CFAES

OHIO STATE UNIVERSITY EXTENSION

Ohio Woodlands Stewards Program

Friday's

ESCAPE TO THE FOREST

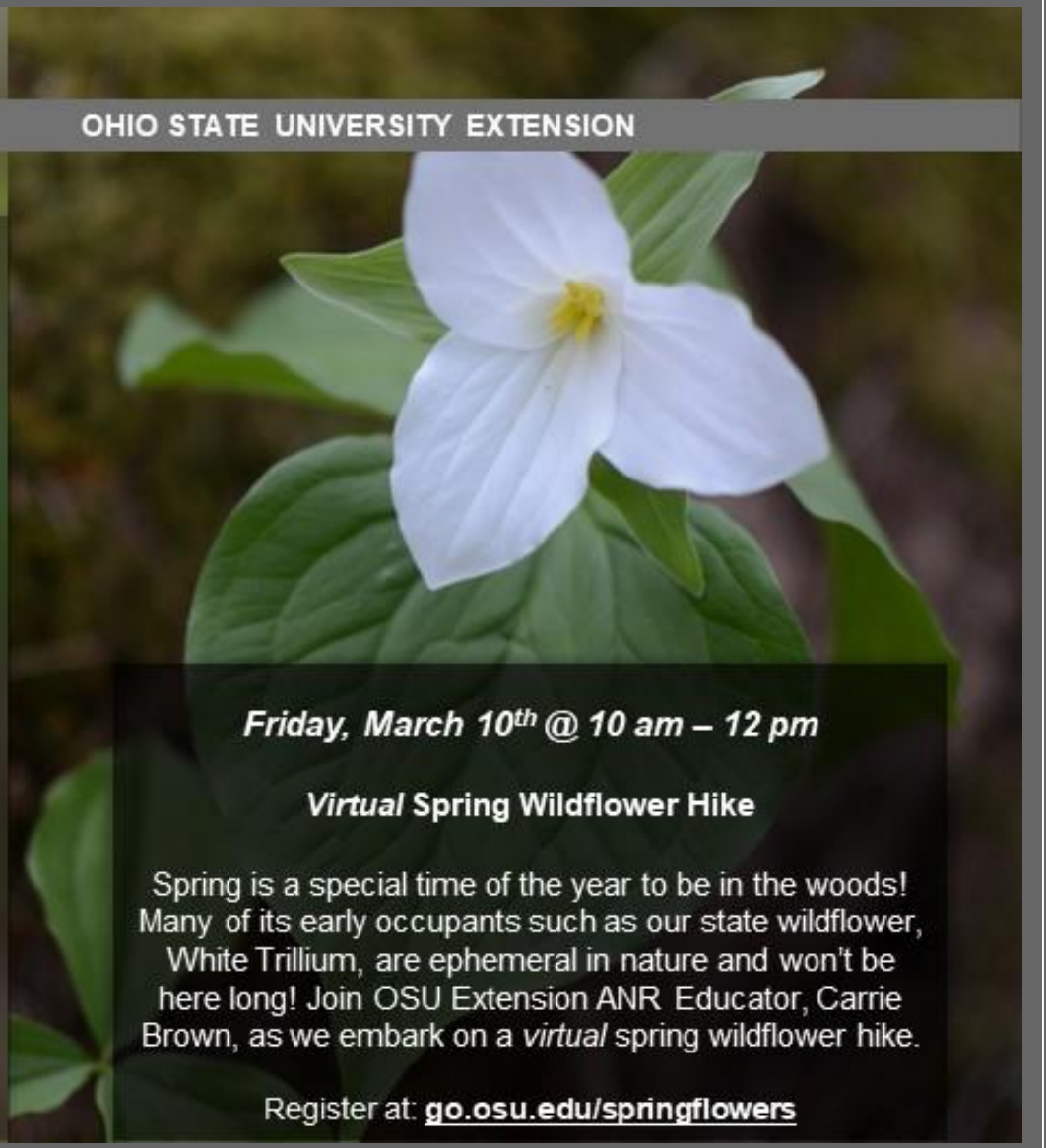
Webinar Series

Take a break to relax and visit the woods with us…

We share information on Ohio's woodland, wildlife, invasive species, managements recommendations, and more!

woodlandstewards.osu.edu/resources

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES



Friday, March 10th @ 10 am – 12 pm

***Virtual* Spring Wildflower Hike**

Spring is a special time of the year to be in the woods! Many of its early occupants such as our state wildflower, White Trillium, are ephemeral in nature and won't be here long! Join OSU Extension ANR Educator, Carrie Brown, as we embark on a *virtual* spring wildflower hike.

Register at: **go.osu.edu/springflowers**

Virtual Spring Ephemeral Wildflower Hike

Carrie Brown
Agriculture & Natural Resources Educator
OSU Extension, Fairfield County

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Springtime in the Woods

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What is a SPRING EPHEMERAL WILDFLOWER?

Spring Ephemerals

Phenology

"Nature's calendar"

The study of the timing of recurring biological events such as plant & insect development

Happen in, generally, the same order every year – but not necessarily at the same time

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Today in Columbus, Ohio….

Full bloom

Approaching full bloom

First bloom

First bloom

CFAES

Today in Bryan, Ohio….

CFAES

Today in Ironton, Ohio….

Past full bloom

Past full bloom

Approaching full bloom

Full bloom

CFAES

Today in Ironton, Ohio….

Approaching full bloom

First bloom

Egg hatch

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THE OHIO STATE UNIVERSITY COLLEGE *of* FOOD, AGRICULTURAL, *and* ENVIRONMENTAL SCIENCES

CFAES

Today in Columbus, Ohio….

Full bloom

Approaching full bloom

First bloom

First bloom

CFAES

March 10, 2022

Full bloom

First bloom

Approaching full bloom

First bloom

First bloom

First bloom

CFAES

Our calendar can be unreliable when predicting plant development!

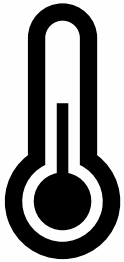
For instance….

Star magnolia blooms every year beginning March 5th.

FALSE

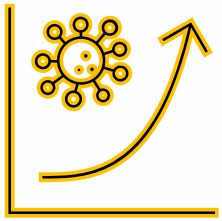
Plant and insect development is based on the accumulation of heat.

Instead, we use **Growing Degree "Days" (GDD)**



A measurement of average heat accumulation

Plants and insects have temperature-dependent development



The accumulation of heat drives the timing of development

Instead, we use **Growing Degree "Days" (GDD)**

- A unit of heat used to estimate growth and development of many plants and insects
- Calculated using the accumulation of average daily temperatures

GDD is found by subtracting the plant's lower base or threshold temperature of 50 °F from the average daily air temperature in a 24-hour period.

- **Each plant species requires a specific amount of accumulated heat to obtain certain life cycle stages.**

For instance….

