



FROST CAMPUS BIOBLITZ REPORT-2017

13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND





SUSTAINABILITY AT FLEMING

In 2009, along with many other Canadian colleges, Fleming's President signed the Pan-Canadian Protocol committing to sustainability in campus operations, curriculum, and research and in working with our community. Fleming furthered this commitment in its (2010-2015) strategic plan and in developing a five year sustainability plan (2013-2018) to become a "leader in sustainability". To track our progress, Fleming filed its first STARS report in 2013, achieving Bronze, and then committed to achieve Silver by 2018. Fleming achieved a Silver rating in 2016.

An important part of Sustainable campus planning is being a good steward of our campus lands and natural environments. This includes conducting a point in time biological inventory (a "Bioblitz") as a baseline of data for measuring campus ecological health and then conducting regular updates for comparison over time.



What is a BioBlitz?



A bioblitz brings together expert naturalists and taxonomic scientists to inventory as many species as possible in a particular area in a set amount of time, typically over 24 hours. The species records are compiled into a single data set of the biodiversity in that location at that point in time.

Often, the experts are joined by interested members of the general public for a community-style bioblitz, which blends scientific inventory, guided educational activities and nature programming so that everyone can contribute to real science, while connecting with nature in a personally meaningful experience.

Taken from: <http://bioblitzcanada.ca/>

In October, 2017 Sir Sandford Fleming College hosted its first BioBlitz event at the Frost Campus in Lindsay, ON. The event received over \$2000 in funding from the TD Friends of the Environment Fund. This was a two stage event held over a 36 hour time period. The first stage was an educational outreach event where over 300 elementary school students participated in biodiversity themed tours led by upper semester Fleming Students. The second stage was a 24 hour scientific blitz led by Fleming College staff and community experts; this provided a valuable opportunity for Fleming students to practice and gain experience with monitoring skills learned through curriculum.

In total 245 different species were cataloged by our volunteers and of those 245, 2 were species of concern flagged by the Ontario database.

BIOBLITZ SURVEY AREA

Frost Campus, Trails



School of Environmental & Natural Resource Sciences
Frost Campus | Fleming College



