EHJV

Eastern Habitat Joint Venture

Implementation Plan 2021-2030




Partners conserving habitat
for birds and people

EHJV Eastern Habitat Joint Venture

PCHE Le plan conjoint des habitats de l'est

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ABOUT THE EASTERN HABITAT JOINT VENTURE

The Eastern Habitat Joint Venture (EHJV) is a cooperative regional partnership among the federal government (Environment and Climate Change Canada), provincial governments and four environmental non-governmental organizations in Canada's eastern provinces—Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. The EHJV partnership formed in 1989 under the North American Waterfowl Management Plan (NAWMP). It relies on sound science and a partnership approach to conserve wetland, associated upland and other important habitats for birds.

RIGHTS AND INTERESTS OF FIRST NATIONS, INUIT AND MÉTIS

The Eastern Habitat Joint Venture (EHJV) recognizes that Indigenous Peoples (First Nations, Inuit and Métis) hold both claimed and established Aboriginal and Treaty Rights on the lands that the EHJV seeks to protect. The EHJV also recognizes that the objectives for wildlife and habitat conservation, protection, and restoration presented in the EHJV Implementation Plan 2021-2030 are at the heart of Indigenous interests and that Indigenous voices, knowledge and continued on-the-ground work are essential inputs to consider to insure that wild birds prosper in sustainable ecosystems. This is why the EHJV wishes to work in collaboration with Indigenous Peoples and to offer Indigenous Peoples the necessary resources to support their own conservation initiatives.

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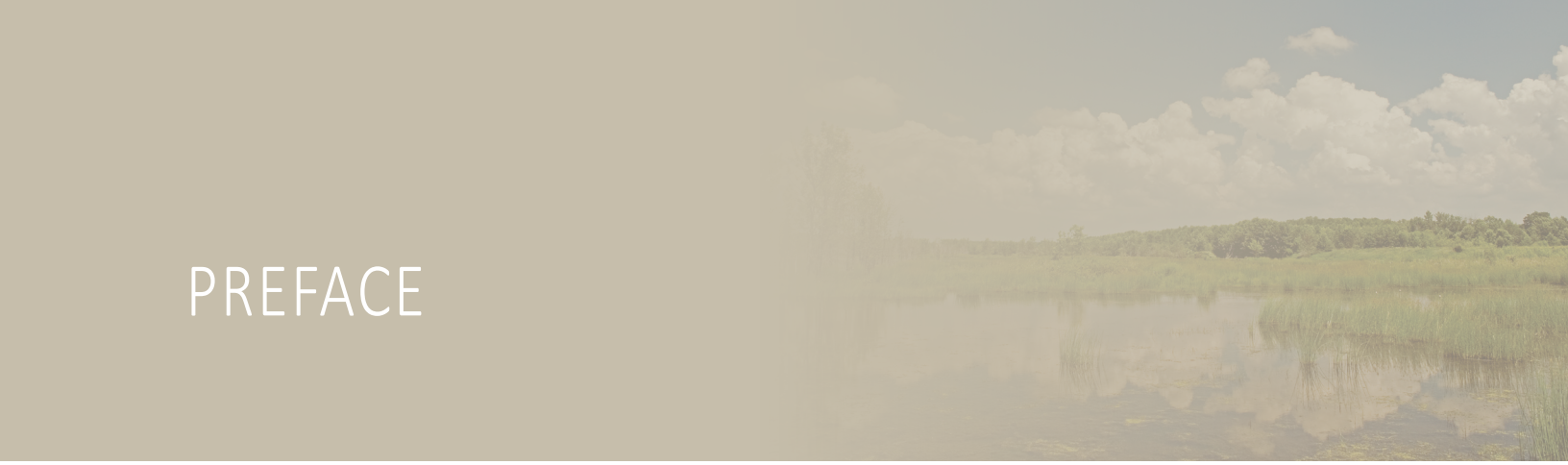
LIST OF ACRONYMS AND ABBREVIATIONS

BCR:	Bird Conservation Region
CAD:	Canadian Dollars
CEC:	Commission for Environmental Cooperation
COSEWIC:	Committee on the Status of Endangered Wildlife in Canada
CWS:	Canadian Wildlife Service
DUC:	Ducks Unlimited Canada
ECCC:	Environment and Climate Change Canada
EHJV:	Eastern Habitat Joint Venture
ESA:	Eastern Survey Area of the Waterfowl Breeding Population and Habitat Survey
EWS:	Eastern Waterfowl Survey
ha:	Hectares
IBP:	Indicated Breeding Pair
IUCN:	International Union for Conservation of Nature
JV:	Joint Venture
MFFP:	Ministère des forêts, de la faune et des parcs*
NABCI:	North American Bird Conservation Initiative
NAWMP:	North American Waterfowl Management Plan
NB:	New Brunswick
NCC:	The Nature Conservancy of Canada
NL:	Newfoundland and Labrador
NS:	Nova Scotia
ON:	Ontario
PEI:	Prince Edward Island
PIF:	Partners in Flight
QC:	Québec
SARA:	*Species At Risk Act*
SLLS:	St. Lawrence Lowlands Breeding Waterfowl Survey
SOWPS:	Southern Ontario Waterfowl Plot Survey
TSA:	Traditional Survey Area of the Waterfowl Breeding Population and Habitat Survey
U.S.:	United States
WBPHS:	Waterfowl Breeding Population and Habitat Survey
WHC:	Wildlife Habitat Canada
WHSRN:	Western Hemispheric Shorebird Reserve Network
WNOR:	Waterfowl Survey of Northern Québec

* An MFFP document is referenced in the text. However, following the appointment of a new council of ministers in Québec, the forestry sector now falls under the Ministère des Ressources naturelles et des Forêts, and the wildlife and parks sectors now falls under the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs.



PREFACE

By the mid-1980s, many of North America's waterfowl populations were at historic lows, and there was an urgent need to slow or reverse ongoing population declines. In 1986, Canada and the United States (U.S.) developed a strategy for waterfowl recovery, which became the North American Waterfowl Management Plan (NAWMP). With the signing by Mexico in 1994, the NAWMP became one of the largest environmental conservation partnerships in history.

The NAWMP's current objectives are:

- to maintain waterfowl breeding populations at their long-term average, with periodic abundances in the 80th percentile of breeding population estimates, when annual wetland conditions are optimal
- to increase waterfowl conservation support to at least levels experienced during the last two decades
- to conserve a landscape with the capacity to maintain long-term average waterfowl population levels, to periodically sustain abundant populations and to consistently support resource users at objective levels

To achieve these objectives, the NAWMP depends on cooperative regional partnerships known as 'Joint Ventures' (JVs). In the years following the NAWMP's beginnings, both species and habitat JVs were established to further the scientific understanding and management of specific species or species groups and to implement on-the-ground conservation of high-priority wetlands and associated upland habitats (i.e., land adjacent to or surrounding wetland projects).

The Eastern Habitat Joint Venture (EHJV) was established in 1989 with the goal to serve as the coordinating body for the delivery of projects and programs that would meet the NAWMP's objectives in Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Originally, these programs focused solely on waterfowl. However, in the late 1990s, the North American Bird Conservation Initiative (NABCI) was established to address declining populations of other bird groups (shorebirds, waterbirds and landbirds), and in response, the EHJV expanded to incorporate the conservation of all bird species in 2000. The latest expansion of the EHJV's goals followed the 2012 NAWMP Revision and the 2018 NAWMP Update, which challenged the NAWMP community to broaden and increase its base of conservation support by considering the intersection of waterfowl, habitat and people in management decisions.

The EHJV Implementation Plan 2021-2030 continues to incorporate these objectives. It presents specific strategies to promote the conservation of waterfowl, other birds and their habitats, and to actively support and engage its base of conservation support. Successful delivery of this Implementation Plan will depend on building and maintaining strong partnerships, a shared vision and ongoing support from all EHJV partners for birds, habitats and people. With these factors in place, the EHJV will be well positioned to implement its current goals and to help meet the long-term goals of the Kunming-Montreal Global Biodiversity Framework.

EXECUTIVE SUMMARY

Wood Duck pair/Ducks Unlimited Canada

Since 1989, the EHJV has implemented habitat conservation programs in priority areas across Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Building on past achievements (see Introduction), the 2021-2030 Implementation Plan integrates knowledge gained about program delivery, bird species biology and habitat preferences along with changing human values, attitudes and beliefs regarding wildlife, biodiversity and habitat conservation to move forward as an informed and relevant conservation partnership.

The EHJV Implementation Plan 2021-2030 (hereafter the 'Plan') builds on the science foundation of all Canadian Habitat Joint Ventures. The goal is to align timing, language and metrics across the Canadian Habitat Joint Ventures and to facilitate a national rollup of all Habitat Joint Venture goals, objectives and results. This Plan focuses on planning across the entire EHJV landscape to address the "what", "how", "how much [habitat]" and "where" for the EHJV's priority bird species and their habitats. Habitat objectives in this Plan are based on the current understanding of the habitat needs of priority species, ensuring the work of the EHJV relates directly to population objectives for each species.

This Plan reflects ongoing efforts by the EHJV to operate as an all-bird Habitat Joint Venture. It identifies six waterfowl and 16 non-waterfowl priority species, as well as four priority habitat types. The six waterfowl species serve as measurable indicators of the delivery of habitat conservation actions, with the assumption that conservation actions will also benefit

non-priority species. Priority waterfowl population objectives aim to meet the 2018 NAWMP Update objectives of 2.7 million breeding ducks in the Eastern Survey Area (ESA), which falls within the EHJV.

This Plan is the first EHJV Implementation Plan to identify and include non-waterfowl priority species in its conservation planning. The 16 non-waterfowl priority species include three shorebird, three waterbird and 10 landbird species. These species were selected by the EHJV Science Team using a suite of criteria that included population status, management concern and potential to act as an umbrella species for EHJV priority habitats. Population objectives for these species are based on data from numerous monitoring programs, expert advice and existing conservation strategies.

This Plan focuses on four priority habitat types which are essential breeding, staging, molting, foraging and non-breeding habitats for EHJV priority species. Overall, this Plan's habitat objective is to restore or retain a total of 1.3 million hectares (3.2 million acres) of wetland and upland habitats, the majority of which will be accomplished through habitat management and short-term retention initiatives and programs.

To help meet the habitat and population objectives within this Plan, efforts to evaluate and incorporate social information into decision making by partners are underway. These efforts also include refining human dimension activities and the implementation of partner-specific EHJV strategies. These efforts will be facilitated through the adoption of a One Health approach. One Health is a collaborative, multisectoral and transdisciplinary approach aiming to achieve optimal health outcomes through a recognition of the interconnection between people, animals, plants and their shared environment (Mackenzie and Jeggo, 2019).

Finally, this Plan identifies the continued need to collect foundational information on habitats and populations to develop frameworks to prioritize landscapes of importance for waterfowl, other priority bird species and people. It proposes building on existing EHJV landscape prioritization models to develop a broad-scale spatial tool for decision support within the EHJV. It recommends the development of various data products, including priority waterfowl, waterbird, shorebird and landbird species distribution and abundance models and One Health and risk assessment models, to feed into a future landscape prioritization framework.

The Drummondville Restoration Project in Québec involved rebuilding a dyke and water-control structure on 17.8-hectares (44 acres) of critically important wetland habitat owned and managed by the City of Drummondville/Ducks Unlimited Canada

INTRODUCTION: THE EASTERN HABITAT JOINT VENTURE

The EHJV is a partnership of the federal government, provincial governments, and non-governmental organizations that work collaboratively with local/municipal governments, other non-governmental organizations, industry, academia and landowners to coordinate and deliver effective bird habitat conservation in eastern Canada (see Appendix 1 for EHJV organizational structure). Non-governmental partners include Birds Canada, Ducks Unlimited Canada (DUC), The Nature Conservancy of Canada (NCC) and Wildlife Habitat Canada (WHC). The EHJV is an agreement ratified by Canada's six most easterly provinces—Ontario, Québec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador (Figure 1)—and portions of 10 North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs; Figure 2). At over 300 million hectares (741 million acres), or three million square kilometers (1.2 million square miles), the EHJV is the largest of the NAWMP's 21 Habitat Joint Ventures by geographic area. Within this area, the EHJV:

- supports the largest proportion of Canada's human population (68% of Canadians, most of which are concentrated in southern Ontario and Québec and in urban centres in the Maritime provinces, while northern areas within the EHJV are sparsely populated; Statistics Canada, 2021)
- varies in elevation from zero to 1,652 meters (5,420 feet) above sea level, with three mountain ranges
- holds 39% of Canada's wetlands
- encompasses 35% of Canada's eastern boreal forest, as well as the Carolinian forest in Ontario and Acadian forest in the Maritimes
- contains native tall grass prairie, tundra, urban and agricultural areas

…the EHJV is the largest of the NAWMP's 21 Habitat Joint Ventures by geographic area.

The extensive and varied landscapes across these ecologically distinct regions contain critical breeding, migration and non-breeding habitats for hundreds of Canada's bird species, with considerable potential for contributing to biodiversity goals nationally and globally.

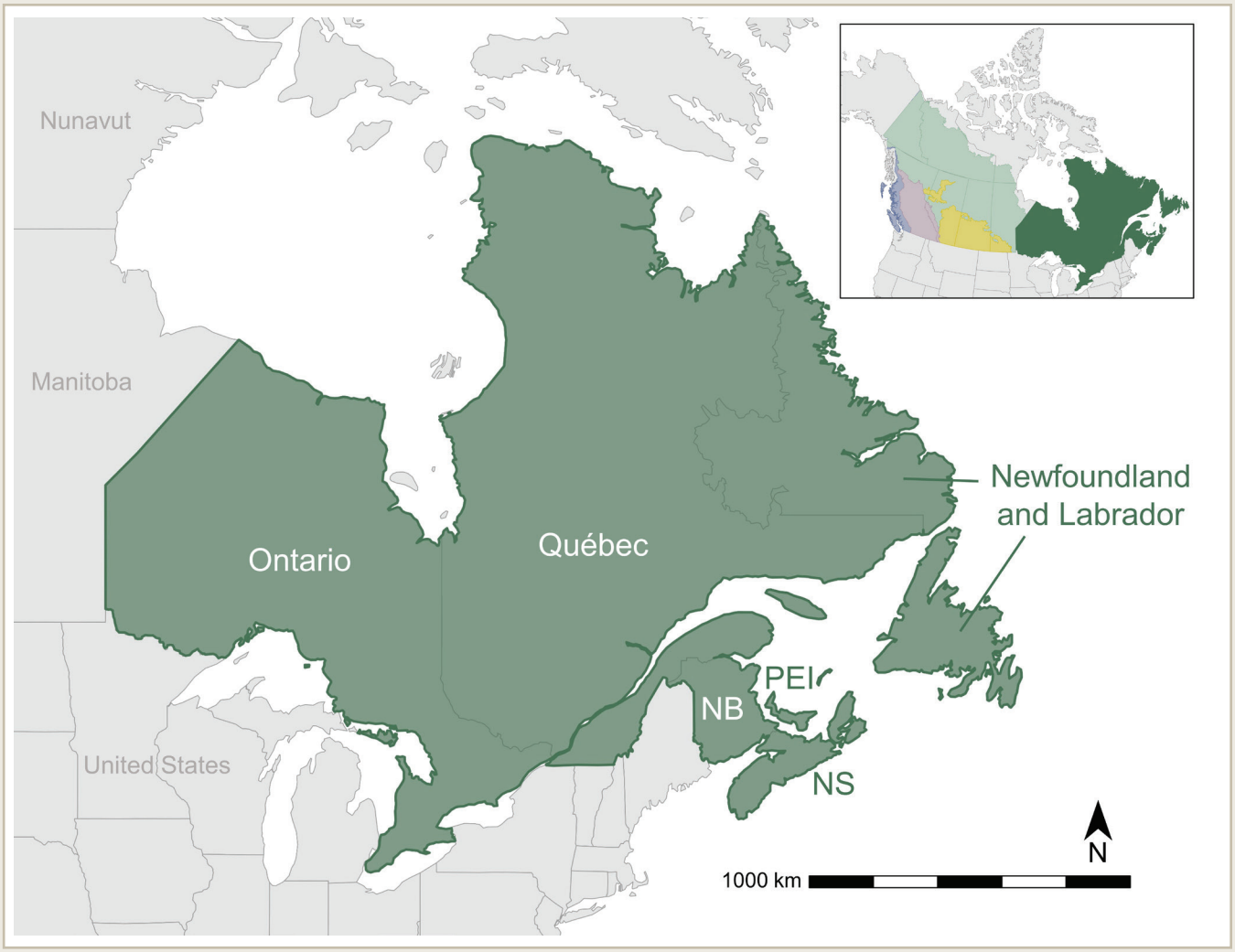


Figure 1. Map of region covered by the EHJV

Dark green = EHJV

New Brunswick (NB), Nova Scotia (NS), Prince Edward Island (PEI)

Map Inset: EHJV location relative to other Canadian Habitat Joint Ventures:

Blue = Pacific Birds Habitat Joint Venture

Purple = Canadian Intermountain Joint Venture

Yellow = Prairie Habitat Joint Venture Prairie Parkland

Light green = Prairie Habitat Joint Venture Western Boreal Forest

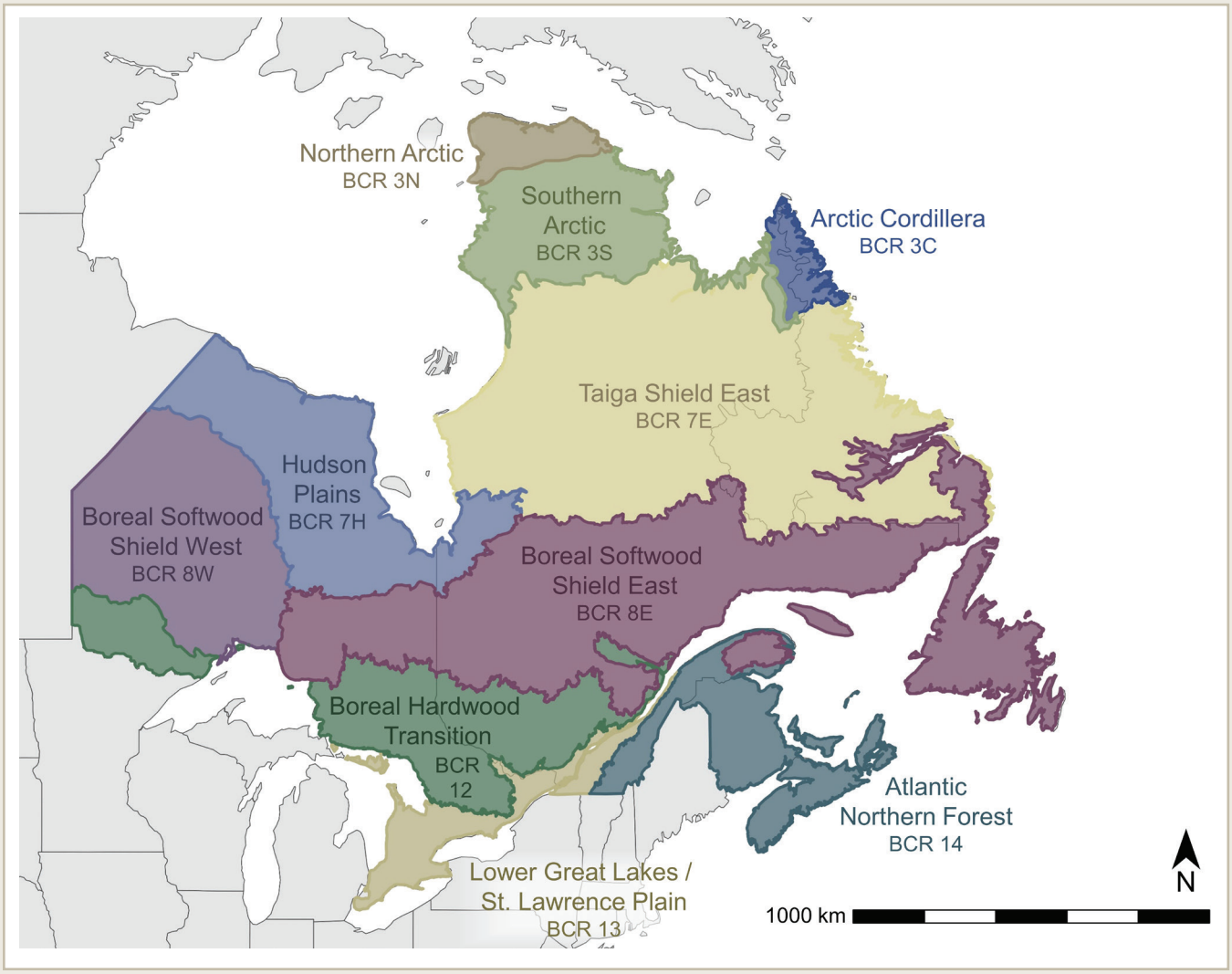


Figure 2. Bird conservation regions (BCR) within the EHJV

Maps shows draft BCR boundaries, which may be subject to change.

