

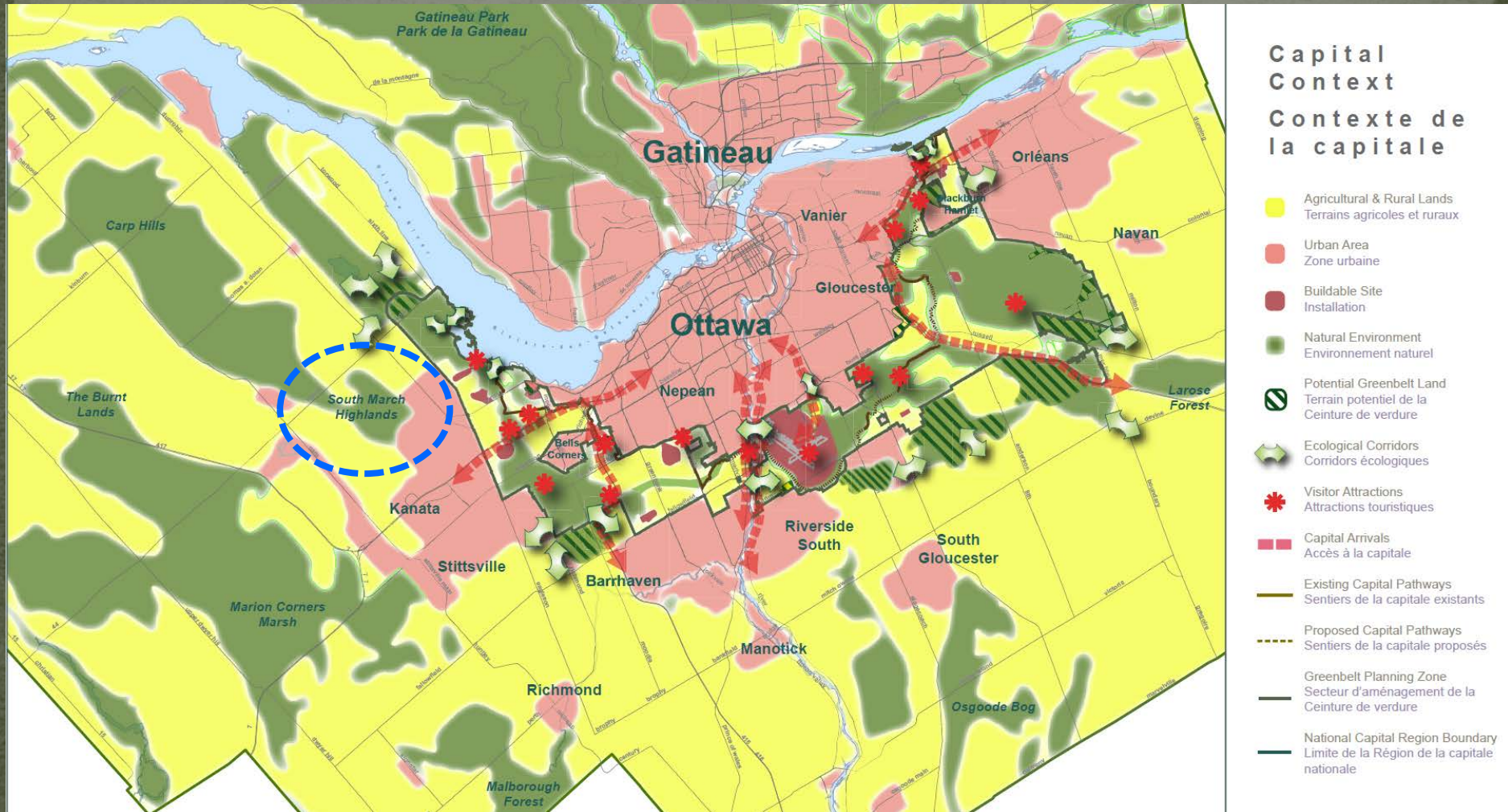


# Ottawa's Great Forest: The South March Highlands

**South March Highlands – Carp River Conservation Inc.**

*[All photos in this presentation were taken in or of the South March Highlands]*

# Where are the South March Highlands?



# A “Wild Island” Inside Ottawa

10,000 Years Old

3x Larger Than Stanley Park



30 Eco-Types  
Of Vegetation

Visible Canadian  
Shield

10 Distinct  
Habitats

# National Capital's Major Eco-Corridors



# SMH is Major Infiltration Site for North Kanata's Aquifer



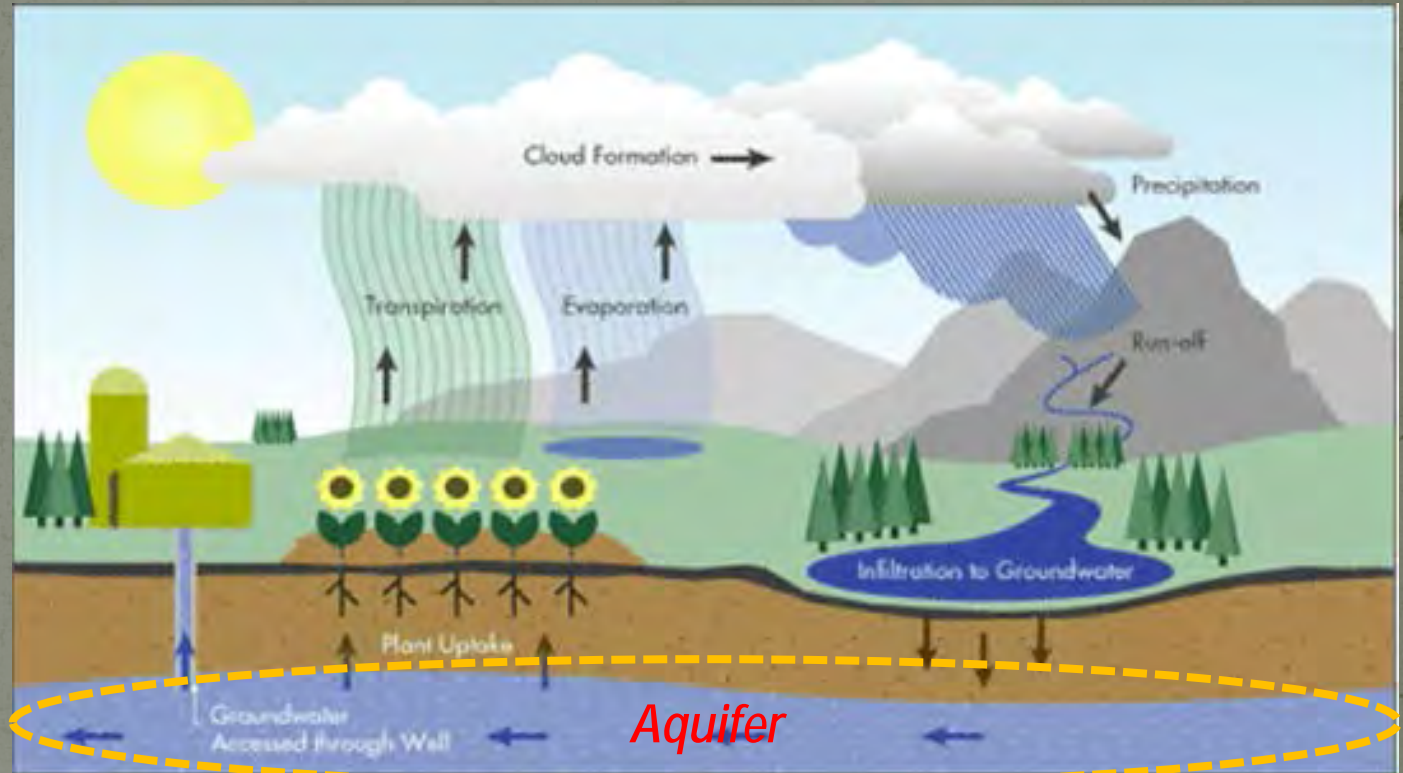
# Aquifer is Integral Part of Hydrological Cycle

