



Why Native Plants?

How to Establish Year-Round Biodiverse Habitats

Disproportionate declines of formerly abundant species u

Climate-induced forest dieback drives composition re more

[Roel van Klink](#) [Jonathan M. Cha](#)

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INTRODUCTION | BIOLOGICAL SCIENCES

Insect decline in the A a thousand cuts

[David L. Wagner](#), [Eliza M. Grames](#), [Matthew I. Fori](#)

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

THIS ARTICLE HAS BEEN UPDATED

HERE
S JOURNAL

s in insect abundance and biomass in a

[erwood, David W. Inouye, Michael E. Soulé, Brian D. Inouye](#)

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

e change are reshaping insect

[Tim Newbold](#)

BIODIVERSITY Rapid butterfly declines ac during the 21st century

[Collin B. Edwards](#)^{1,2*}, [Elise F. Zipkin](#)³, [Erica H. Hem](#),
[Kevin J. Burls](#)⁶, [Steven P. Campbell](#)⁷, [Elizabeth E. O](#),
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[Shiran Hershcovich](#)¹⁵, [Scott Hoffman Black](#)⁶, [Elise](#),
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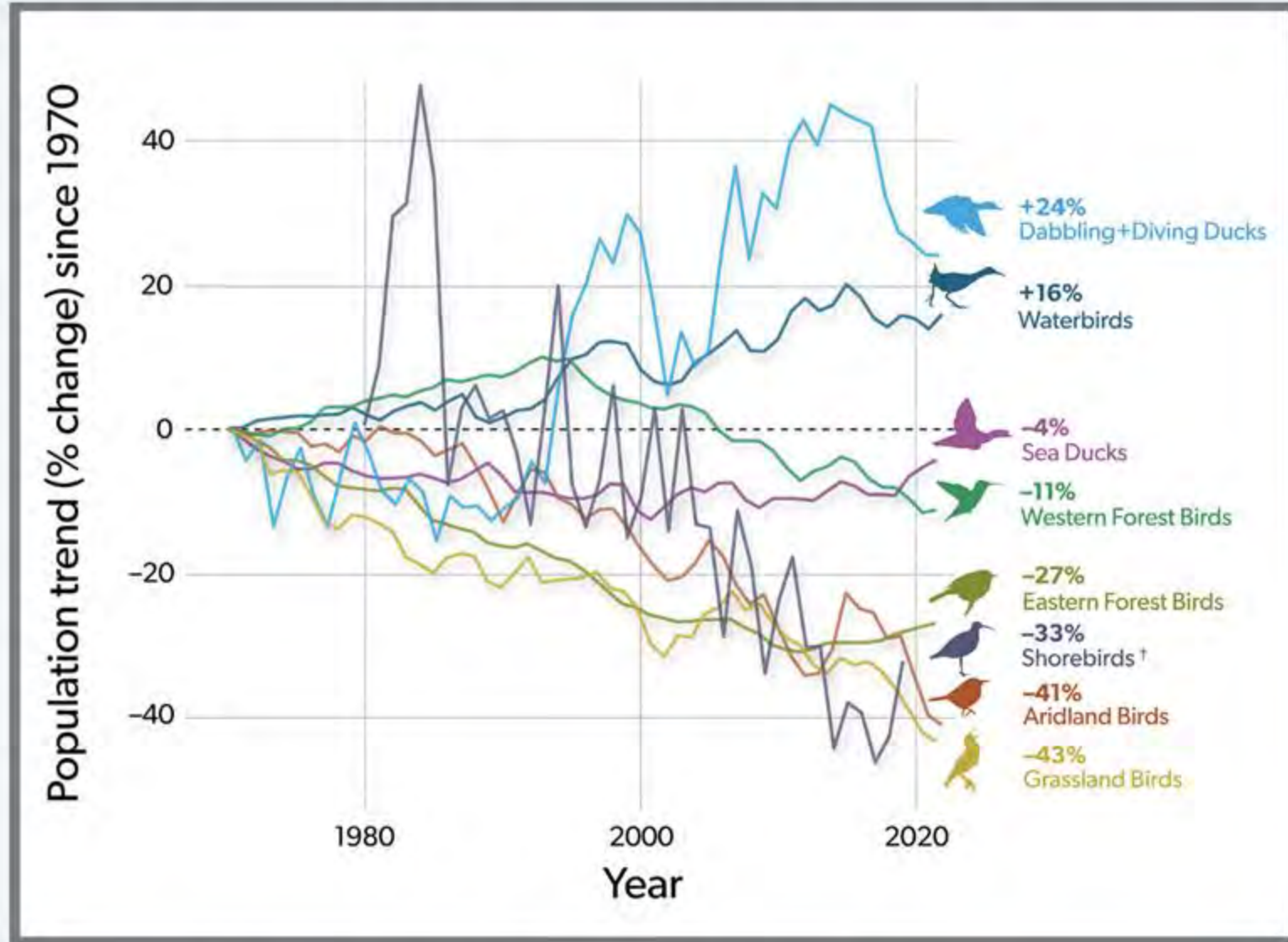
America's birds are in crisis - nabci state of the birds report 2019, 2022

