



RUTGERS UNIVERSITY

Cooperative Extension
of Middlesex County

New Jersey Agricultural Experiment Station



Native Plants for Rain Gardens

Sue Tarr

Rutgers Master Gardener & Environmental Steward

Agenda



The importance of native plants



Transforming your yard



Plants for rain gardens



References

Native Definition

Plants living on this continent
before European settlers
arrived

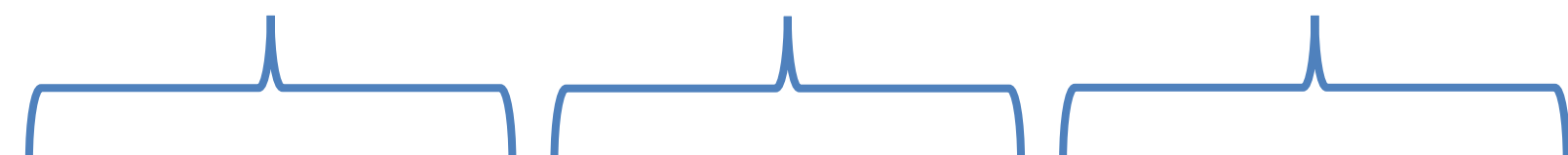
New Jersey is a biodiversity
hotspot

- ➡ 2000+ species
- ➡ 4th highest state in species
density



Penstemon calycosus
Calico Beardtongue

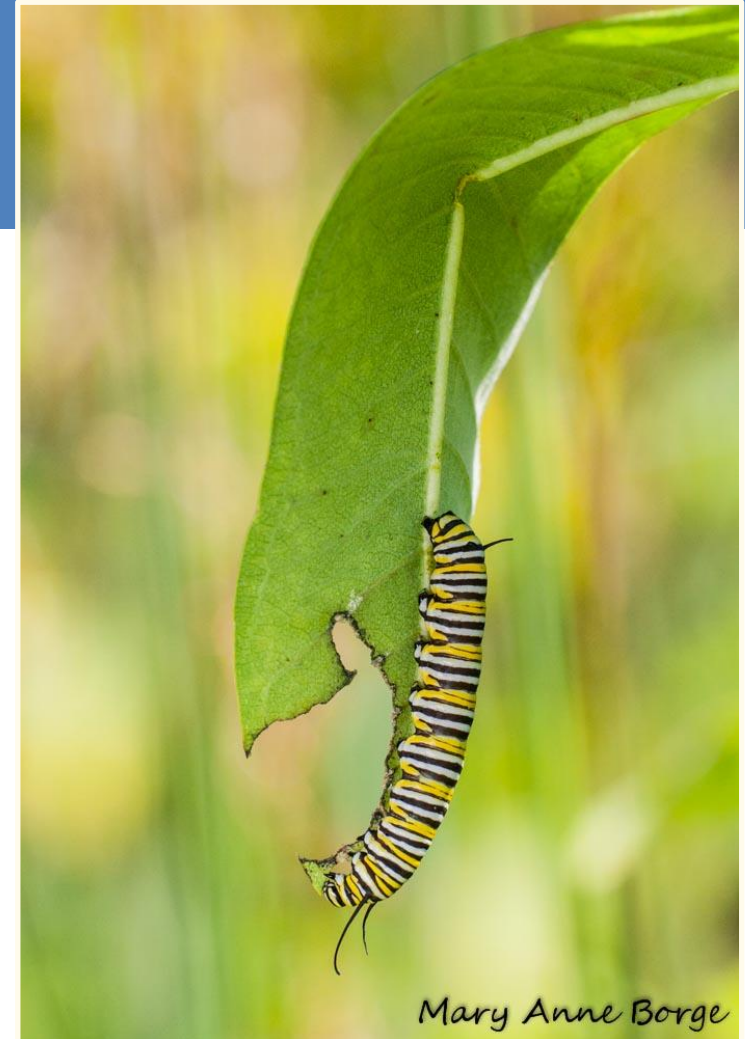
Scientific Nomenclature

Genus	Species	Cultivar
		
<i>Asclepias</i>	<i>incarnata</i>	'Ice Ballet'

Common name: Swamp Milkweed

Why Natives?

