Perennials for Pollinators

Charlotte Glen

State Coordinator,

NC Extension Master Gardener Program

Department of Horticultural Science,

NC State University



Joe-Pye Weed Eutrochium dubium

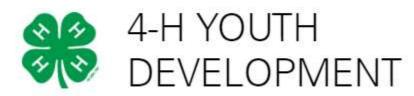


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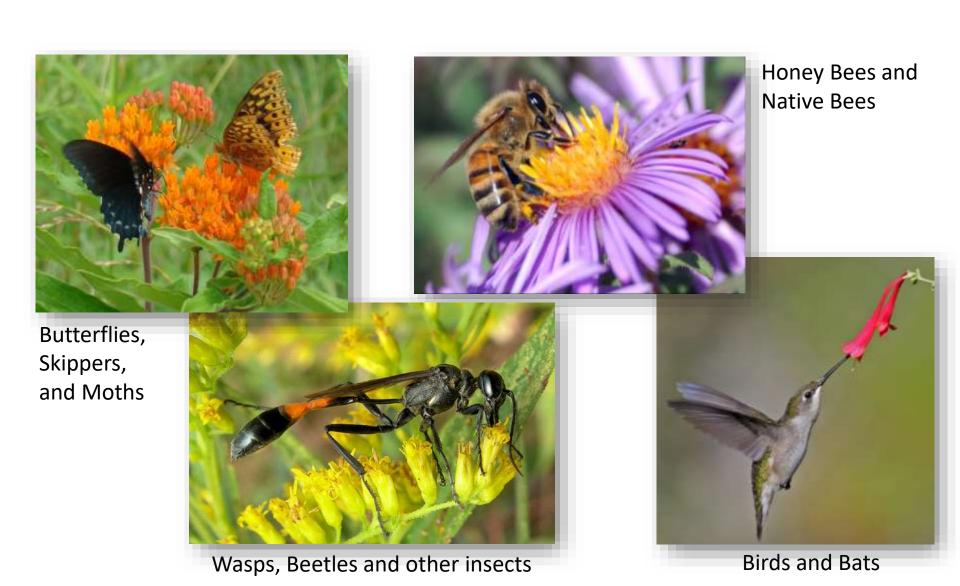
Perennials for Pollinators

- Meet the pollinators
- What makes some flowers better for pollinators?
- Selecting plants that will thrive in your yard
- Recommended perennials for SE NC
- NC State Extension resources



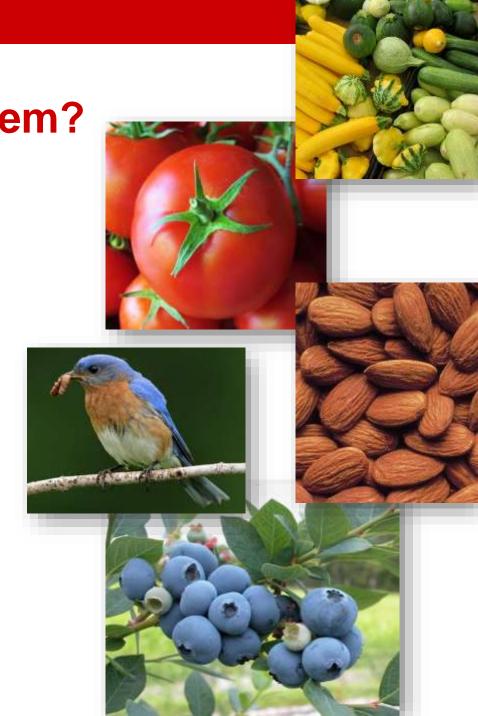
Agastache foeniculum

Meet the Pollinators!



Why Do We Need Them?

- Three fourths of the flowering plants on earth rely on animal mediated pollination to reproduce
 - Food webs and ecosystems depend on pollinators
- 1/3 of the world's crop production relies on pollination!
 - \$19 billion annually in US alone!



Which group pollinates the most plants?

Bees are the most efficient pollinators

- Only animals that purposefully collect pollen
- Pollen = Protein source, fed to immature bees
- Also collect nectar = carbohydrate, consume for energy and turn into honey





Many types of bees

Honeybees are the most well known

- Native to Europe
- Managed for pollination services





Native Bees

50 species of bumble bees!

