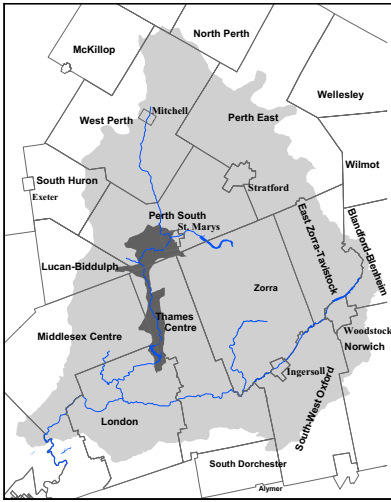


Plover Mills Watershed Report Card

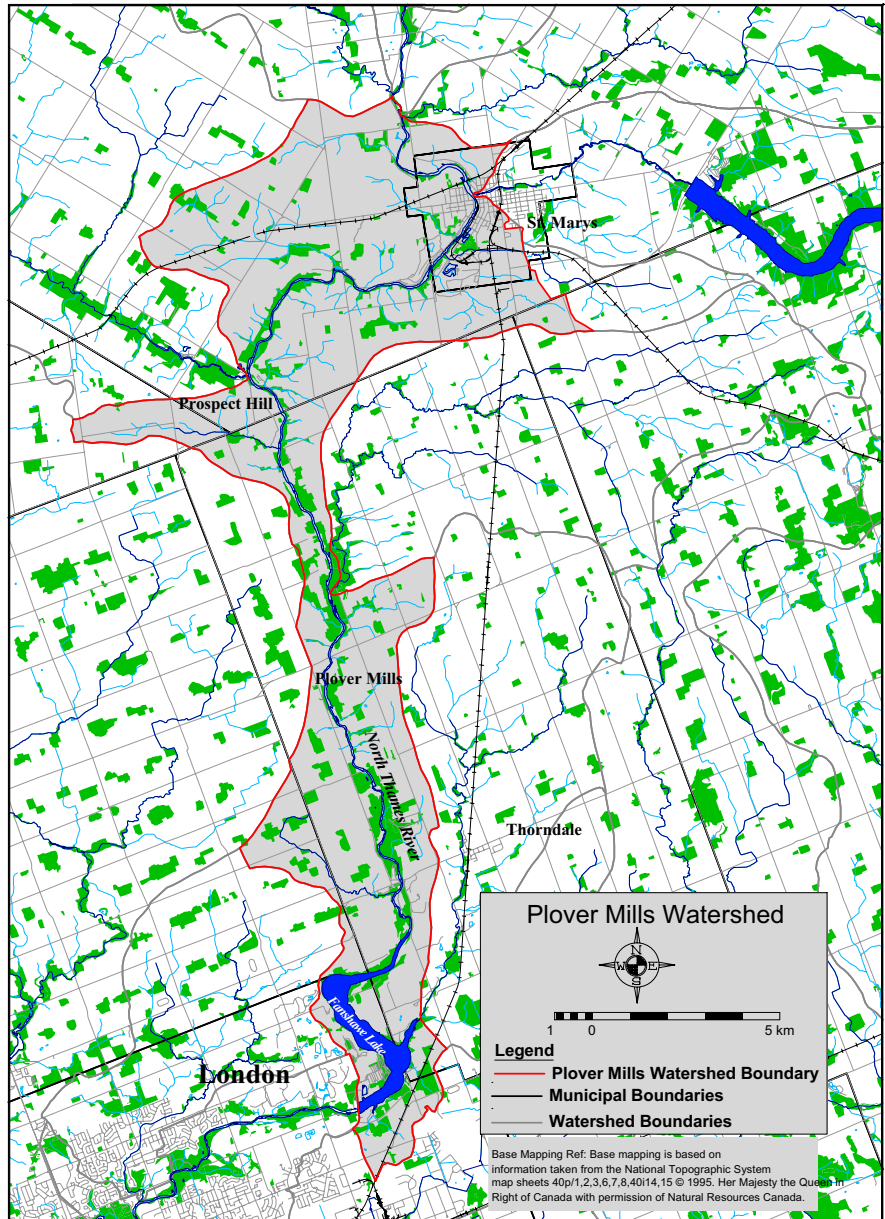


This report card outlines environmental information for the Plover Mills watershed. This watershed is graded against 27 other subwatersheds within the Upper Thames River watershed. The information provides a description of forest and water parameters and ideas for local action to assist agency staff, 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

B Surface Water Quality



Municipalities: Perth South (47 sq. km), Thames Centre (41 sq. km), Town of St. Marys (9 sq. km), Middlesex Centre (7 sq. km), City of London (7 sq. km), Lucan-Biddulph (4 sq. km), Zorra (1 sq. km)

Watercourses: North Thames River (part of)

Grade
D-

Forest Conditions

Overall, forest conditions in the Plover Mills watershed score a D-grade and the three indicators score grades from D to F (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 very low

indicating that most of the woodlots are isolated from each other, making it very difficult for seeds to be transported and animals to move between them. Many of the woodlots are arranged linearly along the river and not clustered. The amount of forest interior is also very low meaning that most woodlots are too small and narrow to support sensitive species that need to live in large protected forests.

