sahtu (Mackenzie Valley) Land and Water Board (SLWB), with monitoring and conformity determinations by the Sahtu Land Use Planning Board (SLUPB)
Degree of success in achieving outcomes	Successful example of Indigenous-led land use planning, including identification of ecological and cultural values for protection as well as general use zones. The Sahtu Land Use Planning Board in its first 5-year review concluded that it was too early to determine if the plan is meeting its stated objectives and goals

Name	Land use planning – Sahtu Land Use Plan, Northwest Territories
	(Sahtu Land Use Planning Board (2018) Sahtu Land Use Plan – The first 5-years: A look back to move forward)
Other outcomes	<ul style="list-style-type: none"> • Facilitated community economic self-sufficiency • Enhanced community capacity, and • Enhanced community decision-making authority

10. CERTIFICATION – MISTIK MANAGEMENT LTD. (SASKATCHEWAN)

Name	Certification - Mistik Management Ltd., Saskatchewan
Responsible organization	Mistik Management Ltd.
Partner organizations	<ul style="list-style-type: none"> • Mistik Management Ltd. is co-owned by the Meadow Lake Tribal Council via their development corporation, Meadow Lake Tribal Council Resource Development Inc. (MLTC-RDI) operating as NorSask Forest Products Inc., and Meadow Lake Pulp Limited • NorSask is the largest First Nations owned forest company in Canada and it controls the Meadow Lake Saw Mill • Approximately 30 communities of which 50% are primarily First Nations or Metis communities which lie inside or adjacent to the Forest Management Area, including the 9 First Nations communities of the Meadow Lake Tribal Council • Province of Saskatchewan’s various departments, including primarily the Ministry of the Environment’s Forest Service Branch
Directly affected geographic area of influence	1,900,000 ha of the boreal forests of northwestern Saskatchewan
Description	<p>Mistik Management Inc., is an Indigenous owned and co-controlled corporation that manages a 1.9M ha Forest Management Agreement area in the boreal forests of northwest Saskatchewan. Its commitment and adherence to the international voluntary standards of the Forest Stewardship Council have delivered significant biodiversity conservation, sustainable use, social and economic outcomes for the Indigenous communities of that landscape.</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 1998 – NorSask secures the original Forest Management Agreement from the province • 1998 – NorSask becomes wholly-owned subsidiary of MLTC-RDI and Mistik Management Ltd., co-owned by NorSask, assumes control of the Mistik forest management area • 2007 - Mistik received FSC certification

Name	Certification - Mistik Management Ltd., Saskatchewan
	<ul style="list-style-type: none"> • 2012 - MLTC-RDI announces the Meadow Lake BioEnergy Centre, a 40 MW renewable energy plant development project that will utilize otherwise waste wood from the adjacent mills • 2015 – Mistik receives FSC “controlled wood” certification for wood fibre sourced from the area surrounding its Forest Management Agreement • 2017 - Mistik was recertified to FSC standards
Type of innovative mechanism used	Voluntary / multi-stakeholder - Certification
Intended (biodiversity) outcomes	207,141 ha of terrestrial and aquatic habitat is managed for conservation, a further 587,982 ha has been designated as High Conservation Value Forests and is managed for conservation and restricted sustainable use, the balance of the forest management area, 1,036,841 ha, is managed to the rigorous sustainable use standards for the FSC.
Degree of success in achieving outcomes	As confirmed in the most recent recertification audit , Mistik Management Ltd. is a successful example of integrated biodiversity conservation and sustainable use
Other outcomes	<ul style="list-style-type: none"> • The profits of from MLTC-RDI’s investment in Mistik Management Inc. and NorSask Forest Products Ltd. support economic development, including the \$175 million investment in the Meadow Lake BioEnergy Centre, social programs, employment and infrastructure development and maintenance in 9 First Nations communities in northwest Saskatchewan • Mistic and NorSask directly support approximately 475 employees and contractors of whom 57% are Indigenous • Meadow Lake BioEnergy Centre is anticipated to support as many as 300 additional employees and contractors

11. SOUTH OF THE DIVIDE CONSERVATION ACTION PROGRAM, INC.

Name	South of the Divide Conservation Action Program, Inc., Saskatchewan
Responsible organization	South of the Divide Conservation Action Program, Inc. (SODCAP), Saskatchewan Stock Growers’ Association
Partner organizations	<ul style="list-style-type: none"> • Environment and Climate Change Canada • Service Canada • Saskatchewan Ministry of Environment • Saskatchewan Ministry of Agriculture • Nature Conservancy of Canada • Saskatchewan Cattleman’s Association
Directly affected geographic	Milk River Watershed area, southwest Saskatchewan (approximately 14,157 km ²)

Name	South of the Divide Conservation Action Program, Inc., Saskatchewan
area of influence	
Description	<p>The South of the Divide Conservation Action Program, Inc. uses economic instruments and other tools to implement several of the recovery actions outlined in the South of the Divide Conservation Action Plan, such as encouraging landholders to seed native grasslands, improve grazing and haying practices, and monitoring species at risk on their property.</p> <p>The program is a multi-stakeholder partnership between governments, industry, and ENGOs, which takes a comprehensive multispecies approach to recovering species at risk, attempting to provide the greatest conservation benefits per dollar spent across a suite of species. This is a welcome development, since well-designed Action Plans are essential for recovering species at risk (but few have been finalized for a number of reasons), and multispecies approaches have the potential to cost-effectively improve conservation outcomes.</p> <p>The project is using an innovative combination of economic instruments to promote species at risk conservation on working landscapes, such as:</p> <ul style="list-style-type: none"> • Results-based payment agreements (which provide payments for desired outcomes or habitat characteristics) • Habitat management agreements (payments based upon prescribed management actions, rather than specific outcomes) • Habitat restoration agreements (where producers submit bids to undertake grassland restoration activities in areas close to existing critical habitat for species at risk) • Grass banking (forage is provided at a concessional rate to ranchers provided that they implement sustainable grazing practices on their properties) <p>The combination of both management-based and outcome-based approaches to conservation payments is an interesting development, which may help address some traditional barriers to the adoption of beneficial management practices (such as risk aversion).</p> <p>The program is also in the process of investigating the feasibility of developing term conservation easements. These would help fill an important gap for conservation on agricultural lands, since many landowners in the Canadian prairies are reluctant to sign permanent conservation easements (e.g. Hill 2011).</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2014 – South of the Divide Action Program Inc. established • 2016 – Proposed South of the Divide Action Plan for Species at Risk circulated for public comment • 2017 – South of the Divide Action Plan for Species at Risk finalized

