



Supporting Pollinators in Woodlands



Lacey Smith, Northeast Regional Partner Biologist
Pollinator Partnership (P2) and USDA NRCS

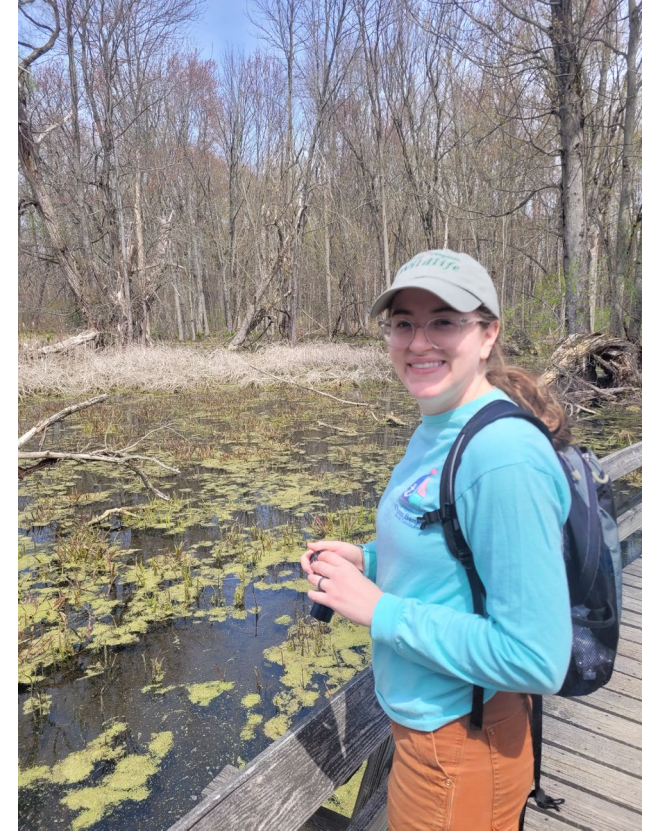
Pollinator Partnership

- Pollinator Partnership (P2) is the world's largest nonprofit dedicated exclusively to the health of pollinating animals. For 25 years, P2 has supported pollinators through conservation, research, education, and collaboration.
- P2's mission is to promote the health of pollinators, which are critical to food and ecosystems.
- Visit www.Pollinator.org to learn more about P2, pollinator conservation resources, and available programs!



Natural Resources Conservation Service (NRCS)

- P2 is working with NRCS to provide pollinator related support through Partner Biologists.
- Partner Biologists work joint capacity with NRCS to provide pollinator related support to NRCS staff, producers, partners, and landowners/clients on private lands.
- I am based in Cortland/Syracuse area and provide support in New York and the Northeast.



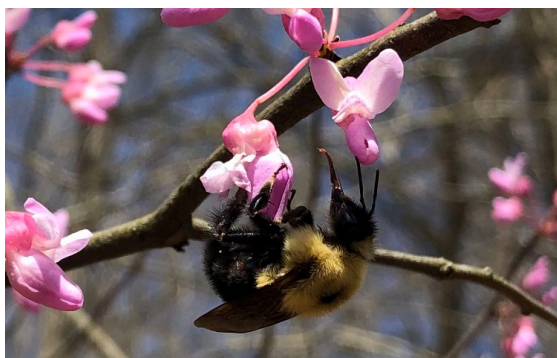
What is a Pollinator?

- A pollinator is an animal or insect that transfers pollen from one plant to another.
- The movement of pollen from the male part of a flower (stamen) to the female part (stigma) of a flower is called pollination.
- Pollination is needed to produce viable seeds, fruits, and the next generation of plants.
- Example of pollinators: Bees, flies, beetles, moths, butterflies, wasps, bats, and birds.

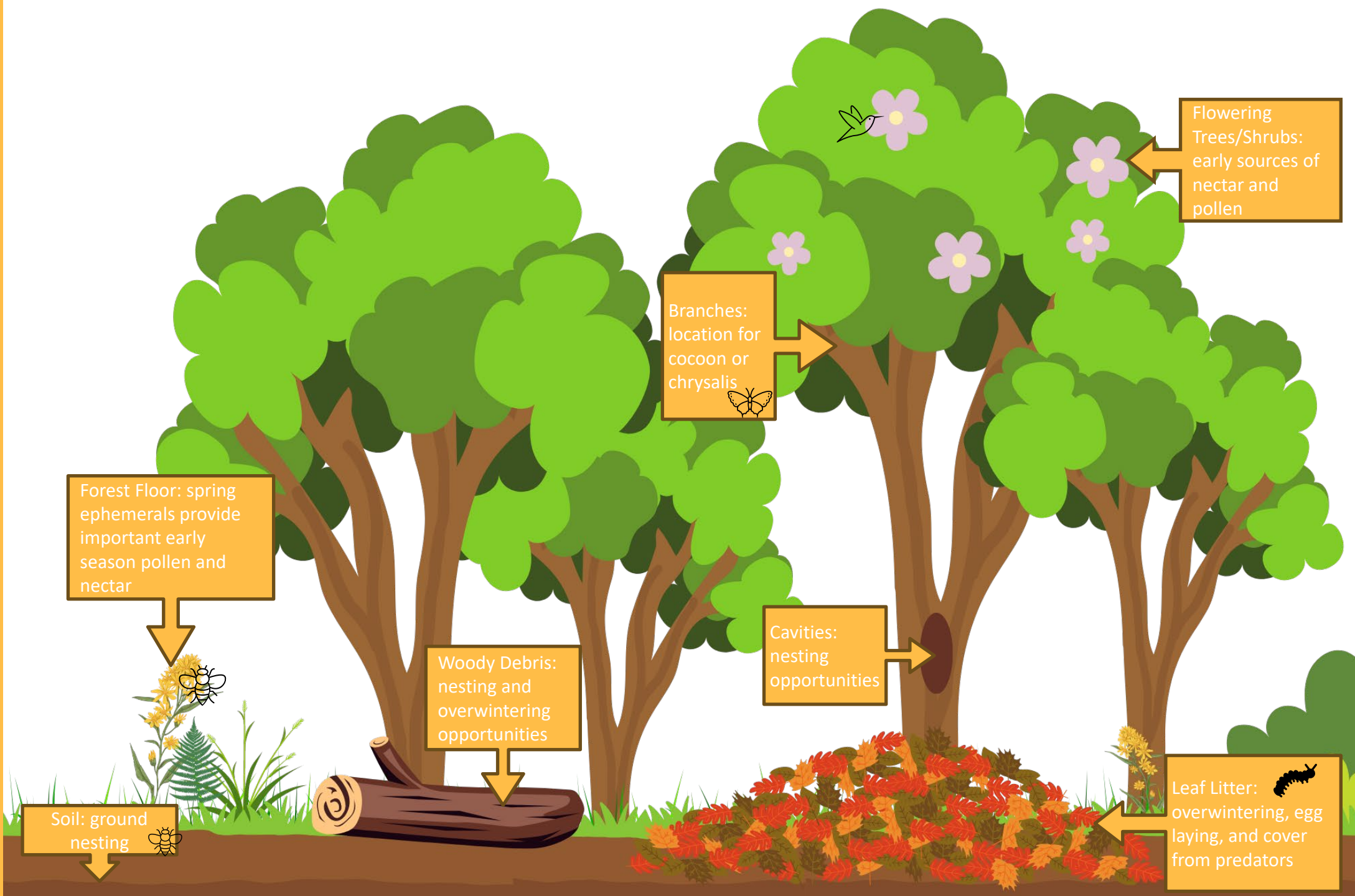


Why Manage Forests for Pollinators?

