

How to Create a Butterfly Friendly Garden:

Attracting Butterflies & Bees with pollinator-friendly Plants



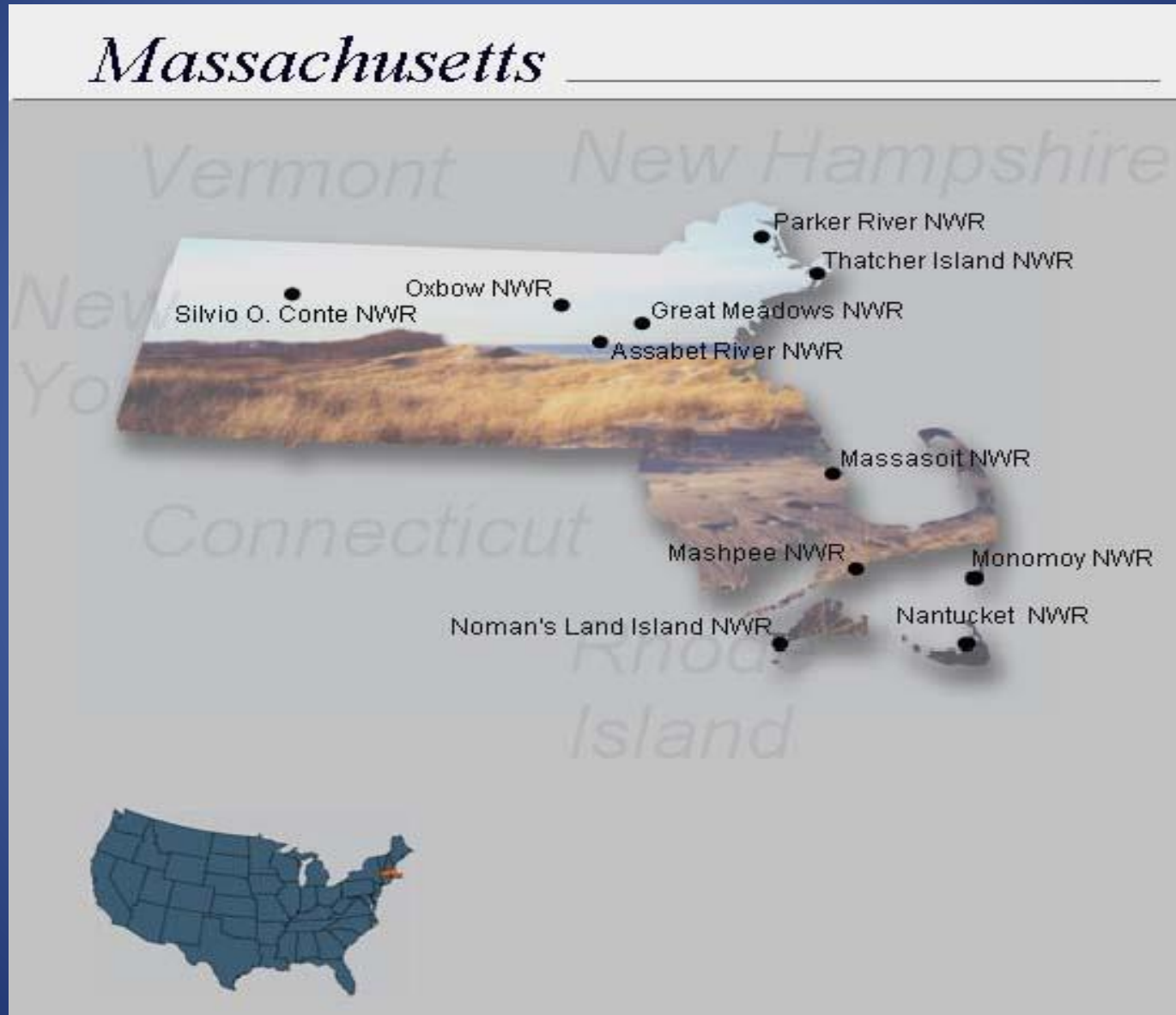
MaryKay Fox
Friends of Mashpee National Wildlife Refuge

We'll cover.....

