



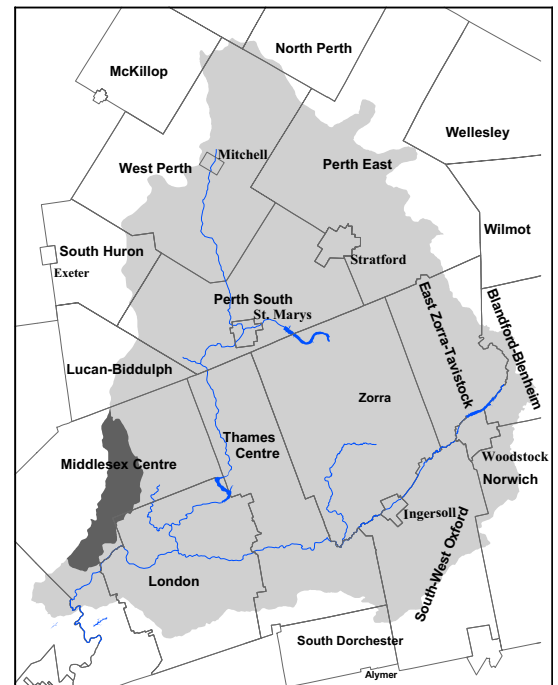
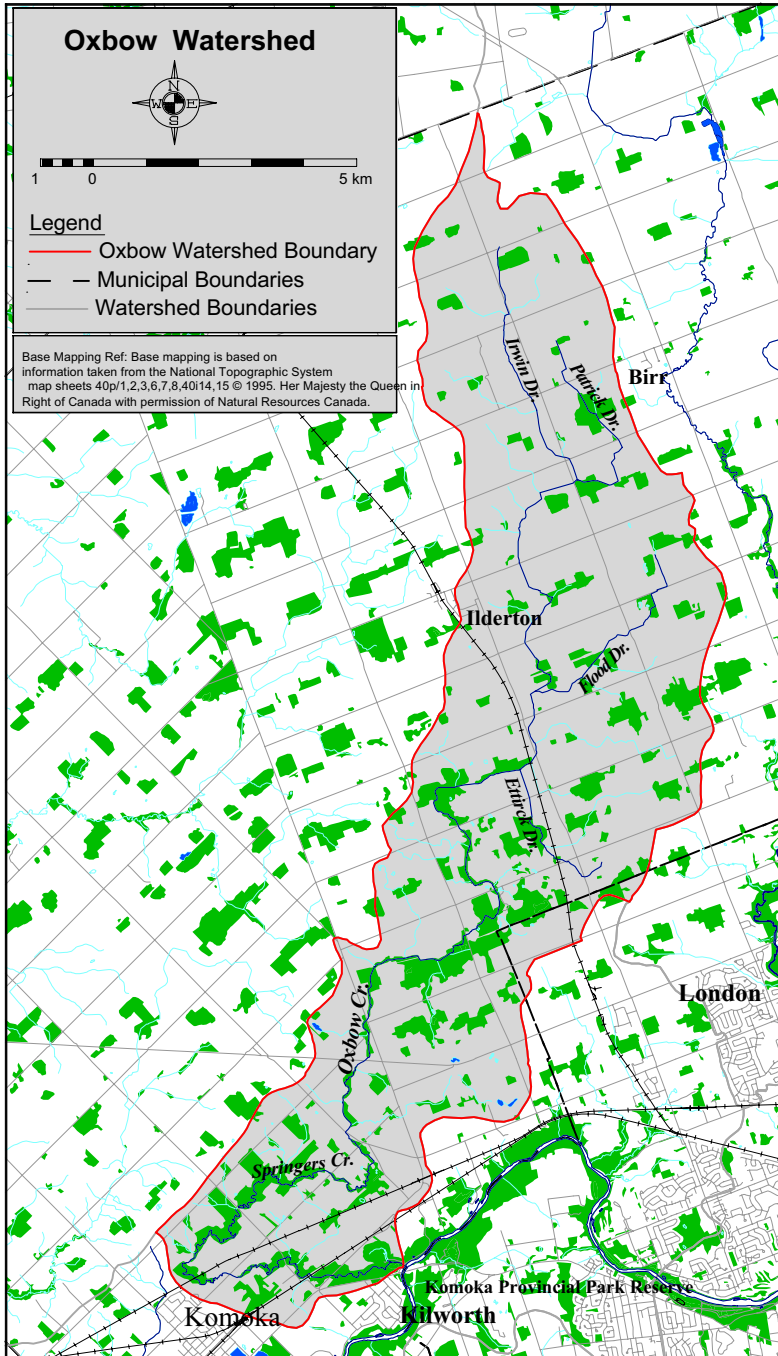
Oxbow Creek Watershed Report Card

