Gardening from the Ground Up

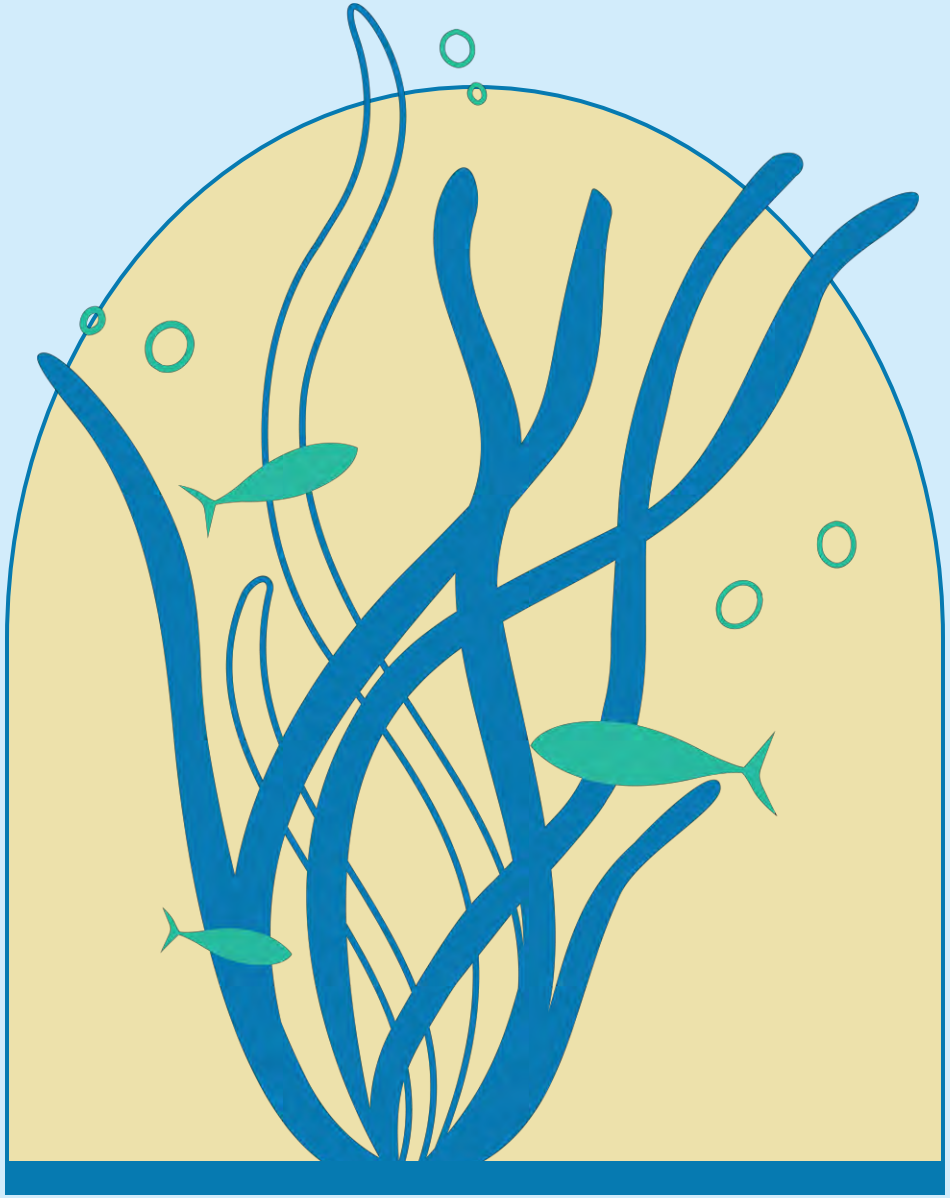
The Whys and Hows of Native Plants

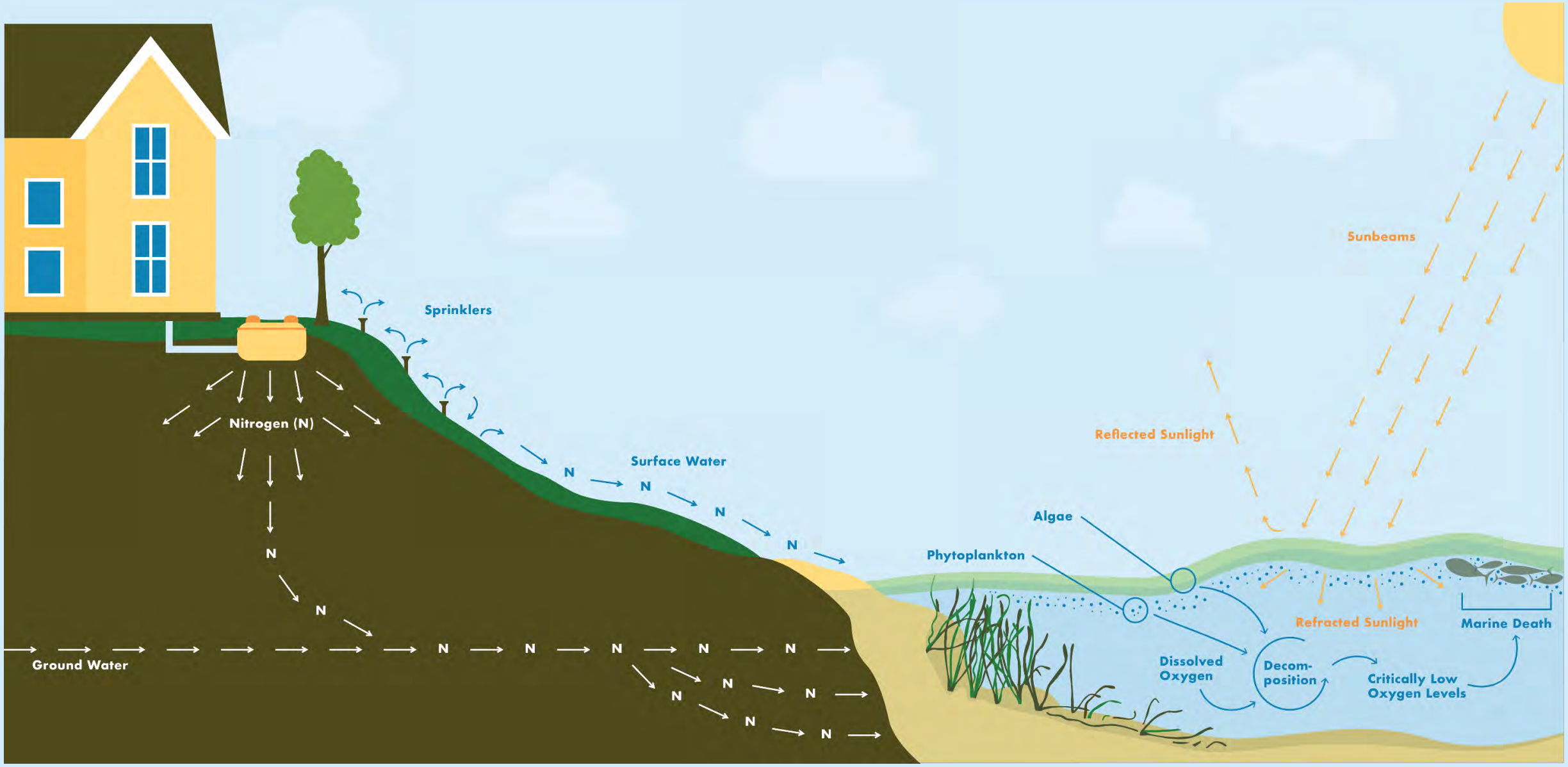
FISHERS ISLAND CONSERVANCY

HENRY L. FERGUSON MUSEUM

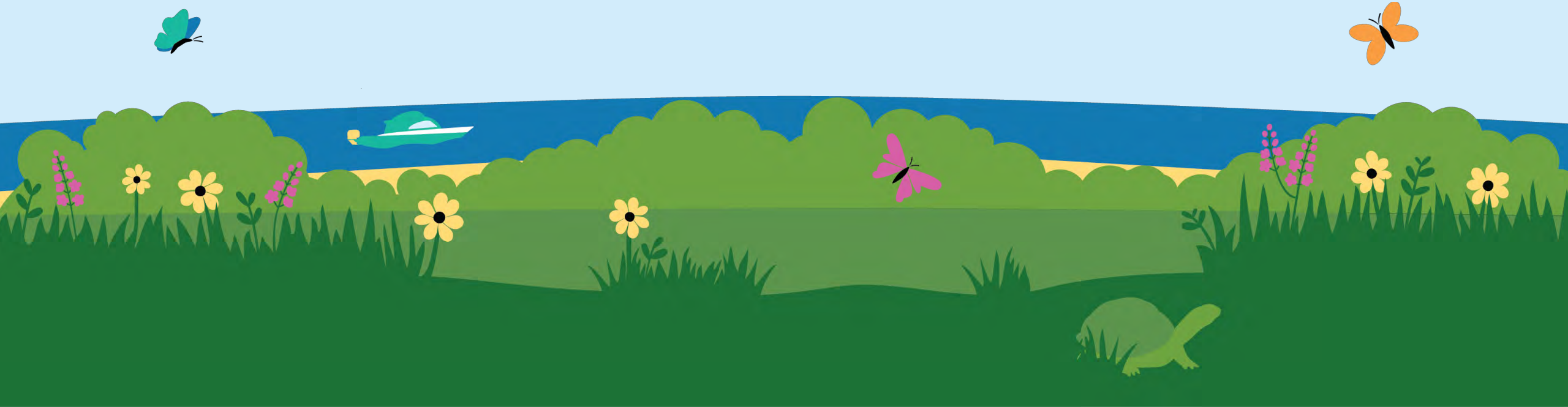
What has seagrass got to do with this?