ACCOMPLISHMENTS

Since 1989, EHJV partners have secured, restored, managed and supported stewardship on over 32 million hectares (80 million acres) of wetland and associated upland habitat (i.e., lands adjacent to or surrounding wetland projects), with an investment of over $623 million dollars (CAD; Table 1).

Table 1. EHJV partner conservation accomplishments (1989-2020)

Initiative	Expenditures (CAD)	Hectares	Acres
Habitat retention	**$346,126,491**	**32,422,513**	**80,116,029**
Permanent	$266,793,613	456,851	1,128,879
Medium-term (10-99yrs)	$6,423,725	393,487	972,306
Short-term (<10yrs)	$72,909,153	31,572,175	78,014,844
Habitat restoration	**$105,212,661**	**278,280**	**687,630**
Wetland	$94,433,399	165,129	408,034
Upland	$10,779,262	113,151	279,596
Management (habitat assets)[a]	**$68,034,696**	**507,459**	**1,253,931**
Land & water policy	**$12,000,203**	**–**	**–**
Conservation planning	**$53,342,727**	**–**	**–**
Science/evaluation	**$22,088,842**	**–**	**–**
Communication, education, outreach	**$16,515,168**	**–**	**–**
TOTAL[b]	**$623,320,788**	**–**	**–**

a Management values as of March 31, 2020
b Habitat hectares and acres retained, restored and managed are not additive; hectares are first secured, may then be enhanced, and are subsequently placed under management

Between 2015 and 2020, over $130 million dollars (CAD) were invested in EHJV activities. This resulted in the securement and restoration of over 5.6 million hectares (13.9 million acres) of wetland and associated upland habitat (Table 2).

Table 2. EHJV partner conservation accomplishments (2015-2020)

Initiative	Expenditures (CAD)	Hectares	Acres
Habitat retention	**$70,811,752**	**5,658,494**	**13,982,138**
Permanent	$57,621,274	22,956	56,725
Medium-term (10-99yrs)	$3,774,456	23,235	57,413
Short-term (<10yrs)	$9,416,022	5,612,303	13,868,000
Habitat restoration	**$33,885,427**	**34,876**	**86,179**
Wetland	$30,914,114	19,932	49,253
Upland	$2,971,313	14,944	36,926
Management (habitat assets)[a]	**$14,571,793**	**509,466**	**1,258,890**
Land & water policy	**$1,628,720**	**–**	**–**
Conservation planning	**$5,209,570**	**–**	**–**
Science/evaluation	**$3,128,398**	**–**	**–**
Communication, education, outreach	**$830,969**	**–**	**–**
TOTAL[b]	**$130,066,629**	**–**	**–**

a Management values as of March 31, 2020
b Habitat hectares and acres retained, restored and managed are not additive; hectares are first secured, may then be enhanced, and are subsequently placed under management

RELATIONSHIP TO CONSERVATION PLANS

The primary aim of the EHJV is to contribute to the conservation of important habitat to achieve bird population objectives. These objectives will be implemented across the EHJV as set by conservation plans developed by various entities working towards bird and habitat conservation. Bird conservation plans developed through the NAWMP, NABCI, the Black Duck Joint Venture (Black Duck Joint Venture Management Board, 2015) and the Sea Duck Joint Venture (e.g., Sea Duck Joint Venture, 2015, 2022), along with the Partners in Flight Continental Land Bird Plan (Rosenberg et al., 2016), the Canadian Waterbird Conservation Plan (Milko et al., 2003) and the Canadian Shorebird Conservation Plan (Donaldson et al., 2000) serve as valuable roadmaps for achieving conservation successes for various species groups. Bird conservation plans are an important part of this Plan, as they provide a fundamental context for the EHJV's continental role in, and connection to, bird and habitat conservation. Other plans that have influenced this Plan include the Environment and Climate Change Canada (ECCC) BCR Strategies, *Species at Risk Act* (SARA) recovery strategies, DUC's International Conservation Plan, NCC's Natural Area Conservation Plan and EHJV Habitat Conservation Strategies. The Government of Québec also has a legal framework for the protection of threatened or vulnerable species, namely the *Act Respecting Threatened or Vulnerable Species* (Chapter E-12.01).

Short-eared Owl/Ducks Unlimited Canada

STATUS OF PRIORITY SPECIES POPULATIONS AND HABITATS

Virginia Rail/Ducks Unlimited Canada

PRIORITY SPECIES SELECTION

A total of 246 priority species have been identified in the BCR strategies for the area encompassed by the EHJV (BCR Priority Species) including 132 landbirds, 54 shorebirds, 28 waterbirds and 32 waterfowl species.

The EHJV has updated its list of priority waterfowl species and has created a list of priority non-waterfowl species for this Plan based on available science and advice from the EHJV Science Team. Priority species were selected using a suite of criteria, which included:

- geographical representation throughout most of the EHJV
- management and/or conservation concern
- population status
- linkages between population status and habitat quality/quantity
- whether the species is habitat limited
- potential to act as an umbrella species
- opportunities for synergies with existing programs
- species requiring a leadership role by the EHJV

Priority Waterfowl Species

Based on these criteria, the EHJV identified six priority waterfowl species for this Plan: American Black Duck (hereafter Black Duck), Mallard, Wood Duck, Common Goldeneye, Barrow's Goldeneye and American race Common Eider (hereafter Common Eider). Species were selected based on considerations outlined in Table 3. Removal of species previously on the EHJV priority list does not reflect a change in the importance of that species, but rather a shift in the approach of this Plan towards focusing on waterfowl that provide a measurable indicator of the delivery of habitat conservation actions, while also providing co-benefits for other wildlife (as determined by the above criteria).

Table 3. Priority waterfowl species for the EHJV Implementation Plan 2021-2030, including criteria used for species selections

Habitat classification	Species	Scientific Name	Population trend[a]	Designations	Other selection considerations
Wetland	Black Duck	*Anas rubripes*	No trend	• BCR Strategy: Priority Species • NAWMP: Priority species • Species of management concern for Black Duck Joint Venture • State of North America's Birds: Watch List[b]	• EHJV supports 95% of continental Black Duck population
	Mallard	*Anas platyrhynchos*	Long-term increase	• BCR Strategy: Priority Species • NAWMP: Priority species	
	Wood Duck	*Aix sponsa*	Increasing	• BCR Strategy: Priority Species • NAWMP: Priority species (eastern population)	• Cavity nester with long-standing nest box program by EHJV partners • Monitored by SOWPS and SLLS
	Common Goldeneye	*Bucephala clangula*	No trend	• BCR Strategy: Priority Species	• Monitored by winter staging surveys, winter Canada Goose and Barrow's Goldeneye surveys and the ESA • Common and Barrow's Goldeneye not differentiated in some population surveys and will respond to same habitat conservation actions
	Barrow's Goldeneye	*Bucephala islandica*	Recent increase	• BCR Strategy: Priority Species • SARA: Special Concern[c] • Sea Duck Joint Venture: high priority species[d]	• EHJV supports >90% of eastern Barrow's Goldeneye non-breeding population • Monitored by winter staging surveys, winter Canada Goose and Barrow's Goldeneye surveys and the ESA • Common and Barrow's Goldeneye not differentiated in some population surveys and will respond to same habitat conservation actions
Coastal/ Ocean	Common Eider (American)	*Somateria mollissima dresseri*	Mixed	• BCR Strategy: Priority Species • IUCN: Near Threatened[e] • Sea Duck Joint Venture: high priority species[d]	• EHJV supports 84% of American Common Eider population • Species especially vulnerable during July to August moult

a See below for population trend details
b State of North America's Birds 2016 (https://www.stateofthebirds.org/2016/resources/species-assessments/)
c *Species at Risk Act* (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html)
d Sea Duck Joint Venture, 2022 (https://seaduckjv.org/wp-content/uploads/2022/06/SDJV-Strategic-Plan-2022-2031-FINAL.pdf)
e IUCN. 2018. The IUCN Red List of Threatened Species. Version 2018-2. (www.iucnredlist.org)

BCR: Bird Conservation Region, EHJV: Eastern Habitat Joint Venture, ESA: Waterfowl Breeding Population and Habitat Survey Eastern Survey Area (see below for details), IUCN: International Union for Conservation of Nature, NAWMP: North American Waterfowl Management Plan, SARA: *Species at Risk Act*, SOWPS: Southern Ontario Waterfowl Plot Survey, SLLS: St. Lawrence Lowlands Breeding Waterfowl Survey

Bank Swallow/Ducks Unlimited Canada

Priority Waterbirds, Shorebirds and Landbirds

With an overall loss of almost 3 billion birds in North America since 1970 (Rosenberg et al., 2019), there is urgent need to address threats to avian species. While previous EHJV Implementation Plans prioritized waterfowl conservation, Canada's wetlands and associated upland habitats also host a diversity of non-waterfowl bird species. Indeed, eastern Canada contains a variety of habitats that are important breeding, wintering and stopover habitats for waterbirds, shorebirds and landbirds. In 2000, Canadian Habitat Joint Ventures were directed to expand their mandate to consider bird species beyond waterfowl. The EHJV is committed to leading the implementation of all-bird conservation actions.

This is the first EHJV Implementation Plan to identify and include priority non-waterfowl species in its conservation planning and as representatives of priority EHJV habitat types. Using the criteria listed above, the EHJV identified 16 priority non-waterfowl species, including three waterbird, three shorebird and 10 landbird species (Table 4).

Species were identified as priorities because they are of conservation concern and/or have the potential to act as umbrella species for EHJV priority habitats (Table 4). The Boreal Chickadee, for example, is an iconic resident species of northern boreal forests showing large declines. Improving forest habitat and monitoring the effect of habitat amelioration on Boreal Chickadee populations in the EHJV should provide information about the likely effects of such conservation or restoration measures on other boreal forest birds that depend on similar habitat.

Table 4. Priority waterbird, shorebird and landbird species for the EHJV Implementation Plan 2021-2030, including criteria used for species selections

Habitat Classification		Species	Scientific Name	Priority Species Group	Population Trend[a]	Main Designations[b]	Other Selection Considerations
Wetland	Emergent marsh	Virginia Rail	*Rallus limicola*	Waterbird	Stable to declining	• IUCN: Least Concern • BCR Strategy: Priority Species • Wings Over Water: Priority Tier 2 • Wild Species: Secure	Gamebird species
		Black Tern	*Chlidonias niger*	Waterbird	Declining	• COSEWIC: Not at risk • IUCN: Least Concern • PIF common birds in steep decline • BCR Strategy: Priority Species • Wings Over Water: Priority Tier 1 • Wild Species: Secure • ON: Special Concern	
	Coastal	Nelson's Sparrow	*Ammospiza nelsoni*	Landbird	Declining	• COSEWIC: Not at risk • IUCN: Least Concern • Wild Species: Secure • State of North America's Birds: Watch List • BCR Strategy: Priority Species • QC: Likely to be designated	
		Red Knot (*rufa*)	*Calidris canutus rufa*	Shorebird	Declining	• COSEWIC, SARA: Endangered • PIF Watch list: yellow D • Wild Species: Imperiled • BCR Strategy: Priority Species • ON, NB, NS, NL: Endangered • QC: Threatened • Canadian Shorebird Plan: Species of High Concern • Atlantic Flyway Shorebird Initiative: Important Species	Possible WHSRN overlap
		Semipalmated Sandpiper	*Calidris pusilla*	Shorebird	Declining	• IUCN: Near Threatened • Wild Species: Apparently Secure • State of North America's Birds: Watch List • BCR Strategy: Priority Species • Canadian Shorebird Plan: Species of Moderate Concern • Atlantic Flyway Shorebird Initiative: Important Species	Possible WHSRN overlap
		Common Tern	*Sterna hirundo*	Waterbird	Stable to declining	• COSEWIC: Not at risk • IUCN: Least Concern • Wild Species: Secure • BCR Strategy: Priority Species	
	Peatland	Lincoln's Sparrow	*Melospiza lincolnii*	Landbird	Declining	• IUCN: Least Concern • Wild Species: Secure • BCR Strategy: Priority Species	

Table 4. *Continued*

Habitat Classification		Species	Scientific Name	Priority Species Group	Population Trend[a]	Main Designations[b]	Other Selection Considerations
Forest	Treed swamp	American Woodcock	*Scolopax minor*	Shorebird	Declining	• IUCN: Least Concern • PIF Watch List: yellow D • Wild Species: Secure • State of North America's Birds: Watch List • BCR Strategy: Priority Species	Gamebird species
		Olive-sided Flycatcher	*Contopus cooperi*	Landbird	Declining	• COSEWIC: Special Concern • SARA: Threatened • IUCN: Near Threatened • PIF Watch List: yellow D • Wild Species: Apparently Secure • State of North America's Birds: Watch List • BCR Strategy: Priority Species • ON: Special Concern • QC, NL: Vulnerable • NB: Endangered • NS: Threatened	Aerial insectivore
	Deciduous	American Goshawk	*Accipiter atricapillus*	Landbird	Declining	• COSEWIC: Not at risk • IUCN: Least Concern • Wild Species: Secure • BCR Strategy: Priority Species	
		Scarlet Tanager	*Piranga olivacea*	Landbird	Stable to declining	• IUCN: Least Concern • Wild Species: Secure	
	Coniferous	Boreal Chickadee	*Poecile hudsonicus*	Landbird	Declining	• IUCN: Least Concern • Wild Species: Secure • BCR Strategy: Priority Species	
Riparian		Rusty Blackbird	*Euphagus carolinus*	Landbird	Declining	• COSEWIC, SARA: Special Concern • IUCN: Vulnerable • PIF common birds in steep decline • BCR Strategy: Priority Species • ON, NB: Special Concern • NS: Endangered • NL: Vulnerable • QC: Likely to be designated	
		Bank Swallow	*Riparia riparia*	Landbird	Declining	• COSEWIC, SARA: Threatened • IUCN: Least Concern • PIF common birds in steep decline • Wild Species: Apparently Secure • BCR Strategy: Priority Species • ON: Threatened • NB, NS: Endangered	Aerial insectivore

Table 4. *Continued*

Habitat Classification		Species	Scientific Name	Priority Species Group	Population Trend[a]	Main Designations[b]	Other Selection Considerations
Herbaceous	Grassland	Short-eared Owl	*Asio flammeus*	Landbird	Declining	• COSEWIC, SARA: Special Concern • IUCN: Least Concern • PIF common birds in steep decline • Wild Species: Vulnerable • BCR Strategy: Priority Species • ON, NL: Threatened • NB: Special Concern • QC: Likely to be designated	
	Agro-ecosystem	Bobolink	*Dolichonyx oryzivorus*	Landbird	Declining	• COSEWIC, SARA: Threatened • IUCN: Least Concern • PIF Watch List: yellow D • Wild Species: Vulnerable • State of North America's Birds: Watch List • ON, NB: Threatened • QC, NS, NL: Vulnerable	

Acronyms: BCR: Bird Conservation Region, COSEWIC: Committee on the Status of Endangered Wildlife in Canada, IUCN: International Union for Conservation of Nature, NB: New Brunswick, NL: Newfoundland and Labrador, NS: Nova Scotia, ON: Ontario, PIF: Partners in Flight, QC: Québec, SARA: *Species at Risk Act*, WHSRN: Western Hemispheric Shorebird Reserve Network

a A variety of metrics and time periods were used to derive population trends. See designation data and below for additional population trend details.

b Main designation data from Government of Canada Species accounts (https://wildlife-species.canada.ca/bird-status/sel-sel-eng.aspx?sY=2019&sL=e), with additional information from:

- Atlantic Flyway Shorebird Initiative (https://atlanticflywayshorebirds.org/#x-section-8)
- BCR Strategy: Bird Conservation Regions and Strategies. 2017. Environment and Climate Change Canada. (https://www.canada.ca/en/environment-climate-change/services/migratory-bird-conservation/regions-strategies.html)
- IUCN. 2018. The IUCN Red List of Threatened Species. Version 2018-2. (www.iucnredlist.org)
- Canadian Shorebird Conservation Plan: Donaldson et al., 2000 (https://publications.gc.ca/collections/collection_2011/ec/CW69-15-5-2000-eng.pdf)
- COSEWIC (https://cosewic.ca/index.php/en/)
- New Brunswick Species at Risk Public Registry (https://www1.gnb.ca/0078/SpeciesAtRisk/results-e.asp)
- Newfoundland and Labrador Species at Risk (https://www.gov.nl.ca/ffa/wildlife/endangeredspecies/birds/#bobo)
- Nova Scotia Species at Risk Recovery Update (https://novascotia.ca/natr/wildlife/species-at-risk/)
- PIF Watchlist (https://partnersinflight.org/resources/pif-watch-list-table-2016/)
- PIF common species in steep decline (https://partnersinflight.org/conservation_concern/common-steep-decline/)
- *Québec Act Respecting Threatened or Vulnerable Species* (CQLR c E-12.01) (https://www.legisquebec.gouv.qc.ca/en/document/cs/E-12.01%20/)
- *Species at Risk Act* (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html)
- Species at Risk in Ontario List (https://www.ontario.ca/laws/regulation/080230)
- State of North America's Birds 2016 (https://www.stateofthebirds.org/2016/resources/species-assessments/)
- Wild Species (https://www.wildspecies.ca/)
- Wings Over Water: Milko et al., 2003 (http://nabci.net/wp-content/uploads/WOW-2003.pdf)

PRIORITY SPECIES MONITORING AND POPULATION TRENDS

Priority Waterfowl Species

Populations of priority waterfowl species in the EHJV are typically estimated annually as part of several long-term monitoring programs. Across the EHJV, priority waterfowl populations are monitored by broad-scale surveys (Figure 3), including:

- The Waterfowl Breeding Population and Habitat Survey (WBPHS) Traditional Survey Area (TSA): Consists of a fixed-wing aerial transect survey conducted annually since 1955 across northwestern Ontario in the EHJV.
- The WBPHS – Eastern Survey Area (ESA): Consists of a helicopter plot survey (Eastern Waterfowl Survey) and a fixed-wing transect survey conducted annually since 1990 from eastern Ontario to the Atlantic provinces.
- The Southern Ontario Waterfowl Plot Survey (SOWPS): A primarily ground-based survey initiated in 1971, with some remote locations surveyed by helicopter.
- The St. Lawrence Lowlands Breeding Waterfowl Survey (SLLS) in Québec: A helicopter-based survey initiated in 2004.
- Waterfowl Survey of Northern Québec (WNOR): Conducted annually since 1993, which in addition to Canada Goose, also counts Black Duck.
- Multiple smaller scale waterfowl surveys, often led by provincial governments, provide additional species-specific and regional information.