- Forests provide many early blooming species:
 - Spring ephemerals
 - Early blooming trees and shrubs
- Many moths and butterflies depend on trees as caterpillars.
- Pollinators ensure plant diversity
 - A diverse community is more productive, healthier, and cycle nutrients more efficiently



Woodlands for Pollinators



Importance of Pollinators



Pollinators provide vital ecosystem services to crops and wild plants. Over 80% of the world's blooming plants require animal pollination for successful reproduction¹



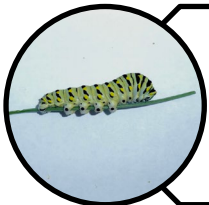
Pollinators contribute between \$308-\$439 million per year to New York's economy²



Pollinator diversity = Plant diversity



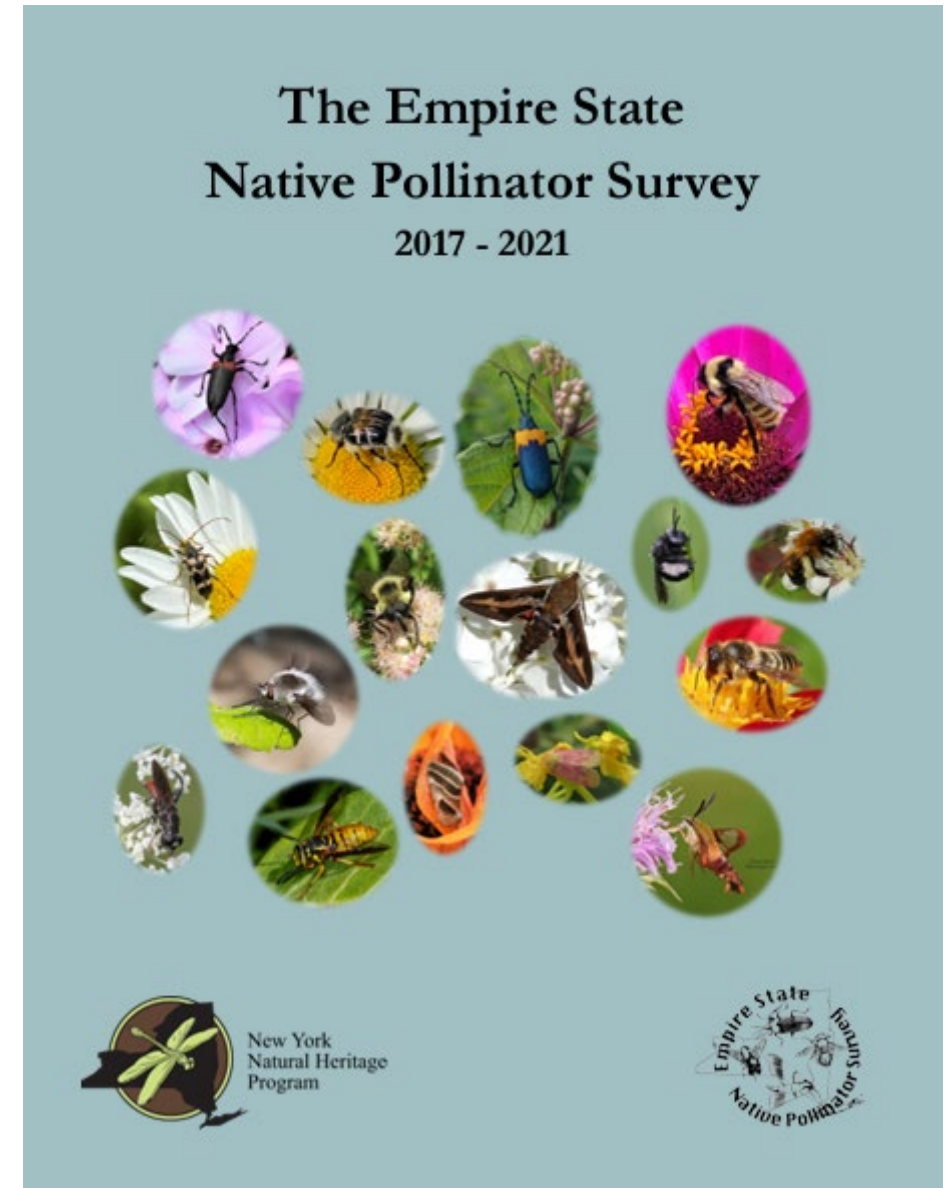
Fruits and seeds created from successful pollination provide food for wildlife



Pollinators are also a food source for wildlife, especially birds

Pollinators are in Decline

- Managed and native pollinators are facing pressure from invasive species, pathogens, loss of habitat, and improper use of pesticides.
- According to the Empire State Native Pollinator Survey (ESNPS)³, 38% of New York's native pollinators are at risk of extinction. Under worst-case scenarios, 60% may be at risk.
 - The ESNPS reported that flies and bees were the groups with the greatest proportion of species at risk.



<https://www.nynhp.org/projects/pollinators/>

How Can We Help Pollinators in Woodlands?

1. Remove Invasive Plants

- a. Use Pesticides Responsibly

2. Reduce Deer Browse

3. Choose Native Plants

- a. Select native trees and shrubs that support our native caterpillars.
- b. Select native flowering trees and shrubs to support bees and other beneficial insects.
- c. Select native trees and shrubs that support a pollen specialist (a pollen specialist will collect pollen from only one species, genus, or family).

And NRCS has programs to help tackle these challenges with financial and technical assistance!

1. Invasive Plants

Species composition

- Displace native species
- Threaten rare and endangered species
- Negatively impact food web

Just because it blooms and provides forage, does NOT make it a good!

Forest Floor

- Decrease litter depth
- Impact microbial composition
- Change nitrogen and carbon dynamics

A study in PA (2019) estimated an annual direct economic impact of \$42.6 million statewide from spotted lanternfly (SLF) damage⁴.

Social Impacts

- Decrease tourism
- Costs of control
- Increase non-native pests

SLF damage is predominantly high on nursery operators, fruit growers (especially grapes), and Christmas tree growers.



Photo: Nick Sloff, Penn State


Use Pesticides Responsibly

- Use an Integrated Pest Management (IPM) strategy and only utilize pesticides when other management practices have failed to yield results.
- Avoid spraying undesirable plants while they are in bloom. This will help decrease the likelihood of a pollinator ingesting or transporting treated pollen back to the nest.
- Be cautious with systemic pesticides. These can impact pollinators that forage on any part of the plant (pollen, nectar, leaves, etc.) and so they can impact leaf munching caterpillars and flower visitors.
- Always follow the label directions and give special attention to the “Environmental Hazards” section of the label.
- Apply herbicide as close as possible to the targeted plant to reduce/minimize drift spray.
- Checkout the handout *Protect Pollinators Read Pesticide Labels* in your Pollinator Packet for more information.




PROTECT POLLINATORS READ PESTICIDE LABELS



Four steps to reading a pesticide label to reduce risk to pollinating insects



1. OPEN THE LABEL.
STEP 1 - See if product is toxic and has more than 8 hour residual contact toxicity in the **ENVIRONMENTAL HAZARDS** statement.
STEP 2 - Look for general and crop-specific directions under **DIRECTIONS FOR USE.**



2. BEE TOXIC PESTICIDES will be indicated by the phrase **"TOXIC"** or **"HIGHLY TOXIC TO BEES"**. If toxic:


→


don't spray when in bloom wait until over 80% of petals fall

ENVIRONMENTAL HAZARDS

This pesticide is toxic to mammals, birds, fish and aquatic invertebrates.

This product is **highly toxic** to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are **actively foraging** the treatment area.

DIRECTIONS FOR USE

Protection of Pollinators
APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER POLLINATING INSECTS.

Tree Nuts (Crop Group 14-12)

Pest	(oz/acre)
Aphids	0.75 - 1.5 (0.023 - 0.047 lb/acre)
San Jose scale	2.75 (0.086 lb/acre)

Advisory Pollinator Statement: Notifying known beekeepers within 1 mile of the treatment area 48 hours before the product is applied. The RT25 for this product is less than or equal to 3 hours.

Restrictions:
Do not apply this product any time between 3 days prior to bloom and until petal fall.

3. Some bee-toxic pesticides BREAK DOWN IN A FEW HOURS. Learn if these pesticides can be applied at bloom in the evening:

1. "FORAGING" or "VISITING" = remains toxic for more than 8 hours. **DON'T APPLY TO FLOWERING PLANTS!**

2. "ACTIVELY FORAGING" or "ACTIVELY VISITING" = remains toxic for less than 8 hours **ONLY APPLY IN THE EVENING WHEN BEES ARE NOT ACTIVE!**

4. GENERAL AND CROP-SPECIFIC USE DIRECTIONS

Newer labels have **additional precautions** for using products around honey bees. Here you will find what practices to follow to keep bees safe and/or **restrictions around whether a pesticide can be applied around crop bloom time.** Instructions **may apply to all crops, or include crop-specific restrictions.** The label may also specify a value **RT25**, a measure of the time that field weathered residues remain toxic to bees on contact with foliage.

www.pollinator.org/pesticide-education

Graphic by Iris Kormann and Andony Melathopoulos - Oregon State University; Rose Kachadoorian and Gilbert Uribe - Oregon Department of Agriculture
Text on reverse of card by the NAPPC Pollinator Health Task Force



Brush Management (314)

The management or removal of woody (non-herbaceous or succulent) plants including those that are invasive and noxious.

