

Inland Bays Garden Center

"Gardening to Make a Difference"

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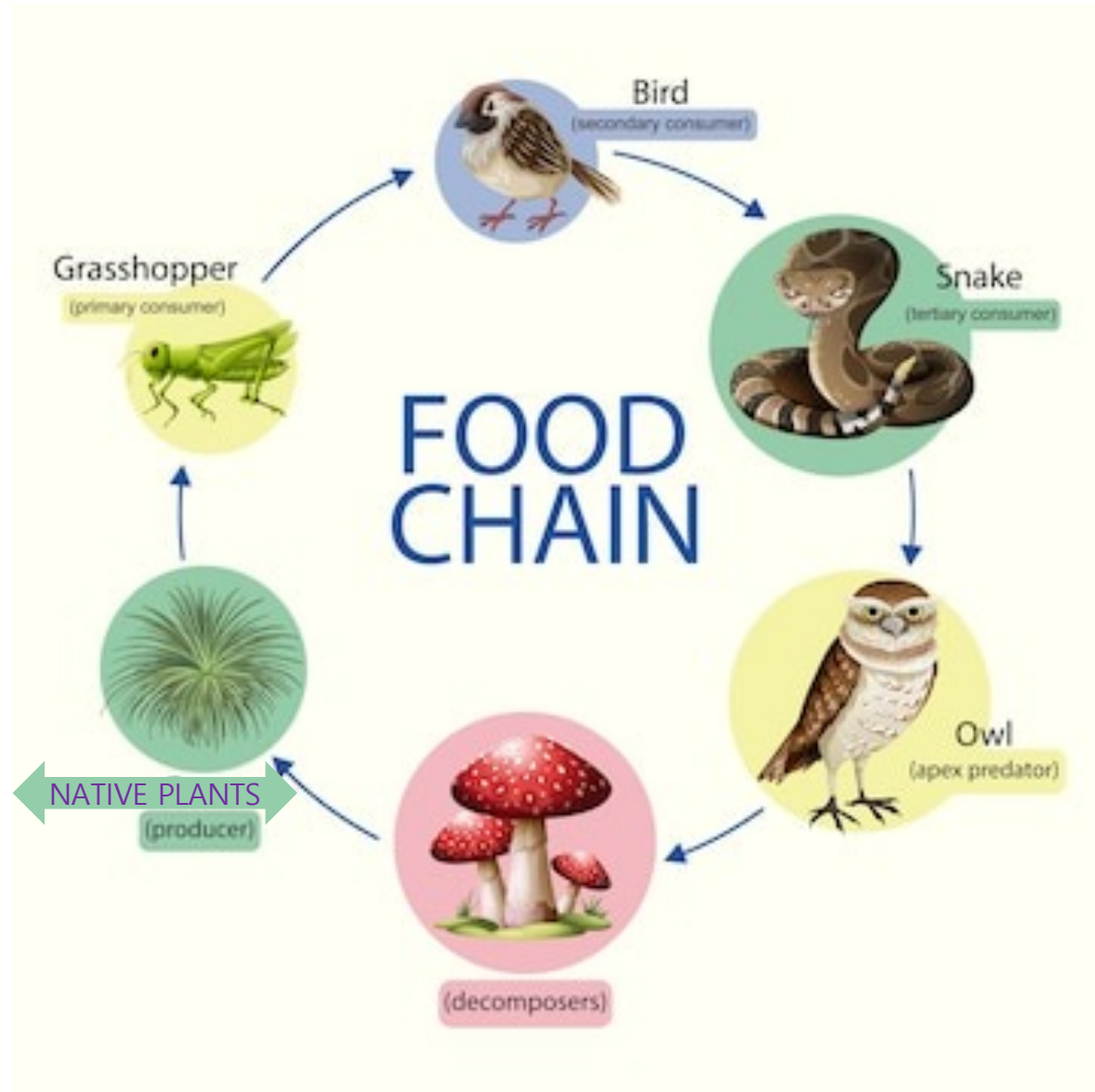
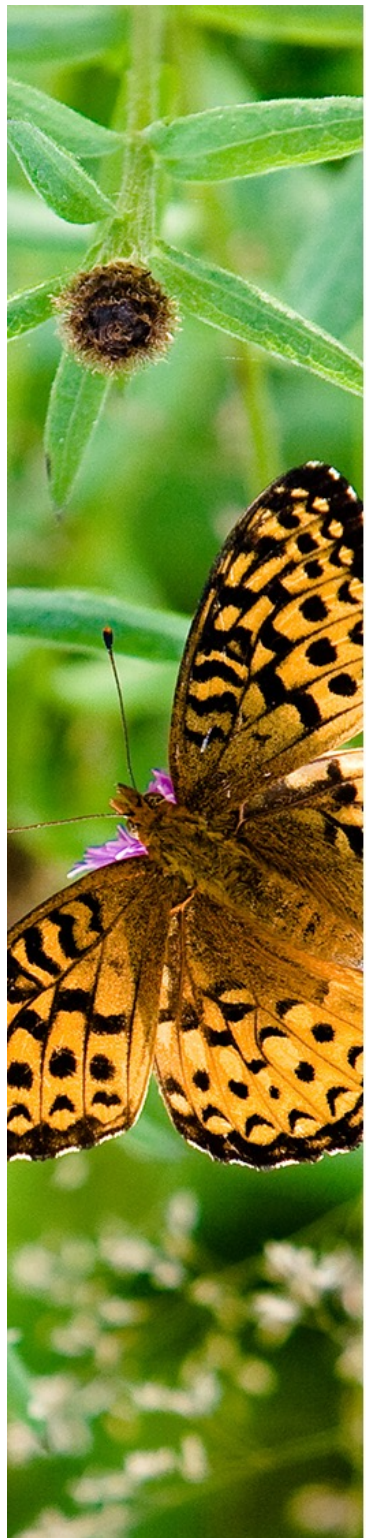
Christopher Gezon, NPS



