

Bird Droppings and Other Nature Muses: What You Plant Matters



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Restoration Ecologist / Chair for IPAC /

Project Coordinator for SICIM's Indiana Invasives Initiative

Gardens: Backyard Connections,
Relationships & Demonstrate
How Special Indiana (N. A.) Is



What is a native species?

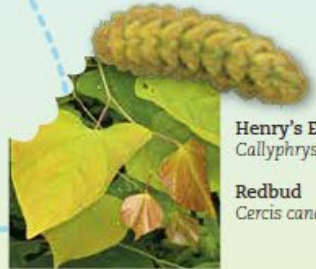
A plant or animal occurring in its natural range where it has significant and life supporting relationships with other organisms.



Butterfly Larvae Host Plants



Great Spangled Fritillary *Speyeria cybele*
Common Blue Violet *Viola sororia*



Henry's Elfin *Callyphrys henrici*
Redbud *Cercis canadensis*

Florida Museum of Natural History
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FOR INVERTEBRATE CONSERVATION

Red Admiral *Vanessa atalanta*
False Nettle *Boehmeria cylindrica*



Harvester *Feniseca tarquinius*
larvae are predaceous on many
species of Woolly Aphids
including *Neoprociphilus aceris*.



Silvery Checkerspot *Chlosyne nycteis*
Blackeyed Susan *Rudbeckia hirta*



Pipevine Swallowtail *Battus philenor*
Virginia Snakeroot *Aristolochia serpentaria*

Morning Cloak *Nymphalis antiopa*
American Elm *Ulmus americana*



American Lady *Vanessa virginiensis*
Woman's Tobacco *Antennaria plantaginifolia*



Eastern Tiger Swallowtail *Papilio glaucus*
Tuliptree *Liriodendron tulipifera*



Spicebush Swallowtail *Papilio troilus*
Sassafras *Sassafras albidum*



Zebra Swallowtail *Eurytides marcellus*
Pawpaw *Asimina triloba*



Giant Swallowtail *Heracles cressphontes*
Common Pricklyash *Zanthoxylum americanum*



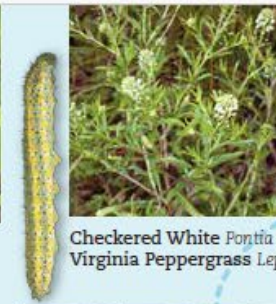
Black Swallowtail *Papilio polyxenes*
Golden Zizia *Zizia aurea*



Red-spotted Purple *Limenitis arthemis astyanax*
Black Cherry *Prunus serotina*



Coral hairstreak *Satyrus titus*



Checked White *Pontia protodice*
Virginia Peppergrass *Lepidium virginicum*



Banded Hairstreak *Satyrus calanus*
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Silver-Spotted Skipper *Epargyreus clarus*
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Little Yellow *Pyrisitia tisa*



Hackberry Emperor *Asterocampa celtsis*

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Question Mark *Polygonia interrogationis*
Common Hackberry *Celtis occidentalis*



Spring Azure *Celastrina ladon*
Flowering Dogwood *Cornus florida*



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Photography by Janet Daniels, Peg Urban, T. Allen

A glimpse of the relationships plants have with wildlife



It's a Relationship Thing

One thing supports another so we can all live and live together.




What happens if we remove native plants from the environment?

Native Insects lose their food source

Habitats are altered and no longer support healthy wildlife populations

We may alter an ecosystem's ability to function well (clean water, hold soil, clean air, provide food, medicine, clothing, and more)



What is an invasive species?

1. Non-native
2. Causes harm to the environment, human health and the economy

2nd leading threat to endangered species (Nature Serve & USFS)

2nd leading threat to our forests (Bosworth, 2003)

2012: USGS announced that the annual environmental, medical, and economic costs of invasive species are greater than the costs of all other natural disasters combined

08/05/20

Invasive Species Characteristics

Invasive Species Characteristics:

- Highly fecund (e.g., oriental bittersweet vs. native)
- Tolerate many conditions (light, soil, moisture regimes)
- Extended growing seasons
- Lack of predation or herbivory – they are NOT part of a living system (if they escape into our natural areas they cause harm)
- Create monocultures – outcompete native plants

We Help Them Succeed:

- We plant them over and over
- We share them
- We plant them in abundance
- We remove competition and baby them

The perfect
landscape plant!

Who is responsible for the infestations along our roadways?
It's not INDOT.



83% of woody invasives come from our yards, therefore your garden is important.

- Invasives cause harm – outcompete our native plants
- Therefore our landscapes are either solutions / or problems (they either provide connections or they eliminate native species)
- Why Not Eliminate Invasive Species in Your Landscapes, Parks, etc.?



Japanese
Knotweed
(*Reynoutria
japonica*)



BUSH HONEYSUCKLE



Wintercreeper Infestation



Fire Hazard – other states have banned this species.

has lost 1,000s of acres of pasture
of the fire season suppressing
the Silver Grass.

Chinese Silvergrass Infestation in Indiana

A photograph of a restored glade in Indiana. The foreground is a lush green field filled with numerous small, pink, daisy-like flowers. The field slopes upwards towards the right. In the background, there is a dense line of trees, including some tall, thin trees and a large, gnarled tree on the left. The sky is clear and blue.

A restored glade in Indiana.



Fountain Grass (*Pennisetum* spp.)



Heavenly bamboo (*Nandina domestica*)

- Contains cyanide
- Poisonous to birds
- Toxic to cats and grazers
- Linked to death of cedar waxwings & robins





Avoid Non-native Plants Even Those That Seem Harmless

- Butterfly bush is native to Europe.
- Not one native North American caterpillar uses it.
- Without host plants, caterpillars do not live.
- 90% of all plant eating insect species are specialist – they have an essential relationship with one or a few plant lineages



KEW Botanical Gardens Report 2018

- 21% of the world's plants are in trouble and face potential extinction
- Why is this if we love plants so much?
- Because we fail to understand what a native is and what an invasive is.

