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HabitatMatters

2015 Canadian NAWMP Report

Mallard Pair – Early Winter

Robert Bateman

North American Waterfowl Management Plan

Plan nord-américain de gestion de la sauvagine

Plan de Manejo de Aves Acuáticas Norteamérica

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About the NAWMP

Ducks congregate at a prairie pothole wetland.

©Ducks Unlimited Canada/Brian Wolitski

The North American Waterfowl Management Plan (NAWMP or 'the Plan') is an international partnership to restore, conserve and protect waterfowl populations and associated habitats through management decisions based on strong biological foundations. The ultimate goal is to achieve abundant and resilient waterfowl populations and sustainable landscapes. The Plan engages the community of users and supporters committed to conservation and valuing waterfowl.

In 1986, the Canadian and United States governments signed this international partnership agreement, laying the foundation for international cooperation in the recovery of declining waterfowl populations. Mexico became a signatory to the Plan with its update in 1994. As a result, the NAWMP partnership extends across North America, working at national and regional levels on a variety of waterfowl and habitat management issues.

Since the creation of the Plan, NAWMP partners have worked to conserve and restore wetlands, associated uplands and other key habitats for waterfowl across Canada, the United States and Mexico. The partners have had wide-ranging influence: shaping land-use, agricultural and public policies; integrating science and monitoring systems into planning; and delivering habitat programs. The results of these efforts are notable. Many waterfowl populations are substantially larger now than they were in 1986, and NAWMP partners have reached out to collaborate with other bird conservation initiatives.

In Canada, NAWMP partner activities are directed by public–private Joint Venture partnerships, which focus on areas or species of concern identified in the Plan. Each Joint Venture includes a range of partners from federal, provincial and local governments to conservation organizations. Implementation or Strategic Plans, developed based on the Plan's goals as well as on pressures specific to the Joint Ventures, form the basis of each Joint Venture's programs and individual projects.

Terminology used in this report

Securement
The protection of wetland and/or upland habitat through land title transfer or binding long-term (minimum 10-year) legal agreements with a landowner.

Influence
Direct actions taken by landowners, land managers or conservation agencies that protect or enhance wetland or associated upland habitats without legal or binding agreements. These direct actions result in applied land-use changes.

Enhancement
Actions carried out on secured wetland and/or upland habitats to increase their carrying capacity for wetland-associated migratory birds and other wildlife.

Management
Activities conducted on secured wetland and/or upland habitats to manage and maintain their carrying capacity for wetland-associated migratory birds and other wildlife.

National Overview

Accomplishments by Habitat Joint Ventures (1986–2015)

19.9

Million acres of habitat secured

(8.0 M Hectares)

Involves the protection of habitat through land title transfer or binding long-term legal agreements with landowners (10-year minimum).

138.8

Million acres of habitat influenced

(56.2 M Hectares)

Involves direct actions that protect or enhance habitat without legal or binding agreements. These actions result in applied land use change.

3.5

Million acres of habitat enhanced

(1.4 M Hectares)

Involves actions that increase habitat carrying capacity for waterfowl and other wildlife.

11.0

Million acres of habitat managed

(4.4 M Hectares)

Involves activities that manage and maintain habitat carrying capacity for waterfowl and other wildlife.

Accomplishments by Habitat Joint Ventures (2014–2015)

134.6

Thousand acres of habitat secured

(54.5 K Hectares)

24.1

Million acres of habitat influenced

(9.7 M Hectares)

38.4

Thousand acres of habitat enhanced

(15.5 K Hectares)

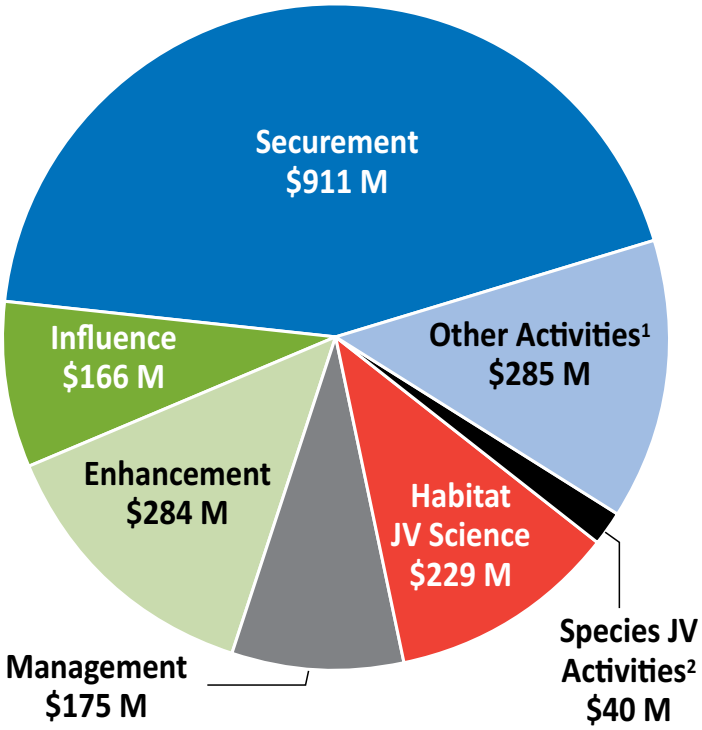
745.4

Thousand acres of habitat managed

(301.6 K Hectares)

Expenditures

By activity 1986 to 2015 ($2,090 M CAD)

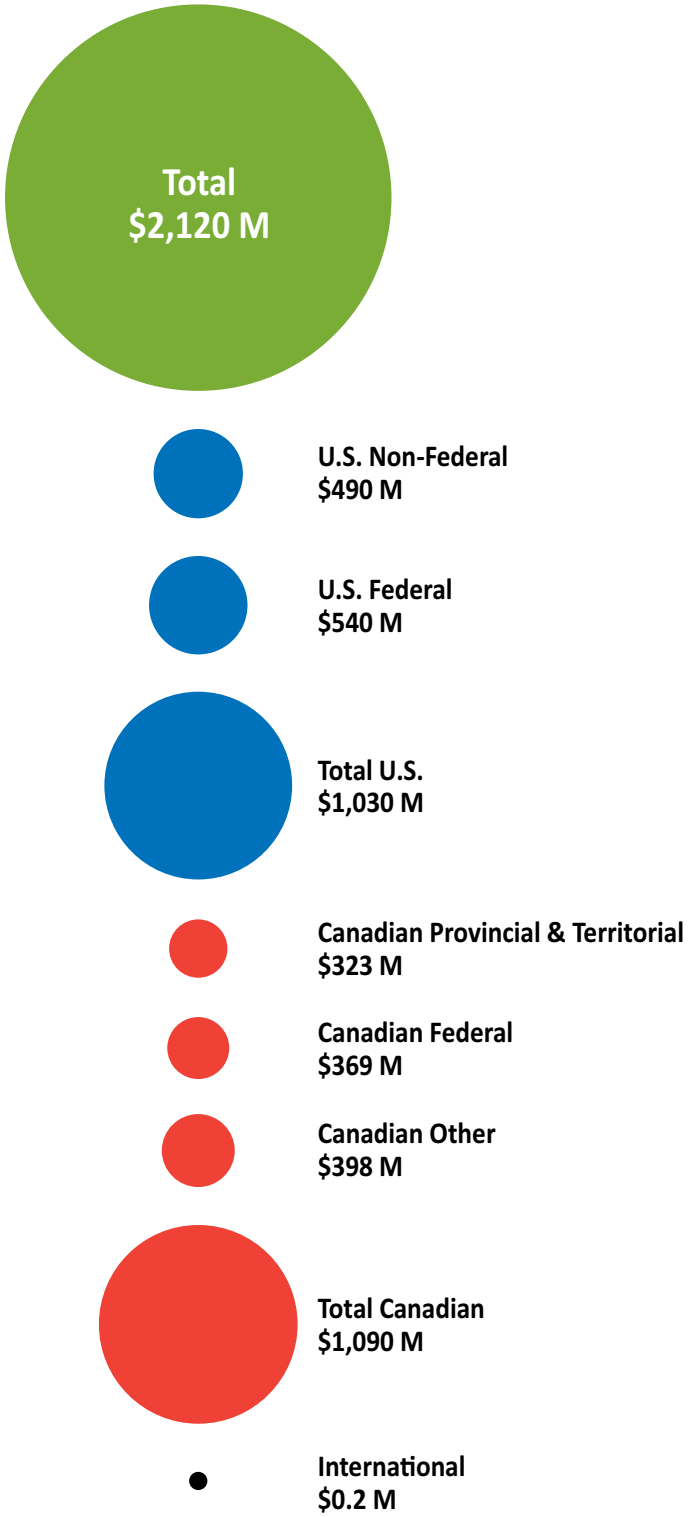


1 Coordination, communication, policy and crop damage
2 Banding, survey and research

The successful implementation of Canada's NAWMP program has been enabled by the continuous support of partners in both Canada and the United States, including federal, provincial and state governments, non-governmental organizations and individuals. In particular, funding received under the United States' 1989 *North American Wetlands Conservation Act* has been integral to the success and longevity of the Canadian program.

Contributions

In support of the NAWMP in Canada 1986 to 2015 ($2,120 M CAD)



NAWCA's 25th Anniversary

Canvasback in a prairie pothole wetland.
©Ducks Unlimited Canada/Brian Wolitski

2014 marked the 25th anniversary of the *North American Wetlands Conservation Act* (NAWCA). Signed on December 13, 1989, by U.S. President George Bush, NAWCA was enacted "to conserve North American wetland ecosystems and waterfowl and the other migratory birds and fish and wildlife that depend upon such habitats." NAWCA has provided a funding mechanism for on-the-ground conservation projects that advance the North American Waterfowl Management Plan (NAWMP) objectives to benefit waterfowl and wetland conservation in the United States, Mexico and Canada. Under NAWCA, the U.S. federal funding granted to each project must be matched dollar-for-dollar by funding from other sources. In Canada, NAWCA funding and the matched funding have been extremely important in making progress towards conserving waterfowl and wetland habitat, which are continental goals of the NAWMP.

