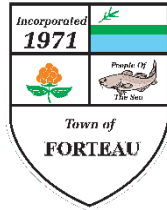


# Habitat Conservation Plan for the Town of Forteau



**August 2017**

**Prepared by the Newfoundland and Labrador Department of Fisheries and Land Resources in partnership with the Stewardship Association of Municipalities Inc and the Town of Forteau**



**Town of Forteau**

Forteau Town Centre, 11-13 Main Street  
Forteau, Labrador, NL, Canada  
(709) 931 2241  
[southernlabrador.ca/home/forteau.htm](http://southernlabrador.ca/home/forteau.htm)  
[samnl.org/forteau](http://samnl.org/forteau)



**NL Eastern Habitat Joint Venture**

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[@EHJVNews](https://twitter.com/EHJVNews)  
[facebook.com/EasternHabitatJointVenture](https://facebook.com/EasternHabitatJointVenture)



**Stewardship Association of Municipalities (SAM)**

Newfoundland and Labrador, Canada  
[samnl.org](http://samnl.org)  
[@SAM\\_Stewardship](https://twitter.com/SAM_Stewardship)  
[facebook.com/Stewardshipassociationofmunicipalities](https://facebook.com/Stewardshipassociationofmunicipalities)

## Preface

In the province of Newfoundland and Labrador some of the wildlife and wildlife habitats 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 wildlife habitat through Stewardship Agreements. The Town of Forteau was identified as having just such ecologically valuable, and unique, habitat located within its Municipal Planning Area.

The Town of Forteau signed a stewardship agreement with the provincial government on June 29<sup>th</sup> 2017 where both parties pledged their commitment to conservation and protection of habitat within designated land areas known as Management Units as well as promoting wise use of other wildlife habitat within the vicinity of the Town. In accordance with this agreement, Forteau manages these areas with technical advice provided by the provincial Wildlife Division, in part via this Habitat Conservation Plan. With the signing of this plan, the agreement parties officially accept this Habitat Conservation Plan and agree to use it as a guide to govern activities within the designated Management Unit.

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

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

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

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

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

\_\_\_\_\_  
**Department of Fisheries and Land Resources  
Government of Newfoundland and Labrador**

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

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## **Section 1: Plan Overview**

### **Stewardship Agreement Goals**

- (1) To conserve habitat located within the designated Management Unit and to positively influence habitat uses.
- (2) To maintain and/or increase wildlife use of those areas, particularly by waterfowl, shorebirds and other bird species.
- (3) To increase public awareness of the importance of wetland habitats for conserving waterfowl, shorebirds and other wildlife.

### **Plan Purpose**

The Town of Forteau will use this Habitat Conservation Plan as a guide to govern activities which impact wildlife habitat, wetlands, and waterfowl/shorebirds to minimize negative impacts within the areas designated for conservation.

### **Plan Objectives**

- (1) To present a general assessment of the wetland habitats and waterfowl/shorebirds or wildlife species designated for conservation.
- (2) To recommend protection, conservation, and enhancement strategies.
- (3) To describe potential initiatives for education and awareness among the public to increase support and cooperation of the Town's citizens.

## **Section 2: Habitat Conservation in Newfoundland and Labrador**

### **Introduction**

Human development has resulted in the destruction or alteration of many types of habitat all over the world. Similarly, 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 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. 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.

Recognizing the importance of wetland conservation, in 1986 Canada and the United States (later followed by Mexico) signed the North American Waterfowl Management Plan (NAWMP, [nawmp.wetlandnetwork.ca](http://nawmp.wetlandnetwork.ca)). The Plan committed the countries 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. 24 joint ventures, ranging from species to regional-specificity, have been established to achieve and implement the objectives of NAWMP. The province of Newfoundland and Labrador became a partner of the Eastern Habitat Joint Venture (EHJV, [ehjv.ca](http://ehjv.ca)) in 1989.

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

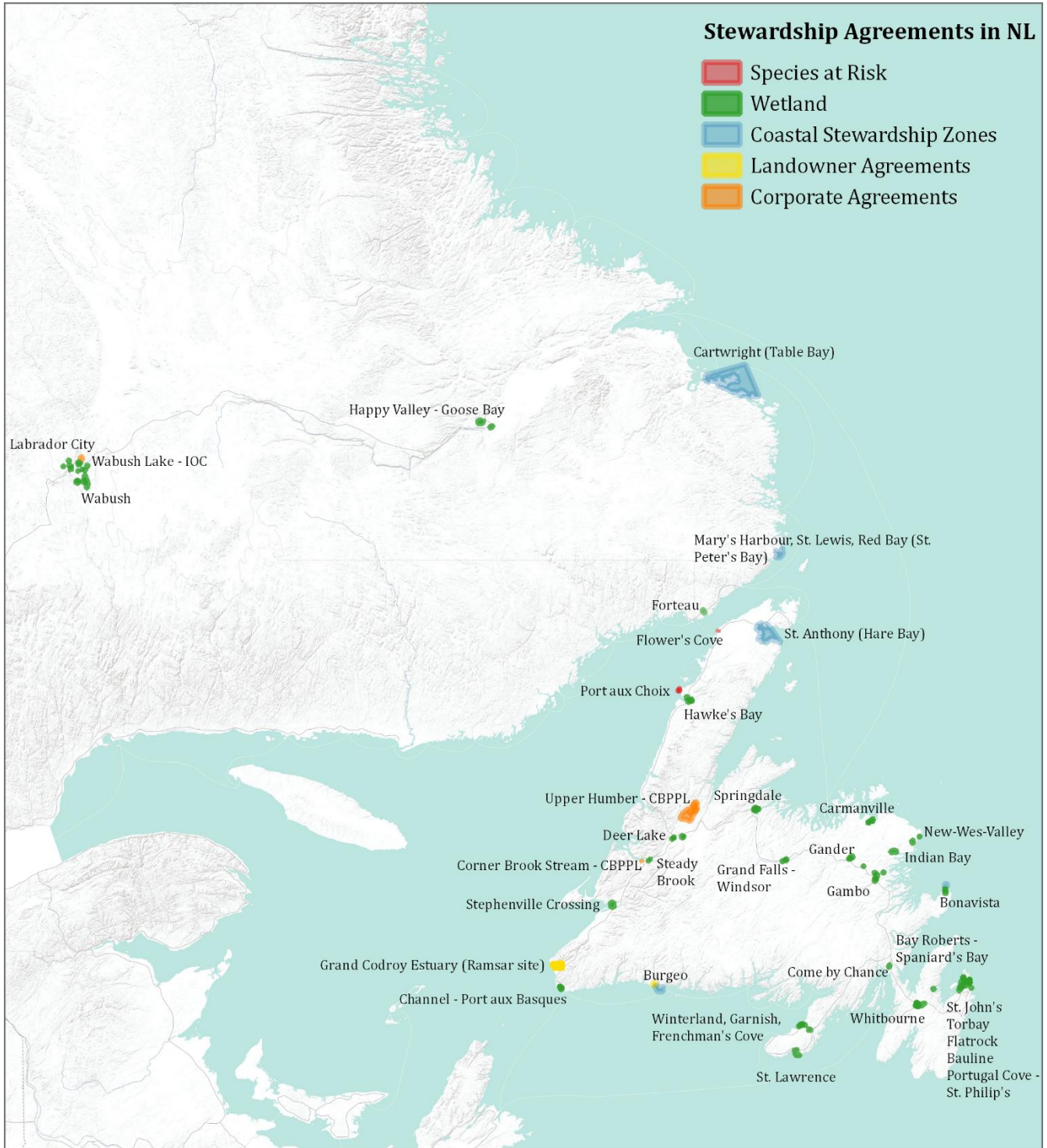
The premise behind the EHJV ([ehjv.ca](http://ehjv.ca)) is to conserve, enhance and restore wildlife habitat for birds, especially wetlands, in the six eastern Canadian provinces of Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. Each province deals with 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 by the provincial Department of Fisheries and Land Resources. Its local contributors, other than the province, include Ducks Unlimited Canada, Canadian Wildlife Service (a branch of Environment and Climate Change Canada), 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 Municipal Habitat Stewardship Program**

In Newfoundland and Labrador development occurs most regularly within municipal boundaries. As such, wildlife habitat that exists within municipalities is often at the greatest risk of destruction or alteration and potentially in greatest need of conservation and/or management. As its primary contribution to the implementation of the Eastern Habitat Joint Venture in Newfoundland and Labrador, the provincial Department of Fisheries and Land Resources created a program seeking to work with municipal councils to conserve significant wildlife habitat, in particular wetlands, found within municipal planning boundaries. The program's principal goal is to help make municipalities, corporations, developers, landowners, and other wildlife habitat stakeholders more aware of the value of wildlife and habitat found within their jurisdiction and to empower them to take action to conserve specific significant areas. This helps lead to more informed development decision-making and works towards minimizing negative impacts on wildlife populations and local ecosystems.

The program focuses largely upon signing Stewardship Agreements with municipalities, corporations or private landowners who have jurisdiction over areas of significant wildlife habitat. A Stewardship Agreement represents a formal public commitment by a community, corporation, individual and the province, to act together to conserve habitat for wildlife. By signing a Stewardship Agreement, communities, corporations and individuals become an important link in a continental chain of conservation areas. To date nearly 40 municipalities have signed Habitat Stewardship Agreements in NL. (Figure 1).





