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HABITAT JOINT
VENTURE



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**Eastern Habitat Joint Venture
Implementation Plan
2007 – 2012
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Table of Contents

1.0 Executive Summary	4
2.0 Introduction	4
3.0 Vision	5
4.0 Mission	5
5.0 Waterfowl	6
5.1 Population Goals	6
5.1.1 Breeding	6
5.1.2 Staging	7
5.1.3 Wintering	7
5.2 Waterfowl harvest	8
5.3 Key Limiting Factors	9
6.0 Shorebirds, Waterbirds, and Landbirds	9
7.0 Habitat	11
7.1 Habitat Change	11
7.2 Threats to Habitat	12
7.3 Targeting	12
8.0 Conservation Actions	13
8.1 Habitat Goals	14
8.1.1 Habitat Retention	15
8.1.1.1 Acquisition	16
8.1.1.2 Agreements	16
8.1.1.3 Indirect Habitat Retention: Stewardship and Extension	17
8.1.1.4 Summary of retention programs	18
8.1.2 Habitat Restoration	19
8.1.3 Management	20
8.2 Policy	20
8.3 Science	22
8.4 Communication and Education	25
8.5 Performance Management	26
9.0 Resources	26
10.0 Summary	27
Appendix 1: Additional Provincial priority breeding waterfowl species	28

List of Tables

Table 1. EHJV Priority Waterfowl Species and Seasonal Relevance	6
Table 2. EHJV priority species breeding population goals	7
Table 3. Eastern Canada harvest as a proportion of continental and Atlantic flyway harvest.	8
Table 4. Key limiting factors for EHJV priority waterfowl species.....	9
Table 5. Habitat goals for retention, restoration and management programs.....	15
Table 6. EHJV Habitat Retention program details.....	16
Table 7. EHJV Habitat Restoration program.....	20
Table 8: Summary of investments required for each activity in the implementation plan.....	27

List of Figures

Figure 1. Distribution of wetland risks across Canada.....	11
Figure 2: Eastern Habitat Joint Venture Key Program Areas.	13
Figure 3. Integrated approach to conservation delivery.	14
Figure 4. Conceptual framework of EHJV science program.	24

1.0 Executive Summary

This Eastern Habitat Joint Venture (EHJV) implementation plan reflects the direction outlined in the six provincial EHJV implementation plans. The plan provides direction on conservation actions for five years (April 2007 – March 2012).

The EHJV provides critical habitat for 14 priority waterfowl species throughout the year. Current population estimates reveal a waterfowl deficit of 222,400 breeding pairs. The deficit is primarily related to Black Duck, Mallard, Ringed-necked Duck and Common Eider populations. The successful elimination of this waterfowl deficit will require conservation actions that focus on increasing the attractiveness of the landscape to breeding pairs by increasing the number of wetlands across the landscape, and by restoring larger wetlands to increase duckling survival. A complementary focus includes efforts to prevent further habitat loss.

The next 25 years will be a critical period for securing the future of North America's waterfowl populations. Risks to habitat are increasing; losses have been dramatic and continue to occur in EHJV high priority conservation regions. It became evident in this review that EHJV partners ***can not achieve our conservation vision, particularly in the most important landscapes, if we continue doing the same things at the same scale and rates while other factors continue to erode waterfowl habitat.*** To this end the plan focuses on implementing a wide diversity of targeted, innovative conservation actions that will secure 1,103,073 acres and restore 28,121 acres of critical habitat. This scale of conservation will provide habitat sufficient to support 60% of the waterfowl population goal of 1,526,300 breeding pairs. Stewardship and extension programs will provide habitat protection at the landscape scale. A focused science program will ensure that conservation actions provide maximum benefit and development of explicit habitat population models will improve the ability of the EHJV partners to strategically deliver a suite of conservation actions designed to produce the desired waterfowl response.

EHJV partners must find ways to accelerate habitat conservation and to decrease the rate of habitat loss in all high priority waterfowl conservation regions. Securing the future of North America's waterfowl will require the generation of more resources and the development and implementation of improved policies to reverse the continuing downward trends among important waterfowl habitats across eastern Canada. The successful implementation of conservation actions identified within this Implementation Plan will require an investment of \$114.6M; however, this includes an anticipated funding shortfall of \$28M. To close this funding shortfall, EHJV partners will actively seek additional resources.

2.0 Introduction

The EHJV spans 6 provinces, encompasses 1/3 of Canada's landmass, and 2/3 of Canadian population resides within its boundaries. The EHJV supports 39 % of Canada's wetlands (> 120.8 M acres of fresh and tidal wetlands) with historic wetland loss occurring primarily along the coasts (Maritime and Great Lakes), major river systems, and within the productive agricultural areas.

The EHJV is a partnership of like-minded agencies and organizations dedicated to the protection and restoration of Canada's wetlands. Partners have been working since 1989 to achieve the goals of the North American Waterfowl Management Plan (NAWMP) and the EHJV portion of the continental waterfowl and resultant habitat goals in eastern Canada. Since its inception in 1989, the partnership has invested \$223M to protect 885,775 acres of essential habitat of which 545,760 acres have been restored.

The EHJV partnership has been guided by: the 1998 NAWMP Update; 2004 Strategic Guidance document; 2007 NAWMP Continental Progress Assessment; and the 2007 Report from the Joint Task Group for Clarifying North American Waterfowl Management Plan Population Objectives and their Use in Harvest Management. In particular, this EHJV Implementation Plan reflects the direction and priorities established in the six recently updated 5-year provincial EHJV Implementation Plans. The Provincial implementation plan process developed waterfowl population and habitat goals by integrating the best available science, and waterfowl population and habitat information. Waterfowl population goals reflect the desire to achieve, or exceed, population levels equivalent to the mean of the three highest population estimates recorded between 1990 and 2005.

The conservation actions of the EHJV partnership are designed to create landscape conditions conducive to addressing and surmounting key limiting factors for ducks, i.e.: settling rates and duckling survival. In addition to waterfowl benefits, conservation actions also provide social benefits (ecological goods and services) that include: species biodiversity, improved water quality and quantity, improved air quality, adaptation to climate change, improved human and livestock health. Activities are guided by a strong commitment to science and the adoption of an adaptive management philosophy that ensures conservation actions continually evolve and produce iteratively increased waterfowl benefits. The commitment to a science-based EHJV program necessitates the continuance of dedicated waterfowl surveys essential to the monitoring of landscape level progress towards waterfowl goals; the development of innovative habitat population models to guide conservation; and the harmonization of habitat and harvest goals.

3.0 Vision

Landscapes that support sustainable bird populations while providing ecological and economic benefits to society.

4.0 Mission

Provide leadership to achieve healthy and sustainable waterfowl and other bird populations through conservation partnerships. EHJV partners strive for sustainable and responsible management of the landscape by taking into account social, economic, and environmental factors.

5.0 Waterfowl

The EHJV supports significant numbers of breeding, migrating, and wintering waterfowl species that migrate within the Atlantic and Mississippi Flyways (Table 1). Priority species were established based on the best available information and includes those species for which the EHJV supports a significant portion of the continental population.

5.1 Population Goals

5.1.1 Breeding

Eastern Canada is an important waterfowl production area for many continentally significant species. Since 1990, systematic waterfowl surveys have been flown across eastern Canada upon which EHJV waterfowl population goals were established. The goals reflect the mean of the top 3 population counts from the surveys during the period 1996 to 2005. The top counts typically occurred between 1999 and 2002. Overall, waterfowl population goals of 1.5 M indicated breeding pairs (IBP) were established for EHJV priority species (Table 2). Some waterfowl goals involve population reductions. For example, the goal for resident Canada Geese in Ontario is to reduce the population by 50%. Unfortunately current habitat conditions are not adequate to sustain populations at goal levels. On average there is a waterfowl deficit of 222,434 IBP (Table 2). Conservation actions were developed to begin to reduce this deficit. Provincial steering committees also included additional provincially significant species into their implementation plans (Appendix 1). The additional provincially significant breeding species include Blue-winged Teal, Wood Ducks, Common Goldeneye and Hooded Merganser. These species add another 35,225 IBP to the total waterfowl deficit (Appendix 1) resulting in a total waterfowl deficit of 257,659.