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During the past 25 years, seven Canadian grantees, including Ducks Unlimited Canada (DUC), the Nature Conservancy of Canada, and the Manitoba Habitat Heritage Corporation, have successfully submitted over 400 wetland conservation project applications to the U.S. Fish and Wildlife Service for NAWCA funding. These project applications have targeted over 14 million acres (5.6 million hectares) of wetland and upland habitats for long-term securement in priority areas of the Canadian portions of the Habitat Joint Ventures. Additionally, under these projects, over 2 million acres (809,000 hectares) of NAWCA-secured wetland and upland habitats have been targeted for enhancement to increase their carrying capacity for waterfowl and other wetland-dependant wildlife.

Prairie pothole wetland.
©Ducks Unlimited Canada/Brian Wolitski

> NAWCA has provided a financial platform by which partners can leverage their resources in collective efforts to change the conservation landscape of North America.

The primary Canadian grantee over the course of NAWCA has been DUC. In reflecting on the importance of NAWCA, Pat Kehoe, Director of International Partnerships at DUC, noted that "NAWCA has been the financial backbone of the NAWMP for the past 25 years." NAWCA has provided a financial platform by which partners can leverage their resources in collective efforts to change the conservation landscape of North America. "DUC's partnership with State Fish and Wildlife agencies has grown tremendously in significant part to the matching funds available through NAWCA for conservation on the Canadian breeding grounds," said Kehoe.

NAWMP and NAWCA have also been fundamental in advancing our knowledge of habitat drivers of waterfowl populations. At the continental level, they have provided a framework to prioritize critical landscapes, and at the local level, they have allowed for programs to ensure that habitat conservation activities can provide the most effective benefits to waterfowl and other migratory birds. "Through NAWMP and NAWCA, DUC has been able to accomplish much more than it could have alone," said Kehoe. "We have collectively learned a lot about the habitat needs, life cycles and population drivers of waterfowl."

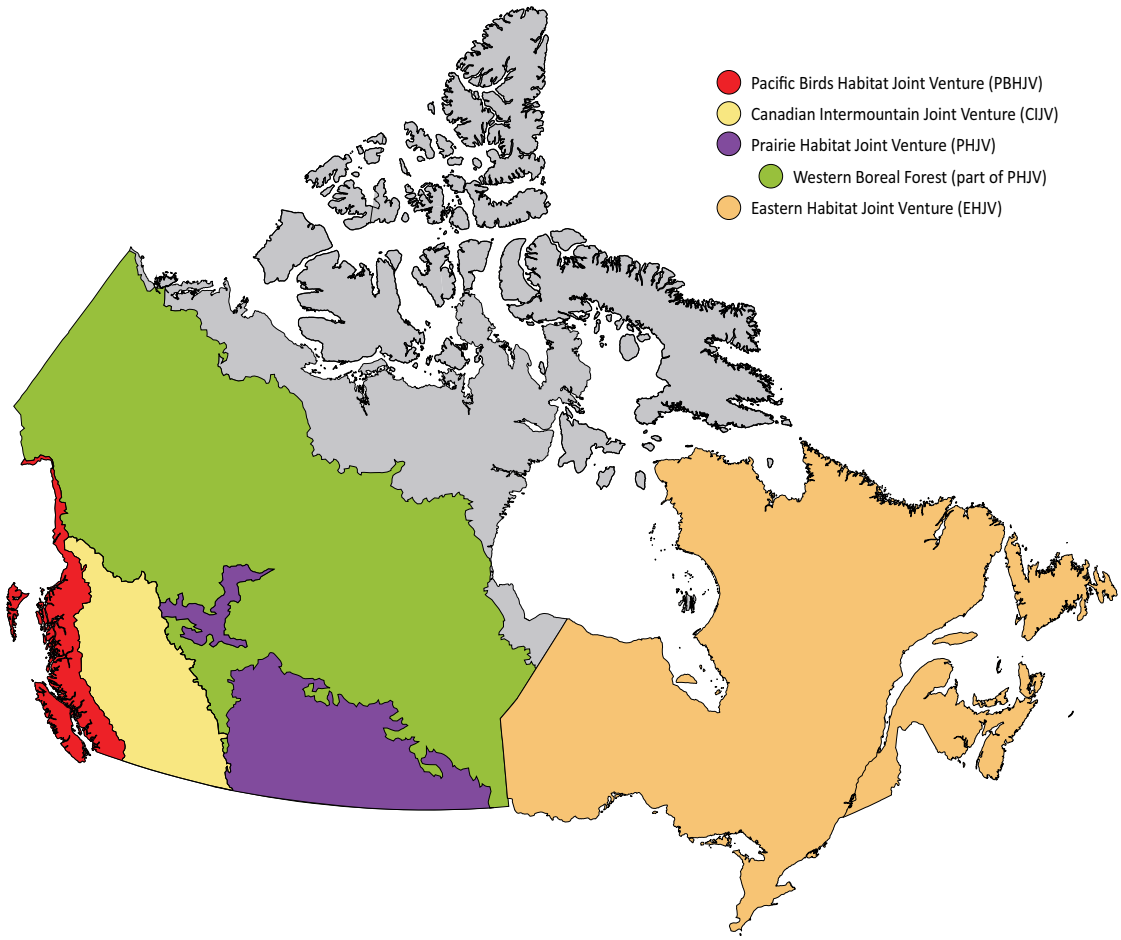
Kehoe cautions, however, that habitat continues to be lost or compromised to meet the needs of a growing human population, so major challenges lie ahead. "We must not become complacent and rest on our current success," he said. "It is almost certain that the high waterfowl populations we enjoy today cannot be sustained without continued habitat conservation." He believes that it will be critical to adapt programs as demands increase for land to meet human needs. "NAWMP partners must continue to work together, seek to broaden the partnership and open public awareness to ensure sustainability of waterfowl populations into the future."

Habitat Joint Ventures

Alberta Lakes in the central interior of British Columbia.

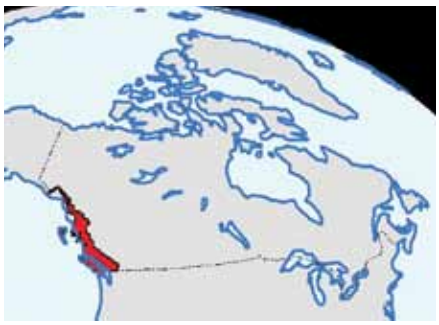
Ducks Unlimited Canada

The Canadian portions of the Habitat Joint Ventures integrate planning, science, governance, partnerships and management to achieve NAWMP goals in Canada through a programmatic approach. A science-based Implementation Plan is created to address local, regional and continental goals. Joint Venture partners actively research, monitor and evaluate waterfowl populations and deliver habitat conservation programs at a regional level.



Pacific Birds Habitat Joint Venture

Wood Duck.
Catherine Jardine, Bird Studies Canada



www.pacificbirds.org

The PBHJV includes portions of British Columbia (BC), Alaska, Washington, Oregon, California and Hawaii. The BC coastline has over 440 estuaries, which are a focus of many PBHJV programs due to their food-rich combination of tidal wetlands and adjacent floodplains. Near urbanized areas, floodplains have often been highly modified and converted to intensive, non-forage agricultural crops, resulting in the loss of considerable natural habitat and food supply. Throughout the PBHJV, 40 species of ducks, swans and geese occur regularly at various stages of their life cycles, and an estimated one million waterfowl winter along the BC coast. The Fraser River Delta in southern BC supports the highest density of wintering waterfowl in Canada. Key species in the BC portion of the Joint Venture include the Wrangel Island Snow Goose (nearly half the population), the Pacific Coast's Trumpeter Swan (half the population), American Wigeon, Cackling Goose and Western High Arctic Brant.

In early 2015, the former Pacific Coast Joint Venture underwent a name change to become the Pacific Birds Habitat Joint Venture (PBHJV or Pacific Birds). The PBHJV is an international Joint Venture, and its activities within Canada are coordinated by a British Columbia (BC) Steering Committee that includes representatives from its most active partners. This report notes key areas of work underway in the BC portion of the Joint Venture and highlights two exciting projects unveiled in 2014/15.

Joint Venture activities in BC

The PBHJV partners in BC work in a variety of ways to further the objectives of managing, conserving and protecting birds and their habitats in the Joint Venture area.

Common Merganser.
Catherine Jardine, Bird Studies Canada

The partners rely to a great extent on several decision-support tools to direct their conservation actions. Some of these tools include Ducks Unlimited Canada's waterfowl prioritization and planning, the Pacific Estuary Conservation Program's estuary ranking, the Nature Conservancy of Canada's conservation planning system, the Province of BC's conservation framework, and the Canadian Wildlife Service's regional conservation planning.

Partners also use a variety of landscape, bioenergetics and habitat–species models to develop and refine habitat objectives. For example, an avian bioenergetics model was used to link bird population objectives to foraging habitat objectives for Fraser Delta farmlands. The results, which showed a startling decline predicted for waterfowl forage, will assist in targeting securement lands and stewardship activities on areas with high forage value, as well as help with local and provincial policies on agriculture and wildlife. Also, the results of a newly updated estuary tool, which ranks the importance of 442 BC estuaries for water birds and is described later in this report, have been used to identify conservation needs.

The PBHJV seeks to secure high-value habitats that are at high risk of loss or degradation. Methods such as fee simple acquisition or conservation covenants are used on private lands, and designations like Wildlife Management Areas on Crown lands. To track and coordinate efforts in securing lands for conservation, the PBHJV has developed a BC-wide database with the spatial boundaries of government and non-government conservation lands.

Ongoing research activities in the PBHJV include quantifying the intertidal energy supply available to sea ducks and predicting impacts of sea level rise related to climate change on important estuaries. These research avenues will help to identify expected habitat trends and target appropriate mitigation measures. The PBHJV is also collaborating with the Sea Duck Joint Venture to develop habitat association models for important sea ducks to better identify essential areas for these species.

