

Part of the Project: "Municipal and Community Stewardship:
New tools in support of species at risk and their habitats"

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PART I: Introduction and Background

Project Overview and Goals

Wildlife and habitat conservation is primarily a provincial and federal responsibility in Nova Scotia (NS). However, in order to be successful, conservation requires the assistance of a variety of different groups, sectors, and parties. Municipalities can play an important role in the conservation of wildlife species and habitat; however, up until now they have not been formally engaged in the process. Municipalities may be particularly interested in conservation of wildlife because it is interconnected with the health and quality of our natural environment, which in turn, is intrinsically linked with human health and recreation.

This guide is part of a project titled “Municipal and Community Stewardship: New tools in support of species at risk and their habitats” which was initiated in April 2003 by the Wildlife Division of the Nova Scotia Department of Natural Resources (NS DNR). **The broad goal of the project** is to contribute to the conservation and recovery of wildlife species and their habitats in NS. **The specific goal** was to work with municipalities to explore their role in the conservation and recovery of wildlife and their habitats and determine if existing municipal “tools” (*i.e.* municipal planning strategies, land use bylaws, parks and protected areas, etc...) could directly or indirectly assist.

This report is intended to serve as a guide to municipalities and other interested groups and individuals who may be involved in the development or implementation of environmental initiatives that have benefits for wildlife and habitat conservation. It also serves to stimulate further discussion on the role of municipalities in species at risk, wildlife, and habitat conservation both within and between municipal and provincial governments, concerned citizens, industry, non-government organizations, and individuals. This area of work is continually evolving and this document brings together only a portion of the current information and some of the examples of how municipal governments in NS could be more involved in wildlife and habitat conservation.

The format of the report is as follows:

- ▶ *Part I* provides background information on wildlife conservation and recovery, outlines the rationale and benefits of municipal involvement, and highlights what other municipalities across Canada are doing.
- ▶ *Part II* serves as the ‘guide’, outlining actions municipalities can take right away to assist in wildlife conservation, specific planning tools municipalities already have available that can be applied to help conservation initiatives, and some of the broad roles municipalities in NS can play.
- ▶ *Part III: Appendices* contain information on which species at risk are found in each municipality in NS, how species status is assessed, information on wildlife species databases, key contact information and more.

Species at Risk in Nova Scotia

This section provides background information on species at risk in Nova Scotia.

Species at risk is a term used to describe any wildlife species (plant, animal, or other organism) that is at risk of extinction. Extinction is a natural evolutionary process, however today extinctions around the world are occurring at a rate never seen before in history. Species are often ‘at risk’ as a result of human activities that pose a threat to their survival.

In Canada there are over 300 species at risk of extinction and in Nova Scotia, as of March 2005, there are 31 species at risk (this includes both nationally and provincially assessed species at risk). Some of NS’s species at risk are found no where else in Canada except here in NS and the endangered Atlantic Whitefish is actually found no where else in the world except here in NS. There are also 5 species in NS that already extinct, 2 extirpated, and 11 marine species at risk. This project does not address marine species at risk primarily due to the lack of relevance to the jurisdiction of municipal governments as well as a lack of feasibility. Appendix 1 contains a full list of species at risk in NS, which municipalities they occur in, and their status provincially, nationally, and globally.

Species at Risk are identified through both federal and provincial species status assessment processes. To determine if a wildlife species is at risk of extinction a body of independent scientists and wildlife specialists assess the current information, data, trends, and threats to each species. Appendix 2 provides a more detailed overview on the different Status Assessment Processes. The degree of risk for extinction varies for different species and thus categories of Endangered, Threatened, or Vulnerable are assigned (see Appendix 2 for definitions).

It is important to keep in mind that ‘species at risk’ are only a small portion of the wildlife species that exist in NS as there are over ten thousand wildlife species in NS with only 31 of these being ‘species at risk’. Another provincial level status assessment process exists to actually try to help identify early on species that may be at risk or may be particularly sensitive to human activities. Functioning as a first alert system and identifying “Species at Risk” as well as “Species of Conservation Concern” and thus assisting in the prevention of species becoming at risk. The process is called the General Status Assessment Process and places species in categories “Red”, “Yellow”, and “Green” (see Appendix 2 for definitions of these categories). Most of the “Red” ranked species are legally listed and are considered “Species at Risk” (SAR) with the remaining “Red” species and all of the “Yellow” ranked species being termed ‘Species of Conservation Concern’ (SCC). Table 1 provides an overview of the different categories and the different conservation tools applied.

Table 1. New ‘Sighab’ database species categories and the conservation tools associated with their protection.

Species Category	Species Category Description	Designation/Act Status*	Conservation Tools
Species at Risk (SAR)	Species listed under legislation or assessed by COSEWIC	NS ESA: E, T, V	Law, Stewardship, & Policy
		SARA: E, T, SC	
		COSEWIC: E, T, SC	
Species of Conservation Concern (SCC)	Species not legally listed or assessed by COSEWIC but that may be at risk or are sensitive to human activities	General Status: Reds not legally listed	Stewardship & Policy
		General Status: Yellows	

* NS ESA = NS Endangered Species Act; SARA = Species at Risk Act, COSEWIC = Committee on the Status of Endangered Wildlife in Canada

E = Endangered; T = Threatened, V = Vulnerable; SC = Special Concern

Once a wildlife species is identified as a “Species at Risk” and is legally listed under either the national or provincial assessment process, a Recovery Team is formed. This team of volunteers consists of members of the community, academic institutions, government departments, parks, museums, non-government organizations, and other conservation organizations. The team develops a Recovery Plan and determines what the necessary conservation and recovery actions and priorities are for the species.

Human Activities and Their Impact on Wildlife and Habitats

This section summarizes some of the human activities that pose a threat to wildlife species and their habitats. Some are broad general concepts while others discussed serve as very specific examples.

As described above, wildlife species in NS, Canada, and globally have been declining significantly in recent years and the rate of extinction is now greater than ever before in human history. In many instances it is human activities that have the greatest negative impact on wildlife. In general four key threats have been identified that contribute to the extinction of species at risk globally, including: habitat loss and degradation, pollution, over exploitation (i.e. over-harvesting), and the introduction of exotic (alien) invasive species.

Human impacts on wildlife and their habitats occur in both urban and rural communities and sometimes it is difficult to recognize or understand how our actions can have a negative impact. Municipalities are responsible for several services that can have direct or indirect negative impacts on the natural environment and in turn wildlife habitats. Table 2 below was extracted from a Wildlife Habitat Canada (2001) report titled: “*The Status of Wildlife Habitats in Canada’s Urban Landscapes*” and provides a useful summary of some basic human activities that impact negatively on wildlife habitat.

Table 2. Human activities and their effect on wildlife habitat, particularly in an urban setting. (Modified from Table 3 of Wildlife Habitat Canada (2001) report).

Human Activity	Effect on Wildlife Habitat
Construction of roadways, railroads, power lines	Habitat fragmentation: animal movements restricted; lack of populations mixing
Paved surfaces; culverting streams and surface runoff	Carry toxic substances to water bodies, reducing water quality
Salt on roads	Stress on vegetation and habitat nearby; reduce water quality from runoff
Vegetation clearing for housing, commercial, industrial uses	Natural vegetation replaced with human-made materials and mono-culture ground covers, reducing species diversity
Wetlands filled or reclaimed or water regimes altered	Wetland plant and animal species changed
Urban parks of grass and old-aged trees; understory removal	Less habitat diversity and fewer potential species
Watercourse diversion	Aquatic habitats disturbed
Sewage	Enrichment of water bodies with fertilizers, toxic contamination, reducing aquatic habitat quality
Grazing of animals along watercourses	Reduced vegetation, more erosion potential, manure runoff, reducing water quality
Chemical fertilizers and pesticides	Non-target toxic effects; groundwater contamination
Introduction of exotic species	Some species spread beyond local areas and replace native species (e.g. purple loosestrife)
Lack of specific planning objectives for species and habitat types	Development occurs with little regard to retaining room for other creatures

Jurisdictional Responsibilities for Wildlife and Habitat Conservation

This section summarizes some of the key legal responsibilities of the federal government, province, and municipalities in relation to the conservation of wildlife and habitats and recovery of species at risk. Other responsibilities apply with respect to broader environmental impacts, but will not be highlighted here.

Jurisdictional responsibility for the conservation of wildlife and habitats and the recovery of species at risk is held by both the federal and provincial governments. However, the provinces have most of the responsibility for wildlife with the federal government being primarily responsible for migratory birds, fish, and species on federal lands. Until recently, across Canada, municipalities have had only a minimal role. However, in several provinces, since the early 1990's, there has been an increase in the responsibility delegated to municipalities with respect to the conservation of wildlife, habitat, and the health of the natural environment in general (see section on "Legislative Changes in Other Provinces").

Actions necessary for the conservation and protection of the environment, wildlife and habitats cannot really be defined by jurisdictional boundaries because decisions made in one jurisdiction can have adverse effects on properties, ecosystems, and environmental qualities in another (Curran 1999). Thus it is recognized that in order to effectively achieve conservation and recovery, a multi-jurisdictional approach with coordination and cooperation is essential and must be adopted (Curran 1999).

Federal Government

The jurisdiction of the federal government with respect to conservation of wildlife and habitats and recovery of species at risk is through the Species at Risk Act, Fisheries Act, and the Migratory Birds Convention Act. The Species at Risk Act (SARA) provides protection for species at risk of extinction including migratory birds, marine species, and all species at risk that exist on federal land. The SARA works in concert with provincial legislation and, if a province is not sufficiently protecting its species at risk then SARA can be applied to provincial and private land. The Fisheries Act protects all salt and fresh water fish and in general, the Act requires no net loss of fish habitat through development. The Migratory Birds Convention Act ensures the conservation of migratory bird populations by regulating potentially harmful human activities.

Provincial Government

The province has jurisdiction over the conservation and sustainable use of wildlife in Nova Scotia through the Wildlife Act and the NS Endangered Species Act. The NS Endangered Species Act provides protection for NS's species at risk, prohibiting harm to listed species on all private and crown (public) lands. Aspects of the Environment Act that pertain to watercourses also afford protection to habitats of species at risk and wildlife.

Municipal Government

The responsibilities and authority of municipalities in NS are delegated by the province through the Municipal Government Act (MGA). Municipalities do not currently have explicit responsibilities for conservation of wildlife and habitats. However, they must ensure they do not violate provincial and federal legislation themselves, and they should consider due diligence for actions and decisions that may facilitate violations by other parties. Municipalities are also responsible for many things that can impact on wildlife and habitat and thus exploration of their role(s) is considered an important step towards even more successful recovery and conservation in NS.

Increased Recognition of the Importance of Municipal Governments

This section provides some background information on the national level recognition of the importance of municipal governments in the conservation of our natural environment.

There has been an increased awareness nationally and provincially of the important role municipal governments can play. Municipal governments have also been more aware of the importance of healthy, sustainable communities and quality of life to their residents and visitors (FCM 2003). Through municipal management of drinking water, sewage treatment, solid waste, pesticides, land use, transportation and energy planning, municipal governments have significant influence over the environment and human health and therefore wildlife and habitat.

Several national level organizations have recognized the importance of this municipal role in conservation and protection of the natural environment. The National Round Table on the Environment and the Economy (NRTEE) indicated that *we require a greater acknowledgement of the role that municipal governments can play in fostering stewardship at a local and regional level*. Stewardship is based on the responsibility everyone has for monitoring, conserving, protecting, and improving the status of wildlife species and their habitat including the quality of soil, water, air and other natural resources. In order for this to happen, individuals and municipalities require better access to information and innovative tools that can support their decision making. NRTEE is an independent advisory body that provides decision makers and the public with advice and recommendations for promoting sustainable development. They emphasize that people and communities are part of the natural landscape and that we must take into account the balance between environmental, social, and economic concerns when exploring the role of local communities as stewards of nature.

The World Wildlife Federation, in their report titled ‘The Nature Audit: *Setting Canada’s Conservation Agenda for the 21st Century*’, also makes the link between species at risk, habitat concerns, and municipalities. It recommends that municipal governments should become more involved in assisting with species at risk recovery. In general, with environmental issues and specifically in relation to species at risk, collaboration and cooperation between all levels of government, communities, and recovery teams has been identified as a critical component of species at risk recovery.

