

# NVCA WATERSHED 2013 Health Checks

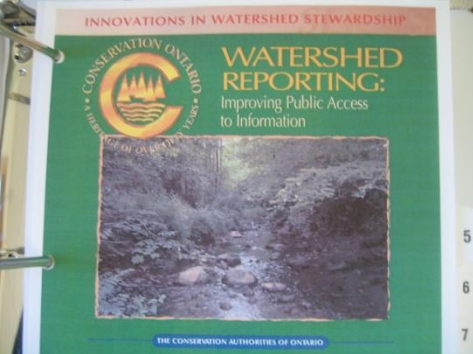
City of Barrie  
Council Presentation  
October 21, 2013



# Presentation Overview

- Short History of Watershed Reporting
- 2013 Watershed Health Check





# Watershed Reporting – A Brief History

- Pilot projects completed by Upper Thames River and Rideau Valley Conservation Authorities in 2002
- Purpose:
  - To communicate watershed health (land and water) to public
  - to report on Conservation Ontario's land and water conservation objectives;
  - To serve as a management and evaluation tool for Conservation Authorities (CAs) and other resource management agencies

# Target Audiences

- General public
- Interest groups
- Municipalities
- Provincial and federal government
- CA staff and members

# Deliverables

- Watershed Report Card (every 5 years – starting 2007)
- Detailed Report
- Web Products – NVCA and Conservation Ontario web sites



# NVCA 2013

## Watershed Health Checks

- Our key watershed communication tool
- “Tells the story” of each subwatershed
- Builds on our 2007 Report Card effort
- Trend reporting
- Strong stewardship overview
- “Call for Watershed Community Action”

2013

## Watershed Health Check

### Nottawasaga Valley Watershed



2013 Results:

Forest Conditions: Good
Wetland Conditions: Good
Stream Health: Poor
Groundwater Health: Very Good

This "Health Check" provides an overview of forest, wetland, stream and groundwater health within the NVCA watershed. It identifies stewardship priorities and programs to improve environmental health. Healthy watersheds sustain healthy communities—future challenges and opportunities for the watershed community are outlined. More detailed descriptions can be found in individual subwatershed health checks.

The NVCA is one of 36 Conservation Authorities across Ontario and is a proud member of Conservation Ontario.

Our watershed is approximately 3700 sq. km, with jurisdiction in 18 municipalities and is the source of watercourses that flow into Georgian Bay at Wasaga Beach, Collingwood and Severn Sound. It includes 35 km of Georgian Bay shoreline along the Wasaga Beach and Collingwood waterfront.

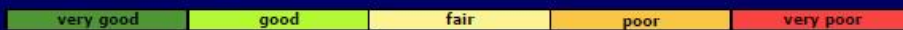
The watershed is shaped like a bowl—the Niagara Escarpment (west), Oak Ridges Moraine (south) and Simcoe Uplands/Oro Moraine (north and east) represent the height of land along the edges of the bowl. Streams arise from these high areas and flow down slope into the Simcoe Lowlands (the bottom of ancient Lake Algonquin), which forms the bottom of the bowl. These lowlands extend to Wasaga Beach and Collingwood (a "chip" at the edge of the bowl) which allows the Nottawasaga River and Blue Mountain streams to reach Georgian Bay.

The NVCA watershed is largely rural in character though urban areas such as Barrie, Alliston, Shelburne, Wasaga Beach and Collingwood continue to experience significant growth. Land use is dominated by agriculture; however, compared to many areas in southern Ontario, natural areas are a significant part of the landscape. Forests and wetlands are generally found in areas that are unsuitable for farming—where soils are too wet, dry, rocky or steep.



The Nottawasaga Valley Conservation Authority is a public agency dedicated to the preservation of a healthy environment through specialized programs to protect, conserve and enhance our water, wetlands, forests and lands. This report card describes the conditions of natural features within the subwatershed, as well as stewardship actions to help maintain the area. Report cards for the NVCA watershed and subwatersheds can be found online: [www.nvca.on.ca](http://www.nvca.on.ca)

Watershed indicators rating scale:



# Cover Page

- Broad results
- Explains what the "Health Check" is
- Broadly describes the watershed, its physiography, ultimate drainage points and general land use

# Forest Conditions

Status: Good  
Trend: Declining

Forest conditions in the NVCA jurisdiction are generally good. Forest cover has recovered from historical lows in the early 1900s, but is currently under pressure from urban growth and agricultural conversion. Between 2002 and 2008, there was a net loss in watershed forest cover of 460 ha. This represents a 0.39% decrease in forest cover since 2002. Forest loss was generally associated with development activity and, to a lesser extent, agricultural conversion.

The Willow Creek, Pine River and Mad River subwatersheds and the Severn Sound headwaters have the highest percentage of forest cover and forest interior habitat in the NVCA jurisdiction. These areas collectively form an important natural corridor extending from the Niagara Escarpment to the Canadian Shield. Maintaining and enhancing ecological corridors will be important to allow forests and wildlife to adapt to climate change.

Watershed forests are also part of the Niagara Escarpment system and form an important natural linkage between the Escarpment and the Oak Ridges Moraine. Headwater wetlands west of the Escarpment are connected to similar habitat in the Grand, Saugeen, Credit and Beaver River watersheds. Forests and wetlands are also linked to natural areas northward to Severn Sound and eastward to Lake Simcoe. The Georgian Bay shoreline is part of an important corridor for migrating waterfowl and shorebirds.