Joanna Gilkeson, USFWS

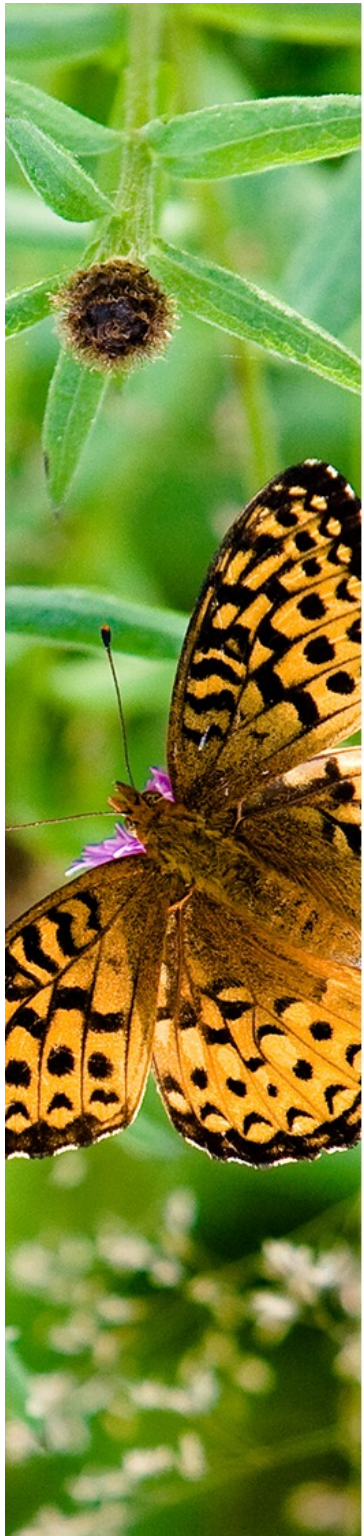


John Sarvis, USFWS



Human Activity

- Loss of wildlife habitat
- Loss of wetlands & natural shorelines
- Loss of Native Plant Species
- Extinction of species





University of Delaware Residential Property study:

- 92% lawn
- 79% of the plants were introduced (non-native)
- Includes many Invasive species



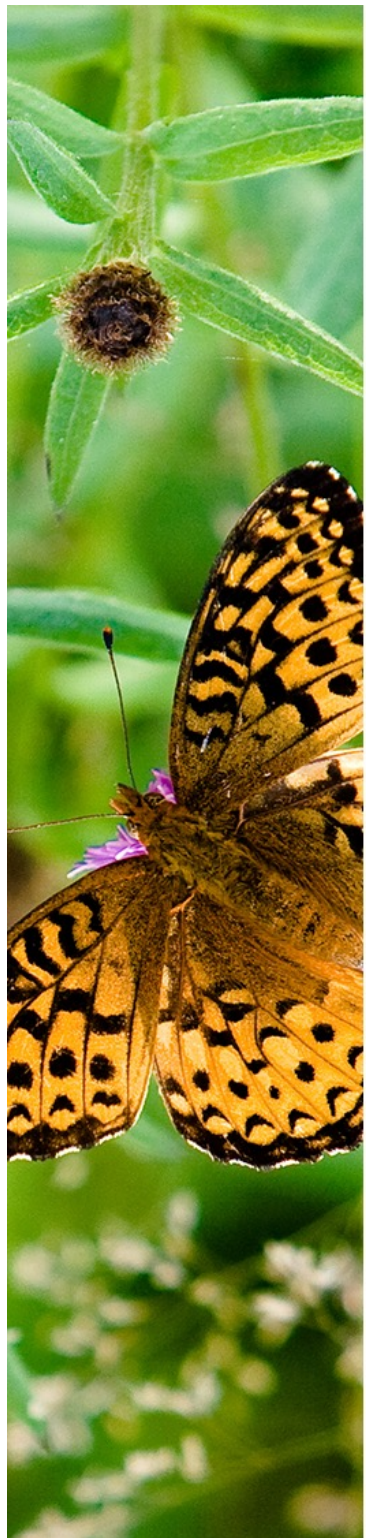
Traditional lawns



What does it mean to have a beautiful yard?

Can we re-think beauty and the way we garden?





Change your Landscape Think Ecology vs Aesthetics

Redirect downspouts

Create a raingarden

Reduce impermeable surfaces

Add buffers

Reduce your lawn

Leave the leaves

Reduce use of fertilizers, pesticides, herbicides

Reduce the number of non-native plants

DO NOT PLANT INVASIVE PLANTS

Plant Native Plants



**GARDEN
FOR WILDLIFE**

Gardens that Benefit Wildlife and People

Native plants, eco-friendly gardening practices provide natural sources of the four elements of habitat:



food



water



cover




raising young

Oaks support over 500 species of butterflies and moths and feed and shelter other wildlife.



National Wildlife Federation's Certified Wildlife Habitats® include these elements and can support 2X the amount of wildlife.

Songbird babies rely on thousands of caterpillars and other insects supplied by native plants. 

Roughly 30% of native bee species are pollen specialists that restrict their diets to specific native plants. 

Native plants sequester carbon, use less water and their roots help with storm-water runoff to maintain healthy watersheds.

Conventional Landscapes

1 million acres of wildlife habitat are lost to suburban development annually.

The monarch butterfly that relies on native milkweed has declined by 90%.

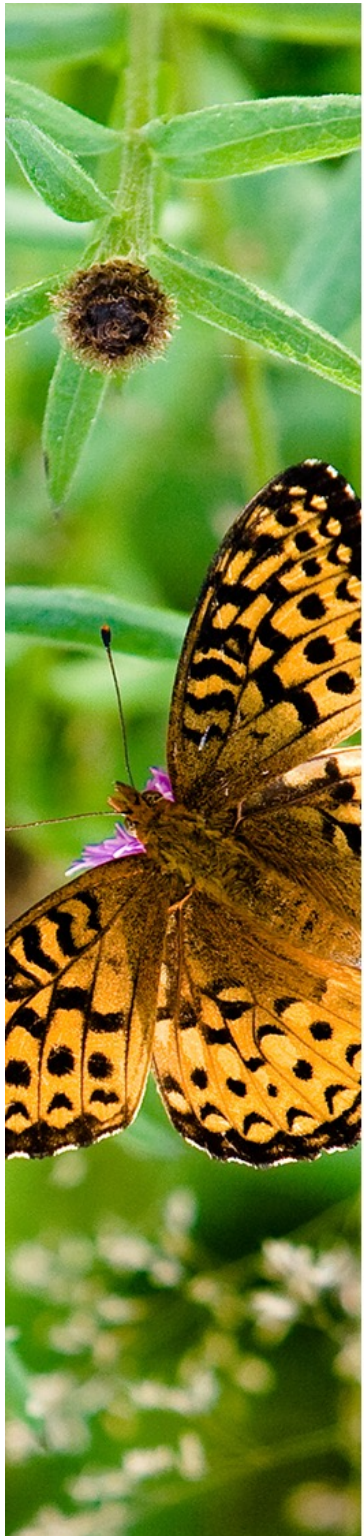
Lawns use 9 billion gallons of water nationwide per day.

Non-native trees and turf lawns don't support wildlife.



Common garden weedkillers and pesticides harm beneficial insects and soil microorganisms essential to naturally healthy ecosystems.