Royal Botanic Gardens

Kew

State of the
World's Plants

Royal Botanic Gardens

Kew

**State of the
World's Plants**

2016

People keep planting the next invasive



~83% of the woody invasives in our natural areas come from landscaped areas.

Invasive Species aren't part of a living landscape



05/24/2015 19:17



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It takes ~ 9,000-15,000 (300-500 a day) caterpillars to feed one nest of chickadees!

Caterpillars need native plants!



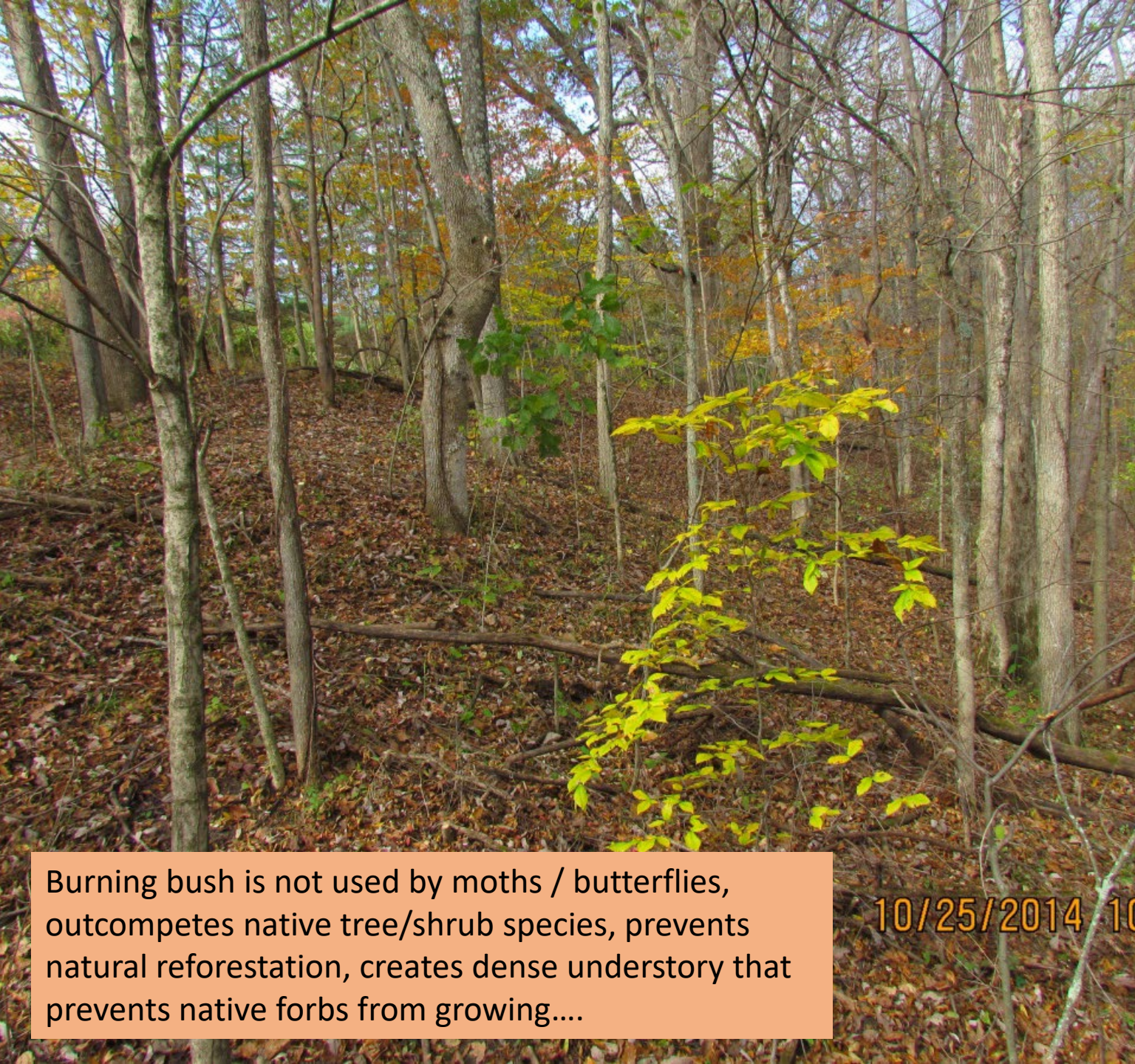
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Japanese spiraea – alteration of woodland habitat.
Nothing eats it, native tree / shrub saplings can grow
through it.





Burning bush is not used by moths / butterflies,
outcompetes native tree/shrub species, prevents
natural reforestation, creates dense understory that
prevents native forbs from growing....

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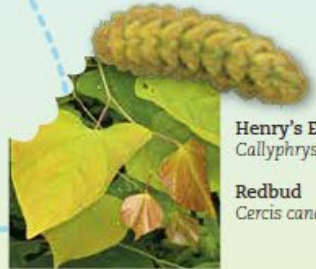


