



OUR MISSION

To be the authoritative, primary source of accessible, current, and reliable information on the distribution and abundance of Canada's natural diversity—especially species and ecosystems of conservation concern.



A Network Connecting Science with Conservation
Un Réseau pour la Science et la Conservation

ANNUAL REPORT 2018–19

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Front cover photo: The globally Secure (G5) Great Spangled Fritillary (*Speyeria cybele*) is found from British Columbia to the Maritime provinces, and in 44 American states. Photo: Colin Jones, NHIC Archives

From the Chair and Executive Director

FISCAL 2018-19 was another busy year that saw NatureServe Canada embark on several new projects with our partner and member organizations. These included the Canadian Key Biodiversity Areas program, a National Endemic Species Report, our Ecosystem-based Automated Range Mapping initiative, our Secure and Open Data policies and procedures, and work to enhance the iNaturalist.ca Citizen Science platform. Each of these activities saw NatureServe Canada branch out to work with new and existing partners in order to improve biodiversity data management, sharing, and distribution. Several of these initiatives are featured in this 2018-19 Annual Report.

As the evidence mounts about the growing impacts that human activity is having on biodiversity, the NatureServe Network's international approach to develop standardized data within and across jurisdictional borders is increasingly important. We look forward to continued work with our partners to improve our understanding of the status of and threats to Canada's biodiversity, and to distribute our information to decision-makers and the public to effect positive change.

A big "thank you" to our members, partners, and funders for your role in supporting the NatureServe Canada Network and working with us to achieve our common biodiversity conservation objectives.



Bruce Bennett
Chair



Patrick Henry
Executive Director

Who We Are and What We Do

A REGISTERED CANADIAN CHARITY, NatureServe Canada and its network of Canadian Conservation Data Centres (CDCs) work together and with other government and non-government organizations to develop, manage, and distribute authoritative knowledge regarding Canada's plants, animals, and ecosystems. NatureServe Canada and the Canadian CDCs are members of the international NatureServe Network, spanning over 80 CDCs in the Americas. NatureServe Canada is the Canadian affiliate of NatureServe, based in Arlington, Virginia that provides scientific and technical support to the international network. NatureServe Canada is based in Ottawa, Ontario and is governed by a Board of Directors comprised of representatives of the provincial and territorial CDCs that are its Constituent members.

A CDC is an organization with responsibility for biodiversity knowledge for the jurisdiction(s) it serves. Conservation Data Centres are located in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, Atlantic Canada, Yukon, Northwest Territories, and Nunavut. Each CDC adheres to NatureServe's rigorous scientific methods and standards developed since the 1970s—NatureServe's core natural heritage methodology.

NatureServe Canada and the Canadian CDCs strive to answer four key questions:

1. What species and ecosystems exist in each province or territory?
2. What is the condition and conservation status of their populations?
3. Which species or ecosystems are at risk of extinction (global) or extirpation (from Canada or a province or territory)?
4. Where precisely are species at risk and rare ecosystems found?

To answer these questions, we use NatureServe's core natural heritage methodology to:

- List the species and ecosystems (biodiversity elements) present in given jurisdictions, and determine the rarity of and threats to these elements
- Gather information from available sources, including fieldwork, on occurrences of elements of conservation concern; process, map, and manage the collected data; and assess the geographic distribution of species and ecosystems, at multiple geographic scales
- Distribute knowledge in aid of decisions concerning land use, natural resources, and biodiversity conservation, education, and research

We maintain information on over 51,000 species and over 3,600 ecological communities. Our Network steadily adds new knowledge about biodiversity—including about species newly documented for Canada or species newly described to science, and where they are found and their conservation status. The Network also helps document the most important places for biodiversity in Canada, to aid in management decisions concerning them.