Name	South of the Divide Conservation Action Program, Inc., Saskatchewan
Type of innovative mechanism used	Voluntary/multistakeholder initiative, tax/payment instrument, and planning tool (multispecies action plan)
Intended (biodiversity) outcomes	<p>Conservation and sustainable management of native prairie (and related) habitat in the Milk River Watershed area.</p> <p>Achieving the population and distribution objectives of thirteen species at risk (as outlined in their recovery strategies), including:</p> <ul style="list-style-type: none"> • Black-Footed Ferret (<i>Mustela nigripes</i>) • Black-Tailed Prairie Dog (<i>Cynomys ludovicianus</i>) • Burrowing Owl (<i>Athene cunicularia</i>) • Eastern Yellow-Bellied Racer (<i>Coluber constrictorflaviventris</i>) • Greater Sage-Grouse (<i>Centrocercus urophasianus phaios</i>) • Long-Billed Curlew (<i>Numenius americanus</i>) • McCown’s Longspur (<i>Rhynchophanes mccownii</i>) • Mormon Metalmark (<i>Apodemia mormo</i>) • Mountain Plover (<i>Charadrius montanus</i>) • Northern Leopard Frog (<i>Lithobates pipiens</i>) • Prairie Loggerhead Shrike (<i>Lanius ludovicianus excubitorides</i>) • Sprague’s Pipit (<i>Anthus spragueii</i>) • Swift Fox (<i>Vulpes velox</i>)
Degree of success in achieving outcomes	<p>Although the program is in its early stages, some early indicators potentially leading to successful outcomes include:</p> <ul style="list-style-type: none"> • 14 Results-Based Conservation Agreements signed to date, involving over 56,000 acres of potential habitat for Greater Sage Grouse or Sprague’s Pipit • 7 Habitat Management Agreements signed, managing over 75,0000 acres • 2 Habitat Restoration Agreements signed, encompassing around 270 acres • 18 water development projects initiated • 10 beneficial management projects promoted
Other outcomes	<p>The program had an annual operating budget of approximately \$550,000 in 2015-2016 and 2016-2017.</p> <p>The program is attempting to communicate ranchers’ contribution to the conservation and sustainable use of grasslands through consumer education and outreach measures. For instance, in 2017 the program helped develop a consumer-facing logo to facilitate selling prairie-raised “Species at Risk Friendly Beef” to niche markets.</p>

Name	South of the Divide Conservation Action Program, Inc., Saskatchewan
Other relevant observations	The program has leveraged resources from several different federal and provincial funding programs, including Growing Forward 2, the Habitat Stewardship Program, and the Species at Risk Partnerships on Agricultural Lands.
Other information	<ul style="list-style-type: none"> • South of the Divide Conservation Action Program Inc., 2015/2016 annual report, 2016/2017 annual report • Results-based payments fact sheet • Term conservation easements fact sheet • Action Plan for Multiple Species at Risk in Southwestern Saskatchewan: South of the Divide

12. COLLABORATION – GREAT BEAR RAINFOREST AGREEMENT

Name	Collaboration – Great Bear Rainforest Agreement, British Columbia
Responsible organization	<ul style="list-style-type: none"> • Joint Solutions Project • Coastal First Nations and N̄anwaḱolas Council • British Columbia government
Partner organizations	<ul style="list-style-type: none"> • Joint Solutions Project partners: <ul style="list-style-type: none"> ○ Coast Forest Conservation Initiative forest industry members BC Timber Sales, Interfor Corporation, Western Forest Products Inc., Catalyst Paper Corporation, Howe Sound Pulp and Paper ○ Rainforest Solutions Project conservation group members Stand.earth, Greenpeace and Sierra Club of BC • Coastal First Nations Coastal First Nations is an alliance of Wuikinuxv Nation, Heiltsuk Nation, Kitsoo/Xai'xais Nation, Nuxalk Nation, Gitga'at Nation, Metlakatla Nation, Old Massett, Skidegate, and Council of the Haida Nation. • N̄anwaḱolas Council is comprised of six member Nations: Mamalilikulla First Nation; Tlowitsis Nation; Da'naxda'xw Awaetlatla Nation; Wei Wai Kum Nation; Kwiakah First Nation; and K'ómoks Nation • Coast Information Team of independent experts advising the negotiations
Directly affected geographic area of influence	6.4M ha area on the pacific coast of British Columbia encompassing globally-rare intact temperate rainforests
Description	The Great Bear Rainforest Agreement is a now legislated and regulated outcome of a collaborative, multi-party negotiation between forest companies, conservation groups, First Nations and the province of British Columbia. The Agreement was concluded between coastal BC First Nations and the British Columbia government and it reflects a mix of protected areas, ecosystem-based management principles for sustainable use and commitments to community-