**Figure 1. Map of Habitat Stewardship Agreements signed in Newfoundland and Labrador**



## Roles of Stewardship Agreement Signatories

After the signing of a formal Habitat Stewardship agreement (Forteau agreement shown in Appendix 1), an area specific Habitat Conservation Plan is prepared in consultation with the community (this plan). The plan offers best management practices, recommendations, and advice for conserving, enhancing and/or managing the wildlife habitat within in the 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 to be then incorporated into the town's existing or future municipal plan, operating plan or master plan for use during future development decisions. 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.

**The Province:** The Minister of Fisheries and Land Resources was the designated signatory on behalf of the province. The Department administers the Eastern Habitat Joint Venture in Newfoundland and Labrador and works closely with the Stewardship Association of Municipalities (SAM) on its implementation.

Now that the Stewardship Agreement has been signed, staff of the Department are expected to:

- Provide the agreement signatory with a Habitat Conservation Plan (this plan)
- Review any proposed developments within the Management Units that may impact that wildlife habitat (page 16)
- Generally supporting the town and local community conservation groups in implementing the Stewardship Agreement and Habitat Conservation Plan.
  - This includes in particular, assisting the Town in carrying out, where appropriate, education and information initiatives to raise awareness of wildlife and habitat conservation issues (such as those discussed in Section 5).
  - Assisting the town in implementing community engagement activities such as restoring or enhancing wildlife habitat (such as those discussed in Section 5).
  - Such engagement activities are often carried out in partnership with the partner agencies of the NL Eastern Habitat Joint Venture.

**The Town:** Now that the Stewardship Agreement has been signed, the Town of Forteau and its designated Mayor and Council are expected to:

- Ensure that significant wildlife habitat areas designated as Management Units are protected from destruction or degradation.
- Contact the Wildlife Division when activities are proposed that may impact that habitat (page 16)

- Incorporate the Stewardship Agreement and Habitat Conservation Plan into the next Municipal Plan draft or revision with the assistance from the Department.
- Educate residents, staff and development planners about the stewardship program and their responsibilities, with the assistance of the EHJV partners.
- Implement, over time, the Habitat Conservation Plan recommendations in the community at large, with the assistance of the EHJV partners.
- Participate in the Stewardship Association of Municipalities (SAM), a province-wide organization made up of municipalities which have signed Stewardship Agreements.

## **Section 3: Wildlife and Wildlife Habitat in Forteau**

### **The Town of Forteau**

Forteau is located in the Labrador Straits region of southern Labrador and has a population of 409 (2016 Census). Regional attractions include Red Bay whaling heritage sites, Pioneer Footpath, Point Amour lighthouse, Overfall Brook Trail, Bakeapple Folk Festival in August, icebergs, boat tours, berry picking, skiing, fishing, and sight seeing. Industries include commercial fishing, industrial projects, and tourism.

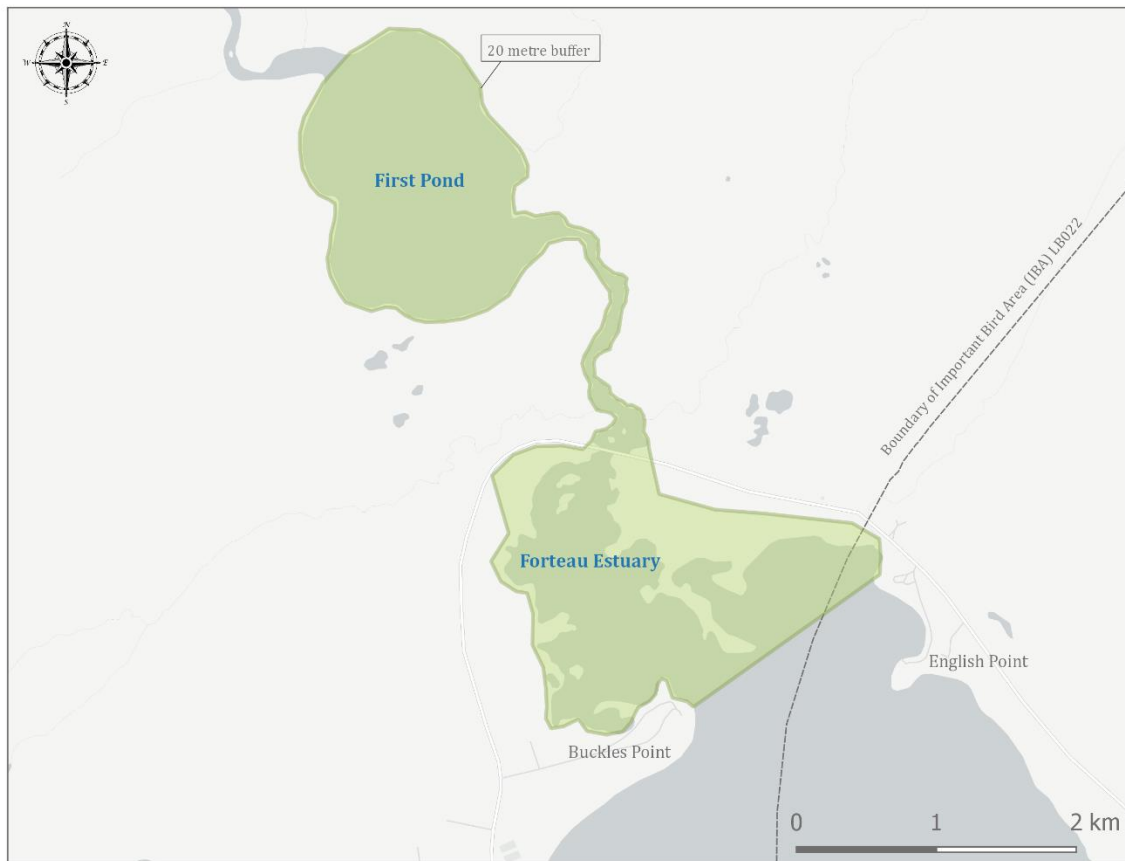
The Town of Forteau contains important wildlife habitat within the municipal planning area. Wetlands within the municipality form individual links of waterfowl migration routes for a wide variety of both wetland and upland bird species. There is also ideal habitat for a large number of songbirds, mammals, and fish within the town's planning area. First Pond is known to contain freshwater mussels, salamanders, and a variety of fish species; the river (Forteau Brook) connecting First Pond and the estuary is a popular fishing spot and Black Bear have been sighted there as well. A list of bird species sighted inside the planning area boundaries of Forteau can be found in the Habitat Stewardship Proposal.

Management Units are important habitat which support birds and other wildlife during feeding, nesting, and staging. The Management Unit in Forteau (Figures 2-4) encompass a substantial land area (246 hectares, or 610 acres) and could incorporate education and interpretation projects, particularly as both sections are visible and have at least one access point. This area includes a large intact tidal wetland (estuary). Importantly, the Management Unit fully protects a connected system in three parts (pond, river, estuary) plus the riparian areas which surround them. The area includes many birdwatching hotspots and is an active area for photography and fishing.

# Schedule A: Estuary and First Pond Management Unit

Municipal Habitat Stewardship Agreement

Town of Forteau, Newfoundland and Labrador, Canada



Stewardship Association of Municipalities Inc.  
EHJV Eastern Habitat Joint Venture  
PCHE Le plan conjoint des habitats de l'est  
Newfoundland Labrador

January 2017  
Projection Information:  
WGS 84 EPSG: 3857

Figure 2. Map of the Forteau Management Unit.



**Figure 3. First Pond, inside Forteau Management Unit.  
Photo by Stewardship Association of Municipalities (SAM)**



**Figure 4. Forteau Estuary, inside Forteau Management Unit.  
Photo by Stewardship Association of Municipalities (SAM)**

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

### **Residential/Commercial Development**

For the most part, residential development in this wider general area is minor. Development in areas which are known to support wildlife should be treated with caution to reduce the impact on these species and to limit the amount of habitat loss associated with development. Any possible future development inside the Forteau Management Unit should be referred to the EHJV program manager at the Wildlife Division for comment (as discussed on page 16) to ensure that it is reviewed from a wildlife habitat perspective.

### **Fishing**

Many lakes and rivers in and around Forteau support healthy populations of trout, salmon, and other fish. Anglers should be reminded that waterfowl are easily disturbed during the nesting and brood rearing period (May to mid-June). Broods are very susceptible to predation when left unattended and during the nesting period adult waterfowl will often abandon the nest if disturbed. If docks or other structures are being constructed, nesting sites should be avoided.

### **Tourism/Recreation**

Recreational and tourism opportunities exist in Forteau and surrounding areas, for example recreational canoeing and kayaking activities. This also provides a great opportunity to raise awareness and educate visitors and residents about waterfowl within the community and the importance of wetlands. Recreational activities, such as hiking and walking, are also popular activities for many residents and visitors of Forteau and are strongly encouraged in this Management Unit.

### **All-Terrain Vehicle (ATV) Use**

ATV users want to enjoy beautiful landscapes and a healthy outdoors. Increasingly, ATV riders know they play an important role in maintaining these landscapes so everyone can enjoy them. Many riders take care to avoid unnecessarily damaging the outdoors. ATV use which is minimized to conform to the terms of the All-Terrain Vehicle Use Regulations (1994) will help to keep the important habitats in Forteau intact, healthy, and productive. This includes using established trails, not crossing over wetlands and bogs unnecessarily, and crossing streams at designated points. In the case of ATV use which is damaging habitat, Department of Fisheries and Land Resources Conservation Officers can enforce the Motorized Snow Vehicles and All-Terrain Vehicles Act/Regulations and can charge ATV users for habitat damage under this Act. Fish and Wildlife Enforcement Officers can also enforce these regulations and can be contacted 24/7 at 1 877- 820- 0999. For more information, your Regional Office in L'Anse au Loup (8 Branch Road) can be contacted at 709- 927- 5857.

