

# Habitat Conservation Plan for the Town of Whitbourne



Prepared with assistance from the  
Department of Environment and Conservation- Wildlife Division  
2013

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**August 2013**

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Department of Environment and Conservation - Wildlife Division**

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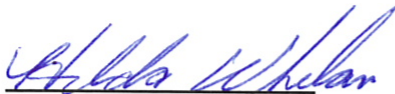
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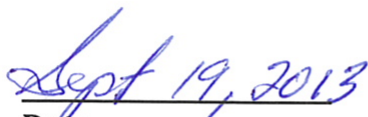
## PREFACE

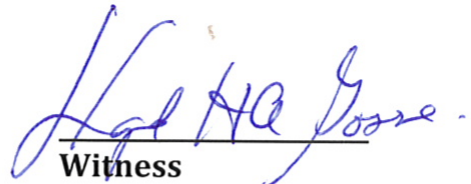
In Newfoundland and Labrador some of the waterfowl and wildlife that are in greatest danger of being negatively impacted are those influenced by residential, commercial and industrial activities within the vicinity of municipalities. In this province, the primary focus of the Eastern Habitat Joint Venture (EHJV) is to conserve valuable waterfowl habitat (wetlands and associated upland) through Stewardship Agreements. The Town of Whitbourne was identified as having just such ecologically valuable, and unique, wetland habitat located within its municipal planning boundary.

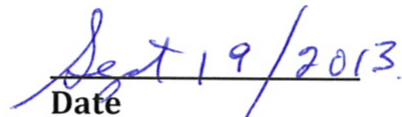
The Town of Whitbourne signed the first agreement in 1993 pledging their commitment to conservation and protection of wetlands within specified conservation areas. Later in May 2006, the Town expanded their agreement to take in more wildlife habitat, including rare lichen found in Sir Robert Bond Park. In accordance with this agreement, Whitbourne manages these areas with technical advice provided by the provincial Wildlife Division, in part via this Conservation Plan. With the signing of this plan, the agreement parties officially accept this Conservation Plan and agree to use it as a guide to govern activities within the designated Stewardship Zone and Management Units.

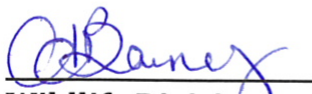
**The following signatories agree to work towards the implementation of the following "Habitat Conservation Plan" for the Town of Whitbourne:**

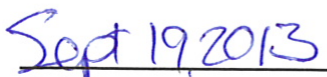
  
\_\_\_\_\_  
**Mayor**

  
\_\_\_\_\_  
**Date**

  
\_\_\_\_\_  
**Witness**

  
\_\_\_\_\_  
**Date**

  
\_\_\_\_\_  
**Wildlife Division**  
**Department of Environment and Conservation**

  
\_\_\_\_\_  
**Date**

## TABLE OF CONTENTS

Section 1: Plan Overview.....	1
Plan Purpose	
Plan Goals	
Plan Objectives	
Section 2: Wetland and Species at Risk Stewardship in Newfoundland and Labrador.....	2
Wetland Conservation	
Eastern Habitat Joint Venture (EHJV)	
NL EHJV Habitat Stewardship Program	
Species at Risk Conservation	
Species at Risk Legislation	
Habitat Stewardship Program for Species at Risk	
NL Species at Risk Stewardship Program	
The Stewardship Agreement Process	
Roles of Stewardship Agreement Signatories	
Section 3: Wildlife and Wildlife Habitat in Whitbourne.....	9
The Town of Whitbourne	
Description of the Stewardship Zone	
Description of the Management Units	
Existing Land Use and Its Potential Impact on Wildlife and on Wildlife Habitat	
Section 4: General Policies for Habitat Conservation.....	21
The Town's Commitment to Stewardship	
Benefits for Residents	
Management of the Stewardship Zone	
Management of the Management Units	
Incorporation of Management Units in Municipal Plans	
Riparian Buffers in the Management Units	
Management by Committee	
Stewardship Association of Municipalities Inc. (SAM)	
Section 5: Habitat Conservation and Education Strategies.....	25
Waterfowl Monitoring Project	
Conservation Corps Green Teams	
Artificial Nesting and Loafing Structures	
Educational Programs	
Habitat Enhancement	
Litter Removal	
Water Control Structures	

## LIST OF FIGURES

Figure 1: Hodge River Management Unit.....	13
Figure 2: Junction Pond Management Unit.....	14
Figure 3: Damage caused by ATVs.....	17
Figure 4: Female Red Crossbill.....	17
Figure 5: Banded Killifish.....	18
Figure 6: Blue Felt Lichen.....	19
Figure 7: Osprey Nesting Platform in Stephenville Crossing.....	27
Figure 8: Cavity Nest Box in Cobb's Pond, Gander.....	28
Figure 9: Bat Roosting Box in Salmonier Nature Park.....	31
Figure 10: Water Control Structure installed by Ducks Unlimited Canada at the Glynmill Inn Marsh, Corner Brook.....	35

## LIST OF APPENDICES

Appendix 1: Municipal Stewardship Agreement.....	38
Appendix 2: Stewardship Zone and Management Units.....	41
Appendix 3: Rare Lichens and Plant Inventory – Whitbourne.....	42
Appendix 4: Other Species found in Whitbourne.....	43
Appendix 5: Waterfowl Monitoring Project Protocols and Data Sheet.....	46
Appendix 6: Example of a Trail Entrance Sign (Steady Brook, NL).....	51
Appendix 7: Materials and Design for Artificial Nesting and Loafing Structures.....	52
Appendix 8: Chart of Shoreline Vegetation and Site Requirements.....	62
Appendix 9: Photo of Bird-watching (Viewing) Tower.....	65
Appendix 10: Photo of Bird Blinds.....	66
Appendix 11 Photo of Viewing Deck.....	67
Appendix 12: Appropriate Wording and Design for ‘No-Shooting’ Signs.....	68

## Section 1: Plan Overview

**Plan Purpose:** The Town of Whitbourne will use this Conservation Plan as a guide to govern activities which impact wildlife and wildlife habitat in order to minimize negative impacts within the areas designated for conservation.

**Plan Goals:** (1) To conserve wetlands, as well as rare lichen habitat, located within the designated Management Units and top positively influence wildlife habitat within the designated Stewardship Zone.

(2) To maintain and/or increase wildlife use of those areas, particularly by waterfowl and other avian species.

(3) To increase public awareness of the importance of wildlife habitats for conserving waterfowl, rare lichens and other wildlife.

**Plan Objectives:** (1) To present a general assessment of wetlands, rare lichens habitat and wildlife species designated for protection.

(2) To recommend protection, conservation and enhancement strategies for the Management Units.

(3) To describe potential initiatives for education and awareness among the public in order to increase support and cooperation of the Town's citizens.

## **Section 2: Wetland and Species at Risk Stewardship in Newfoundland and Labrador**

### **Wetland Conservation**

Human development has resulted in the destruction of many types of habitat all over the world. Wetlands are among the areas most critically affected by this development and are, in fact, one of the most sensitive ecosystems on the planet. Wetlands are unique ecosystems that often occur at the edge of aquatic (water, fresh or salty) or terrestrial (upland) systems. They may be wet year-round, wet during certain seasons, or wet during part of the day. In general, “wetland” refers to land that has the water table at, near, or above the land’s surface and refers to land which is saturated for a long enough period to promote wetland processes. In addition to bogs and swamps, wetlands include tidal marshes, forested wetlands, fens, estuaries and shallow open water (at a depth less than two meters). Healthy wetlands and associated uplands contain fresh, brackish or salt water and are some of the most biologically diverse and productive ecosystems on earth.

Wetlands play a major role in the status of continental ecosystem health, as well as regional and local ecosystem health. Wetlands serve as important buffers to flooding, function as enormous sinks for carbon and as natural reservoirs for the holding, purifying and recharging of water resources. From an economic stance, wetlands are associated with a range of values from recreational and subsistence opportunities for hunting, fishing, trapping for food and fur, the gathering of fruit and berries and for non-extractive activities like wildlife viewing, ecotourism, paddling sports and hiking. Wetlands also provide for the seasonal resource requirements of many waterfowl species and serve as important habitat for waterfowl throughout breeding, feeding, staging and over-wintering. All migratory waterfowl, many other migratory birds, and half of all threatened and endangered species depend on wetlands and associated upland habitat for their existence.

The number and diversity of North America’s wildlife species has been declining over the latter half of the twentieth century. At least a portion of this decline can be directly attributed to the loss of natural habitats to urban, industrial and agricultural expansion. Wetlands have historically been among those areas most critically impacted by human development. Canada, the United States and Mexico have signed the North American Waterfowl Management Plan (NAWMP), thereby committing to a long-term program of partnership projects aimed at assuring the survival and increase of waterfowl populations and protecting the wetland habitat on which their survival depends. A number of joint ventures, ranging from species to regional-specificity, have been established to achieve and implement the objectives of the NAWMP. The province of Newfoundland and Labrador, through the provincial Wildlife Division, became a partner of the Eastern Habitat Joint Venture (EHJV) in 1989.



## **Eastern Habitat Joint Venture (EHJV)**

The premise behind the EHJV is to conserve, enhance and restore wildlife habitat for all-bird species, in particular wetlands for waterfowl, in the six eastern Canadian provinces including Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador. Each province deals with wildlife habitat conservation issues slightly differently, depending on the unique requirements of each province and individual habitat concerns. Each provincial program, coordinated by a separate program manager, involves the cooperation of international partners, including government agencies and non-government groups, each working to forward specific goals and objectives of the NAWMP. In Newfoundland and Labrador, the program is administered through the provincial Wildlife Division of the Department of Environment and Conservation. Its local contributors, other than the province, include Ducks Unlimited Canada, Canadian Wildlife Service, Nature Conservancy of Canada and Wildlife Habitat Canada. While each province may function independently, the EHJV works towards attaining common goals of influencing wildlife habitat quality and quantity in Eastern Canada through conservation, enhancement and/or restoration initiatives.

## **NL EHJV Habitat Stewardship Program**

Wetlands have historically been affected by heavy development pressure. In Newfoundland and Labrador development pressure occurs regularly and most often within municipal boundaries. As such, wetlands that exist within municipal boundaries are often at the greatest risk of destruction or alteration and often in greatest need of conservation and/or management. Municipal Wetland Stewardship is perhaps the most successful component of the Eastern Habitat Joint Venture in Newfoundland and Labrador. Its principle goal is to help make municipalities, corporations, developers, landowners, and other wetland habitat stakeholders more aware of the value of wetlands within their jurisdiction and to empower them to take action to conserve these areas. This leads to more informed development decision-making and works towards minimizing negative impacts on wetland areas and local ecosystems as a whole.

This component of the program focuses largely upon signing Stewardship Agreements with municipalities, corporations and individual landowners who own or manage significant wetland habitat. A Stewardship Agreement represents a formal public commitment by a community, corporation, individual and the province, to act together to conserve wetlands for waterfowl. By signing a Stewardship Agreement, communities, corporations and individuals become an important link in a continental chain of conservation areas. To date there are twenty municipalities in the province, including Whitbourne, Gander, Carmanville, Come By Chance, Stephenville Crossing, Spaniard's Bay, Bay Roberts, Torbay, Winterland, Springdale, Gambo, Grand Falls-Windsor, Channel-Port aux Basques, Happy Valley-Goose Bay, St. John's, Wabush, Labrador City, Hawke's Bay, Deer Lake and Steady Brook who have signed Municipal Wetland Stewardship Agreements. Corporate

Stewardship Agreements have also been signed by the Iron Ore Company of Canada and Corner Brook Pulp and Paper Limited. Private landowners in several of the communities surrounding the Grand Codroy Estuary (an estuary of international significance) as well as Burgeo have also been involved with the signing of Landowner “Good Steward” Agreements, demonstrating individual commitment to local wetlands and waterfowl habitat.

### **Species at Risk Conservation**

Wildlife and their habitat play a vital role in the ecological and biological processes that are essential to life itself. The functioning of the biosphere, and hence the maintenance and enhancement of human life, depends on countless interactions among plants, animals, and microorganisms. These ecological processes are essential for agriculture, forestry, fisheries, and other endeavors necessary to human life. They also help maintain environmental quality by degrading and otherwise removing some pollutants and by preventing waste accumulation. Some of the biological processes in which wild species play a key role are pollinization, germination, seed dispersal, soil generation, nutrient cycling, predation, habitat maintenance, waste breakdown, and pest control.

Wildlife and wildlife habitat are also important for the preservation of genetic diversity. Canada’s agriculture, forests, and fisheries all rely on crops or stocks that are adapted to local or regional conditions and that can withstand pests, diseases, predators, pollutants, and other threats. The diverse genetic material present in Canada’s heritage of living resources can help ensure that the forest, crops, and stocks Canadians rely on will remain varied and resilient enough to withstand an ever-increasing list of threats. Likewise, in medicine, the development of new drugs and treatments depends greatly on wildlife and wildlife habitat. In fact, most pharmaceutical products were discovered or developed by studying wild species, not invented on the basis of the principles of chemistry.

The sheer scale of the benefits provided by wildlife offers compelling reasons for maintaining wildlife populations and habitats in a productive, healthy state. However, wildlife is under stress. Species are disappearing at a faster and faster rate. In 1994, 117 species or population of birds, mammals, reptiles, fish, amphibians, and plants were listed as endangered or threatened in Canada. And wildlife habitat is disappearing even faster as it is drained and cultivated, paved over, or strip-mined as industrialization proceeds apace. The loss of species affects us all and can have unforeseen consequences for our ecosystems.

Many species around the globe and within Newfoundland and Labrador are in trouble because of the threats they face, most of which are caused by humans. Habitat destruction and disturbance are the major factors, but pollution, climate change, accidental trapping, over-harvesting, and introduction of invasive species

are all major problems as well. Natural processes like predation, disease and extreme weather events are also factors that threaten species.

### **Species at Risk Legislation**

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent group of nationally recognized experts, who assess data on wildlife species considered potentially “at risk” in Canada and place them in one of five categories: extinct, extirpated, endangered, threatened, or special concern. COSEWIC’s assessment process is based on a rigorous criteria system that not only recognizes scientific sources but also places a significant emphasis on information from the people who live on the land and have an intimate familiarity with the animals and plants around them.

After receiving a recommendation from COSEWIC, the federal and provincial governments consult with relevant Ministers, wildlife management boards and the public to consider many factors, including possible social and economic implications of listing the species. The governments then decide whether to add the species to the List of Wildlife Species at Risk. Once a species is listed, provisions under the *Endangered Species Act (ESA)* of Newfoundland and Labrador and the Government of Canada’s *Species at Risk Act (SARA)* apply to protect and recover the species. The *Endangered Species Act (ESA)* of Newfoundland and Labrador seeks to ensure the recovery of species deemed to be at risk. The Act makes it an offence to harm an endangered species with individual fines ranging from \$1,000 to \$50,000 and/or 3 months imprisonment upon first conviction. Corporation fines can range from \$2,000 to \$100,000 upon first offence. Additionally, the court may impose a fine of less than or equal to \$10,000 for each day the offence continues.

The Government of Canada’s *Species at Risk Act (SARA)* is designed as a key tool for the conservation and protection of Canada’s biological diversity and fulfils an important commitment under the United Nations Convention on Biological Diversity. The Act seeks to complement other existing federal, provincial and territorial legislation protecting wildlife. The purpose of SARA is stated as to prevent wildlife species from becoming extinct or extirpated (lost from the wild in Canada); to help in the recovery of extirpated, endangered or threatened species; and to ensure that species of special concern do not become endangered or threatened. The *Species at Risk Act (SARA)* is just one of three major components in the Government of Canada’s Strategy for the Protection of Species at Risk. The second component is the federal Accord for the Protection of Species at Risk a general policy document endorsed by the provinces, territories and the Government of Canada. The third component is Environment Canada’s Habitat Stewardship Program for Species at Risk (HSP) which provides funds for the implementation of recovery plans for species at risk.

## **Habitat Stewardship Program for Species at Risk**

The Habitat Stewardship Program for Species at Risk (HSP) is a partnership-based conservation initiative funded by the Government of Canada designed to protect the habitat of, and address the recovery for, species at risk in Canada. The Program is administered by Environment Canada (EC) and managed cooperatively with Fisheries and Oceans Canada (DFO) and the Parks Canada Agency (PCA). The HSP provides funding to "stewards" for implementing activities that protect or conserve habitats for species designated as "at risk" (endangered, threatened, or of special concern). The HSP became operational in 2000-2001 and allocates up to \$10 million per year nationally to such partner-led projects. The overall goal of the HSP is to "contribute to the recovery of endangered, threatened, and other species at risk, and to prevent other species from becoming a conservation concern, by engaging Canadians from all walks of life in conservation actions to benefit wildlife."

## **NL Species at Risk Stewardship Program**

In Newfoundland and Labrador wildlife habitat development occurs regularly and most often within municipal boundaries or on private property. As such, species at risk habitat that exists within municipal boundaries is often at the greatest risk of destruction or alteration and is in greatest need of conservation and/or management efforts. The Newfoundland and Labrador Department of Environment and Conservation implements a Species at Risk Stewardship Program, administered by its Wildlife Division, whose principle goal is to help make municipalities, corporations, developers, and landowners more aware of the value of species at risk habitat within their jurisdiction and to empower them to take action to conserve these areas. This leads to more informed development decision-making and works towards minimizing negative impacts on species at risk habitat and local ecosystems as a whole.

The program focuses largely upon signing Species at Risk Stewardship Agreements with municipalities, corporations and individual landowners who own or manage significant habitat important to Species at Risk. A Species at Risk Stewardship Agreement represents a formal public commitment by a community, corporation, or individual and the province, to act together to conserve habitat for species at risk. By signing such an Agreement, communities, corporations and individuals become an important link in a continental chain of conservation areas. To date, six municipalities in the province have signed Habitat Stewardship Agreements which impact species at risk including Channel – Port aux Basques, Stephenville Crossing, Flower's Cove, Port aux Choix, Winterland, and Whitbourne.