Allison Siemens-Worsley, NatureServe
Canada's National Data Support Biologist

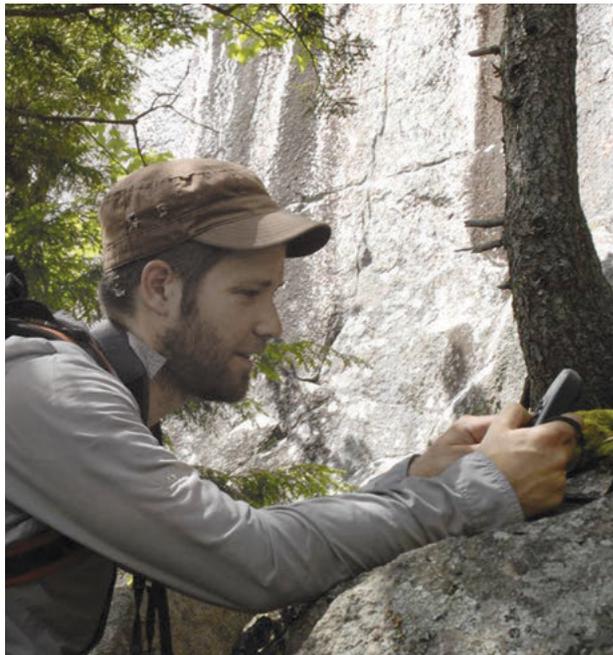


David Mazerolle, Botanist, Atlantic Canada
Conservation Data Centre

Connecting Science with Conservation

CANADA IS HOME to an estimated 140,000 species, only about half of which have been scientifically identified. These plants, animals, lichens, and fungi belong to a vast organic tapestry—the diversity of life at genetic, species, and ecosystem levels. This biodiversity is vital for environmental, economic, and social health.

Extinction is part of nature. However, as reported in May 2019 from a landmark global report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, “[n]ature is declining globally at rates unprecedented in human history—and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely....The Report finds that around 1 million animal and plant species are now threatened with extinction, many within decades, more than ever before in human history. The average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900. More than 40% of amphibian species, almost 33% of reef-forming corals and more than a third of all marine mammals are threatened.



The picture is less clear for insect species, but available evidence supports a tentative estimate of 10% being threatened.”¹

For biodiversity to endure it is imperative that sound knowledge about it be maintained and made widely available. At NatureServe Canada, our vision is a future where the natural heritage of Canada is documented, where that information is readily available, and where the conservation of biodiversity and resource decision-making in Canada are guided by high quality scientific data and information. Our mission: to be the authoritative, primary source of accessible, current, and reliable information on the distribution and abundance of Canada’s natural diversity—especially species and ecosystems of conservation concern.

**James Churchill, Data Manager,
Atlantic Canada Conservation Data Centre**



Famed for its impressive aerial agility and its voracious appetite—a single adult can eat over 1000 insects a day—the Chimney Swift (*Chaetura pelagica*) overwinters in South America and is found the rest of the year across six to eight Canadian provinces and up to 43 American states. The global population of the Chimney Swift has plunged precipitously in recent decades, and in Canada it is listed as Threatened under the federal Species at Risk Act.

Photo: Christian Artuso

¹ Media Release: *Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’* (<https://www.ipbes.net/news/Media-Release-Global-Assessment>)

Developing New Species Range Maps Through Ecosystem-based Automated Range Mapping

TO HELP REALIZE species conservation success, decision-support specialists require the most current and accurate range maps—representations of the biophysical limits within which species can reasonably be expected to occur. However, erroneous range maps can lead to loss of trust in biodiversity decision-making bodies, wasted time, effort, and money in misdirected fieldwork, and even legal consequences concerning consultation and failures in species protection.

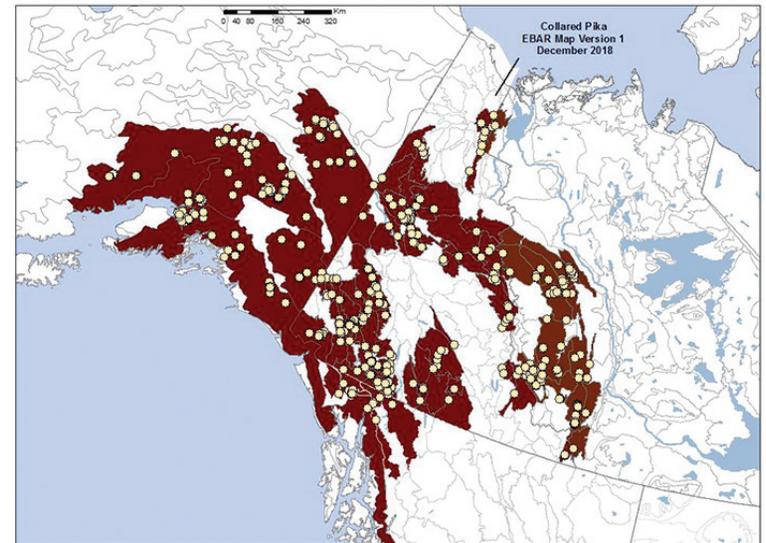
Biodiversity experts across Canada have long identified the need for high-quality national range maps in a format that permits access to the underlying data and allows for experts to efficiently contribute data and expertise to ongoing map updating and improvement. At its annual meeting in 2018, NatureServe Canada's (NSC) membership agreed to work toward this goal through a process called Ecosystem-based Automated Range (EBAR) Mapping.

