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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5.1 Keynote Address: The Detroit River and Western Lake Erie: Restoring to the Future

Introduction

Detroit River and western Lake Erie ecosystems have been impacted by overfishing, industrialization, and growth and expansion of the human population throughout the watershed (Manny et al. 1988; Hartig and Stafford 2003). Despite the degradation of these ecosystems, this region has been resilient in many ways and numerous indicators show ecological recovery despite continued pressures (Hartig et al. 2007). Remnant natural features still exist where additional benefits of restoration can be realized from the species to the ecosystem level, including improvements to the quality of life for over six million people who live in the region. Ecological restoration in the Detroit River and western Lake Erie seeks to reconstruct areas into functioning ecosystems to reclaim habitats, restore species, and enhance ecosystem services.

Although there are many definitions of ecological restoration, the most common one comes from the Society for Ecological Restoration International (Society for Ecological Restoration International 2004):

> *Ecological restoration is the process of assisting with the recovery of an ecosystem that has been degraded, damaged or destroyed.*

SER International considers ecological restoration the intentional recovery of the health, integrity and sustainability of ecosystems (Society for Ecological Restoration International 2004). In this view, restoration is driven by attempts to resume lost ecosystem functions and processes.

Ecological restoration takes many different forms: invasive species are controlled; barriers to fish passage eliminated; native species reintroduced; and shorelines and landscapes modified. In some regions, reintroducing land use practices of indigenous people and the transferring of indigenous ecological knowledge to the next generation is an important part of ecological restoration (Society for Ecological Restoration International 2004).

The benefits of ecological restoration go beyond the preservation of plant, animal, and natural communities. Society directly benefits from these ecosystems in the form of economic, social, and health services. The U.S. Environmental Protection Agency (2009a) defines ecosystem services as functions and processes ecosystems provide that ensure our health and well-being. Some of these services come in the form of water quality improvement, flood control, pollinator diversity, pest control, soil fertility, and mental health.

This extended abstract presents a summary of the keynote address delivered at the 2009 State of the Strait Conference, including: an overview of the area's biodiversity; the importance of ecological restoration and its relationship to the greening of communities and industry, public-private partnerships, education, and project planning and implementation; and the need for regional involvement in planning and resource management. Finally, this abstract will offer a perspective on ecological restoration as it relates to our culture and the value of nature.

Centerpiece of the Great Lakes

The *Rivière du Détroit*, or "River of the Strait," and western Lake Erie are situated in a geographically unique place. They lie between the upper and lower Great Lakes and are shared by both Canada and the United States. Natural communities include remnant marshes, shoals, islands, lakeplain prairies and oak savannas (Comer et al. 1995). The North American Waterfowl Management Plan, the United Nations Convention on Biological Diversity, the Western Hemisphere Shorebird Reserve Network, and the Biodiversity Investment Areas Program of Environment Canada and the U.S. Environmental Protection Agency all acknowledge the region's wildlife significance (U.S. Fish and Wildlife Service and International Wildlife Refuge Alliance 2008).

The region contains numerous natural features of ecological significance, including fish spawning and nursery areas, waterfowl staging areas, extensive submersed aquatic macrophyte beds, migratory bird stopover habitats, and unique Great Lakes coastal wetland plant and animal communities to name a few. The Detroit River and its tributaries, including the Rouge, Little, and Ecorse rivers, Conner, Marsh, and Turkey creeks, and the River Canard, drain approximately 2,000 square km. Lake whitefish recently successfully spawned (Roseman et al. 2007) and the threatened lake sturgeon has a small population in the Refuge (Caswell et al. 2004). Walleye, bass, steelhead and salmon migrate through the river each year. Bald eagles are nesting along the river again (Best and Wilke 2007). The region is highly significant as a staging and wintering area for North America's canvasback, redhead, greater and lesser scaup, and American black duck populations (U.S. Fish and Wildlife Service 2005).

Restoring to the Future

The Great Lakes have a rich history in environmental initiatives. The Great Lakes Water Quality Agreement is a commitment between Canada and the United States "to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem." Great Lakes Areas of Concern (AOC) are severely degraded areas of the basin that are defined in the agreement as "geographic areas that fail to meet the general or specific objectives of the agreement where such failure has caused or is likely to cause impairment of beneficial use of the area's ability to support aquatic life" (U.S. Environmental Protection Agency 2009b). More recently in the U.S., the Great Lakes Regional Collaboration and now the Great Lakes Restoration Initiative are working to implement long-term plans for Great Lakes restoration.

These major initiatives have accelerated implementation of many restoration projects that have been in the planning phase and have also catalyzed many new ones. The Stewardship Network exposes volunteers and organizations to expert knowledge and

techniques for restoring habitat. The Wildlife Habitat Council works with industry partners to certify projects and help with restoration projects.

The Ojibway Prairie Remnants Area of Natural and Scientific Interest is a 127-hectare complex of parks and nature reserves (Ojibway Nature Center 2007). The area holds some of the last remaining prairie habitat in the Detroit River-western Lake Erie basin.