## **The Stewardship Agreement Process**

Initial contacts are generally sought by both Wildlife Division staff and local community leaders who wish to take action to conserve coastal, wetland and/or upland habitat. A determination is made between the parties of whether there exists mutual interest in pursuing a Stewardship Agreement (Agreement shown in Appendix 1). Surveys within a certain area of interest are carried out by the Wildlife Division to confirm that a significant relationship exists between coastal, wetland or upland habitat and local wildlife using those areas.

Following these positive assessments, more intensive field investigations will be carried out to determine and agree on formal boundaries for "Management Units". Management Units are significant habitat areas that have been identified as important to wildlife. Management Units are intended to be incorporated as environmentally "sensitive areas", "conservation areas" or "protected areas" within municipal planning documents as governed by the Urban and Rural Planning Act (2000). These areas are, consequently, set aside by a community, individual or corporation in an effort to prevent habitat alteration and diminished ecological function or degradation that might be caused by development.

When sufficient information has been gathered, a preliminary proposal is presented to a community, individual or corporation for review, with suggested boundaries for Management Units clearly indicated (Map of the Management Units found in Appendix 2). After the Management Units have been agreed upon by all parties, a formal Stewardship Agreement will be signed between the presiding body (town, corporation, or landowner) and the province. Under this agreement, the town, corporation or landowner maintains ultimate control over all areas under its jurisdiction, but are asked to abide by the details of the Stewardship Agreement.

After the signing of a formal agreement, Wildlife Division staff will assist the community, corporation or individual in preparing an area specific Habitat Conservation Plan. This plan will serve to offer best management practices and will provide recommendations and advice for conserving, enhancing and/or managing the wildlife habitat contained within a body's area of authority. In the case of a municipal agreement, once the Habitat Conservation Plan has been accepted by council it is intended that it will be then incorporated into the town's existing or future municipal plan, operating plan or master plan for use during future development decisions. More generally, a Stewardship Agreement is signed with the idea that when land use decisions are made, the value of wildlife habitat will not be forgotten and that future land-use activities will not have a negative impact upon these values.

## **Roles of Stewardship Agreement Signatories**

“The Province” - The Minister of Environment and Conservation is generally the designated signatory on behalf of the province. The Wildlife Division administers the Eastern Habitat Joint Venture in Newfoundland and Labrador. As such, staff of the Wildlife Division are assigned to implement, on a provincial basis, the NL EHJV Stewardship program.

As a result of signing a Stewardship Agreement, staff of the Wildlife Division are expected to:

- Provide the Town with technical advice and assist in the development of a Habitat Conservation Plan.
- Review proposed developments within the Management Units that have the potential to impact that wildlife habitat.
- Assist in carrying out, where appropriate, education and information initiatives to raise awareness of wildlife, wetland and coastal related issues, and
- Support community-based conservation groups in implementing the Stewardship Agreement and Habitat Conservation Plan.

As a result of signing a Municipal Habitat Stewardship Agreement, the Municipality and its designated Mayor/Council are expected to:

- Ensure that significant wildlife habitat areas designated as Management Units are protected from destruction or degradation and to contact the Wildlife Division in a timely manner when activities are proposed that may negatively impact that habitat.
- Incorporate the Stewardship Agreement and Habitat Conservation Plan into its next Municipal Plan draft or revision with the assistance of the Wildlife Division.
- Educate residents and development planners about the stewardship program and their responsibilities, with the assistance of the Wildlife Division.
- Implement, over time, the Habitat Conservation Plan recommendations in the community at large.
- Participate in the Stewardship Association of Municipalities Inc (SAM), a province-wide organization made up of municipalities which have signed Stewardship Agreements.

## Section 3: Wildlife and Wildlife Habitat in Whitbourne

### The Town of Whitbourne

The Town of Whitbourne, with a population of 855 (Statistics Canada, 2006), is located on the central portion of the Avalon Peninsula in Newfoundland. The Town is approximately 4 kilometers south of the Trans Canada Highway and approximately 94 kilometers west from the city of St. John's.

Whitbourne was Newfoundland's first inland town and was named after an early settler, Sir Richard Whitbourne. The history of the central Avalon Peninsula community is strongly linked to the Newfoundland Railway. The Town was originally known as the Harbour Grace Junction and the railway provided economic prosperity to the area. With the province-wide retirement of the railway, the local economy took a down-turn and the Town had to find alternative employment opportunities to remain viable.

The Town has continuously evolved to meet the demands of the present day and has remained a productive and respected community. Today, because of the location and rich history of the Town, they thrive excessively on the tourism industry. The Town boasts of many attractions including the Sir Robert Bond Park that contains a very rare species of lichen, the Blue Felt Lichen (*Degelia plumbea*), belonging to the group of lichens known as the *Cyanolichens*. Other areas of interest within the Town include the Wetland Conservation Trail, the Heritage Museum/Railway Museum, and the Rodrigues Winery that was first opened in 1993.

The Town of Whitbourne contains a large number of wetlands which waterfowl depend on. These wetland areas provide excellent habitat for a number of migratory and permanent waterfowl species. These areas are utilized by a variety of ducks, fish, and songbirds including the provincially vulnerable Banded Killifish (*Fundulus diaphanus*) and the endangered Red Crossbill (*Loxia curvirostra percna*) that depend on the seed cones of mature coniferous trees. Many species of birds inhabit the Town of Whitbourne and utilize the area for staging, over wintering, nesting and brood rearing. These significant areas were identified by the Town Council and residents of Whitbourne, as well as Staff of the Wildlife Division, and are now designated as areas that should be protected from destruction and degradation.

Nearly two decades ago the Town Council of Whitbourne was approached by the Wildlife Division in a request to sign a Municipal Stewardship Agreement to help protect wetlands and waterfowl within their Town boundaries. On May 31<sup>st</sup>, 1993, Whitbourne signed the Agreement and became the first municipality in Newfoundland and Labrador to take part in the program.

Thirteen years later, in 2006, Mayor Lloyd Gosse resigned an amendment to the Municipal Stewardship Agreement reaffirming the Town's commitment to wildlife habitat conservation by doubling the size of the Management Units. The Town not only assured their commitment to wetland conservation for specific conservation areas, but also maintained biodiversity through the protection of rare lichens that is associated with one of the new Management Units.

This Habitat Conservation Plan applies to the Town's Stewardship Zone and the Management Units within it. A significant portion of important wildlife habitats within the Town are included in Conservation Areas, with special emphasis on waterfowl habitats, as well as the rare lichens found within Sir Robert Bond Park.

### **Description of the Stewardship Zone**

*\* An overview map showing the Stewardship Zone is found in Appendix 2.*

The Whitbourne Stewardship Zone was created to assist the Town with its decision making, Town with its decision making; providing awareness of the effects of development on wildlife and the surrounding habitat. When the Stewardship Agreement was first signed in 1993, the Town and residents became stewards of the wildlife habitat within this area. They have committed to using a stewardship ethic in all decisions involving existing habitat to minimize and eliminate the effects of human activity on wetlands within the community.

When Stewardship Agreement Expansion was signed in 2006, Whitbourne's Stewardship Zone tripled in size. This area currently matches the entire Municipal Planning Boundaries of the Town, which is approximately 11,689 acres in size and is located south of the TCH. The northern portion of the Stewardship Zone extends east parallel to the TCH for approximately 11 km and then runs south encompassing the Hodge River Watershed. This watershed, also known as the Town's water supply, was previously identified by the Town as critical waterfowl habitat and was already protected in the Town's Municipal Plan. The southern part of the Stewardship Zone continues west along the Newfoundland T'railway for approximately 6km. The boundary continues to extend west, including Healey's Pond, Junction Pond and the Sir Robert Bond Park, until connecting with Highway 100. Once connecting with Highway 100, it runs north to meet the TCH. The Stewardship Zone includes all ponds east of Highway 100, from Crooked Gully to the Hodge River watershed encompassing a large number of small ponds, marshes and upland areas. Each wetland and upland contains a wide diversity of vegetation that is utilized by a large number of birds, including waterfowl, songbirds, raptors, as well as fish. The area is also home to the endangered Red Crossbill (*Loxia curvirostra percna*), the vulnerable Rusty Blackbird (*Euphagus carolinus*), Short-eared Owl (*Asio flammeus*) and Banded Killifish (*Fundulus diaphanus*), as well as the at-risk Blue Felt Lichen (*Degelia plumbea*) found in Sir Robert Bond Park.



## Description of the Management Units

\* An overview map showing all Management Units is found in Appendix 2.

Management Units are areas of critical importance to waterfowl, generally providing prime habitat for nesting and brood rearing. In the case of Whitbourne, not only does the Town's Management Units consist of those important waterfowl habitat but it also represents populations of the endangered Red Crossbill (*Loxia curvirostra percna*) and habitat for the at-risk Blue Felt Lichen (*Degelia plumbea*) and other rare species like the Powdery Kidney Lichen (*Nephroma laevigatum*), Smooth Lungwort (*Lobaria quercizans*) and the Acadian Quillwort (*Isoetes acadensis*) found in the Sir Robert Bond Park (see Appendix 3 for list of at-risk species).

The majority of the Town's Management Units consist of over a dozen small ponds scattered throughout the Town Boundaries; two significant areas, the Hodge River Watershed and Junction Pond and numerous smaller ponds including Mill Pond, Island Cove Pond, Jones Pond, Baby Pond, Healey's Pond and Crooked Gully Pond. The Management Units in the Town have a 30 meter buffer around the waterbodies and is approximately 1,826 acres in size.

Habitat within the Town of Whitbourne, and within the extent of the Management Units, consists almost entirely of Balsam Fir (*Abies balsamea*) stands with scattered Black Spruce (*Picea mariana*), Yellow Birch (*Betula alleghaniensis*) and European Larch (*Larix decidua*), all favoring the moist woodlands and forested areas. Habitat within the larger portion of the Management Units contains low lying vegetation including Sheep Laurel (*Kalmia angustifolia*), Purple-flowering Rhodora (*Rhododendron canadense*) and Lowbush Blueberry (*Vaccinium angustifolium*). These areas provide habitat, not only for staging and brood rearing waterfowl, but also protects nesting females from predators.

Other vegetation in these areas include Sphagnum Moss (*Sphagnum platyphyllum*), Broom Moss (*Dicranum scoparium*), Feather Moss (*Hamatocaulis vernicosus*), Mountain Alder (*Alnus incana* spp. *tenuifolia*) and Mountain Ash (*Eucalyptus regnans*). Most Management Units in the Town also contain shallow water, bogs and submergent vegetation like Cotton Grass (*Eriophorum angustifolium*), Woolgrass (*Scirpus cyperinus*), Three-way Sedge (*Dulichium arundinaceum*), Water Horsetail (*Equisetum fluviatile*) and Bulrush (*Scirpus pedicellatus*).

Habitat in the Town support many species of songbirds, waterfowl, raptors and mammals. A number of songbirds were observed and recorded in the area, some of which include the endangered Red Crossbill (*Loxia curvirostra percna*), the vulnerable Rusty Blackbird (*Euphagus carolinus*) and Short-eared Owl (*Asio flammeus*), Blue-headed Vireo (*Vireo solitarius*), Blue (*Cyanocitta cristata*) and Gray Jays (*Perisoreus canadensis*), Yellow-rumped (*Setophaga coronata*) and Black and White Warbler (*Mniotilta varia*), White-throated (*Zonotrichia albicollis*) Sparrow,

Fox (*Passerella iliaca*), House (*Passer domesticus*) and Lark Sparrow (*Chondestes grammacus*), Tree Swallow (*Tachycineta bicolor*), Barn Swallow (*Hirundo rustica*), Boreal (*Poecile hudsonicus*) and Black-capped Chickadee (*Poecile atricapillus*), Hermit Thrush (*Catharus guttatus*), Swainson's Thrush (*Catharus ustulatus*), Northern Waterthrush (*Parkesia noveboracensis*), Ruby-crowned Kinglet (*Regulus calendula*), Dark-eyed Junco (*Junco hyemalis*), Pine Grosbeak (*Pinicola enucleator*) and Purple Finch (*Haemorhous purpureus*). Some migratory shorebird species include Wilson's Snipe (*Gallinago delicata*), Greater Yellowlegs (*Tringa melanoleuca*), and Least Sandpiper (*Calidris minutilla*). As well, Moose (*Alces alces*), Mink (*Neovison vison*), Snowshoe Hare (*Lepus americanus*), Red Fox (*Vulpes vulpes*), Beaver (*Caster canadensis*), Muskrat (*Ondatra zibethicus*) and the provincially vulnerable Banded Killifish (*Fundulus diaphanus*) are other species that have been observed around forest and in and around wetlands of the Town. (See Appendix 4 for full list of avian species)

### **Hodge River Management Unit (Figure 1)**

Hodge River is located east of Whitbourne and bordered to the south of the TCH and north of the T'railway. The east and west boundaries, however, are not defined by any man-made structure. The area is approximately 1,367 acres in size and consists of many wetlands, including Hodge River, small surrounding ponds, as well as, numerous marshes and other wetlands. The Management Unit spans approximately 7 km from the most easterly point to the most westerly point and is approximately 1 km in width, at the largest cross section.

Hodge River is one of the most important Management Units within the Town and encompasses most of the wetlands and surrounding uplands east of the Town. Surveys have shown that waterfowl in this area use gullies and marshes within the river as primary nesting and brood rearing sites, as well as abundant supply of aquatic vegetation and associated invertebrates, suitable for feeding waterfowl. With the large amount of adequate cover the site also offers protection from predators, which help to explain the reason for the large numbers of waterfowl in the area. It was estimated that up to 25 broods of waterfowl are produced there each year. Some of those species include American Black Duck (*Anas rubripes*), Ring-necked Duck (*Aythya collaris*), Green-winged Teal (*Anas crecca*), Common Goldeneye (*Bucephala clangula*) Canada Goose (*Branta canadensis*) and Common Loon (*Gavia immer*).

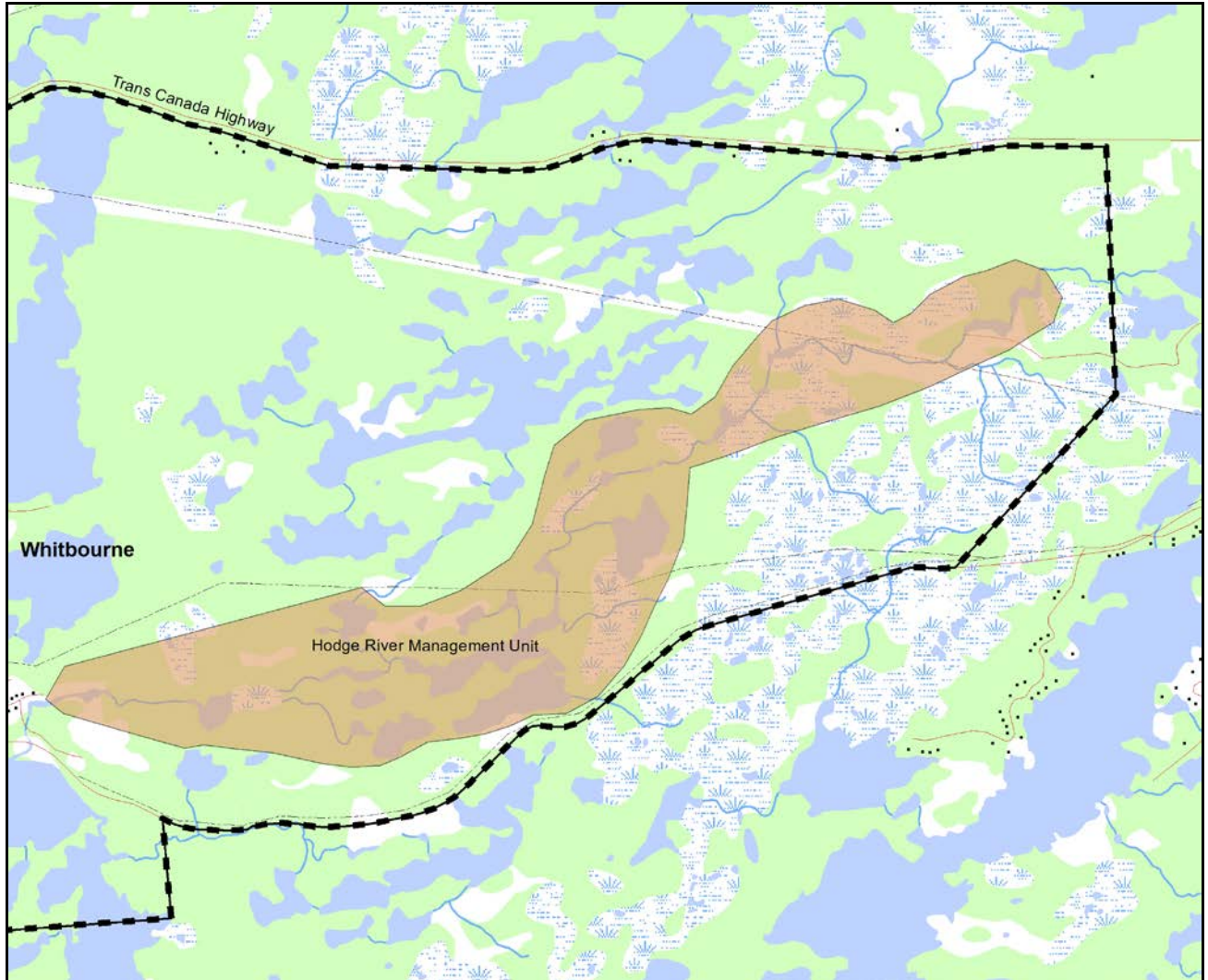


Figure 1 - Hodge River Management Unit

### Junction Pond Management Unit (Figure 2)

The Junction Pond Management Unit, located in the southern portion of the Town, is approximately 1.5 km in length, 650 meters in width, and has an area of approximately 158 acres. The Management Unit has a 30 meter buffer around the entire pond and also encapsulates Sir Robert Pond Park, which is approximately 5.5 acres. This Management Unit is the second largest in the Town and is a great location for waterfowl as well as songbirds, raptors and other wildlife. The pond contains mostly softwood trees with a number of hardwood shrubs, such as Black Alder (*Alnus glutinosa*), along the riparian area of the pond. It also contains adequate habitat for nesting and feeding waterfowl. Some vegetation utilized include common grass, rush and sedge species like Creeping Spikerush (*Eleocharis palustris*), Claspingleaf Pondweed (*Potamogeton perfoliatus*), Nodding Sedge (*Carex gynandra*), Black Sedge (*Carex nigra*), Creeping Spearwort (*Ranunculus flammula*) and Berchtold's Pondweed (*Potamogeton pusillus*). Rare species such as Acadian Quillwort (*Isoetes acadiensis*), Whorled Watermillfoil (*Myriophyllum verticillatum*)

and Floating Heart (*Nymphoides cordata*) were also recorded in the area. Other vegetation found in the vicinity of the Park include the rare Common Bugle (*Ajuga reptans*) and European Selfheal (*Prunella vulgaris subsp. vulgaris*). The Park is also home to the rare Blue Felt Lichen (*Degelia plumbea*) which is flourishing on a number of tree species, like the Norway Maple (*Acer platanoides*) and Sycamore Maple (*Acer pseudoplatanus*) where the Sir Robert Bond's country estate once stood. The Town Council, as well as the community, joined with several organizations to develop education and awareness tools to help raise the profile of the rare lichen within the park. Numerous interpretative panels are erected in the area talking about the history of the Park, as well as the rare lichens found there.