Table 1. EHJV Priority Waterfowl Species and Seasonal Relevance

Species	Seasonal Relevance		
	Breeding (B)	Staging (S)	Wintering (W)
American Black Duck	√	√	√
Mallard	√	√	
Green-winged Teal	√	√	
Lesser Scaup		√	√
Ring-necked Duck	√		
Common Eider - 3 races	√	√	√
Black Scoter	√	√	
Long-tailed Duck			√
Harlequin Duck - eastern population	√		√
Barrow's Goldeneye - eastern population	√		√
Greater Snow Goose		√	
Tundra Swan		√	
Canada Goose - AP	√	√	
Canada Goose - NAP	√	√	√
Canada Goose - SJBP	√	√	
Canada Goose - MVP	√		
Canada Goose - Resident	√	√	

Black ducks are a cornerstone species for the EHJV with 95 % of the continental population breeding within the EHJV. Conservation actions have been developed for Black Ducks to reduce the current deficit of > 90,000 IBP. The EHJV supports 80% of the continental breeding population of Common eiders (southern race). Long-term studies are underway to update population models and refine eider conservation and management strategies. The Atlantic and north Atlantic populations of Canada geese are important birds to hunters in the Atlantic flyway and breed exclusively within the EHJV.

Table 2. EHJV priority species breeding population goals (indicated breeding pairs: IBP), average population estimate (1996-2005) and waterfowl deficit (goal – average population estimate).

Species	Objective (IBP)	Average population estimate (IBP)	Waterfowl Deficit (IBP)
Black duck	363,000	272,524	90,476
Mallard	232,800	183,124	49,676
Green-winged teal	80,400	57,956	22,444
Ring-necked duck	184,400	149,220	35,180
Common eider - dresseri	128,500	82,334	46,166
Common eider - borealis	25,700	18,681	7,019
Canada Geese – AP	150,000	160,000	-10,000
Canada Geese - NAP	69,000	49,900	19,100
Canada Geese - SJBP	50,000	46,166	3,834
Canada Geese - MVP	187,500	183,500	4,000
Canada Geese - Resident	55,000	100,461	-45,461
Total	1,526,300	1,303,866	222,434

5.1.2 Staging

Eastern Canada supports substantial numbers of waterfowl during spring and fall migration. For example, all Black Scoters pass through the Baie des Chaleurs in NB, and similarly, almost all of the greater snow geese pass through Québec.

Unfortunately, systematic surveys of staging waterfowl are limited, geographically restricted, and currently employ different methodologies rendering it impossible to establish EHJV-wide staging goals. The best staging surveys exist for the Great Lakes with an estimate of 65 million waterfowl use days. In Québec, surveys are not adequate to determine waterfowl use days. Consequently staging goals for Québec were expressed in terms of total waterfowl: 853,500 individuals. There was insufficient information to generate staging goals in Atlantic Canada.

5.1.3 Wintering

Over the past decade the extent of open water during the winter along the coast and Great Lakes has been increasing. This has resulted in increasing numbers of wintering waterfowl. Surveys of wintering waterfowl are more complete in Quebec and Atlantic Canada than for staging birds and allowed development of provincial goals of 247,140 waterfowl wintering in Atlantic Canada and 103,500 waterfowl wintering in Quebec. There was insufficient information to generate wintering objectives for Ontario.

5.2 Waterfowl harvest

The fall waterfowl migration provides an important recreational opportunity for waterfowl hunters in Canada. The average annual waterfowl harvest in eastern Canada, from 1999–2006, was 2.21M birds/year. Over this period, the harvest in eastern Canada accounted for 55% of the duck, and 36% of the goose harvest in Canada. Total harvest in eastern Canada is comparable to harvest in prairie Canada, however, 65% of hunters (based on permit sales) reside in eastern Canada thus, attention to waterfowl conservation in eastern Canada is critical to the majority of Canadian waterfowl hunters. In a continental context however, Eastern Canadian waterfowl hunters accounted for only 5.8 % of the continental harvest and 29.7% of Atlantic flyway harvest (Table 3). This demonstrates that while the EHJV produces a significant proportion of the waterfowl for the Atlantic flyway, eastern Canadian hunters account for less than a third of the harvest in the Atlantic flyway.

Table 3. Eastern Canada (Ontario, Quebec, New Brunswick, Prince Edward Island, Nova Scotia, Newfoundland and Labrador) harvest as a proportion of continental and Atlantic flyway harvest. Based on mean (1999 – 2006) combined harvest for Canada and the United States.

	Eastern Canada harvest as % of continental harvest	Eastern Canada harvest as % of Atlantic flyway harvest
Total ducks	4.6	28.6
Total geese	11.6	31.9
Total waterfowl	5.8	29.7
Total permits	7.0	15.2
Black Ducks	44.4	52.5
Mallards	4.1	32.8
Green-winged teal	3.8	31.9
Ring-necked duck	7.3	27.3
Canada Goose	8.7	29.1
Snow Goose	13.7	66.0

Hunters represent an important stakeholder within the EHJV as hunters directly contribute time and resources to the conservation and restoration of wildlife habitat (WHC 2000). In spite of the fact that waterfowl hunters represent only 0.5% of the Canadian population they contribute substantially to local, regional and national economies. Estimated expenditures by waterfowl hunters were \$83M/year in 1996.

Waterfowl and other wildlife dependant species that benefit from the conservation actions of the EHJV also provide substantial benefit to non-consumptive resource users. For example, bird watching is becoming an increasingly popular activity. For example:

- 1) Bird watching contributes approximately \$6.3M annually to the local Point Pele Ontario economy alone, and wetlands are a key part of the birding experience.
- 2) In 1996, \$1.3B was invested in Canada on non consumptive wildlife associated recreation including bird watching. This activity attracted 526,000 US visitors to Canada who invested \$706.3M during their visit (Chadonnet, P.H., B. des Clers, J. Fischer, R Gerhold, F Jori and F. Lamarque. 2002. The value of wildlife. Rev. Sci. Tech. Off. Int. Epiz. 1: 15-51.).

5.3 Key Limiting Factors

The factors limiting waterfowl were developed using the best available information as well as expert opinion from waterfowl scientist and managers. Key limitations were developed for each species and period of the year when the EHJV is important for a species (Table 4). This builds on the recommendations of the 2007 NAWMP Continental Progress Assessment report for improved linkage between: 1) factors limiting waterfowl production and conservation actions, and 2) conservation actions to waterfowl population objectives. Conservation actions focus on the key limiting factors of duckling survival and settling rates for breeding waterfowl (e.g. density of breeding pairs related to the capacity of the landscape to meets the needs of breeding pairs) and will benefit priority dabbling duck. Conservation actions will address nest success for common eiders. Conservation actions focus on creating habitat conditions that will overtime create landscapes capable of supporting 1.53M IBP of EHJV priority waterfowl species.

Table 4. Key limiting factors for EHJV priority waterfowl species. Number after each species corresponds to key limiting factor. Most important limiting factors are highlighted in red.