**Did you know** that rare forest communities are present within the watershed? A mosaic of rare pine-oak woodland and tallgrass prairie is found in Wasaga Beach Provincial Park. The Minsing Wetlands hosts rare bur oak and hackberry forest swamps. The cliffs of the Niagara Escarpment support old-growth cedar stands.

# Forest Conditions

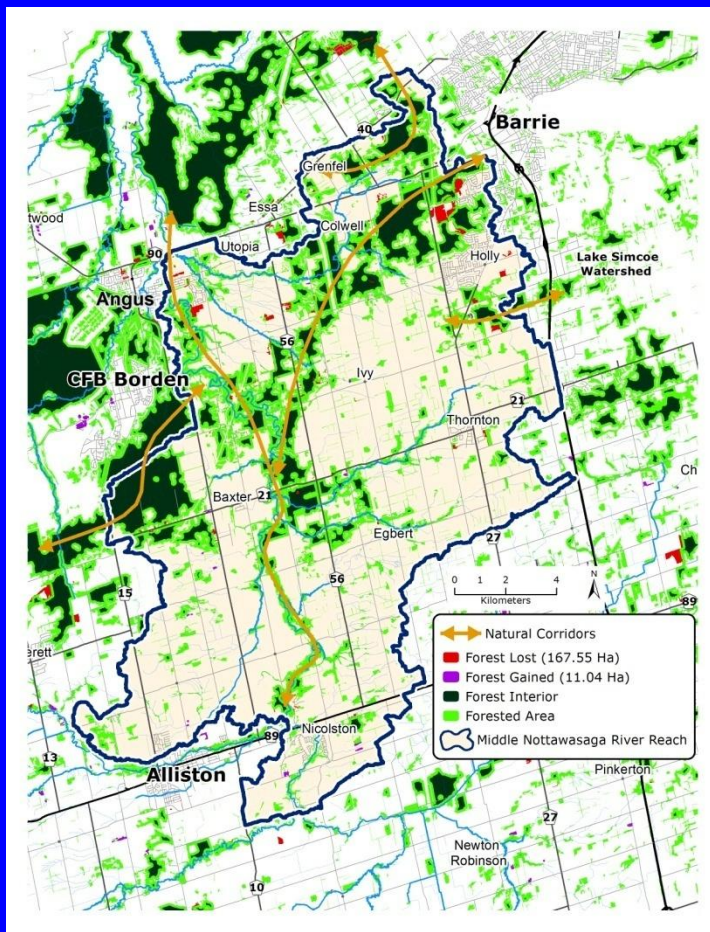
- General description of condition and trends
- Description of natural corridors within and connecting to the watershed

Indicators	NVCA Watershed	Indicator Description	Trend (2002-2008)
Forest Cover	32.6%	Forest Cover is the percentage of the watershed that is forested. Environment Canada suggests that 30% forest cover is the minimum needed to support healthy wildlife habitat—more coverage is beneficial.	↓ -460 ha
Forest Interior	10.3%	Forest interior is the area of forest that lies more than 100 m from a forest edge—away from the windy, dry conditions and predators that are associated with the edge. Sensitive forest birds, mammals, reptiles and amphibians require deep forest habitat for survival. Environment Canada suggests that 10% forest interior cover is the minimum needed to support a range of species.	Insufficient data
Riparian Cover	64.9%	Streamside forest cover (riparian vegetation) filters pollutants and provides important fish and wildlife habitat. Environment Canada suggests that at least 30 m on each side of the stream (over 75% of its length) should be in forest cover to support healthy streams.	Insufficient data

Ratings: very good good fair poor very poor

# MIDDLE NOTTAWASAGA RIVER FOREST CONDITIONS

Status : Fair  
Trend: Declining



Indicators	Middle Nottawasaga River Subwatershed	NVCA Watershed	Indicator Description	Trend (2002-2008)
Forest Cover	27.6% (8,188 ha)	32.6%	Forest cover is the percentage of the watershed that is forested. Environment Canada suggests that <b>30% forest cover</b> is the <b>minimum</b> needed to support healthy wildlife habitat; more coverage is beneficial.	↓ -157 ha
Forest Interior	8.1% (2,414 ha)	10.3%	Forest interior is the area of forest that lies more than 100 m from a forest edge – away from the windy, dry conditions and predators that are associated with the edge. Sensitive forest birds, mammals, reptiles and amphibians require deep forest habitat for survival. Environment Canada suggests that <b>10% forest interior cover</b> is the <b>minimum</b> needed to support a range of species.	Insufficient data
Riparian Cover	55.9% (1,542 ha)	64.9%	Streamside forest cover (riparian vegetation) filters pollutants and provides important fish and wildlife habitat. Environment Canada suggests that at least <b>30 m on each side of the stream</b> (over 75% of its length) should be in natural cover to support healthy streams.	Insufficient data

