

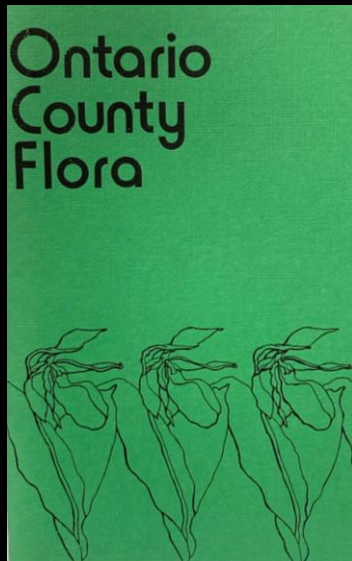
After the Ice Age: the Return of Plant Life to the Bristol Hills



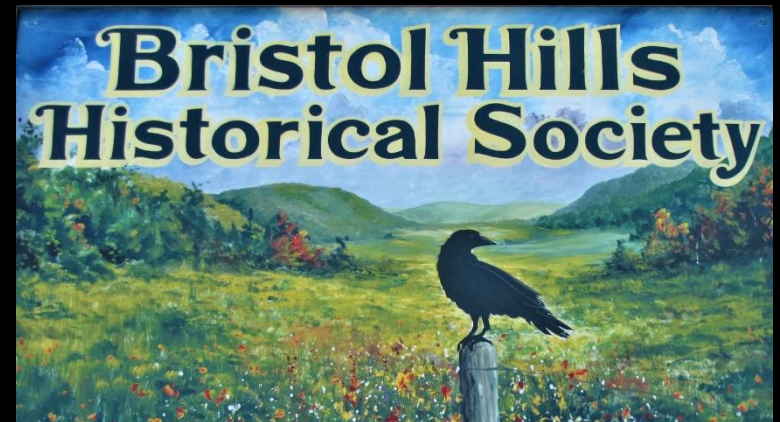
Bloodroot, *Sanguinaria canadensis*

Dr. Bruce Gilman
Professor Emeritus, Conservation Department
Curator of Finger Lakes Herbarium
Finger Lakes Community College
3325 Marvin Sands Drive
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Bruce.Gilman@retiree.flcc.edu



Public Presentation
Saturday, April 29
10:00 - 11:00am

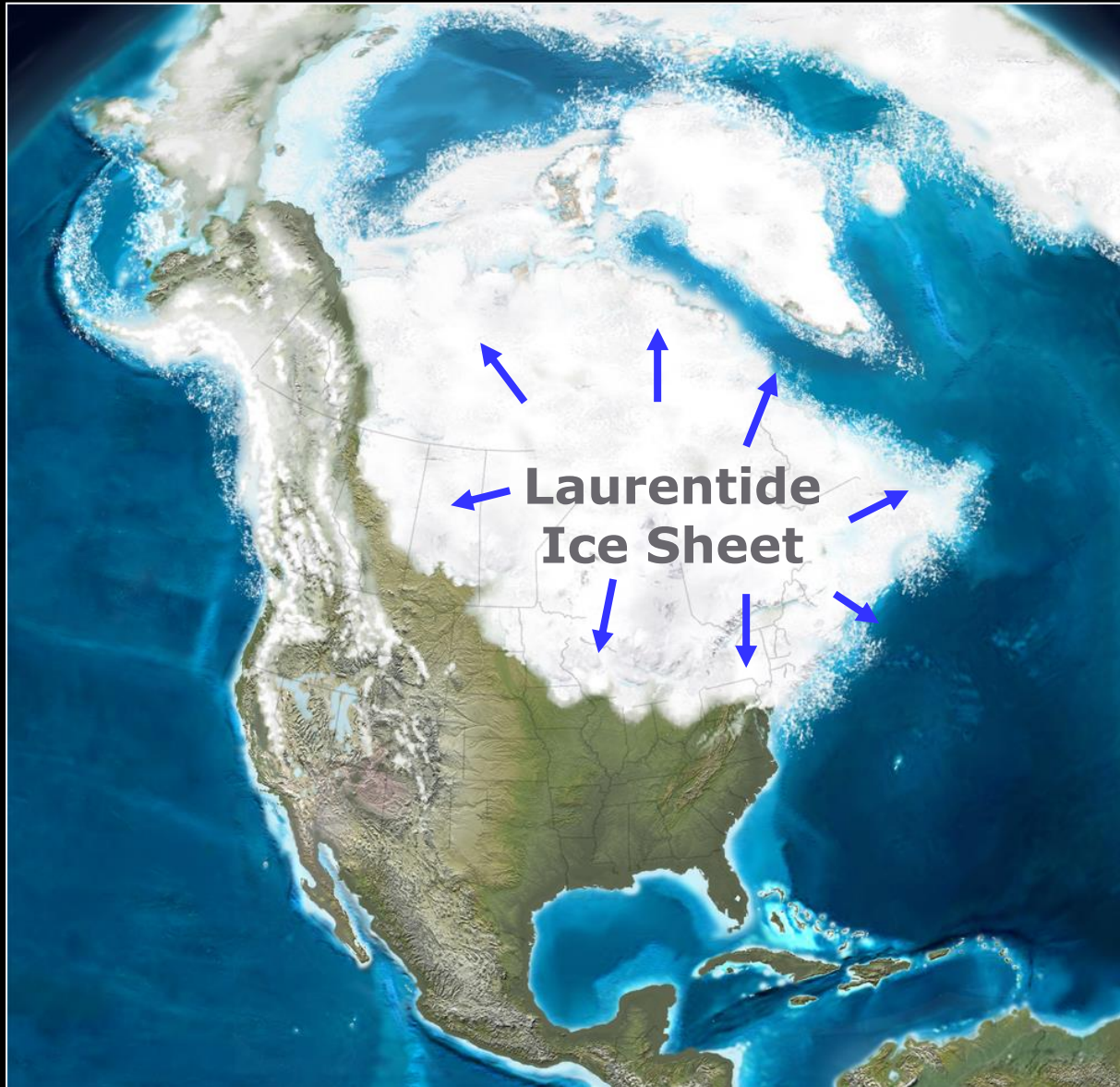


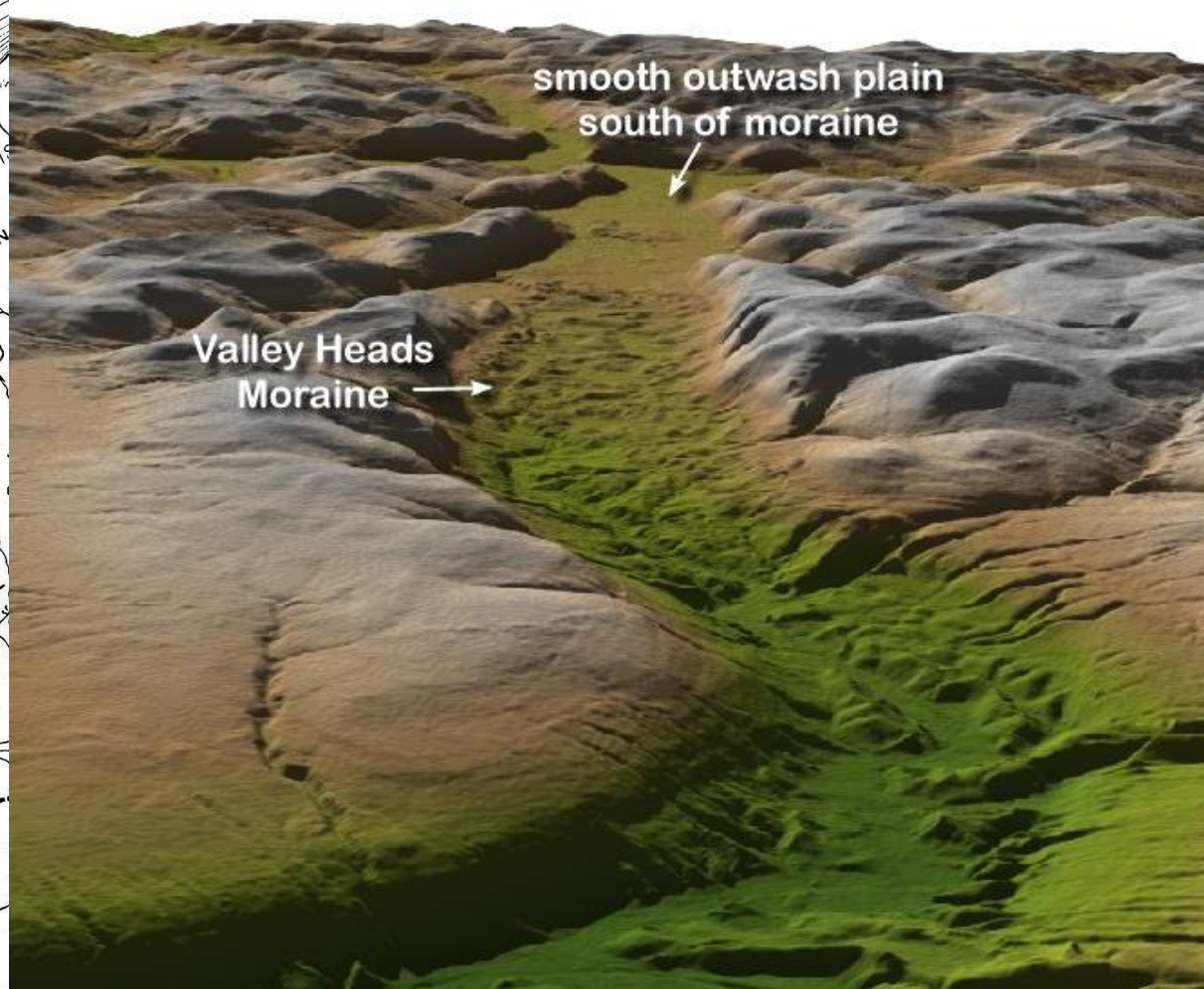
The Bristol Hills Region at the peak of glaciation



Antarctica - Kevin McMahon

20,000 years ago





The Bristol Hills landscape was transformed!