Over 4000 species of **native bees** in the US! **500 in NC!**

- Also valuable crop pollinators active even when cool and wet
- Plus pollinate wild plants;
 Sustain native ecosystems









Native Bees

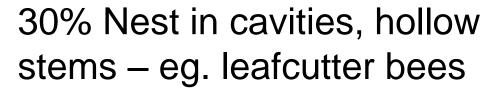
Most are solitary

- NOT aggressive!!!
- Bumble bees live in small annual colonies

Most nest in the ground

- Favor south facing slopes with thin vegetation
- Protect habitat areas!
- Not the same as groundnesting wasps











2019 Pollinator Partnership Poster

https://www.pollinator.org/shop/posters

Reasons for Pollinator Decline

- Habitat loss: Less nesting sites
- Forage loss: Less flowers available in the landscape
 - Development of natural areas
 - Increased use of herbicides
 - Cover crops no longer common in agriculture
- Pesticide use
- Environmental stress
- Parasites and diseases (esp. in honey bees)



Buckwheat = warm season cover crop

One Way You Can Help . . .

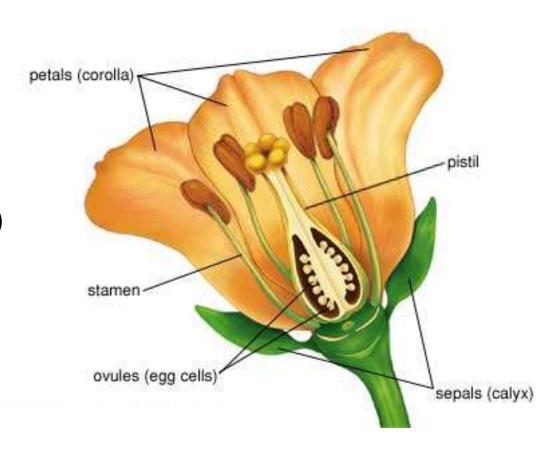
- Plant pollinator-friendly flowers!
 - Don't treat with insecticides
- Perennials and woody plants are best
 - Richer nectar
 - Dependable source year after year



Gayfeather, Liatris spicata

What Makes a Flower Pollinator Friendly?

- Colorful petals
- Ample supply of easily accessible pollen and nectar
 - Pollen: stamen (male)
 - Nectar: nectaries, usually within pistil (aka carpel) (female)
- Not contaminated with pesticides



Do all flowers produce pollen and nectar?

Some produce only pollen

- Wind pollinated, don't need to attract pollinators
- Grasses, grains, some weeds, many trees







Some flowers are bred to be pollenless, eg. Sunflowers

for cutting







Others are bred or selected to be sterile –

eg. Mophead hydrangeas; lacecap have fertile and sterile flowers

Pollen and nectar are less accessible or absent in double forms of flowers

 'Old fashion' single varieties are best for pollinators



Flowers That Are Most Attractive to Bees

- Colors: White, yellow, blue, purple, violet
- Fragrance: floral or herbal
- Open: during daytime
- Shapes: daisy/coneflower/ sunflower; shallow tubular; legume (bean/clover); or lots of small flowers together



Aromatic aster,
Symphyotrichum oblongifolium

Daisy/Coneflower Shape

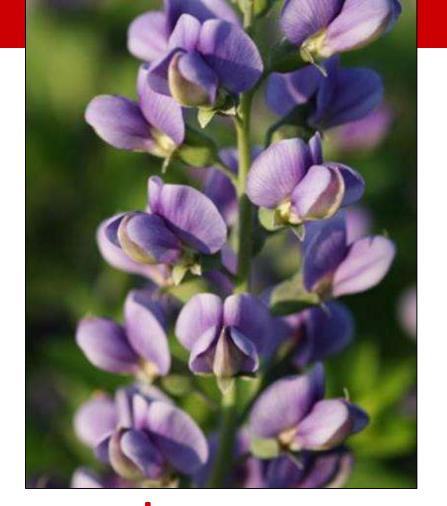


Purple Coneflower

Black Eye Susan

Shallow Tubular: Penstemon





Legumes: Baptisia

Lots of Small Flowers







Joe Pye Weed

Goldenrod

Agastache

Plants with many small flowers are also attractive to beneficial insects





The hover fly is a beemimic. Adults feed on nectar (above);

larvae feed on aphids (left).