Limiting Factor	Breeding	Staging	Wintering
1. Adult survival	Black Duck: 3,5,6,13	Black Duck: 8	Black Duck: 1
2. Nest success	Mallard: 2,4,6	Mallard: 1, 9	
3. Hen productivity		Lesser Scaup: 12	Lesser Scaup: 12
4. Pair settlement	Common Eider (dresseri): 1,2,6,8	Common Eider (dresseri): 1	Common Eider (dresseri): 1
5. Hen breeding condition	Common Eider (borealis): 1, 5		Common Eider (borealis): 1,5
6. Brood survival			Common Eider (sedentaria): 1
7. Nest sites			Long-tailed Duck: 1,11
8. Spring body condition	Canada Goose AP: 2,6	Canada Goose AP:8 Canada Goose NAP: 9	Canada Goose NAP: 1
9. Harvest mortality	Canada Goose NAP: 2,6	Canada Goose SJB: 9	
10. Survival	Canada Goose SJB: 2,6		
11. Contaminants	Canada Goose MV: 2,6		
12. Disturbance		Greater Snow Goose: 8	
13. Interspecific competition		Tundra Swan: 8	
	Cavity nesters: 7		

6.0 Shorebirds, Waterbirds, and Landbirds

In order to move towards an all-bird North American Bird Conservation Initiative (NABCI) strategy, the EHJV incorporated the tenet of all-bird conservation into its *Strategic Framework 2004-2009* document. This is exemplified by the commitment: “To work cooperatively and in concert with new and existing partners to ensure the conservation of all bird species and their habitats...”.

The diverse wetland and adjacent uplands of eastern Canada provide important habitat for a multitude of waterbirds, shorebirds and landbirds. Activities related to these groups of birds have been informed by provincial conservation plans developed for each bird group. The planning process for these species has been limited by the quality and quantity of information. Consequently the priorities and quantifiable objectives for both habitat and populations related to other bird groups are generally less developed and the targeted funding available for implementation of conservation actions, monitoring and research remains limited. However, conservation plans are evolving as more information become available and plans increasingly identify key species, conservation issues and conservation actions focused on needs of key species. This information where possible is informing conservation actions of the EHJV. For example, land securement in Atlantic Canada has increasingly included a focus on retention of key coastal shorebird habitats.

While extensive conservation planning efforts are underway for other bird groups, the short-term emphasis in most provincial implementation plans for other bird groups is on land acquisition, monitoring, research, and education/awareness.

The EHJV has committed to be a lead player in implementing all-bird conservation. However, activities will be constrained until all-bird plans are funded and ready for full implementation. In the meantime, conservation actions for waterfowl focused on maintaining the quantity and quality of habitat can benefit other wetland-dependent bird species. For example: securement of coastal wetlands is important for many shorebirds; wetland policies will protect wetlands that are critically important to waterbirds; and the implementation of biodiversity best management practices (BMP's) in the agricultural landscape will benefit landbirds.

In order for the EHJV to optimize its impacts on non-waterfowl species some adjustments need to be made in its strategy toward implementation. To date, most often it has simply been assumed that conservation actions benefiting waterfowl would also benefit other species. This will not necessarily always be the case. Planning habitat conservation projects should take into account the likely impact on key focal species in other species groups. Secondly, monitoring the response of these key focal species to habitat treatments should become embedded in the EHJV evaluation process.

To fulfill its obligations to the NABCI, Environment Canada initiated, in 2008, the development of all-bird conservation plans in each of Canada's Bird Conservation Regions (BCRs) that will incorporate new and existing plans into BCR-specific all-bird frameworks: Bird Conservation Plans. Priority setting and planning resulting from this process will provide the opportunity to develop biologically-based implementation plans for each BCR and ultimately the active integration of all-bird conservation initiatives within the EHJV (BCR 3, 7, 8, 12, 13 and 14 for EHJV) and other joint ventures.

7.0 Habitat

The EHJV spans six Provinces and encompasses 3,283,358 km² or 1/3 of Canada's landmass. Sixty six percent of the Canadian population resides within the EHJV boundaries with a decidedly southern distribution, typically along coasts and major river systems or within productive agricultural areas.

The EHJV supports 39 % of Canada's wetlands (> 120.8 million acres of fresh and tidal wetlands). Historic losses of wetlands have occurred primarily in the settled areas: along the coasts, major river systems, and within the productive agricultural areas. Much of the loss occurred prior to 1900 as land was settled by Europeans. Wetlands continue to be at risk within the settled areas of the EHJV (Figure 1), since the level of wetland protection varies across the Joint Venture.

Habitat within the EHJV supports waterfowl throughout the year. However, habitat needs of waterfowl and other wetland dependant species vary throughout the stages of their life cycle (breeding, migration and wintering). As such, conservation actions focus on retention and restoration of habitats that provide for the range of needs of the birds and relate to key vital rates (Table 4). These considerations have driven the delineation of EHJV priority areas.

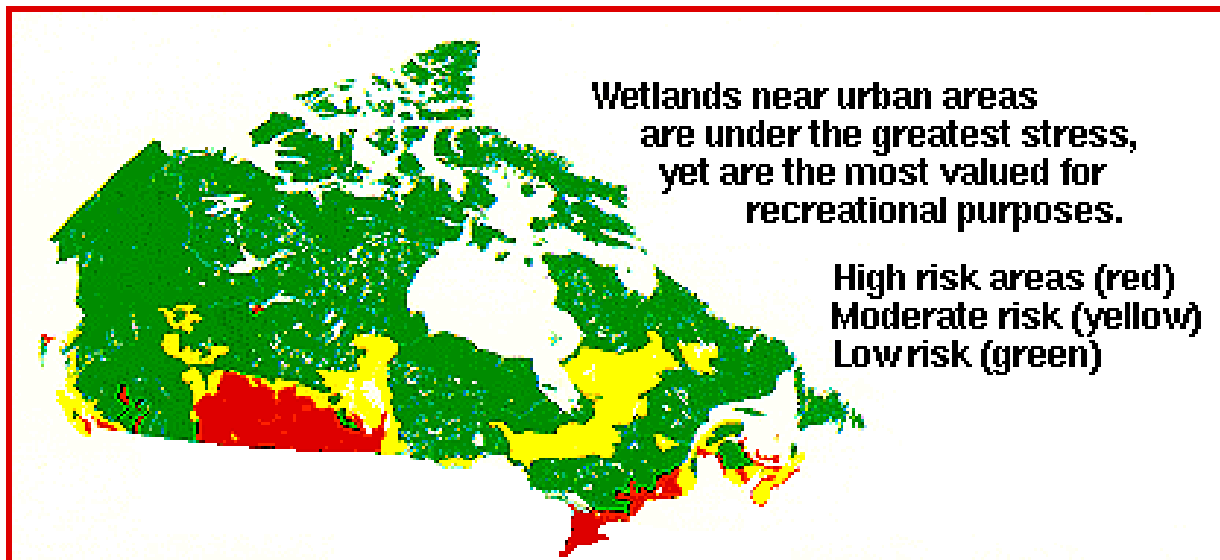


Figure 1. Distribution of wetland risks across Canada (Canada. 1991. *State of the Environment*. Ottawa: State of the Environment Reporting, Environment Canada.

7.1 Habitat Change

European settlement began in the 1600's and by the 1900's had resulted in substantive losses of wetlands along coastal (tidal and freshwater) and agricultural area. For example: 1) more the 65% of Atlantic coastal wetlands have been lost, primarily through dyking and ditching; 2) more than 45,000 km of streams have been altered and 2.47M acres of land drained for agriculture in the Saint Lawrence River Valley of Quebec; and

3) over 90% of wetlands have been lost in many agricultural areas of Ontario. Not all landscape change has been detrimental. Changes in land use practices have increased the availability of food during the migration and over-wintering period for many species; particularly for waterfowl that feed in agricultural fields.

In spite of greater awareness of the benefits of wetlands, wetlands continue to disappear from the landscape. Current rates of wetland loss and net landscape change are largely unknown and will be a key component of future habitat monitoring programs.