Figure 108. PHYSIOGRAPHY OF CENTRAL NEW YORK.

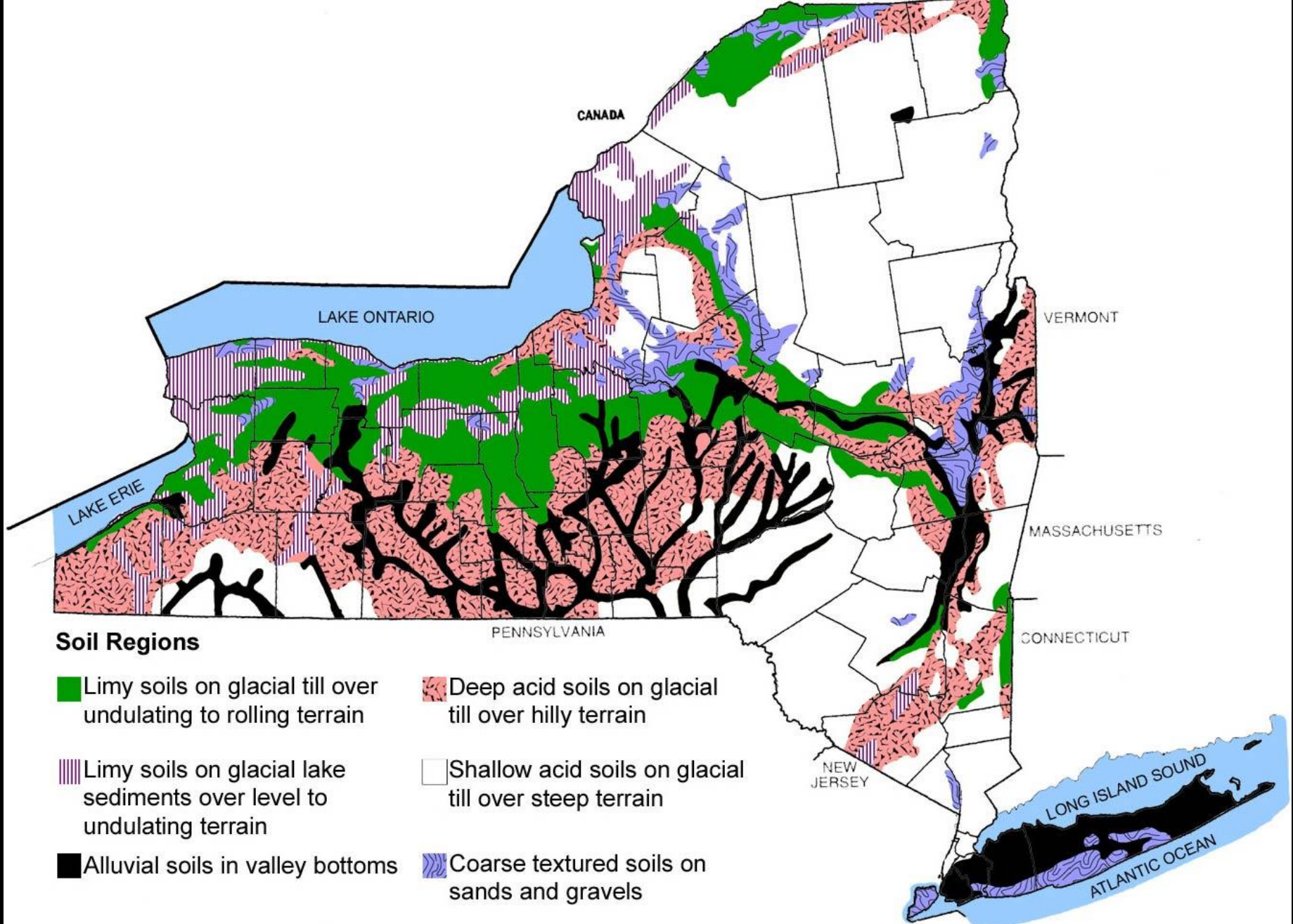
Where had the plants sought refuge
when the northeast was buried
beneath glacial ice?

At least 3 possibilities...

Plant Refugia



What developing soil conditions fit
the ecological requirements of
migrating plants?



Sources: U.S. Bureau of the Census, 2002 Census of Agriculture
 Thompson, John Henry. *Geography of New York State*.
 Syracuse, NY: Syracuse University, 1977.

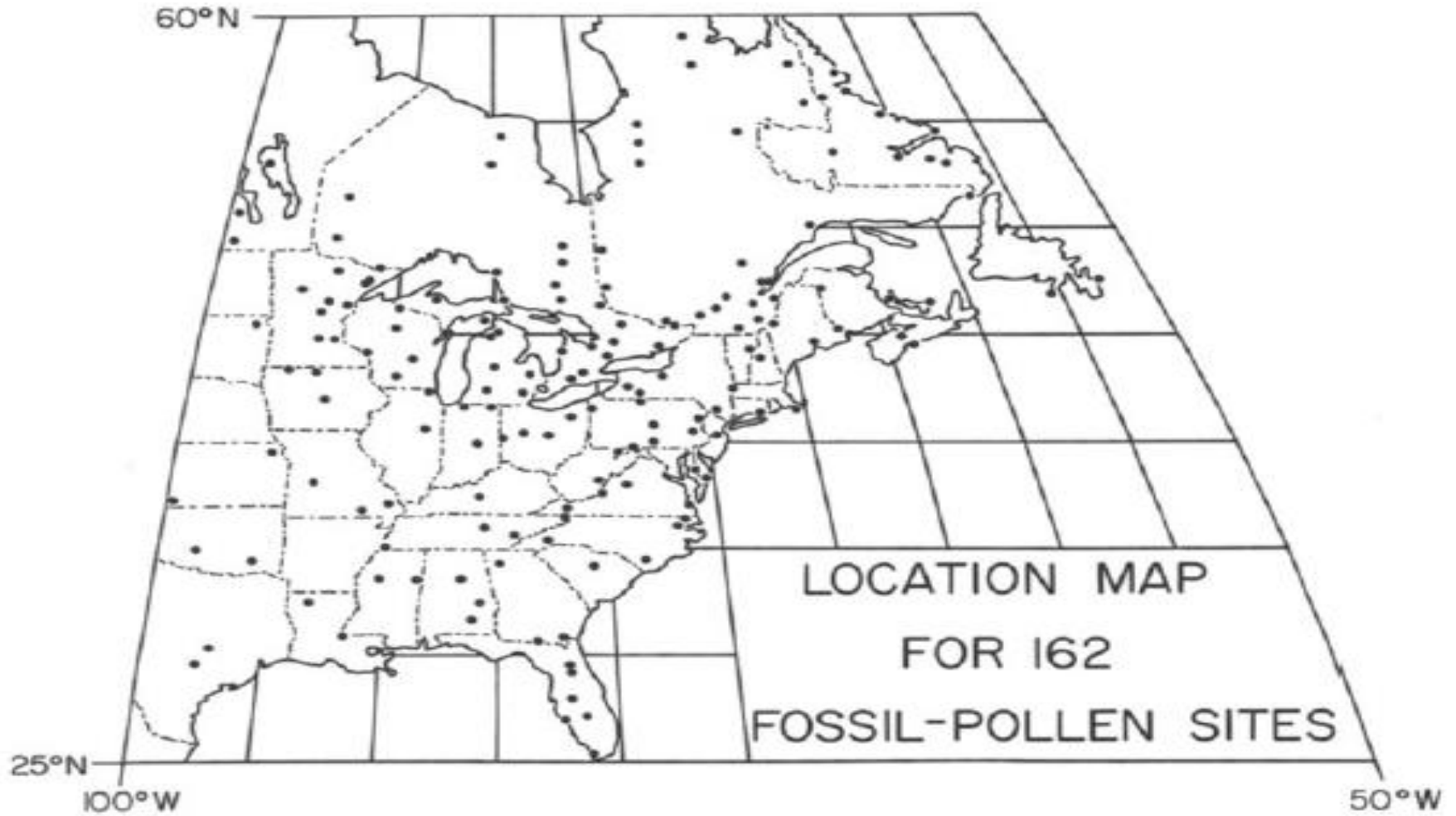
What natural plant communities colonized our newly forming soils?