Figure 2 - Junction Pond Management Unit

## **Existing Land Use and Its Potential Impact on Wildlife and on Wildlife Habitat**

### **Residential/Commercial Development**

The Stewardship Zone in Whitbourne follows and encompasses the total area inside the Town's Municipal Boundaries therefore residential and commercial development is known to exist within its boundaries. No development, however, is known to have occurred within the Town's Management Units where it would likely negatively alter the overall ecological integrity and function of the impacted area.

### **Fishing**

Recreational fishing can occur within the Management Units and Stewardship Zone. Fisher-people should be reminded that a provincially *vulnerable* species of fish, the Banded Killifish (*Fundulus diaphanus*), inhabits ponds within the Town.

Fisher-people should also be reminded that waterfowl are easily disturbed during the nesting and brood rearing period (May to mid-July). If fisher-people do encounter waterfowl during this period, it is recommended they use discretion so as not to disturb the birds. Broods are very susceptible to predation when left unattended and during the nesting period adult waterfowl will often abandon the nest if disturbed. When constructing docks or other structures, known nesting sites should be avoided and the Wildlife Division should be contacted if such a structure is proposed within the Town's Management Units.

### **Hunting**

The hunting of waterfowl and other wildlife species often occur within Town's Management Units and Stewardship Zone as per existing Wildlife Regulations. These regulations dictate that it is illegal to discharge a firearm within 300 meters of a dwelling or within 1000 meters of a school, playground or athletic field.

It is the assessment of the Wildlife Division that hunters play a significant role in conserving migratory birds, and wildlife populations as a whole, when they respect wildlife habitat and support legal harvest limits. By setting an example of ethical hunting practices, each hunter helps to ensure a future for hunting wildlife, particularly waterfowl. Complying with non-toxic shot regulations will also help conserve the health of bird populations and their habitat.

### **Wood Cutting**

Domestic wood harvesting occurs within the Town of Whitbourne however, residents should be reminded that wood harvesting is not permitted within the Town's Management Units.

**Tourism/Recreation**

The current use of recreational activities in and around waterbodies within the Town's Management Units are not of concern. An increase in recreational use does provide ample opportunity for the implementation of educational programs and habitat enhancement projects. This also provides a great opportunity to raise awareness and educate visitors and residents about the importance of wildlife and wildlife habitat within the community.

The Sir Robert Bond Park is very popular for tourist; as well it provides a great outdoor classroom for students to learn about the rare lichen, Blue Felt Lichen (*Degelia plumbea*), and other rare species found thriving in the Park. There are many interpretive panels throughout the Park explaining the history of lichens, its threats and ways in which we can help ensure their existence in the future.

Other recreational activities, such as hiking, walking, and biking are also becoming more popular activities for many residents and visitors to Whitbourne. As well, the railway bed in Whitbourne, currently extending through the Stewardship Zone as well as two Management Units, is currently used as part of the Trans Canada Trail. The Trans Canada Trail is a 21,500 kilometer trail from British Columbia to Newfoundland and once completed it will be the world's longest recreational trail and provides people with scenic views of the province's wide range of landscapes. Residents, and visitors alike, should be reminded that the use of ATVs on bogs, streams and other wetlands are prohibited.

**All Terrain Vehicle (ATV) Use**

Due to the fact that some areas within the Stewardship Zone and within some Management Units are populated with waterfowl, hunting is common. Hunters often use ATV's instead of vehicles in the area because it allows for fast and easy access to hunting areas. ATV's are also used for leisure time activities and very often they are used on bogs, rivers and streams. Damage to these areas may not seem noticeable after one use, however, after time the vegetation in these sensitive habitats become destroyed and siltation into lakes and streams becomes evident, especially to spawning fish and amphibians. ATV use will also cause increased erosion in areas of heavy use and has the potential to impact wetland functions. It is recommended that ATV use be minimized to conform to the terms of the All-Terrain Vehicle Use Regulations (1994) and proper signage and enforcement continue to be used in areas where ATV are restricted. (Figure 3)



Figure 3 – Damage caused by ATVs. Photo by: Charmaine Barney

### Litter

The illegal dumping of garbage does not seem to be a common activity within the Stewardship Zone and Management Units; however, dumping is becoming a rising concern in a lot of municipalities. Projects involving local community groups, such as Conservation Corps Green Teams, could be initiated in the area if dumping should occur. These groups can assist the community in a clean up of the area affected and remove any foreign materials. Additionally, to help prevent this problem from occurring, signs could be posted at access points to wetlands within the community.

### Species at Risk

The Town of Whitbourne has a number of species at risk within the Stewardship Zone and Management Units. Some of the most predominant species at risk include the endangered Red Crossbill (*Loxia curvirostra percna*), the vulnerable Banded Killifish (*Fundulus diaphanus*), Rusty Blackbird (*Euphagus carolinus*), Short-eared Owl (*Asio flammeus*) and the Blue Felt Lichen (*Degelia plumbea*).

#### Red Crossbill:

The Red Crossbill *percna* subspecies (*Loxia curvirostra percna*) (Figure 4) is a medium-sized finch, which uses its crossed beak to pry open conifer cones. They are similar in appearance to the White-winged Crossbill but are distinguished by



Figure 4 – Female Red Crossbill (*Loxia curvirostra percna*). Photo: Unknown

their lack of white wing bars and other crossbill species by their thicker bill. This subspecies of Red Crossbill are both provincially and federally listed as endangered with an estimated population of 500-1500 individuals on the Island and are associated with the coniferous forest, with the highest numbers of observations occurring in the older, mature forest of western Newfoundland. The range of this subspecies is endemic to eastern Canada, however, there have been sporadic reports in other Atlantic provinces but it is likely that they are restricted to Newfoundland.

Some limiting factors to the Red Crossbill include degradation and modification of the boreal forest, insect and fungal infestations and forestry practices that pose a direct threat to the overall cone production on the Island. Other threats include potential competition with Red Squirrel (*Tamiasciurus hudsonicus*) for food (particularly during periods when cones are less abundant), predation on crossbill nests and forest fires.

There are a number of stewardship initiatives that the Town of Whitbourne and its residents can get involved in within their community. Some of these activities might include the conservation of Red Crossbill habitat (coniferous forest consisting of spruce and pine) on private land, participate in bird surveys and bird counts in your community and report sightings to the Wildlife Division or [www.ebirds.ca](http://www.ebirds.ca), which is the website determined by the Landbird and Shorebird Recovery Team's as the central database for reporting bird sightings. The Town can also organize an annual community-based bird survey and educate others about the importance of conserving Red Crossbill within Whitbourne.

#### Banded Killifish:

The Banded Killifish (*Fundulus diaphanus*) (Figure 5) is a small, elongated fish about 5 to 10cm long and has a slender body that is slightly flattened at the back of the head. It has a dark brown to olive-green back and silvery or yellowish sides. They also have white bands on their belly and numerous black, vertical bands on their back.



Figure 5 – Banded Killifish (*Fundulus diaphanus*). Photo: Wildlife Division

The Banded Killifish is currently listed as vulnerable under the provincial legislation and listed as a special concern federally and under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). They are found throughout southeastern Canada and within this province they are confined to several locations on the west coast, northeast coast, Burin Peninsula and in limited sites on insular portion of the Island, where they are abundant within those scattered regions. These locations represent the eastern most extent of this species' range and a unique Canadian population. They are most often seen in the shallow areas of clear



ponds with a muddy/sandy bottom, high detrital content and submerged aquatic vegetation where they are known to spawn from late June to the middle of August. The Banded Killifish and the habitat in which it lives should be considered when making decisions for areas that are near or adjacent to wetlands as they are vulnerable to any disturbance to the water quality. Activities such as forestry practices, which result in habitat degradation and wetland drainage on the watershed it occupies, would likely cause future population decline in this species. Other threats include contamination from pesticides and herbicides that can harm or even kill them. The killifish is preyed upon by Brook Trout (*Salvelinus fontinalis*), Atlantic Salmon (*Salmo salar*), American Eel (*Anguilla rostrata*), Belted Kingfishers (*Megaceryle alcyon*) and some waterfowl species including Common Merganser (*Mergus merganser*). Unfortunately, the expansion of populations of killifish is highly unlikely because of restrictions on immigration caused by rivers with steep gradients and other barriers.

#### Blue Felt Lichen:

The Blue Felt Lichen (*Degelia plumbea*) (Figure 6), found in the Sir Robert Bond Park, belongs to a group of lichens called *cyanolichens* (a group formally known as blue-green algae). The blue-gray, leafy lichen is approximately 10cm in diameter and can be found growing on coniferous trees, such as Norway Maple (*Acer platanoides*) and Sycamore Maple (*Acer pseudoplatanus*), in the Town of Whitbourne.



Figure 6 – Blue Felt Lichen (*Degelia plumbea*).  
Photo: Wildlife Division

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has listed Blue Felt Lichen as special concern and the province of Newfoundland and Labrador has listed it as vulnerable. The lichen, however, has not been listed under the federal *Species at Risk Act*. Within Canada, this lichen occurs only in the Atlantic region and it is very rare in New Brunswick, uncommon in Newfoundland, but more frequently found in Nova Scotia.

The Blue Felt Lichen is an epiphyte which grows predominately on plants, in this case hardwoods in woodlands, and are very vulnerable to disturbance such as reduction in humidity and acid rain. Forest harvesting is also a threat to the species through direct removal or through the creation of an edge effect, leading to reduced humidity within the forest. On the Island, browsing of the lichen's host tree by high moose densities is also a concern.

Other Rare and At-Risk Species:

To be designated as rare in Newfoundland and Labrador, plant species must be native to the province and found in twenty or less locations provincially. In Newfoundland, rare plants are often found in the unique habitats, for example wetlands which are home to a huge percentage of rare and at-risk plants and animals. The Town of Whitbourne is home to many rare and at-risk species of plants, lichens and animals. Some at-risk wildlife found there include the provincially *vulnerable* Rusty Blackbird (*Euphagus carolinus*) and Short-eared Owl (*Asio flammeus*). Some rare species of plants and lichens include Acadian Quillwort (*Isoetes acadiensis*), Small Waterwort (*Elatine minima*), Floating Heart (*Nymphoides cordata*), Asterisk Lichen (*Arthonia radiata*) and Boreal Button Lichen (*Buellia disciformis*). Extremely rare is defined as occurring at five or less localities in Newfoundland and Labrador. A list of the rare plant and lichen species (with ranks where appropriate) documented to date are listed in Appendix 3.

## **Section 4: General Policies for Habitat Conservation**

### **The Town's Commitment to Stewardship**

In signing a Municipal Habitat Stewardship Agreement, the Town has made a public commitment to join an international network of important wetland habitat areas contributing to waterfowl presence and abundance in North America. Further, the Town of Whitbourne has also included the Sir Robert Bond Park in the Agreement which encapsulates habitat of the very rare lichen thriving on the trees in the Park. The Town has also committed to using this Habitat Conservation Plan as a guide to best management practices in and around wetlands and associated uplands, as well as other wildlife habitat within the Town's Management Units. Perhaps most significantly, it is hoped that a stewardship ethic will be fostered within the community since the conservation of wildlife habitat depends not wholly on Habitat Conservation Plans or regulations, but on the conservation and stewardship ethic of Town residents and of visitors.

The Stewardship Zone and Management Units will be managed to ensure the maintenance and possibly the enhancement of habitat for wildlife species, particularly for waterfowl, rare lichen and other species at risk in the Town. Managing bodies will include the Town Council and the Department of Environment and Conservation – Wildlife Division.

### **Benefits for Residents**

The strategies outlined in this Habitat Conservation Plan can provide many long term recreational and "quality-of-life" benefits for local residents. Wetland habitats are often ideally suited to a variety of consumptive and non-consumptive recreational activities, including fishing, hiking, canoeing, photography and bird-watching. The Town may wish to use these opportunities to increase tourism to the region. In developing employment, recreational and tourism opportunities, careful consideration for wildlife populations must be included in the planning process. Otherwise, human activities may result in negative impacts to the very resource that is providing the attraction.

Surely the most important benefit that people receive from stewardship is the opportunity to increase their knowledge of wetlands, wildlife and nature in general. Programs such as the Canadian Wildlife Federation's "Project Wild" foster an increased environmental ethic in youth and adults alike. Many of the enhancement and restoration strategies outlined in this plan can be easily conducted by local community interest groups, thereby allowing "hands on" involvement in conservation efforts.

### **Management of the Stewardship Zone**

Activities within the Stewardship Zone should be managed on a “sustainable use” or “wise use” basis, whereby permitted activities are implemented so as to minimize impacts on wetlands, waterfowl or other wildlife populations. Development proposals which, in the view of council, may negatively impact that habitat, or wildlife within the Stewardship Zone can, at the discretion of council, be forwarded to staff of the Wildlife Division for comment with a thirty (30) day notice period.

### **Management of the Management Units**

Activities within the Management Units will be managed whereby permitted activities do not result in the loss of wildlife habitat or wildlife populations. As such, wildlife will be at the forefront of management decisions. Should they be necessary, efforts will be made to reduce pre-existing habitat degradation within Management Units. Only activities that have no negative or adverse impact upon wetland, associated upland habitat, and on the associated wildlife using those habitats, should be permitted in these areas. Development proposals which impact habitat or wildlife within the Management Units should be forwarded to staff of the Wildlife Division for comment with a thirty (30) day notice period.

### **Incorporation of Management Units in Municipal Plans**

During the preparation of a draft Municipal Plan, or during the process of Municipal Plan Review, the Town Council shall incorporate the Stewardship Agreement into any resulting Municipal Plan or related “Master Plan”. Specifically, the Management Units, and any future Management Units as may be desirable, shall be declared “conservation areas” or some similar consistent zoning designation. If such areas are outside municipal planning boundaries, the Town could seek to have them designated “Protected Areas” under subsection 31 of the Urban and Rural Planning Act, 2000.

In approving permits, regulations or by-laws related to the area’s designation within a Municipal Plan, or any amendments to a future Municipal Plan which could affect the Management Units, the Town Council will consult with staff of the Wildlife Division providing a thirty (30) day window of notice for comment.

## **Riparian Buffers in the Management Units**

Riparian buffers are generally strips of untouched vegetation occurring between upland areas and wetlands, lakes, rivers, ponds and streams. They are composed of trees, shrubs, grasses, cattails and sedges and often possess a high level of wildlife use, generally as “corridors” for travel, for protection from predators and against inclement weather. These areas filter and reduce surface water runoff from upland areas, trapping sediment and filtering out excess nutrients, pesticides and bacteria. Vegetation in riparian areas also affects how readily water enters soil and has a positive effect over the replenishing of local groundwater. They also serve to anchor soil with its roots, helping to build stream banks and prevent erosion. They are often important in controlling flood levels and are critical to a variety of plants and animals. Fish habitat quality is also influenced by the amount of riparian edge left along shorelines. Treed buffers provide shade and serve to keep water temperatures down, also impact water quality; they provide spawning and rearing areas for fish species, and nesting areas for waterfowl. They also serve as a food source for a variety of wildlife when leaves and insects/insect larvae drop into the water body off of surrounding trees and shrubs.

The province, via the provincial Lands Act – Section 7(1), generally requires a crown land reserve or easement of 15 metres along all water bodies greater than 1m in width and the maintenance of permanent riparian areas next to watercourses within the province. It is important that the town ensures awareness and adherence to this crown land reserve designation by all of its residents. The vegetated (untouched) buffer exists as the minimum protection around all waterbodies and marsh areas and is considered critical within the designated Management Units. Agriculture and cabin development seem like the two most likely disturbances to riparian vegetation.