Highlands & Wetlands Promote Infiltration of Rain & Snow melt into Aquifer

Infiltration Filters Water

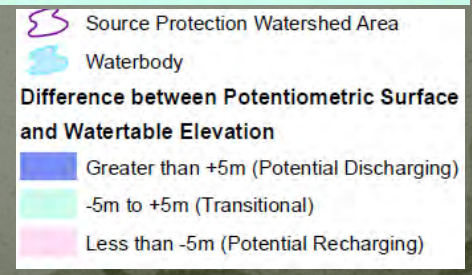
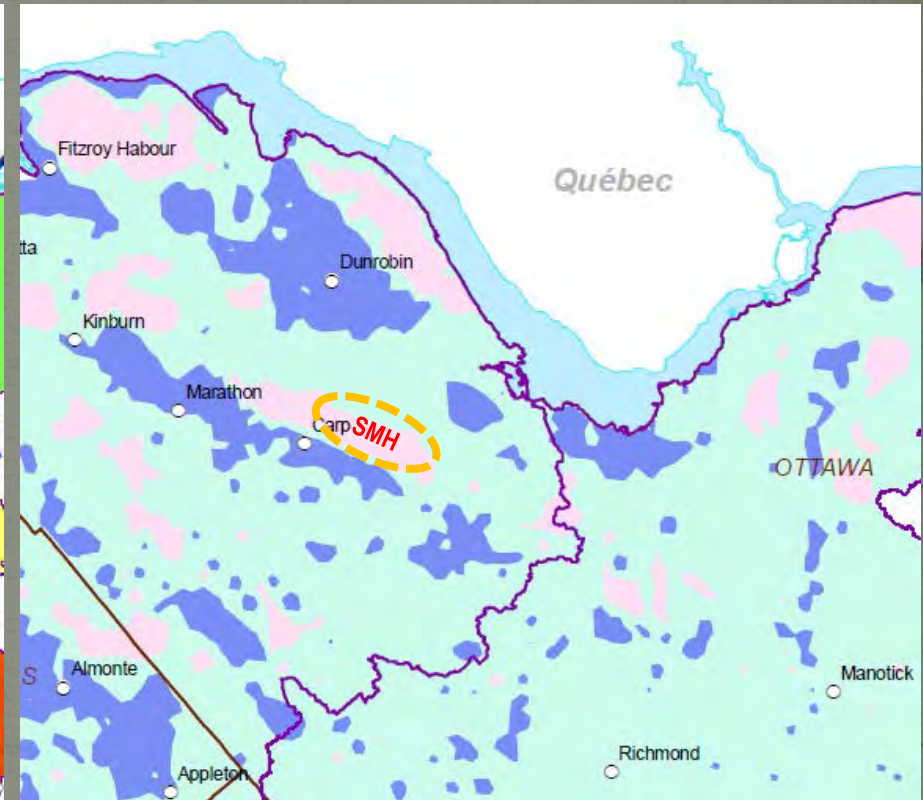
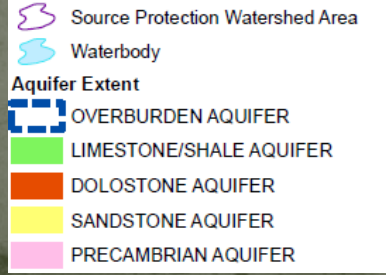
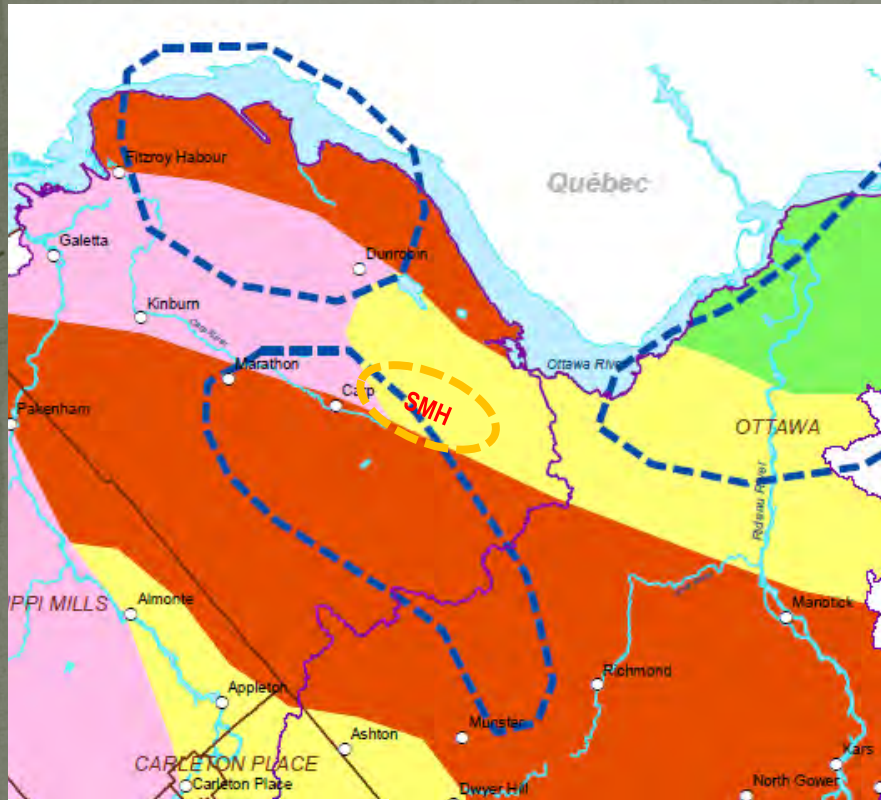
Aquifer Stores & Transmits Water

Crops and Wells Consume Water



*South March Highlands is a highland area that contains several wetland complexes*

# Aquifer Locations and Recharge Areas



**Assessment Report**  
 Mississippi Valley Source Protection Area  
 November 19, 2010

# SMH Headwaters Also Recharge the NCC Greenbelt by Supplying the Only 2 Remaining Cold-Water Streams in the Greenbelt

(both will be transformed into warm-water if development is allowed to proceed)

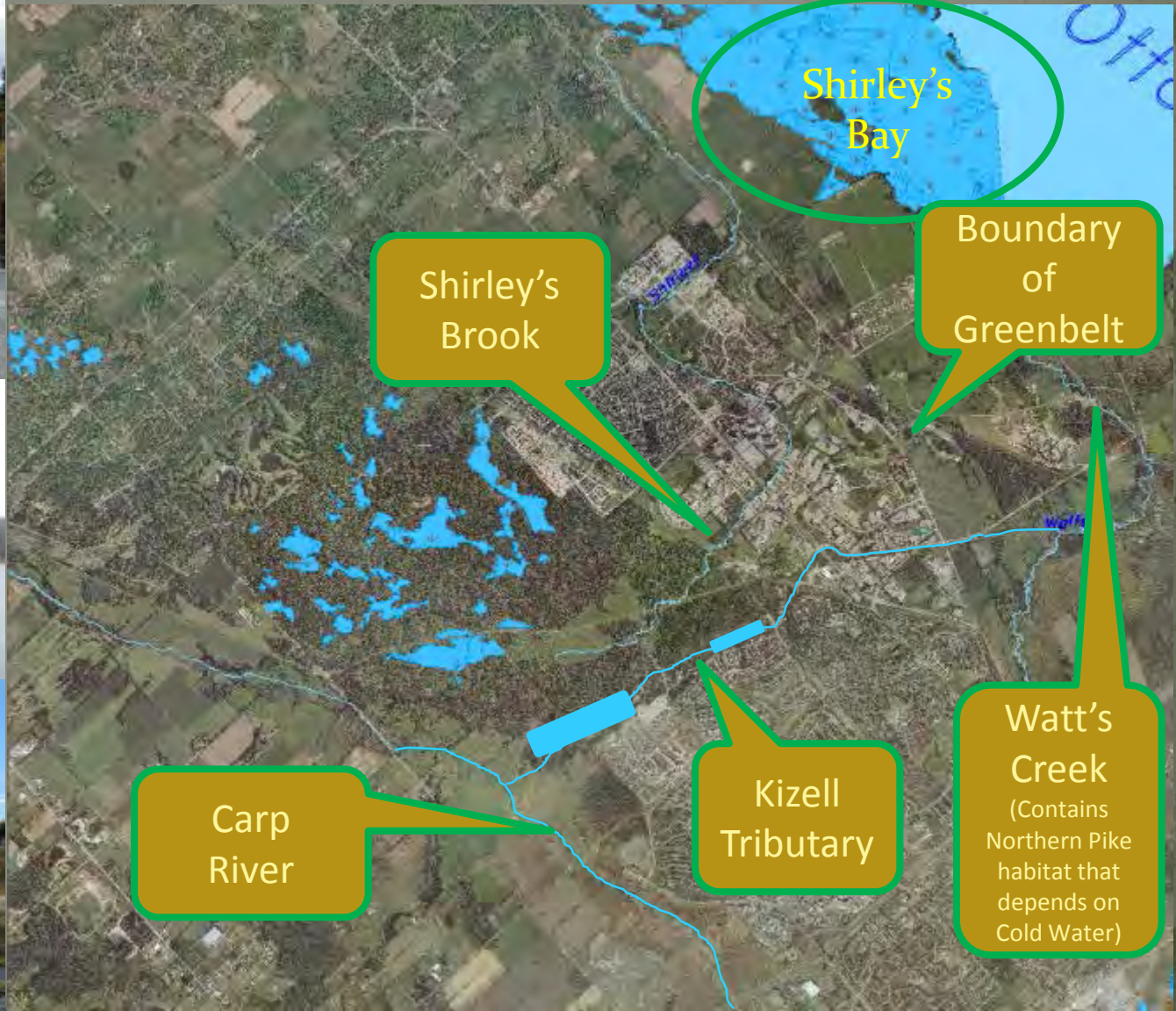
Klondike Pond



Goose Pond

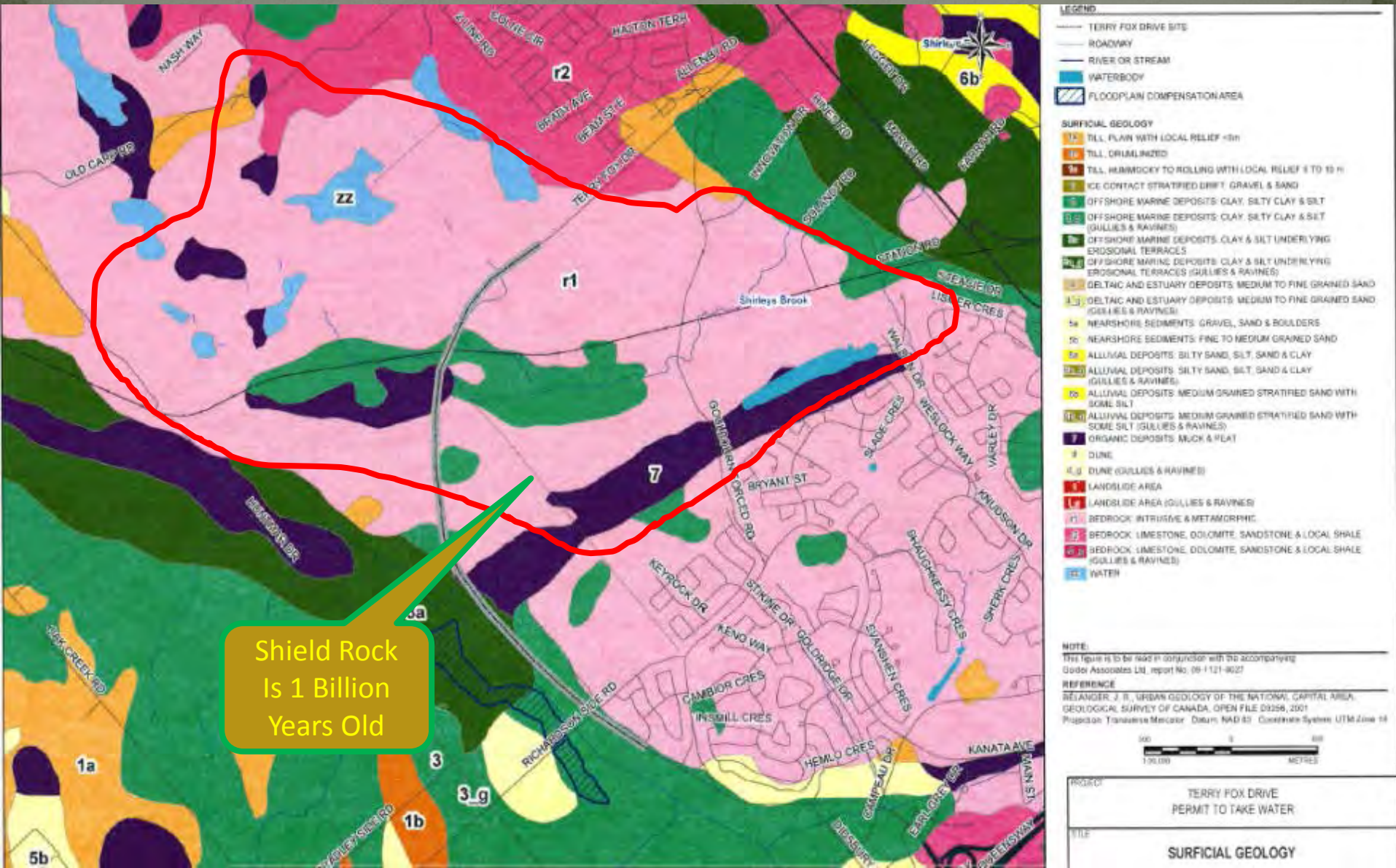


Heron Pond





# Rich GeoHeritage – Shield Rock is Extensive



# Only Location In Ottawa with Exposed Canadian Shield



One of Many Locations Where Shield  
is Magnificently Displayed



Impressive Even after “Development”