Also, the Federation of Canadian Municipalities (FCM), which serves as a national voice for municipalities across the country, explicitly addresses wildlife, habitat, and endangered species in their Environmental Policy. The Environmental Policy defines six key guiding principles to ensure healthy environments, communities, and ecosystems, and was developed by their Standing Committee on Environmental Issues (see Part II, section on “Broad Roles”).

Rationale and Benefits of Municipal Involvement

This section provides the background rationale and outlines the benefits of municipalities to become more involved in wildlife and habitat conservation and other environmental initiatives. It addresses the underlying question of ‘why would a municipality want to or need to be involved in wildlife and habitat conservation?’

Although primary jurisdictional responsibility rests with the federal and provincial governments, there is a strong rationale for increased municipal involvement in wildlife and habitat conservation and other environmental initiatives. There are also examples from across Canada where changes have been made to legislation to enable and/or require increased municipal involvement (see section on “Legislative Changes in Other Provinces”). There are ways for municipalities in NS to get more actively engaged right away, without any changes to legislation or responsibility (see Part II).

Municipalities, however, may wonder specifically “why would we be interested in getting involved in wildlife and habitat conservation?”. There are direct connections between municipal responsibilities and wildlife and habitat conservation. For example, one municipal responsibility that has tremendous impact on wildlife and habitats is the regulation of land use and development. Residential development, including cottages, can lead to habitat loss and degradation which is one of the four key threats to the survival of species at risk. This example may provide some rationale to those municipalities that are concerned with their level of impact; however it does not highlight some of the benefits that a municipality can experience if it were to get more involved. Table 3 outlines some of the general rationales and specific benefits, ranging from legal obligations to economic advantages

Table 3. Rationale and benefits for municipal involvement in species at risk, wildlife, and habitat conservation and recovery initiatives.

General Rationale	Specific Benefits
Informed and Healthy Public	Species at risk are indicators for the health of environment
	Understanding links to human health, quality of life
	Encroachment on habitats leads to wildlife-human encounters
Improved Economic Competition	Tourism (aesthetics, community image)
	Ecotourism
	Property Values
High Quality Recreational Experience	Outdoor activities (hiking, biking, canoeing, camping)
	Hunting and fishing
Maintenance of Ecosystem Services	Regulating the climate
	Air and water purification
	Regulating and cleaning soils
	Maintaining the water cycle
	Recycling nutrients
	Pollinating crops
Improved Quality of Life	Health of local community
	Environmental health
	Sustainable economy
Untapped Funding Opportunities	Collaborate on conservation projects
Not Violating Existing Legislation	NS Endangered Species Act
	Species at Risk Act

In Canada and NS there is an increased *public awareness and concern* towards nature, wildlife, and the natural environment, and people are realizing how these are connected to our general well-being (WHC 2001). We are recognizing that we depend on the natural environment for food, raw materials, and ecological services as well as aesthetic and *recreational* enjoyment, including eco-tourism. The loss of individual species undermines each of these values and signals further loss of ecosystem elements and function that are important.

Species at risk and wildlife are dependent upon the same natural environment, its habitats, ecosystems, and processes that we are. As a result, wildlife species, and particularly species at risk, have become *indicators* of the broader health of our natural environment; much like the proverbial ‘canary in the coal mine’. They are part of larger ecosystems which provide important *ecological (ecosystem) services* that are fundamental to our existence, such as regulating the climate, cleaning freshwater, regulating and cleaning soils, maintaining the water cycle, recycling nutrients, and pollinating crops (Iverson and Cadrin

2003). Thus taking care of the natural environment for wildlife species returns multiple benefits to human quality of life.

There are also *legal* obligations that municipalities and their citizens should be aware of. Nova Scotia has had an Endangered Species Act (NS ESA), in place since 1998, and there are 24 wildlife species listed as “at risk” and legally protected under this act (see Appendix 1 for complete list of species). The protection of these species applies to all private and crown (public) land in the province and thus as land owners and regulators municipal governments should be aware of this legislation. There is also a federal Species at Risk Act (SARA) (2004) which primarily applies to species at risk on federal land; however it applies on all lands for listed fish and migratory birds.

There are also *economic advantages* and spin-offs that arise from an enhanced municipal role in wildlife and habitat conservation. For example there are numerous linkages between recreational activities and the natural environment as well as tourism and particularly *eco-tourism*. Society is continuing to move towards sustainable economic development opportunities and activities such as ecotourism and outdoor recreation that are continuing to gain increased recognition in terms of their economic importance (NRTEE 2003). Another economic consideration is the increased land values resulting from protection of the environment (Curran 1999). More and more people are making the linkage between a healthy natural environment, including wildlife habitats, and a higher *quality of life*. If a municipality can demonstrate they are involved in conservation initiatives, equating to a better quality of life, this can lead to an increased retention and acquisition of residents and visitors.

Legislative Changes in Other Provinces

This section summarizes some examples of positive legislative changes in other provinces that lead to increased municipal participation in conservation of wildlife and habitats.

As stated above, the importance of multi-jurisdictional participation in conservation is being recognized by many municipalities across Canada. Some provinces are responding to this, and to the increased community and municipal demands for environmental protection, by changing their provincial legislation to enable municipalities more responsibility in this area. Ontario, Manitoba, and British Columbia have recognized the role that municipalities can play and they have changed legislation to enable or require municipal participation.

Approaches to provincial legislative changes do vary, however one of the primary methods is the adoption of a Statement of Provincial Interest (also referred to as a Provincial Policy Statement or Provincial Land Use Policies in some provinces). A Statement of Provincial Interest sets out the provincial government’s interests in land-use planning and development and provides policy direction on these matters.

Ontario has a Provincial Policy Statement (PPS) on Natural Heritage (PPS 2.3) which deals specifically with protecting natural heritage features from incompatible development. Natural heritage features explicitly include endangered and threatened species as well as significant wildlife habitat. The Policy states that “development and site alteration will not be permitted in: significant portions of the habitat of endangered and threatened species” and that “development and site alteration may be permitted in: significant wildlife habitat”.

Manitoba also has a Provincial Land Use Policy (Policy #6) which addresses Natural Features and Heritage Resources. The objectives of the policy include: “to help sustain threatened or endangered plants and animals; to protect significant natural features...” With respect to wildlife species the policy

states that “in the case of threatened or endangered animals... [these] shall be protected”, with the same being applied to threatened or endangered plants.

In British Columbia a different approach has been taken with the adoption of a number of amendments having been made to the Municipal Act (equivalent to NS’s Municipal Government Act (MGA)) in 1997. For example in Section 878 (1) of the Municipal Act it states that Official Community Plans may include *“policies of the local government relating to the preservation, protection, restoration, and enhancement of the natural environment, its ecosystems and biological diversity”*. This section provides municipalities with enabling legislation to set policies and bylaws in relation to the natural environment and biological diversity. However, it does not require municipalities to address this in their planning (note the language ‘may’ not ‘shall’). There are a number of other amendments which are summarized in a document titled “New Tools for Environmental Stewardship in the Municipal Act” (BC Government 1997).

NS is not currently a leader in this area, but could easily gain from the work of other provinces to form progressive legislation that permits or facilitates better municipal involvement in environmental protection and particularly wildlife and habitat protection and conservation. In NS, however, there are still several existing municipal tools and roles that can be applied right away to assist in conservation initiatives (see Part II of this document). Also, as a result of this project, the province is exploring the possibility of adopting a Statement of Provincial Interest regarding wildlife and habitats; however this is still a work in progress and nothing concrete has been finalized at this time (April 2005).

Conservation Tools for Protection of Species at Risk, Wildlife, and Habitats in NS

This section outlines some of the conservation tools already in place in NS for the conservation and protection of Species at Risk.

The management of wildlife and habitats has been evolving over the past several decades in response to our increased knowledge and awareness of ecosystem functions and the rate of species decline globally. Trying to reduce human impacts on wildlife and habitat has involved a broad cross-section of government, industry, academia, non-government organizations, and community members. It is important to note that municipalities are not the only ones approached with respect to exploring and increasing their role in conservation of wildlife and habitat in NS. In NS there is already a vast array of tools that can be used to aid in species at risk, wildlife, and habitat conservation and recovery (Table 4). Note that this is not an exhaustive list of tools available for protection and conservation, but does highlight many of the ones that are often used.

It is widely recognized that the complex nature of the conservation and recovery of species at risk necessitates a broad array of approaches and tools. The tools outlined in Table 4 are organized according to four primary approaches: land acquisition, legal protection, stewardship and education, and regulatory programs and policy. The appropriateness of each of the tools will vary depending upon the situation but each can afford protection and conservation of species at risk. For the most effective protection of wildlife and species at risk a balance of approaches must be adopted, including legislative, stewardship, and management tools.

Some of the tools outlined in Table 4 are already well established and have proven successful in assisting with the conservation of species at risk while others are only just being explored or developed. The column that addresses the level of protection provides an indication of the degree of certainty that the tool will afford effective and sustaining protection.

Table 4. Tools for the protection and conservation of species at risk in Nova Scotia.

Approach	Tool for Protection	Explanation of Tool	Degree of Protection	Agency or Group	History	Comments & Contacts
LAND ACQUISITION	Donation of Land	Encouraging the donation of land with species at risk and their habitats	Medium	Provincial/ NGOs	Ongoing	You can donate to: - NS Nature Trust (NSNT) - Nature Conservancy of Canada (NCC) - Provincial, Municipal, Federal Government (see also eco-gifts below)
	Purchasing Land	Buying land known to be important for species at risk in order to conserve and protect it	High	All	Occasionally	Can be done by any NGO - particularly - NS Nature Trust (NSNT) or - Nature Conservancy of Canada (NCC) Can also be done by: - Any level of Government (not a common practice)
	Expropriation of Land	Through the NS ESA and SARA the government can expropriate land that is important for the conservation and recovery of a legally listed species at risk	High	Federal/ Provincial	Can be done under: NS ESA 1998 SARA 2004	Can be done by Federal and Provincial governments if necessary (not a common practice). Can also be done through some other provincial legislation.
	Eco-Gifts Program	Enables landowners to receive a tax benefit for donating ecologically significant land to the federal government for conservation and protection (often land that is important for species at risk)	Medium	Federal	Establish 1995 Amended 2000	Administered by Canadian Wildlife Service (CWS) http://www.cws-scf.ec.gc.ca/ecogifts
LEGAL PROTECTION	Federal Species at Risk Act (SARA)	Provides legal protection for listed species at risk on all federal land, and migratory birds, fish, and marine species at risk on all lands and water. Also requires the identification and protection of critical habitat for species at risk	High	Federal	Passed 2004	More information and list of species at risk available at: http://www.sararegistry.gc.ca
	NS Endangered Species Act (NS ESA)	Provides legal protection for species on all provincial crown (public) land and all private land. Enables the protection of core habitat if necessary.	High	Provincial	Passed 1998	More information and list of species at risk available at: http://www.gov.ns.ca/natr/wildlife/endnrgd/
	Conservation Easement Act	A conservation easement is a legally binding agreement with a private landowner and a NGO which puts restrictions on land use and development in order to enable the protection of ecologically significant lands in perpetuity.	Medium	Provincial/ NGOs	Passed 2001	Provincial government enables NGOs to hold conservation easements with landowners (e.g. NSNT and NCC)

Approach	Tool for Protection	Explanation of Tool	Degree of Protection	Agency or Group	History	Comments & Contacts
	Wilderness Areas Protection Act	Enables designation of an areas with significant wilderness values to be protected	Medium	Provincial	Passed 1998	Some Wilderness Areas encompass location of species at risk and their habitat
	Special Places Protection Act	Enables areas with significant natural or cultural value to be protected	Medium	Provincial	Passed 1981 Revised 1989	Some 'Nature Reserves' designated under this Act encompass location of species at risk and their habitat
	Parks & Protected Areas	Provincial Parks and National Parks can afford protection to species at risk and their habitat that exist within the boundaries of the park	High	Federal/ Provincial	- Provincial Act:1989 - Federal Act: amended 2000 - Municipalities	Some species at risk occur in our National Parks in NS (KNPHP and CBHNP). Fewer species at risk occur in provincial parks which are smaller and tend to cater towards human recreational use. Some municipalities have parks and protected areas that can contain species at risk and important habitats.
STEWARDSHIP & EDUCATION	Environmental Education	Increased awareness, appreciation, and understanding of the natural environment, wildlife, species at risk, can lead to action: how they can help with conservation and recovery	Medium	All	Ongoing	Education is an important basis for many of the other tools and play a large role in their success
	Stewardship Actions	Voluntary actions taken by any or all sectors that lead to increased conservation and recovery of species at risk	Medium	All	Ongoing	There are a very broad range of activities that encompass stewardship
	Habitat Stewardship Program (HSP)	This program provides funding for a broad range of stewardship initiatives that assist in species at risk conservation and recovery	High	Federal	Established in 2000	For more information visit: http://www.cws-scf.ec.gc.ca/hsp-pih/
	Stewardship Agreements	A verbal or written agreement, that is not legally binding, between a conservation organization or authority and a private land owner or a municipality	Medium	Provincial/ NGOs	Ongoing	Can be done by: NGOs and/or any level of government
	Informal Private Land Stewardship	Individual land owners concerned with loss of wildlife and habitat taking voluntary conservation actions	Medium	Landowner	Ongoing	Can be done by any private land owner, guidance on appropriate actions can be obtained from provincial or federal government staff, NGOs, or Recovery Teams