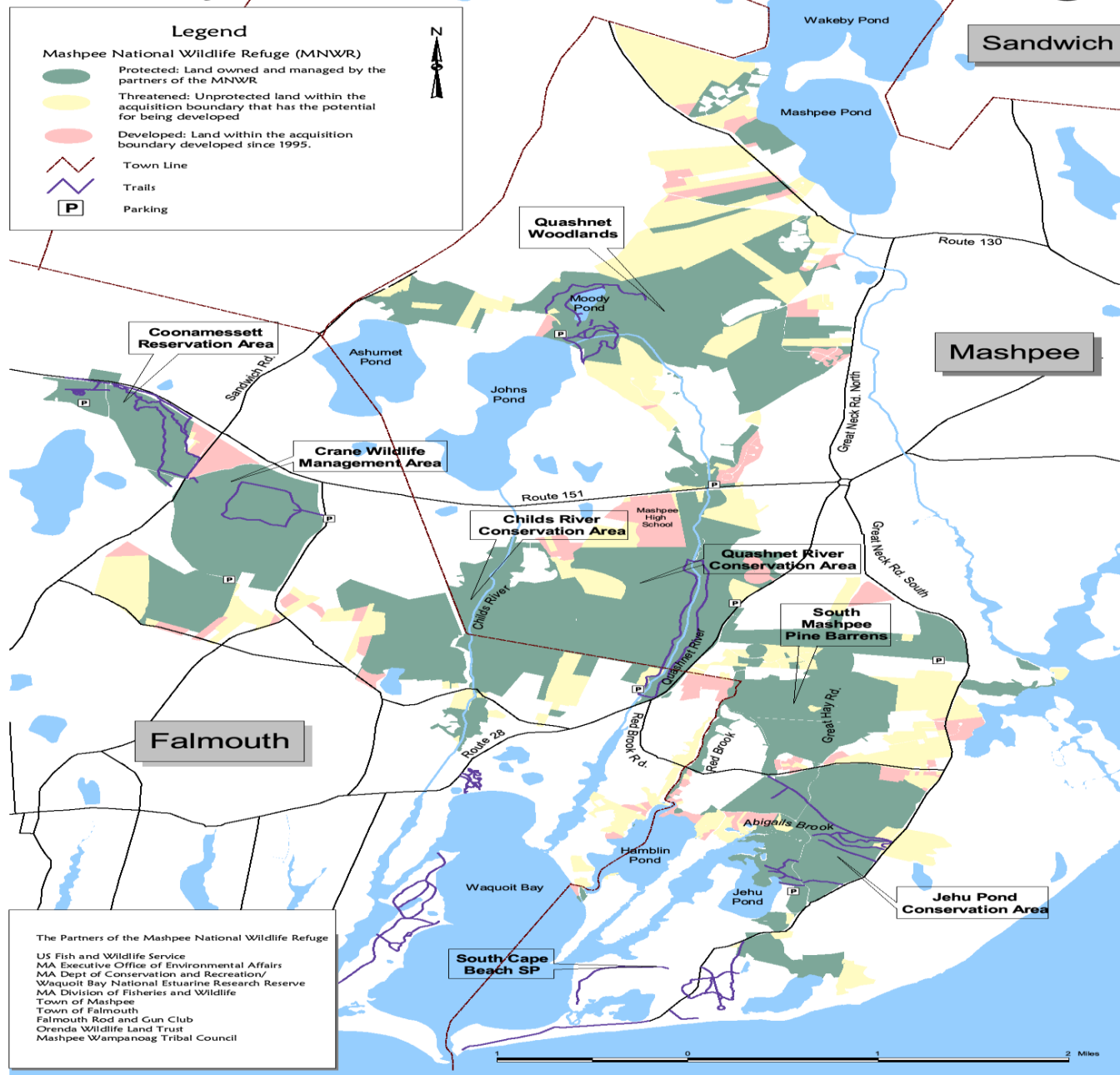
- Mashpee/Falmouth Refuge intro
- Who are pollinators & what do they need?
- Plant lists for the NE region
- Garden designs & examples
- Resources & The Pollinator Challenge



Wildlife Refuges in Massachusetts



Mashpee National Wildlife Refuge



Created in 1995

Located in the Towns of Falmouth and Mashpee

Second Largest accessible, open space on Cape; the first being the National Seashore

Over 5,871 acres

Additional layer of conservation protection

Unique in National Refuge System

8 conservation land partners collaborating on Refuge Management!