GDD=Average Daily Temp – Base Temperature

- High Temp = 68°F
- Low Temp = 42°F
- Base Temperature = 50°F

$$\frac{68 + 42}{2} - 50 = 5 \text{ GDD}$$

Species Select Filter	Phenological Event	GDD
Silver Maple - *Acer saccharinum*	first bloom	34
Corneliancherry Dogwood - *Cornus mas*	first bloom	40
Silver Maple - *Acer saccharinum*	full bloom	42
Red Maple - *Acer rubrum*	first bloom	44
Speckled Alder - *Alnus incana ssp. rugosa*	first bloom	52
Northern Lights Forsythia - *Forsythia x intermedia*	first bloom	58
Japanese Pieris - *Pieris japonica*	first bloom	60
Red Maple - *Acer rubrum*	full bloom	75
Star Magnolia - *Magnolia stellata*	first bloom	83
White Pine Weevil - *Pissodes strobi*	adult emergence	84

Damage from a late freeze

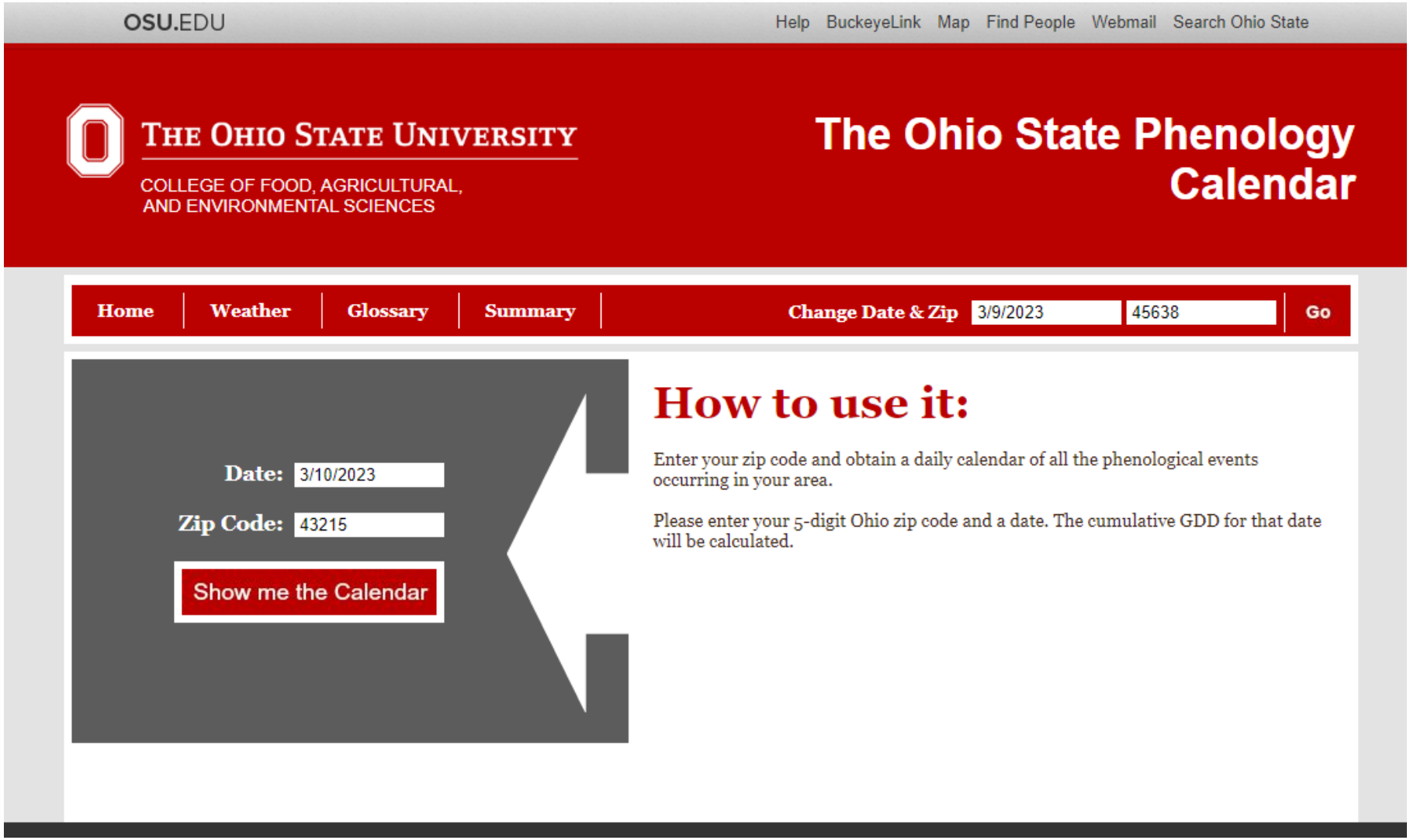
Fertility of the soil

Whether in direct sunlight or shade

Changing climate conditions

The presence of weeds

Excessive precipitation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The Ohio State Phenology Calendar
Home
Weather
Glossary
Summary
Change Date & Zip
3/9/2023
45638
Go
Date:
3/10/2023
Zip Code:
43215
Show me the Calendar
How to use it:
Enter your zip code and obtain a daily calendar of all the phenological events occurring in your area.
Please enter your 5-digit Ohio zip code and a date. The cumulative GDD for that date will be calculated.

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The Ohio State Phenology Calendar

Home | Weather | Glossary | Summary | Change Date & Zip 3/10/2023 43215 Go

View Full Calendar

Happening in Columbus

83	84	86	The GDD for 3/10/2023	92	93	94
Star Magnolia	White Pine Weevil	Border Forsythia		Eastern Tent Caterpillar	Manchu Cherry	Northern Lights Forsythia
						
first bloom	adult emergence	first bloom	is: 90	egg hatch	first bloom	full bloom

Using this calendar

- Event's GDD
- Name of what's being affected by event. May be a plant, insect, or chemical. Plants appear in darker gray, insects in medium gray, and chemicals in lighter gray.
- Picture of what's being affected by event if applicable; not all affected will have pictures
- Name of phenological event

Star Magnolia - *Magnolia stellata*	first bloom	83
White Pine Weevil - *Pissodes strobi*	adult emergence	84
Border Forsythia - *Forsythia x intermedia*	first bloom	86
COLUMBUS - *Ctrl-F to search the page*	3/10/2023	90
Eastern Tent Caterpillar - *Malacosoma americanum*	egg hatch	92
Manchu Cherry - *Prunus tomentosa*	first bloom	93
Northern Lights Forsythia - *Forsythia x intermedia*	full bloom	94
Speckled Alder - *Alnus incana spp. incana*	full bloom	97
Corneliancherry Dogwood - *Cornus mas*	full bloom	98
Norway Maple - *Acer platanoides*	first bloom	116
Border Forsythia - *Forsythia x intermedia*	full bloom	116
Chanticleer Callery Pear - *Pyrus calleryana*	first bloom	123
Sargent Cherry - *Prunus sargentii*	first bloom	127
Larch Casebearer - *Coleophora laricella*	larval feeding begins	128
Japanese Pieris - *Pieris japonica*	full bloom	129
Saucer Magnolia - *Magnolia x soulangeana*	first bloom	133
Black stem borer - *Xylosandrus germanus*	first adult emergence	136
Common Flowering Quince - *Chaenomeles speciosa*	first bloom	137
Bradford Callery Pear - *Pyrus calleryana*	first bloom	142
European Pine Sawfly - *Neodiprion sertifer*	egg hatch	144
Weeping Higan Cherry - *Prunus subhirtella*	first bloom	145
PJM Rhododendron - *Rhododendron PJM*	first bloom	147
Norway Maple - *Acer platanoides*	full bloom	149
Chanticleer Callery Pear - *Pyrus calleryana*	full bloom	149
Inkberry Leafminer - *Phytozyma agricola*	adult emergence	150
Star Magnolia - *Magnolia stellata*	full bloom	151