- Plants are foundation of all terrestrial ecosystems
- Most animals don't eat plants directly, rather indirectly through insects
- 90% of insect herbivores are specialists, eating one or few genera of native plants
- Without insects & native plants, entire food web collapses



Monarch caterpillar eating Swamp Milkweed (*Asclepias incarnata*)

How Many Natives?

- 96% of birds rear their young on insects, mostly caterpillars
- Carolina chickadees: 6000 – 9000 caterpillars until fledging
- Suburban yards need at least 70% native biomass to sustain bird populations



Which Native Plants?

www.nwf.org/NativePlantFinder

Justin Meissen

Native Plant Finder [BETA]

FIND NATIVE PLANTS FIND BUTTERFLIES MY LIST

 Native Plants (By Zip Code)

 Discover native plants, ranked by the number of butterfly and moth species that use them as host plants for their caterpillars.

 FLOWERS AND GRASSES



 SAVE

goldenrod
Solidago
Asterales

12100



 SAVE

strawberry
Fragaria
Rosales

7600



 SAVE

sunflower
Helianthus
Asterales

6500



 SAVE

joe-pye weed, thoroughwort, do ...
Eupatorium
Asterales

3200



 SAVE

violet
Viola
Violales

2900



 SAVE

lupine
Lupinus
Fabales

2800



 SAVE

deer vetch, trefoil
Lotus
Fabales

2700



 SAVE

geranium
Geranium
Geraniales

2600

 VIEW ALL

 TREES AND SHRUBS



 SAVE

oak

51300



 SAVE

beach plum, cherrv, chokecherr ...