7.2 Threats to Habitat

Threats to wetlands are diverse and variable across the EHJV. Wetlands continue to disappear from settled areas of Quebec and Ontario, but expectations are that losses have been largely curtailed in the Maritime Provinces as a result of strong wetland protection legislation and adoption of a mitigation sequence that promotes avoidance of wetlands in permitting of development projects (i.e. road construction). Conservation and policy actions can be tailored to directly address some of the drivers of wetland conversion: drainage of wetlands in agricultural and rural landscapes; degradation of wetlands from excessive inputs of sediments; application of nutrients and pesticides; urban expansion; and contamination from oil lost at sea. Other factors like climate change are also contributing to the change in wetland quantity and quality but the conservation solution to these factors is less apparent. A priority for EHJV partners is the development and implementation of innovative conservation actions that address key waterfowl limitations while focusing on reducing key drivers of wetland loss.

7.3 Targeting

The EHJV covers a vast geographic area and varies from intensively impacted areas (agricultural and urban) primarily in the south to pristine wilderness in the north. As such, direct conservation actions will be focused in those areas where the waterfowl response is expected to be the greatest and where there is the greatest risk of future loss of wetlands namely the agricultural and coastal areas (Figure 2). EHJV partners have developed their own conservation priority areas based on their respective needs, mandates, and data availability (waterfowl and habitat). In order to develop Key Program Areas for the EHJV these priority areas were merged and focused on priority waterfowl areas primarily in the settled areas and along the Maritime and great lakes coasts (Figure 2). Conservation actions in the remainder of the EHJV land area will be undertaken through a combination of policy and stewardship and extension actions.

By monitoring gains from conservation actions and government and industrial policy changes, along with losses from land-use pressures EHJV partners will be able to assess the cumulative impacts of land-use pressures. The Maritime Provinces are well positioned to start down this path as they have detailed wetland and land-use inventories that are reassessed on 10 year cycles.

The current mix of habitats within the EHJV was determined to be sufficient to maintain waterfowl populations at only 85% of breeding goal levels; therefore habitat goals were developed to reduce the waterfowl deficit of 222,434 IBP. Given ongoing wetland

degradation and loss it is essential that conservation actions focus on both habitat retention and restoration. The costs of restoration once a wetland has been significantly degraded is substantially greater than the investment in retaining the habitat thus, conservation actions outlined within this Plan represent an attempt to balance these two methods of conservation.

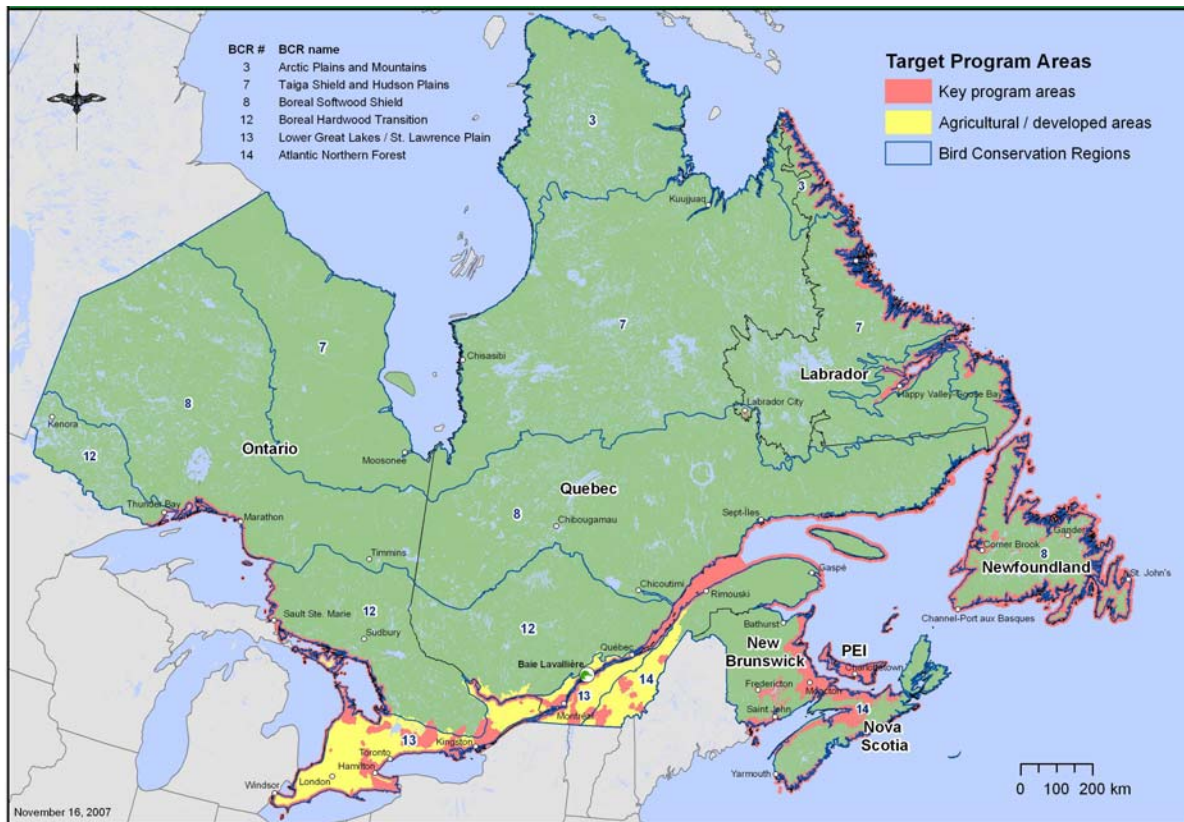


Figure 2: Eastern Habitat Joint Venture Key Program Areas.

8.0 Conservation Actions

Part of the mission of the EHJV partnership is to implement a range of conservation actions to create landscape conditions that will, overtime, eliminate the waterfowl deficit of 222,434 IBP. This will be accomplished by working at various spatial scales, and will require the use of different conservation tools specifically adapted to achieve results at the appropriate scale (Figure 3). Government policy influences actions that can potentially impact wetland conservation on a Regional or Provincial scale. Stewardship/extension programs target conservation actions at the scale of local priority areas. Retention, restoration and management activities will be implemented at the local spatial scale. These intensive activities are the most costly and will be targeted to the highest priority areas with the most appropriate conservation actions.

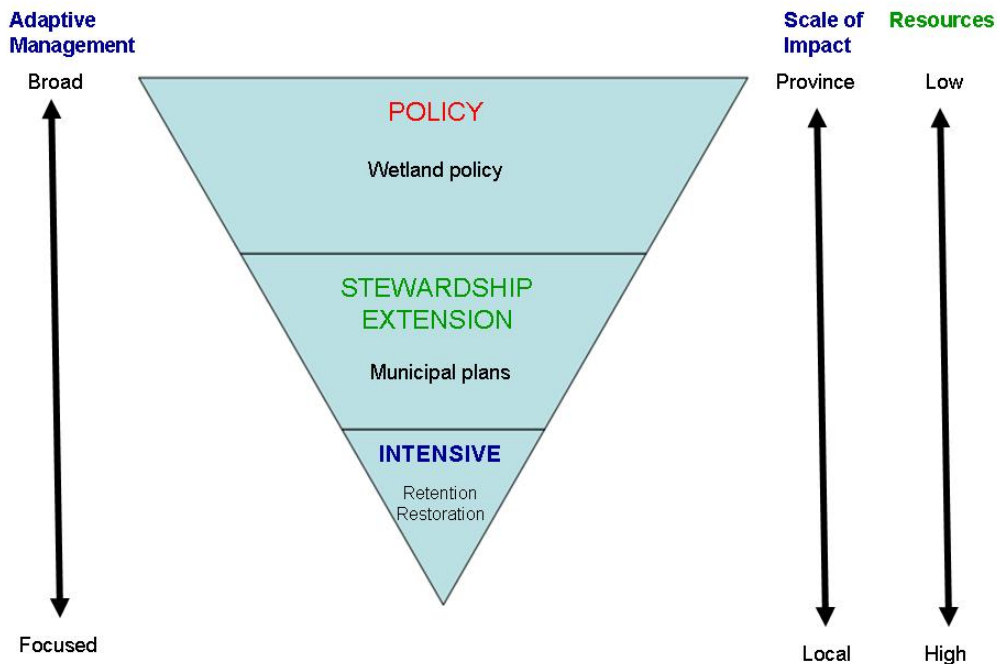


Figure 3. Integrated approach to conservation delivery.