- Tree of heaven (*Ailanthus altissima*)
- Multi-flora rose (*Rosa multiflora*)
- Autumn olive (*Elaeagnus umbellata*)
- Privet (*Ligustrum* sp.)
- Common buckthorn (*Rhamnus cathartica*)
- Bush honeysuckle (*Lonicera tatarica*),
- Amur honeysuckle (*Lonicera maackii*), Morrow honeysuckle (*Lonicera morrowii*)
- Japanese honeysuckle (*Lonicera japonica*)
- Japanese barberry (*Berberis thunbergia*)
- Asian bittersweet (*Celastrus orbiculatus*)
- Grapevine (*Vitis* sp.)



Herbaceous Weed Treatment (315)

The removal or control of herbaceous weeds including invasive, noxious, prohibited, or undesirable plants.

- Garlic mustard
- Swallowwort
- Lesser celandine
- Japanese stilt grass
- Mugwort
- Poison hemlock
- Japanese knotweed
- Kudzu
- Wild parsnip
- Mile-a-minute

2. Reduce Deer Browse

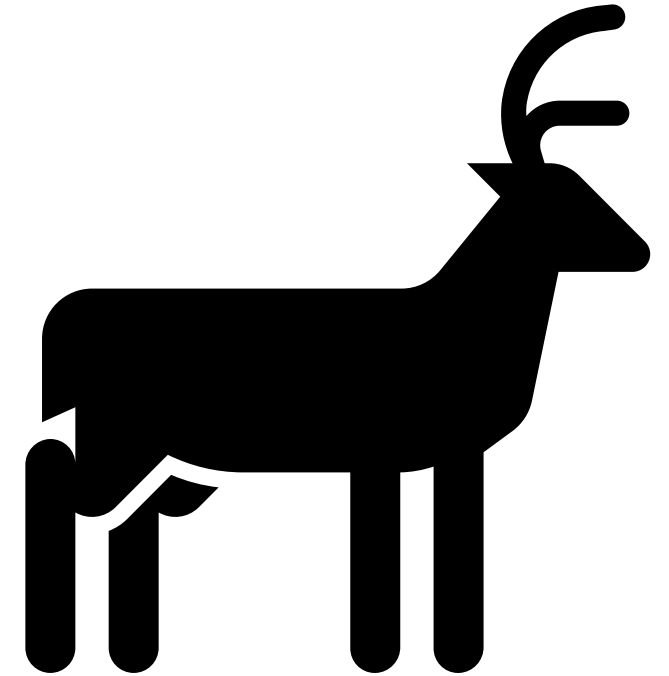


Without Deer

With Deer

Why Control Deer Browse?

- Deer prefer native plants over non-native plants
 - Deer reduce native plant richness and abundance
- Deer benefit certain invasive plants
 - Japanese stiltgrass, garlic mustard, and tree of heaven



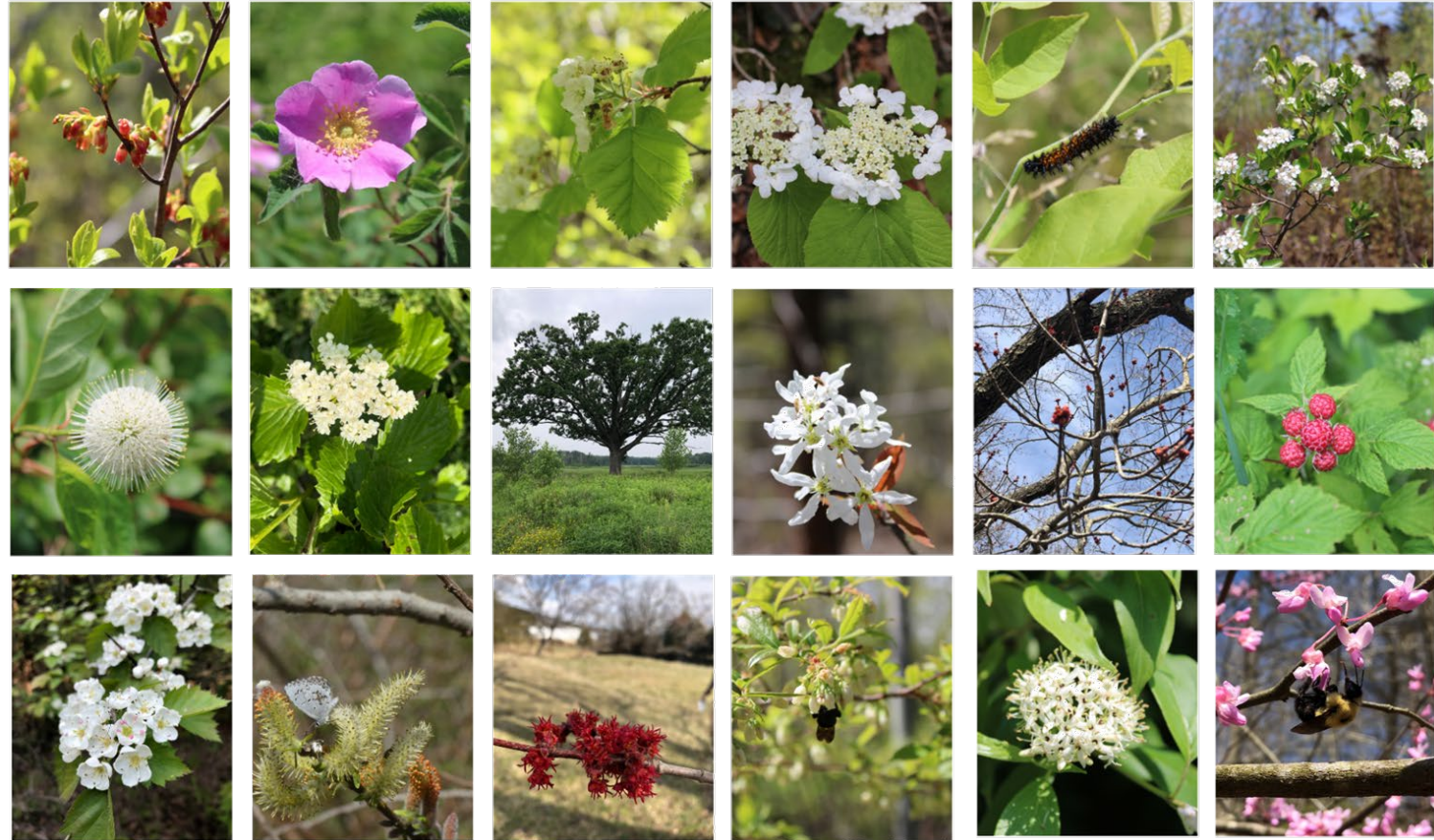
Access Control (472)

The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.



3. Choose Native Plants

- Why choose native plants?
 - Native plants attract and support more native pollinators.
 - Native plants can support ALL stages of a pollinator's lifecycle.
 - Native plants are naturally adapted to local soils, climate, and conditions.



Supporting Pollinators with Native Trees and Shrubs

1. Select native trees and shrubs needed by our native caterpillars.
2. Select native flowering trees and shrubs to support bees and other beneficial insects.
3. Looking to go the extra mile? Select native trees and shrubs that support pollen specialists.
 - A pollen specialist will collect pollen from only one species, genus, or family.
 - **Always select trees and shrubs that correspond with your site (soil, moisture needs, sunlight availability, etc.).**

Native Trees and Shrubs for Lepidoptera

Tallamy and Shropshire⁵ performed an extensive search of host plant records to rank vascular plants in the mid-Atlantic region by their ability to support lepidoptera species (moths/butterflies) as host plants.

They found that woody plants supported more species of moths and butterflies than herbaceous plants AND that native plants support more leps than introduced woody ornamentals.