March 10, 2023

Happening in Columbus

83	84	86		92	93	94
Star Magnolia	White Pine Weevil	Border Forsythia	The GDD for 3/10/2023	Eastern Tent Caterpillar	Manchu Cherry	Northern Lights Forsythia
						
first bloom	adult emergence	first bloom	**90**	egg hatch	first bloom	full bloom

March 10, 2022

Happening in Columbus

40	42	44		52	58	60
Corneliancherry Dogwood	Silver Maple	Red Maple	The GDD for 3/10/2022	Speckled Alder	Northern Lights Forsythia	Japanese Pieris
						
first bloom	full bloom	first bloom	**51**	first bloom	first bloom	first bloom

Less accumulated heat = Less development

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Today in Columbus, Ohio….

GDD = 90

Full bloom

75

Approaching full bloom

98

First bloom

83

First bloom

86

CFAES

Today in Bryan, Ohio….

GDD = 33

Full bloom

75

Approaching full bloom

98

First bloom

83

First bloom

86

CFAES

Today in Ironton, Ohio….

GDD = 147

Approaching full bloom

149

First bloom

147

Egg hatch

144

CFAES

Date	GDD
1/1/2023	0.035
1/2/2023	3.277
1/3/2023	11.02
1/4/2023	14.871
1/5/2023	14.871
1/6/2023	14.871
1/7/2023	14.871
1/8/2023	14.871
1/9/2023	14.871
1/10/2023	14.871
1/11/2023	14.871
1/12/2023	14.933
1/13/2023	14.933
1/14/2023	14.933
1/15/2023	14.933
1/16/2023	14.933
1/17/2023	17.543
1/18/2023	17.543
1/19/2023	20.637
1/20/2023	20.637
1/21/2023	20.637
1/22/2023	20.637
1/23/2023	20.637
1/24/2023	20.637
1/25/2023	20.719
1/26/2023	20.719
1/27/2023	20.719
1/28/2023	20.754
1/29/2023	20.754
1/30/2023	20.754
1/31/2023	20.754

CFAES

Date	GDD
2/1/2023	20.754
2/2/2023	20.754
2/3/2023	20.754
2/4/2023	20.754
2/5/2023	21.04
2/6/2023	21.04
2/7/2023	22.409
2/8/2023	22.612
2/9/2023	29.68
2/10/2023	29.68
2/11/2023	29.68
2/12/2023	30.486
2/13/2023	32.141
2/14/2023	33.461
2/15/2023	42.665
2/16/2023	45.768
2/17/2023	46.146
2/18/2023	46.146
2/19/2023	47.916
2/20/2023	49.978
2/21/2023	50.025
2/22/2023	55.878
2/23/2023	63.829
2/24/2023	63.879
2/25/2023	64.052
2/26/2023	65.432
2/27/2023	68.82
2/28/2023	69.411

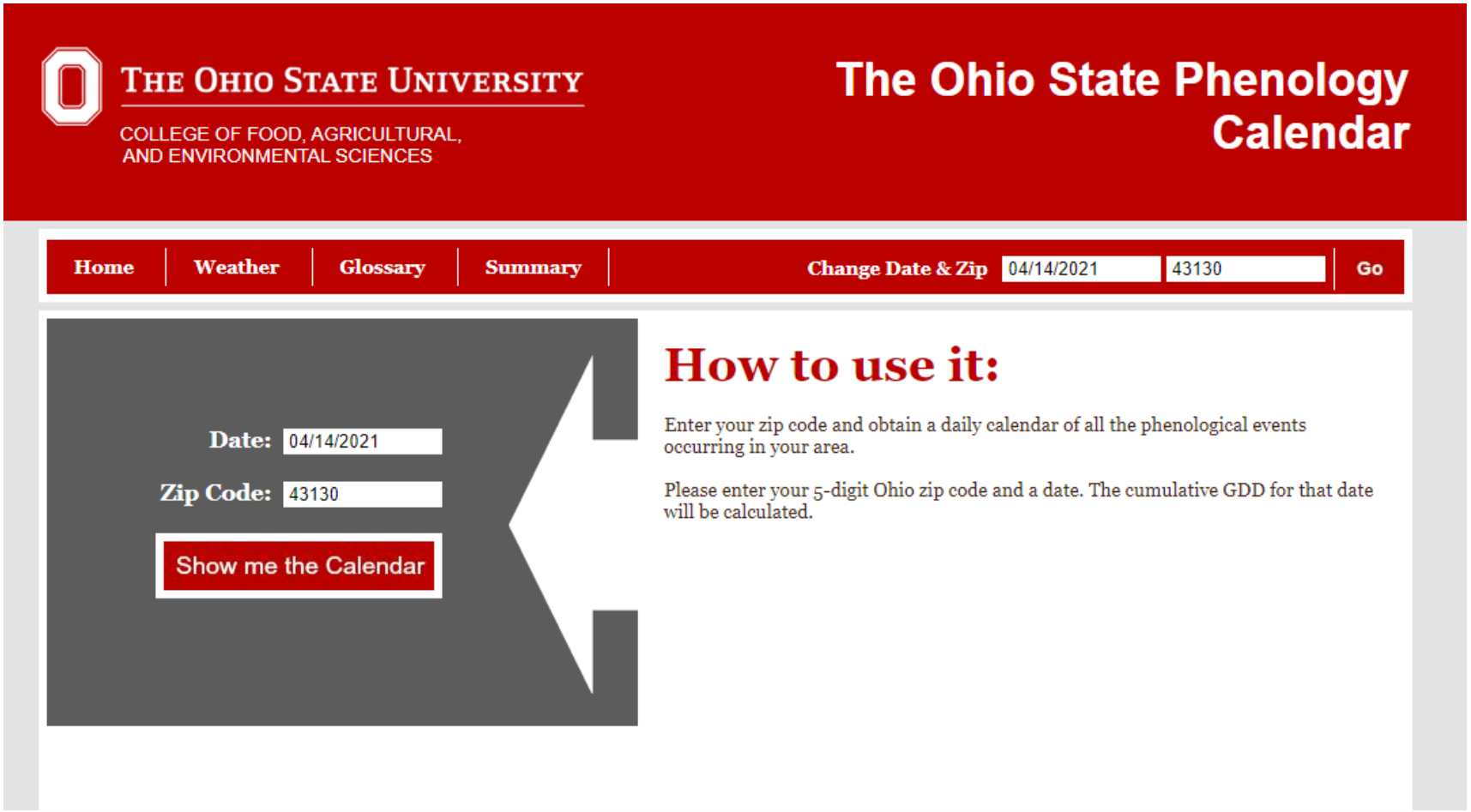
Date	GDD
3/1/2023	78.418
3/2/2023	79.141
3/3/2023	79.956
3/4/2023	80.883
3/5/2023	81.808
3/6/2023	90.151
3/7/2023	90.166
3/8/2023	90.166
3/9/2023	90.19