- role of plant refugia during peak glaciation
- rates of migration
- vectors of migration
- climatic adaptation and tree physiology
- ecological succession

Visualizing forest community change using historic records

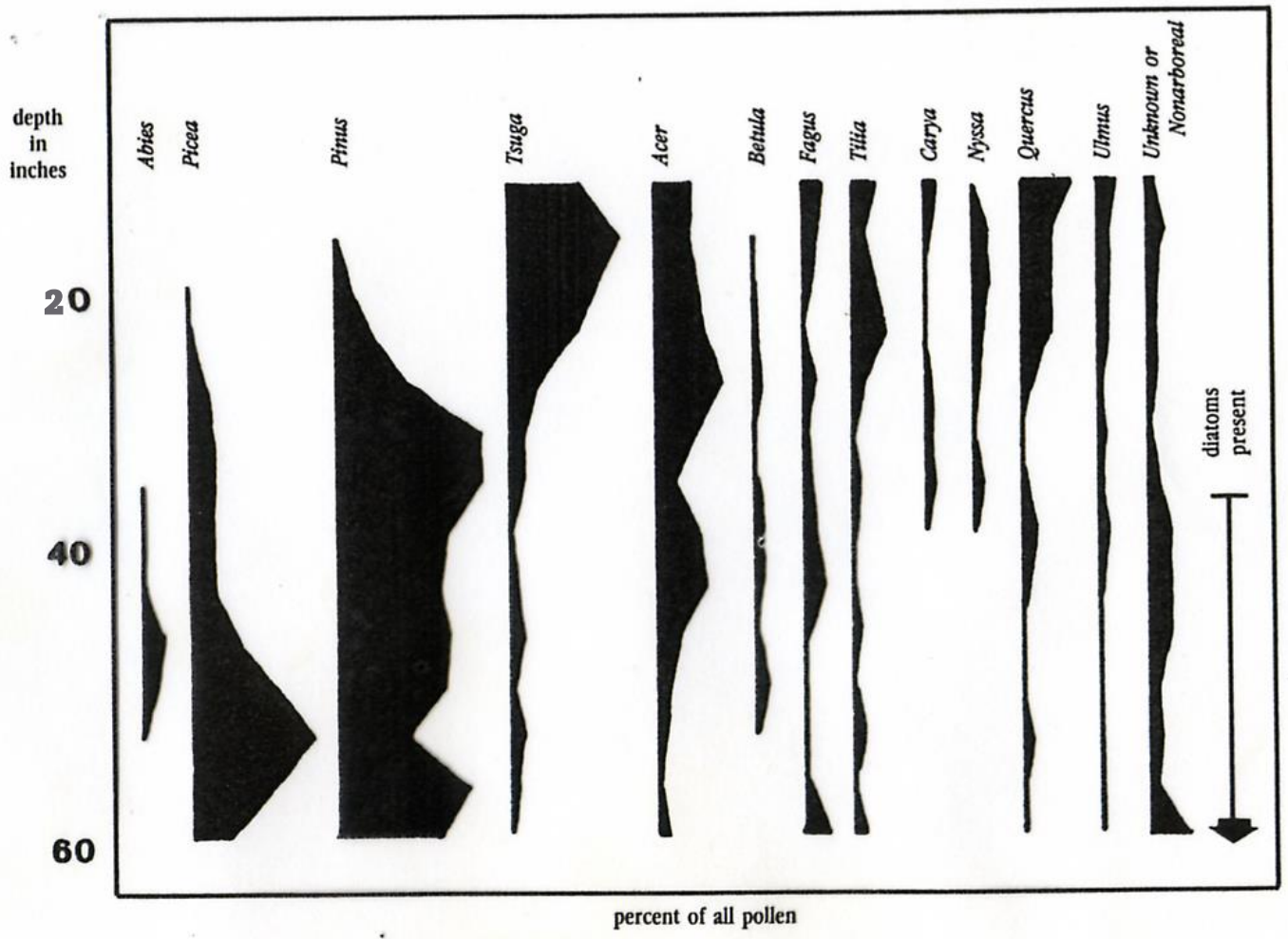
- The science of palynology
- The science of dendrochronology
- The original land survey records
- A modern land use/land cover field research project to describe our modern plant communities - recent inventory and mapping completed in Ontario County

Return of plant life to North America (fossil pollen studies)



Collecting Pollen Samples



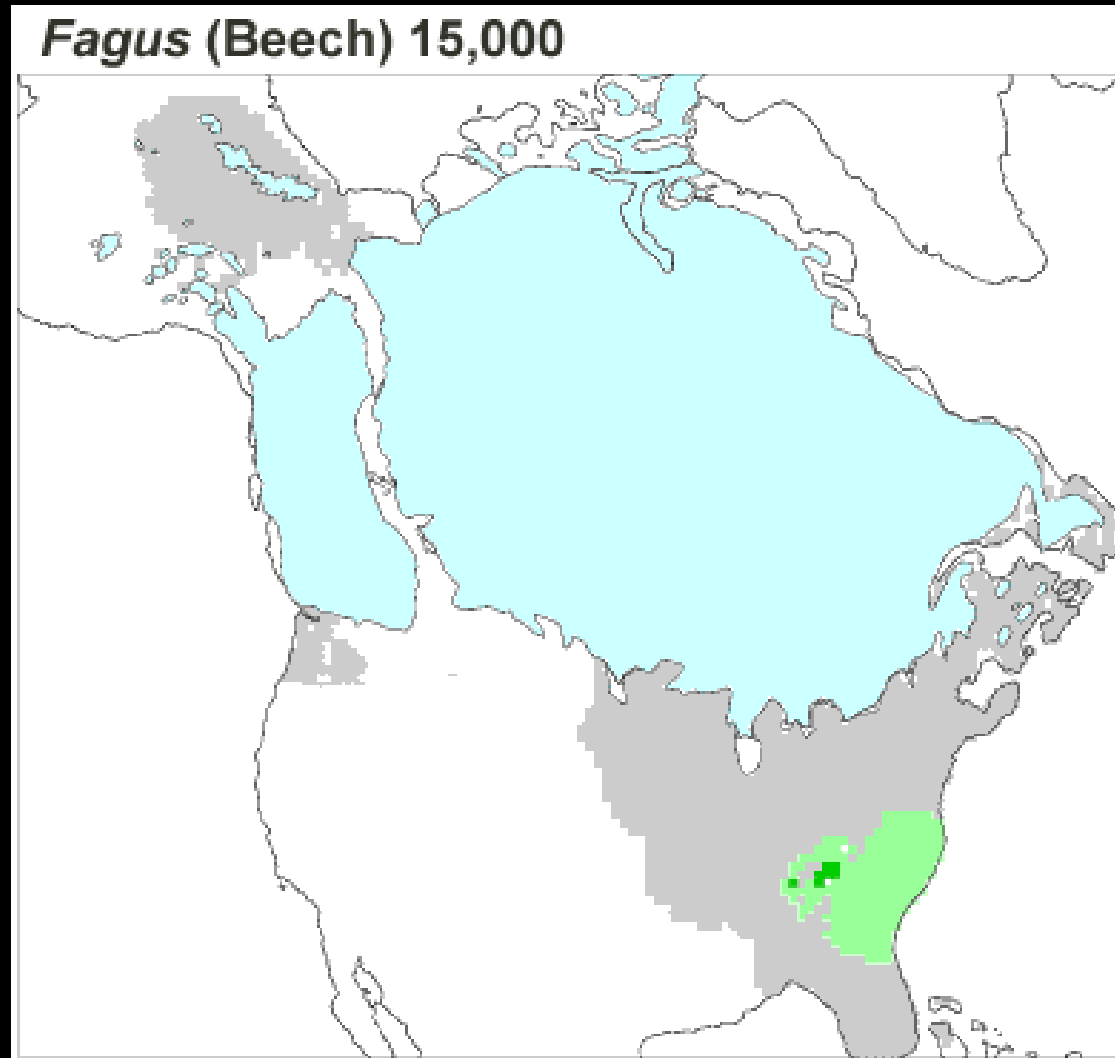


Abies (Fir)
 Picea (Spruce)
 Pinus (Pine)
 Tsuga (Hemlock)
 Acer (Maple)
 Betula (Birch)
 Fagus (Beech)
 Tilia (Basswood)
 Carya (Hickory)
 Nyssa (Tupelo)
 Quercus (Oak)
 Ulmus (Elm)

