



# Ready, Set, Check Your Watershed: A unique approach to community-based stream monitoring to assess watershed health

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# Outline

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- Citizens' Environment Watch
- Check Your Watershed Day
  - What it is?
  - Outcomes
  - Results
- Successes and Challenges
- Future of Check Your Watershed Day





# Citizens' Environment Watch

- Ontario-based environmental non-profit and charity
- CEW empowers people to take an active role in restoring and sustaining nature. We give communities the tools for education, monitoring and influencing positive change. Together we create a healthy environment for all.
- Water-based programs:
  - Changing Currents
  - Ontario Lakes for the Future
  - Check Your Watershed Day



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# Check Your Watershed Day

- Checking small stream conditions (less than 3 meters)
- Stream crossings (public lands)
- Sampling zones (~10 sites/zone)
- Summer low flow (3<sup>rd</sup> Saturday in July)





# Check Your Watershed Day

- Stream Teams of 3:
  - 1 Leader, 2 Members
  - Agency staff and volunteers
- Quality Assurance teams (volunteer and agency teams)





# Check Your Watershed Day

- Modules within the Ontario Stream Assessment Protocol:
  - Site documentation (new & old)
  - Stream channel dimensions
  - Discharge
    - vol/time; HH; floating objects
  - Height of perched culvert
- All sample occurs within a span of 4 hours





# Outcomes

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1. **Education:** Increases understanding and appreciation of a watershed and its streams
2. **Community Capacity:** Makes monitoring fun and easy; brings a community together
3. **Information:** Produces useful information that is important for watershed characterization/management/stewardship





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# Education

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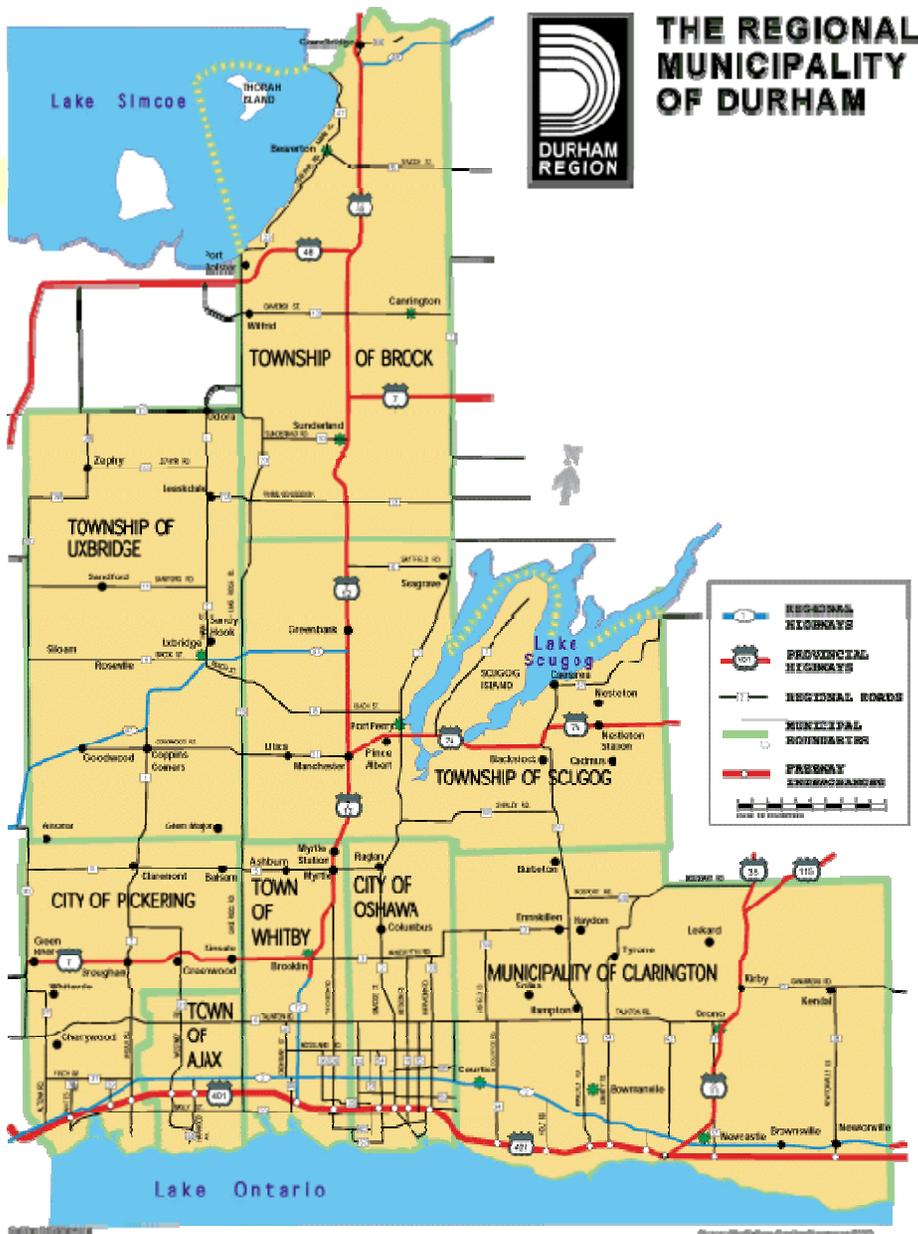
- Pre- and post- monitoring education
- What is a watershed?
- Which watershed do I live in?
- What does it look like?
- Watershed boundaries vs. Municipal boundaries