# Shield Rock is Always Close To Surface



Max Depth  
of Shield is  
1m

Any Development  
Requires Blasting



# Distinctive and Unique GeoMorphology



# Heron Pond's Sandstone Barren Was Once Polished Like a Mirror

500m Long  
Nepean  
Sandstone  
Pavement  
Barren



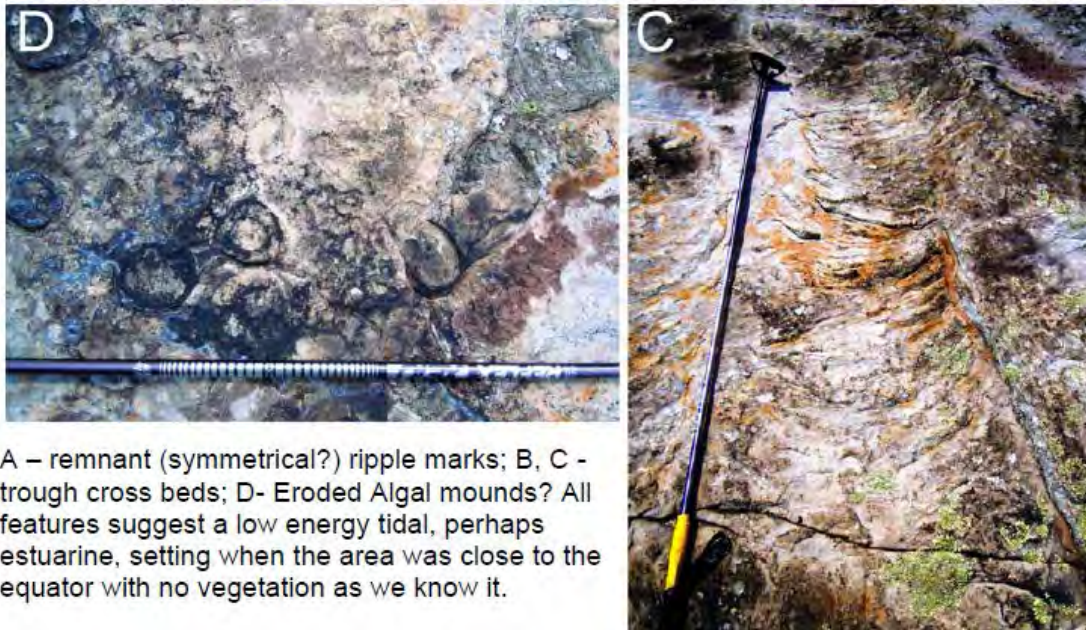
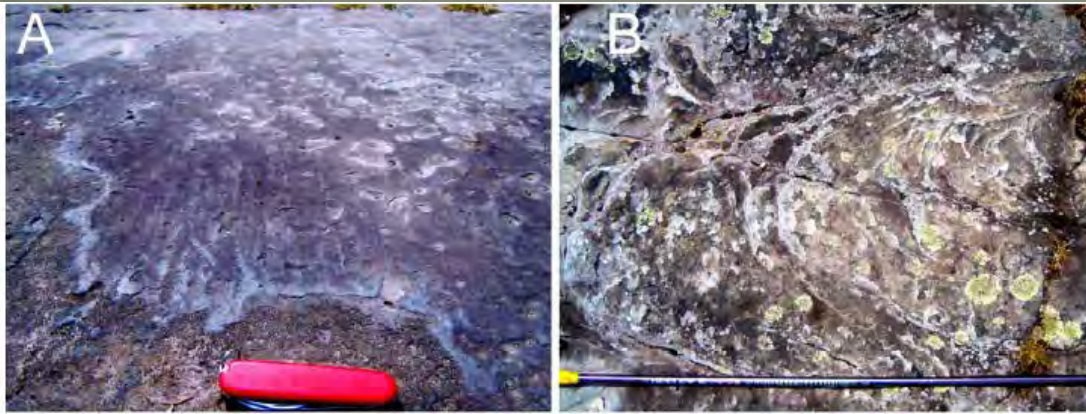
# Reminders of Ancient Glaciers



In area B, glacial chatter marks (above); striations (top right) and crescent gouges are evident. Only chatter marks and crescent gouges provide ice movement direction. The striated surface retains a remnant mm-thick glacial pavement of semi-fused quartz grains.



# Ancient Sea on Display

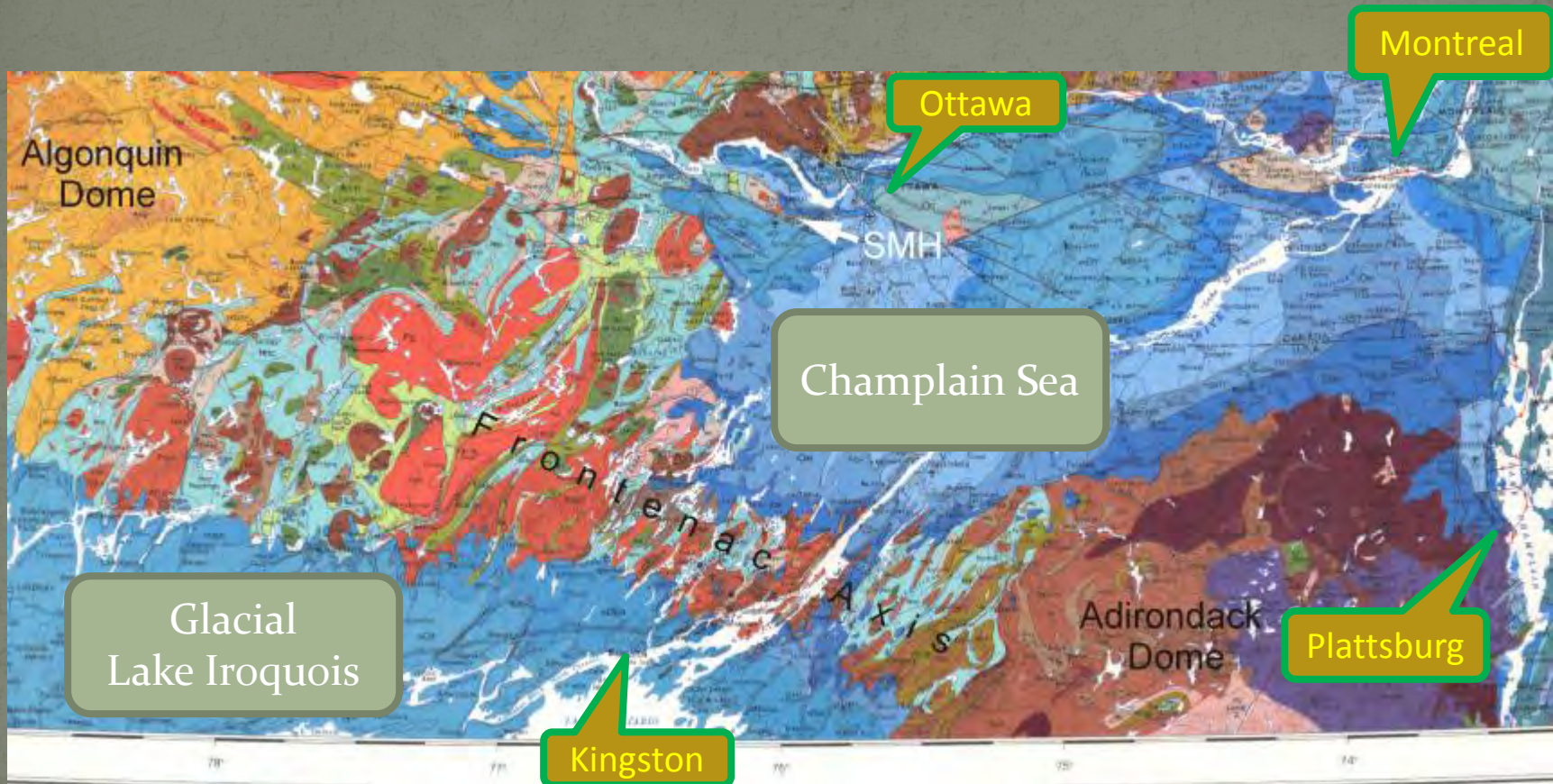


A – remnant (symmetrical?) ripple marks; B, C - trough cross beds; D- Eroded Algal mounds? All features suggest a low energy tidal, perhaps estuarine, setting when the area was close to the equator with no vegetation as we know it.

The only known area in Ottawa with unequivocal dewatering cylinders preserved in Paleozoic sandstone – An Ancient Spring



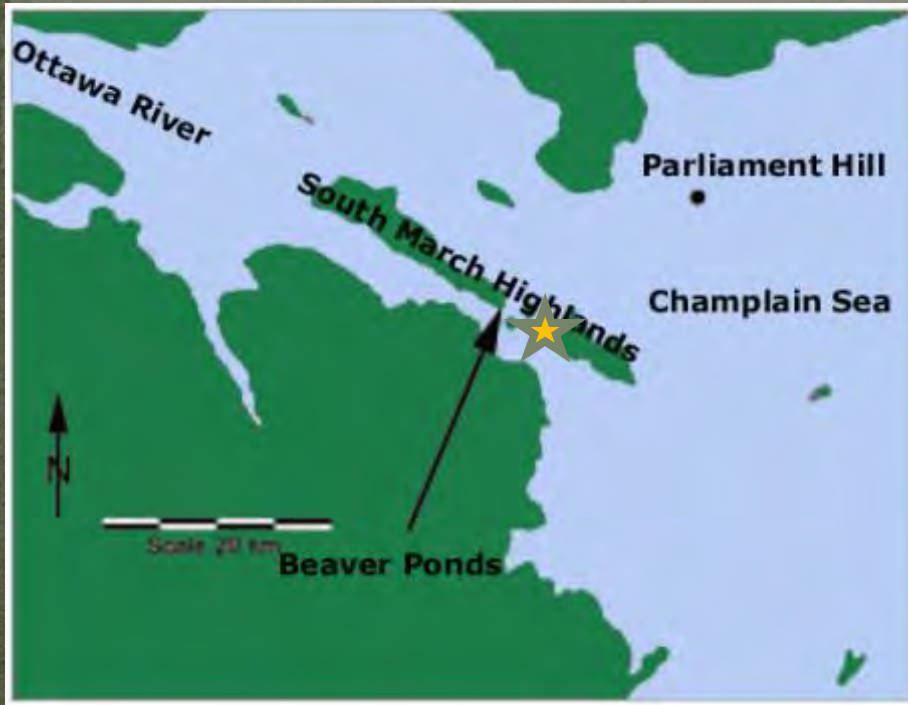
# The Original Turtle Island in the Champlain Sea?