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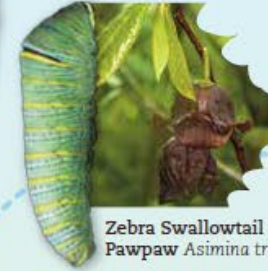
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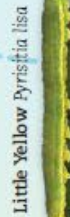
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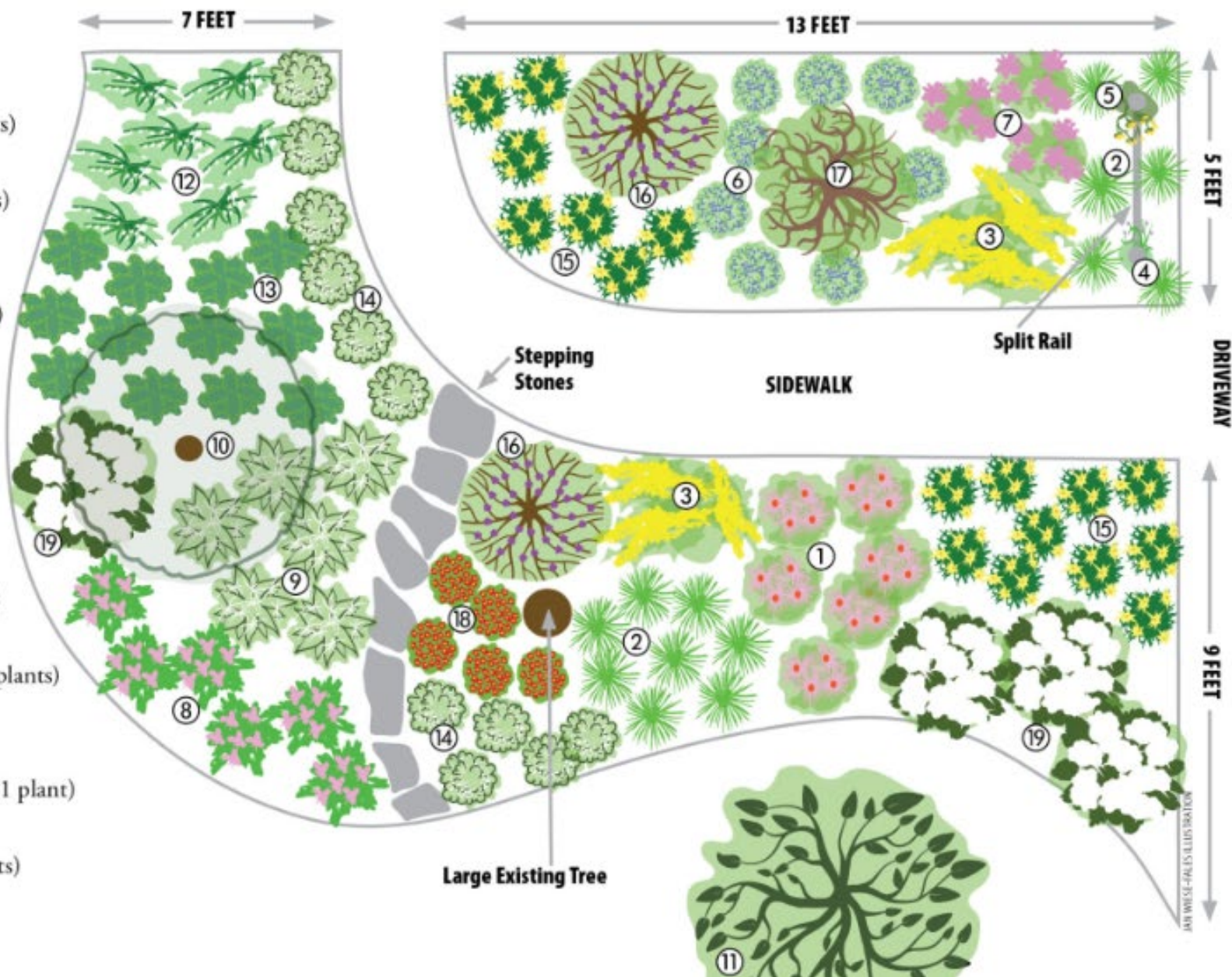


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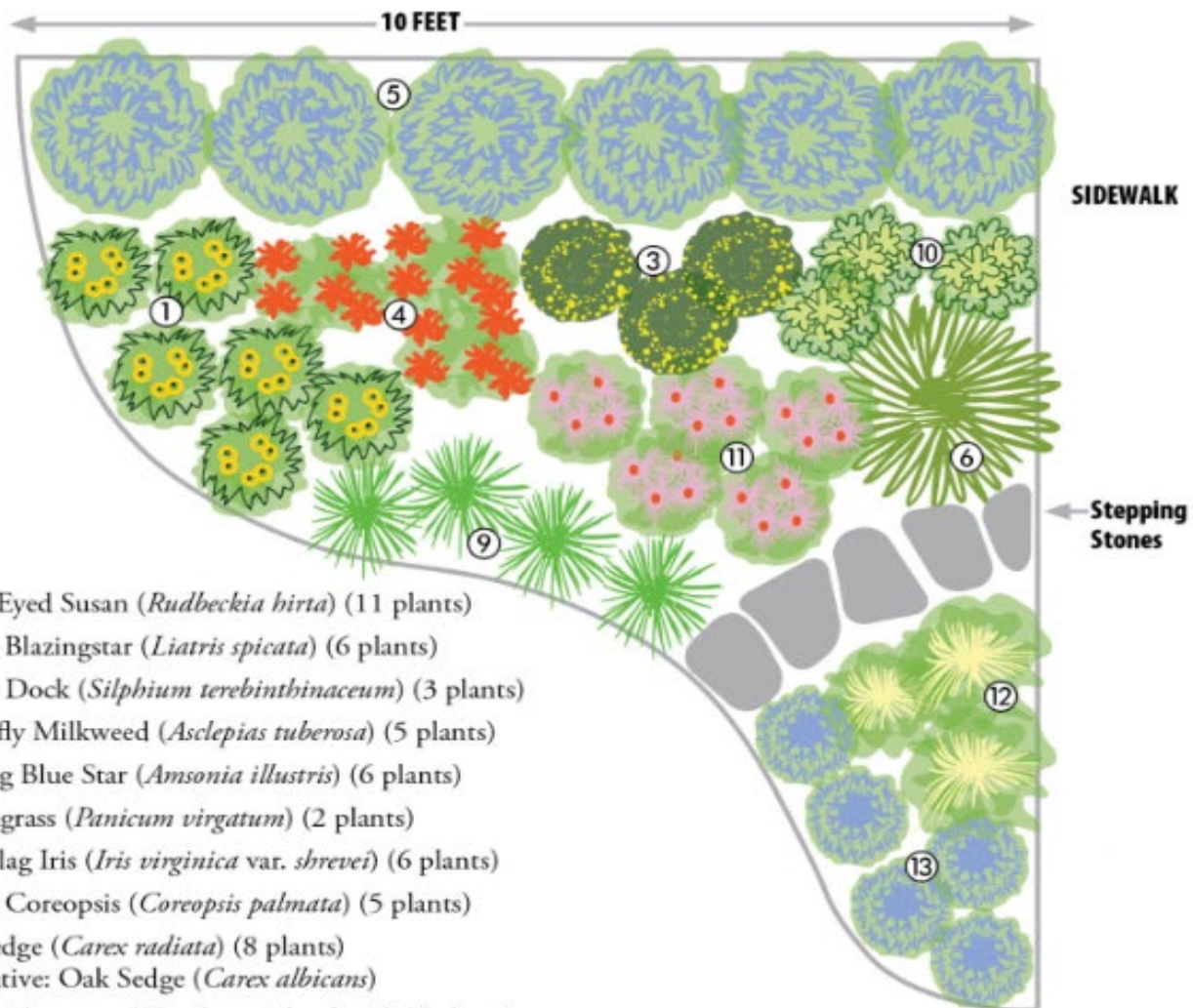
So, what plants do we need? Native Ones.