To learn more: <https://www.nwf.org/Garden-for-Wildlife/About/Impact>



NATIVE PLANTS

- Absorb pollutants
- Recreate imperiled habitats
- Adapted to local climate
- Pest Suppression
- Decrease Pesticide use
- Decrease Fertilizer use
- Less care
- Less cost to maintain
- Reduced water usage
- Support pollinators and other wildlife

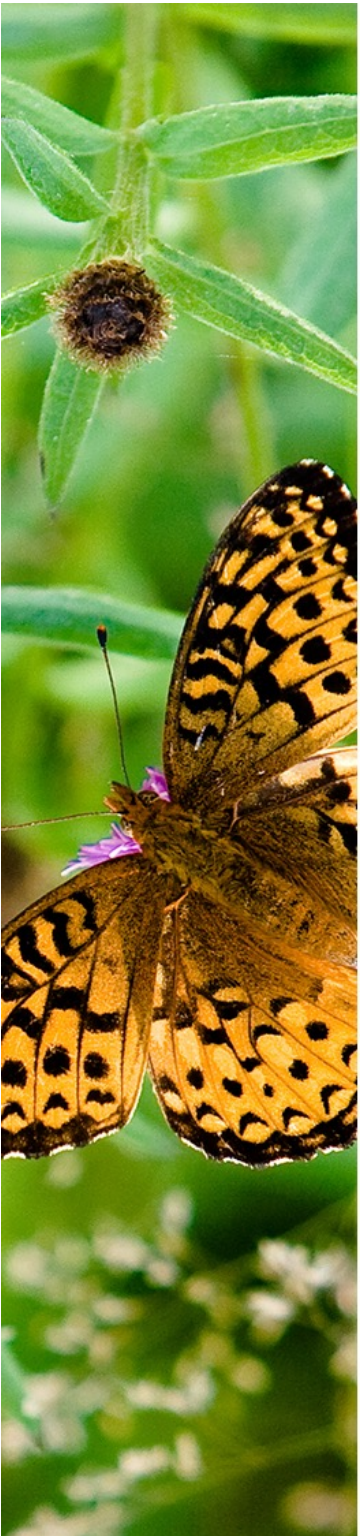
Importance of Insects

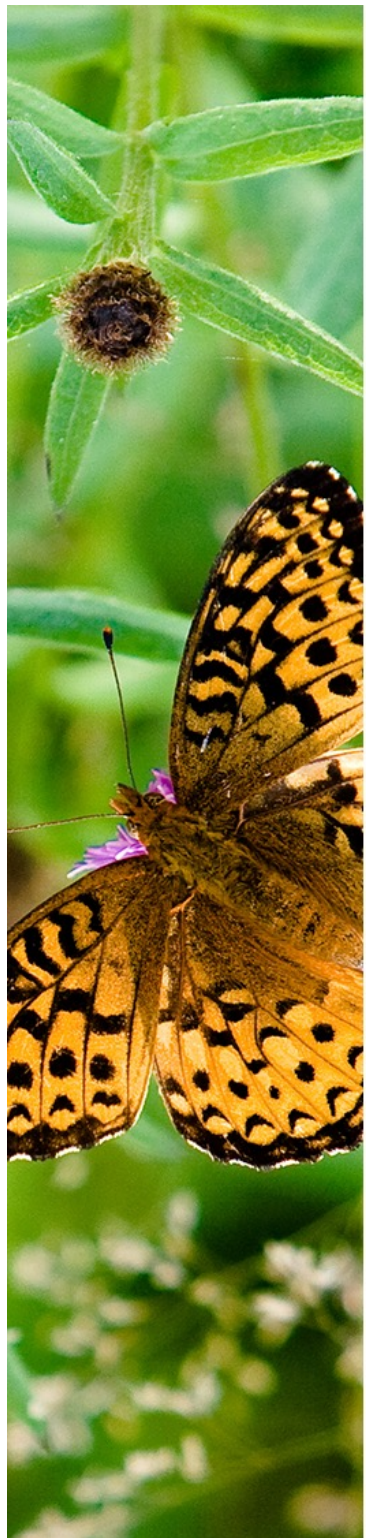
- Native insects have evolved billions of years eating only native plants (& sheltering on)
- 90 % of insects are “specialists”
- Only feed on specific plants, flower or pollen
- Don't create “food deserts” by planting only ornamental (non-native) plants



Pollinators

- >75% of flowering plants depend on animal pollinators
- In U.S., over 100 crop plants depend on animal pollinators (value >\$15 Billion)
- Most natural ecosystems would collapse without animal pollinators
- Some plants are endangered because of diminished pollination





- Bird parents can forage for food on long distances; 86% of their food is found on Native Plants.
- Non-native yards produced
 - 75 % less caterpillars
 - 60 % less breeding chickadees
 - Less eggs
 - Fewer chicks
 - 29 % less likely to survive



*6000-9000 caterpillars
to raise 5 chickadees

Invasive Plants

- ✓ > 3300 invasive species in the US
- ✓ aggressively colonize habitats
- ✓ grow and reproduce rapidly
- ✓ replace native species
- ✓ major disturbance to the areas in which they are present
- ✓ likely cause economic, environmental or human health harm



Butterfly Bush: Non-native & Invasive



- Do not support butterfly life cycle
- Provide pollen and nectar to only a few species
- Not a good nutritional source
- Invasive!





Sweet Pepper Bush



- high quality nectar and pollen
- supports hummingbirds, butterflies, bees and other pollinators
- host plant for at least 11 lepidoptera species
- seeds eaten by birds



Crepe Myrtle : Non-native



- Birds occasionally nest
- Little value to wildlife
- Not host plants for butterflies and moths
- Do not produce a bounty of pollen and nectar for native pollinators
- Not a valuable source of seeds for birds and other wildlife species.



Eastern Redbud



- Important source of nectar for bees and butterflies in early spring
- Host plant for several species of moth and butterfly larvae
- Bobwhite, quail and chickadees will eat redbud seeds



Keystone Plants

Native Keystone Plants that support the highest number of caterpillars of Lepidoptera (butterflies, moths, skippers, fritillaries)

Top Woody Keystone Plants

- [White Oak \(*Quercus alba*\)](#): genus supports 534 species
- Red Oak (*Quercus rubra*)
- Willow Oak (*Quercus phellos*)
- Dwarf Chinquapin Oak (*Quercus prinoides*)
- [Black Cherry \(*Prunus serotina*\)](#): genus supports 456 species
- Black Willow (*Salix nigra*): genus supports 455 species
- Silky Willow (*Salix sericea*)
- Pussy Willow (*Salix discolor*)
- [River Birch \(*Betula nigra*\)](#): genus supports 413 species
- [Sweet Crabapple \(*Malus coronaria*\)](#): genus supports 311 species
- [Highbush Blueberry \(*Vaccinium corymbosum*\)](#): supports 288 species
- [Red Maple \(*Acer rubrum*\)](#): genus supports 285 species
- [Eastern White Pine \(*Pinus strobus*\)](#): genus supports 203 species
- [Shagbark Hickory \(*Carya ovata*\)](#): genus supports 200 species
- [Cockspur Hawthorn \(*Crataegus crus-galli*\)](#): genus supports 159 species
- [Trumpet Honeysuckle \(*Lonicera sempervirens*\)](#): genus supports 36 species