These surveys provide foundational data for managing waterfowl populations by informing hunting and overabundant species regulations as well as providing quantifiable benchmarks for EHJV partners to help measure progress towards habitat delivery objectives. Given the importance of these data to EHJV partners, this Plan identifies the need for continuing support of waterfowl surveys in the future and for recognizing that changing priorities, resources and costs requires careful consideration. Close collaboration among Canadian and U.S. partners will be required to optimize the coordination of waterfowl surveys and subsequent data analyses to ensure the continuation of waterfowl monitoring and the use of monitoring data to inform waterfowl management and habitat conservation.

Mallard flock/Ducks Unlimited Canada

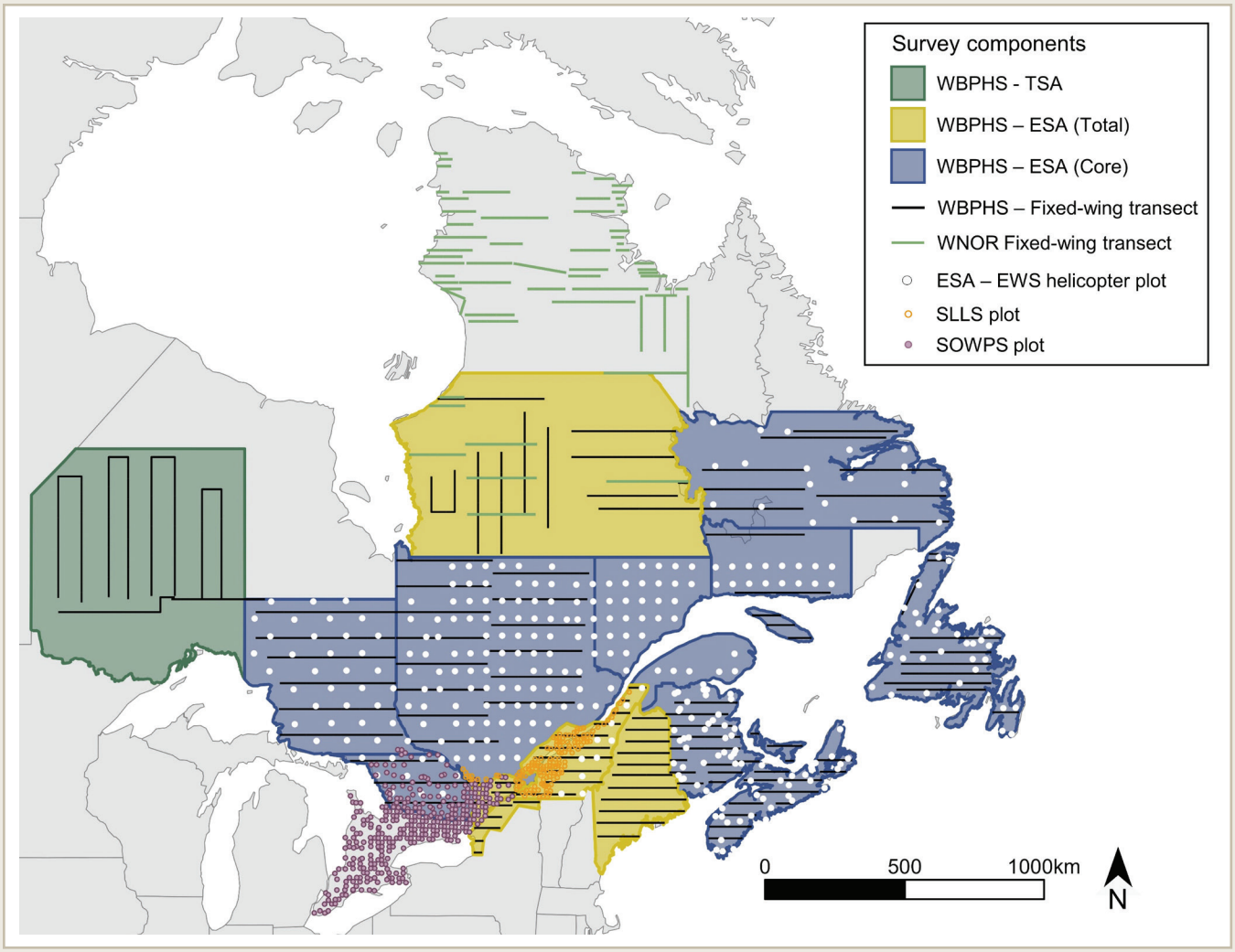


Figure 3. Broad-scale surveys to monitor EHJV priority waterfowl species

ESA = Eastern Survey Area, EWS = Eastern Waterfowl Survey, SLLS = St. Lawrence Lowlands Breeding Waterfowl Survey, SOWPS = Southern Ontario Waterfowl Plot Survey, TSA = Traditional Survey Area, WBPHS = Waterfowl Breeding Population and Habitat Survey, WNOR = Waterfowl Survey of Northern Québec.

Waterfowl population numbers and trends are reported biennially in the *Population Status of Migratory Game Birds in Canada* (see Canadian Wildlife Service [CWS] Waterfowl Committee 2023). Overall, waterfowl populations in the EHJV have been relatively stable compared to long-term averages; however, there have been species and regionally specific deviations.

In 2023, Black Duck and Mallard were the most common EHJV priority waterfowl species in the core area of the ESA, at over 540,000 individuals each, followed by Common Goldeneye, at approximately 285,000 individuals. Generally, Mallard are concentrated in the western EHJV, particularly in Ontario, and have been steadily increasing in abundance and expanding their range, including into Atlantic Canada. Mallard have shown long-term increases in the ESA Core Area and in the SOWPS but have shown no statistically significant trends over the past five years in either survey. Neither Black Duck nor Common Goldeneye showed significant short- or long-term trends in the ESA Core Area.

Wood Duck are generally showing long-term increases in abundance across eastern Canada, which is likely due to increased cavity and nest site availability as a result of nest box programs, beneficial forestry practices, increased primary cavity excavators and beaver pond availability. The SOWPS indicates that the southern Ontario Wood Duck population was 40,400 breeding pairs in 2023. It also indicates that these southern populations significantly increased since 1971 but showed no trend over the past five years.

Eastern population Barrow's Goldeneye breed primarily in Québec, with more than 90% wintering in the St. Lawrence Estuary and the western portion of the Gulf of St. Lawrence. According to the Barrow's Goldeneye Winter Survey, there were an estimated 8,400 Barrow's Goldeneye in 2020, which represents an 8% increase since 2017 when the survey was last conducted.

In the EHJV, Common Eider have been monitored by a variety of surveys. During the last three decades, colonies have increased in size in Québec and Labrador, while they have decreased in New Brunswick and Nova Scotia (Noel et al., 2021). In 2022 there were an estimated 13,100 Common Eider nests in the Gulf of St. Lawrence Migratory Bird Sanctuaries, Québec, and in 2023, there were an estimated 12,400 nests in the four largest breeding colonies in the St. Lawrence Estuary, Québec.

Several factors limit the growth of waterfowl populations in the EHJV. There is evidence that in highly settled landscapes waterfowl populations, particularly Black Duck and Mallard, are limited by the availability of small ponds that facilitate pair settling and duckling survival (Hoekman et al., 2004, 2006). In addition, nest success, duckling survival and breeding hen survival likely limit Common Eider populations (Noel et al., 2021), while cavity availability is limiting for cavity-nesting species, like Wood Duck and Common and Barrow's Goldeneye (Eadie et al., 2020a, 2020b; Hepp and Belrose, 2020). Although there are a variety of other limiting factors for ducks (e.g., adult survival, hen productivity, interspecific competition), the above factors are assumed to be the most important for waterfowl populations in the EHJV. These assumptions are likely to remain relevant, but there is a need to improve the understanding of how conservation actions mitigate these limiting factors.

Priority Waterbirds, Shorebirds and Landbirds

The current EHJV understanding of non-waterfowl species populations stems from several research and monitoring initiatives at varying regional and taxonomic scales. These include large-scale avian monitoring programs, like the North American Breeding Bird Survey, the Christmas Bird Count, Breeding Bird Atlases and eBird, which provide continental- and regional-level estimates of bird species numbers, seasonal distributions and population trends. There are also surveys for non-waterfowl species that focus on specific bird groups and/or habitats, like the American Woodcock Singing Ground Survey and the Marsh Monitoring Program.

…between 1970 and 2016, Canada lost an estimated 40-60% of shorebird, grassland bird and aerial insectivore populations (NABCI Canada, 2019).

In contrast to the continental-level increase in waterfowl populations, many other major bird groups have declined in North America and globally since the 1970s (Rosenberg et al., 2019). Indeed, between 1970 and 2016, Canada lost an estimated 40-60% of shorebird, grassland bird and aerial insectivore populations (NABCI Canada, 2019). There is therefore an urgent need to target declining non-waterfowl species for conservation and management actions within the EHJV.

EHJV priority non-waterfowl species trends are shown in Table 4. Given the diversity of the EHJV's priority waterbird, shorebird and landbird species, as well as this JV's large spatial coverage, factors limiting these species' populations are varied. Many migratory birds that breed in eastern Canada spend a substantial proportion of each year outside of the EHJV landscape in regions such as the southern United States, the Caribbean and Central and South America. Threats in these areas are major contributors to bird declines (see below for a summary of major threats). Therefore, it is imperative that the EHJV, as well as governing bodies and conservation initiatives elsewhere, maintain open communication to influence conservation actions that support local efforts.

PRIORITY HABITATS

At over 300 million hectares (741 million acres), the EHJV is the largest Habitat Joint Venture by geographic area. It contains a wide range of landcover types (Figure 4; Table 5) that hundreds of bird species depend on throughout or at various stages of their life cycles. For this Plan, EHJV partners and experts identified four priority habitat types, which are essential breeding, staging, molting, foraging and/or non-breeding habitats for EHJV priority species. To provide the highest benefit to priority species, conservation, management and policy activities, the EHJV partners will focus on:

1. Wetlands
2. Riparian areas
3. Herbaceous habitats (grasslands, agro-ecosystems)
4. Forests (coniferous, broadleaf, mixed wood)

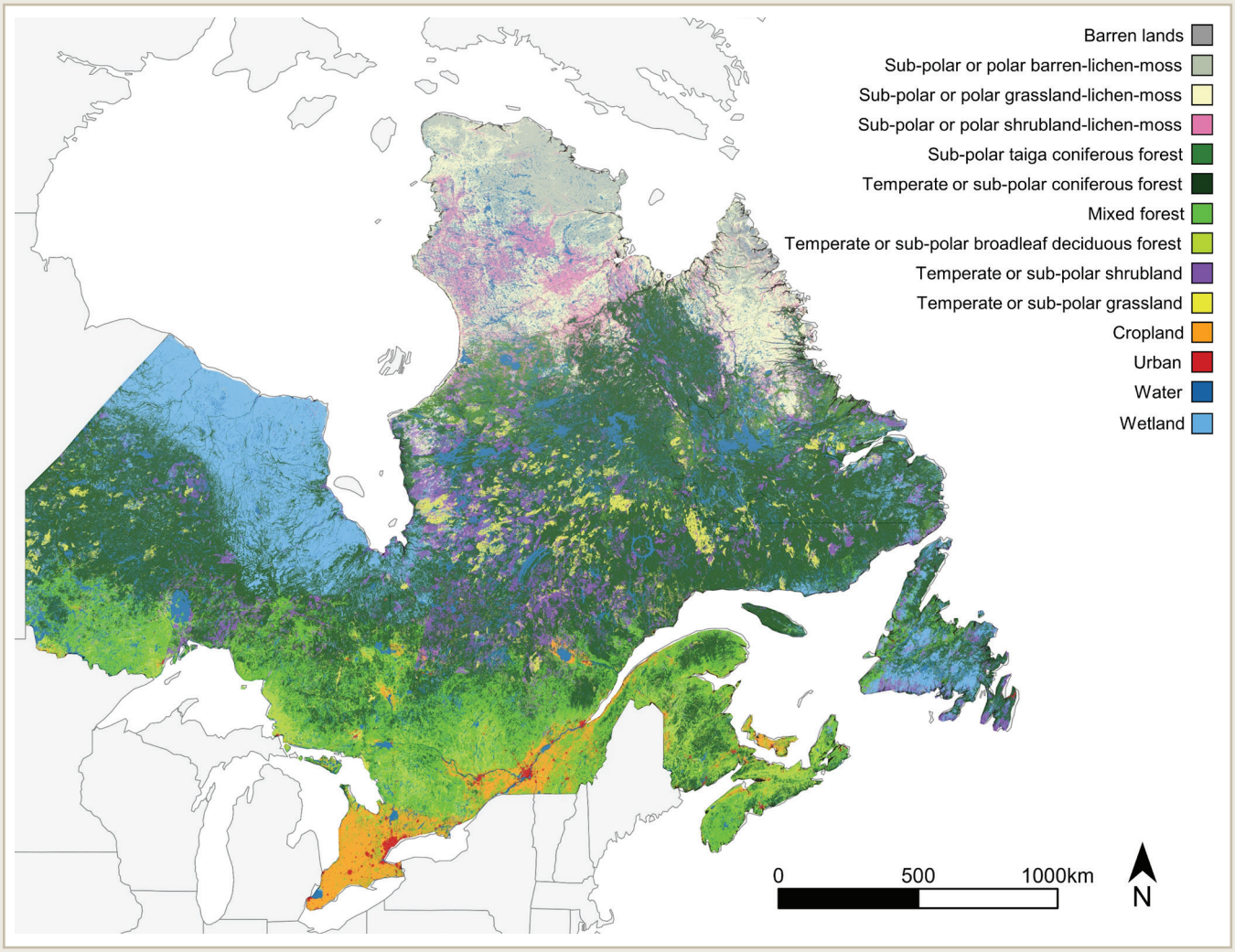


Figure 4. EHJV land cover types

Land cover map was generated using 30-meter (98 foot) resolution 2020 Landsat land cover data (Commission for Environmental Cooperation [CEC], 2023) aggregated to 450 meters (1,480 feet) using land cover mode. Landsat data presented in Figure 6 are for illustrative purposes only. Finer-scale provincial land cover data are used operationally and for performance measures.

Table 5. Percentage of EHJV covered by each land cover class

Land Cover Class	Percentage of Cover
Barren lands	0.33
Cropland	2.9
Mixed forest	12
Snow and ice*	0.0022
Sub-polar or polar barren-lichen-moss	2.5
Sub-polar or polar grassland-lichen-moss	5.6
Sub-polar or polar shrubland-lichen-moss	2.7
Sub-polar taiga coniferous forest	2.4
Temperate or sub-polar broadleaf deciduous forest	3.6
Temperate or sub-polar coniferous forest	38
Temperate or sub-polar grassland	2.9
Temperate or sub-polar shrubland	4.6
Urban	0.47
Water	12
Wetland	10

Table was generated using 30-meter (98 foot) resolution 2020 Landsat land cover data (CEC, 2023) aggregated to 450 meters (1,480 feet) using land cover mode. Landsat data in Table 5 are for illustrative purposes only. Finer-scale provincial land cover data are used operationally and for performance measures.

* Snow and ice land cover class not shown on Figure 4.

Historical wetland loss within EHJV boundaries has been significant—up to 90% in some areas (DUC, 2010).

Wetlands

Ten per cent of the EHJV is covered by wetlands (Table 5), and wetlands within the EHJV make up 39% (more than 48 million hectares – 1,200 million acres) of Canada's freshwater and tidal wetlands. One of the largest expanses of wetlands in the world is found in the Hudson Plains ecoregion, which extends across parts of northern Ontario, Québec and into Newfoundland and Labrador. This ecoregion supports a vast network of bogs, fens, freshwater and coastal marshes, and extensive tidal flats. Boreal forests within the EHJV also support numerous, diverse wetlands (most commonly peatlands) and areas surrounding the Great Lakes hold productive coastal wetlands.