What we do on land affects what happens to our waters!




Sprinklers
Nitrogen (N)
Surface Water
N
Ground Water
Sunbeams
Reflected Sunlight
Algae
Phytoplankton
Refracted Sunlight
Marine Death
Dissolved Oxygen
Decom-position
Critically Low Oxygen Levels

Gardening from the Ground Up



Why Native Plants?

How to Establish Year-Round Biodiverse Habitats

insect populations have declined by at least 45% in just the last 40 years

Article | Open access | Published: 20 December 2023

Disproportionate declines of formerly abundant species u

Roel van Klink ✉, Jonathan M. Cha

Nature **628**, 359–364 (2024) | Cite this article

INTRODUCTION BIOLOGICAL SCIENCES

Insect decline in the A a thousand cuts

David L. Wagner, ✉, Eliza M. Grames, Matthew L. Fori

January 11, 2021 | 118 (2) e2023989118 | https://doi.org/10

THIS ARTICLE HAS BEEN UPDATED

BIODIVERSITY

Rapid butterfly declines ac during the 21st century

Collin B. Edwards[1,2]*, Elise F. Zipkin[3], Erica H. Hen
Kevin J. Burls[6], Steven P. Campbell[7], Elizabeth E. C
Ryan G. Drum[11], Candace E. Fallon[6], Jeffrey Glassb
Shiran Hershcovich[15], Scott Hoffman Black[6], Elise
Mary J. Linders[2], Travis Longcore[17,18], Daniel A. Ma
Leslie Ries[16], Arthur M. Shapiro[20], Ann B. Swengel
Braeden Van Deynze[2], Jerome Wiedmann[22], Wayne