Other Woody Keystone Species

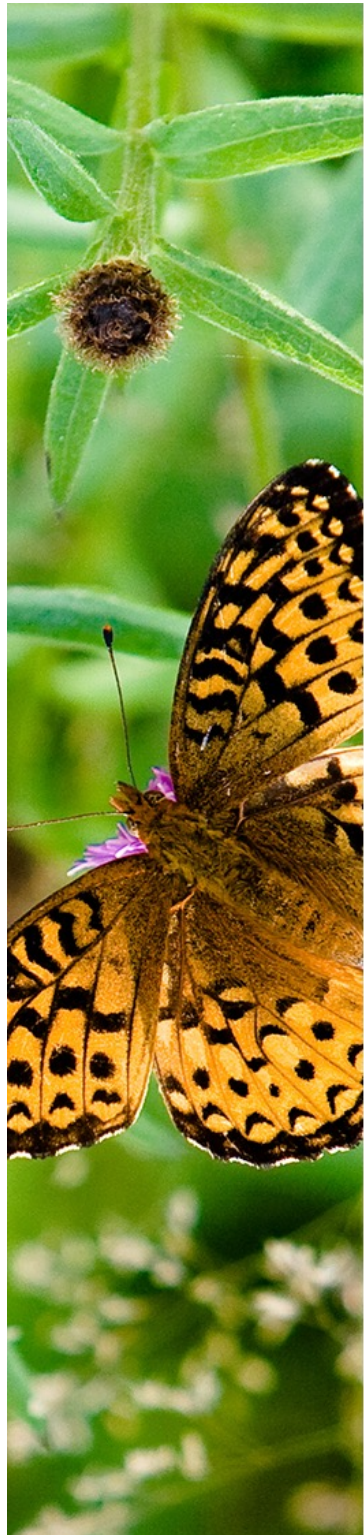
- Poplar (*Populus deltoides*)
- Ash (*Fraxinus pennsylvanica*)
- Rose (*Rosa palustris*)
- Filbert (*Corylus americana*)
- Walnut (*Juglans nigra*)
- Beech (*Fagus grandifolia*)

Top Herbaceous Keystone Plants

- [Rough-stemmed Goldenrod \(*Solidago rugosa*\)](#): genus supports 115 species
- Blue-stemmed Goldenrod (*Solidago caesia*)
- Gray Goldenrod (*Solidago nemoralis*)
- [New England Aster \(*Symphyotrichum novae-angliae*\)](#): genus supports 112 species
- Aromatic Aster (*Symphyotrichum oblongifolium*)
- [White Wood Aster \(*Eurybia divaricata*\)](#)
- [Blue Wood Aster \(*Symphyotrichum cordifolium*\)](#)
- Woodland Sunflower (*Helianthus divaricatus*): genus supports 73 species
- Narrow-leaved Sunflower (*Helianthus angustifolius*)
- [Coastal Plain Joe Pye Weed \(*Eutrochium dubium*\)](#): genus supports 42 species
- [Pennsylvania Sedge \(*Carex pensylvanica*\)](#): genus supports 36 species
- [Plantain-leaved Sedge \(*Carex plantaginea*\)](#)
- Common Blue/Confederate Violet (*Viola sororia*): genus supports 29 species
- Yellow Violet (*Viola pubescens*)
- Striped Violet (*Viola striata*)
- [Wild Geranium \(*Geranium maculatum*\)](#): genus supports 23 species
- [Orange Coneflower \(*Rudbeckia fulgida*\)](#): genus supports 17 species

Other Herbaceous Keystone Plants

- Lupine (*Lupinus spp.*)
- Iris ([Iris virginica](#) & [Iris cristata](#))
- Evening Primrose (*Oenothera spp.*)
- Milkweed ([Asclepias incarnata](#) & [Asclepias tuberosa](#))
- Verbena ([Verbena hastata](#))
- Beardtongue (*Penstemon digitalis*)
- Phlox ([Phlox divaricata](#), [Phlox paniculata](#), & [Phlox subulata](#))
- Beebalm ([Monarda didyma](#))
- Little Bluestem ([Schizachyrium scoparium](#))
- Cardinal Flower ([Lobelia cardinalis](#))



Oak (KEYSTONE)



- Host plant for over 600 different insect - mostly small wasps
- Support 454 types of caterpillars



Blueberry (KEYSTONE)

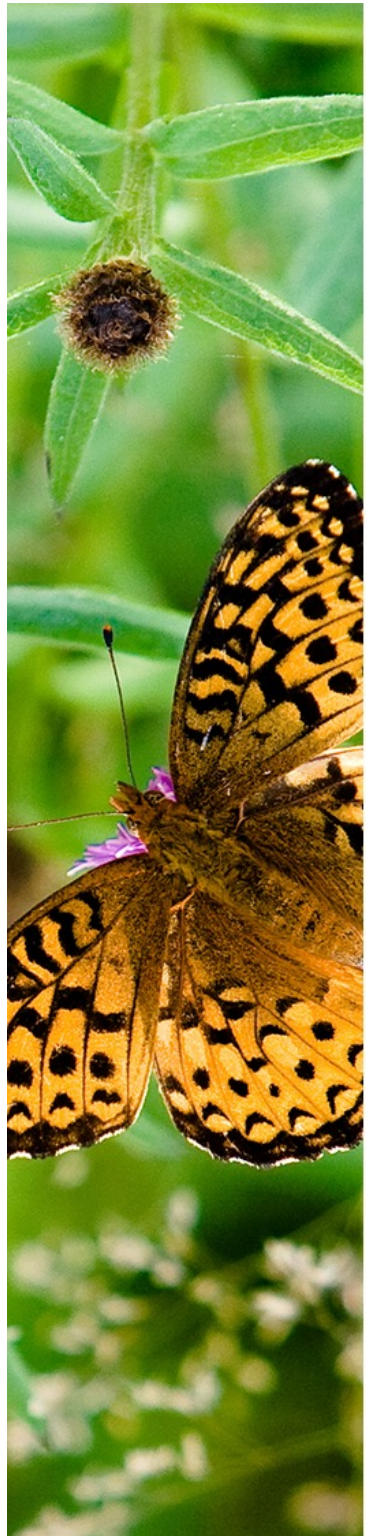


- Host to 217
Caterpillar species
- Nectar source
- Food source



Asters (KEYSTONE)

- Attract 100 caterpillar species
- Host plant for many butterfly species
- Specialist plant for 33 species of bees



Goldenrod (KEYSTONE)



- Blooms July-Sept
- Attracts a variety of bees, hover flies, lady beetles, predatory and parasitic wasps
- Host plant for 104 caterpillars