41400



 SAVE

birch

35700



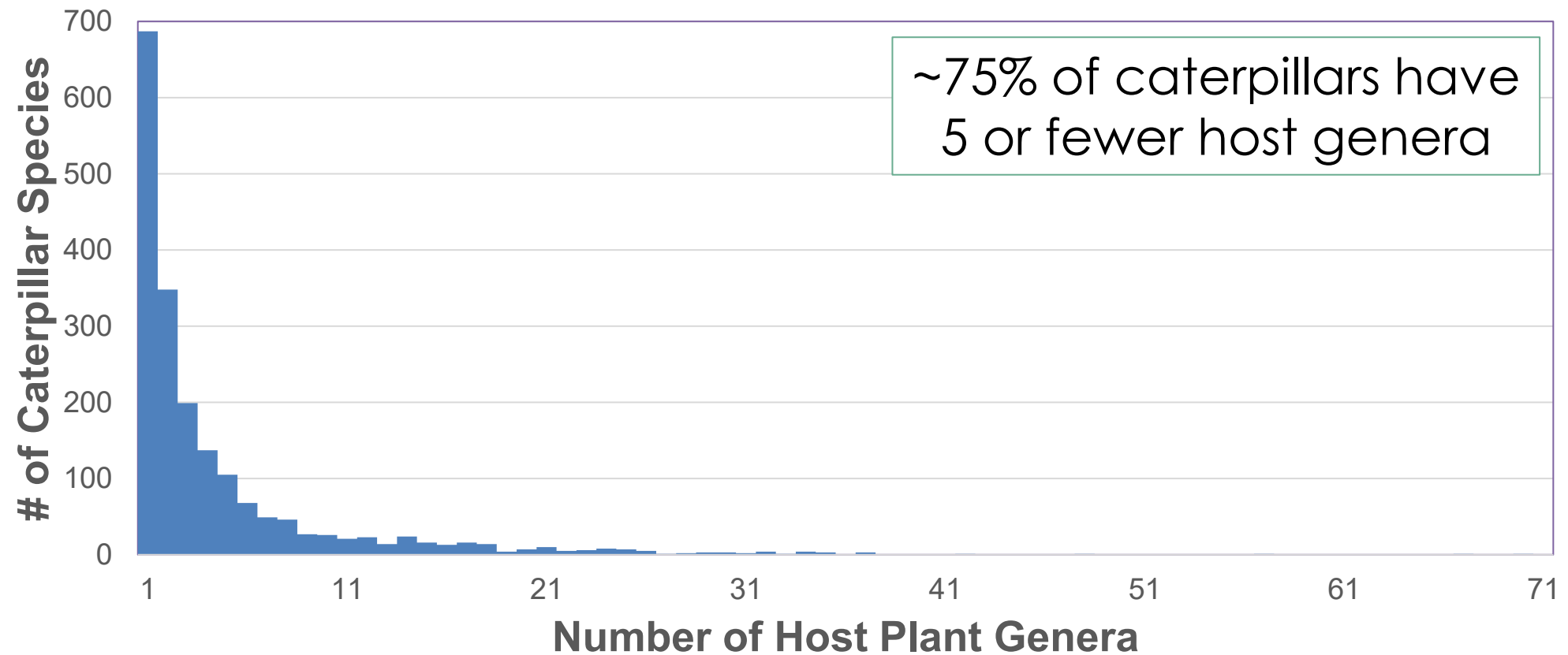
 SAVE

willow

35400

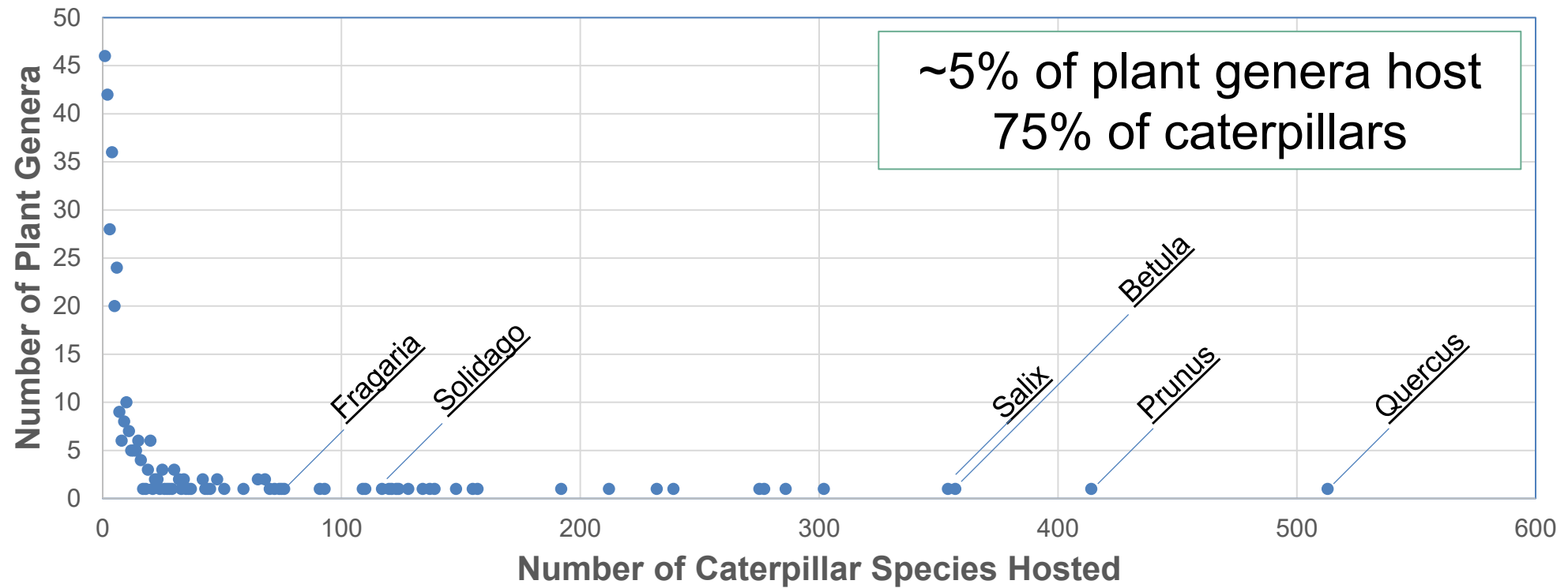
Caterpillar Specialization

Middlesex County



Best Plants for Caterpillars

