Bee Friendly Flowers

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Pollinator Resources

A honey bee gathers nectar and pollen from a late blooming native aster.
Why Do We Want Bees?

• Three fourths of the flowering plants on earth rely on animal mediated pollination to reproduce
  – Food webs and ecosystems depend on native plants

• 1/3 of the world’s crop production relies on pollination!
  – $15 billion annually in US alone!

• Bees are the most efficient pollinators
  – Only animals that purposefully collect pollen
There are many types of bees

- **Honeybees** are the most well known
  - Native to Europe
  - Managed for pollination services: fruits and vegetables
- Over 4000 species of **native bees** in the US!
  - Also valuable crop pollinators – active even when cool and wet
  - Plus pollinate wild plants; Sustain native ecosystems
Native Bees

Digger Bees

Leafcutter Bees

Squash Bees

Mason Bees

Sweat Bees

Bumble Bees
Why Do Bees Visit Flowers?

For Food!

• **Pollen** = protein
  – Fashioned into ‘bee bread’, fed to immature bees

• **Nectar** = carbohydrates
  – Consumed for energy and turned into honey

Pollination is a by-product!
What Makes A Flower Bee Friendly?

- Ample supply of easily accessible pollen and nectar
  - Pollen: stamen (male)
  - Nectar: nectaries, usually within pistil (aka carpel) (female)
- Not contaminated with pesticides
Will Planting Flowers Make a Difference?

- One of leading causes of bee decline is poor nutrition caused by a dysfunctional food system
  - **Lack of diversity**
    - Large fields of one species: monocultures
    - Flowerless landscapes
    - Overzealous weed control
    - Destruction of native plant communities
    - Lack of meadows and cover crops
  - **Lack of year-round food source**
  - **Pesticide contamination**

Before fertilizers, farmers and gardeners relied on flowering cover crops such as buckwheat to build soil fertility
Do All Flowers Have Nectar and Pollen?

• No!
• Some plants are wind pollinated, no nectar
  – oaks, pines, grasses, corn, wheat, rice
• What else is missing from these flowers?
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 types are best for pollinators

Zinnia
Flowers That Are Most Attractive to Bees

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

Purple Coneflower

Black Eye Susan
Shallow Tubular: Penstemon

Legume: Baptisia
Lots of Small Flowers

Joe Pye Weed

Goldenrod

Anise Hyssop
Will Bees Find My Garden?

• If you plant it, they will come!
  – Just don’t spray it!
• Honeybees forage 2-4 miles from hive, when temps over 55
  – Exhibit flower constancy
• Native bees forage shorter distances from their nest
  – Most are solitary ground dwellers
  – Preserving native habitat critical to protecting native bees
Planting for Bees: Maximize What You Have

- Allow crops to bloom – broccoli, mustard, kale
- Leave weeds to bloom when possible – clover, henbit, dandelion
- Identify ‘dearth’ times (no blooms) – plant to fill these times

Honeybee on broccoli flower
A weedy lawn is a pollinator paradise!
Planting for Bees: Design

- **Masses** – at least 4’ diameter clump of each species
- **Diversity** - 10+ different species
- **Sun**: at least 6 hrs/day

Mass plantings are easier to find and increase forage efficiency.
Planting for Bees: Rule of 3

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

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

• Favor perennials and woody plants over annuals
  – Richer nectar
  – Dependable source year after year
• Honeybees love herbs!
  – Annual: basil, parsley, dill, cilantro
  – Perennial: rosemary, chives, oregano, thyme, sage, Texas tarragon/mint marigold

Let some of your basil plants bloom or plant ‘African Blue’ basil just for the bees!
Planting for Bees

- These practices also create perfect habitat for beneficial insects, birds, and other wildlife.