Planting for Bees: Native Plants

- Native bees prefer native plants
 - Native plants 4 times more likely to attract native bees
 - Some native bees feed exclusively on certain plants; Time their emergence to these plants bloom period
- Including native plants in your landscape will support a greater diversity of pollinators



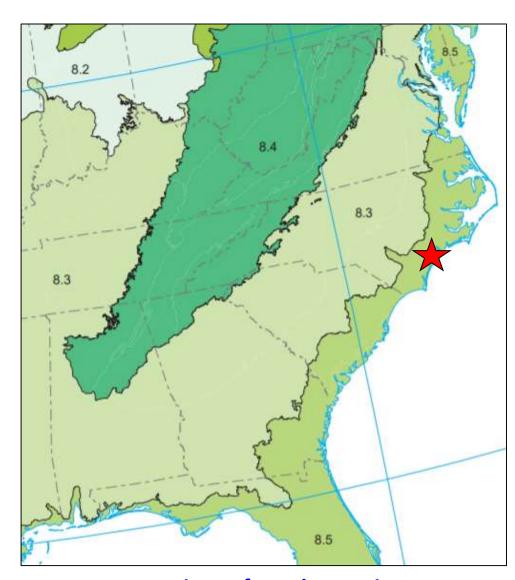
Southeastern Blueberry Bee

Native Plants Support More Than Bees



Native Where?

- Native is meaningless without location!
- Think ecoregion, not political boundaries
- Greatest benefit: choose plants from local ecoregion



Ecoregions of North America 8.5 Southeast Coastal Plains

Planting for Pollinators: Rule of 3

- Plant for 3 seasons,
 spring fall
- Aim to have at least
 3 different species
 in bloom each
 season
- Plant in groups,
 at least 3 of each
 variety



At least 3 species in bloom: Bee balm (rear); Black-eye Susans (left); Phlox (right)

Planting for Pollinators

Focus on sunny areas (4+ hours direct sun)

- Insects must be warmed by the sun!
- Most plants produce more blooms in the sun!
- Plants produce more nectar and insects are more active at warmer temperatures



Selecting Plants

that will thrive in your yard

Assess challenges:

- Climate
 - Long, hot, humid summers
 - Erratic winters
- Site specific
 - Flooding issues
 - Salt spray
 - Deer browsing
 - Reflected heat



Oh, Deer!

Two Groups of Plants:

- Plants deer love will eat over everything else, often killing the plants
- Plants deer eat not their favorites, but will do if they are hungry. Deer occasionally prune these plants but don't usually kill them



Selecting Plants that will thrive in your yard

- Analyze growing conditions!
 - Sun: morning, afternoon or all day?
 - Drainage: Well drained, poorly drained?
- How much space is available?
 - Vertically and horizontally



Select plants adapted to growing conditions!

Selecting Plants that will thrive in your yard

Consider plant characteristics:

- Growth habit
 - Spreading
 - Clumping
 - Self-seeding
- Bloom time
 - Assess dearth times
- Aesthetic features: Color, leaf texture



Mexican petunia is a vigorous spreader!

Help Plants Establish and Thrive

- Prepare a planting bed:
 - Alleviate soil compaction
 - Incorporate organic matter (compost)
- Water through first growing season
- Mulch, but not too deep!
- If needed, use slow release fertilizers





