

Aquatic Species at Risk in the Sydenham River

Mussels

northern riffleshell - **Endangered**
 wavy-rayed lampmussel - **Endangered**
 rayed bean - **Endangered**
 snuffbox - **Endangered**
 mudpuppy mussel - **Endangered**
 kidneyshell - **Endangered**
 round hickorynut - **Endangered**

Fish

northern madtom - **Endangered**
 eastern sand darter - **Threatened**
 spotted gar - **Threatened**
 blackstripe topminnow - **Special Concern**
 pugnose minnow - **Special Concern**
 bigmouth buffalo - **Special Concern**
 spotted sucker - **Special Concern**
 greenside darter - **Special Concern**

Reptiles

Eastern Spiny Softshell Turtle - **Threatened**

Endangered: A species facing imminent extirpation or extinction.

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

Special Concern: A species is of special concern because of characteristics that make it particularly sensitive to human activities or natural events.



eastern spiny softshell turtle

Best Management Practices Fact Sheets

helping species at risk series

- Restricted Livestock Access
- Manure Application
- Manure Storage
- Well Repair and Decommissioning
- Tree Planting
- Fuel & Pesticide Storage
- Wetlands
- Bioengineering for Streambank Stabilization
- Septic Systems
- Clean Water Diversion
- Milkhouse Waste Water
- Conservation Tillage
- Exotic Species
- Riparian Buffers

Partners in Conservation

Environment Canada
 Department of Fisheries and Oceans
 Government of Canada's Species at Risk Program
 Middlesex Stewardship Committee
 Natural Heritage Information Centre
 Ontario Great Lakes Renewal Foundation
 Ontario Ministry of Natural Resources
 Royal Ontario Museum
 Rural Lambton Stewardship Network
 St. Clair Region Conservation Authority
 Stewardship Kent
 University of Guelph
 World Wildlife Fund

Best Management Practices

helping aquatic species at risk

Wetlands

The Sydenham River in southwestern Ontario is the only major watershed which lies completely within the Carolinian Life Zone and is relatively undisturbed by industrial development. This has made the river a biological treasure. The Sydenham River supports an incredible variety of aquatic life, or what we call biodiversity. At least 82 species of fish and 34 species of freshwater mussels have been found here, making it one of the most species rich watersheds in all of Canada. Several species in the Sydenham River are found nowhere else in Canada, and some remain at only a few locations globally. Many of these species at risk have been nationally listed as endangered, threatened, or of special concern by the Committee on the Status of Endangered Wildlife in Canada. You can help too. By adopting Best Management Practices (BMPs), you can help protect the Sydenham River and its tributaries. This series of fact sheets will assist you in deciding which BMPs are right for your property.

A wetland is an area where water is captured and retained at the ground surface for part or all of the year. Wetlands are home to a number of species of water-tolerant plants, insects, reptiles, and mammals. Wetlands are an essential component of the water cycle. They help to protect and filter water, improving its quality, and plays a key role in helping to store and regulate water levels both in terms of flooding and low flow.

Across southwestern Ontario, the number of wetlands has significantly decreased since the beginning of European settlement. Wetlands have been drained in order to increase the land available for development and agriculture. As a result, natural habitat has been lost, water quality has been degraded and damage has occurred to property from the loss of natural flood storage capacity.

- Technical advice and grants may be available to assist in implementing Best Management Practices on your property.
- If your project involves work in or near a watercourse, you may require permits including a Fill, Construction or Alteration to watercourse permit from the Conservation Authority.
- Call before you begin your project.



Wetlands are nature's kidneys - cleaning water by filtering pollutants and absorbing nutrients.



St. Clair Region Conservation Authority
 205 Mill Pond Cr., Strathroy, ON, N7G 3P9
 (519) 245-3710 E-Mail stclair@scrca.on.ca
www.scrca.on.ca

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"Working Towards Healthy Watersheds"

Why are Wetlands Important?