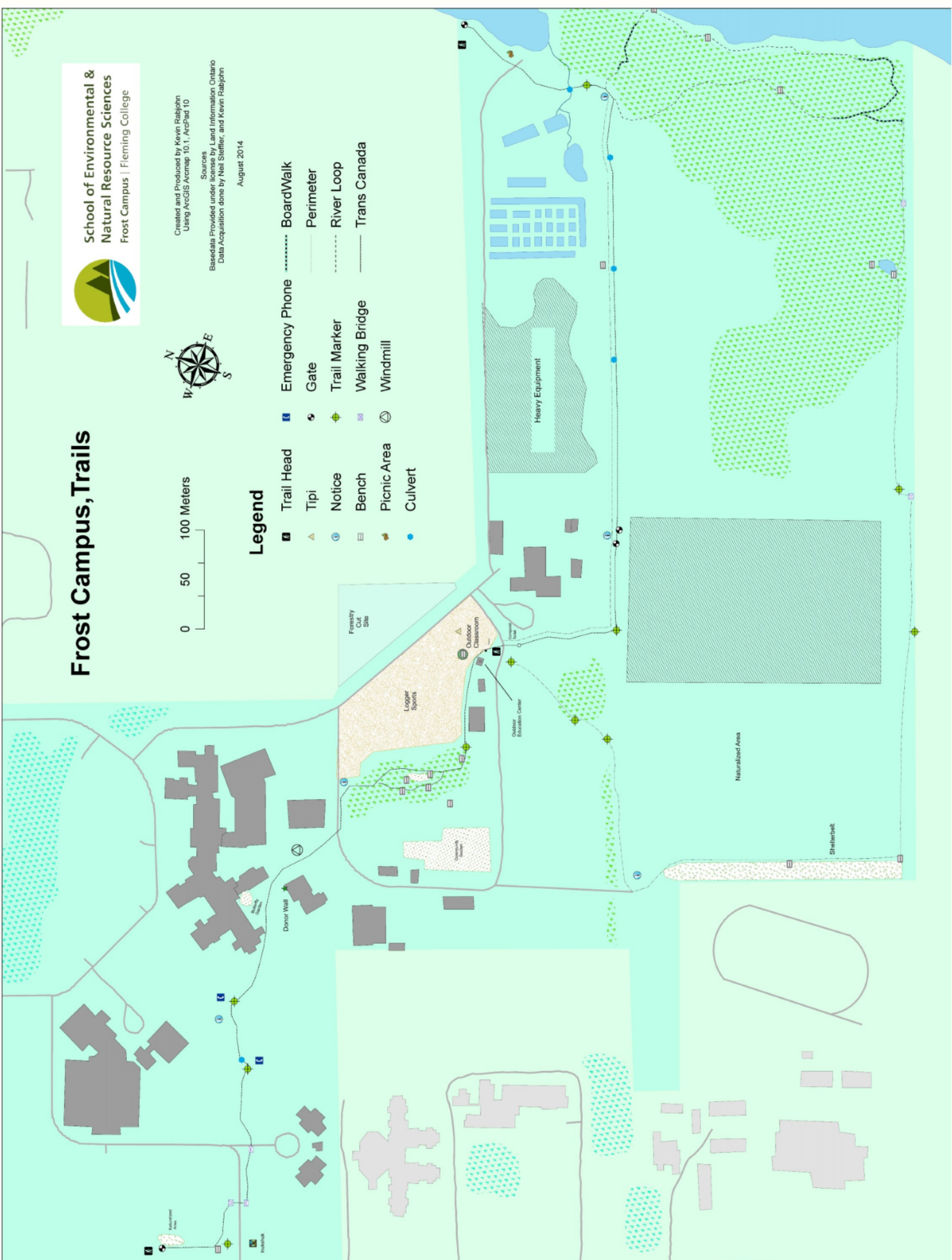
Created and Produced by Kevin Rabjohn
Using ArcGIS Arcmap 10.1, ArcPad 10

Sources
Basedata Provided under license by Land Information Ontario
Data Acquisition done by Neil Steffler, and Kevin Rabjohn
August 2014



Legend

- Trail Head
- Tipi
- Notice
- Bench
- Picnic Area
- Culvert
- Emergency Phone
- Gate
- Trail Marker
- Walking Bridge
- Windmill
- BoardWalk
- Perimeter
- River Loop
- Trans Canada



SPECIAL THANKS

For Review & Support

Birds - Sarah McGuire

Reptiles / Amphibians - Josh Feltham

Benthic Invertebrates - Barb Elliott

Plants - Candace Talbot

Fish - Mark Newell

Fungus - Candace Talbot

Spiders - Richard Schwarz

Insects - David Beresford

Volunteers:

- Michael Duquette - Liam Doyle - Andie Herstek - Hannah Long
- Andrew Base - Sarah Kotsopoulos - Bailey Graham
- Jennifer Shymko - Caroline J. - Sara Kuruvilla - Andrew Jestin
- Evan Skin - Kassidee Bambrough - Emily Miceli - Arden Hills
- Ryan Hill - Jessica Budd-Whitbread - Michael Dwyer
- Danielle Piechota - Theresa Cleroux - Cody Plante - Lisa Martell
- Craig Pezik - Kunal Gohil - Myles Guillet - Tyler Ambeau
- Duc Trung Nghia Nguyen - Kim Stephens - Kelsey Numan
- Joseph Gentile - Megan Biljan - Grace Wheeler - Hannah Williams
- Kyle Kohring - Cameron Faubert - Alec Girard

SPONSORS:



**Friends of the
Environment
Foundation**



Frost Campus | Fleming College
School of Environmental & Natural Resource Sciences



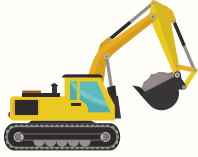
Fleming College
LEARN | BELONG | BECOME

Office of
Sustainability

REASONS FOR DECLINING BIODIVERSITY

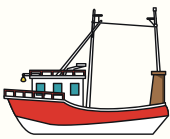
THREATS

Habitat loss and degradation



This refers to the modification of the environment where a species lives, by either complete removal, fragmentation or reduction in quality of key habitat characteristics. Common causes are unsustainable agriculture, logging, transportation, residential or commercial development, energy production and mining. For freshwater habitats, fragmentation of rivers and streams and abstraction of water are common threats.