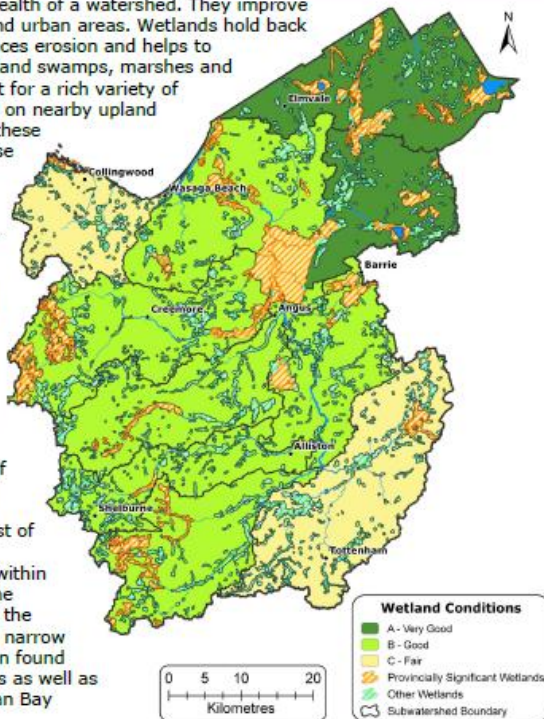


# Wetland Conditions

Status: Good  
Trend: Declining

Wetlands play an important role in the ecological health of a watershed. They improve water quality by filtering runoff from agricultural and urban areas. Wetlands hold back water on the landscape that controls flooding, reduces erosion and helps to maintain stream flows during dry periods. The wetland swamps, marshes and fens in the Nottawasaga jurisdiction provide habitat for a rich variety of flora and fauna. Many wetland species also depend on nearby upland habitats for nesting, foraging and/or hibernation—these connected upland areas are needed to support these wildlife functions.

Wetland conditions within the NVCA jurisdiction meet Environment Canada minimum guidelines for healthy watersheds; however, historically more than 70% of wetlands in southern Ontario have been lost due to urban expansion and agricultural conversion. These pressures continue today in the NVCA jurisdiction. Between 2002 and 2008 there was a net watershed wetland loss of 254 ha. This represents a 0.57% decrease in wetland cover since 2002. Wetland loss was associated with agricultural conversion and development activity.



Large expanses of wetlands can be found on poorly drained lands west of the Niagara Escarpment and within the lowlands in the central portion of the watershed. Long, narrow wetlands are often found along river valleys as well as along the Georgian Bay shoreline.

The Ontario Ministry of Natural Resources has identified a number of wetland groupings within the watershed as provincially significant. Provincial and municipal planning policies help protect these wetlands from development.

**Did you know** that the Minesing Wetlands, located in the heart of the watershed, is recognized as an internationally significant wetland? It supports a number of rare plant and wildlife species and protects Wasaga Beach from flooding. The coastal wetland marshes along the Collingwood shoreline are found only in certain areas along the Great Lakes shorelines and are considered globally rare.

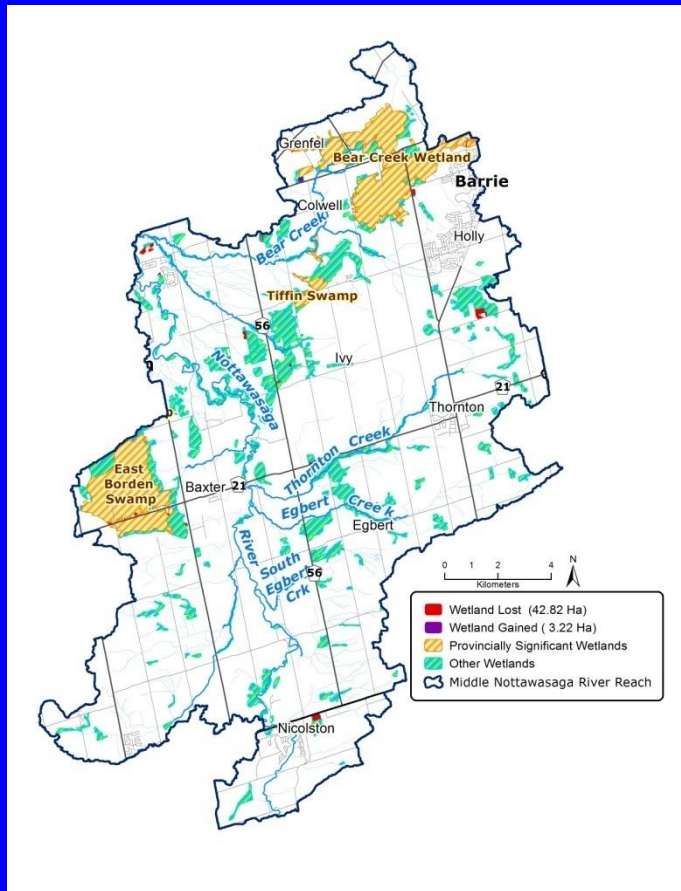
Indicators	NVCA Watershed	Indicator Description	Trend (2002-2008)
Wetland Cover	12.3%	10% wetland cover has been identified as a <b>minimum</b> guideline for healthy watersheds (Environment Canada).	↓ -254 ha
Wetland Buffer (100m buffer area)	51.5%	A buffer is a vegetated area next to a wetland or stream. Many wildlife species require nearby upland areas for foraging, nesting and other activities.	Insufficient data

# Wetland Conditions

- Description of wetland functions
- Description of wetland conditions and trends
- Identifies provincially significant and other wetlands

# MIDDLE NOTTAWASAGA RIVER WETLAND CONDITIONS

Status: Fair  
Trend: Declining



Indicators	Middle Nottawasaga River Subwatershed	NVCA Watershed	Indicator Description	Trend (2002-2008)
Wetland Cover	12.6% (3,729 ha)	12.3%	10% wetland cover has been identified as a minimum guideline for healthy watersheds (Environment Canada).	↓ -40 ha
Wetland Buffer (100m buffer area)	50.7% (1,858 ha)	51.5%	A buffer is a vegetated area next to a wetland or stream. Many wetland wildlife species require nearby upland areas for foraging, nesting and other activities.	Insufficient data

# Stream Health

Status: Poor  
Trend: No Trend

Within the NVCA jurisdiction a network of streams and rivers arise from the elevated headwaters of the Niagara Escarpment, Simcoe Uplands and the Oak Ridges and Oro Moraines. Most rivers flow to the Nottawasaga River, which discharges to Georgian Bay at Wasaga Beach. The creeks and rivers in the Blue Mountain watersheds flow directly into the Bay in Collingwood. The Severn Sound headwaters flow northward out of our jurisdiction toward Severn Sound. Our jurisdiction also includes 35 km of Georgian Bay shoreline along the Collingwood and Wasaga Beach waterfronts.

