

# THE IMPACTS OF INVASIVES: WHY NATIVES ARE THE SOLUTION

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HAMILTON COUNTY

INVASIVE SPECIES  
AWARENESS  
WEEK

MAY 15 - 22, 2021



# What we'll cover...

- Native vs invasive
- Why it matters
- Go over some invasive species (quickly)
  - *No management today*
- Introduction to natives as a solution
- Resources

[www.hcinvasives.org/introwebinar](http://www.hcinvasives.org/introwebinar)



PURPLE PASSION FLOWER

*Passiflora incarnata*

**Habitat:** Wood's edge

**Blooms:** Midsummer

**Notes:** Perennial climbing vine, up to 25 ft.; attracts butterflies; hard to find for sale; needs full or part sun and fertile soil

## What is a native species?

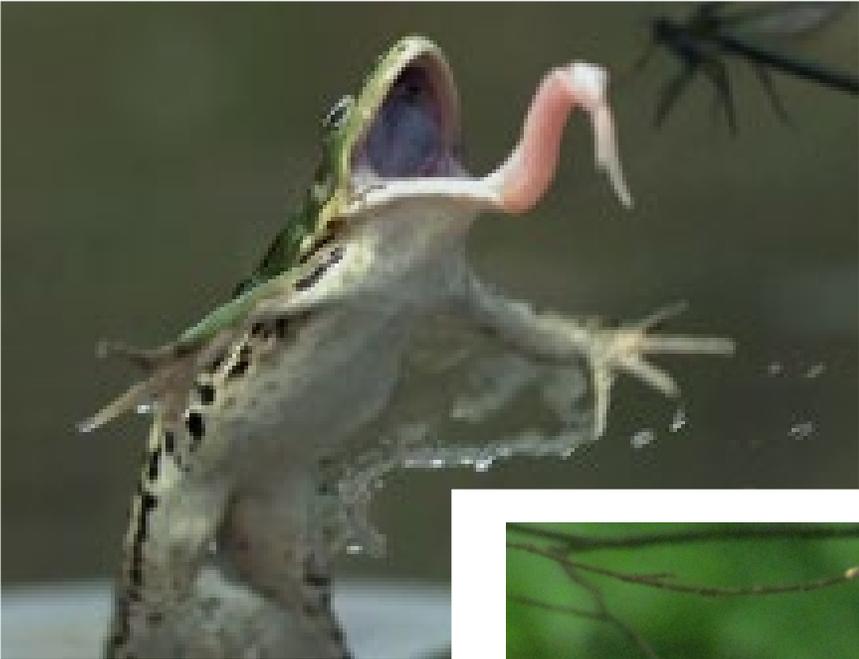
A plant or animal that has evolved in a given place over a period of time sufficient to develop complex and essential relationships with the physical environment and other organisms in a given ecological community (Darke & Tallamy, 2014).



# Do natives really matter?

- Recognize that all species are important – not just keystone species in an ecosystem.
  - All of the blocks in the right places builds strength.
- Specialist vs. generalist
  - Many species on the planet are specialists (Monarchs need milkweed) – therefore native plants are necessary for much of life on the planet.
  - 90% of herbivorous insects are specialists
- It takes a long time to develop enough to exploit a plant effectively (*relationships*).
  - Insects must evolve to find their host amid thousands of other plants and then synchronize their life cycle with the needed parts of the hosts.
  - They must develop the ability to overcome any physical or chemical defenses through behavioral and physiological changes (Tallamy, 2007).

# Natives help insects!



- 37% of wildlife on the planet are herbivorous insects
- 96% of birds eat insects
  - 60% rely completely on insects
  - One clutch of chickadees needs 6000-9000 caterpillars!