Friends Main Focus since 2011: ~Native Pollinators~



2016 Monarch Meadows Grant:

2 years, USFWS, \$35K, 17 acres

- Norman Bird Sanctuary: 5 acres, \$5K
- Mashpee Wampanoag Tribal Council: 5 acres, \$10K
- Friends of MNWR: 7 acres, \$17K

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### *Friends Monarch Meadow's Team*

#### **Land Contributions**

- Falmouth Rod & Gun Club
- Town of Falmouth
- The 300 Committee Land Trust

#### **Teacher Education**

- Waquoit Bay National Estuarine Research
- ***Others: Bristol Ag, Greenhouse, Spohr Gardens.***



# Birds, Bats, Butterflies, Bees, Beetles



Honey bee



Leaf-Cutting bees



Bumble Bees



Sweat Bee



Blue Orchard Bees



# Pollinators need:

- Nectar & Pollen=  
Blooms from early  
spring to late in Fall-  
For 8 months
- Host plants: **milkweed**,  
fennel, violets, cherry ....
- Gardens located across the  
landscape
- Most native insects get  
their water needs-60%  
from nectar sources

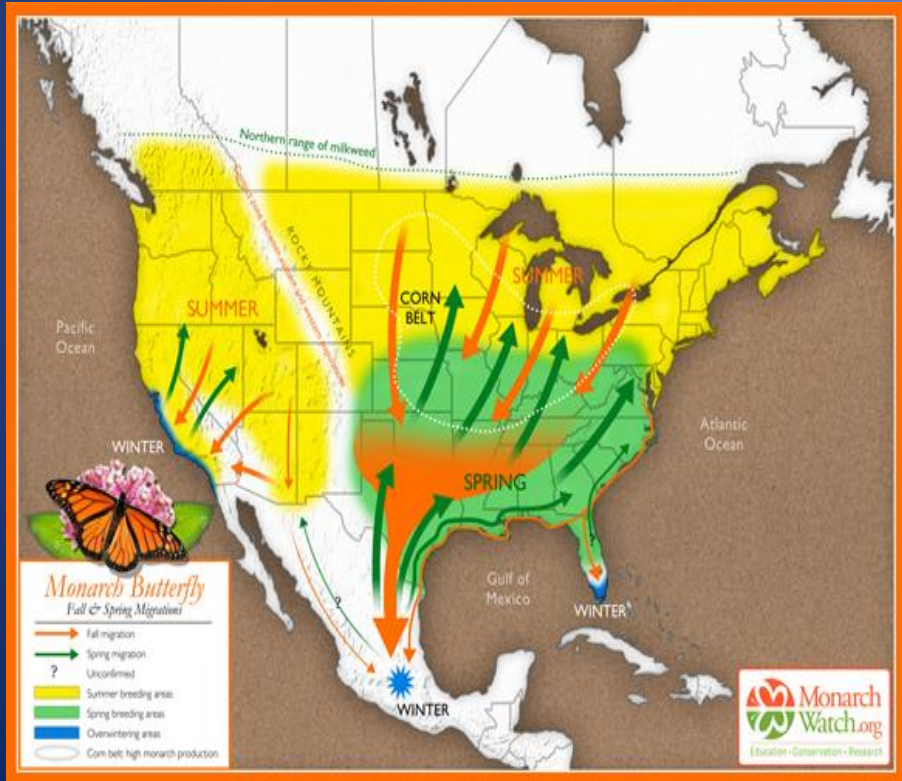




# Really a story about migration....

## Habitat is the Key!

## 90% lose in 30 years



# Monarchs need...

Milkweed! Milkweed! Milkweed!

- Their caterpillars only eat milkweed (glucosidic substances called cardenolides )
- Adults need flowering plants for nectar during breeding, laying, migrating.



# The Essentials in attracting Native Pollinators to your backyard



# Questions to start with.....

- Do you want Natives or pollinator magnets, perennials or only annuals
- host plants=butterflies
- Plant selection for targeting early spring to late fall flowering
- Diverse flower types to attract many species
- Add Woody Debris, rocks
- Introduce Height-Trellis, hanging pots
- Gardens need time...Encourage native pollinators over time by improved habitat: **Please DO NOT PURCHASE Butterflies or beneficial insects**-Honey Bee CCD issues....