Streams that flow through areas with healthy forest and wetland cover—such as those on the Escarpment—are generally healthy. Streams that drain highly urbanized or intensively farmed lowland areas are often unhealthy. Innisfil Creek is our most degraded watercourse system—impacts from this system extend downstream into the main Nottawasaga River.

Recent studies have confirmed that high nutrient (phosphorous) loading is the most significant water quality issue within the watershed. Runoff from agricultural and urban lands contributes to these high loads. Landowner and community stewardship actions aimed at reducing these loads are required to restore stream health.

Bacteria (*E. coli*) levels in watershed rivers and streams are highly variable and – depending on location – are occasionally to frequently above those recommended as safe for swimming. For a variety of safety considerations, we recommend that swimmers use regularly monitored area beaches (Wasaga Beach, Earl Rowe Provincial Park, Tottenham Conservation Area, New Lowell Conservation Area).

**Did you know** that the Nottawasaga River system supports one of the largest spawning runs of Rainbow Trout and Chinook Salmon in the Georgian Bay/Lake Huron basin? The river also supports critical spawning and nursery habitat for Lake Sturgeon – a threatened species.



# Stream Health

- Grading based on:
  - Total phosphorus at Hockley (low=good)
  - Averaged stream health across the watershed (lots of green = good)
- General description of stream health and fisheries
- Generally low *E. coli* during baseflow (low flow) conditions

Indicators	NVCA Watershed	Indicator Description	Trend (2007-2012)
Benthic Grade (overall)	2.13	Insects and other "bugs" that inhabit the streambed are excellent indicators of stream health. Healthy streams receive a score of "3" while unhealthy streams receive a score of "1".	↔
Total Phosphorus (low flow; mg/L; lower river)	0.039	Total phosphorus indicates nutrient levels within a stream. Our healthiest streams have levels less than 0.01 mg/L during low flow conditions. All NVCA streams have levels greater than 0.03 mg/L during storms (Innisfil Creek range: 0.068 to 1.29 mg/L). Provincial Water Quality Guidelines suggest that levels greater than 0.03 mg/L result in unhealthy stream conditions.	↔
<i>E. coli</i> (low flow; coliform-forming units/100mL)	71 (highly variable)	Bacteria ( <i>E. coli</i> ) levels in watershed rivers and streams are highly variable and – depending on location – are occasionally to frequently above those recommended as safe for swimming. Bacteria levels can be much higher during and after rainstorms. For a variety of safety considerations, we recommend that swimmers use regularly monitored area beaches (Wasaga Beach, Earl Rowe Provincial Park, Tottenham Conservation Area, New Lowell)	Insufficient Data

Ratings: very good good fair poor very poor

# MIDDLE NOTTAWASAGA RIVER STREAM HEALTH CONDITIONS

Status: Fair  
Trend: No Trend



Indicators	Middle Nottawasaga River Subwatershed	Indicator Description	Trend (2007-2012)
<b>Benthic Grade</b>	<b>1.91</b>	Insects and other "bugs" that inhabit the streambed are excellent indicators of stream health. Healthy streams receive a score of "3" while unhealthy streams receive a score of "1".	↔
<b>Total Phosphorus</b> (low flow; mg/L)	<b>0.022</b>	Total phosphorus indicates nutrient levels within a stream. Our healthiest streams have levels less than 0.01 mg/L during low flow conditions. During storm events NVCA streams often exceed 0.03 mg/L (Middle Nottawasaga River range: 0.007—0.380 mg/L). Provincial Water Quality Guidelines suggest that <b>levels greater than 0.03 mg/L result in unhealthy stream conditions.</b>	↔
<b>E. coli</b> (low flow; coliform-forming units/100mL)	<b>49</b>	<i>Escherichia coli</i> bacteria are found in human and animal waste. They naturally occur in our streams but higher levels may indicate fecal contamination. Ontario Recreational Water Quality Guidelines suggest that waters with less than 100 CFU's/100 mL are safe for swimming. <i>E. coli</i> is not closely tied to stream health. <i>This data is presented for general public information only.</i>	Insufficient Data

# Groundwater

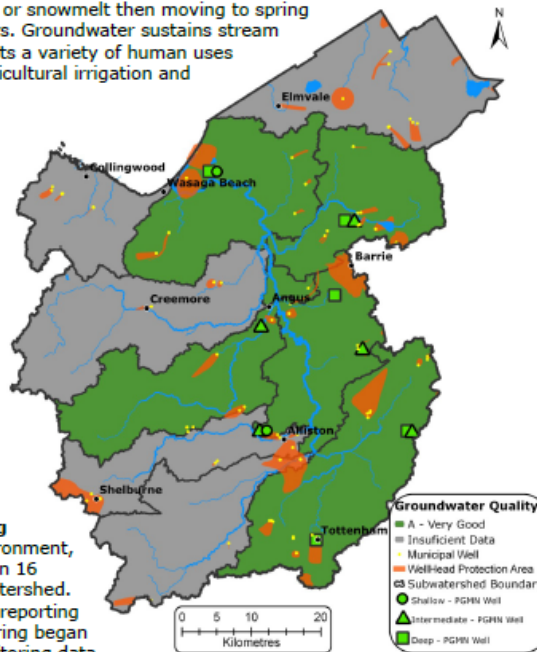
Status: Very Good  
Trend: Insufficient Data

Groundwater is water that is located underground in sands and gravel or bedrock fractures. It is dynamic: infiltrating into the ground from rain or snowmelt then moving to spring and seep discharge areas or downward into aquifers. Groundwater sustains stream flow and wetland levels during dry spells. It supports a variety of human uses including municipal and private water supplies, agricultural irrigation and recreational activities.