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**THE REGIONAL MUNICIPALITY OF DURHAM**



- 8 municipalities in the Region of Durham
  - 4 Conservation Authorities have their jurisdiction within Durham
1. Brock, Scugog, Uxbridge
  2. Uxbridge, Pickering, Ajax
  3. Whitby, Oshawa
  4. Scugog, Clarington

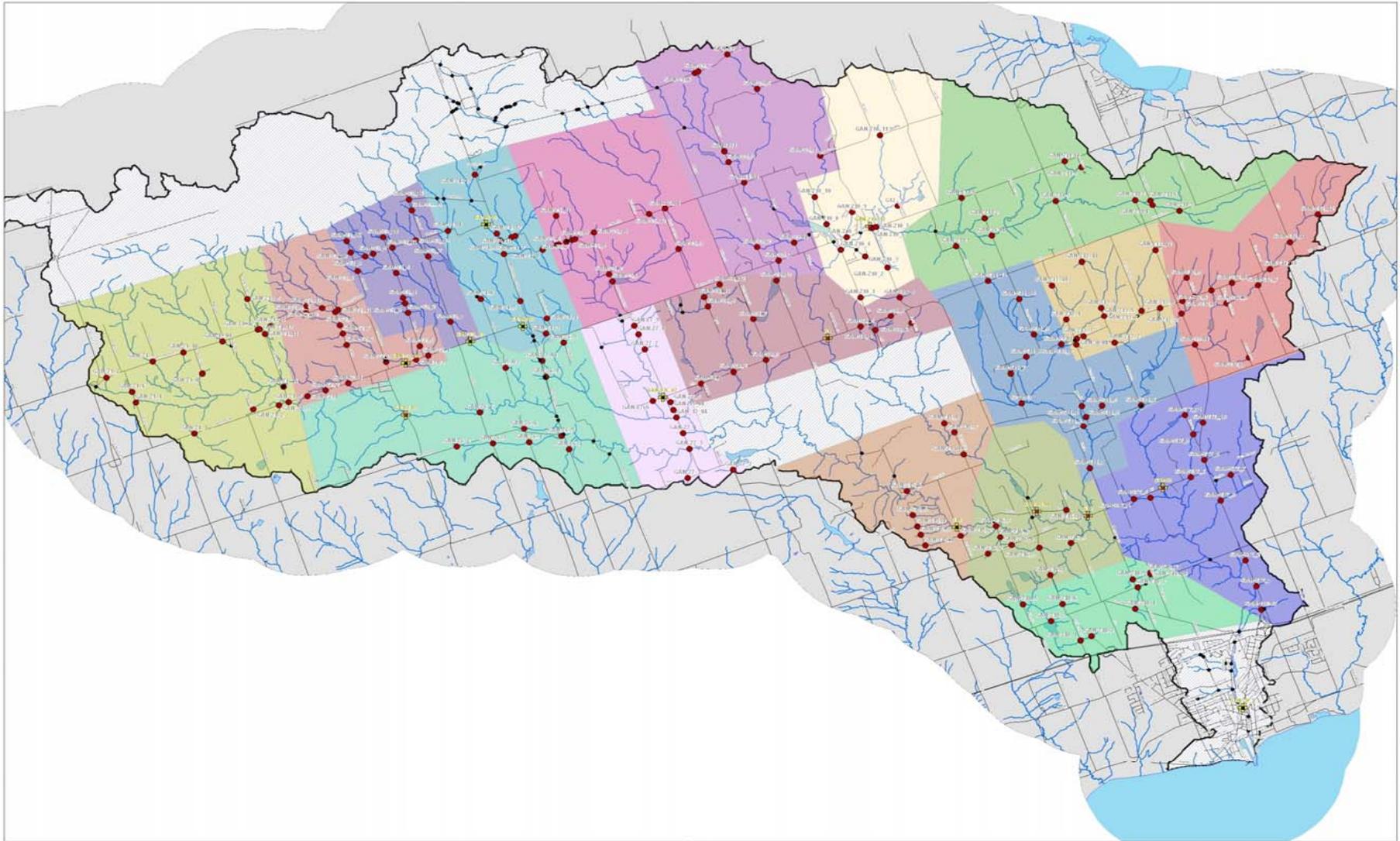


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# Check Your Watershed Day Sites

## Ganaraska River Watershed

Ganaraska Region Conservation Authority

<ul style="list-style-type: none"> <li> Baseflow Sites</li> <li> CYWD Sample Sites</li> <li> Do not sample</li> <li> Water Quality Sites</li> </ul>	<ul style="list-style-type: none"> <li> Roads</li> <li> Streams and Creeks</li> <li> Open Water</li> <li> Watershed Boundary</li> </ul>	<p><b>CYWD Zones</b></p> <table border="0"> <tr> <td> No Sample Zone</td> <td> 1</td> <td> 2</td> <td> 3</td> <td> 4</td> <td> 5</td> <td> 6</td> <td> 7</td> <td> 8</td> <td> 9</td> <td> 10</td> <td> 11</td> <td> 12</td> <td> 13</td> <td> 14</td> <td> 15</td> <td> 16</td> <td> 17</td> <td> 18</td> </tr> </table>	No Sample Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
No Sample Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			



This map is for information purposes only and the Ganaraska Region Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained within the map.  
 Prepared by Ganaraska Region Conservation Authority July 2007  
 Produced using information provided by the Ministry of Natural Resources, GRCA and other municipal sources  
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Project  
**Check Your Watershed Day**  
 Produced by:  
 GRCA-GRS-SN  
 Approved by:  
 PL





**Check Your Watershed Day Sites**  
**Ganaraska River Watershed**  
*Ganaraska Region Conservation Authority*

-  Ganaraska Watershed Boundary
-  Lakes



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Project <b>Check Your Watershed Day</b>	
Produced by GRCA-GIS Unit	Approved by PL





# Education

## Post-monitoring:

- How many small streams and stream crossings are in my watershed?
- How many streams were dry?
- How streams are connected?
- How to read topography
- How this links into their own land use on their property?





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# Community Capacity

- Training in standardized protocols
- Stream Team Leaders and Members





# Community Capacity

- Meeting and work with like-minded people
- BBQ
- Support and participation from local Councilors





# Community Capacity





# Community Capacity



Monitoring **Event** rather than Monitoring **Program**

- Minimal Training & Commitment
- Community Involvement
- Attracts the unusual suspects
- Agency staff and volunteers working together



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# Information

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- Increased understanding of the watershed
- Watershed characterization, management, stewardship
- Inform legislation, e.g. Oak Ridges Moraine Conservation Plan