Implementation strategies for conservation actions were developed based on key waterfowl limiting factors (Table 4), our understanding of waterfowl responses to conservation actions (i.e. 1 acre of restored wetland will support 1.4 IBP in southern Ontario), and the need for a balanced approach that provided options to a diversity of landowners with various needs and expectations. The overall conservation strategy will maintain the quality and quantity of the wetland habitat base in support of current waterfowl populations and strategically augment the habitat base through restoration and enhancement actions that increase the capacity of the landscape to support more waterfowl, thereby reducing the EHJV waterfowl deficit.

8.1 Habitat Goals

The key limiting factors for the priority waterfowl species are assumed to be duckling survival and settling rate (i.e. density of waterfowl settling to breed in a given area). EHJV habitat restoration will therefore be primarily focused on enhancing the capacity of the landscape to support breeding pairs, and increasing the survival potential of the ducklings that are produced.

The 2007 Report from the Joint Task Group for Clarifying North American Waterfowl Management Plan Population Objectives and their Use in Harvest Management (JTG) provided a specific framework for the development of integrated habitat and harvest goals. A key assumption throughout the development of this implementation plan has been that harvest rates will remain unchanged and that increased waterfowl response

will largely be the result of habitat improvement. At the August 2008 *Future of Waterfowl Management Workshop* in Minneapolis, Minnesota, U.S.A. the waterfowl community agreed that there was a need to work toward better integration of habitat and harvest management goals. Activities are underway that will improve the EHJV's ability to actively support this goal: explicit habitat-population models are currently being developed in Ontario, Quebec, and the Maritime Provinces.

In support of the overall EHJV mission this implementation plan is designed to deliver conservation actions that result in the securement of 40,582 acres of wetland and 39,591 acres of associated upland habitat and the restoration of 14,520 wetland and 13,601 upland acres. In addition, Stewardship and extension activities will influence activities on 739,430 wetland and 283,470 acres of associated uplands. In addition, management activities will be directed towards the 263,001 wetland acres currently under agreement. Estimates of waterfowl responses to these conservation actions were developed from the best available information. Completion of explicit habitat-population models will improve our ability to assess waterfowl impacts of conservation actions. Estimates of the waterfowl benefit of attaining these habitat goals are summarized in Table 5.

Table 5. Habitat goals for retention, restoration and management programs and expected waterfowl response.

Conservation action	Wetland acres	Upland Acres	Total predicted waterfowl gains
Habitat Retention			
Acquisition	17910	16278	13171 (maintain existing IBP)
Agreements	22673	23312	15646 (maintain existing IBP)
Extension	42750	111150	17528 (maintain existing IBP)
Stewardship	696680	172320	520966 (maintain existing IBP)
Habitat restoration			
Restoration	14520	136015	17943 (new pairs)
Habitat management			
	263001	344704	352403 (maintain existing IBP)

8.1.1 Habitat Retention

Direct Habitat Retention: Securement

Goal statement: Securement activities will increase the protection of the quality and quantity of wetland habitat for waterfowl and other wetland obligate species in support of current waterfowl populations.

This goal will be achieved through the implementation of a combination of direct and extensive conservation actions focusing primarily on Coastal (tidal and fresh) wetlands, Coastal islands, and wetlands within agricultural landscapes. These key areas were targeted due to the high degree of threat to these habitats as well as their value relative to sustaining the current waterfowl population base. In some instances greater investment must be made in acquisition because land prices are rapidly escalating (i.e.

coastal islands for nesting eiders). Table 6 outlines specific goals of the EHJV retention program components.

8.1.1.1 Acquisition

The goal of acquisition is to secure title to 34,188 acres of critical waterfowl habitat through fee-simple purchase or land donation. These activities are relatively expensive (Table 6) therefore detailed screening processes are in place to focus activities on the wetland habitats with the highest risk of loss and the greatest waterfowl benefits.

In Nova Scotia there are hundreds of land parcels with their title and ownership listed by Service Nova Scotia and Municipal Relations as "Owners Unknown". Many of these lands provide habitat for waterfowl and other wildlife including some of Nova Scotia's endangered or at-risk species. Nova Scotia's *Municipal Government Act* affords the Department of Natural Resources the opportunity of right-of-first-refusal of these lands in exchange for payment of the back taxes owed to the municipality. This provides a cost effective conservation program for the securement of critical land parcels that include wetlands and coastal habitats (Table 6).

Table 6. EHJV Habitat Retention program details

	Wetland acres	Associated upland acres	Total Acres	Cost (\$)	Cost/acre
Acquisition					
Fee-simple purchase	14684	15301	29985	36636420	1221
Land donation	601	514	1115	297500	267
Owners unknown	1698	1390	3088	300000	97
<i>Total Acquisition</i>	<i>17910</i>	<i>16278</i>	<i>34188</i>	<i>37233920</i>	
Other than Acquisition					
Conservation agreements	21947	21969	43916	6344000	144
Conservation easements	726	639	1365	1400000	1025
Crown designation	0	704	704	557000	791
<i>Total other than acquisition</i>	<i>22673</i>	<i>23312</i>	<i>45985</i>	<i>8301000</i>	
Stewardship					
extension	42750	111150	153900	2075000	13
influence	696680	172320	869000	9900000	11
<i>Total stewardship</i>	<i>739430</i>	<i>283470</i>	<i>1022900</i>	<i>11975000</i>	
Total	780012	323061	1103073	57509920	

8.1.1.2 Agreements

Conservation easements (purchased or donated land) are a method of habitat retention whereby the EHJV partners obtain a perpetual easement that restricts activity on the land. This approach is more cost effective than fee-simple purchase as the land is purchased or donated with the intent to retain the habitat in its current form. Taking easements does result in long-term obligations to monitor lands (1 – 2 year intervals) to

ensure that terms of the easement are honoured. This program represents a significant growth opportunity within the EHJV.

Conservation agreements are agreements between sponsoring agencies and landowners which usually have a duration of 25-year or longer (minimum 10-year), and which are not necessarily registered on title. Landowners maintain all property rights and can assume responsibility for maintaining projects, although the sponsoring agency typically assumes full management responsibility to ensure optimal project performance. These no-cost agreements contain restrictions against future uses of the land so that it might support wildlife habitat management.

Crown designation involves the transfer of the right to manage a parcel of property between government departments. Benefits of crown designation are realized when the policies and statutes of the receiving department are implemented and applied to the property.

8.1.1.3 Indirect Habitat Retention: Stewardship and Extension

Goal statement: Stewardship and extension programs focus on activities that promote or directly result in the sustainable use of wetlands and associated uplands for the purpose of conserving the quantity of wetlands to support current waterfowl populations.

The NAWMP assessment report acknowledged that conservation actions must be scaled up to landscape levels and that policy and stewardship have roles in effecting change at landscape scales. The goal of EHJV Stewardship programs is to implement activities that promote, or directly result in the sustainable use of wetlands and associated uplands, for the purposes of conserving waterfowl and wildlife and the habitats on which they depend. Stewardship activities assist land managers to understand and appreciate the importance of their involvement in wetland and upland habitat stewardship. It is expected that stewardship programs will provide additional protection to wetlands at a landscape scale so that the more intensive retention programs are not always the first or only option. The trade-off between indirect stewardship and direct securement programs is the level of certainty and longevity of protection as well as relative costs. These programs are critical to engaging local communities in the collective retention of the habitat quality necessary to sustain current waterfowl populations.