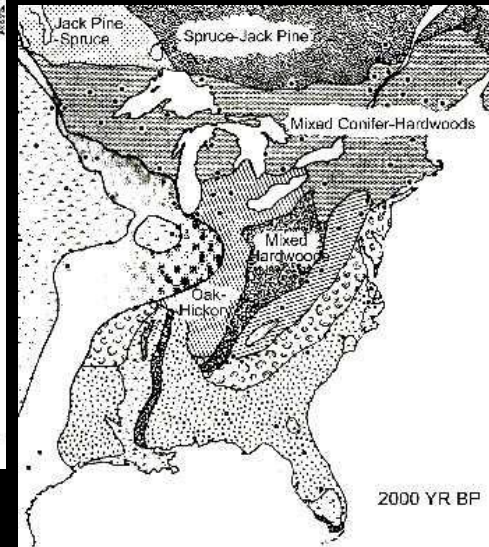
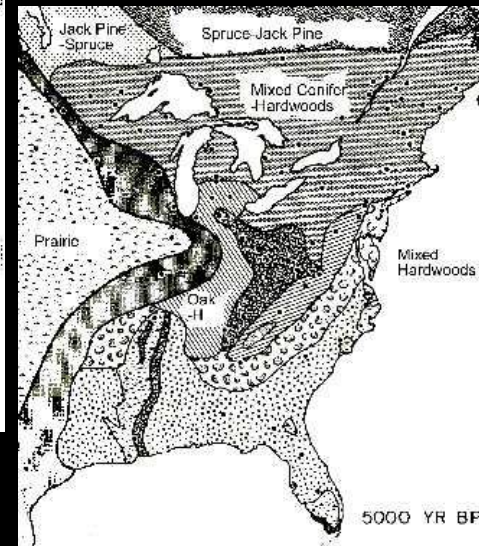
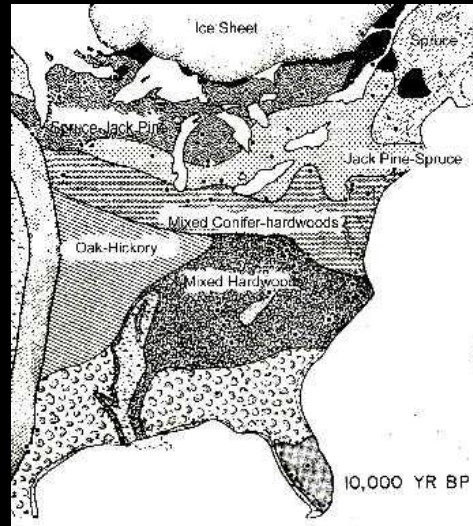
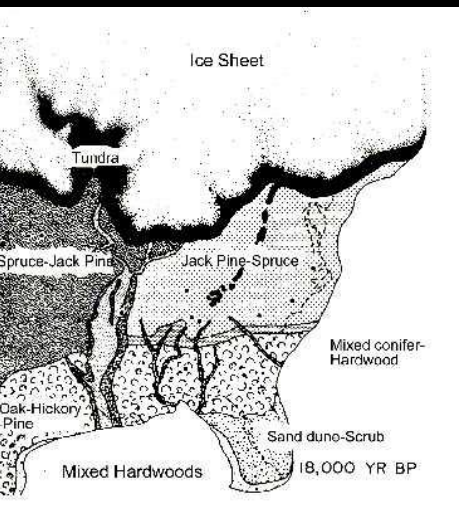
Gilman and Wentland 1975

Patterns in tree pollen abundance suggest changes in forest composition that may be driven by improving climate and soils at the end of the Ice Age.