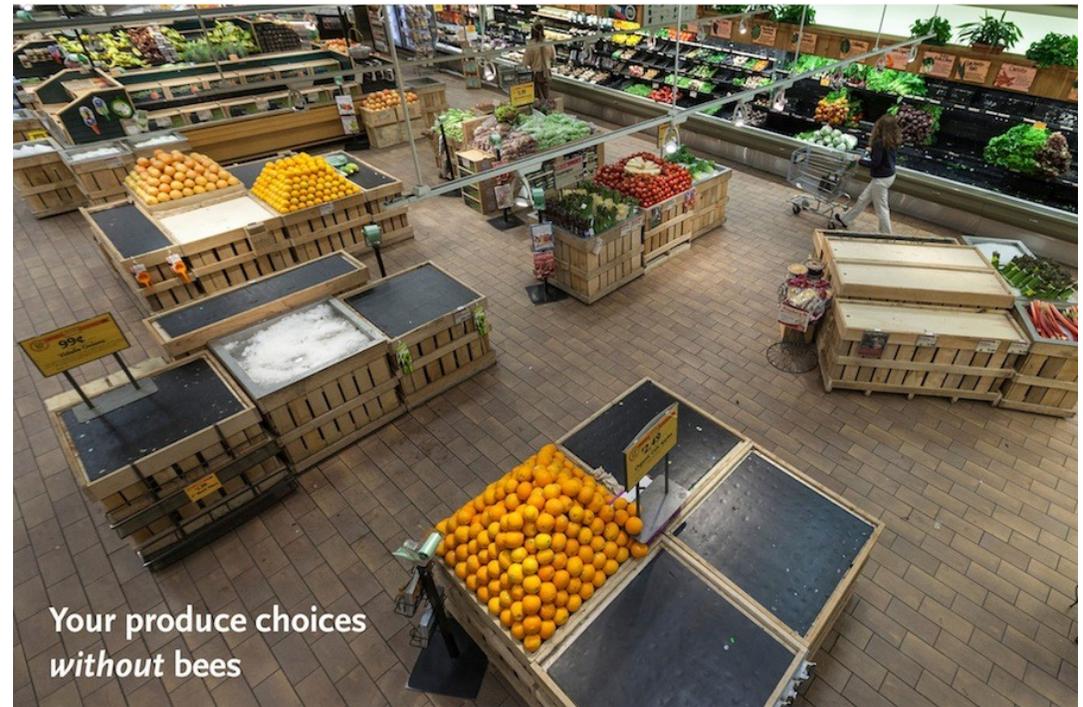
*E O Wilson, "A land without insects is a land without most forms of higher life."*



- Amphibians eat insects
- A 27-year study in Europe found a 75% decline in flying insects over that time period. Proposed cascading effects on food webs and likely to jeopardize ecosystem services.
- Greater structural diversity of plant communities leads to greater insect diversity



- Over 1,000 plants grown for food, beverage, fibers, spices and medicines need to be pollinated by animals to produce goods we depend on.
- One in three mouthfuls directly or indirectly relies on honeybee pollination.
- Apples, blueberries, chocolate, coffee, melons, peaches, potatoes, vanilla, almonds, etc. all depend on pollinators. Pollinators depend on diverse ecosystems with native plants.



# What is an invasive species

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



- 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*
- Occur on over 7 million acres of national park lands (NPS, 2016)
- In 2012, 116 landowners in Indiana spent more than 5 million dollars on invasive species management
- 2<sup>nd</sup> leading threat to endangered species (Nature Serve & USFS)
- 2<sup>nd</sup> leading threat to our forests (Bosworth, 2003)

# Consequences

- Invasives cost the US~ \$138 billion annually
- ~ 25% of IN flora is non-native
- ~ 7 billion dollars in forest products are lost annually in the US due to invasive species
- 42% of endangered species are at risk due to invasive species

Invasives contribute to rapid environmental changes that are currently causing extinction rates to occur faster than evolution of new species.



# Consequences of Use of Invasive Species

- Loss of native food webs & biodiversity
- Alteration of soil chemistry
- Cause erosion
- Alteration of hydrology
- Alteration of microclimate & climate
- Alteration of natural fire regimes
- Loss of ecosystems
- Cause extinction of native species
- Lead to loss of forests & alteration of carbon sequestration
- Cost billions a year to control
- Exploit your neighbor's property (are you that neighbor?)
- Exploit preserves, national parks, state parks , your pollinator plot
- Bring diseases
- Cause human health issues
- Monocultures – decreases nectar species that bloom throughout all seasons
- Loss of plant heritage and plants of cultural significance
- Loss of beauty and unique plants!

