

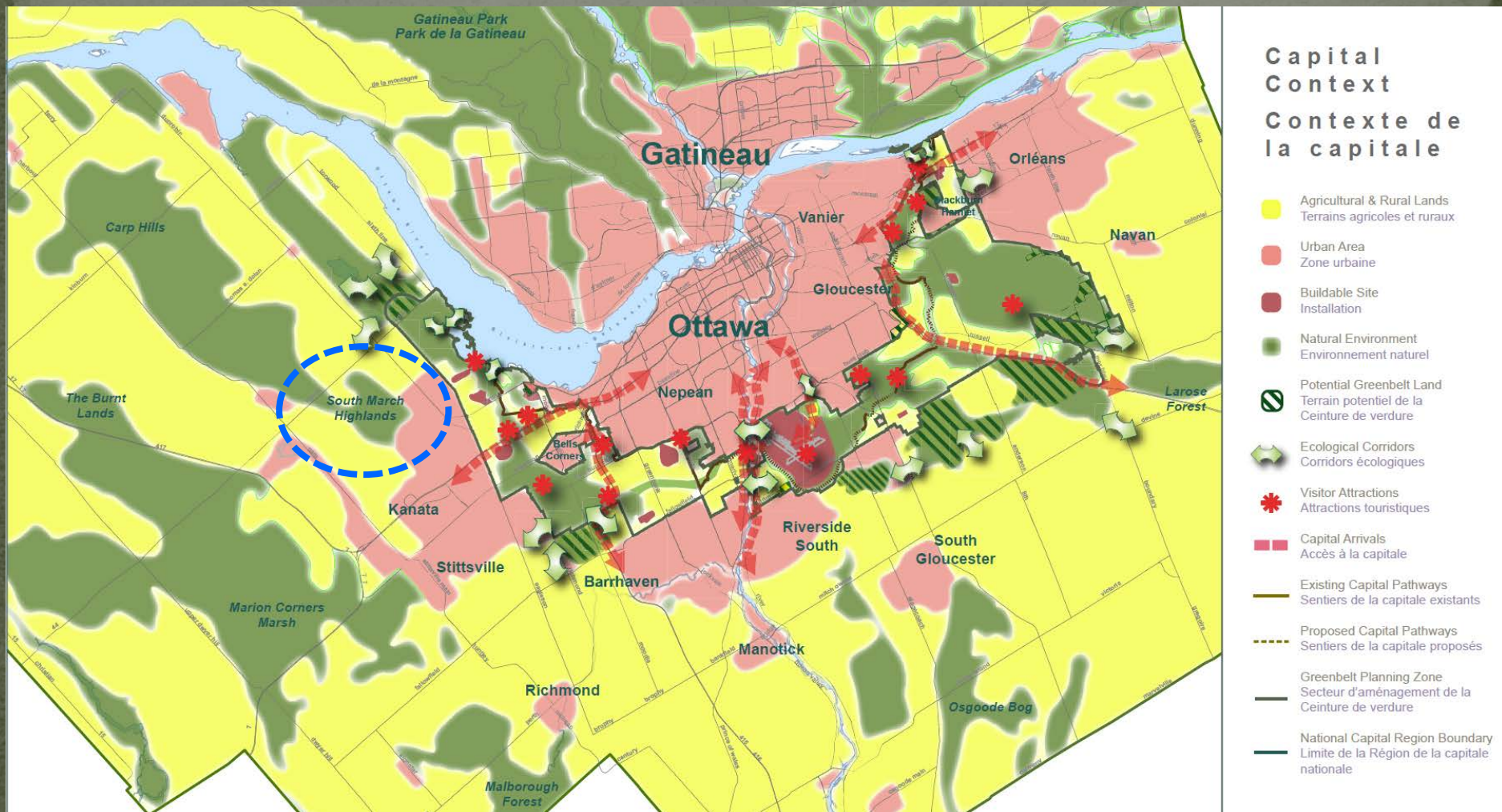


Ottawa's Great Forest: The South March Highlands

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



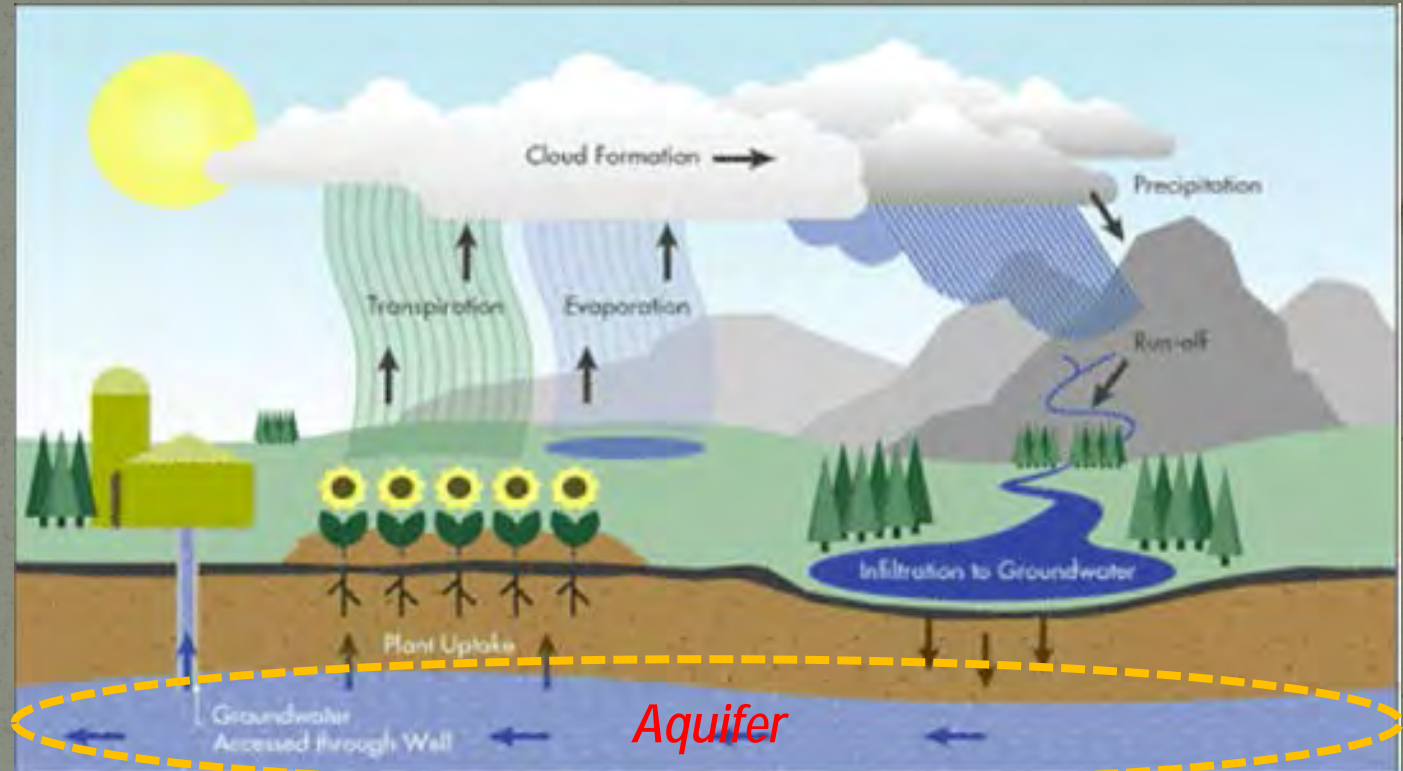
Aquifer is Integral Part of Hydrological Cycle