More than 130 municipal wells and over 10,000 private wells are found within the Nottawasaga watershed. These wells provide drinking water for most watershed residents.

Source Water Protection is an important initiative focused on protecting municipal drinking water in Ontario, especially where groundwater is particularly vulnerable to contamination including areas that are: 1) near municipal well sources, 2) highly vulnerable aquifers, which lie close to the ground surface, and 3) significant groundwater recharge areas. Road salt application, industrial chemical uses, poorly maintained septic and manure systems and excess fertilizer use are potential sources of contamination that could adversely impact groundwater quality.

Through the **Provincial Groundwater Monitoring Program** partnership with the Ministry of the Environment, the NVCA monitors water levels and water quality in 16 wells located in various aquifers throughout the watershed. 12 of these 16 PGMN wells have sufficient data for reporting on current conditions. Groundwater quality monitoring began in 2003 and is now being conducted annually. Monitoring data allows the NVCA to track changes in the groundwater levels and quality over time.



Results to date indicate that water quality parameters in all monitoring wells meet Ontario Drinking Water Quality Standards. Groundwater health in the NVCA watershed is considered very good. Additional data is required to interpret broad groundwater quality trends in the subwatershed.

Indicators	NVCA Watershed Monitoring Well Results*			Indicator Description
	Shallow	Intermediate	Deep	
Chloride (mg/L)	2.25	30.29	15.69	Chloride occurs naturally in the environment; however, high concentrations can indicate human impacts (e.g. road salt, landfills). The Canadian guideline for chlorides in drinking water is 250 mg/L, and is based on aesthetic objectives. Drinking water should not exceed this level.
Nitrite & Nitrate (mg/L)	0.673	0.197	0.07	Naturally occurring forms of nitrogen can be found as nitrites and nitrates in groundwater. High concentrations of this element can be related to human activities (e.g. excessive fertilizer application, failing septic systems). The Ontario (and Canada) standard for nitrite and nitrate (as nitrogen) is 10 mg/L. Drinking water levels should not exceed this level.

Well types are classified by their depth below ground in metres: Shallow (0-20 m); Intermediate (21-60 m); Deep (>60m).  
\*Results reflect health at the well and should not replace testing at private wells. Trends for groundwater health will be presented in the 2018 Health Checks (8-10 years of data is required in order to analyze trends).

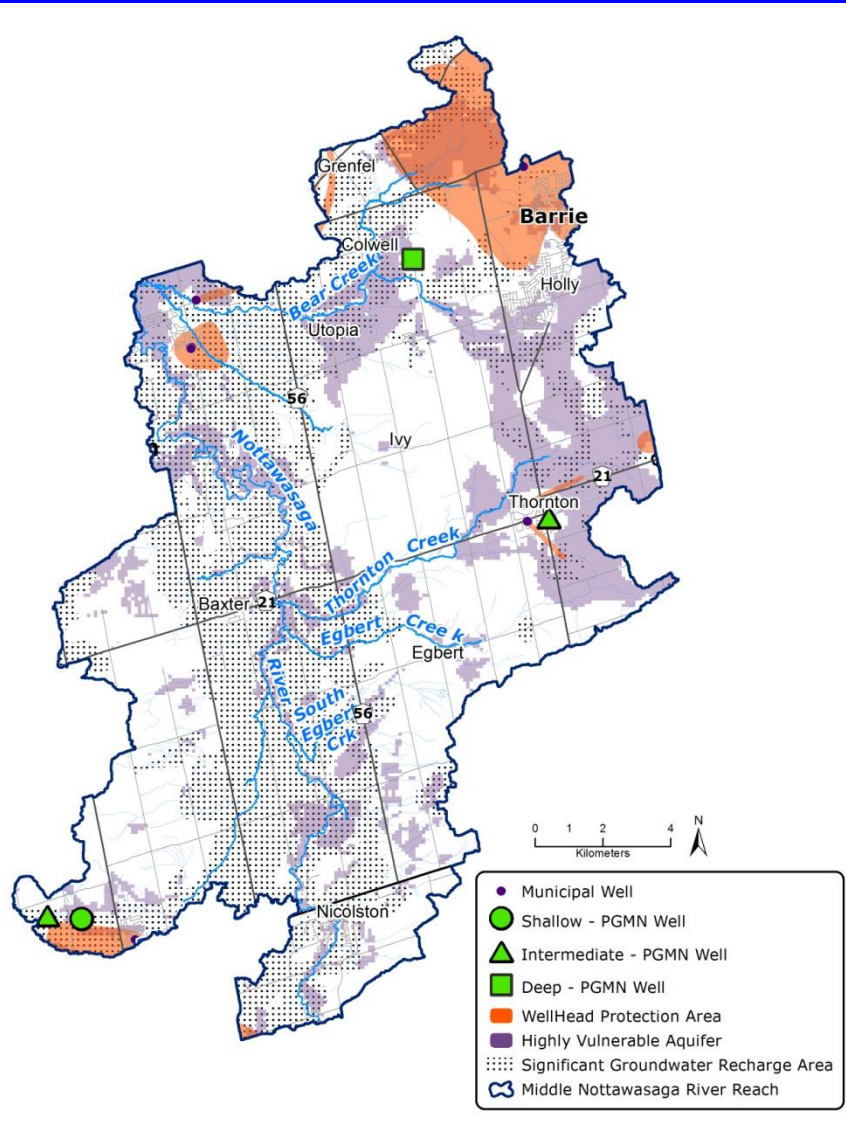
# Groundwater

- Groundwater 101 – What is groundwater?
- Importance for municipal and private wells.
- Discusses Source Water Protection and provincial monitoring