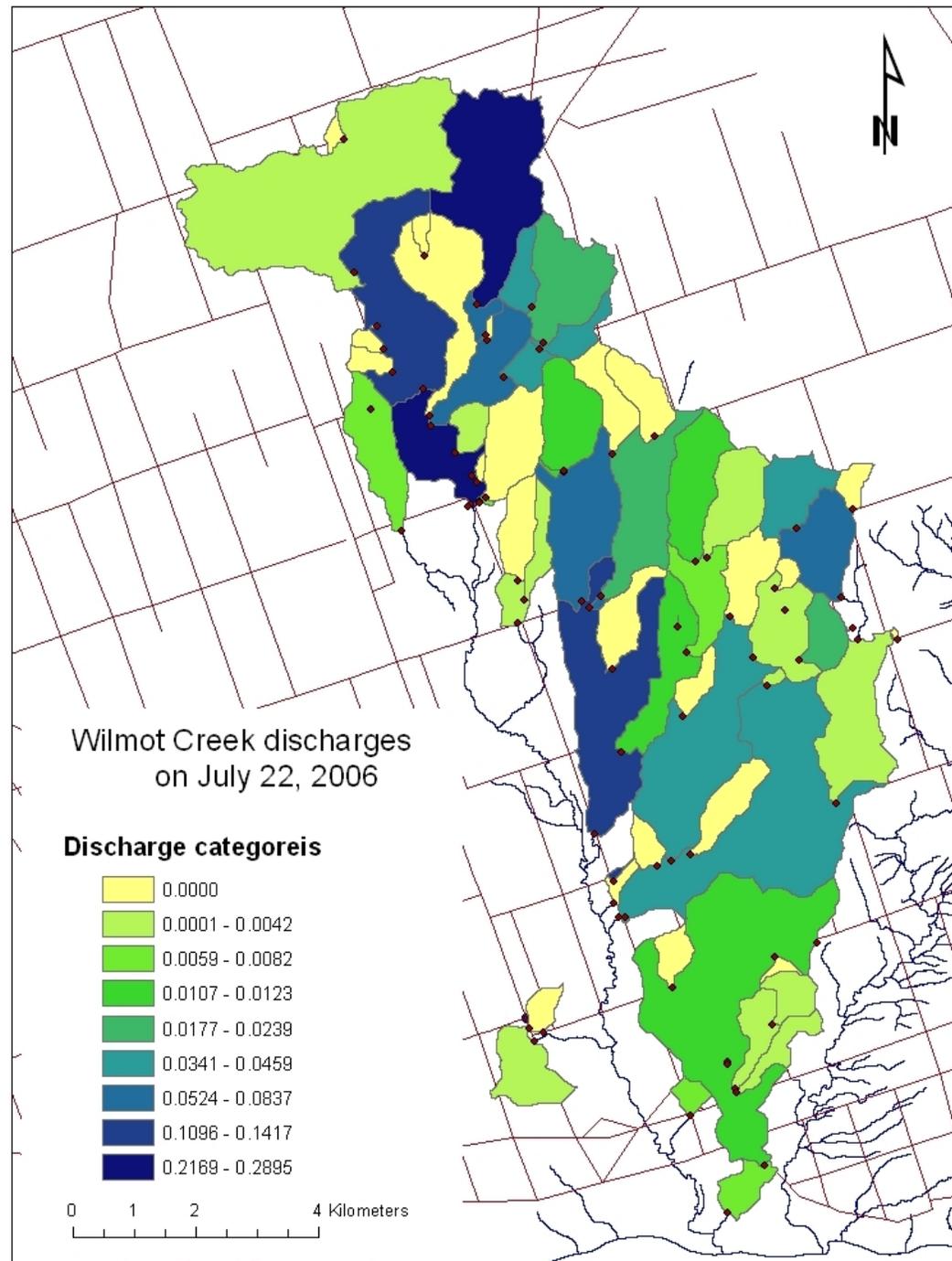
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