Columbus on 3/10/2023 is 90 GDD

Download spreadsheet of 2023 GDD values for Columbus

The GDD on 3/10 in previous years:

- **2022: 51**
- **2021: 26**
- **2020: 46**
- **2019: 20**
- **2018: 60**
- **2017: 101**
- **2016: 66**
- **2015: 5**
- **2014: 10**
- **2013: 34**
- **2012: 38**
- **2011: 19**
- **2010: 10**
- **2009: 72**
- **2008: 46**
- **2007: 19**
- **2006: 34**
- **2005: 23**
- **2004: 31**
- **2003: 4**
- **20 Year GDD Average for Columbus on 3/10 - 36**



Search for "Ohio State Phenology Calendar"

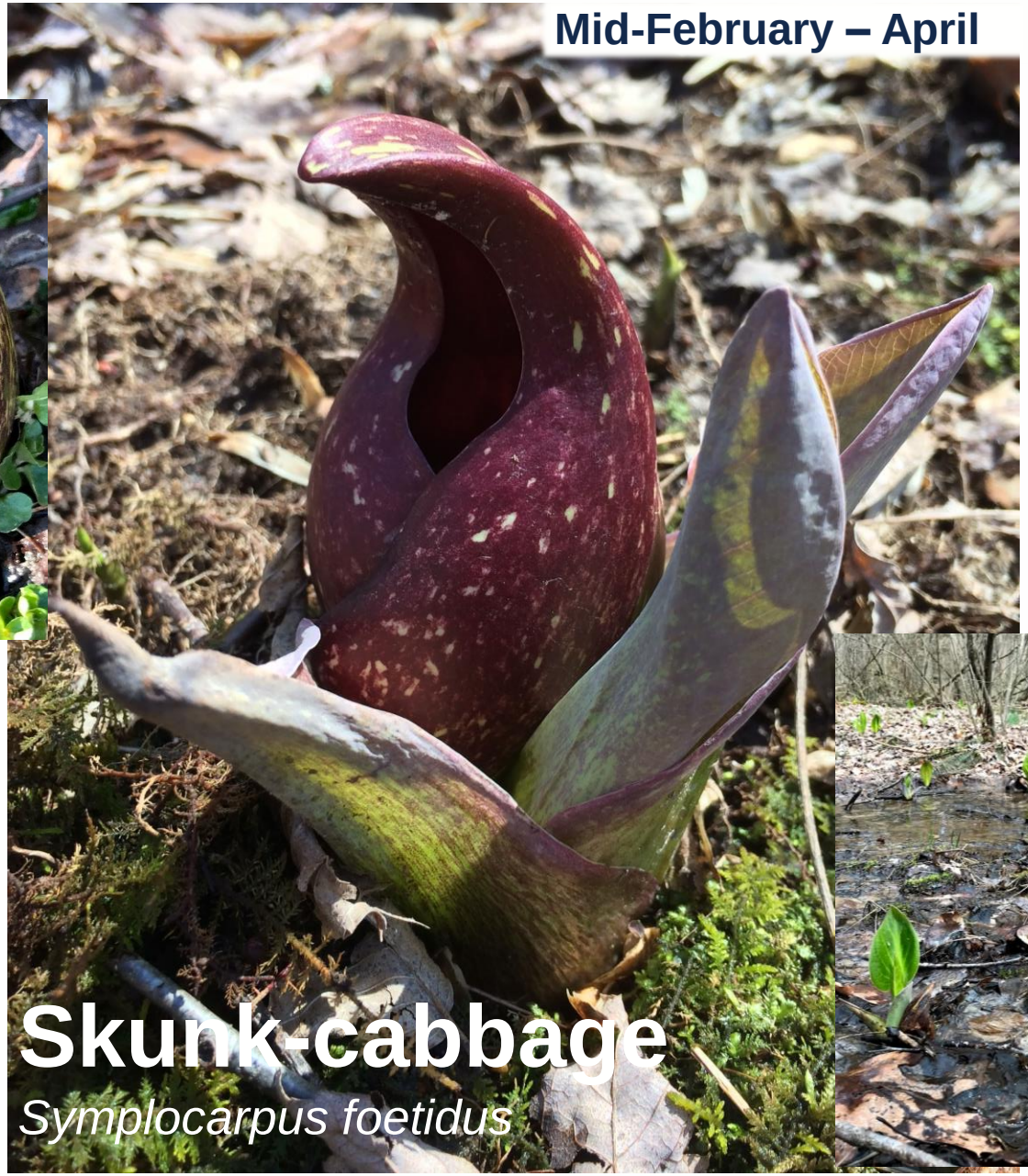
CFAES

Spring Ephemeral Exploration

THE VIRTUAL EDITION

CFAES

Mid-February – April

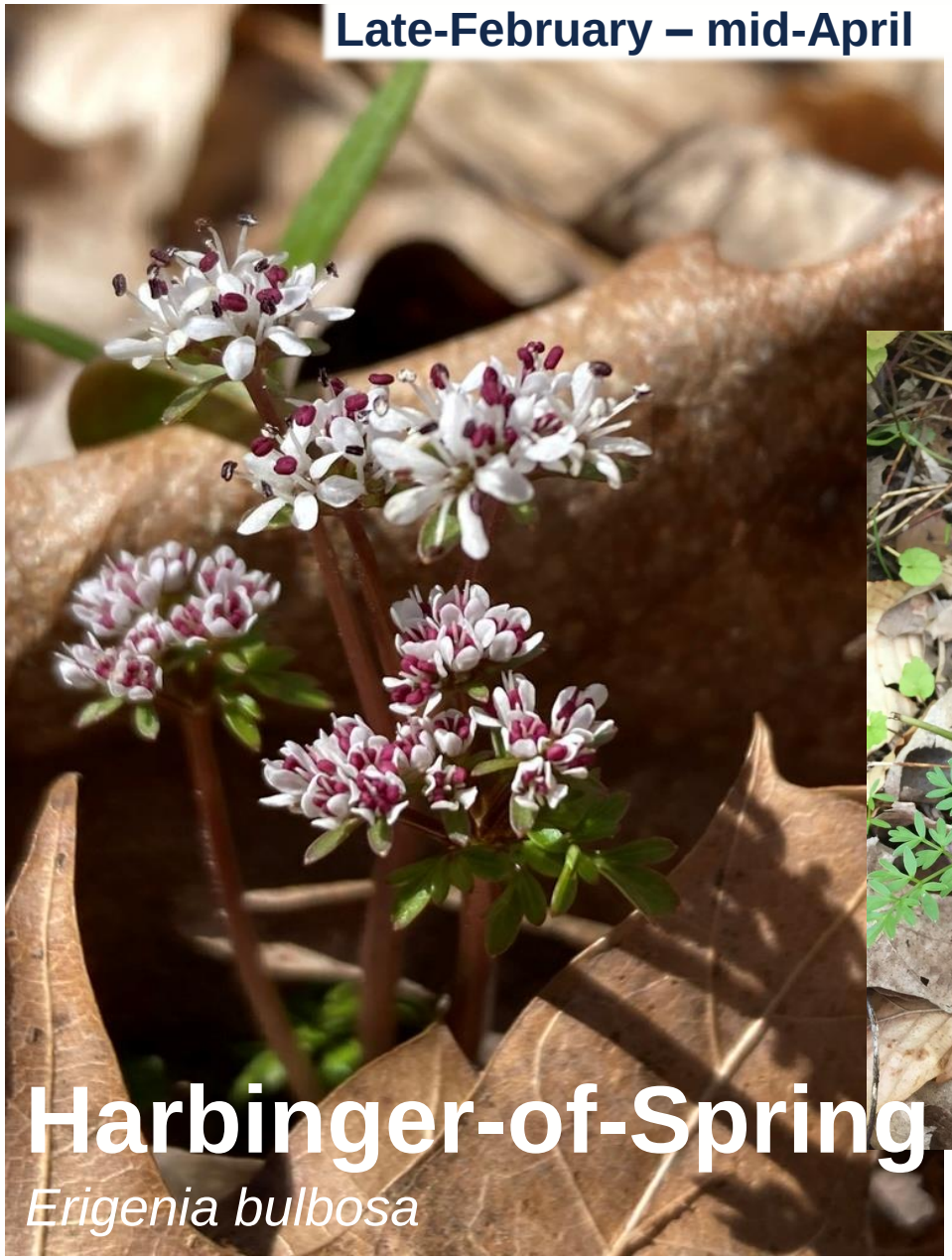


Skunk-cabbage

Symplocarpus foetidus

CFAES

Late-February – mid-April



Harbinger-of-Spring

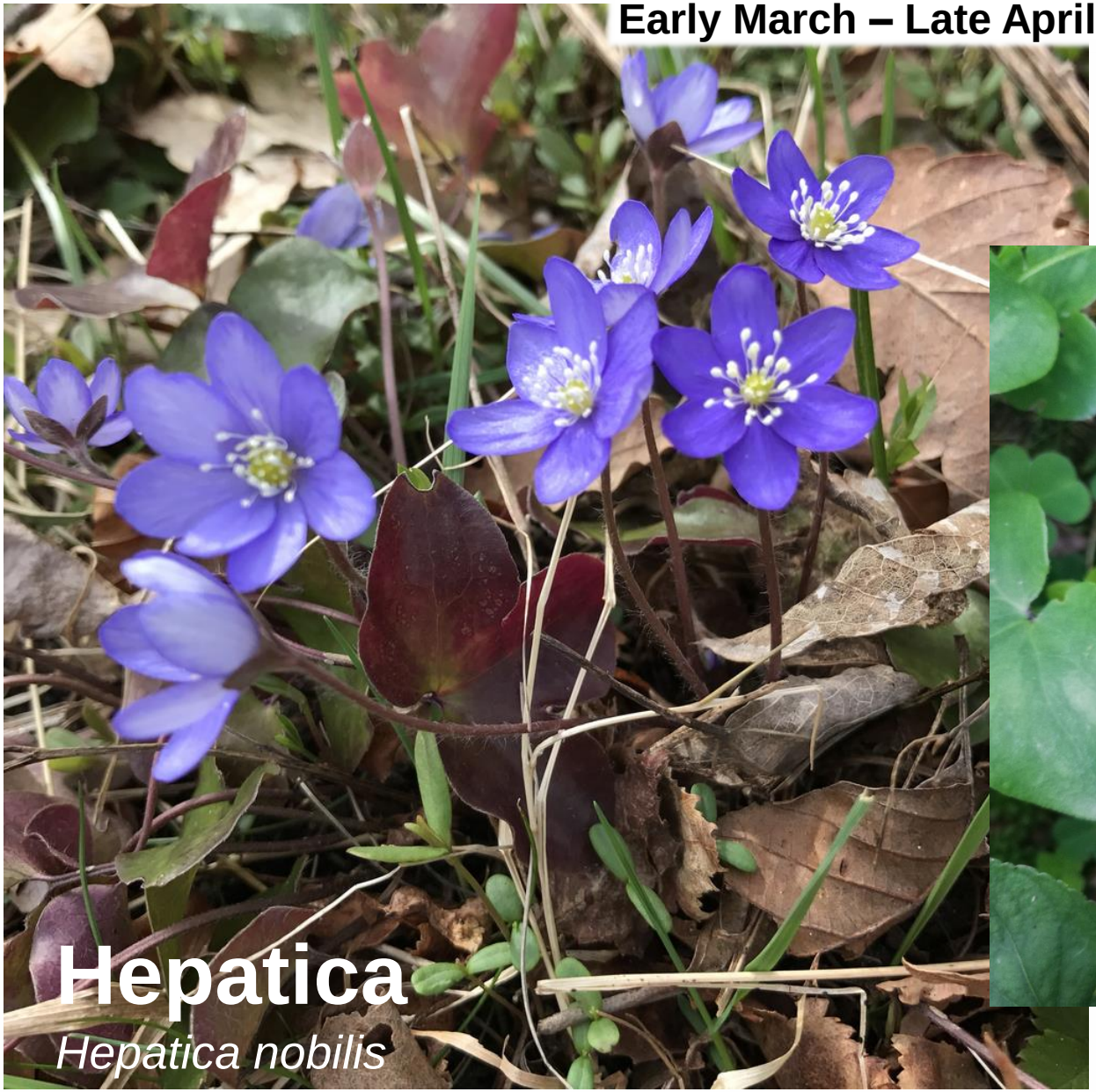
Erigenia bulbosa

Cutleaved toothwort