Keystone Plants



Bees

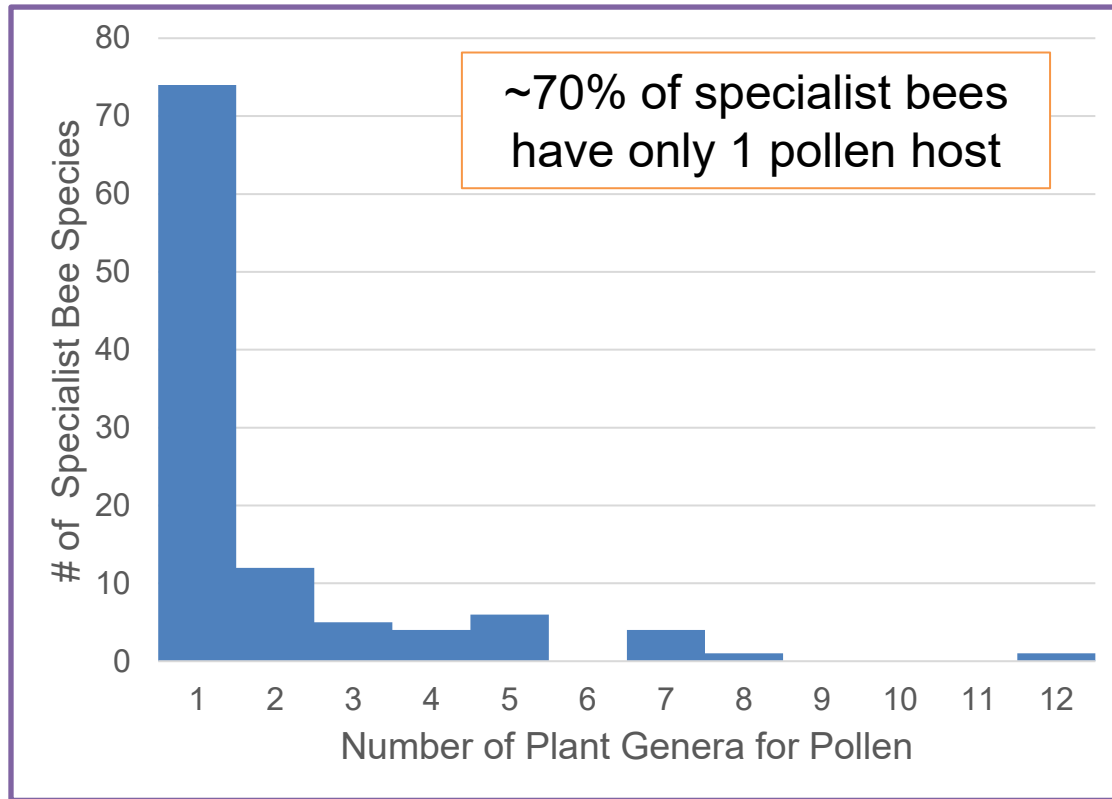
- ~90% of plants pollinated by animals, mostly bees
- ~25% of native bees are pollen specialists*
- ~100 specialist native bees in NJ*