## **Management by Committee**

It is recommended that Town’s seek to manage their Stewardship Zone and Management Units via a formal committee of council. This may take the form of an “Environment Committee” or “Wetlands Committee” generally chaired by a member of council with volunteers from the local community making up the remainder of its membership. It has been our experience that such, often dedicated and dynamic, committees often have greater success in raising the profile of the environment and the wetland protected areas within the larger community thereby increasing public understanding and support over the long-term. By involving local individuals a greater sense of ownership is fostered thereby strengthening the conservation commitment.

### **Stewardship Association of Municipalities Inc (SAM)**

When a municipality signs a Municipal Habitat Stewardship Agreement, it becomes eligible to become a member of the Stewardship Association of Municipalities Inc., also known as “SAM”. SAM is an incorporated, non-profit organization whose membership is comprised of Newfoundland and Labrador municipalities. Each member municipality has also made a formal commitment to the conservation of habitat and biodiversity within their municipal planning boundaries by signing a Municipal Habitat Stewardship Agreement with the provincial Department of Environment and Conservation. Provincial agreement signatories, in addition to Whitbourne, currently consist of 29 municipalities including Gander, Carmanville, Come By Chance, Stephenville Crossing, Grand Falls-Windsor, Spaniard’s Bay, Bay Roberts, Torbay, Winterland, Springdale, Gambo, Channel-Port aux Basques, Happy Valley-Goose Bay, St. John’s, Wabush, Labrador City, Hawke’s Bay, Steady Brook, Deer Lake, Bonavista, Flatrock, Port Aux Choix, Flower’s Cove, St Anthony, Red Bay, St Lewis, Cartwright, Mary’s Harbour and Burgeo.

SAM member municipalities together seek to secure, enhance and restore important wildlife habitat in the province while balancing municipal development with conservation. SAM also represents its members on issues of common concern related to provincial wildlife habitat conservation. Additionally, as part of the implementation of their individual Municipal Plans, Stewardship Agreements and associated Habitat Conservation Plans, member municipalities seek to educate and engage residents, particularly youth, in environmental stewardship and conservation. This is in recognition that the involvement and support of local people can and has, had a significant positive impact on a wide variety of conservation issues.

The Association meets bi-annually with meetings rotating among member communities. We encourage you to become an active member of SAM by identifying a representative of your town to attend at least one of these meetings per year. This will serve as a significant connection for your town to provincially like-minded municipalities and link you to resources and training related to ongoing provincial conservation initiatives.

## Section 5: Habitat Conservation and Education Strategies

This section will serve to offer ideas for habitat conservation, enhancement and education. As such, it includes recommendations and advice for conserving, enhancing and/or managing wetlands and associated upland habitats for the benefit of waterfowl and wildlife. It should be understood that opportunities to implement these strategies may only arise over time or that the specific recommended activity may not be appropriate given particular circumstances of an individual town. As such, the Town is in no way obligated or required to implement any or all of the following recommendations and should seek out advice from the Wildlife Division if seeking to implement them.

### Waterfowl Monitoring Project

Staff of the Wildlife Division has devised an easy to use community-based waterfowl monitoring protocol and are willing to assist community partners in its implementation (Appendix 5). It is hoped that Town's, local community interest groups and interested volunteers (often bird-watchers) will establish a waterfowl monitoring program within all areas of the Town but, particularly, within the designated Management Units. The program could even be incorporated into portions of the regular school class curriculum or into the objectives of local natural heritage organizations. Data collection can provide information on changes that are occurring within the wetland area and can indicate problems or progress towards a desired goal of waterfowl populations. Monitoring can also provide data on whether a site is developing in a way that is conducive to achieving a community's goal. Regular monitoring can also be a way to flag potential problem areas (i.e. early indicators of water quality issues). Additionally by involving local residents, the profile of the area is enhanced to the long-term benefit of conservation.

In addition to waterfowl monitoring the Town may also want to consider getting involved with land bird surveys. The endangered Red Crossbill (*Loxia curvirostra perena*) inhabit areas populated with coniferous forests, with higher observations occurring in older, mature forests, like those found on the western portion of the island. The Town can become involved by encouraging residents to reporting sightings of Red Crossbills to the Wildlife Division or [www.ebirds.ca](http://www.ebirds.ca). This website that has been determined by the Landbird and Shorebird Recovery Team's as the central database for reporting bird sightings.

## Conservation Corps Green Teams

The Newfoundland and Labrador Conservation Corps annually sponsors summer “Green Teams” and “Interns” generally comprised of university and high school students, to work within communities on worthwhile environmental projects. In the past, such teams have been placed in communities with Municipal Wetland Stewardship Agreements. Examples of potential projects could include constructing and installing waterfowl nest boxes and nesting platforms (for geese) followed by subsequent monitoring throughout waterfowl breeding/brood-rearing seasons (Appendix 7). Green Team members could be tasked with training local high school students or community members in appropriate monitoring protocol and could develop brochures and educational material designed to raise awareness for conservation and stewardship initiatives. This project could be extended to bird houses and would serve to provide data on birds using various habitats within the entire community.

## Artificial Nesting and Loafing Structures

### Ospreys

Ospreys (*Pandion haliaetus*) are fish eating raptors that are frequently observed hunting in wetland habitats, particularly areas along the coast. Unfortunately, populations of these birds plummeted in North America during the 1950’s and 1960’s due to the wide spread use of pesticides and other pollutants which have a tendency to bioaccumulate in birds of prey, like the osprey. For many osprey populations, bioaccumulation results in frequent reproductive failures. With the banning of many pesticides in the early 1970’s, many osprey populations have made a comeback.

Osprey prefer to nest on tall, often dead, trees on the shoreline of lakes and bays that are at least 2 metres deep but make nests in a multitude of locations (i.e. telephone poles, communication towers, etc.) as long as the area is wide open with an adequate food supply. Preferred natural sites are scarce due to timber harvesting and shoreline developments.

In many parts of Canada, the installation of artificial nest structures (Figure 7) by concerned citizens and community groups have facilitated the comeback of the osprey. Osprey nest structures have been installed at several sites in Newfoundland, including many municipal stewardship communities. Many people take great pleasure in watching these majestic birds raise their family and fish the shallow waters of nearby lakes and bays.

It may be advisable to install a single osprey platform at a carefully chosen location to determine whether the ecosystem can sustain a single, monogamous, breeding pair of osprey, with subsequent platforms planned accordingly. In conjunction with an observation tower, area residents could potentially enjoy a “bird’s eye view” of



osprey daily life high atop an artificial nesting structure. Artificial nesting platforms should be located in areas with minimal human use and where human impact would be least. Involvement of schools, youth groups and community organizations in the construction/maintenance/observation of the nesting structure could instill a sense of pride and awareness that would go far in fostering a community stewardship ethic.

See Appendix 7 for the design and placement of Osprey nesting platforms.



*Figure 7 – Osprey nesting platform in Stephenville Crossing. Photo by: Charmaine Barney*

### **Island Construction**

A number of wildlife species, such as terns and waterfowl, nest and loaf on islands due to a reduced risk of predation from land-based predators. Many of the wildlife species present within wetlands would benefit from the construction of artificial islands. These structures can be constructed simply from wooden cribs (Tamarack Larch would be an appropriate choice for building material), measuring approximately four square meters that have been filled with rock and soil. The islands must be positioned so that they are higher than the highest water mark.

Hardy shrubs and herbaceous plants (i.e. alder, willow) must be planted on the islands to provide cover and to prevent occupancy from gulls. Care must be taken to prevent the use of toxic construction materials (i.e. treated wood, contaminated soils) and disturbance to plant and animal communities. One must also consider the potential for increased predation on certain avian species that may use the constructed islands. One must consider the potential necessity for annual removal and reinstallation of islands in response to ice conditions tidal influenced areas.

Other forms of artificial islands exist and involve the planting of native marine plant species into landscaping fabric, which is then fixed to floating structures made of plastic piping or empty gabion baskets. This type of floating island requires careful placement in areas that do not have widely fluctuating salinity levels and require placement such that disturbance would be minimal during the period in which roots are establishing. Floating islands may be beneficial in terms of oxygenating the water column, as algal blooms would not “smother” the highly perched plants. The floating plants should, ideally, continue photosynthesizing despite the presence of algae, and may be of benefit in “taking up” some of the excess nutrients in the estuary effectively deterring algae growth. These floating islands would also, likely, require annual removal and reinstallation.

### **Cavity Nesting Waterfowl**

Cavity nesters such as the Common Goldeneye have certain habitat requirements for nesting. When available they use abandoned woodpecker holes or natural tree cavities caused by disease, fire or lightning. In the absence of these natural cavities, they will use constructed nest boxes (Figure 8). These shelters, however, need to be installed correctly and placed in a location that is inhabited with waterfowl.

When installing nest boxes, there are important guidelines that are to be followed (see Appendix 7). These guidelines will help increase the success of nest box usage. When nest boxes are to be installed, the Wildlife Division staff often includes a map where the nest boxes should be placed to encourage use by the target duck species. It will also help ensure that the placement of nest boxes will enhance wetlands that are included in the Stewardship Agreement signed by the community.



*Figure 8 – Cavity Nest Box in Cobb's Pond, Gander.  
Photo by: Charmaine Barney*

As a general rule, we ask that the location of the nest boxes be marked using a global positioning system (GPS). If the community requires assistance they can contact the Wildlife Division or a local conservation officer. It is very important that we receive coordinates for nest boxes for reporting and maintenance purposes.

Nest boxes can be mounted on tree trunks (preferably dead but solid trees) that extend slightly over the water's surface. Nest boxes may be placed on metal poles close to the edge of a pond, but we advise extreme caution in this situation so that snowmobilers do not run into your poles during winter months. If there is even a slim chance that someone could run into the metal pole, we suggest that you find another way to install your nest box.

Good placement would involve a dead tree standing along a shore. Better placement would be on a solid tree standing in water. Suitable placement would also be on a metal pole in a safe area (with no danger of being hit by motorized vehicles), on a shoreline next to a dead or flooded tree, firmly planted into the pond or marsh bottom. Boxes can be placed on live spruce or larch, but may loosen as the tree continues to grow. If using a live tree, remember to clear away limbs from just on top of the box so that squirrels and marten don't end up jeopardizing the lives of your ducklings. Keep in mind that beaver may chew live hardwoods like birch, so placement on these trees should be avoided, as you will soon be wondering where your nest box went!

Boxes should be placed above typical high water levels at a height that still allows you to clean (annually) and monitor the boxes. Ideally, boxes will be placed as high as possible, but at least 4 to 6 feet above the water's surface. Boxes should be placed on trees that bend slightly over the water's surface. When ducklings are ready, the adult will force them out of the entrance of the nest box and it is important that the box be positioned appropriately or the duckling may not fledge successfully and an ill-placed box has been known to actually jeopardize lives of ducklings.

Try to keep your nest box close to water and clear a path (of any small branches, etc.) so that ducks have a direct line of access from the water. The entrance hole should face the water. Do not place boxes so close together that competition will occur. As a rule, boxes should be placed no closer than 50 meters apart (one nest box per acre is considered acceptable) and shouldn't be placed where ducks can see each other from neighboring boxes.

Boxes must be maintained every year (with winter months being the preferred time for maintenance) by scraping out old planar shavings and replacing with new, clean, planar shavings. It is very important not to use sawdust as the pieces are too small and can actually suffocate ducklings. A garden store or sawmill would be an easy source for planar shavings or mulched wood. Eight to ten centimeters of clean wood shavings should be placed in the bottom of the box before breeding season. Hens will actually reject nest boxes that do not have shavings, and eggs could freeze if there are not enough shavings in the bottom of the box.

Common Goldeneye will raise multiple broods in a well-maintained and suitably placed nest box. If you are lucky, you will actually get to see ducklings leaving the box (although you should avoid approaching the nest box to check on its use during important times like hatching and fledging), but mostly you will find signs left in the box when you prepare for its annual maintenance. You should look for light coloured duck down, bits of egg shell or shell-membrane (like a piece of paper) left behind when duckling hatch and mixed up wood shavings. Ducklings in the area indicate there are ducks and it is quite possible that they have used the nest boxes provided. It is also a great idea to keep in mind that other birds and small mammals may have used the nest boxes as well.

Installing nest boxes is a very exciting activity to help enhance waterfowl in the conservation areas around your community. It does, however, take time, commitment and maintenance and if any technical advice or help is needed it is advised to contact the staff of the Wildlife Division. See Appendix 7 for the design and maintenance of cavity nest boxes.

### **Roosting and nesting structures for non-waterfowl species**

There are a variety of roosting and nest structures (Appendix 7) which can be built, installed and monitored/maintained for non-waterfowl species such as those that might be appropriate for birds like Tree Swallows (*Tachycineta bicolor*), Northern Flicker (*Colaptes auratus*), for owls like the Great Horned (*Bubo virginianus*) and for bats (Figure 9). This would prove beneficial to local farmers in that many bird species (and bats) feed on insects and may serve as natural pest control. In addition, providing nests for certain birds may also help reduce (or keep in check) populations of birds that may not be desirable to farmers [i.e. American Crow (*Corvus brachyrhynchos*), European Starling (*Sturnus vulgaris*)] and rodents (i.e. mice) while increasing biodiversity on the agricultural landscape.



Figure 9 – Bat Roosting Box in Salmonier Nature Park. Photo by: Wildlife Division Staff

The materials and measurements needed for the construction of nest boxes for cavity nesting waterfowl, bats and tree swallows are provided in Appendix 7.

### **Educational Programs**

Public education is essential in the development of a greater sense of habitat stewardship among town residents. There are several well developed wetland education programs that span every season and every age group including “Wetlands in Winter” (Tantramar Wetlands Centre), “Marsh Bingo” and “Creatures of the Night” (Oak Hammock Marsh Interpretive Centre), “Junior Naturalists” (Wye Marsh Wildlife Centre), “Project Webfoot” (Ducks Unlimited Canada). A number of night programs also exist that would be appropriate for girlguide and scout troupes. Certain programs may qualify for external funding through various private enrichment grants (i.e. Mountain Equipment Co-op or the Canadian Wildlife Federation).

### **Project Wild**

Project Wild is an educational program conducted by the Newfoundland and Labrador Wildlife Division and is aimed at youth from kindergarten to grade six. Its goal is to develop awareness, knowledge, skills and commitment resulting in

informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends. Project Wild is not just "wildlife" education. It is a broad environmental education program focusing on wildlife. Wildlife is used as a tool that naturally captures student interest and as a symbol for the fragility of the environment providing a means to also educate youth about the value of wetlands for waterfowl.

### **Backyard Habitat for Canada's Wildlife**

This habitat awareness initiative is made available by the Canadian Wildlife Federation and is administered in conjunction with the Wildlife Division's Salmonier Nature Park. This program enables the average towns person to become an active participant in helping wildlife and in enhancing habitat for wildlife use. Backyard Habitat for Canada's Wildlife is a program that offers immediate, specific and inexpensive suggestions on how to make life better for wildlife in a particular habitat.

### **Nature and Art**

Some stewardship communities have used the wetlands and associated wildlife as opportunities to also serve as a natural location to bring together nature and art. This is made much simpler if a central building or interpretation area is present on site. Local art classes and drama groups use the freedom afforded by an outdoor theatre for educational exercises. This could involve field trips whereby students could interpret the beauty of wetlands - and nature in general - through various mediums (chalk, paint, etc.) or a day of sketching to the sound of nature or music. Being innovative in efforts to assemble art supplies might include visiting websites like Crayola.com which offer special resource grants to educators. Similarly, drama classes could develop a play or a series of dramatic readings based upon wetlands or nature with evening delivery within a lighted amphitheatre. Several amphitheatres in Eastern Canada utilize the open-air concept to show nature-related videos or videos with an environmental message outdoors in the evening. Videos could be tailored to various ages and could include nature-related craft projects within the Eco-museum shelter as a follow up. A good starting point for videos and educational nature-oriented craft projects for children may include websites like [hookedonnature.org](http://hookedonnature.org) and [planetpals.com](http://planetpals.com).

### **Ducks Unlimited Canada's Youth Programs**

#### **Project Webfoot**

Educating youth about wetlands and waterfowl is a big part of Ducks Unlimited Canada's mission. The award-winning Project Webfoot Wetland Education Program is a comprehensive program linked to the senior elementary curriculum in grades 4 to 6 (habitats & communities, biodiversity, food webs and adaptations). Learning resources and field trips to a local wetland are available to sponsored classes. There are also many teacher and student resources for Grade 4 through high school on the Ducks Unlimited website ([www.ducks.ca](http://www.ducks.ca)). These downloadable files are easy to navigate and provide great linkages with school curriculum.

### **Wetland Heroes**

Another program offered through Ducks Unlimited includes Wetland Heroes which take action to protect wetlands for wildlife and people in their local community. Whether you're one person, a group of friends, a class, club or school there are many ways you can make a difference from letter writing to fundraising and habitat enhancement projects and more. To become an official Wetland Hero register at [www.ducks.ca](http://www.ducks.ca) and describe the great conservation work you're doing to help protect wetlands. Wetland Heroes receive a certificate and a special token of appreciation from Ducks Unlimited Canada. With permission, selected Wetland Heroes may be featured online or in publications.

### **Habitat Enhancement**

In some wetland areas, the surrounding habitat has already been degraded or lost and could benefit from the planting of wetland and waterfowl "friendly" plants. A number of aquatic plant species have the ability to remove large quantities of pollutants from water. These plants improve water condition by "uptaking" excessive amounts of nitrogen, phosphorous and carbon – substances associated with the occurrence of algal blooms – by storing them in plant tissues. Many "classic" beneficial plant species have limited distribution in Newfoundland, and should not be introduced to the sensitive ecosystem of the estuary without consideration of the potential consequences, including the possibility of invasive plants out-competing native plant species.

Often, the natural balance within an ecosystem can be changed when new species are introduced. The relationships that develop between plants and animals may also change within a particular habitat. Introduced species are referred to as "exotic" species if they are not native to an area. Competition naturally exists between organisms within an ecosystem but the introduction of exotic, or nonnative, species can alter the balance within the ecosystem and have negative effects upon the natural populations within the region and the ecosystem as a whole.