NATIVE GARDEN DESIGN: FRONT YARD FORMAL SHADE

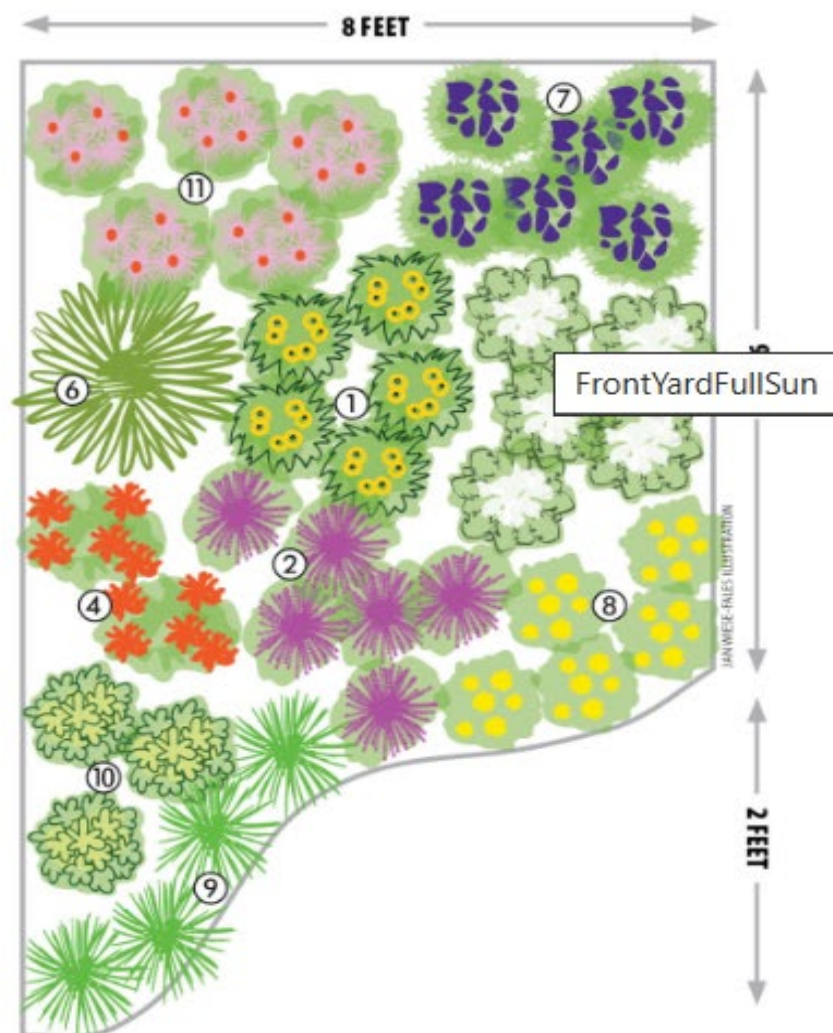
- ① Purple Coneflower (*Echinacea purpurea*) (6 plants)
- ② Oak Sedge (*Carex albicans*) (14 plants)
- ③ Cliff Goldenrod (*Solidago drummondii*) (6 plants)
- ④ Leather Flower (*Clematis pitcheri*) (1 plant)
- ⑤ Yellow Honeysuckle (*Lonicera flava*) (1 plant)
- ⑥ Virginia Bluebells (*Mertensia virginica*) (8 plants)
- ⑦ Purple Milkweed (*Asclepias purpurascens*) (3 plants)
- ⑧ Bradbury's Beebalm (*Monarda bradburiana*) (6 plants)
- ⑨ Goatsbeard (*Aruncus dioicus*) (6 plants)
- ⑩ Red Buckeye (*Aesculus pavia*) (1 plant)
- ⑪ Serviceberry (*Amelanchier arborea*) (1 plant)
- ⑫ Solomon's Seal (*Polygonatum biflorum*) (7 plants)
- ⑬ Sensitive Fern (*Onoclea sensibilis*) (12 plants)
- ⑭ Littleflower Alumroot (*Heuchera parviflora*) (11 plants)
- ⑮ Golden Groundsel (*Packera obovata*) (17 plants)
- ⑯ Beautyberry (*Callicarpa americana*) (2 plants)
- ⑰ Common Witch Hazel (*Hamamelis virginiana*) (1 plant)
- ⑱ Indian Pink (*Spigelia marilandica*) (5 plants)
- ⑲ Wild Hydrangea (*Hydrangea arborescens*) (4 plants)