# MIDDLE NOTTAWASAGA RIVER GROUNDWATER CONDITIONS

Status: Very Good

Trend: Insufficient Data



- Large recharge areas (stippled -elevated sand/gravel uplands/moraines)
- Highly vulnerable aquifers (high water table – wetlands; no confining layer between ground and groundwater)
- Wellhead Protection Areas (municipal wells; orange)

Indicators	Middle Nottawasaga River Subwatershed Monitoring Well Results*			Indicator Description
	Shallow (1 well)	Intermediate (2 wells)	Deep (1 well)	
<b>Chloride</b> (mg/L)	3.7	15.75	4.13	Chloride occurs naturally in the environment; however, high concentrations can indicate human impacts (e.g. road salt, landfills). The Canadian guideline for chlorides in drinking water is <b>250 mg/L</b> and is based on aesthetic objectives. Drinking water should not exceed this level.
<b>Nitrite &amp; Nitrate</b> (mg/L)	1.23	0.22	0.05	Naturally occurring forms of nitrogen can be found as nitrites and nitrates in groundwater. High concentrations of this element can be related to human activities (e.g. excessive fertilizer application, failing septic systems). The Ontario (and Canada) standard for nitrite and nitrate (as nitrogen) is <b>10 mg/L</b> . Drinking water levels should not exceed this level.

Well types are classified by their depth below ground in meters: Shallow (0-20 m); Intermediate (21-60 m); Deep (>60m). **\*Results reflect health at the well and should not replace testing at private wells.** Trends for groundwater health will be presented in the 2018 Health Checks (8-10 years of data is required to analyze trends).

# Watershed Stewardship

"Working Together to  
Protect and Restore"  
Get involved!

Watershed Stewardship is the responsible and sustainable care of our natural resources and wildlife within a watershed. As caretakers of our environment, we need to implement stewardship practices that protect and restore natural resources. (Conservation Ontario)

Almost **96% of land in our watershed is privately owned**. We all depend on good private land stewardship to achieve healthy waters and sustainable ecosystems. To assist landowners in protecting the environment, the NVCA provides a range of technical assistance and grant incentives to help offset the cost of projects on private lands. Grant rates for the various NVCA programs range from 25% to 95% of eligible project costs.

## STEWARDSHIP PROGRAMS

The NVCA's stewardship programs encourage landowners to undertake projects that restore our environment and help ensure the future of our healthy waters.

### The NVCA's Forestry Program

provides trees, planting services and forest management advice for landowners throughout the watershed. Since 2002, landowners in the NVCA watershed planted 1,659,955 trees, reforesting 727 ha. 256 landowners have been involved!!

### The NVCA's Healthy Waters Program

provides landowners with technical and financial support for eligible projects, such as water improvement projects and strategic river habitat restoration. Since 2002, landowners in the NVCA watershed have undertaken 899 stewardship projects on their properties through the support of this program! These projects have stabilized stream banks, improved fish and wildlife habitat, and decreased nutrient runoff – and have kept literally *trillions* of *E. coli* bacteria from reaching our streams and lakes!

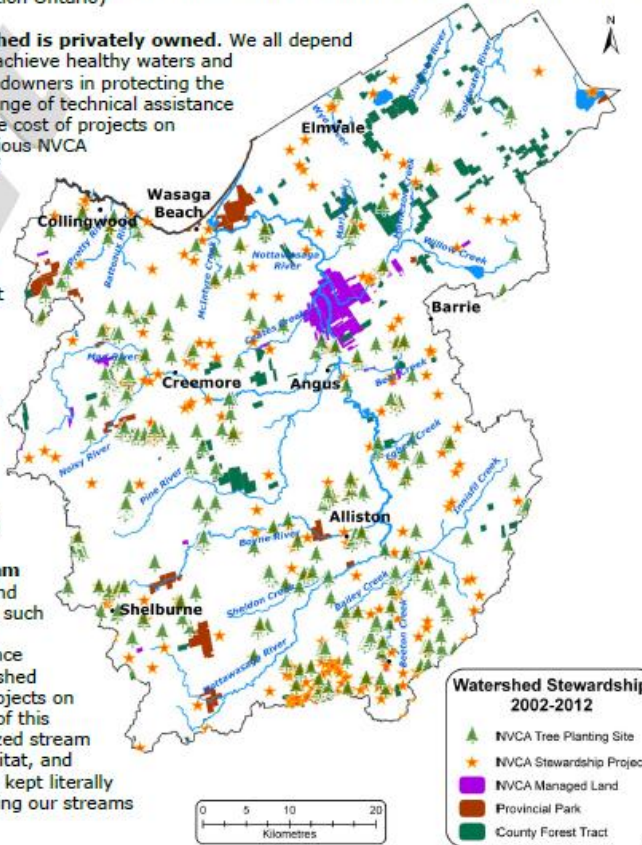
## PUBLIC LANDS MANAGEMENT

The NVCA's **Conservation Lands Program** focuses on acquiring lands for the long-term protection of significant natural features and functions. To date the NVCA manages 25 properties totaling 4,877 ha.