Article | Open access | Published: 18 January 2022

Climate-induced forest dieback drives composition re more

Courtial, Jérémy Cours,
üller, Douglas W. Yu, Mic
ou & Carlos Lopez-Vaamonde

rticle number: 57 (2022) | Cite this article

HERE
S JOURNAL

s in insect abundance and biomass in a

derwood, David W. Inouye, Michael E. Soulé, Brian D. Inouye ✉

https://doi.org/10.1002/ecs2.4620 | Citations: 4

e change are reshaping insect e

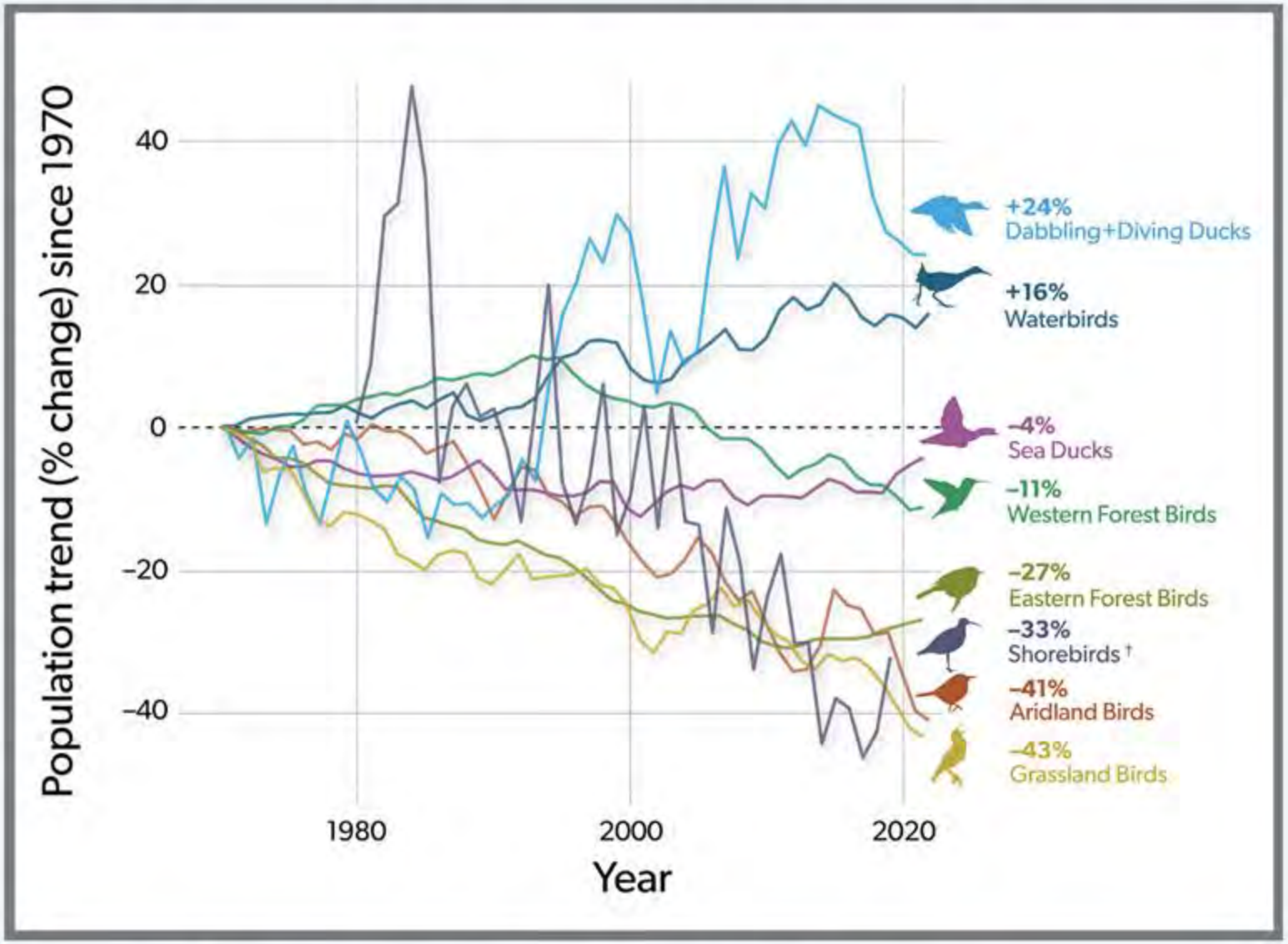
Tim Newbold

cle

America’s birds are in crisis - nabci state of the birds report 2019, 2022

1 in 4 Birds Gone Since 1970

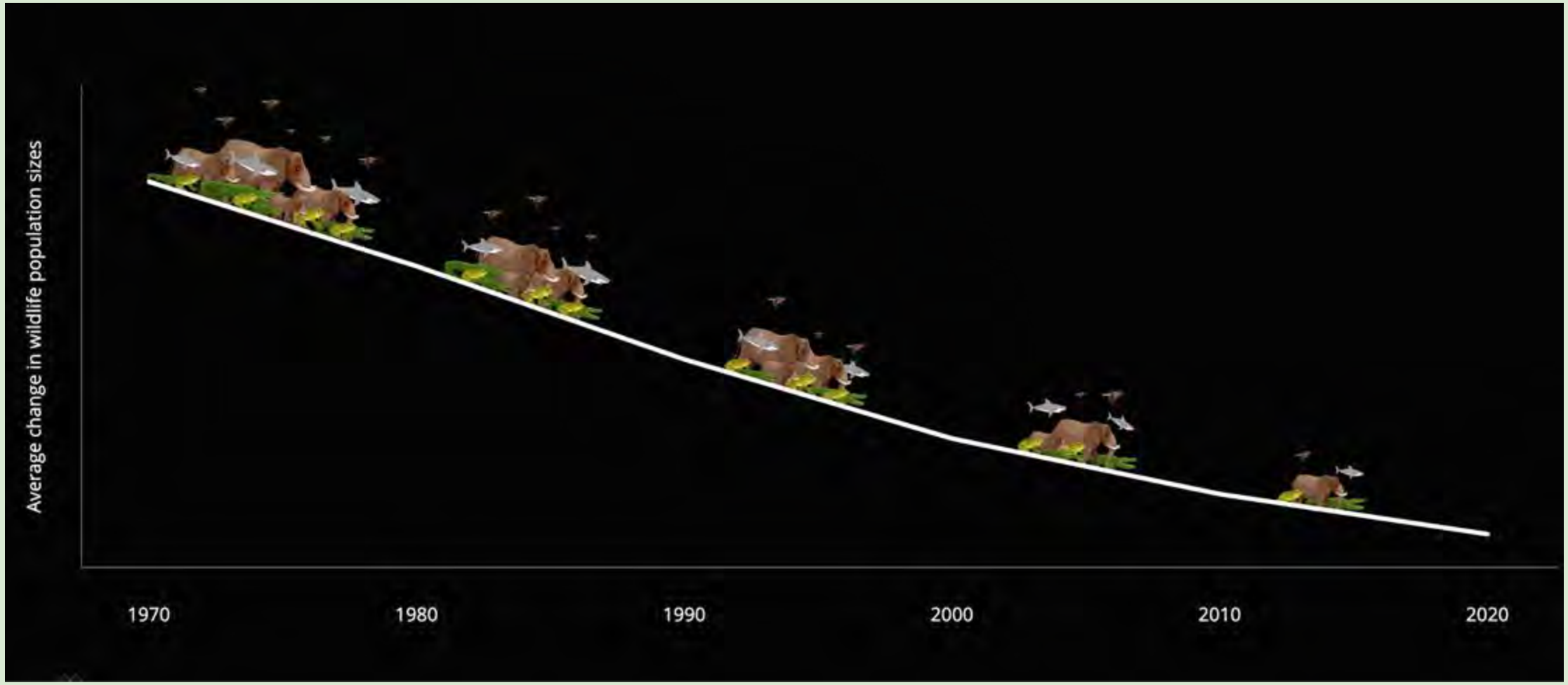
- Nearly 30% of all North American birds have disappeared in the last 50 years
  - 50% fewer songbirds
- 3 billion birds lost from US and CAN since 1970
- Even common species have undergone staggering losses
  - 70+ species are at the tipping point
- Landscapes are losing their ability to support bird populations



5 Years After the 3 Billion Birds Lost Research, America Is Still Losing Birds - 2025 State of the Birds Report

NABCI
https://www.stateofthebirds.org/

Nature is Disappearing: The Average Size of Wildlife Populations have Fallen **73%**



“The latest editions of the Living Planet Report, which measures the average change in population sizes of more the 5,000 vertebrate species, shows a decline of 73% between 1970 and 2020”

How can what we plant help?

To answer this we need to understand what wildlife needs to survive and thrive and the interconnected relationships of complex food webs

Artwork: Lin Snow

What does wildlife need to thrive?

- **Food**
- **Water**
- **Shelter**
- **Nesting areas**
- **Healthy land management practices**

Artwork: Lin Snow

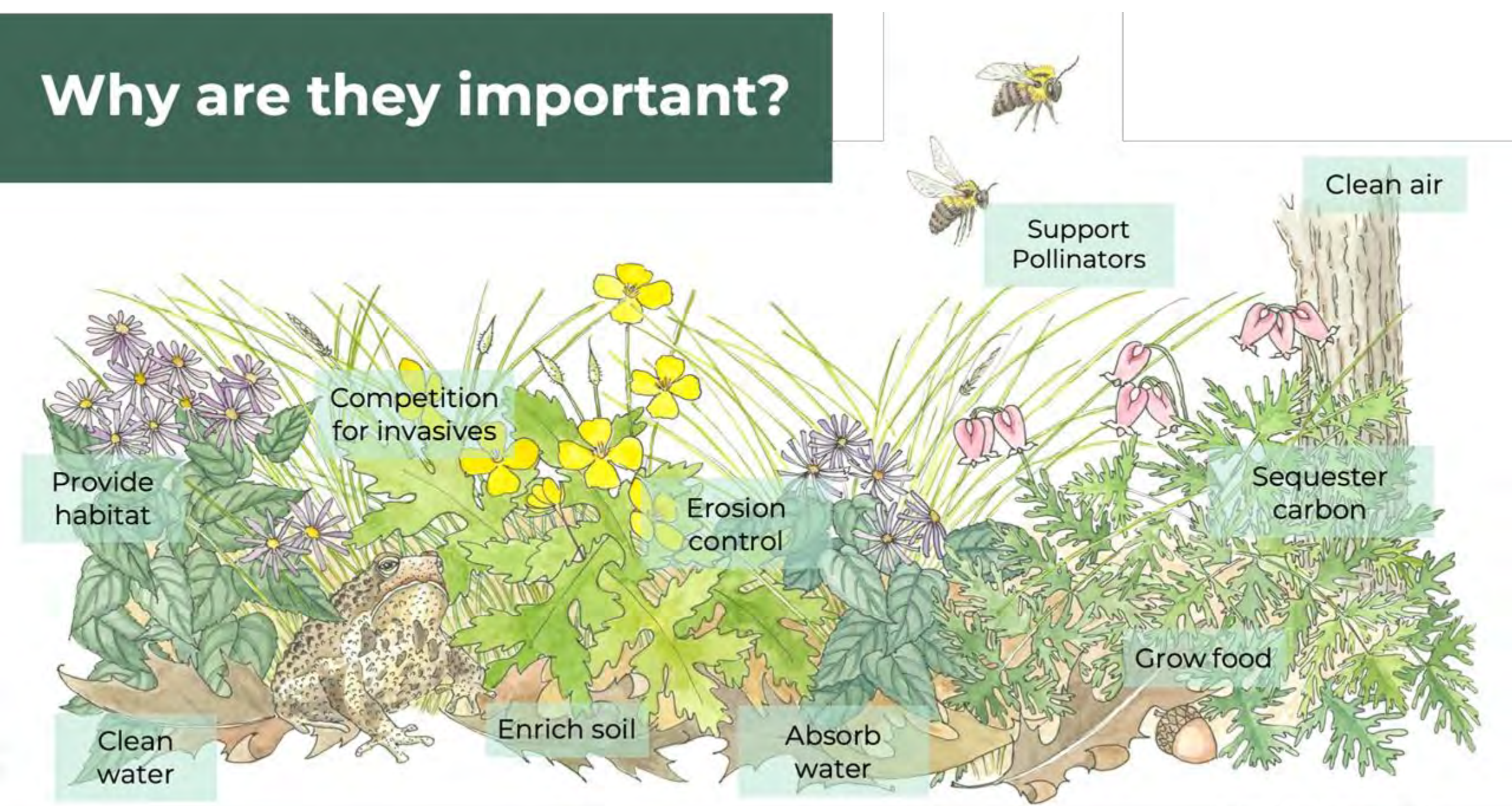
What *is* a native plant?

Occurs naturally in a particular region, ecosystem, and habitat, and has coevolved with the region's flora, fauna, fungi, microorganisms. Existing without human intervention

*Usually, plants that have grown here prior to European colonization

Who gets to decide what is native/natural?

Why are they important?



Artwork by Vanessa Nesvig

Native Plants Lay the Foundation of Terrestrial Food Webs

>90% of terrestrial birds rear their young on insects

Photo: Doug Tallamy

a clutch of chickadees needs **6,000-9,000** caterpillars

Photo: Doug Tallamy

The American robin is reported to eat **twice its body mass** in larvae in 24 hours

Photo: Betty Baisden

Worldwide birds eat 400-500 million metric tons of insects!

Artwork: Lin Snow

What landscapes can support such insect diversity and abundance?