Cardamine concatenata

Early March – April

Early March – Late April



Hepatica

Hepatica nobilis

March – April
Full bloom ~ GDD 90

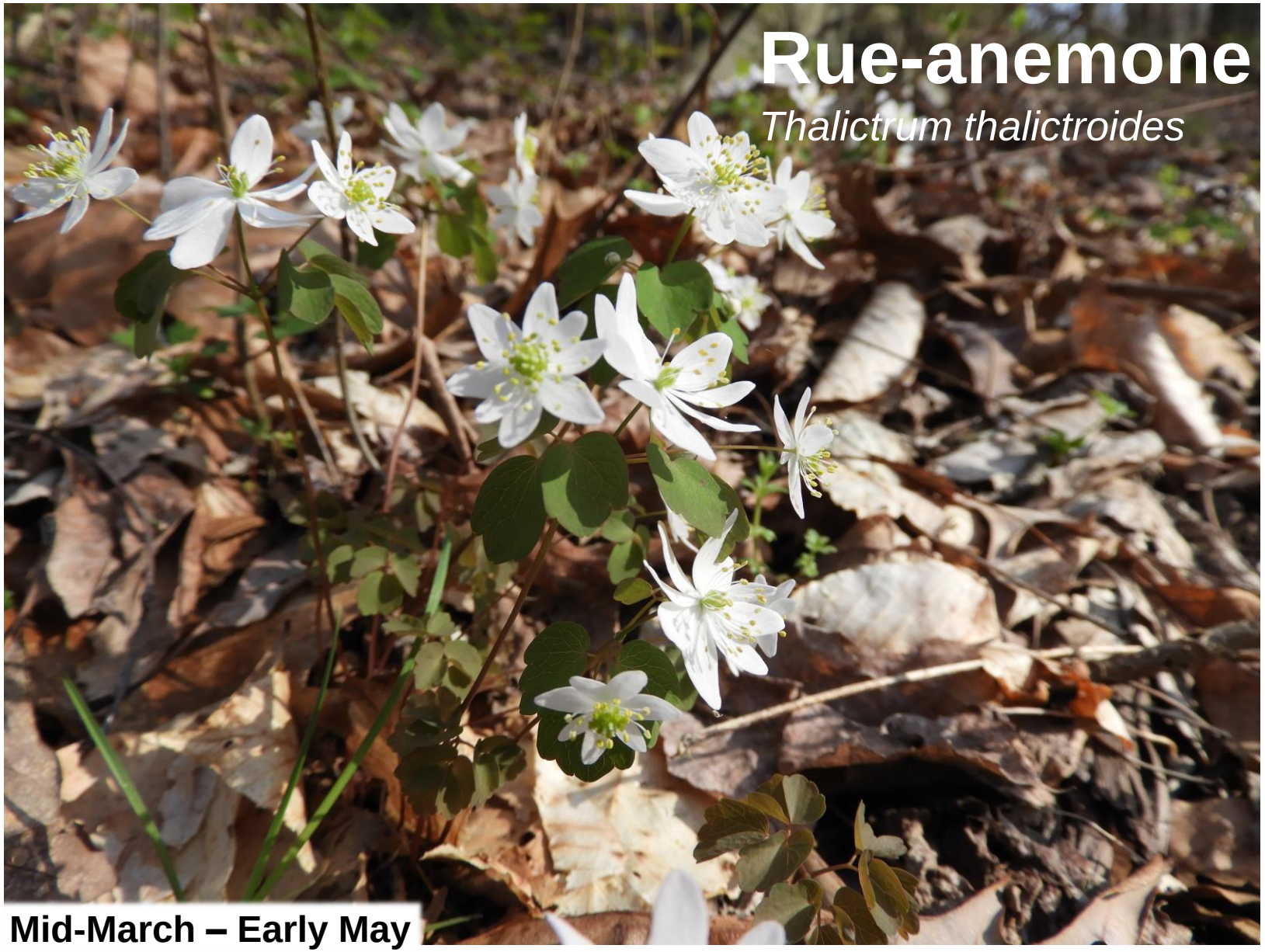
Spicebush

Lindera benzoin

Bloodroot

Sanguinaria canadensis

Mid-March – Mid-April


Rue-anemone
Thalictrum thalictroides
Mid-March – Early May

Mid-March – Mid-April

Purple cress

Cardamine douglassii

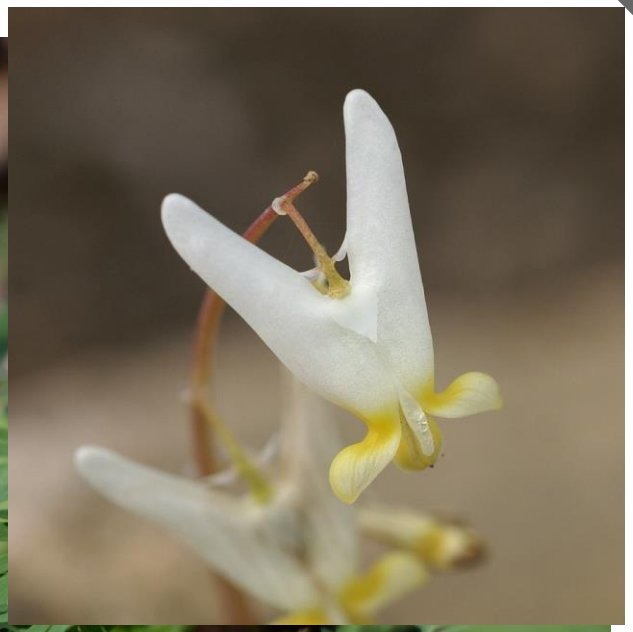

Twinleaf
Jeffersonia diphylla
Late March – Mid-April

Late March – Late April

White trout lily

Erythronium albidum


Spring beauty
Claytonia virginica
Late March – Early May



Dutchman's breeches

Dicentra cucullaria

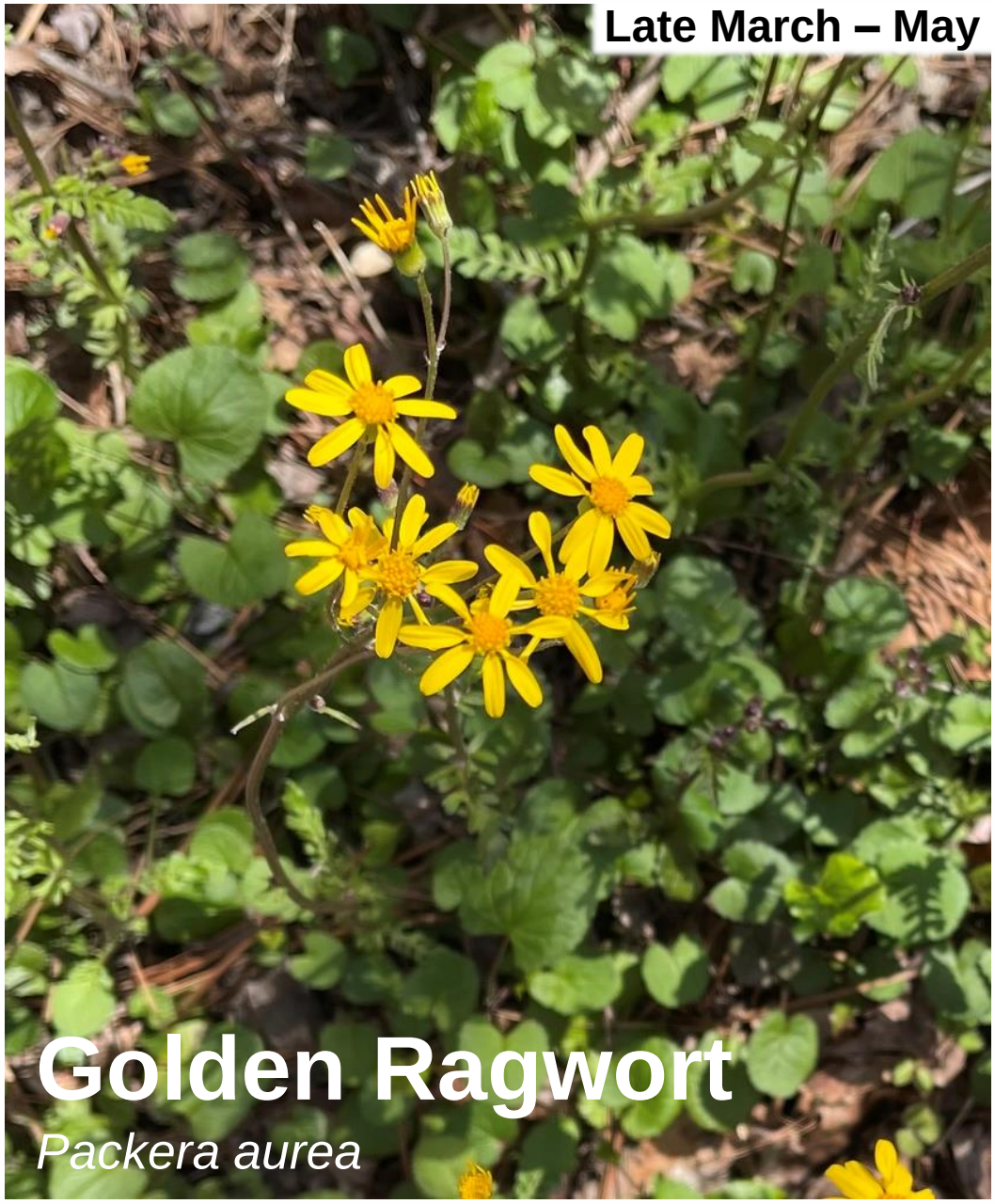
Late March – Early May

Squirrel corn

Dicentra canadensis

Late March – Early May

Late March – May



Golden Ragwort

Packera aurea

Jack-in-the-pulpit

Arisaema triphyllum