Recommended Perennials

for Southeast NC

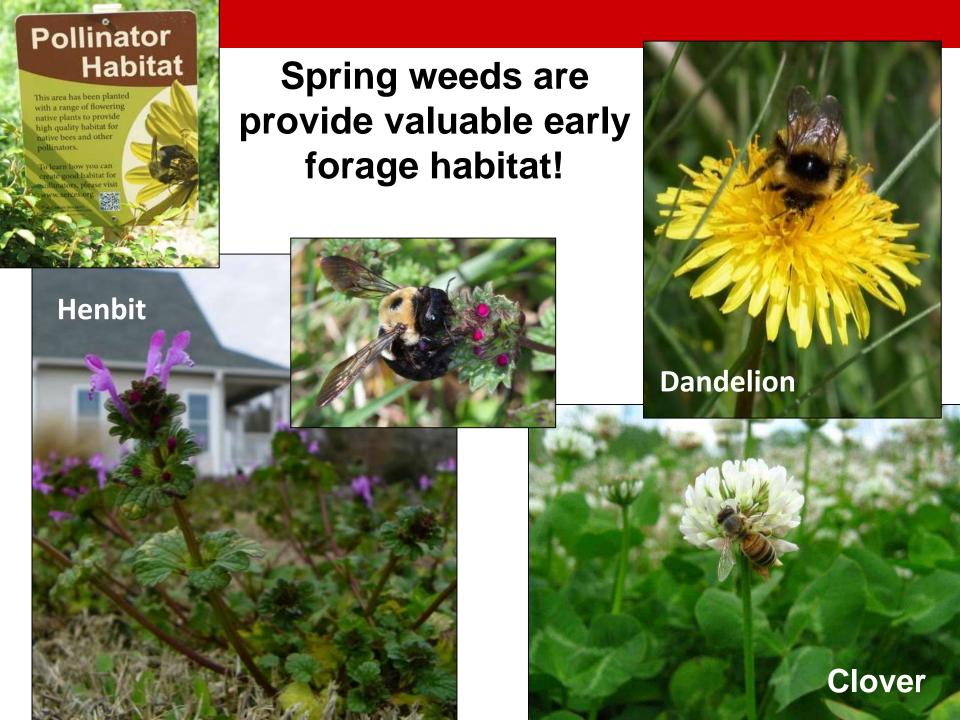
- Adapted to climate and typical landscape conditions
- · Well behaved, reliable
- Tough, low care
- Support pollinators
- Commercially available
- Many are native to SE USA



Spring

- Early spring bloomers are especially critical for early emerging bees
- Fall planted bulbs are among earliest perennials to bloom
- Most reliable that support pollinators:
 - Tommies, Crocus tommasinianus
 - Star flower, *Iphieon*, 'Jesse' is pictured
- May be short-lived: Alliums, Grape hyacinths





Green and Gold

Chrysogonum virginianum

- Native
- Light to part shade/dappled sun,
- Moist or well drained soil
- 1' x 2'
- Evergreen foliage
- Often blooms March June
- Can cut in back early summer



Eastern Columbine

Aquilegia canadensis

- Blooms March May
- Part sun or shade, well drained soil
- 12" 24" tall in bloom
- Attracts butterflies and hummingbirds
- Often short-lived but will naturalize in the garden by self seeding



Bluestar

Amsonia tabernaemontana

- Native
- Tough, long lived clumping perennial
- Pale blue flowers in spring loved by bees
- 2-3' tall and wide
- Glossy green foliage, yellow in the fall
- Sun to part shade, wet to well drained soil





Arkansas Blue Star

Amsonia hubrichtii

- 3' x 4'
- Sun, drought tolerant
- Long lived
- Yellow autumn color
- Attractive, ferny foliage all season
- Pollinators love it, deer don't!





False Indigo

Baptisia - hybrids and species

- Eastern US natives
- Many varieties blue, purple, yellow, white flowers
- 3' 4' x 2' 3'
- Sun to light shade
- Bloom late April May
- Bee favorite!
- Clumping, long lived
- Dead head to limit self seeding



White False Indigo, Baptisia alba



Pollinator Friendly Flowers: Summer

Honeybees love herbs!

- Annual: basil, parsley, dill, cilantro
- Perennial: rosemary,
 chives, oregano, thyme,
 sage, Texas tarragon/mint
 marigold



Catmint, Nepeta x faasenii
Drought tolerant, summer flowering perennial;
silver, aromatic leaves, 2-3' tall and wide

Coreopsis, Tickseed

- Several species native to NC
- Sun lovers
- Threadleaf Coreopsis
 - C. verticillata
 - Long lived
 - Summer blooming
 - Drought tolerant
 - 'Zagreb' 2' x 2'





Agastache x 'Blue Fortune'

- Long lived hybrid of anise hyssop,
 Agastache foeniculum
- 3'-4' tall, 2'-3' wide
- · Sun, well drained soil
- Drought tolerant
- Blooms early-mid summer
- A bee favorite!