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

Infiltration
Filters Water

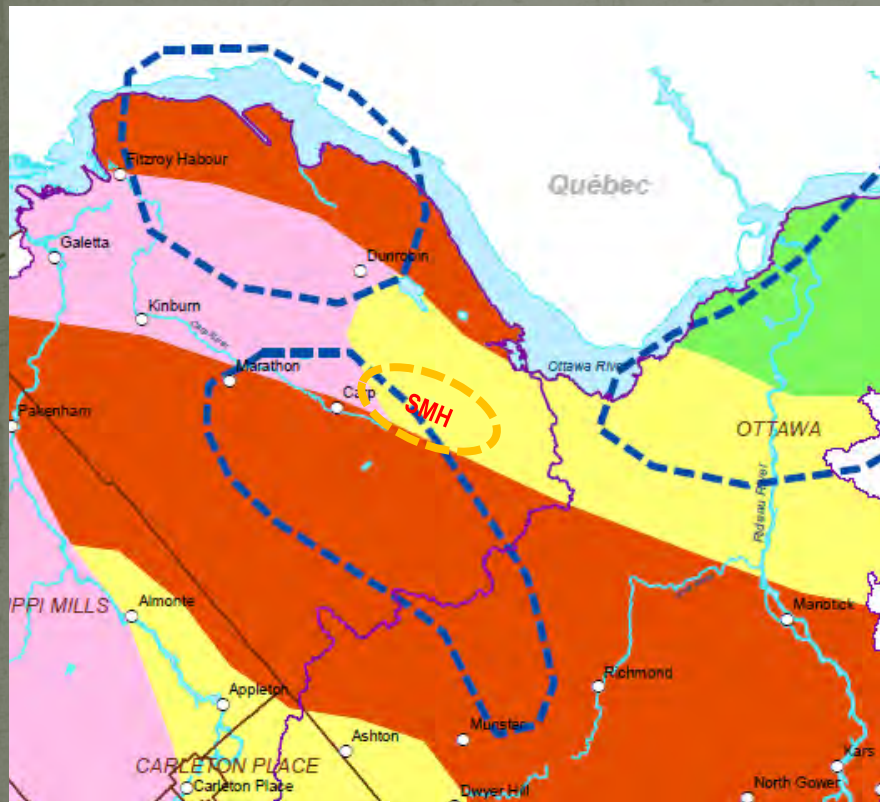
Aquifer Stores
& Transmits
Water

Crops and Wells
Consume Water



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

Aquifer Locations and Recharge Areas

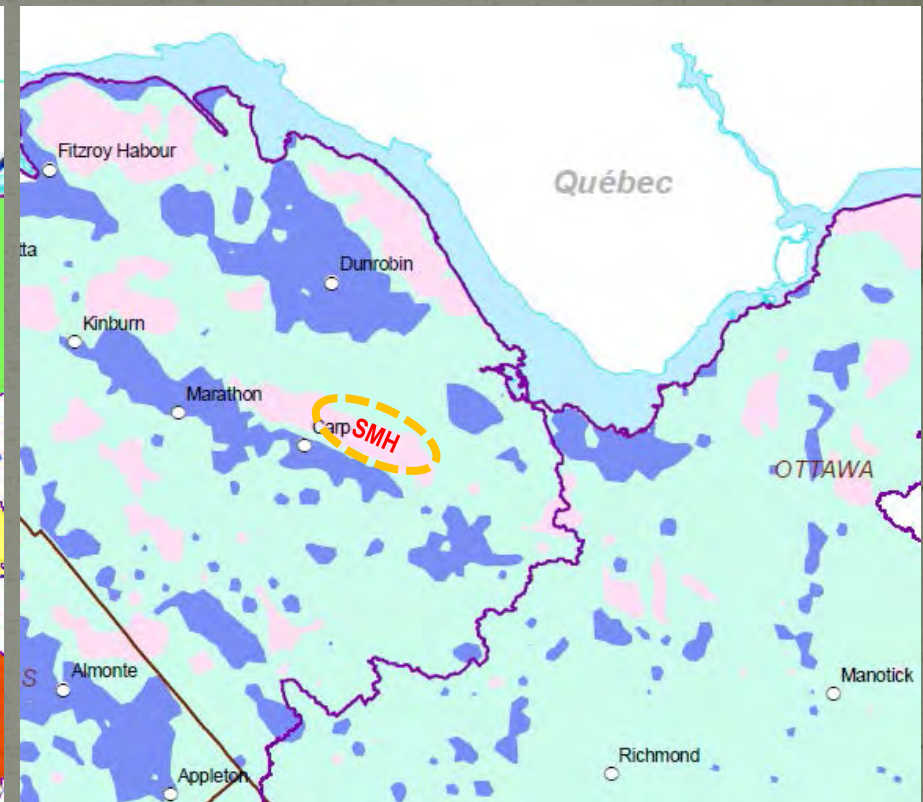


- Source Protection Watershed Area
- Waterbody
- Aquifer Extent**
- DOLOSTONE AQUIFER
- SANDSTONE AQUIFER
- LIMESTONE/SHALE AQUIFER
- PRECAMBRIAN AQUIFER

Assessment Report

Mississippi Valley
Source Protection Area

November 19, 2010



- Source Protection Watershed Area
- Waterbody
- Difference between Potentiometric Surface and Watertable Elevation**
- Greater than +5m (Potential Discharging)
- 5m to +5m (Transitional)
- Less than -5m (Potential Recharging)

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)