In addition to continuing to better understand priority species and habitats in BC, the PBHJV is working to increase the coordination of activities between the Canadian and U.S. portions of the Joint Venture. For example, the use of Miradi™ software is being explored to assist with conservation planning and to formalize an adaptive management cycle.

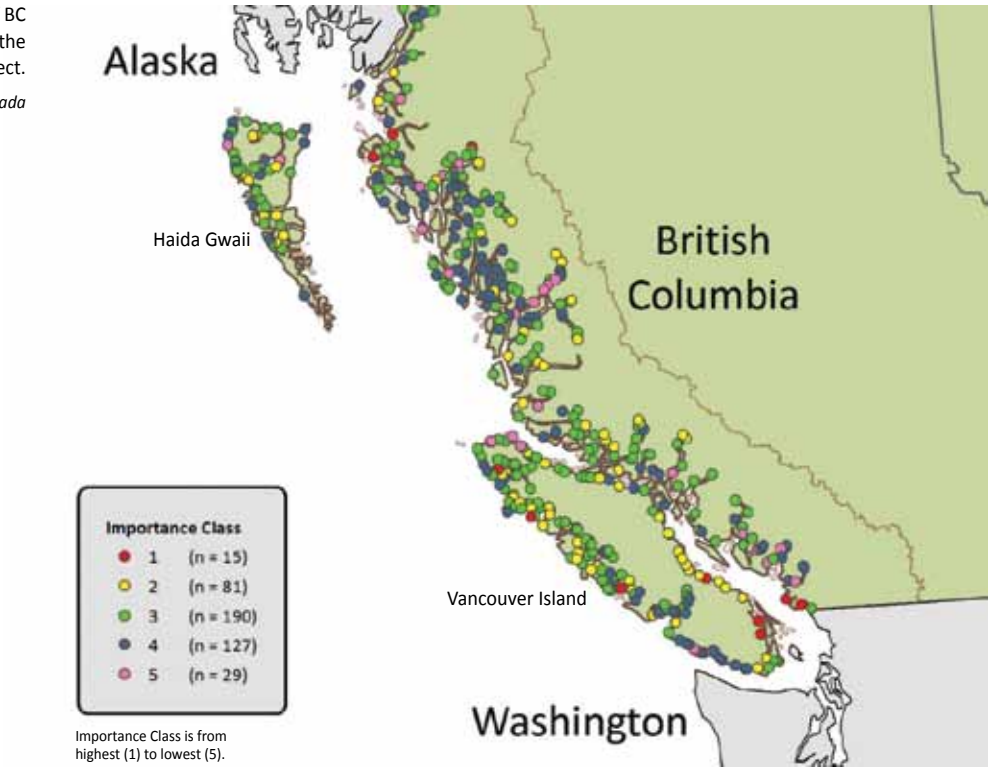
Estuary ranking project

The Pacific Estuary Conservation Program (PECP) was formed in 1987 by a group of government agencies and non-government organizations to coordinate efforts to protect BC estuaries of high ecological value. Since then, the PECP has functioned as one of the main delivery programs for land securement and enhancement in the BC portion of the PBHJV.

Given the importance of estuaries in providing food resources to wintering and migrating birds, the PECP partners initiated a landscape-level overview of BC estuaries in the early 2000s to help update their prioritization process. In 2007, the partners completed the first iteration of the PECP Estuary Ranking Project, which identified, mapped and prioritized 442 BC estuaries for conservation action and provided a regional overview of estuary habitats that linked various

The biological importance of BC estuaries for water birds, from the 2014 PECP Estuary Ranking Project.

Ducks Unlimited Canada



Importance Class is from highest (1) to lowest (5).

biophysical datasets. Individual estuaries were ranked for their biological importance to water birds using information on estuary size, habitat type and rarity, herring spawn occurrence, water bird use and intertidal biodiversity. Each of the 442 estuaries was placed in one of five importance classes.

The PECP estuary ranking was used effectively for several years, until the partners recognized that better data could improve it and help build a stronger model of habitat–species associations. Therefore, the 'waterbird use' component was improved by constructing a habitat–species model of estuarine waterbird use, based on aerial survey data collected systematically during 2009 and 2010. The model was run to generate species-specific habitat associations and estuary-specific population sizes. The estuary ranking formula was also modified to include salmonid fish escapement (run size) and exclude habitat rarity, and the herring spawn input data were updated.

The PECP estuary ranking was used effectively for several years, until the partners recognized that better data could improve it and help build a stronger model of habitat–species associations.

In 2014, the second iteration of the PECP estuary ranking was released, using the same system of importance classes as the 2007 version. The lower mainland and the east and northwest coasts of Vancouver Island have several concentrations of estuaries ranked in the top two classes, while other top-ranking estuaries are distributed across BC's northern coast and on Haida Gwaii (see map).

Shelden's Bay, a coastal estuary and salt marsh on Haida Gwaii, BC.

Ducks Unlimited Canada

BC breeding bird atlas

Bird Studies Canada (BSC), its partners and many volunteer citizen scientists have been working to produce the *Atlas of the Breeding Birds of British Columbia*, a comprehensive, bilingual (English and French) resource available online free of charge (*www.birdatlas.bc.ca*). Along with BSC, the primary partners on this project were Environment Canada, BC Ministry of Environment, BC Nature, BC Field Ornithologists, Louisiana Pacific and the Pacific Wildlife Foundation.

> Ultimately, the committee decided that being at the cutting edge of technological change and publishing a benchmark online version of BC's first breeding bird atlas would serve everyone well.

At the outset, the project committee polled project participants and the natural history community, both in BC and beyond, to gauge their interest in a conventionally printed book versus a free online product. Some people wanted the opportunity to hold a book in their hands, but most people were thrilled at the idea of having free access to online information, and they liked the utility of this approach for quickly implementing conservation actions. Ultimately, the committee decided that being at the cutting edge of technological change and publishing a benchmark online version of BC's first breeding bird atlas would serve everyone well. Since late 2014, the committee has been rolling out the atlas results in stages.

More than 1,000 project participants helped to map the province's breeding birds. From 2008–2012, "atlassers" compiled bird records for about 4,500 atlas squares (each square is 6.2 x 6.2 miles, or 10 x 10 km) and conducted over 53,000 hours

of surveys. Behind the scenes, a team of data reviewers examined and verified the rare and unusual species records for accuracy. The publication committee developed maps, relative abundance models and various data summaries and tools, while a team of experts wrote bird species accounts that summarize what the project's results reveal about BC's present-day bird populations.

More than 300 bird species breed in BC, and 65 of these, such as the Tufted Puffin and Marbled Murrelet, do not breed elsewhere in Canada. BC also holds the majority of the world population for several bird species. Clearly, BC plays a pivotal role in Canada's bird conservation efforts. It is already evident that some species' ranges have changed since 2001, when the last volume of the printed book *The Birds of British Columbia* was published. The BC Atlas has expanded our knowledge of the province's avifauna and will serve as the foundation from which future assessments will be made.

Despite many accomplishments, the BC portion of the PBHJV is still challenged by knowledge gaps about priority species and habitats and by the need for improved habitat program delivery through policy and new partnerships. The PBHJV partners in BC will continue to address these challenges within the context of the 2012 NAWMP Revision and will seek opportunities to increase coordination of efforts across the entire region covered by the PBHJV.

For more information, contact Tasha Sargent, Pacific Birds Habitat Joint Venture Coordinator, (604) 350-1903, tasha.sargent@ec.gc.ca.

Pacific Birds Habitat Joint Venture Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	3,858,242	203,527,591

Accomplishments (Acres)

	2014-2015	*Total (1986-2015Q1)*
Secured	496	129,066
Enhanced	160	94,672
Managed	548	124,890
Influenced	40,290	6,757,261

Secured, enhanced and managed acres are not additive.

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

The home page of the BC bird atlas, at *www.birdatlas.bc.ca*.

Canadian Intermountain Joint Venture

Green-winged Teal pair.
Ducks Unlimited Canada

www.cijv.ca

With an area of 123.5 million acres (50 million hectares), the CIJV covers portions of British Columbia and Alberta. The CIJV encompasses a diverse landscape of grasslands, dry and moist coniferous forests, riparian areas and wetlands, alpine tundra and even pocket desert, with 24 breeding waterfowl species. The JV's estimated 1.45 million birds represent 70% of BC's and roughly 4% of Canada's breeding waterfowl population. The CIJV supports roughly one quarter of the world's breeding population of Barrow's Goldeneye, along with significant breeding populations of Mallard, Hooded Merganser and Ruddy Duck.

The Canadian Intermountain Joint Venture (CIJV) contains numerous productive wetlands at a range of elevations from valley bottom to grassland plateau. Wetlands in these areas are subject to significant pressure from development and other land uses, so the CIJV and its partners—including landowners, local governments and conservation organizations—work together to conserve all bird species in these important wetland habitats.

Enhancing Chilcotin Marsh

In 1987, The Nature Trust of British Columbia (TNTBC) acquired 1,485 acres (601 hectares) of land at Chilcotin Lake and Chilcotin Marsh, approximately 80 miles (130 km) west of the town of Williams Lake, British Columbia (BC), with funding support from Wildlife Habitat Canada and the Province of BC. This conservation complex is a renowned waterfowl staging area in the Chilcotin Plateau, hosting 5,000 to 6,000 ducks and hundreds of Canada Geese during the fall migration, in addition to a wide variety of other wildlife species.

The original weir built in 1980 at Fletcher Lake, BC.

Ducks Unlimited Canada

The newly built weir and fishway stabilizes water levels in Fletcher Lake for the benefit of waterfowl and other birds.

Ducks Unlimited Canada

Perimeter fencing, installed in stages over the past 28 years, had deteriorated to the point where it could no longer prevent domestic livestock from impacting the conservation area. Over the past two years, the Chilcotin Marsh Enhancement Project has been replacing the degraded perimeter fences around the marsh component of this conservation complex. In 2014/15, this project replaced about 3.5 miles (6 km) of fencing, which will improve habitat for a wide range of waterfowl, migratory birds and other wildlife species.