* Jarrod Fowler, www.jarrodfowler.com



Colletes species

Specialist NJ Native Bees

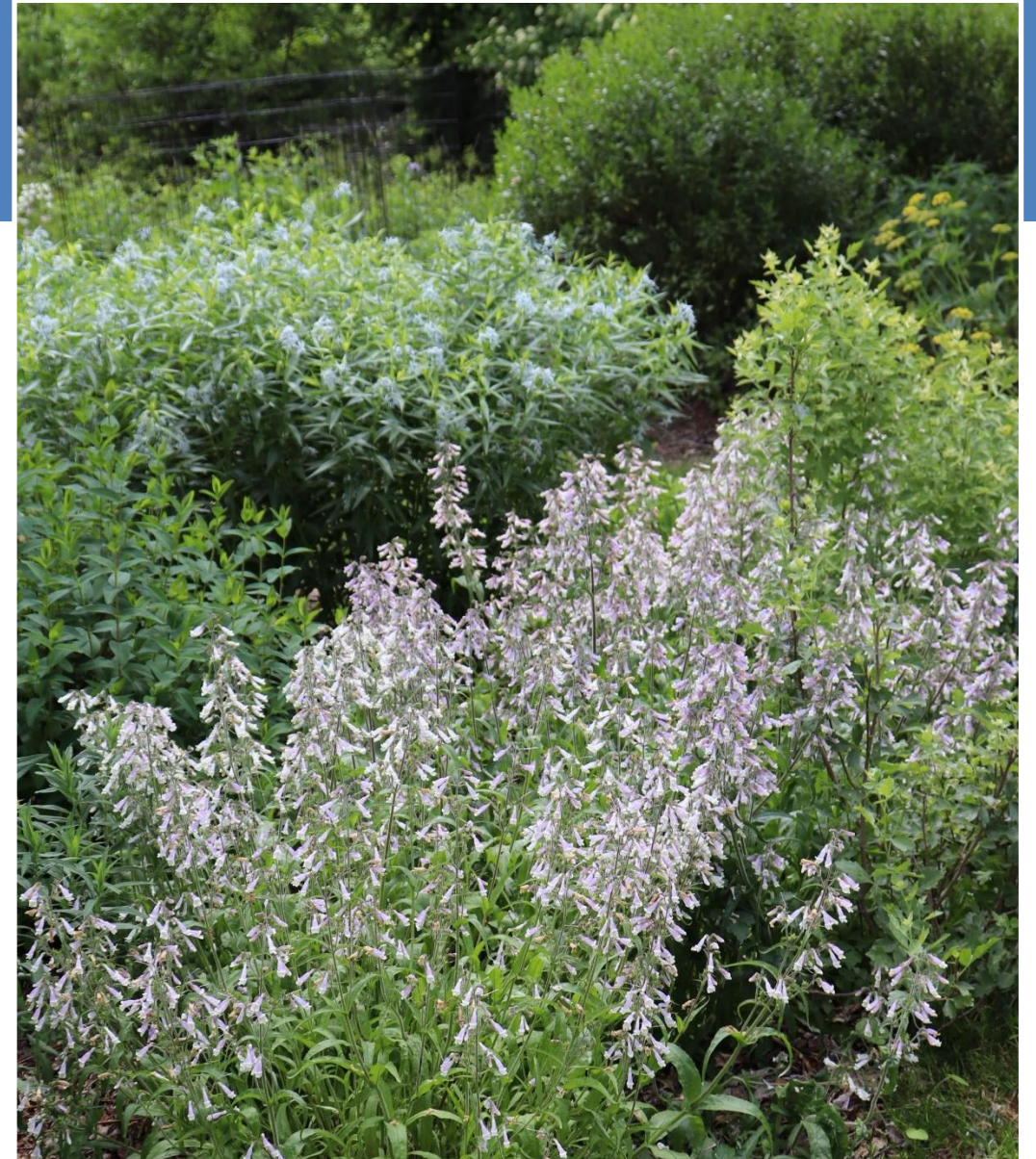


Top Plant Genera	Number of Bees
Solidago	23
Helianthus	16
Rudbeckia	12
Chrysopsis, Grindelia	10
Euthamia, Salix	8
Coreopsis, Symphyotrichum	7
Cirsium	6
Erigeron, Heterotheca, Vaccinium	5
Physalis, Ratibida, Silphium	4

Connectivity Matters

- Native preserves
 - Too small and too separated to sustain biodiversity
- Habitat fragmentation
 - Small populations with natural population fluctuations → extinction
- Biological corridors needed
 - Habitat creation where we live and work