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# Bradford / Callery Pear +cultivars



- Multi-branched tree
- Early, white inflorescence
- Small, brownish fruit that persist in winter and spread by European Starlings
- Leaves alternate, simple with small teeth, shiny
- Displacing native tree species

- *Pryus calleryana*- native to China, Taiwan, Vietnam, Korea, Japan. Cultivars are plentiful.
- Supposed to be sterile— close planting of various genotypes, cloning in large quantities, root stock sprouting all led to self-incompatible genotypes readily crossing with each other.





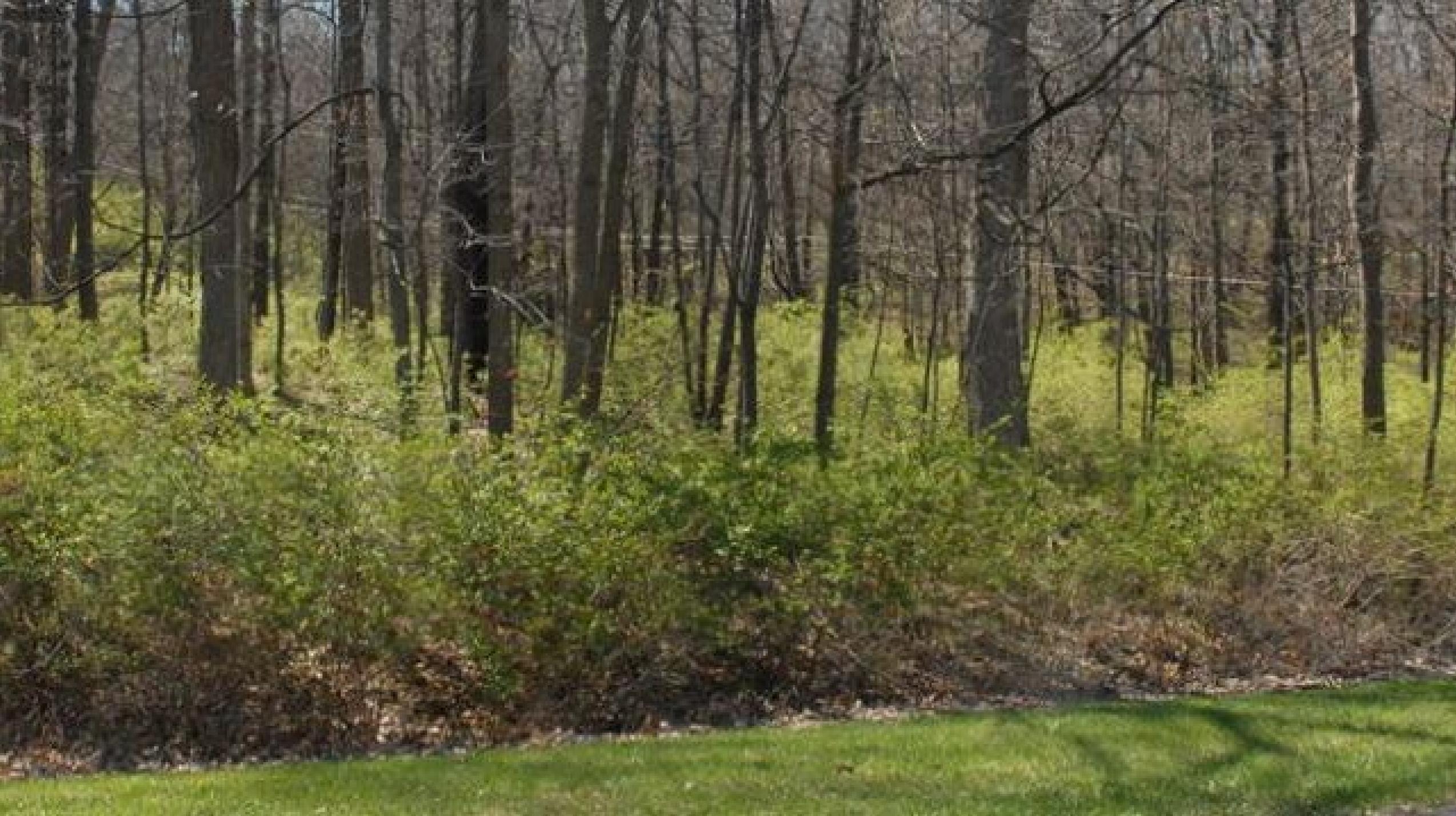
- Extremely fast growing - starts flowering and reproducing from seed at 3 years.
- It flowers and fruits profusely, and birds spread its small fruits and seeds everywhere.
- Weak branch structure and smells!
- Thrive in any un-mowed habitat (roadsides, fields, etc.).
- Very difficult to manage – when naturalized they form sharp spines that can puncture tractor tires.
- Management proving to be unsuccessful.