Re-vegetation of landscape Beech migration



Northly Shifts in Forest Communities after the Ice Age



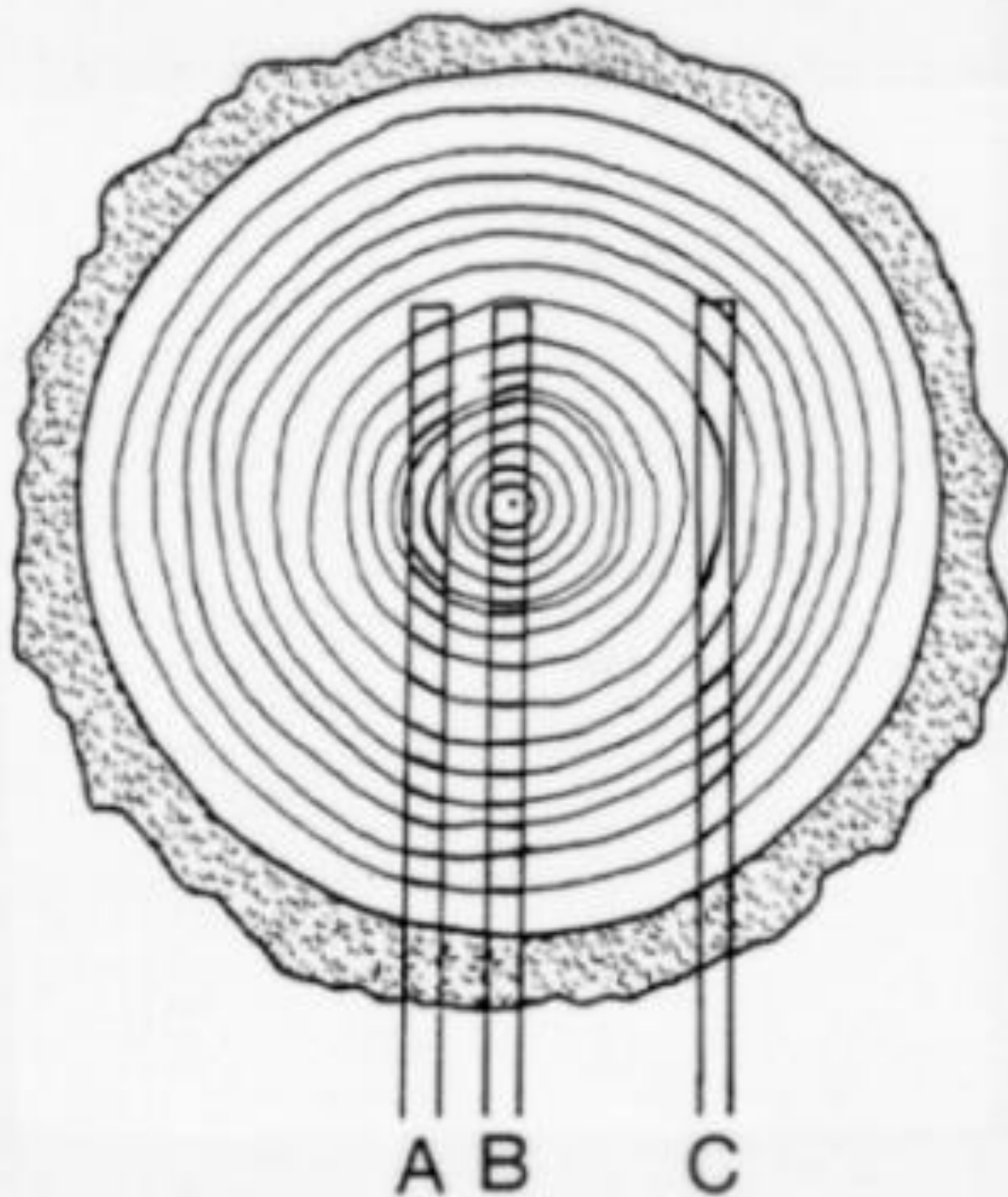


first year growth

rainy season

dry season

scar from forest fire





Using a tree increment borer in Gosnell's Woods, Webster NY

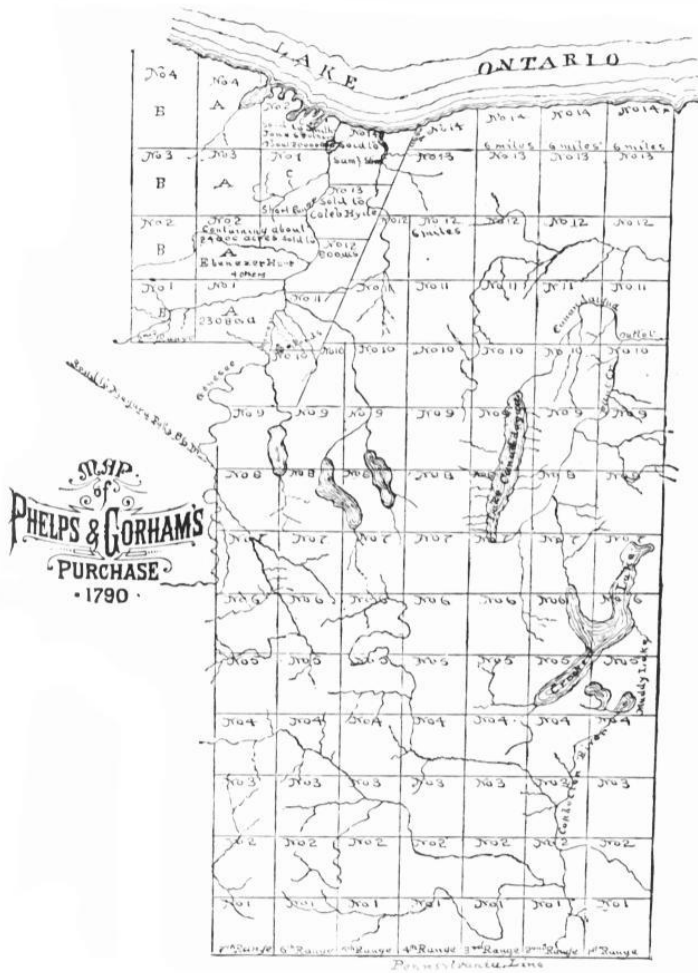


The pre-European settlement forest



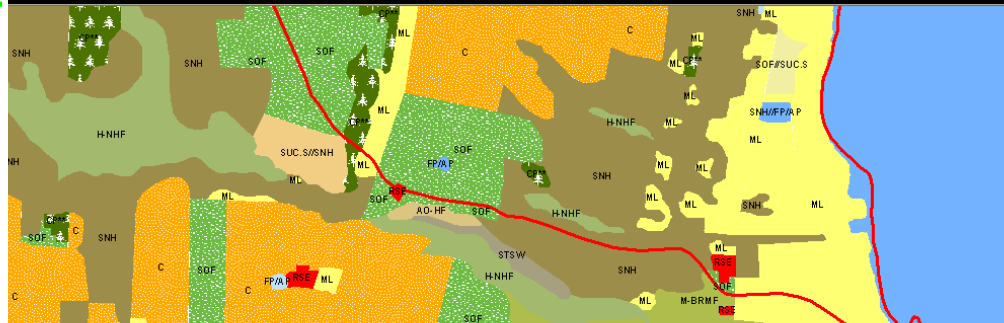
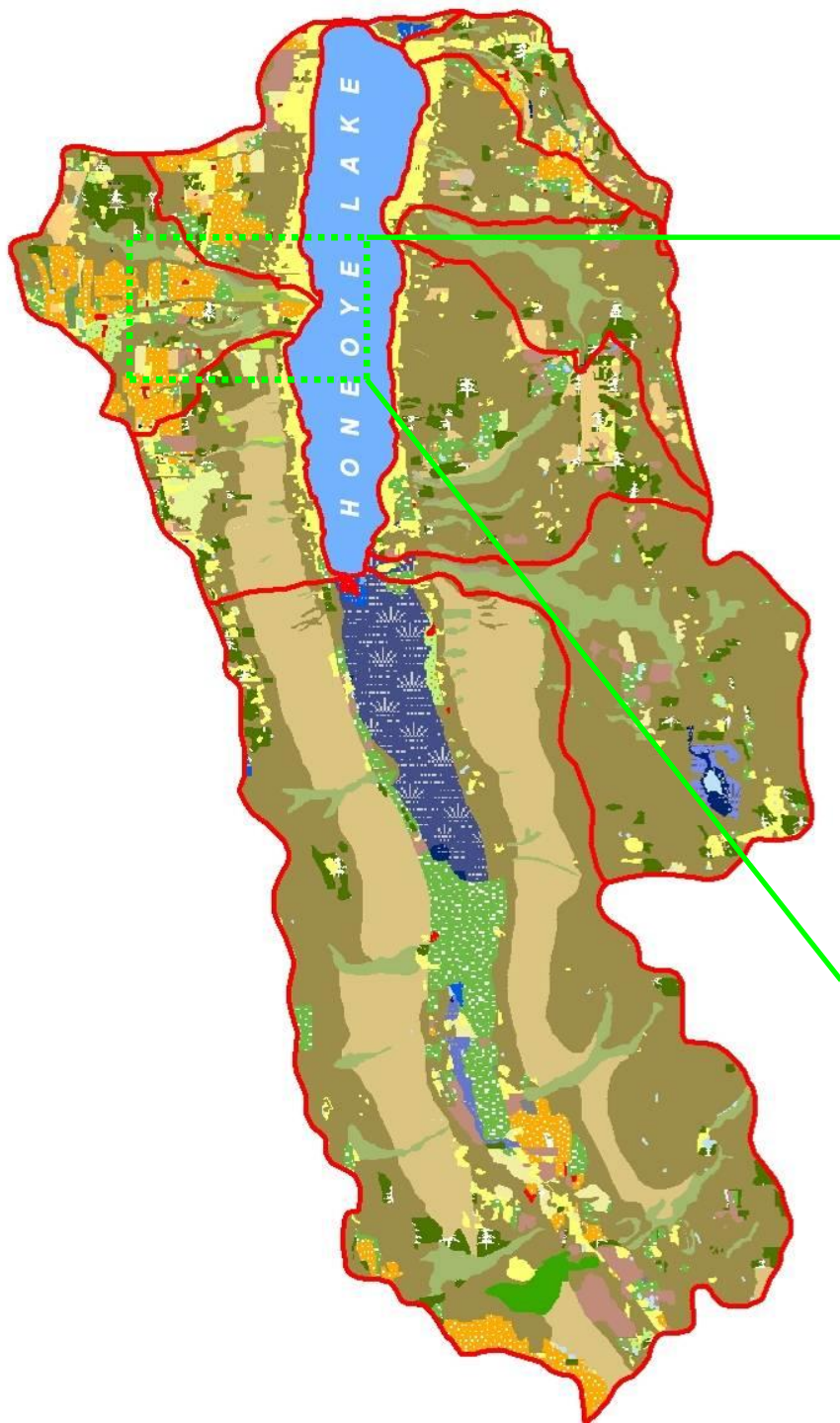
Gosnell's Woods, Webster NY

Land surveys conducted in the 1790's hint at the composition of the original forest