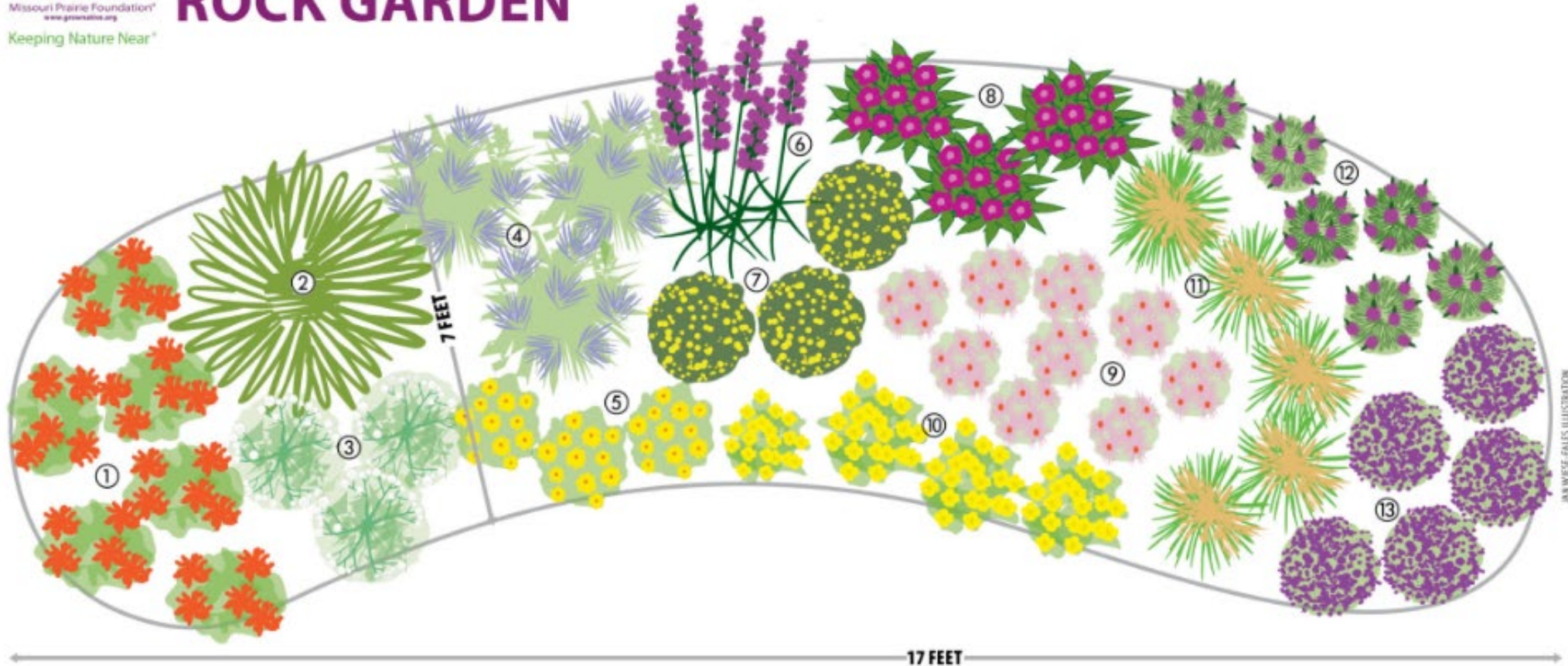
NATIVE GARDEN DESIGN: FRONT YARD FORMAL FULL SUN



- ① Black-Eyed Susan (*Rudbeckia hirta*) (11 plants)
- ② Marsh Blazingstar (*Liatris spicata*) (6 plants)
- ③ Prairie Dock (*Silphium terebinthinaceum*) (3 plants)
- ④ Butterfly Milkweed (*Asclepias tuberosa*) (5 plants)
- ⑤ Shining Blue Star (*Amsonia illustris*) (6 plants)
- ⑥ Switchgrass (*Panicum virgatum*) (2 plants)
- ⑦ Blue Flag Iris (*Iris virginica* var. *shrevei*) (6 plants)
- ⑧ Prairie Coreopsis (*Coreopsis palmata*) (5 plants)
- ⑨ Star Sedge (*Carex radiata*) (8 plants)
alternative: Oak Sedge (*Carex albicans*)
- ⑩ Prairie Alumroot (*Heuchera richardsonii*) (6 plants)
- ⑪ Purple Coneflower (*Echinacea purpurea*) (10 plants)
- ⑫ Yellow Wild Indigo (*Baptisia sphaerocarpa*) (3 plants)
alternative: Blue Wild Indigo (*Baptisia australis*)
- ⑬ Feathery Blue Star (*Amsonia ciliata*) (5 plants)
- ⑭ Slender Mountain Mint (*Pycnanthemum tenuifolium*) (5 plants)



NATIVE GARDEN DESIGN: ROCK GARDEN



- ① Butterfly Milkweed (*Asclepias tuberosa*) (6 plants)
- ② Switchgrass (*Panicum virgatum*) (1 plant)
- ③ Rattlesnake (*Eryngium yuccifolium*) Master (3 plants)
- ④ Leadplant (*Amorpha canescens*) (3 plants)
- ⑤ Lanceleaf Coreopsis (*Coreopsis lanceolata*) (3 plants)
- ⑥ Eastern Blazingstar (*Liatris scariosa*) (5 plants)
- ⑦ Prairie Dock (*Silphium terebinthinaceum*) (3 plants)
- ⑧ Purple Poppy Mallow (*Callirhoe involucrata*) (3 plants)

- ⑩ Missouri Evening Primrose (*Oenothera macrocarpa*) (4 plants)
- ⑪ Prairie Dropseed (*Sporobolus heterolepis*) (5 plants)
- ⑫ Purple Prairie Clover (*Dalea purpurea*) (6 plants)
- ⑬ Purple Beardtongue (*Penstemon cobaea*) (5 plants)



Insects/birds
need native
plants!