Approach	Tool for Protection	Explanation of Tool	Degree of Protection	Agency or Group	History	Comments & Contacts
REGULATORY PROGRAMS & POLICY	Guidelines for Flagging Species at Risk Properties	A formal process within provincial and municipal governments for referring situations to regional biologists where species at risk will potential be impacted by human activities and development that require permitting and approval	High	Provincial/ Municipal	Explored in 2004	Not yet established (<i>see description Part II of this guide</i>)
	Landowner Incentives	Providing incentives (e.g. tax breaks) to landowners that conserve wilderness areas, habitats, and species	Medium	Federal/ Provincial/ Municipal	Minimal	Not many formal incentives in place at this time although there are some incentives such as the Ecogifts program
	Integrated Resource Management (IRM)	This provincial process enables the designation of different categories of land use and resources extraction for provincial crown (public) land based on multiple use and interests for the lands. The C3 category (protected and limited use) provides for the protection of species and habitats on crown lands	High	Provincial	Established in 2000	Ongoing process which is being further utilized and explored to be used as a tool for the conservation of species at risk and their habitat
	Policy Statements Regarding Species at Risk	Incorporating policy statements and references to species at risk, habitat, and wildlife at all levels and across all sectors is important as it maintains the profile and importance within organizations	Low	Federal/ Provincial	Ongoing	Need to continue to get policy statements regarding species at risk and habitat but must also operationalize and implement these

PART II: Municipal Guide: Roles and Tools Supporting Wildlife Species and Habitat

Part I provided background information on wildlife and species at risk, how our actions can negatively impact the natural environment, the rationale and benefits associated with municipal involvement in conservation efforts, and highlighted conservation actions and tools that are already being applied.

Part II presents a summary of “How a Municipality Can Get Involved” in conservation and recovery, followed by some specific “Planning Tools” that could be applied, and an overview of the “Broad Roles” that municipalities could play in conservation efforts. This should not be considered a complete list of ways that municipalities can get involved, nor should it be viewed as required actions that municipalities must adopt. The specific tools and broad roles for municipalities that are outlined here have not traditionally been devised for assisting in conservation; however their application in this regard is increasingly being recognised as useful. Ideas presented here should stimulate thought, discussion, and dialogue between all parties involved in conservation and recovery and lead to positive conservation actions.

Actions a Municipality Can Take to Get Involved

There are some easy ways that a municipality can get more involved in species at risk, wildlife, and habitat conservation and recovery. These do not require any significant investment of time or resources, but can be very important in assisting in efforts to conserve species and habitats. These include: increased awareness, communicating messages to developers, adopting a process for flagging projects that impact wildlife, contacting the Regional Biologist when unsure of impacts on wildlife, contacting Species at Risk Recovery Teams, and explore existing municipal tools and other potential roles. Each of these six ways to get involved is described in turn below.

Increase Awareness

A simple action that a municipality can take to assist with conservation is to try and increase awareness of species at risk, wildlife, and habitat issues among municipal council and staff. Since many municipalities had not been approached or engaged formally in the conservation of wildlife up until this point appropriate information may not have been readily available. This document, particularly the background information contained in Part I and the Appendices, should provide municipalities with a solid overview of species at risk and wildlife conservation issues in NS. One of the key approaches to furthering conservation of wildlife is Education and Stewardship (see Table 4) and something as simple as ensuring that staff and councils are informed can contribute considerably to making decisions and choices that can reduce or eliminate negative impacts on wildlife species.

Communicate with Developers

Whenever possible, municipalities should communicate with developers to encourage awareness and action with respect to the early consideration of species at risk and habitats. The case can be made to developers for the importance of the proactive consideration of wildlife and their habitats in land use planning and development. There are a number of reasons to consider wildlife and their habitats early in the development process, including the business advantages, legal requirements, and improved community support. If a wildlife concern is identified after a development is underway it can result in more costs and effort than if a proactive approach were taken. A handout outlining these reasons in more detail is included in Appendix 5 and can be reproduced by municipalities for distribution to developers or other concerned citizens.

Adopt a Process for ‘Flagging’ Properties

Municipalities could adopt the process outlined here for ‘flagging’ properties where proposed projects or activities could negatively impact on species at risk, wildlife, or habitats. Instances have occurred in NS where a developers were well underway only to realize that they were about to build in an area where a legally protected species was located. Mitigation measures must then be taken, and at such a late stage, can result in considerable cost and inconvenience to the developer. If a municipality could assist in ‘flagging’ potential species at risk conflicts early in the permitting and approval process, this could be very beneficial for all parties.

There are several situations where this process could be adopted such as: subdivision proposals, re-zoning applications, development permits, road construction proposals, the sale of land/property (tax sales, surplus land), as well as other activities that would alter the landscape. The flow chart in Figure 1 illustrates the process for flagging properties. The process should not be a burden to any current municipal approval process. Also, we are exploring the possibility of other agencies, other than municipalities, also adopting this process.

The process, in general, would involve using the provincial ‘Significant Species and Habitat Database’ (‘Sighab’) in a geographic information system (GIS) program, overlaying proposed development or project locations to determine if projects and wildlife species locations overlap. If development overlaps or is in close proximity to significant habitat, the next step would be to seek assistance from the NS DNR Regional Biologist responsible for your area of the province (see Appendix 4 for contact information). The ‘Sighab’ Database referred to above is a provincial database that is available online for all municipalities. Appendix 3 has a more detailed explanation of the database and how to access it.

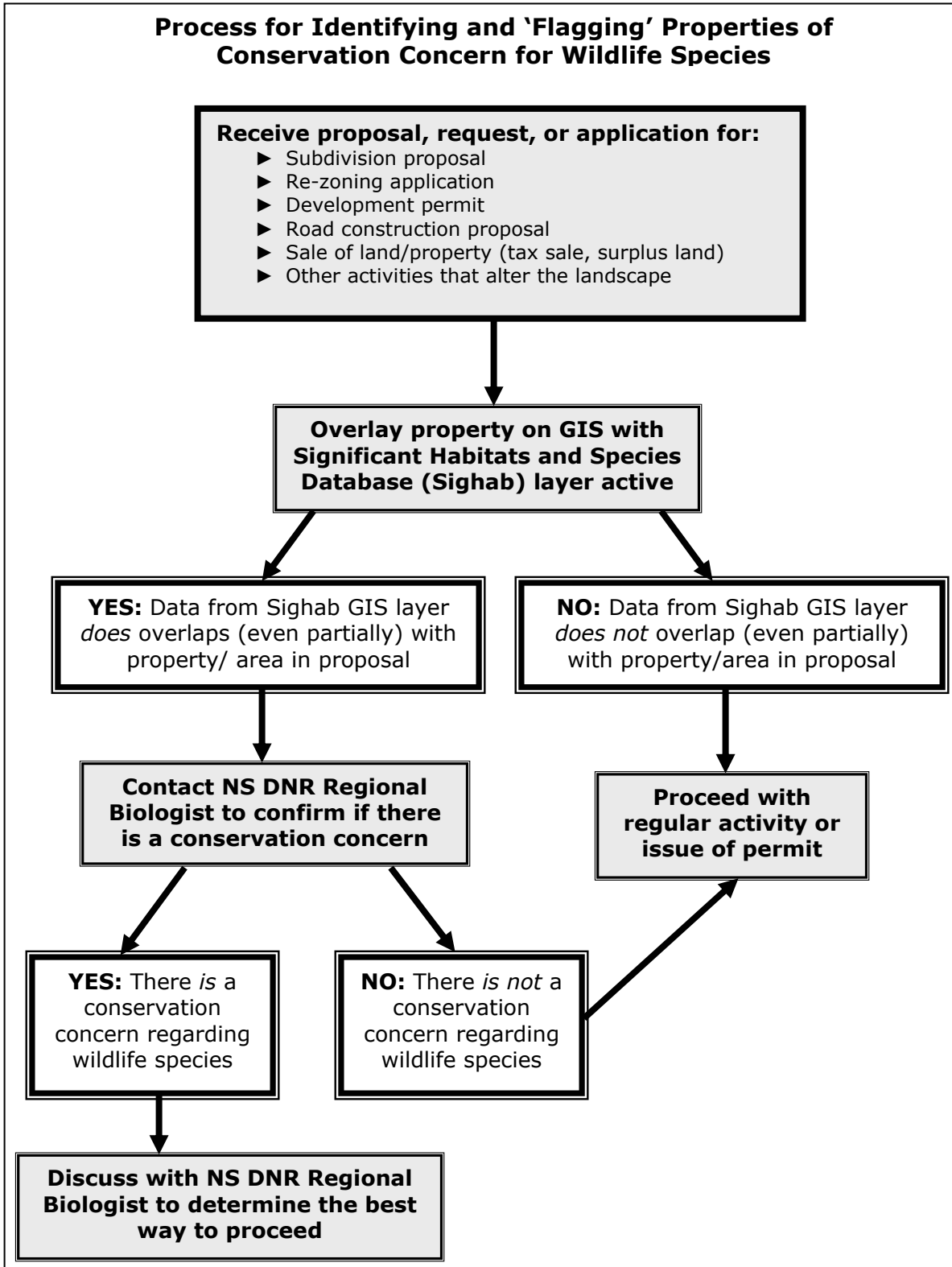


Figure 1. Flow diagram illustrating the steps in the process for identifying and ‘flagging’ properties where development or other activities could result in negative impacts on wildlife species or their habitats. (See Appendix 4 for contact information for NS DNR Regional Biologists).

Contact Regional Biologists or Other Provincial Staff

If a municipality is ever uncertain about the possible negative impacts a municipal decision or action might have on a species at risk, wildlife or their habitat, it is best to simply contact the NS DNR Regional Biologist or other appropriate provincial staff. The Regional Biologist for your area is knowledgeable regarding species at risk, wildlife, habitats, legal requirements, and how a municipality can assist in conservation and recovery. Full contact information for Regional Biologists, listed according to region, is provided in Appendix 4. Other instances may arise which pertain more directly to wetland and coastal habitat in which you could contact the Wetlands program staff (see also Appendix 4).

Contact Species at Risk Recovery Teams

If your municipality wants to get more involved in recovery efforts for a particular species at risk within your municipality, it is important to contact the appropriate Species at Risk Recovery Team. A Recovery Team exists for each species at risk in NS and this team helps oversee all conservation and recovery efforts for the species. For example, if you wanted to apply for funding with regards to conservation and recovery of a species within your municipality it would be necessary to communicate with the Recovery Team prior to proceeding. This enables conservation and recovery efforts to be coordinated, and puts you in touch with the recovery experts for this species. Appendix 4 contains a complete list of Recovery Team contacts for each species at risk.

Explore Existing Municipal Tools and Other Potential Roles

It is important that municipalities are open to and continue to explore the existing planning tools within the MGA to determine instances where they can benefit species at risk. There are examples where planning tools can have multiple benefits that go beyond the primary intent of the legislation. The next section expands on these “Planning Tools” more specifically. Also, it is valuable for a municipality to get involved by exploring what other roles your municipality might be able to play and by looking at what has already been done elsewhere. The potential “Broad Roles” for municipalities are described in more detail below.