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

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

In signing a Municipal Habitat Stewardship Agreement, the Town of Forteau has made a public commitment to join an international network of important habitat areas in North America. Further, the Town of Forteau has committed to using this Habitat Conservation Plan as a guide to best management practices in the Town's Management Unit. It is hoped that a stewardship ethic will be fostered within the community since the conservation of wildlife habitat depends not on Habitat Conservation Plans or regulations, but in reality on the conservation and stewardship ethic of Town residents and visitors.

### **Benefits for Residents**

The strategies outlined in this Habitat Conservation Plan can provide many long-term recreational and quality-of-life benefits for 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; interpretive signs can help both residents and tourists connect with the area. 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.

One important benefit that people receive from stewardship is the opportunity to increase their knowledge of wetlands 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.

### **Activities in 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, conservation 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 and associated upland habitat, and on the associated wildlife using those habitats, are permitted in these areas. For example, hiking, walking, birdwatching, cross-country skiing, snowshoeing, and geocaching are popular activities in many Management Units across the province. Management Units also do not affect

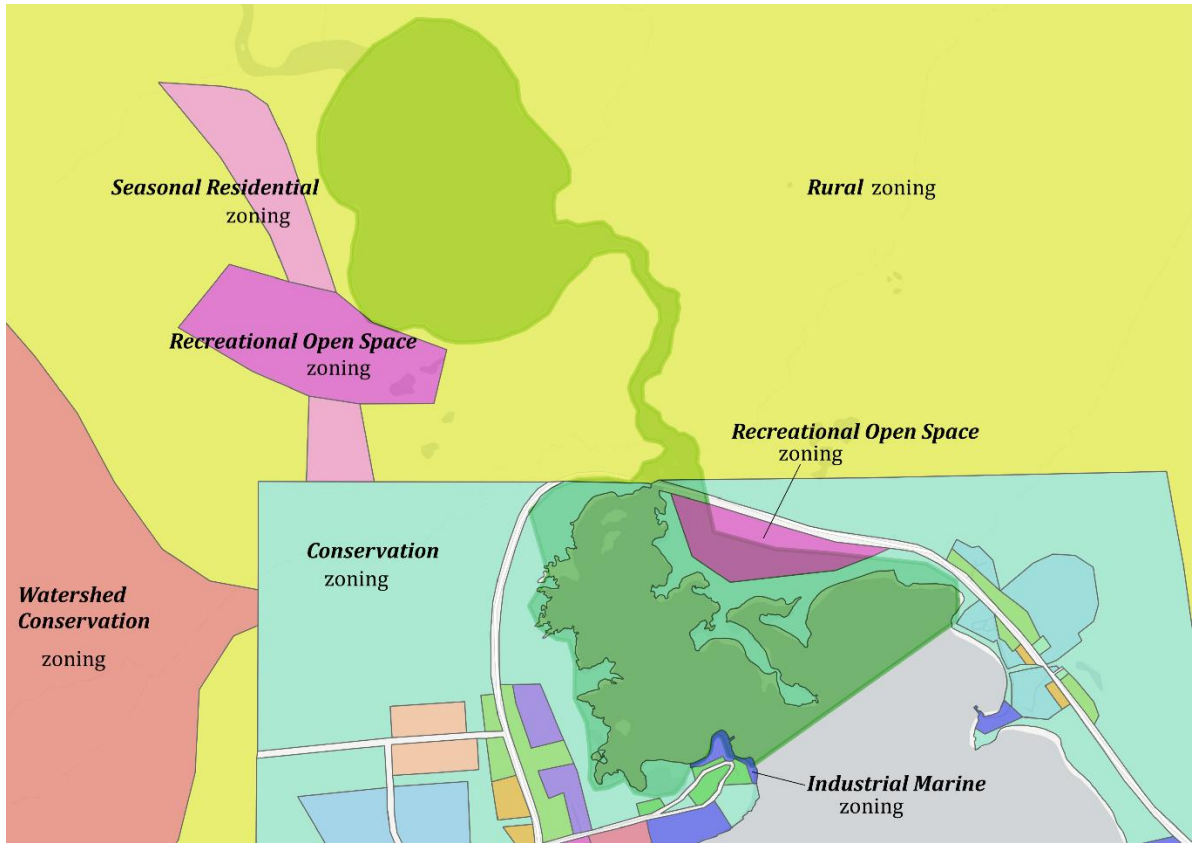


hunting, trapping, or fishing rights, such that where hunting, trapping, and/or fishing are safe and legal in a certain area, they will remain that way after a Management Unit is designated. Development proposals which impact habitat or wildlife within the Management Units must be forwarded to the EHJV program manager at the provincial Wildlife Division for comment with a thirty (30) day notice period.

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

During the preparation of a draft Municipal Plan, or during the process of Municipal Plan Review, the Town Council will incorporate the Stewardship Agreement into any resulting Municipal Plan or related Master Plan. **Specifically, these Management Units shall be zoned Open Space Conservation, Environmental Conservation, Open Space Recreation, or some similar consistent zoning designation within municipal planning documents as governed by 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 the Department of Fisheries and Land Resources.

The Town of Forteau will need to change the existing zoning from "*Rural*" to "*Conservation*" to ensure protection for the area surrounding First Pond and Forteau Brook, as well as the area on the northeast portion of the estuary. This change in zoning would be necessary as the *Rural* designation allows for agriculture and forestry (Town of Forteau Development Regulations) but these activities would not be compatible with the maintenance of wildlife habitat in this Management Unit. At the very southern edge of the Management Unit, the *Industrial Marine* zoning should also be changed to ensure full habitat protection of this sensitive coastal area (Figure 5).



**Figure 5. Map of current municipal zoning on the Management Unit**

As another conservation option, if in the future, an environmentally important area of interest falls outside Municipal Planning Area boundaries, Forteau could also petition the provincial government to have it designated as a “protected area” under section 31 of the Urban and Rural Planning Act, 2000.

**Riparian Buffers**

Riparian buffers are 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 provide for 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

wildlife when leaves, insects, and larvae drop into the water body off surrounding trees and shrubs. Restoration projects can seek to rebuild riparian areas; Appendix 3 provides suggestions for possible plant species to be used, and Section 5 contains contact information professionals with experience in environmental restoration.

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

### **Management by Committee**

It is recommended that the Town of Forteau manage their Management Unit and Habitat Conservation Plan via a committee of council. Depending on the town, they are variously called *Environment Committee*, *Environment and Trails Committee*, *Advisory Committee on the Environment*, *Management Committee*, or *Habitat Committee* but you are free to choose the name that suits your town and residents best. Usually these committees are 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. Many of these types of groups have found benefits in reserving spots in the group for a younger person, a high school student, or both. By involving locals, a greater sense of ownership is fostered which can strengthen conservation commitments. These committees can organize events, apply for grants, conduct cleanups and other projects, host hikes and walks, and many other activities including those described in Section 5.

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

When a municipality signs a Municipal Habitat Stewardship Agreement with the province, it becomes a member of the Stewardship Association of Municipalities Inc., also known as SAM ([samnl.org](http://samnl.org)). SAM is an incorporated, non-profit organization whose member municipalities together seek to secure, enhance and restore important wildlife habitat in the province while balancing municipal development with conservation. SAM maintains a public page about your agreement at [samnl.org/Forteau](http://samnl.org/Forteau) featuring maps, photos, facts, and information on local attractions. Please link to this page from your town's website; this will help increase residents' knowledge and understanding of the agreement and program.

SAM represents its members on issues of common concern related to provincial wildlife habitat conservation. 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.

SAM meets each spring (May or June) and fall (September or October) with host municipalities rotating among members and regions. 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 like-minded municipalities and link you to resources and training. Perhaps you may even be interested in hosting a SAM meeting in your town in the future; many municipalities enjoy this for the exposure it provides for their wildlife habitat and associated projects.

## **Section 5: Habitat Conservation and Education Strategies**

The following section presents some ideas for community education, engagement, and habitat enhancement that could be implemented over time in and around Management Units. They are not requirements of being involved but we encourage council to engage its related committee or other conservation organizations including SAM in activities which meet your needs and interests. Community engagement and partnerships are the true strengths of any stewardship agreement.

Many communities across the province who have signed stewardship agreements have had great success becoming involved in exactly these types of projects and will also be resources for you to connect with, especially at SAM meetings. Many of these activities and programs are free or can be funded through small community grants and via partnerships. SAM provides a regularly updated listing of many relevant grants at [samnl.org/funding-opportunities](http://samnl.org/funding-opportunities). Grants from Bird Studies Canada and Nature Canada may be particularly relevant as the Management Unit in Forteau slightly overlaps with the LB022 Important Bird Area.

As a general rule, large grant applications may take several months to prepare if committees are involved. Allow enough lead time to apply for these grants and to obtain the letters of support that local partners such as SAM or the Department of Fisheries and Land Resources may provide; keep an eye on deadlines as they approach.