Wetlands provide necessary habitat and food during breeding, non-breeding and migration for waterfowl and other wetland-dependent species. Wetlands also provide important ecosystem services to people, by filtering water and protecting communities from flooding and they also support climate change mitigation and adaptation through carbon sequestration.

Historical wetland loss within EHJV boundaries has been significant—up to 90% in some areas (DUC, 2010). European settlement began in the 1600s and by the 1900s had resulted in substantial coastal (marine and riverine) and freshwater wetland loss, particularly in heavily populated regions (Canadian Wetlands Roundtable, 2019). An estimated 65% of coastal salt marshes in Atlantic Canada (Environment Canada, 1991); between 40 and 80% of wetlands in the St. Lawrence Plains, and upwards of 85% of wetlands in the Montreal region (Pellerin and Poulin, 2013); and 72% of wetlands in southern Ontario (DUC, 2010) have been lost to human activities, like agriculture, urban development, water level management, industrial expansion, mining and draining for forestry and peat harvesting (Environment Canada, 1991; Mitsch and Hernandez, 2013; Pellerin and Poulin, 2013).

Riparian Areas

Riparian habitats are characterized as the transition zone adjacent to standing or flowing water where vegetation is influenced by the presence of water and is distinct from vegetation in adjacent uplands. Depending on their location, riparian zones can be treed, shrubby or herbaceous river valleys or upland tundra areas that drain into standing water. Riparian areas provide many ecosystem services such as improved water quality, flood attenuation, erosion control and carbon sequestration. They also provide shelter, breeding and foraging areas for many bird species and other wildlife. More than 45,000 kilometres (27,962 miles) of stream banks and associated wetland habitat have been altered in EHJV watersheds (EHJV, 2017). Riparian areas are threatened by numerous factors including grazing, forestry, land-use change, invasive species, water diversion, shoreline hardening and development and climate change.

Herbaceous Habitats

Herbaceous habitats include natural grasslands and agro-ecosystems. Natural grasslands are habitats that consist predominately of grasses, forbs (herbaceous vegetation) and sedges. Natural grasslands are rare in the EHJV, although prairie and savannah habitats still occur in parts of Ontario, where up to 97% of the original prairie and savannah habitats

have been lost (Rodger, 1998). Remaining temperate herbaceous habitats in the EHJV are agro-ecosystems which are natural pasture lands or agricultural lands composed of vegetation that support food production systems (i.e., crops). These habitats account for large portions of the Great Lakes/St. Lawrence Plain (BCR 13) and Atlantic Northern Forest (BCR 14) BCRs. Prior to European settlement, natural grasslands were maintained by fire, either through lightning strikes on dry vegetation or through fires that were intentionally set by Indigenous Peoples. Today, controlled burns are used to maintain natural grassland habitats, and agricultural grasslands are maintained by haying and livestock grazing.

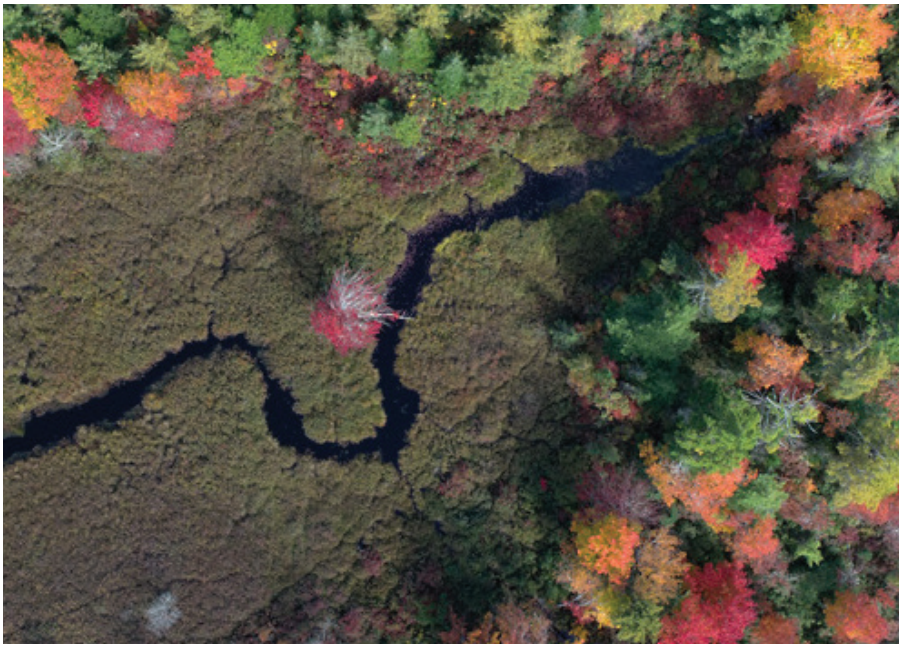
...grassland birds have experienced significant declines, with a 57% reduction in their numbers in Canada since 1970...

Natural grassland habitats are ecologically important as they support an immense diversity of plants and animals. They also protect soil resources from wind and water erosion, filter out toxins before they can reach groundwater, sequester carbon and provide a source of biofuels. Natural grassland habitats are particularly important for grassland birds which depend on these habitats for shelter, food and nesting. However, grassland birds have experienced significant declines, with a 57% reduction in their numbers in Canada since 1970, and an 87% decline in those populations that depend exclusively on native grasslands for breeding, non-breeding, and migration. These declines have been linked to the loss and degradation of natural grassland habitats (NABCI Canada, 2019).

Forests

Forests are classified as areas with more than one hectare (2.5 acres) of continuous canopy cover. They are the predominant habitat type within the EHJV, with coniferous, deciduous and mixed forests covering over half of the EHJV (56%, Table 5). These forests include the boreal forest, which stretches from Alaska to Newfoundland and Labrador, the Carolinian forest in southern Ontario and the Acadian forest in New Brunswick and Nova Scotia.

The boreal forest is a critically important breeding area for billions of birds. It significantly contributes to bird abundance across Canada, the United States, Mexico and Central and South America. During spring migration, an estimated 1-3 billion birds migrate north to boreal forests to breed, and during fall migration, between 3-5 billion birds (adults and young) migrate south out of the boreal forest following breeding (Wells et al., 2014). Indeed, the boreal forest plays a vital role in sustaining bird populations:



The Nature Conservancy of Canada's Upper Ohio Nature Reserve in southwestern Nova Scotia provides riparian and adjacent upland forest habitat for many species of birds and other wildlife./Courtesy of The Nature Conservancy of Canada. Photo by Mike Dembeck

- an estimated 80% of Western Hemisphere waterfowl species, 63% of finch species and 53% of warbler species breed in the boreal
- for 35 species, over 80% of their breeding populations occur in the boreal
- for nearly 100 species, 50% or more of their breeding populations occur in the boreal (Wells et al., 2014)

Additionally, the boreal forest is a massive carbon sink. It is estimated that Canada's managed boreal forests, which make up 54% of Canada's total boreal area, store 28 billion tonnes of carbon and sequester approximately 3 million tonnes of carbon every year (Kurz et al., 2013).

Although a large part of Canada's boreal forest is currently intact, logging, mining, oil and gas and other industrial activities are pushing northwards at increasing rates. These activities fragment landscapes and degrade forest habitats for resident and migratory birds. It is estimated that between 616,000 and 2.1 million bird nests are lost each year to logging across Canada (Hobson et al., 2013). Moreover, warming temperatures and increasing drought conditions due to climate change are shifting boreal habitats further northward, creating conditions that favour the spread of insect pathogens, like emerald ash borer (*Agrilus planipennis*), and are increasing the frequency and severity of wildfires.

Although most of Canada's boreal forest is currently intact, logging, mining, oil and gas and other industrial activities are pushing northwards at increasing rates.

Carolinian forests are found in Ontario's Carolinian Zone, which stretches from Grand Bend on the southern shores of Lake Huron to Toronto. Warm year-round temperatures in this region form a unique ecosystem that supports exceptional biological richness. Although Carolinian forests cover only 1% of Canada's total land area, they support some of the highest biodiversity of plants and animals in the country, including many species that are unique to this part of Canada and an estimated 50% of federally listed species at risk (Environment Canada, 2014). Forest fragmentation and habitat loss are significant threats to Carolinian forests. Over 30% of Canada's human population resides in the Carolinian Zone, and over 90% of the original Carolinian forests have been lost to urban and agricultural development (Environment Canada, 2014). Most remaining Carolinian forest patches are small and isolated, which is an issue for forest bird species that rely on the habitats characteristic of larger forest tracts.

Acadian forests in Canada's Maritime provinces boast a rich diversity of native tree species and support numerous breeding bird populations. However, most of these forests show signs of widespread forest degradation. Less than 1% of original old Acadian forest remains today. Since the mid-1980s, over 3 million hectares (nearly 7.5 million acres) of Acadian forest have been clearcut, and much of that area is now dominated by single tree species or a mix of early successional species (Betts et al., 2022). The remaining Acadian forests are vulnerable to invasive species, like hemlock woolly adelgid (*Adelges tsugae*) and emerald ash borer (*Agrilus planipennis*), as these species spread further north and east with climate change. Acadian forest degradation has resulted in long-term breeding habitat loss for numerous forest-dependent bird species. It is estimated that between 33 and 104 million birds have been lost due to degradation of Acadian forests between 1985 and 2020 (Betts et al., 2022), and forest degradation has been directly linked to bird population declines, particularly for old forest-associated species (Betts et al., 2022).

MAJOR THREATS TO PRIORITY SPECIES AND HABITATS

Identifying and understanding threats to EHJV priority species and habitats will position the EHJV to better manage and mitigate those threats to achieve its species and habitat objectives (see Conservation Planning below). Major threats to EHJV priority species and habitats include threats that contribute to habitat loss, invasive species, pollution, climate change, and pathogens (Ministère des forêts, de la faune et des parcs [MFFP], 2021). It is important to note that these threats are not mutually exclusive and do not exist in isolation, and that birds are subject to the cumulative effects of multiple co-occurring stressors.

Threats that Contribute to Habitat Loss

Habitat loss, including habitat destruction, degradation and fragmentation, is a major driver of bird population declines (NABCI Canada, 2019; Rosenberg et al., 2019). Multiple threats contribute to habitat loss within the EHJV, including (list from MFFP, 2021):

- residential and commercial development (e.g., housing and urban centres)
- intensive agriculture
- energy production and mining (e.g., oil and gas drilling, mining and associated settling and tailings ponds)
- transportation and service corridors (e.g., roads, pipelines, powerlines)
- biological resource use (e.g., forestry)
- other human intrusions and disturbance (e.g., recreational activities, like boating)

These threats decrease the quantity and quality of habitat available for birds. Through activities like deforestation, filling/excavation and/or wetland drainage, these activities result in the conversion of habitats into landscapes that no longer provide the food, water and/or shelter that birds need to survive and raise their young. They also fragment habitats and can hinder the natural movement of species and increase the risk of nest predation.

Additionally, many of these threats lower bird survival within the EHJV through collisions (MFFP, 2021). Collisions with windows, vehicles and energy infrastructure are the second highest source of avian mortality in Canada, contributing to 25% of all bird mortality and killing over 44 million individuals annually (Calvert et al., 2013). Landbirds are most affected by collisions, although other bird groups, including waterfowl are also negatively impacted. In the EHJV, bird mortality from collisions is highest in southern Ontario and Québec where human population density contributes to a greater number of buildings, roads and electrical infrastructure.

Phragmites is an invasive grass in Ontario wetlands./Steve Timmermans

Invasive Species

An invasive species is any non-native species whose introduction into the environment causes harm to native plants and animals, the economy and/or human health. Wetlands and riparian habitats in the EHJV are primarily threatened by invasive aquatic plants, such as non-native European common reed (*Phragmites australis* spp. *australis*, hereafter 'Phragmites'), water chestnut (*Trapa natans*), Eurasian water-milfoil (*Myriophyllum spicatum*) and purple loosestrife (*Lythrum salicaria*). These species expand rapidly and form dense stands that can lessen the amount of open water in a wetland system, reduce nutrients for native plants and degrade habitat for wildlife. Ultimately, invasive species reduce biodiversity. Since around 2013, Phragmites has emerged as the most prominent invasive plant species in the EHJV. Its rapid expansion in coastal wetlands and along roadways has resulted in emphasis on research and management of this species within the EHJV.

Forests within the EHJV are threatened by invasive insects and diseases. Examples of key invasive species in EHJV forest habitats are emerald ash borer and Dutch elm disease. Emerald ash borer, an invasive wood-boring beetle, has been detected throughout southwestern Ontario, in parts of eastern and northern Ontario and in parts of Québec. Dutch elm disease is caused by a fungal pathogen and has been detected in Ontario, Québec and most of the Maritime provinces. Emerald ash borer and Dutch elm disease have devastated ash and elm tree populations in affected regions. Loss of these tree species in affected areas has led to changing forest species compositions, soil erosion and reduced forest biodiversity.

Since around 2013, Phragmites has emerged as the most prominent invasive plant species in the EHJV.

Invasive species are also a problem in marine environments. For example, European green crabs (*Carcinus maenas*) destroy shellfish beds, feed on native animals, outcompete native crab species for food and disrupt eelgrass beds which are habitats for many juvenile fish species. European green crabs also harm the fishing and aquaculture industries by damaging eels when they enter traps and reducing the abundance of harvested crab, lobster and fish species.

Non-native domestic cats are also a major threat to EHJV priority species. Predation by feral and domestic cats is the greatest overall source of human-related avian mortality. Cats cause over 74% of all bird mortality nationally and are estimated to kill over 140 million potential breeders each year (Calvert et al., 2013). Landbirds (e.g., songbirds, raptors and upland gamebirds) are most affected by cat predation, particularly in southern Ontario and Québec where there are high human populations and correspondingly large numbers of cats.

Pollution

Pollution is considered a major threat to EHJV priority species and habitats. It is caused by the same human activities that contribute to habitat loss, like energy production and mining, intensive agriculture and urban development, which can release and/or cause the accumulation of toxic chemicals into the environment (MFFP, 2021). Many pollutants, such as oil spills and heavy metals, like mercury and lead, directly impact birds. Exposure to these types of toxic pollutants can cause mortality and negatively affect a bird's development, reproduction, behaviour and overall health. Other pollutants have indirect effects. Pesticides, like neonicotinoid insecticides, for example, kill the insects that many birds rely on for food. As a result, widespread pesticide use has been linked to dramatic declines in aerial insectivore populations (Stanton et al., 2018; Li et al., 2020).

In the past, areas within the EHJV were home to some of the heaviest polluters in Canada. Metal smelters in boreal regions in the EHJV were some of the largest point sources of acidifying emissions in the world and caused widespread acidification of lakes and soils. Likewise, heavy urban, industrial and agricultural development in the Great Lakes region were associated with reproductive failures and population declines in many fish-eating and carnivorous birds. Thanks to measures to control pollution, many of the most toxic chemicals, like DDT, are now banned in Canada, and although many bird populations are recovering, pollution remains a key threat to many species.

Today, key sources of pollution are (list from MFFP, 2021):

- domestic and urban wastewater
- industrial effluents (e.g., oil spills, mine tailings)
- agricultural and forestry effluents (e.g., chemical fertilizers, herbicides, pesticides)
- garbage and solid waste (e.g., plastics)
- airborne pollutants (e.g., smog)
- excess energy (e.g., light, thermal and noise pollution)

Climate Change

Climate change contributes to avian habitat loss and degradation by:

- Increasing the frequency and severity of droughts and wildfires, which can alter and destroy bird nesting areas and other habitats
- Increasing sea levels, which can threaten important nesting and feeding habitats for shorebirds and coastal-nesting bird communities—sea level rise is also causing the loss of salt marsh habitats, putting existing wetland enhancement projects at risk due to dyke breaches
- Causing phenological mismatches between peak food availability and timing of breeding
- Accelerating the introduction and spread of invasive species
- Increasing the prevalence and spread of avian pathogens
- Warming oceans, which can change underlying habitat conditions (e.g., food availability) and habitat availability (e.g., sea ice)

Least Bittern/Ducks Unlimited Canada

Many species are responding to warming temperatures by shifting their seasonal distributions and timing of migration and breeding. Long-term datasets show that many bird species are shifting their wintering and breeding ranges northward in response to climate change. Indeed, waterfowl are showing earlier fall migration and short-stopping (i.e., migrating shorter distances) in response to changing climatic conditions (Cox et al., 2023), which creates challenges for waterfowl harvest management and habitat conservation planning.

Pathogens

Pathogenic diseases are physiological, behavioural or other impairments that reduce a bird's probability of survival and reproduction. Healthy wild bird populations typically have high resilience to pathogens. However, stress from other threats, including the threats listed above, can increase a bird's susceptibility to disease, making populations more vulnerable to declines when enough individuals are affected (Friend et al., 2001). Moreover, climate change is expected to alter the geographic and temporal patterns of infectious diseases in wildlife (Cohen et al., 2020).

Two pathogens affecting wild bird populations in the EHJV are avian botulism and avian influenza. Botulism is caused by neurotoxins produced by a group of bacteria called *Clostridium botulinum*. Botulism outbreaks killing tens of thousands of birds are relatively common, and over one million bird deaths from avian botulism have been reported in localized outbreaks in some wetlands in North America in a single year (Rocke and Bollinger, 2007).

Understanding pathogens and disease in wild birds is an important consideration for agriculture, as pathogens can spread between wild birds and domestic poultry.

Avian influenza is a contagious viral infection that can affect all bird species. Recent outbreaks of highly pathogenic avian influenza (HPAI) in Canada have caused numerous mortality events in multiple species of wild birds, including waterfowl, gulls, shorebirds, raptors and seabirds (Canadian Food Inspection Agency National Emergency Operations Centre GIS Service, 2022). These outbreaks led to severe seabird mortalities in Atlantic Canada in the summer of 2022 (Renaud et al., 2023).

Understanding pathogens and disease in wild birds is an important consideration for agriculture, as pathogens can spread between wild birds and domestic poultry. It is also an important consideration for public health and the adoption of a One Health approach, as certain diseases in birds can be transmitted to humans (e.g., influenza, West Nile virus), and wild birds can also spread pathogen-infected arthropod vectors (e.g., birds can disperse ticks carrying the bacteria that causes Lyme disease; Reed et al., 2003).