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
Bee Friendly Flowers: Spring

- Early spring bloomers are especially critical for early emerging bees
- Cool season annuals are among the earliest bloomers
  - Plant in fall, examples: Pansies and violas, wallflower, sweet williams
Eastern Columbine
Aquilegia canadensis

- Native
- Blooms late March - May
- Sun or shade, well drained soil
- 12” – 24” tall in bloom
- Also attracts butterflies and hummingbirds
- Will naturalize in the garden by self seeding
Green and Gold

*Chrysogonum virginianum*

- Native
- Sun to part shade
- Moist or well drained soil
- 1’ x 2’
- Evergreen foliage
- Early spring flowers
Bluestar
*Amsonia tabernaemontana*

- Native
- Tough, long lived clumping perennial
- Pale blue flowers, early-mid spring
- Grows 2’ tall and wide
- Glossy green foliage, turns clear yellow in the fall
- Sun to part shade
- Wet to well drained soil
Eastern Beardtongue

*Penstemon laevigatus*

- White to amethyst flowers, mid-spring
- Evergreen leaves
- 1 ft. wide and 3 ft. tall in flower
- Well drained to moist soil
- Sun to part shade
- Other SE native species:
  - *Penstemon smallii*
  - *Penstemon digitalis*, ‘Husker’s Red’ variety more common
Wild Indigo
*Baptisia* species and hybrids

- Native
- Tough, long-lived, clumping perennial
- Flowers in mid-spring
- 4 to 5 ft. tall and wide
- Sun to part shade
- Moist to dry soil
- Drought tolerant!

*Baptisia australis*

*Baptisia alba* ‘Carolina Moonlight’
Bee Friendly Flowers: Summer

- Easily seeded summer annuals:
  - Sunflower
  - Mexican Sunflower, *Tithonia*
  - Cleome
  - Cosmos
  - Zinnias and Melampodium
  - Gomphrena
Agastache x ‘Blue Fortune’

- Long lived variety of anise hyssop
- 3’-4’ tall, 2’-3’ wide
- Sun, well drained soil
- Drought tolerant
- Blooms early-mid summer
- A bee favorite!
**Purple Coneflower**  
*Echinacea purpurea*

- Native to E. US
- Sun – light shade
- Well drained soil
- Early-mid summer blooms
- Also attracts butterflies
- Leave seed heads for birds (winter)
Rudbeckia ‘Goldsturm’ 
*Rudbeckia fulgida* var. *sullivantii*

- “Black-Eyed Susan”
- SE Native
- Sun – pt. shade
- Average to moist soil
- 30” tall, spreading
- Deer love it!
- Leave seed heads for birds (winter)
Mountain Mints

*Pycnanthemum* species

- Several coastal plain native ‘mountain’ mints
- Blooms mid-late summer
- Sun to light shade
- Moist soil
- 3’ tall and wide
- The best pollinator plants!
Georgia Savory
*Clinopodium georgianum*

- Native
- Shrubby perennial with evergreen leaves
- Pink flowers mid-summer through fall
- 1 ft. tall and 2 ft. wide
- Sun to light shade
- Well drained soil
- Drought tolerant!
- Minty fragrant leaves
Coastal Joe Pye Weed

_Eutrochium dubium_

- Native
- Sun to light shade, wet to moist soil
- 4’-5’ tall x 3’-4’ wide
- Blooms Aug-Sept.
- Deer resistant
Bee 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
‘Fireworks’ Goldenrod  
Solidago rugosa

- Native
- Sun to part shade
- Well drained to moist soil
- 3’ tall, spreading mat
- Yellow flowers, Aug. – Oct.
- An insect ecosystem! Attracts many pollinators and beneficials
Mexican Bush Sage

Salvia leucantha

- 4’ x 6’ tall and wide
- ‘Santa Barbara’ - 3’ tall and wide
- Sun
- Well drained soil, drought tolerant
- Fall blooming
- Loves heat!
- All salvias are great for bees!
Narrow Leaf Sunflower
*Helianthus angustifolius*

- Native
- Sun, moist to well drained soil
- Clump forming perennial
- 5’-8’ tall, 5’ wide
- Blooms late Sept.-Oct.
- Butterflies also love it!
- *H. floridanus* = Swamp Sunflower, rhizomatous
Calico Aster
*Aster lateriflorus*

- Native
- Sun to light shade, moist to wet soil
- 4’ tall and wide
- Attracts many pollinators and butterflies
Aromatic Aster
*Aster oblongifolius*