In summary, the EBAR approach uses biodiversity data and expert knowledge to populate ecoshapes (e.g., ecoregions, watersheds) with species presence information. A collaborative tool is being developed to enable online map updating and refining by species range experts and by the holders of local knowledge. The maps will be available on the NSC website for viewing and download.



With start-up funding in 2018-19 from NSC member Environment and Climate Change Canada (ECCC), the NSC EBAR Mapping project developed a national ecoshapes layer and pilot EBAR maps. Thanks to ECCC investments for 2019-21, NSC will be working with project partners Wildlife Conservation Society Canada and Bird Studies Canada to develop EBAR maps to support Key Biodiversity Areas assessments (see next story). The EBAR maps will also inform species status assessments and reassessments by the Committee on the Status of Endangered Wildlife in Canada.²

The Collared Pika (*Ochotona collaris*) is a small rabbit-relative found only in Alaska, British Columbia, Yukon, and Northwest Territories. Although currently considered globally Secure (G5), in Canada the Collared Pika is listed as Special Concern under the federal Species at Risk Act, with a particular threat being climate change. Photo: GNWT



Pika (*Ochotona collaris*). The map shows the ecoshapes where the presence of the Collared Pika has been confirmed. The next step will be to invite species experts to refine the map using an online tool.

² For information about COSEWIC: <https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html>

Identifying Key Biodiversity Areas in Canada

KEY BIODIVERSITY AREAS (KBAs) “are sites of global significance for the conservation of biodiversity...identified nationally using simple, globally standardised criteria.” Called “the starting point for landscape-level conservation planning,” KBAs “inform private sector safeguard policies, environmental standards, and certification schemes; support conservation planning and priority-setting at national and regional levels; and provide local and indigenous communities with opportunities for employment, recognition, economic investment, societal mobilisation and civic pride.”

NatureServe is one of 11 leading international conservation organizations that form the global KBA Partnership. The Partnership aims to “identify, map and document thousands of [KBAs] worldwide; promote targeted conservation action in [KBAs]; and inform and influence public policy and private sector decision-making.” To date, over 15,500 KBAs have been identified.³

In Canada, KBA identification is being led by the Canadian KBA Coalition in which NatureServe Canada is a member. NatureServe Canada also serves on the Coalition’s Management Committee and contributes further by providing data and expertise regarding the distribution and status of species and ecosystems in Canada. A specific application of such data and expertise is to support the Pathway to Canada Target 1 initiative, by which Canada is striving “to increase the coverage, connectivity, and the ecological integrity of Canada’s protected areas and other conserved areas and, specifically, to increase terrestrial protected and other conserved areas to 17% of Canada’s land area.”⁴

Sites qualify as KBAs when they harbour a significant proportion of the range-wide distribution of a given at-risk species or ecosystem. Example KBAs in Canada—identified with the support of NatureServe and NatureServe Canada—include 13 sites that provide habitat for 21 freshwater species which have geographically restricted ranges and/or are globally threatened. Such sites include lakes Cowichan and Mesachie on Vancouver Island, Banff Hot Springs in Banff National Park, eastern Lake St. Clair (pictured) in Ontario and Michigan, and the lower Saint John River in New Brunswick.



Much of Lake St. Clair and its watershed, shared between Ontario and Michigan, has been identified by NatureServe and partners as a Key Biodiversity Area (KBA) due to its significance for freshwater biodiversity. This KBA supports key Canadian populations of two mussel species listed as Endangered under the federal Species at Risk Act, the Eastern Pondmussel (*Ligumia nasuta*) and the Round Hickorynut (*Obovaria subrotunda*). Photo: NASA/METI/AIST/Japan Space Systems, and U.S./Japan ASTER Science Team

³ For more information on Key Biodiversity Areas: <http://datazone.birdlife.org/sowb/casestudy/what-are-key-biodiversity-areas> and <http://www.keybiodiversityareas.org/kba-data-use>.
For more information about KBA activity in Canada: <http://www.kbacanada.org/>

⁴ For more information about the Pathway to Canada Target 1: <http://www.conservation2020canada.ca/home/>

Documenting Rare Species in the Maritimes

IN 2018, the Atlantic Canada Conservation Data Centre (ACDC) completed a three-year project (funded by Environment and Climate Change Canada's Atlantic Ecosystem Initiatives program) to better map, understand, and ultimately conserve the rare biodiversity of sites in the Maritimes having basic (non-acidic) soils. Working with land trusts in New Brunswick, Nova Scotia, and Prince Edward Island, ACCDC botanists and lichenologists visited 133 sites identified as having high potential for rare species, and documented 56,500 species occurrences including 7722 locations of 605 taxa of conservation concern.