Orange Coneflower

Rudbeckia fulgida

- Aka "Black-eye Susan"
- 3' tall
- Sun, moist to average soil
- Low mat of semi-evergreen foliage in winter
- Leave seed heads till winter for birds
- Cultivar: 'Goldstrum' most common
- Deer love it!





Purple Coneflower

Echinacea purpurea

- Many named varieties available!
- Sun-part shade
- Well-drained, moist soil
- 2' 4' tall
- Leave seed heads for birds
- Can be short lived, may self-seed



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Bronze Fennel

Foeniculum vulgare

- Sun, well drained or moist soil
- 4-5' x 3-4'
- Lacy foliage, new growth is bronze
- May be short-lived
- Related to bulb fennel, dill, parsley, carrots
- Attracts beneficial insects + pollinators









Color Guard Yucca

Yucca filamentosa 'Color Guard'

- Native
- Evergreen
- Sun part shade
- 2' x 2', summer flower spikes to 5'
- Broken roots regenerate new plants
- Very drought tolerant







Butterfly Weed

Asclepias tuberosa

- Native
- Orange flowers attract many pollinators
- Sun to part shade
- · Well drained soil
- Drought tolerant
- Late to emerge in spring





Support Monarchs – Plant Asclepias!



Caterpillars may defoliate the plant, but they will grow back . . .





Swamp Milkweed

Asclepias incarnata

- Native
- 3' tall and wide
- Spring/early summer flowers
- Sun to part shade
- Moisture and flood tolerant
- Monarchs! Attracts many pollinators



Beebalm

Monarda fistulosa, M. didyma, hybrids and cultivars

- Bees love it!
- Moist soil, sun-part shade
- 2'-4'
- Some are vigorous spreaders!
- Seek mildew resistant varieties:
 - Claire Grace
 - Dark Ponticum
 - Violet Queen



Grand Marshall Mondarda

- New, dwarf variety, spreads less vigorously
- One of better dwarf performers in Mt. Cuba monarda trial

Other trials studied Baptisia, Coreopsis, Phlox and Echinacea

https://mtcubacenter.org/
research/trial-garden



Liatris

Liatris spicata

- Native
- Sun, well drained-moist soil
- 2'-4', Kobold is dwarf cultivar
- Nice in mass
- May need staking in rich soil
- Flower spikes bloom from top down



Jeana Phlox

Phlox paniculata 'Jeana'

- Native
- 3-4' tall and wide
- Sun to part shade, moist soil
- In research trials, attracted more pollinators than other Phlox varieties
- Deer favorite



Mountain Mints Pycnanthemum species

- 12+ species native to NC
- Bloom mid-late summer
- Sun to light shade
- Moist soil
- 3' tall and wide
- The best pollinator plants!
- Some are vigorous spreaders

Pycnanthemum tenuifolium





Narrow Leaf Mountain Mint



Clustered Mountain Mint





Seashore Mallow

Kosteletskya virginica

- Native to coastal marshes
- 5'-7' tall
- Sun part shade, moist to wet soil
- Tolerates salt spray and flooding
- Deer resistant



Joe Pye Weed

Eutrochium dubium

- Native
- Sun to light shade, wet to moist soil
- 4'-5' x 3'-4'
- 'Little Joe' to 4'
- Great butterfly nectar source!
- E. fistulosum is much taller, more common in piedmont