Homegrown National Park®



Agenda



The importance of native plants



Transforming your yard



Plants for rain gardens



References

Suburban Yards in Transition

Today

- ➡ Big lawns
 - ➡ High water & fertilizer requirements
- ➡ Mostly non-native plants
 - ➡ Pest free
- ➡ Low value to food web

Future

- ➡ Minimal lawn
 - ➡ 20% reduction from today
- ➡ Mostly native plants
 - ➡ No fertilizer or watering needed once established
- ➡ Biological corridor to natural areas

What You Can Do



Don't plant invasives



Remove existing invasives



Reduce lawn size



Plant natives

Invasive Species

Non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health



www.njisst.org



Winged Burning Bush, *Euonymus alatus*

Reduce Lawn

- Make incremental changes
- Increase size of existing beds
- Create hedgerows along property lines
- Create island and rain gardens
- Remove existing grass
 - Cover grass with cardboard & 3" mulch layer in spring & plant in fall
 - Dig up with spade (2 – 3" layer)



Plant Natives

- Good garden design principles apply to non-natives & natives
 - Right plant in the right place
- Green mulch
 - Use plants to do the work of mulch



Solidago speciosa
Showy Goldenrod
Keystone plant – 42 bee sp.



Rudbeckia hirta
Black-eyed Susan
Keystone plant - 29 bee sp.



Symphyotrichum novae-angliae
New England Aster
Keystone plant - 33 bee sp.

Liatris spicata, Dense Blazing Star

Green Mulch

Lots of Options!

Sunny



Shady



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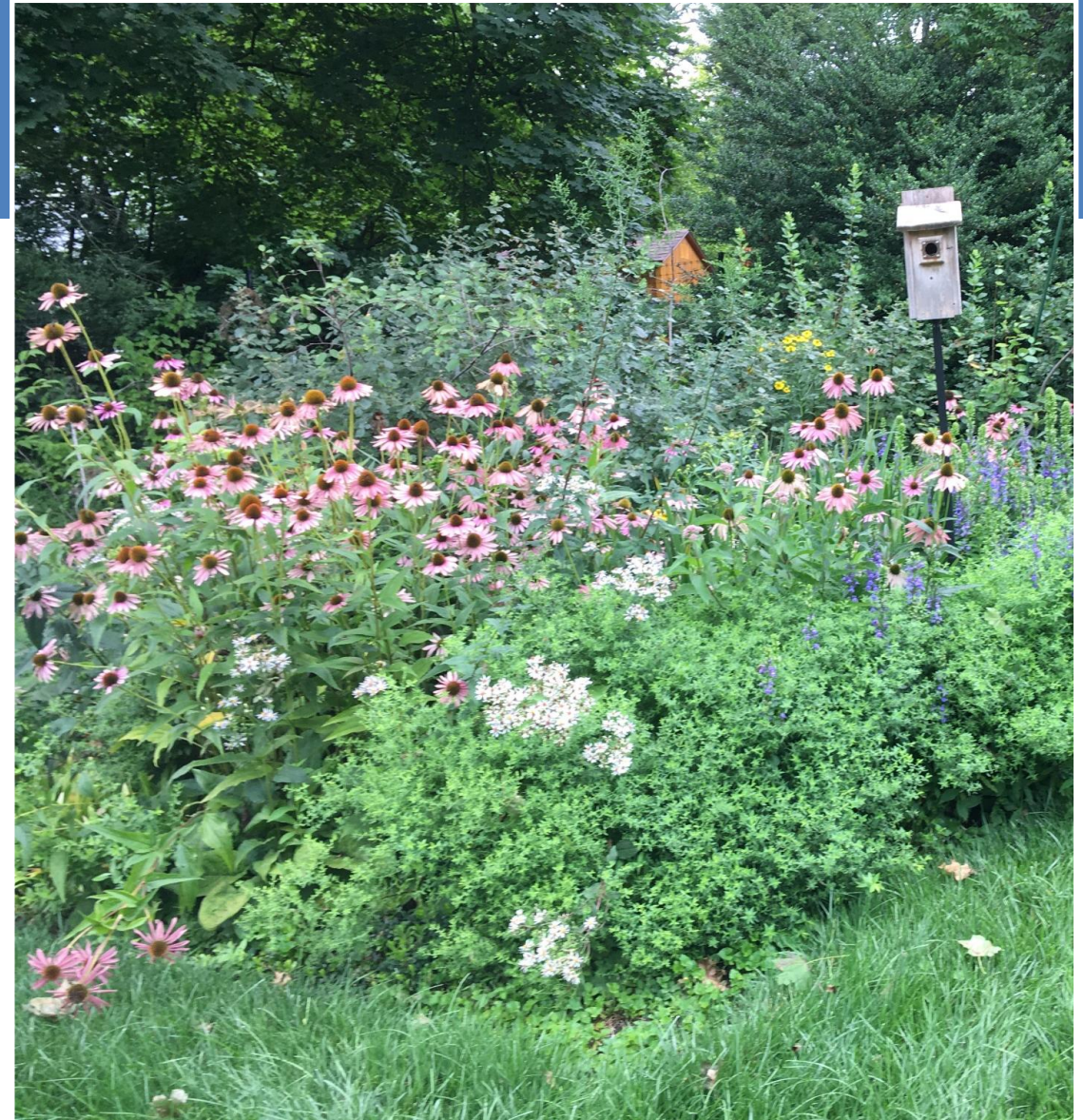
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References