Big Bang for Your Buck! Trees and Shrubs Support Many Species

Plant	No of Moth/butterflies Supported	Other pollinators
Oak	>900	Bees
Cherry	456 (host Eastern tiger swallowtail, red-spotted purple and coral hairstreak)	Bees
Redbud	Many to include Henry's elfin	Bees, beetles, flies, wasps
Maples	285	Bees, wasps, flies
Highbush blueberry	288	Bees
American Basswood	150	Bees, beetles, flies, wasps
Maple leaf viburnum	Henry elfin host	Bees, flies
Coralberry	Many	Bees, beetles, flies, wasps



Native mast, nuts and berries



Beautiful Color:
Bonus Redbud
support Henry's Elfin



Moths	
Common Name	Plant Parts
Isabella Tiger Moth	foliage
Pale-Banded Dart	foliage
Small Brown Quaker	foliage
Lost Sallow	foliage
The Asteroid	flowers
Brown-Hooded Owlet	foliage
Burdock Borer Moth	stems
American Angle Shades	foliage
White-Dotted Groundling	foliage
Spotted Straw	flowers
Aster Flower Moth	flowers
Goldenrod Flower Moth	flowers
Sharp-Stigma Looper Moth	foliage
Dimorphic Gray	foliage
Confused Eusarca	foliage
Wavy-Lined Emerald	flowers
Blackberry Looper Moth	flowers
Soft-Lined Wave	foliage
Common Eupithecia	flowers
European Corn Borer Moth	stems
Saddleback Caterpillar Moth	foliage
Tortricine Moth sp.	foliage

HEATH ASTER & OTHER ASTERS





Our gardens....they are not
as isolated as you think –
and they are part of a living
landscape.



Our gardens may
not be a
preserve, but
they are a
neighbor and an
oasis in a sea of
development



Early spring food source for small butterflies, flies and bees

Indiana

Invasives Initiative

Over
6.5
years

>1,400 Outreach Events & ~165 Weed Wrangles® annually

78 Out of 92 Counties Actively Working on Invasive Species Management

60 Invasive Species Identification and Management Workshops

>1,600 Free Private Property Site Visits

>46,500 Acres walked w/ landowners (provided them a list / plan)

45 Established CISMAs, Representing 54 Counties

Volunteer Strike Teams & starting EDRR w/ CISMAs





We go to the solution (counties and communities), and they make local changes for healthy restoration



We listen to them, and share stories



We seek their help (they matter)



We empower people with knowledge, tools and other resources (CISMA, strike teams, training, quarterly mtgs, & more)



We give citizens the spotlight and the praise

Indiana

Invasives Initiative

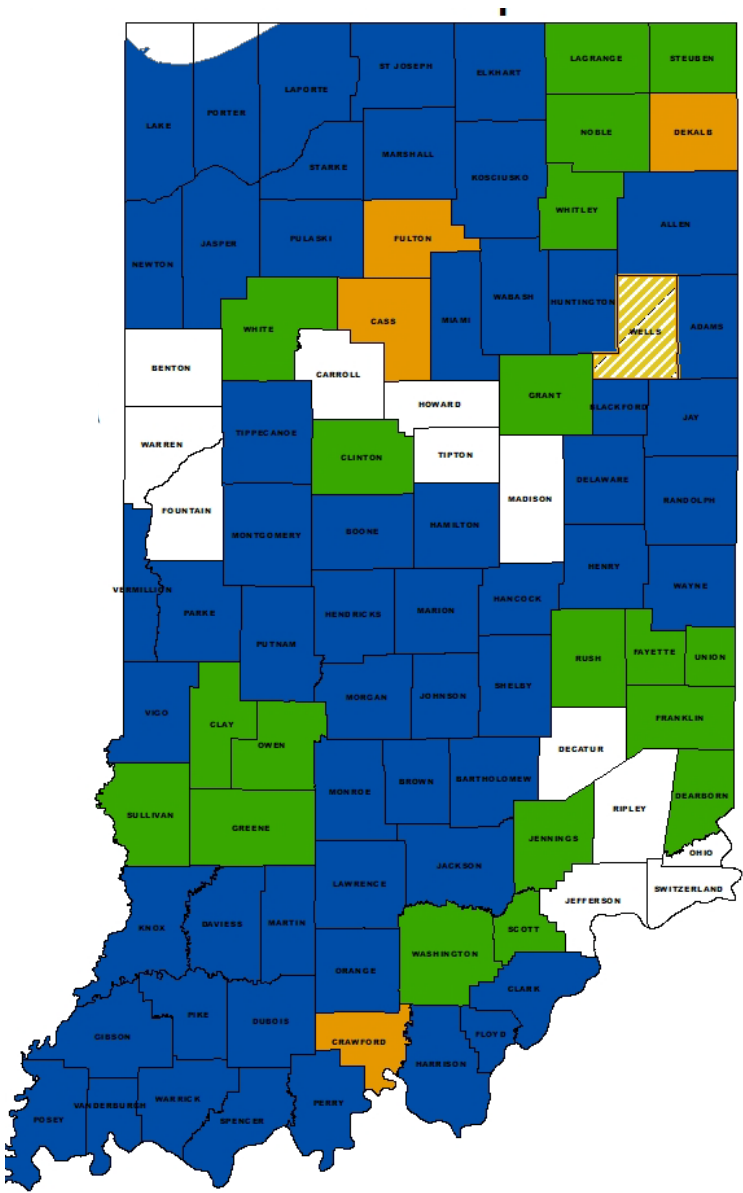
Building

- comradery,
- community spirit,
- a sense of belonging,
- a sense of being part of the solution,
- stories to share,