Ironweed

Vernonia noveboracensis

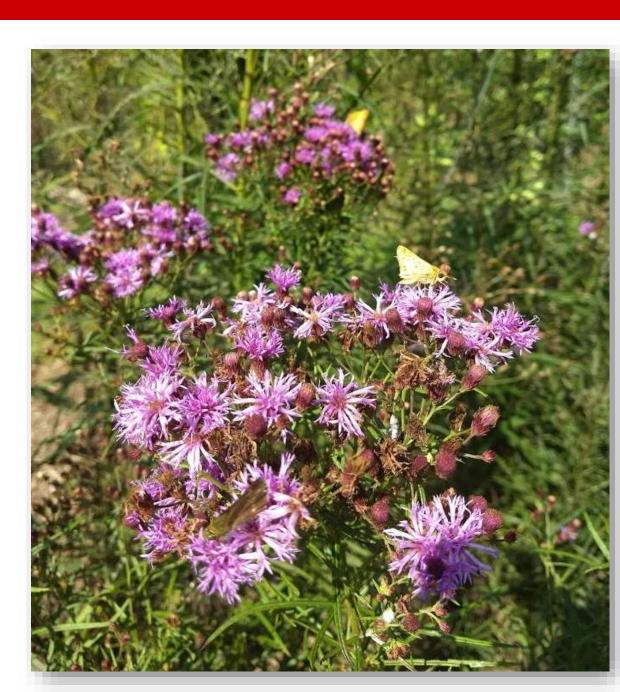
- Native
- 5' 8' in flower
- Sun to light shade, wet to moist or well drained soil
- Deer resistant
- Great for natural areas and pond's edge – spreads!



Vernonia lettermanii 'Iron Butterfly'

- 3' tall, not rhizomatous
- Narrow leaves

Vernonia
angustifolia,
Sandhills Ironweed,
is similar – both are
drought tolerant



Pollinator Friendly Flowers: Fall

Fall bloomers bolster food stores for overwintering bumble bee queens and honey bee colonies

Late blooming goldenrods are an important food source for bumble bee queens



Rough Stemmed Goldenrod

Solidago rugosa

- cultivar 'Fireworks'
- Grows 3'-4' high and wide
- Sun to part shade, moist or well drained soil
- Attracts butterflies and many other pollinators



Mexican Bush Sage

Salvia leucantha

- 4-5' x 5-6'
- 'Santa Barbara' grows 2-3' tall
- Sun
- Well drained soil, drought tolerant
- Deer resistant







Texas Sage

Salvia greggii

- Sun to light shade
- Well drained soil, drought tolerant
- 2'-3' x 2'-4'
- Can bloom spring-fall
- Many varieties and colors – red, coral, pink, white, peach, purple
- Woody stems don't cut back too hard in winter



Calico Aster

Symphiotrichum lateriflorum

- Native
- Sun to light shade, moist to wet soil
- Tolerates flooding
- 4' tall and wide, vase-shaped/ arching
- 'Lady in Black' dark leaves





Aromatic Aster

Symphiotrichum oblongifolium

- Native
- Sun, well drained soil
- Drought tolerant
- Late blooming –
 Oct/Nov
- 'October Skies', 2' x 3'
- 'Raydon's Favorite',
 3' x 4'



Switch Grass

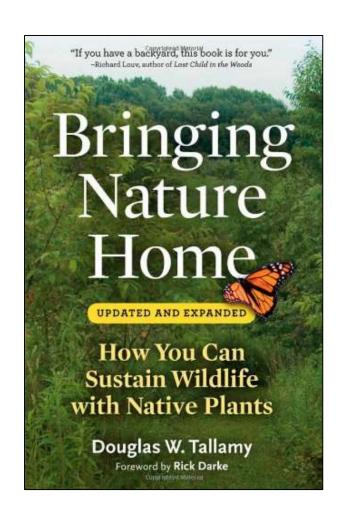
Panicum virgatum

- Several cultivars,
 3' 8' tall
- Moist or dry soils
- Sun to light shade
- Stands up well through winter, birds enjoy seeds
- Cut back by late Feb.