Extension activities complement the stewardship program by providing information and professional habitat advice to land managers learning about the impacts of land use on wetlands, watersheds, and natural areas. These services sow the seeds for land stewardship and future enhancement or restoration projects resulting from the landowner's own activities that require no legal or binding agreements.

Examples of provincial stewardship programs:

Agriculture Biodiversity Program

Farmers and agricultural practitioners are becoming increasingly aware of habitat conservation and biodiversity related issues. This is, in part, due to the Federal

Government's 2003 Agricultural Policy Framework and now "Growing Forward" that aim to position Canada as the world leader in food safety, innovation, and environmentally responsible agricultural production. Environmental stewardship is promoted in these policies and farmers can access technical and financial assistance to implement Beneficial Management Practices such as wetland and riparian restoration following completion of an appropriate Environmental Farm Plan. EHJV partners are assisting farmers with planning and implementing BMP's across the Maritimes and in Ontario.

Municipal Government Stewardship

The functional unit for land-use planning across the EHJV is the Municipal government as in most jurisdictions this is the level at which wetland conservation decisions are implemented. Recognition of this fact has resulted in the development and implementation of a diversity of Municipal Government Programs across the EHJV. While delivery methods vary between the Provinces the intent is universally to provide detailed information to Municipal land-use planners concerning the presence and value of wetlands so that wetland protection and restoration can be included in Municipal land-use plans. Examples include:

- Quebec Conservation Tools

In Quebec, there has been little to no wetland information available for municipal land-use planning. To address this critical gap, EHJV partners have been developing conservation tools that provide municipalities with access to information about the distribution and value of wetlands within their jurisdiction. This is a critical step to inclusion of wetland protection and restoration within their land planning process. This program will result in development of conservation tools in all 17 administrative regions in Quebec and will promote dialogue on the importance of wetland conservation that will hopefully lead to the inclusion of wetland protection and restoration in the land planning process.

- Newfoundland and Labrador(NL) Municipal Stewardship Program

This program is one of the primary tools of the NL Wetland Stewardship Program; it involves the negotiation of agreements, between sponsoring agencies and landowners (including federal and provincial Crown agencies) and land managers (including First Nations, corporate industry groups or municipalities). The agreements restrict land-use activities for a minimum of 10 years for the purposes of wildlife and habitat conservation. Restrictions allow the sponsoring agency to carry out conservation/stewardship activities in consultation with the land owner/manager. In addition, a significant component of the program involves development of stewardship zones where a stewardship ethic is promoted through the tenants of area specific conservation plans and direct interaction with the surrounding community. The overall program goal is to secure 12,350 acres and influence 148,200 acres across NL.

8.1.1.4 Summary of retention programs

A prioritization exercise ensures that activities are strategically focused toward those habitats that have the greatest impact on waterfowl limiting factors. Habitat retention activities will require the investment of \$57.5M and will secure 1,103,073 acres that will support 919,713, IBP or 60% of population objectives.

8.1.2 Habitat Restoration

Goal Statement: Habitat Restoration programs will restore hydrologic function to destroyed or degraded wetlands in high priority landscapes to reduce the waterfowl deficit.

There has been significant loss and degradation of wetlands in the EHJV priority areas (i.e. up to 90% in some areas). The focus of restoration activities therefore is to improve the capacity of the landscape to support nesting waterfowl pairs and improve duckling survival. A focus on these key vital rates will reduce the waterfowl deficit and will, over time, create conditions that support waterfowl at goal levels.

A number of enhancement and restoration techniques are used to conserve and improve hydrologic function of wetlands and habitat conditions in associated uplands. Degraded wetlands are enhanced through a range of engineering techniques, including the construction of earthen berms, the installation of water control structures or excavation to address impacts on wetland hydrology, control on invasive species. These wetland restoration techniques are used to restore and/or enhance wetland function and values, and provide small ephemeral and vernal ponds for waterfowl pairing habitat or larger permanent wetlands for brood habitat and for other wetland-associated species.

Projects are strategically located to provide the greatest possible benefit to waterfowl, for example the carrying capacity of the landscape is increased by restoring pair ponds in the periphery of larger brood rearing wetlands. These restored wetlands also enhance water storage and water quality within a watershed, and help maintain shallow groundwater levels which provide added benefits to crop production in surrounding fields.

Nesting structures are deployed in areas where large cavity trees are limiting, increase the carrying capacity of cavity nesting species. Nesting structures are deployed on islands to protect Common Eider nest from depredation by gulls. Nest structures can also provide a wetland retention function when they facilitate the signing of private landowner conservation agreement.

Invasive species removal and select plantings of native species such as wild rice are used to enhance existing wetland habitats for waterfowl. To enhance upland habitats for nesting waterfowl and other grassland birds, areas may be planted with appropriate native grass species such as big and little bluestem, switch grass, or where required, maintained in tame agriculture forages.

In agricultural landscapes, upland areas associated with wetlands are secured and nesting areas enhanced with modified agricultural techniques including conservation tillage practices, livestock grazing practices and alternate watering systems. The use of flushing bars on hay mowing equipment reduces the probability that nesting females will be killed during mowing and provides the hens with opportunities to re-nest. Establishment of cover on marginal lands provides upland nesting cover, and native tree and shrub planting increases habitat diversity.

Over the course of this Implementation Plan the habitat restoration program is expected to enhance 28,121 acres at a cost of \$23.2M (Table 7). The restoration of 14,520 wetland acres is estimated to result in habitat for an additional 17,943 IBP (Table 5).

Table 7. EHJV Habitat Restoration program

	Wetland acres	Associated upland acres	Total Acres	Costs (\$)	Cost/Acre
Habitat restoration (large wetland)	7514	10953	18467	18454607	999
tidal restoration	272		272	356170	1309
Rural wetland	1112		1112	2692700	2421
Ag. Biodiversity	335		335	730350	2180
Beaver pond	594		594	229080	385
Internal management	4693		4693	417900	89
Nest boxes (cavity)		2000	2000	395000	198
Nest boxes (eider)		500	500	120000	240
Riparian		148	148	148200	1001
lure crops				150000	
Total	14520	13601	28121	23244007	

8.1.3 Management

Goal statement: Manage wetlands and associated upland habitats in a condition that provides maximum waterfowl and wildlife value.

EHJV has secured 263,001 wetland and 344,704 upland acres since 1989 providing habitat for over an estimated 352,403 IBP, as well as habitat for a host of other wetland dependent wildlife. The managed wetland projects provide habitat that supports to 23% of the waterfowl population goal. Activities that help maintain the value of these projects for waterfowl include water level management, repairing fences, maintaining water control structures, managing beaver and muskrat activity, managing upland vegetation, and cleaning, repairing and monitoring nesting structures. EHJV partners assist in the development and review of property-specific management plans for many of the secured properties, and where appropriate, assist with the implementation of management activities (in some cases with the assistance of volunteers).

8.2 Policy

Goal statement: EHJV partners must increase the capacity of the EHJV to influence the development and implementation of regulatory and incentive-based policies to benefit wetlands and waterfowl.

The next 25 years will be a critical period for securing the future of North America's waterfowl. The spatial scales of the habitat problems facing waterfowl in priority conservation regions are large and complex. Risks to habitat are increasing and losses

have been dramatic and continue in some high priority conservation regions. A realistic appraisal of progress towards the goal of “no net wetland loss” in eastern Canada leads to the conclusion that EHJV partners will not accomplish our vision by pursuing the traditional mix of direct retention and restoration programs. Indeed, despite our efforts, landscapes, in some areas, are still being degraded faster than our work is able to restore and protect them.

The future of waterfowl in most regions is dependent upon extensive habitats that are highly vulnerable to land-use policies of both public and private agriculture, forestry and industrial interests, as well as pressures from urban expansion. Policies beneficial to waterfowl are critical to the success of the EHJV. However, while growth in policy work and science support are top priorities, we must continue to maintain direct habitat conservation programs because they accomplish important gains for waterfowl while also demonstrating our leadership and full commitment to securing and restoring habitat.