Native Plants for Coastal Communities

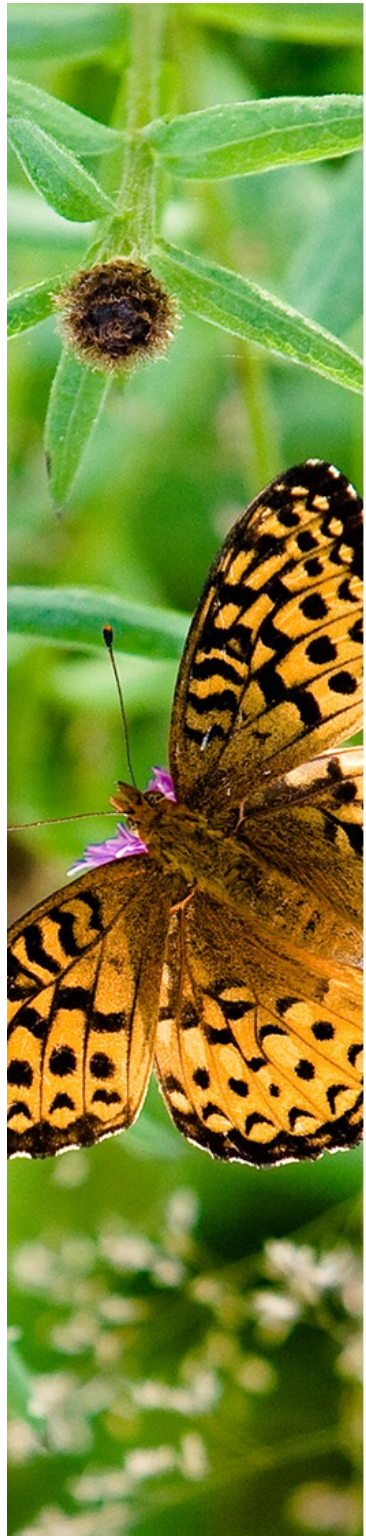
Baccharis halimifolia
Groundsel



Wildlife Value:
Nectar attracts
pollinators
and insects,
provides
cover, and
seeds are
enjoyed by
birds.

Native Plants for Coastal Communities

Kosteletzkya virginica
Salt Marsh Mallow



Attracts hummingbirds
and butterflies
Larval host for Painted
Lady Butterfly
Seeds good for
migratory birds and
small mammals



Native Plants for Coastal Communities

Baptisia australis
Wild Indigo



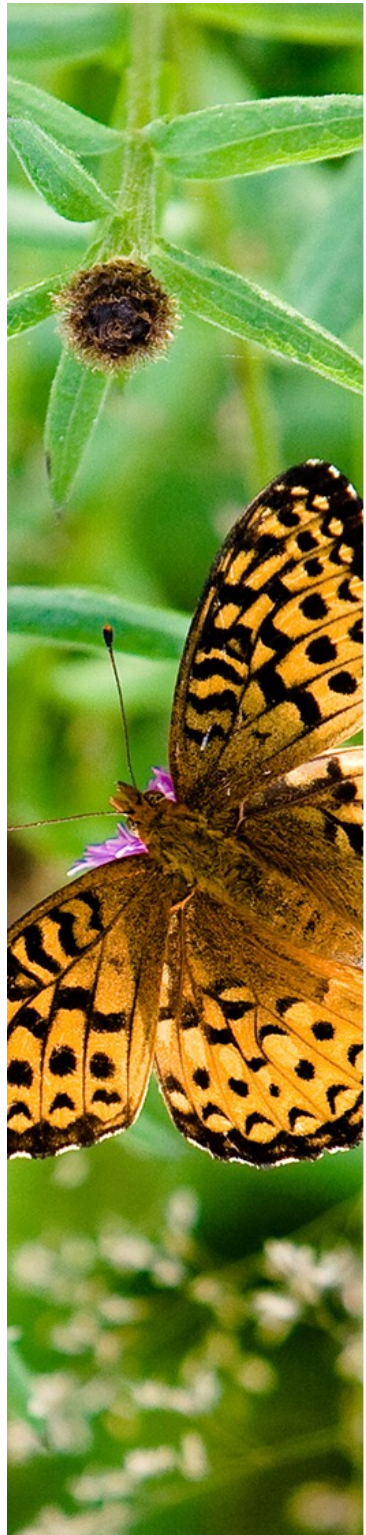
Host plant for the Wild Indigo Duskywing, Eastern Tailed-Blue, Orange Sulphur, Clouded Sulphur, Frosted Elfin, and Hoary Edge butterflies



Native Plants for Coastal Communities

Liatris spicata
Blazing Star

Flowers are attractive to butterflies, bees, and other pollinators.
Host to Glorius flower moth.
Larval forms of Liatris Flower Moth feed on the flowers and seeds.
Larval form of Liatris Borer Moth eat the stems.
Goldfinches eat the seeds



What is our Role?

Be an environmental advocate
Chose an Ecofriendly Landscape
Plant Non-invasive plants
Plant Majority Native Plants
Include Keystone Plants
Educate others



Native Viburnums



Benefit:

- songbirds, game birds, and small mammals
- insects including pollinators such as native bees, moths, butterflies, beetles, and flies
- larval host plant for the spring azure butterfly



Ninebark



Inkberry holly



Virginia sweetspire



Blueberry



Native Grasses

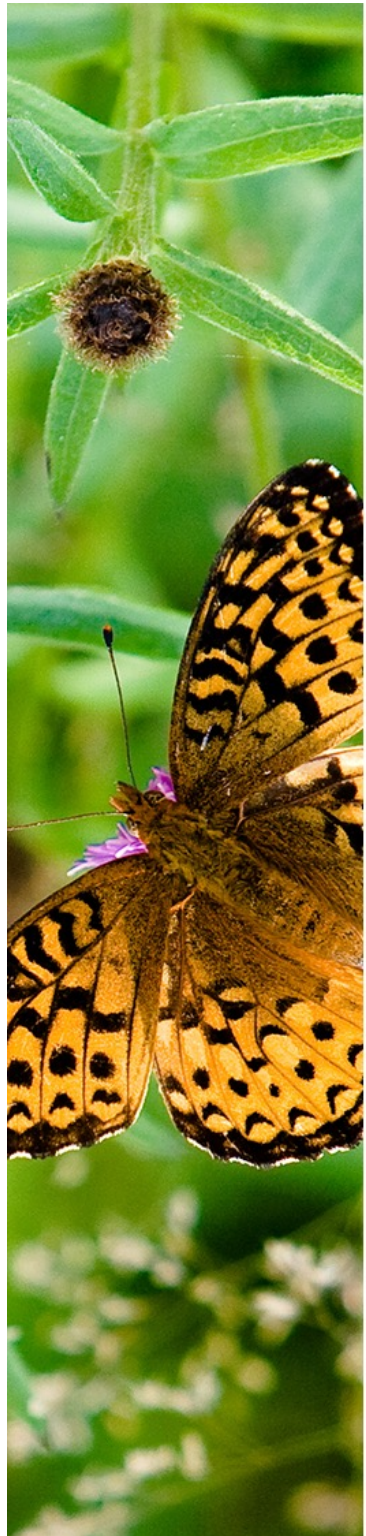
- Little bluestem
(*Schizachyrium scoparium*)

