

**Southwest Nova Scotia Habitat Conservation Strategy
Summary Report January 2017**

Habitat Conservation Priority – Grasslands and Agro-ecosystems

The following represents one of a series of summary documents that have been developed to aide in the dissemination of information presented in the *Southwest Nova Scotia Habitat Conservation Strategy*. For more detailed information, please see the final report, Farrow & Nussey 2015.

Grasslands are open, herbaceous habitats dominated by assemblages of grasses and forbs. Prior to European settlement, natural grasslands were likely uncommon within the bioregion and historically have been associated with various types of agricultural lands (e.g., hayfields, pasture lands), which may serve as habitat for grassland-associated wildlife. These cultivated and managed areas, particularly those near water, are used by a broad variety of species and can be areas of high biological diversity (Environment Canada 2013). There are a number of federally listed and BCR 14 priority bird species within the bioregion that are strongly associated with this habitat type and require grasslands for nesting and foraging habitat, especially agricultural hayfields in eastern North America (Environment Canada 2013). Several of these grassland-associated species are exhibiting major continent-wide declines, including the Bobolink, Savannah Sparrow, Short-eared Owl, Rusty Blackbird, Barn Swallow, and Common Nighthawk (Environment Canada 2013; NABCI 2012). A variety of non-grassland dependent species also use this habitat type for foraging and nesting, including waterfowl and Wood Turtle (COSEWIC 2007). Threats to grassland-associated species include incompatible farming practices, such as mowing during the breeding season, the loss of pasture lands to cropland and old field succession, and contamination of food sources, declines in prey availability, or direct mortality as a result of pesticide use (Environment Canada 2013). Within the bioregion, grasslands occur predominantly within the network of agricultural lands, located primarily within the Annapolis Valley. Smaller concentrations of agricultural activity occur in Lunenburg, Digby, and Yarmouth counties, with additional pockets embedded throughout the bioregion, often occupying the region's abundant and fertile drumlins (Neily *et al.* 2003). Conservation of grassland and agro-ecosystem habitats within the bioregion will contribute to the conservation of at least 60 priority species.

Nested conservation priority species

- Wood Turtle (TH)
- Bobolink (TH)
- Short-eared Owl (SC)
- Rusty Blackbird (SC)
- Barn Swallow (TH)
- Common Nighthawk (TH)
- Eastern Meadowlark (TH)

Landscape context assessment of grasslands and agro-ecosystems: Fair

Figure 1 shows the location of all lands used for agriculture, including lands used for tilled crops, pasture, hayfields, and orchards; therefore, only some proportion of these areas represent suitable habitat for grassland-associated species. Compared to historical levels, in Nova Scotia there are fewer but larger farms employing more intense farming practices occurring on approximately 7% (400,000 ha) of the provincial land base with forage (i.e., hay) making up over 170,000 (70,000 ha; Province of Nova Scotia 2012). Many marginal farmlands have been abandoned, giving way to old field forest succession (Neily *et al.* 2003), and further losses of grasslands occur when agricultural lands used for hay and pasture lands are converted to other uses, such as tilled cropland or development.

Condition assessment of grasslands and agro-ecosystems: Fair

Grasslands within the bioregion are both dependent upon and threatened by human land-use practices. In addition to habitat loss as a result of changes in agricultural land-use practices (i.e., the loss of hayfields and pasture lands to cropland or old field succession), threats to grassland-associated species include incompatible farming practises such as mowing during the breeding season, and pesticide application (Environment Canada 2013). Early and more frequent (i.e., more than once a season) hay harvests do not allow for sufficient time for breeding birds to complete their nesting cycle.

Size assessment of grasslands and agro-ecosystems: Unknown

It is difficult to assess the size viability of grasslands within the bioregion as we do not currently have a good understanding of the total area and distribution of this habitat type. Nonetheless, there appears to be a general reversion of abandoned agricultural areas to early successional forest vegetation types in the bioregion, and consequently a reduction in the abundance and availability of grassland habitat. In 2006, active farmland represented only about one-third of that used in 1901 (NSALRC 2010), and agricultural lands continue to decline as a result of urban development (Environment Canada 2013).