This project has been an ongoing initiative of TNTBC and the BC Ministry of Forests, Lands and Natural Resource Operations, with financial assistance from a number of conservation partners, including the Habitat Conservation Trust Foundation, Wildlife Habitat Canada and the Government of Canada's National Wetland Conservation Fund. Ducks Unlimited Canada (DUC) continues to assist with the management of this property.

Rebuilding a wetland at Fletcher Lake

> The project stabilized water levels and allowed a controlled flow of water into Minton Creek downstream, securing the available breeding and staging habitat for waterfowl for a further 30 years.

One of the lakes farthest south on the Fraser Plateau in BC is Fletcher Lake, 47 miles (76 km) southwest of the town of Williams Lake. Fletcher Lake serves as a staging area for waterfowl and has substantial production of diving ducks such as Bufflehead and Barrow's Goldeneye. The area is also used by numerous species of shorebirds, passerines, raptors, rails and grebes, as well as other wildlife species.

In the early 1980s, before DUC became involved in Fletcher Lake, the lake's water control structure was vandalized, subjecting the lake and wetland to annual water fluctuations of more than three feet (1 metre). In 1984, DUC rebuilt the dam, water control structure and fishway, thereby stabilizing water levels. By 2014/15, these improvements reached the end of their anticipated lifespan, so DUC undertook a project to once again rebuild the weir and fishway at the lake's outlet. The project stabilized water levels and allowed a controlled flow of water into Minton Creek downstream, securing the available breeding and staging habitat for waterfowl for a further 30 years.

Oyama wetland, in the central Okanagan Valley, BC, provides valuable valley-bottom habitat.

Ducks Unlimited Canada

Project funding was received from the Recreational Fisheries Conservation Partnerships Program, the North American Wetland Conservation Act and the Habitat Conservation Trust Foundation. DUC has 15 other wetland projects at Minton Creek and Paxton Valley, all in the same area as Fletcher Lake. Together these projects conserve 1,447 acres (586 hectares) of wetland habitat.

Securing habitat at Oyama wetland

The 22-acre (9-hectare) Oyama wetland lies on a relatively narrow isthmus between Wood and Kalamalka lakes in the Okanagan Valley, BC. Valley-bottom wetlands are rare in the Okanagan Valley and are at risk of drainage. A portion of this wetland was previously donated to DUC by the Young family through Environment Canada's Ecological Gifts Program, and in 2014/15, the family donated a further two parcels, bringing the total area secured in perpetuity to 11.68 acres (4.7 hectares). The long-term goal of this project is to secure the entire wetland through a combination of land donation and conservation agreements, with riparian restoration undertaken where appropriate.

Waterfowl use of Oyama wetland is heaviest in early spring, when it provides a stopover point for migrants travelling through the Okanagan Valley. This valley is an important corridor within the Pacific Flyway, providing feeding and/or breeding habitat for species including Mallard, Green- and Blue-winged Teal, Cinnamon Teal, Gadwall, Bufflehead, Redhead and Canada Goose. Fall use is less heavy, but waterfowl are typically present until the marsh freezes over in mid to late November. The marsh is also home to raptors (Bald Eagle, Osprey and Red-tailed Hawk) and other birds (Common Snipe, Sora Rail, Great Blue Heron, Red-winged and Yellow-headed Blackbird and Ring-necked Pheasant).

The Okanagan is one of the fastest-growing regions in BC, and many of the area's wetlands have been drained, filled or otherwise impacted due to agriculture and urban development; by one estimate, up to 80% of valley-bottom wetlands have been lost. The remaining wetlands are therefore increasingly important for waterfowl and other wetland-dependent wildlife. Although there have been modifications to the uplands surrounding Oyama wetland, the marsh remains in a relatively natural state and provides valuable habitat. With an elementary school very close to the wetland, there may be future opportunities to provide wetland education programs at this site.

Fencing riparian areas at Lone Pine Creek

The Nature Conservancy of Canada (NCC) owns and manages land in southern BC's Sage and Sparrow Conservation Area, which encompasses the Lone Pine Creek drainage that ultimately flows to the Similkameen River in Washington State. The creek flows through two small lakes on NCC's lands; these water bodies are critical features on this otherwise arid landscape. Tiger Salamanders have been found in these lakes, and bird inventory work suggests that Yellow-breasted Chats might occur in the drainage. Waterfowl surveys have not yet been undertaken in the Lone Pine Creek area, but species confirmed on other water bodies in the Sage and Sparrow Conservation Area include Barrow's Goldeneye, Mallard, Northern Pintail, American Wigeon and Redhead.

Cattle grazing will continue on 23% of the Conservation Area's land base, so biologists recommended that cattle be excluded from the majority of the Lone Pine Creek drainage. To provide for riparian vegetation recovery and protection, while still allowing cattle access to this critical water source, NCC oversaw a project in 2014 to build a fence from where the creek passes into the United States along the length of the creek and around the small lakes. A modest access point for cattle to the larger of the two lakes was provided, and a gate was installed so that cattle could be excluded every other

Degraded fencing at Chilcotin Lake and Marsh west of the town of Williams Lake, BC.

The Nature Trust of British Columbia

year as part of the grazing rotation. The Lone Pine Creek riparian fence project is an excellent example of a win-win solution for biodiversity conservation and ongoing support for ranching operations.

The Lone Pine Creek riparian fence project is an excellent example of a win-win solution for biodiversity conservation and ongoing support for ranching operations.

The CIJV area presents unique conservation challenges due to the diversity of habitats, large amount of Crown (public) land and human population density. The CIJV partners have worked closely together to further the NAWMP goals in this area, and they will continue to work towards improving habitat conditions for all birds, as well as other wildlife species.

For more information, contact Tasha Sargent, Canadian Intermountain Joint Venture Coordinator, (604) 350-1903, tasha.sargent@ec.gc.ca.

Canadian Intermountain Joint Venture

Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	4,845,972	54,315,066

Accomplishments (Acres)

	2014-2015	*Total (1986-2015Q1)*
Secured	41,347	352,144
Enhanced	899	166,512
Managed	27,251	687,216
Influenced	0	50,906

Secured, enhanced and managed acres are not additive.

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

www.phjv.ca

Prairie Habitat Joint Venture

Waterfowl flocking to a prairie wetland.
©Ducks Unlimited Canada/Tye Gregg

www.phjv.ca

The PHJV encompasses 158.4 million acres (64.1 million hectares) in the traditional area of prairie and aspen parklands. It includes Alberta, Saskatchewan, Manitoba and the Peace-Parkland Region of British Columbia (BC). The PHJV also encompasses the western boreal forest (WBF), which covers parts of BC, Alberta, Saskatchewan, Manitoba, the Yukon and the Northwest Territories. The WBF occupies about 750 million acres, of which an estimated 47% is waterfowl habitat. The WBF contains a range of wetland types from small prairie potholes to marshes and bog systems.

Together, the Prairie-Parkland and WBF regions of Canada provide habitat for most North American duck species. They also provide habitat for hundreds of priority species identified during the Bird Conservation Region planning process. For example, the WBF has 57 priority species of non-game birds and 30 boreal specialists. Linkages among habitats and species are highlighted in the Prairie-Parkland and WBF Implementation Plans. Seventy percent of total ducks annually surveyed are recorded in the Prairie-Parkland Region and Western Boreal Forest area of Canada.

The Prairie Habitat Joint Venture (PHJV) partners have recently updated the PHJV Implementation Plan for 2013–2020. The Plan's two companion documents—the Prairie-Parklands and the Western Boreal Forest—will be released later this year. This report highlights key accomplishments towards the new Implementation Plan goals for each province in the PHJV.

Panoramic view of the Big Grass Marsh in Manitoba.

Manitoba Habitat Heritage Corporation

Manitoba: Canada's largest conservation easement

The largest conservation easement block in Canada was completed in 2015 on the Big Grass Marsh, northwest of Winnipeg. The Manitoba Habitat Heritage Corporation (MHHC) achieved perpetual protection of 43,137 acres (17,457 hectares) of wetland and upland waterfowl habitat through easement donations from the Rural Municipalities (RMs) of Lakeview and Westbourne. These donations ensure that the land will remain as wetlands and pasture lands, which will continue to support waterfowl and wildlife as well as the local grazing industry, emerging eco-tourism opportunities and a historic hunting tradition.

"This is the kind of forward-thinking, responsible habitat management that ensures the protection of an iconic wetland that provides flood control, water quality enhancement, protection from drainage, carbon storage and wildlife habitat," said Gord Mackintosh, then Manitoba's Minister of Conservation and Water Stewardship, at a signing ceremony in November 2014.

Big Grass Marsh is now considered a "Marsh of Great Significance" within the PHJV and is a "Globally Significant" Important Bird Area.

This work is the culmination of decades of change within Big Grass Marsh. Following the First World War, many veterans and immigrants attempted to convert this important waterfowl breeding, molting and staging habitat to arable land. Over 100,000 acres (40,470 hectares) were drained, but due to poor soil and drought conditions, almost half were abandoned and repossessed by the RMs of Lakeview and Westbourne. Since then, reclamation has returned many of the area's original waterfowl, bird and wildlife benefits. Big Grass Marsh is now considered a "Marsh of Great Significance" within the PHJV and is a "Globally Significant" Important Bird Area.

Valued at over $7 million CAD, this agreement covers 28,245 acres (11,430 hectares) of wetland and 14,892 acres (6,027 hectares) of upland. John Whitaker, MHHC Chair, said, "With its exceptional biological diversity and watershed values, the Corporation is honoured to accept these donations on behalf of all Manitobans."

