

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 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 Restricted Livestock Access

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.

The quality of water is significantly degraded in situations where livestock are able to access the waterway. Waterways and watercourses include rivers, streams, drains, and ditches. In every situation possible, livestock should be limited from these watercourses to prevent erosion and contamination of the water. Livestock trample the banks and destroy vegetation, both of which result in increased erosion to the channel. Erosion of the channel banks increases the silt content of the stream. Silt clogs the gills of fish and mussels and smothers crayfish, aquatic insects and fish spawning beds. Livestock also contaminate the water with manure, causing increased bacterial loads. These activities can reduce water quality downstream where others may be using the water from the watercourse. In order to limit livestock access to waterways, methods such as fencing, low-level crossings and alternative watering devices can be used. This fact sheet describes the options to limit livestock from a watercourse. It includes information on how to restrict livestock from the waterway and provides alternative options to watering livestock.

- 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 a Fill, Construction or Alteration to watercourse permit from the Conservation Authority.
- Call before you begin your project.



Livestock, unrestricted from the watercourse, causes erosion and pollution.



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

This brochure funded with support of the Government of Canada's Habitat Stewardship Program for Species at Risk



"Working Towards Healthy Watersheds"

Fencing Options

To prevent livestock from accessing the waterway, one may install permanent or temporary fencing.

Permanent Fencing:

- **page wire fencing** - When choosing this option, the fencing should be located out of areas susceptible to damage from ice.

Pros: - visible to animals
 Cons: - expensive
 - increased installation labour, material and construction equipment

- **barbed wire fencing** - For larger livestock, this fencing consists of 4 strands of barbed wire placed on posts spaced approximately 15 ft. apart.

Pros: - greater repelling action
 Cons: - requires more maintenance
 - susceptible to permanent damage of sagging and failure
 - risk of wildlife injury

- **high-tensile fencing** - The non-electrified version consists of 6-8 strands of wire with posts approximately 15 ft. apart and with stays at mid-points between the posts. The version of electrified high-tensile fencing consists of posts located 30 ft. apart strung with one or two strands of wire.

Pros: - increased strength over barbed wire
 - able to withstand ice and high flow damage
 - less expensive than page wire
 - easier to repair and maintain than page wire
 Cons: - smooth wire may not be as effective as barbed for cattle control

Temporary Fencing:

- Electric fencing can be installed as temporary fencing to restrict livestock. This is attractive due to the reduced cost and ease and speed of installation and removal.

Waterway Crossings

Where a waterway is between two pastures, one should install a livestock crossing so that the livestock can access both areas of pasture. A livestock crossing should limit livestock access to the stream at all times. This means 2 gates (one on

each side of the crossing). The animals should be herded across by the farmer and the gates closed each time. Crossings should be at bed level and fencing should continue along both sides of the crossing. The surface of the crossing should be made from erosion-resistant material such as clean crushed quarry stone. The fencing over the crossing should be installed so that it can be moved to keep livestock out of the water during flood events.

Alternative Watering Sources

Once the waterway is fenced, and the livestock no longer have access to the watercourse, alternative means of watering need to be established. Several choices are available:

Mechanically Driven Pumps

- **nose pumps** - cattle activate the pump with their nose.

Pros: - no auxiliary power is required
 - easily installed
 - low material and installation costs

- **instream water pump** - uses water flow to turn a wheel or turbine to pump water.

Pros: - capable of 7.6 metres of lift
 Cons: - constant flow required (minimum velocity 0.4 m/s, minimum depth of 0.3 m)
 - costs of material and installation higher than nose pumps

- **hydraulic rams** - uses energy produced by falling water through short distance.

Pros: - can lift 5 times the height of falling water
 Cons: - requires flow rate minimum of 4.5 litres/minute.

- **wind mill** - uses wind energy to pump surface or shallow well water.

Pros: - requires only light winds to operate
 Cons: - must be placed in an unprotected area with no interference of winds
 - requires water storage reservoir or a pump for times of low wind velocity

Electrically Driven or Solar Pumps

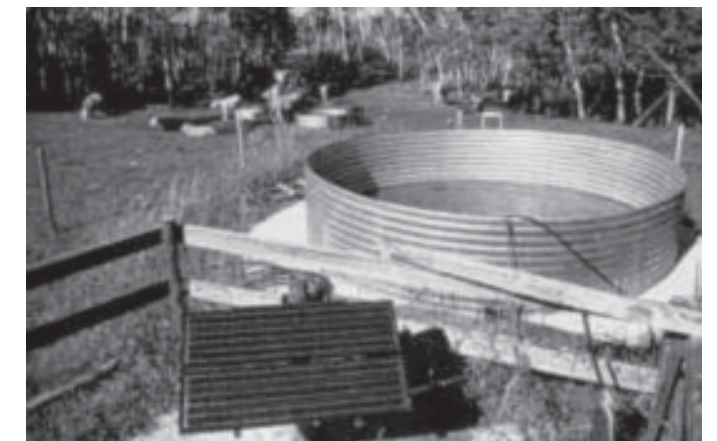
Electrically Driven Pumps operate on a 120 volt AC service or by 12 and 24 volt DC supply. In areas where there is no source of hydro, you require the use of a 12 volt DC marine battery and charging system. Methods used to continuously charge this battery effectively are solar panels, hydro generators and wind generators. Each one requires a voltage regulator to prevent overcharging and a battery saver to avoid draining the battery.



A stream with permanent fencing.



A stream with temporary electric fencing.



solar pump and reservoir