Specific Tools: Planning Tools

As mentioned previously, one key municipal responsibility that impacts on wildlife and habitat is the regulation of land use and development. Land use change and development can lead to habitat loss and degradation which is one of the primary threats to wildlife species. In the past, municipal development planning has framed the relationship between development and the natural environment in terms of protecting development from the natural environment, but not in protecting the environment from the negative impacts of development. Today, society is making the connection between the health of the natural environment and our own health, quality of life, and economic activities. There is a greater interest in municipal participation in conservation initiatives (see sections in Part I).

In NS there is an extremely high percentage of privately owned land (almost 75%); this is considerably more than in most provinces. As a result we cannot rely solely on provincial or municipal governments to protect, own, or purchase enough wilderness land to ensure that wildlife have sufficient habitat and suitable conditions for survival. In NS we must rely on private landowners to also contribute to conservation of wildlife habitat and preservation for the integrity of our ecosystems. Land use planning can help ensure, to some extent, that private landowners meet a minimum standard for considering the natural environment in their development and land use. We must recognize the connections between land use planning, private land ownership and the conservation of wildlife and the natural environment.

There are several municipal planning tools already in place through the Municipal Government Act (MGA) which can have positive impacts wildlife and habitat conservation. These planning tools have not traditionally been thought of in this regard and were not created for this purpose, however when applied these tools can have added benefits for wildlife species and habitats. As demonstrated in the Part I section: “Rationale and Benefits of Municipal Involvement”, healthy wildlife and habitats are linked directly to a healthy natural environment which in turn is interconnected with many other social, economic, and environmental benefits.

Some of the planning decisions and actions that municipalities already take benefit wildlife and habitats and municipalities should be recognized and acknowledged for this contribution to conservation. For example, establishing buffers along a river to ensure erosion does not negatively impact housing development will also have the important benefit of retaining natural vegetation and therefore habitat for wildlife along the river. Thus without any changes to current legislation, development, the environment, and wildlife species can simultaneously be protected.

Table 5 provides a summary of planning tools discussed in this section and some of the key aspects of each tool that benefit species at risk, wildlife and habitat. For each of the tools there is an explanation of the original intended use of the tool, the enhanced usage, *i.e.* the additional benefits to conservation achieved by using this tool. The table also presents the weaknesses or problems associated with the use of each tool for conservation, and what changes might be needed to strengthen it in the future. The first and second tools discussed are the over-arching planning tools of the Municipal Planning Strategy (MPS) and Land Use Bylaws (LUB), followed by specific planning tools within MPSs and LUBs.

Table 5. Specific municipal planning tools that can assist in the conservation of species at risk, wildlife and habitat.

Municipal Tool	MGA Section	Current and Traditional Usage of the Tool	Applicability of the Tool With Regards to Wildlife & Habitat Conservation	Weaknesses of the Tool With Respect to Conservation Benefits
Municipal Planning Strategy (MPS)	s212 s213 s217	<ul style="list-style-type: none"> - Purpose of a MPS is to establish policy to guide development & management of a municipality - Must be consistent with Statements of Provincial Interest 	<ul style="list-style-type: none"> - Purpose includes explicit mention of establishing policies related to environment - Enables use of other tools within MPS that can assist in conservation of wildlife and habitats 	<ul style="list-style-type: none"> - Municipalities do not have to adopt a MPS - MPS set polices and the implementation comes from the LUB - No Statement of Provincial Interest currently in place regarding conservation of wildlife and habitat
Land Use Bylaw (LUB)	s219 s220	<ul style="list-style-type: none"> - Enables policies established in a MPS to be carried out 	<ul style="list-style-type: none"> - Provides explicit regulations associated with development in specific zones - Broad range of issues allowed to be included in LUB and many relate directly to the natural environment 	<ul style="list-style-type: none"> - Must have accompanying MPS which is not mandatory for municipalities - Often exceptions are made to LUB
MPS&LUB: Steep Slopes, Flooding, Erosion, Marshes & Environmentally Sensitive Areas	s214 (1)(c) & s220 (5) (l,m,p)	<ul style="list-style-type: none"> - Ensures protection of development, buildings, etc... from potential hazardous environmental conditions (i.e. flood areas, steep slopes, etc...) 	<ul style="list-style-type: none"> - These areas often serve basic ecosystem services such as water retention, flood and erosion control - Ecosystem services that benefit humans (i.e. erosion control) also serve to maintain healthy habitats - These areas often have high conservation value directly as habitat for wildlife species - These areas are often rich in species diversity 	<ul style="list-style-type: none"> - Intended purpose is protection of development from the environment - Development can proceed if technology enabled safe construction - Environmentally sensitive area is not currently defined in the MGA
MPS&LUB: Retention of Vegetation	s214 (1)(f) & s220 (5)(d)	<ul style="list-style-type: none"> - Ensures protection of development, buildings, etc... from environmental hazards associated with erosion 	<ul style="list-style-type: none"> - Retaining natural vegetation and replanting native vegetation is important in the maintenance of habitat for wildlife - Establishing buffers along watercourses is important for ecosystem functioning, maintaining water quality and serving as habitat for both terrestrial and aquatic wildlife 	<ul style="list-style-type: none"> - Intended purpose is erosion control not protection of the natural environment and wildlife habitat
MPS&LUB: Altering Land & Infilling	s220 (5)(d)	<ul style="list-style-type: none"> - Regulate or prohibit altering land levels or excavation, likely to retain landscape feature that ensure safety of the development 	<ul style="list-style-type: none"> - Has the potential to ensure natural topography, habitat, and ecosystems are retained 	<ul style="list-style-type: none"> - Primary purpose is not protection of the natural environment
MPS&LUB: Studies	s214 (1)(g)	<ul style="list-style-type: none"> - Enables municipality to require studies be carried out 	<ul style="list-style-type: none"> - Could require studies of the impact of development on species at risk, wildlife or their habitat 	<ul style="list-style-type: none"> - Intent not to do with wildlife or habitats therefore currently difficult to justify requiring such a study

Municipal Planning Strategy (MPS)

A Municipal Planning Strategy (MPS), along with its associated Land Use Bylaws (LUB), is a powerful planning tool that can have a positive impact on wildlife and habitat conservation. The adoption of a MPS in and of itself does not directly benefit wildlife and habitat, however, the specific policies included within the MPS and the associated LUBs adopted can have direct and indirect benefits. As discussed before, although not traditionally intended to be used to benefit wildlife and habitats, there are several opportunities where planning tools and MPS policies can simultaneously benefit species, environment, development, and the municipality.

Within the definition of ‘the purpose’ of a MPS there is explicit reference to establishing policies related to the environment (MGA s 213 (b)). Although, one must keep in mind that environmental considerations are only one part of a MPS which is adopted to establish policies that encompass a broad array of development and land use issues including social and economic, along with environmental considerations (MGA s 213 (b)).

Once a municipality chooses to adopt a MPS, several other specific planning tools associated with a MPS can also be used to positively affect wildlife conservation (see Tools below). Also, once a MPS is in place, Land Use Bylaws (LUB) can be formed which enable the implementation of the MPS policies. Even without the associated LUB’s however, once a MPS is developed and adopted by council then a municipality must not take an action that is inconsistent with its MPS policies (MGA s 217 (1&2)).

MPSs must also be consistent with any Statements of Provincial Interest that are in place. Currently in NS there is no Statement of Provincial Interest regarding wildlife species, habitats, or species at risk. However as discussed in Part I of this document several other provinces have already adopted this approach to engaging municipalities more directly in conservation actions and this idea is in the early stages of being explored by the province here in NS.

Unfortunately municipalities are not required to adopt a MPS and thus there is considerable variation across the province with respect to the level of protection and conservation for wildlife and habitat enabled through this tool.

Suggested Future Changes and Actions:

- ▶ Require municipalities in NS to develop and adopt a MPS by changing the current MGA wording from “*may*” to “*must*” adopt a MPS
- ▶ Monitor and ensure that municipalities are indeed acting in a manner that is consistent with their MPS by encouraging community groups, citizens, councilors to scrutinize initiatives in relation to policies within the MPS

Legislation Extracted from MGA:

- ▶ **Section 212 Municipal planning strategy** “A council may adopt a municipal planning strategy for all, or part, of the municipality and there may be separate strategies for different parts of the municipality”
- ▶ **Section 213 Purpose of municipal planning strategy** “The purpose of a municipal planning strategy is to provide statements of policy to guide the development and management of the municipality and, to further this purpose, to establish
 - (a) policies which address problems and opportunities concerning the development of land and the effects of the development;
 - (b) policies to provide a framework for the environmental, social and economic development within a municipality;
 - (c) policies that are reasonably consistent with the intent of statements of provincial interest”
- ▶ **Section 217 (1&2) No action inconsistent with planning strategy**
 - (1) A municipality shall not act in a manner that is inconsistent with a municipal planning strategy.
 - (2) The adoption of a municipal planning strategy does not commit the council to undertake any of the projects suggested in it.

- ▶ Enable municipalities to include more consideration for the natural environment within their MPS by including the enabling legislation in the MGA
- ▶ Continue to explore the possibility of a Statement of Provincial Interest regarding the conservation of wildlife, habitats, and species at risk.

Land Use Bylaw (LUB)

Land Use Bylaws (LUB), along with Municipal Planning Strategies (MPSs), are the over-arching, powerful planning tools that can have a tremendous positive impact on wildlife and habitat conservation issues. A LUB indicates different zones and the permitted or prohibited uses for each zone (MGA s220). The issues that LUBs can be adopted for are dependent upon the policies established in the MPS. There are several specific tools or aspects that a LUB can address however (included under MGA s220(5)), and those that pertain to wildlife conservation are outlined in the following Tools below.

As with the MPS, LUBs have not traditionally been thought of in terms of their potential positive impact on wildlife, habitats, or the natural environment but yet they can, even when traditionally used, provide benefits for wildlife.

Legislation Extracted from MGA:

▶ **Section 219 (1-3) Adoption of land-use by-law or amendment**

“(1) Where a council adopts a municipal planning strategy or a municipal planning strategy amendment that contains policies about regulating land use and development, the council shall, at the same time, adopt a land-use by-law or land-use by-law amendment that shall enable the policies to be carried out.

(2) A council may amend a land-use by-law in accordance with policies contained in the municipal planning strategy.

(3) A council shall not adopt or amend a land-use by-law except to carry out the intent of a municipal planning strategy.”

▶ **Section 220 (1-5) Content of land-use by-law “**

(1) A land-use by-law shall include maps that divide the planning area into zones.

(2) A land-use by-law shall

(a) list permitted or prohibited uses for each zone; and

(b) include provisions that are authorized pursuant to this Act and that are needed to implement the municipal planning strategy.

(3) A land-use by-law may regulate or prohibit development, but development may not be totally prohibited, unless prohibition is permitted pursuant to this Part.

(4) A land-use by-law may... (a-l)

(5) Where a municipal planning strategy so provides, a land-use by-law may... (a-r)”

MPS & LUB: Steep slopes, lands subject to flooding, erosion, swamps, marshes, and environmentally sensitive areas

The traditional usage of this planning tool (MGA s214 (1) (c)) has been to ensure that development does not occur in locations where natural environmental conditions could lead to damage of any structure being built there. What is not often considered or recognized in the application of this planning tool are the additional benefits it serves to the natural environment. These areas are important for water retention and flood or storm water control, as well as erosion control. They can also provide additional ecosystem services that are valuable to the ecological integrity of an area both from a human perspective and wildlife perspective.

Another aspect that is seldom considered is that these areas are often very high in conservation values, as they provide habitat for species and are rich in species and habitat diversity. Again, the primary purpose of this tool is to protect development from the environment, not the environment from the impacts of development. This means that if a technological advance enables safe construction in one of these areas then it could be allowed to proceed. If the additional conservation benefits of these types of areas (steep

slopes, flooding areas, swamps, marshes) were taken into considered then perhaps policies and bylaws could limit or restrict development in these areas on this basis alone, not just on the premise that these areas are unsafe for development.

Within the text of this aspect of the MGA there is explicit mention of “environmentally sensitive areas” however, there is no definition included within the MGA. Based on discussions through the course of this project current interpretation within the NS MGA does not encompass the broader definition commonly used in other municipalities across Canada. This broader definition describes an environmentally sensitive area as any parcel of land under public or private control, that has desirable environmental attributes, including the retention and/or creation of wildlife habitat, soils stability, water retention or recharge, vegetative cover, and similar vital ecological functions (Dunster and Dunster 1996). It is possible that in the future NS could move towards adopting more explicit reference to the environment, wildlife and habitats within the MGA thus enabling municipalities to get more directly involved.