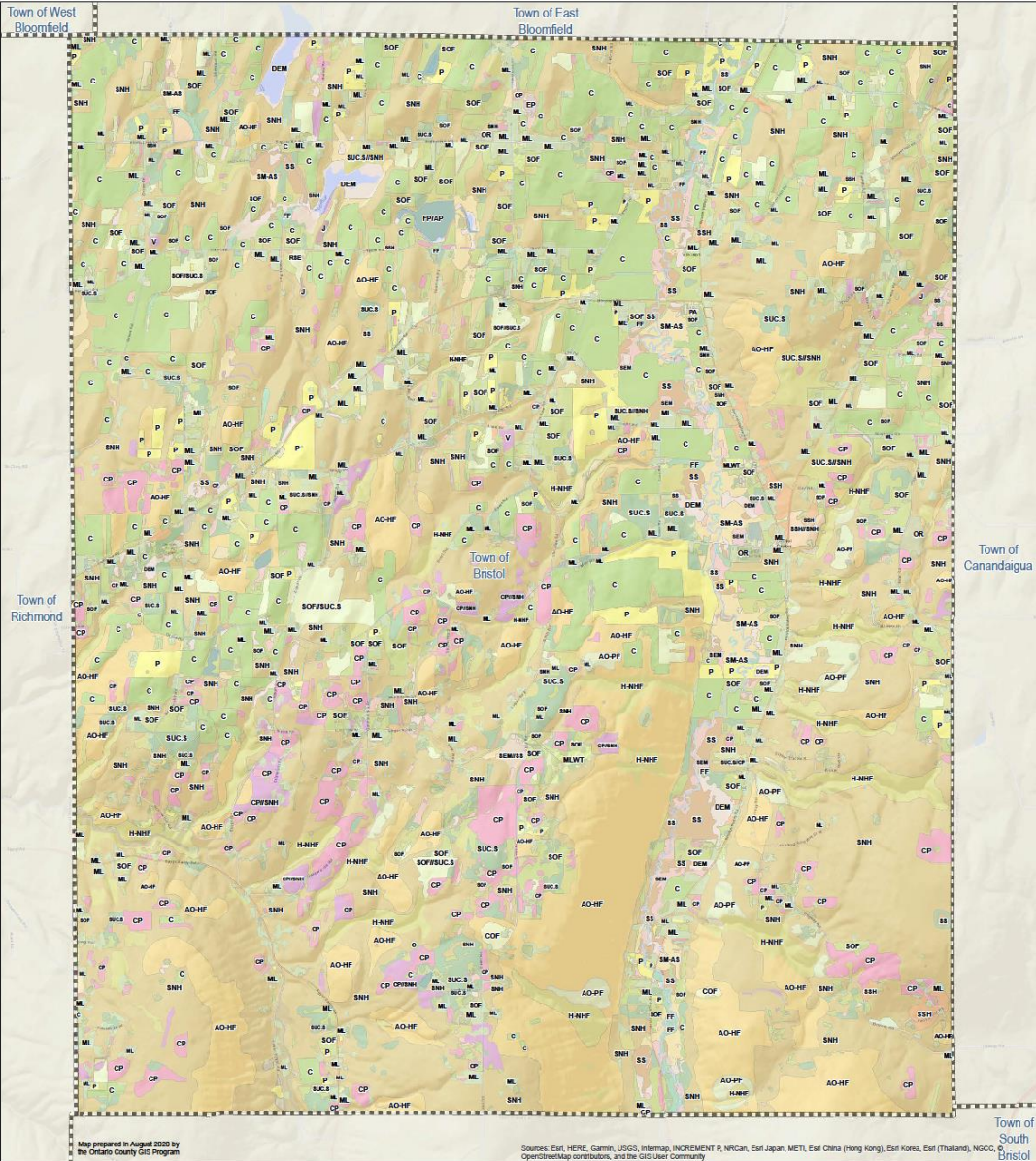
Lot descriptions and witness trees





LEGEND

- Honeoye Lake Sub-Watersheds - (24,497 Total Acres)
- Riverine Covertypes - (>1)**
- Natural Streams
- Confined River-CR (>1)
- Lacustrine Covertypes - (1,925)**
- Lacustrine Cultural - (84)
- Farm Pond\Artificial Pond-FP/AF - (84)
- Natural Lakes & Ponds - (1,841)
- Eutrophic Pond-EP - (11)
- Winter-Stratified Monomictic Lake-W-SMML - (1,830)
- Palustrine Covertypes - (983)**
- Forested Mineral Soil Wetlands - (876)
- Hemlock-Hardwood Swamp-H-HS - (51)
- Floodplain Forest-FF - (60)
- Silver Maple-Ash Swamp-SM-AS - (765)
- Open Mineral Soil Wetlands - (107)
- Deep Emergent Marsh-DEM - (10)
- Shrub Swamp-SS - (41)
- Shallow Emergent Marsh-SEM - (56)
- Terrestrial Covertypes - (21,576)**
- Barrens & Woodlands - (42)
- Successional Red Cedar Woodland-SRCW - (9)
- Suc Red Cedar Woodland\Suc N. Hardwoods-SRC//SNH** - (11)
- Shale Talus Slope Woodland-STSW - (22)
- Forested Uplands - (15,551)**
- Pitch Fine-Oak Forest-PP-OF - (4)
- Appalachian Oak-Fine Forest-AO-PF - (20)
- Maple-Basswood Rich Mesic Forest-M-BRMF - (27)
- Suc Northern Hardwood\Conifer Plantation-SNH//CP** - (145)
- Hemlock-Northern Hardwood Forest-H-NHF - (1,205)
- Appalachian Oak-Hickory Forest-AO-HF - (3,350)
- Successional Northern Hardwoods-SNH - (10,800)
- Open Uplands - (2,200)**
- Sand Beach-SB (>1)
- Suc Old Field\Conifer Plantation-SOF//CP** - (36)
- Suc Old Field\Suc Shrubland-SOF//SUC.S - (188)
- Suc Northern Hardwoods\Suc Shrubland-SNH//SUC.S - (295)
- Successional Shrubland-SUC.S - (493)
- Successional Old Field-SOF - (1,187)
- Terrestrial Cultural - (3,783)**
- Unpaved Road/Path-UR/P - (2)
- Vineyard-V - (4)
- Gravel Mine-GM - (10)
- Urban Structure Exterior-USE - (36)
- Rural Structure Exterior-RSE - (37)
- Pastureland-P - (105)
- Outdoor Recreation-OR** - (112)
- Cropland-C - (985)
- Conifer Plantation-CP** - (1,132)
- Mowed Land/Residential-ML - (1,360)



TOWN OF BRISTOL

Inventory of Land Use and Land Cover

Prepared for:

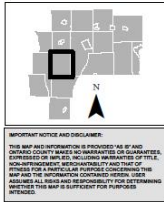
Ontario County Water Resources Council
 20 Ontario Street, 3rd Floor
 Canandaigua, New York 14424

and

Town of Bristol
 6740 County Road 32
 Canandaigua, New York 14424

Prepared by:

Dr. Bruce Gilman
 Department of Environmental Conservation and Horticulture
 Finger Lakes Community College
 3325 Marvin Sands Drive
 Canandaigua, New York 14424-8395



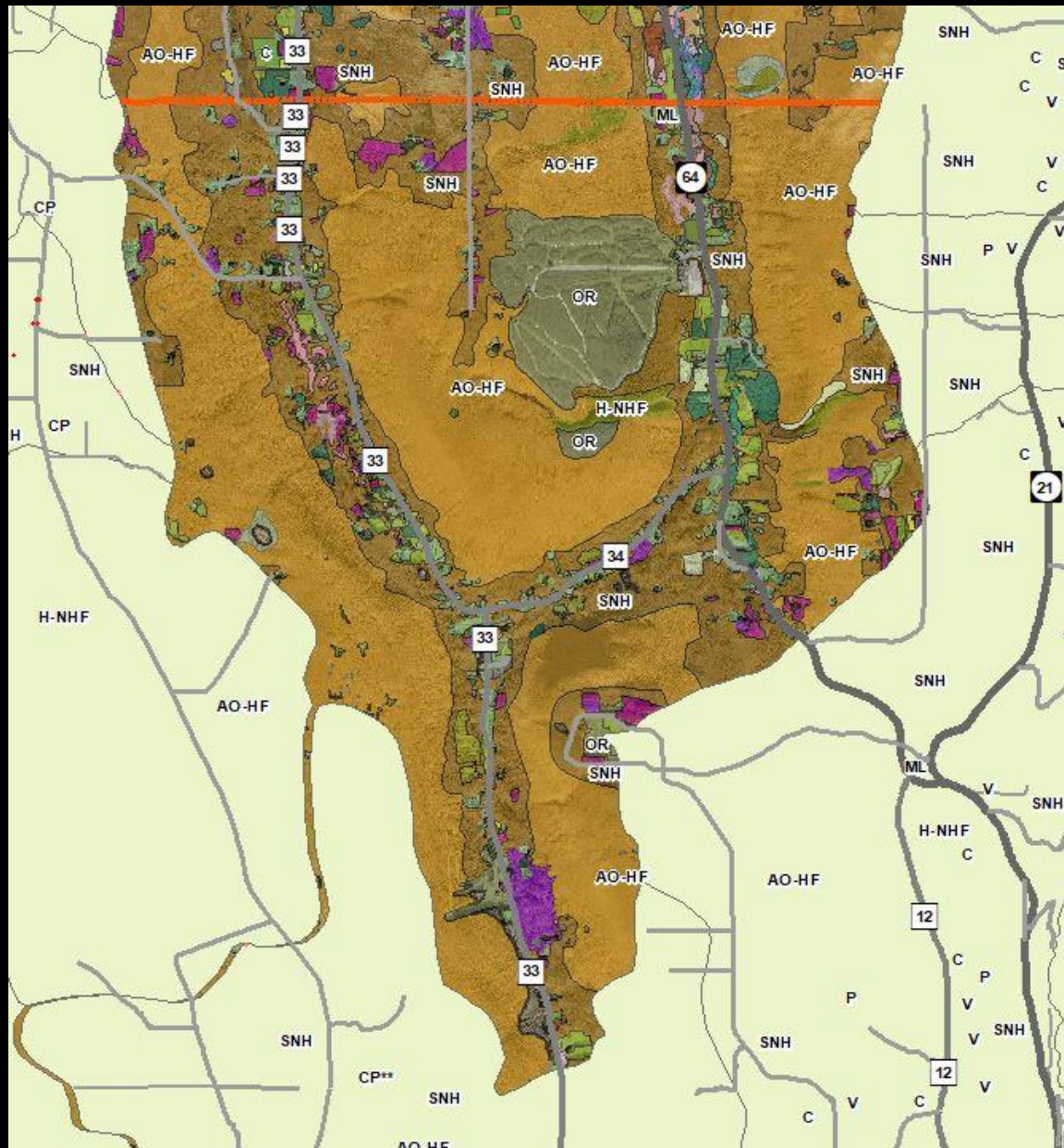
Town of Bristol - Ecological Communities

Legend											
AO-HF	CP	ES/B	GM(A)	MLWT	P	SEM/SM-AS	SOF/CP	SS/SMH	SUC.S/CP	VP	
AO-PF	CP/SMH	F/HG	H-NHF	Mud Creek	PA	SEM/SS	SOF/SMH	SSH	SUC.S/SMH		
C	DEM	FF	J	O	PSWOS	SM-AS	SOF/SUC.S	SSH/SMH	SUC.S/SSH		
CR/MS	DEM/FF	FF/AP	M-BRMF	OL	RSE	SNH	SS	STSW	USE		
COF	EP	GM	ML	OR	SEM	SOF	SS/FF	SUC.S	V		

2020

Map prepared in August 2020 by the Ontario County GIS Program

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NPIC, East Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NOAA, OpenStreetMap contributors, and the GIS User Community



Ancient Appalachian Plateau now with Broad Glacial Valleys



Stream Patterns that continuously erode the Landscape



Post-Glacial Ravine Formation with special microhabitats



Spring Wildflowers in Natural Plant Communities of the Bristol Hills



Let's begin the tour!