Eelgrass is an aquatic grass is known to have significant value for waterfowl and providing habitat for many aquatic species such as juvenile Salmonids. It is possible to encourage the growth of Eelgrass beds through an inexpensive project of habitat management and shoot transplantation from a nearby donor site. A thorough site evaluation would have to be initiated in consultation with staff of the Wildlife Division to assess the topography of the coastal area, water salinity and substrate suitability before proceeding with the project. However, encouraging eelgrass bed establishment is a project that has been successfully completed in a number of areas across Canada.

Certain species of Willow (*Salix discolor*) and Alder (*Alnus crispa*) are native to the island of Newfoundland, are found in areas of the Avalon Peninsula, and are renowned for their hardiness, their ability to withstand tidal inundation and their

extensive network of roots. Their ability to uptake excess nutrients from the water column would make these native species an important addition to coastal shorelines. In addition to bank stabilizing properties and nutrient uptake characteristics, willow and alder buds and shoots are an important food source for small mammals like Muskrat and Snowshoe Hare, and bird species like Ruffed Grouse and Grosbeaks.

In terms of wetland plants that would be of dietary importance to waterfowl populations, Three-Square Bulrush (*Scirpus americanus*), Salt Water Cord Grass (*Spartina alterniflora*), Wild Rye (*Elymus virginicus*) and Blue-joint Grass (*Calamagrostis canadensis*) are all native to the island portion of Newfoundland and would all supply food to a number of estuary inhabitants. Tall stands of established Cord Grass and Wild Rye also offer a great deal of shade and cover to waterfowl and may lower water temperature to prevent algal blooms from occurring.

In terms of bank or shoreline stabilizing properties Blue-joint Grass and Dune Grass (*Ammophila breviligulata*) may be appropriate choices. Once established these grasses would provide a great deal of cover and concealment to waterfowl species. Low growing native shrubs may be interspersed with either grass species to enhance the desired effect of seclusion.

### **Litter Removal**

It is strongly recommended that community interest groups and individual residents work cooperatively to remove the large quantity of litter in and around all portions of the community on a regular basis, while making certain to avoid those times of year (May to August) when waterfowl may be disturbed during breeding, staging or brood rearing periods. Programs such as Ocean Net and Vanaqua Shoreline Cleanup assist communities in organizing litter cleanups.

### **Water Control Structures**

A community may wish to enhance a wetland area by changing the water flow or controlling the water depth to attract waterfowl (Figure 10). Ducks Unlimited Canada (DUC), a partner of the Easter Habitat Joint Venture, has a great deal of experience in this area. Staff of the Wildlife Division can put you in touch with DUC to assess the possibilities, costs and issues in this area.





**Figure 10 - Water Control Structure installed by Ducks Unlimited Canada at the Glynmill Inn Marsh, Corner Brook.  
Photo by: Charmaine Barney**



## **APPENDICES**

## APPENDIX 1

a corporation pursuant to Section 15 of the *Municipalities Act*,  
1999

(hereinafter called the "Town")

-of the other part-

The Government of Newfoundland and Labrador has entered into an Agreement for the implementation of the North American Waterfowl Management Plan through a Joint Venture;

**AS** the parties hereto recognize that the proper protection and management of upland habitats are fundamental tools in maintaining and enhancing waterfowl in the province;

**AS** the Minister proposes that certain important wetlands and associated wildlife in the Town be protected and enhanced through and with the cooperation of the Government of Newfoundland and Labrador in accordance with this Agreement and the Habitat Conservation Plan developed hereafter;

**AS** the Town has agreed to enter into the Agreement for the purpose of enhancing those areas of important wetland habitat within its jurisdiction.

hereunder for better protection of the wetlands for waterfowl and other wildlife.

2. Within the Stewardship Zone, the Parties will establish Management Units as identified in Schedule "A" and other Management Units as may be desirable from time to time which shall be subject to the terms and conditions of a Habitat Conservation Plan designed to enhance and protect the wetland habitats, the waterfowl and other wildlife which use those habitats.

3. The Habitat Conservation Plan shall be developed in cooperation with the Town and the Minister agrees to provide such advice and expertise as may be necessary or advisable for the development of the Habitat Conservation Plan.

4. The Town agrees that in the preparation of a Municipal Plan for the Town or any amendments to any existing Municipal Plan, the areas designated as Management Units shall be recommended by the Town to be appropriately declared protected areas under subsection 31(1)(b) of the *Urban and Rural Planning Act, 2000* (or such other legislation in amendment or substitution therefore as may be brought into effect from time to time). The Town in passing regulations or by-laws related to the protected areas so designated under the Municipal Plan or amendments thereto and which may affect the Stewardship Zone shall do so in consultation with the Minister and in keeping with the principals of this Agreement.

5. The parties to this agreement, their consultants, servants, or agents, shall have and exercise reasonable rights of access to the Stewardship Zone for all purposes necessary or incidental to this Agreement and in particular, but without limiting the generality of the foregoing, for the purpose of developing and carrying out the Habitat Conservation Plan.

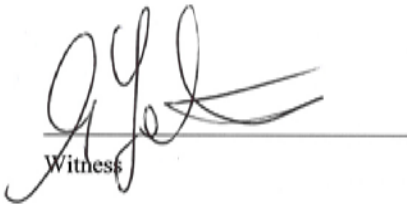
6. Each of the parties hereto agree that they will exercise their best efforts to further develop management measures for more effectively carrying out of their mutual intentions as expressed in this Agreement.


7. If at any time during the term of this stewardship Agreement the Parties deem it necessary or desirable to make any alterations or additions to it, they may do so by means of a written amendment between them which shall be supplemental to and form part of this agreement.

**IN WITNESS WHEREOF** the parties have caused these presents to be executed in accordance with their respective rules and regulations the day and year first before written.

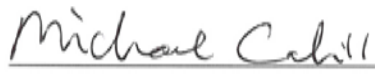
**SIGNED SEALED AND DELIVERED**

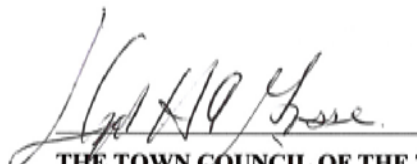
by the Honourable the Minister of  
Environment and Conservation  
in the presence of:

  
Witness

  
**THE HONOURABLE THE MINISTER  
OF ENVIRONMENT AND  
CONSERVATION**

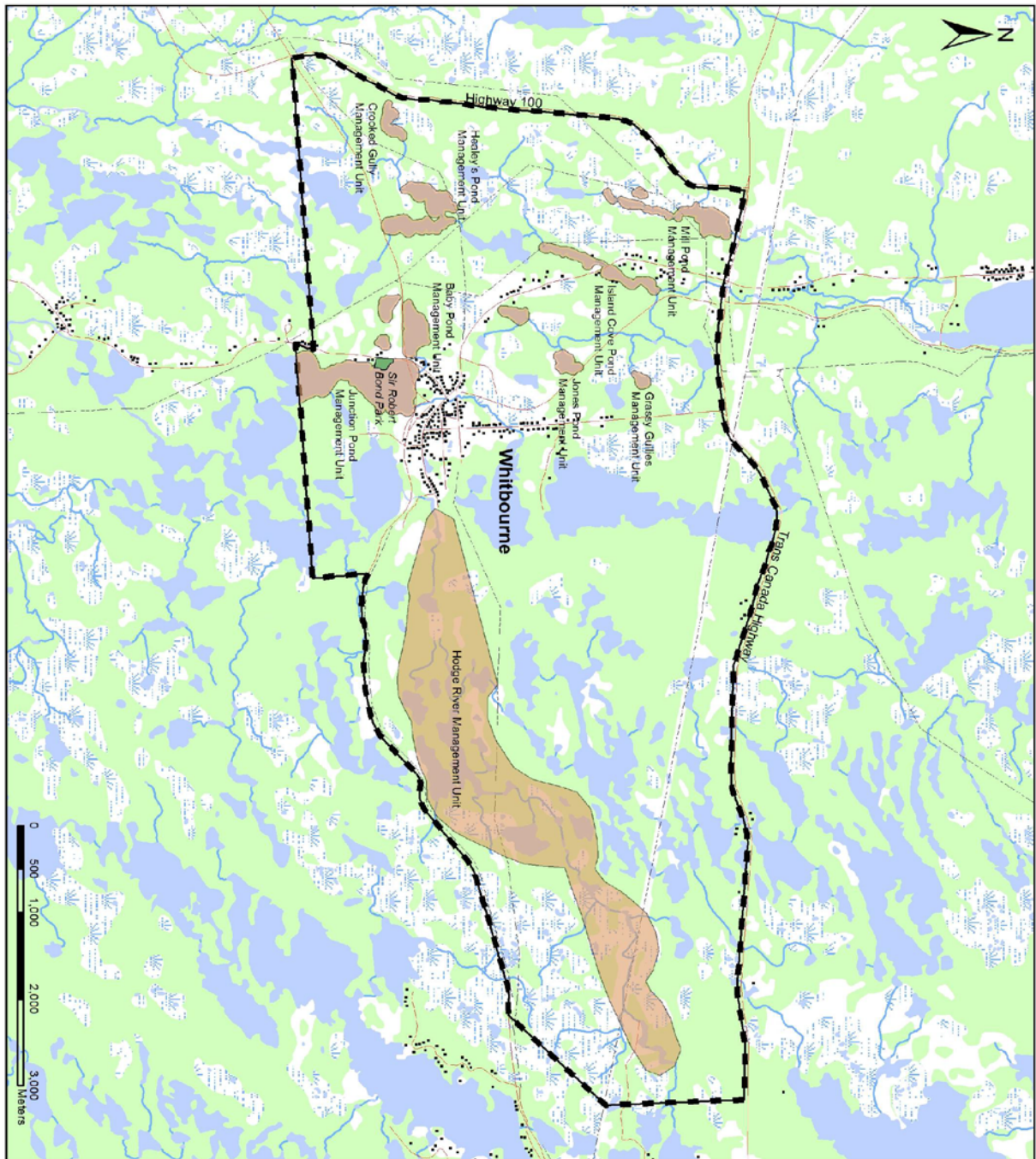
**THE SEAL OF** the Town Council of  
the Town of Whitbourne  
hereunto affixed in the  
presence of:

  
Witness

  
**THE TOWN COUNCIL OF THE TOWN  
OF WHITBOURNE**

# APPENDIX 2 – SCHEDULE “A” Stewardship Zone and Management Units

Stewardship Zone and Management Units for Whitbourne



- Legend**
- ▭ Municipal Planning Boundary
  - ▭ Stewardship Zone
  - ▭ Management Units
  - ▭ Sir Robert Pond Park
  - Buildings
  - Powerline
  - Roads/ Trails
  - River/ Streams
  - Bogs
  - Waterbodies
  - Vegetation




**Newfoundland  
Labrador**

Projection Information:  
 TM NAD 83 CNT  
 April 2013

## APPENDIX 3

### Rare Lichens and Plant Inventory – Whitbourne

Common Name	Scientific Name	S-Rank
<b>LICHENS</b>		
Abraded Camouflage Lichen	<i>Melanelia subaurifera</i>	S5
Asterisk Lichen	<i>Arthonia radiata</i>	
Blue Felt Lichen	<i>Degelia plumbea</i>	S2
Blue Jellyskin	<i>Leptogium cyanescens</i>	S3S4
Boreal Button Lichen	<i>Buellia disciformis</i>	
Common Script Lichen	<i>Graphis scripta</i>	
Dotted Line Lichen	<i>Ramalina farinacea</i>	SNR
Lung Lichen	<i>Lobaria pulmonaria</i>	S4
Mustard Kidney Lichen	<i>Nephroma laevigatum</i>	S3S4
Powdery Kidney Lichen	<i>Nephroma parile</i>	S3S4
Smooth Lungwort	<i>Lobaria quercizans</i>	S3S4
Textured Lungwort	<i>Lobaria scrobiculata</i>	S4
Wart Lichen (aka Alpine Pore Lichen)	<i>Pertusaria alpina</i>	
<b>PLANTS</b>		
Acadian Quillwort	<i>Isoetes acadensis</i>	S1
American Burreed	<i>Sparganium americanum</i>	S2S3
Bayonet Rush	<i>Juncus militaris</i>	S3
Cutleaf Bugleweed	<i>Lycopus americanus</i>	S3
Floating Burreed	<i>Sparganium fluctuans</i>	S2
Floatingheart	<i>Nymphoides cordata</i>	S2
Golden Hedgehyssop	<i>Gratiola aurea</i>	SH
Goldie's Roundleaf Orchid	<i>Platanthera macrophylla</i>	S2
Grass-leaf Arrowhead	<i>Sagittaria graminea</i>	S3
Marsh Fern	<i>Thelypteris palustris var. pubescens</i>	S3
Small Waterwort	<i>Elatine minima</i>	S2
Tuckerman's Quillwort	<i>Isoetes tuckermanii</i>	S3
Water Parsnip	<i>Sium suave</i>	S3
Water Smartweed	<i>Persicaria amphibia</i>	S2
Whitestem Pondweed	<i>Potamogeton praelongus</i>	S2S3
Woodland Agrimony	<i>Agrimonia striata</i>	S2S3

**\* S Ranks:**

S1 – Extremely Rare

S2 – Rare

S3 – Uncommon

S4 – Usually widespread, fairly common

S5 – Widespread, abundant

S#S# - Range Rank (between two consecutive ranks)

SNR – Unranked

SH – Historical (no current data)



## APPENDIX 4

### Some Other Species found in Whitbourne

Common Name	Scientific Name
American Bittern	<i>Botaurus lentiginosus</i>
American Black Duck	<i>Anas rubripes</i>
American Crow	<i>Corvus brachyrhynchos</i>
American Eel	<i>Anguilla rostrata</i>
American Robin	<i>Turdus migratorius</i>
American Woodcock	<i>Philohela minor</i>
Atlantic Salmon	<i>Salmo salar</i>
Balsam Fir	<i>Abies balsamea</i>
Banded Killifish	<i>Fundulus diaphanus</i>
Barn Swallow	<i>Hirundo rustica</i>
Beaver	<i>Caster canadensis</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Berchtold's Pondweed	<i>Potamogeton pusillus</i>
Black Alder	<i>Alnus glutinosa</i>
Black and White Warbler	<i>Mniotilta varia</i>
Black Sedge	<i>Carex nigra</i>
Black Spruce	<i>Picea mariana</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
Blue Jay	<i>Cyanocitta cristata</i>
Blue-headed Vireo	<i>Vireo solitarius</i>
Boreal Chickadee	<i>Poecile hudsonicus</i>
Brook Trout	<i>Salvelinus fontinalis</i>
Broom Moss	<i>Dicranum scoparium</i>
Bulrush	<i>Scirpus pedicellatus</i>
Canada Geese	<i>Branta canadensis</i>
Chipping Sparrow	<i>Spizella passerina</i>
Clasping-leaf Pondweed	<i>Potamogeton perfoliantus</i>
Common Bugle	<i>Ajuga reptans</i>
Common Flicker	<i>Colaptes auratus</i>
Common Goldeneye	<i>Bucephala islandica</i>
Common Loon	<i>Gavia immer</i>
Common Merganser	<i>Mergus merganser</i>
Common Snipe	<i>Capella gallinago</i>
Cotton Grass	<i>Eriophorum angustifolium</i>
Creeping Spearwort	<i>Ranunculus flammula</i>
Creeping Spikerush	<i>Eleocharis palustris</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
European Selfheal	<i>Prunella vulgaris subsp. Vulgaris</i>
European Larch	<i>Larix decidua</i>
Feather Moss	<i>Hamatocaulis vernicosus</i>

Common Name	Scientific Name
Fox Sparrow	<i>Passerella iliaca</i>
Greater Black-Backed Gull	<i>Larus marinus</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Green-winged Teal	<i>Anas crecca</i>
Grey Jay	<i>Perisoreus canadensis</i>
Hermit Thrush	<i>Catharus guttatus</i>
Herring Gull	<i>Larus argentatus</i>
House Sparrow	<i>Passer domesticus</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Least Sandpiper	<i>Calidris minutilla</i>
Lowbush Blueberry	<i>Vaccinium angustifolium</i>
Mink	<i>Neovison vison</i>
Moose	<i>Alces alces</i>
Mountain Alder	<i>Alnusincana spp. Tenuifolia</i>
Mountain Ash	<i>Eucalyptus regnans</i>
Mustard	<i>Ondatra zibethicus</i>
Nodding Sedge	<i>Carex gynandra</i>
Northern Harrier	<i>Circus cyaneus</i>
Northern Raven	<i>Corvus corax</i>
Northern Waterthrush	<i>Seiurus noveboracensis</i>
Norway Maple	<i>Acer platanoides</i>
Osprey	<i>Pandion haliaetus</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Pine Grosbeak	<i>Pinicola enucleator</i>
Purple Finch	<i>Haemorphous purpurus</i>
Purple-flowering Rhodora	<i>Rhododendron canadense</i>
Red Crossbill	<i>Loxia curvirostra perna</i>
Red Fox	<i>Vulpes vulpes</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Ring-necked Duck	<i>Aythya collaris</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Rusty Blackbird	<i>Euphagus carolinus</i>
Sheep Laurel	<i>Kalmia angustifolia</i>
Short-eared Owl	<i>Asio flammeus</i>
Snowshoe Hare	<i>Lepus americanus</i>
Sphagnum Moss	<i>Sphagnum platyphyllum</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Sycamore Maple	<i>Acer pseudoplatanus</i>
Three-way Sedge	<i>Dulichium arundinaceum</i>
Tree Swallow	<i>Iridoprocne bicolor</i>
Water Horsetail	<i>Equisetum fluviatile</i>
White Throated Sparrow	<i>Zonotrichia albicollis</i>
Whorled Watermillfoil	<i>Myriophyllum verticillatum</i>

<b>Common Name</b>	<b>Scientific Name</b>
Wilson's Snipe	<i>Gallinago delicata</i>
Woodpecker (Spp.)	<i>Picoides</i> spp.
Wool Grass	<i>Scripus cyperinus</i>
Yellow Birch	<i>Betula alleghaniensis</i>
Yellow Rumped Warbler	<i>Dendroica coronata</i>

## APPENDIX 5

### Waterfowl Monitoring Project Protocols and Data Sheet

Generally within a community's wetland management units, a set number of locations for viewing waterfowl are chosen and outlined on a detailed map. These sites are chosen, for ease of access and ability to view waterfowl over a wide area, but they are also relatively evenly distributed around the wetland. Sites can be chosen to sample productive, historically productive and potentially non-productive waterfowl locations to give a representative snapshot of inhabitants of the estuary.