Policy refers to activities with outcomes that change or maintain government legislation, policies and programs, or industry land-use practices to benefit waterfowl and their necessary habitats. Policy efforts, if highly focused and outcome-oriented, can have impacts on habitats and land management practices at landscape scales and beyond and is therefore an important mechanism by which to reverse the trend toward habitat loss and deterioration that is most responsible for the erosion of the future of North America’s waterfowl populations.

The primary focus of policy efforts by the EHJV will include: environmental scanning that leads to issue identification and action for the EHJV; reviewing legislation and agency regulations and policies, and; influencing policy initiatives at all levels of government that are important to increasing the level of wetland protection. The EHJV must work within existing policy frameworks, promoting the positive results of beneficial policies and legislation while working in partnership, to advance changes that support waterfowl and wetland habitats.

EHJV partners have had significant successes in influencing both incentive-based and regulatory-based governmental policies. Notably, the Maritime Provinces have enacted strong wetland protection legislation that includes a commitment to “no net loss” of wetlands and includes adoption of a mitigation sequence; increasing the level of protection on 2.0 million wetland acres.

An overarching tool that may help drive policy initiatives is the Ecological Goods and Services (EGS) concept. The Millennium Ecosystem Assessment (2005) defines ecosystem services as the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fibre; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling (Millennium Ecosystem Assessment, 2005b).

There is growing recognition among landowners, governments, and other stakeholders that ecological goods and services are vital to Canada's economic and social well-being. This is largely due to the high cost to replicate ecological goods and services, which has implications for future generations. Wetlands for example provide significant value in water treatment, specifically in the reduction of nitrogen and phosphorous. In the Lake Simcoe watershed, utilizing a benefit-transfer valuation approach for the estimation of wetland services, an average annual value was calculated at \$11,172 per hectare (Wilson, 2008).

Key policy actions for the EHJV during the life of this plan include:

- 1) Maintain strong wetland legislation in the Maritime Provinces; providing enhanced legislative protection to 81,296, 940,000, and 948,370 wetland acres in PEI, NB and NS respectively.
- 2) Wetland policies are developed or enhanced in Newfoundland and Labrador, Ontario, Quebec. The goal is to help develop wetland policies for Quebec's entire wetland base estimated at 74.8M acres, develop wetland policy for Newfoundland and Labrador, and to enhance protection of 500,000 acres of key wetland habitat in southern Ontario.
- 3) Promote policies that enhance habitat conservation in the industrial sectors (Agriculture, Forestry and Mining). The agriculture sector will be influenced through the promotion of biodiversity BMP's in current and future Federal/Provincial agricultural strategies (i.e. Agricultural Policy Framework - APF) while policy in the forest sector will involve a focus on BMP's that benefit wetlands and waterfowl.
- 4) Promote valuation of natural capital through the development of an Ecological Goods and Services (EG&S) framework beyond the initial pilot projects that EHJV partners participated in.

8.3 Science

Goal statement: The science program will improve the impact of investments in conservation actions by increasing our understanding of the consequences of conservation actions through validation of biological assumptions, development of explicit habitat population models and implementation of effective waterfowl and habitat monitoring programs.

Several broad generalizations and conclusions became apparent during the development of the EHJV implementation plans. Principally, reactive, opportunistic approaches to conservation delivery will not effectively enable us to reach our goals. Consequently conservation actions should be driven by explicit biological models or, at least, clear biological objectives and testable assumptions. Since the majority of the conservation actions are carried out through partnerships, some individual projects will continue to be implemented based, in part, on unpredictable opportunities. However, the key point is that such actions should occur within the bounds of an overall conservation strategy founded on science-based decision support tools. Furthermore, to ensure the most biologically-effective investment of resources within and among EHJV priority landscapes, EHJV partners should use these models to: (1) determine the

best mix of direct programs and policy work; (2) identify milestones at which programmatic shifts in emphasis should be made; and, (3) identify clear biological “endpoints” that will indicate when our vision for a given conservation area has been achieved.

Overlying the traditional prioritization of conservation actions is the fact that the effects of climate change are increasingly apparent, e.g. drowned coastal marshes, inundated coastlands and drying wetlands. These climate-driven changes will profoundly affect our ability to manage wildlife resources and the habitats on which they depend. Preparing for, and coping with, the effects of climate change are emerging as the overarching framework for conservation. The EHJV will endeavour to understand the potential impacts of climate change in the joint venture, and look to develop effective adaptation strategies so that conservation actions today will continue to be effective into the future.

Major planning activities will be focused into three areas:

- 1) Modelling the relationship between land cover data and waterfowl survey data at the BCR level (focusing primarily on BCR 13) where the majority of the conservation actions are implemented. This work may include the development of a waterfowl productivity model using existing science and research (e.g. the Mallard Ecology Study) allowing for the impacts of changes in land cover to be assessed in terms of a breeding waterfowl response. Conservation program success at the BCR or smaller landscape level could then be predicted using the waterfowl productivity model.
- 2) Gaining a better understanding of the relationship between waterfowl populations and their habitats in keeping with the theme of the 2004 NAWMP update (*Strengthening the Biological Foundation*). This will be enhanced through active collaboration with the Black Duck Joint Venture and the Sea Duck Joint Venture (BDJV and SDJV). Modeling the linkages between waterfowl species and habitat needs and uses is critical to developing and implementing long term solutions for waterfowl conservation and our actions must be framed within this conceptual framework. The ultimate goal is to develop an explicit waterfowl habitat model that will provide insights into expected waterfowl responses to changes in landscape conditions. Currently EHJV partners are actively developing explicit habitat population models including Mallards in Southern Ontario, and Black Ducks in the Boreal forest and in the Maritime Provinces.
- 3) Investigating what climate change will mean to the EHJV, its priority species and their habitats and developing a strategic plan that will help guide policy and conservation actions in the EHJV in the future.

Science activities will allow the assessment of the efficacy of EHJV programs at different spatial scales (Figure 4).

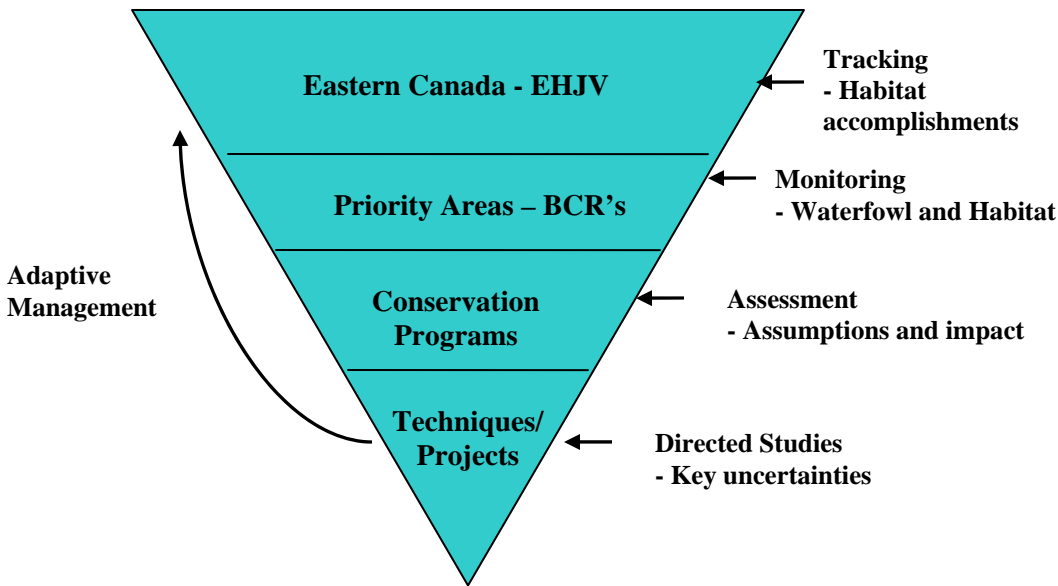


Figure 4. Conceptual framework of EHJV science program.