Flowers of the Mid-reach Stream



Flowers of the Mid-reach Stream



Swamp Buttercup



Marsh Blue Violet

Flowers of the Mid-reach Stream



NYS protected!



Virginia Bluebells

Flowers of the Silver Maple-Ash Swamp Forests



Thousand Acre Swamp, Penfield

Flowers of Swamp Forests



Flowers of Swamp Forests



NYS protected!

Flowers of Swamp Forests



Marsh
Marigold
a.k.a.
Cow Slip



Flowers of Swamp Forests



Spreading Globeflower

NYS protected!



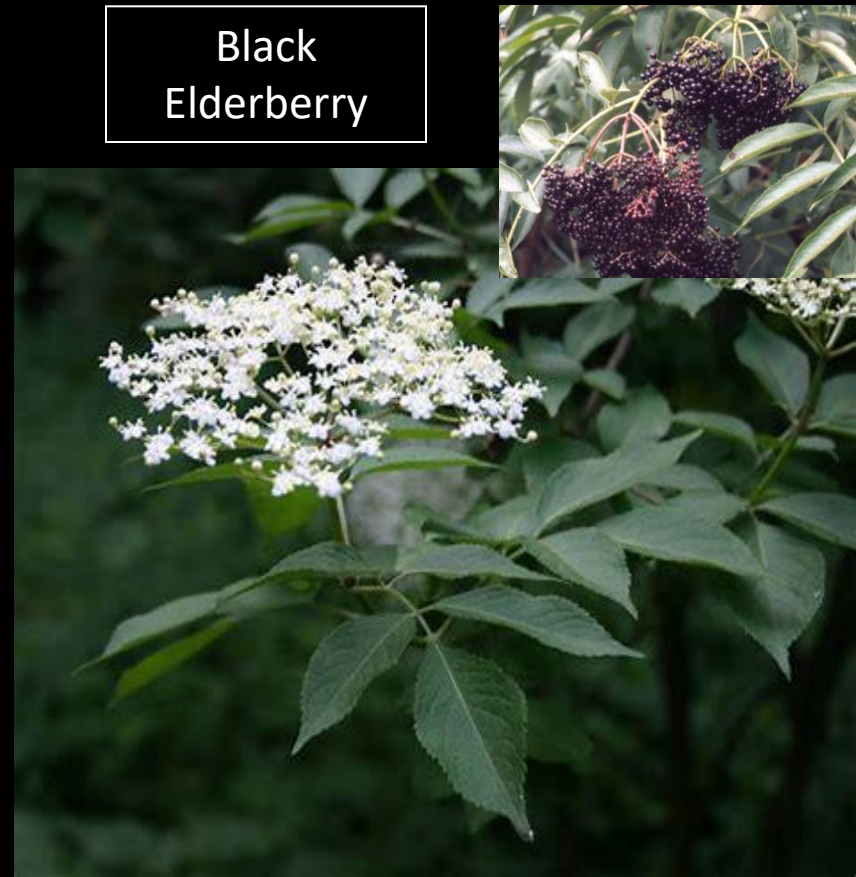
Flowers of Swamp Forests

Water Cress



Blue Flag
Iris

Flowers of Swamp Forests



Flowers of the
Hemlock-Hardwood
Ravine Forest



Flowers of the Ravine Forest



Flowers of the Ravine Forest

True Miterwort

a.k.a.

Bishop's Cap



Flowers of the Ravine Forest



Wild Ginger



Red Trillium

a.k.a.

Wake Robin

NYS protected!



I'm also called
"Stinking Benjamin"
Don't smell me!

Flowers of the Successional Northern Hardwood Forest



Flowers of the Northern Hardwood Forest



NYS protected!



White Trillium

Flowers of the Northern Hardwood Forest



Trout Lily

Flowers of the Northern Hardwood Forest



False Solomon's Seal



True Solomon's Seal

Flowers of the Northern Hardwood Forest



Large Flowered Bellwort

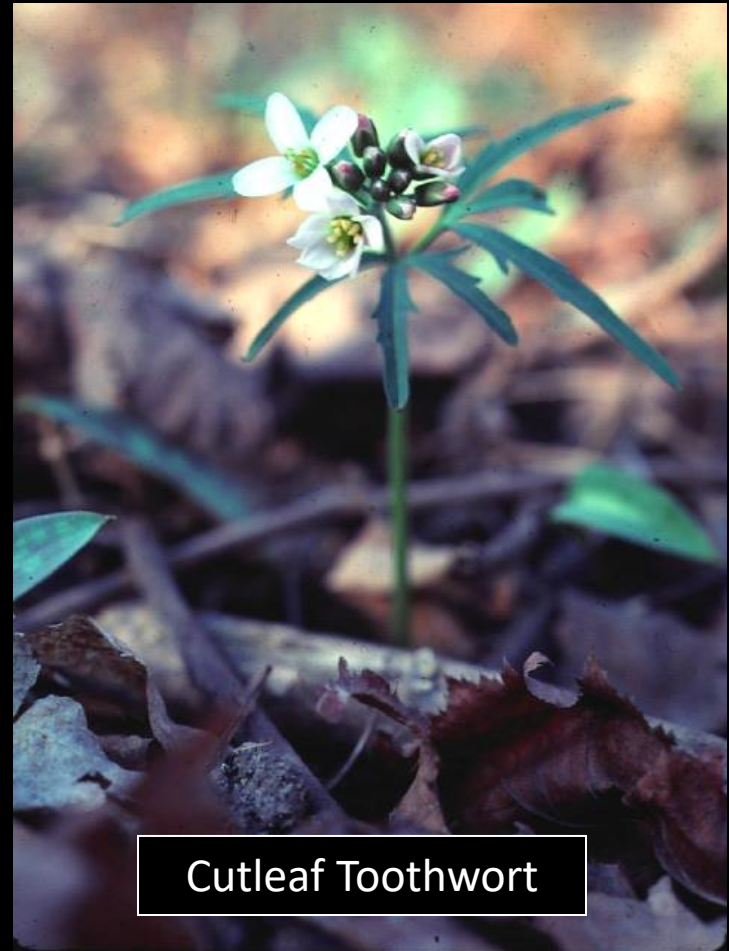
Hello, Plant Man
I'm Poison Ivy!

Flowers of the Northern Hardwood Forest



Bloodroot

NYS protected!



Cutleaf Toothwort

Flowers of the Northern Hardwood Forest



White Baneberry

a.k.a.