The SMH was an island at a time when Frontenac Axis geological formation separated Glacial Lake Iroquois (precursor to Lake Ontario) from salt waters of the Champlain Sea 8,000 - 12,000 years ago

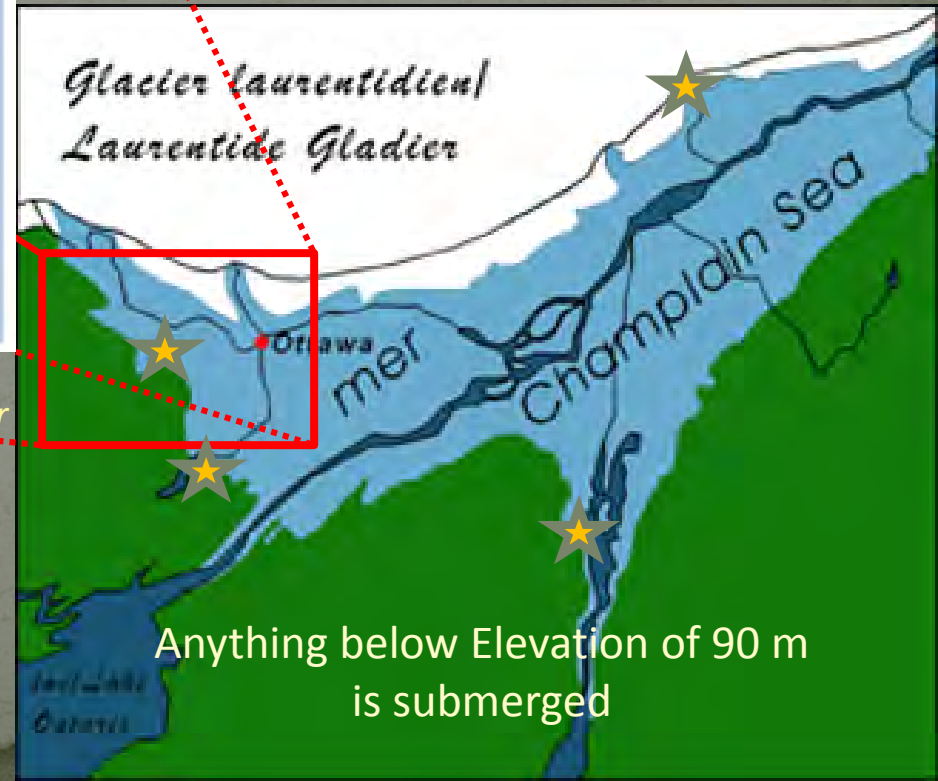


# Ancient Civilization Populated Shoreline of Champlain Sea & Lampsilis Lake



*"... the rocky upland areas ... should be considered to be of high potential for occupation by early postglacial sea mammal hunters along subsequent shorelines as local sea levels dropped from about 120 m above current sea level at around 11,000 years ago, to 90 meters above sea level at some time around 9,000 years ago. "*

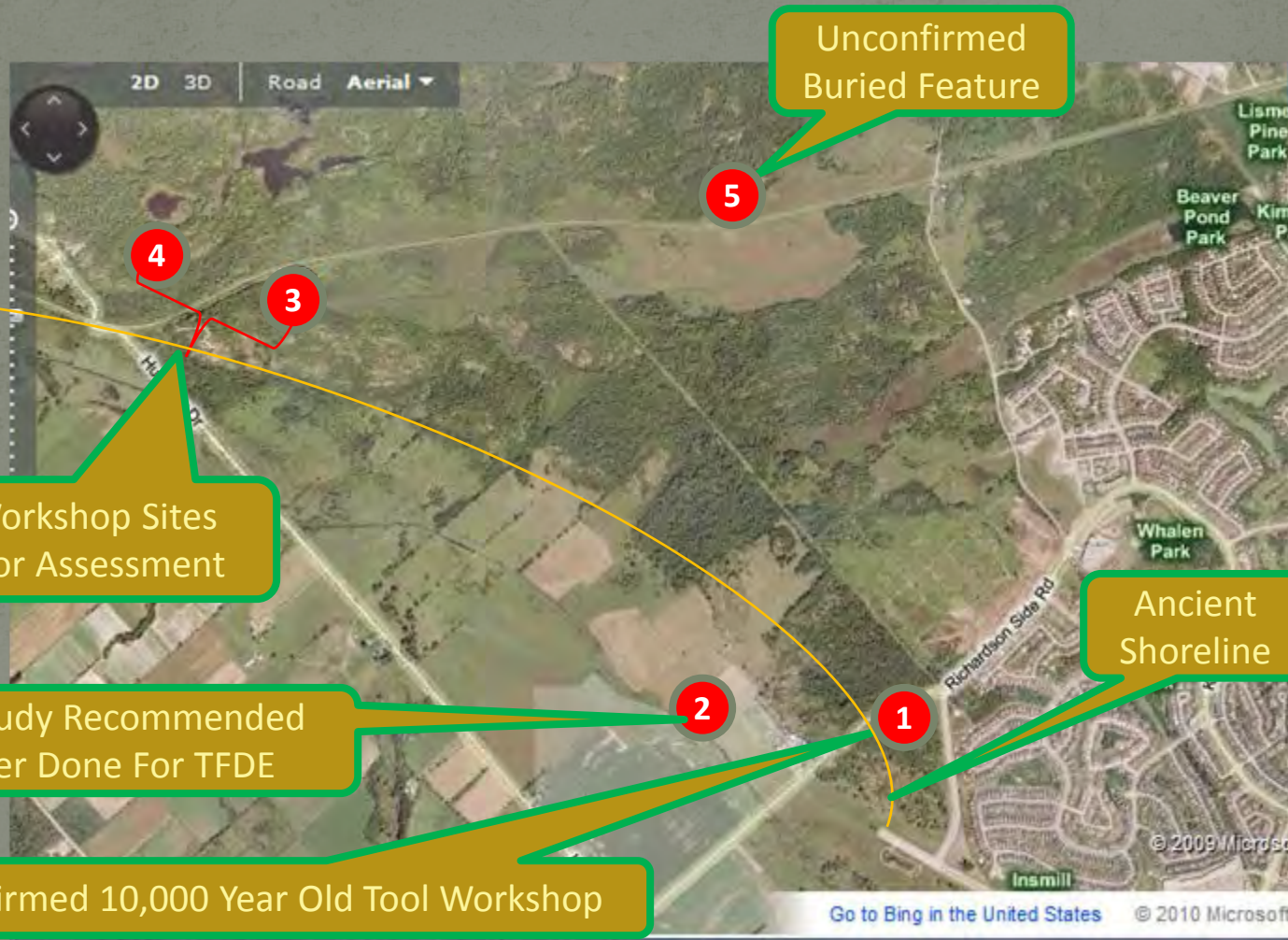
*Dr. Robert McGhee – Retired Curator Canadian Museum of Civilization*



*"Several centuries later, circa 9,800 BCE, a huge freshwater table, Lampsilis Lake, replaced the Champlain Sea in the Ottawa Valley and throughout the St. Lawrence lowlands...we estimate the level of Lampsilis Lake in the central Ottawa Valley ... to have been roughly 70 meters. "*

*Dr. Marcel Laliberte – National Capital Commission  
Archaeological Resource Potential [1998]*

# National Historic Value Known Archaeological Sites In SMH



# 8,000 – 10,000 Year Old Chopping Tool



Bi-Face clearly developed by hand and consistent with Late Paleo- Early Archaic Indian tool technology

Found at location (1) at elevation where approximate age is 8,000 - 10,000 BCE

Still sharp !



# 500 Generation Old – Chiselled Core



Tool marks clearly developed by hand

Quartzite indicates Paleo-Archaic Indian

Found at location (3) workshop

Elevation indicates approximate age as 10,000 BCE



# Ancient Stone Tool Twice As Old As Stonehenge or Egyptian Pyramids



Pyramidal shape developed by hand

Quartzite material indicates Late Paleo-Indian origin

Found at location (4) workshop

Elevation (115 m) consistent with approximate age of 10,000 BCE

# Euro-Canadian Cultural Sites Too



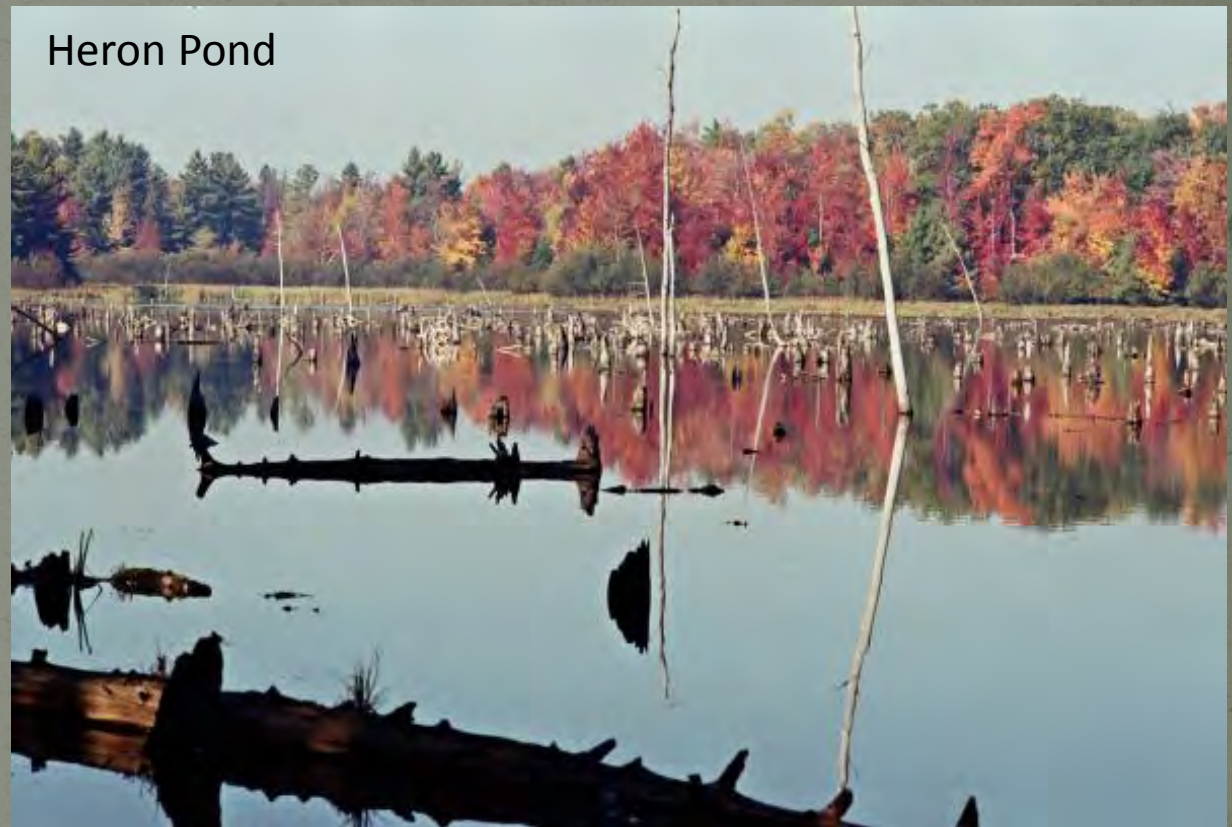
**McMurtry's Tannery  
(Circa 1860)**

## **Also:**

- **Several 19<sup>th</sup> Century homestead sites dating back to 1820 (as old as Pinhey's Point)**
- **Richardson Stone House dating back to approx. 1860 (as old as the Log Farm)**
- **A Feldspar Mine dating approximately to 1919-1921 (unique in Ottawa)**