For Water Quality

Wetlands are an excellent natural filtering system as they clean water of contaminants and bacteria.

For Habitat

Many species of plants, mammals, reptiles, amphibians and birds can be found inhabiting a wetland. In the Sydenham River watershed, wetlands are some of the most favoured sites for many rare species.



For Groundwater Recharge

The water from wetlands help to replenish groundwater resources which, in turn, supplies rivers, streams and wells.

For Water Retention

Flood damage is reduced by the presence of wetlands as they store water and release it slowly into rivers and streams. The slow release helps to reduce streambank erosion and maintains a base flow which is important for aquatic species.

For Economic Gain

Wetlands can provide opportunities for recreational activities such as bird watching, hiking and hunting.

How to Create or Restore a Wetland

Creating or restoring a wetland requires obtaining background information on the soils, landuse, hydrology and drainage characteristics of the site. Often the most appropriate sites for wetland creation are areas where drainage is poor, such as depressions in a field or at the edge of woodland or on clay soils. The shape of the wetland should be irregular to increase the shoreline and area for wildlife habitat.

Excavated Ponds

Generally, to restore or create a wetland will require restoring a high water table. An area of land with a higher water table is usually the best place to locate an excavated wetland pond. This location will reduce the cost of creating an excavated wetland as it will require less earth removal. In the case of excavating to create a wetland, contact an engineer or qualified person who will be able to assist in determining an appropriate site for your wetland.

The side slopes of the pond should be gentle (6:1) to encourage a wide range of aquatic plant growth. The depth of the wetland pond should vary from a few centimetres along the edge to 1 - 2 metres in one or more locations. This will increase the plant and wildlife diversity both within the wetland and the surrounding area.

Once the soil and subsoil have been excavated from the wetland site, it will require proper placement. Soil that is removed may be placed at a recommended minimum of 6 metres from the pond edge and then shaped and graded to match the contours of the surrounding land. Topsoil should first be removed and stored separately so that it may be later placed on top of the remaining excavated subsoil to provide a good base for vegetation growth.

Care should be given to ensure that the soil is spread and finished in such a manner that it will not experience or create an erosion problem. Alternatively, all the excess soils may be disposed of off site. Adding, removing or repositioning of fill within a floodplain or other regulated area may require a permit from the Conservation Authority.



Strathroy Marsh Walk involved four excavated ponds which were allowed to develop into a wetland.



Within one year, cattails and other wetland vegetation became established.

Impoundment Wetlands

An alternative is to construct a berm to direct surface water to a carefully selected area. This area must first be surveyed in order to determine the appropriate size and water level of the proposed wetland area. By properly placing a berm to capture water within an existing basin area, a wetland can be created. Berms are typically placed at relatively high areas of land within a gully or flat basin. In the field survey, consideration should be given towards flood avoidance in surrounding fields.

Constructed berms should have a minimum width of 3 metres at the top with sides trimmed to a slope of 3 horizontal to 1 vertical. A culvert is constructed in the berm to act as water outlet. The culvert is installed such that its bottom is at the same level as the high water mark of the proposed wetland area. The outlet culverts should have a seal or seepage collar around their exterior to prevent water seepage which may weaken the berm.

The proposed berm location must be appropriately prepared to ensure the proper functioning of the wetland and to limit potential failure of the berm. The topsoil should first be removed and stockpiled and used to cover the berm and for planting to trees or grasses. All topsoil must be removed from under the berm. If any is left, the water can soak through the berm structure and out of the wetland. With the subsoil exposed, any field tiles or gravel seams that would have drained the wetland can be blocked or interrupted. The berm may then be constructed on site and built or keyed into the native soil for stability.

Wetlands can be protected and enhanced by building a buffer strip around them. This will aid in the filtering of pesticides and nutrients, and help decrease erosion. When livestock are present, they should be fenced out of the wetland.

Both techniques of wetland creation may require permits from the local Conservation Authority or other agencies. Please call before you dig. Advice and financial assistance is available for wetland creation projects.