This report card outlines environmental information for the Oxbow Creek watershed. This watershed is graded against 27 other subwatersheds within the Upper Thames River watershed. The information provides a description of forest and water parameters and ideas for local action to assist agency staff, municipalities and interested parties working for the protection of local forest and water resources. These report cards are part of a larger report titled *The Upper Thames River Watershed Report Cards* (UTRCA, 2001) that is posted on the Upper Thames River Conservation Authority (UTRCA) web site. (See back)

Grades:

C Forest Conditions

C Surface Water Quality*



Municipalities: Middlesex Centre (87 sq. km), City of London (2 sq. km)
Watercourses: Oxbow Creek, a tributary of the Thames River, is also known as Springers Creek, Ettirck Drain, Flood Drain, Patrick Drain, Irwin Drain.

*Surface water quality grade is based on benthic scores only.

Grade
C

Forest Conditions

Overall, forest conditions in the Oxbow Creek watershed score a C grade and the three indicators have grades from B to D (see table below). The amount of forest cover (15%) is slightly higher than the average for the Upper Thames watershed, but still considered too low for sustainability. The ideal for southern Ontario is 25-30% natural

cover (Carolinian Canada, 2000). Forest density is good, indicating the woodlots are close enough to each other to allow seeds to be transported and animals to move between them. Forest interior is low indicating that most of the woodlots are too small or narrow to support the sensitive species that require large protected habitats.

Indicators	Oxbow Creek Results		Upper Thames Watershed Average		Indicator Description
	Value	Grade	Value	Grade	
Forest Cover	15%	C	12%	D	Forest cover is the percentage of the watershed that is forested. It is believed there should be 25-30% natural cover in southern Ontario's landscape to sustain our native plants and animals.
Forest Density	81%	B	55%	D	Forest density is a measure of how close woodlots are to each other. Woodlots that are near several other woodlots tend to have greater species diversity than those that are isolated. The movement of seeds and animals between woodlots ensures a healthy gene pool.
Forest Interior	1.6%	D	1.8%	D	Forest interior refers to the protected core area found inside a woodlot that some bird species require to nest and breed successfully. The outer 100m perimeter of a woodlot is considered 'edge' habitat and prone to high predation, alien species invasion, sun and wind damage, etc.

Local Actions Needed for Improvement:

- Protection of all woodlands and locally significant wetlands at the municipal planning level is a very important and effective method of preserving local forest cover. This can be achieved through designations in Official Plans, enforcement of tree cutting by-laws, protective zoning and other appropriate planning measures.
- Forest interior can be increased by “bulking up” woodlots to make them larger and rounder by planting native trees and shrubs around existing woodlots or allowing the edges to naturalize on their own (e.g. retire land near woodlot edges).
- The largest wooded area in the watershed is located along Oxbow Creek in the middle of the watershed. This area may hold the greatest potential for wildlife habitat due to its size and proximity to the creek. With landowner cooperation, woodland enhancement projects should be targeted in and around this area. Inventory work may highlight the sites' management needs.
- Forest cover along Oxbow Creek is moderate but it is best along the lower half of the creek. However, the forests here are narrow and fragmented and so could be improved by additional tree planting or naturalization. By extending the riparian cover all the way to the Thames River near Komoka Provincial Park, an excellent wildlife corridor could be established. Maintaining good riparian cover and setbacks is especially important near developing areas of Komoka.
- Connections can be made between woodlots and other habitats by planting hedgerows and windbreaks along fields, roads and watercourses.
- Woodlot owners can improve their woodlots by preparing and following Woodlot Management Plans.



A healthy deciduous woodlot

Grade
C

Surface Water Quality

Water quality in the Oxbow Creek watershed ranks a C based on benthic scores (see chart below). The amount of vegetative cover along the creek is well above the Upper Thames River watershed average,

contributing to better water quality. One cold water stream is located in this watershed. There are no stream flow or water quality monitoring stations on Oxbow Creek.

Indicators	Oxbow Creek Results		Upper Thames Watershed Average		Provincial Guideline	Indicator Description
	Score	Grade	Score	Grade		
Benthic Score (FBI)	5.58	C	5.66	C	---	Benthic organisms are the aquatic invertebrates that live in stream sediments and are a good indicator of water quality and stream health. The 'Family Biotic Index' (FBI) scores each species according to its pollution tolerance.
Phosphorus (mg/l)	No Data		0.08*	D	0.03 (Provincial Objective)	Phosphorus is found in such products as soaps, detergents, fertilizers and pesticides, and contributes to excess algae and low oxygen in streams and lakes.
Bacteria (per 100 ml)	No Data		304*	C	100 (Recreational Swimming Guideline)	Fecal coliform bacteria are found in human and animal waste and their presence in water indicates fecal contamination. Fecal coliform bacteria are a strong indicator for the potential to have other disease-causing organisms in the water.
Conductivity (μS/cm)	No Data		642*	D	---	Conductivity is a measure of water's ability to conduct an electrical current and is an indicator of the level of dissolved solids and pollutants in water.