Species overexploitation



There are both direct and indirect forms of over exploitation. Direct over exploitation refers to unsustainable hunting and poaching or harvesting, whether for subsistence or for trade. Indirect over exploitation occurs when non-target species are killed unintentionally, for example as bycatch in fisheries.

Pollution



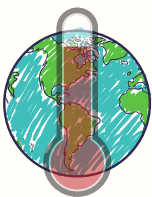
Pollution can directly affect a species by making the environment unsuitable for its survival (this is what happens, for example, in the case of an oil spill). It can also affect a species indirectly, by affecting food availability or reproductive performance, thus reducing population numbers over time.

Invasive Species and disease



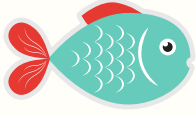
Invasive species can compete with native species for space, food and other resources, can turn out to be a predator for native species, or spread diseases that were not previously present in the environment. Humans also transport new diseases from one area of the globe to another.

Climate Change



As temperatures change, some species will need to adapt by shifting their range to track suitable climate. The effects of climate change on species are often indirect. Changes in temperature can confound the signals that trigger seasonal events such as migration and reproduction, causing these events to happen at the wrong time (for example misaligning reproduction and the period of greater food availability in a specific habitat).

BIOLOGICAL INVENTORY SUMMARY

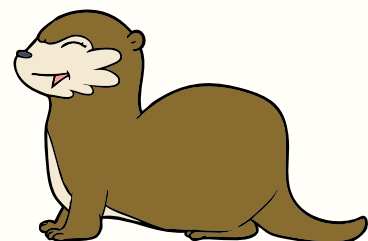
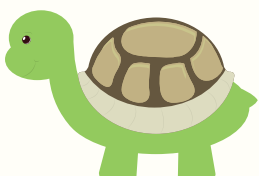
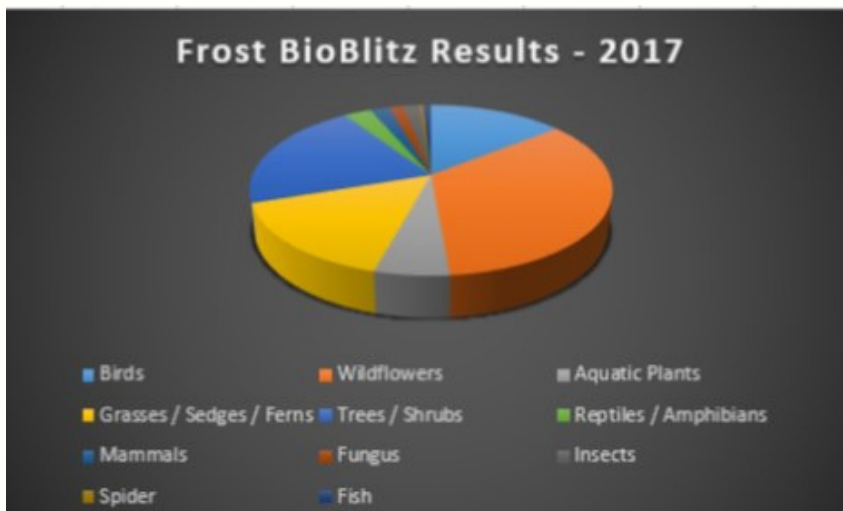


DATES:

- Sept. 22nd - 23rd 2017

PARTICIPANTS:

- Over 300 Elementary School Students
- 8 Biological Experts
- 50 Volunteers
- 245 Total Species Recorded