The Rouge River is a major tributary that flows into the Detroit River. Numerous restoration projects have been completed on this tributary, including the Rouge River National Wet Weather Demonstration Project, the rebuilding of Ford Motor Company's Rouge Plant as a model of green manufacturing and as an ecotourism destination, the restoration of an oxbow at The Henry Ford – Greenfield Village, streambank stabilization at the Henry Ford Community College, a new state-funded Environmental Interpretive Center and a fish ladder around a landmark dam on the University of Michigan–Dearborn campus.

Restoring the Detroit River and western Lake Erie requires a multi-stakeholder approach. The numerous landowners, including local, state, and federal governments, industry, and private citizens along many stretches of the river, present an enormous challenge and require innovative, strategic, and often very novel conservation efforts (U.S. Geological Survey 2009).

The Detroit River International Wildlife Refuge is the only international wildlife refuge in North America. The Refuge consists of islands, wetlands, shoals and river habitats scattered along 77 km of the Detroit River and western Lake Erie (U.S. Fish and Wildlife Service 2009). Restoration of fish and wildlife habitat, including new approaches such as soft shoreline engineering in the Refuge's over 5,600 acres, is a major priority for the Refuge. Another top priority is to conserve 12,000 acres through acquisitions, easements, and cooperative agreements. Recently in 2009, Waste Management donated 145 hectares (358 acres) of coastal wetlands, one of the last coastal wetland sites in Wayne County, to the Refuge.

Ecological restoration also includes addressing contaminant and other pollution issues. Urban and industrial development in the watershed, contaminated sediment, brownfields, combined sewer overflows, stormwater runoff, and municipal and industrial discharges are major sources of contaminants within the Detroit River AOC. Environment Canada, U.S. Environmental Protection Agency, Ontario Ministry of Environment, and Michigan Department of Environmental Quality are working to restore impaired beneficial uses within the AOC. Since 2005, the Friends of the Detroit River has been the coordinator of the Public Advisory Council for the U.S. In Canada, the Essex Region Conservation Authority supports Detroit River cleanups and enhancements, and has developed partnerships for river-related actions (Essex Region Conservation Authority 2009).

In 2005, the "Black Lagoon" on the Detroit River was cleaned up and was the first fully-funded project under the Great Lakes Legacy Act (U.S. Environmental Protection Agency 2009c). The U.S. Environmental Protection Agency's Great Lakes National Program Office and the Michigan Department of Environmental Quality coordinated the removal

of 87,924 cubic meters (115,000 cubic yards) of contaminated sediment from a small embayment on the Trenton Channel at a cost of $9.3 million. Following sediment remediation, the City of Trenton received a $151,000 grant to restore a natural shoreline on the Black Lagoon. In recognition of this cleanup, the Black Lagoon was renamed Ellias Cove and is now a place to recreate instead of avoid.

Funding for restoration is available through a variety of grant programs in the National Oceanic and Atmospheric Administration, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and the U.S. Forest Service. All of these agencies have grant programs and are preparing for the next round of requests for proposals. In Canada, the next Canada-Ontario Agreement is now being negotiated to provide funding for restoration.

Observations and Final Thoughts

On February 7, 2009, Doug Ladd of The Nature Conservancy of Missouri gave the keynote address at the Chicago Wilderness Wild Things Conference (Ladd 2009). He relayed several important personal observations about natural resource restoration to an audience of natural resource managers and restoration volunteers. He stated that we need to recognize our ignorance of the very natural resources we are protecting and restoring. We have so much to learn, yet we can't always wait to act because if we wait too long these resources will be gone or altered forever. I believe that action should be guided by the best that science can currently provide.

Two key ideas stated not only by Ladd but by restorationists the world over are: do no harm to existing natural areas and be vigilant in protecting the irreplaceable. This means avoiding the "false prophets of universal greenery." "Nature," in Ladd's words, "is never simple and never universal." People are and always have been a part of the biological system; nature is always being shaped by the actions of a diversity of peoples. We need to think and grow beyond the borders of the individual sites we work on. We need, therefore, to nurture a permanent stewardship ethic that is built into our culture.

Finally, we need "sacred places" (Swan 1990).

> *When we save a river, we save a major part of an ecosystem, and we save ourselves as well because of our dependence–physical, economic, spiritual–on the water and its community of life.*
>
> Tim Palmer, *The Wild and Scenic Rivers of America* (Palmer 1993)

Are sacred places possible in the Detroit River and western Lake Erie? Yes. In Northwest Indiana off of Interstate 94 lies Gibson Woods Nature Preserve. It's a noisy place, with constant airplane, train and automobile noises, surrounded by chemical plants, steel mills and homes. But it's a lovely oak savanna with an abundance of yellow ladyslipper orchids and a small population of the federally endangered Karner blue butterfly. A volunteer once told me that this is her Yellowstone, her retreat, her place to gather strength and reflect. Be assured that the places we are protecting and restoring here will be appreciated by urban dwellers as sacred places, perhaps for the abundant fish, maybe

for the thousands of migrating birds, most probably for the joy of being in a wild place. This is restoring to the future. This is our future.

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