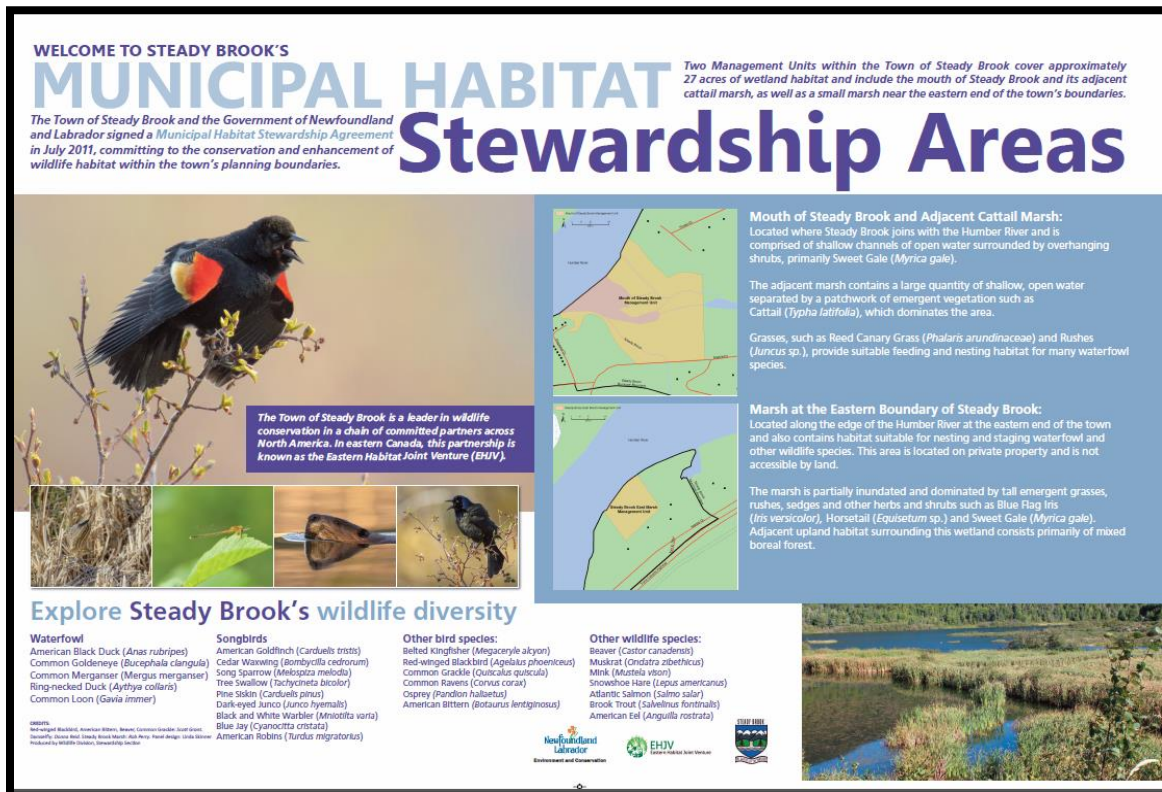
### **Local partnerships**

Southern Labrador Development Association and Labrador Straits Development Association may be appropriate partners on projects in Forteau. Sharing a Green Team with neighbouring towns might be something to discuss as well, especially if other towns are beginning environmental projects as well. The Town of Red Bay has a Coastal Stewardship Zone nearby and they are SAM members as well; they know of the new Forteau agreement and might be interested in future collaborations.

### **Trails, Interpretive Signage and geocaches**

Many communities, including SAM members, have found that trails increase recreation and health for residents and improve tourism possibilities. Trails in Management Units, when planned and constructed carefully, can increase a sense of stewardship by allowing people to discover new areas. They can also help residents and visitors strengthen their connection to nature, especially where interpretive signage is used to help point out interesting landscape and wildlife features.

Geocaches (small containers found via GPS; [geocaching.com](http://geocaching.com) and various mobile apps such as c:geo) can be added alongside trails as well to provide a fun and inexpensive activity for walkers, hikers, and groups. It is a great idea to place geocaches near or at where you want people to go – to help them discover a new trail, a beautiful lookout, or an interpretive spot, for example. Approximately 10 geocaches already exist inside the planning area boundaries of the Town of Forteau. The EHJV partnership (username EHJV\_Stewardship) currently maintains 31 geocaches in SAM municipalities across the province; the full list can be found at [geocaching.com/seek/nearest.aspx?u=EHJV\\_Stewardship](http://geocaching.com/seek/nearest.aspx?u=EHJV_Stewardship). A geocache (nanocache style) was provided to the Town of Forteau; this will be placed on your road sign after installation, we will ask for the coordinates from you, and then the Forteau geocache will be in our network. As part of the stewardship agreement, the Town of Forteau has been provided with one large highway road sign, and smaller interpretive sign are possible in the future (Figure 6). These can be placed at suitable locations of your choosing, and could be chosen to highlight trail locations. Additional interpretive signage could possibly be funded through grants to the Town of Forteau.



**Figure 6. Example of the SAM interpretive sign**  
 This interpretive sign measures 2 by 3 feet and can be provided to interested SAM municipalities as time and funding allow.

## Bird Monitoring

Local community interest groups and interested volunteers can watch and monitor waterfowl and other birds in all areas of the Town but, particularly, within Management Units. Data collection can provide information on changes that are occurring within a wetland or other area and can indicate problems or progress. By involving residents, the profile of the area is enhanced to the long-term benefit of conservation.

**ebird.org** is a free, easy-to-use website and app to record your sightings and provide valuable information to help us gain a better understanding about our birds. It is already being used by citizens in the Town of Forteau as well as visitors. In Newfoundland and Labrador in 2016, over 280 species of bird were recorded on ebird.org and over 11,000 individual lists were submitted!

Adding your bird sightings to ebird.org helps bird conservation and simplifies record keeping. It provides a great opportunity for beginners and experts alike to improve their identifications and provides data in a format that can be easily used.

Explore all bird sightings in Newfoundland and Labrador (click map to zoom to your area) at [ebird.org/ebird/canada/subnational1/CA-NL?yr=all](http://ebird.org/ebird/canada/subnational1/CA-NL?yr=all)

Start contributing to eBird at [secure.birds.cornell.edu/casso/account/create](http://secure.birds.cornell.edu/casso/account/create)

Tools for successful bird monitoring:

- Field notebook & pencil (and/or app)
- Phone (for safety, recording start and end times, and/or using the eBird app)
- Bird field guide
- Binoculars and/or a spotting scope
- Appropriate outdoor clothing

**When entering data into ebird.org, do not guess the species - it is acceptable to record a species as unknown.** Birding workshops and lots of practice in your local area will make you proficient at identifying species common to your area. As years go by, you will become more and more adept at identification.

Be mindful of tides and wetland (damp, soft, slippery) habitat, making safety your top priority. Common sense is important; aim to cause as little disturbance as possible to the birds, considering that a high level of disturbance could impact foraging.

eBird Hotspots already exist for the Forteau Estuary area: [ebird.org/ebird/hotspot/L3085824](http://ebird.org/ebird/hotspot/L3085824) as well as First Pond:



[ebird.org/ebird/hotspot/L3164937](http://ebird.org/ebird/hotspot/L3164937) and 6 other locations within Forteau's planning area boundaries.

## **Conservation Corps Green Teams**

Conservation Corps Newfoundland and Labrador ([ccnl.ca](http://ccnl.ca)) annually sponsors summer Green Teams and Interns, generally post-secondary and high school students, to work within communities on environmental projects. Communities with Stewardship Agreements have often applied for and received Green Teams. Examples of potential projects could include nest boxes, bird houses, bird monitoring, trail maintenance, community outreach, wildlife surveys, and developing field guides. Green Team members could train local high school students or community members in monitoring and could develop educational material designed to raise awareness for conservation and stewardship initiatives.

## **Artificial Nesting and Loafing Structures**

### **Island Construction**

Many wildlife species, such as terns and waterfowl, nest and loaf on islands due to a reduced risk of predation from land-based predators. Many species in 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 4 m<sup>2</sup> 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 (e.g. 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 (e.g. 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 islands. Annual removal and reinstallation of islands may be necessary in response to ice conditions in tidal influenced areas.

Other forms of artificial islands involve planting native marine plant species into landscaping fabric, which is then fixed to floating structures made of plastic piping or empty gabion baskets (metal mesh cages). 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 when 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 absorbing excess nutrients to deter algae growth. These islands would also likely require annual removal and reinstallation.

### Cavity Nesting Waterfowl

Cavity nesters such as the Common Goldeneye (also known as pie duck or whistler, *Bucephala clangula*) use abandoned woodpecker holes or natural tree cavities caused by disease, fire or lightning. In the absence of these natural cavities, they will also use constructed nest boxes (Figure 7, Appendix 2). They need to be placed correctly; the guide at [samnl.org/nest-boxes](http://samnl.org/nest-boxes) will help you get started and printed laminated books and brochures from Ducks Unlimited Canada are also available to help you.

Nest boxes can be mounted on tree trunks (preferably dead but solid trees) that extend slightly over the water's surface or stand in water. Boxes can be placed on live spruce or larch, but may loosen as the tree continues to grow. Keep in mind that beaver may chew live hardwoods like birch, so placement on these trees should be avoided.



Figure 7. Cavity Nest Box, Cobb's Pond, Gander  
Photo by Wildlife Division

Boxes should be placed above typical high water levels at a height that still allows you to clean and monitor the boxes each year. Ideally, boxes will be placed as high as possible, but at least 4 to 6 feet (1.2-1.8 m) above 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. Badly placed boxes have been known to jeopardize lives of ducklings.