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



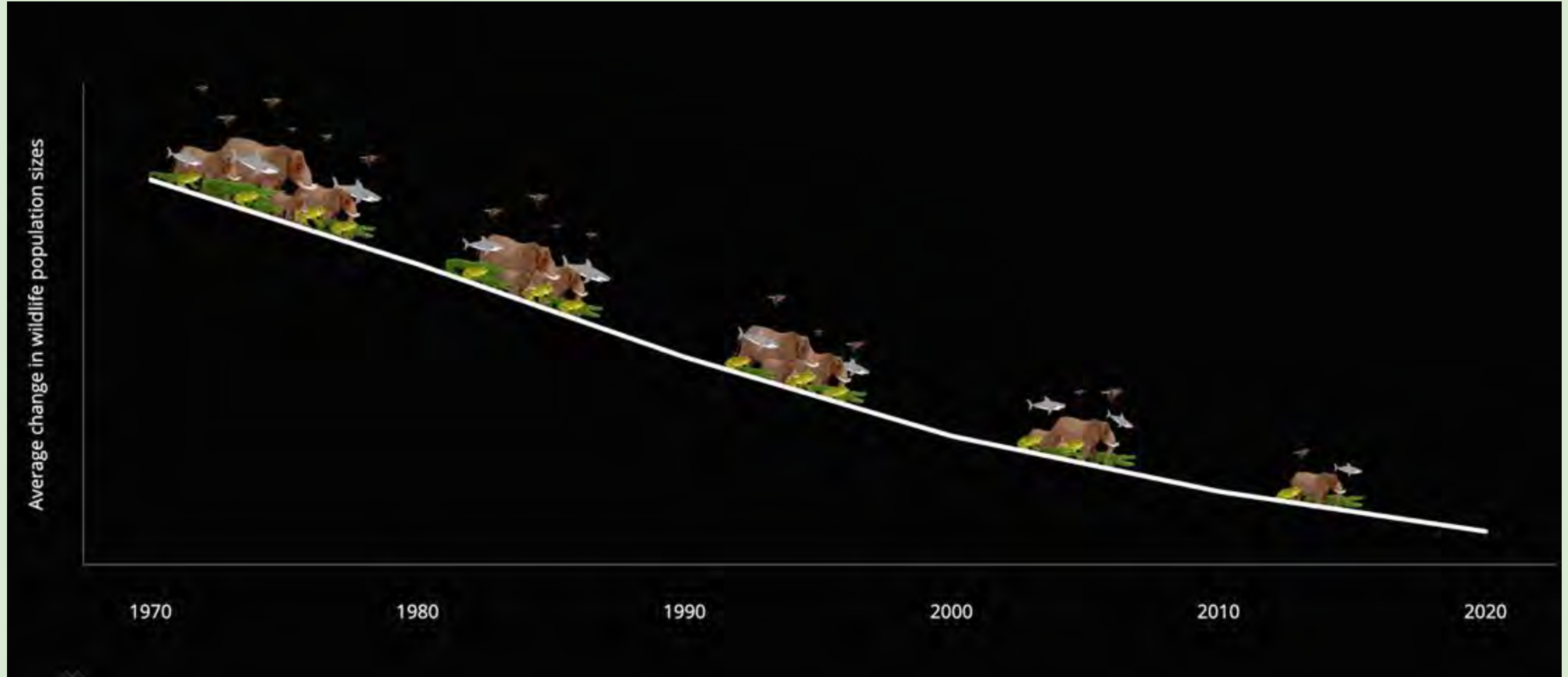
Long-term Population Trends for America's Birds



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

† Shorebirds indicator trend data has not been updated since 2019.

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**

What *is* a native plant?