Name	Collaboration – Great Bear Rainforest Agreement, British Columbia
	based economic development.
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 1993 – Nearly 1,000 people arrested for protesting logging in Clayoquot Sound on the pacific coast of Vancouver Island • 1996 – BC government initiates land use planning on the mid and north coast of the province; Markets/boycott campaign launched in US, Europe and Japan • 1999 Major customers including Scott Paper, Home Depot and others cancel contracts with companies logging in the Great Bear Rainforest • 2000 – Joint Solutions Project initiated • 2004 – Joint Solutions Project presents initial collaborative recommendations to the provincial and Indigenous governments and commence deep consultations • 2004 – Independent experts of the Coast Information Team present detailed guidance on a range of environmental, social, economic and institutional matters to aid the dialogue • 2007 - \$120M fund established to support a transition to new sustainable economic model – Coast Fund • 2009 – 114 conservancies protecting significant biodiversity and cultural values are established • 2014 – Joint Solutions Project formally submits detailed collaborative recommendations to the provincial and Indigenous governments • 2016 – February 1, 2016, comprehensive Great Bear Rainforest agreement announced by all parties • 2016 – December 21, 2016, BC government enacts the Great Bear Rainforest Land Use Order • 2017 – January 1, 2017 BC passes the Great Bear Rainforest (Forest Management) Act to legally implement the biodiversity conservation, cultural and sustainable use recommendations
Type of innovative mechanism used	Voluntary/Multi-stakeholder – Cross-sectoral collaboration – Now a legislated and regulated outcome
Intended (biodiversity) outcomes	3.1 million ha of terrestrial and aquatic habitats and cultural values conserved and 550,000 ha made available for sustainable use subject to a rigorous system of ecosystem-based management
Degree of success in achieving outcomes	Successful in achieving conservation outcomes and in securing public-private funding partnerships in support of stewardship and economic development.

13. CHALLENGE STATEMENT – ZERO LAND DISTURBANCE EXPLORATION

Name	COSIA Zero Land Disturbance Exploration Challenge, Alberta
Responsible organization	Canada’s Oil Sands Innovation Alliance

Name	COSIA Zero Land Disturbance Exploration Challenge, Alberta
Partner organizations	<ul style="list-style-type: none"> • Canadian Natural Resources Limited • Cenovus Energy Inc. • ConocoPhillips Canada Resources Corp. • Devon Canada Corporation • Imperial Oil Resources Limited • Nexen Energy ULC • Suncor Energy Inc. • Syncrude Canada Ltd. • Teck Resources Limited
Directly affected geographic area of influence	Up to ~ 13,793,400 ha, which is the in situ recoverable portion of the oil sands region in northern Alberta. Also transferable beyond the oil sands region to any region requiring subsurface data and looking to limit land disturbance.
Description	<p>With the intention of catalyzing innovative thinking from external stakeholders and global solutions providers, Canada’s Oil Sands Innovation Alliance (COSIA) has identified a number of Challenges that explicitly state the innovation requirements to fill the identified gaps in knowledge and technology within each suite of environmental performance areas. With the Zero Land Disturbance Exploration Challenge, COSIA is seeking transformative, cost-effective technologies to eliminate linear tree-clearing associated with exploration across the boreal forest and in particular within the oil sands region of northern Alberta</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2012 – March 1, 2012, COSIA is launched - an alliance of oil sands producers focused on accelerating the pace of environmental performance in Canada’s oil sands through a collaborative approach to fostering innovation. COSIA sets out four focus areas, including a Land Environmental Priority Area focused on reducing the footprint intensity and impact of oil sands mining and in situ operations on the land and wildlife of northern Alberta • 2012 – A COSIA member company, Cenovus Energy Inc., develops a heli-portable technology (“Sky Strat”) for exploration drilling, which eliminates the need for winter access trails for hauling in equipment • 2017 – June 29, 2017, COSIA releases the Approaching Zero Land Disturbance Exploration Challenge (COSIA Challenge #20; https://www.cosia.ca/initiatives/land#challenges) to catalyze innovative thinking and investment from external stakeholders and global solutions providers to develop techniques to continue gathering high quality subsurface data, while minimizing or eliminating tree clearing associated with oil and gas exploration in northern Alberta and the wider boreal forest • 2018 update - Several proposed solutions have been received by COSIA members. Suncor Energy Inc. (Suncor) plans to test one or more of the proposals. Some testing is already underway. For example, Suncor, advanced

Name	COSIA Zero Land Disturbance Exploration Challenge, Alberta
	<p>one of the proposed zero footprint seismic solutions to a 2-Dimensional (2-D) seismic exploration pilot phase in fall 2017 and a second phase of testing commenced in spring 2018 with a 3-D seismic exploration pilot of the same technology. The data acquisition or field phase of 3-D seismic exploration pilot wrapped up in May 2018. Data processing and results examination will continue into fall 2018 with a view to identify the effectiveness and scalability of the technology for full commercial-scale deployment. Results from these pilots are being shared with all COSIA members to support accelerated environmental performance in oil sands exploration, specifically around project footprint reduction.</p>
Type of innovative mechanism used	Voluntary/multi-stakeholder - challenge statement - collaboration
Intended (biodiversity) outcomes	<p>Reducing or eliminating the linear tree-clearing in northern Alberta and the wider Western Canadian Sedimentary Basin associated with resource roads, seismic lines, well pads and conventional and unconventional oil and gas development. Significantly reducing or eliminating seismic footprint would reduce the cumulative impacts of oil and gas development with positive implications for biodiversity conservation, such as the Woodland Caribou (<i>rangifer tarandus caribou</i>), Boreal populations across Canada.</p>
Degree of success in achieving outcomes	<p>It is too early to assess the success of this COSIA Challenge; however, there have been a suite of other exploration technology innovations that suggest the observer should be optimistic: airborne seismic; helicopter- airship- and/or drone-borne seismic; helicopter-borne drilling rigs; sharing and reutilizing existing infrastructure; and other technologies and practices</p>
Other outcomes	<ul style="list-style-type: none"> • Many, though not all, footprint-reducing technologies and practices have associated cost and time savings • Improvements in environmental performance may have measurable impacts on social licence • Potential for improvement in subsurface seismic data and reservoir profiling as a result of the new technology.