Legislation Extracted from MGA:

- ▶ **Section 214 (1) (c) Statements of policy in planning strategy** “A municipal planning strategy may include statements of policy with respect to any or all of the following: ...
 - (c) the protection, use and development of lands within the municipality, including the identification, protection, use and development of lands subject to flooding, steep slopes, lands susceptible to subsidence, erosion or other geological hazards, swamps, marshes or other environmentally sensitive areas;”

- ▶ **Section 220 (5) (l, m, p) Content of land-use by-law** “Where a municipal planning strategy so provides, a land-use by-law may
 - (l) prescribe methods for controlling erosion and sedimentation during the construction of a development;
 - (m) regulate or prohibit excavation, filling in, placement of fill or reclamation of land on floodplains identified in the land-use by-law;”
 - (p) prohibit development on land that
 - (i) is subject to flooding or subsidence,
 - (ii) has steep slopes,
 - (iii) is low-lying, marshy, or unstable,
 - (iv) is otherwise hazardous for development because of its soil conditions, geological conditions, undermining or topography,
 - (v) is known to be contaminated within the meaning of the *Environment Act*, or
 - (vi) is located in an area where development is prohibited by a statement of provincial interest or by an enactment of the province

Suggested Future Changes and Actions:

- ▶ Make changes to the MGA which enable municipalities to adopt policies where the primary intent is to conserve or protect wildlife, habitat or the natural environment, rather than having this be only a secondary benefit of a policy within a MPS.
- ▶ Include a definition of environmentally sensitive areas (ESA) that is more in line with the definition of ESA used across Canada

MPS & LUB: Retention of Vegetation

This section of the MGA (s 214 (1) (f)) enables a municipality to regulate or require development to retain trees and vegetation. The primary function and usage of this tool is to ensure sufficient erosion control to protect any development from the natural environment. However, incorporating this type of policy within a MPS can have direct benefits for species at risk, wildlife and their habitat. Retaining natural vegetation buffers and/or replanting native vegetation means that natural habitat for wildlife species is maintained and that the intrinsic ecosystem characteristic are also retained which is extremely important for the conservation of wildlife species.

Legislation Extracted from MGA:

- ▶ **Section 214 (1) (f) Statements of policy in planning strategy** "A municipal planning strategy may include statements of policy with respect to any or all of the following: ...
(f) in connection with a development, retention of trees and vegetation for the purposes of landscaping, buffering, sedimentation or erosion control;"
- ▶ **Section 220 (5) (d) Content of land-use by-law** "Where a municipal planning strategy so provides, a land-use by-law may
(d) in connection with a development, regulate, or require the planting or retention of, trees and vegetation for the purposes of landscaping, buffering, sedimentation or erosion control;"

Suggested Future Changes and Actions:

- ▶ Include legislation in the MGA enabling municipalities to establish policies and bylaws regarding the retention and replanting of native vegetation where the primary purpose is the conservation of wildlife, habitats, or the natural environment

MPS & LUB: Altering land levels and infilling

This section of the MGA (s 220 (5) (g)) enables land use bylaws to be established which regulate or prohibit the altering of land levels and infilling. Retaining the natural landscape and thus topography is important for development with respect to drainage, run-off, and erosion control. The maintenance of natural landscape features and retaining all of these factors enable ecosystem processes to continue to function. Thus incorporating this policy and bylaw within a MPS and LUB can also be beneficial for wildlife and their habitat.

Legislation Extracted from MGA:

- ▶ **Section 220 (5) (g) Content of land-use by-law** "Where a municipal planning strategy so provides, a land-use by-law may
(g) in relation to a development, regulate or prohibit the altering of land levels, the excavation or filling in of land, the placement of fill or the removal of soil unless these matters are regulated by another enactment of the Province;"

Suggested Future Changes and Actions:

- ▶ Enable municipalities to adopt this type of policy and bylaw explicitly for the benefit of wildlife, habitat and natural environment through making any necessary changes to legislation in the MGA

MPS & LUB: Studies required

This section of the MGA (s 214 (1) (g)) enables a municipality to require a developer to conduct a study prior to development. Under the current interpretation and use of the planning legislation within the MGA it would be difficult to justify that a developer should conduct a study on the presence of species

at risk or important wildlife habitat on their property. However, knowledge of species and habitat locations prior to development is becoming more and more essential and in the future, it is possible that we would explore the idea of developers being required to gather additional information.

Right now, however, it is possible that a municipality could require a developer to study their potential impacts on a wetland area or environmentally sensitive area, because of potentially negative impacts these areas could have on their development. Even information gathered from this type of study could provide valuable knowledge regarding wildlife habitat.

Legislation Extracted from MGA:

- ▶ **Section 214 (1) (g) Statements of policy in planning strategy** "A municipal planning strategy may include statements of policy with respect to any or all of the following: ...
 - (g) studies to be carried out prior to undertaking specified developments or developments in specified areas;"

Suggested Future Changes and Actions:

- ▶ Include enabling legislation in the MGA for municipalities to include consideration for the natural environment within their MPS
- ▶ Look at examples elsewhere that have required studies to be conducted prior to subdivision and zoning. For example, the District of Saanich, BC established an Environment and Social Review Process for subdivision and zoning applications to identify potential impacts and mitigation opportunities of proposed developments (Curran 1999).

Broad Roles for Municipalities

Many activities that a municipality and its residents are involved in can have negative impacts on the natural environment and in turn wildlife species and their habitats. We have already outlined some actions municipalities can take immediately to become involved in conservation and highlighted ways that planning tools could be applied to assist in conservation. There are also a number of broader “roles” that a municipality can potentially play. As explained in Part I the benefit to being involved in conservation initiatives go well beyond assisting wildlife species and habitats alone and can result in direct benefits to human health, quality of life, and the local economy. Many of the roles included in Table 5 have not been explored in-depth at this point, but are presented here as ideas to stimulate further discussion.

Table 5. The broad roles that municipalities may be able to play to assist in the conservation of wildlife species.

Role	Description of Role	Explanation of the Role as it relates to the Conservation of Wildlife and Habitats
Planning	Municipal Government Act (MGA); Municipal Planning Strategies (MPS) and Land Use Bylaws (LUB)	- Enable and encourage municipalities to establish policies and bylaws that can help regulate development and land use to minimize its impact on important wildlife and habitat areas
Land Ownership	- Awareness of presence of species at risk - Purchasing of land - Maintenance and construction - Sale of land (i.e. land in tax arrears)	- Prior to construction or development on municipal land it is important to know whether species at risk are present and ensure negative impacts are eliminated or minimized - With the purchasing of land consideration can be given to whether it is a significant wildlife habitat area - Selection of maintenance and construction methods with consideration of wildlife and habitats is important - Land could be cross-referenced with species at risk or wildlife sites prior to sale to the public
Education	- Communication to citizens via newsletters, mail-outs, pamphlets - Staff training	- Municipalities already have a collective communication mechanism in place - Increased awareness of environmental and conservation issues among municipal staff is important
Stewardship	Projects engaging communities	- Working with private landowners on sustainable initiatives, wildlife and habitat conservation actions
Parks & Recreation	Parkland dedication within MPS, creating and maintaining parks, recreation programs	- Parks and open spaces can be designed taking into account important wildlife and habitat areas and can therefore have multiple benefits (to humans and wildlife) - Recreation programs can provide experiences and information regarding the importance of our natural environment, wildlife, and habitats
New Bylaws	Creative new bylaws developed	- New bylaws (i.e. HRM pesticide bylaw) are being developed across Canada - Municipalities might be able to develop creative new bylaws that can benefit wildlife as well as humans
Policies	- Policies for the municipality (not just those within a MPS) - Policies of National and provincial groups (i.e. FCM and UNSM)	- Policies relating to municipal actions, development, etc... can be developed and the link to wildlife and habitat conservation explicitly addressed - Nationally the FCM has environmental policies already established and could have more linked directly to wildlife - Provincially the UNSM can provide policies, resolutions, pressure on the provincial government to create changes which enable municipalities the opportunity to be more involved

Planning

As described in Part I of this document, there are several threats to wildlife species that relate directly to the regulation of land use and development. Land use planning may be one of the most significant roles that a municipality can play in assisting in the conservation of wildlife and habitats. As a result planning was discussed in more detail in the previous section of this document.

Land Ownership

Many municipalities own a significant amount of land and have to manage and maintain these properties. As landowners, municipalities should know whether species at risk occur on their properties because 24 species in NS are legally protected on all private and provincial crown (public) land under the NS Endangered Species Act. If a municipality knows that their land contains species at risk then prior to the use or development of the land the municipality would have to take into consideration the potential impacts on the species and its habitat. The municipality could take positive steps to ensure the protection of the land through, for example, the formation of a park, protected area, selling it to the province, setting up a conservation easement, or making a donation through the Ecogifts program (see Table 4 for more information on some of these conservation options).

Also, when purchasing land a municipality should be aware of whether important wildlife habitat exists on the land and specifically whether species at risk are present. It may be possible and desirable for a municipality to intentionally align the purchase of a property with known wildlife habitat or ecosystem values. If a municipality was securing land for a parks and recreation initiative, for example a nature park or trail system, it could purchase a property that was known to contain important wildlife species in order to help protect it. For example in 1995 in Portland, Oregon, the Portland Metro Council implemented an open spaces, parks and streams initiative and issued more than \$134 million US in bonds to acquire land. To date (2004), they have acquired more than 8,000 acres of land, protecting 72 miles of stream and river shoreline (Portland 2004)

Also, there are basic maintenance and construction decisions that take place on a regular basis on municipal properties that can impact on wildlife species and their habitats. It is important to make sure that any negative impacts are minimized and that benefits are maximized. For example, choosing to maintain natural vegetation on a site would be positive as it would retain natural ecosystem services such as buffering water run-off and helping control erosion, as well as maintain natural habitat for wildlife species.

There are times when municipalities sell parcels of land because they are in tax arrears, are considered surplus land, or the land is up for auction. It is possible that some of these parcels of land could be important wildlife, species at risk, or habitat sites and that the province might be interested in acquiring the land. A process could be established where parcels of land for sale are cross-referenced with a database of species at risk locations and a NS DNR staff is contacted prior to the public sale of the land (see action above “Adopt a Process for ‘Flagging’ Properties).

Education

Municipalities already have effective mechanisms in place to communicate with their citizens through such media as newsletters, pamphlets, mail-outs, etc... Also, residents already know that municipal offices are locations where they can get current information and resources regarding a variety of issues related to their municipality, property, and community. Thus municipalities provide an excellent venue for communicating to their residents, educational information on wildlife, habitat, species at risk, and the natural environment.

For example, in NS the Eastern Habitat Joint Venture (EHJV), which plays a large role in wetland stewardship in the province, has used municipal offices as a location to distribute information on basic land maintenance decisions regarding shoreline properties. With their brochure titled “Shoreline Stewardship for Landowners” being located at municipal offices it means that landowners applying for building permits or looking to develop on their property have ready access to this educational information.

Another aspect of education is internal municipal staff training and education with respect to the natural environment, ecosystems, wildlife, and habitats. Our impact on the natural environment is linked to so many aspects of municipal responsibilities it can be very valuable for all municipal staff to have a greater understanding (see also action above “Increase Awareness”). The City of Surrey, BC, since 1998, holds two in-house staff workshops a year to educate staff on different elements of environmental protection, workshops such as how to take an ecosystem approach in municipal projects. (Curran 1999). Another example is in the District of Saanich, BC, where staff education efforts have included: a workshop on using their new Environmentally Sensitive Areas (ESA) inventory, a booklet on how to work around small streams, and a workshop on integrating stormwater management.

Stewardship

Stewardship is a term used to refer to a broad range of activities which involves landowners, private companies, voluntary organizations, government, and/or individual citizens caring for our land, air, water, and sustaining the natural processes on which life depends. Municipalities, as landowners, regulators, and the level of government closest to the people, can lead by example with good stewardship practices and initiatives. The National Round Table on the Environment and the Economy (NRTEE) indicate in their document “The Importance of Nature to Canadians” that we require a greater acknowledgement of the role that municipal governments can play in fostering stewardship at a local and regional level. Municipalities looking to engage in stewardship activities that relate specifically to a species at risk should be in touch with the appropriate Species at Risk Recovery Team (see Appendix 4) to ensure that their intended actions align with broader recovery objectives.

