Perennials for Pollinators

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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
Meet the Pollinators!

- Butterflies, Skippers, and Moths
- Honey Bees and Native Bees
- Wasps, Beetles and other insects
- Birds and Bats
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

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

50 species of bumble bees!

**Squash Bees**  **Mason Bees**  **Sweat Bees**
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 ground-nesting wasps
30% Nest in cavities, hollow stems – eg. leafcutter bees
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)
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 bee-mimic. 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!

Need Asclepias? Which works for your site - Swamp Milkweed or Butterflyweed?
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
Spring weeds are provide valuable early forage habitat!

Henbit

Dandelion

Clover
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 faassenii**
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
Smooth Coneflower,
Echinacea laevigata

‘Public Domain’
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
Larval host for black swallowtails
Color Guard Yucca

*Yucca filamentososa* ‘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

*P. tenuifolium*
Clustered Mountain Mint

*P. muticum*
Pycnanthemum loomisii

Similar to hoary mountain mint, *P. incana*, but not rhizomatous
Seashore Mallow

*Kosteletsky* *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.

‘Northwind’
5’ x 4’
“A plant that has fed nothing has not done its job”

–D. Tallamy, *Bringing Nature Home*
The North Carolina Extension Gardener Plant Toolbox contains detailed descriptions and photographs of 3,231 plants that grow in and around North Carolina.

Here are some tips to get you started

Search by scientific or common name:

- Use "Find a Plant" to select the perfect plant for a specific location.
- Use "Identify a Plant" to determine the name of a plant based on leaf and flower characteristics.

Looking for help?

Have a look at the "Help" page to get tips on using the Plant Toolbox, and be sure to check the "Glossary" for plant identification terms.

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.
**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:**
#maple #native #tread #deciduous #bark color #maple shade tree #yellow #birds #pollinators #seasons
#wildlife plant #native food #nectar plant #asp #host #sweet sites #exps #low flammability #fire resistant
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