Most significantly, the ACCDC's targeted fieldwork resulted in the documentation of 50 first provincial records for native species. This includes the discovery of 17 new bryophytes, seven new vascular plants, and six new lichens for PEI, and the discovery of 15 new lichens, three new vascular plants, and two new bryophytes for New Brunswick. Several of these important finds also represent first records for Atlantic Canada or the Maritime provinces. Some of the best properties supporting the rare species discovered during this work have already been purchased for permanent conservation by the project's land trust partners—Nature Conservancy of Canada, Nature Trust of New Brunswick, Island Nature Trust, and Nova Scotia Nature Trust.



The Cobblestone Tiger Beetle (*Cicindela marginipennis*) is known in Canada only from the cobble shores of the Saint John River and the connected Grand Lake system in New Brunswick, and in 14 Americans states. Photo: Dwayne Sabine



The ACCDC also had great success in surveys (supported by Environment Canada's Habitat Stewardship Program) for the nationally Endangered and globally Imperiled (G2) Cobblestone Tiger Beetle (*Cicindela marginipennis*) which is known in Canada only from the cobble shores of New Brunswick's

Saint John River and the connected Grand Lake system. The work brought the number of sites known to be occupied by the beetle from 10 to 26, and almost quadrupled the length of shoreline in the Grand Lake system known to support the species. The unexpected discovery of so many new sites, some in areas where previous surveys had failed to find the species, was so significant that the species' reassessment under the federal Species at Risk Act has been delayed by a year to gather more information and determine if 2018 population levels will persist.

Seabeach Ragwort (*Senecio pseudoarnica*), found along sandy-gravelly ocean shores and upper beaches, is a globally Secure (G5) member in the Asteraceae family of plants. In Canada, though, it is Critically Imperiled (S1) in New Brunswick, Imperiled in British Columbia (S2) and in Nova Scotia (S2S3), Vulnerable on the island of Newfoundland (S3S4), and Apparently Secure in Québec (S4) and in Labrador (S4S5). Photo: Sean Blaney

Contributing to Pollinator Health in Ontario



Red-blue Checkered Beetle (*Trichodes nuttalli*) pollinating Common Yarrow (*Achillea millefolium*) at Queen Elizabeth II Wildlands Provincial Park in Ontario. Photo: Colin Jones, NHIC Archives

POLLINATORS ARE ANIMALS, including various bees, wasps, flies, ants, butterflies, and beetles (and in some parts of the world lizards, birds, bats, and other mammals) that move pollen from the male anther of a flower to the female stigma of a flower, thereby aiding the ability of flowers to produce seeds and fruit. As such, pollinators are vital to helping maintain both wild and cultivated plants, and thus by extension to maintaining ecosystem health and agricultural productivity.

In recent years, mounting public concern about pollinator decline led the Government of Ontario to help ensure the long-term protection of pollinators. The government's 2016 Pollinator Health Action Plan outlines several measures to address stressors impacting pollinators. Staff from the Ontario Ministry of Natural Resources and Forestry (OMNRF), including from the Ontario Natural Heritage Information Centre (ONHIC), contributed to the plan's development by providing expertise on native pollinators and their habitats in Ontario.

Since the development of the plan, ONHIC staff have continued to support pollinator health in Ontario in two key ways. In 2018, in partnership with colleagues within the Science and Research Branch, a report entitled *A landscape-scale assessment of pollinator habitat in southern Ontario* was released. The authors integrated federal and provincial data to create a wild pollinator baseline map of southern Ontario, assessed wild habitat changes between 2000 and 2010, and identified 182,500 hectares with potential for restoration.⁵

The ONHIC has also completed three years of monitoring pollinators at eight sites in southcentral Ontario. The monitoring is part of a larger study coordinated by Dr. Nigel Raine at the University of Guelph. Dr. Raine is looking at what pollinator species are found in different habitats across Ontario, how these species patterns change during the spring and summer and further over time, and whether implementing conservation strategies targeting pollinators is having a positive effect.