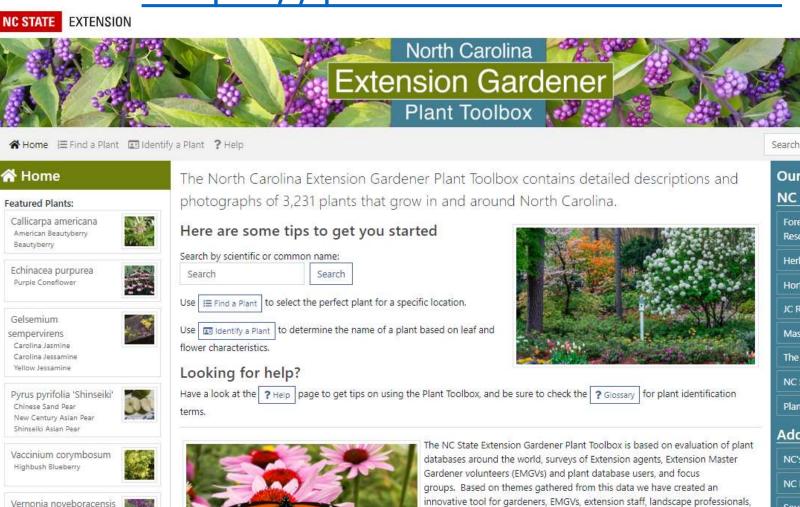


"A plant that has fed nothing has not done its job"

D. Tallamy,Bringing NatureHome



https://plants.ces.ncsu.edu





The NC State Extension Gardener Plant Toolbox is based on evaluation of plant databases around the world, surveys of Extension agents, Extension Master Gardener volunteers (EMGVs) and plant database users, and focus groups. Based on themes gathered from this data we have created an innovative tool for gardeners, EMGVs, extension staff, landscape professionals, university staff, and students. The primary goal of the plant database is to help consumers select plants that will bring them joy, provide a valuable function in their landscape, and thrive where planted. Users are encouraged to consider year-round functionality and potential disease and insect problems as part of their selection process.

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New York Ironweed

Ironweed

Tall Ironweed

Show Stopper Plants

NC State Introduction

- -

Acer rubrum

Common Name(s): Red Maple

Phonetic Spelling

AY-ser ROO-brum

Description

Red Maple is a deciduous tree that may grow 40 to 120 feet tall but is usually less than 40 feet. It grows faster than Norway and sugar maples, but slower than silver maple. The leaves are opposite, with 3-5 palmate lobes and toothed margins on long red stems. The red maple has a slightly smaller leaf than most other species of maples. Its leaves' most distinctive feature is a rough, saw-like edge. If the leaf margin, or edge, of your maple's leaves appear serrated, it is probably a red maple. The bark of young trees is smooth, silvery-gray becoming scaly and dark with age. Small, red flowers in clusters mature in late-winter and are one of the first trees to flower in early spring. During spring, light brown or red-winged samaras mature. In the fall the leaves turn orange-red fall through the brilliance of this color can vary among individual trees.

This tree is the best choice for a soft maple. It makes an excellent, lawn, park, or street tree. It has some tolerance to air pollution and transplants well when young.

Seasons of Interest:

Leaves: Fall; Bloom: Winter/Early Spring; Fruit/Seed/Nut: Spring

Insects, Diseases, or Other Plant Problems: Canker, fungal leaf spot and root rots may also occur. Wind and ice can break branches. This tree has a shallow, flattened root system that may buckle nearby sidewalks or driveways if planted too close.

Cultivars:

Tags:

Pieces Anative Ared Adeciduous Afail color Marge shade tree Ayellow Afairs Apollinators Aspecimes

**Wildlifts plant Alaval food American plant Ass. Ahost Awet sites App Mow flammability Afair resistant



Trunk Amanda Munoz CC BY - 2.0



Whole tree Janetandphil CC BY-NC-ND - 2.0



Female flowers Wendy Cutler CC BY - 2.0





Gloomy scale on Acer rubrum Matt Bertone



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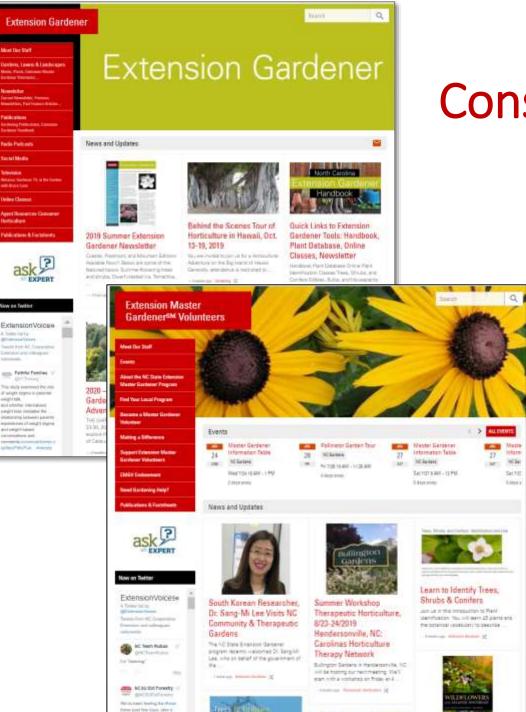