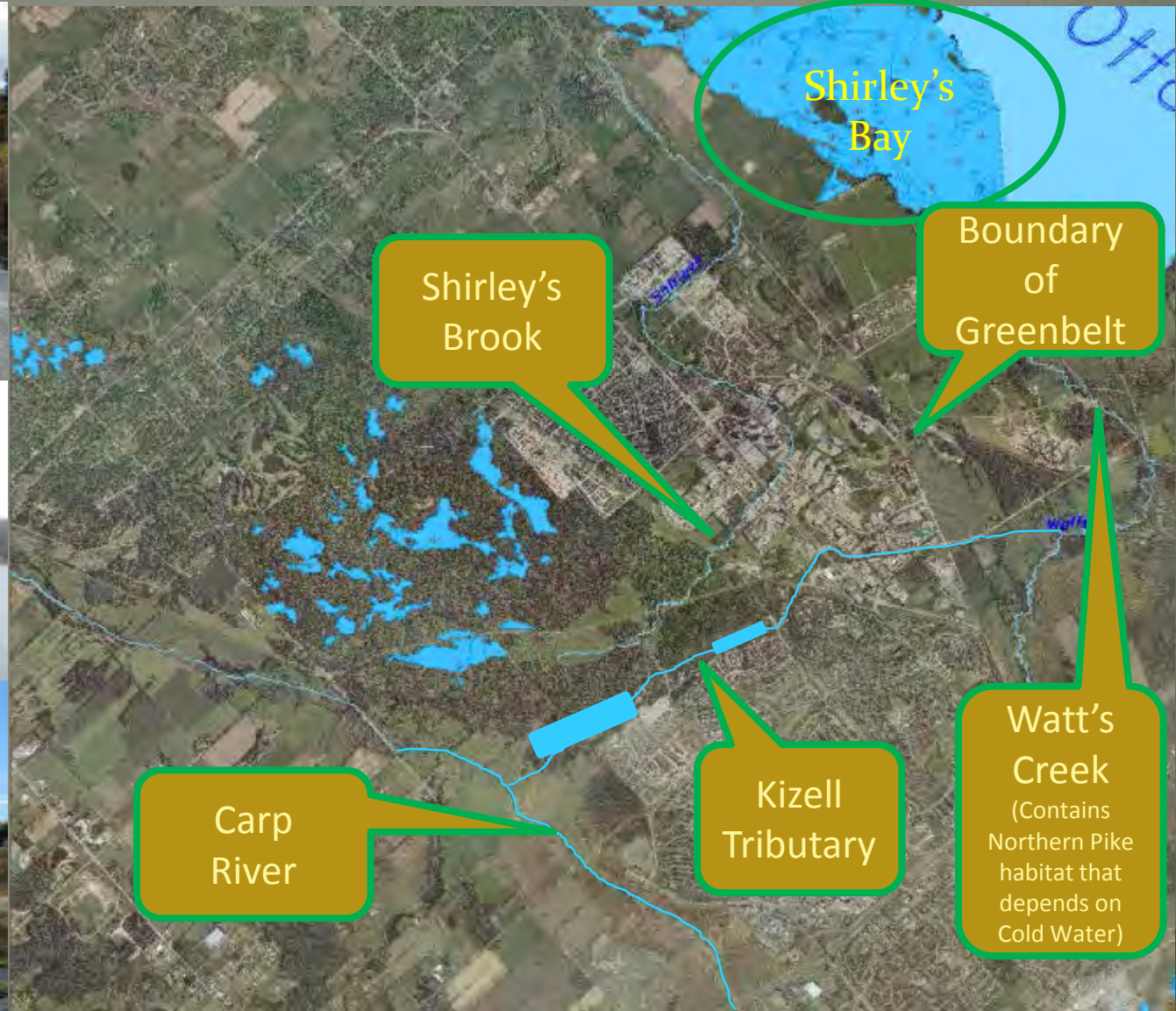
Klondike Pond



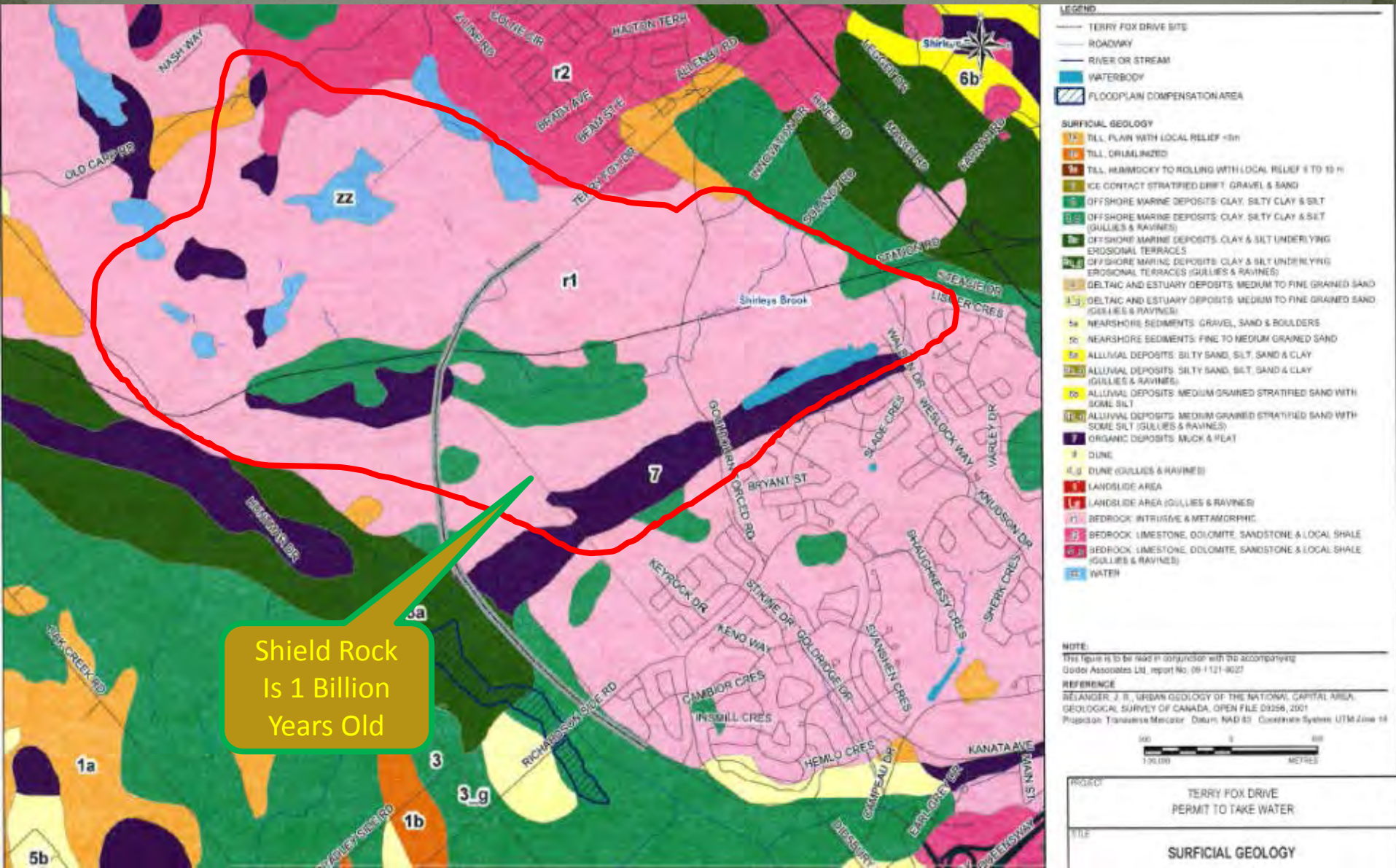
Goose Pond



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



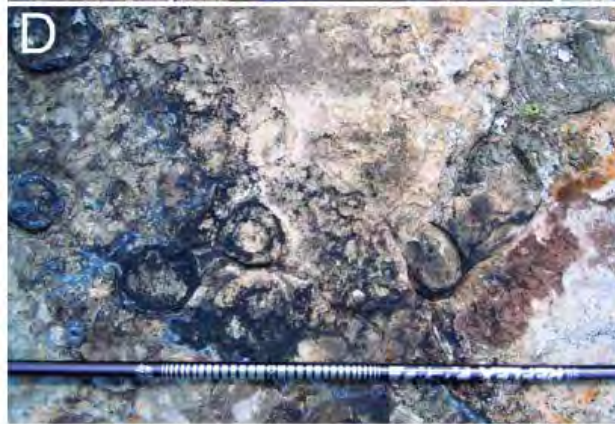
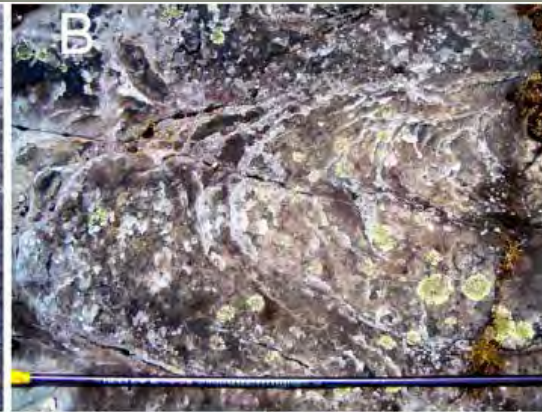
Reminders of Ancient Glaciers