For their efforts in protecting pollinator health in Ontario, OMNRF staff (including ONHIC staff) were honoured in 2016 with an Amethyst Award for Outstanding Achievement by Ontario Public Servants. As well, in 2017 ONHIC staff were among staff from the Ontario Public Service who received an Environmental Commissioner of Ontario's Recognition Award for their work on pollinator health.

⁵ The pollinator habitat report is available at: https://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/ALandscapeScaleAssessmentOfPollinatorHabitatInSouthernOntario_final.pdf

Surveying an Endangered Mussel in Manitoba

The Mapleleaf (*Quadrula quadrula*) is a medium-sized freshwater mussel named for its squarish shape, and is typically found in medium-to-large rivers with slow-to-moderate currents, with a preferred substrate of firmly packed sand, coarse gravel, or clay/mud. A long-lived species (specimens from Manitoba average 22 years but have reached up to 64 years in age), the Mapleleaf feeds (like other mussel species) by filtering algae and bacteria from the water.

Distributed throughout the Mississippi River basin and elsewhere in the United States, in Canada the Mapleleaf's range includes localities in Ontario within the St. Lawrence River watershed, and in Manitoba where it is known from the Red River and some of its tributaries (e.g., Assiniboine and Roseau rivers), and from the Bloodvein and Maskwa rivers. However, as for most freshwater mussel species threats to the Mapleleaf include invasive mussel species, habitat loss and degradation, and pollution from industry, urbanization, and agriculture. As a consequence, the St. Lawrence population is listed as Threatened under the federal Species at Risk Act, and the Manitoba population is listed as Endangered.

To further ascertain the distribution and habitat of the Mapleleaf in southcentral Manitoba, in 2018 the Manitoba Conservation Data Centre (MBCDC) collaborated with the Seine-Rat River Conservation District (SRRCD) to conduct mussel surveys within the district. The SRRCD is a non-profit organization provincially mandated as the planning authority for the Seine, Rat, and Roseau river watersheds. It focuses on riparian and ecosystem health, ground water quality and quantity, surface water quality and management, and environmental education.



Like many freshwater mussel species, the Mapleleaf (*Quadrula quadrula*) faces multiple threats to its survival. Photo: Carla Church, Manitoba Conservation Data Centre



Surveys were completed at 12 sites, with MBCDC staff noting habitat characteristics and presence and abundance of mussels. The resulting data was incorporated into the MBCDC database and is being used to support development of a habitat suitability model, and habitat improvement actions for maximum benefit to Mapleleaf survival (e.g., riparian tree planting, fencing to exclude cattle from riparian area, developing alternative cattle watering systems). Additional surveying is warranted to further expand habitat and mussel location knowledge within the SRRCD.

Chris Friesen and Colin Murray of the Manitoba Conservation Data Centre surveying for freshwater mussels. Photo: Carla Church, Manitoba Conservation Data Centre

Identifying Important Plant Areas in Saskatchewan

THE IMPORTANT PLANT AREAS (IPA) program is an international effort to identify and conserve the most important places on Earth for wild plant and fungal diversity. It is intended that “IPAs will act as a benchmark for determining whether the strongest protection, under any existing legislation, is being afforded to the most important sites for plants.”⁶ In Saskatchewan, the effort to identify IPAs is being led by the Native Plant Society of Saskatchewan (NPSS) and the Saskatchewan Conservation Data Centre (SKCDC), on behalf of the Botanical Assessment Working Group (established by the SKCDC to aid plant species conservation status rankings for Saskatchewan).

Anyone can nominate an IPA site, provided the site meets certain criteria. In Saskatchewan, data from the SKCDC is integral to determining whether nominated sites meet at least one criterion to qualify as a potential IPA. Criteria include a minimum number of globally Critically Imperilled (G1) to Vulnerable (G3) species, a minimum number of provincially Critically Imperilled to Imperilled (S1-S2) species, or at least one species listed by the Committee on the Status of Endangered Wildlife in Canada as Endangered, Threatened, or Special Concern. The SKCDC data also provides insight into species abundance, distribution, trends, and threats on site to help nominators provide a robust profile of the site and to help adjudicators decide whether it is a good fit for the IPA program.

Although an IPA designation is not legally binding, proponents and partners hope that designation advances protective measures should such sites be subject to development. As well, designation can spur land managers to make decisions with outcomes that will benefit plant species of concern, plant diversity, and sensitive habitats. Such sites may also become candidates for future legal protection.



To date, eight sites have been designated for inclusion in the Vern Harms Important Plant Areas of Saskatchewan program. More information on the program, site criteria, and how to nominate a site can be found on the NPSS website at <https://www.npss.sk.ca/news-and-events/projects/292>. Nominations are adjudicated twice a year April and October (next intake is for October 2019).