14. MOUNT HEREFORD COMMUNITY FOREST

Name	Mount Hereford Community Forest, Quebec
Responsible organization	Hereford Community Forest Inc. (<i>Forêt Hereford</i>) and the Nature Conservancy of Canada
Partner organizations	<ul style="list-style-type: none"> • Tillotson estate (a private donor) • Municipalities of East Hereford, St-Herménégilde, and the Coaticook

Name	Mount Hereford Community Forest, Quebec
	Regional County Municipality
Directly affected geographic area of influence	Coaticook Regional County Municipality (1,355 km ²), southeast Quebec
Description	<p>The project is a private nature reserve embedded within a much larger sustainably managed forest landscape (secured via a conservation servitude/easement). The Tillotson estate (nearly 6000 ha) transferred approximately 5,400 ha of its property to Hereford Community Forests (HCF) – a charitable organization governed by the local community – leading to the establishment of a working forest landscape. A smaller portion of the property (239 ha) was transferred to the Nature Conservancy of Canada as the <i>Neil and Louise Tillotson Nature Reserve</i>, which established strong restrictions to protect the reserve’s high conservation values.</p> <p>The property houses a diverse array of plants and animals, including several species listed (or likely to be listed) as endangered, threatened or vulnerable under Quebec legislation (e.g. spring salamander). A conservation servitude was signed between HCF and the Nature Conservancy of Canada to safeguard the conservation value of the community forests. The servitude specifies requirements for preserving forest cover, as well as rare and vulnerable elements, such as wetlands, permanent and temporary waterbodies, and endangered species. The HCF is also nested within a broader, largely undisturbed forest landscape, encompassing over 7,793 ha and providing important connectivity functions between forests within Canada and the United States.</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2009 - Discussions begin with the Tillotson estate in 2009 on transferring ownership of the property to an independent organization. • 2011 - A land use plan for the working forest was drawn up in 2011 by the municipalities of East Hereford, Saint-Herménégilde and the Coaticook regional county municipality. • 2011 - A conservation covenant was signed with the Nature Conservancy of Canada in 2011, encompassing approximately 95% of the property. • 2013 - An independent organization was established for managing the property (Hereford Community Forest) and ownership of the property was officially transferred to HCF in 2013.
Type of innovative mechanism used	Voluntary/Multi-stakeholder (conservation servitude, FSC certification, eco-tourism), planning (community forest management, private nature reserve)

Name	Mount Hereford Community Forest, Quebec
Intended (biodiversity) outcomes	<ul style="list-style-type: none"> • The establishment of a ~6,000 ha working conservation landscape, the majority of which (approximately 5,400 ha) will be managed as a working forest secured under a conservation covenant. The covenant includes measures for protecting wetlands, waterbodies, and vulnerable species, and along with strict limitations on infrastructure development or the establishment of monoculture plantations. • Creation of a 239 ha nature reserve on the property, with strong restrictions for protecting the reserve’s high conservation values. • Numerous forest restoration activities (such as selective cutting) have been undertaken in the working forest. Approximately 155 ha were restored in 2015. • Enrichment planting featuring rarer tree species (such as red spruce and white pine) has also been undertaken in the working forest. • Fifteen temporary spring crossings were established, to minimize impacts to salamander populations from timber harvesting and mountain biking activities. • Measures were undertaken to remove Japanese Knotweed, an aggressive invasive plant species.
Degree of success in achieving outcomes	To be determined, but the private protected area measures, and the signing of a permanent conservation servitude (and associated land use restrictions) on for the working forest landscape, along with the forest restoration, enrichment planting and invasive plant control measures undertaken, provide a strong foundation for success.
Other outcomes	<p>The 5,700 hectare working forest portion of the property allows for sustainable revenue-generating activities such as eco-tourism (hiking, skiing, mountain-biking) and timber harvesting, with the Community Forest becoming FSC-certified in 2015. Sustainable forest management activities provide the main source of revenue on these lands. In the year 2015-2016, activities related to the possession and management of Hereford Community Forest generated more than \$725,000 in direct economic activity, of which 75% came from forest management works.</p> <p>In 2015, the Community Forest became a key partner in PIVOT, which is a novel grouped forestry carbon offset project that which will create carbon credits under the Verified Carbon Standard.</p>
Other relevant observations	The Hereford Community Forest’s vision statement includes an aspiration for the forest (and its related conservation activities) to be entirely self-funded.
Other information	<ul style="list-style-type: none"> • History of the Hereford Community Forest • Hereford Community Forest annual reports

Name	Mount Hereford Community Forest, Quebec
	<ul style="list-style-type: none"> • Summary of the Hereford Community Forest conservation servitude (in French only) • Pivot grouped forest carbon offset project press release – discussed Hereford Community Forest’s participation in the program