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 (164 feet) apart (one nest box per acre is considered acceptable) and shouldn't be placed where ducks can see each other from neighboring boxes. Clear a path (of any small branches, etc.) so that ducks have a direct line of access from the water and trim limbs on top of the box so that squirrels and marten don't end up jeopardizing the lives of ducklings. Mark the location of the nest boxes using GPS on your phone or with a GPS unit.

Eight to ten cm of planar wood shavings should be placed in the bottom of the box before breeding season. Hens will reject nest boxes that do not have shavings, and eggs could freeze if there are not enough shavings in the bottom of the box. Boxes

must be maintained **every year** (winter is the preferred time for maintenance) by scraping out old shavings and replacing with new shavings.

Common Goldeneye can raise multiple broods in a well-maintained and suitably placed nest box. If you are lucky, you will 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. Look for light coloured duck down, bits of egg shell or shell-membrane (like a piece of paper). Ducklings in the area indicate there are breeding adults nearby 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.

### **Roosting and nesting structures for other species**

There are a variety of roosting and nest structures (Appendix 2) which can be built, installed and monitored/maintained for other bird species such as Tree Swallows (*Tachycineta bicolor*), Northern Flicker (*Colaptes auratus*), Great Horned Owl (*Bubo virginianus*) and for bats (Figures 8 and 9). The Town of Forteau is already home to many Tree Swallow boxes maintained by various individuals. The increase in tree swallow population that may occur with these boxes can prove beneficial in that many bird species (as well as bats) feed on insects and may serve as natural pest control. In addition, providing structures for predatory birds may also help reduce (or keep in check) populations of birds that may not be desirable [e.g. American Crow (*Corvus brachyrhynchos*), European Starling (*Sturnus vulgaris*)] and rodents such as mice while increasing biodiversity.

Installing nest boxes and roosting structures is a very exciting activity to help enhance wildlife in areas around your community. It does, however, take time, commitment and maintenance.



**Figure 8. Bat Roosting Box in Salmonier Nature Park  
Photo by Wildlife Division**



**Figure 9. Bat Box in Pynn's Brook, Western Newfoundland  
Photo by Wildlife Division**



## Educational Programs

Public education can help foster a greater sense of habitat stewardship among town residents. Even interpretive signs (including the ones provided by SAM, Figure 7) can contribute to an increased understanding and appreciation of local wildlife. Newfoundland and Labrador Environmental Educators (NLEE) hosts a list of environmental education programming that is searchable by subject and grade level at [nlee.ca/programs-and-lessons.html](http://nlee.ca/programs-and-lessons.html)

There are several excellent wetland education programs that span every season and age group including *Wetlands in Winter* (Tantramar Wetlands Centre, [weted.com](http://weted.com)), *Marsh Bingo* and *Creatures of the Night* (Oak Hammock Marsh Interpretive Centre, [oakhammockmarsh.ca](http://oakhammockmarsh.ca)), *Junior Naturalists* (Wye Marsh Wildlife Centre, [wyemarsh.com](http://wyemarsh.com)), and *Project Webfoot* (Ducks Unlimited Canada, [ducks.ca](http://ducks.ca)). Many night programs also exist that would be appropriate for guide and scout groups.

### Backyard Habitat for Canada's Wildlife

This habitat awareness initiative by the Canadian Wildlife Federation ([cwf-fcf.org](http://cwf-fcf.org)) is administered in conjunction with the Wildlife Division's Salmonier Nature Park. This program enables you 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 a natural location to bring together nature and art. This can be 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 natural beauty 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 sites like [crayola.com](http://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 evenings. Videos could be tailored to various ages and could include nature-related craft projects within the Eco-museum shelter as a follow up. Good starting points for videos and educational nature-oriented projects for children include [hookedonnature.org](http://hookedonnature.org), [planetpals.com](http://planetpals.com), and [hctfeducation.ca/resource-room](http://hctfeducation.ca/resource-room)

### **Hunter Workshops**

A municipality may be able to partner with a local rod and gun club, the Department of Fisheries and Land Resources (Wildlife Division) and other partners to participate in hosting a *Youth Hunter Skills Workshop*. These events are sponsored by the Wildlife Division and require significant volunteer commitment, organization, and expertise. However, they can be very rewarding for participants and foster a sense of stewardship among youth and teenagers. These workshops have taken place in communities such as Goose Bay, Gander, Lewisporte, and St. John's which have active rod and gun clubs or hunting associations nearby. Similarly, the *Becoming an Outdoorswoman* program can help introduce women in the community to sustainable, legal, hunting and fishing and is offered twice yearly through the Wildlife Division.

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

#### **Project Webfoot**

Educating youth about wetlands and waterfowl is a major part of Ducks Unlimited Canada's mission. The award-winning *Project Webfoot Wetland Education Program* ([ducks.ca/initiatives/project-webfoot](http://ducks.ca/initiatives/project-webfoot)) 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 at [ducks.ca](http://ducks.ca) which provide great links with the school curriculum. Contact the NL Conservation Programs Specialist at [du\\_newfoundland@ducks.ca](mailto:du_newfoundland@ducks.ca) for more information.

#### **Wetland Heroes**

Another program offered through Ducks Unlimited Canada includes *Wetland Heroes* ([ducks.ca/initiatives/wetland-heroes](http://ducks.ca/initiatives/wetland-heroes)) which improve and 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 one can register at [ducks.ca](http://ducks.ca) and describe the great conservation work that is being done to help protect wetlands in your community. Wetland Heroes receive a certificate and a special token of appreciation from Ducks Unlimited Canada. With permission, selected Wetland Heroes may be featured online and/or in print, and some Wetland Heroes may receive \$500 Awards of Merit.

## Engagement for adults

It's not just kids that enjoy the outdoors – adults and seniors benefit greatly from spending time in nature as well. Birdwatching workshops have been successful in many SAM communities (such as Spaniard's Bay), and snowshoe hikes in the winter or hikes in the summer are often enjoyed by adults as well.

Themes can be used, such as tracking hikes, edible plant hikes, or winter ecology hikes, to increase interest. These can be inexpensive ways for adults in your community to discover the natural areas of the town, socialize, and learn something new. Ducks Unlimited Canada, an EHJV partner, can in some cases partner on trail projects in important wildlife areas if time and funding allows, and CCNL Green Teams are required to give interpretive presentations as a part of their summer work programs.

SAM provides six different interpretive field guides at [samnl.org/interpretive-walking-tour-guides](http://samnl.org/interpretive-walking-tour-guides) that could help Green Teams or summer recreational staff lead hikes for residents and/or visitors to Forteau. On that page, we also have a **Guide to delivering interpretive hikes** which can assist you. The lists of species found in **your Habitat Stewardship Proposal** are also meant to be a helpful resource for you. These could be used to create a small brochure that represents a 'bird checklist' of the Forteau area, or used as the basis for field guides for the area which could be developed by a Green Team, high school, or by your relevant committee.

Adults often enjoy using birdwatching towers or blinds (Figures 10-12) as well; these could be fun community building projects or completed with the help of a Green Team, committee, or volunteers. Corduroy Brook Enhancement Association ([corduroybrook.org](http://corduroybrook.org)) in the Town of Grand Falls-Windsor has experience with these kinds of projects and would be a good contact as would the Town of Winterland, whose projects are featured below.





**Figure 10. A wooden bird viewing tower**  
Photo from Creative Commons



**Figure 11. Enclosed bird blind with mural in Winterland NL.**  
Photo by Wildlife Division



**Figure 12. A viewing deck in Winterland, NL**  
Photo by Wildlife Division

## Habitat Enhancement

In some wetland areas, habitat has been degraded or lost and could benefit from plantings. Some aquatic plant species improve water condition by absorbing excessive amounts of nitrogen, phosphorous, and carbon – substances associated with the occurrence of algal blooms. Many beneficial plant species have limited distribution in Newfoundland, and should not be introduced into the environment without consideration of the potential consequences, including the possibility of invasive plants out-competing native plant species. **Appendix 3** provides a helpful guide to plant species for restoration projects.

For example, Eelgrass (*Zostera marina*) is an aquatic grass known to have significant value for waterfowl and providing habitat for many aquatic species such as juvenile salmon and trout. 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. Some species of Willow (*Salix* sp.) and Alder (e.g. Green Alder, *Alnus viridis crispa*) are native to the island of Newfoundland and are renowned for their hardiness, ability to withstand tidal inundation, and extensive networks of roots.

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 non-native, species can alter the balance within the ecosystem and have negative effects upon the natural populations within the region and the ecosystem.

Various retailers throughout the province may have expertise in selecting, planting, and caring for native plants or experience with restoration projects. Timothy Murray, a landscape architect at Murray's Garden Centre and Horticultural Services in Portugal Cove is experienced with ecological restoration and can be contacted at [timothymurray@murraysgardens.com](mailto:timothymurray@murraysgardens.com) or 709 895 2800 for potential projects. Nuthatch Nursery in Lethbridge NL (709 467-1309) also specializes in native plants. A wetland restoration project is in progress in the SAM community of Bonavista and lessons learned from this project will be shared with SAM members.