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

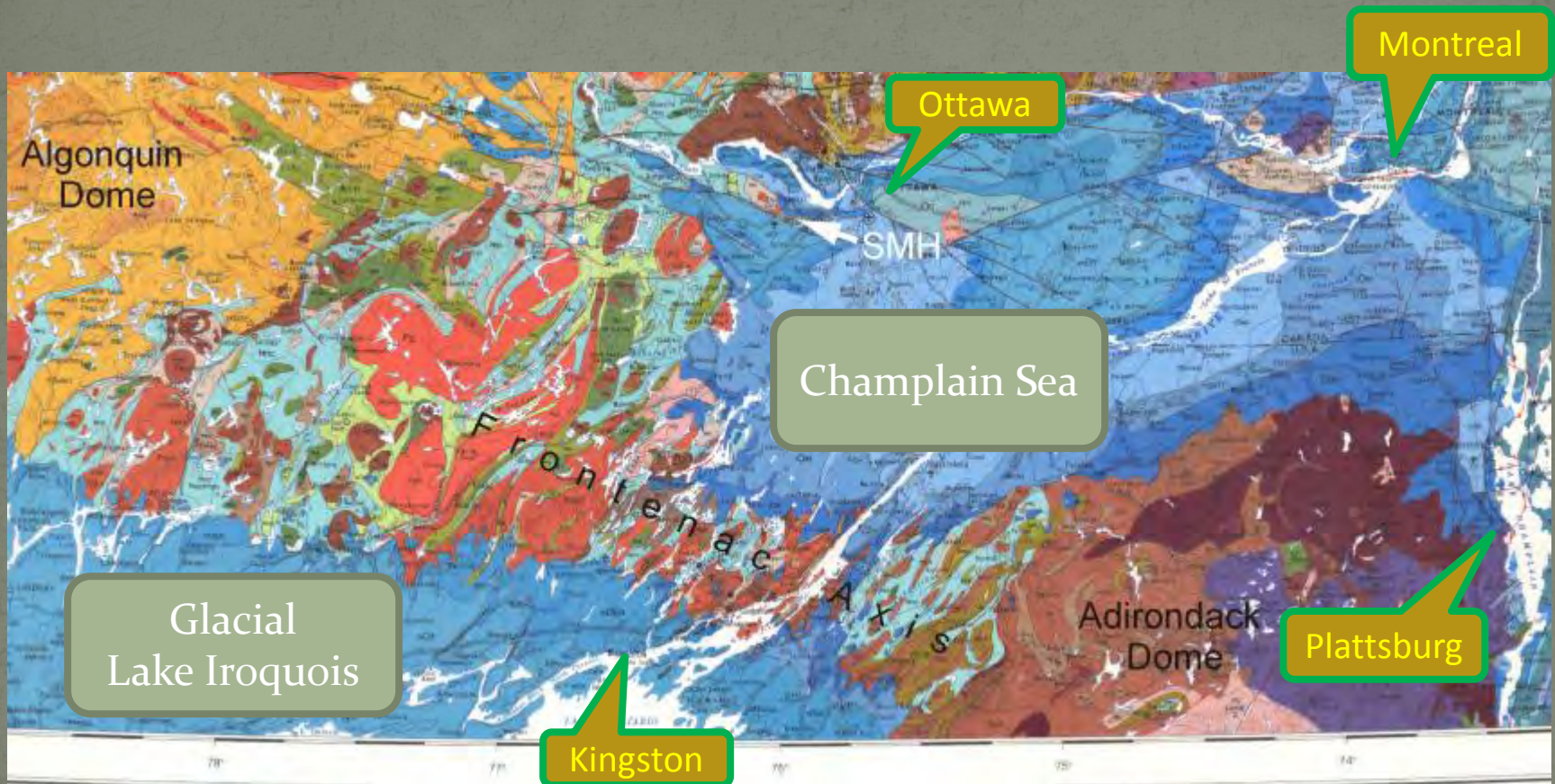


The only known area in Ottawa with unequivocal dewatering cylinders preserved in Paleozoic sandstone – An Ancient Spring



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 Original Turtle Island in the Champlain Sea?



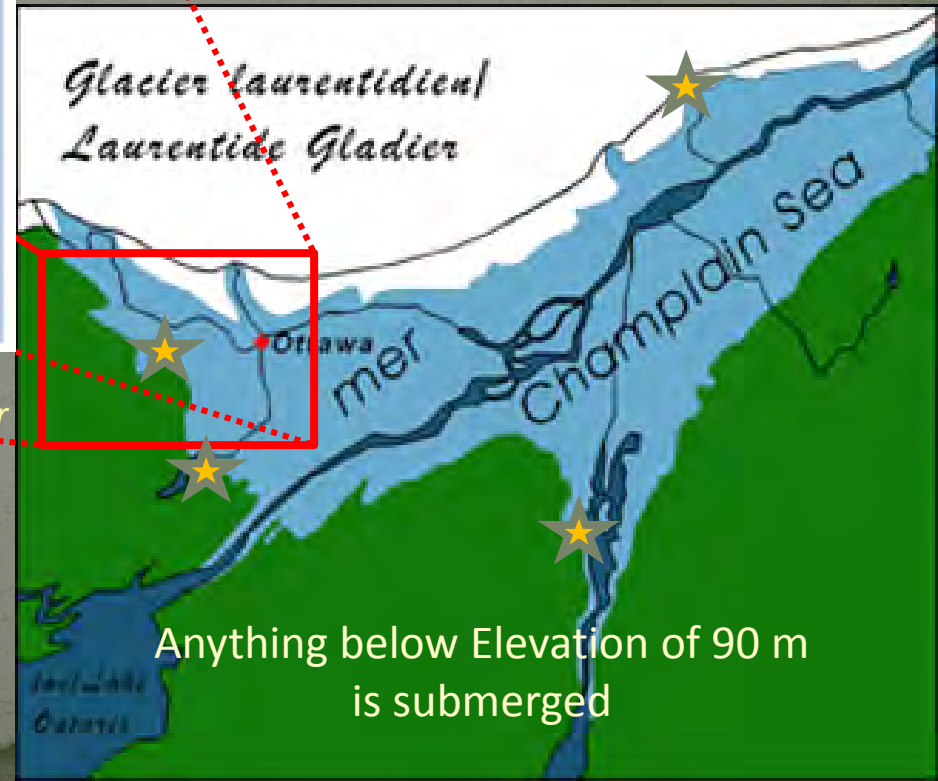
The SMH was an island at a time when Frontenac Axis geological formation separated Glacial Lake Iroquois (precursor to Lake Ontario) from salt waters of the Champlain Sea 8,000 - 12,000 years ago

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 19th 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]

A photograph of a Canada goose with its characteristic black head and neck and white body, sitting on a nest made of dry sticks and twigs. The nest is situated in a field of tall, dry reeds or grasses. Three yellow callout boxes with green borders provide additional information about the biodiversity of the area.