# Bush Honeysuckle

- Limit forest regeneration
- Decrease tree seedling establishment
- Decrease herbaceous species
- First to leaf out
- Opposite leaf arrangement
- Hollow stems
- Decreases nesting sites for birds, decreases reproductive success





# Burning Bush

- Large shrub, popular in landscape plantings due to brilliant fall red color.
- Inconspicuous flowers April-June.
- Opposite, dark green leaves <2 inches long. Smooth, rounded & taper at tips.



**Mine  
isn't  
spreading!**





## Japanese barberry

- Forms large thickets & invades forests and savannas
- Leaf litter alters soil chemistry
- Link to Lyme Disease
- Burgundy leaf color
- One thorn in leaf axil
- Alternative leaf arrangement
- Leaves have rounded teeth



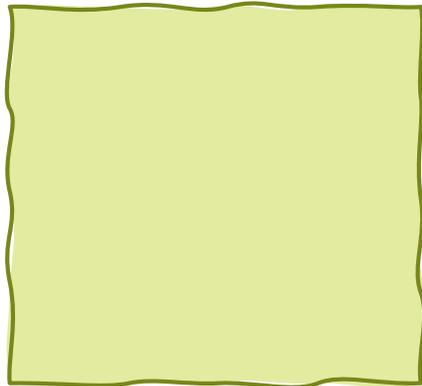
Barberry thickets ⇒ thorns ⇒ habitat for mice ⇒ ticks



# Winter Creeper

- Vines climb 40-50 ft., killing shrubs and trees
- Forms thick carpets blocking germination of native species
- Woody vine
- Opposite leaf arrangement
- Glossy oval leaves with tiny teeth on edges
- Green stems all year

# Sweet autumn clematis

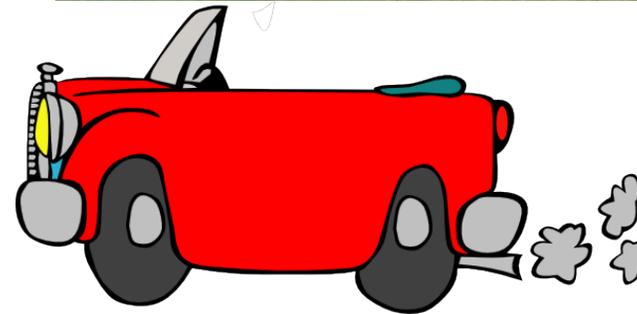


- Evergreen to semi-evergreen vine- forms large thickets.
- Seeds are wind dispersed.
  - Highways and great places to spread wind-dispersed seeds.
- Climbs over other vegetation, smothering it.
- Leaves are rounded and not as toothed as native clematis
- Four petaled white flowers develop in late summer to fall
- Pleasant odor
- Wildly popular and shared



# Quick note– turf! Not invasive but certainly not native

- Increased use of non-native plants in landscape
- We've converted habitat to sterile environments.
  - Over 40 million acres of turf grass in US
  - 30- 70% of household water use in high season
- Sterile ecologically and resource intensive (time, air quality, high inputs)
- Also contributes to water quality issues– fertilizers, herbicides, gasoline, etc. wash away.
  - The EPA estimates that over 17 million gallons of fuel, mostly gasoline, are spilled each year while refueling lawn equipment.



1 hour of mowing  
= air pollution of  
100 mile car trip

So, what's the solution?