# SMH Saves March Township from 1870 Fire

- 1870 Forest Fire destroyed most of Ottawa Valley
- Highlands and Wetlands of SMH provided critical firebreak
- Signs of that Fire can still be seen today
- Several trees survived the great Fire and are over 130 years old



# Old Growth Commonly Found

MNR Technical Handbook:  
“Old Growth” (pages 45-46)

- ✓ Large proportion of trees in older age classes
- ✓ Many 120 – 140 years old
- ✓ Broad spectrum of tree sizes with some very tall trees
- ✓ Uneven canopy due to fallen trees
- ✓ Abundant fallen logs various stages of decomposition
- ✓ Forest supports a high diversity of wildlife species





# 10,000 Year Old Transition Zone

Coniferous  
Meets  
Deciduous



# Natural Heritage: Densest Bio-Diversity In Ottawa [Gidakiiminaan]

Unknown Number of  
Insect, Fungi &  
Bryophyte Species

Over 807 Documented  
Species:  
448 Native Plants  
169 Birds, 62 Butterflies,  
42 Mammals, 23 Fish,  
24 Amphibians & Reptiles

All Within an  
Area of 3 x 4 km



# Just Some of the Wildlife Documented

- Red Wolf, Coyote
- Canada Lynx, Red Fox
- Black Bear
- Fischer, Long-tail Weasel
- Beaver, Muskrat
- Ermine, River Otter, Mink
- Snoeshoe Hare, Cottontail Rabbit
- Meadow Jumping Mouse, Deer Mouse, House Mouse, White Footed Mouse
- Meadow Vole, Star-Nosed Mole, Southern Red-Backed Vole
- Barred Owl, Eastern Screech Owl, Great Grey Owl, Great Horned Owl, Long Eared Owl, Northern Saw-whet Owl
- Cooper's Hawk, Red Tail Hawk, Red Shouldered Hawk, Sharp Skinned Hawk, Broad Winged Hawk
- Northern Flying Squirrel
- Silver Haired Bat, Hoary Bat, Big Brown Bat, Little Brown Bat
- Common Shrew, Northern Short-tailed Shrew, Pygmy Shrew, Smokey Shrew
- Blanding's Turtle, Snapping Turtle, Eastern Painted Turtle, Musk Turtle



Rare Red Wolfe Coyote Hybrid  
Photographed in SMH

# Largest Deer Wintering Yard In Ottawa

- 875 ha deer habitat



# Provincially Significant Life Science Area

895 Hectares  
Rated ANSI

Highest Floristic  
Diversity of Any  
Natural Area in  
Ottawa

5.08 = Highest  
Coefficient of  
Conservation in  
Ottawa

448 Species  
Native Vascular Plants

26 Species  
Traditionally Used for  
Native Medicine

2 Endangered  
6 Provincially Rare  
64 Regionally Rare  
50 Uncommon  
Native Vascular Plants



# Trillium Woods in SMH is the Most Significant Ecological Area in Ottawa



*“Trillium Woods, which is like a chunk of the Gatineau in the urban landscape of Ottawa, with rich plant and animal life found nowhere else in the urban part of the City”*

Ottawa Urban Natural Areas Environmental Evaluation  
[Muncaster & Brunton, 2008]

# + Provincially Significant Wetland Complex

114 Hectares  
Rated ANSI

169 Avian Species  
Observed (3x more than  
in Punta Cana's Eco-Park)

1 Endangered  
5 Threatened  
5 Special Concern  
30 Regionally Rare  
Bird Species

Shirley's Pond

# 137 Nesting Bird Species in the SMH



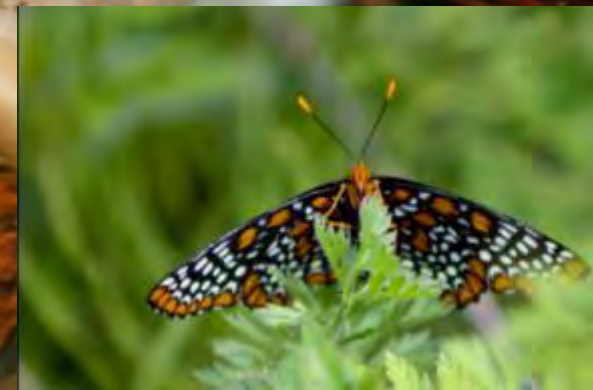


# Undocumented Number of Vernal Pools

Over 24 identified species of  
Herpetofauna

3 Threatened Species  
2 Special Concern

62 Species of Butterfly,  
Monarch Butterfly is Species-at-Risk  
in South March Highlands



# Yet No Comprehensive Biological Survey Ever Done

Wildlife  
Movement  
Only Studied  
In Winter

SMH Is  
Unevaluated  
Candidate ANSI  
For 20 Years?

No SAR  
Population  
Studies

No Study of  
Non-Vascular  
Plants

No Study of  
Mosses &  
Lichens

No Study of  
Fungi

No Study of  
Insects



# 20 Documented Species At Risk

## Endangered or Threatened

- American Ginseng
- Butternut
- Loggerhead Shrike
- Bobolink
- Whip-poor-will
- Golden Winged Warbler
- Olive Sided Flycatcher
- Western Chorus Frog
- Blanding's Turtle
- Eastern Musk Turtle
- Chimney Swift

## Special Concern

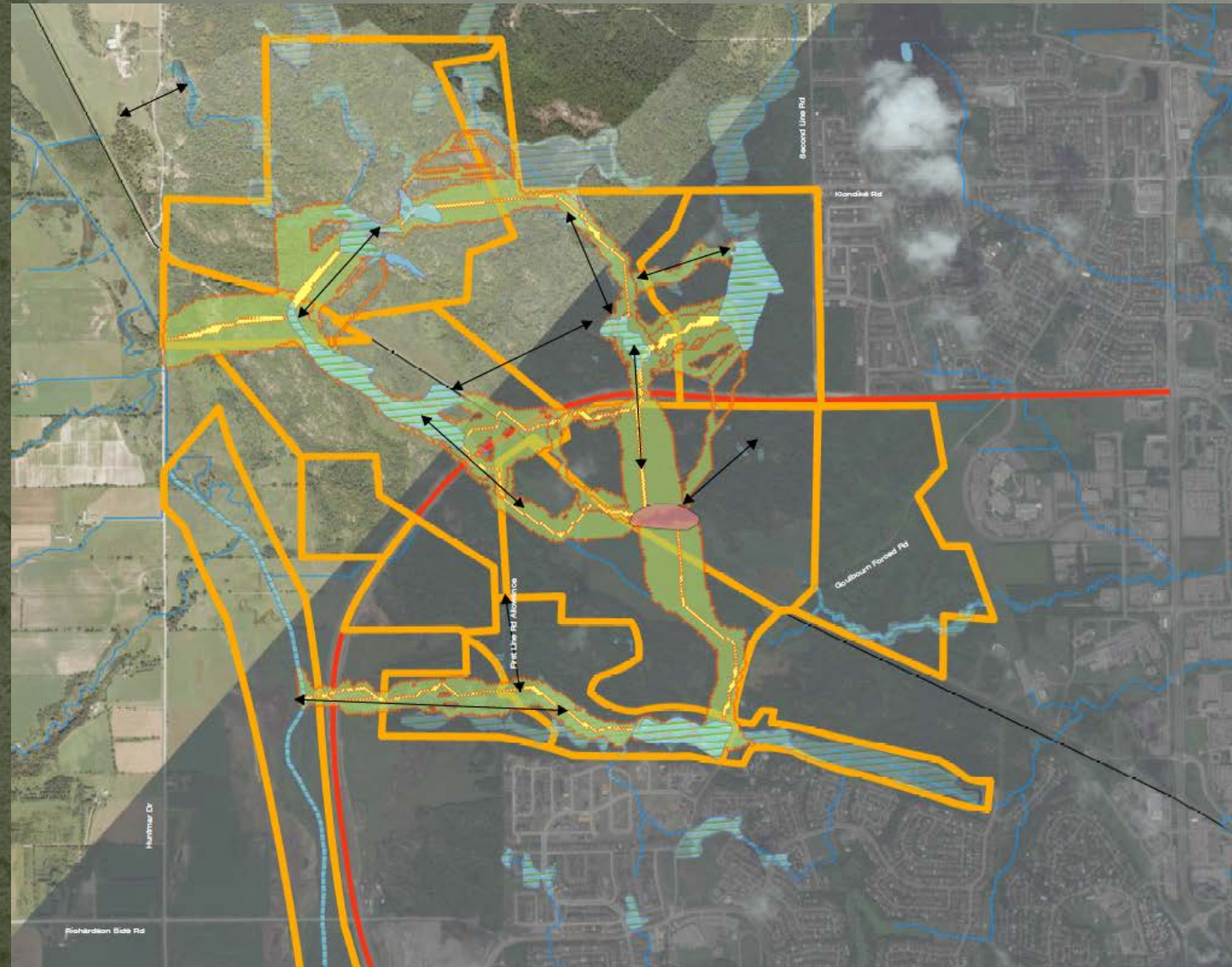
- Bridle Shiner
- Short Eared Owl
- Black Tern
- Common Nighthawk
- Snapping Turtle
- Eastern Milksnake
- Monarch Butterfly
- Bald Eagle
- Red Headed Woodpecker



# Critical Habitat for Eastern Ontario's Largest Known Population of Blanding's Turtle

## Population of Blanding's Turtle

(Nesting Area and Eco-connectivity within planned area of development south of Terry Fox Dr.)