consider the specialized relationship between insects and plants

Artwork: Lin Snow

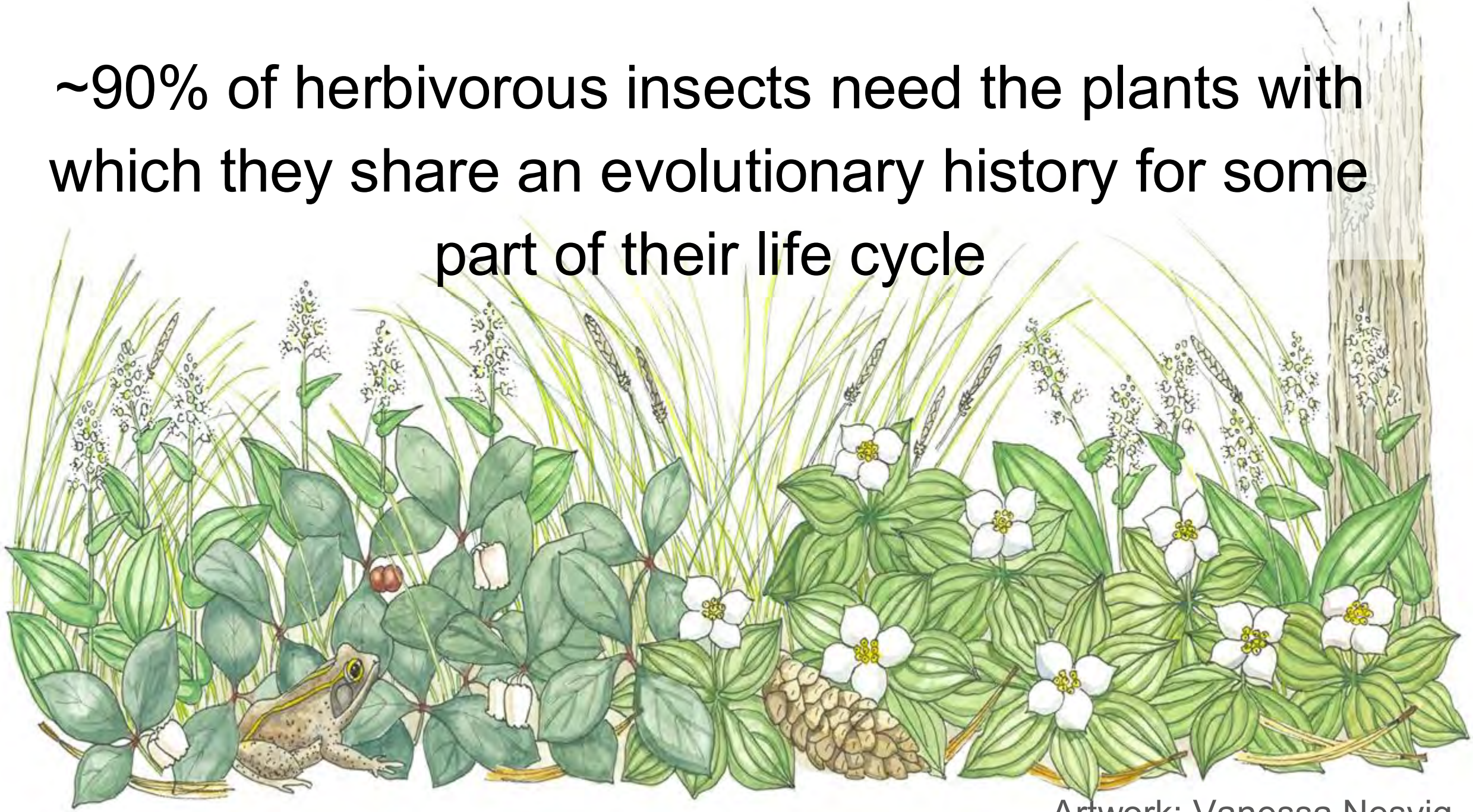
Plants and insects have coevolved for millenia

This has lead to deeply ingrained, localized connections to food webs

Host plant – Plants which provide shelter, habitat, breeding sites or serve as a food source as part of the life cycle of another organism

Artwork: Julian Plum

~90% of herbivorous insects need the plants with which they share an evolutionary history for some part of their life cycle