Sarah Vinge-Mazer, Botanist with the Saskatchewan Conservation Data Centre



Dragon's Mouth Orchid (*Arethusa bulbosa*) is a provincially rare (S1) plant growing in one of the newly-designated Important Plant Areas in Saskatchewan. Photo: Glen Lee

in

⁶ For more information about the Important Plant Areas program: <https://www.plantlife.org.uk/international/important-plant-areas-international>

Bioblitzing Tombstone Territorial Park in Yukon



Participating in the 2018 Tombstone Territorial Park bioblitz, Robert Forsyth discovers the Multirib Vallonia (*Vallonia gracilicosta*), a terrestrial snail previously unknown from Yukon. Forsyth also discovered *Vertigo pisewensis* (new for Yukon), *Vertigo hannai* (first confirmed Yukon specimen), and the Beringian *Vertigo* (*Vertigo beringiana*), new for Canada. Photo courtesy of Bruce Bennett

AS IT HAS IN RECENT YEARS, the Yukon Conservation Data Centre (YTCDC) in 2018-19 once again undertook an ambitious bioblitz project within the Territory. The project was within the context of another very busy year for the YTCDC. This added a large number of new species groups to the YTCDC's database.

A bioblitz involves intensive effort by biologists (often joined by citizen scientists) to find, identify, and record as many species as possible in a given area within a given time period. Observations can be tracked in real time through iNaturalist.ca, a platform representing an extensive online community of people ready to help each other identify what they have observed in nature, meet other nature enthusiasts, and learn about wildlife.⁷

The 2018 bioblitz—a partnership of the YTCDC and Yukon Parks, with over 100 participants from 18 government, business, and non-government organizations—gathered observations over the Canada Day long weekend of 1008 species in the 2212 km² Tombstone Territorial Park, one of the world's most pristine protected areas. Of the 1008 species, five vascular plant, two beetle, and one bird species were non-native, and all but two of them were newly documented for the park. Twenty-six native species were also newly discovered for Yukon, four species were newly discovered for Canada, two species were newly discovered for North America, and at least four species had not previously been scientifically described.

From a conservation viewpoint, among the most notable discoveries from the bioblitz was documentation of (1) the first record in Tombstone of Ogilvie Mountain Spring Beauty (*Claytonia ogilviensis*), a vascular plant found nowhere else in the world except west-central Yukon and globally ranked as Vulnerable (G3); (2) the only protected populations of Yukon Podistera (*Podistera yukonensis*), a vascular plant with 90% of its global range in Yukon, and listed under the federal Species at Risk Act (SARA) as of Special Concern; and (3) a previously undocumented subpopulation of Collared Pika (*Ochotona collaris*), a small mammal also listed as of Special Concern under SARA.

⁷ iNaturalist "is a citizen science project and online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe." For more information: <https://inaturalist.ca/>

Advancing Biodiversity Knowledge for the Northwest Territories



Surveying for moss species in Northwest Territories in 2018.
Photo: Government of the Northwest Territories/N. Larter

ESTABLISHED IN 2013, the Northwest Territories Conservation Data Centre (NTCDC) works in a co-management setting, meaning that all organizations with legislated responsibilities for biodiversity in the NWT are part of the NTCDC. These include territorial and federal departments and wildlife co-management boards set up under land claim settlement agreements, such as the Wildlife Management Advisory Council (WMAC-NWT) and the Gwich'in, Sahtu, and Wek'eezhii renewable resources boards.

Fieldwork in Canada's vast and often remote North is inherently expensive, making project partnerships essential. For example, in 2018 the NTCDC organized a survey, in cooperation with the Canadian Museum of Nature and the University of Alberta, of moss species along waterfalls in the southern NWT where limestone is common, and two biodiversity surveys on Banks Island (with partners such as WMAC-NWT). The NTCDC also set up iNaturalist training sessions and bird surveys across the NWT to increase capacity for the public participating in citizen science initiatives in the NWT.

Thanks to fieldwork of many kinds, biodiversity knowledge for the NWT continues to increase. For example, the Sahtu Region Bat, Cave and Karst Field Investigation

documented what is believed to be the northernmost record in the world of the Big Brown Bat (*Eptesicus fuscus*), thereby helping to clarify the geographic extent of this wide-ranging species. During that project, bat guano was collected at "Grotto Cave," an apparent summer roost of the Big Brown Bat located near Bonus Lake. The guano was submitted for DNA testing and the result confirmed that the guano was from this species. A bat detector ("roost logger") was left behind to record more information on bat activity in the cave (e.g., extent and seasonality of the Big Brown Bat's use of this cave). Although currently globally Secure (G5), the Big Brown Bat is nonetheless susceptible to white-nose syndrome, a devastating disease that is a leading cause of bat mortality worldwide.