15. ECOSYSTEM ACCOUNTING – MUNICIPAL NATURAL ASSET MANAGEMENT, GIBSONS, BC

Name	Ecosystem Accounting - Municipal Natural Asset Management – Gibson’s, BC
Responsible organization	Town of Gibsons , British Columbia
Partner organizations	<ul style="list-style-type: none"> • Municipal Natural Asset Initiative • Smart Prosperity Institute • David Suzuki Foundation • Brooke and Associates
Directly affected geographic area of influence	The 432 ha municipality of Gibsons, British Columbia
Description	<p>Ecosystem accounting values natural assets such as forests, riparian areas, watersheds and aquifers that provide services that would otherwise necessitate a municipality to fund costly-engineered infrastructure. Municipal natural assets management focuses on maintaining or restoring natural capital with the goal of ensuring the sustainable delivery of the ecosystem services that this capital provides to a community. Gibsons was the first North American community to experiment with accounting for and managing the services provided by its natural assets. (Brooke, R. Cairns, S. Machado, E. Molnar, M. O’Neill, S. (2017) Municipal Natural Asset Management as a Sustainable Infrastructure Strategy: the emerging evidence. Submission to the Fifth Green Growth Knowledge Platform Conference on Sustainable Infrastructure.²¹)</p>
Timeline/ History (i.e. how long mechanism has been in operation / use)	<ul style="list-style-type: none"> • 2013 - Consistent with the 2009 revision to the Canadian public sector accounting standard PSAB 3150 for Tangible Capital Assets, the Town determined the state and value of its assets, including its natural assets • 2014 - Town passes a municipal natural asset management policy • 2016 - Town becomes a founding member of the Municipal Natural Asset Initiative

²¹ Brooke, R. Cairns, S. Machado, E. Molnar, M. O’Neill, S. (2017) Municipal Natural Asset Management as a Sustainable Infrastructure Strategy: the emerging evidence. Submission to the Fifth Green Growth Knowledge Platform Conference on Sustainable Infrastructure, available on-line at <http://institute.smartprosperity.ca/sites/default/files/ggkpsubmissionfinal-withcover.pdf>

Name	Ecosystem Accounting - Municipal Natural Asset Management – Gibson’s, BC
Type of innovative mechanism used	Ecosystem accounting - Municipal natural asset management
Intended (biodiversity) outcomes	Ecosystem accounting and natural asset management are intended to enhance the conservation rationale for maintaining natural assets and their associated biodiversity values, by accounting for the ecosystem services that they provide to the Town that would otherwise have to be provided by engineered infrastructure services.
Degree of success in achieving outcomes	Preliminary results include securing and enhancing management of biodiversity values in White Tower Park and around the Gibsons aquifer.
Other outcomes	Preliminary results on the cost savings also appear promising. For instance, several ponds in Gibson’s White Tower Park provide stormwater management services. The municipality spends approximately \$15,000 every 3-years on measures to dredge sedimentation. By contrast, providing these same stormwater management services through engineered infrastructure would have cost approximately \$3.5-4.0 million (Brooke, R. Cairns, S. Machado, E. Molnar, M. O’Neill, S. (2017), <i>op. cit.</i> ; Sahl, J; Hamel, P.; Molnar, M.; Thompson, M; Zawadzki, Alexi; Plummer, Bob (2016). Economic valuation of the stormwater management services provided by the Whitetower Park ponds, Gibsons, BC. DRAFT.)
Other relevant observations	<ul style="list-style-type: none"> Chartered Professional Accountants, Canada Public Sector Accounting Handbook , 2009 standard PS 3150, includes a provision for municipal tangible capital assets to be identified, counted, valued and amortized over their useful lifetime, which opens the possibility for natural asset management According to the Municipal Natural Assets Initiative, other Canadian municipalities presently piloting natural asset accounting include: City of Nanaimo, BC; District of West Vancouver; Grand Forks, BC; Town of Oakville, ON; and, Region of Peel, ON,
Other information	<ul style="list-style-type: none"> Federation of Canadian Municipalities’ 2018 Primer on Natural Asset Management which explains key terms (FCM (2018) Primer on Natural Asset Management for FCM’s 2018 Sustainable Communities Conference) Town’s 2015 Eco-Asset Strategy which builds upon its 2014 natural asset management policy (Town of Gibsons (2015) Eco-Asset Strategy)

4. CONCLUDING OBSERVATIONS

To support Canada's reporting on its *2020 Biodiversity Goals and Targets*, Environment and Climate Change Canada (ECCC) contracted with the Smart Prosperity Institute (SPI) to gather, analyze, and report on relevant information on innovative mechanisms being used for the conservation and sustainable use of biodiversity.

The consultants compiled a long, non-exhaustive list (n=46) of innovative mechanisms based on existing SPI research, input collated by the ECCC, input solicited by the ECCC, input solicited by SPI partners and experts, and a web-search of relevant initiatives and instruments. With input from ECCC, the consultants selected a set of initiatives and instruments from the long list to profile in case studies according to a set of representative criteria set out above. The 15 case studies are presented in Section 3. The remaining 31 initiatives and instruments are collected in a supplemental list presented below (Appendix A).

This report reflects a broad overview of emerging initiatives only, rather than a comprehensive or in-depth review, and input was received from some, but not all, project proponents and stakeholders. Nevertheless, it appears that the use and application of innovative mechanisms for the conservation and sustainable use of biodiversity has accelerated, broadened and deepened during this timeframe. Of particular note is the large number of voluntary multi-stakeholder/rightsholder initiatives identified, whereby non-governmental actors come together to work across sectors to find mutually beneficial solutions to often challenging issues. Eleven of 46 examples identified, or nearly 25%, were voluntary multi-stakeholder/rightsholder initiatives.

The use of economic instruments and related tools for conservation also appeared to be gaining some traction at all levels of government, particularly at the municipal level. Multiple case studies reflect municipal leadership, from the Municipal Natural Asset Management Initiative in Gibsons to the Simcoe Lake Water Quality Trading initiative to the Ottawa Green Bond initiative. Other emerging municipal innovations are reflected in the supplemental list, and there are, no doubt, many more that could be identified.

It was noted, however, that while the review identified multiple examples of economic instruments in action, in many cases these were more in the realm of feasibility studies, pilots, or voluntary projects, as opposed to larger-scale programs or broader policies incorporating economic instruments, suggesting that continued effort is needed to operationalize or to mainstream innovative mechanisms for fostering the conservation and sustainable use of biodiversity more widely.