a) Tracking: habitat accomplishments

This represents the coarsest spatial scale and provides an evaluation at the EHJV or Provincial scale. This level will allow us to determine how many acres of habitat (wetlands and upland) have been affected through our conservation programs and will link to the national tracking system.

b) Monitoring: habitat and waterfowl changes

The second level at which we will assess the success of EHJV programs is at the priority area or BCR spatial scale. An evaluation at this level will allow us to monitor the impacts of EHJV programs on waterfowl populations and overall land use. For example, programs that monitor changes in habitat conditions should enable assessment net landscape change.

c) Program assessment

Assessment of the effectiveness of conservation programs will be done through studies that evaluate the efficacy of programs. An example of such an assessment would be assessing the success of the mitigation process in wetland policies in achieving the goal of “no net change” in wetlands.

d) Directed studies

Directed studies are small scale, short-term studies of problems or issues with implications for waterfowl, waterfowl habitat and waterfowl use of various habitats in the EHJV. Directed study projects are intended to be specific in nature and test the assumptions upon which the conservation programs for this plan have been established. Directed studies are often delivered in association with an academic institution and typically involve multiple partners; these studies often lead to modifications of operational standards or program restructuring. Current research priorities are the following: 1) the linkage between habitat and waterfowl population

biology, 2) the effects of specific waterfowl management practices on non-waterfowl species and overall biodiversity, 3) general waterfowl biology, and 4) the impact of exotic species.

e) Adaptive management

Adaptive management describes an iterative process designed to improve the rate of learning about the management of complex systems. The process incorporates an explicit acknowledgement of uncertainties and knowledge gaps about the response of the system to management actions. Reducing these uncertainties becomes one objective of management. Adaptive management is a process by which we use cyclic planning, implementation, and evaluation to improve on management decisions and performance. This approach uses current assessment and results of ongoing programs and feeds them back into the planning and implementing phases to further refine the overall delivery of programs. Over time adoption of this program delivery philosophy will increase the impact and improve cost effectiveness of conservation actions.

Science support of policy

EHJV partners will need to increase and broaden our scientific support for policy. Many seemingly unrelated but complex issues are at play and are influencing habitat loss. Urbanization, societal demographic changes, and policy related to global trade, energy, climate, and water are some issues that can adversely impact waterfowl habitat at continental and regional scales. Hence, achieving our vision will require going beyond our traditional focus on waterfowl and wetland science, agricultural science, and other areas that clearly link to waterfowl habitat conservation. This should result in efforts to develop specific EGS valuation of wetlands retention and restoration.

8.4 Communication and Education

Goal Statement: Increase the awareness of benefits of waterfowl and wetland conservation among decision makers (government and industry), the general public, and EHJV partners.

The continued long-term success of the Eastern Habitat Joint Venture will depend upon effective communication with existing partners and the interested public. The development and implementation of a communication strategy will facilitate public awareness of the EHJV as a significant multi-partnered initiative that is focused on the protection and restoration of wetland habitats, waterfowl populations, and associated wetland biodiversity. Expected outcomes from communication and education programs will include greater awareness of the EHJV mission and vision and increased public support for conservation actions. An effective communications program will also aid program integration by delivering key messages regarding wetland conservation across the joint venture and profile the initiative to potential new partners.

Communication activities will also be important in the building of policy programs under the EG&S umbrella.

General objectives of EHJV communications include:

- To promote the EHJV collaboration while maintaining the profile and conservation integrity of the individual partners.

- To increase awareness, understanding, and support within targeted audiences for the work of the EHJV.
- To use existing EHJV resources and products for the maximum benefit of the collaboration.
- To develop new communications products and tools to support EHJV development.
- To facilitate sharing among EHJV partners of programs, products, ideas, and initiatives.
- To support policy efforts through the development of tools and products aimed at the general public, landowners and government.

8.5 Performance Management

Performance measures have historically focused on acres conserved and dollars invested. Tracking these measures will continue but simple tracking of acres and dollars has not enabled EHJV partners to understand the overall impact of our conservation actions. This plan provides more quantitative waterfowl and habitat goals as well as a general commitment to improve our understanding of the cumulative consequences of conservation actions. One of the recommendations of the continental assessment was that joint ventures must strive to develop better performance metrics that reflect the impact of joint venture actions on waterfowl populations. This will likely require the development of monitoring and assessment programs that track changes in key vital rates over time and space. In addition, development of explicit habitat population models will enable us to model landscape level waterfowl response to various mixes of conservation actions. Furthermore, the commitment to monitoring of habitat (Figure 4) will over time create the ability to report on net landscape change. This is critical to demonstrating tangible landscape level impacts of EHJV's conservation actions. In addition, adoption of adaptive management strategies will enable EHJV partners to better assess cost benefits of conservation actions.

9.0 Resources

A range of conservation actions must be implemented to achieve habitat and waterfowl objectives (Table 8). The overall EHJV habitat objectives over the next 5 years is to secure 80,173 acres of wetland and associated uplands, influence thru stewardship and extension the retention of 1,022,900 acres and enhance 28,121 of these acres and manage 607,705 acres of previously secured or enhanced habitat (Table 6). Attaining these goals is estimated to require an investment of \$114.6 M from all partners (Table 8). Current commitments from all funding partners are estimated to be \$86.6M leaving a funding shortfall of \$28M.

Finding new partners and sources of revenues is a priority for the EHJV partners. Subcommittees of the EHJV board will explore various strategies to expand the EHJV partnership and increase the leverage of our collective investments. This will be possible because of the history of active engagement of partners in development and implementation of EHJV conservation actions. Key leavers that will drive this increased support include climate change and water quality and supply.

Table 8: Summary of investments required for each activity in the implementation plan

Activity	Investment required (\$)	Percent of Total
Acquisition	37,233,920	32.5
Other than acquisition	8,301,000	7.2
Stewardship and Extension	11,975,000	10.4
Restoration	23,744,007	20.7
Management	10,800,343	9.4
Policy	1,300,000	1.1
Science	11,365,000	9.9
Communications	1,600,000	1.4
Coordination	8,198,000	7.2
Common activities	100,000	0.1
Total	114,617,270	

10.0 Summary

This is an ambitious 5 year plan that will make significant advances in the extent of habitat secured for waterfowl and other wetland dependant species. In addition, the wetland restoration programs will reduce the waterfowl deficit from it current level of 222,434 breeding pairs. Conservation actions will include a balanced implementation of both direct and more indirect programs like stewardship and extension. The focus on these indirect programs will increase the scope and scale of retention activities. A strong commitment to science and adaptive management will ensure that conservation actions are increasingly focused and that our understanding of the waterfowl responses to actions is better understood. The plan requires a substantial investment of \$114.6M. Achieving the financial goals will require creative and innovative approaches to increasing partnerships and revenues to close the \$28M funding shortfall.

Appendix 1: Additional Provincial priority breeding waterfowl species (indicated breeding pairs: IBP), average population size estimate (1996-2005 surveys) and waterfowl deficit (goal-average population estimate)

Species	Objective (IBP)	Average Population Size Estimate (IBP)	Waterfowl Deficit (IBP)
Ontario			
Blue-winged teal	6000	5700	300
Wood duck	72000	64674	7326
Common Goldeneye	28000	24754	3246
Hooded merganser	44500	37263	7237
Quebec			
Wood duck	7000	3965	3035
Common Goldeneye	65400	55029	10371
Prince Edward Island			
Blue-winged teal	2000	1927	73
New Brunswick			
Wood duck	2100	1639	361
Common Goldeneye	2100	1148	952
Newfoundland and Labrador			
Common Goldeneye	20000	17676	2324
Total	249000	213775	35225