HUMAN DIMENSIONS

Wetlands play a critical role in mitigating drought and preventing flooding, and they also provide excellent recreational benefits/Ducks Unlimited Canada

Human dimensions refer to how and why people value natural resources, how people want resources managed and how people affect and are affected by natural resource management decisions (Harshaw and Sainsbury, 2023a). Human dimensions research aims to understand the attitudes, behaviours, connections, engagement and responses of people to the natural environment and to incorporate that understanding into wildlife management and conservation planning and actions (Dayer et al., 2019).

Over the past decade, numerous bird conservation plans and initiatives, including the NAWMP, Partners in Flight (Berlanga et al., 2010) and NABCI (Dayer et al., 2019), have called for greater attention to the social context of bird conservation and an expansion of human dimensions

Human dimensions research aims to understand the attitudes, behaviours, connections, engagement and responses of people to the natural environment and to incorporate that understanding into wildlife management and conservation planning and actions.

The objective is to increase awareness of opportunities for outdoor recreation and societal benefits resulting from NAWMP and EHJV activities, to address the needs of people relative to the conservation of bird habitats and populations and to inspire people to take actions to conserve wetland and waterfowl habitat.

research. The 2012 NAWMP Revision included specific emphasis on the human dimensions of waterfowl conservation. Goal 3 of the 2012 Revision aims for "growing numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation." The 2018 NAWMP Update established an important foundation for JVs to incorporate an understanding of people's relationships with nature into conservation program delivery. Since 2012, JVs continentally have been updating their implementation plans to reflect this change. The objective is to increase awareness of opportunities for outdoor recreation and societal benefits resulting from NAWMP and EHJV activities, to address the needs of people relative to the conservation of bird habitats and populations and to inspire people to take actions to conserve wetland and waterfowl habitat.

Many EHJV partners have already undertaken activities in support of Goal 3 (e.g., Harshaw and Sainsbury, 2023a, 2023b). These activities will be facilitated by an increasing understanding of the value of biodiversity and the environment to humans through the ecosystem services that they provide (Norris, 2012; Wenny et al., 2011) and by a growing recognition that protecting human health comes from protecting animal and ecosystem health under a One Health approach (Mackenzie and Jeggo, 2019).

PORTRAIT OF INDIGENOUS PEOPLES WITHIN THE EHJV

Indigenous Peoples (First Nations, Métis and Inuit) have long lived on the land now called Canada, including in the six provinces that make up the EHJV. Long before EHJV partners began conserving wetlands and associated upland habitats, Indigenous Peoples were present on the land and cared for its waters and resources. Indigenous communities are numerous and diverse within the EHJV. In fact, 285 communities are located within the EHJV, representing 234 First Nations residing in rural and urban centres across the EHJV.

The EHJV landscape has been the subject of several rights claims, and it is also the location of numerous historical and modern treaties. These treaties are agreements between Indigenous Peoples, the Government of Canada, and, where applicable, provincial and territorial governments, which define the rights and obligations of each party. EHJV partners recognize the claimed or established Aboriginal and Treaty Rights of Indigenous Peoples and are committed to fully collaborating with Indigenous Peoples to maintain harmonious relationships.

CONSERVATION PLANNING

Wetlands are biodiversity hotspots that provide recreational and educational opportunities for people of all ages to learn and explore/Ducks Unlimited Canada

CONSERVATION PROGRAMS AND INITIATIVES

Habitat retention is the protection (or preservation) of functional waterfowl habitat and the provision of suitable habitat for other species in perpetuity (permanent), from a period of 10 to 99 years (medium-term) or for a period of less than 10 years (short-term). Habitat retention is one of the main ways that EHJV partners protect wetland and associated upland habitats for the benefit of birds and biodiversity. Habitat retention activities in the EHJV include:

- **Purchase:** Purchase of habitat by a partner agency resulting in a transfer of ownership. This activity is one of the costliest mechanisms for habitat retention and is therefore focused on wetland habitats at the highest risk of loss and with the greatest benefit to EHJV priority species.
- **Conservation encumbrance (servitudes, easements, covenants, agreements):** EHJV partners obtain a conservation interest on privately owned land by the transfer of rights through a donation or purchase and are registered on the land title. Conservation encumbrances restrict activity on the land for a specific amount of time. This approach is

often more cost-effective than outright purchase; however, it requires ongoing obligations for partner agencies to monitor lands to ensure that the terms of the easement or agreement are honoured.

- **Conservation/cooperative land-use agreements:** Legal agreements developed and signed with landowners/land managers to secure habitat in its current state.
- **Legal designation:** A legal designation results in enhanced protection of land and often protects the land from resource extraction activities. The category also includes the designation of abandoned lands to state ownership with conservation covenants.
- **Municipal/industrial agreements:** EHJV partners work with municipal/county (local government) councils to protect habitat within municipal authority. This can include input into developmental plans, implementation of provincial policies, the signing of agreements and working with industry on lands over which they have authority.
- **Private land management:** Protection of areas under private land ownership through registration against a land title.
- **Lease:** A partner agency rents land on an annual basis.
- **Extension/stewardship:** EHJV partners provide guidance and expertise to land managers to reduce the risk of loss of wetlands and/or uplands.

Habitat restoration creates or improves wetland and upland habitat functions and conditions. Habitat restoration activities include:

- **Compensatory mitigation:** Restoration and/or enhancement of habitat as compensation for impacts on other habitats.
- **Ecological restoration:** Restoration of the ecological function of an altered or damaged wetland or upland that has not been completely lost. Ecological restoration does not include actions that change water levels within wetlands.
- **Extension/Stewardship:** EHJV partners provide guidance and expertise to land managers to promote the creation or improvement of wetlands and/or uplands.
- **Hydrological restoration:** Physical restoration of the hydrology of a wetland that results in changes in water levels. This includes wetland creation, where applicable.
- **Nest structures:** Structures installed to enhance bird productivity in a habitat by improving nesting.

Habitat management is the maintenance of the productivity of existing habitat and the provision of suitable habitat for bird species. Habitat management is one of the most important conservation programs within the EHJV. Indeed, habitat objectives in this Plan aim to conserve the greatest number of hectares through management (Figure 5 and 6). Habitat management activities include:

- **Natural wetlands:** Management of naturally occurring wetlands (e.g., livestock exclusion system repair and maintenance).
- **Engineered wetlands:** Management of wetlands that include engineered structures (e.g., man-made dams, beaver dams).
- **Upland and associated wetlands:** Management of upland projects and associated small wetlands (e.g., cover management, including haying, grazing and weed control).
- **Wetland/upland rebuild:** Rebuilding of wetland or upland projects that have served their life expectancy.
- **Nest structures:** Ongoing maintenance of nest structures.
- **Decommission wetlands/uplands:** Decommissioning of a wetland or upland project that has served its life expectancy (e.g., removal of naturalization structures, relinquishing licenses).

Land and water policy. The Government of Canada and each of the provinces within the EHJV have established policy or legislative frameworks to address how habitat, including EHJV priority habitats, may be protected or considered during decisions regarding land-use planning. The EHJV partnership works within these existing federal and provincial frameworks and looks for opportunities to promote the conservation of its priority species and habitats. This collaborative approach can include actions, such as the provision of science, partnership opportunities on programs and initiatives and consultation and engagement during the development of policies, regulations and legislation.

- **Agriculture policy:** Influences the development and implementation of agricultural programs.
- **Forestland policy:** Aims to increase levels of protection on forested lands, ensuring that policy is implemented at appropriate geographic scales and/or administrative levels.
- **Wetland policy:** Aims to increase levels of protection on wetlands. Also involves water licencing, movement and allocation.
- **Integrated land-use planning:** Working with government and/or industry to protect habitat on private and public lands through integrated watershed management, forest management and land-use planning.
- **Government and industry relations:** Relationship building between members of government and industry.

Conservation planning is the planning and coordination of EHJV conservation activities, including:

- **Program coordination:** EHJV activities within each of the provinces are guided by a Steering Committee that includes representatives from its major active partners (see Appendix 1 for EHJV organizational structure). EHJV partners contribute to the overall conservation mandate of the EHJV. Some partners have mandates that are broader in scope than waterfowl and wetlands and, as a result, operate across various landscapes. The EHJV affords partners a forum in which to communicate, coordinate activities and work together on specific projects allowing partners to maximize efficiency regarding the use of staff, funding, expertise and other resources.
- **Planning tools:** EHJV partners use of a variety of tools to guide conservation actions and future activities. While some of these tools may be developed individually for specific purposes, others are developed jointly.

Science activities focus on research, evaluation, monitoring and inventory outcomes. The goal of EHJV science activities is to continually work to improve the influence of investments on conservation. As with all EHJV efforts, sound science and a partnership approach at the landscape-level are at the core of planning, implementation and evaluation. Specifically, EHJV partners work to maintain high-quality wetland and upland habitats that sustain healthy and abundant populations of birds. This is accomplished by understanding the habitats and environmental conditions needed to increase target populations. By connecting habitat conditions (e.g., wetland abundance, land/water use, habitat quality, threats and conservation actions) to bird population trends and demographic parameters (e.g., recruitment, mortality, population size), and by incorporating other environmental and landscape changes affecting birds and biodiversity into planning, biologists can determine the best use of conservation resources and actions. Current EHJV science activities include:

- **Habitat program evaluation:** Monitoring habitat program progress and evaluating conservation program success, effectiveness and efficiency.
- **Physical science:** Activities aimed at understanding physical processes (e.g., hydrology, water quality).
- **Habitat/landscape inventory:** Includes measurement, quantification and qualification of landscape features.
- **Waterfowl/wildlife science and monitoring:** Activities aiming to understand waterfowl/wildlife biology.
- **Social science:** Activities aiming to understand society's attitudes towards EHJV priority species and habitats.
- **Economic science:** Activities aiming to understand the economic value of EHJV priority species and habitats.

Communication, education, and outreach. To meet the objectives set out in this Plan, the EHJV communicates and reports on habitat conservation projects to inform various audiences of the importance of habitat conservation for the benefit of birds and people. This includes producing and promoting communications initiatives and products, such as the development and management of the EHJV website in English and French, social media delivery through Facebook and X (Twitter) and the development of JV-wide planning and goal-setting documents such as this Plan.

In addition, the EHJV contributes annually to Canada's national NAWMP publication, *Canadian Habitat Matters*. It highlights JV projects and accomplishments toward regional, national and international NAWMP habitat conservation goals. The annual publication is also an opportunity to report back to project partners and funders, like the U.S. North American Wetlands Conservation Council, that provide generous funding support for EHJV activities, and also inform decision making and policy.

Ongoing communications, marketing, education and outreach are key components to EHJV success. The EHJV will develop a 5-year communications plan directly linking to the goals of this Plan. Throughout the duration of this Plan, EHJV partners will implement innovative and targeted communications products and campaigns with clear, measurable outcomes that contribute directly to reaching the EHJV's goals.

More detailed definitions and examples of conservation programs and initiatives are provided in *A Common Language for Canadian NAWMP Habitat Joint Ventures Reference Document (2021)*.

EHJV OBJECTIVES

Waterfowl Population Objectives

The EHJV's waterfowl population objectives (Table 6) are based on the 2018 NAWMP Update goal of 2.7 million breeding ducks in the ESA which has a survey area that covers a large proportion of the EHJV (Figure 3).

Table 6. Priority waterfowl species population estimates and 2030 objectives

Species (unit)	2018 NAWMP Update Goals	EHJV Population Objective	Population Estimates[a]	Long-term Average[b]
Black Duck (individuals)	628,000	**628,000**	544,000	473,000
Mallard (individuals)	409,000	**771,300**	651,000	570,000
Wood Duck (IBP)		**192,000**	40,400	44,800
Common Goldeneye (individuals)	433,000*	**423,000**	285,000	259,000
Barrow's Goldeneye (individuals)	7,500	**10,000**	8,400	7,750
Common Eider (IBP)		**128,500**	28,060	

IBP = Indicated Breeding Pair (observed pairs of ducks, lone males and groups of males are enumerated as IBPs during surveys and are assumed to reflect breeding pairs)

* Long-term average for all goldeneye spp.

a Population estimates from CWS Waterfowl Committee (2023). Barrow's Goldeneye estimates from 2020; estimates for all other species from 2023. Black Duck and Common Goldeneye = core ESA estimates, Mallard = sum of core ESA and SOWPS estimates. Wood Duck = SOWPS estimates. Barrow's Goldeneye = Barrow's Goldeneye Winter Survey estimates. Common Eider = sum of New Brunswick and Québec breeding survey estimates (see Priority species monitoring and population trends above for additional details)

b Long-term average = 7 years for Barrow's Goldeneye, and 10 years for all other species

Waterbird, Shorebird and Landbird Objectives

Resources used to inform population and recovery objectives for priority non-waterfowl species (Table 7) include: Bird Conservation Region Strategies, Breeding Bird Atlases, State of Canada's Birds (NABCI Canada, 2019), and Marsh Monitoring Program data. Where sufficient data existed, the EHJV set individual-specific population objectives. Where this was not possible, a more general objective was set based on the current population trends and halting declines.

Table 7. EHJV priority waterbird, shorebird and landbird 2030 population objectives

American Goshawk	Assess and maintain at 18,600 breeding pairs
American Woodcock	Halt decline by 2025, then increase breeding populations by 5% by 2030
Bank Swallow	638,400 individuals – Recovery objective
Black Tern	Halt decline
Bobolink	1,480,000 individuals—Recovery objective
Boreal Chickadee	Halt decline and maintain population level
Common Tern	Halt decline and maintain the 2020 EHJV population estimate (43,300 pairs)
Lincoln's Sparrow	Halt decline and maintain population level
Nelson's Sparrow	Halt decline and maintain population level
Olive-sided Flycatcher	219,500 individuals – Maintain population level
Red Knot	Halt decline by 2025 with emphasis on the Tierra del Fuego / Patagonia wintering population (DU3), then increase and maintain population level at or above 1986-1990 levels (100,000-150,000 individuals)
Rusty Blackbird	3,851,700 individuals – Increase population
Semipalmated Sandpiper	Halt decline by 2025 then increase by a minimum of 2.5% by 2030
Scarlet Tanager	Halt decline and maintain population level
Short-eared Owl	38,640 individuals—Recovery objective
Virginia Rail	Halt decline with the aim of attaining a 1% annual increase rate by 2030

Habitat Objectives

Habitat objectives were developed based on expert recommendations from provincial teams and were built from previous experience and achievements. Habitat objectives address priority waterfowl population objectives only; however, non-waterfowl priority species are also expected to benefit from these activities (see Conservation Actions for Non-waterfowl Species below). Overall, the EHJV aims to restore or retain a total of 1.3 million hectares (3.2 million acres) of wetland and upland habitats (Figure 5 and 6) by 2030. Because many delivery agents within the EHJV operate within a provincial jurisdiction, habitat retention and restoration objectives are depicted at both the EHJV and provincial scales in Tables 8 and 9.

Overall, the EHJV aims to restore or retain a total of 1.3 million hectares (3.2 million acres) of wetland and upland habitats by 2030.

Achieving the EHJV's habitat objectives will contribute to realizing federal, provincial and global conservation and climate targets. The federal government, Canada's 10 provincial and three territorial governments have established targets following the Kunming-Montreal Global Biodiversity Framework, which includes 23 global objectives for 2030 aimed at stopping and reversing biodiversity loss, by bringing the loss of areas of high biodiversity importance close to zero, restoring 30% of all degraded ecosystems and conserving 30% of land, waters and seas.

Climate change is a key factor in biodiversity loss, and carbon sequestration and storage are some of the most vital ecosystem services provided by wetlands (Millennium Ecosystem Assessment, 2005). The EHJV's habitat retention, restoration and management initiatives represent nature-based solutions that will help to store and capture carbon, mitigate climate change impacts, increase water quality and provide critical wildlife habitat (ECCC, 2023).

The primary means of achieving habitat objectives is through on-the-ground conservation actions. The location of these actions is guided by biological planning related to priority species objectives, as well as socioeconomic considerations. However, there is still limited knowledge regarding priority species' responses to habitat conditions at an EHJV scale; therefore, program adaptation based on evaluation of species responses to current delivery is not quantifiable. This lack of information remains a challenge for effectively estimating species abundance and responses to habitat interventions. There is a continuing need for better understanding of the link between population and habitat objectives.

Conservation actions are also guided by land jurisdictions and ownership. The federal government manages federal lands (including national parks and protected areas), marine and some aquatic habitats. Provinces and territories manage large areas of Crown land and have jurisdictional control over natural resource management and private lands. Northern portions of Ontario and Québec, New Brunswick and Newfoundland and Labrador (e.g., BCR 7, 8) are either Crown land or under modern-day land claim agreements. The EHJV's far north (i.e., the most northern portions of Ontario, Québec and Labrador) is largely pristine, while many other northern areas in the EHJV are dominated by forestry and mining with some agriculture. Habitat conservation in these regions is primarily achieved through provincial regulation of natural resource extraction activities. The southern region of the EHJV is mainly under private ownership. Wetland loss has been highest in southern areas of the EHJV, where lands are dominated by agriculture, urban and industrial development (Figure 4). In these areas, habitat conservation activities rely on private land stewardship and partnerships (see Conservation Programs and Initiatives above). Most of the EHJV's on-the-ground investments are currently directed to southern areas, where conservation activities include a range of habitat acquisitions, stewardship programs and the development of tools and strategies to guide conservation actions on private land.

Wetland loss has been highest in southern areas of the EHJV, where lands are dominated by agriculture, urban and industrial development.