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

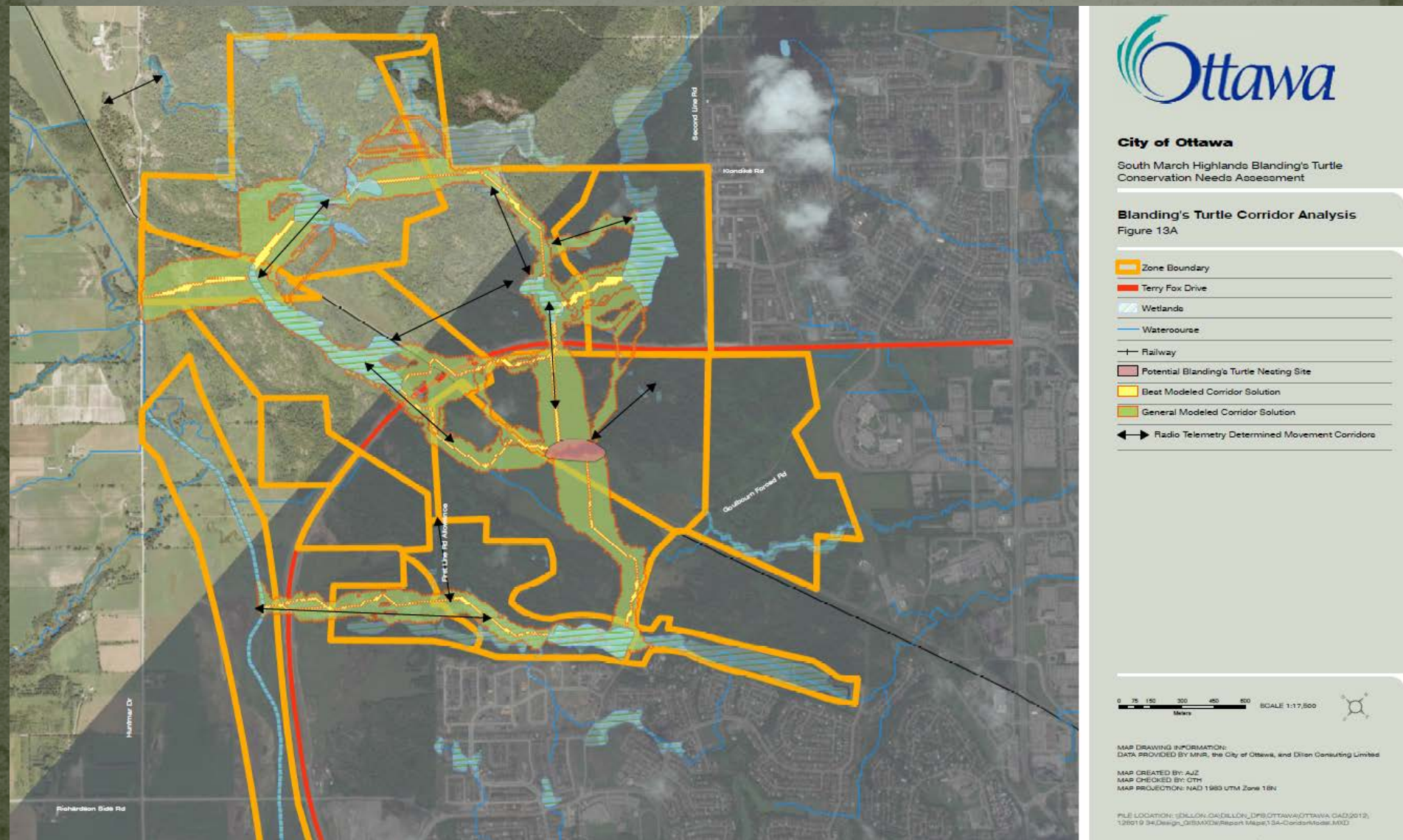
Special Concern

- 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

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



18 Future SAR Also Found in SMH

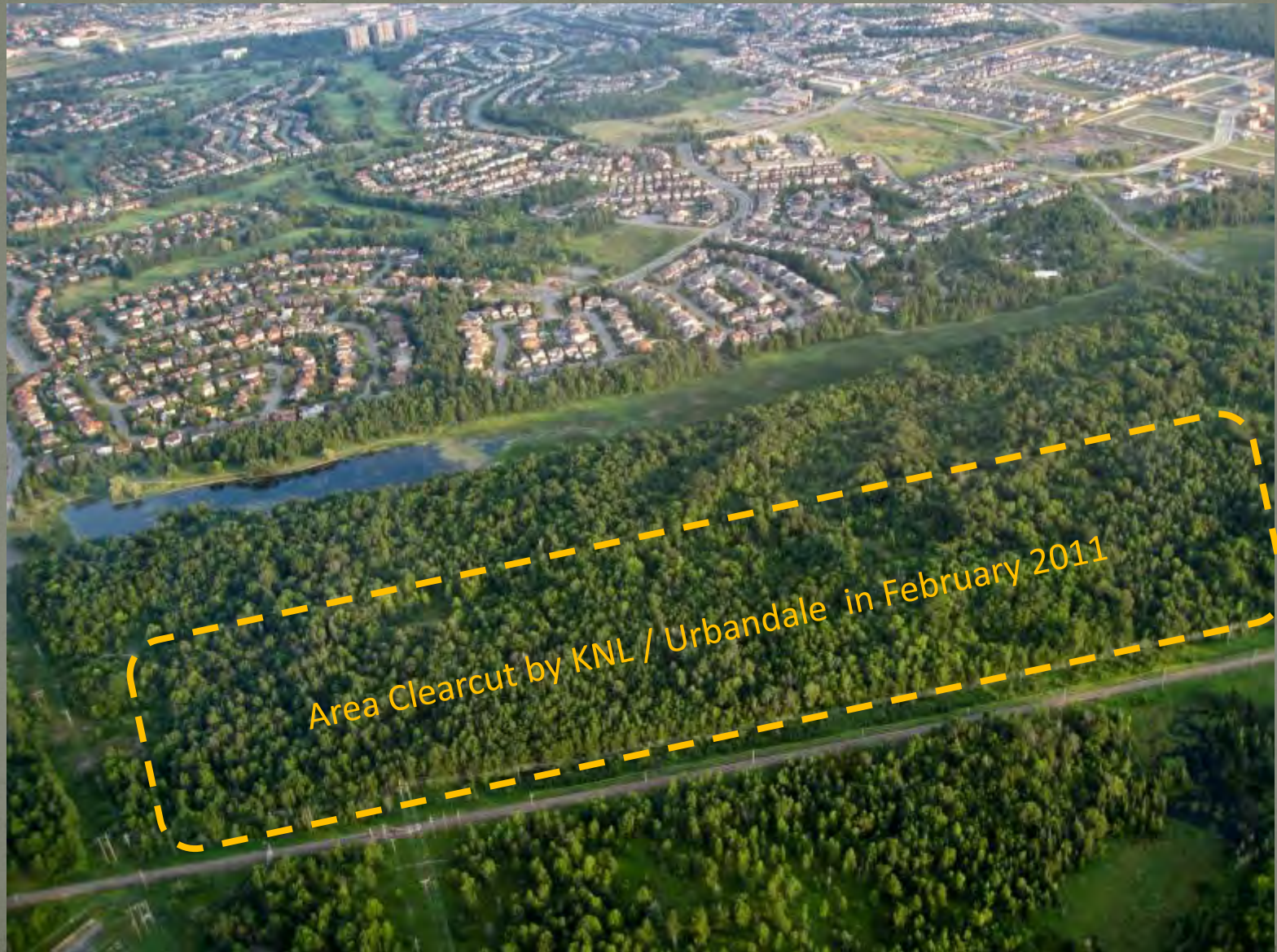
- 
- A photograph of a turtle, likely a Painted Turtle, resting on a log in a pond. The turtle has a dark, patterned shell and a green head with red markings. The water is calm, reflecting the sky and the log.
- Evening Grosbeak
 - Eastern Wood Peewee
 - Wood Thrush
 - Bank Swallow
 - American Bullfrog
 - 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