Artwork: Vanessa Nesvig

Adult photo: Lisa Looke

Pandora sphinx (*Eumorpha pandorus*) on Virginia creeper

Juniper Hairstreak (*Callophrys gryneus*) on junipers/cedars

Photos: Mary Anne Borge; Doug Tallamy

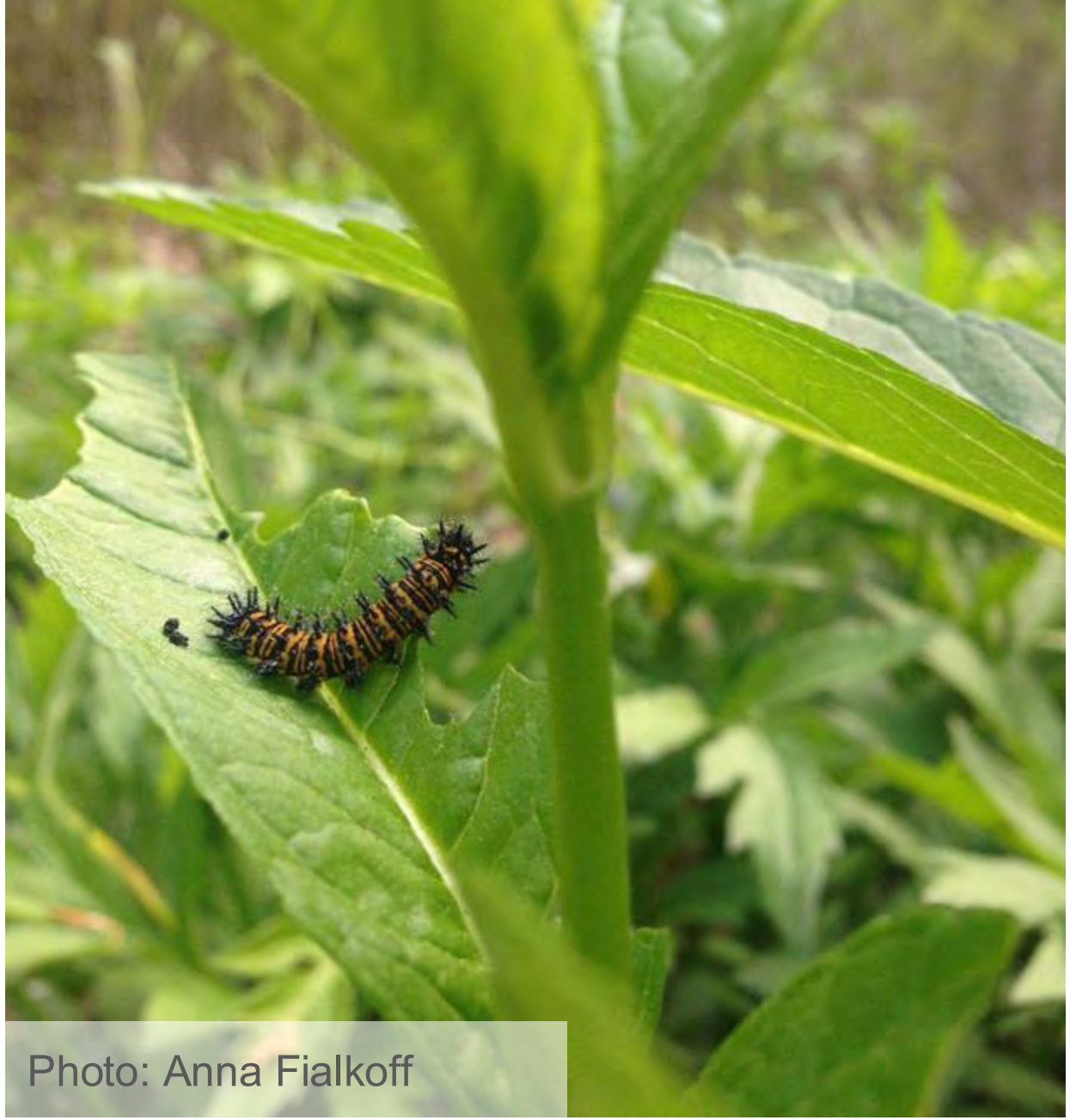


Photo: Anna Fialkoff

Baltimore checkerspot on white turtlehead

These specialized evolutionary relationships don’t stop at leaf eaters

Bellflower Resin Bee - tall bellflower © Thomas Berger

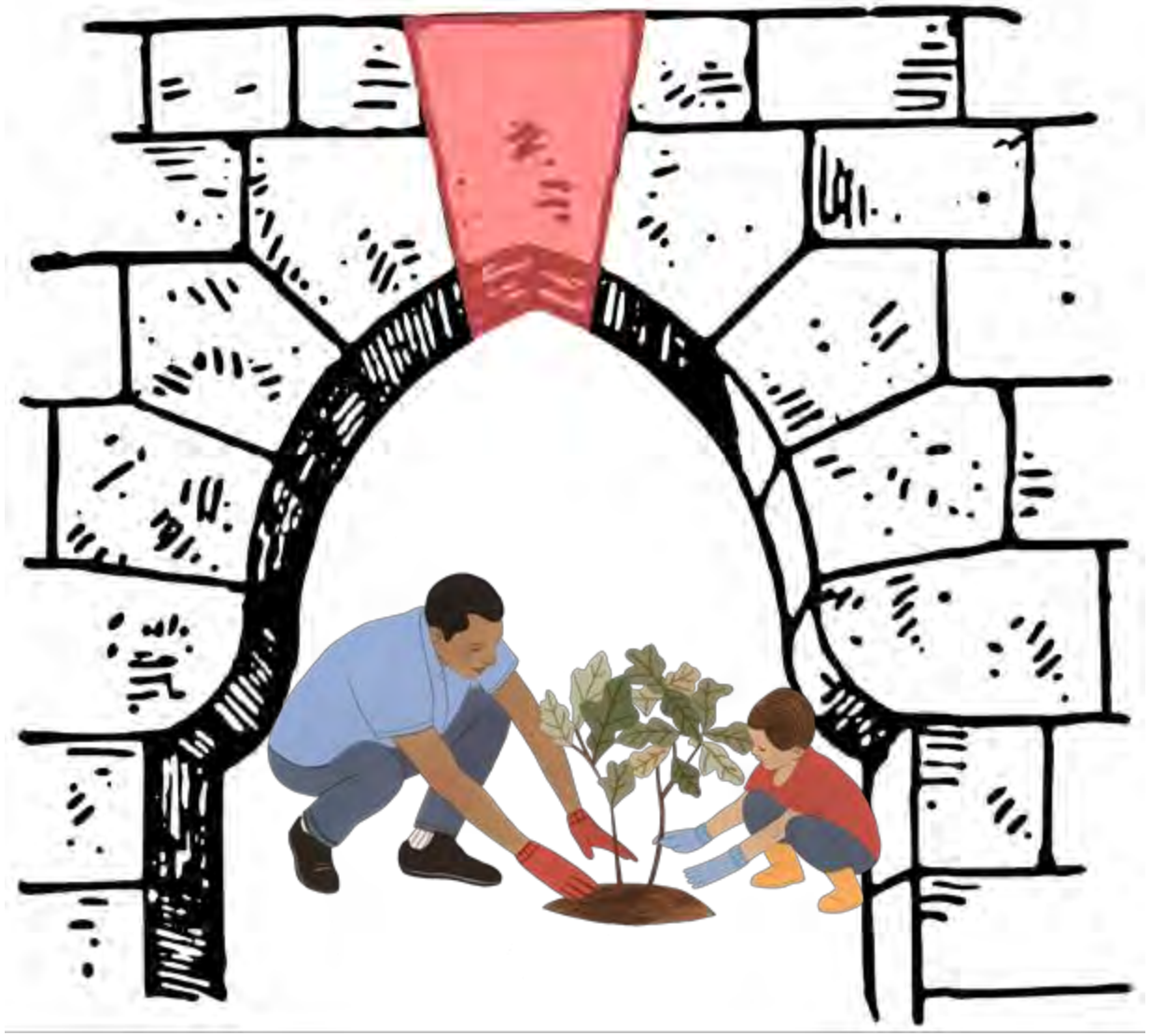
Common bumblebee - closed gentian

Native Plants as Keystone and Foundation Species

Keystone species: species that has a disproportionately large effect on its natural environment relative to its abundance

Foundation species: species that have a strong role in structuring a community.

Prioritize species that will support the highest species richness and abundance throughout multiple seasons



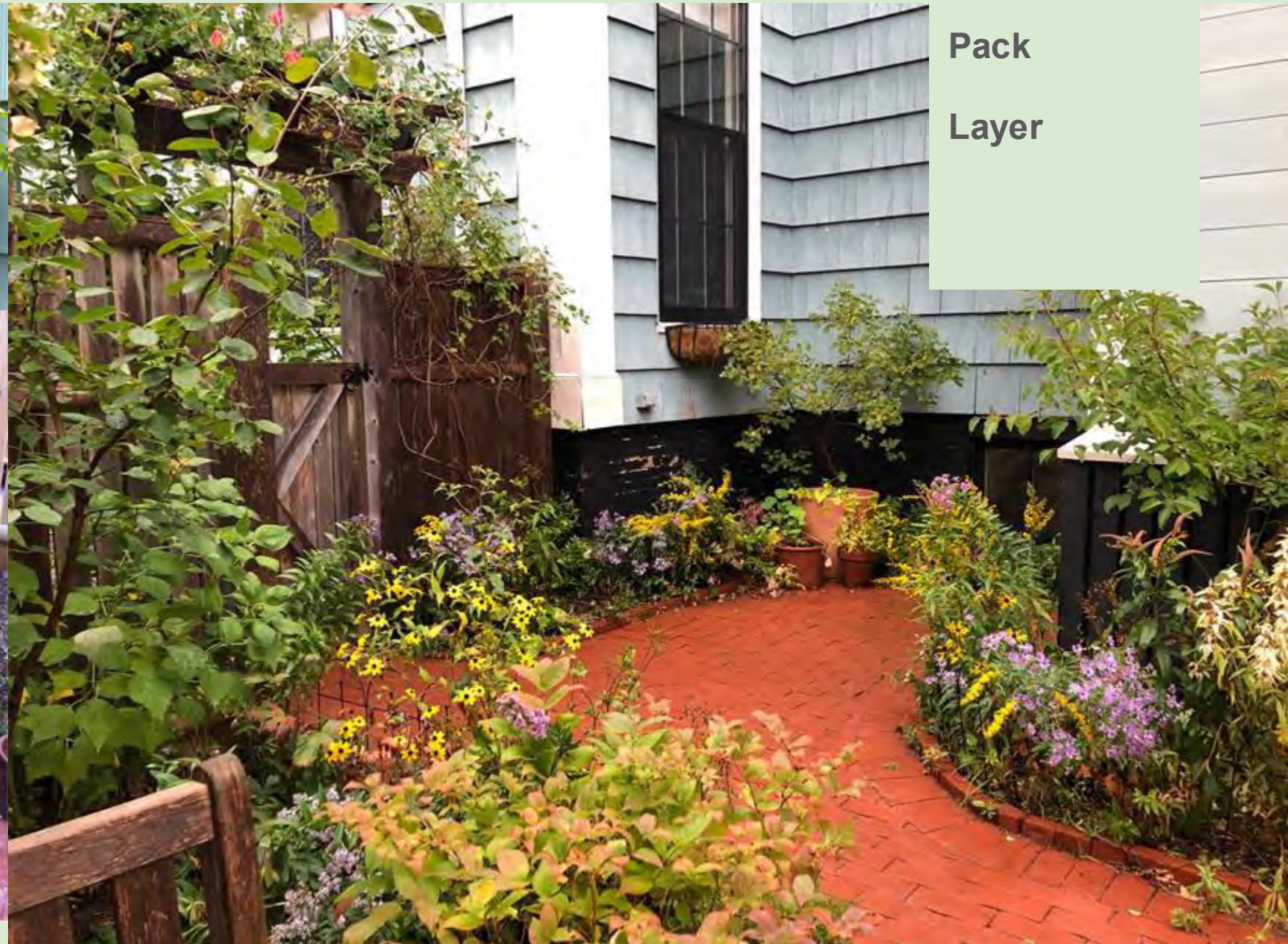
Oak planting artwork: Kate Gardiner
Keystone drawing:Otto Lueger, Public domain, via Wikimedia Commons

What we plant sets the groundwork for who can live and thrive

complex food webs - increase biodiversity - more stable communities and ecosystems