- Prairie dropseed

(*Sporobolus heterolepis*)



- Switchgrass
(*Panicum virgatum*)

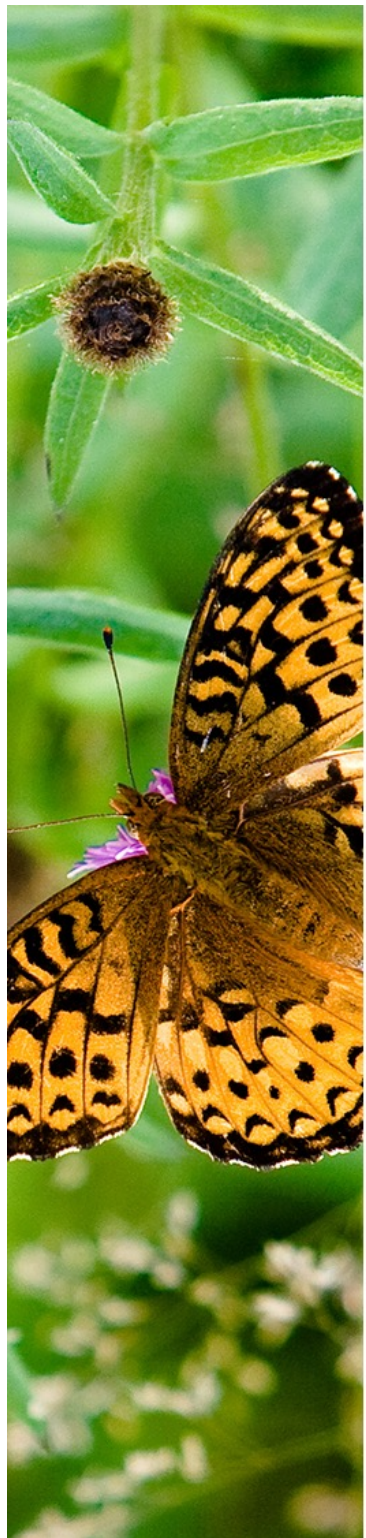




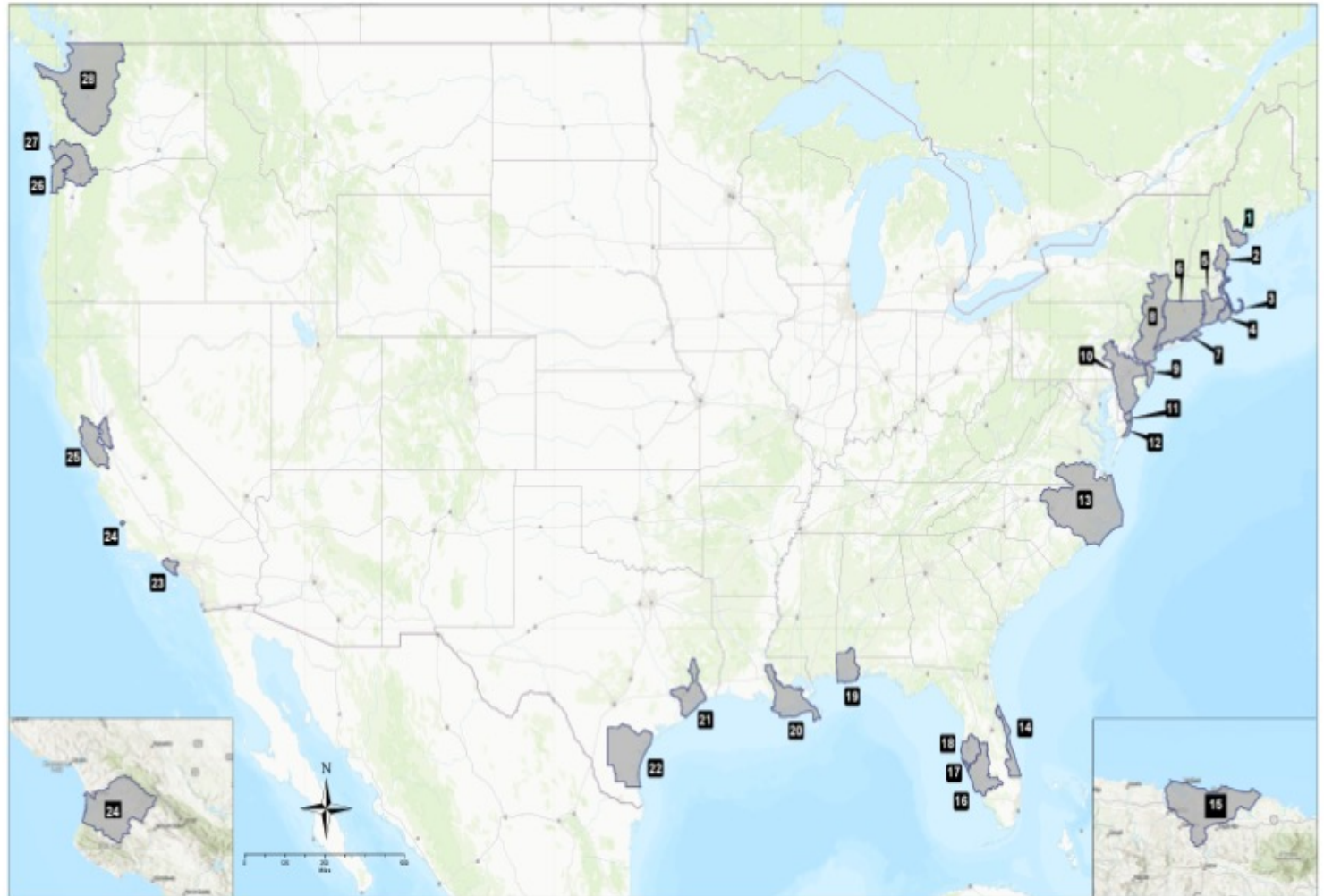
Buttonbush Agastache

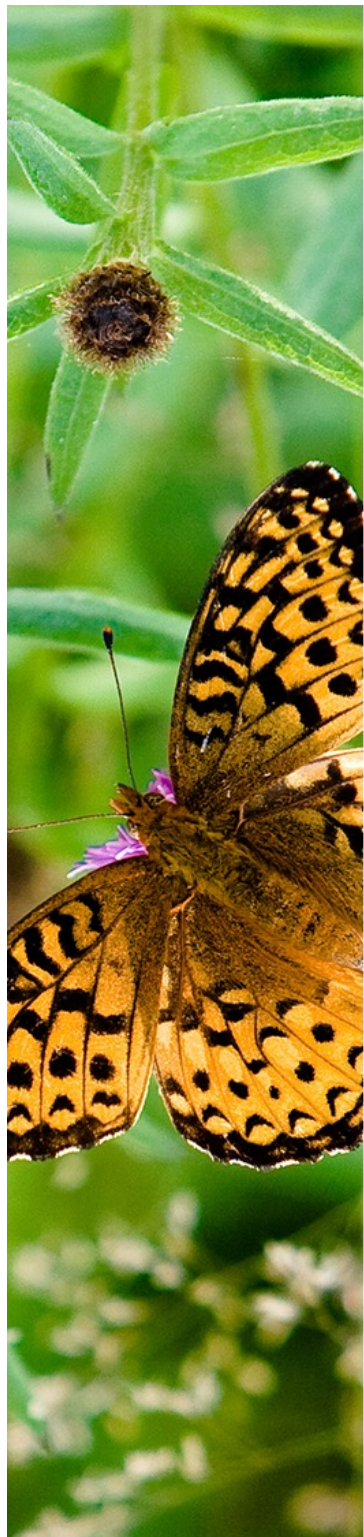




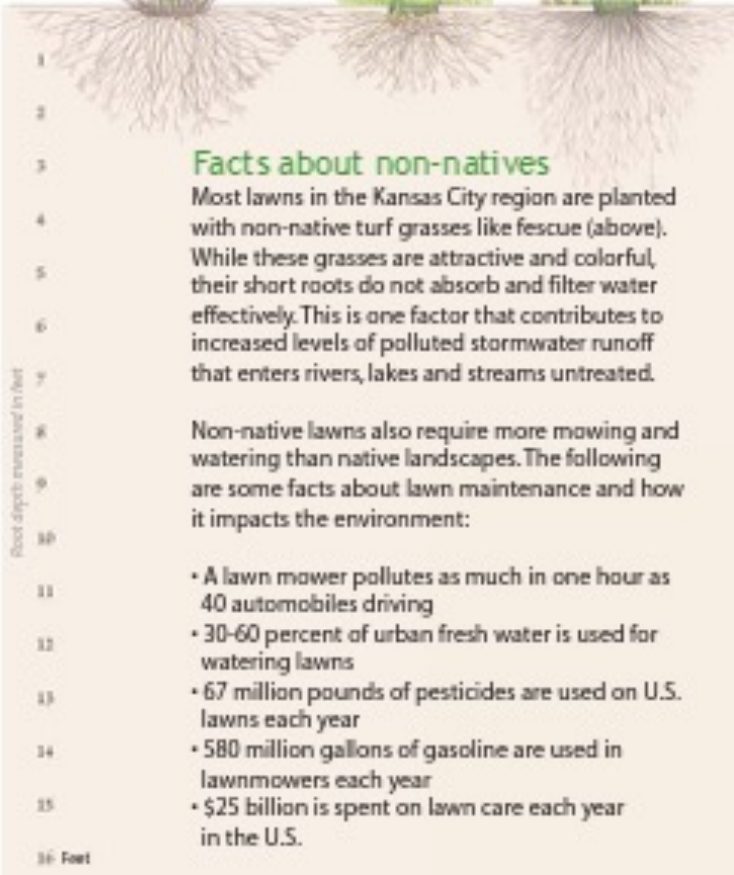


National Estuary Program Study Areas