Southwest Nova Scotia Grasslands and Agro-ecosystems

Current threats to grasslands and agro-ecosystems

- 2.1 Annual and perennial non-timber crops
- 2.3 Livestock farming and ranching
- 8.1 Invasive plants
- 9.3 Agricultural and forestry effluents

Overall assessment of grasslands and agro-ecosystems in the Southwest Nova Scotia bioregion: Fair

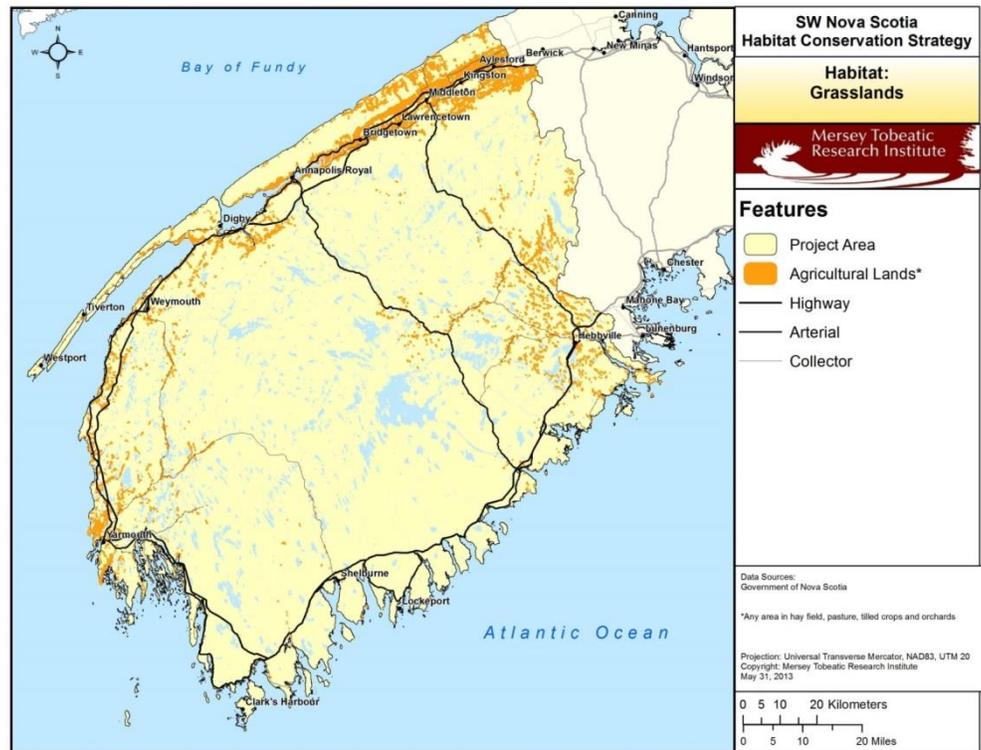


Figure 1. Grasslands and agro-ecosystems within the Southwest Nova Scotia bioregion.

References

- Anderson, M. G., *et al.* 2006. The Northern Appalachian / Acadian Ecoregion: Ecoregional Assessment, Conservation Status and Resource CD. The Nature Conservancy, Eastern Conservation Science, and the Nature Conservancy of Canada, Atlantic and Quebec Regions.
- COSEWIC. 2007. COSEWIC assessment and update status report on the Wood Turtle *Glyptemys insculpta* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa.
- Environment Canada. 2013. Bird Conservation Strategy for Bird Conservation Region 14 and Marine Biogeographic Units 11 and 12 in Nova Scotia: Atlantic Northern Forest, Scotian Shelf and Bay of Fundy, and Gulf of St. Lawrence. Canadian Wildlife Service, Environment Canada, Sackville, NB.
- Farrow, L. J. & P. Nussey. 2015. Southwest Nova Scotia Habitat Conservation Strategy. Mersey Tobeatic Research Institute, Kempt, NS.
- Neily, P. D., E. Quigley, L. Benjamin, B. Stewart, & T. Duke. 2003. Ecological Land Classification for Nova Scotia: Volume 1 - Mapping Nova Scotia's Terrestrial Ecosystems. Nova Scotia Department of Natural Resources, Renewable Resources Branch, Report 2003-2.
- Nova Scotia Agricultural Land Review Committee (NSALRC). 2010. Preservation of Agricultural Land in Nova Scotia. A report prepared for the Nova Scotia Department of Agriculture.
- Province of Nova Scotia. 2012. On Nova Scotia Farms: A Teacher's Guide to Nova Scotia Agriculture. Agricultural Education Office of the Nova Scotia Department of Agriculture.

Table 1. Conservation actions related to grasslands and agro-ecosystems for conservation partners in the Southwest Nova Scotia bioregion.