## Native plants: Definition of “native”, How do I get it, When to order, plant???

- ❖ The Vascular Plants of Massachusetts: A County Checklist
- ❖ Local....Soare's Garden Center
- ❖ American Meadow's Wildflower Company
- ❖ Cold Stream Farm for shrubs & trees
- ❖ New England Wildflower Society
- ❖ Sharing excess between gardeners

## Butterfly list & Host plant summary

- ❖ NABA: Massachusetts Butterfly club
- ❖ Lady Bird Johnson Wildflower Center
- ❖ Butterflies of Cape Cod

## Seed Sources

- ❖ purchase from Ernst Seeds, Vermont  
Wildflower Farm



# Starting Native Plants

- *Native seeds need to go through the Cold, Moist Stratification process-10/30/90 days*
- *Deep seed trays*
- *Scarification might be needed*
- *Strategic growth:*
  - *First year roots*
  - *Above soil*



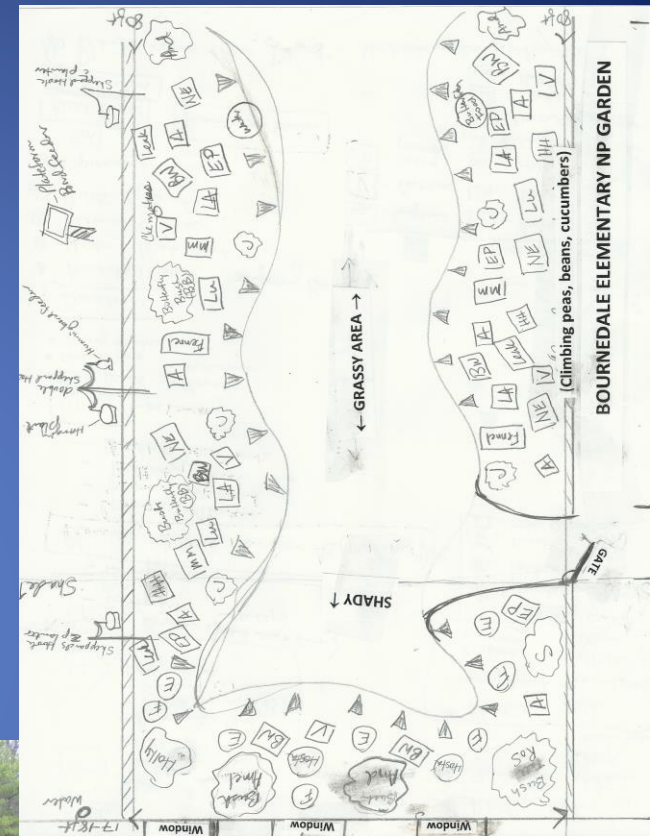


# Planning your Garden

- Size, location, water source
- Start small, create an overall plan
- How many plants?-1/sq ft
- Sun exposure
- Add Height, Logs, Vines, Rocks....



Bournedale Garden design



Bournedale School Garden

# Butterfly Host plants

| Butterfly:                | Caterpillar Food / Host Plant                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------|
| Monarch                   | Milkweed                                                                                               |
| Black Swallowtail         | Dill, Parsley, Fennel, Rue, Queen Anne's Lace, carrot                                                  |
| Tiger Swallowtail         | Wild Cherry, Yellow Poplar, Tulip Tree                                                                 |
| Eastern Tiger Swallowtail | Sycamore, willow                                                                                       |
| Spicebush Swallowtail     | Spicebush, Sassafras                                                                                   |
| Great-Spangled Fritillary | Violets                                                                                                |
| Question Mark             | Nettle, Hops, False Nettle, Elm, Hackberry                                                             |
| White Admiral             | joe-pye weed QA lace                                                                                   |
| Painted Lady              | Hollyhock, Pearly Everlasting, 'Silver Brocade' Artemisia, Thistle, hollyhock, sunflower               |
| American Lady             | Pearly Everlasting, Hollyhock, Artemisia 'Silver Brocade', Balsam, Ironweed (Vernonia) or aster family |
| Common Buckeye            | Plantain, Snapdragon, Heliotrope, Verbena                                                              |
| Viceroy                   | Willow, Aspen, Poplar, Cherry                                                                          |
| Orange Sulphur            | Alfalfa, False Indigo                                                                                  |
| Clouded Sulphur           | Clover, Alfalfa, False Indigo, Wild Senna                                                              |
| Gray Hairstreak           | Hibiscus, Rose of Sharon, Hollyhock                                                                    |
| Silvery Blue              | Lupine                                                                                                 |
| Common Hairstreak         | mallow family: hollyhock , rose and marsh mallows                                                      |
| Checkered Skipper         | mallow family: hollyhock , rose and marsh mallows                                                      |



