# STATE of the STRAIT

## ECOLOGICAL BENEFITS OF HABITAT MODIFICATION







DETROIT RIVER AND WESTERN LAKE ERIE

2010

**Cover photos:** DTE's River Rouge Power Plant in Michigan by Chris Lehr/Nativescape LLC; Lower left: Legacy Park in Windsor, Ontario by Essex Region Conservation Authority; Lower middle: Elizabeth Park in Trenton, Michigan by Emily Wilke/Detroit River International Wildlife Refuge; Lower right: Fort Malden in Amherstburg, Ontario by Essex Region Conservation Authority.

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# 5.8 Small-Scale Habitat Enhancements within the Canadian Detroit River Area of Concern

Introduction

"It was realized in the latter half of the nineteenth century that too much timber had been wastefully cut; in many cases only to reveal land that was not profitable to farming. Some criticized earlier generations which had 'ripped away' the forest. They believed that the solutions to the problems lay in replacing the trees" (ERCA 1986). This paraphrasing of the Bureau of Forestry in 1885 reveals the fact that the negative consequences of human settlement on the environment and on sustainable land use has long been realized. How far have we come with respect to "replacing the trees" since 1885? The natural area status of the Essex Region today can best be described as still fragmented and degraded with one of the lowest percentages of natural cover in all of Ontario -7.5%.

#### Objectives

In 1998, Environment Canada, the Ontario Ministry of Natural Resources, and the Ontario Ministry of Environment and Energy produced a document entitled, "A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern" (1998). This document was further published as a second edition in 2004 entitled, "How Much Habitat is Enough?" (Environment Canada 2004). These documents provided the science-based guidelines from which the Essex Biodiversity Conservation Strategy was developed (ERCA 2002). The purpose of the Biodiversity Conservation Strategy (BCS) was to produce a spatial database of all natural areas within the Essex Region and, utilizing the Environment Canada framework, conduct an analysis of the terrestrial, wetland, and riparian habitats to identify the extent of existing natural vegetation and prioritize opportunities for habitat rehabilitation and enhancement. The objective was to increase the size, extent, and quality of key natural heritage features, natural corridors, and greenway linkages, thereby improving the ecosystem diversity and ecological functions of the Essex Region. In addition, by applying the framework to the Detroit River Area of Concern, the BCS is assisting in addressing and delisting the impaired beneficial use – loss of fish and wildlife habitat.

By adapting the BCS to the Essex Region landscape, we now have a vision for the future with respect to core natural areas, buffers and linkages, which builds upon what currently exists in the landscape. Prior to European settlement, the Essex Region primarily consisted of a Pin Oak (*Quercus palustris*) swamp with some areas of upland Carolinian forest and tallgrass prairie existing on the drier sandier soils. Although there are still remnants of these significant ecosystems left in our region, extensive tile drainage for agriculture has significantly altered the region's natural hydrology, and therefore the opportunity for pure "restoration" may be extremely difficult. Nevertheless, by applying the guidelines to our region, we should see a positive response.

General BCS Guidelines include (Figure 1):

- Forest shape and proximity to other areas: circular or square in shape and in close proximity to adjacent patches (within 2 km; 1.2 miles);
- Fragmented landscapes and the role of corridors: minimum 100-meter-wide corridors designed to facilitate species movement;
- Percent of natural vegetation along first- to third-order streams: 75% of stream length should be naturally vegetated either woody or grassy;
- Amount of natural vegetation adjacent to streams: generally, 30 meters of naturally vegetated buffer on both sides would be optimal; and
- Amount of natural vegetation adjacent to wetland: 240 meters.

The Biodiversity Conservation Strategy focuses primarily on riparian and upland habitats. In-water habitats and the organisms that rely on them for all or parts of their life



Figure 1. Application of the restoration guidelines at the mouth of the Canard River in Amherstburg, Ontario and along the Detroit River. Textured areas are those that fit BCS guidelines.

cycles were not specifically addressed. In order to address fish habitat, a separate Fisheries Management Planning process will need to be undertaken.

Specifically, implementation of the Biodiversity Conservation Strategy will result in an increase in:

- Wetland and upland vegetation cover;
- Natural vegetation adjacent to wetlands and along first- to third-order streams;
- First- to third-order streams with buffers up to 30-meters-wide; and
- Linkage/connectivity of disjunct habitat fragments.

#### Methods

In 1996, the Ontario Ministry of Natural Resources created a private land stewardship program, called Ontario Stewardship, from three pilot projects. These pilot projects have grown to 45 community-based councils across southern Ontario and a network that is expanding in the north.

These stewardship councils are guided by local farmers, landowners, naturalists and sportsmen who work with interested parties and partner groups to improve their local environments. The councils foster an ethic of caring for the land, requiring the personal actions and commitments to sustain the land for future generations. These voluntary actions are structured in a way that the landowners can influence the local stewardship actions. Respecting the property owner's rights is one of the key goals to making stewardship action sustainable and successful. With the landowners, community partners, NGOs, provincial and federal governments, the Essex County Stewardship Network (ECSN) is working at a grassroots level to create needed habitat within the county. These projects also work to assist with local water quality and quantity concerns, deal in a positive manner with Species at Risk, and provide youth engagement opportunities.

Meeting with the landowners, the ECSN begins to work with them to plan out the owners' ideas for their land. Once council support has been achieved, the resources of the ECSN are guided in obtaining funding, permitting, and other expertise from partners to complete the project. The ECSN uses the BCS, along with the Carolinian Canada's The Big Picture, The Nature Conservancy of Canada's Binational Conservation Blueprint and Conservation Action Plan for Essex County, along with local knowledge from adjacent projects to complete design and assist with implementation.