Top Genera

- | | |
|----------------------------------|-----------------------------------|
| 1. Oak (<i>Quercus</i>) | 6. Maple (<i>Acer</i>) |
| 2. Willow (<i>Salix</i>) | 7. Blueberry (<i>Vaccinium</i>) |
| 3. Cherry/Plum (<i>Prunus</i>) | 8. Crabapple (<i>Malus</i>) |
| 4. Birch (<i>Betula</i>) | 9. Alder (<i>Alnus</i>) |
| 5. Poplar (<i>Populus</i>) | 10. Hickory (<i>Carya</i>) |

PLANT GENUS	COMMON NAME	NUMBER OF LEPIDOPTERA SPECIES
<i>Quercus</i>	Oak	518
<i>Salix</i>	Willow	440
<i>Prunus</i>	Cherry, Plum	429
<i>Betula</i>	Birch	400
<i>Populus</i>	Poplar	358
<i>Acer</i>	Maple	287
<i>Vaccinium</i>	Blueberry	286
<i>Malus</i>	Crabapple	284
<i>Alnus</i>	Alder	248
<i>Carya</i>	Hickory	233
<i>Ulmus</i>	Elm	206
<i>Pinus</i>	Pine	191
<i>Rubus</i>	Blackberry, Raspberry	151
<i>Crataegus</i>	Hawthorn	150
<i>Picea</i>	Spruce	146
<i>Tilia</i>	Basswood	142
<i>Fraxinus</i>	Ash	141
<i>Castanea</i>	Chestnut	125
<i>Corylus</i>	Hazel	124
<i>Fagus</i>	Beech	124
<i>Juglans</i>	Walnut	123
<i>Rosa</i>	Rose	122
<i>Amelanchier</i>	Serviceberry	119
<i>Cornus</i>	Dogwood	115
<i>Viburnum</i>	Viburnum	97
<i>Ostrya</i>	Ironwood	91

Oak Species

- White oak (*Quercus alba*)
- Swamp white oak (*Q. bicolor*)
- Scarlet oak (*Q. coccinea*)
- Scrub oak (*Q. ilicifolia*)
- Almost 30 native species of *Quercus* in NY!



Pollinator Impact:

- Supporting 518 native leps!
- Although oaks are wind pollinated, bees are known to visit to collect pollen.
- Host plant for the polyphemus silk moth & io moth.

Willow Species

- Sage-leaved willow (*Salix candida*)
- Pussy willow (*S. discolor*)
- Heart-leaved willow (*S. eriocephala*)
- Silky willow (*S. sericea*)
- Autumn willow (*S. serissima*)
- Over 20 native species of *Salix* found in NY!

Pollinator Impact:

- Supporting 440 native leps!
- Supports pollen specialist bees.
- Host plant for mourning cloak butterfly.



Photo: Univ. of Colorado Boulder

Cherry Species

- American plum (*Prunus americana*)
- Fire cherry (*P. pensylvanica*)
- Wild black cherry (*P. serotina*)
- Choke cherry (*P. virginiana*)
- 9 native species of *Prunus* found in NY!

Pollinator Impact:

- Supporting 429 native leps!
- Highly attractive to bees for pollen and nectar.
- Host plant for red-spotted purple butterfly.



Birch Species

- Yellow birch (*Betula alleghaniensis*)
- Black birch (*B. lenta*)
- Paper birch (*B. papyrifera*)
- Gray birch (*B. populifolia*)
- 11 native species/subspecies of *Betula* in NY!



Pollinator Impact:

- Supporting 400 native leps!
- Birch is wind pollinated, but bees will visit to collect pollen.
- Host plant for Lettered Habrosyne.

Poplar Species

- Balsam poplar (*Populus balsamifera*)
- Eastern cottonwood (*P. deltoides*)
- Big-toothed aspen (*P. grandidentata*)
- Quaking aspen (*P. tremuloides*)
- 8 native species/subspecies of *Populus* in NY!

Pollinator Impact:

- Supporting 358 native leps!
- Wind pollinated, but bees are known to visit to collect pollen.
- Host plant for the modest sphinx moth.



Maple Species

- Red maple (*Acer rubrum*)
- Silver maple (*A. saccharinum*)
- Sugar maple (*A. saccharum*)
- Over 6 native species of *Acer* in New York!

Pollinator Impact:

- Supporting 287 native leps!
- Red maple and silver maple provide pollen and nectar for pollinators!
- Host plant for rosy maple moth.

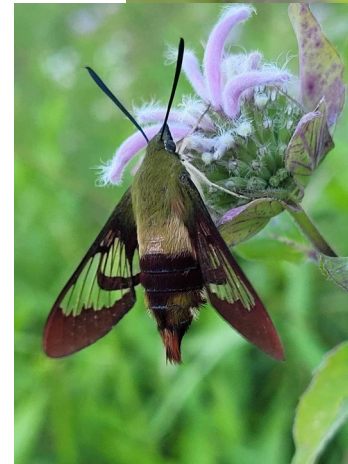


Blueberry Species

- Common lowbush blueberry (*Vaccinium angustifolium*)
- Highbush blueberry (*V. corymbosum*)
- Velvet-leaved blueberry (*V. myrtilloides*)
- Hillside blueberry (*V. pallidum*)
- Over 10 species of *Vaccinium* found in New York!

Pollinator Impact:

- Supporting 286 native leps!
- Bumble bees are efficient pollinators for blueberry, as they can perform buzz pollination to release pollen grains.
- Host plant for snowberry clearwing or hummingbird moth.

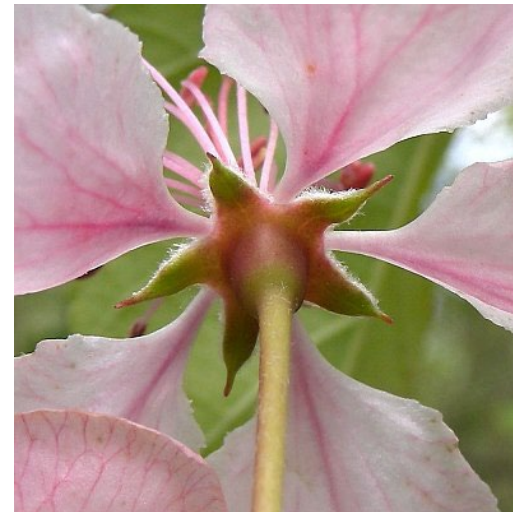


Crabapple

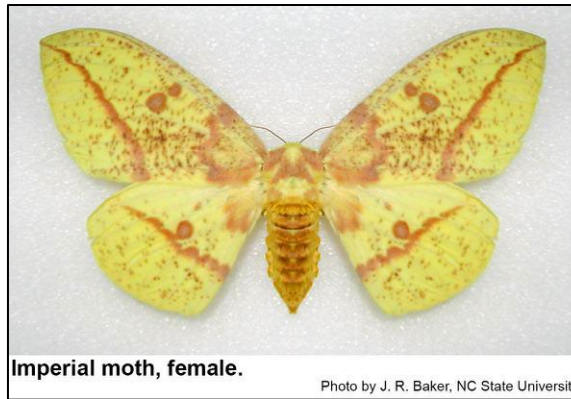
- Wild crabapple or sweet crabapple tree (*Malus coronaria*)
- Only 1 native species in New York.
- Blooms March-June

Pollinator Impact:

- Supporting 284 native leps!
- Flowers are extremely fragrant and highly attractive to bees.
- Host plant for the tuliptree silkmoth.



Alder



Imperial moth, female.

Photo by J. R. Baker, NC State University



Imperial moth, male.

Photo by J. R. Baker, NC State University

- Speckled alder (*Alnus rugosa*)
- Smooth alder (*A. serrulata*)

Pollinator Impact:

- Supporting 248 native leps!
- Alder only provides pollen, no nectar, for bees and other beneficial insects.
- Host plant for the imperial moth.