**County Forests** are managed for a variety of environmental, social and economic purposes. There are 119 County forest tracts (Simcoe, Dufferin, Grey) within the NVCA watershed totaling 9,440 ha.

**Ontario Parks'** mandate is to protect significant natural and cultural resources in a system of parks and protected areas that is sustainable and provides opportunities for inspiration, enjoyment and education: now and for future generations. Ontario Parks manages 16 park areas (4,382 ha) within this subwatershed.

Many **local municipalities** also acquire and manage lands in the public trust.

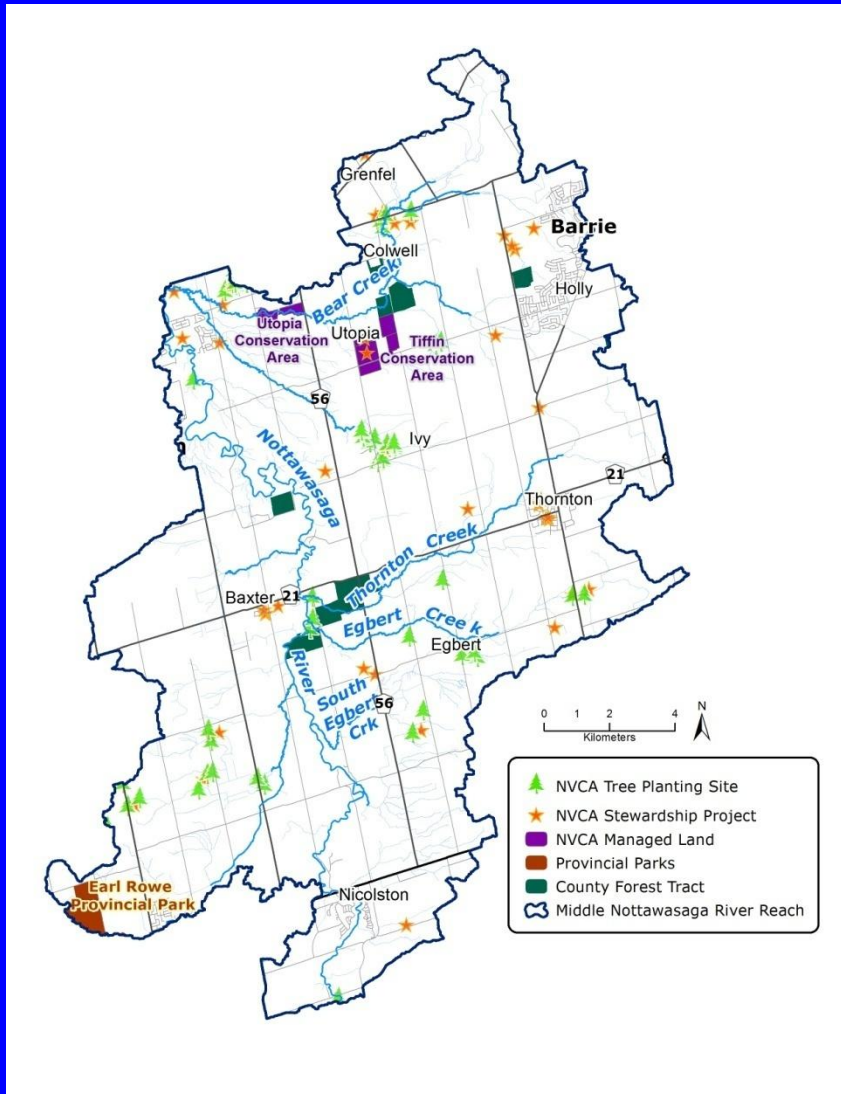


# Stewardship

## (what we offer)

- Map identifies stewardship sites and public lands
- Description of NVCA stewardship programs and public lands management
- “thank you” to watershed champions – Ken Rosin and wetland stewardship

# MIDDLE NOTTAWASGA RIVER WATERSHED STEWARDSHIP



## Forestry Program

- provides trees, planting services and forest management advice for landowners throughout the watershed
- since 2002 in the Middle Nottawasaga River subwatershed:
  - 142,510 trees planted
  - reforested 60 ha
  - more than 25 landowners involved.

## Healthy Waters Program

- provides landowners with technical and financial support
- since 2002 in the Middle Nottawasaga River subwatershed:
  - landowners have undertaken **64 stewardship projects**





Forest, wetland and stream conditions in the Willow Creek subwatershed are generally healthy. There are significant stewardship opportunities to improve water quality in degraded portions of the subwatershed and to restore natural channel features where watercourses have been altered in the past. These actions will improve fish habitat as well as water quality. Achieving subwatershed stewardship goals will also contribute to improved water quality further downstream in the Nottawasaga River.