SPECIES LIST

BIRDS

- Killdeer (*Charadrius vociferus*)
- Belted Kingfisher (*Megasceryle alcyon*)
- Rock Dove (*Columba livia*)
- Mourning Dove (*Zenaidura macroura*)
- Ring-billed Gull (*Larus delawarensis*)
- Merlin (*Falco columbarius*)
- Turkey Vulture (*Cathartes aura*)
- Great Blue Heron (*Ardea herodias*)
- Mallard (*Anas platyrhynchos*)
- Canada Goose (*Branta canadensis*)
- Cedar Waxwing (*Bombycilla cedrorum*)
- House Wren (*Troglodytes aedon*)
- American Crow (*Corvus brachyrhynchos*)
- Blue Jay (*Cyanocitta cristata*)
- Northern Cardinal (*Cardinalis cardinalis*)
- Song Sparrow (*Melospiza melodia*)
- Chipping Sparrow (*Spizella passerina*)
- Field Sparrow (*Spizella pusilla*)
- Eastern Meadowlark (*Sturnella magna*)
- Common Grackle (*Quiscalus quiscula*)
- Red-winged Blackbird (*Agelaius phoeniceus*)
- American Robin (*Turdus migratorius*)
- White-breasted Nuthatch (*Sitta carolinensis*)
- Red-breasted Nuthatch (*Sitta canadensis*)
- European Starling (*Sturnus vulgaris*)
- Gray Catbird (*Dumetella carolinensis*)
- Least Flycatcher (*Empidonax minimus*)
- Willow Flycatcher (*Empidonax traillii*)
- Eastern Phoebe (*Sayornis phoebe*)
- Hairy Woodpecker (*Picoides villosus*)
- Northern Flicker (*Colaptes auratus*)
- Black-capped Chickadee (*Poecile atricapillus*)
- Palm Warbler (*Setophaga palmarum*)
- American Goldfinch (*Spinus tristis*)

SPECIES LIST

WILDFLOWERS

- Greater Plantain (*Plantago major*)
- Late Golden Rod (*Solidago altissima*)
- Downy Willowherb (*Epilobium strictum*)
- Bird's-foot trefoil (*Lotus corniculatus*)
- Common Dandelion (*Taraxacum officinale*)
- Yellow Iris (*Iris pseudacorus*)
- Common Jewelweed (*Impatiens capensis*)
- Common Milkweed (*Asclepias syriaca*)
- Wild Cucumber (*Echinocystis lobata*)
- Catnip (*Nepeta cataria*)
- Northern Blue Flag (*Iris versicolor*)
- Water forget-me-not (*Myosotis scorpioides*)
- Red baneberry (*Actaea rubra*)
- Virginia Creeper (*Parthenocissus quinquefolia*)
- Wild strawberry (*Fragaria vesca*)
- Broad-leaved helleborine (*Epipactis helleborine*)
- Common toadflax (*Linaria vulgaris*)
- False Solomon's-seal (*Maianthemum racemosum*)
- Devil's beggarticks (*Bidens frondosa*)
- Red Clover (*Trifolium pratense*)
- Colt's foot (*Tussilago farfara*)
- Black medick (*Medicago sativa*)
- Alfalfa (*Medicago sativa*)
- Corn mint (*Mentha arvensis*)
- White heath aster (*Symphotrichum ericoides*)
- Purple crownvetch (*Securigera varia*)
- Meadow anemone (*Anemone canadensis*)
- Flat-topped goldenrod (*Euthamia graminifolia*)
- Ditch stonecrop (*Penthorum sedoides*)
- Swamp Goldenrod (*Solidago patula*)
- Common Marsh-bedstraw (*Galium palustre*)

SPECIES LIST

WILDFLOWERS CONT.