APPENDIX A: COMPILATION OF SUPPLEMENTAL MECHANISMS FOUND
Table 2: List of Supplemental Mechanisms Identified

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
I. Revenue generation mechanisms					
1. Natural Resources Conservation Trust Fund	Territorial government	Independent trust	Nunavut	Initiated in 2015 and presently accumulating capital	Financed from a levy on hunting licenses and permits.
2. Thaidene Nene Trust	Lutsel K'e Dene First Nation	TNC Canada	NWT	Initiated in 2012 and accumulating capital	An independent \$30 million trust fund being established to support the Lutsel K'e Dene First Nation's investments in management, operations, staff training and tourism within the new protected areas. 2,630,000 ha proposed terrestrial and aquatic habitat conserved as a proposed National Park.
3. Conservation-directed court-ordered damage awards	Canadian courts	Various pieces of federal or provincial authorizing legislation	National	Continuing trend	Canadian courts increasingly have a number of statutorily-enabled options in sentencing violators of environmental laws. In addition to fines, other traditional penalties, and alternative measures, such as out of court settlements, many statutes now provide innovative opportunities for creative sentencing. In the federal sphere, the most comprehensive creative sentencing provisions are found in the <i>Fisheries Act</i> and the <i>Canadian Environmental Protection Act, 1999</i> . Fines awarded under the provisions of these statutes support the Environmental Damages Fund and the conservation and sustainable use of biodiversity. As an example, British Columbia has borrowed heavily from the federal government in this area and has enacted creative

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
					sentencing provisions in s. 84.1 of the Wildlife Act, R.S.B.C. 1996, c. 488, s. 41.1 of the Water Act, R.S.B.C. 1996, c. 483 and s. 56.1 of the Waste Management Act, R.S.B.C. 1996, c. 482. The provincial legislation has gone one step further than the (federal) Environmental Damages Fund and has established two statutory conservation trust funds - Habitat Conservation Trust Fund and the Grizzly Bear Trust Fund.
4. Ontario Greenbelt Foundation ²²	Provincial government	Independent trusts	Ontario	The Friends of the Greenbelt Foundation, which was incorporated in 2005, was capitalized by \$20 million grant from Ontario in 2012	An independent trust established to promote the conservation and sustainable use of terrestrial and aquatic habitats in the Greenbelt region. In 2017, 9,950 ha representing 21 river valleys and 7 shoreline wetland complexes were added to the 215,700 ha of aquatic and terrestrial habitats conserved in the Greenbelt.
5. Fonds des municipalités pour la biodiversité (Fonds MB)	SNAP (CPAWS) QC	Fondation de la faune du Québec, various municipalities	QC	The fund was launched in April 2017	Participating municipalities donate approximately \$1/household into the fund, which will be used to finance natural area protection projects with local partners.
II Conservation offsets					
6. Southeast Alberta Conservation Offset Pilot	Provincial, Alberta Agriculture and Forestry	Various other provincial departments and ENGOS	Alberta	A provincial pilot of conservation offsetting 2011-2015	The pilot aimed to establish a system of voluntary offsets on private lands to compensate for industrial development impacts on native prairie in Alberta's Dry Mixedgrass Subregion. Offsets consisted of 10+ year contracts for landowners to convert less productive croplands to native perennial systems (preference was given to long-term contracts). The pilot produced approaches to: quantify the offset

²² <http://www.fondsmb.com/>

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
					requirements; target offsets to priority habitats; determine landowner willingness and barriers to participation; and, determine the role and cost of potential third-party validators.
7. Environmental Mitigation Policy	Provincial	Project proponents	British Columbia	Initiated in 2014 and continuing	The policy outlines a set of procedures and considerations for proponents to mitigate the impacts of all kinds of regulated development. Government staff provide guidance on: (i) identifying relevant environmental values and components; (ii) preparing an environmental impact assessment; (iii) mitigation and offsetting measures that may be required or suggested.
8. Wetland Mitigation Policy	Provincial	Project proponents	Alberta	A policy was initiated in 2013, a revised directive was issued in 2017, and implementation continues including a requirement for compliance in permit authorization effective 2018	Conservation offsets and banking for wetland ecosystems.
9. Operational Framework for the use of Conservation Allowances	Federal, Environment and Climate Change Canada	Various	National	A 2012 expansion and revision to the conservation offset framework described in the 1991 Federal Policy on Wetland Conservation.	Outlines the conservation offset parameters as well as their scope (i.e. where and where they are not appropriate). Key features include: (i) applying the mitigation hierarchy (avoid-mitigate-offset); (ii) the need to ensure equivalency and (iii) additionality; (iv) specking site location considerations; (v) considerations on timing; (vi) appropriate project duration; (vii) project accountability.
10. Water Conservation Trust	Provincial	Independent trust	Alberta	Initiated in 2006, secured a portion of a major water license in 2010	Transferable water development rights/entitlements for instream flow.
11. Legacy Project Mine Offset	K+S Potash Canada (KSPC)	Nature Conservancy Canada (NCC), Ducks Unlimited Canada	South central Saskatchewan	2017	Almost a million dollars were given to offset the impacts of the Legacy Project mine on native grasslands. The offset uses a voluntary protocol/formula that was developed by the