Artwork: Kate Gardiner

You can do this anywhere

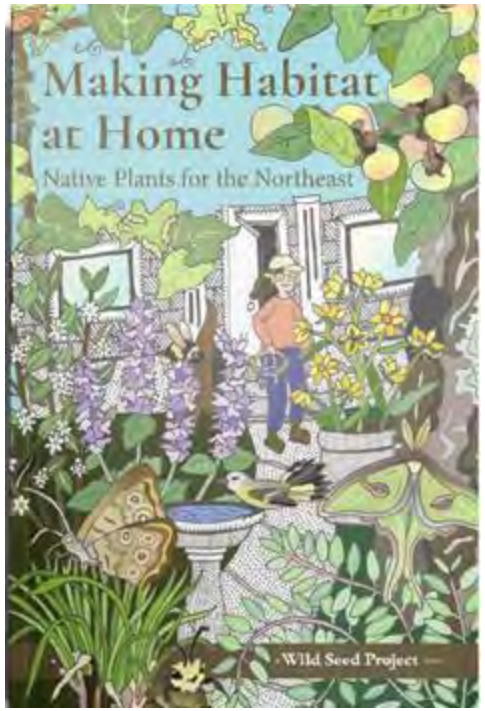


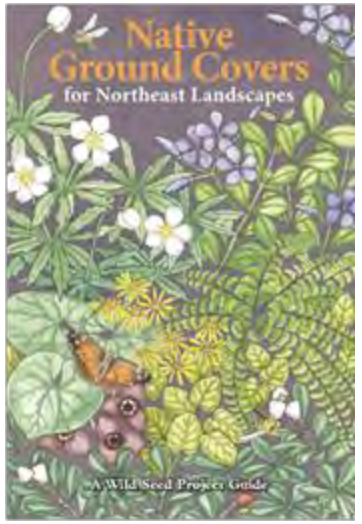
Stack

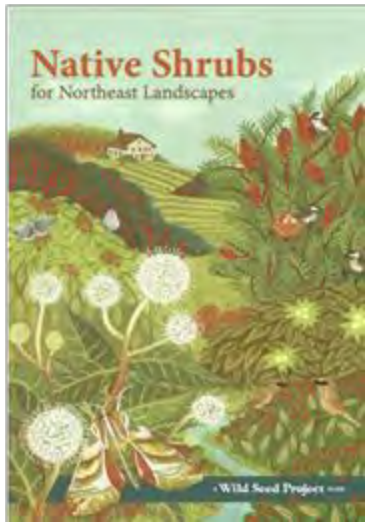
Pack

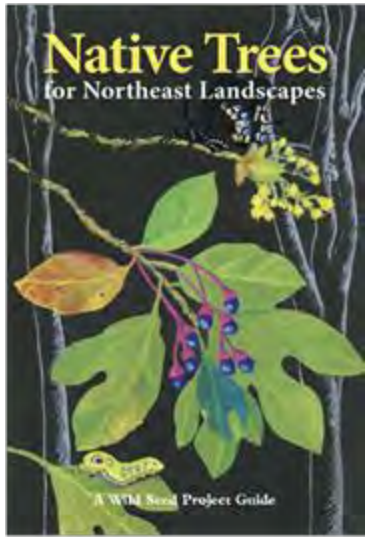
Layer

Wild Seed Project





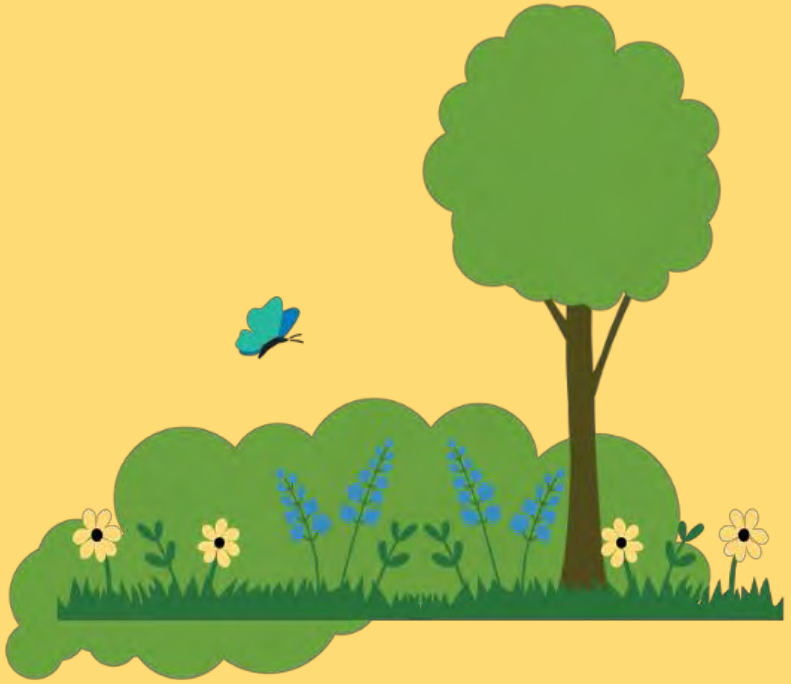




Thank you!
Chat with me about how you can learn more!

How-Tos for Perennials

Diana Fiske



The most meaningful conservation efforts don’t start in a national park. They start in your yard, with the plants you choose and the chemicals you refuse

- Doug Tallamy

Ground Covers

Ground Cover

Open Ground for Bees

Soft landings

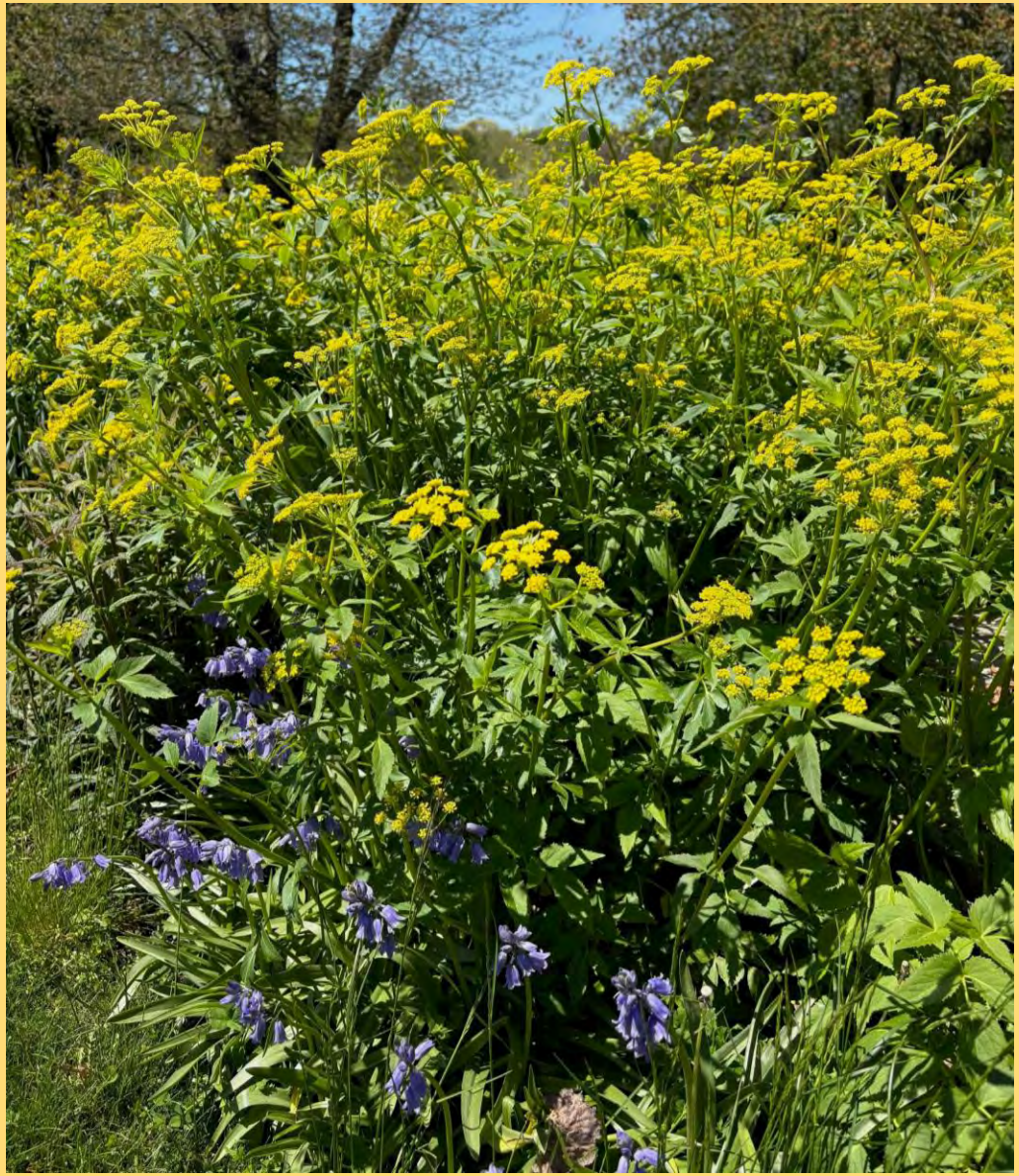
Perennials for All Seasons

Early Season
(April-May)

Sun

Zizia aurea

Golden Alexander



Early Season
(April-May)

Sun

Aquilegia canadensis

Red columbine

Early Season
(April-May)