Wallace Bay, Nova Scotia/Ducks Unlimited Canada

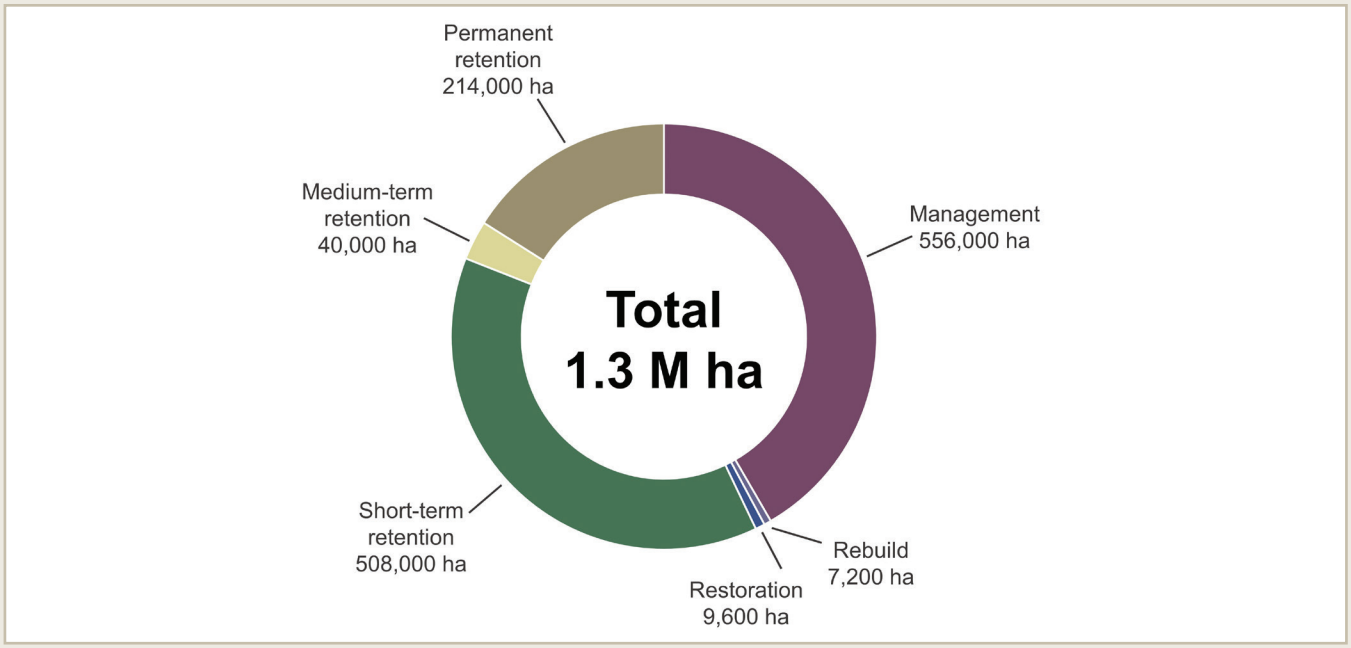


Figure 5. EHJV 2030 habitat objectives by activity

Habitat objectives were developed to address priority waterfowl population objectives only; however, non-waterfowl species are also expected to benefit from these activities.

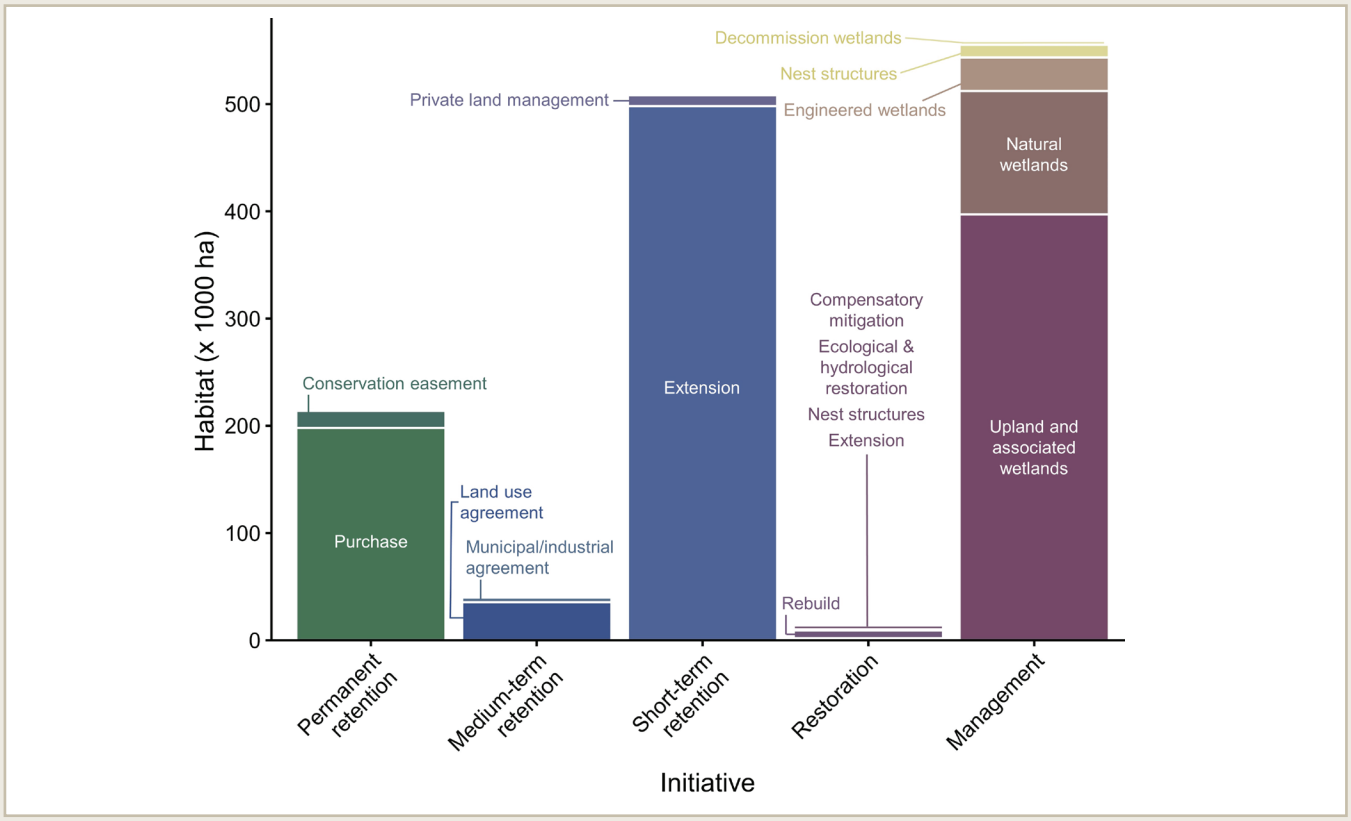


Figure 6. EHJV 2030 habitat objectives by initiative and program

Habitat objectives were developed to address priority waterfowl population objectives only; however, benefits are expected to extend to non-waterfowl species and other biodiversity.

Table 8. EHJV-wide 2030 habitat retention objectives by province

Habitat Type	Area	Permanent (ha)	Medium-term (10-99 years; ha)	Short-term (<10 years; ha)
Wetland	New Brunswick	1,285	2,600	0
	Newfoundland and Labrador	239	3,300	0
	Nova Scotia	3,290	1,200	5,000
	Ontario	66,970	11,075	4,000
	Prince Edward Island	465	92	0
	Québec	6,520	400	490,100
	EHJV	**78,769**	**18,667**	**499,100**
Upland	New Brunswick	5,531	400	97
	Newfoundland and Labrador	750	1,100	0
	Nova Scotia	9,050	250	9,028
	Ontario	111,431	19,490	0
	Prince Edward Island	1,244	21	0
	Québec	7,145	0	0
	EHJV	**135,151**	**21,261**	**9,125**
Total	**EHJV**	**213,920**	**39,928**	**508,225**

Habitat objectives were developed to address priority waterfowl population objectives only; however, benefits are expected to extend to non-waterfowl species and other biodiversity.

Table 9. EHJV-wide 2030 habitat restoration and management objectives by province

Habitat Type	Area	Hydrological Restoration (ha)	Ecological Restoration (ha)[a]	Compensatory Mitigation (ha)[b]	Wetland Rebuilds	Nest Structures[c]	Extension (ha)
Wetland	New Brunswick	24	3	372	2,165	0	0
	Newfoundland and Labrador	0	0	0	726	0	0
	Nova Scotia	48	0	300	810	0	0
	Ontario	2,800	251	0	2,850	205	1,914
	Prince Edward Island	17	4	10	186	0	0
	Québec	810	1,284	400	500	304	0
	EHJV	**3,699**	**1,542**	**1,082**	**7,237**	**509**	**1,914**
Upland	New Brunswick	0	15	0	0	85	0
	Newfoundland and Labrador	0	13	0	0	450	0
	Nova Scotia	0	0	0	0	50	0
	Ontario	0	60	0	0	0	0
	Prince Edward Island	0	4	0	0	8	0
	Québec	0	150	0	0	0	0
	EHJV	**0**	**242**	**0**	**0**	**593**	**0**
Total	**EHJV**	**3,699**	**1,784**	**1,082**	**7,237**	**1,102**	**1,914**

Habitat objectives were developed to address priority waterfowl population objectives only; however, benefits are expected to extend to non-waterfowl species and other biodiversity.

a Ecological restoration is considered separate from hydrological restoration. It does not include changing or restoring the hydrology of the wetland (see definitions under Conservation Programs and Initiatives heading above).

b With the adoption of wetland conservation policies and legislation, the opportunity to deliver no net loss compensation/mitigation in support of NAWMP objectives has been added to this Plan and is outlined in *A Common Language for Canadian NAWMP Habitat Joint Venture Reference Document* (2021) (see compensatory mitigation definition in Conservation Programs and Initiatives heading above).

c Number of boxes converted to ha.

Prince Edward Island wetland/Tom Duffy

Conservation Actions for Non-waterfowl Priority Species

Due to limited available data and decision support tools for non-waterfowl priority species, the EHJV has not set specific habitat delivery objectives for waterbirds, shorebirds and landbirds. However, many of the habitat delivery actions and objectives for waterfowl priority species outlined above will also have co-benefits for these species. Nevertheless, the EHJV Science Team identified conservation actions for priority waterbirds, shorebirds and landbirds based on the threats identified earlier in this Plan (Tables 10-15). The EHJV partners will use these guidelines to help achieve the population objectives for non-waterfowl priority species.

Table 10. Conservation actions for priority waterbird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Waterbirds	• Black Tern • Common Tern • Virginia Rail	Habitat retention, restoration and management	Secure and restore freshwater marsh and hemi-marsh habitat	Climate change, habitat loss[a]	EHJV conservation partners
			Restore degraded wetlands through invasive species removal and control	Invasive species	EHJV conservation partners
		Land and water policy	Incorporate/improve policies around increased wetland buffer zones	Habitat loss	Provinces and policy makers
		Science	Improve waterbird population monitoring	Lack of knowledge[b]	EHJV conservation partners
		Communication, education and outreach	Outreach on effects of water level control measures	Habitat destruction and degradation	Water managers
			Outreach on effects of pesticides that negatively affect insect populations, which are important prey for many waterbird species	Pollution	Farming community, agricultural sector
			Outreach, education and stewardship to reduce boating disturbance near nesting colonies (esp. for Common Tern and Black Tern nesting colonies)	Habitat disturbance, nest loss, adult and chick mortality	Public and landowners

a Habitat loss includes habitat destruction, degradation and fragmentation.
b See applications of increased monitoring in Table 17.

Table 11. Conservation actions for coastal-associated priority shorebird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Shorebirds (coastal-associated)	• Red Knot (*rufa*) • Semipalmated Sandpiper	Habitat retention, restoration and management	Secure and/or protect important intertidal and coastal staging and stopover habitats	Climate change, habitat loss[a]	EHJV conservation partners
			Manage wetlands and shorelines to: • control invasive species • manage vegetation to create optimal foraging habitat • maintain water levels to create or maintain staging and stopover habitats[b]	Habitat loss, invasive species	EHJV conservation partners
		Land and water policy	Improve existing policies for coastal and shoreline protection	Habitat loss	Provinces, policy makers
			Improve existing policies to limit shoreline hardening and development	Habitat destruction and degradation	Provinces, policy makers
		Science	Improve coastal-associated shorebird population monitoring	Lack of knowledge[c]	EHJV conservation partners
		Communication, education and outreach	Outreach, education and stewardship to reduce human disturbance at roosting and staging sites	Habitat disturbance, nest loss, adult and chick mortality	Public
			Promoting programs, such as the Living Shorelines and Green Shores programs, to reduce shoreline hardening	Habitat destruction and degradation	Waterfront property owners, managers

a Habitat loss includes habitat destruction, degradation, and fragmentation.
b See Iglecia and Winn (2021) for water level management guidelines for shorebirds.
c See applications of increased monitoring in Table 17

Table 12. Conservation actions for wetland-associated priority landbird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Landbirds (wetland-associated)	• Nelson's Sparrow • Lincoln's Sparrow	Habitat retention, restoration and management	Secure and restore salt marsh and peatland habitat	Climate change, habitat loss[a]	EHJV conservation partners
			Restore degraded wetlands through invasive species removal and control	Invasive species	EHJV conservation partners
		Land and water policy	Incorporate/improve policies around increased wetland buffer zones	Habitat loss	Provinces, policy makers
		Science	Improve wetland-associated landbird population monitoring	Lack of knowledge[b]	EHJV conservation partners
		Communication, education and outreach	Outreach and education to promote early succession intolerant hardwood stands	Habitat loss	Woodlot owners

a Habitat loss includes habitat destruction, degradation, and fragmentation.
b See applications of increased monitoring in Table 17.

Table 13. Conservation actions for forest-associated priority landbird and shorebird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Landbirds and shorebirds (forest-associated)	Landbirds: • American Goshawk • Boreal Chickadee • Olive-sided Flycatcher • Scarlet Tanager Shorebird: • American Woodcock	Habitat retention, restoration and management	Secure and manage hemi-boreal forest, deciduous forests and mature forest stands	Climate change, habitat loss[a]	EHJV conservation partners
			Invasive species control and removal	Invasive species	EHJV conservation partners
		Land and water policy	Develop best management practices for American Goshawk and incorporate into management planning	Habitat loss	Provinces
		Science	Improve forest-associated landbird and shorebird population monitoring	Lack of knowledge[b]	EHJV conservation partners
		Communication, education and outreach	Outreach and stewardship activities promoting forest best management practices	Habitat loss	Private landowners, forest industry
			Stewardship promoting shrub swamp restoration	Habitat loss	Landowners

a Habitat loss includes habitat destruction, degradation, and fragmentation.
b See applications of increased monitoring in Table 17.

Table 14. Conservation actions for herbaceous-associated priority landbird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Landbirds (herbaceous-associated)	• Short-eared Owl • Bobolink	Habitat retention, restoration and management	Restore and protect grassland and/or perennial agriculture	Climate change, habitat loss[a]	EHJV conservation partners
			Invasive species control and removal	Invasive species	EHJV conservation partners
		Land and water policy	Incentive programs for delayed haying	Habitat disturbance, nest loss, chick mortality	Provinces
			Develop/strengthen policies limiting prophylactic pesticide applications	Pollution	Provinces
		Science	Improve herbaceous-associated landbird population monitoring	Lack of knowledge[b]	EHJV conservation partners
		Communication, education and outreach	Stewardship of agricultural land to benefit grassland birds	Habitat loss	Provinces
			Develop and promote best management practices for grassland birds	Habitat loss	Agricultural sector
			Promote integrated pest management to lower pesticide use	Pollution	Agricultural sector

a Habitat loss includes habitat destruction, degradation, and fragmentation.
b See applications of increased monitoring in Table 17.

Table 15. Conservation actions for riparian-associated priority landbird species

Priority Species Group	Species	Conservation Initiative	Conservation Action	Threat Addressed	Target Audience
Landbirds (riparian-associated)	• Rusty Blackbird • Bank Swallow	Habitat retention, restoration and management	Secure riverbanks and coastlines important for Bank Swallow breeding	Climate change, habitat loss[a]	EHJV conservation partners
			Secure wetlands important for Bank Swallow roosting during breeding and migration	Climate change, habitat loss	EHJV conservation partners
			Restore and secure forested wetlands and alder shrub swamps	Climate change, habitat loss	EHJV conservation partners
			Invasive species control and removal	Invasive species	EHJV conservation partners
		Land and water policy	Develop policies on increased buffers around forested wetlands	Habitat loss	Provinces
		Science	Improve riparian-associated landbird population monitoring	Lack of knowledge[b]	EHJV conservation partners
		Communication, education and outreach	Promote green shorelines and reducing shoreline hardening	Habitat loss	Developers, coastal property owners
			Reduce disturbance of nesting Bank Swallows	Habitat loss	Sand quarry operators

a Habitat loss includes habitat destruction, degradation and fragmentation.
b See applications of increased monitoring in Table 17.

Human Dimensions Objectives

The EHJV aims to strengthen programs and projects that support and advocate for growing numbers of waterfowl hunters, gatherers, birders, other conservationists and everyone who is actively supporting or would like to support bird and habitat conservation. When developing new projects and to build on projects underway, the EHJV will aim to:

1. Review the EHJV's Organizational Structure (Appendix 1) to identify how best to coordinate and support partners across all provinces and habitats for human dimensions-related ideas, issues, questions, objective setting and progress tracking. This work may include:
    - forming an EHJV Human Dimensions Working Group
    - identifying and recruiting technical committee members with human dimensions training and experience
2. Determine ways to create new or improve on existing programs to engage target audiences by:
    - identifying target audiences that the EHJV could engage with to support Goal 3 of the 2012 NAWMP Revision (e.g., hunters, birders, private landowners, urban and rural populations)
    - assessing existing human dimensions data (i.e., metrics to inform human dimensions objectives)
    - adopting a One Health approach, where feasible
    - considering accessibility, diversity, equity, justice and inclusion and identifying opportunities for underrepresented and marginalized individuals and groups to become involved in conservation efforts

3. Address human dimensions knowledge gaps by:
    - developing a deeper understanding of the motivations of EHJV audiences
    - developing and supporting the National Bird Habitat Conservation Survey (Harshaw and Sainsbury, 2023a, 2023b)
    - supporting human dimensions data dissemination through discussions with other Habitat Joint Ventures and researchers (e.g., NAWMP Human Dimensions Webinar Series)
4. Develop a strategic plan to guide future EHJV human dimensions, guidelines and conservation actions

COLLABORATION WITH INDIGENOUS PEOPLES

The EHJV aims to develop approaches to habitat and species conservation that take into account multiple Indigenous Knowledge systems and cultures. When common conservation goals are identified between Indigenous communities, the EHJV, and governments, the EHJV encourages the realization of Indigenous conservation initiatives, thereby enabling meaningful engagement of Indigenous Peoples in the conservation planning and implementation process.

Recommendations for EHJV partners include (list adapted from Kennedy et al., 2021 and https://weavingknowledges.ca/):

- Identifying appropriate ways to raise awareness among Indigenous communities for participation in projects;
- Developing conservation and management plans in collaboration with Indigenous communities;
- Working with Indigenous Peoples to identify Indigenous Knowledge to facilitate and improve the conservation decision-making process.

EXPENDITURE FORECAST

Figure 7, Figure 8 and Table 16 outline the projected expenditures required to undertake conservation actions for waterfowl and achieve this Plan's 2030 objectives. Expenditures do not indicate the full extent of the resources required to benefit all birds and all bird habitats targeted by the EHJV. A more detailed breakdown per province is presented in Appendix 2.