*10 year average concentration, 1990-2000 (Ministry of the Environment data)

Local Actions Needed for Improvement:

- Add monitoring station(s) to this watershed to adequately assess changes in water quantity and quality.
- Identify groundwater recharge zones and discharge areas, and develop protection strategies for these areas.
- Encourage the decommissioning of abandoned wells according to Ministry of the Environment standards.
- Plant buffers (grass or treed) along all open drains, creeks, and rivers to filter runoff and provide shade, especially in Komoka development areas. Target the rehabilitation of the coldwater tributary.
- Encourage environmentally sustainable practices on golf courses (e.g. Audubon Cooperative Sanctuary Program).
- Monitor the removal of the Loveless Dam for impacts on fish habitat. Develop strategies for the rehabilitation of the area, if required. Install a fishway or remove the CNR barrier to allow passage of fish.
- Target soil erosion measures to areas of high erodibility.
- Encourage drain maintenance and design procedures that protect water quality (e.g. careful timing of work, use of silt traps, maintaining existing vegetation and use of natural channel design principles).
- The following actions should be targeted within Ilderton and Komoka:
 - implement stormwater management plans for all new Komoka developments as outlined in the *Komoka Community Surface Water Management Plan* (Aquafor Beech Ltd, 1999);
 - encourage stormwater management in conjunction with any future land use change in Ilderton;
 - repair or replace faulty septic systems; and
 - educate residents regarding urban Best Management Practices such as reduction and proper use of pesticides and fertilizers and proper household hazardous waste disposal. (continued on back)

- The following actions should be targeted in rural areas:
 - encourage landowners to repair or replace faulty septic systems;
 - encourage agricultural Best Management Practices in the areas of manure storage and spreading, soil conservation

- practices, fertilizer and pesticide storage and application, fuel storage, milkhouse washwater disposal, and cattle access restriction; and
- promote the completion of Environmental Farm Plans and Nutrient Management Plans.



Oxbow Creek Watershed Features

Area	88 sq. km (3% of Upper Thames River watershed)
Land Use	84% agriculture, 15% wooded, 1% urban (GIS derived using OMAFRA Landuse Systems, 1983)
Soil Type	49% silt loam, 22% silty clay loam, 15% clay loam, 9% bottom land, 3% coarse sand, 1% organic, and 1% not mapped (urban) (GIS derived using county soil maps)
Soil Erosion/Delivery	10% of the watershed is classified as highly erodible, meaning lands that contribute over 7 tonnes/ha of soil to a watercourse per year. The average for the Upper Thames River watershed is 9%. (GIS derived using 1991 Geomatics data)
Physiography	40% till moraine, 27% spillway, 27% undrumlinized till plain, 6% sandplain (Chapman and Putnam, 1984)
Stream Flow	No data available.
Groundwater	Both shallow (<18m) and intermediate (18-45 m) overburden aquifers are found. (MOE, 1981)
Fishery Resources	31 species of fish have been identified in this watershed including Brown Trout, Coho Salmon and Largemouth Bass in the lower portion of the watershed. There is 1 coldwater stream.
Dams	1 privately owned barrier is documented in this watershed. (UTRCA, 1991)
Sewage Treatment	The Ilderton Pollution Control Plant discharges treated effluent into Oxbow Creek. Rural residences are serviced by private septic systems.
Woodlot Size	48% of the woodlots are very small (<4 ha), 21% are small (4-10 ha), 18% are mid-sized (10-30 ha), 3% are large (30-40 ha) and 11% are very large (>40 ha). (GIS derived using 1997 NTS maps)
Riparian Forest	36% of the riparian zone (20 metres on either side of all watercourses) is forested. The average for the Upper Thames River watershed is 24%. (GIS derived using 1997 NTS maps)
Rare Species	Fish – Greenside Darter Rare Habitat Type – Tallgrass prairie (ROM/UTRCA and NHIC, 2000)
Significant Natural Sites	Provincially Significant Wetlands – None Locally Significant Wetlands – Oxbow Creek Wetland Significant Natural Areas – Springers Creek Woodlot Earth Science Areas of Natural and Scientific Interest – Elginfield Area Moraines (MNR and UTRCA 1996, County ESA reports)

References: For a complete listing of references, see the full report: *The Upper Thames River Watershed Report Cards* (UTRCA, 2001).



Greenside Darter