- NC native
- One of the best asters for the coastal plain
- Drought tolerant
- Full sun
- Flowers Oct – Nov
- ‘October Skies’ – 2’ x 3’
More Plant Suggestions

- **Pollinator Paradise Garden**
  - [www.protectpollinators.org](http://www.protectpollinators.org)
  - Chatham County Cooperative Extension

- **NC Extension: Going Native**
  - Landscaping for wildlife with native plants
  - [http://www.ncsu.edu/goingnative/](http://www.ncsu.edu/goingnative/)

- **Regional native plant guide** from Pollinator Partnership
  - [http://www.pollinator.org/guides.htm](http://www.pollinator.org/guides.htm)
  - We are the Outer Coastal region
Pollinator Conservation

Pollinators are essential to our environment. The ecological service they provide is necessary for the reproduction of nearly 70 percent of the world’s flowering plants, including more than two-thirds of the world’s crop species. The United States alone grows more than one hundred crops that either need or benefit from pollinators, and the economic value of these native pollinators is estimated at $3 billion per year in the U.S. Beyond agriculture, pollinators are keystone species in most terrestrial ecosystems. Fruits and seeds derived from insect pollination are a major part of the diet of approximately 25 percent of all birds, and of mammals ranging from red-backed voles to grizzly bears. In many places, the essential service of pollination is at risk from habitat loss, pesticide use, and introduced diseases.

Learn About Your Landscape:
Find conservation information specific to your area of care.

Agriculture
Gardens
Natural Areas
and Rangelands

Organic Farms
Parks and Golf
Courses
Roadsides
Schools

Learn about pollinators!
Find out more information here.

http://www.xerces.org/
Master Gardener
Spring Plant Sale

Pender Extension Center
801 S. Walker St., Burgaw
Fri., April 11, 12:00pm – 6pm
Sat., April 12, 8:30am – Noon

Many varieties of vegetables and herbs, blueberries, and perennial flowers for pollinators, as well as “Master Gardener” grown plants
Upcoming Classes:
Presented by Pender Extension Master Gardener Speakers’ Bureau

April 1, 11am, Hampstead Library
“Composting” by Maureen Spataro

May 6, 11am, Hampstead Library
“Lawns” by David Hull
Gardening News by Email

**Pender Gardener** – Sustainable lawn and landscape care, great plants, and pest management

- **To Subscribe**: send an email to mj2@lists.ncsu.edu
  
  - Leave the subject line blank
  - In the body of the message put: **subscribe pendergardener**

**Food Gardener** - When to plant herbs, vegetables and fruits and sustainable pest management

- **To subscribe**: send an email to mj2@lists.ncsu.edu
  
  - Leave the subject line blank
  - In the body of the message put: **subscribe foodgardener**
Join the Year Round Gardening Challenge

Sign Up:
http://pender.ces.ncsu.edu/

- Get weekly email updates on when to plant, pest alerts, upcoming classes and more!

- 3, Zone 8 planner winners chosen each month!
Become an Extension Master Gardener!

- **Volunteer Program** – EMG’s help with educational outreach
- **Next training class** begins August 20
- **Classes meet 9:30 to 1:00** at Extension office every Wednesday through end of October
- **Fee**: $75
- **Volunteer 40 hours** within 1 year of completing training
Ask questions, bring samples for id, soil test supplies, pick up information

- **Poplar Grove Farmer’s Market**, 2nd Wed of each month, April – October (9am – 1pm)
- **Hampstead Library**, 3rd Monday of each month, April - October (10:30am – 1pm)
- **Extension Office, Burgaw**, Mondays 1pm – 4pm; Thursdays 9am – Noon, April – October; 259-1238
- **Events:** Poplar Grove Herb Fair, Burgaw Springfest
North Carolina Cooperative Extension
We have an Extension center in every county!

http://ces.ncsu.edu
to submit questions to our ‘Ask an Expert’ widget and
to find your local Extension center

Pender County Center
http://pender.ces.ncsu.edu
801 S. Walker St., Burgaw
259-1235 (general)
259-1238 (hotline)