Touchwood/Beaver Hills landscape in Saskatchewan.
Ducks Unlimited Canada

Saskatchewan: Agriculture plays a critical role in achieving NAWMP habitat objectives

The Saskatchewan NAWMP partners continue to secure valuable habitats and are also actively improving habitat conditions through management, extension and stewardship activities. The partnership has developed a suite of programming options that aim to balance agricultural productivity with sustainability in an effort to achieve the PHJV waterfowl habitat objectives. With these programming options, many of the objectives outlined within the 2007–2012 Saskatchewan NAWMP Habitat Implementation Plan have been achieved.

The Saskatchewan Ministry of Agriculture has contributed significantly to these habitat restoration objectives by delivering the Canada-Saskatchewan Farm Stewardship Program Beneficial Management Practices (BMPs). Through Growing Forward 2, a five-year agricultural policy framework agreement among federal-provincial-territorial governments, $6 million CAD are allocated annually to environment programming in Saskatchewan.

The Farm Stewardship Program's objective is for Saskatchewan farms to adopt BMPs to assist producers in maintaining the environmental integrity of their land. Producers can access BMPs by either completing an Environmental Farm Plan (EFP) or working through their local Agri-Environmental Group Plan (AEGP). An EFP allows producers to highlight their farm's environmental strengths, identify areas of environmental concern and set realistic action plans to improve environmental conditions. An AEGP provides education and awareness to deal with environmental issues where action by all producers in an area can have a measurable impact.

The Farm Stewardship Program provides cost-shared incentives (20–75% of costs) for producers to adopt and implement BMPs to address on-farm environmental risks and maintain or improve the quality of soil, water or biodiversity resources. NAWMP habitat accomplishments are achieved through BMPs related to establishing permanent vegetation to protect riparian areas, re-establishing native plants and protecting marginal high-risk soils through conversion of cropland to permanent cover.

The Farm Stewardship Program is evolving, with BMPs being discontinued when they're considered to have become common farming practice. We anticipate that new BMPs related to Native Rangeland Grazing Management will continue to benefit agriculture while contributing to the PHJV habitat retention objectives.

American Wigeon.

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Alberta: Cooking up collaboration for wetland restoration

A pilot project to restore drained wetlands aims to rejuvenate waterfowl habitat in a portion of the 24,000-acre (9,700-hectare) multi-use Cooking Lake-Blackfoot Grazing Wildlife and Provincial Recreation Area, in east-central Alberta. This project is a joint effort of Ducks Unlimited Canada (DUC), Alberta Environment and Parks (AEP) and the local Grazing Association.

The park lies within NAWMP's Big Hay/Bittern/Cooking Lake priority area, about 30 miles (50 km) east of Edmonton. The natural landscape is dotted with large and small wetlands and provides exceptional waterfowl habitat. Although many of the wetlands in the project area have been lost due to drainage, the upland nesting habitat is of good quality. As Barry Bishop, DUC's head of conservation programs in Alberta, said, "the area has well-managed grazing land, so when you restore the wetlands, the pair populations increase dramatically, and their nest success will be very good because of the overlapping expanse of high-quality grass."

The Western Boreal Forest Initiative

As a result of the 2007–2012 Implementation Plan, the PHJV's Western Boreal Forest (WBF) activities have expanded significantly. They are primarily retention-based, so the ultimate goal is no net loss of habitat function, including both degradation and loss. The PHJV habitat objective for the WBF over the next 25 years equates to the amount of duck habitat required to support 75% of the duck population predicted within the potentially at-risk habitat (i.e., outside of long-term protected lands). The following overarching tactics will be used to achieve WBF habitat objectives:

- Tactic 1: Develop effective national and provincial/territorial policies that conserve all wetlands, not just agricultural and settled-area wetlands.
- Tactic 2: Maintain existing protected-land objectives and continue to expand protected-land objectives in key waterfowl habitat areas.
- Tactic 3: Develop an effective sustainable land use program that promotes PHJV conservation in non-protected areas of the WBF.

The PHJV has claimed influence on 52.4 million acres (21.2 million hectares) of protected lands and 0.7 million acres (0.3 million hectares) of Sustainable Land Use areas in the WBF during 2001–2012. About 33.7 million of those acres (13.6 million hectares) are waterfowl habitat, which is about 9% of the total WBF waterfowl habitat and contains 7% of the estimated WBF waterfowl population.

A Blackfoot Grazing Association representative describes the co-benefits of a recently restored wetland basin for cattle and wildlife.

Ducks Unlimited Canada

The project area consists of three blocks of pasture land, totalling about 1,200 acres (485 hectares), where DUC identified over 100 drained wetlands and targeted 62 for restoration. In October 2013, DUC restored these wetlands with earthen plugs and seeded native grasses on the plugs to prevent erosion and minimize weed growth.

As administrator of this public land, AEP considered the monitoring results as well as input from the Grazing Association in deciding whether to proceed with further wetland restoration work. During a field meeting in early 2015, AEP, DUC and the Grazing Association agreed that additional wetland restoration is needed to meet AEP's goal of enhancing the area's habitat value while also having a neutral to positive effect on cattle production. Cattle producers saw benefits through improved distribution of stock water and availability of late season forage in wetland basins during dry years. According to Bishop, "We are delighted by this outcome. The potential in the rest of the provincial recreation area is considerable with hundreds of drained basins identified based on a cursory look. We've just scratched the surface for restoration potential."

The PHJV habitat objective for the WBF over the next 25 years equates to the amount of duck habitat required to support 75% of the duck population predicted within the potentially at-risk habitat.

The examples described here touch on only a few of the exciting projects taking place in the Prairie-Parkland and Western Boreal Forest regions of Canada. With the updated PHJV Implementation Plan documents for 2013–2020 in hand, the PHJV and its partners will continue to strive for the NAWMP goals of restoring and conserving waterfowl habitats.

For more information, contact Deanna Dixon, Prairie Habitat Joint Venture Coordinator, (780) 951-8652, deanna.dixon@ec.gc.ca.

Prairie Habitat Joint Venture

Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	45,041,218	1,133,334,638

Accomplishments (Acres)

	2014-2015	*Total (1986-2015Q1)*
Secured	67,090	6,788,340
Enhanced	33,872	2,690,137
Managed	460,820	8,474,063
Influenced	5,115,971	5,540,637

Secured, enhanced and managed acres are not additive.

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Western Boreal Forest Initiative

Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	7,524,911	12,612,601

Accomplishments (Acres)

	2014-2015	*Total (1986-2015Q1)*
Secured	0	11,238,776
Enhanced	0	107
Managed	0	107
Influenced	8,106,728	53,526,503

Secured, enhanced and managed acres are not additive.

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Eastern Habitat Joint Venture

Young's Island, Musquodoboit Estuary.
Mike Dembeck

www.ehjv.ca
www.pche.ca

The EHJV contains 780 million acres (315 million hectares) spanning Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. The EHJV supports 30% of Canada's wetlands, including more than 120.8 million acres (48 million hectares) of fresh and tidal wetlands. Important habitats include coastal bays and salt marshes, lakeshore marshes, floodplain wetlands and boreal forest wetlands. The JV has 13 priority waterfowl species: American Black Duck, Mallard, Ring-necked Duck, Common Goldeneye, Common Eider (3 races), Green-winged Teal and Canada Goose (5 populations). The habitat within the EHJV supports 95% of the continental population of American Black Duck and 80% of the southern race of Common Eider. The Atlantic and North Atlantic populations of Canada Goose breed exclusively within the EHJV.

The Eastern Habitat Joint Venture (EHJV), the eastern Canada delivery arm of the NAWMP, encompasses one third of Canada's landmass and nearly two thirds of its human population. The EHJV has been actively securing, enhancing and managing wetland and associated upland habitats throughout the provinces of Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador since 1989.

Bayers Island in Musquodoboit Harbour was acquired by the Nature Conservancy of Canada in 2009. The island is actually a 79-acre (32-hectare) archipelago of three main islands connected by barrier beaches and a shallow salt marsh system.

Mike Dembeck

EHJV partners have retained over 29 million acres (12 million hectares) of wetland and associated upland habitat for the benefit of migratory birds and other wildlife species. The habitat conservation projects and related initiatives undertaken by the partnership have not only contributed to the conservation of eastern Canada's rich biological diversity but indeed to North America's overall biodiversity.