The NTCDC continually explores new ways to integrate into its databases biodiversity information from all sources, including from traditional (Indigenous) knowledge and from Western science. As well, the NTCDC readily shares its data and information on species found in Canada's North. For example, in 2018 the NTCDC presented at the Arctic Biodiversity Congress in Rovaniemi, Finland on the role of open data⁸ in northern regions faced with rapid climate change.



Big Brown Bat (*Eptesicus fuscus*)
Photo: USFWS Ann Froschauer

⁸ The NWT government defines "open data" as "government-held data, including but not limited to data sets, facts, figures, or statistics, which is released proactively and made available to the public through a variety of means and in formats that are accessible and user-friendly, with minimal or no restrictions on use or reuse, excluding that which is considered sensitive or subject to privacy, security or legal restrictions."

Generating Data for Species of Conservation Concern In and Near National Parks

THE PARKS CANADA AGENCY'S (PCA) mandate is to “protect and present nationally significant examples of Canada’s natural and cultural heritage, and foster public understanding, appreciation, and enjoyment in ways that ensure the ecological and commemorative integrity of these places for present and future generations.” The PCA’s portfolio of sites that it manages includes (as of 2018) 39 national parks and eight national park reserves. These contain some of the grandest landscapes and waterscapes in Canada, enjoyed by millions of visitors each year.

The PCA aims to maintain viable populations of native species within national parks and park reserves. In support, PCA uses Biotics 5—NatureServe’s biodiversity data management system—to standardize data tracking, processing, and sharing. As well, since 2003 PCA has been working closely with the NatureServe Canada Network to improve the species information available to PCA.

Four CDCS—Atlantic Canada, British Columbia, Saskatchewan, and Yukon—undertook specific projects in 2018-19 to generate new or to improve existing data for biodiversity in and near national parks in these jurisdictions or regions. This work included:

- Botanical and terrestrial community fieldwork in Cape Breton National Park in Nova Scotia
- Insect surveys in Kejimikujik National Park in Nova Scotia
- Monitoring reintroduction efforts in Kouchibouguac National Park in New Brunswick concerning the Gulf of St. Lawrence Aster (*Symphotrichum laurentianum*), listed as Threatened under the federal Species at Risk Act (SARA)
- Refining and quality-controlling existing data for species at risk found in or near national park and park reserve sites in British Columbia, Saskatchewan, and Yukon
- Entering new species at risk data for national park and park reserve sites in British Columbia, Saskatchewan, and Yukon, including data for species identified by PCA as “Lead” species (i.e., species listed under Schedule 1 of SARA for which PCA is the lead Agency in the development of the species’ recovery plan)



A Ferruginous Hawk (*Buteo regalis*) in the East Block of Grasslands National Park. Found in the three Prairie provinces and the 17 westernmost American states (excluding Alaska and Hawaii), this hawk is Apparently Secure (G4) but in Canada is listed as Threatened under the federal Species at Risk Act. Photo: Tourism Saskatchewan



A male Gypsy Cuckoo Bumble Bee (*Bombus bohemicus*). In Canada, this species is listed as Endangered under the federal Species at Risk Act due to a range of threats including pesticides and the escape of non-native, pathogen-infested bumble bees from commercial greenhouses. Photo: Magne Flåten CC BY-SA 3.0

Summary Financial Data

The summary financial data on this page is drawn from NatureServe Canada's audited financial statements for 2018-19. To access the full statements, please visit www.natureserve.ca.

STATEMENT OF FINANCIAL POSITION		
Year ending March 31		
	2019	2018
ASSETS		
Current		
Cash	500,309	173,164
Accounts receivable	377,814	191,354
Prepaid expense	672	672
Capital Assets	–	–
Total Assets	878,795	365,190
LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts payable and accrued liabilities	707,535	223,117
Deferred revenue	55,400	40,859
Net Assets	115,860	101,214
Total Liabilities and Net Assets	878,795	365,190