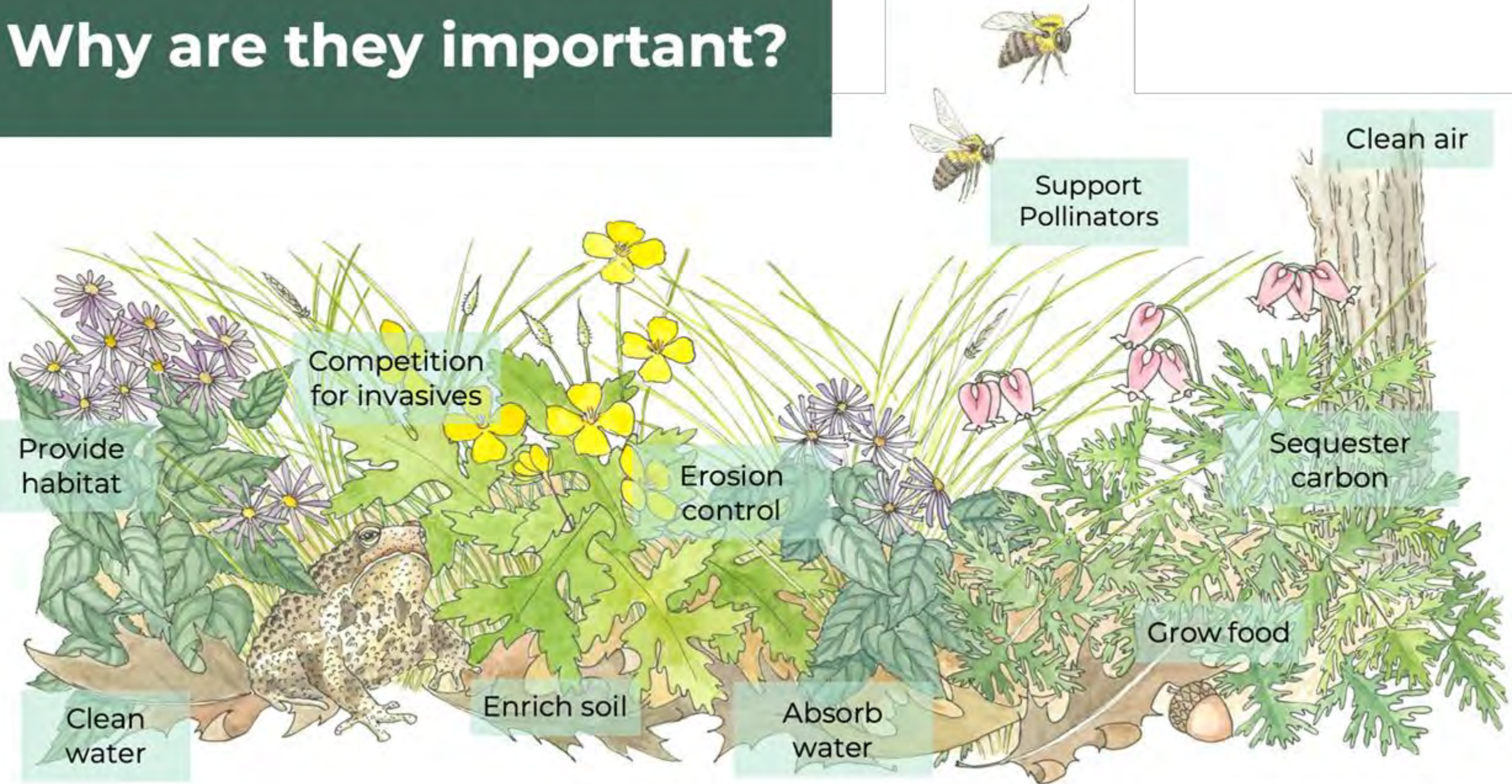
Occurs naturally in a particular region, ecosystem, and habitat, and has coevolved with the region's flora, fauna, fungi, microorganisms. Existing without human intervention

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

Who gets to decide what is native/natural?



Why are they important?