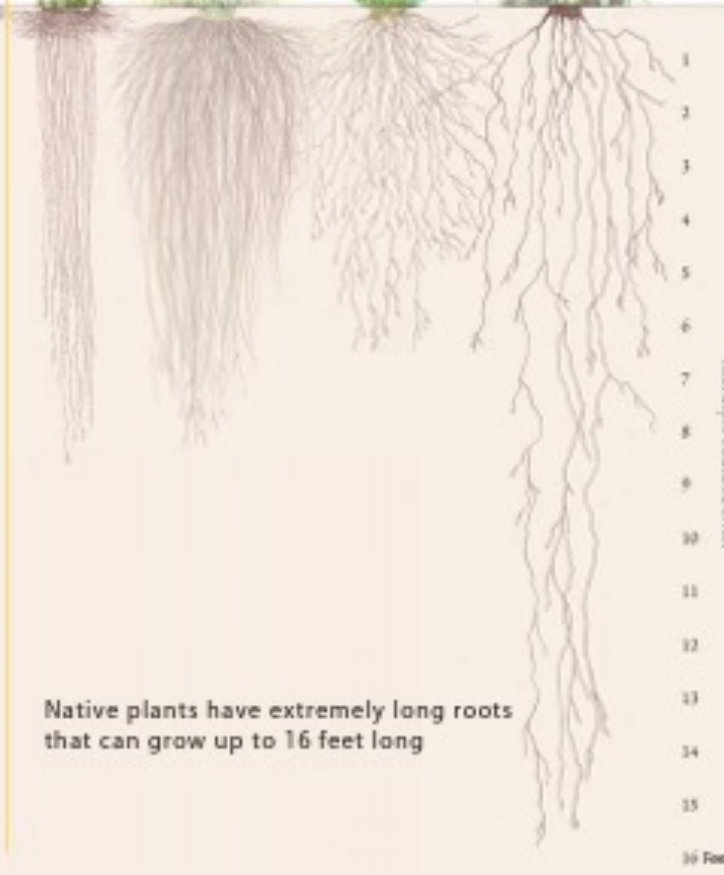




Non-Natives

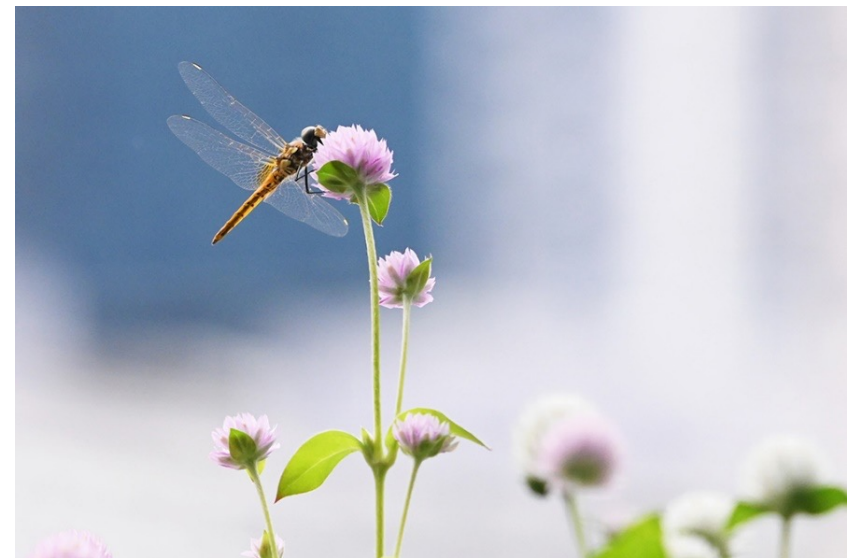
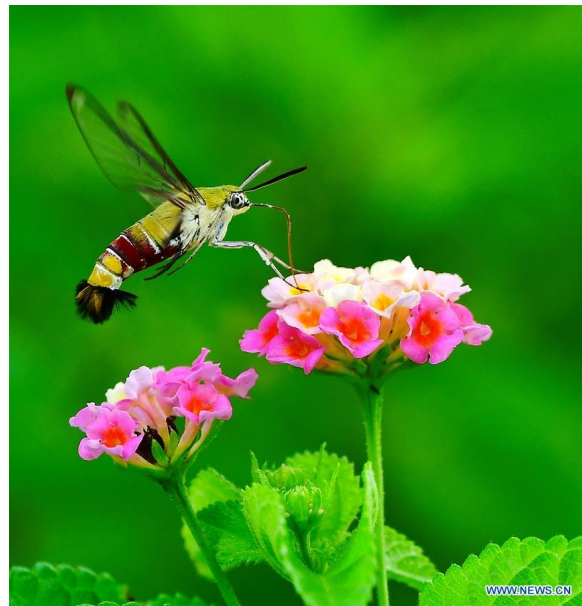
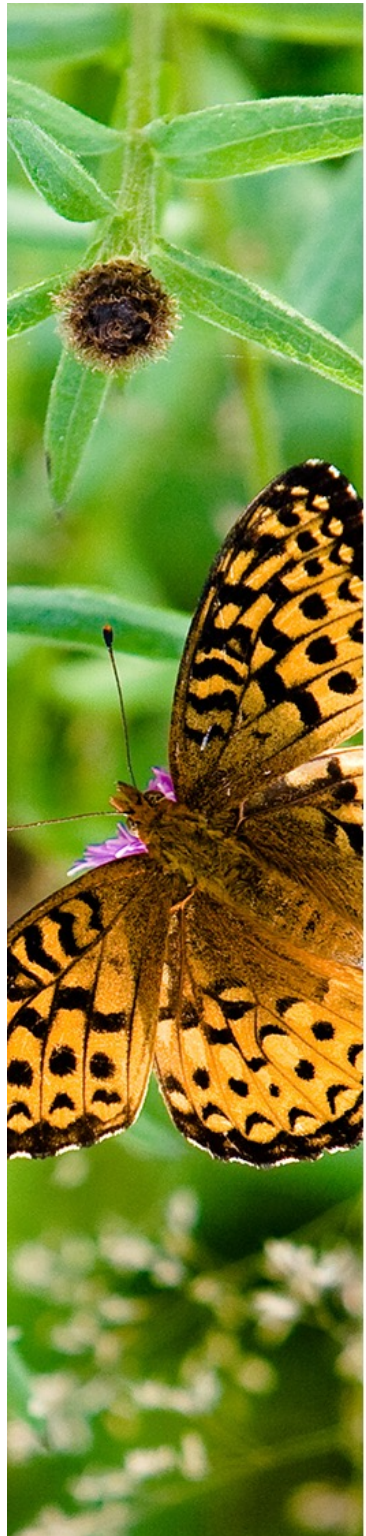


Natives



Insects

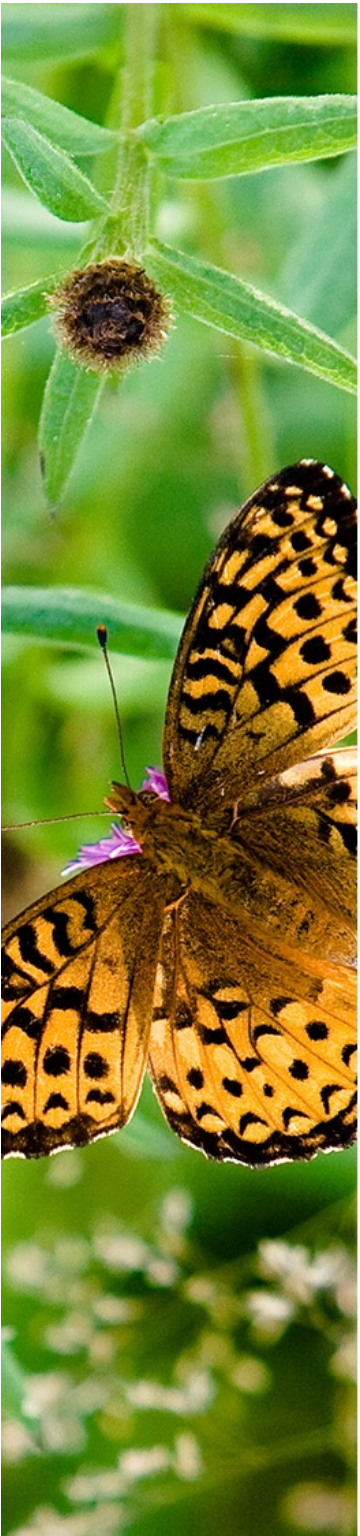
the little things that run the world



Threats to our Bays

- Human activity
- Climate change
- Sea level rise