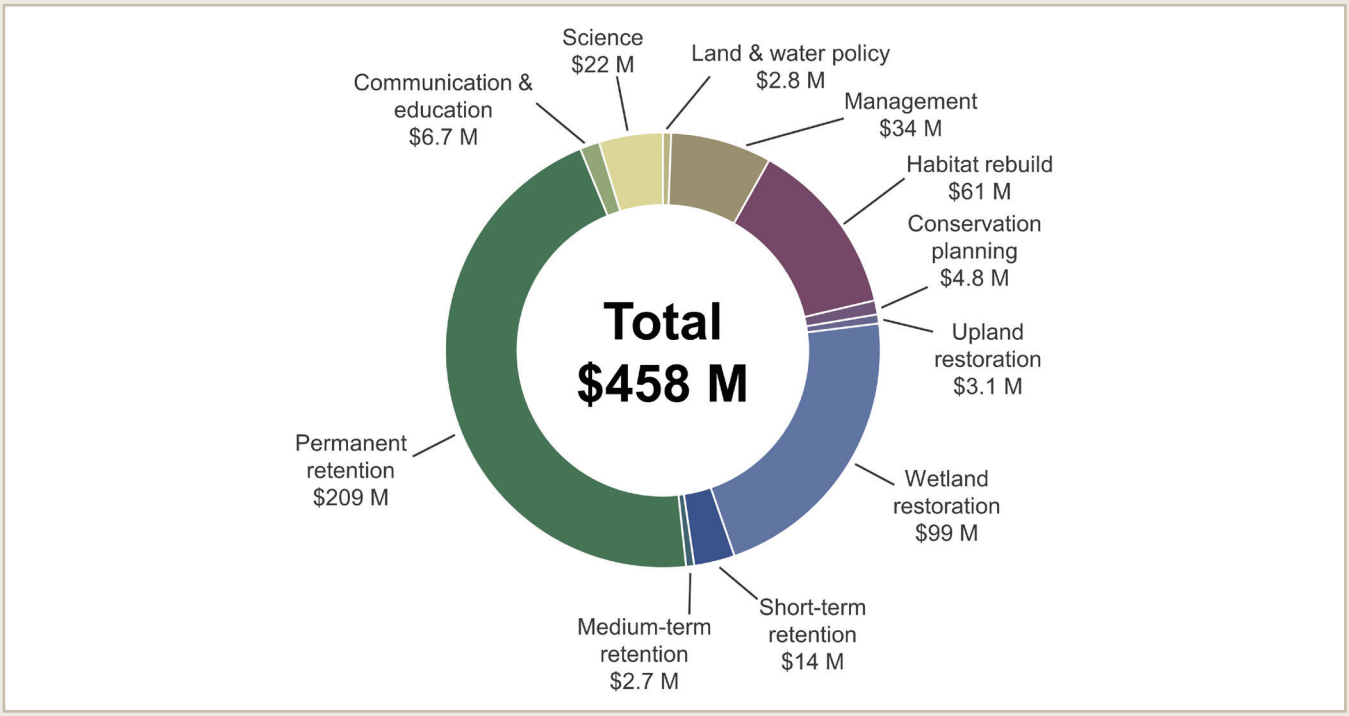


Figure 7. EHJV-wide projected expenditures for waterfowl conservation by initiative

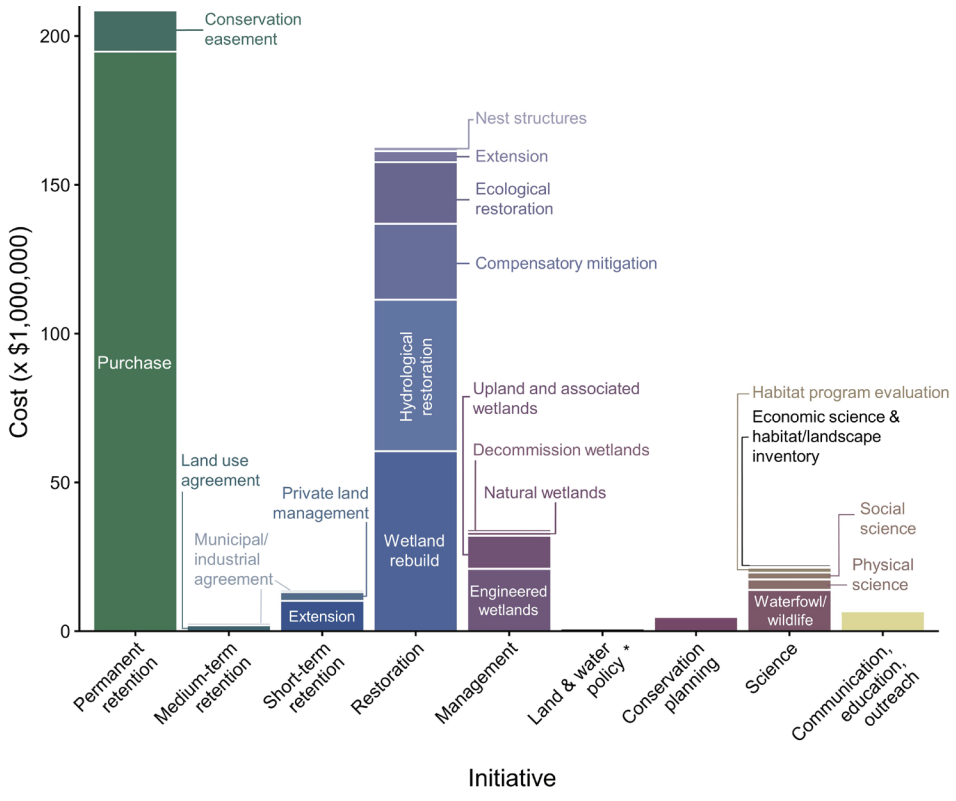


Figure 8. EHJV-wide projected expenditures for waterfowl conservation by initiative and program

* Land and water policy includes Indigenous integrated land-use planning, agricultural policy, forestland policy, government and industry relations and wetland policy.

Table 16. EHJV-wide priority programs for waterfowl and associated costs by initiative

Initiative		Program	Area (ha)			Resources Required
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	3,910	12,017	15,927	$13,880,181
		Purchase	74,859	123,134	197,993	$194,746,400
	Medium-term	Cooperative land use agreement	15,367	20,161	35,528	$1,976,553
		Municipal/industrial agreement	3,300	1,100	4,400	$770,000
	Short-term	Extension	489,000	9,125	498,125	$10,193,730
		Municipal/industrial agreement	0	0	0	$775,000
		Private land management	10,100	0	10,100	$2,900,000
Habitat restoration		Compensatory mitigation	1,082	0	1,082	$25,533,458
		Ecological restoration	1,542	242	1,784	$20,738,200
		Extension	1,914	0	1,914	$3,700,000
		Hydrological restoration	3,699	0	3,699	$50,857,750
		Nest structures	509	593	1,102	$1,416,400
		Wetland rebuild	7,237	0	7,237	$60,502,500
Habitat management		Decommission (wetlands)	349	0	349	$934,000
		Engineered wetlands	31,362	0	31,362	$20,958,892
		Natural wetlands	114,980	0	114,980	$1,264,788
		Nest structures	0	11,893	11,893	$125,000
		Upland and associated wetlands	15,989	381,154	397,143	$11,107,630
Land and water policy		Indigenous integrated land use planning	NA	NA	NA	$675,000
		Agricultural policy	NA	NA	NA	$500,000
		Forestland policy	NA	NA	NA	$237,250
		Government and industry relations	NA	NA	NA	$500,380
		Wetland policy	NA	NA	NA	$910,000
Conservation planning			NA	NA	NA	$4,762,800
Science		Economic science	NA	NA	NA	$250,000
		Habitat/landscape inventory	NA	NA	NA	$150,000
		Habitat program evaluation	NA	NA	NA	$1,650,000
		Physical science	NA	NA	NA	$3,522,679
		Social science	NA	NA	NA	$2,287,000
		Waterfowl/wildlife science	NA	NA	NA	$13,855,000
Communication, education and outreach			NA	NA	NA	$6,660,957

NA = Not applicable

PRIORITY AREAS FOR CONSERVATION DELIVERY

The EHJV has six areas of continental significance recognized by the NAWMP (NAWMP Plan Committee, 2012): Coastal Newfoundland, Coastal Maritimes and St. Lawrence Gulf, Eastern Boreal Hardwood Transition Zone, Lower Great Lakes and St. Lawrence River, Hudson/James Bay and the Ungava Peninsula and Killiniq/Button Islands (Figure 9). The EHJV also contains 317 Important Bird Areas (BirdLife International Canadian Important Bird Areas), 51 Key Biodiversity Areas (KBA Canada, 2024), 20 Ramsar Sites (i.e., wetlands of international importance; Ramsar, 2024), 52 Sea Duck Key Habitat Sites (Bowman et al., 2022) and one Western Hemispheric Shorebird Reserve Network site (the Bay of Fundy; WHSRN Map of Sites).

The EHJV Implementation Plan 2015-2020 identified target areas for conservation delivery through consultations with waterfowl biologists from EHJV partner organizations. These target areas were primarily concentrated along marine and Great Lakes shorelines, as well as some inland areas in southern Ontario, Québec and the Atlantic provinces (Figure 10).

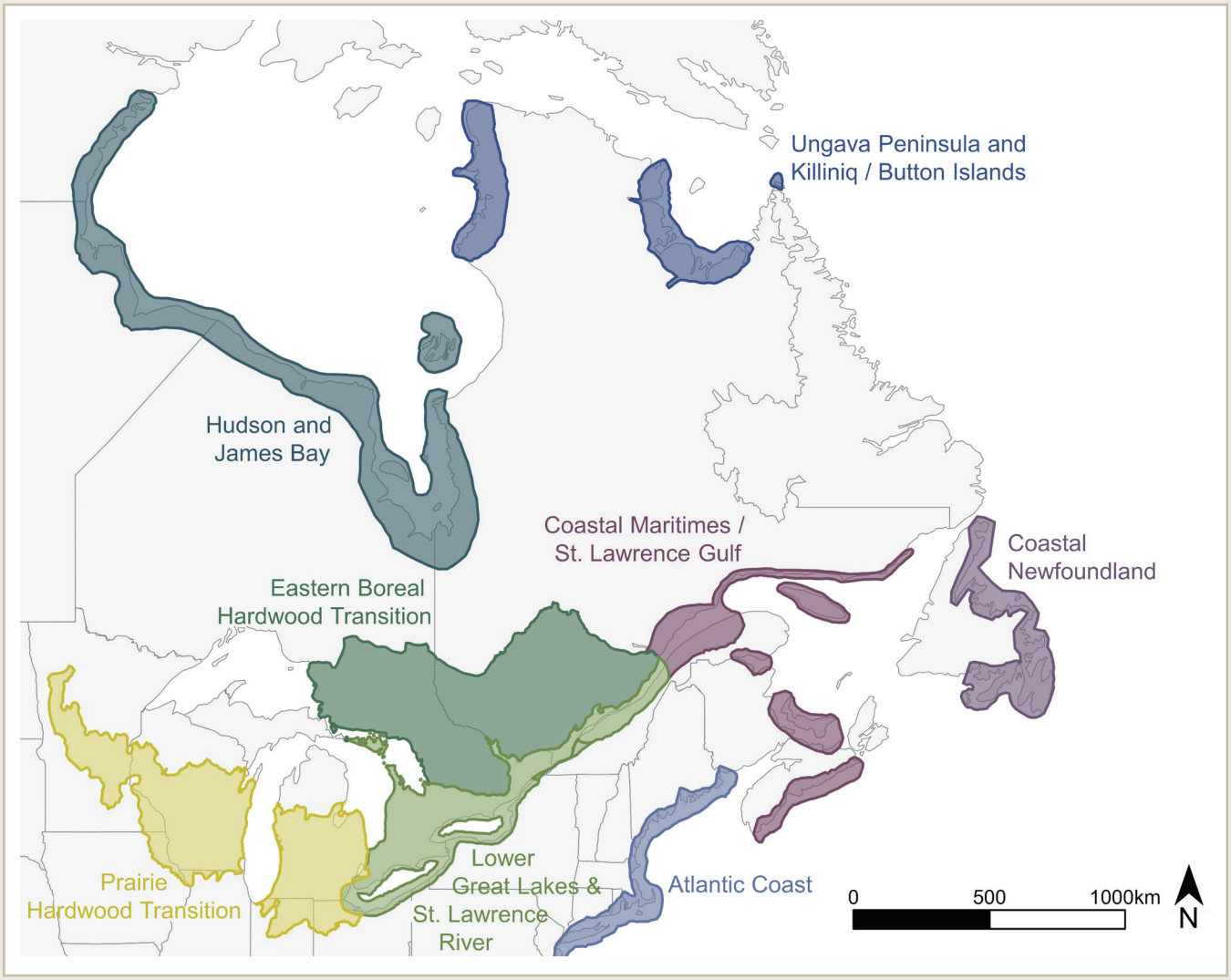


Figure 9. NAWMP areas of high continental significance for North American ducks, geese and swans within the EHJV

Map generated from the revised map for the 2012 NAWMP Revision.

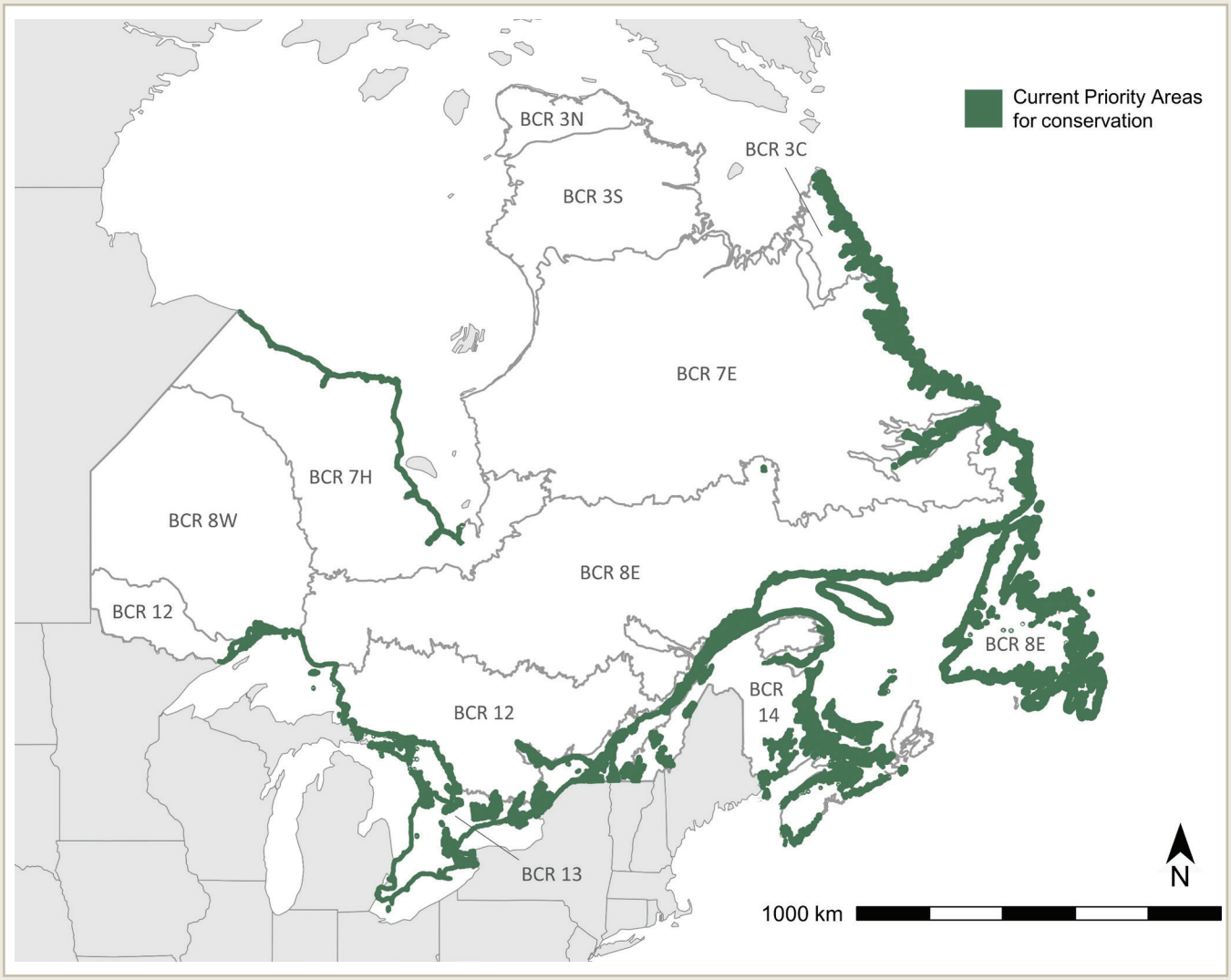


Figure 10. Current EHJV priority areas for conservation

Maps shows draft BCR boundaries, which may be subject to change. BCRs shown for illustration

To date, EHJV partners have developed decision support tools and have identified priority sites for conservation within the EHJV to meet their organization's focus and needs:

- Ducks Unlimited Canada Waterfowl Priority Areas: Conservation Priority Areas were established independently within each administration unit of DUC (Ontario, Québec and Atlantic Canada). The approach differed slightly across each province due to available data and unique landscape challenges. However, each area focused on where to work and what needed to be completed based on EHJV priority waterfowl needs, risk to habitat and opportunities. DUC prepared comprehensive plans for each Conservation Priority Area to identify habitat threats, set habitat objectives and outline conservation actions needed to meet objectives.
- The Nature Conservancy Canada's Conservation System: NCC aims to conserve the best of Canada's natural habitats for wildlife and adheres to an approach based on the Open Standards in the Practice of Conservation. The conservation process at NCC works at three scales: i) ecoregions ii) natural areas and iii) properties and/or projects. Through the ecoregion planning process, NCC has identified close to 100 natural areas that are critical for the protection of Canada's natural habitats and species—34 are located within the EHJV. Within these natural areas, NCC developed specific strategies for identified species and habitats that need to be conserved or restored.