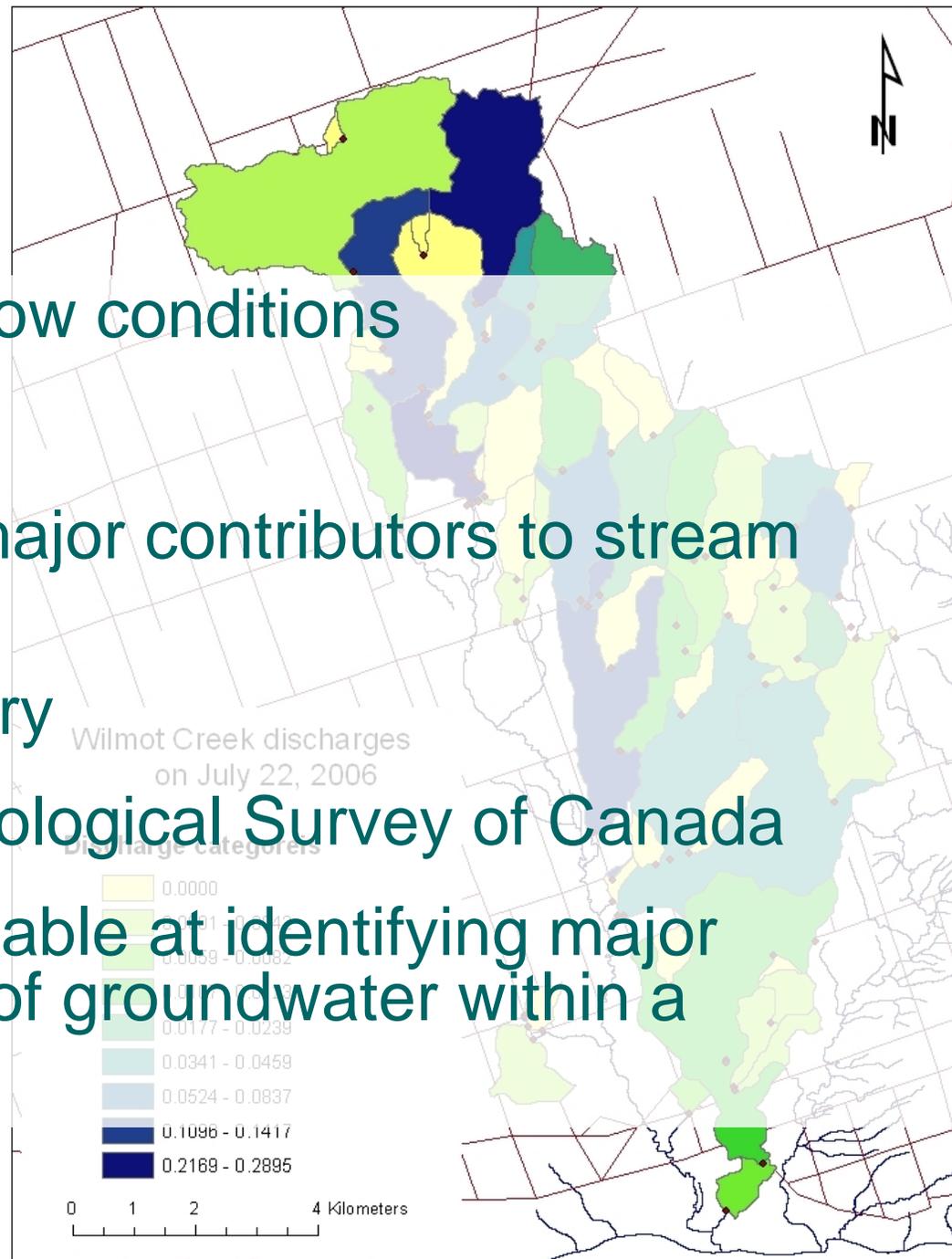
# CYWD 2006