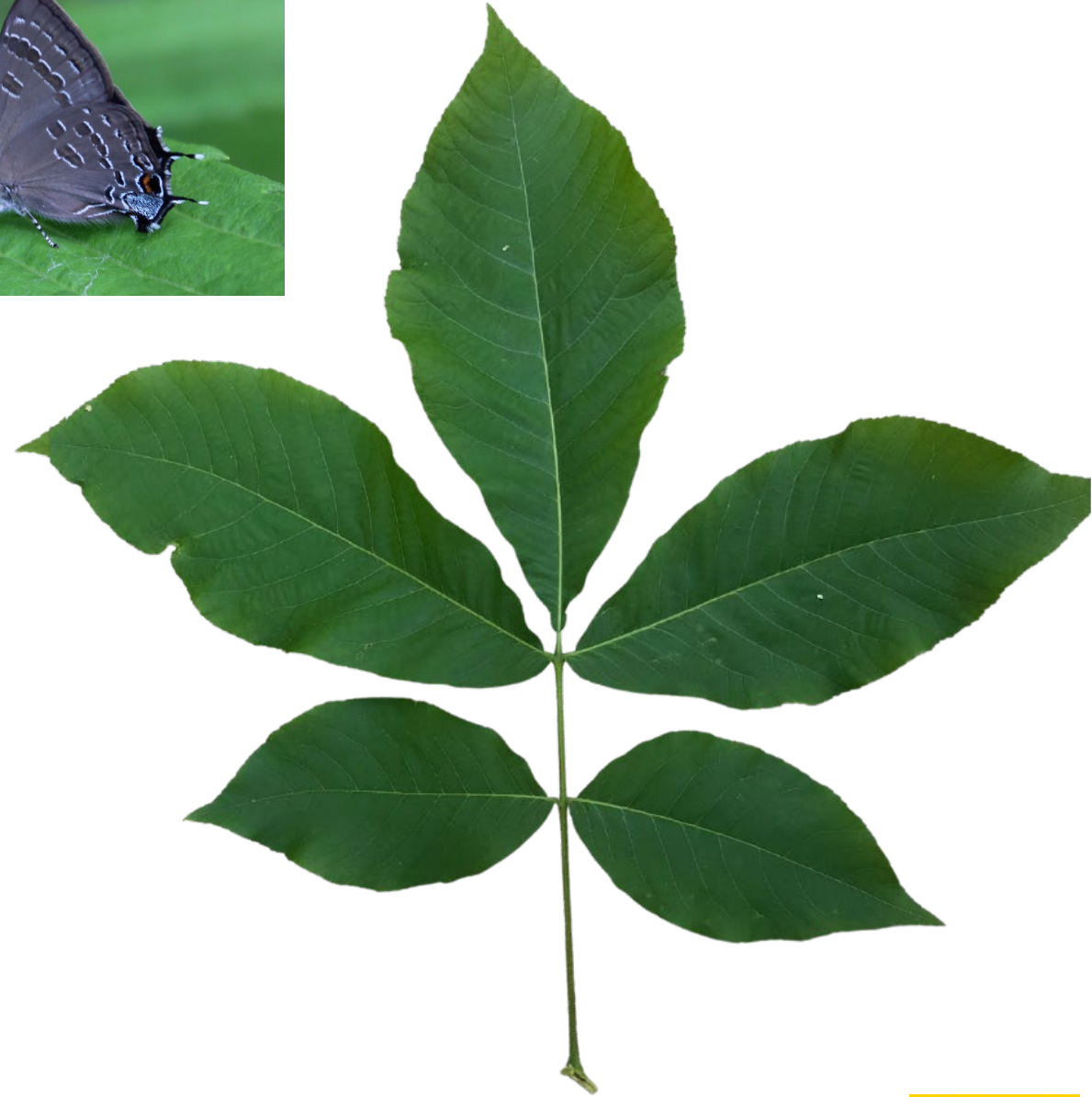


Hickory

- Bitternut hickory (*Carya cordiformis*)
- Pignut hickory (*C. glabra*)
- Shagbark hickory (*C. ovata*)
- Mockernut hickory (*C. tomentosa*)

Pollinator Impact:

- Supporting 233 native leps!
- Hickories are wind pollinated, but bees are known to visit to collect pollen.
- Host plant for the hickory hairstreak butterfly.



More Species in the Tree and Shrub Handout

Native Trees and Shrubs of New York							
<i>Quercus</i> (Oak)							
	Height at Maturity	Nectar	Shade Tolerance	Soil Moisture	Soil pH	Habitat Notes from NY Flora Atlas	Species Distribution Map from NY Flora Atlas
White oak (<i>Q. alba</i>)	50-80'	No	Intermediate	Dry-Moist	4.5-6.8	Dry to mesic forests. Tolerant of a wide variety of soil types it is lacking in the most xeric woodlands, in cool habitats, and in the richest deepest soils.	
Swamp white oak (<i>Q. bicolor</i>)	50-70'	No	Intermediate	Moist-Wet	4.3-6.5	Swamps, wet depressions, and thickets. Often in swamps on ridges and hill tops. Always in at least seasonally wet soils this species is often absent from deep alluvial soils where <i>Quercus macrocarpa</i> occurs.	
Scarlet oak (<i>Q. coccinea</i>)	60-80'	No	Intolerant	Dry-Moist	4.5-6.9	Dry to dry-mesic forests and woodlands. Predominately on very dry ridges, hilltops, crests, and upper slopes.	
Scrub oak (<i>Q. ilicifolia</i>)	3-30'	No	Intolerant	Dry	4.0-7.5	Pine and other barrens, rocky summits, openings in woodlands, and utility rights-of way. Often on upper slopes, crests, and hilltops in dry acidic thin, sandy, or rocky soils.	
Bur oak (<i>Q. macrocarpa</i>)	70-80'	No	Intermediate	Moist	4.5-7.5	Bottomland forests and swamps in deep alluvium, and limestone and alvar woodlands and forests. Usually does not occur in hilltop swamps where <i>Q. bicolor</i> occurs. On limestone bedrock it sometimes occurs in very dry soils.	
Chinquapin oak (<i>Q. muehlenbergii</i>)	40-50'	No	Intolerant	Dry-Moist	5.0-8.0	Dry to mesic forests and woodlands on calcareous soils or bedrock including alvars, limestone woodlands and forests, and mesic forests in rich deep soils.	

<i>Rosa</i> (Rose)*							
	Height at Maturity	Nectar	Shade Tolerance	Soil Moisture	Soil pH	Habitat Notes from NY Flora Atlas	Species Distribution Map from NY Flora Atlas
Pasture rose (<i>R. carolina</i>)	2-5'	Yes	Intermediate	Dry-Moist	4.0-7.0	Edges of forests, thin canopied forests, woodlands, edges of paths and dirt roads through forests, successional fields, and forests openings. Generally in dry to dry-mesic soils.	
Swamp rose (<i>R. palustris</i>)	5-8'	Yes	Tolerant	Moist-Wet	4.0-7.0	Swamps, edges of streams and lakes, marshes, and rich shrubby fens.	

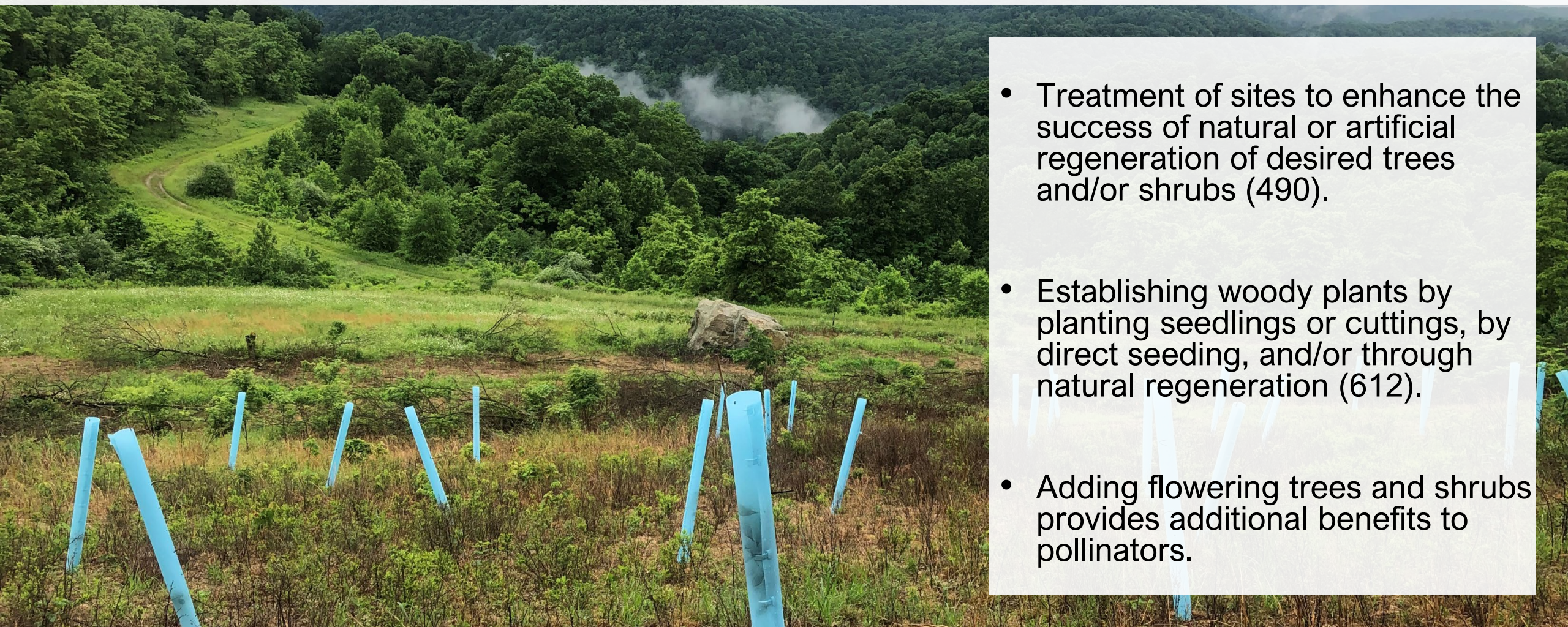
* Over 20 rose species documented in New York (11 native species).