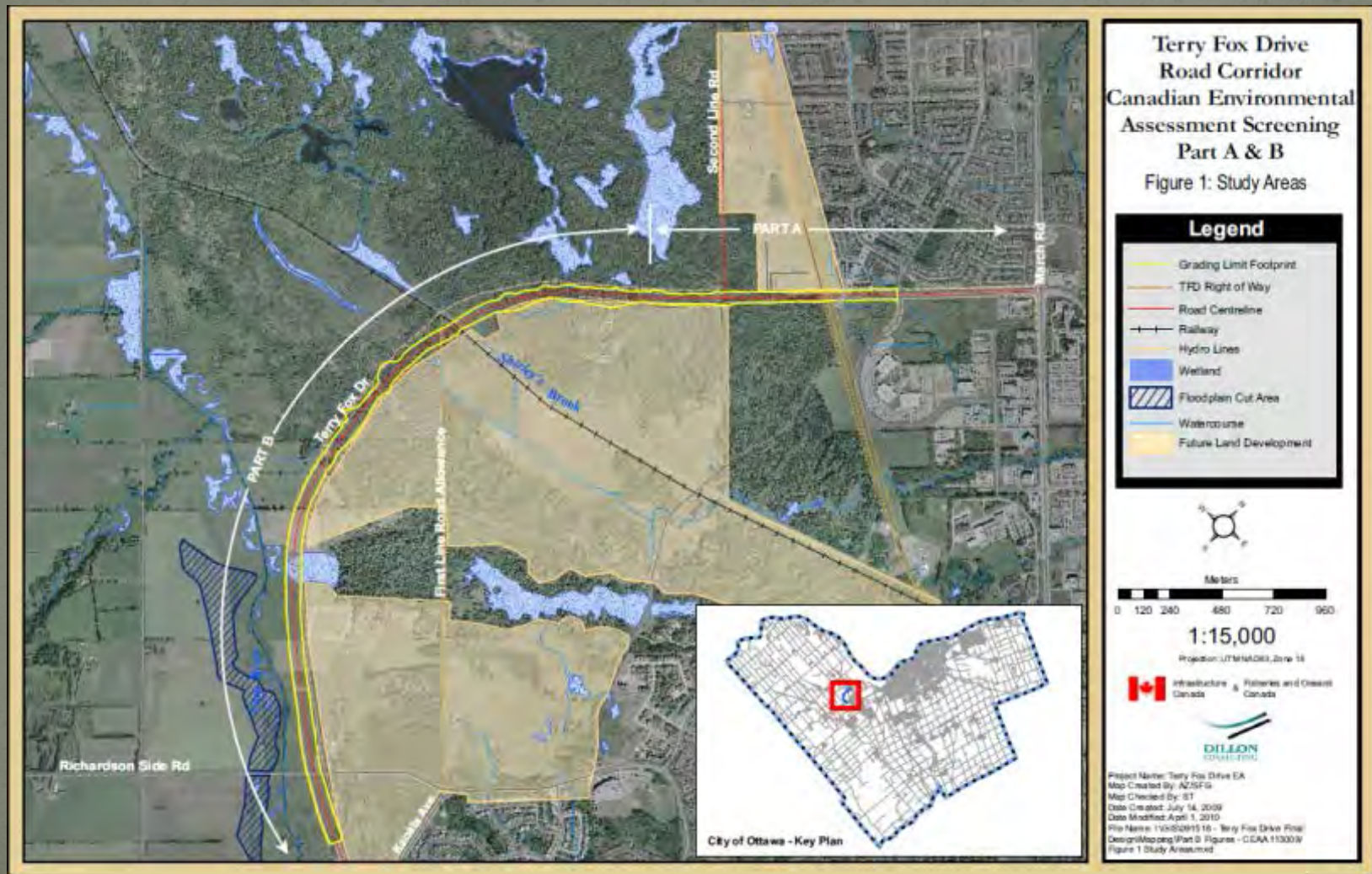
Impact of Winter Tree Clearing on Wildlife



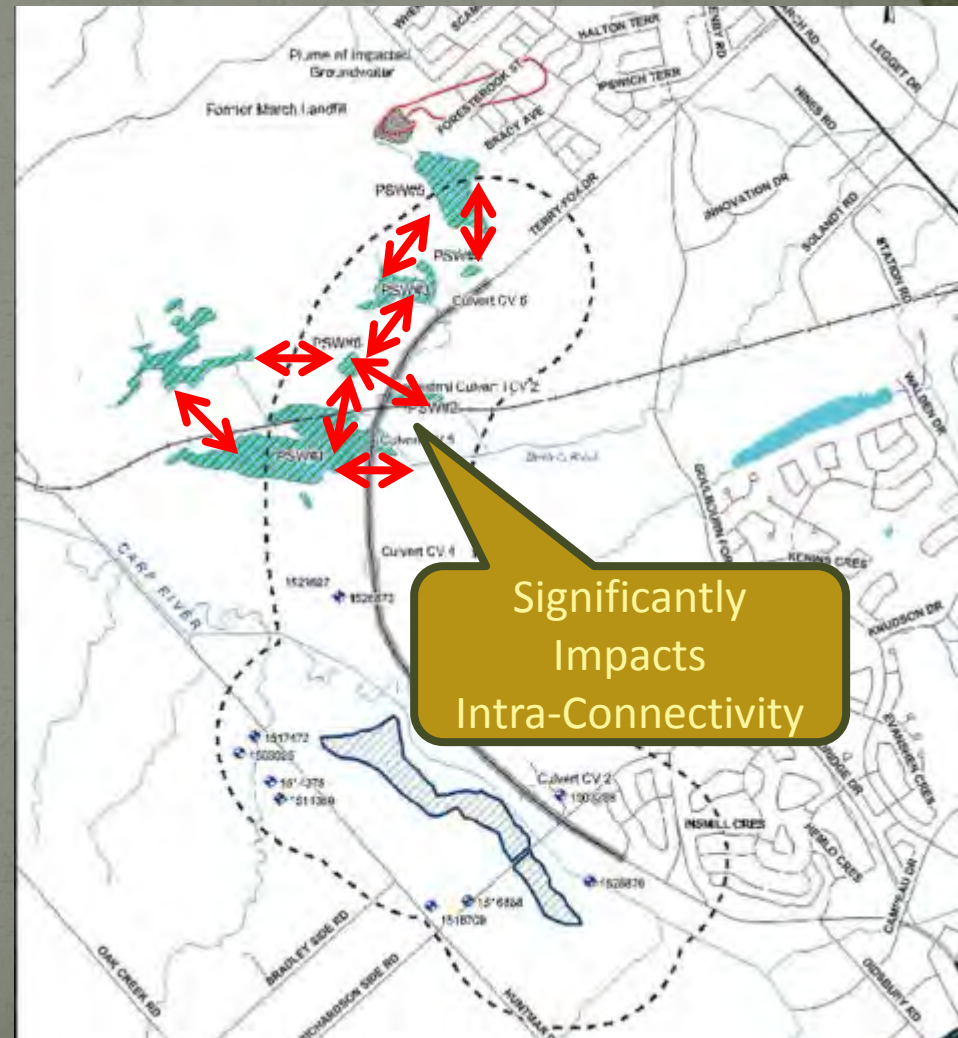
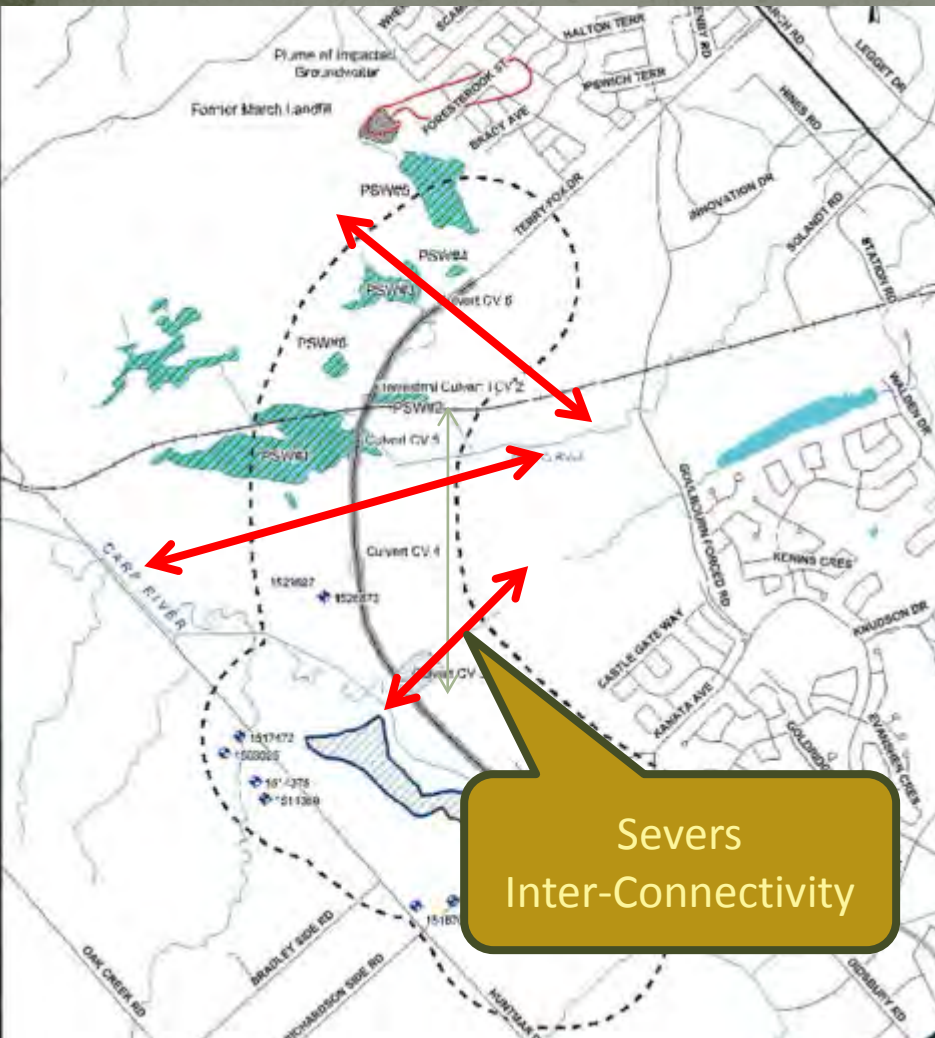
- Denning mammals killed by tree-cutting machines or freeze-to-death due to loss of shelter
- 2/3 of Porcupine Population estimated killed in Beaver Pond Forest due to Winter Clearcut
- Hibernating amphibians & reptiles are crushed by heavy equipment