Parks and Recreation

Municipal parks and recreation departments can play a number of important roles in assisting with the conservation of wildlife and their habitats. The roles include education and recreation programs which relay messages about how people can help maintain the natural environment, as well as education programs that simply increase the knowledge of the wildlife in their area. The other important aspect of the parks and recreation role is of course the design and designation of parks and protected areas within the municipality which take into consideration of both human recreation needs and the conservation of important wildlife habitats, and environmentally sensitive lands (Curran 1999).

New Bylaws

In recent years municipalities have designed and implemented some innovative new bylaws that are beneficial to the citizens, community, and the natural environment. With the important linkages being made between the health of our natural environment and human quality of life it is possible that creative new bylaws could be developed that can benefit wildlife as well as humans.

For example, here in Nova Scotia the Halifax Regional Municipality (HRM) was a national leader for developing and implementing a pesticide bylaw to reduce cosmetic pesticide use in landscaping. This bylaw has a positive impact on the general health of the natural environment reducing the use of potentially toxic chemicals. This also has a positive impact on wildlife and habitat because it results in a

reduction of the amount of pesticides entering waterways and soils. It is possible that other new, creative bylaws could be designed that have a direct positive impact on wildlife and their habitats.

The District of North Vancouver, BC enacted a comprehensive environmental bylaw in 1993 to address the protection of ecological systems. The bylaw consolidates watercourse, soil and tree protection into one set of regulations that deals holistically with the natural environment (Curran 1999). The bylaw adopts the *Land Development Guidelines for the Protection of Aquatic Habitat and Storm Management Guidelines* and sets out prohibitions, permitting, and enforcement of activities affecting ecological systems. The bylaw focuses on preventing environmental harm with detailed requirements set out for environmental permit applications dealing with aquatic areas, trees, and soil. An environmental impact assessment is required for permit applications involving aquatic areas and soils (Curran 1999).

Policies

Municipalities often establish policies with respect to more than just Municipal Planning Strategies (MPS) and it is important that the natural environment and particularly wildlife and habitats be considered as important factors in the development and adoption of these. Since wildlife and habitats are such good indicators of the broader health of the natural environment and there are so many connections to our quality of life and the environment it is becoming more of a fundamental consideration when addressing any municipal policies. This is important for not only individual municipalities but also for the Union of NS Municipalities (UNSM) and other broad-based representative bodies, such as the Federation of Canadian Municipalities (FCM).

The Federation of Canadian Municipalities (FCM) already has policies in place that address the health and importance of our natural environment. The environmental policy statement is guided by six key principles including: 1. Sustainable Community Development, 2. Pollution Prevention, 3. Use and Polluter Pay, 4. Shared Responsibility, 5. Consultation and Cooperation, and 6. Think Globally, Act Locally (FCM, 2003). All of the FCM environmental policies ensure healthy environments, communities, and ecosystems, but some specific items within the environmental policy pertain more directly to species at risk conservation and recovery (see box below)

Excerpt from FCM Environmental Policy (www.fcm.ca)

Nature

29. urge municipal governments to ensure that their policies, financial instruments and programs protect and encourage conservation of ecologically significant lands. Factors determining ecological significance include:
- a) wildlife habitat and wildlife movement corridors necessary for the long-term sustainability of affected wildlife within the ecosystem of the area;
 - b) land necessary for the protection of rare and endangered species and to prevent species from becoming endangered;
 - c) land required for the protection of a watershed; and
 - d) terrain such as ravines, slopes or shoreline that requires protection for landscape maintenance, such as erosion control, or for aesthetic reasons;

General

40. encourage the federal government to provide appropriate funding to support investment in environmental initiatives and to meet the requirements of federal environmental legislation.

References and Resources

Much of the information provided to municipalities and background information on project can be found on the project website at: <http://www.speciesatrisk.ca/municipalities/>

References:

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World Wildlife Fund (WWF). 2003. The Nature Audit: Setting Canada's Conservation Agenda for the 21st Century. Report No. 1, WWF Canada, Toronto, Ontario.

Resources:

Australian Government, Department of Environment and Heritage: The Biodiversity Toolbox

<http://www.deh.gov.au/biodiversity/toolbox>

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PART III: Appendices

Part III contains appendices referenced throughout the guide.

APPENDIX 1: Species at Risk in Nova Scotia

APPENDIX 2: Species at Risk Status Assessment Processes

APPENDIX 3: Significant Species and Habitats Databases

APPENDIX 4: Contact Information

APPENDIX 5: Guide for Developers

APPENDIX 1: Species at Risk in Nova Scotia



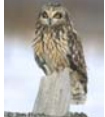




Species at Risk in Nova Scotia

In Nova Scotia there are 31 species at risk and 11 marine species at risk - this includes species that are assessed and listed as 'at risk' through both a national process and a provincial process (see Appendix 2 for explanations of processes). There are 24 species listed through the provincial process which are then protected under the NS Endangered Species Act. See also Appendix 2 for definitions of the different status categories: Endangered, Threatened, and Special Concern (Vulnerable).

Taxonomic Group	Number of Species at Risk (Nationally & Provincially listed)	Number of Species Listed Under the NS Endangered Species Act¹
Mammals	5	3
Birds	7	5
Reptiles	3	3
Fish	2	1
Plants	12	11
Lichens	1	1
Molluscs	1	0
TOTALS:	31	24

¹Not all species at risk are listed under the NS Endangered Species Act.

MAMMALS	
	American Marten (Cape Breton Population) (<i>Martes americana</i>) National Status - not listed Provincial Status - Endangered
	Moose (Mainland Population) (<i>Alces alces americana</i>) National Status - not listed Provincial Status - Endangered
	Canada Lynx (<i>Lynx canadensis</i>) National Status - not listed Provincial Status - Endangered
	Southern Flying Squirrel (<i>Glaucomys volans</i>) National Status - Special Concern Provincial Status - not listed
	Gaspé Shrew (<i>Sorex gaspensis</i>) National Status - Special Concern Provincial Status - not listed
BIRDS	
	Piping Plover (<i>Charadrius melodius</i>) National Status - Endangered Provincial Status - Endangered
	Roseate Tern (<i>Sterna dougallii</i>) National Status - Endangered Provincial Status - Endangered

	Peregrine Falcon (<i>Falco peregrinus anatum</i>) National Status - Threatened Provincial Status - Threatened
	Harlequin Duck (<i>Histrionicus histrionicus</i>) National Status - Special Concern Provincial Status - Endangered
	Bicknell's Thrush (<i>Catharus bicknelli</i>) National Status - Special Concern Provincial Status - Vulnerable
	Ipswich (Savannah) Sparrow (<i>Passerculus sandwichensis princeps</i>) National Status - Special Concern Provincial Status - not listed
	Short-eared Owl (<i>Asio flammeus</i>) National Status - Special Concern Provincial Status - not listed
REPTILES	
	Blanding's Turtle (<i>Emydoidea blandingii</i>) National Status - Threatened Provincial Status - Endangered
	Wood Turtle (<i>Clemmys insculpta</i>) National Status - Special Concern Provincial Status - Vulnerable
	Eastern Ribbonsnake (<i>Thamnophis sauritus</i>) National Status - Threatened Provincial Status - Threatened
FISH	
	Atlantic Whitefish (<i>Coregonus canadensis</i>) National Status - Endangered Provincial Status - Endangered
	Atlantic Salmon (Inner Bay of Fundy Population) (<i>Salmo salar</i>) National Status - Endangered Provincial Status - not listed
PLANTS	
	Sweet Pepperbush (<i>Clethra alnifolia</i>) National Status - Special Concern Provincial Status - Vulnerable
	Pink Coreopsis (<i>Coreopsis rosea</i>) National Status - Endangered Provincial Status - Endangered
	Thread-leaved Sundew (<i>Drosera filiformis</i>) National Status - Endangered Provincial Status - Endangered

	<p>Golden-crest (<i>Lophiola aurea</i>) National Status - Threatened Provincial Status - Threatened</p>
	<p>Plymouth Gentian (<i>Sabatia kennedyana</i>) National Status - Threatened Provincial Status - Endangered</p>
	<p>Tubercled Spike-rush (<i>Eleocharis tuberculosa</i>) National Status - Threatened Provincial Status - Threatened</p>
	<p>Water-Pennywort (<i>Hydrocotyle umbellata</i>) National Status - Threatened Provincial Status - Endangered</p>
	<p>New Jersey Rush (<i>Juncus caesariensis</i>) National Status - Special Concern Provincial Status - Vulnerable</p>
	<p>Redroot (<i>Lacnathes caroliniana</i>) National Status - Threatened Provincial Status - Threatened</p>
	<p>Long's Bulrush (<i>Scirpus longii</i>) National Status - Special Concern Provincial Status - Vulnerable</p>
	<p>Eastern Lilaopsis (<i>Lilaeopsis chinensis</i>) National Status - Special Concern Provincial Status - not listed</p>
	<p>Eastern Mountain Avens (<i>Geum peckii</i>) National Status - Endangered Provincial Status - Endangered</p>
LICHENS	
	<p>Boreal Felt Lichen (<i>Erioderma pedicellatum</i>) National Status - Endangered Provincial Status - Endangered</p>
MOLLUSCS	
	<p>Yellow Lampmussel (<i>Lampsilis cariosa</i>) National Status - Special Concern Provincial Status - not listed</p>

Species At Risk Found in Nova Scotia's Municipalities

For Further Information Contact:

Samara Eaton, Wildlife Division, NS Department of Natural Resources

(902) 431-8089, eatonst@gov.ns.ca



Scientific Name	Common Name	COSEWIC Status	NS Endangered Species Act Status	Annapolis	Antigonish	Argyle	Barrington	Cape Breton	Chester	Clare	Colchester	Cumberland	Digby	East Hants	Guysborough	Halifax	Inverness	Kings	Lunenburg	Pictou	Queens	Richmond	Shelburne	St. Mary's	Victoria	West Hants	Yarmouth	# of Municipalities Species Occurs In	
<i>Alces alces americana</i>	Moose (Mainland pop.)	-	E	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	
<i>Catharus bicknelli</i>	Bicknell's Thrush	SC	V														1								1			2	
<i>Charadrius melodus melodus</i>	Piping Plover	E	E		1		1	1	1			1				1	1			1	1	1	1	1	1			12	
<i>Clemmys insculpta</i>	Wood Turtle	SC	V	1	1			1	1		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	
<i>Clethra alnifolia</i>	Sweet Pepperbush	SC	V	1		1				1										1								3	
<i>Coregonus canadensis</i>	Atlantic Whitefish	E	E			1													1							1	3		
<i>Coreopsis rosea</i>	Pink Tickseed	E	E			1																				1	2		
<i>Drosera filiformis</i>	Thread-leaved Sundew	E	E				1																1				2		
<i>Eleocharis tuberculosa</i>	Tuberclad Spike-rush	T	-			1	1																1				3		
<i>Emydoidea blandingi</i>	Blanding's Turtle	T	E	1															1		1						3		
<i>Erioderma pedicellatum</i>	Boreal Felt Lichen	E	-		1			1	1			1			1	1	1				1	1	1	1			11		
<i>Falco peregrinus anatum</i>	Peregrine Falcon	T	T	1							1	1		1					1						1		6		
<i>Geum peckii</i>	Eastern Mountain Avens	E	E										1														1		
<i>Glaucomys volans</i>	Southern Flying Squirrel	SC	-	1				1											1	1		1			1		6		
<i>Histrionicus histrionicus</i>	Harlequin Duck	SC	E				1						1								1	1	1				6		
<i>Hydrocotyle umbellata</i>	Water-pennywort	T	E	1		1															1				1		4		
<i>Juncus caesariensis</i>	New Jersey Rush	SC	V					1														1					2		
<i>Lacnanthes caroliana</i>	Redroot	T	T																1		1						2		
<i>Lilaeopsis chinensis</i>	Eastern Lilaeopsis	SC	-			1													1		1						3		
<i>Lophiola aurea</i>	Golden-crest	T	T										1						1		1						3		
<i>Lynx canadensis</i>	Canada Lynx	-	E					1									1						1		1		4		
<i>Martes americana</i>	American Marten (Cape Breton pop.)	-	E														1							1			2		
<i>Passerculus sandwichensis princeps</i>	Savannah (Ipswich) Sparrow	SC	-													1											1		
<i>Sabatia kennedyana</i>	Plymouth Gentian	T	E			1																			1		2		
<i>Salmo salar</i>	Atlantic Salmon (Bay of Fundy pop.)	E	-								1	1		1					1						1		5		
<i>Scirpus longii</i>	Long's Bulrush	SC	V			1													1		1		1			1	5		
<i>Sorex gaspensis</i>	Gaspé Shrew	SC	-														1							1			2		
<i>Sterna dougallii</i>	Roseate Tern	E	E			1	1	1							1	1							1	1			7		
<i>Thamnophis sauritus</i>	Eastern Ribbonsnake	T	-	1		1													1		1						4		
<i>Lampsilis cariosa</i>	Yellow Lampmussel	SC	-					1																			1		
Total # of Species At Risk per Municipality					8	4	11	6	6	6	2	4	6	4	4	4	7	7	5	11	3	13	4	9	5	6	5	6	146

Compiled October 2003/ Updated December 2004



APPENDIX 2: Species at Risk Status Assessment Processes

Species at risk are identified through both a national and a provincial assessment process that determines which species are in need of conservation and recovery. There is also a provincial General Status Assessment process which provides an indication of which species may be at risk. The table below provides an overview of the different jurisdictional assessment processes for species at risk, the legal basis for these assessments, and the categories assigned by each process.