➤ Additional species found in New York can be viewed in the New York Flora Atlas: <https://newyork.plantatlas.usf.edu/Results.aspx>

<i>Amelanchier</i> (Serviceberry)							
	Height at Maturity	Nectar	Shade Tolerance	Soil Moisture	Soil pH	Habitat Notes from NY Flora Atlas	Species Distribution Map from NY Flora Atlas
Lovely shadbush (<i>A. amabilis</i>)	15-25'	Yes	Intermediate	Dry-Moist	5.5-7.0	Bluffs, rims of ravines, tops of cliffs and rock outcrops, ledges, and adjacent forested slopes often in thin dry to dry-mesic calcareous soils.	
Common serviceberry (<i>A. arborea</i>)	20-30'	Yes	Intermediate	Dry-Moist	5.5-7.0	A wide variety of hardwood forests, forest edges, hedge rows, bluffs, ledges, roadsides, and occasionally hummocks in swamps.	

Email me at Lacey@Pollinator.org if you would like a digital copy

Tree and Shrub Site Preparation (490) and Establishment (612)



- Treatment of sites to enhance the success of natural or artificial regeneration of desired trees and/or shrubs (490).
- Establishing woody plants by planting seedlings or cuttings, by direct seeding, and/or through natural regeneration (612).
- Adding flowering trees and shrubs provides additional benefits to pollinators.

Flowering Trees and Shrubs

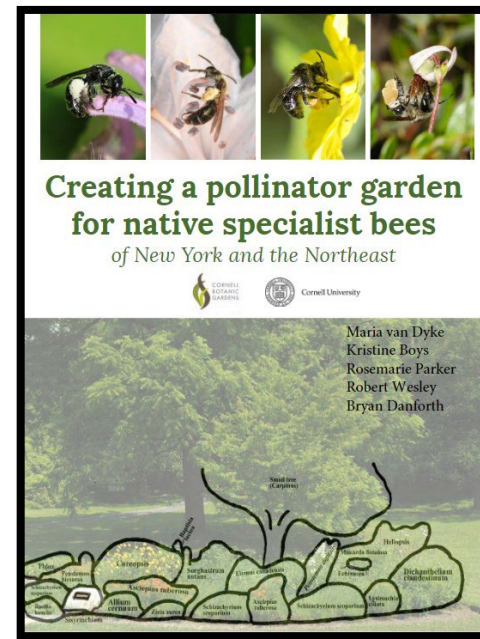
Common Name	Scientific Name	Shade Tolerance	Soil Moisture	Bloom Time
American plum	<i>Prunus americana</i>	Intermediate	Moist	April-May
Basswood	<i>Tilia americana</i>	Tolerant	Moist-Dry	July-August
Black cherry	<i>Prunus serotina</i>	Intolerant	Moist-Dry	May-June
Flowering dogwood	<i>Cornus florida</i>	Intermediate	Dry-Moist	March-May
Pawpaw	<i>Asimina triloba</i>	Tolerant	Moist	April-May
Red maple	<i>Acer rubrum</i>	Tolerant	Moist	March-April
Sassafras	<i>Sassafras albidum</i>	Intolerant	Moist	April-May
Tulip poplar	<i>Liriodendron tulipifera</i>	Intolerant	Moist	May-June

Additional Flowering Trees and Shrubs

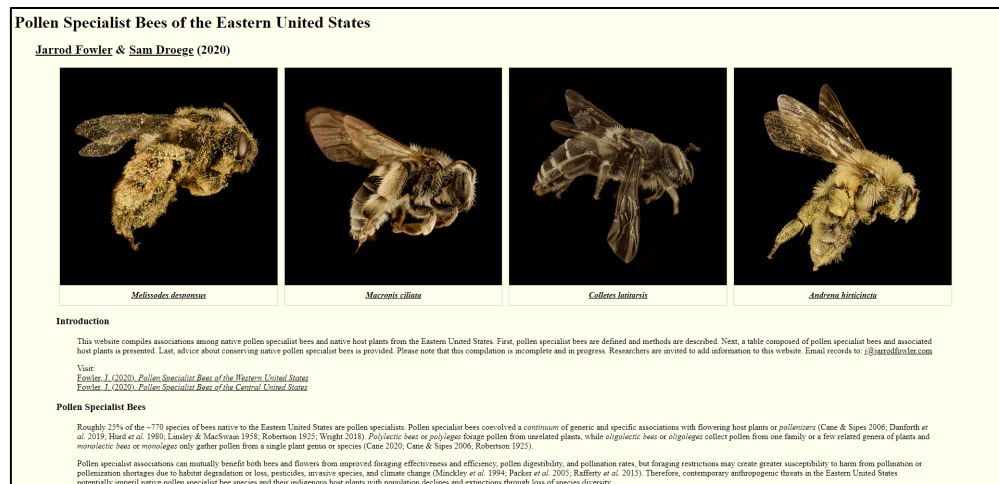
- Alternate-leaved Dogwood (*Cornus alternifolia*)
- American Elderberry (*Sambucus nigra* ssp. *canadensis*)
- American Hazelnut (*Corylus americana*)
- American Plum (*Prunus americana*)
- Arrowwood (*Viburnum dentatum*)
- Black Elderberry (*Sambucus nigra*)
- Black Gum (*Nyssa sylvatica*)
- Buttonbush (*Cephalanthus occidentalis*)
- Common Winterberry (*Ilex verticillata*)
- Flowering Raspberry (*Rubus odoratus*)
- Gray Dogwood (*Cornus racemosa*)
- Highbush Blueberry (*Vaccinium corybosum*)
- Maple-leaved Viburnum (*Viburnum acerifolium*)
- Nannyberry (*Viburnum lentago*)
- Northern Bush-honeysuckle (*Diervilla lonicera*)
- Pussy Willow (*Salix discolor*)
- Serviceberry (*Amelanchier canadensis*)
- Silky Dogwood (*Cornus amomum*)
- Swamp Rose (*Rosa palustris*)
- Winterberry Holly (*Ilex verticellata*)

Trees and Shrubs for Pollen Specialists

- Willow/*Salix* (14 species) ⁶
- Blueberry/*Vaccinium* (10 species)
- Dogwood/*Cornus* (5 species)
- Holly/*Ilex* (4 species)
- Staggerbush/*Lyonia* (4 species)
- Mt. Laurel/*Kalmia* (3 species)
- New Jersey Tea/*Ceanothus* (2 species)
- Redbud/*Cercis* (1 species)



Another great resource for pollen specialists!⁷



https://jarrod Fowler.com/specialist_bees.html

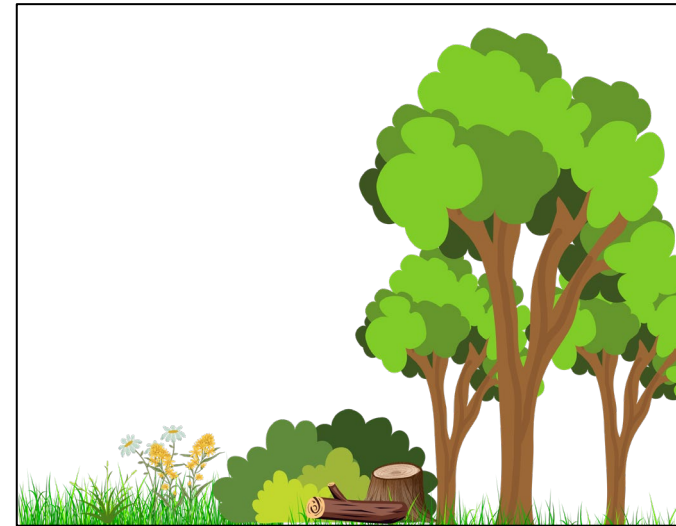
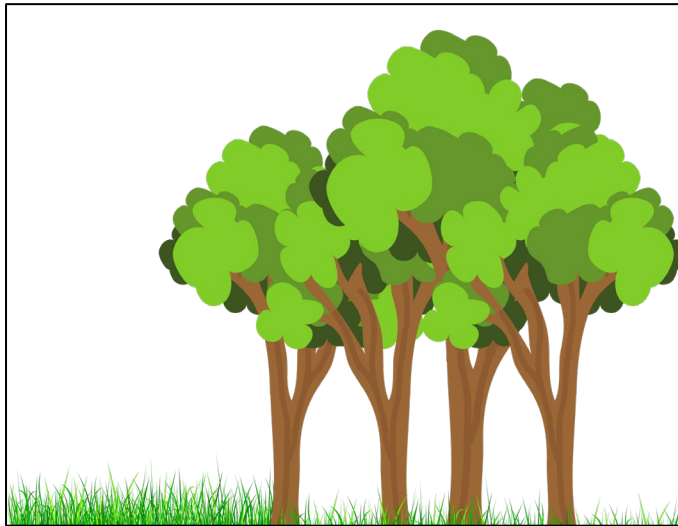
Other NRCS Programs that Support Pollinators?