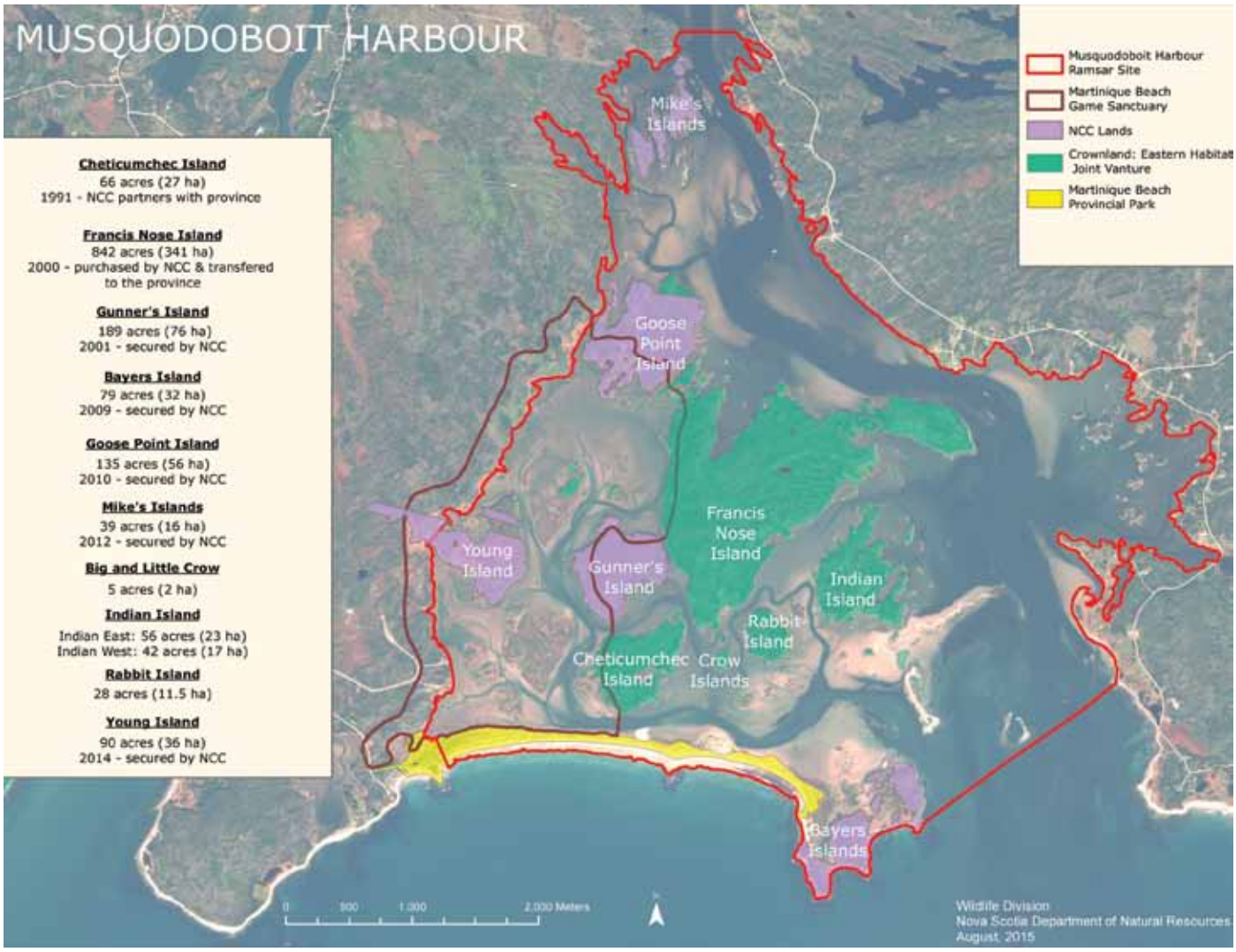
While there are many significant achievements across the EHJV, this year's report highlights the efforts of partners in Nova Scotia's Musquodoboit Harbour, located on the Atlantic coast northeast of Halifax.

A diverse landscape in demand

Musquodoboit Harbour is a picturesque landscape of rolling hills and long, shallow, tidal inlets protected by a barrier beach. The area includes a mix of diverse habitats—salt marsh, eelgrass flats, saline ponds, sandy beaches and small islands—

The location of Musquodoboit Harbour relative to Halifax, Nova Scotia.

Environment Canada



The lands in Musquodoboit Harbour, Nova Scotia, conserved by EHJV partners.

Province of Nova Scotia

and hosts some of the highest densities of migrating American Black Ducks and Canada Geese in eastern Canada. Martinique Beach annually provides nesting and breeding habitat for the endangered Piping Plover. Additionally, the area is a major fall migration and staging location for thousands of waterfowl and other migratory birds.

However, this largely unspoiled environment is located at the doorstep of Atlantic Canada's busiest harbour and Nova Scotia's largest urban centre—Halifax. Demand for recreational coastal properties, urban expansion and other human-related disturbances are becoming increasingly severe threats to the area's habitats. The upland and wetland habitats of this region have long been recognized as important for wildlife and a priority securement area.

Previous conservation efforts

The area around Musquodoboit Harbour has a long history of conservation and ecological protection. In 1961, the Province of Nova Scotia established the Martinique Beach Game Sanctuary to protect 1,253 acres (507 hectares) of the outer estuary from development and hunting. In 1971, the Province established the 148-acre (60-hectare) Martinique Beach Provincial Park at the mouth of the Musquodoboit Harbour estuarine system. The 2.3-mile (3.7-km) Martinique barrier beach, extending from the tip of the provincial park, is one of the longest sandy beaches in Nova Scotia. This beach protects many of the highly productive salt marshes, wetlands and intertidal flats in the harbour from ocean storm events, and it also provides nesting habitat to endangered birds. The

park is managed as a "natural environment park," meaning that the area's ecological integrity must be maintained to ensure the sustainability of both the natural environment and human use of the park.

In 1987, the ecological richness of the Musquodoboit Estuary led to the designation of the 4,756-acre (1,925-hectare) outer estuary as a Wetland of International Importance under the Ramsar Convention and recognition as an internationally Important Bird Area (IBA). The proposed conservation measures for the Ramsar designation specifically stated that the "securement of key habitat sites will be done through the Eastern Habitat Joint Venture (EHJV) of the NAWMP." Since that time, EHJV partners in Nova Scotia, led primarily by the Nova Scotia Department of Natural Resources and the Nature Conservancy of Canada (NCC), have acquired over 1,500 acres (600 hectares) of coastal islands and intertidal habitats in this Ramsar site.

Young's Island was the last major unprotected island in Musquodoboit Harbour. It has extensive salt marshes and intertidal mudflats, a mix of coastal forest with Black Spruce and Balsam Fir trees and coastal barren ecosystems.

Young's Island protected

Most recently, in September 2014, the NCC and various other EHJV partners protected Young's Island, an 84-acre (34-hectare) property north of Martinique Beach. Young's Island was the last major unprotected island in Musquodoboit Harbour. It has extensive salt marshes and intertidal mudflats, a mix of coastal forest with Black Spruce and Balsam Fir trees and coastal barren ecosystems. The area is home to significant populations of waterfowl, other birds and marine life.

Common Eider.

Ducks Unlimited Canada

Mobilization to preserve a restored marsh highly productive in Quebec

East of the city of Gatineau, Quebec, lies Massettes Marsh, a rich wetland along the Ottawa River. The marsh was first restored by Ducks Unlimited Canada (DUC) in the late 1970s. In 2013, an important parcel of land was purchased, and in 2015, the site, which also includes public land, was restored by repairing the existing dyke and replacing the water level control structure. This project is a prime example of the "power of partnerships" that Joint Ventures provide. The Massettes Marsh project is a collaborative effort of DUC; the Quebec Ministry of Forests, Wildlife and Parks; the Quebec Wildlife Foundation; Wildlife Habitat Canada; Environment Canada; the Migratory Bird Treaty Act Fund and the TransCanada Corporation. Some of the species directly benefitting from this project are Canada Goose, American Black Duck, Least Bittern and Marsh Wren.

American Black Duck.

D. Faucher

"The successful protection of this site represents significant progress in the ongoing work to protect nature and wild spaces in this province," said Craig Smith, NCC program manager in Nova Scotia. "We are grateful for the diverse group of partners who supported the project and helped bring it to completion."

EHJV partners in Nova Scotia will continue their land protection efforts at Musquodoboit Harbour, including securement of other adjacent high-priority land parcels, and will also continue to work toward other habitat objectives outlined in the EHJV 2015–2020 Implementation Plan.

For more information, contact Patricia Edwards, Eastern Habitat Joint Venture Coordinator, (506) 364-5085, patricia.edwards@ec.gc.ca.

Eastern Habitat Joint Venture

Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	30,699,692	516,201,965

Accomplishments (Acres)

	2014-2015	*Total (1986-2015Q1)*
Secured	25,723	1,431,001
Enhanced	3,446	605,770
Managed	2567,75	1,764,358
Influenced	10,872,051	72,991,924

Secured, enhanced and managed acres are not additive.

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Species Joint Ventures

Black duck on the water.
Ducks Unlimited Canada

Species Joint Ventures are international in scope, spanning North America and including circumpolar countries. These Joint Ventures focus on critical science needs to inform the management of over 20 species (50+ populations) and their related habitats. Additionally, research directed through the Species Joint Ventures addresses questions for other bird species that share the habitats.

Black Duck Joint Venture

Captured black ducks ready for bands, satellite transmitters and blood and tissue sampling.

Mark Mallory, Acadia University

www.blackduck.cmi.vt.edu

The BDJV includes Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador and 14 eastern U.S. states. The American Black Duck can be found in saltwater marshes, brackish and freshwater impoundments, riverine and estuary marshes, woodland wetlands, shallow lakes and boreal bogs. Black ducks use the Mississippi and Atlantic Flyways.

The Black Duck Joint Venture (BDJV) supports monitoring and research initiatives in North America that help sustain the American Black Duck population at levels desired for conservation and recreational purposes. Data from banding, breeding pair surveys and a mid-winter survey have been used to monitor harvest as well as the dynamics, structure and distribution of the population (see range map). This information in turn helps to guide the management and conservation of black ducks.

The black duck remains a species of international management concern, despite the social and economic importance of black ducks, the investment in long-standing monitoring programs and the substantial efforts with habitat conservation. The U.S. Fish and Wildlife Service mid-winter population inventory (MWI) demonstrated a sustained decline of black ducks on their traditional wintering grounds between the 1950s and 1990s. From 1990–2012, the MWI documented a decline in black ducks in the Mississippi Flyway and a relatively stable population in the Atlantic Flyway. In 2003, the Ontario Region of Environment Canada's Canadian Wildlife Service, with support from partners, initiated a mid-winter survey that showed a stable or increasing abundance of black ducks wintering in the Great Lakes region of the Mississippi Flyway. In 2006, a triennial survey was also implemented in Atlantic Canada to monitor changes in the abundance and distribution of wintering black ducks in that region.

American Black Duck fitted with a microwave telemetry satellite transmitter.
Mark Mallory, Acadia University

Declines in black ducks observed in traditional wintering areas might be explained in part by declines in the quality and quantity of non-breeding habitat and by an apparent redistribution of birds wintering farther north into Canada. While some black ducks have always wintered in southern Ontario and the Maritimes, fewer have wintered in Quebec; these areas have seen increasing numbers of wintering black ducks, particularly in warmer-than-average winters. Monitoring changes in winter distribution across the black duck range is important for the continental management of harvest and to ensure adequate protection is given to wintering habitat in Canada.

In 2014, Drs. Mark Mallory (Acadia University) and Greg Robertson (Environment Canada) launched a three-year study to better understand the relationship between black duck wintering locations and habitat conditions in Maritime Canada. The study examines diet, winter movements, fidelity to breeding areas, winter habitat choice, over-winter survival, trends in wintering numbers and distribution, and ultimately carrying capacity of winter habitats in the Maritimes.