Part Shade

Sanguinaria canadensis

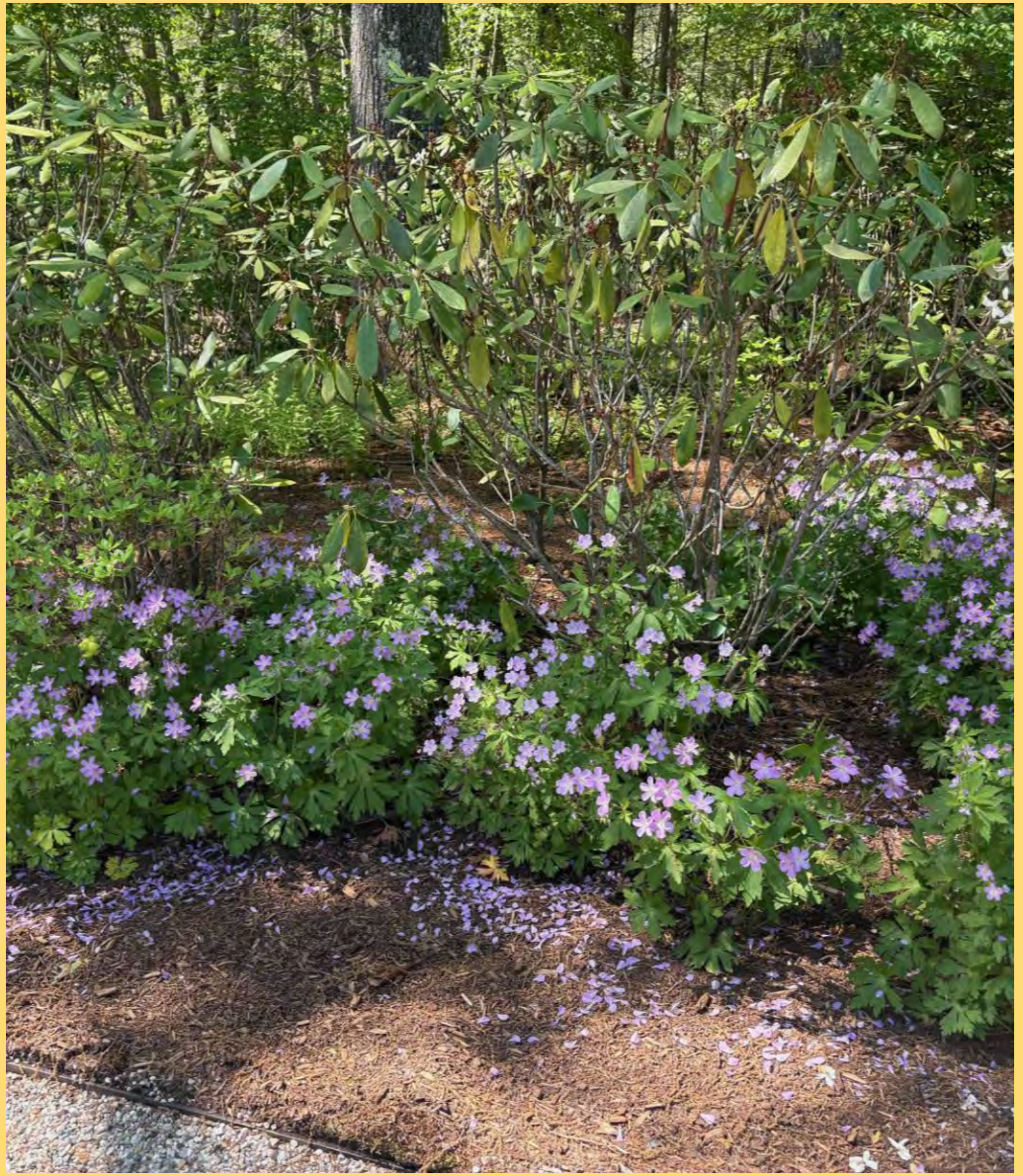
Bloodroot

Early Season
(April-May)

Part Shade

Geranium maculatum

Wild geranium



Early Season
(April-May)

Full Shade

Mertensia virginica

Virginia Bluebells

Mid-Season
(June-August)

Sun

Coreopsis lanceolata

Lanceleaf tickseed

Mid-Season
(June-August)

Sun

Asclepias tuberosa

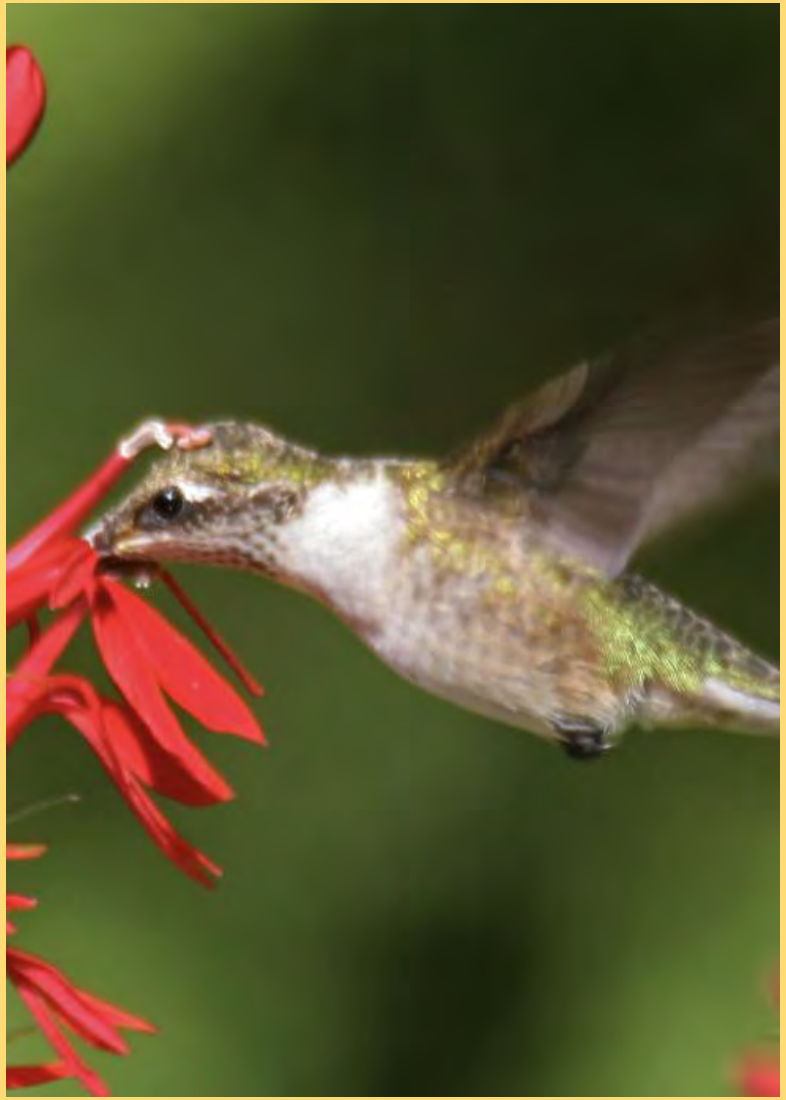
Butterfly weed

Mid-Season
(June-August)

Sun

Penstemon digitalis

Foxglove beardtongue



Mid-Season
(June-August)

Part Shade

Lobelia cardinalis

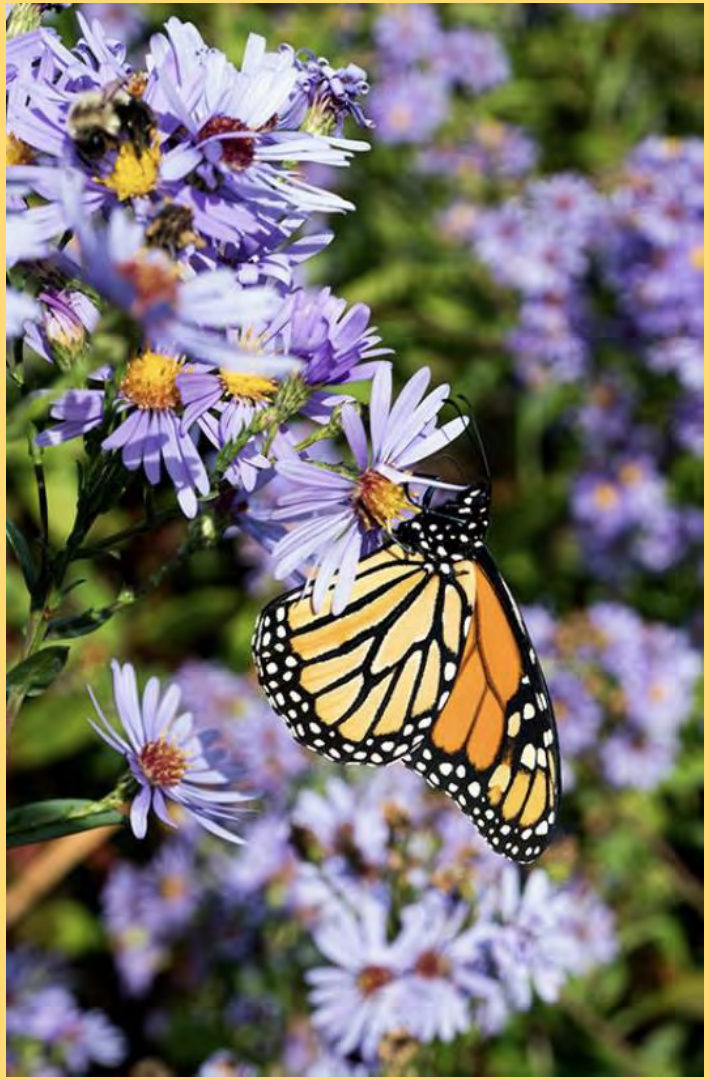
Cardinal flower

Mid-Season
(June-August)

Part Shade

Chelone glabra

White turtlehead



Late Season
(Sept – Oct)

Sun

Symphyotrichum laeve

Smooth American aster

Late Season
(Sept – Oct)

Sun

Solidago sempervirens

Seaside goldenrod

Late Season
(Sept – Oct)

Sun

Ageratina altissima

White snakeroot

Remember Native Annuals!

Let's chat at the reception!