Green Infrastructure

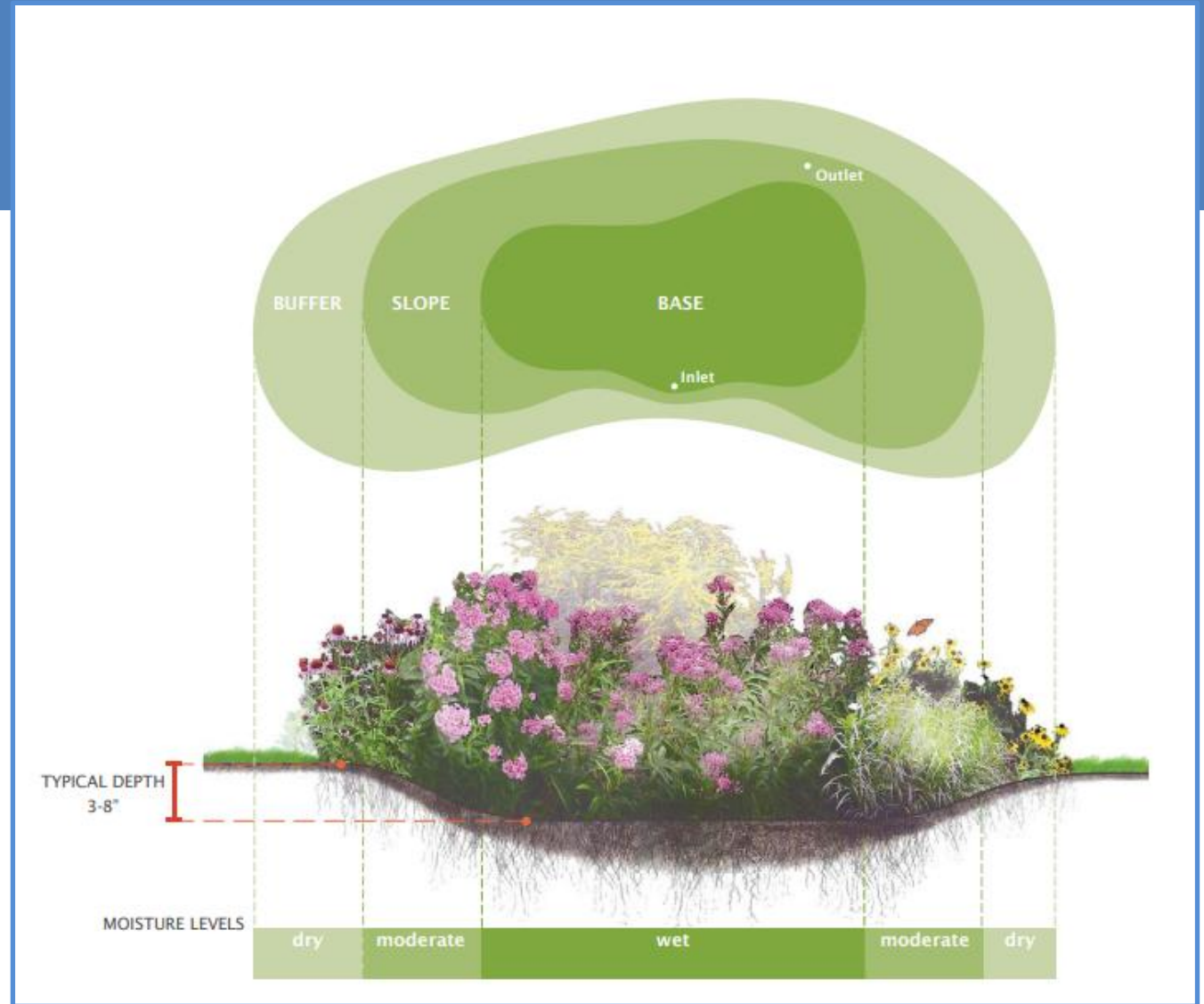
- Rain gardens, bioretention basins, bioswales
- Native plants help improve water quality
 - Provide pathways for infiltration via dense and deep roots
 - Remove pollutants from water via absorption by roots
 - Reduce erosion
 - Provide aesthetics and support for ecosystem