“Doll’s Eyes”



Flowers of the Northern Hardwood Forest



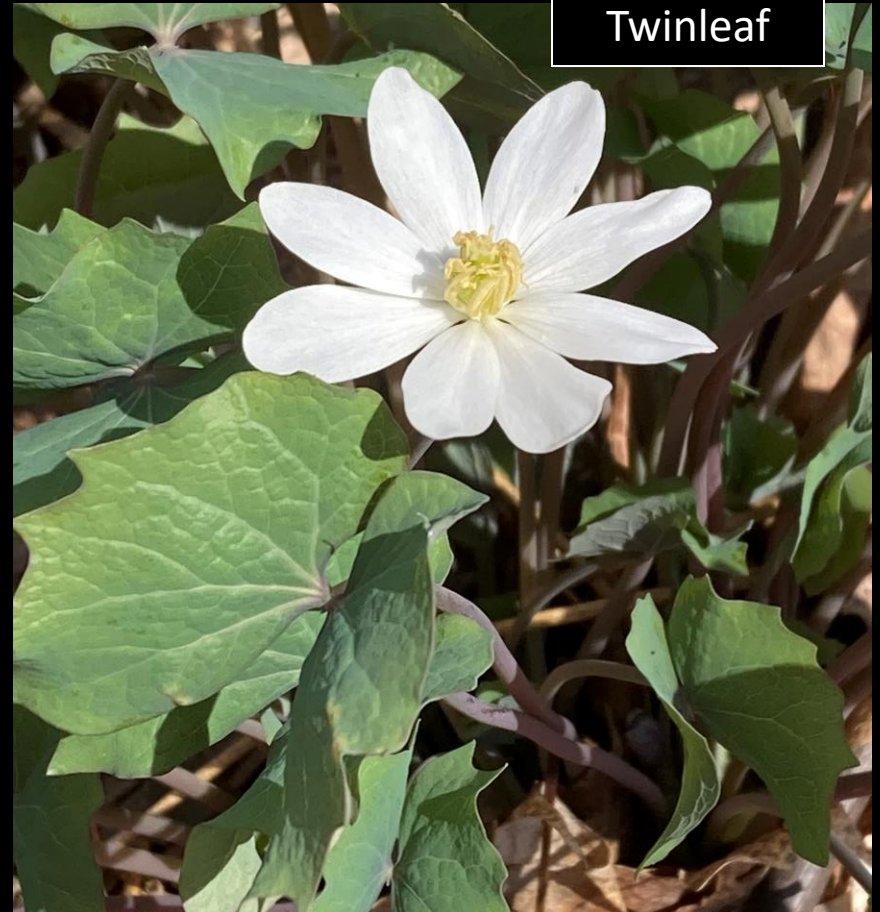
male flower

Early Meadowrue

Flowers of the Northern Hardwood Forest



Rue Anemone



Twinleaf

Flowers of the Northern Hardwood Forest



Blue
Cohosh



Flowers of the Northern Hardwood Forest



Mayapple

Flowers of the Northern Hardwood Forest



Flowers of the Northern Hardwood Forest



Spring
Beauty



Wild Leeks

Flowers of the Northern Hardwood Forest



Plants of the Appalachian Oak-Hickory Forest



Flowers of the Appalachian Oak-Hickory Forest



Early Low Upland Blueberry

Shadbush or Serviceberry



Flowers of the Appalachian Oak-Hickory Forest



Wild
Columbine



Flowers of the Appalachian Oak-Hickory Forest



Flowers of the Appalachian Oak-Hickory Forest



Gaywings

NYS protected!

Flowers of the Appalachian Oak-Hickory Forest



Squawroot

Flowers of the Appalachian Oak-Hickory Forest



Painted Trillium

NYS protected!

Flowers of the Appalachian Oak-Hickory Forest

2014 © Peter M. Dziuk

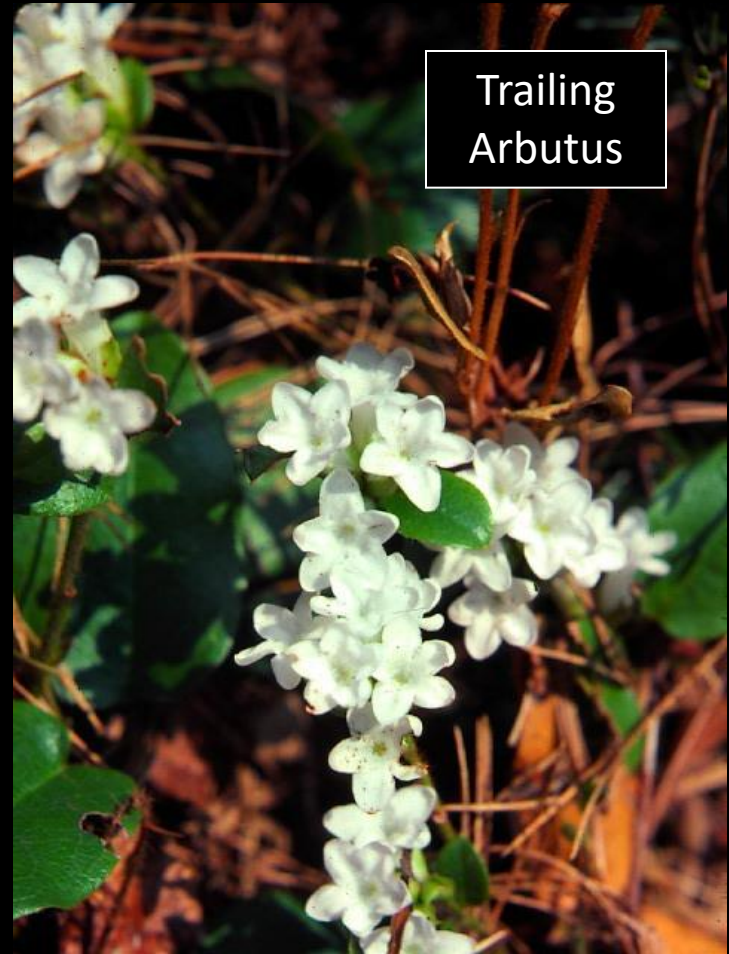


Early
Saxifrage



Common
Pussytoes

Flowers of the Appalachian Oak-Hickory Forest



Both are NYS protected!

Flowers of the Appalachian Oak-Hickory Forest



Pink Ladyslipper

a.k.a.

Mocassin Flower

NYS protected!

Flowers of the Appalachian Oak-Hickory Forest



Wild Sarsaparilla



Starflower



Flowers of the Successional Old Field (and Roadsides)



Colt's Foot



Common
Dandelion

Flowers of the Successional Old Field



Wild Strawberry

Flowers of the Vernal Pool



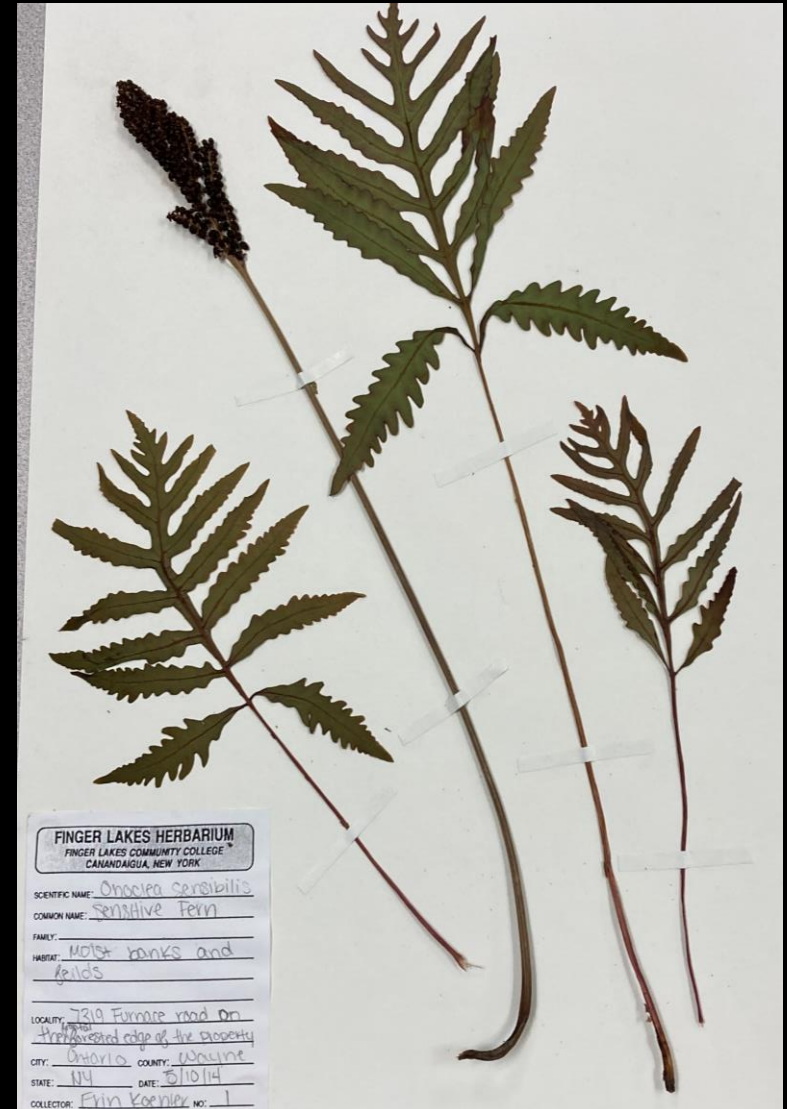
Not flowers but amphibian eggs
are pretty cool!

Progress on an updated Ontario County Flora



Creating a Database

- Plant family
- Scientific name
- Common name
- Location information
- Collector
- Date
- NYS ranking
- Phenology



Publishing an updated Ontario County Flora



Showy Lady' Slipper, *Cypripedium reginae*, West Bloomfield, NY

Thanks for attending today's program,
and remember, summer is coming!



Sunrise along West Simmons Road, Potter, NY