- Smooth hawkweed (*Pilosella piloselloides*)
- Mouse-eared hawkweed (*Pilosella officinarum*)
- European swallow-wort (*Vincetoxicum rossicum*)
- Meadow hawkweed (*Pilosella caespitosa*)
- Water parsnip (*Sium suave*)
- Meadow salsify (*Tragopogon pratensis*)
- Tower Mustard (*Turritis glabra*)
- Bushy aster (*symphyotrichum dumosum*)
- Black Snakeroot (*Sanicula canadensis*)
- Early Meadow-rue (*Thalictrum dioicum*)
- White turtlehead (*Chelone glabra*)
- Common lilac (*Syringa vulgaris*)
- Common boneset (*Eupatorium perfoliatum*)
- Riverbank grape (*Vitis riparia*)
- Calico aster (*Symphyotrichum lateriflorum*)
- Swamp milkweed (*Asclepias incarnata*)
- Canada clearweed (*Pilea pumila*)
- Canada mayflower (*Maianthemum canadense*)
- Canada goldenrod (*Solidago canadensis*)
- Blue vervain (*Verbena hastata*)
- Wild asparagus (*Asparagus officinalis*)
- Broad-leaved sweet pea (*Lathyrus latifolius*)
- Oregano (*Origanum vulgare*)
- Slender rush (*Juncus tenuis*)
- Russian knapweed (*Acroptilon repens*)
- Tatarian honeysuckle (*Lonicera tatarica*)
- Northern bugleweed (*Lycopus uniflorus*)
- Small-flowered forget-me-not (*Myosotis micrantha*)
- Tufted vetch (*Vicia cracca*)
- Common selfheal (*Prunella vulgaris*)

SPECIES LIST

WILDFLOWERS CONT.

- Prickly sowthistle (*Sonchus asper*)
- Common Mouse-ear Chickweed (*Cerastium fontanum*)
- Common ragweed (*Ambrosia artemisiifolia*)
- Bittersweet (*Solanum dulcamara*)
- Bladder campion (*Silene vulgaris*)
- White Clover (*Trifolium repens*)
- Ground-ivy (*Glechoma hederacea*)
- Lesser periwinkle (*Vinca minor*)
- Herb Robert (*Geranium robertianum*)
- Western Poison Ivy (*Toxicodendron rydbergii*)
- White sweetclover (*Melilotus albus*)
- Great mullein (*Verbascum thapsus*)
- Cursed crowfoot (*Ranunculus sceleratus*)
- Lesser burdock (*Arctium minus*)
- Wild parsnip (*Pastinaca sativa*)
- Creeping thistle (*Cirsium arvense*)
- Yellow Sweetclover (*Melilotus officinalis*)
- Toad rush (*Juncus bufonius*)
- Common Yarrow (*Achillea millefolium*)
- Chicory (*Cichorium intybus*)
- Bull thistle (*Cirsium vulgare*)
- Pineapple-weed (*Matricaria discoidea*)
- Fringed willowherb (*Epilobium ciliatum*)
- Ribwort plantain (*Plantago lanceolata*)
- Curled dock (*Rumex crispus*)

SPECIES LIST

AQUATIC PLANTS

- Broadleaf Arrowhead (*Sagittaria latifolia*)
- Bulrush (*Typha latifolia*)
- Hybrid bulrush (*Typha x glauca*)
- American white waterlily (*Nymphaea odorata*)
- American water plantain (*Alisma subcordatum*)
- Common bladderwort (*Utricularia vulgaris*)
- Water smartweed (*Persicaria amphibia*)
- Narrow-leaved cattail (*Typha angustifolia*)
- Coontail (*Ceratophyllum demersum*)
- Siberian water-milfoil (*Myriophyllum sibiricum*)
- Big bur-reed (*Sparganium eurycarpum*)
- Eurasian water-milfoil (*Myriophyllum spicatum*)
- Common Waterweed (*Elodea canadensis*)
- Common Duckweed (*Lemna minor*)