- Piloted in Wilmot Creek
- 22 Volunteers
- 78 Sites
- 5 partners



# 2006 Results

- High variability in flow conditions
- 33 dry, 45 flowing
- 3 subwatersheds major contributors to stream discharge
- Mid-eastern sites dry
- Consistent with Geological Survey of Canada
- CYWD protocol reliable at identifying major sources and sinks of groundwater within a watershed



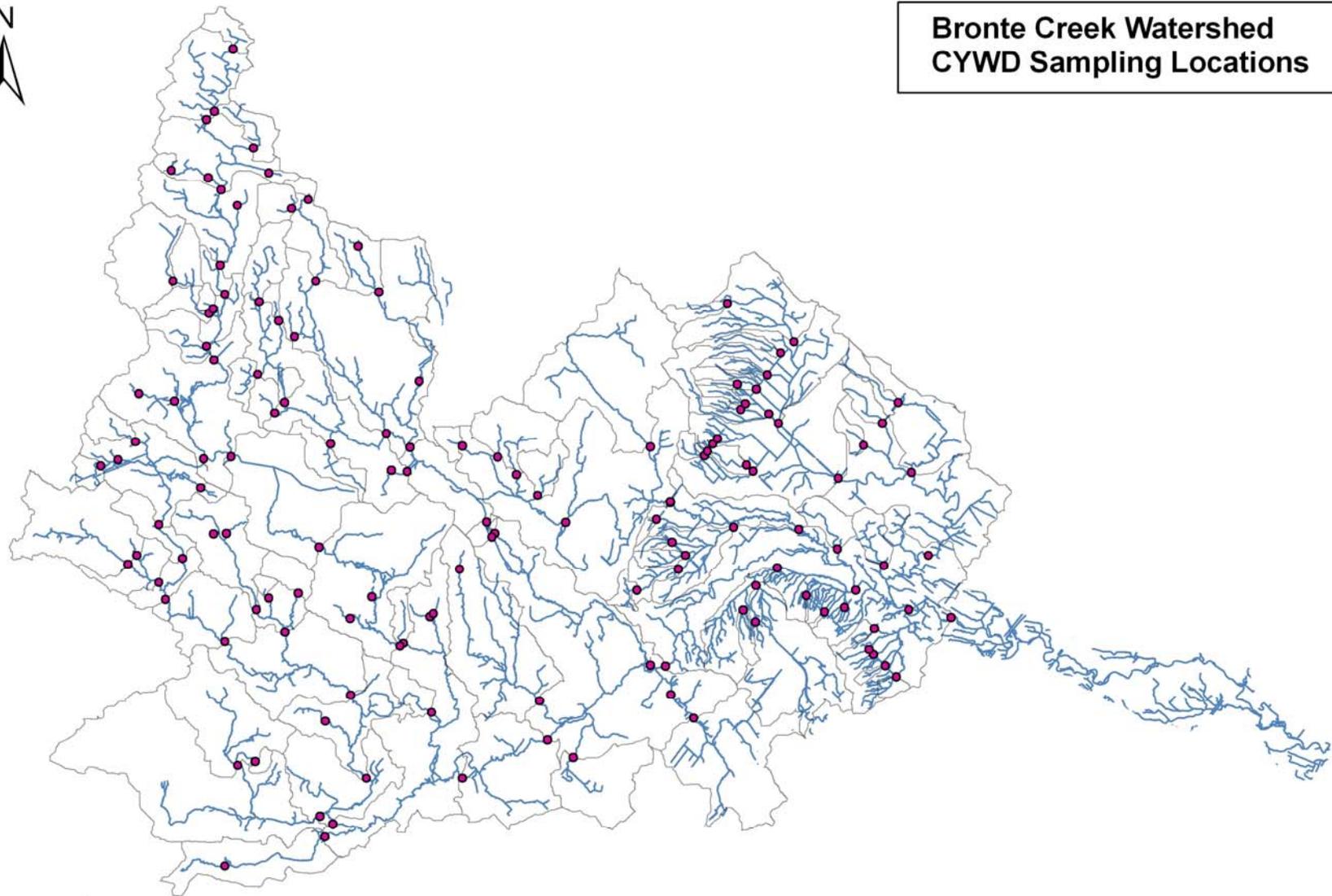


# 2007 Data

Watershed	Duffins Creek	Oshawa Creek	Ganaraska River	Bronte Creek	<b>Total</b>
Area (km <sup>2</sup> )	283	120	279	304	<b>986</b>
Checked Sites	156	113	217	141	<b>627</b>
Perched Culverts	34	21	65	14	<b>134</b>
Volunteers	26	19	50	29	<b>124</b>