Habitat projects include wetland creation, wetland restoration, reforestation, and meadow and tallgrass prairie plantings. Youth and public engagement projects are also part of the ECSN council's mandate. Plantings include up to 18 species of trees and shrubs along with 25 species of grasses and forbs to aid in and preserve local biodiversity. These projects are working collectively to meet the delisting criteria of the Detroit River AOC and its partners through the Biodiversity Conservation Strategy.

#### **Results and Discussion**

The Sanson Estate Winery project is a 13.35-hectare (33-acre) restoration project involving wetlands, meadows and forest. The project addresses the Beneficial Use Impairments numbers 3, 11, 14 and 15. The goals of the project were to improve habitat for nature and recreation, settle agricultural sediments from water prior to entering into the Canard watershed, and restore the floodplain hydrology. This multiyear project has involved nine partners and funders, numerous volunteers and the landowner's friends and family.

The Caba Property project involved a rural nonfarm landowner's goals to improve his



Figure 2. Caba vernal pool created in 2005. Photo from June 2008.

property's habitats for recreation and nature, and to improve local diversity by adding small wetlands and vernal pools to a site that has been artificially drained (Figure 2). The landowner has undertaken most of the work himself and asked for some funding and permitting support. This was also a multiyear project with work underway since 2002 in twoyear stages. Monitoring of the site by neighbors has noted over 128 species of birds using the site at different times of the year.

The Gesto Connection project involved four separate landowners and five properties in the mid-reaches of the Canard River. Habitat fragmentation was the key AOC Beneficial Use Impairment addressed by this project with 6 hectares (15 acres) of woodland, vernal pools and meadows being planted to connect two fragmented woodlands back into the Canard River valley. 1.1 km of riparian habitat was created along a private farm drain enhanced with vernal pools to slow drainage, keeping sediments from the river system.

The ECSN has completed numerous projects within the Detroit River AOC since the 2001 start of the Canard and Detroit River Stewardship Initiative (Table 1). This initiative funded in part by the Great Lakes Sustainability Fund, the Canada-Ontario Agreement Fund, the Ontario Ministry of Natural Resources, and other local sources has completed:

- 15 ha (37.1 acres) of wetland creation and restoration;
- 35.7 ha (88.2 acres) of reforestation;
- 31.86 ha (78.7 acres) of meadow and tallgrass prairie plantings; and
- 16.75 ha (41.4 acres) of riparian plantings.

Table 1. The extent of projects that have been completed from 2001 to 2008 which have assisted in implementing the BCS restoration recommendations.

Project (watershed)	In Water	Riparian/	Wetland	Total area	Fiscal
		Upland		ac=acres	Year
Roberts Site (Canard)			2ha/5ac	2ha/5ac	2001/02
Brunet Park (Turkey)		1.6ha/4ac		1.6ha/4ac	2001/02
Turkey Creek Enhancement		2.7ha/6.7ac		2.7ha/6.7ac	2001/02
(Turkey)					
McGregor Lagoons (Canard)		40ha/100ac	1.2ha/3ac	41.2ha/103ac	2001/02
Canadian Signs Site (Little)		5.7ha/14ac	0.4ha/1ac	6.1ha/15ac	2001/02
Fackrell (Canard)	0.6ha/1.5ac	16.6ha/41ac	1.2ha/3ac	18.4ha/45.5ac	2002/03
McKee Park (Detroit)	1ha/2.5ac	0.2ha/0.5ac		1.2ha/3ac	2002/03
Aalbers Site (Canard)		3ha/7ac		3ha/7ac	2002/03
Rocheleau Site (Canard)		8ha/20ac	0.8ha/2ac	8.8ha/22ac	2002/03
Bovenkamp Site (Canard)		12.1ha/30ac		12.1ha/30ac	2002/03
Aalbers Site (Canard)		28ha/70ac		28ha/70ac	2003/04
Fort Malden (Detroit)	0.8ha/2ac			0.8ha/2ac	2003/04
Riding (Canard)		1.6ha/4ac	0.4ha/1ac	2ha/5ac	2003/04
Coates (Detroit)		6ha/13ac		6ha/13ac	2004/05
Higgs-Poling (Canard)		4ha/10ac		4ha/10ac	2004/05
Smith (Canard)		12ha/30ac		12ha/30ac	2004/05
McCormick (Canard)		5ha/12ac		5ha/12ac	2004/05
Vollmer (Canard)		4ha/10ac		4ha/10ac	2004/05
Minnett (Canard)		4ha/10ac		4ha/10ac	2005/06
Vollmer (Canard)		12ha/30ac		12ha/30ac	2005/06
Various landowners (Canard)		4.5ha/11ac		4.5ha/11ac	2005/06
Various landowners		30ha/75ac		30ha/75ac	2006/07
Various landowners		20ha/50ac		20ha/50ac	2007/08
Total Area	2.4ha/6ac	220ha/546ac	6ha/15ac	229ha/566ac	2001-2008

#### Conclusions

Working with community partners, interested people and landowners, the ERCA and the ECSN are making progress in addressing habitat loss and fragmentation through the BCS. Enhancing environmental initiatives provides opportunity for local people to become involved in partnerships for the restoration of habitats in Essex County. These partnerships, through sharing and cooperation, are helping to extend limited funds to the maximum number of partners. The community partners working together and using the BCS are creating a healthier, sustainable and more ecologically diverse environment for the county.

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