At the national level assessments are conducted by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and these assessments feed into the federal Species at Risk Act (SARA). At the provincial level species at risk assessments are conducted by the NS Species at Risk Working Group. Species that are listed through this provincial process are then legally protected under the NS Endangered Species Act. The list of species assessed through the national and provincial processes can vary, as can the risk category assigned to the same species (because the context of the assessment, i.e. a provincial context versus a national context).

The status of species is also evaluated through the NS General Status assessment process which assigns a level of risk to all species in the province, but the evaluation is not as rigorous as the other two processes and thus these categories serve as a “first alert” tool when determining which species to evaluate for listing under the NS Endangered Species Act and for consideration in the NS Environmental Assessment process.

A summary of the five different species at risk assessment processes applied to species in NS.

Jurisdiction	Legal Basis	Assessment Body	Species at Risk Categories ¹
Provincial	Yes: NS Endangered Species Act (NS ESA)	NS Species at Risk Working Group	Endangered Threatened Vulnerable
National	Yes: Species at Risk Act (SARA)	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	Endangered Threatened Special Concern
Provincial (General Status)	No, But: Must be considered in NS Environmental Impact Assessments	NS Department of Natural Resources & wildlife biologists	Red Yellow Green Grey

¹See definitions of Species at Risk categories below

National Species at Risk Assessment Process: COSEWIC Assessment Definitions

There are three lists that are maintained by COSEWIC:

- 1. Species at Risk:** species designated in the extinct, extirpated, endangered, threatened, or special concern categories;
- 2. Not at Risk:** species that have been evaluated and found to be not at risk; and
- 3. Data Deficient:** species for which there is insufficient scientific information to support a risk or not at risk designation (<http://www.cosewic.gc.ca>).

Within the Species at Risk list there are different categories and these include and are defined as:

Extinct: A species that no longer exists.

Extirpated: A species no longer existing in the wild in Canada, but occurring elsewhere.

Endangered: A species facing imminent extirpation or extinction.

Threatened: A species likely to become endangered if limiting factors are not reversed.

Special Concern: Those species that are particularly sensitive to human activities or natural events but are not endangered or threatened species. (<http://www.cosewic.gc.ca>).

Nova Scotia Species at Risk Assessment Process: NS Species at Risk Working Group Assessment Definitions

Within the Species at Risk list there are different categories and these include and are defined as:

Extinct: A species that no longer exists.

Extirpated: A species no longer existing in the wild in Canada, but occurring elsewhere.

Endangered: A species facing imminent extirpation or extinction.

Threatened: A species likely to become endangered if limiting factors are not reversed.

Vulnerable (Special Concern): Those species that are particularly sensitive to human activities or natural events but are not endangered or threatened species. (<http://www.cosewic.gc.ca>).

Nova Scotia Species at Risk Assessment Process: NS General Status Assessment Definitions

RED (At Risk or Maybe at Risk) - Species for which a formal detailed risk assessment has been completed (COSEWIC assessment or a provincial equivalent) and that have been determined to be at risk of extirpation or extinction. Species that maybe at risk of immediate extirpation or extinction and are therefore candidates for interim conservation action and detailed risk assessment by COSEWIC or the Province.

YELLOW (Sensitive) - Species that are not believed to be at risk of immediate extirpation or extinction, but which may require special attention or protection to prevent them from becoming at risk.

GREEN (Secure) - Species that are not believed to be at risk, or sensitive. This category includes some species that have declined in numbers but remain relatively widespread or abundant.

UNDETERMINED - Species for which insufficient data, information, or knowledge is available to reliably evaluate their status.

Note: Recently we have used the terminology “Species at Risk” (SAR) for those “Red” listed species that have been listed under the NS Endangered Species Act and “Species of Conservation Concern” (SCC) for the remaining “Red” and all of the “Yellow” listed species. See Table _ above.

APPENDIX 3: Significant Species and Habitats Databases

Accompanying Documentation for the NS Department of Natural Resources Significant Species and Habitats (Sighab) Database

October 2004, Compiled by: Samara Eaton

INTRODUCTION

The Significant Species and Habitats ('Sighab') Database contains location data for species and habitats that are at risk, are of conservation concern, or are sensitive to human activities. The database is maintained and housed at NS Department of Natural Resources (NS DNR) Wildlife Division and can be downloaded from the NS DNR website: <http://www.gov.ns.ca/natr/wildlife/Thp/disclaim.htm>. Information in this database can be used to assist in conservation and management decisions.

This document contains information regarding the structure and contents of the database as well as important points regarding use and interpretation of the data. For additional information regarding the background, partners, and release of information please refer to the Significant Species and Habitats Database Policy document online.

KEY POINTS ABOUT THE DATABASE

In order to ensure that this data is utilized effectively and correctly there are some key points that users should keep in mind when using and interpreting this data

- ▶ The database is not a complete survey of all significant habitats in the province
- ▶ This is the best data currently available and it is continually being updated
- ▶ It is important to ensure that you have the most current data and can do so by checking the website and/or by contacting NS DNR
- ▶ For interpretation of the data contact a NS DNR wildlife biologist or regional biologist
- ▶ Species and habitat locations are sensitive information and therefore are only identified as polygons
- ▶ More detailed information for each polygon exists, however public access to this requires a written request to NS DNR (see Sighab Database Policy document online)
- ▶ Other databases with information on significant species and habitats in NS may be available from other sources in NS

DATABASE INFORMATION

How to Obtain the Database

- ▶ The data is available online at the NS DNR website: <http://www.gov.ns.ca/natr/wildlife/>
- ▶ The data can be viewed online or can be downloaded as a zipped Arcview shapefile

- ▶ The downloadable data for the province is divided into three regions (Central, Eastern, Western)
- ▶ The data projection is NAD83; if you require another format please contact us

Database Variables

There are eight variables, or fields in the downloadable Sighab database; the table below provides a brief explanation of each variable. Note that the key variable which identifies what habitat category each polygon represents is “Wc1”.

Variable / Field	Explanation
Area	Area of the polygon
Perimeter	Perimeter of the polygon
Mapsheet	Topographic mapsheet number
Wildnum	Unique identifier that links to other NS DNR databases with additional information. Alphanumeric code with the letters abbreviating the county in which the record is located.
wcode1	Numeric code, not necessary for use of data
wcode2	Numeric code, not necessary for use of data
wcode3	Numeric code, not necessary for use of data
Wc1	Habitat categories included in database *see below for additional explanation of each habitat category in Wc1 field
Wc2	No data in this field
Wc2	No data in this field

Habitat Category (“Wc1”) Explanations

The “Wc1” field in the database consists of twelve habitat categories. Included in the table below is a brief description of each of the categories. With respect to the recovery of species at risk and the conservation of wildlife and habitat categories “species at risk” and “of concern” (which is short for ‘species of conservation concern’) are the two key categories to consider.

Habitat Category	Explanation
species at risk	Any species that is legally listed under the NS Endangered Species Act, the federal Species at Risk Act, or by COSEWIC
of concern	“of concern” = Species of Conservation Concern, any species that is ranked as Red or Yellow under the NS General Status Assessment process, but is not listed under legislation.
rare plant	A historic record of a plant that is not legally protected but is rare
migratory bird	Any migratory bird records, not including species at risk or species of conservation concern. More comprehensive data on migratory birds can be obtained from the Canadian Wildlife Service, Environment Canada. ¹
IBP sites	“IBP” = International Biological Program, IBP sites identified in NS
moose wintering	Moose wintering sites for the Cape Breton population

deer wintering	Important habitat for white-tail deer which may be jeopardized by human activities
wetland	Some of the sensitive wetlands in NS. Note that this does not represent all of the wetlands in the province. Detailed wetland information is available through the NS DNR wetlands database. ²
saltmarsh	Coastal saltmarsh habitat that is
freshwater	Any body of freshwater that has been noted as particularly sensitive to human activities. Note that this does not represent all of the freshwater habitats in the province. There are other NS DNR GIS databases of information on freshwater that can be obtained. ³
old forest	Some of the old forest sites in NS
other habitat	Other significant wildlife habitats, such as those that are of local natural history interest (e.g. eagle perch trees)

¹ Canadian Wildlife Service, Environment Canada: (506)

² NS DNR Wetlands Database: Randy Milton, NS DNR Wildlife Division, (902) 679-6091

³ NS DNR freshwater data: Lawrence Benjamin, NS DNR Wildlife Division (902)

CONTACT INFORMATION

The following individuals can be contacted for questions related to species at risk, species of conservation concern, and other significant wildlife habitats in NS

Samara Eaton, Wildlife Biologist, Phone: (902) 431-8089 / Email: eatonst@gov.ns.ca

Dr. Sherman Boates, Wildlife Manager, Biodiversity Program, Phone: (902) 679-6146 /Email: boatesjs@gov.ns.ca

Mark Elderkin, Species at Risk Biologist, Phone: (902) 679-6219 / Email: elderkmf@gov.ns.ca

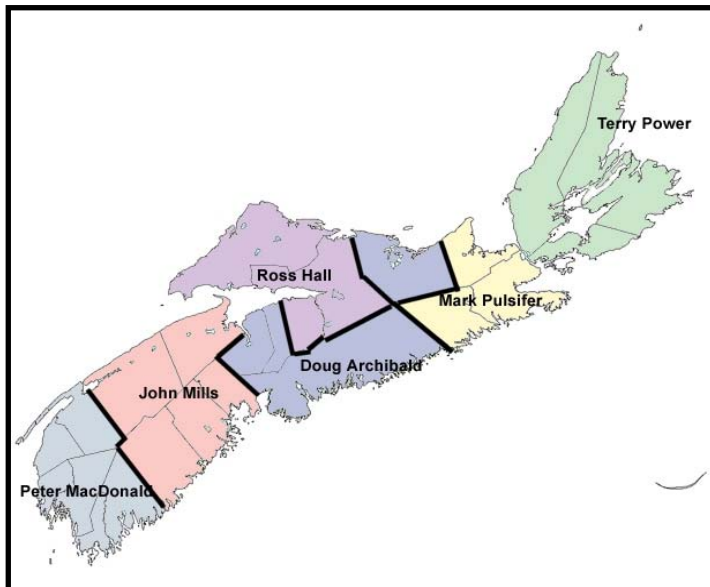
Wildlife Division, NS Department of Natural Resources

136 Exhibition Street

Kentville, Nova Scotia

B4N 4E5

Fax: (902) 679-6176



NS DNR Regional Biologists

The Wildlife Division of the ND DNR has Regional Biologists in 6 regions throughout the province.

If you have any specific questions about wildlife in your area feel free to contact the appropriate regional biologist. You can also always contact the biologists within the Wildlife Division (see above).

The map (left) indicates which biologist is located in your area.