- Upland Wildlife Habitat
- Forest Stand Improvement
- Riparian Forest Buffer
- Wildlife Habitat Planting



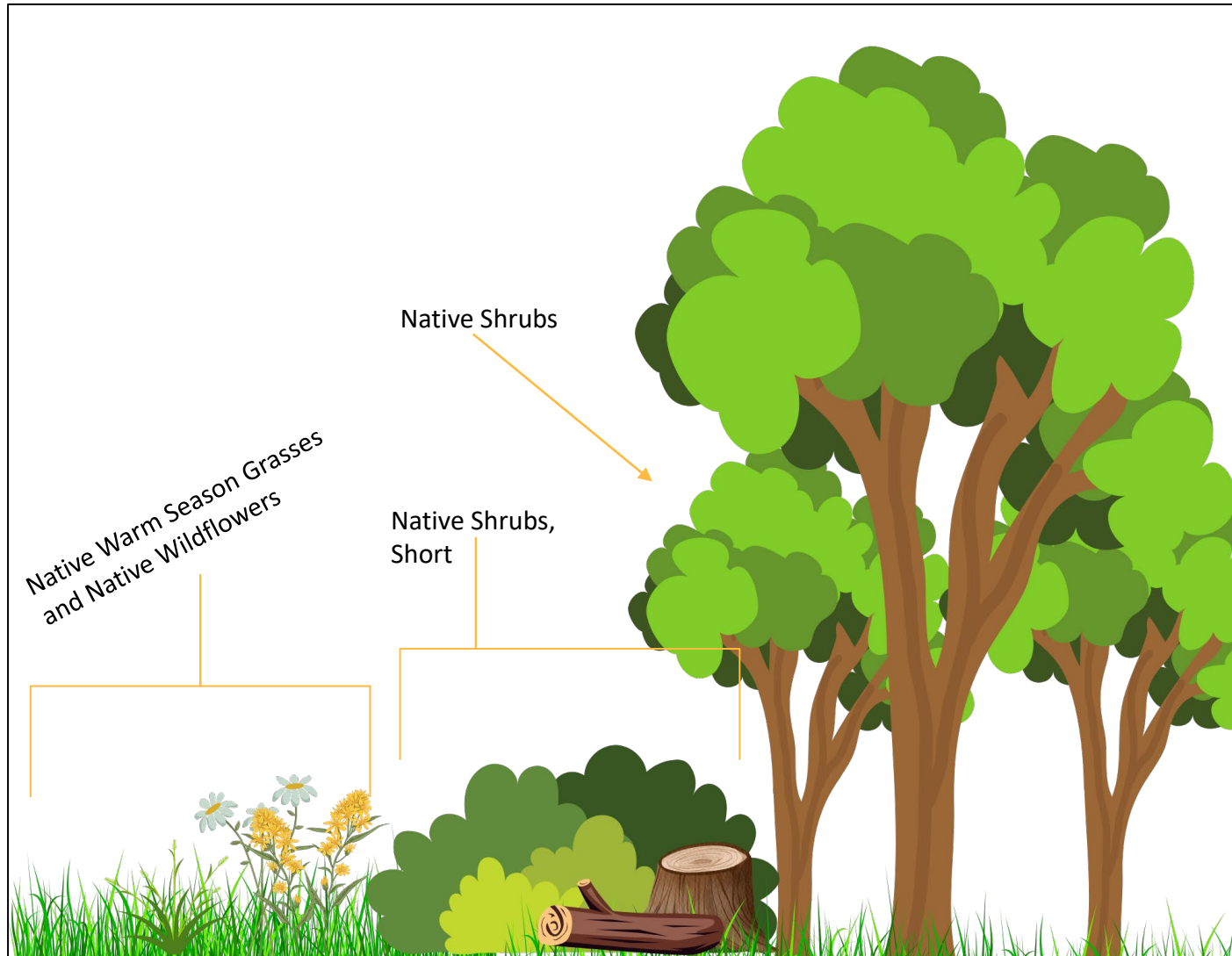
Upland Wildlife Habitat (645): Edge Feathering

- Treating upland wildlife habitat concerns identified during the conservation planning process that enable movement, or provide shelter, cover, food in proper amounts, locations and times to sustain wild animals that inhabit uplands during a portion of their life cycle.
- Edge feathering⁸: Creating a gradual transition or edge between two habitat types (e.g., forest to cropland). It is accomplished by cutting existing vegetation (e.g., trees) and/or by planting native shrubs, wildflowers, and grasses of various heights.
- Edge feathering is beneficial as it provides shelter and food for wildlife.



Upland Wildlife Habitat (645): Edge Feathering

Native Wildflowers:
- Joe Pye Weed,
Goldenrod,
Partridge Pea,
Foxglove
Beardtongue,
Blackeyed Susans,
False Sunflower,
Bee Balm,
Mountain Mint,
New England Aster



Native Grasses:
- Little bluestem,
Indiangrass, switchgrass

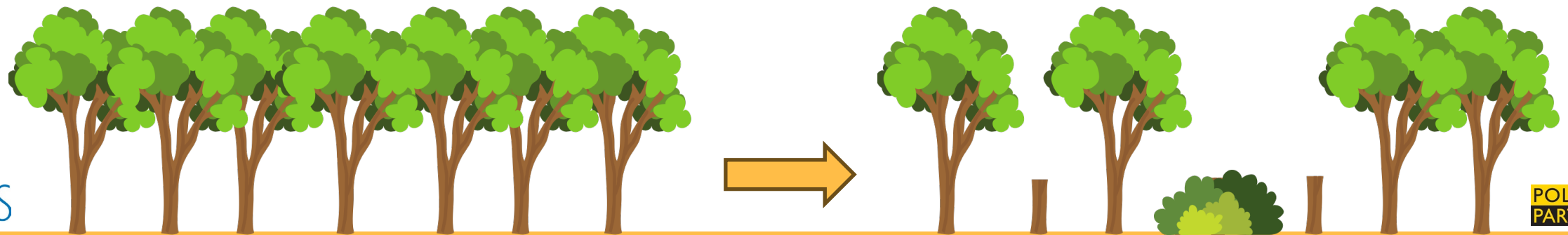
Native Shrubs, Short:
- Wild plum, arrowwood,
serviceberry, hazelnut,
elderberry

Native Shrubs:
- Dogwood, crabapple,
hawthorn, black choke
cherry

Forest Stand Improvement (666)

The manipulation of species composition, stand structure, or stand density by cutting or killing selected trees or understory vegetation to achieve desired forest conditions or obtain ecosystem services.

This can improve light levels on the forest floor and promote additional plant diversity, especially in a closed canopy forests that lack understories and midstories.



Riparian Forest Buffer (391)

- Reduce transport of sediment to surface water, and reduce transport of pathogens, chemicals, pesticides, and nutrients to surface and ground water.
- Improve the quantity and quality of terrestrial and aquatic habitat for wildlife, invertebrate species, fish, and other organisms.
- Maintain or increase total carbon stored in soils and/or perennial biomass to reduce atmospheric concentrations of greenhouse gasses.
- Lower elevated stream water temperatures.
- Restore diversity, structure, and composition of riparian plant communities.



Selecting flowering trees and shrubs for riparian areas can provide additional nectar and pollen resources for pollinators!



Flowering Trees and Shrubs for Riparian Areas

- American Plum (*Prunus americana*)
- Arrowwood (*Viburnum dentatum*)
- Black Elderberry (*Sambucus nigra*)
- Black Gum (*Nyssa sylvatica*)
- Buttonbush (*Cephalanthus occidentalis*)
- Common Winterberry (*Ilex verticillata*)
- Gray Dogwood (*Cornus racemosa*)
- Pussy Willow (*Salix discolor*)
- Serviceberry (*Amelanchier canadensis*)
- Silky Dogwood (*Cornus amomum*)

Wildlife Habitat Planting (420)

- Establishing wildlife habitat by planting vegetation or shrubs.
- This practice is used to accomplish one or more of the following purposes:
 - Improve degraded wildlife habitat for the target wild species or guild.
 - Establish wildlife habitat that resembles the historic, desired, and reference native plant community.
- This practice is commonly used to create pollinator habitats with herbaceous plants.