### Healthy Waters Depend on All of Us

#### Key Actions to Improve Habitat & Water Quality:

- Protect and create stream and wetland "buffers" – areas of natural vegetation between the water and adjacent land use practices
- Plant trees along streambanks and stabilize eroding stream banks
- Implement agricultural best management practices to reduce nutrient, sediment and bacteria runoff
- Reduce the spread of invasive species and pathogens

#### Urban Water Quality & Quantity:

- Conserve water in the home and garden
- Use rain barrels, mulch and rain gardens
- Reduce or stop use of fertilizers
- Don't pour anything down storm drains – these drains often flow untreated into local water bodies

#### Habitat Enhancement:

- Plant native trees, shrubs, wildflowers and grasses to support birds, butterflies and other wildlife
- Learn to identify and remove invasive species

#### Protect Your Drinking Water – Well & Septic Care:

- Decommission unused wells to prevent surface contaminants from reaching groundwater
- Test your well for bacteria at least 3 times per year (your local health unit provides **free** testing)
- Regularly service your septic system (every 2 to 5 years) and avoid using products that kill beneficial bacteria, which aids in the breakdown of septic waste

#### Agricultural Best Management Practices:

- Upgrade manure storages and divert clean water from pastures and barn yards with eaves and berms
- Improve stream health by fencing out livestock
- Buffer streams from cropland and pasture (5-30m)
- Reduce soil erosion through conservation tillage, residue management and use of cover crops
- Reduce nutrient runoff (and save money) by implementing nutrient management planning
- Use water conservation measures and work with neighbours to coordinate water takings
- Minimize pesticide use wherever possible

### How You Can Make a Difference

- Undertake stewardship projects on your property
- Volunteer at community stream and habitat restoration work days and events
- Participate in citizen science (e.g. amphibian and breeding bird monitoring)
- Donate funds for land conservation or habitat and water improvement projects
- Step into nature – check out our interactive conservation area guide at [nvca.on.ca](http://nvca.on.ca)
- Join a local 'Friends of' or Field Naturalist group
- Attend community workshops – learn about your local environment
- Manage your forest and receive tax benefits – check out the Managed Forest Tax Incentive Program
- Donate your lands as a living legacy – contact the NVCA to learn more
- Stay informed about upcoming events – check us out on Facebook and Twitter



# Stewardship (what YOU can do)

- Focus on extending high quality coldwater habitat downstream toward Alliston
- Variety of actions recommended to “make a difference”

# Healthy Ecosystems, Healthy Communities

## Our Watershed Ecosystems Benefit Us All

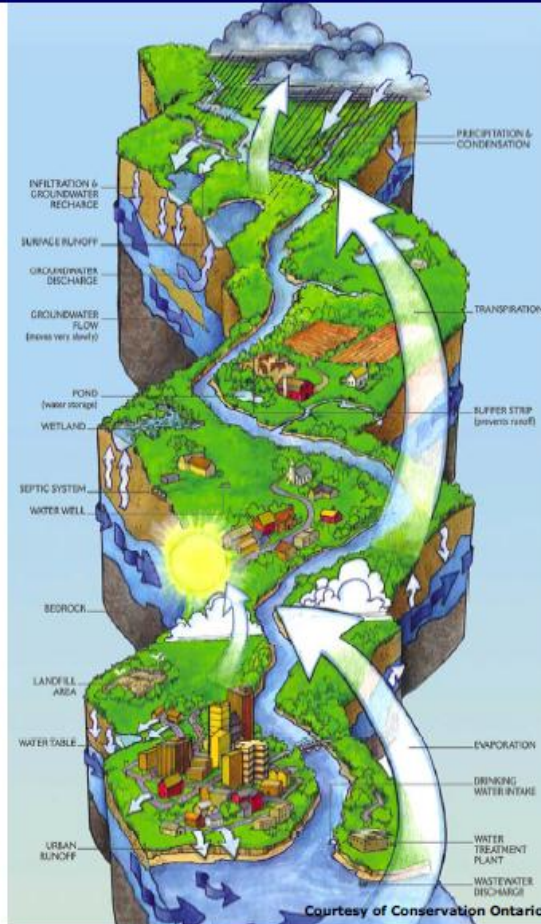
A healthy natural heritage and water resource system is the foundation of a high quality sustainable community. Often these services are overlooked and undervalued. The ecosystem services provided by our lands and waters include:

- healthy agriculture
- clean drinking water
- waste assimilation
- fish and wildlife habitat
- climate stabilization
- flood and erosion control
- forest products
- spiritual and inspirational values
- recreation and ecotourism

Ecosystem services will become even more important as urban growth continues in our watershed communities. This will bring large numbers of new people into our community with expectations for healthy landscapes and streams, clean drinking water and opportunities for recreation.

New growth represents challenges and opportunities for us as a watershed community. Water resources, including stormwater and wastewater, must be carefully managed in urbanizing areas to ensure that the health of our rivers, stream and lakes is protected. Development must be planned to ensure it is safe from flooding and erosion hazards. Interconnected forests, wetlands and streams are needed to maintain water quality as well as the variety of life on our landscape.

Community stewardship will continue to be an important tool to restore subwatershed health. Through innovative planning and wise stewardship, we can sustainably manage our local streams, lakes and natural areas for the benefit of present and future generations.



# Conclusion

- Linking healthy ecosystems to healthy communities
- Forthcoming challenges and opportunities for us as a watershed community
- Need for innovative planning and wise stewardship



## THANK YOU!

Thanks to all of our Watershed Champions – landowners, community groups, schools, businesses, municipalities and other government agencies – who support stewardship activities in our watershed!

For more information or to get involved, contact the NVCA at (705)424-1479 or [www.nvca.on.ca](http://www.nvca.on.ca)

A member of:



## Partner Municipalities in the Upper Nottawasaga River Subwatershed:

Township of Adjala-Tosorontio, Amaranth Township, Town of Mono, Town of New Tecumseth

*"Working Together to Protect and Restore"*



A photograph of a sunset over the ocean. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water. The sky is filled with soft, golden clouds. The foreground shows a dark, silhouetted beach with some rocks. The text "Thank You!" is overlaid in the center in a blue, serif font.

Thank You!