Conservation Actions¹ Description of related action (specific and measurable if possible)	Collaborators	Importance²	Date for Completion	Priority Habitat(s)³	Primary Related Threat(s)
1. Land/Water Protection					
2. Land/Water Management					
2.1 Site/Area Management Inform and implement the North American Waterfowl Management Plan (NAWMP) and conduct waterfowl surveys as required by the plan.	EC, EHJV, USFWS, USGS	Necessary	Ongoing	Tidal Marshes, Tidal Flats, Freshwater Wetlands, Grasslands, Floodplain Systems	
2.2 Invasive/Problematic Species Control Establish a structure to facilitate collaboration and strategic decision making regarding invasive species control techniques.	NCC, MTRI	Beneficial	2020	All	8.1 Invasive/ alien species/ diseases
2.2 Invasive/Problematic Species Control Raise awareness of invasive species in Nova Scotia and the role they play in ecosystems through the Backyard Biodiversity project.	PC, MTRI	Beneficial	Ongoing	All	8.1 Invasive / alien species/ diseases
3. Species Management					
3.2 Species Recovery Engage and consult with all partners in the development of SAR recovery documents, and support the activities described within recovery documents for the schedule of studies for SAR and the identification of their critical habitat within the SWNS bioregion.	EC, NSDNR, Academic Institutions, NSNT, NCC, MTRI	Necessary	Ongoing	All	
4. Education and Awareness					
4.3 Awareness and Communications Address habitat threats through the education and engagement of stakeholders, landowners, and landusers.	NSNT	Beneficial	Ongoing		
4.3 Awareness and Communications Engage in partnerships with agricultural producers and practitioners to improve the conservation and restoration of wetland habitat in the agricultural landscape, primarily through the promotion and delivery of Agricultural Biodiversity Conservation (ABC) Plans, which allow farmers to clearly identify existing and potential Beneficial Management Practices (BMP's) that will promote the maintenance or enhancement of biodiversity on farms.	EHJV	Necessary	Ongoing	Freshwater Wetlands, Grasslands	2.1 Incompatible agricultural practices

¹ Categories based on IUCN – CMP Unified Classification of Conservation Actions Needed (Version 2.0). Actions are meant to be specific and measurable if possible, and are not listed in order of importance.

² CRITICAL: Conservation actions that, without implementation, would clearly result in the reduction of viability of a biodiversity target or the increase in magnitude of a critical threat within the next 5-10 years. Also includes research information that is needed before key decisions can be made on the management of biodiversity targets. NECESSARY: Conservation actions that are needed to maintain or enhance the viability of biodiversity targets or reduce critical threats. Also includes research that will assist in decisions on management of biodiversity targets. BENEFICIAL: Conservation actions that will assist in maintaining or enhancing viability of biodiversity targets and reducing threats.

³ Priority Habitats: Beaches and dunes, tidal marshes, tidal flats, coastal islands, freshwater wetlands, Acadian forest, riparian/floodplain systems, grasslands/agro-ecosystems, barrens.

Southwest Nova Scotia Grasslands and Agro-ecosystems

Conservation Actions ¹ Description of related action (specific and measurable if possible)	Collaborators	Importance ²	Date for Completion	Priority Habitat(s) ³	Primary Related Threat(s)
4.3 Awareness and Communications Continue to engage local citizens through outreach and social media to create habitat for the Monarch Butterfly by joining the Butterfly Club and planting butterfly gardens at their homes, businesses, community centers, and schools.	MTRI, PC	Beneficial	Ongoing	Freshwater Wetlands, Grasslands, Riparian and Floodplain Systems	
5. Law and Policy					
5.1.2 Legislation (National level) Implement the Migratory Bird Convention Act, Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, Species at Risk Act, Canadian Environmental Protection Act, Canada Wildlife Act, Environmental Enforcement Act, Canadian Environmental Assessment Act, Fisheries Act.	EC, DFO	Necessary	Ongoing		
6. Livelihood, Economic, and Other Incentives					
6.4 Conservation Payments Implement and encourage the use of EC Ecological Gifts (Ecogifts) program.	EC, NCC, NSNT	Necessary	Ongoing	All	
7. External Capacity Building					
7.2 Alliance and Partnership Development Provide EC-CWS input into: Staying Connected Initiative, Western Hemispheric Shorebird Reserve Network, and Important Bird Areas.	EC through collaboration with many partners	Beneficial	Ongoing	All	
7.3 Conservation Finance Communicate, inform, and increase awareness related to funding opportunities for conservation: <i>North American Wetland Conservation Act</i> (NAWCA)/Eastern Habitat Joint Venture (EHJV), North Atlantic Landscape Conservation Cooperative (NALCC); National Conservation Plan (NCP): Atlantic Ecosystems Initiative (AEI), Habitat Stewardship Program (HSP), Aboriginal Fund for Species at Risk (AFSAR), National Wetland Conservation Fund (NWCF).	EC, US Federal and State partners	Necessary	Ongoing	All	
7.3 Conservation Finance Continue to engage longstanding/key funding partners to support conservation work in the SWNS bioregion.	NCC, MTRI, NSNT, ENGOS	Necessary	Ongoing	All	