Rain Garden Structure

Wetland Indicator Status

- OBL (obligate) – wetlands
- FACW – 2/3 wetlands, 1/3 non- wetlands
- FAC (facultative) – 1/2 wetland, 1/2 non-wetlands
- FACU – 1/3 wetlands, 2/3 non-wetlands
- UPL (upland) – non-wetlands



Native Plants for the Base

OBL/FACW



Asclepias incarnata
Swamp Milkweed*



Iris versicolor
Blue Flag Iris



Juncus effusus
Soft Rush*



Lobelia siphilitica
Great Blue Lobelia

*Photo: Lady Bird Johnson Wildflower Center

Native Plants for the Slope

FACW/FAC



Liatris spicata
Dense Blazing Star*



Osmunda cinnamomea
Cinnamon Fern*



Panicum virgatum
Switch Grass*



Symphyotrichum
novae-angliae
New England Aster

*Photo: Lady Bird Johnson Wildflower Center

Native Plants for the Buffer

FACU/UPL



Asclepias tuberosa
Butterfly Weed



Baptisia australis
Blue Wild Indigo*



Echinacea purpurea
Purple Coneflower



*Schizachyrium
scoparium*
Little Bluestem*

*Photo: Lady Bird Johnson Wildflower Center

Native Plant Sources

- Bowman's Hill Wildflower Preserve, New Hope, PA
- Pinelands Direct, Columbus, NJ, www.pinelandsdirect.com
- Toadshade Wildflower Farm, Frenchtown, NJ, www.toadshade.com
- www.prairienursery.com
- www.prairiemoon.com
- Native Plant Society of New Jersey, www.npsnj.org – list of where to buy natives

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Why Natives?

- ▶ Tallamy, Douglas W. *Bringing Nature Home*, 2009.
- ▶ Tallamy, Douglas W. *Nature's Best Hope*, 2019.

How to?

- ▶ Jayne, Sarah *Nature's Action Guide*, 2024.
- ▶ (Rutgers) Rain Garden Manual of New Jersey

Native Plants

- ▶ Leopold, Donald J. *Native Plants of the Northeast*, 2005.
- ▶ [Missouri Botanical Garden Plant Finder](#)
- ▶ [Lady Bird Johnson Wildflower Center](#)
- ▶ [Native Plant Society of NJ](#)



Viola sororia, Common Blue Violet
State Flower of New Jersey