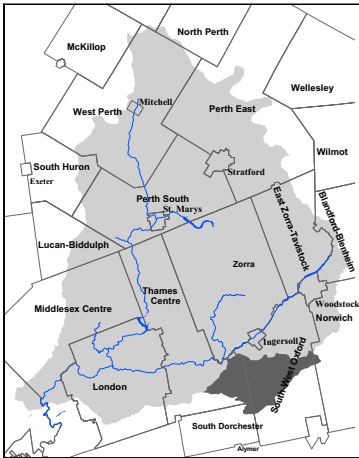


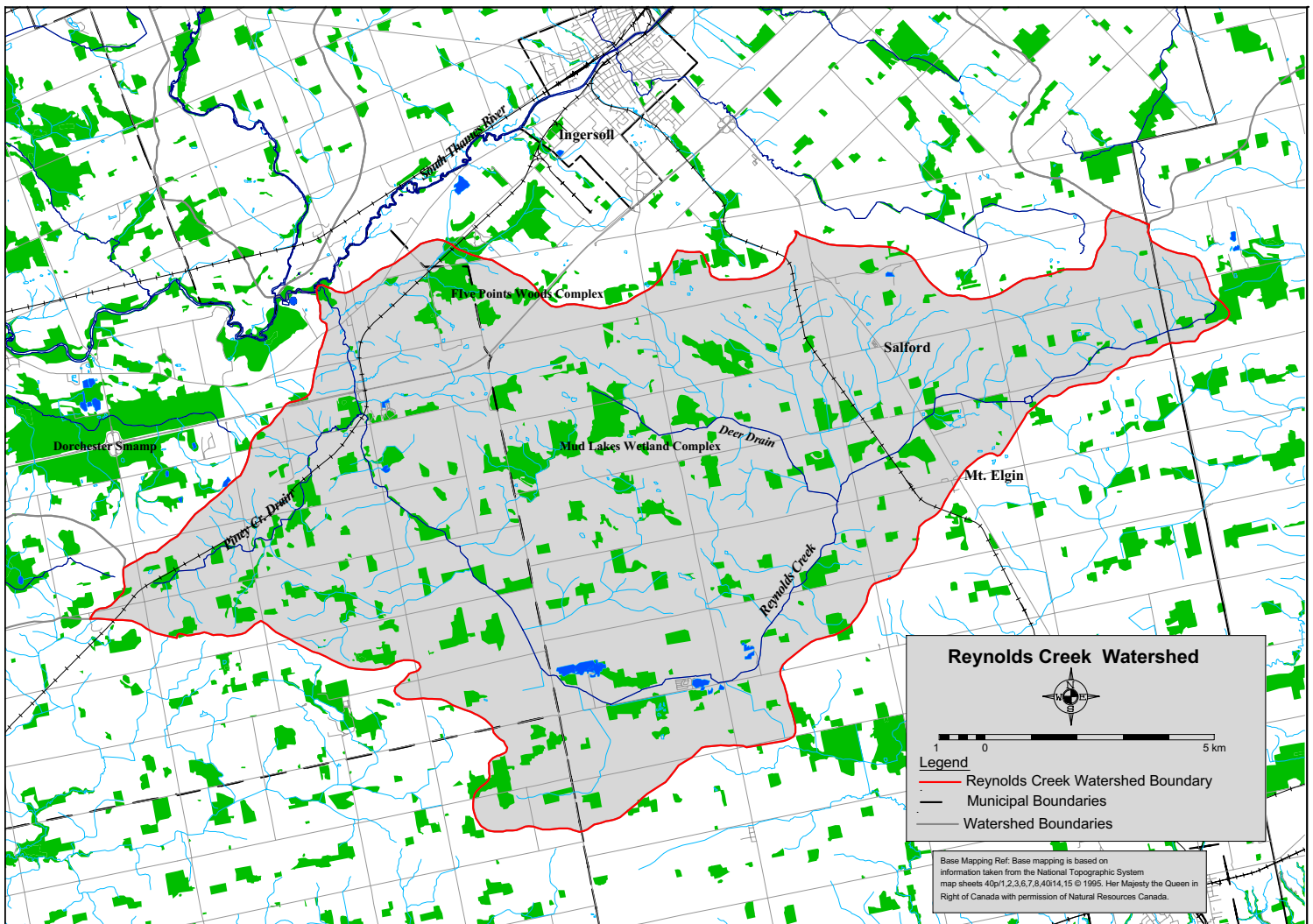
# Reynolds Creek Watershed Report Card



This report card outlines environmental information for the Reynolds 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:

- D** Forest Conditions
- D** Surface Water Quality



**Municipalities:** South-West Oxford (102 sq. km), Thames Centre (56 sq. km), Norwich (2 sq. km)  
**Watercourses:** Reynolds Creek (a tributary of the South Thames River), Piney Creek Drain, Deer Drain

Grade  
D

# Forest Conditions

Overall, forest conditions in the Reynolds Creek watershed score a D grade and the three indicators have grades from D to D- (see table below). The amount of forest cover (12%) is the same as the average for the Upper Thames watershed, but still considered too low for sustainability. The ideal amount of natural cover for southern Ontario is 25-30% (Carolinian Canada, 2000). Forest density is also low, indicating

most of the woodlots are isolated from each other, making it difficult for seeds to be transported and animals to move between them. Forest interior is low indicating that many of the woodlots are too small and narrow to support sensitive species that need to live in large protected habitats. In fact, 67% of the woodlots are under 10 hectares in size.