Plant diversity, insect diversity,  
wildlife diversity

**NATIVES!!!**



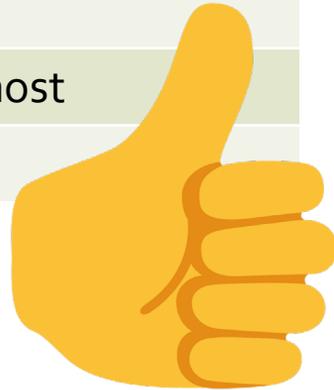


Plant	No of Moth/butterflies Supported	Other pollinators
Oak	534	Bees
Cherry	456 (host Eastern tiger swallowtail, red-spotted purple and coral hairstreak)	Bees
Redbud	Many	Bees, beetles, flies, wasps
Maples	285	Bees, wasps, flies
Highbush blueberry	288	bees
American Basswood	150	Bees, beetles, flies, wasps
Maple leaf viburnum	Henry elfin host	Bees, flies
Coralberry	Many	Bees, beetles, flies, wasps

Natives are the solution

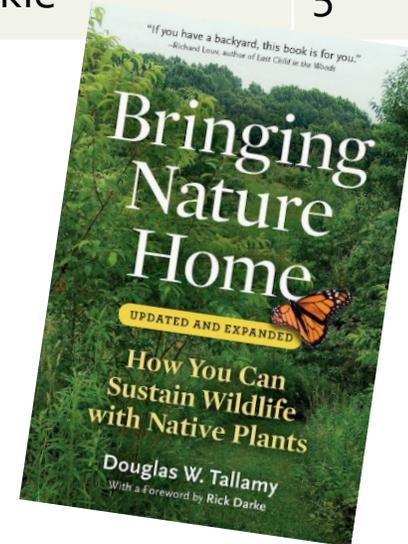
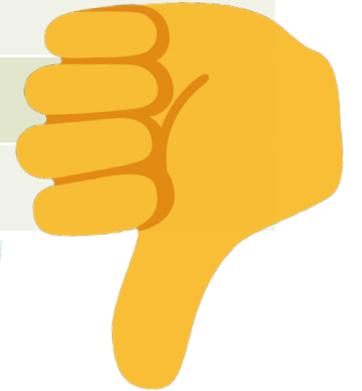


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Natives are the solution

Invasive species	# of insects found utilizing
Tree of Heaven	2
Clumping bamboo	1
Kudzu	4
Russian Olive	9
Mimosa and Ginko	5
Bush honeysuckle	5



# You Make A Difference



- Our choices at home make a difference!
- Sharing the message with others is important
- Choose to Grow Native & be as local as possible!

# Create & preserve *healthy, diverse* habitat



*possible on all scales*



# Landscaping with native plants & attracting pollinators

- Can be as natural or manicured as you want
- Small areas or your whole yard
- Taller plants in back or against building/fence, shorter plants in front.
- Clumps of 3+, odd numbers, & repeat groupings, color and shape
- Stagger plantings vs. rows
- Mix in hardscape
  - Boulders, etc.



# Landscaping with native plants

- ▶ Plugs or plants for instant gratification
- ▶ Seed for a natural, meadow look
- ▶ More resources online:
  - ▶ [www.hamiltonswcd.org/siteprep](http://www.hamiltonswcd.org/siteprep)
  - ▶ [www.hamiltonswcd.org/pollinatorgardens](http://www.hamiltonswcd.org/pollinatorgardens)



# Public perception of native plants

- Maintenance
  - Low maintenance, not no maintenance
  - Have a defined border
  - Mulch
- Educate
  - Certifications/Signage
  - Identification tags

*Check covenants and ordinances*









Great for schools, churches, HOA common areas, etc.

# Large pollinator gardens

- Chemical treatments, watering, and mowing large turf grass areas wastes time, money, and resources!
- Go from a sterile turf lawn to an ecologically diverse and visually interesting prairie or meadow! Education and recreation asset!
- BIG cost savings– Ridgefield in Fishers saved \$30,000 in first 5 years



# Double the benefits with rain gardens, pond plantings





Why Do This?



When You Can Have This?

# Holes in leaves? It's working!

- Remember– we're trying to attract insects and pollinators so seeing some “damage” on your plants is a good thing! It shows they are being utilized as food sources for insects.
- Avoid pesticides and insecticides and help change the perception that plants must be 'bug free'.