<p>Doug R. Archibald Regional Biologist NS Department of Natural Resources Arlington Place, 1st Floor 664 Prince St., PO Box 68 Truro, NS, B2N 5B8 Phone: (902) 893-6353 Fax: (902) 893-5613 Email: archibdr@gov.ns.ca</p>	<p>Ross Hall Regional Biologist, NS Department of Natural Resources Arlington Place, 1st Floor, 664 Prince St. PO Box 68, Truro, NS, B2N 5B8 Phone: (902) 893-5630 Fax: (902) 893-5613 Email: rhall@gov.ns.ca</p>	<p>John Mills Wildlife Biologist Western Region NS Department of Natural Resources 99 High Street Bridgewater, NS, B4V 1V8 Phone: (902) 527-5360 Fax: (902) 543-0624 Email: millsjk@gov.ns.ca</p>
<p>Peter MacDonald Wildlife Biologist, Western Region NS Department of Natural Resources Box 99 Tusket, NS, B0W 3M0 Phone: (902) 648-3540 Fax: (902) 648-3548 Email: macdonpr@gov.ns.ca</p>	<p>Terry Power Regional Wildlife Biologist NS Department of Natural Resources 300 Mountain Road Sydney, NS, B1L 1A9 Phone: 902-563-3370 Fax: 902-567-2535 Email: powertd@gov.ns.ca</p>	<p>Mark Pulsifer Wildlife Biologist, Eastern region NS Department of Natural Resources 190 Beech Hill Rd, RR#7 Antigonish County, NS Phone: 902-863-7523 Fax: 902-863-7342 Email: pulsifmd@gov.ns.ca</p>

ADDITIONAL RESOURCES

NS Department of Natural Resources, Significant Species and Habitats Database

The online, viewable and downloadable GIS database discussed in this document. with location information for significant wildlife species and habitat.

<http://www.gov.ns.ca/natr/wildlife/Thp/disclaim.htm>

NS Department of Natural Resources, General Status Assessment

A thorough explanation of the General Status Assessment process in NS and a searchable database to examine the general status of all species in NS.

<http://www.gov.ns.ca/natr/wildlife/genstatus/>

Government of Nova Scotia Permits Directory

All permits, licenses, approvals, registrations, and certification requirements organized according to provincial government departments.

<http://www.gov.ns.ca/snsmr/paal>

Environment Canada's Species at Risk Website

Information on species at risk in Canada, federal legislation pertaining to species at risk, a searchable database, funding opportunities descriptions, and more.

<http://www.speciesatrisk.gc.ca/>

Government of Canada's Species at Risk Act (SARA) Public Registry

The public registry for the federal Species at Risk Act (SARA) contains background and general information on the Act, the text of the full act, the species list, and more.

<http://www.sararegistry.gc.ca/>

APPENDIX 4: Contact Information

The following individuals can be contacted for questions related to species at risk, species of conservation concern, and other significant wildlife habitats in NS

NS DNR Biodiversity Program Staff

Samara Eaton, Wildlife Biologist

Phone: (902) 431-8089

Email: eatonst@gov.ns.ca

Dr. Sherman Boates, Wildlife Manager, Biodiversity Program

Email: boatesjs@gov.ns.ca

Mark Elderkin, Species at Risk Biologist

Email: elderkmf@gov.ns.ca

Wildlife Division, NS Department of Natural Resources

136 Exhibition Street

Kentville, Nova Scotia, B4N 4E5

Phone: (902) 679-6093

Fax: (902) 679-6176

NS DNR Wetland and Coastal Habitats Program and Eastern Habitat Joint Venture Staff

Randy Milton, Wildlife Manager, Wetlands and Coastal Habitat Program

Email: miltongr@gov.ns.ca

Glen Parsons, Manager, Eastern Habitat Joint Venture (EHJV)

Email: parsongj@gov.ns.ca

Reg Newell, Stewardship Coordinator, Eastern Habitat Joint Venture (EHJV)

Email: newellrb@gov.ns.ca

Wildlife Division, NS Department of Natural Resources

136 Exhibition Street

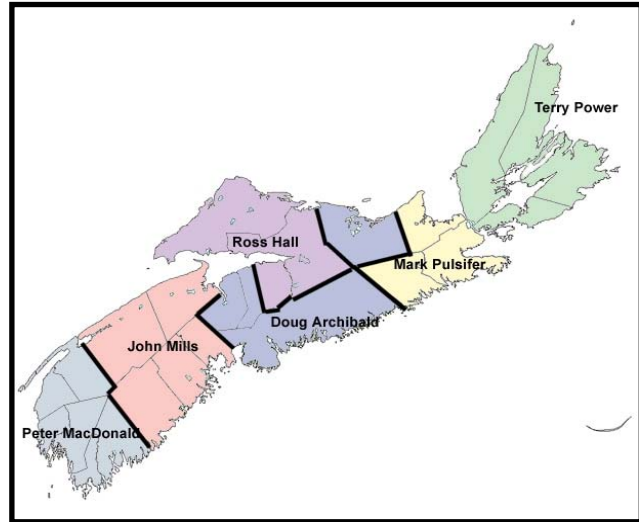
Kentville, Nova Scotia, B4N 4E5

Phone: (902) 679-6093

Fax: (902) 679-6176

NS DNR Regional Biologists

The Wildlife Division of the ND DNR has Regional Biologists in 6 regions throughout the province. If you have any specific questions about wildlife in your area feel free to contact the appropriate regional biologist. The map indicates which biologist is located in your area.



<p>Doug R. Archibald Regional Biologist NS Department of Natural Resources Arlington Place, 1st Floor 664 Prince St., PO Box 68 Truro, NS, B2N 5B8 Phone: (902) 893-6353 Fax: (902) 893-5613 Email: archibdr@gov.ns.ca</p>	<p>Ross Hall (retired) Regional Biologist, NS DNR Arlington Place, 1st Floor, 664 Prince St. PO Box 68, Truro, NS, B2N 5B8 Phone: (902) 893-5630 Fax: (902) 893-5613 Email: rhall@gov.ns.ca</p>	<p>John Mills Wildlife Biologist Western Region NS DNR 99 High Street Bridgewater, NS, B4V 1V8 Phone: (902) 527-5360 Fax: (902) 543-0624 Email: millsjk@gov.ns.ca</p>
<p>Peter MacDonald Wildlife Biologist, Western Region NS Department of Natural Resources Box 99 Tusket, NS, B0W 3M0 Phone: (902) 648-3540 Fax: (902) 648-3548 Email: macdonpr@gov.ns.ca</p>	<p>Terry Power Regional Wildlife Biologist NS DNR 300 Mountain Road Sydney, NS, B1L 1A9 Phone: 902-563-3370 Fax: 902-567-2535 Email: powertd@gov.ns.ca</p>	<p>Mark Pulsifer Wildlife Biologist, Eastern region NS DNR 190 Beech Hill Rd, RR#7 Antigonish County, NS Phone: 902-863-7523 Fax: 902-863-7342 Email: pulsifmd@gov.ns.ca</p>

Species at Risk Recovery Team Contacts

Please contact Samara Eaton (see above) if the contact information is not listed for the Recovery Team of the species at risk that you are interested in working on or have a question about

American Marten (Cape Breton Population) (*Martes americana*)

Mike O'Brien
NS Department of Natural Resources
(902) 679-6093
obrienms@gov.ns.ca

Moose (Mainland Population) (*Alces alces americana*)

Tony Nette
NS Department of Natural Resources
(902) 679-6093
netteal@gov.ns.ca

Canada Lynx (*Lynx canadensis*)

Mike O'Brien
NS Department of Natural Resources
(902) 679-6093
obrienms@gov.ns.ca

Piping Plover (*Charadrius melodius*)

Diane Amirault
Canadian Wildlife Service, EC
(506) 364-5060
diane.amirault@ec.gc.ca

Roseate Tern (*Sterna dougallii*)

Sherman Boates
Department of Natural Resources
(902) 679-6146
boatesjs@gov.ns.ca

Peregrine Falcon (*Falco peregrinus anatum*)

Holroyd, Geoff
Environment Canada
(780) 951-8689
geoffrey.holroyd@ec.gc.ca

Harlequin Duck (*Histrionicus histrionicus*)

Bill Montevecchi
Memorial University
709) 737-7673
mont@morqan.ucs.mun.ca

Blanding's Turtle (*Emydoidea blandingii*)

Tom Herman
Acadia University
(902) 585-1469
tom.herman@acadiau.ca

Sherman Boates
Department of Natural Resources
(902) 679-6146
boatesjs@gov.ns.ca

Wood Turtle (*Clemmys insculpta*)

Tom Herman
Acadia University
(902) 585-1469
tom.herman@acadiau.ca

Mark Elderkin
Department of Natural Resources
(902) 679-6219
elderkmf@gov.ns.ca

Eastern Ribbonsnake (*Thamnophis sauritus*)

Tom Herman
Acadia University
(902) 585-1469
tom.herman@acadiau.ca

Richard Wassersug
Dalhousie University
(902) 494-2244
tadpole@dal.ca

Atlantic Whitefish (*Coregonus canadensis*)

Larry Marshall
Department of Fisheries and Oceans (DFO)
(902) 426-3605
marshalll@mar.dfo-mpo.gc.ca

John Gilhen
NS Museum of Natural History
(902) 424-7370
gilhenja@gov.ns.ca

Atlantic Salmon (Inner Bay of Fundy Population) (*Salmo salar*)

Larry Marshall
Department of Fisheries and Oceans (DFO)
(902) 426-3605
marshalll@mar.dfo-mpo.gc.ca

For Any Plant Species:

Sherman Boates
NS Department of Natural Resources
(902) 679-6146
boatesjs@gov.ns.ca

Mark Elderkin
Department of Natural Resources
(902) 679-6219
elderkmf@gov.ns.ca

Boreal Felt Lichen (*Erioderma pedicullatum*)

Mark Elderkin
Department of Natural Resources
(902) 679-6219
elderkmf@gov.ns.ca

APPENDIX 5: Guide for Developers



A Guide for Developers:

The case for proactive consideration of wildlife and their habitats in land use planning and development

WHY IS EARLY CONSIDERATION OF WILDLIFE BEST?

Often wildlife, habitat, and the natural environment are not considered early on in the planning and development process. If a wildlife concern is identified after a development is underway it can result in more costs and effort than if a proactive approach had been taken. *There are quite a few reasons to consider wildlife and their habitats early on in development:*

Business Advantages:

There are business advantages to integrating species at risk, wildlife, and habitat needs into development planning at an early stage, prior to submitting plans to the approving agencies:

- ▶ Costly mitigation measures may be avoided if land clearing and construction are planned with wildlife concerns in mind
- ▶ Speedier review by agencies reviewing and approving the proposal
- ▶ Less time and money spent redesigning projects to gain development approval
- ▶ Maintaining natural habitat areas may lessen landscaping costs
- ▶ Higher market value and selling features for housing developments that preserve wildlife viewing opportunities and green space amenities
- ▶ Possible tax benefits for park land donations or covenants
- ▶ Higher densities or other allowances may be given for some portions of the land if critical habitat areas are set aside
- ▶ Securing funding

Legal Requirements:

There are laws protecting species at risk, wildlife, and their habitat on all private and crown land in NS and developers and all citizens must not violate these laws:

- ▶ NS Endangered Species Act (1998) protects species at risk, on all private lands and provincial crown (public) lands, from being killed, injured, disturbed
- ▶ NS Wildlife Act (1989) provides the regulatory framework for the harvest, use, and protection of wildlife species in NS and linkages with other relevant legislation
- ▶ The federal Species at Risk Act (2004) protects all fish and bird species at risk on all lands in NS and all species at risk on federal lands
- ▶ Some of the other relevant legislation: Fisheries Act, Migratory Birds Convention Act

Community Concerns:

There is considerable support for companies demonstrating that they are good community citizens and environmental stewards. Addressing local conservation concerns at an early stage can:

- ▶ Promote goodwill in the community which is positive for
- ▶ Lessen criticism at the public hearing stage

WHAT CAN YOU DO?

- ▶ Ensure that you are aware of all municipal, provincial, and federal bylaw and legislation in place that relate to wildlife
- ▶ Inquire whether there are species at risk present on your property prior to development
- ▶ Contact us at NS Department of Natural Resources with any questions regarding species at risk, wildlife, or habitats

CONTACT US:

Samara Eaton and Sherman Boates, Wildlife Division, NS Department of Natural Resources, Kentville, NS B4N 4E5
Phone: (902) 431-8089, Email: sameaton@eastlink.ca



<http://www.speciesatrisk.ca/municipalities/>