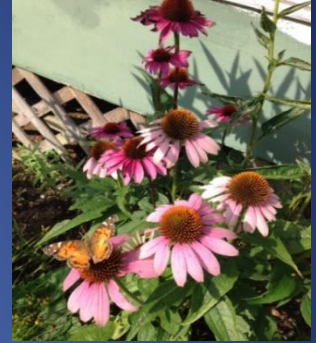
# Proven Plants best for Monarchs and other Pollinators...





# Top Nectar Plants...

- Native! Long-term relationship between Plant-Insect
- Provide Plants that bloom from early spring to late fall
- Choose Blue, purple and yellow flowers
- Flat or shallow blossom will attract the largest variety of bees  
(zinnias, daisies, asters, Q Anne's lace)
- Add annuals for 1<sup>st</sup> year as perennials grow
- Long-tongued bees attracted to mint family  
(salvia, oregano, mint and lavender)
- ***Avoid hybrid plants- observe what plants the bees like***





# Top Perennial & Annual Plants List...

- **Spring:** heather, crocus, Golden Alexanders, hyacinth, pussy willow, Black Locust, holly, dandelion, Highbush blueberry, shad bush, andromeda, Basswood
- **Summer:** Tickseed, Lupine, Anise/ Hyssop, Verbena, Squashes, corn, lavender, zinnias, clethra, button bush, milkweed, butterfly weed, alyssum
- **Late summer:** Joe-Pye weed, Liatrus, mints, coneflower, sunflower, culvers root
- **Fall:** Sedum, Montauk Daisy, NE Aster, NY Aster, Canadian goldenrod or showy goldenrod, Caryopteris





# Best Plants for Butterflies



More than 85% of the earth's plants require pollinators to exist.

Your help is crucial to keep butterfly and moth pollinators thriving! Using these American Beauties Native Plants in your landscape provides essential support so butterflies and moths can exist and continue pollinating!