## **Litter Removal**

Community groups and residents can work cooperatively to remove litter in and around the community on a regular basis. It is important to avoid locations where waterfowl may be disturbed during breeding, staging or brood rearing periods (generally May to August). Programs such as the Marine Institute's Ocean Net ([mi.mun.ca](http://mi.mun.ca)) and the Great Canadian Shoreline Cleanup ([shorelinecleanup.ca](http://shorelinecleanup.ca)) assist communities in organizing litter cleanups, and a full comprehensive guide to how to host your first litter cleanup is at [shorelinecleanup.ca/sites/default/files/gcscstaff/SC\\_Guide\\_EN.pdf](http://shorelinecleanup.ca/sites/default/files/gcscstaff/SC_Guide_EN.pdf)

To increase public participation in your cleanup, try directly inviting other local groups like your 50+ club, LSDA, or the snowmobile federation. You can also list it for free with NLEN ([nlenvironmentnetwork.org](http://nlenvironmentnetwork.org), then go to Events > Submit an Event). NLEN will advertise environmental events from municipal governments, so this advertising possibility would not be limited to litter cleanups. Many radio stations will also read announcements on air for free (many just require a quick online submission of your event); [communitysector.nl.ca/mediaroom](http://communitysector.nl.ca/mediaroom) has a list of media contacts which can be searched by area. MMSB also provides community grants to municipalities to help with waste reduction and illegal dumping; more info on their municipal programs is at [mmsb.nl.ca/partners/municipalities](http://mmsb.nl.ca/partners/municipalities)

## **Town Photographer**

At least one SAM community we know of has an innovative approach to collecting photographs – they pay an individual resident a small monthly honorarium to take photos of landscapes, wildlife, and events in the town. Forteau is a beautiful town, and more photographs could serve to highlight the natural beauty of the area which could help increase tourism and recognition. These photos could be used on the town's website in a section about nature or recreation, and also put on the town's Facebook, on relevant TripAdvisor destinations, and sent to your regional Destination Management Organization or DMO (Destination Labrador, **destinationlabrador.com**) to raise the profile of the town. An online presence is a very powerful tool for a community and great photographs can contribute to improved tourism.

## **Conclusion**

We hope the ideas in this guide have started you thinking about possible ways your committee and your community could become involved in protecting and enhancing wildlife habitat in your area. Keep an eye on **samnl.org**, our newsletter, and our social media, where additional resources are added regularly. Remember, community involvement is the true strength of a Stewardship Agreement!



# Appendix 1: Forteau Municipal Stewardship Agreement

## Municipal Stewardship Agreement for the Town of Forteau

**THIS AGREEMENT** made at **Forteau**, in the province of Newfoundland and Labrador, Canada, this 29<sup>th</sup> day of June, 2017

**BETWEEN:**                   **HER MAJESTY THE QUEEN IN RIGHT OF NEWFOUNDLAND AND LABRADOR**, as represented by the Honourable the Minister of Fisheries and Land Resources (herein called "the Minister")

- of the one part -

**AND:**                         **THE TOWN COUNCIL OF THE TOWN OF FORTEAU**, a municipal corporation pursuant to Section 15 of the *Municipalities Act, 1999* (herein called the "The Town")

-of the other part-

**WHEREAS** the Government of Newfoundland and Labrador has entered into an Agreement with others for the implementation of the of the North American Waterfowl Management Plan through the Eastern Habitat Joint Venture;

**AND WHEREAS** the parties hereto recognize that the proper protection and management of coastal, wetland and upland habitats are fundamental tools in maintaining and enhancing the wildlife populations, particularly birds, in the province;

**AND WHEREAS** the Minister proposed that certain important wetlands and associated wildlife habitats within the Town be protected and enhanced through and with the cooperation of the Town in accordance with this Agreement and a Habitat Conservation Plan developed hereafter;

**AND WHEREAS** the Town has agreed to enter into this Agreement for the purpose of protecting and enhancing those areas of important habitat within its jurisdiction.

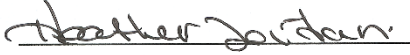
### **NOW THEREFORE IT IS AGREED BY THE PARTIES AS FOLLOWS:**

1. The lands herein delineated and designated as a Management Unit (being the lands outlined on a certain Schedule A annexed hereto) shall be managed in accordance with the terms and conditions of this Agreement including any Habitat Conservation Plan developed hereunder for better protection of the wetlands for waterfowl and other wildlife.

2. Within the limits of its jurisdiction, the Town shall permit only those activities within the Management Units that have no negative or adverse impact upon the wetland habitat or the waterfowl or other wildlife which utilize those habitats.
3. The parties may establish other Management Units as may be desirable from time to time. The Management Units shall be subject to the terms and conditions of the Habitat Conservation Plan developed to enhance and protect the wetland habitats, the waterfowl and other wildlife which utilize those habitats.
4. The Habitat Conservation Plan shall be developed in cooperation with the Town and the Minister agrees to provide such advice and expertise necessary or advisable for the development of the Habitat Conservation Plan.
5. 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 13(3)(f) 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 Management Unit(s) shall do so in consultation with the Minister and in keeping with the principles of this Agreement.
6. The parties to this Agreement, their consultants, servants or agents, shall have and exercise reasonable rights of access to the Management Unit(s) 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.
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.
8. 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.

**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 Fisheries and Land Resources in the presence of:



Witness

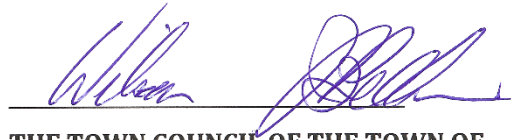


**THE HONOURABLE THE MINISTER OF  
FISHERIES AND LAND RESOURCES**

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



Witness

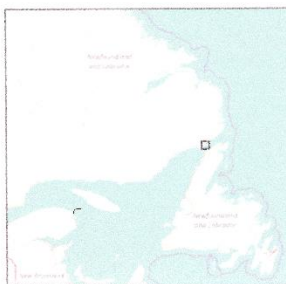


**THE TOWN COUNCIL OF THE TOWN OF  
FORTEAU**



Municipal Habitat Stewardship Agreement

Town of Forteau, Newfoundland and Labrador, Canada



January 2017  
 Projection Information:  
 WGS 84 EPSG: 3857

## Appendix 2: Bird & Bat Houses

(from Ohio Division of Wildlife – Wildlife Diversity and Endangered Species Program – not all species listed below will be found in your area)

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.

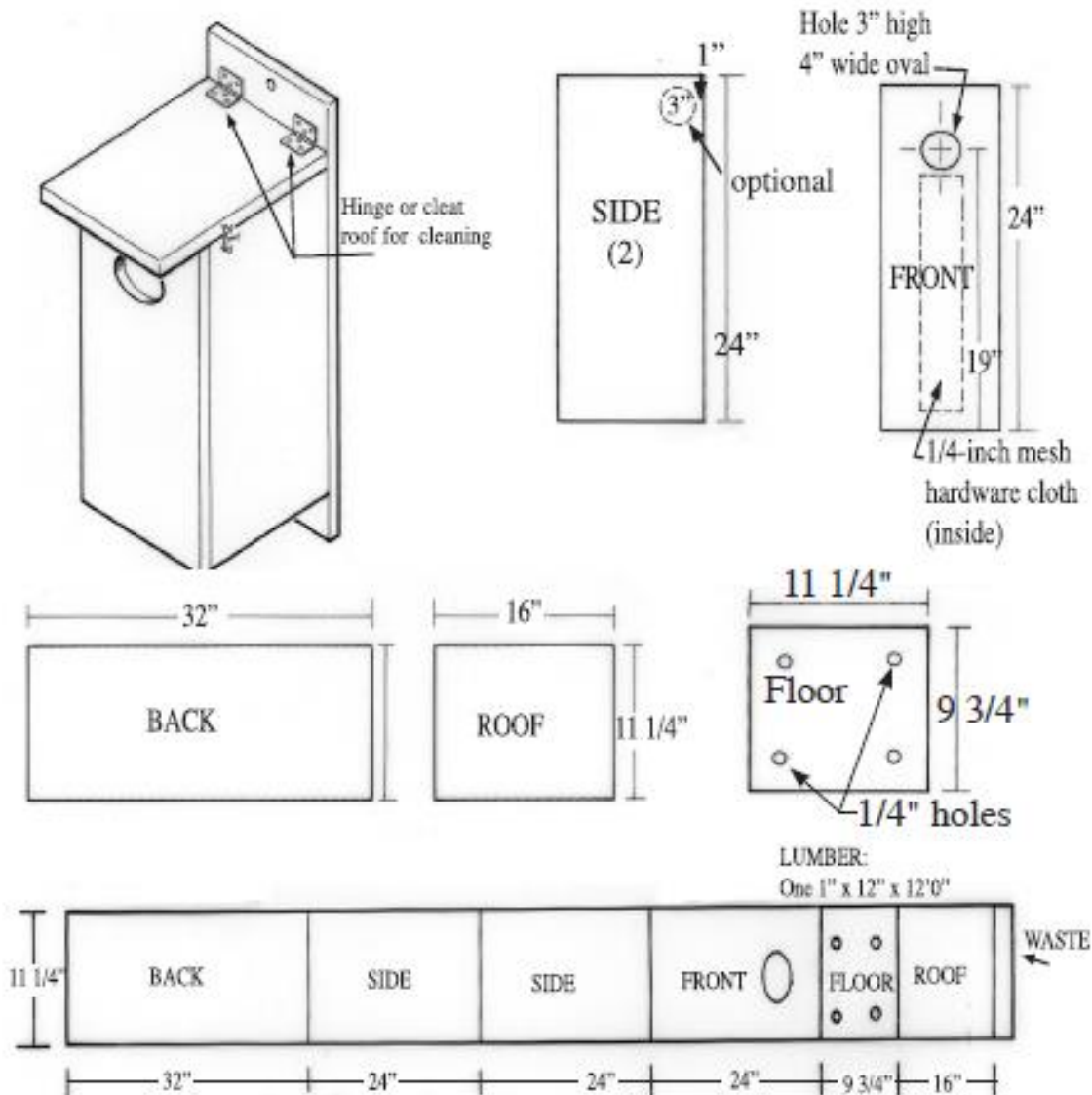
Removing unwanted species such as starlings and house sparrows will increase your chances for nesting success.