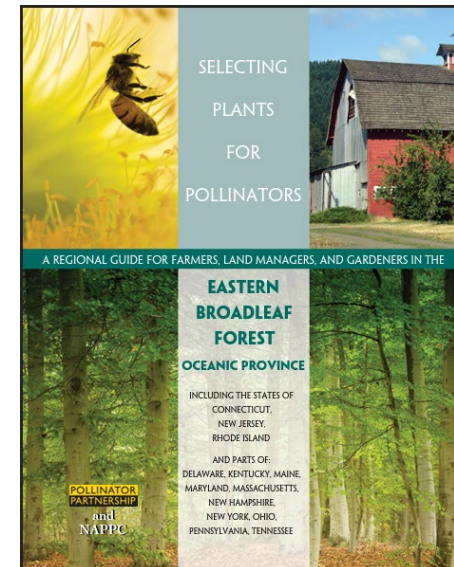
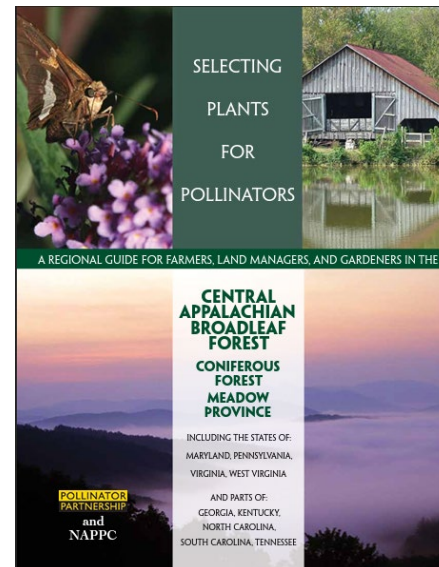
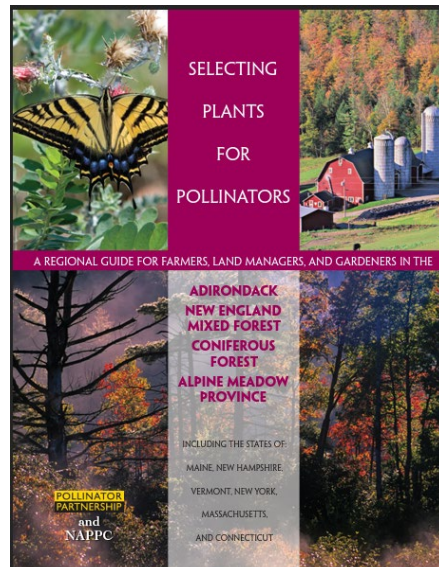
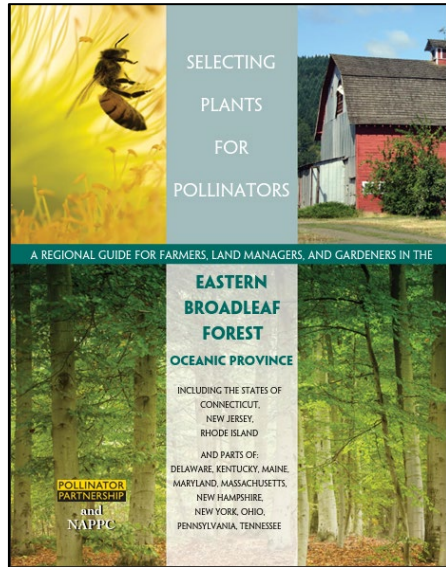
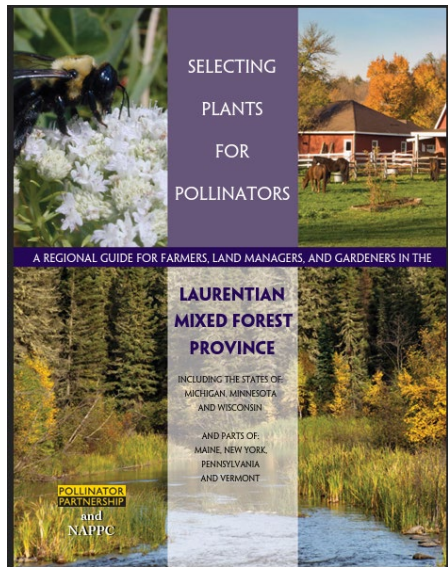


Native Plants in Your Region

- New York Flora Atlas: <https://newyork.plantatlas.usf.edu/>
- The Biota of North America Program (BONAP): <http://www.bonap.org/>
- Ecoregional Revegetation Application (ERA): <http://www.nativerevegetation.org/era/>
- USDA PLANTS Database: <https://plants.usda.gov/home>
- National Wildlife Federation Native Plant Finder: <https://www.nwf.org/NativePlantFinder/Plants>
- Pollinator Partnership's Ecoregional Guides: <https://www.pollinator.org/guides>

“Native” is spatial and temporal. It is important to acknowledge plants as, “native to where and native to when”.

Pollinator Partnership's Ecoregional Guides



<https://pollinator.org/guides#zip>

More guides available here!

How do I contact NRCS?

- Send me an email:
Lacey.Smith@usda.gov

or

- Contact your local office directly

<https://offices.sc.egov.usda.gov/locator/app>

USDA United States Department of Agriculture
Service Center Locator

Text Version By State By City USDA USDA eForms FSA NRCS RD

USDA Service Centers are designed to be a single location where customers can access the services provided by the Farm Service Agency, Natural Resources Conservation Service, and the Rural Development agencies. This web site will provide the address of a USDA Service Center and other Agency offices serving your area along with information on how to contact them.

Click On Your State

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This service is provided by the USDA-Office Information Profile System.

What Happens Next?



Planning: Discussing your goals with staff to create a conservation plan.

Application: With help from the NRCS staff, complete an application for financial assistance programs.

Eligibility: NRCS will file the paperwork to ensure you are eligible for assistance.

Ranking: NRCS ranks applications according to local resource concerns.

Implementing: If selected, signing the contracting and begin conservation practices.

Summary

- Pollinators provide vital ecosystem services to crops and wild plants. Over 80% of the world's blooming plants require animal pollination for successful reproduction
- 38% of New York's native pollinators are at risk of extinction. Under worst-case scenarios, 60% may be at risk.
- We can support our native pollinators by removing invasive species, using pesticides responsibly, reducing deer browse, and selecting native plants that support pollinators and other beneficial insects.
- NRCS offers a wide variety of programs that directly or indirectly support pollinators.
- Contact me (Lacey.Smith@usda.gov) or your local NRCS office to get started!

Thank you!

**POLLINATOR
PARTNERSHIP**



Have questions or would like pollinator-related conservation planning support?
Let me know!

Lacey@Pollinator.org or Lacey.Smith@usda.gov

Resources

1. Ollerton, J., Winfree, R., & Tarrant, S. (2011). How many flowering plants are pollinated by animals? *Oikos*, 120(3), 321-326. <https://doi.org/10.1111/j.1600-0706.2010.18644.x>
2. Grout, T. A., Koenig, P. A., Kapuvvari, J. K., & McArt, S. H. (2020). Neonicotinoid Insecticides in New York State: economic benefits and risk to pollinators. Cornell University. <https://cornell.app.box.com/v/2020-neonicotinoid-report>
3. White, E.L., M. D. Schlesinger, and T.G. Howard. 2022. The Empire State Native Pollinator Survey (2017-2021). New York Natural Heritage Program, Albany, NY.
4. Harper, J. et. al 2019. Potential Economic Impact of the Spotted Lanternfly on Agriculture and Forestry in Pennsylvania. Pennsylvania State University. <https://aese.psu.edu/research/centers/cecd/publications/economic-impact/spotted-lanternfly-2019.pdf>
5. Tallamy and Shropshire (2008). Ranking Lepidopteran Use of Native versus Introduced Plants (<https://www.istor.org/stable/29738829>)
6. Fowler, J. (2020). Pollen Specialist Bees of Eastern United States (https://jarrodfowler.com/specialist_bees.html)
7. Creating a Pollinator Garden for Native Specialist Bees of New York and the Northeast (<https://cornell.app.box.com/v/pollinator-gardens-native-bees>)
8. Iowa DNR: Edge Feathering. https://www.iowadnr.gov/Portals/idnr/uploads/Wildlife%20Stewardship/edge_feathering.pdf

Useful Resources for Pollinators:

- New York's Bee Diversity by Cornell Pollinator Network (<https://cals.cornell.edu/pollinator-network/ny-bee-diversity>)
- Native Flowers, Grasses, Shrubs, Trees, and Vines by NY DEC (https://www.dec.ny.gov/docs/lands_forests_pdf/factnatives.pdf)
- FWS (2023). Threats to Pollinators (<https://www.fws.gov/initiative/pollinators/threats>)
- New York Flora Atlas: <https://newyork.plantatlas.usf.edu/>