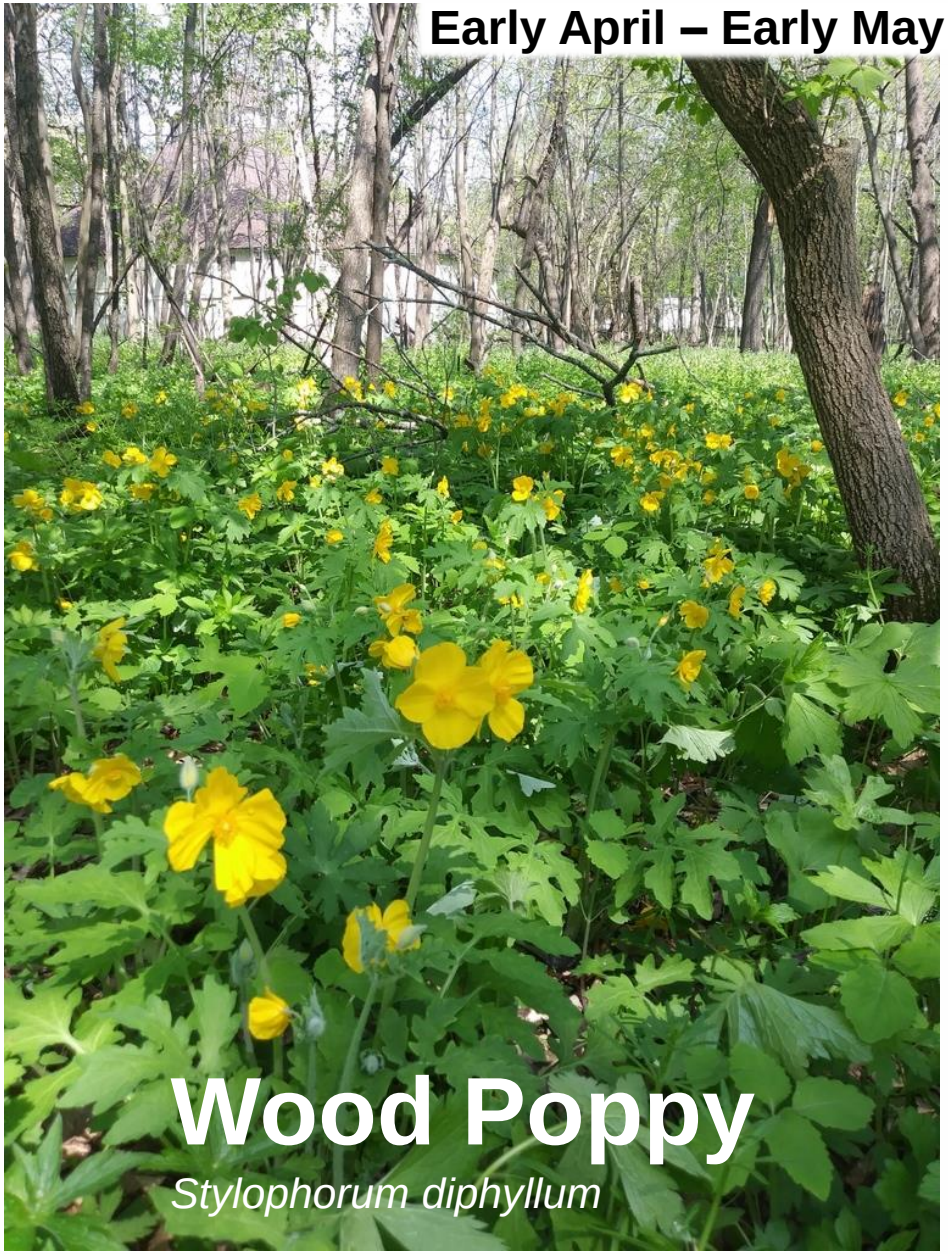
Pawpaw

Asimina triloba

April – May


Virginia bluebells
Mertensia virginica
Early April – Early May

Early April – Early May



Wood Poppy

Stylophorum diphyllum

Early April – Mid May

Jacob’s Ladder

Polemonium reptans

Blue cohosh

Caulophyllum thalictroides

Early April – Mid-May


Great white trillium
Trillium grandiflorum
Early April – Mid-May


Toadshade
Trillium sessile
Early April – Mid-May

Marsh-Marigold

Caltha palustris

Early April – Mid-May

Early April – Late May

Common blue violet

Viola sororia

Early April – Late May

Squawroot

Conopholis americana


Wild blue phlox
Phlox divaricata
Early April – Late May


Fire-pink
Silene virginica
Early April – June

Goldenseal

Hydrastis canadensis

Mid-April – Early May

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Violet wood-sorrel