So far, two years of data have been collected during the non-breeding seasons (February–April) in the Annapolis Valley and Minas Basin of Nova Scotia; on Grand Manan Island, New Brunswick; and in St. John's, Newfoundland. Activities have included:

- Detecting daily local movements and bird behaviour using remote cameras;
- Outfitting 11 black ducks in the Annapolis Valley with satellite transmitters to obtain information on winter movements, preferred habitats and fidelity to wintering locations;
- Sampling available food items at sites visited by the telemetered birds;
- Conducting a regional analysis of long-term trends in wintering black duck numbers. The trends will be linked to coastal land characteristics;

Location of black ducks equipped with satellite transmitters from April–July 2014.
Mark Mallory, Acadia University

- Collecting 72 black ducks to obtain dietary information, take samples for isotopic analysis and conduct energetic analyses to determine body condition; and
- Collecting marine prey of black ducks at five coastal sites and analyzing their stable isotope signatures to help determine the relative importance of marine versus freshwater foods.

While the study is still in the early stages, the researchers have found several interesting preliminary results. The population trend analysis suggests the wintering black duck population has been increasing in parts of Nova Scotia since the 1970s. In addition, the telemetered birds have reconfirmed the importance of habitat in Labrador for molting black ducks (see map above). Initial data also suggest that winter body condition of black ducks in Maritime Canada is similar to those wintering in the United States and that black ducks in Nova Scotia appear to rely more on marine foods in winter than Mallards do.

As results from this and other studies become available, they will be posted on the BDJV website.

For more information, contact Patricia Edwards, Canadian Black Duck Joint Venture Coordinator, (506) 364-5085, patricia.edwards@ec.gc.ca.

Black Duck Joint Venture Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	1,341,812	17,759,839

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Sea Duck Joint Venture

Barrow's Goldeneye.

Sean Boyd, Science and Technology Branch, Environment Canada

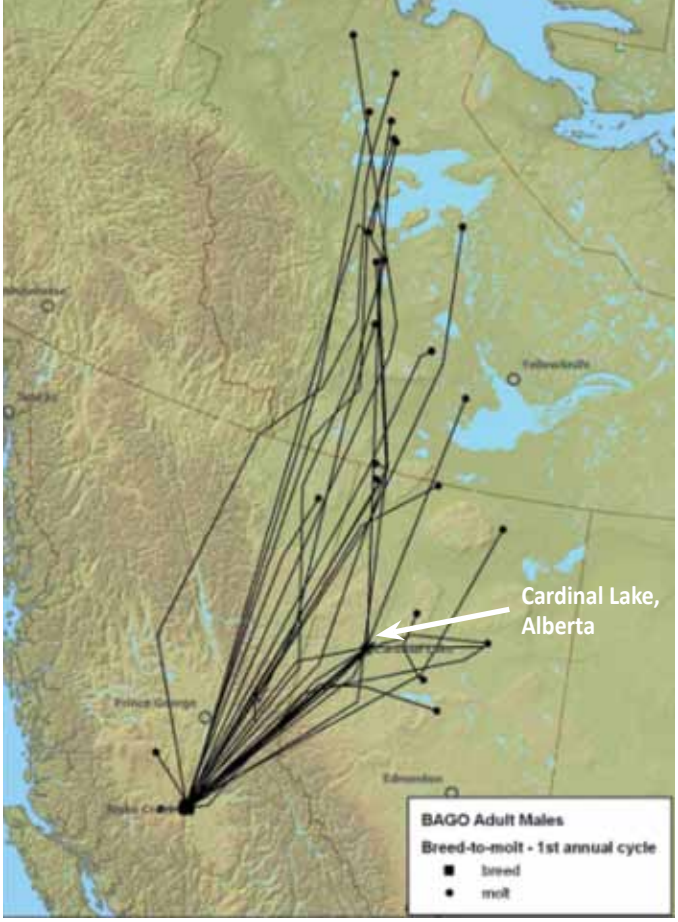
www.seaduckjv.org

The SDJV covers all of Canada and the United States and focuses on coastal waters for migrating and wintering ducks and boreal forest and tundra for nesting ducks. The Joint Venture includes all 22 recognized populations among the 15 sea duck species (tribe Mergini): Common Eider, King Eider, Spectacled Eider, Steller's Eider, Black Scoter, White-winged Scoter, Surf Scoter, Barrow's Goldeneye, Common Goldeneye, Bufflehead, Long-tailed Duck, Harlequin Duck, Common Merganser, Red-breasted Merganser and Hooded Merganser. As a group and depending on the season, sea ducks use all four flyways.

In 2014/15, the Sea Duck Joint Venture (SDJV) continued to be involved in partnerships and projects throughout North America. This year's report highlights an ongoing project in the Pacific region involving Barrow's Goldeneye.

Worldwide, there are only three populations of Barrow's Goldeneye (BAGO): a small population in each of Iceland and eastern Canada (Quebec and the Maritimes) and a much larger population (100,000–200,000 birds) in the Pacific region of North America. The Pacific BAGO overwinter from Washington State to southeastern Alaska and their breeding range extends from Washington through British Columbia (BC), Alberta and the Yukon to Alaska.

As cavity-nesting birds that typically use vacated Pileated Woodpecker cavities in large trees, BAGO are sensitive to the loss of forest habitat. During the breeding season, they also require productive ponds and lakes. Males molt at inland sites at higher latitudes, while females molt either at their breeding site or elsewhere, if they are unsuccessful at raising a brood. The birds overwinter in shallow waters along the coast where they feed primarily on mussels. Although the behaviour of BAGO was relatively well known, there was very little information about the connections between specific breeding, molting and wintering areas used by these birds.



Molt migration pattern of Pacific Barrow's Goldeneye tagged at Riske Creek, BC.
Sean Boyd, Science and Technology Branch, Environment Canada

Since 2006, a joint project of the SDJV, Environment Canada, Ducks Unlimited Canada, U.S. Geological Survey, U.S. Fish and Wildlife Service and Alaska Department of Fish and Game has been studying the migration movements of BAGO using satellite transmitters. The objectives of this ongoing project are to describe the migration routes, seasonal habitat use and degree to which birds consistently return to particular sites (site fidelity).

The study began by tagging individuals (males, females and young in their hatch year) at ponds in the Riske Creek breeding area, which is in the Fraser Plateau of central BC In subsequent years, individuals were tagged at five coastal wintering sites from Vancouver to southeast Alaska and one inland molting site in Alberta.

The initial data from Riske Creek tagging efforts showed that male BAGO migrate to sites ranging from central Alberta to the northern Northwest Territories to molt. Surprisingly, about 30% of the tracked males molt each year at Cardinal Lake, a small lake in northwestern Alberta (see map above). This discovery led in turn to surveys that indicated up to 6,000 BAGO use Cardinal Lake, making it one of the most important molt sites for male BAGO in the world. Although the geographic area covered by molting males is large, the birds

Female Barrow's Goldeneye implanted with a satellite transmitter (note the antenna).
Sean Boyd, Science and Technology Branch, Environment Canada

are consistent in returning to the same sites each year.

The study, which to date has deployed over 300 transmitters, including 30 in April 2014, has also shown that adult males and females tagged from the Fraser Plateau and males tagged at Cardinal Lake consistently winter along the Pacific Coast from Washington State to just north of Vancouver Island. Birds tagged in their hatch year migrate to the coast separately from their mothers and siblings, but they ultimately overwinter in the same general area as their parents.

BAGO tagged at wintering sites farther north in BC (near Kitimat) and in Alaska have different migration and distribution patterns and appear to represent largely discrete sub-populations. Importantly, the adult birds from all tagging sites show high fidelity to breeding, molting and wintering sites, a finding that has implications for management and conservation efforts for these sea ducks.

Data and migration maps can be accessed at: *www.sfu.ca/biology/wildberg/CWESeaducksfolder/BAGOwebpage/BAGOMigrationHome.html*.

For more information, contact Richard Cotter, Sea Duck Joint Venture Coordinator, (418) 648-7034, richard.cotter@ec.gc.ca.

Sea Duck Joint Venture Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	862,210	12,457,341

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Arctic Goose Joint Venture

Snow Goose.

©Ducks Unlimited Canada/www.ducks.ca

www.agjv.ca
www.pcoa.ca
www.gansodelartico.com

The AGJV covers 924 million acres (374 million hectares) spanning North America and including other circumpolar countries. It focuses on 28 populations among seven species: Greater White-fronted, Emperor, Snow, Ross's, Brant, Cackling and Canada Geese. Arctic geese use all four flyways.

For more than 30 years, the North American Arctic Goose (NAAG) Conference and Workshop has been the premier meeting for bringing together waterfowl managers, conservationists, students and researchers with an interest and passion for geese. This conference has grown from a small meeting involving only those with an interest in North American Snow Geese to an international meeting addressing science, conservation and management of geese nesting throughout the arctic.

The 13th NAAG Conference (NAAG–C13) was held in the spring of 2015 in Winnipeg, Manitoba, the second time the meeting has been hosted in that province. The previous time was in 1989, when Delta Waterfowl organized NAAG–C6 at the University of Manitoba Field Station at Delta Marsh. A lot has changed in the time between these two meetings. In 1989, the NAAG conference was a decidedly smaller gathering and was almost entirely devoted to studies of Snow Geese and Ross's Geese. Attendees of the 6th conference also discussed the concept of the Arctic Goose Joint Venture (AGJV), which had been endorsed by the North American Waterfowl Management Plan Committee in 1986. In 2015, the AGJV is a mature, cooperative partnership that works to facilitate research and monitoring of all North American Arctic goose populations and is a key sponsor and supporter of the NAAG conferences. NAAG–C6 may have been small, but its impact is still evident today.

Snow Goose.