SPECIES LIST

GRASSES / SEDGES / FERNS

- Spotted lady's thumb (*Persicaria maculosa*)
- Hairy Crabgrass (*Digitaria sanguinalis*)
- Spotted lady's thumb (*Persicaria maculosa*)
- Common motherwort (*Leonurus cardiaca*)
- Needle Spikerush (*Eleocharis acicularis*)
- Alfalfa (*Medicago sativa*)
- Timothy (*Phleum pratense*)
- Spiked sedge (*Carex spicata*)
- Bladder sedge (*Carex intumescens*)
- River wild rye (*Elymus riparius*)
- Retrose sedge (*Carex retrorsa*)
- Marsh Muhly (*Muhlenbergia glomerata*)
- Common Marsh-bedstrax (*Galium palustre*)
- Witch grass (*Panicum capillare*)
- Smooth witchgrass (*Panicum dichotomiflorum*)
- Swamp Meadow-grass (*Poa palustris*)
- Greater Water Dock (*Rumex britannica*)
- Hop sedge (*Carex lupulina*)
- Spinulose wood fern (*Dryopteris carthusiana*)
- Marsh fern (*Thelypteris palustris*)
- Ostrich fern (*Matteuccia struthiopteris*)
- Sensitive fern (*onoclea sensibillis*)
- Bob's sedge (*Carex bebbii*)
- Annual wild rice (*Zizania aquatica*)
- Spotted joe-pye weed *Eutrochium macaulatum*)
- New England aster (*Symphyotrichum novae-angilae*)
- Barnyard grass (*Echinochloa crus-galli*)
- Quack grass (*Elymus repens*)
- Smooth Meadow-grass (*Poa pratensis*)
- Reed canary grass (*Phalaris aruninacea*)
- Rice cutgrass (*Leersia orzyoides*)
- Field horsetail (*Equisetum arvense*)
- Redtop (*Argostis gigantea*)
- Nodding Beggarticks (*Bidens cernua*)
- False nettle (*Boehmeria cylindrica*)
- Smooth brome (*bromus inermis*)
- Canadian bluejoint (*Calamagrostis canadensis*)
- Lady fern (*Athyrium filix-femina*)
- Cock's-foot (*Dactylis glomerata*)

SPECIES LIST

TREES / SHRUBS

- White poplar (*Populus alba*)
- Boxelder Maple (*Acer negundo*)
- Ponderosa Pine (*Pinus ponderosa*)
- Northern Red Oak (*Quercus rubra*)
- Common Serviceberry (*Amelanchier arborea*)
- Paper Birch (*Betula papyrifera*)
- Eastern White Pine (*Pinus Strobus*)
- Red osier dogwood (*Cornus sericea*)
- American elm (*Ulmus americana*)
- Tulip tree (*Liriodendron tulipifera*)
- Northern whitecedar (*Thuja occidentalis*)
- Balsam fir (*Abies balsamea*)
- European raspberry (*Rubus idaeus*)
- Apples (Genus *malus*)
- Eastern black walnut (*Juglans nigra*)
- Norway maple (*Acer platanoides*)
- Nannyberry (*Viburnum lentago*)
- White Oak (*Quercus alba*)
- White Ash (*fraxinus americana*)
- Green Ash (*fraxinus pennsylvanica*)
- Common Buckthorn (*Rhamnus cathartica*)
- Balsam Poplar (*Populus balsamifera*)
- Trembling Aspen (*Populus tremuloides*)
- Pussy Willow (*Salix discolor*)
- Pacific Willow (*Salix lucida*)
- Basswood (*Tilia americana*)
- Black Locust (*Robinia pseudoacacia*)
- Scots Pine (*Pinus sylvestris*)
- Jack pine (*Pinus banksiana*)
- Japanese barberry (*Berberis thunbergii*)
- European Larch (*Larix decidua*)

SPECIES LIST

TREES / SHRUBS CONT.

- Norway Spruce (*Picea abies*)
- Ohio buckeye (*Aesculus glabra*)
- Black Spruce (*Picea mariana*)
- Horse-chestnut (*Aesculus hippocastanum*)
- American black elderberry (*Sambucus canadensis*)
- White spruce (*Picea glauca*)
- Red spruce (*Picea rubens*)
- Wayfaring-tree (*Viburnum lantana*)
- Staghorn sumac (*Rhus typhina*)
- Freeman's maple (*Acer x freemanii*)
- Hybrid's Black Poplar (*Populus x canadensis*)
- Crack Willow (*Salix x fragilis*)
- Heart-leaved Willow (*Salix eriocphala*)
- Small-leaved Lime (*Tilia cordata*)
- Katsura (*Ceridiphyllum japonicum*)
- Mountain Pine (*Pinus mugo*)
- Black Pine (*Pinus nigra*)
- Ginkgo (*Ginkgo biloba*)
- Northern catalpa (*Catalpa speciosa*)
- Rowan (*Sorbus aucuparia*)