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NC STATE

Extension Gardener

SUMMER 2015 Special Issue: Native Plants

PIEDMONT NEWS

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Planting edinies for insures

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Deer resistant natives

STATE NEWS

Native clams

Bird-blendy native plants "Yon" blackberry

- Drought-tolerant natives

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Special Issue: Native Plants

Welcome to a special issue of Extension Gardener, All articles in this issue focus on native plants and how gardeness across North Carolina can incorporate more natives into their landscapers. Why did we decide to focus the issue on natives? To start with, you saled for it, in our 2014 survey, readers indicated native plants were the top issue they wished to learn more about in 2015. Equally important, we had all pardeness should be aware of the critical read to increase the use of native plants in landscapes.

The key to understanding why increasing the use of natives in our gardens is so important less in recognizing the essential role native plants play in supporting bindiversity and the ecosystem. services needed to sustain our environment. Engeletam services are the expented benefits. we receive from nature. These include pollination of crops and plents by bees and other polinators, purification of water as it filters through plant roots and soil, and the moderating effect forests have on our climate. When native plants are removed from an area, the biodiversity of that area, and the ecosystem services that result from it, are deminished. Planting locally native species empowers gardeners to pare for nature. and preserve biodiversity.

So, what exactly are native plants? They are those species that evolved naturally in a region without human intervention. Red maple (Acerathours, flowering diagnost (Comus floods, and butterfly weed (Auclierias suberosal are ecomples of the more than 3,900 species of plants native to Flooth Carolina. These plants have



Joo-pye weed and available tall butterfly (hChalotte Geo



Coral honey suckle and humaningbind Ovings east \$1/\$ (procupations)



Luna more Office Columns, USCA Former Service, Pagaroostop

developed and adapted to local soil and climene conditions over thousands of years. Recause they have convolved with politications, insects, binds, mammals, and other wildlife, native plants are viral parts of our local accounteres and are necessary for the survival of many species that occur in North Cardina.

When defining native plants for landscaping, it is assential to define the region to which you refer. North Carolina has these distinct regions (I) the costal plain and sandhills, which extends from the Atlantic cost inland to the Fall Ling (2) the platform, which encompasses the center of the state; and (I) the loothills and mountains that make up the weeken part of our store. When adding natives to your landscape, benefits such as tolerance of local conditions and value to wild-life will be strongest if you select plants native to your landscape.

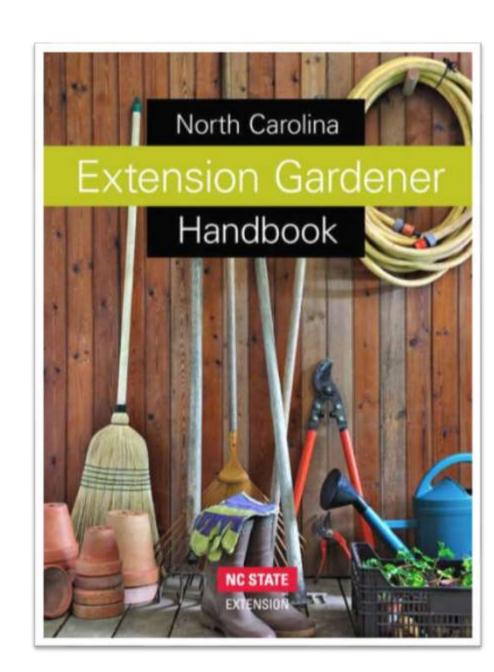
The next time you consider adding new plantings to your landscape, keep this in minth Any

Supplierated an back page

http://extensiongardener.ces.ncsu.edu

Extension Gardener Handbook

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Questions?



Learn more:

http://go.ncsu.edu/natives