# Bronte Creek Watershed CYWD Sampling Locations



## Legend

- Sampling Points
- Catchments
- Waterflow





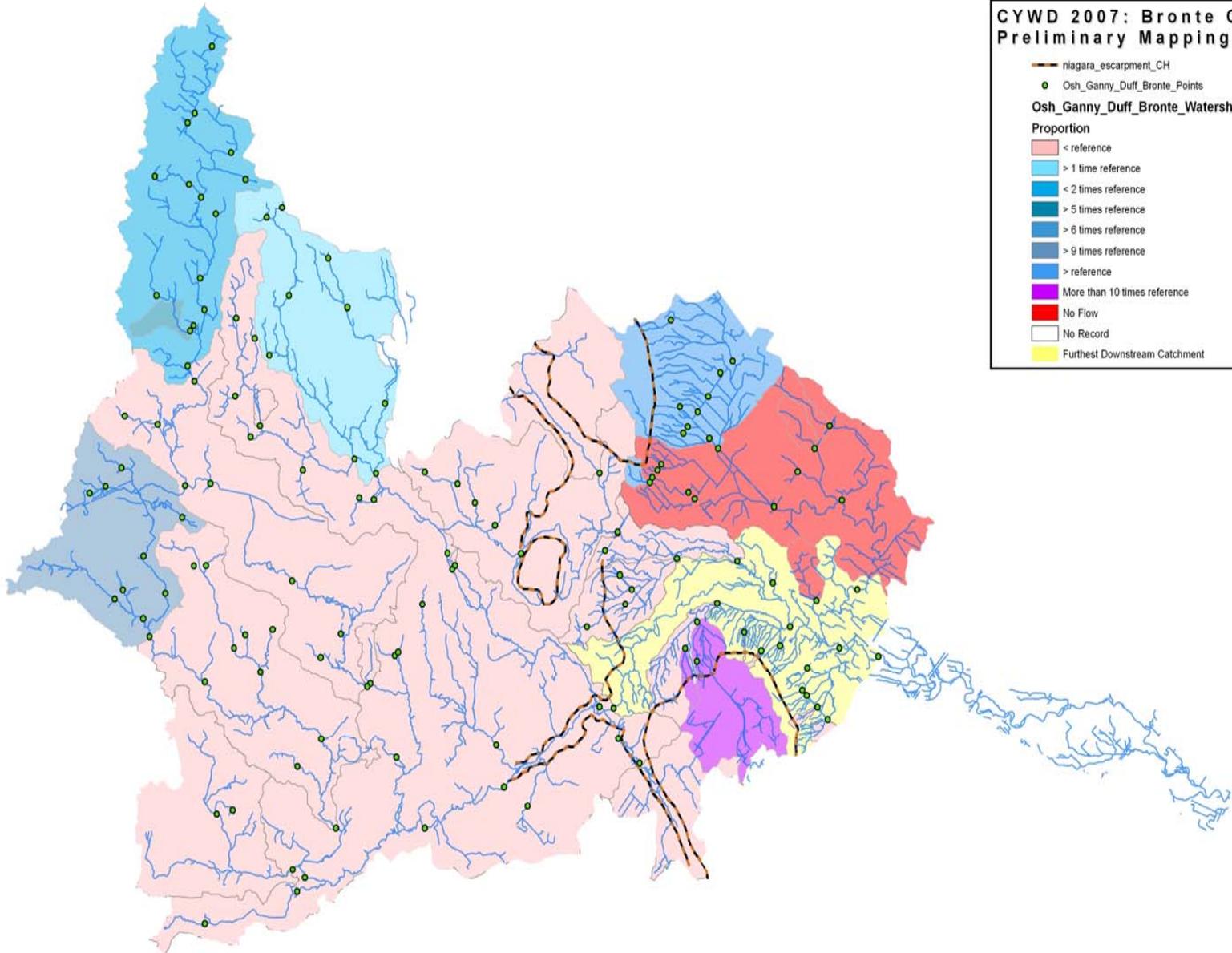
**CYWD 2007: Bronte Creek  
Preliminary Mapping**

- niagara\_escarpment\_CH
- Osh\_Ganny\_Duff\_Bronte\_Points

**Osh\_Ganny\_Duff\_Bronte\_Watersheds**

**Proportion**

- < reference
- > 1 time reference
- < 2 times reference
- > 5 times reference
- > 6 times reference
- > 9 times reference
- > reference
- More than 10 times reference
- No Flow
- No Record
- Furthest Downstream Catchment