**American Beauties Native Plants** Visit [www.abnativeplants.com](http://www.abnativeplants.com) for more information

| Plant Name                                          | Plant Type | Nectar Source | Host Plant | Bloom Time         | Exposure               |
|-----------------------------------------------------|------------|---------------|------------|--------------------|------------------------|
| Carex appalachica - Appalachian Sedge               | Grass      | Yes           | No         | March-April        | Partial Shade          |
| Carex laxiculmus Bunny Blue™ ('Hobb')               | Grass      | Yes           | No         | March-April        | Full to Partial Shade  |
| Carex pennsylvanica - Pennsylvania Sedge            | Grass      | Yes           | No         | March-April        | Full Sun/Full Shade    |
| Carex stricta - Tussock Sedge                       | Grass      | Yes           | No         | May - June         | Full Sun/Partial Shade |
| Schizachyrium 'Standing Ovation' - Little Blue Stem | Grass      | Yes           | No         | August-September   | Full Sun/Partial Sun   |
| Schizachyrium 'The Blues' - Little Blue Stem        | Grass      | Yes           | No         | August-September   | Full Sun/Partial Sun   |
| Asclepias incarnata - Swamp Milkweed                | Perennial  | Yes           | Yes        | July-August        | Full Sun/Partial Sun   |
| Asclepias incarnata 'Ice Ballet' - Swamp Milkweed   | Perennial  | Yes           | Yes        | July-August        | Full Sun/Partial Sun   |
| Asclepias tuberosa - Butterfly Milkweed             | Perennial  | Yes           | Yes        | June-July          | Full Sun/Partial Sun   |
| Aster divaricata - Woodland Aster                   | Perennial  | Yes           | Yes        | September-October  | Full Sun/Partial Shade |
| Aster laevis 'Bluebird' - Smooth Aster              | Perennial  | Yes           | Yes        | August-September   | Full Sun/Partial Shade |
| Aster 'Alma Potchke' - New England Aster            | Perennial  | Yes           | Yes        | August-September   | Full Sun/Partial Shade |
| Baptisia australis - Blue False Indigo              | Perennial  | Yes           | Yes        | May                | Full Sun/Partial Shade |
| Chelone - Turtlehead                                | Perennial  | Yes           | Yes        | August - September | Full Sun/Partial Shade |
| Coreopsis 'Sunshine Superman' - Star Tickseed       | Perennial  | Yes           | No         | June-July          | Full Sun               |
| Coreopsis verticillata - Threadleaf Tickseed        | Perennial  | Yes           | No         | June-July          | Full Sun               |
| Echinacea purpurea - Coneflower                     | Perennial  | Yes           | Yes        | June - August      | Full Sun/Partial Sun   |
| Echinacea purpurea 'Happy Star' - Coneflower        | Perennial  | Yes           | Yes        | July-October       | Full Sun/Partial Sun   |
| Echinacea purpurea 'Ruby Star' - Coneflower         | Perennial  | Yes           | Yes        | July-October       | Full Sun/Partial Sun   |
| Echinacea pur. 'Prairie Splendor' - Coneflower      | Perennial  | Yes           | Yes        | July-October       | Full Sun/Partial Sun   |
| Eupatorium coelestinum - Joe Pye Weed               | Perennial  | Yes           | No         | August-September   | Full Sun/Part Shade    |
| Eupatorium 'Little Joe' - Dwarf Joe Pye Weed        | Perennial  | Yes           | No         | July - September   | Full Sun/Part Shade    |
| Geranium maculata - Wild Geranium                   | Perennial  | Yes           | No         | April - May        | Full Sun/Part Shade    |
| Geranium maculata 'Espresso' - Cranesbill           | Perennial  | Yes           | No         | May - June         | Full Sun/Part Shade    |
| Helenium 'Tiny Dancer' - Sneezeweed                 | Perennial  | Yes           | No         | August - September | Full Sun               |
| Heliopsis heli. 'Summer Nights' - Oxeeye Daisy      | Perennial  | Yes           | No         | June - August      | Full Sun               |
| Iris cristata - Dwarf Crested Iris                  | Perennial  | Yes           | No         | May-June           | Full to Partial Shade  |
| Iris cristata 'Alba' - White Dwarf Crested Iris     | Perennial  | Yes           | No         | May-June           | Full to Partial Shade  |
| Iris versicolor - Northern Blueflag                 | Perennial  | Yes           | No         | May-June           | Full Sun/Full Shade    |
| Lobelia cardinalis - Cardinal Flower                | Perennial  | Yes           | No         | July - September   | Full Sun/Part Shade    |
| Lobelia 'Fried Green Tomatoes'-Cardinal Flower      | Perennial  | Yes           | No         | July - September   | Full Sun/Part Shade    |
| Lobelia siphilitica - Great Blue Lobelia            | Perennial  | Yes           | No         | June-July          | Full Sun/Part Shade    |
| Lupinus perennis - Sundial Wild Lupine              | Perennial  | Yes           | No         | May-July           | Sun                    |
| Monarda 'Blue Stocking' - Bee Balm                  | Perennial  | Yes           | No         | May-July           | Full Sun/Partial Sun   |
| Monarda didyma 'Jacob Cline' - Bee Balm             | Perennial  | Yes           | No         | May-July           | Full Sun/Partial Sun   |
| Monarda first. 'Claire Grace' - Bee Balm            | Perennial  | Yes           | No         | May-July           | Full Sun/Partial Sun   |
| Penstemon 'Husker Red' - Beardtongue                | Perennial  | Yes           | No         | May-July           | Full Sun/Partial Sun   |
| Phlox div. 'Blue Moon' - Woodland Phlox             | Perennial  | Yes           | No         | April - May        | Full to Partial Shade  |

# Best Plants for Bees



1 of every 3 bites of food you eat comes from plants that are pollinated by bees.









Your help is crucial to keep these bees thriving! Using these listed American Beauties Native Plants in your landscape provides essential support to bees so they can continue to provide food for your table.