# WOOD DUCK NEST BOX



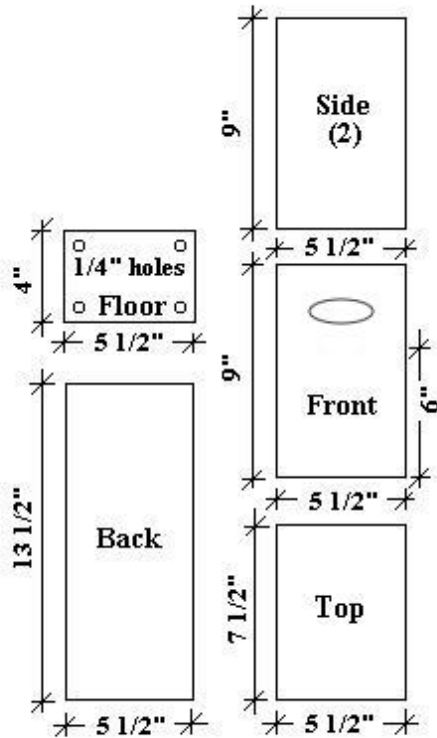
Boxes placed on posts in water should be six to eight feet above the water. Wood duck boxes can also be placed in woodland habitat up to a half mile from lakes, ponds, marshes, and rivers. Since the hen must lead her ducklings to water after they hatch, the habitat between the house location and the 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.

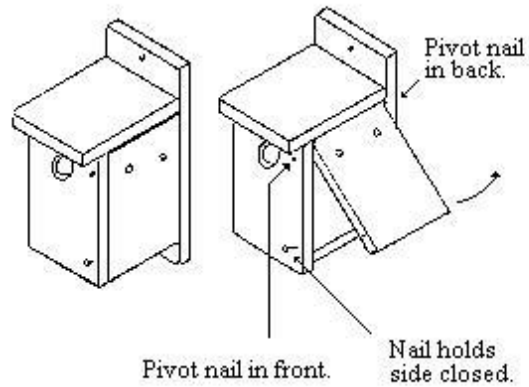


## Tree Swallow Nest Box Plans

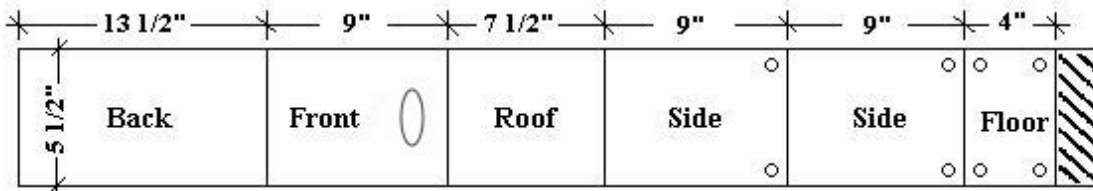
Entrance hole should be 1.5 inches high



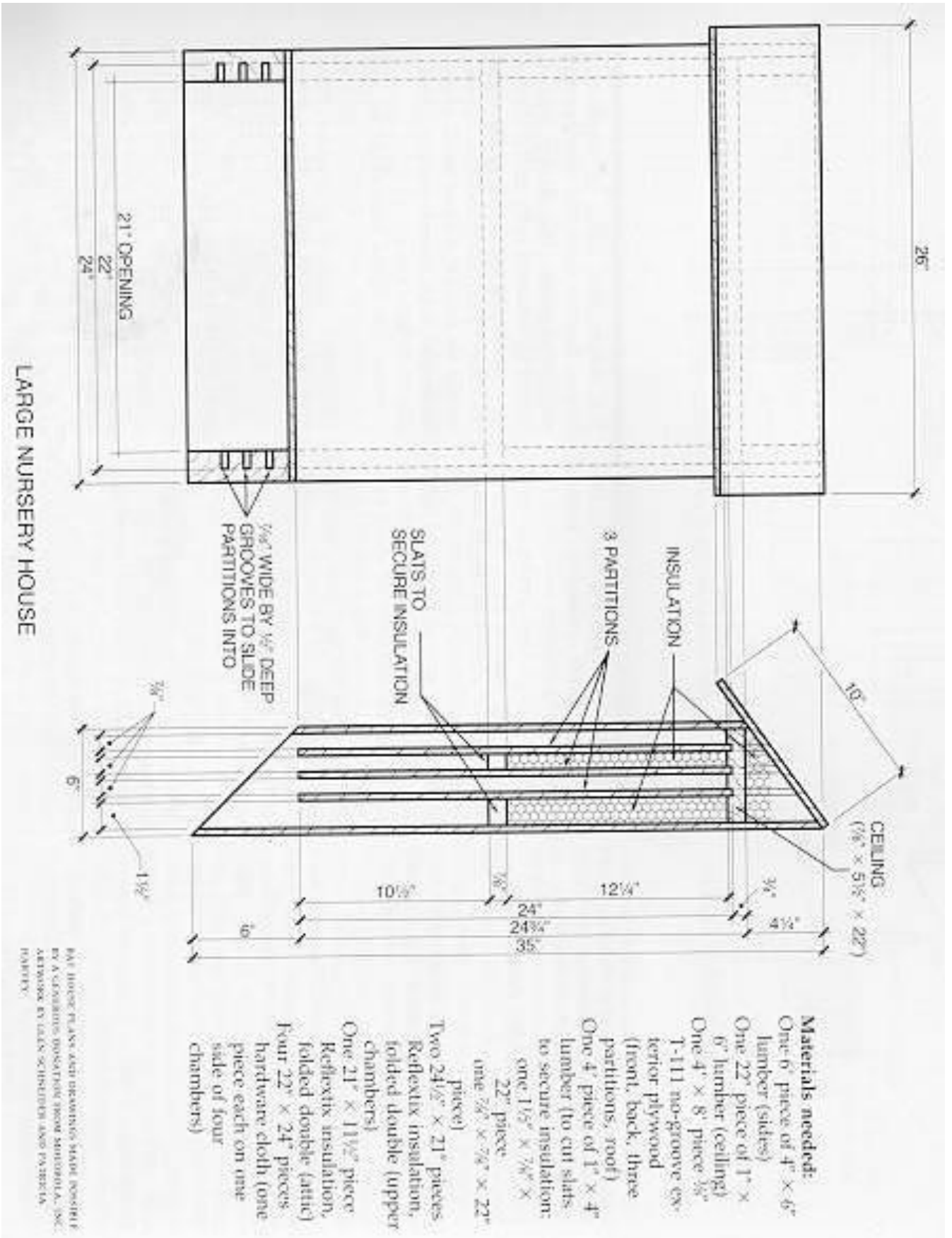
Two "pivot" nails allow side to swing out for cleaning. Use one nail at bottom to keep door closed.



Lumber: One 1" x 6" x 6'



## Bat Roosting Boxes



## Appendix 3: Plants for ecological restoration

This guide to grasses, herbaceous plants, shrubs, and trees for ecological restoration projects in and around wetlands has been compiled by SAM (Stewardship Association of Municipalities, [samnl.org](http://samnl.org)) for Newfoundland and Labrador. Species recommended by Todd Boland, MUN Botanical Garden, or Tim Murray and Lorna Hogan, Murray's Gardens and Landscape Services, are **bolded** and listed first in their category. Other information in this guide is adapted from Canadian Wildlife Federation's Restore a Ribbon of Life ( [cwf-fcf.org/en/resources/for-educators/lesson-plans/archive/habitat-projects/members/ribbon-of-life.html](http://cwf-fcf.org/en/resources/for-educators/lesson-plans/archive/habitat-projects/members/ribbon-of-life.html) ), [missouribotanicalgarden.org](http://missouribotanicalgarden.org), [illinoiswildflowers.info](http://illinoiswildflowers.info), and [plants.usda.gov](http://plants.usda.gov).