Oxalis violacea

Mid-April – Early May


Bellwort
Uvularia spp.
Mid-April – Late May

Wild ginger

Asarum canadense

Mid-April – Late May

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Late April – Mid-May

Pink Lady's-Slipper

Cypripedium acaule

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White baneberry

Actaea pachypoda

Late April – Mid-May

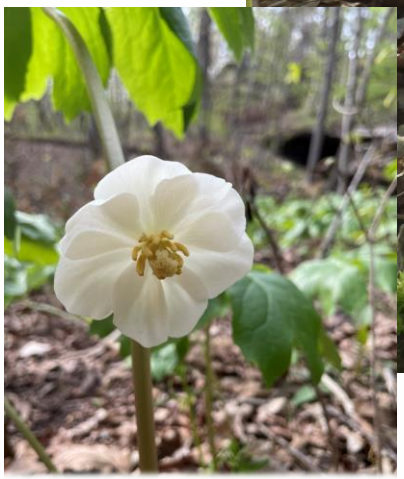
Late April – May

False Solomon's-Seal

Maianthemum racemosum

Mayapple

Podophyllum peltatum



Late April – Mid-May

Spring Ephemerals: Pollination

- Most rely on insect pollination
- Early emergers – native bees, wasps, flies, and beetles

Spring Beauty Miner Bee (*Andrena erigeniae)*

Spring Ephemerals: Seed Dispersal

- Wind & Water
- Animals
  - Colorful berries
  - Fleshy fruit
  - Nutrient rich nuts
  - Burs on fur

–INDULGING ANTS!