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| Chelone glabra - White Turtlehead                      | Perennial  | August - September | Full Sun/Part Shade  |
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| Monarda first. 'Claire Grace' - Bee Balm               | Perennial  | May-July           | Full Sun/Partial Sun |
| Oenothera f. 'Fireworks' - Evening Primrose            | Perennial  | June-August        | Full Sun             |
| Penstemon digi. 'Husker Red' - Beardtongue             | Perennial  | May-July           | Full Sun/Partial Sun |
| Ratibia 'Red Midget' - Mexican Hat                     | Perennial  | July - August      | Full Sun/Partial Sun |
| Rudbeckia var. fulgida - Black Eyed Susan              | Perennial  | July - September   | Full Sun/Partial Sun |
| Rudbeckia triloba - Three-lobed Coneflower             | Perennial  | July - September   | Full Sun/Partial Sun |
| Rudbeckia tri. 'Prairie Glow' - Three-lobed Coneflower | Perennial  | July - September   | Full Sun/Partial Sun |
| Solidago 'Fireworks' - Goldenrod                       | Perennial  | August - October   | Full Sun             |
| Tradescantia ohiensis - Spiderwort                     | Perennial  | July-August        | Full Sun             |
| Verbena stricta - Hoary Vervain                        | Perennial  | July-August        | Full Sun to Shade    |
| Vernonia 'Iron Butterfly' - Ironweed                   | Perennial  | August - September | Full Sun             |
| Veronicastrum virginicum - Culver's Root               | Perennial  | July - August      | Full Sun/Part Shade  |



| Common Name                  | a | Cold   | GH planting | Date ready | Host                                                                                                                                                                        | Bloom Color and Period |       |      |
|------------------------------|---|--------|-------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|------|
|                              |   |        |             |            |                                                                                                                                                                             | Early                  | Mid   | Late |
| Eastern columbine            |   | NO     | 2/2/2017    |            |                                                                                                                                                                             |                        |       |      |
| Tall white beard tongue      |   | C30    | 2/2/2017    | 3/2/2017   |                                                                                                                                                                             | white                  |       |      |
| Golden Alexanders            |   | C60    | 1/12/2017   | 3/12/2017  |                                                                                                                                                                             |                        |       |      |
| Leek                         |   | NO     |             |            |                                                                                                                                                                             |                        | white |      |
| Anise Hyssop                 |   | NO     | 2/2/2017    |            |                                                                                                                                                                             |                        |       |      |
| Hollyhock                    |   | NO     | 2/2/2017    |            |                                                                                          |                        |       |      |
| Swamp Milkweed               |   | C60-90 | 1/16/2017   | 3/16/2017  |                                                                                          |                        |       |      |
| Common Milkweed              |   | C60-90 | 1/15/2017   | sprouting! |                                                                                          |                        |       |      |
| Butterfly weed               |   | NO     | 2/2/2017    |            |                                                                                         |                        |       |      |
| Joe Pye Weed-little          |   | NO     | 1/15/2017   |            |   |                        |       |      |
| Bronze and Green Leaf Fennel |   | NO     | 2/2/2017    |            |                                                                                        |                        |       |      |
| Northern Blazing star (N)    |   | C60    | 1/12/2017   | 3/12/2017  |                                                                                                                                                                             |                        |       |      |
| Perennial Lupine             |   | NO     | 2/2/2017    |            |                                                                                        |                        |       |      |

# Native Pollinator garden examples....





# Mashpee Refuge Pollinator garden Blitz: Five gardens in one week... in 2013

Community Gardens: old site



Garden outlined, grass killed and plants spaced



Digging in plants



Community Gardens: newly planted





# Jehu Pond Trails





# Waquoit Bay NERR



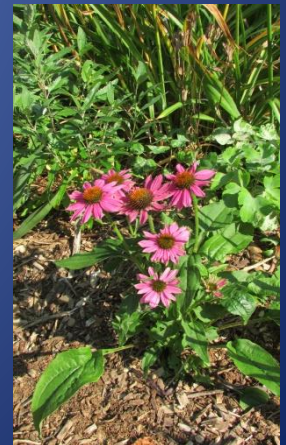




MK's NP home gardens: Pre garden preparations to get rid of “dead” space, reduce weekly mowing and grass monoculture.



Area had plenty of sunshine. BONUS: Rock wall excellent for bumblebee nesting areas.





# The Next few years

- ❖ Each Year more plants were added to each garden section
- ❖ added 10-15ft sections each year....slowly changing the habitat up the road....