### Herbaceous Plants

English name	Latin name	Range	Site Requirements	Conservation Value
Joe-pye weed	<b><i>Eutrochium maculatum</i></b>	Coast to coast	Wetlands, meadows, marshes, fens; less tolerant of disturbance	Highly attractive to butterflies, honeybees, bumblebees
Tall Meadowrue	<b><i>Thalictrum pubescens</i></b>	ON, QC, NB, PEI, NS, NL	Lower, wetter sites	Food source for pollinators and other invertebrates
Blue flag iris	<b><i>Iris versicolor</i></b>	MB, ON, QC, NB, PEI, NS, NL	Wet sites, shallow water	Attractive to pollinators such as bees, butterflies, and moths, as well as to other insects; provides cover
Purple-stem (swamp) aster	<b><i>Symphotrichum puniceum</i></b>	Coast to coast	Swamps, open wet areas with sun	Attractive to a wide variety of pollinators and insects
Turtlehead	<b><i>Chelone glabra</i></b>	MB, ON, QC, NB, PEI, NS, NL	Moist to wet soils; full to partial sun	Attractive to pollinators such as bumblebees, butterflies, and other insects; erosion control
Rough-stemmed	<b><i>Solidago rugosa</i></b>	ON, QC, NB, PEI, NS, NL	Low woods, barrens, bogs, old fields	Attractive to a wide variety of pollinators and insects; food



<b>goldenrod</b>				<b>source for passerine birds and grouse</b>
<b>Lance-leaved goldenrod</b>	<i>Euthamia graminifolia</i>	<b>Coast to coast</b>	<b>Moist soil, wetland edges, ditches</b>	<b>Food source for goldfinch, sparrows, and some mammals; attractive to pollinators</b>
<b>Fireweed</b>	<i>Chamerion angustifolium</i>	<b>Coast to coast</b>	<b>Full or partial sun; moist soil</b>	<b>Attractive to pollinators; food source for insects and some mammals</b>
<b>White-topped aster</b>	<i>Doellingera umbellata</i>	<b>ON, QC, NB, PEI, NS, NL</b>	<b>Full or partial sun; slightly wet to moist soil</b>	<b>Food source for songbirds and grouse; attractive to pollinators including bees and butterflies</b>
<b>New York aster</b>	<i>Symphotrichum novi-belgii</i>	<b>QC, NB, PEI, NS, NL</b>	<b>Brackish or salt marshes; riparian areas</b>	<b>Late season food source for songbirds; attractive to pollinators including bees and butterflies</b>

## Shrubs & small trees

<b>English name</b>	<b>Latin name</b>	<b>Range</b>	<b>Site Requirements</b>	<b>Conservation Value</b>
Balsam-poplar	<i>Populus balsamifera</i>	Coast to coast	Full sun to partial shade; prefers most soils on shorelines	Erosion control; vegetation buffer; wildlife food, cover, and nesting sites
Bebb's or Beaked Willow	<i>Salix bebbiana</i>	Coast to coast	Tolerant to a range of wet soils; full sun to partial shade	Erosion control, bank stabilization, excess nutrient uptake, food source
Broad leaved Meadowsweet	<i>Spiraea latifolia</i>	MB, ON, QC, NB, NS, PEI, NL	Moist clay, sand, or loam soils with sun or partial shade	Food for birds, butterflies, and bees; host plant for Spring Azure butterfly
Green alder	<i>Alnus crispa</i>	Coast to coast	Nutrient-poor sites with normal or moist soil; sun or partial shade	Erosion control and bank stabilization, excess nutrient uptake, food source; fixes nitrogen
Grey/ speckled alder	<i>Alnus incana</i>	Coast to coast	Riparian areas; wide range of soil types and moisture levels	Erosion control and bank stabilization, excess nutrient uptake, food source; fixes nitrogen
Highbush cranberry	<i>Viburnum trilobum</i>	AB, SK, MB, ON, QC, NB, NS, PEI, NL	Stream banks and lake shores; wide range of soils; shade tolerant	Erosion control; vegetation buffer; fence row; food for birds and mammals
Purple chokeberry	<i>Aronia floribunda</i>	ON, QC, NB, NS, PEI, NL	Wet soils; wetland edges	Fruits are a good food source for birds
Pussy-willow	<i>Salix discolor</i>	Coast to coast	Full sun; deep, rich shoreline soils; moist to wet conditions	Vegetation buffer; fence row; nectar source for pollinators; food source
Red-osier dogwood	<i>Cornus sericea</i> /	Coast to coast	Full sun to partial shade in moist to	Vegetation buffer; fence row; food, cover, and nesting sites for birds

	<i>Cornus stolonifera</i>		wet soils; stream banks; lake shores; wetlands	and mammals
Shining Rose	<i>Rosa nitida</i>	ON, QC, NB, NS, PEI, NL	Bogs and wet soils	Food source for songbirds and grouse; attractive to pollinators such as bumblebees and other bees
Sweet gale, bog myrtle	<i>Myrica gale</i>	Coast to coast	Bogs, intertidal areas	Fixes nitrogen; food source for a variety of insects, including butterflies
Winterberry	<i>Ilex verticillata</i>	ON, QC, NB, NS, PEI, NL	Partial sun, wet to moist conditions	Important winter food source for songbirds, other small birds, and mammals;
American mountain ash	<i>Populus balsamifera</i>	Coast to coast	Full sun; wide range of soils	Vegetation buffer; wildlife food, cover, and nesting sites
Blackberry	<i>Rubus</i> sp.	Coast to coast	Moist, well-drained soils	Vegetation buffer; fence row; food and cover for birds and mammals; butterfly nectar source
Elderberry	<i>Sambucus</i>	Coast to coast	Full sun to full shade; rich, moist soils	Food and cover for shoreline birds and mammals; butterfly nectar source
Raspberry	<i>Rubus</i> sp.	YT, NWT, BC, ON, QC, NB, NS, PEI, NL	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
Wild black currant	<i>Ribes americanum</i>	YT, NWT, AB, SK, MB, ON, QC, NB, NS, PEI, NL	Wide range of soils; moist to wet shorelines	Erosion control; vegetation buffer; fence row; wildlife food and cover; butterfly nectar source

Other shrubs which may also be useful for restoration projects, although not in very wet sites:

Bearberry / kinnikinnick: *Arctostaphylos uva-ursi*

Mountain holly / false holly / catberry: *Ilex (Nemopanthus) mucronata*

Canadian / Shadblow serviceberry: *Amelanchier canadensis*

Chokecherry / bird cherry: *Prunus virginia*

Squashberry / Mooseberry / Pembina / Cranberry: *Viburnum edule*

Northern Wild Raisin / Witherod viburnum: *Viburnum cassinoides*

### Trees

English name	Latin name	Range	Site Requirements	Conservation Value
Black Spruce	<i>Picea mariana</i>	Coast to coast	Wet sites alongside lakes, streams, and wetlands	Vegetation buffer; wildlife food, cover, and nesting sites
Paper birch	<i>Betula papyrifera</i>	Coast to coast	Full sun to partial shade; wide range of moist soils	Erosion control; vegetation buffer; wildlife food and cover
Red maple	<i>Acer rubrum</i>	MB, ON, QC, NB, NS, PEI, NL	Wide range of shoreline soils; flood tolerant	Erosion control; vegetation buffer; wildlife food and cover
Shining Willow	<i>Salix lucida</i>	SK, MB, ON, QC, NB, PEI, NS, NL	Moist to wet conditions	Erosion control; vegetation buffer; wildlife cover; food source
Balsam-fir	<i>Abies balsamea</i>	YT, AB, SK, MB, ON, QC, NB, NS, PEI, NL	Wide range of moist, rich soils; drought resistant	Vegetation buffer; wildlife food, shelter, and nesting sites
Tamarack or Larch ("juniper" in NL)	<i>Larix laricina</i>	YT, NWT, ON, QC, NB, NS, PEI, NL	Alongside stream banks and lake shores; wet sites alongside wetlands	Vegetation buffer; food and cover for shoreline birds and mammals
Trembling	<i>Populus</i>	MB, ON, QC, NB,	Full sun to partial	Erosion control; vegetation buffer;

aspen	<i>tremuloides</i>	NS, PEI, NL	shade; wide range of shoreline soils	food and cover for shoreline birds and mammals
White pine	<i>Pinus strobus</i>	YT, NWT, BC, AB, SK, MB, ON, QC, NB, NS, PEI, NL	Wide range of soils; dry sites alongside wetlands	Food and cover for shoreline birds and mammals
Yellow birch	<i>Betula alleghaniensis</i>	ON, QC, NB, NS, PEI, NL	Full sun to partial shade; moist shoreline soils	Erosion control; vegetation buffer; wildlife food and cover

### Terrestrial & Aquatic Grasses

English name	Latin name	Range	Site Requirements	Conservation Value
Blue-joint Grass	<i>Calamagrostis canadensis</i>	Coast to coast	Various types of forest, taiga, and tundra including wet areas	Food for waterfowl and other animals; bank, shoreline, and soil stabilization
Clovers	<i>Trifolium</i> sp.	Coast to coast	Wet soils bordering on streams, lakes, and wetlands; full sun	Food and cover for upland birds and mammals; nectar source for pollinating insects
Dune Grass (American beachgrass)	<i>Ammophila breviligulata</i>	Eastern Canada	Shifting sand dunes, high winds, unstabilized sands with regular sand burial	Bank and shoreline stabilization; tall stands can provide shade and cover for waterfowl
Eelgrass	<i>Zostera marina</i>	Coasts	Calm waters in the sublittoral zone	Filters polluted runoff, absorbs excess nutrients; protects shorelines from erosion; habitat, protection, nursery, and food source for aquatic animals

Fescue	<i>Festuca</i> sp.	YT, NWT, BC, AB, SK, MB, ON, QC, NL	Dry to moist soils bordering on streams, lakes, and wetlands; full sun	Erosion control; vegetation buffer; food and cover for upland birds, mammals, and insects
Salt Water or Smooth Cord Grass	<i>Spartina alterniflora</i>	QC, NB, PEI, NS, NL	Shorelines with 2-45 cm water depths, mid-point between high and low tide elevation	Erosion control, soil stabilizer, food for waterfowl and other animals; tall stands provide shade and cover for waterfowl and may help prevent algal blooms
Three-Square Bulrush	<i>Scirpus americanus</i> / <i>Schoenoplectus americanus</i>	Coast to coast	Brackish areas with 0-10cm water depths	Good for saltmarsh revegetation; food for waterfowl and other animals
Wild Rye	<i>Elymus virginicus</i>	Coast to coast	Moist, well-drained soils with full sun to partial shade	Erosion control, food for waterfowl and other animals; tall stands can provide shade and cover for waterfowl and may help prevent algal blooms