Spring Ephemerals: Seed Dispersal

– Bloodroot, Dutchman's breeches, Hepatica, Trout lilies, Violets, Wild ginger

Trillium

Wild ginger

Spring Ephemerals: Seed Dispersal

Spring Ephemerals Threats

Since they occupy such a narrow window, spring ephemerals are susceptible to environmental changes & disturbances.

It's a really hard time to be a plant!

- Habitat destruction
- Deer overpopulation
- Development
- Invasive plants
- Uncertainty of a changing climate

What Can I Do?

Protect Habitats By Removing Invaders

- Bush honeysuckle
- Japanese honeysuckle
- Privet
- Multiflora rose
- Garlic mustard
- Autumn olive
- Japanese stiltgrass

F-66-10

Controlling Non-Native Invasive Plants in Ohio's Forests: Garlic Mustard (*Alliaria petiolata*)

Kathy Smith, Extension Program Director—Forestry
School of Environment and Natural Resources
The Ohio State University

Annemarie Smith, Invasive Species Forester
Ohio Department of Natural Resources
Division of Forestry

Garlic mustard (*Alliaria petiolata*) is a cool-season biennial herbaceous plant first observed in the United States in the mid 1800s. It was introduced from Europe either accidentally or intentionally as a cooking herb. It is extremely tolerant of shaded conditions and is aggressive, dense colonies in forests, it out-competes and displaces flowers, trees, and shrubs) that depend on them. Typically, it spreads via edges and disturbances, spread throughout the forest on hiking boots, and on off-road vehicles. It can be carried in streams for a short span of time, and can establish large areas of the forest. Some evidence that it produces a chemical that inhibits the growth of other plants nearby, reducing the number of native competitors contributing to the spread of garlic mustard.

Identification

First Year Plants

The first year foliage forms a basal rosette (a circular whorl of leaves) formed of 3–8 rounded, scalloped or wavy-toothed margins. The rosette remains green all winter.

F-70-11

Controlling Non-Native Invasive Plants in Ohio Forests: Japanese Stiltgrass

David K. Apsley, Natural Resources Specialist
School of Environment and Natural Resources
Ohio State University Extension

Annemarie Smith, Invasive Species Forester
Ohio Department of Natural Resources
Division of Forestry

Division of Forestry

Japanese stiltgrass—also known as Napalese browntop (*Microstegium vimineum*)—is an annual grass, native to Asia, that can reach more than 3.5 feet in height and can form extensive colonies. It was likely introduced accidentally as packing material in shipments of goods from its native range. It was first found in North America near Knoxville, Tennessee in 1919.

Japanese stiltgrass is very adaptable. It can tolerate low-light environments with sufficient soil nutrients and moisture; conversely, it can tolerate low-nutrient and low-moisture environments with adequate light. Where there are adequate amounts of nutrients, moisture, and light, it can thrive and out-compete most native understory plants. It commonly establishes along forest edges, logging roads, recreational trails, ditches, and stream corridors (Figure 1). It is also found in floodplains; moist, early-successional fields; and along utility corridors where it is not exposed to full sunlight.

Figure 1. A roadside infestation of Japanese stiltgrass.

F-68-10

Controlling Non-Native Invasive Plants in Ohio Forests: Bush Honeysuckle

Division of Forestry

Kathy Smith, Extension Program Director–Forestry
School of Environment and Natural Resources

Annemarie Smith, Invasive Species Forester
Ohio Department of Natural Resources
Division of Forestry

Amur, Morrow, and Tartarian honeysuckle (*Lonicera* spp.)

Bush honeysuckles are one of the first plants to green up in the spring and easily dominate this woodland understory. *Photo by Kathy Smith, OSU Extension, School of Environment and Natural Resources.*

The species known as "bush honeysuckle" are upright deciduous shrubs with long arching branches, are commonly 6 to 20 feet tall, and have shallow root systems. They were first introduced into the United States in the mid to late 1800s from Europe and Asia for use as ornamentals, wildlife food and cover, and erosion control. These non-native plants thrive in full sunlight, but can tolerate moderate shade, and are therefore aggressive invaders of a variety of sites including abandoned fields, roadsides, right-of-ways, woodland edges, and the interiors of open woodlands. Honeysuckle out competes and shades out desirable

OHIO DEPARTMENT OF NATURAL RESOURCES

OHIO NATIVE SPRING WILDFLOWER CHECKLIST

Ohio is home to over 1,800 native species of plants. This includes hundreds of spring wildflowers that bloom from March to May every year. This checklist highlights our common forest dwelling wildflowers and a number of rare and grassland species, too. Please enjoy using this checklist while out exploring any natural area in Ohio. To find more information on Ohio's wildflowers visit **ohiodnr.gov.**

❋ = open habitat (grassland and/or savanna)
R = rare species
R* = state listed

RED-PINK

❑ Carolina Spring Beauty (*Claytonia caroliniana*)	Montiaceae	R
❑ Creeping Phlox (*Phlox stolonifera*)	Polemoniaceae	R
❑ Downy Phlox (*Phlox pilosa*) ❋	Polemoniaceae	R
❑ Fire Pink (*Silene virginica*)	Caryophyllaceae	
❑ Herb Robert (*Geranium robertianum*)	Geraniaceae	
❑ Large-flowered Valerian (*Valeriana pauciflora*)	Valerianaceae	
❑ Pink Lady's Slipper (*Cypripedium acaule*)	Orchidaceae	
❑ Prairie Trillium (*Trillium recurvatum*)	Melanthiaceae	R*
❑ Red Trillium (*Trillium erectum*)	Melanthiaceae	
❑ Scarlet Paintbrush (*Castilleja coccinea*) ❋	Orobanchaceae	R
❑ Sessile Trillium (*Trillium sessile*)	Melanthiaceae	
❑ Showy Orchis (*Galearis spectabilis*)	Orchidaceae	
❑ Skunk Cabbage (*Symplocarpus foetidus*)	Araceae	
❑ Smooth Phlox (*Phlox glaberrima*)	Polemoniaceae	R
❑ Spring Beauty (*Claytonia virginica*)	Montiaceae	
❑ Wild Columbine (*Aquilegia canadensis*)	Ranunculaceae	
❑ Wild Geranium (*Geranium maculatum*)	Geraniaceae	
❑ Wild Ginger (*Asarum canadense*)	Aristolochiaceae	
❑ Wood Betony (*Pedicularis canadensis*)	Orobanchaceae	

GREEN-BROWN

❑ Blue Cohosh (*Caulophyllum thalictroides*)	Berberidaceae	
❑ Common Alumroot (*Heuchera americana*)	Saxifragaceae	
❑ Early Meadow Rue (*Thalictrum dioicum*)	Ranunculaceae	
❑ False Mermaid (*Floerkea proserpinacoides*)	Limnanthaceae	
❑ Jack-in-the-Pulpit (*Arisaema triphyllum*)	Araceae	
❑ Large Whorled Pogonia (*Isotria verticillata*)	Orchidaceae	
❑ Nodding Mandarin (*Prosartes maculata*)	Liliaceae	R*
❑ Pale Carrion-flower (*Smilax lasioneura*)	Smilaceae	

Questions?

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