Indicators	Plover Mills 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	48%	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	0.7%	F	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, 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).
- Connections can be made between woodlots and other habitats by planting hedgerows or windbreaks along fields, waterways, railroad lines and roads.
- Woodlot owners can improve the health of their woodlots by preparing and following Woodlot Management Plans.
- Natural plant cover can be increased in urban areas by targeting the naturalization of school yards, manicured public parks and open spaces, river valleys, residential and industrial/commercial properties.
- Tree planting and naturalization efforts within Fanshawe Conservation Area should continue as this will create a core natural area within this watershed. The rehabilitation and naturalization of some of the retired quarries near the reservoir would add significantly to the wildlife value of the area.
- Forest cover along the North Thames River is relatively good but most of these forests are narrow and fragmented. Connecting, extending and widening these riparian woodlots with native hardwood trees would protect the river and create an excellent wildlife corridor.



North Thames River near Thorndale

Grade
B

Surface Water Quality

Water quality in the Plover Mills watershed ranks a B with indicators ranging from B to C (see chart below). Natural stream characteristics and good riparian cover within this section of the North Thames River help improve water quality as it moves downstream. As a result, benthic scores have been consistently good upstream of the Fanshawe Reservoir. At the monitoring station just below Fanshawe Reservoir, fecal coliform bacteria concentrations have been consistently better

than the provincial guideline since the early 1970's. There are water quality problems specifically within the Fanshawe reservoir caused by years of nutrient and sediment deposition on the lake bottom. Algae blooms continue to occur each year. Beach closures at Fanshawe Reservoir, which were common during the early part of the 1980's, are controlled by an ultraviolet water treatment system within a curtained swimming area.

Indicators	Plover Mills Results		Upper Thames Watershed Average		Provincial Guideline	Indicator Description
Benthic Score (FBI)	4.97	B	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)	0.07*	C	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)	58*	B	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)	546*	C	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 to filter runoff and provide shade.
- Continue to monitor conditions and develop solutions to water quality problems in the Fanshawe reservoir.
- Identify groundwater recharge and discharge zones and develop strategies for their protection.
- Encourage the decommissioning of abandoned wells according to Ministry of the Environment standards.
- Investigate the impacts of aggregate extraction on surface and groundwater.
- Assess the purpose of each dam and determine if any should be removed or modified to improve river health.
- Encourage environmentally sustainable practices on golf courses (e.g Audubon Cooperative Sanctuary Program).
- Target soil erosion measures to areas of high erodibility.
- The following actions should be targeted in urban:
 - upgrade sewer systems where risk of contamination is greatest (e.g. combined sanitary/storm sewers), extend sanitary sewers to urban properties on septic systems, and repair or replace faulty existing septic systems;
 - implement stormwater management plans for new urban developments and implement projects to reduce stormwater runoff (e.g. infiltration ponds, pavement alternatives, etc);
 - encourage river clean-up /stream stewardship projects to improve stream habitat; and
 - educate urban 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.



Plover Mills Watershed Features

Area	112 sq. km (3% of Upper Thames River watershed) (1325 sq. km lies upstream)
Land Use	74% agriculture, 12% wooded, 9% urban, 4% water, 1% quarry (GIS derived using OMAFRA Landuse Systems, 1983)
Soil Type	52% clay loam, 16% silty loam, 13% bottomland, 9% not mapped (urban), 5% coarse sand, 4% silty clay loam and 1% loam (GIS derived using county soil maps)
Soil Erosion/Delivery	11% 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	61% undrumlinized till plain, 33% spillway, 4% water, 2% sand plain, 1% till moraine (Chapman and Putnam, 1984.)
Stream Flow	17 cubic metres/sec is the mean annual flow on the North Thames near Thorndale. This volume contributes approximately 44% of the flow in the Thames downstream of London. Up to 75% of summer flow in the North Thames is augmented by the Wildwood reservoir/dam. (Environment Canada, 1998)
Groundwater	There is an extensive shallow overburden aquifer (<18m) located around the Fanshawe Reservoir that extends north along the North Thames River channel.
Fishery Resources	34 species of fish have been recorded including Yellow Perch, Smallmouth Bass and Largemouth Bass. No coldwater tributaries have been identified. (ROM and UTRCA databases)
Dams	3 small dams and 1 large dam (Fanshawe Dam) are located within this watershed. The St. Marys Weir and Floodwall are additional features. (UTRCA staff)
Sewage Treatment	St. Marys Water Pollution Control Plant discharges treated effluent to the North Thames River within this watershed. Rural properties are serviced by private septic systems.
Woodlot Size	48% of the woodlots are very small (<4 ha), 17% are small (4-10 ha), 24% are mid-sized (10-30 ha), 4% are large (30-40 ha) and 7% are very large (>40 ha). (GIS derived using 1997 NTS maps)
Riparian Forest	26% 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, Silver Shiner, Black Redhorse Reptiles – Eastern Spiny Softshell Turtle Plants – Wood Poppy (ROM data, UTRCA data, and NHIC, 2000)
Significant Natural Sites	Provincially Significant Wetlands – none Locally Significant Wetlands — none Significant Natural Areas – Thorndale River Valley Earth Science Areas of Natural and Scientific Interest – Rannock Road Cut (MNR and UTRCA 1996, County ESA reports)