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
		(DUC)			<p>Saskatchewan Ministry of Environment in collaboration with KSPC and NCC, which accounted for factors such as habitat connectivity.</p> <p>Nearly CAD \$1 million was provided to offset the 194 hectares impacted by the mine. These funds were used to conserve 402 hectares of threatened grassland ecosystems, with the aim of ensuring a net gain to these ecosystems.</p>
III Tax/Payment Instruments					
12. Managed Forest Tax Incentive Program	Provincial	Various landowners in Ontario	Ontario	Initiated in 1997, guidance for the program was updated in 2012 and it continues. 4,075 additional properties were added to the program 2011-2017	86,000 ha of terrestrial and aquatic habitats were subject to enhanced conservation and improved provisions for sustainable use 2011-2017.
13. Conservation Land Tax Incentive Program	Provincial	Various landowners in Ontario	Ontario	Initiated in 1998, policy updated in 2010 and continuing. 2,660 additional parcels of land were added to the program 2011-2017	Tax instrument - 100% property tax exemption on eligible portions of properties for their long-term commitment to the stewardship of conservation lands. This has led to 24,482 ha of terrestrial and aquatic habitats conserved from 2011-2017.
14. Alternative Land Use Services (ALUS) Canada	ALUS	Weston Foundation (and other foundations), Delta Waterfowl, Federal Government, Government of Ontario	Alberta, Manitoba, Ontario, P.E.I., Quebec Saskatchewan	ALUS founded in 2005. ALUS expands to Alberta and Ontario in 2012. ALUS Canada receives a \$5 million donation in 2016 to drive its expansion across Canada.	<p>A payment for ecosystem services program that provides rewards for a broad array of ecosystem management actions and ecosystem services, including wetlands, pollinator habitat, and species at risk habitat.</p> <p>The program has led to 10,277 acres of wetland ecosystems managed and conserved, 10,041 acres of pollinator habitat protected, and 2,611 acres reforested with native vegetation across Canada.</p>

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
IV Planning Tools					
15. Alberta Land Stewardship Act - Lower Athabasca Regional Plan	Provincial	Various industrial, Indigenous, ENGO, municipal and provincial organizations	Alberta	Legislation passed in 2009 to support the Alberta Land Use Framework policy of 2008. Initial regional plans approved to-date include: Lower Athabasca, 2012; South Saskatchewan, 2014; and the South Saskatchewan amendment to include the Castle Provincial Park, 2017.	<p>The Plan enables the use of economic instruments including conservation easements, conservation offsets and transferable development credits.</p> <p>Through the Plan, ~2,000,000 ha of new terrestrial and aquatic habits conserved in six new conservation areas, including the Dillon River Wildland Park expansion, Birch Mountain Wildland Park expansion, and Kazan Wildland Park, as well as the Andrew Lake, Christina Crossing, Gregoire Lake, Goodwin Lake, Slave River Rapids recreation areas. Work is on-going to implement a further series of environmental management initiatives to guide sustainable use, such as the 2015 Surface Water Quality Management Framework.</p>
16. Lancaster Sound Federal Protected Area	Federal, Environment and Climate Change Canada/Parks Canada Agency	Government of Nunavut, Qikiqtani Inuit Association	Qikiqtaaluk Region, Nunavut	Feasibility study initiated in 2009; protected area boundaries formalized in 2017	<p>New multi-stakeholder or public-private partnership.</p> <p>Contributes approximately two per cent (interim basis) towards the government of Canada's pledge to protect five percent of Canada's marine areas by 2017.</p> <p>Contributes to the conservation of species at risk.</p> <p>Inuit Impact Benefit Agreement signed, and safeguards traditional Inuit harvesting rights (as specified under the Nunavut agreement).</p>
17. Maritime Natural Infrastructure Collaborative	Nature New Brunswick	Environment and Climate Change Canada, Dalhousie University, <i>Université de Moncton</i> , CPAWS, etc.	New Brunswick, Nova Scotia, Prince Edward Island	2017	<p>Decision support tools are being developed to help planners and decision-makers identify, measure and value ecosystem services. The tool will both draw upon existing models (e.g. InVEST) as well as new models for quantifying inland flood risk being developed by the <i>Université de Moncton</i>.</p> <p>The decision support tools are intended to integrate</p>

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
					ecosystem services into planning decisions, thereby empowering decision makers and planners to make decisions which safeguard existing ecosystem services. Preserving natural areas which provide low-cost services (such as reduced flood risk) is expected to reduce long-term infrastructure costs, while also contributing to ecosystem conservation.
18. Tla-o-qui-aht Tribal Parks (Tranquil Tribal Park and Esowista Tribal Park)	Tla-o-qui-aht nation	N/A	Clayoquot Sound, British Columbia	Traditional chiefs declared <i>Wah-nah-jus – Hilth-hoo-is</i> (Meares Island) a Tribal Park in 1984; the Nation collaborated with Parks Canada to establish Ha`uukmin (Kennedy Lake Watershed) Park in 2009; <i>Tranquil Tribal Park</i> and <i>Esowista Tribal Park</i> were declared in 2013. These parks are not officially recognized by the Government of British Columbia.	The tribal parks are meant to conserve species and ecosystems on traditional <i>Tla-o-qui-aht</i> land, while also providing employment opportunities in sustainable activities such as eco-tourism. Tla-o-qui-aht also oppose extractive activities such as mining and logging within tribal Parks.
V Voluntary / Multi-stakeholder Initiatives					
19. Natural Areas Conservation Program	Federal, Environment and Climate Change Canada	NCC, DU and regional land trusts	National	Initiated in 2007 and continuing	Acquisition of land (or interest in land such as easements) by NCC, DU and regional land trusts. The program has led 269,204 ha of terrestrial habitat conservation achieved 2011-2017.
20. Conservation agreements - Southern Mountain Caribou	Federal, Environment and Climate Change Canada	British Columbia	British Columbia	Proposed in 2017	Short term targets of stabilizing and reversing negative population trajectories across each Local Population Unit (LPU). The long-term population target is for a minimum of 800 caribou, with LPU targets which would allow for self-