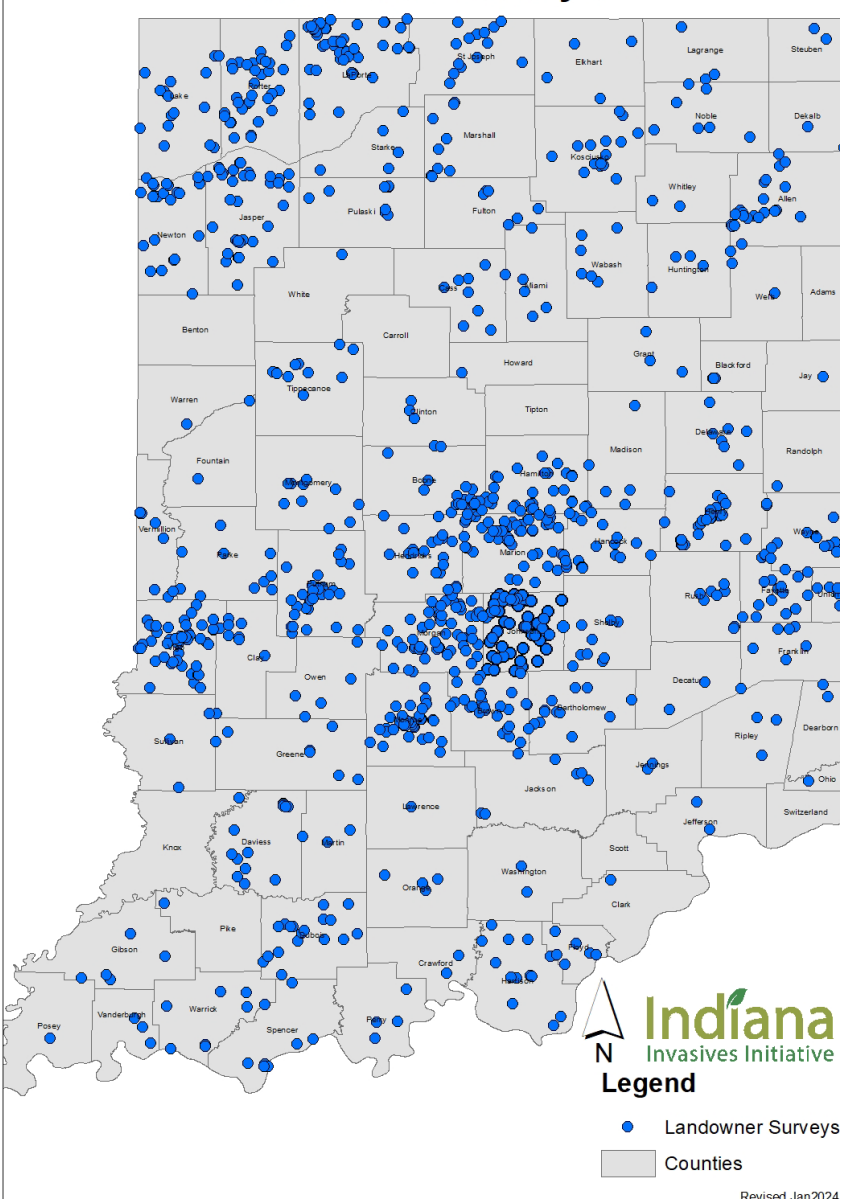
and you feel great afterward!