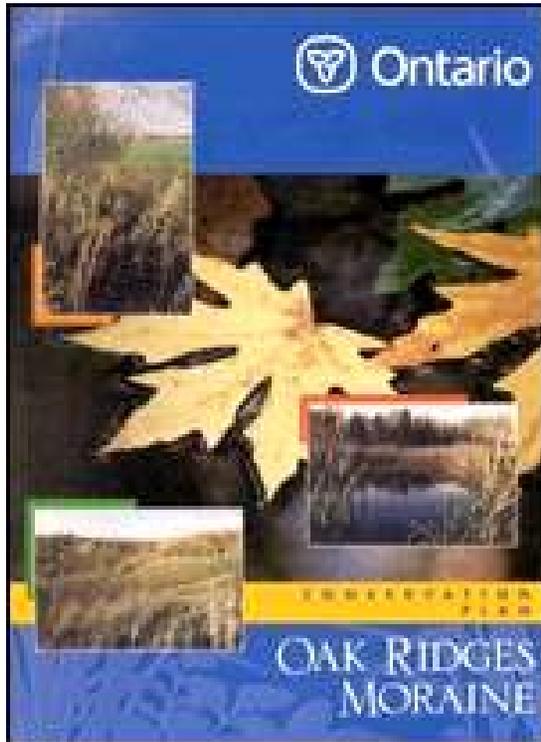


0 0.45 0.9 1.8 2.7 3.6  
Kilometers

Map Produced by Conservation Halton 2008



# Oak Ridges Moraine

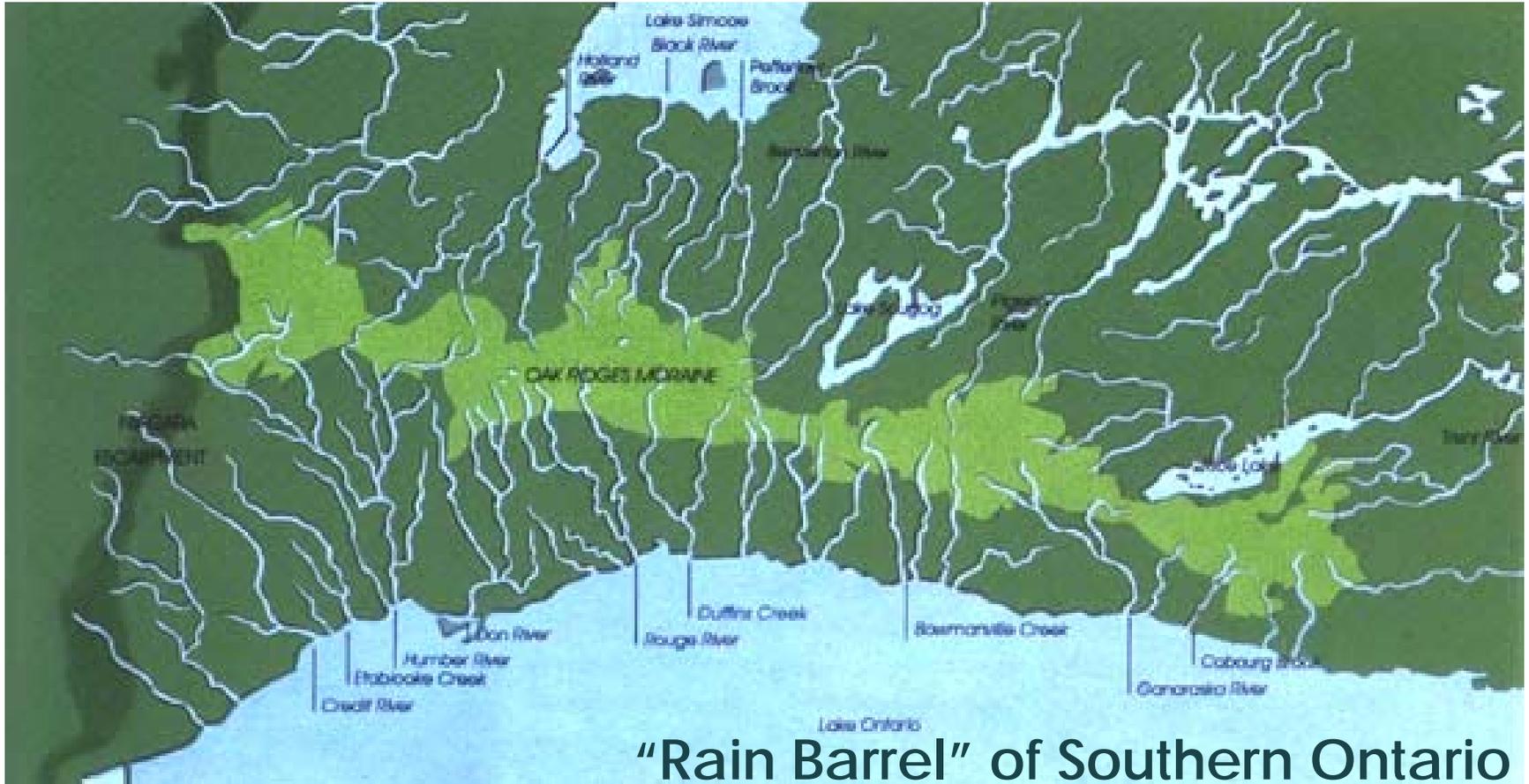


- Oak Ridges Moraine Conservation Plan passed on April 22, 2002
- Vision: “protecting the hydrological features and functions” of the Oak Ridges Moraine





# Oak Ridges Moraine



"Rain Barrel" of Southern Ontario



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# Successes

- Community involvement
- Stewardship activity
- Low flow survey
- Collaborative Project
- Working Model:
  - Quasi-governmental organization (CA)
  - Non-governmental organization
  - Community group





# Challenges

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- RAIN!
- Databases
- Working up the data at different levels
- Communicating results





# Future of CYWD



- Improving the data management
- Establishing monitoring cycles
- Expanding across the watersheds of the Oak Ridges Moraine
- Expansion beyond the Moraine



# Acknowledgements

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FOUNDATION**

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