Report Card
"D"





The Inland Bays
This Is Home

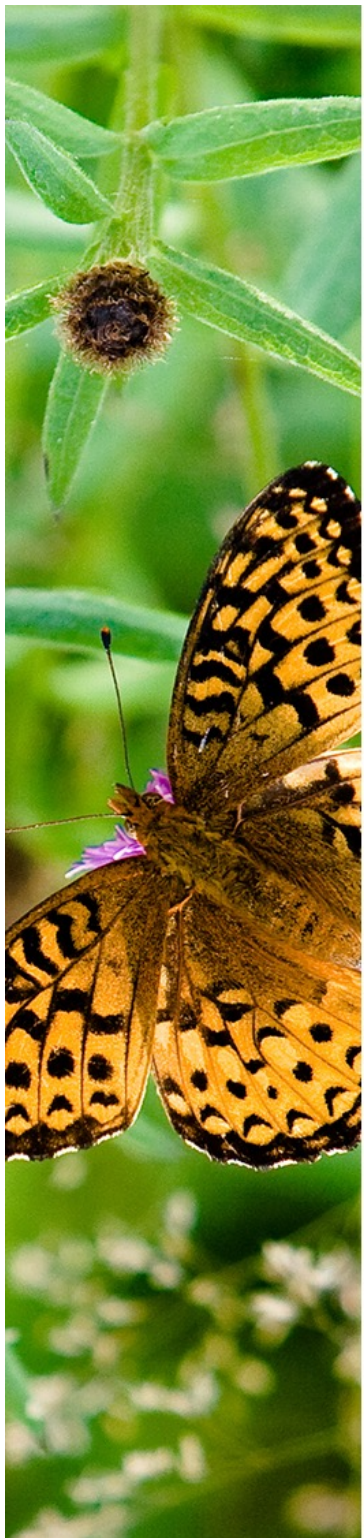
Burning Bush



Native Alternatives

- *Itea virginiana*-Virginia sweetspire
- Red chokeberry (*Aronia*)
- Blueberry
- *Viburnum*
- Ninebark





Coral hairstreak



spring azures, brown elfins,
striped hairstreaks, and
several moth species