This is inspiring

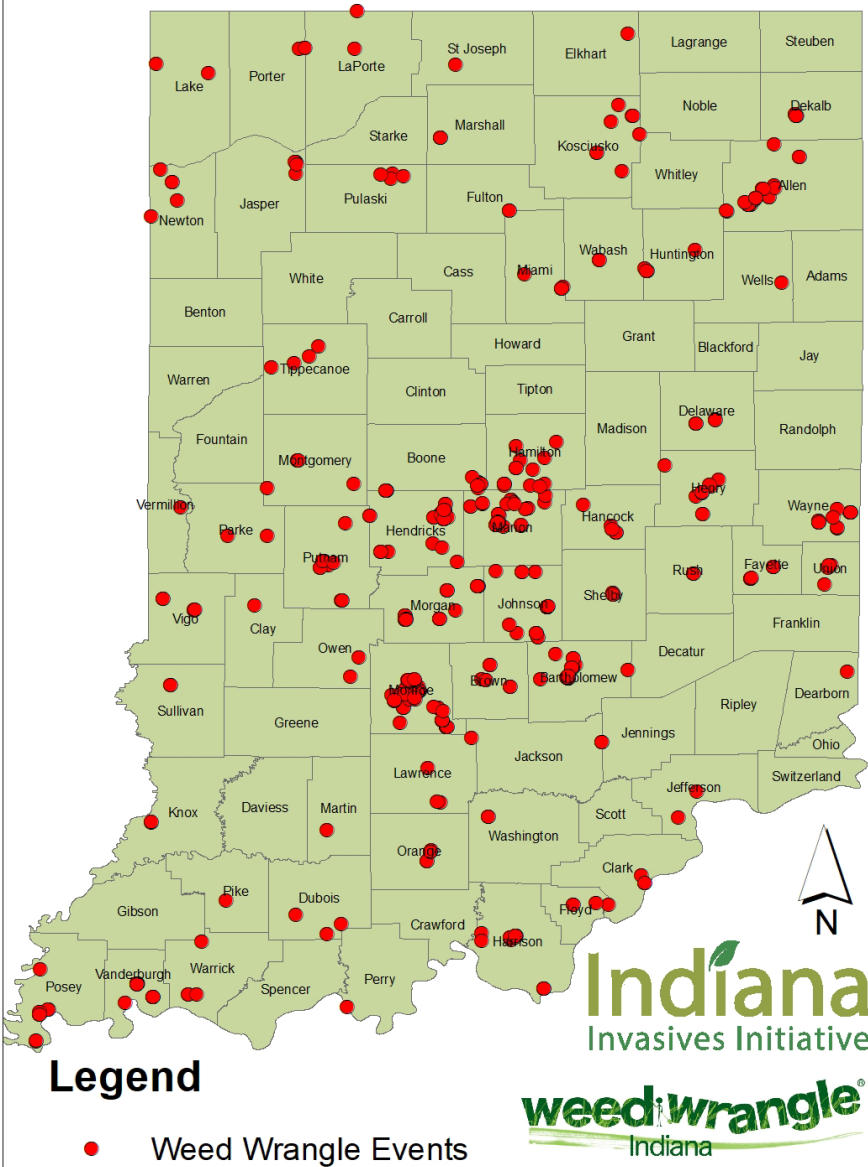
Indiana CISMA Map



Indiana Landowner Survey Map



Indiana Weed Wrangle Map



Revised: Jan 2024

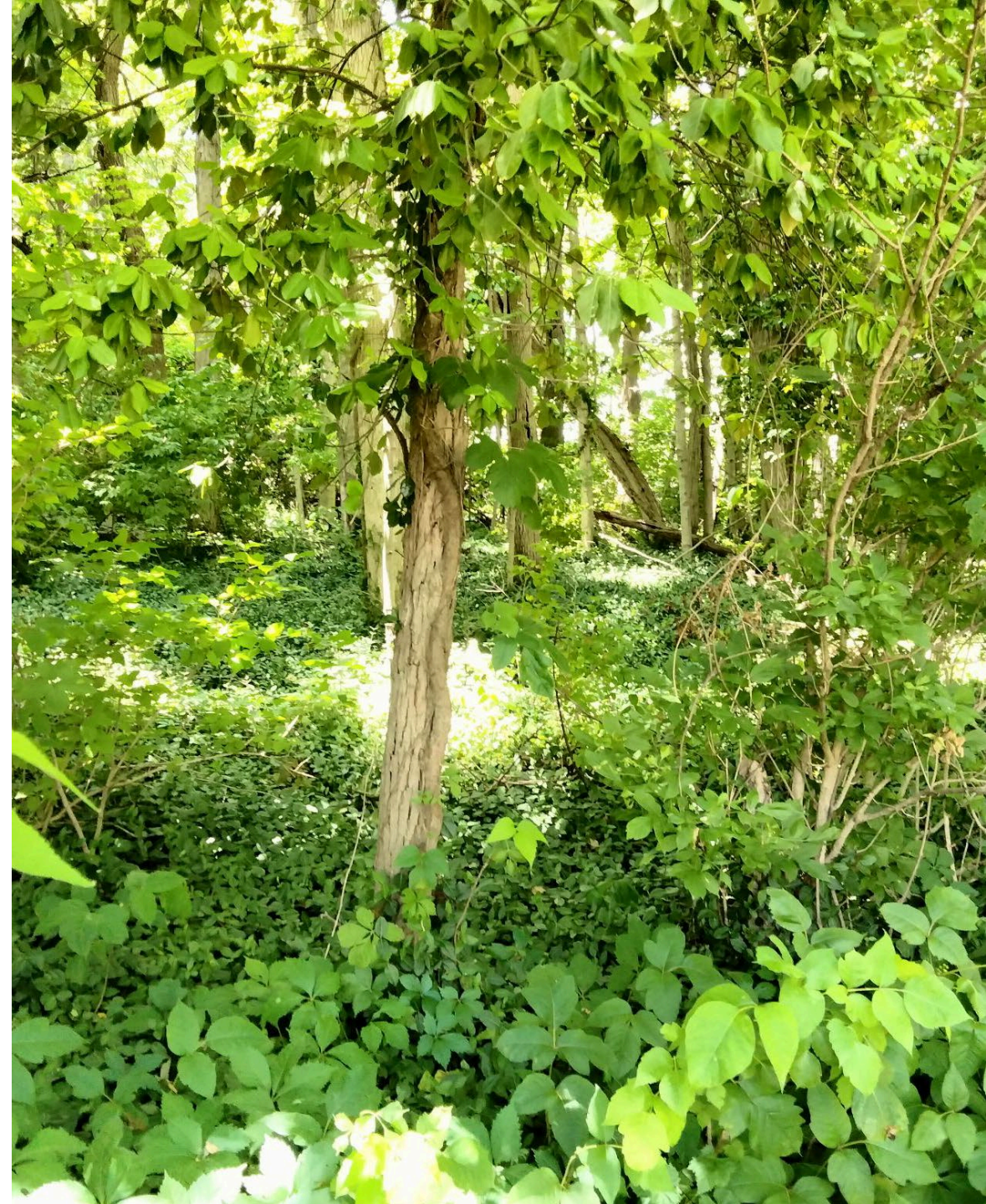
We need your help

We need your gardens to be part of living systems

We need ambassadors

We need leaders

We need to celebrate our N.A. native plants and habitats ...we aren't doing that when we use plants from other places.



Keep landscape plants as local as possible –research what plants are native (phone a friend).
You do for nonnatives...so how about natives?

Indiana Native Plant Society

09/26/2011

A close-up photograph of a white bird with blue markings on its back, perched on a red and white striped bird feeder. The bird is facing downwards, and its beak is pointed. The feeder is cylindrical with a black ring around the middle. The background is a blurred green, suggesting foliage. The text "Let's create like artificial feeders don't exist" is overlaid in white, centered on the image.

Let's create like artificial
feeders don't exist

Thank you for your time
- we look forward to
your partnership and
input

Dawn Slack

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