**City of Ottawa**

South March Highlands Blanding's Turtle Conservation Needs Assessment

**Blanding's Turtle Corridor Analysis**  
Figure 13A

- Zone Boundary
- Terry Fox Drive
- Wetlands
- Watercourse
- Railway
- Potential Blanding's Turtle Nesting Site
- Best Modeled Corridor Solution
- General Modeled Corridor Solution
- Radio Telemetry Determined Movement Corridors

0 75 150 300 450 600 SCALE 1:17,500  
Meters



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, the City of Ottawa, and Dillon Consulting Limited

MAP CREATED BY: AJZ  
MAP CHECKED BY: CTH  
MAP PROJECTION: NAD 1983 UTM Zone 18N

FILE LOCATION: S:\ELLON\_GADLLOL\_DPS\OTTAWA\OTTAWA\_GAZ(2012)\_120119\_34\Design\_GIS\MXD\Report Maps\13A-CorridorModel.MXD

# 18 Future SAR Also Found in SMH

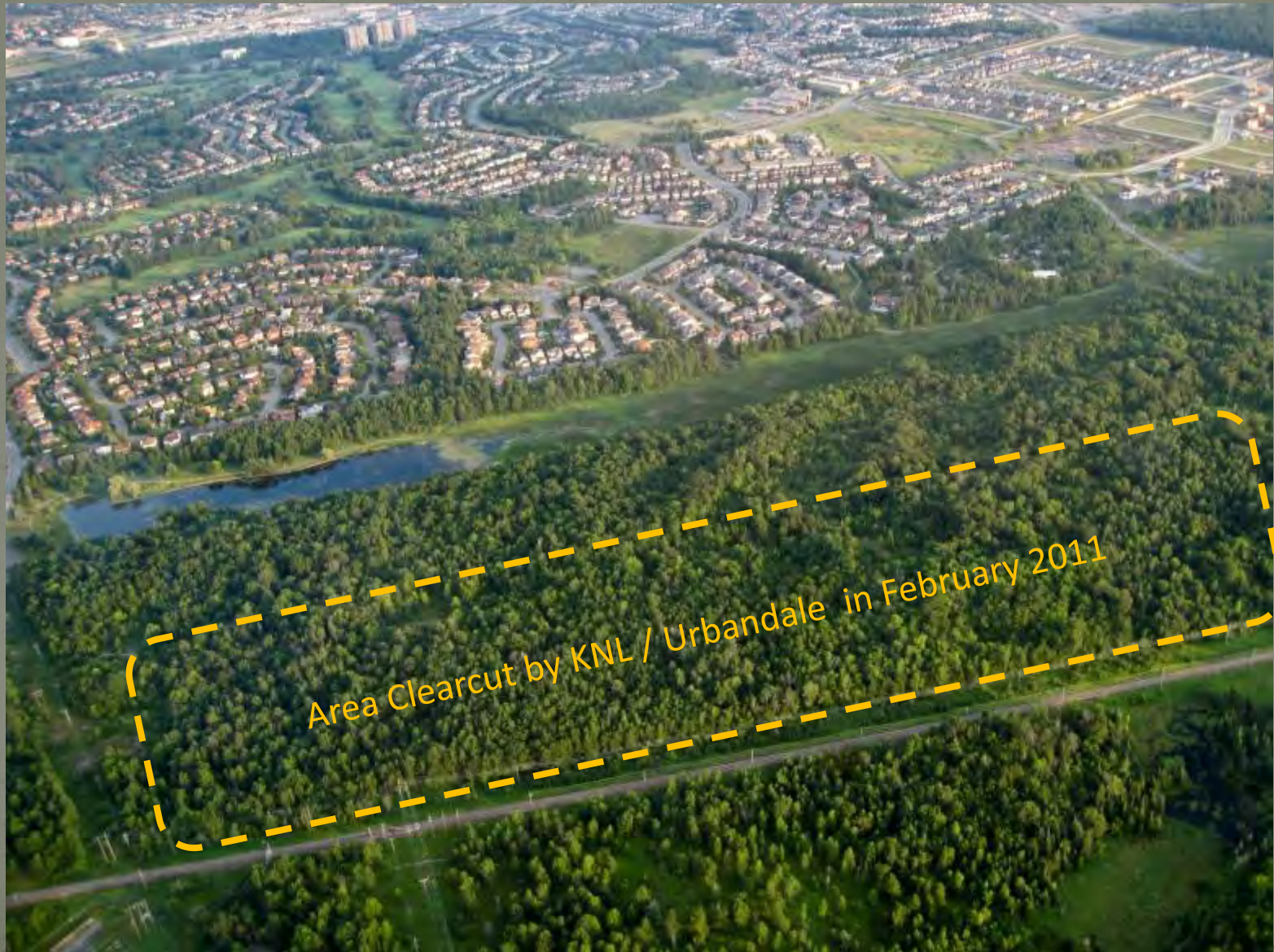
- 
- A photograph of a turtle, likely a Painted Turtle, resting on a log in a pond. The turtle's shell is dark with light-colored patterns, and its head and legs are visible. The water is calm, reflecting the surrounding environment.
- Evening Grosbeak
  - Eastern Wood Peewee
  - Wood Thrush
  - Bank Swallow
  - American Bullfrog
  - American Kestrel
  - Belted-Kingfisher
  - Field Sparrow
  - Eastern Red-Backed Salamander
  - Blue-Spotted Salamander
  - American Toad
  - Bluntnose Minnow
  - Boreal Chickadee
  - Killdeer
  - Midland Painted Turtle
  - Green Frog
  - Wood Frog
  - Northern Two-Lined Salamander

Species Found In SMH That Are Also Listed For Evaluation by COSEWIC as Potential Species at Risk

# 12 Species Already Eradicated By Development

- Cathcart's Woodsia
- Oregon Woodsia
- Spiny Coon-tail
- Adder's-tongue Fern
- Large Duckweed
- Long-spurred Violet
- Showy Orchis
- Back's Sedge
- Southern Arrow-wood
- Strawberry-blight
- Virginia Spring Beauty
- American Eel

# Development Eats Away at Ottawa's Great Forest



# Impact of Winter Tree Clearing on Wildlife



- Denning mammals killed by tree-cutting machines or freeze-to-death due to loss of shelter



- 2/3 of Porcupine Population estimated killed in Beaver Pond Forest due to Winter Clearcut