Each site location should be visited during a single day, within a two-three hour period, which will mean, in most towns, that more than one person will need to be involved. The survey should occur, at least once within a two week period in both the spring and fall. You are most welcome to complete and record as many observations as your schedules permit but the above indicates that, at a minimum, at least two surveys would occur annually.

These surveys should occur **during the last two weeks of June and during the first two weeks of October and should occur either in the early morning (starting at dawn and up to ~ 3 hours afterwards) or in the early evening (starting ~3 hours before dusk).**

If you are not already familiar with the area it would be advantageous for you to become familiar with the sample locations identified on the map prior to the day of your survey. It may also be prudent to seek private landowner permission in advance of your intended survey day. In addition, identify access points (ex. determine whether best approached by foot or by boat) well in advance so that your survey can be completed in a single morning or evening.

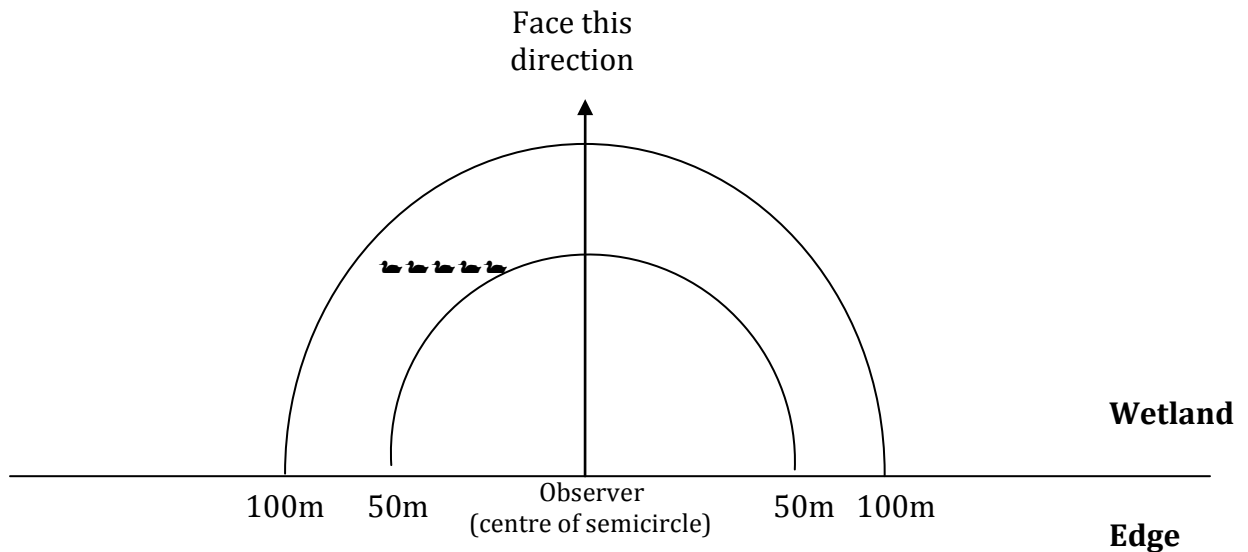
#### Survey Locations

The intended survey sites should be relatively easy to access (off roads or meadows) and are intended to follow the shoreline of the wetland. **Observations should be made within a semi-circle** oriented towards the wetland instead of attempting to watch in a full circle all around you which could form an unnecessarily difficult amount of survey area in a short period. Orient yourself so that you can maximize the amount of wetland being observed (i.e. your view should not encompass a large swath of open field or roadway) **out to a distance of ~100m on either side of you.** It may be prudent to become familiar with what a 100m distance roughly looks like before setting up your survey.

Some sites may be more easily accessed by non-motorized water craft such as canoe or kayak. If you choose to use canoe or kayak, the centre of the semicircle will become your boat and you will orient your semicircle accordingly. It will be

especially important to approach your survey site slowly and quietly by boat or kayak since your odds of flushing waterfowl will be increased.

**Consider the following drawing as your sample area:**



**Tools you should consider having include the following:**

- A keen eye!
- Field notebook or data sheet (attached)
- Pencil - record findings
- Watch - keep track of time (10 minutes per survey site)
- Bird field guide
- Pair of binoculars and/or a spotting scope (binoculars may be sufficient)
- Appropriate outdoor clothing
- Cellular phone in case of an emergency

**Conducting the Survey**

**Surveys should only be conducted under suitable or good weather conditions.** This includes good visibility out to 100m, reasonably warm air temperature, little or no precipitation and little or no wind. If poor conditions develop and last for an extended period, it is suggested that you reschedule your survey for another day. **Once you have reached the survey site and oriented yourself so that you have maximal view of the area, sit quietly and begin timing for 10 minutes.** It is advised that you record any waterfowl that may be flushed out of the sample area during your approach and/or set up period in the space provided at the bottom of your record sheet, indicating that waterfowl left the area just prior to the survey.

**Record all waterfowl species seen within the survey area during the 10minute period.** If possible distinguish between male and female adults where possible and the numbers seen (including individual ducklings making up broods) in the appropriate space on the attached record sheet. Use a separate column for each sample site, identifying the site # at the top of the column. Also note any ducks that fly over, through, or out of, your sample area at the bottom of the reporting sheet.

**Do not guess! It is entirely acceptable to record a species as unknown.** You should be certain of the identity of a species before recording it. Birding workshops and informal bird watching excursions in your local area will make you proficient at identifying species common to your area in no time! If you find that you are recording several unknowns....that is perfectly acceptable. As years go by, you will become more and more adept at identification.

### **Additional Information to Record**

If you are able to identify other, non-waterfowl, species of birds either by call or site in the vicinity of your survey area, please enter those in the space provided at the bottom of the appropriate column on the reporting sheets.

Excessive disturbance or noise from a number of sources (people talking, vehicles, farm equipment, boat traffic, etc.) could influence the behavior and movement of waterfowl that you are monitoring. Please take time to record any type of disturbance at the bottom of your reporting sheet (under the appropriate column corresponding to your survey site).

### **General / Safety Considerations**

It is important to be mindful of the tides and the wetland (damp, soft, slippery) habitat that you may be asked to survey near, making personal safety your top priority. Further, if survey locations fall on private property, first seek permission from the land owner to access the property.

It is important throughout your survey that you aim to cause as little disturbance as possible to the birds that you are viewing, considering that many ducks will either be raising broods at the time of your survey or preparing for long migrations and a high level of disturbance could mean an impact on waterfowl foraging. If you approach an area and it seems to be causing a hen to separate from her ducklings, leave the area. If you approach an area and an adult seems at all aggressive (i.e. Canada goose hissing), leave the area. Common sense is important; don't put yourself or the birds that you are watching in jeopardy.

Finally, **have fun!** The intent behind this survey is to have an enjoyable community waterfowl-monitoring effort. **Not every person has to commit to monitoring all of the same survey locations every year**, but your birding group may find it more

manageable to have the same person (or group) monitor the same few sample locations year after year. If certain people in your community live close to certain survey sites, have special knowledge of certain sample sites or have a strong desire to sample certain sites year after year.....feel free to organize your survey group accordingly. Similarly, if you would like to rotate the groups of sites making up your larger survey area amongst your birding group that is acceptable, as long as the non-productive sites are factored into how you distribute the sites amongst volunteers.

### **What Will Happen to The Data?**

Each year data sheets will be returned to EHJV staff who will compile the information to maintain a database on the diversity and abundance of waterfowl usage of the wetlands in question. This information is available on request but summary results will be forwarded to participants each year to keep you up to date on how your wetland and waterfowl are doing.

### **Feedback**

We would appreciate learning more about any problems that you might have encountered with this protocol and would welcome any suggestions for improvement. The Eastern Habitat Joint Venture can be contacted anytime using the contact information enclosed.

### **The Completed Survey Sheets Should Be Returned To:**

NL Eastern Habitat Joint Venture  
Wildlife Division - Department of Environment and Conservation  
P.O. Box 2007 • 117 Riverside Drive  
Corner Brook, NL • A2H 7S1  
Phone: (709) 637-2006  
Fax: (709) 637-2032





# APPENDIX 6

## Example of a Trail Entrance Interpretative Sign (Steady Brook, NL)

**WELCOME TO STEADY BROOK'S MUNICIPAL HABITAT**

The Town of Steady Brook and the Government of Newfoundland and Labrador signed a Municipal Habitat Stewardship Agreement in July 2011, committing to the conservation and enhancement of wildlife habitat within the town's planning boundaries.


Two Management Units within the Town of Steady Brook cover approximately 27 acres of wetland habitat and include the mouth of Steady Brook and its adjacent cattail marsh, as well as a small marsh near the eastern end of the town's boundaries.

# Stewardship Areas



The Town of Steady Brook is a leader in wildlife conservation in a chain of committed partners across North America. In eastern Canada, this partnership is known as the Eastern Habitat Joint Venture (EHJV).





### Explore Steady Brook's wildlife diversity

**Waterfowl**

- American Black Duck (*Anas rubripes*)
- American Goldeneye (*Bucephala clangula*)
- Common Goldeneye (*Bucephala clangula*)
- Common Merganser (*Mergus merganser*)
- Ring-necked Duck (*Aythya collaris*)
- Common Loon (*Gravia immer*)

**Songbirds**

- American Goldfinch (*Carduelis tristis*)
- Cedar Waxwing (*Bonaparte's cedrorum*)
- Song Sparrow (*Melospiza melodia*)
- Pine Siskin (*Carduelis pinus*)
- Dark-eyed Junco (*Junco hyemalis*)
- Black and White Warbler (*Vermivora chrysoptera*)
- Blue Jay (*Cyanocitta cristata*)
- American Robin (*Turdus migratorius*)

**Other bird species:**

- Belted Kingfisher (*Megascops asio*)
- Red-winged Blackbird (*Agelaius phoeniceus*)
- Common Grackle (*Quiscalus quiscula*)
- Common Raven (*Corvus corax*)
- Osprey (*Pandion haliaetus*)
- American Osprey (*Pandion haliaetus*)

**Other wildlife species:**

- Beaver (*Castor canadensis*)
- Muskrat (*Fiber zibethicus*)
- Mink (*Mustela vison*)
- Snowshoe Hare (*Lepus americanus*)
- Atlantic Salmon (*Salmo salar*)
- Brook Trout (*Salvelinus fontinalis*)
- American Eel (*Anguilla rostrata*)



**Mouth of Steady Brook and Adjacent Cattail Marsh:**  
 Located where Steady Brook joins with the Humber River and is comprised of shallow channels of open water surrounded by overhanging shrubs, primarily Sweet Gale (*Myrica gale*).  
 The adjacent marsh contains a large quantity of shallow, open water separated by a patchwork of emergent vegetation such as Cattail (*Typha latifolia*), which dominates the area.  
 Grasses, such as Reed Canary Grass (*Phalaris arundinaceae*) and Rushes (*Juncus* sp.), provide suitable feeding and nesting habitat for many waterfowl species.

**Marsh at the Eastern Boundary of Steady Brook:**  
 Located along the edge of the Humber River at the eastern end of the town and also contains habitat suitable for nesting and staging waterfowl and other wildlife species. This area is located on private property and is not accessible by land.  
 The marsh is partially inundated and dominated by tall emergent grasses, rushes, sedges and other herbs and shrubs such as Blue Flag Iris (*Iris versicolor*), Horsetail (*Equisetum* sp.) and Sweet Gale (*Myrica gale*). Adjacent upland habitat surrounding this wetland consists primarily of mixed boreal forest.



**NEWFOUNDLAND**  
LABRADOR  
Department of Environment and Conservation

**EHJV**  
Eastern Habitat Joint Venture

**STILLWATER**  
Municipality

## APPENDIX 7

### Materials and Design for Artificial Nesting and Loafing Structures Osprey Platforms (Courtesy of Government of Ontario)

# EXTENSION NOTES



## BUILDING NESTING PLATFORMS FOR OSPREYS

Although they were once scarce in Ontario, ospreys have made a striking comeback in recent years. Thanks to concerned people working together to build and install special nesting platforms, these large brown and white fish hawks are now a familiar sight along many waterways.

This Extension Note provides information on how to construct and install two types of nesting structures — the single-poled platform and the quadropod platform.

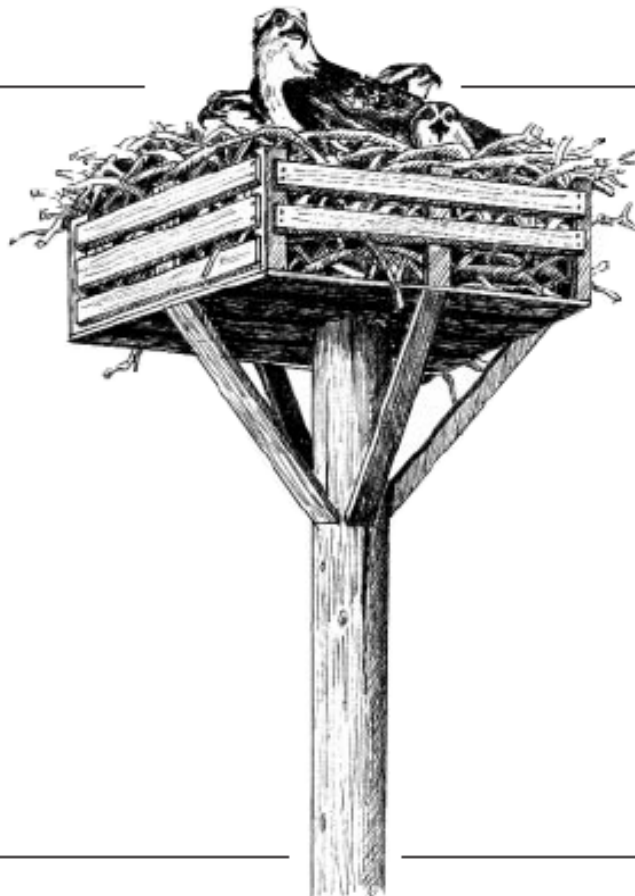
### THE OSPREY STORY

Ospreys are found across Canada and in most parts of the world. In Ontario, they nest in regions as far north as Algonquin Park.

During the 1950s and '60s, osprey populations dropped dramatically in the province. Pollutants, such as the insecticide DDT, had contaminated many waterways and were accumulating in fish. Because fish are an important source of food for ospreys, they too were affected. Fortunately, the use of DDT was banned in Ontario in 1974.

Today, ospreys are returning, but only to face another obstacle. Ospreys generally build their nests in tall, isolated trees that are close to shallow bodies of water. During their 20-year absence, many of these natural nesting sites were destroyed, forcing some ospreys to nest on hazardous structures such as hydro poles and television towers.

For the past few years, the Ministry of Natural Resources, along with groups of concerned citizens from Georgian Bay to the St. Lawrence River, have embarked on a campaign to build nesting structures specially designed for ospreys.



## BEFORE YOU START

Erecting platforms in lakes and rivers may require a permit. Before you begin, contact the Ministry of Natural Resources for more information. Other agencies, such as

Parks Canada and local conservation authorities, may also have to be informed.

## NESTING PLATFORMS

There are different types of nesting platforms for different site conditions. The quadropod is designed to be placed directly in the water, while the single-poled structure is designed for use on land.

When choosing a site for a nesting platform, consider the following:

- Ospreys feed almost exclusively on fish. Sites should be no more than three kilometres from shallow bodies of water — 50 metres is ideal.

- Platforms should be erected in open areas, giving the osprey room to build a nest as well as to protect it from predators, such as raccoons and owls.
- Sites should be sheltered from prevailing winds and major ice movement. They should also be at least 100 metres from human activity.
- When building several nesting platforms on one site, they should be placed at least 300 metres apart.

## THE QUADROPOD PLATFORM

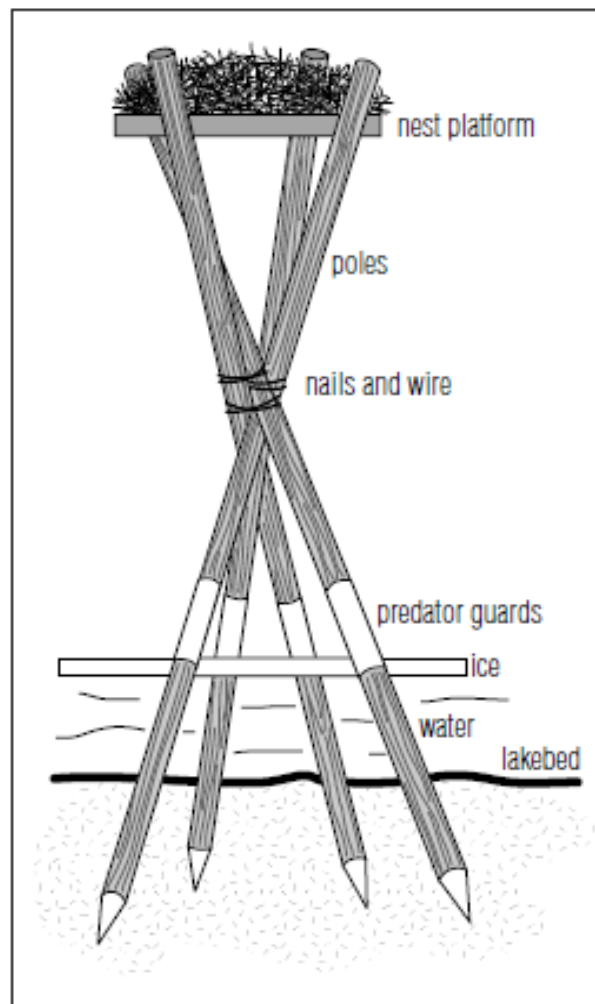
As the name implies, this platform has a four-legged base. Because it's left in the water year-round, it's important to choose a location where it won't be a hazard to boaters, and where winter ice won't disrupt it. Good locations include quiet bays or isolated marshes.