Now....2018







**This garden provides a diversity of plants that bloom throughout the season  
Adding rocks and logs help to retain moisture that then provide for more  
Insect nesting sites and secure areas for salamanders.**



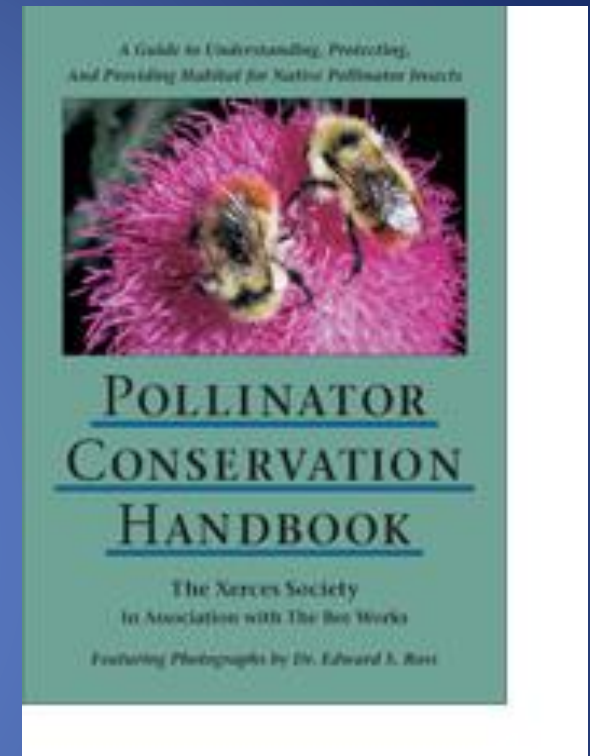
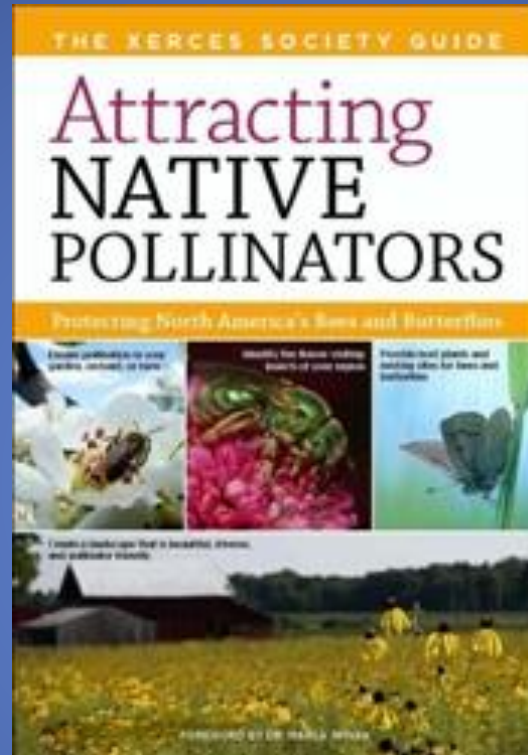
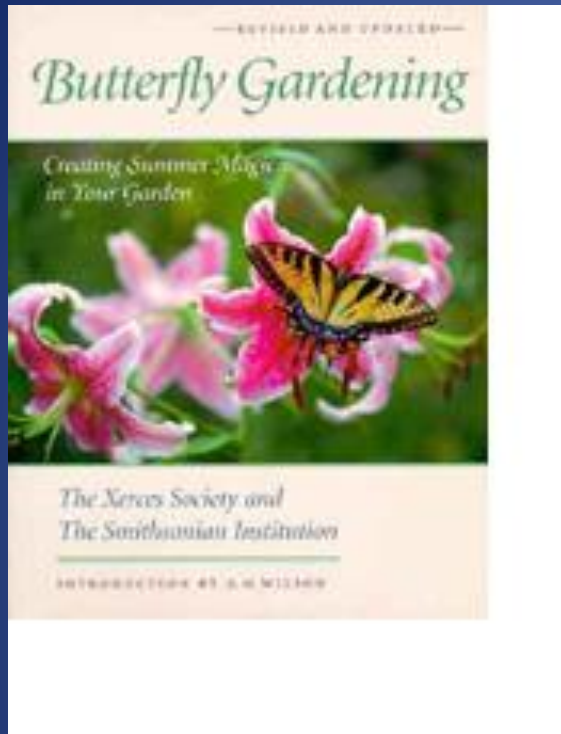
## Pollinator resources:

<http://millionpollinatorgardens.org/>



# Pollinator Resources -Xerces Society

[xerces.org](http://xerces.org)





Start or add to your Native Pollinator garden  
by choosing one of these native plants...

And spread the word ....Thank you!



Anise Hyssop



Butterfly weed



Perennial Lupine