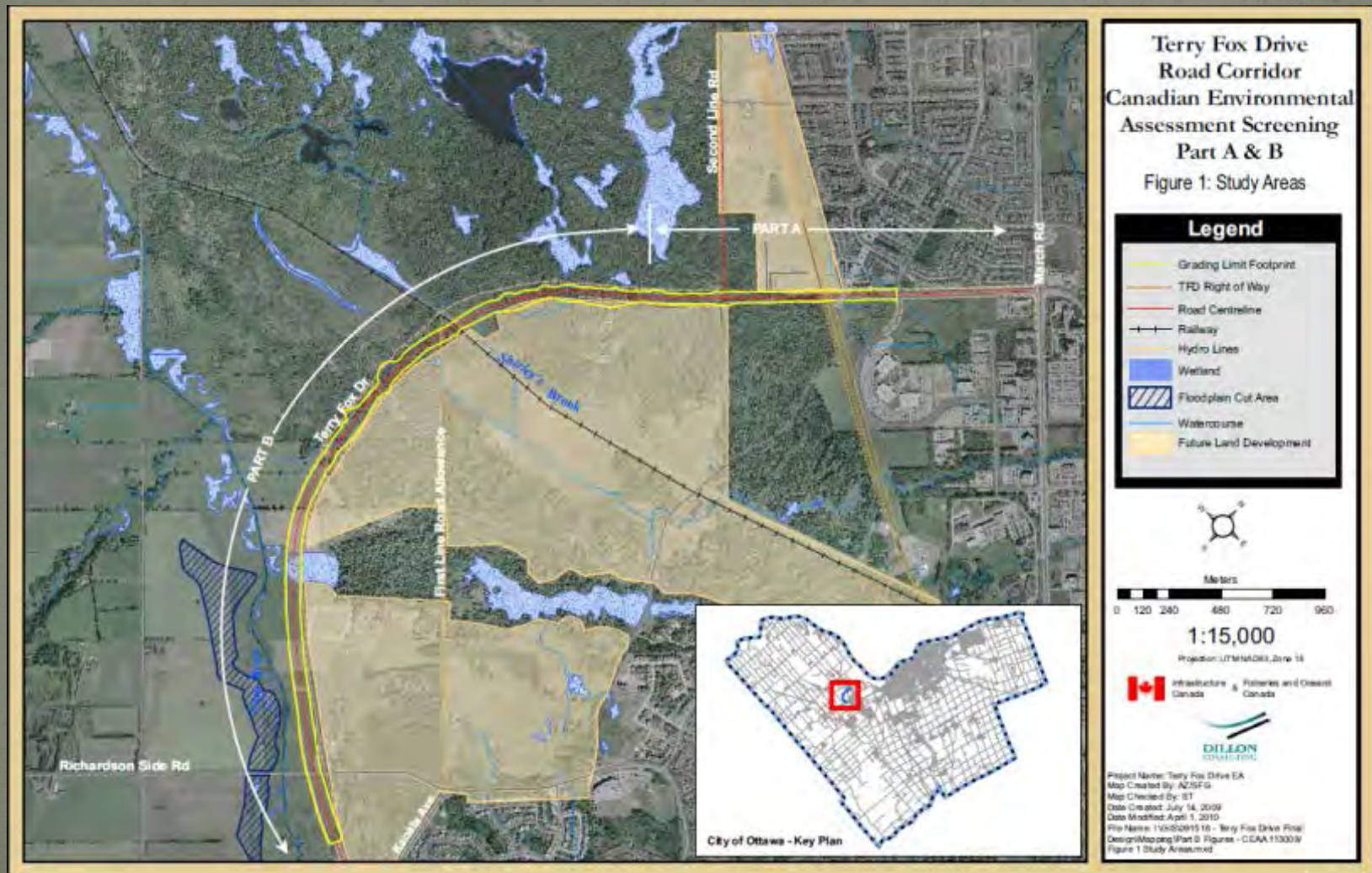


- Hibernating amphibians & reptiles are crushed by heavy equipment

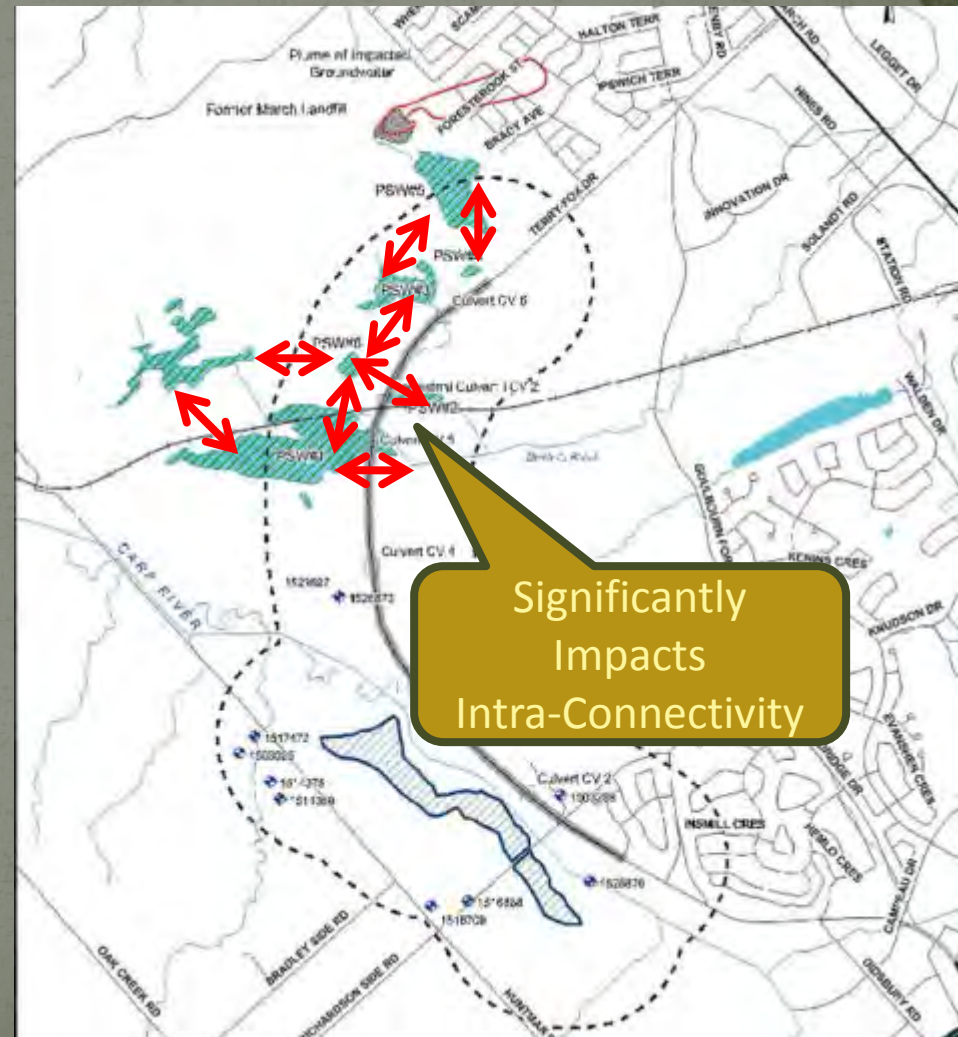
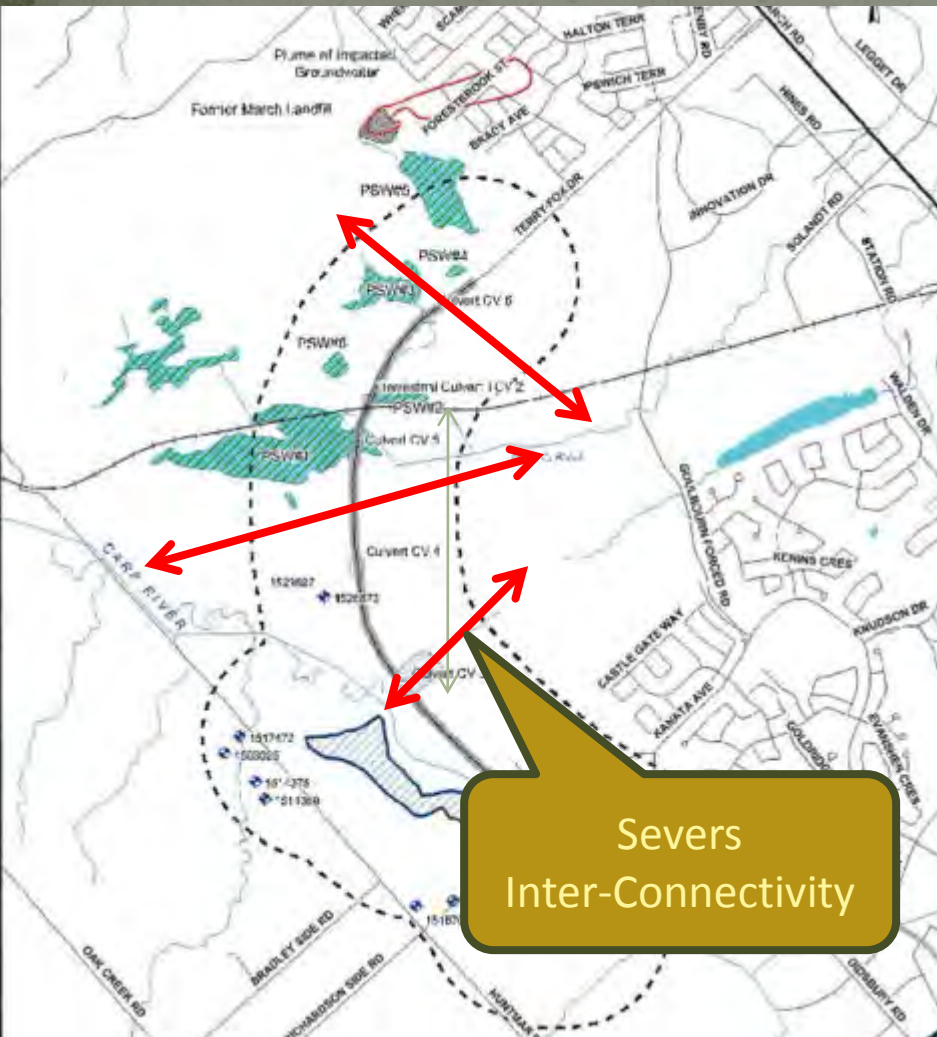




# Terry Fox Drive Extension Severs SMH by 1/2 Development Currently Underway in Interior Half

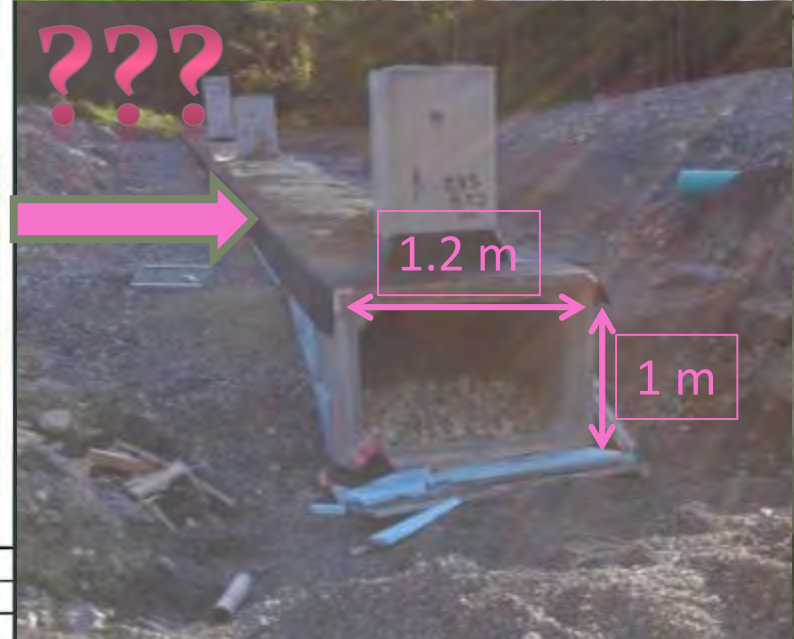
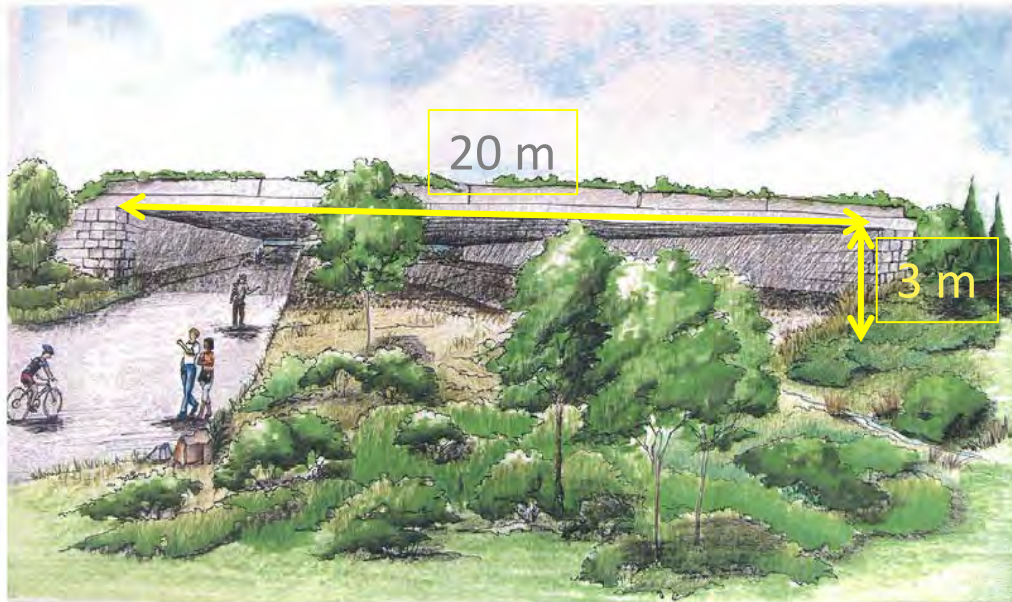