Install the quadropod during winter months when ice conditions make it easier to get around. You'll need three or four people to carry equipment, position poles and erect the platform.

### EQUIPMENT

- four cedar poles, six metres in length (sharpen thick end)
- 1.2 by 1.2 metre skid or pallet
- eight-inch ice auger
- 2 eight-inch spikes
- 30 two-inch roofing nails
- 12 four-inch spiral spikes/nails
- 12 six-inch spiral spikes/nails
- six metres of black fencing wire
- pliers, claw hammer, sledge hammer, saw and ice pick
- four pieces of one-metre-square sheet metal or children's plastic roll-up toboggans for predator guards
- 1.2 metres of chain
- hardwood block (about 10 x 10 x 25 centimetres)
- five-metre ladder

Quadropod platforms are designed for use in water. Quiet bays and marshes are ideal locations.



**BUILDING NESTING  
PLATFORMS FOR  
OSPREY**
**INSTALLATION**

Follow these steps to install the quadropod platform.

1. Drill four holes into the ice at a 45 degree angle. The holes should be approximately two metres apart, forming a square.
2. Ram the sharpened poles down into the ice holes and then use the sledge hammer to knock them at least one metre into the ground below the ice. To make the job of hammering easier, attach the block of hardwood to the side of each pole using a length of chain. To hold the chain in position, notch a small V into the pole using the saw (see Figure 1).
3. Place the wood pallet or skid in a level position between the tops of the poles. The platform should be at least 2.4 metres above the ice. Using the six-inch spikes, nail and wire the platform to the poles.
4. Wire and nail the poles together using the eight-inch spikes where they cross near the centre of the structure.
5. Wrap the predator guards (sheet metal or plastic toboggans) around each leg of the structure. Nail

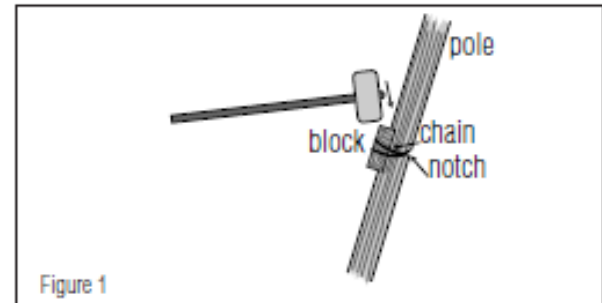


Figure 1

them in place with roofing nails, ensuring that they are pounded in flush and can't provide toe-holds for predators.

6. Wire a few "starter" sticks onto the bottom of the platform to attract an osprey. An extra perch can be installed off to the side or above the platform. This provides a place for the male to roost during the nesting season.

**SINGLE-POLED PLATFORM**

The single-poled platform is better suited for use on land. It's adaptable to areas with deep soil, as well as areas with no soil. Your first challenge may be to find a long and sturdy pole. Old hydro poles are ideal. Try contacting your local utility company or Bell Canada office to inquire about obtaining poles for this purpose.

**EQUIPMENT**

- one pole, six to nine metres in length
- 1.2 by 1.2 metre skid or pallet with 10-inch high retaining fence
- four wood or metal braces
- power auger (for deep soil sites)
- rock drill and mounting set (for rocky sites)



The single-poled platform is designed for use on land. It can be erected in deep soil or on rock.

**BUILDING NESTING  
PLATFORMS FOR  
OSPREY**

- six-inch spikes
- two-inch roofing nails
- steel guy wire
- four eye bolts (minimum two-inch thread)
- cement
- pliers, claw hammer and sledge hammer
- one piece of one-metre square sheet metal or children's plastic roll-up toboggans

**DEEP SOIL**

Follow these steps to install a single-poled platform in deep soil:

1. Attach the nesting platform (skid or pallet) to the pole. Wire a few "starter" sticks to the platform.
2. Use the power auger to drill a hole one to two metres deep.
3. Place the pole in the hole and secure it with cement, sand or rock.
4. If necessary, attach guy wires to add extra support.
5. Wrap the predator guards (sheet metal or roll-up toboggans) around the pole. Nail them in place with roofing nails, ensuring that they are pounded in flush and can't provide toe-holds for predators.

**ROCK**

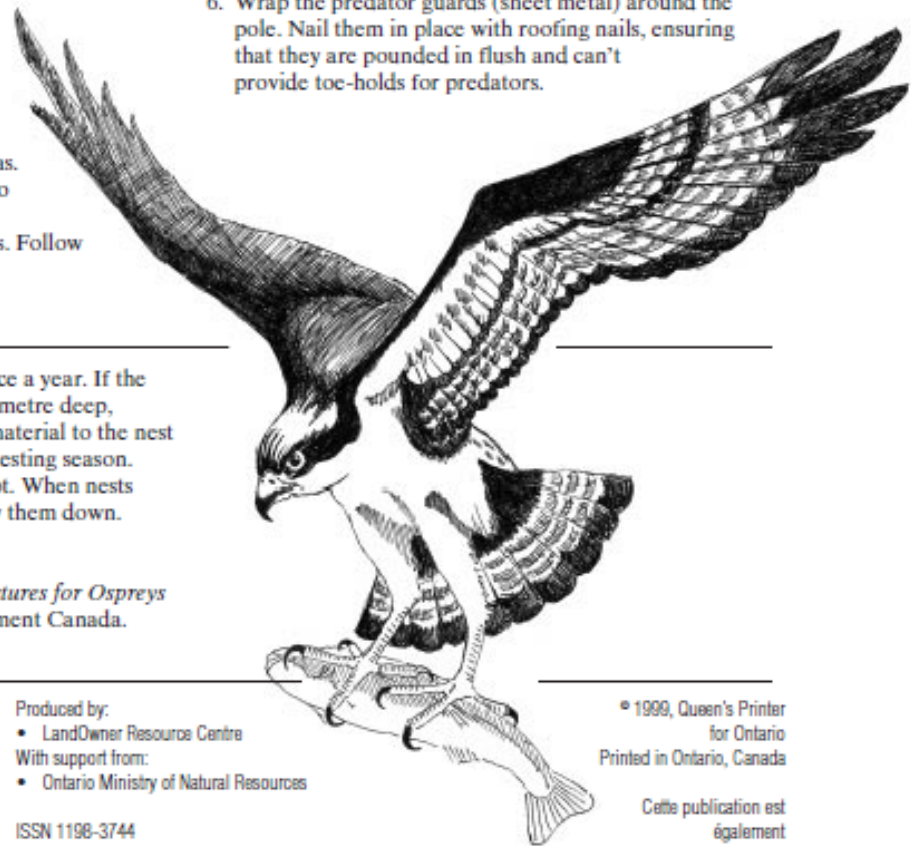
While a little more involved, it is still easy to erect nesting poles in rocky areas. The most difficult piece of equipment to come across may be the rock drill and mounting sets used by utility companies. Follow

these steps to install a single-poled platform on rock.

1. Attach the nesting platform (skid or pallet) to the pole. Wire a few starter sticks to the platform.
2. Use the rock drill to make the holes to accommodate the mounting set.
3. Set the bracket inside the holes. Pour in cement for additional support.
4. Raise and anchor the pole in place using the mounting set.
5. If necessary, attach guy wires prior to raising the pole to add extra support.
6. Wrap the predator guards (sheet metal) around the pole. Nail them in place with roofing nails, ensuring that they are pounded in flush and can't provide toe-holds for predators.



The pole is anchored with a mounting set.


**MAINTENANCE**

Inspect the nesting platform at least once a year. If the material in the nest is more than half a metre deep, remove a layer of sticks. Ospreys add material to the nest at the beginning and at the end of the nesting season. Although nests look sturdy, they are not. When nests become too large, windstorms can blow them down.

**Further reading:**

- Ewins, P.J. 1994. *Artificial Nest Structures for Ospreys — A Construction Manual*. Environment Canada. Toronto, Ontario. 41p.

For more information contact:

**LandOwner Resource Centre**  
P.O. Box 599, 5524 Dickinson Street  
Manotick, Ontario K4M 1A5  
Tel 613 692 2390 or 1 800 387 5304  
Fax 613 692 2806  
E-mail: [lrc@sympatico.ca](mailto:lrc@sympatico.ca)

Product Ordering: 1 888 571 INFO (4636)  
Internet: <http://www3.sympatico.ca/lrc>

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**Bird House Dimension and Placement**  
(Courtesy of Ohio's Division of Wildlife – Wildlife Diversity and Endangered Species Program)

Species	Specifications					
	Inches				Feet Above Ground	Preferred Habitat
	Entrance		Floor Dimensions	House Depth		
	Diameter	Above Floor				
Bluebird	1 ½	6-7	5 x 5	8-9	5-10	Open field with perches
Chickadee, black capped	1 ½	6-8	4 x 4	8-10	5-15	Woodland with perches
" Carolina	1 ½	6-8	4 x 4	8-10	6-15	Woodland
Flicker	2 ½	14-16	7 x 7	16-18	6-20	Woodland
Fly catcher, great crested	2	6-8	6 x 6	8-10	8-20	Woodland
Kestrel	3	9-12	8 x 8	12-15	10-30	Open field
Martin, purple	2 ½*	18	6 X 6*	6*	15-20	Open fields AWAY from trees & near water
Nuthatch, white-breasted	1 ¼	6-8	4 x 4	8-10	12-20	Woodland
Owl, barred	7 x 7 arch	12	12 x 12	23	20-23	Woodland
" screech-	3	9-12	8 x 8	12-15	10-30	
" barn	6 x 6	6	12 x 36	15-18	20-25	
Phoebe	Open front & sides		7 x 7	8	8-12	Backyard
Robin	Open front & sides		7 x 7	8	8-12	Backyard
Swallow, tree	1 ½	1-5	5 x 5	6	6-10	Open field near water
Titmouse, tufted	1 ¼	6-8	4 x 4	8-10	6-15	Woodland edge & interior
Warbler, prothonotary	1 ½	6	5 x 5	8	5-10	Over and near water
Woodpecker, downy	1 ¼	6-8	4 x 4	8-10	6-20	Woodland interior
" hairy	1 ½	9-12	6 x 6	12-15	12-20	
" red-bellied	2 ½	10-12	6 x 6	12-14	12-20	
" red-headed	2	9-12	6 x 6	12-15	12-20	
Wren, Carolina	1 ½	4-6	4 x 4	6-8	5-10	Near brushy areas & backyards
" house	1 ¼	4-6	4 x 4	6-8	5-10	

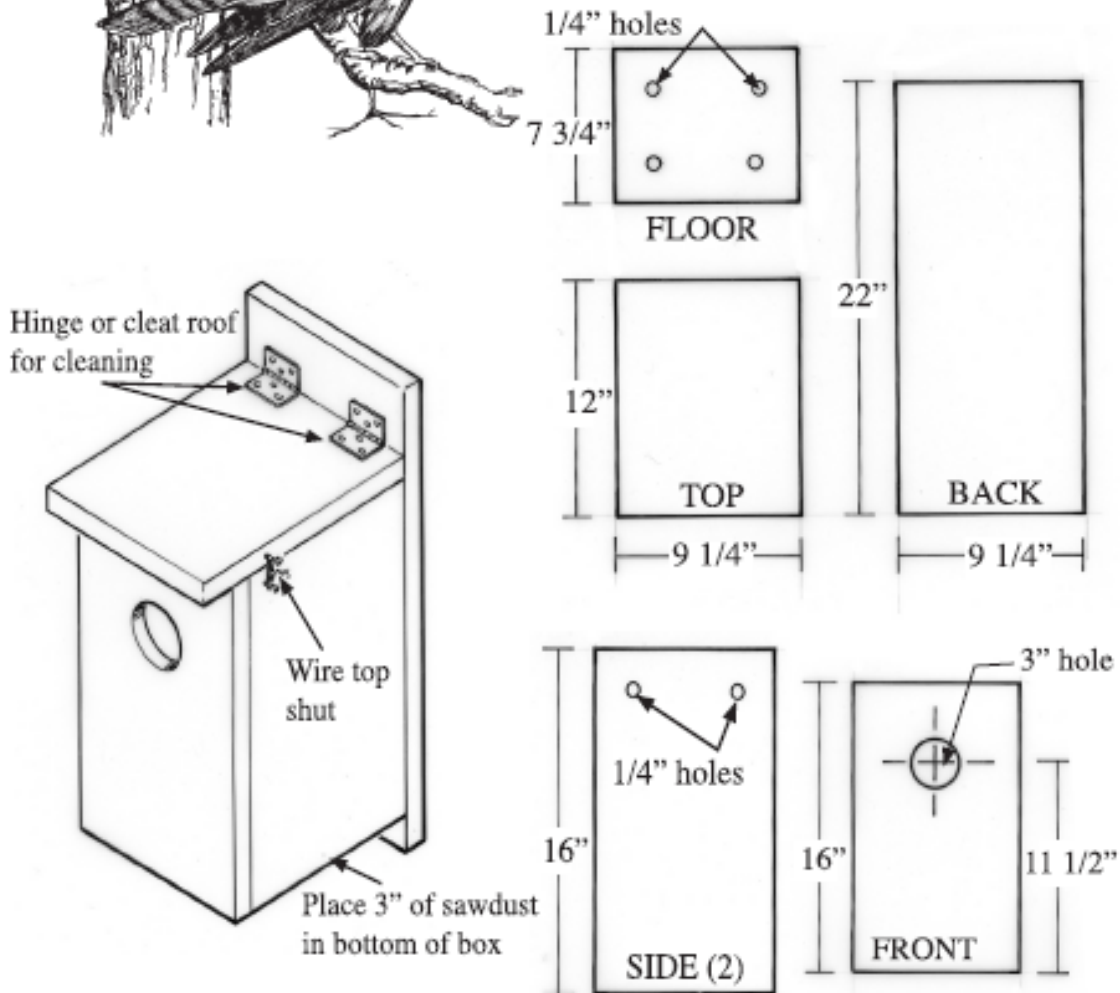
\*These are the dimensions for one compartment. Martins nest in colonies; therefore, martin houses should have a minimum of six self-contained apartments.

Removing unwanted species such as starlings and house sparrows will increase your chances for nesting success.

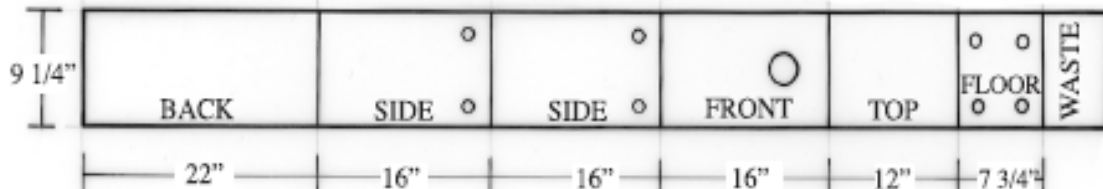
## AMERICAN KESTREL, EASTERN SCREECH-OWL NEST BOX



Preferred habitat for owls includes mixed stands of deciduous forest on the edge of woods adjacent to fields or wetlands. Kestrels prefer more open country. To prevent use by squirrels, the box for owls can be placed on a pole with a predator guard. Boxes should be placed at least 10 feet high for owls, and 10 to 30 feet high for kestrels



LUMBER: One 1" x 10" x 8'0"

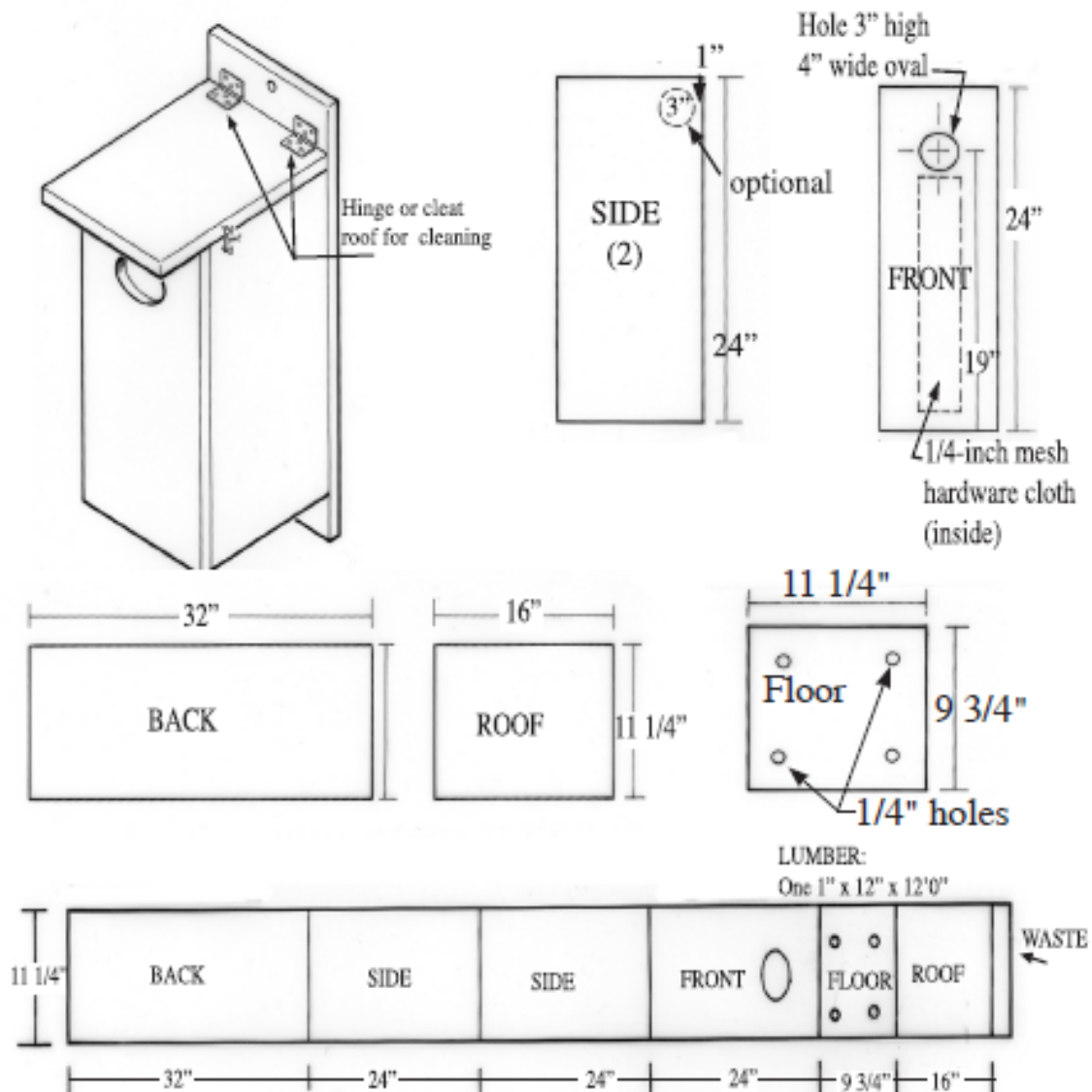


## WOOD DUCK NEST BOX



Boxes placed on posts in water should be six to eight feet above the water. Wood duck boxes can also be placed in woodland habitat up to a half mile from lakes, ponds, marshes, and rivers. Since the hen must lead her ducklings to water after they hatch, the habitat between the house location and the water's edge should be free of major obstacles, such as fences, highways, mesh wire, or curbing.