Terry Fox Drive Extension Severs SMH by ½ Development Currently Underway in Interior Half

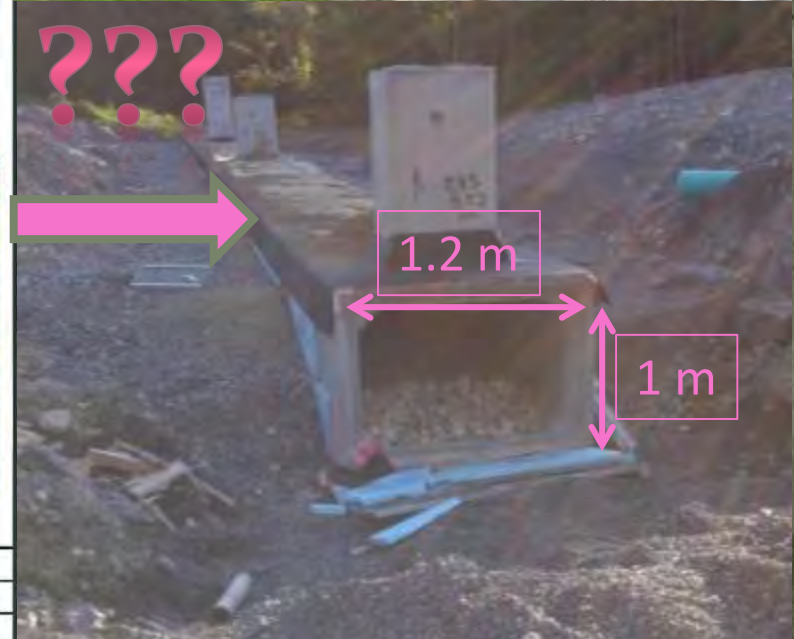
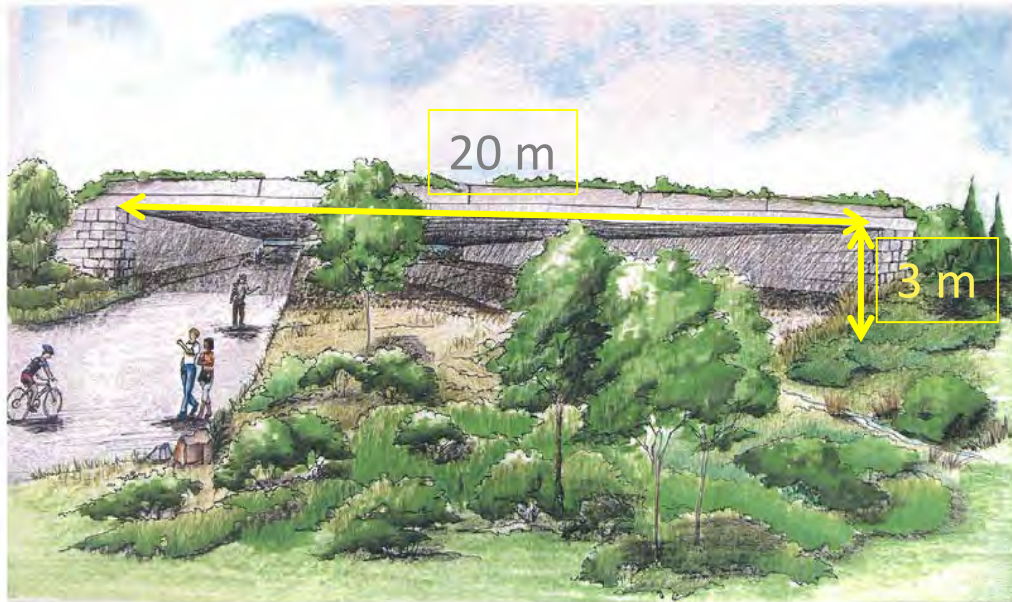