©Ducks Unlimited Canada/Brian Wolitski

NAAG–C7 was held in Vallejo, California, in 1992, the first time the conference was hosted outside Canada. This was the first attempt to greatly expand interactions among arctic goose researchers and managers from all over North America, and the tradition has continued. NAAG–C8 (1995) in Albuquerque, New Mexico, focused on both breeding and wintering aspects of research and management and held the first of many workshops that considered whether or not it was possible to have 'too many geese.' This theme continued at NAAG–C9 (1998) in Victoria, British Columbia, and by NAAG–C10 (2001) in Quebec City, Quebec, the first evaluations of management actions to control overabundant goose populations were being considered. At more recent conferences—NAAG–C11 (2005) in Reno, Nevada, and NAAG–C12 (2010) in Portland, Oregon—issues involving overabundant geese and climate change and their effects on habitat have continued to be front and centre. Nonetheless, the diversity of topics considered at NAAG conferences continues to expand.

The most recent conference in Winnipeg attracted 100 attendees from Canada, the United States, Denmark and Russia, and it included six plenary talks, 32 oral presentations and 25 posters. Given the number of conservation issues facing waterfowl managers, there were wide-ranging discussions from overabundant stocks of some populations to managing harvest on mixed stocks, some of which require protection. In these times of changing global climate, evolving agricultural practices and increasing urbanization, there is a greater need than ever for expert collaboration. The NAAG conference continues to be a critical forum for these important interactions.

For more information, contact Deanna Dixon, Arctic Goose Joint Venture Coordinator, (780) 951-8652, deanna.dixon@ec.gc.ca.

Arctic Goose Joint Venture
Contributions ($CAD)

	2014-2015	*Total (1986-2015Q1)*
Total	1,766,697	42,037,842

2014-2015 consists of the April 1, 2014 to March 31, 2015 time frame.

Partners

Thank you to all our partners who contributed in 2014–2015:

Canadian Agencies

Acadia University
Agriculture and Agri-Food Canada-Prairie Farm Rehabilitation Administration
Alberta Conservation Association
Alberta Environment and Sustainable Resource Development
Alberta Fish and Game Association
Alberta Sport, Recreation, Parks & Wildlife Foundation
Alberta Treasury
AltaGas Services Inc.
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Cavalier Land Ltd.
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Challenger Development Corporation
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ConocoPhillips Canada
Crescent Point Resources Limited Partnership
Dalhousie University
Ducks Unlimited Canada
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Nature Conservancy of Canada
Nature Trust of British Columbia
New Brunswick Department of Environment
New Brunswick Department of Natural Resources
New Brunswick Regional Development Corporation
Newfoundland-Labrador Department of Environment and Conservation
Nexen Inc.
Northrock Resources Ltd. (Canada)
Nova Scotia Crown Share Land Legacy Trust
Nova Scotia Department of Agriculture
Nova Scotia Environment
Nova Scotia Federation of Agriculture
Nova Scotia Natural Resources
Ontario Ministry of Natural Resources
Pan Canadian Petroleum Limited
Paramount Energy Trust
Patrick Hodgson Family Foundation
Pengrowth Corporation
Penn West Petroleum Ltd.
Prairie Land Consultants Inc.
Prince Edward Island Department of Agriculture
Prince Edward Island Wildlife Conservation Fund
Prospect Oil and Gas Management Ltd.
Richardson Foundation Inc.
Rife Resources Ltd.
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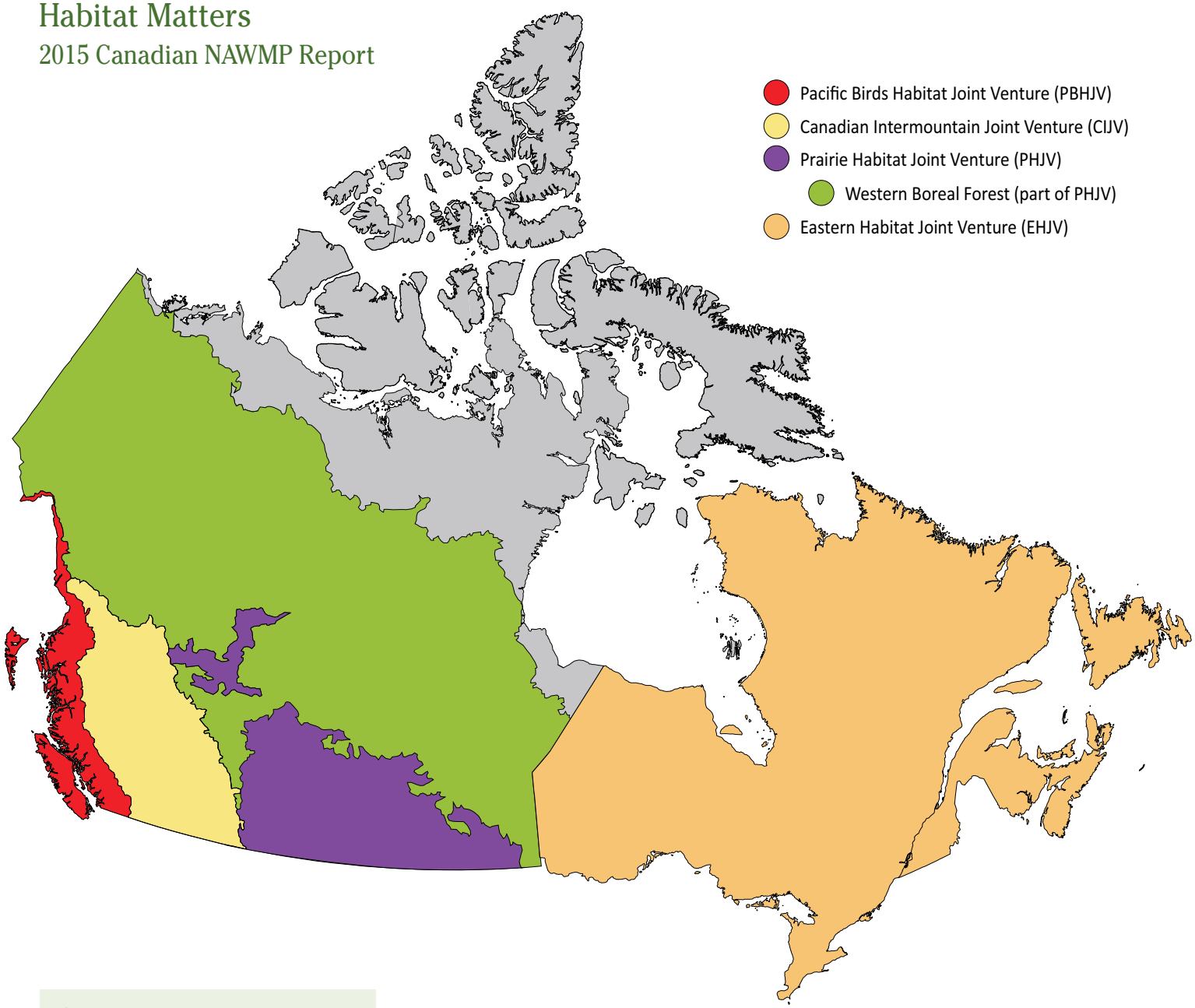
Sabretooth Energy Ltd.
Saskatchewan Environment
Saskatchewan Water Security Agency
SaskPower
SaskTel
Scott Land and Lease Ltd.
Shell Canada Products Ltd.
Signalta Resources Limited
Sir James Dunn Foundation
St Paul (County of)
Standard Land Company Inc.
TD Canada Trust
The J.A. Woollam Foundation
Touchdown Land Consultants Ltd.
TransCanada Corporation
Traverse Landgroup Ltd.
Trident Exploration Corp.
Trilogy Energy Corp.
TriStar Oil & Gas Ltd.
Turtle Mountain Conservation District
Twin Butte Energy Ltd.
Vancouver International Airport Authority
Vermilion Energy Trust
Wildlife Habitat Canada
Yukon Department of Environment
Zargon Energy Trust

U.S. Agencies

Alabama Department of Conservation and Natural Resources
Arizona Game & Fish Department
Arkansas Game & Fish Commission
Atlantic Flyway Council
Bayer CropScience Inc.
California Department of Fish & Wildlife
Connecticut Department of Energy & Environmental Protection
Delaware Division of Fish & Wildlife
Ducks Unlimited, Inc.
Florida Fish & Wildlife Conservation Commission
Friends of the Nature Conservancy of Canada
Georgia Wildlife Resources Division
Idaho Department of Fish & Game
Illinois Department of Natural Resources
Indiana Department of Natural Resources
Kansas Department of Wildlife & Parks
Kentucky Department of Fish & Wildlife Resources
Louisiana Department of Wildlife and Fisheries
Louisiana Pacific Corporation
Maine Department of Inland Fisheries & Wildlife
Massachusetts Division of Fisheries & Wildlife
Michigan Department of Natural Resources
Minnesota Department of Natural Resources
Mississippi Department of Wildlife, Fisheries & Parks
Mississippi Flyway Council
Missouri Department of Conservation
Nebraska Games & Parks Commission
Nevada Department of Wildlife
New Hampshire Fish & Game
North Carolina Wildlife Resources Commission
North Dakota Game & Fish Department
Oceans North Canada
Ohio Division of Wildlife
Oklahoma Department of Wildlife Conservation
Open Space Institute
Oregon Department of Fish & Wildlife
Pennsylvania Game Commission
PEW Charitable Trusts
Rhode Island Department of Environmental Management
South Carolina Department of Natural Resources
South Dakota Game, Fish & Parks Department
Tennessee Wildlife Resources Agency
Texas Parks & Wildlife Department
U.S. Fish and Wildlife Service
Vermont Agency of Natural Resources
Virginia Department of Game & Inland Fisheries
West Virginia Division of Natural Resources
Wisconsin Department of Natural Resources

Habitat Matters

2015 Canadian NAWMP Report



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North American Wetlands Conservation Act Funding in Canada
nawcc.wetlandnetwork.ca

North American Bird Conservation Initiative
nabci.net

Map of Bird Conservation Regions
nabci-us.org/map.html