The Middle Layer

Dianne Crary

Spiraea tomentosa
steeplebush

Rudbeckia lacinata
cutleaf coneflower

Aronia arbutifolia
red chokeberry

Rhododendron viscosum
swamp azalea

Physocarpus opulifolius
eastern ninebark


Baptisia australis
blue false indigo

Viburnum acerifolium
Mapleleaf viburnum

Cornus sericea

Red osier dogwood

Rhododendron maximum

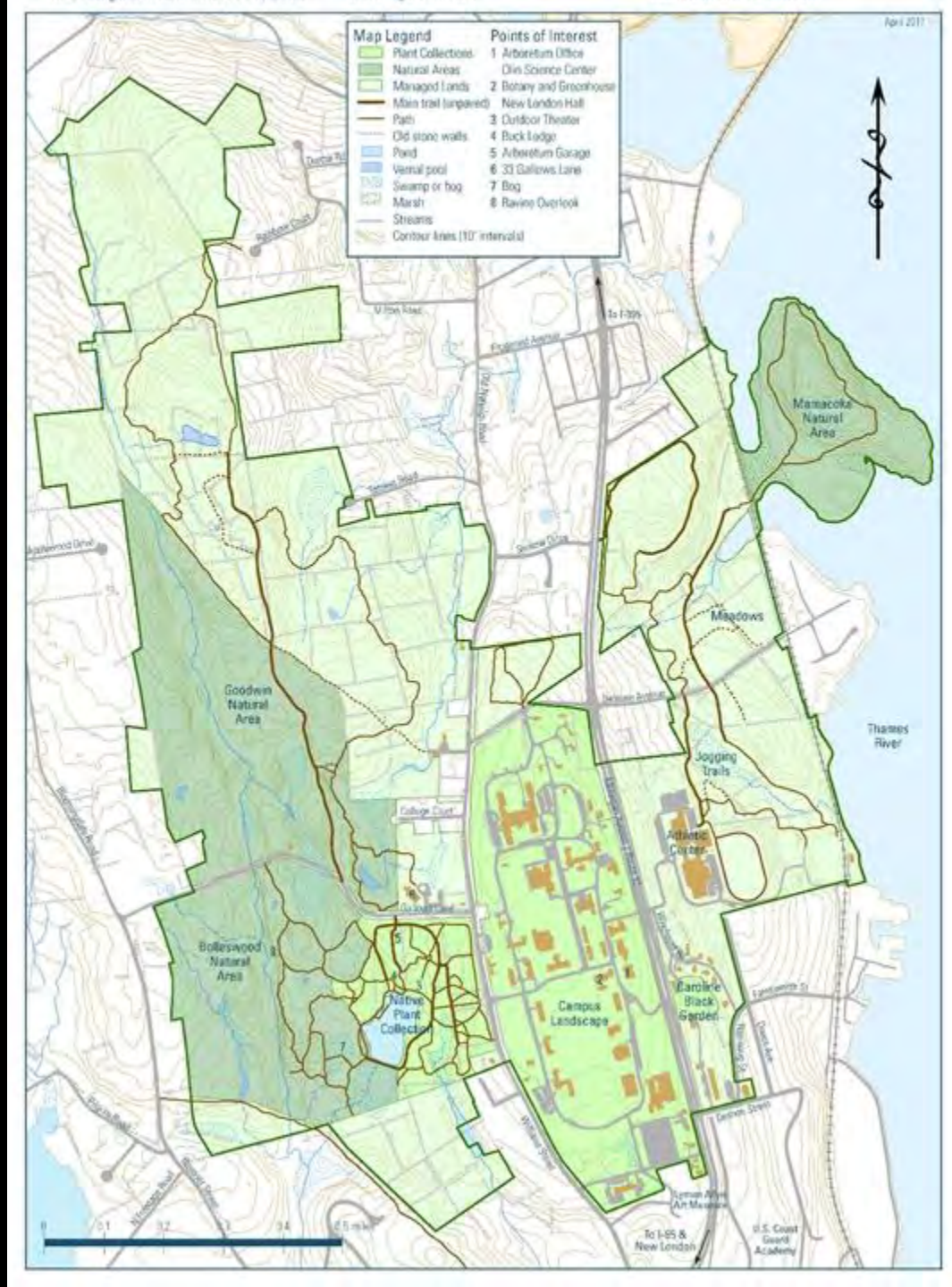
rosebay rhododendron


Native Trees
Maggie Redfern
Connecticut College
ARBORETUM

Connecticut College Arboretum

Established 1931
Today 750 acres
Features native plants

Open to the public, free of charge, every day of the year, sunrise to sunset




Canopy
Understory
Shrubs
Groundcover

Canopy – Large Trees

White Oak (*Quercus alba*)

Black Willow (*Salix nigra*)


Salicicola


Salicicola


Morton Arboretum

* Black Cherry (*Prunus serotina*)

Birches (*Betula* sp.)

Red Maple (*Acer rubrum*)

Hickories (*Carya* sp.)

American Elm (*Ulmus americana*)

Tulip Tree (*Liriodendron tulipifera*)

Cucumber Magnolia (*Magnolia acuminata*)

Tupelo (*Nyssa sylvatica*)

* White Pine (*Pinus strobus*)

Understory – Small Trees

* Dogwood (*Cornus florida*)

Beach Plum (*Prunus maritima*)

Pussy Willow (*Salix discolor*)

Salicicola

* Elderberry (*Sambucus canadensis*)

* Pawpaw (*Asimina triloba*)

Franklin Tree (*Franklinia alatamaha*)

Thank you!

For more information:

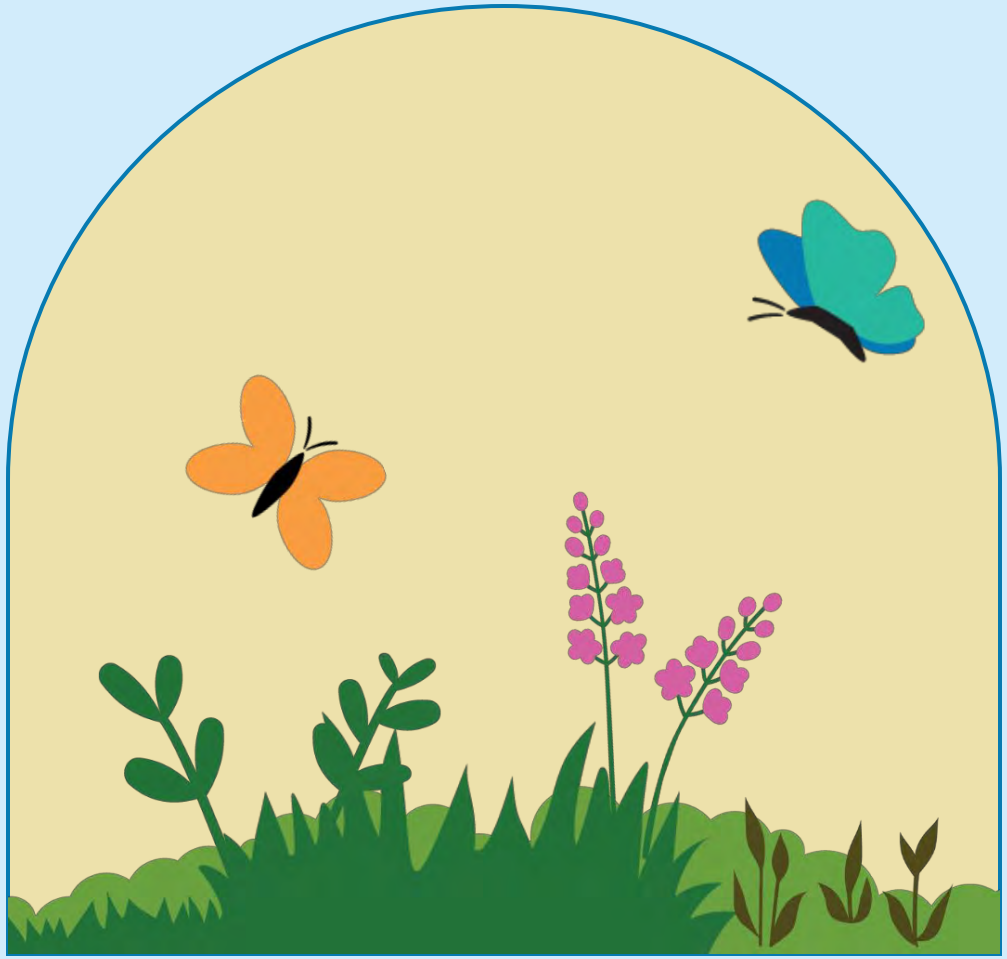
Connecticut College Arboretum
arboretum.conncolll.edu

New London Trees
www.newlondontrees.org

email
mredfern@conncoll.edu

Q&A

Please raise your hand in person or on Zoom to ask your questions!



THANK YOU FOR JOINING US!

Gardening from the Ground Up

fiseagrass@fergusonmuseum.org

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