Current TFDE Severs Eco-Connectivity Despite Eco-Tunnel Mitigation Measures

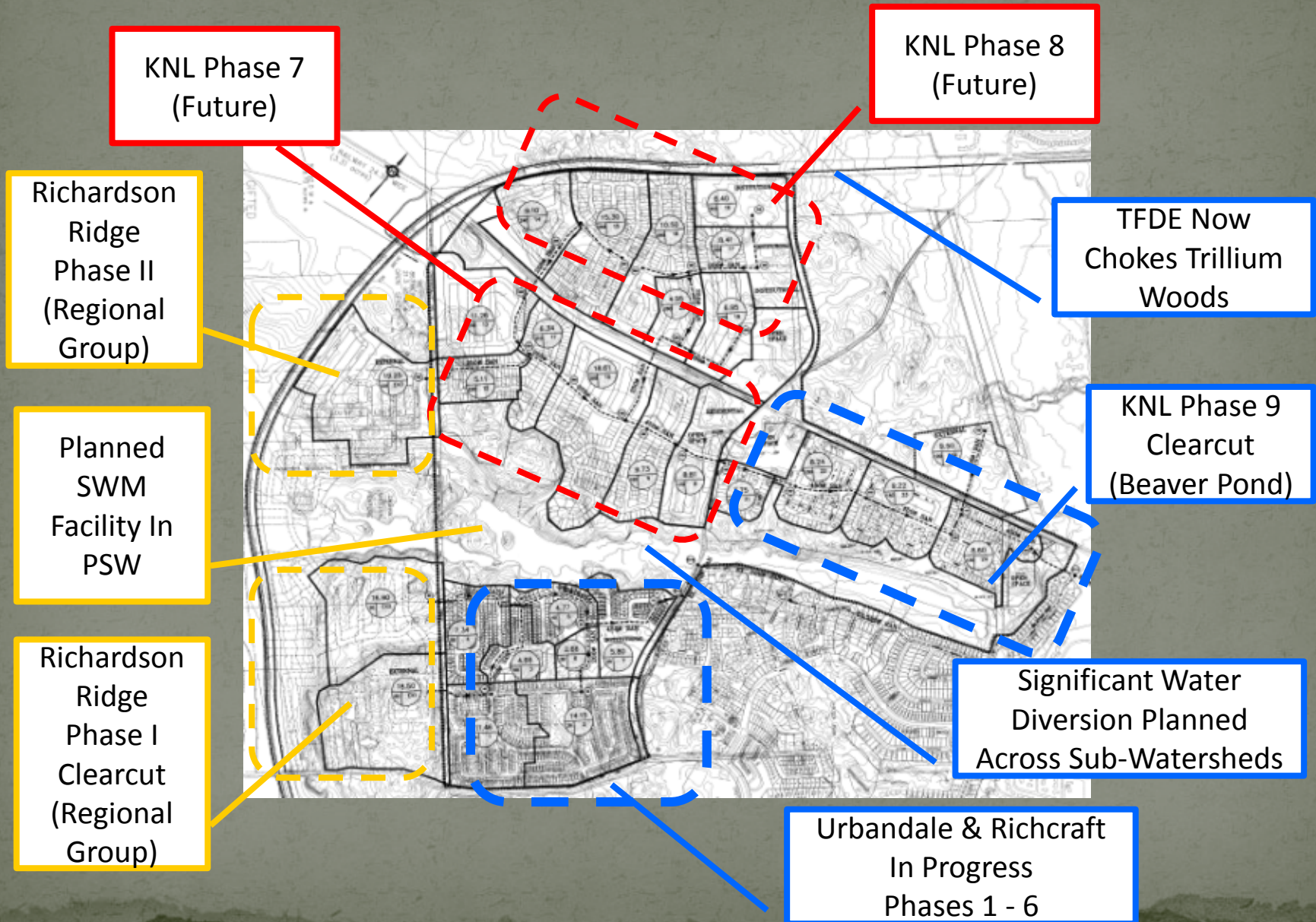


Unmitigated Environmental Impact

- 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

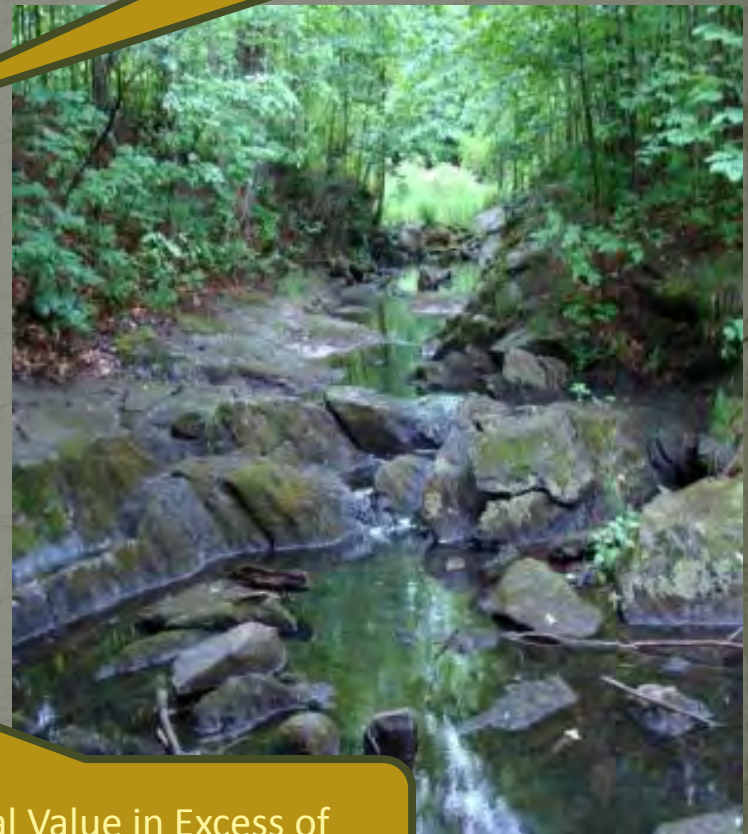
- **Cultural**

- 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

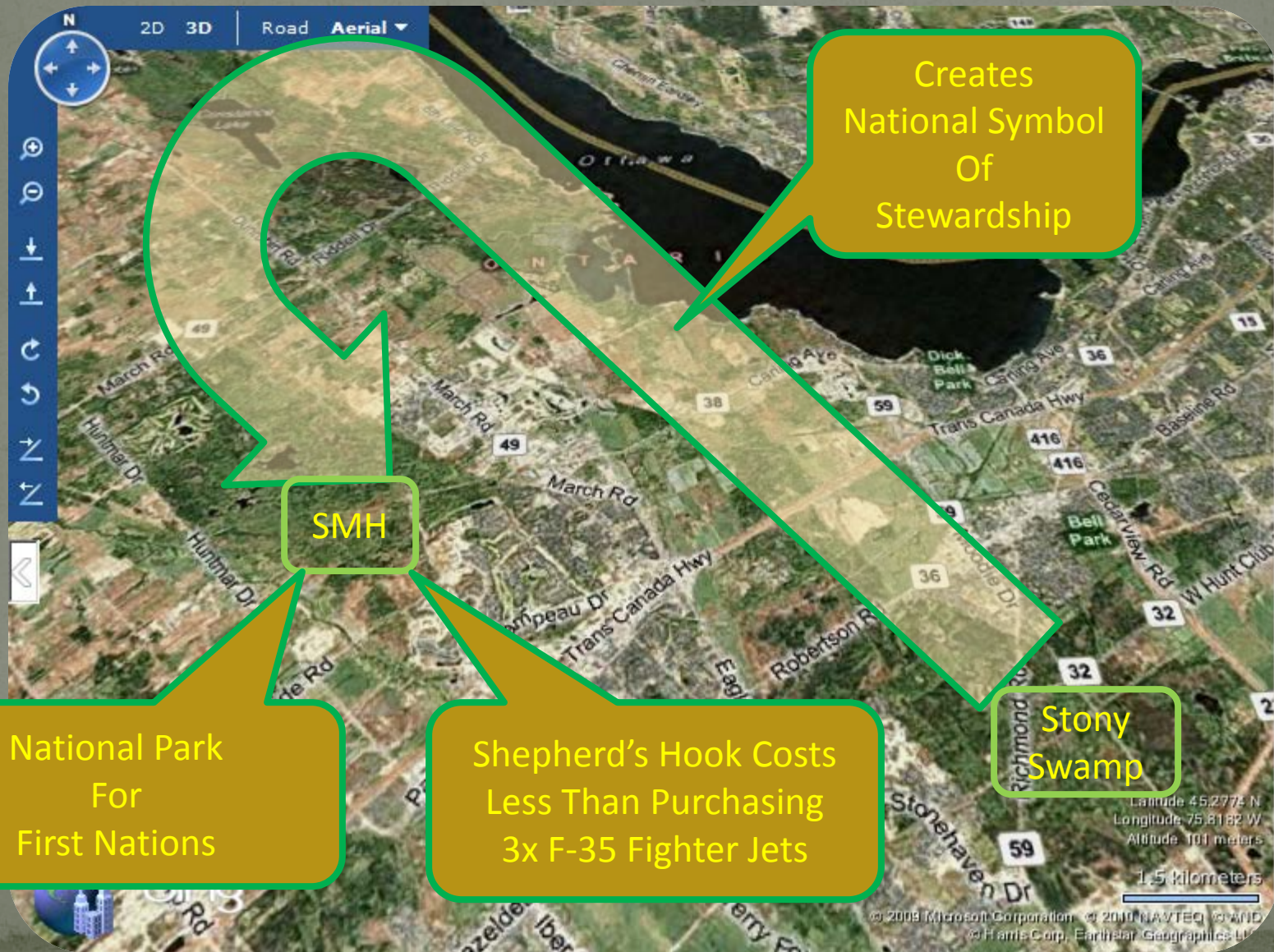


Located Just Beyond Current Greenbelt Corridor

SMH Erroneously Excluded from 3 NCC Concepts for Greenbelt Master Plan



“Shepherd’s Hook” Extends Greenbelt



Alternative Vision of Eco-Corridors Revitalizing The Emerald Necklace



Will You Protect This Forest?



Questions About South March Highlands?