# Current TFDE Severs Eco-Connectivity Despite Eco-Tunnel Mitigation Measures

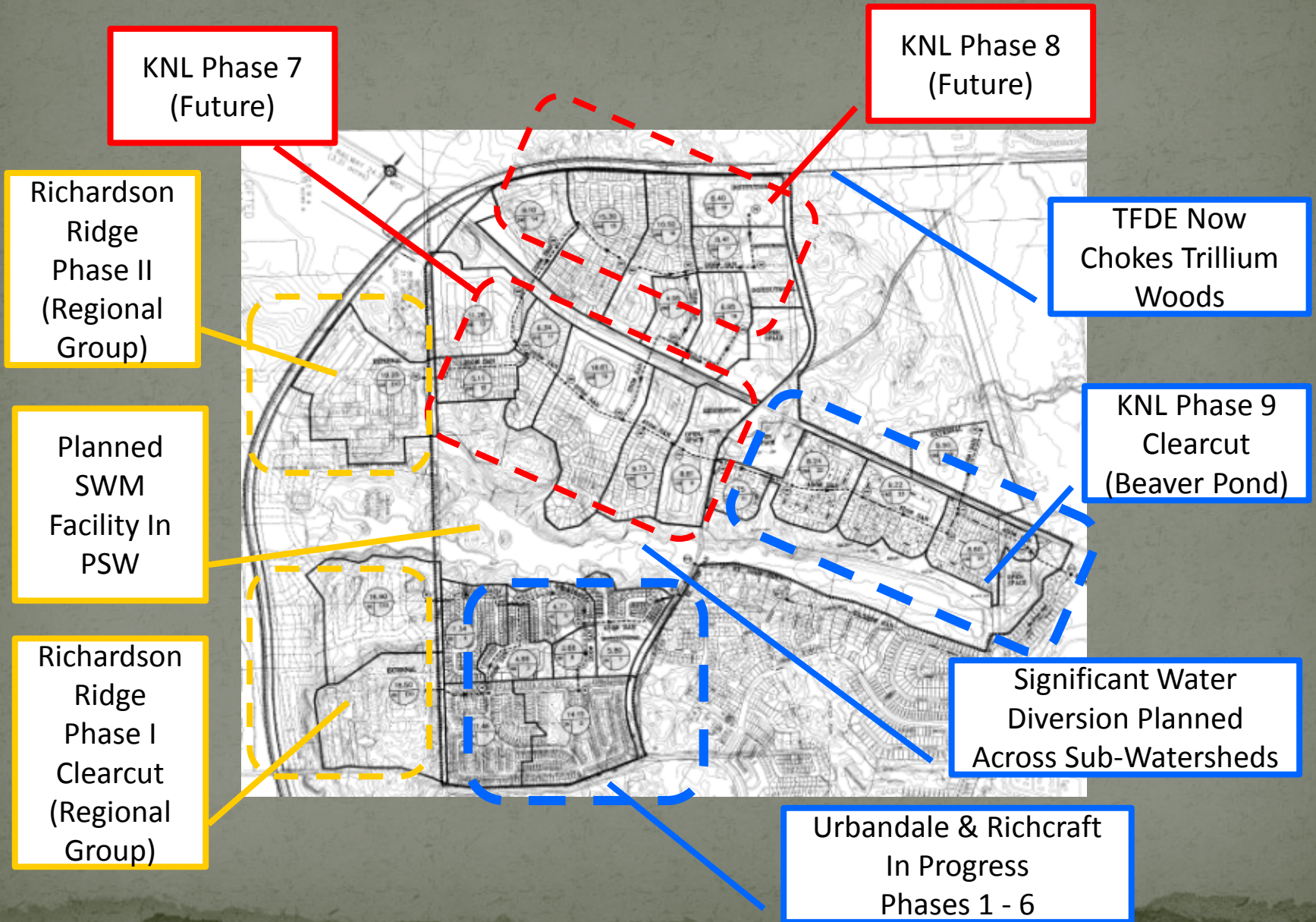


# Unmitigated Environmental Impact

- 2007 EA Addendum
  - Promised large Eco-passages & No Fencing
- 2010 As-Built Road
  - Eco-passages replaced by small tunnels unusable by deer and bear known to be present in the SMH
  - Fencing reduces roadkill but creates “Berlin Wall”



# Current Status of Development



# Green Infrastructure is Multi-Purpose Source of 16 Categories of Natural Capital

- **Regulating**

- Wetland water storage & retention
- Filtering and cleaning air & water
- Natural control of pests & insects & related diseases
- Natural prevention against invasive species
- Climate & temperature regulation

- **Provisioning**

- Replenishment of natural resources
- Renewable supply of food, fibre, water
- Habitat for Biodiversity
- Eco-corridor Functions
- Agricultural Pollination

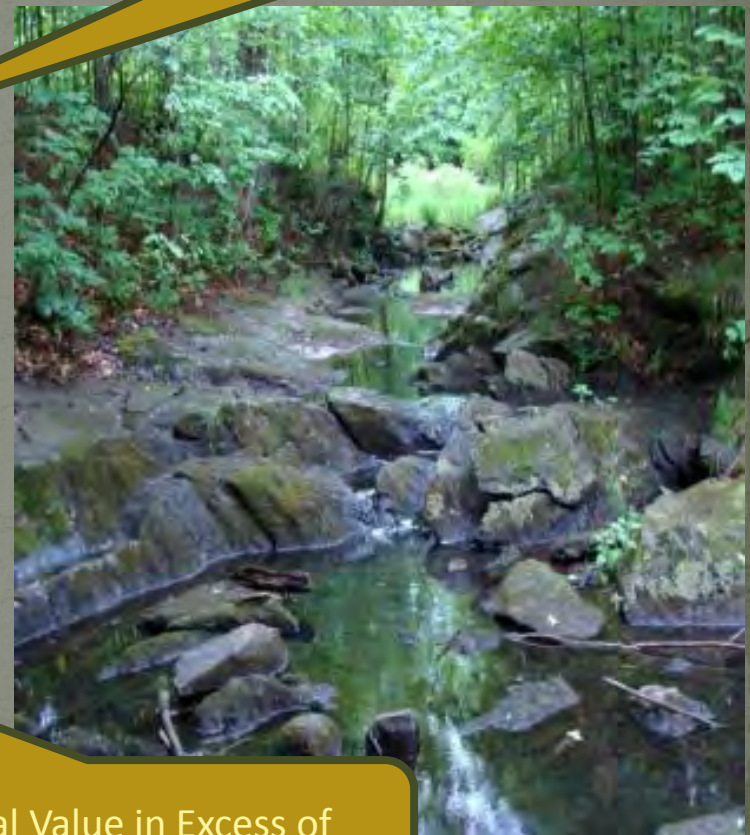
- **Cultural**

- Educational & Artistic Value
- Health & Spiritual Benefits
- Recreational & Eco-Tourism Value

- **Supporting**

- Soil formation & Erosion control
- Carbon storage & GHG uptake
- Nutrient Cycling

All These Functions Are Free and Automatically Renewable at Zero Cost



Total Value in Excess of \$35 M per year in SMH

# “Developed” Infrastructure is Single Purpose

- “Development” reduces multi-purpose landscape to a single purpose
  - Housing
  - Commercial, etc.
- “Developed” Infrastructure must be rebuilt / repaired periodically
  - Roads, Bridges
  - Subdivisions
  - Storm Water Management Facilities
  - Construction = Temporary job creation vs. Eco-Tourism = Permanent jobs
- “Development” impacts adjacent environment
  - Loss of wetland function directly related to reduced water quality in Ontario
  - Significant loss of biodiversity and increase in invasive species

Terry Fox Dr  
July 24, 2009

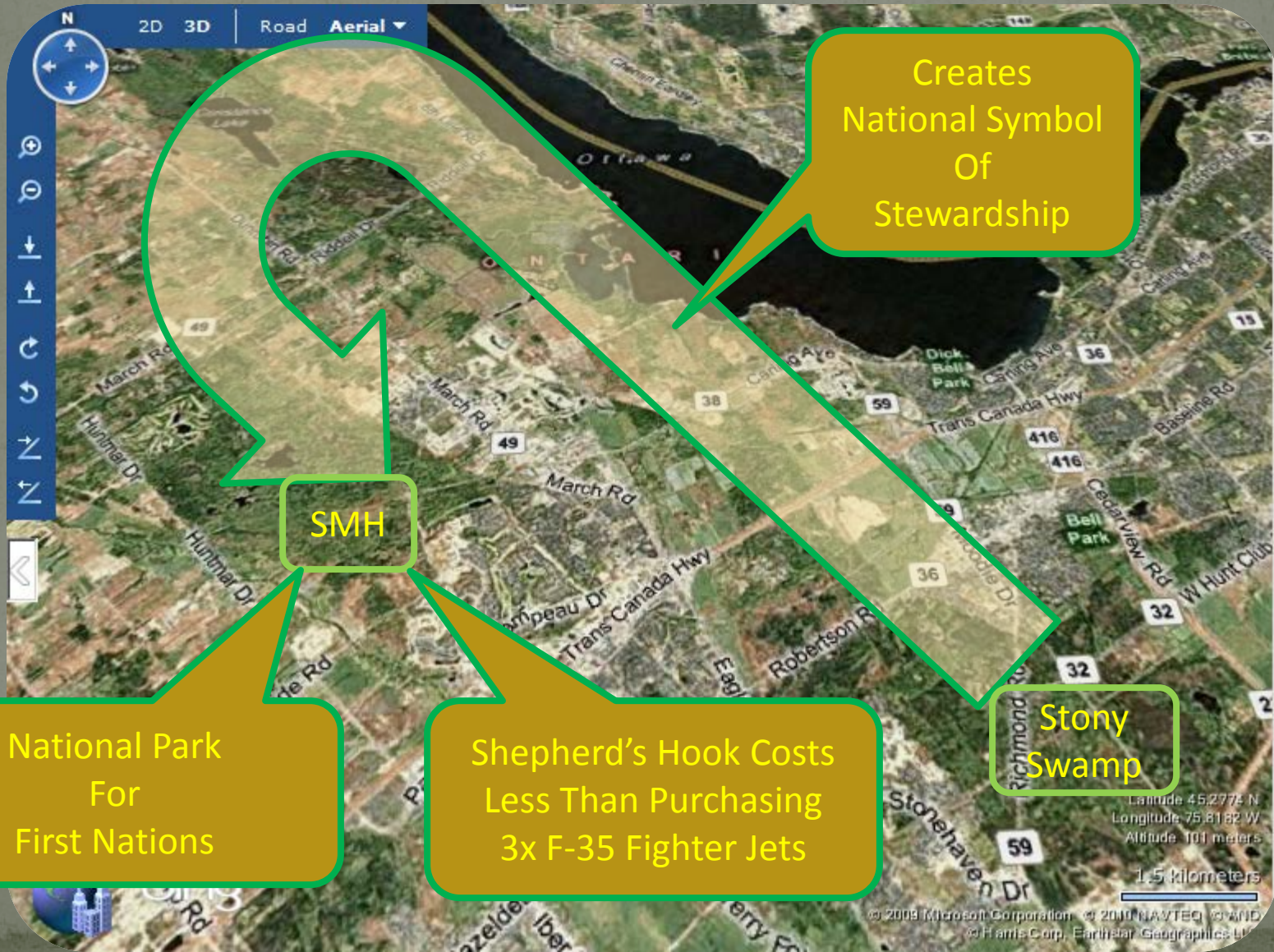


# Located Just Beyond Current Greenbelt Corridor

*SMH Erroneously Excluded from 3 NCC Concepts for Greenbelt Master Plan*



# “Shepherd’s Hook” Extends Greenbelt



Creates National Symbol Of Stewardship

SMH

National Park For First Nations

Shepherd's Hook Costs Less Than Purchasing 3x F-35 Fighter Jets

Stony Swamp



# Alternative Vision of Eco-Corridors Revitalizing The Emerald Necklace



11 Eco-Corridors  
Linking  
7 Ecological  
Reservoirs

# Will You Protect This Forest?



# Questions About South March Highlands?