STATEMENT OF OPERATIONS		
Year ending March 31		
	2019	2018
REVENUE		
Charitable organization/foundation funding	172,959	97,141
Dues	16,500	15,000
Government funding	1,456,394	1,012,709
Other	4,005	3,079
Total Revenue	1,649,858	1,127,929
EXPENDITURES		
Contracts	1,602,953	1,052,877
Office costs	4,950	10,165
Other	2,102	3,131
Professional fees	16,839	16,449
Sponsorship	–	23,054
Travel, annual meeting, workshops	8,368	13,989
Total Expenditures	1,635,212	1,119,665
Excess (Deficiency) Revenue Over Expenditures	14,646	8,264



The Silvery Blue (*Glaucopsyche lygdamus*) is a wide-ranging and globally Secure (G5) butterfly found from eastern Alaska to Nova Scotia, and south to Georgia, Oklahoma, and Baja California. Photo: Colin Jones, NHIC Archives

An Invitation to Contribute to Conservation Science

THE STRENGTH OF CONSERVATION SCIENCE—the focus and specialty of NatureServe Canada and our network of Canadian Conservation Data Centres—depends on a sufficient number of highly qualified biologists, ecologists, and information managers having the resources they need for their work. A financial investment in conservation science is an investment in knowledge about nature, upon which depends the health of the environment, the economy, and our society.

Government funding is limited, yet the need for thorough, excellent conservation science continues to grow. Funding from foundations, corporations, other non-government organizations, and individuals complements that of government—and helps meet public and private sector interests for the best available knowledge and expertise for conservation decision-making. (Hospitals, schools, and libraries are examples of other publicly valuable services that benefit from both public and private sector funding.)

NatureServe Canada is a registered Canadian charity (#862330529RR0001). We welcome financial gifts in support of our business—conservation science. As well, membership in NatureServe Canada is available to organizations that support our mission, which manage data of conservation value, and/or are active in promoting science-based conservation action nationally or sub-nationally.

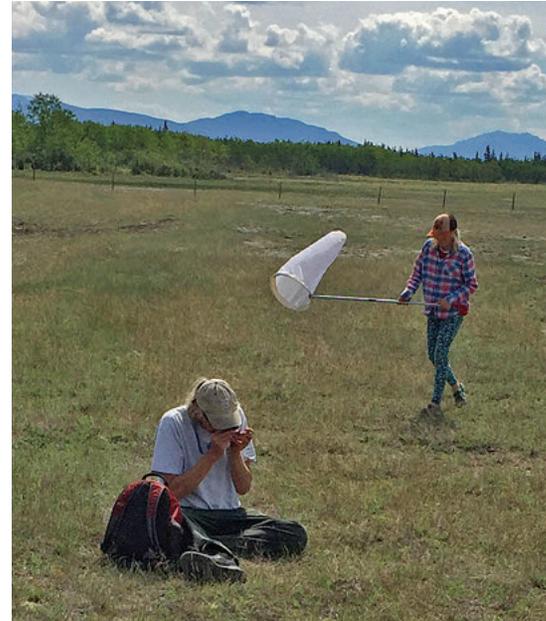
To learn more, to donate in support of our work, or to inquire about membership, please contact us:

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Participating in the 2018 Tombstone Territorial Park bioblitz spearheaded by the Yukon Conservation Data Centre and Yukon Parks, Kalie Bennett (standing with net) captured and released specimens of the Oblique Tiger Beetle (*Cicindela tranquebasrica*) from the only known site in Yukon. Dr. Terry McIntosh (seated) discovered two species of moss which are listed under the federal Species at Risk Act. Photo courtesy of Bruce Bennett

Long-term, standardized, spatially complete, and readily accessible monitoring information, complemented by ecosystem research, provides the most useful findings for policy-relevant assessments of status and trends...Biodiversity monitoring is important because it provides a basis for evaluating the integrity of ecosystems, their responses to disturbances, and the success of actions taken to conserve or recover biodiversity.

Canadian Councils of Resource Ministers, 2010

In Gratitude to Our Members in 2018–19

NatureServe Canada is deeply grateful for the contribution and collaboration of our Constituent and Associate members—Thank You!

CONSTITUENT MEMBERS

Alberta Conservation Information Management System
Atlantic Canada Conservation Data Centre
British Columbia Conservation Data Centre
Manitoba Conservation Data Centre

Northwest Territories Conservation Data Centre
Nunavut Conservation Data Centre
Ontario Natural Heritage Information Centre
Saskatchewan Conservation Data Centre
Yukon Conservation Data Centre

ASSOCIATE MEMBERS

Environment and Climate Change Canada – Canadian Wildlife Service
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A Network Connecting Science with Conservation
Un Réseau pour la Science et la Conservation

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