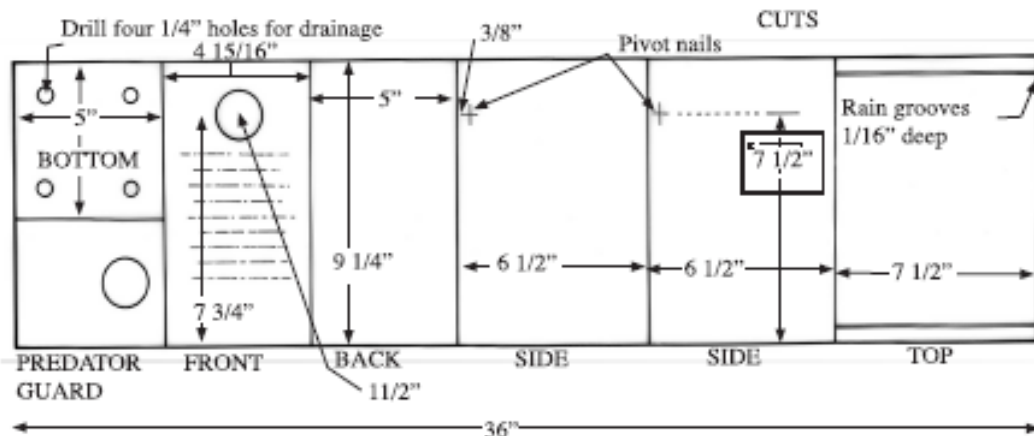
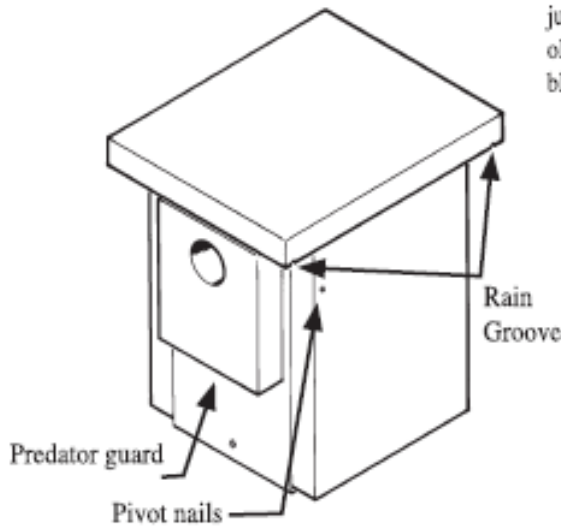
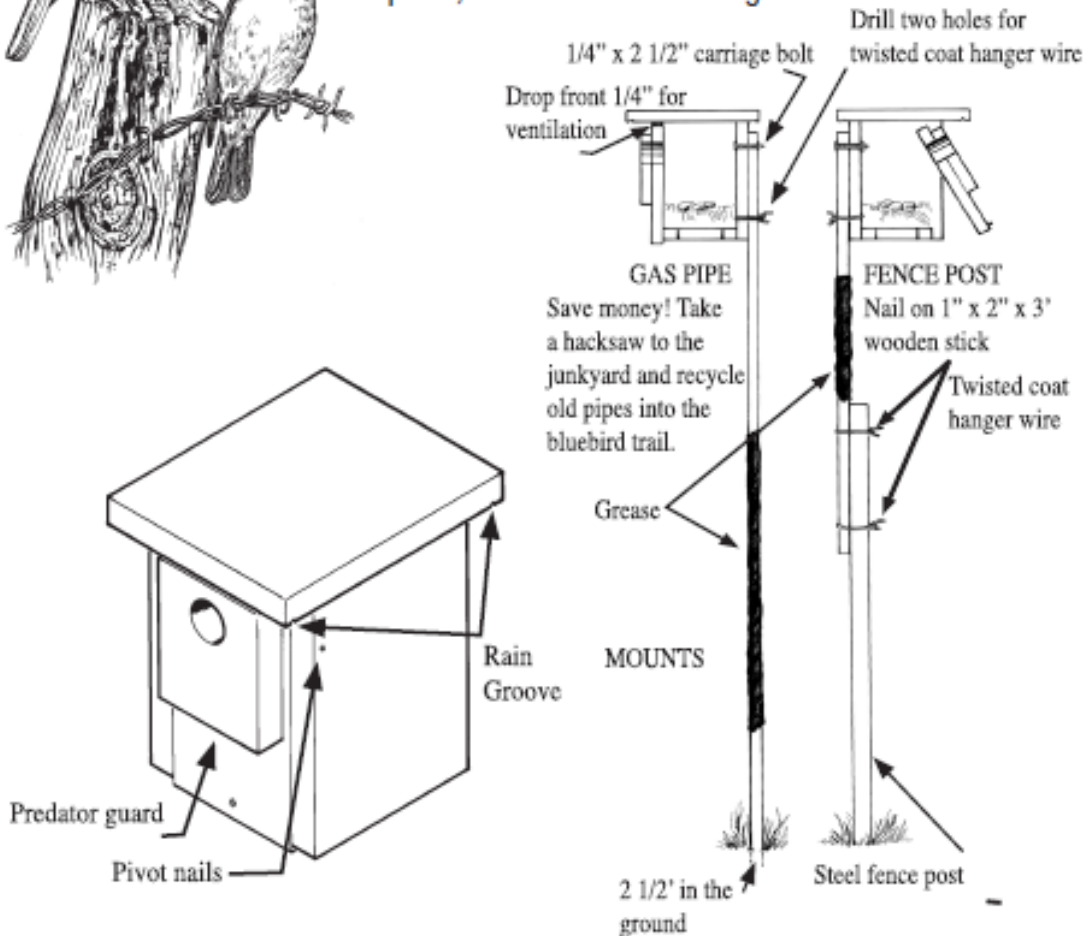
Cavity nesting ducks do not carry nesting materials. It is important to help them out by placing 2-4 inches of wood shavings (not sawdust) in the bottom of the box. Also, some type of predator guard should be used.



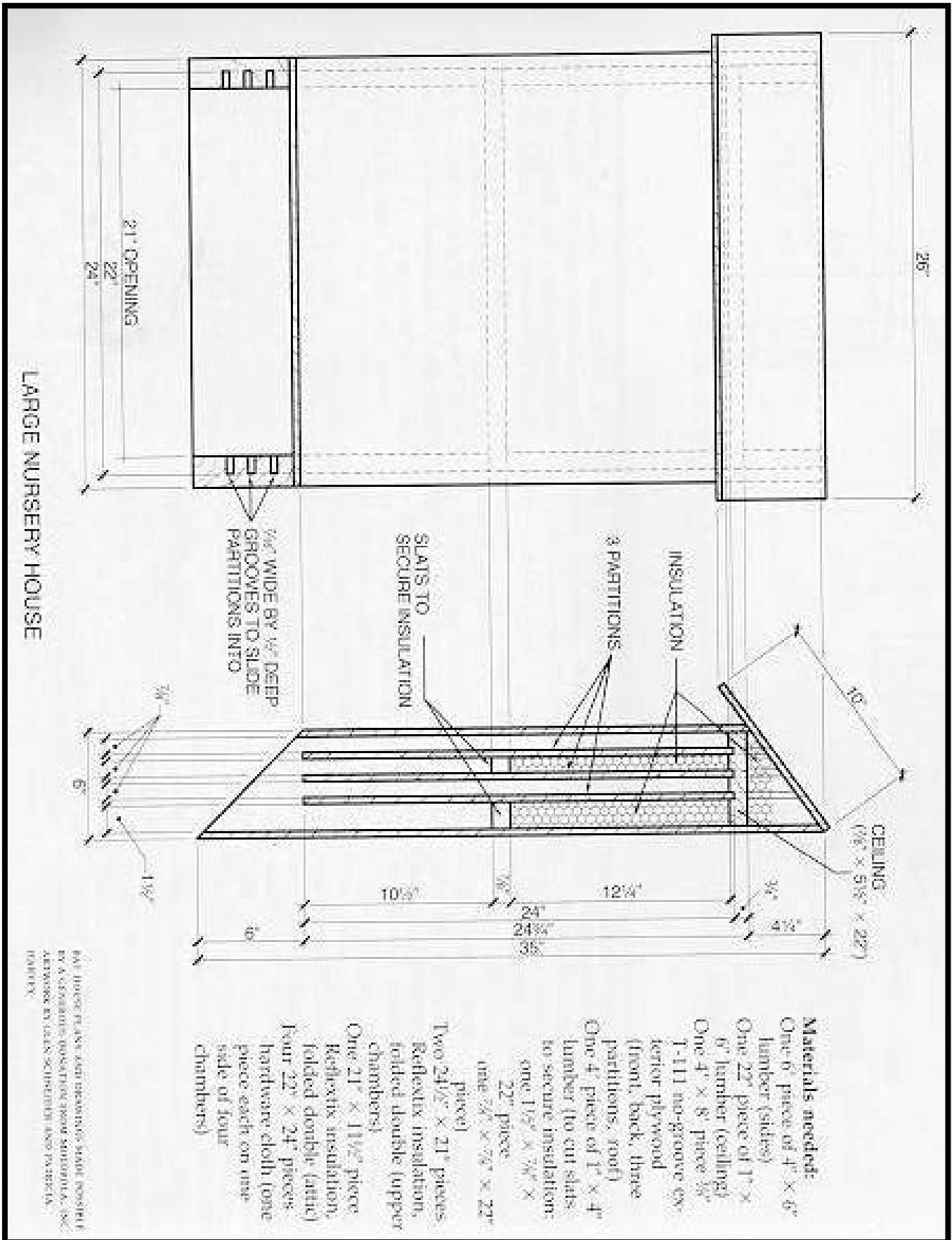


## EASTERN BLUEBIRD, TREE SWALLOW NEST BOX

Ideal bluebird habitat is mixed hardwood forest and grasslands. The grassy areas may be meadows, pastures, yards, cemeteries, highway rights-of-way, or prairies. The most desirable grass for bluebirds and tree swallows is short or sparse, mowed or grazed. The area must also provide enough feeding perches. There can be power lines, fence posts, or scattered trees. Boxes should be mounted on posts, about five feet above ground.



### Box Roosting Boxes



## Bat Box in Pynn's Brook, Western Newfoundland.



Photo by: Wildlife Division Staff

## APPENDIX 8

### Chart of Shoreline Vegetation and Site Requirements

Species	Range	Site Requirements	Conservation Value
<b>Shrubs and Small Trees</b>			
American mountain ash	Coast to coast	Full sun; wide range of soils	Vegetation buffer; wildlife food, cover, and nesting sites
Balsam-poplar	Coast to coast	Full sun to partial shade; prefers most soils on shorelines	Erosion control; vegetation buffer; wildlife food, cover, and nesting sites
Blackberry	Coast to coast	Moist, well-drained soils	Vegetation buffer; fence row; food and cover for birds and mammals; butterfly nectar source
Elderberry	Coast to coast	Full sun to full shade; rich, moist soils	Food and cover for shoreline birds and mammals; butterfly nectar source
Highbush cranberry	Alta., Sask., Man., Ont., Que., N.B., N.S., P.E.I., Nfld.	Stream banks and lake shores; wide range of soils; shade tolerant	Erosion control; vegetation buffer; fence row; food for birds and mammals
Pussy-willow	Coast to coast	Full sun; deep, rich shoreline soils; moist to wet conditions	Vegetation buffer; fence row; nectar source for pollinators
Raspberry	Y.T., N.W.T., B.C., Ont., Que., N.B., N.S., P.E.I., Nfld.	Wide range of soils; shade tolerant; flood tolerant; stream banks and lake shores	Erosion control; vegetation buffer; fence row; food and shelter for birds and mammals
Red-osier dogwood	Coast to coast	Full sun to partial shade in moist to wet soils; stream banks; lake shores; wetlands	Vegetation buffer; fence row; food, cover, and nesting sites for birds and mammals
Wild black currant	Y.T., N.W.T., Alta., Sask., Man., Ont., Que., N.B., N.S.,	Wide range of soils; moist to wet shorelines	Erosion control; vegetation buffer; fence row; wildlife

	P.E.I., Nfld.		food and cover; butterfly nectar source
<b>Trees</b>			
Ash	Coast to coast	Alongside stream banks and lake shores; wet sites alongside wetlands; full sun to partial shade	Erosion control; vegetation buffer; fence row; wildlife food, cover, and nesting sites
Balsam-fir	Y.T., Alta., Sask., Man., Ont., Que., N.B., N.S., P.E.I., Nfld.	Wide range of moist, rich soils; drought resistant	Vegetation buffer; wildlife food, shelter, and nesting sites
Cedar	Coast to coast	Alongside stream banks and lake shores; wet sites alongside wetlands	Food and cover for marsh birds, songbirds, and mammals
Paper-birch	Coast to coast	Full sun to partial shade; wide range of moist soils	Erosion control; vegetation buffer; wildlife food and cover
Red maple	Man., Ont., Que., N.B., N.S., P.E.I., Nfld.	Wide range of shoreline soils; flood tolerant	Erosion control; vegetation buffer; wildlife food and cover
Shining Willow	Sask., Man., Ont., Que., N.B., P.E.I., N.S., Nfld.	Moist to wet conditions	Erosion control; vegetation buffer; wildlife cover
Spruce	Coast to coast	Wet sites alongside lakes, streams, and wetlands	Vegetation buffer; wildlife food, cover, and nesting sites
Tamarack	Y.T., N.W.T., Ont., Que., N.B., N.S., P.E.I., Nfld.	Alongside stream banks and lake shores; wet sites alongside wetlands	Vegetation buffer; food and cover for shoreline birds and mammals
Trembling aspen	Man., Ont., Que., N.B., N.S., P.E.I., Nfld.	Full sun to partial shade; wide range of shoreline soils	Erosion control; vegetation buffer; food and cover for shoreline birds and mammals

White pine	Y.T., N.W.T., B.C., Alta., Sask., Man., Ont., Que., N.B., N.S., P.E.I., Nfld.	Wide range of soils; dry sites alongside wetlands	Food and cover for shoreline birds and mammals
Yellow birch	Ont., Que., N.B., N.S. P.E.I., Nfld.	Full sun to partial shade; moist shoreline soils	Erosion control; vegetation buffer; wildlife food and cover
<b>Grasses</b>			
Clovers	Coast to coast	Full sun; wet soils bordering on streams, lakes, and wetlands	Food and cover for upland birds and mammals; nectar source for pollinating insects
Rough fescue	Y.T., N.W.T., B.C., Alta., Sask., Man., Ont., Que., Nfld.	Full sun; dry to moist soils bordering on streams, lakes, and wetlands	Erosion control; vegetation buffer; food and cover for upland birds, mammals, and insects

## APPENDIX 9

### Photo of Bird-watching (Viewing) Tower

Viewing Tower in Hankasalmi, Finland. Photo: Wikipedia



# APPENDIX 10

## Photo of Bird Blinds

**Enclosed Bird Blind in Winterland. Photo by: Charmaine Barney**



**Bird Blind in Grand Falls – Windsor.  
Photo Courtesy: Corduroy Brook Enhancement Association**





## APPENDIX 11

### Photo of Viewing Deck

Image of viewing deck in Winterland. Photo by: Charmaine Barney



# **APPENDIX 12**

## **Appropriate Wording and Design for “No-shooting” Signs**