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

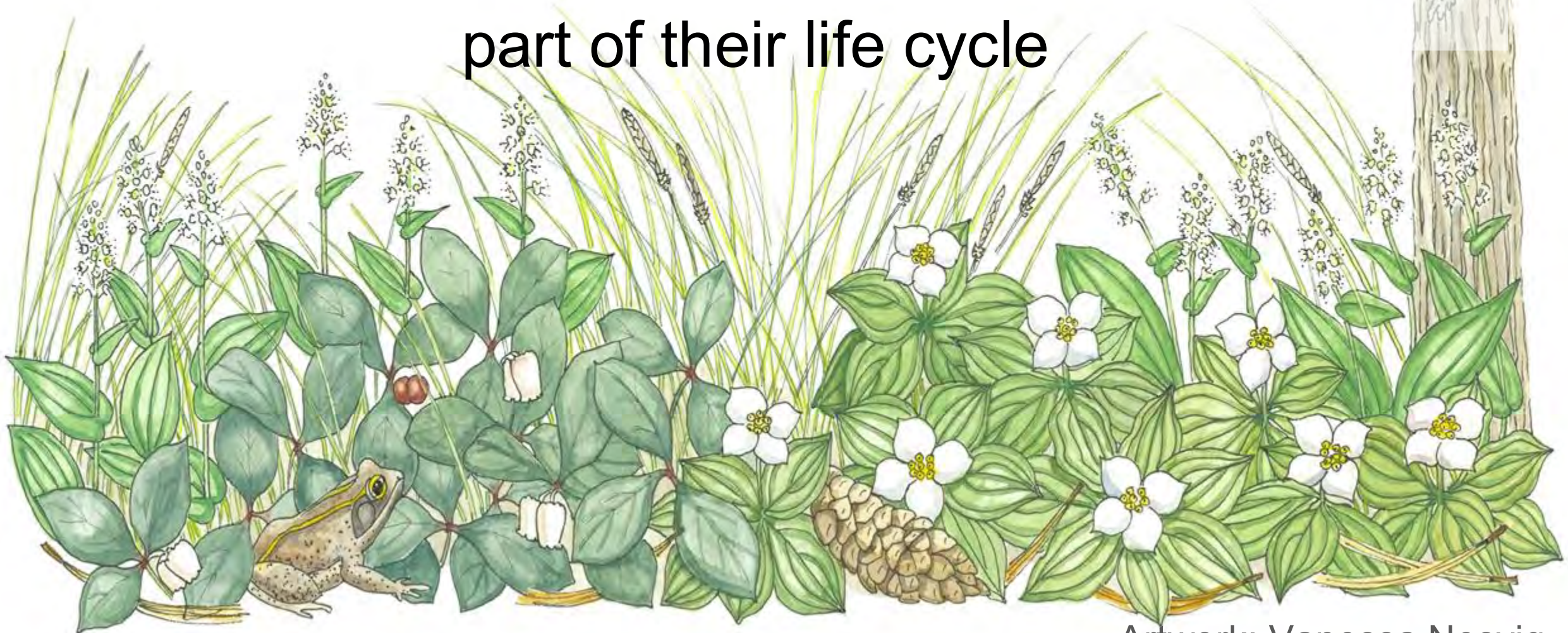
This has lead to deeply ingrained, localized connections to food webs



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 (*Eumorphia 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



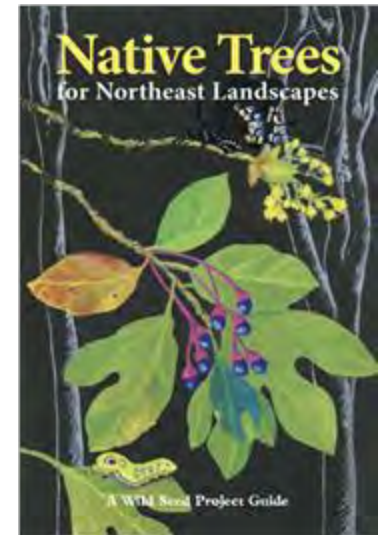
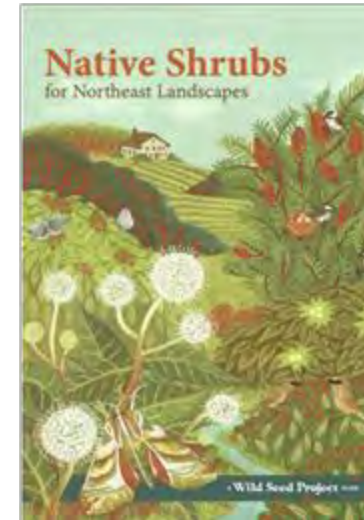
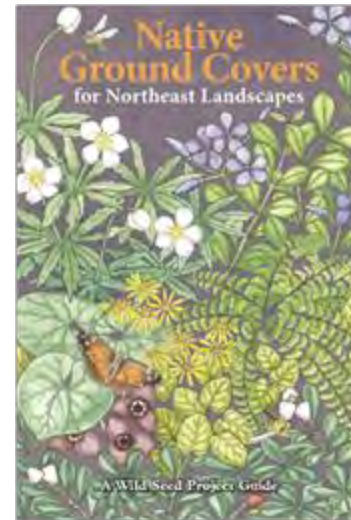
Stack

Pack

Layer



Wild Seed Project



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