# Finding native plants

- Collect your own seed!
- Try to purchase from reputable sources
  - 2013 study of plants from “big box” home & garden stores found that more than half were treated with persistent neonicotinoids
- Ask questions
- Ask for natives at local nurseries
- Local sources
- [www.hamiltonswcd.org/where-to-buy-native-plants](http://www.hamiltonswcd.org/where-to-buy-native-plants)
- [www.GrowIndianaNatives.org](http://www.GrowIndianaNatives.org)



**Invasive Species**

**PEAR SPECIES - PYRUS CALLERYANA**

- Multi-branched tree 30-50 feet tall and 20-30 feet wide
- Early spring white inflorescence before leaves emerge
- Leaves are deciduous, alternate, simple, ovate, 1½-3 inches long, shiny dark green and leathery with small round-toothed margins turning scarlet to purple hues in fall
- Small, brownish fruit that persist in winter and is spread by birds
- Native to southeast Asia. Cultivars are plentiful. Originally cloned for fire blight resistance

• Supposed to be sterile but close planting of various genotypes, cloning in large quantities and root stock sprouting all led to self-incompatible genotypes readily crossing with each other

**HIP**

**Native Alternative**

**NATIVE ALTERNATIVES PEAR SPECIES**

**Flowering Dogwood** (*Cornus florida*)  
Small tree 15-30' high, large showy flowers in spring, red berries in fall are loved by birds, colorful red fall foliage, year-round interest, full sun to partial shade, medium well-drained soil, wide variety of cultivars available

**Serviceberry** (*Amelanchier laevis*, *A. arborea*)  
Small, attractive, multi-stem tree 15-40' high, showy and fragrant early spring flowers, red-purple berries loved by birds in June, orange to red fall color, full to partial sun, dry to medium wet soil, year-round interest, good street tree

**Redbud** (*Cercis canadensis*)  
Small, broadly-spreading tree 20-30' high, stunning pink-purple blooms in spring, full sun to part shade, medium to moist soil will tolerate clay, unique heart-shaped leaves turn pale greenish-yellow in fall, does well in urban areas

**ASIAN BUSH HONEYSUCKLE - LONICERA MAACKII**

- Upright deciduous shrub ranging from 6-20' at maturity with arching stems
- Leaves are opposite, simple, oval, untoothed and are the first to leaf out in spring and the last to drop leaves in the fall
- Tubular, fragrant flowers are paired along stems and bloom in the spring
- Small berries (1/4" round) containing multiple seeds are paired along stems and range in color from orange to red. Seeds are dispersed by birds and mammals

**NATIVE ALTERNATIVES ASIAN BUSH HONEYSUCKLE**

**Northern Bush Honeysuckle** (*Diervilla lonicera*)  
Small shrub 3-4' high with toothed leaves, dainty yellow flowers that bloom in summer are loved by bees, brilliant fall color, sun to shade, dry to medium soil, numerous cultivars available in horticultural trade

**Coralberry** (*Symphoricarpos orbiculatus*)  
Small shrub 2-4' high with attractive foliage, greenish-yellow flowers in spring, vibrant reddish-purple berries in fall that persists through winter proving food for birds, full to partial sun, medium dry to medium wet soil, many cultivars available

**Winterberry** (*Ilex verticillata*)  
Small to medium sized shrub 3-12' high, inconspicuous greenish-white flowers in late spring, showy fall berries

# Hamilton County Invasives Partnership

- Resources and information on invasive species, natives, and management/control strategies
- Education and Technical committees
- Tool Loan program (via SWCD)
- Strike Team
- Volunteer Opportunities
  - Weed Wrangles this Saturday!
    - Dillon Park (Noblesville)
    - Cool Creek (Carmel)

[www.hcinvasives.org](http://www.hcinvasives.org)



## Our Mission

*The Hamilton County Invasives Partnership is a coalition whose mission is to mobilize land stewards to manage and eliminate invasive species in Hamilton County. We will do this through education and encouraging action.*





    
@hcinvasives

**HAMILTON COUNTY**  
*Soil & Water*



**CONSERVATION DISTRICT**



**Hamilton Co. Invasives Partnership**

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