The 14 hectare (35 acre) Lavigne Restoration Project consists of a 3.6 hectare (9 acre) marsh of excellent breeding and feeding habitat for waterfowl and other birds, like Least Bittern. The project borders the Ottawa River in Ontario and the Laurentians in Québec/Ducks Unlimited Canada

Although numerous important areas have been identified and partner-specific decision support tools have been developed, there is no common landscape prioritization framework that integrates the data, knowledge and tools available for priority waterfowl and non-waterfowl species across the EHJV. In addition, there have been considerable advancements in remote sensing technologies and the availability of high-resolution aerial and satellite imagery, computing and statistical capabilities to predict species-habitat associations, our understanding of climate change effects and human dimensions of conservation. These advancements could be used to better identify and characterize habitats of high ecological importance within the EHJV. To more effectively consolidate and optimize conservation planning within the EHJV and among EHJV partners, there is a need for a single EHJV-wide framework to identify landscapes with high importance for all EHJV priority species and human populations. A key goal of this Plan is to use the latest science, research information, computational tools and stakeholder engagement to develop a more refined landscape prioritization framework (Table 17).

SCIENCE NEEDS

Sound science informs conservation within the EHJV by informing decision-making processes that direct conservation actions. EHJV partners have identified key science needs that are vital to improving the biological and ecological knowledge and understanding of priority species and habitats, the effectiveness of conservation actions and the human dimensions of conservation within the EHJV (Table 17).

Table 17. EHJV science needs, data requirements and recommendations, research targets and application

Science Needs	Data Requirements / Recommendations	Research Targets	Application
Weaving Indigenous Knowledge	Indigenous Knowledge	All EHJV science programs	Developing approaches to environmental monitoring and research that: • account for the multiple Indigenous Knowledge systems • emphasize meaningful and culturally appropriate engagement in the research process
Priority species research and monitoring	• Demographic information • Measurements of pairs, broods and brood size on different wetlands • Limiting factors for priority species • Species-habitat associations	EHJV priority species	• Inform species and habitat conservation and management • Inform adaptive management • Use as decision support tools to inform selection of priority areas for conservation delivery • Evaluate the performance of existing habitat programs for the benefit of birds
	• Wetland availability • Pair settling • Duckling survival • Nest success	EHJV priority waterfowl	• Improve knowledge of current species demographics and habitat use patterns • Allow for more targeted species conservation efforts • Evaluate the performance of existing habitat programs for the benefit of birds
	• Transmitter tracking of individual movements	• Mallard • Black Duck • Common Eider	• Improve knowledge of species demographics, breeding propensity and habitat use • Allow for more targeted species conservation efforts
	• Availability of nesting cavities at landscape scale • Factors that affect dynamics of natural cavity availability • Role of artificial nesting structures (e.g., nest boxes) in population dynamics and habitat programs • Nest success • Demographic information	Cavity-nesting species, like: • Wood Duck • Common Goldeneye • Barrow's Goldeneye	• Fill information gaps • Allow for more targeted species conservation efforts • Evaluate the performance of existing habitat programs for the benefit of birds
	Increased monitoring (esp. in northern portions of EHJV) to understand species: • Distribution • Abundance • Population trends	EHJV priority waterbirds, shorebirds and landbirds	• Contribute to knowledge of habitat use and requirements • Evaluate the performance of existing habitat programs for the benefit of birds • Identify and understand effects of threats to species across their range
	• Effects of pesticide use and insect declines	Aerial insectivore EHJV priority species: • Olive-sided Flycatcher • Bank Swallow	• Identify and understand effects of threats to species across their range • Allow for more targeted species conservation efforts
	• Understanding key diseases and how they impact priority species	EHJV priority species	• Identify and understand effects of threats to species across their range • Allow for more targeted species conservation efforts

Table 17. *Continued*

Science Needs	Data Requirements / Recommendations	Research Targets	Application
Statistical modelling	• Improve species abundance models	EHJV priority waterbirds, shorebirds, and landbirds	• Fill information gaps • Contribute to knowledge of habitat use and requirements • Allow for more targeted species conservation efforts
Lower population monitoring costs	• Identifying potential for survey data integration • Finding methods for survey optimization • Exploring how to use community science data (e.g., eBird, iNaturalist)	Surveys that monitor EHJV priority species	• Optimize allocation of resources to priority species monitoring efforts • Maximize return on investment for long-term population monitoring programs
Improved habitat data	• Wetland classification layers that: – Span the entire EHJV – Provide wetland classification at least at the five Canadian Classes (i.e., shallow open water, emergent marsh, swamp, bog, fen) • Landscape conversion risk (e.g., wetland loss, urbanization, forest harvest)	EHJV priority habitats	• Improve understanding of species-habitat associations • Improve abundance modelling • Improve conservation planning and advance science-based management • Delineate important areas for conservation action • Use as decision support tools to inform selection of priority areas for conservation delivery
	• Climate change impacts on biodiversity • Ecosystem services provided by EHJV priority habitats • Research associated with projects along the St. Lawrence and coastal impoundments in Atlantic Canada	EHJV priority habitats	Improve our knowledge of how to best manage and restore EHJV habitats and contribute to: • Nature-based climate solutions • The Kunming-Montreal Global Biodiversity Framework to halt and reverse biodiversity loss
	• Host shared data sources within the EHJV partnership (e.g., web portal)	EHJV habitat data	• Improve information sharing and project uptake
Decision support tool development	• Species abundance and distribution modelling • Identify important human dimensions • Improved habitat classification data (see above) • Establish link between population demographics, habitat conditions and habitat delivery targets	EHJV priority species and habitats	Integrate new information into advanced prototype tools to: • identify priority locations for species and habitat conservation • enhance populations of priority species

In addition to the science activities outlined in Table 17, the EHJV will continue to work with Species Joint Ventures to promote EHJV priority species conservation. As an example, the EHJV will continue collaborating with the Black Duck Joint Venture to evaluate the benefits of conservation delivery projects for American Black Duck. Ongoing collaboration with the Sea Duck Joint Venture to identify synergies will also help maximize conservation benefits for Common Eider.

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APPENDIX 1.
EHJV ORGANIZATIONAL STRUCTURE

The EHJV is organized into a Management Board, Science Team and Provincial Steering and Technical Committees. The Management Board ensures that the various EHJV committees are working towards the larger EHJV-wide vision and mission. The current EHJV Management Board includes representatives from the federal government, the six provincial governments and four non-governmental organizations. EHJV activities within each province are guided by Provincial Steering and Technical Committees which include representatives from each of the EHJV's main partners. EHJV coordination is funded by ECCC, and project implementation is supported through the federal, provincial and municipal governments in Canada, federal and state governments in the U.S., Indigenous partnerships and industry and non-governmental partners in both countries.

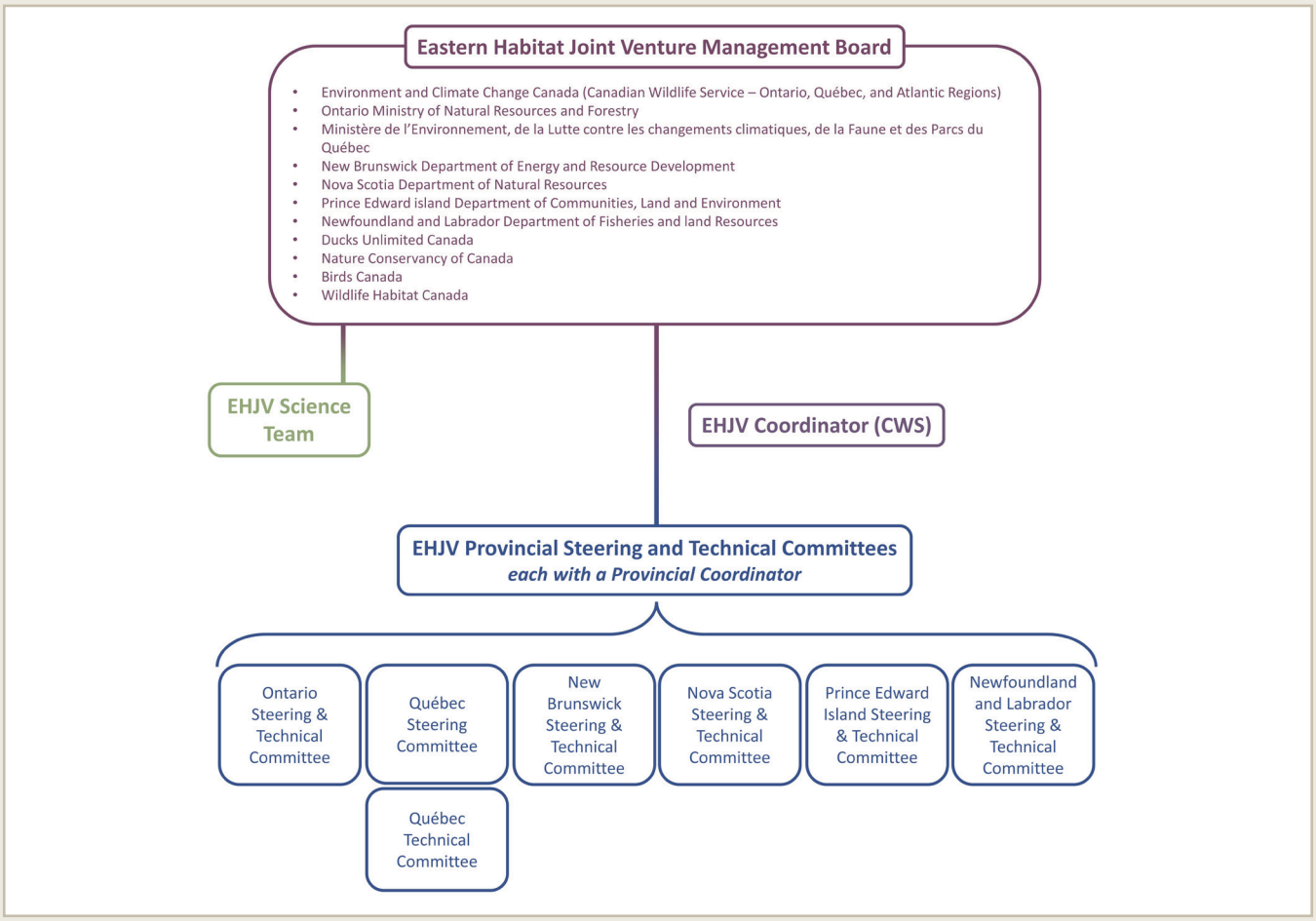

Figure A1.1. EHJV organizational structure

APPENDIX 2. PROVINCIAL HABITAT OBJECTIVES AND PROJECTED EXPENDITURES

Table A2.1. Ontario habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	1,067	9,488	10,555	$10,500,000
		Purchase	65,903	101,940	167,846	$109,794,000
	Medium-term	Cooperative land-use agreement	11,075	19,490	30,565	$600,000
	Short-term	Extension	4,000	0	4,000	$350,000
		Private land management	0	0	0	$400,000
Habitat restoration		Ecological restoration	251	60	311	$15,995,000
		Extension	1,914	0	1,914	$3,700,000
		Hydrological restoration	2,800	0	2,800	$37,500,000
		Nest structures	205	0	205	$500,000
		Wetland rebuild	2,850	0	2,850	$37,500,000
Habitat management		Engineered wetlands	10,067	0	10,067	$7,500,000
		Natural wetlands	91,000	0	91,000	$50,000
		Nest structures	0	4,897	4,897	$50,000
		Upland associated wetlands	2,600	302,431	305,031	$1,750,000
Land and water policy		Indigenous integrated land-use planning	NA	NA	NA	$150,000
		Agricultural policy	NA	NA	NA	$150,000
		Forestland policy	NA	NA	NA	$75,000
		Government and industry relations	NA	NA	NA	$75,000
		Wetland policy	NA	NA	NA	$150,000
Conservation planning			NA	NA	NA	$753,800
Science		Habitat/landscape inventory	NA	NA	NA	$150,000
		Habitat program evaluation	NA	NA	NA	$1,500,000
		Physical science	NA	NA	NA	$50,000
		Social science	NA	NA	NA	$1,500,000
		Waterfowl/wildlife science	NA	NA	NA	$10,975,000
Communication, education and outreach			NA	NA	NA	$4,755,000

NA = Not applicable

Table A2.2. Québec habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	800	555	1,355	$1,982,500
		Purchase	5,720	6,590	12,310	$45,653,000
	Medium-term	Cooperative land-use agreement	400	0	400	$130,000
	Short-term	Extension	480,000	0	480,000	$8,500,000
		Private land management	10,100	0	10,100	$2,500,000
Habitat restoration		Compensatory mitigation	400	0	400	$12,000,000
		Ecological restoration	1,284	150	1,434	$4,316,250
		Hydrological restoration	810	0	810	$12,150,000
		Nest structures	304	0	304	$250,000
		Engineered wetlands	5,133	0	5,133	$4,800,000
		Wetland rebuild	500	0	500	$7,500,000
Habitat management		Natural wetlands	8,828	0	8,828	$950,000
		Nest structures	0	2,268	2,268	$0
		Upland-associated wetlands	6,440	24,328	30,768	$5,233,150
Land and water policy		Indigenous integrated land-use planning	NA	NA	NA	$150,000
		Agricultural policy	NA	NA	NA	$150,000
		Forestland policy	NA	NA	NA	$87,250
		Government and industry relations	NA	NA	NA	$75,000
		Wetland policy	NA	NA	NA	$150,000
Conservation planning			NA	NA	NA	$2,144,000
Science		Economic science	NA	NA	NA	$250,000
		Habitat program evaluation	NA	NA	NA	$150,000
		Physical science	NA	NA	NA	$387,000
		Social science	NA	NA	NA	$787,000
		Waterfowl/wildlife science	NA	NA	NA	$2,580,000
Communication, education and outreach			NA	NA	NA	$766,000

NA = Not applicable

Table A 2.3. New Brunswick habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	33	193	226	$72,321
		Purchase	1,252	5,338	6,590	$10,522,600
	Medium-term	Cooperative land-use agreement	2,600	400	3,000	$502,140
	Short-term	Extension	0	97	97	$93,730
Habitat restoration		Compensatory mitigation	372	0	372	$2,943,527
		Ecological restoration	3	15	18	$282,300
		Hydrological restoration	24	0	24	$300,000
		Nest structures	0	85	85	$215,000
		Wetland rebuild	2,165	0	2,165	$5,570,000
Habitat management		Decommission wetlands	212	0	212	$535,000
		Engineered wetlands	7,803	0	7,803	$3,870,104
		Natural wetlands	8,038	0	8,038	$86,986
		Nest structures	0	2,380	2,380	$30,000
		Upland associated wetlands	2,748	12,422	15,170	$1,247,040
Land and water policy		Indigenous integrated land-use planning	NA	NA	NA	$150,000
		Agricultural policy	NA	NA	NA	$150,000
		Forestland policy	NA	NA	NA	$75,000
		Government and industry relations	NA	NA	NA	$75,000
		Wetland policy	NA	NA	NA	$150,000
Conservation planning			NA	NA	NA	$150,000
Science		Physical science	NA	NA	NA	$3,000,000
Communication, education and outreach			NA	NA	NA	$402,747

NA = Not applicable

Table A2.4. Nova Scotia habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	1,910	1,500	3,410	$1,200,360
		Purchase	1,380	7,550	8,930	$23,755,000
	Medium-term	Cooperative land-use agreement	1,200	250	1,450	$707,059
	Short-term	Extension	5,000	9,028	14,028	$1,250,000
Habitat restoration		Compensatory mitigation	300	0	300	$10,500,000
		Hydrological restoration	48	0	48	$582,750
		Nest structures	0	50	50	$50,000
		Wetland rebuild	810	0	810	$8,095,000
Habitat management		Decommission wetlands	38	0	38	$344,000
		Engineered wetlands	6,494	0	6,494	$2,322,274
		Natural wetlands	4,875	0	4,875	$174,766
		Nest structures	0	500	500	$0
		Upland-associated wetlands	2,825	33,845	36,670	$2,108,120
Land and water policy		Indigenous integrated land use planning	NA	NA	NA	$150,000
		Government and industry relations	NA	NA	NA	$150,380
		Wetland policy	NA	NA	NA	$100,000
Conservation planning			NA	NA	NA	$300,000
Science		Physical science	NA	NA	NA	$43,036
Communication, education and outreach			NA	NA	NA	$351,690

NA = Not applicable

Table A2.5. Prince Edward Island habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Conservation easement	100	281	381	$125,000
		Purchase	365	963	1,328	$2,846,000
	Medium-term	Cooperative land-use agreement	92	21	113	$37,354
Habitat restoration		Compensatory mitigation	10	0	10	$89,931
		Ecological restoration	4	4	8	$76,650
		Hydrological restoration	17	0	17	$325,000
		Nest structures	0	8	8	$1,400
		Wetland rebuild	186	0	186	$1,612,500
Habitat management		Decommission wetlands	99	0	99	$55,000
		Engineered wetlands	1,051	0	1,051	$2,092,551
		Natural wetlands	1,513	0	1,513	$0
		Nest structures	0	5	5	$0
		Upland-associated wetlands	710	3,407	4,117	$218,400
Land and water policy		Indigenous integrated land-use planning	NA	NA	NA	$75,000
		Agricultural policy	NA	NA	NA	$50,000
		Government and industry relations	NA	NA	NA	$50,000
		Wetland policy	NA	NA	NA	$100,000
Conservation planning			NA	NA	NA	$150,000
Science		Physical science	NA	NA	NA	$42,643
Communication, education and outreach			NA	NA	NA	$125,520

NA = Not applicable

Table A2.6. Newfoundland and Labrador habitat objectives and projected expenditures 2021-2030

Initiative		Program	Areas (ha)			Projected Expenditure
			Wetland	Upland	Total	
Habitat retention	Permanent	Purchase	239	750	989	$2,175,800
	Medium-term	Municipal/industrial agreements	3,300	1,100	4,400	$770,000
	Short-term	Municipal/industrial agreements	0	0	0	$775,000
Habitat restoration		Ecological restoration	0	13	13	$68,000
		Nest structures	0	450	450	$400,000
		Wetland rebuild	726	0	726	$225,000
Habitat management		Engineered wetlands	814	0	814	$373,963
		Natural wetlands	726	0	726	$3,036
		Nest structures	0	1,843	1,843	$45,000
		Upland-associated wetlands	666	4,721	5,387	$550,920
Land and water policy		Government and industry relations	NA	NA	NA	$75,000
		Wetland policy	NA	NA	NA	$260,000
Conservation planning			NA	NA	NA	$260,000
Communication, education and outreach			NA	NA	NA	$260,000

NA = Not applicable

A Shared Vision:

Canada's NAWMP Habitat Joint Ventures

Semi-palmated Sandpiper/Yousif Attia, Birds Canada

...connecting people through sound science at the landscape level using a partnership approach for long-term conservation impact...

EHJV Eastern Habitat Joint Venture

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