Indicators	Reynolds Creek Results		Upper Thames Watershed Average		Indicator Description
	Value	Grade	Value	Grade	
Forest Cover	12%	D	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	58%	D	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 goal can be achieved through designations in Official Plans, enforcement of tree cutting by-laws, restrictive 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 Mud Lakes Wetland Complex and Five Point Woods Complex are the two largest and most significant wooded areas in the Reynolds Creek watershed and they likely hold the greatest potential for wildlife habitat. With landowner cooperation, woodlot and wildlife enhancement projects should be targeted in and around these sites and could include projects such as planting hedgerows or windbreaks to create connections to nearby habitats and examining drain management practices to protect the wetland's hydrology. Conducting a biological inventory of these sites would assist with understanding the management needs.
- Connections can be made between woodlots and other habitats in rural areas by planting hedgerows and windbreaks along fields, roads and watercourses.
- Forest cover along Reynolds Creek is sparse. River valley reforestation efforts should be targeted towards the downstream end of the creek near its junction with the South Thames River. Piney Creek Drain has a greater amount of riparian forest cover but would benefit from additional naturalization efforts to link up the fragmented woodlots that are situated along the drain.
- Woodlot owners can improve the health of their woodlots by preparing and following Woodlot Management Plans.



Small and moderate sized woodlots

Grade  
D

# Surface Water Quality

The Reynolds Creek watershed ranks a D with respect to overall water quality, with indicators ranging from C to D- (see chart below). Phosphorus levels have remained consistently high over the past 30 years indicating pollution inputs from sources such as soaps/

detergents, fertilizers, pesticides, and soil erosion. Fecal coliform bacteria levels are well above the Upper Thames River watershed average indicating on-going contamination from human/animal waste. There is a lack of stream flow data within this watershed.

Indicators	Reynolds Creek Results		Upper Thames Watershed Average		Provincial Guideline	Indicator Description
	Value	Grade	Value	Grade		
<b>Benthic Score (FBI)</b>	5.75	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.
<b>Phosphorus (mg/l)</b>	0.11*	D -	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.
<b>Bacteria (per 100 ml)</b>	762*	D-	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.
<b>Conductivity (<math>\mu</math>s/cm)</b>	654*	D	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:

- Plant buffers (grassed or treed) along creeks, rivers and open drains in this area to filter runoff and provide shade. Enhancing vegetative cover is a priority for this watershed.
- Target rehabilitation of the coldwater stream.
- Implement protection of identified groundwater recharge zones and discharge areas, and continue with ground water research and monitoring (refer to *Oxford County Groundwater Study*, 2000).
- Encourage the decommissioning of abandoned wells according to Ministry of the Environment standards.
- Add a flow monitoring station to correspond with the water quality monitoring site in this watershed to adequately assess changes in water quantity.
- Target soil erosion measures to areas of high erodibility (26% of the land within this watershed is classified as highly erodible compared to Upper Thames River watershed average of 9%).
- Assess the purpose of the dam to determine if it should be removed or modified to improve river health.
- Encourage environmentally sustainable practices on golf courses (e.g. Audubon Cooperative Sanctuary Program).
- Encourage drain maintenance and design procedures that protect water quality (e.g. careful timing of work, use of silt traps, maintaining existing vegetation, use of natural channel design principles).
- 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.

# Reynolds Creek Watershed Features

<b>Area</b>	161sq. km (5% of Upper Thames River watershed)
<b>Land Use</b>	87% agriculture, 12% wooded, 1% urban (GIS derived using OMAFRA Landuse Systems, 1983)
<b>Soil Type</b>	48% clay loam, 19% silty clay loam, 10% silt loam, 6% sandy loam, 5% organic, 5% loam, 3% fine sandy loam, 2% bottomland and 1% coarse sand (GIS derived using county soil maps)
<b>Soil Erosion/Delivery</b>	26% 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)
<b>Physiography</b>	43% spillway, 41% till moraine, 16% undrumlinized till plain (GIS derived using digitized physiographic maps, OMAFRA)
<b>Stream Flow</b>	Not available
<b>Groundwater</b>	Large shallow (<18 m) and intermediate (18 - 45 m) aquifer systems are found in the upper reaches of this watershed. Another large intermediate aquifer is found around the hamlet of Crampton. A large deep (> 45 m) aquifer system extends through much of the watershed.
<b>Fishery Resources</b>	18 species of fish have been recorded in this watershed including Brown Trout and Largemouth Bass. One coldwater stream is present with a resident trout population.
<b>Dams</b>	One dam has been documented in the watershed. (UTRCA, 1991)
<b>Sewage Treatment</b>	No sewage treatment plants discharge to Reynolds Creek. All rural properties are serviced by private septic systems.
<b>Woodlot Size</b>	44% of the woodlots are very small (<4 ha), 24% are small (4-10 ha), 24% are mid-sized (10-30 ha), 2% are large (30-40 ha) and 6% are very large (>40 ha). (GIS derived using 1997 NTS maps)
<b>Riparian Forest</b>	16% of the riparian zone (20 metres on either side of all watercourses) is forested. The average for the Upper Thames watershed is 24%. (GIS derived using 1997 NTS maps)
<b>Rare Species</b>	Fish – Greenside Darter Birds – Least Bittern (ROM data, UTRCA data, and NHIC, 2000)
<b>Significant Natural Sites</b>	<b>Provincially Significant Wetlands</b> — Five Point Woods, Dereham Wetlands, Mud Lake, Wetland ND17E, and Wetland SW14C <b>Locally Significant Wetlands</b> – Verschoyle Wetland, Northwest Crampton Wetland <b>Significant Natural Areas</b> – Salford Woods (MNR and UTRCA 1996, County ESA reports)
<b>References:</b>	For a complete listing of references, see the full report: <i>The Upper Thames River Watershed Report Cards</i> (UTRCA, 2001).



Greenside Darter