SPECIES LIST

REPTILES / AMPHIBIANS

- Green Frog (*Lithobates clamitans*)
- Northern Leopard Frog (*Lithobates pipiens*)
- Gray Tree Frog (*Hyla versicolor*)
- Common Garter Snake (*Thamnophis sirtalis*)
- Common Snapping Turtle (*Chelydra serpentina*)
- Painted Turtle (*Chrysemys picta*)
- Wood Frog (*Lithobates sylvaticus*)

MAMMALS

- River Otter (*Lontra canadensis*)
- Red Fox (*Vulpes vulpes*)
- Eastern Gray Squirrel (*Sciurus carolinensis*)
- Eastern Chipmunk (*Tamias stratus*)
- American Red Squirrel (*Tamiasciurus hudsonicus*)

FUNGUS

- Shaggy Mane (*Coprinus comatus*)
- Turkey-tail (*Trametes versicolor*)
- Scarlet Waxy Cap (*Hygrocybe coccinea*)
- Dryad's Saddle (*Polyporus squamosus*)

SPECIES LIST

INSECTS

- Monarch (*Danaus plexippus*)
- Drone fly (*Eristalis tenax*)
- Viceroy (*Limenitis archippus*)
- Whirligig Beetle (*Dineutus sublineatus*)

SPIDERS

- Banded Garden Spider (*Argiope trifasciata*)

FISH

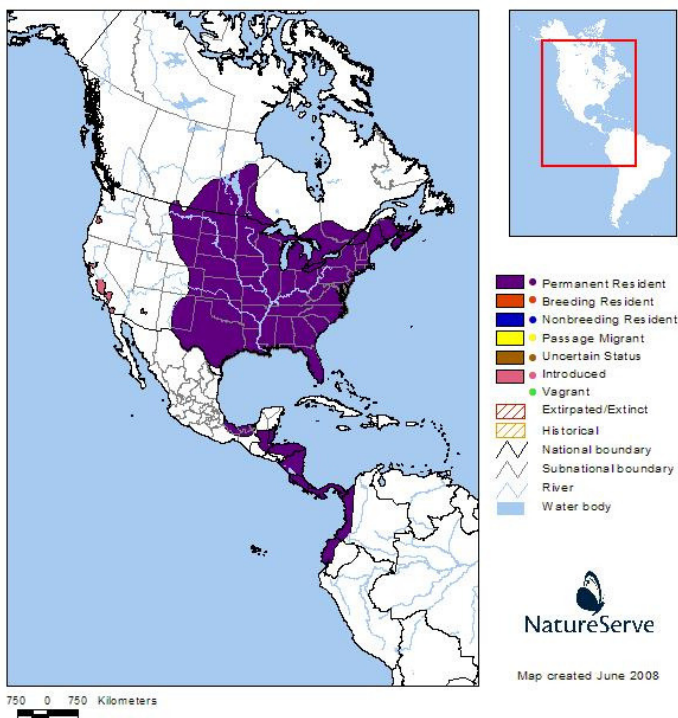
- Northern Redbelly Dace (*Chrosomus eos*)
- Fathead Minnow (*Pimephales promelas*)

WILDLIFE SPOTLIGHT

COMMON SNAPPING TURTLE



Image credit: Dakota L.