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
					sustaining populations which would allow for some harvesting by Indigenous peoples.
21. Colin Stewart Forest Forum	Various ENGOs and industrial leaders	Various other provincial leaders	Nova Scotia	Initiated in 2005, reporting in 2009, leading to continuing implementation by the province.	Voluntary multi-stakeholder - cross-sectoral collaboration. 276,000 ha of terrestrial habitats were recommended for conservation.
22. Pasquia Porcupine Caribou Management and Protected Areas Plan	Canadian Boreal Forest Agreement	Various conservation, industry, municipal, provincial, and Indigenous leaders	Saskatchewan	Initiated in 2010, reporting in 2016, leading to continuing implementation	778,700 ha of terrestrial conservation as follows: voluntarily protected 222,600 ha in a 20-year deferral and collaboratively recommended two new protected areas - 86,400 Lobstick Lake and 469,700 ha Mossy River benchmark.
23. High Conservation Value Forests - DMI's Continuous Reserve Network	Forest Stewardship Council (FSC Principle 9)	Various industrial, conservation, Indigenous and union leaders	Alberta	Daishowa Marubeni International Ltd.'s (DMI) High Conservation Value Forest initiative was completed in 2015	Voluntary/ multi-stakeholder or public-private partnership - economic instrument - certification - FSC's High Conservation Value Forest. 1,181,500 ha of continuous reserve network voluntarily managed for habitat conservation.
24. OceanSmart Green Boating App	T. Buck Suzuki Foundation		Coastal British Columbia	Launched in June 2017	OceanSmart is a free app which provides information on best practices for fisherfolk to reduce their environmental impacts. It provides easy access to green boating guides and resources, such as maps of marine protected areas). It also features user-friendly tools to report real-time spills and other infractions with detailed information including time of day, latitude and longitude, in order to effectively guide so recovery efforts.
25. Community Forests International	Community Forests International		New Brunswick and coastal Tanzania	Founded in Pemba Island, Tanzania in 2007, activities in New Brunswick began in 2009	Voluntary / multi-stakeholder initiative – restoration of Acadian Forests on private lands in New Brunswick. The program has led to the conservation of approximately 250 acres of forestland in New Brunswick annually. 2016 outcomes include: • 513 tonnes of wood sustainably harvested

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
					<ul style="list-style-type: none"> • 25 acres targeted for restoration forestry practices • 326 acres protected via the Adopt-a-Clear-cut program • 214,000 trees replanted
26. Cocagne watershed green corridors project	<i>Groupe de développement durable du pays de Cocagne, Réseau environnemental du NB</i>	<i>Fonds en fiducie pour l'environnement</i>	La Cocagne, New Brunswick	Project commenced in 2016	Project consists of establishing a series of 'green corridors' with private landowners. A catchment map has been drafted under the project to identify wildlife habitat networks. Several actions were also taken to enhance habitat connectivity for rare and imperilled birds, including the establishment of four tree nurseries in local schools, each harboring indigenous tree species (red oak, white pine, yellow birch), and the installation of over 100 birds' nests for swallows.
27. North Pacific Landscape Conservation Cooperative	U.S. federal agencies, states, provincial government ministries and departments	Indigenous peoples, non-governmental organizations, universities, and other entities within the participating jurisdictions	Yukon Territory, British Columbia, Alaska, Washington, Oregon, California	Initiated in 2010	The North Pacific Landscape Conservation Cooperative is a partnership between Governments, academic institutions and ENGOs. Members collaborate on various aspects of scientific research and communications to support conservation decisions at a landscape scale, sustainable resource management, and resilience to climate change and other threats.
28. Great Northern Landscape Conservation Cooperative (GNLCC)	U.S. Department of the Interior; Environment and Climate Change Canada	Alberta Ministry of Environment and Parks; BC Ministry of Environment; BC Ministry of Forest, Lands, and Natural Resource Operations, state wildlife departments, various academic institutions and conservation organizations	Alberta, British Columbia, Washington, Oregon, Idaho, Wyoming	Initiated in 2010	The Great Northern Landscape Conservation Cooperative a collaboration between Governments (including Indigenous governments and groups), academics and ENGOs. Through partnerships on scientific research, data sharing, and capacity building, the GNLCC aspires to improve conservation outcomes across borders and across landscapes.

Name	Responsible Organization	Partner Organizations	Location	Timeline (including inception date)	Description
VI Other Policies and Programs					
29. City Biodiversity Index	City of Edmonton	ESA, Space for Environment, Concordia	Alberta	Initiated in 2015	<p>The Index helps cities achieve biodiversity goals and report against the targets. The index comprises 23 indicators that measure three domains: native biodiversity in the city, ecosystem services provided by biodiversity, and governance and management of biodiversity within the city.</p> <p>To date 3,700 ha of terrestrial and aquatic habitats have been conserved helping to create the largest municipally owned park system in Canada.</p>
30. Halifax Urban Forest Master Plan	Halifax Regional Municipality		Nova Scotia	2013	<p>The Urban Forest Master Plan includes forest management plans for 111 unique urban forest neighbourhoods. The plan promotes location-specific forest health to maximize the ecosystem service benefits across the municipality.</p> <p>Developed 111 urban forest neighbourhood plans.</p> <p>The urban forest in HRM sequesters over 18,500 tonnes of carbon annually and directly reduces energy demand through heating and cooling by 1.7 million dollars. In addition, the trees remove over 550,000 kg of pollutants from the air annually.</p>
31. Towards Sustainable Mining - Biodiversity Conservation Management Protocol - Grizzly Bear Monitoring	Mining Association of Canada	Dominion Diamond Corp.	NWT	TSM was initiated in 2004 and is continuing. The Joint Regional Grizzly Bear DNA program was initiated in 2012 and expanded in 2015 and it continues	3,000,000 ha study area monitoring grizzly bear population trends