Status

Special Concern

"Special Concern" means the species lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Date added to the Species at Risk in Ontario List

September 10, 2009

WILDLIFE SPOTLIGHT

MONARCH

Status

Special Concern

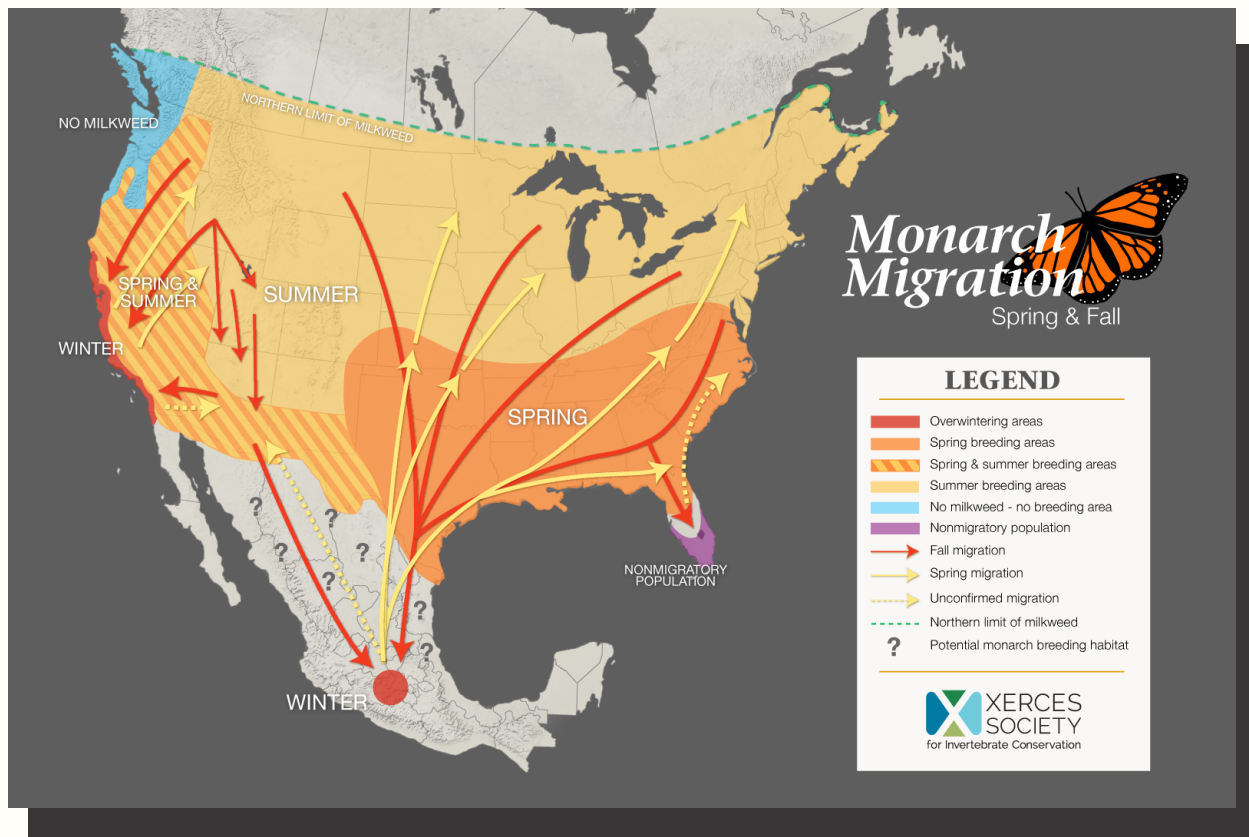
“Special Concern” means the species lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Date added to the Species at Risk in Ontario List

The Monarch was already assessed as a species of special concern when the Endangered Species Act took effect in 2008.



(AP Photo/Pat)



CONTACT US

SUTHERLAND AND COBOURG CAMPUS

ROBERT MONICO
SUSTAINABILITY PROJECTS COORDINATOR

705-749-5530 EXT.1253

599 BREALEY DR, PETERBOROUGH, ON K9J 7B1
OFFICE C0135

ROBERT.MONICO@FLEMINGCOLLEGE.CA

FROST AND HALIBURTON CAMPUS

MARCY ADZICH
SUSTAINABILITY PROJECTS COORDINATOR

705-749-5530 EXT.3203
200 ALBERT ST S, LINDSAY, ON K9V 5E6

MARCY.ADZICH@FLEMINGCOLLEGE.CA



/FlemingSustainable



@flemingsustainability



@FlemingSustain