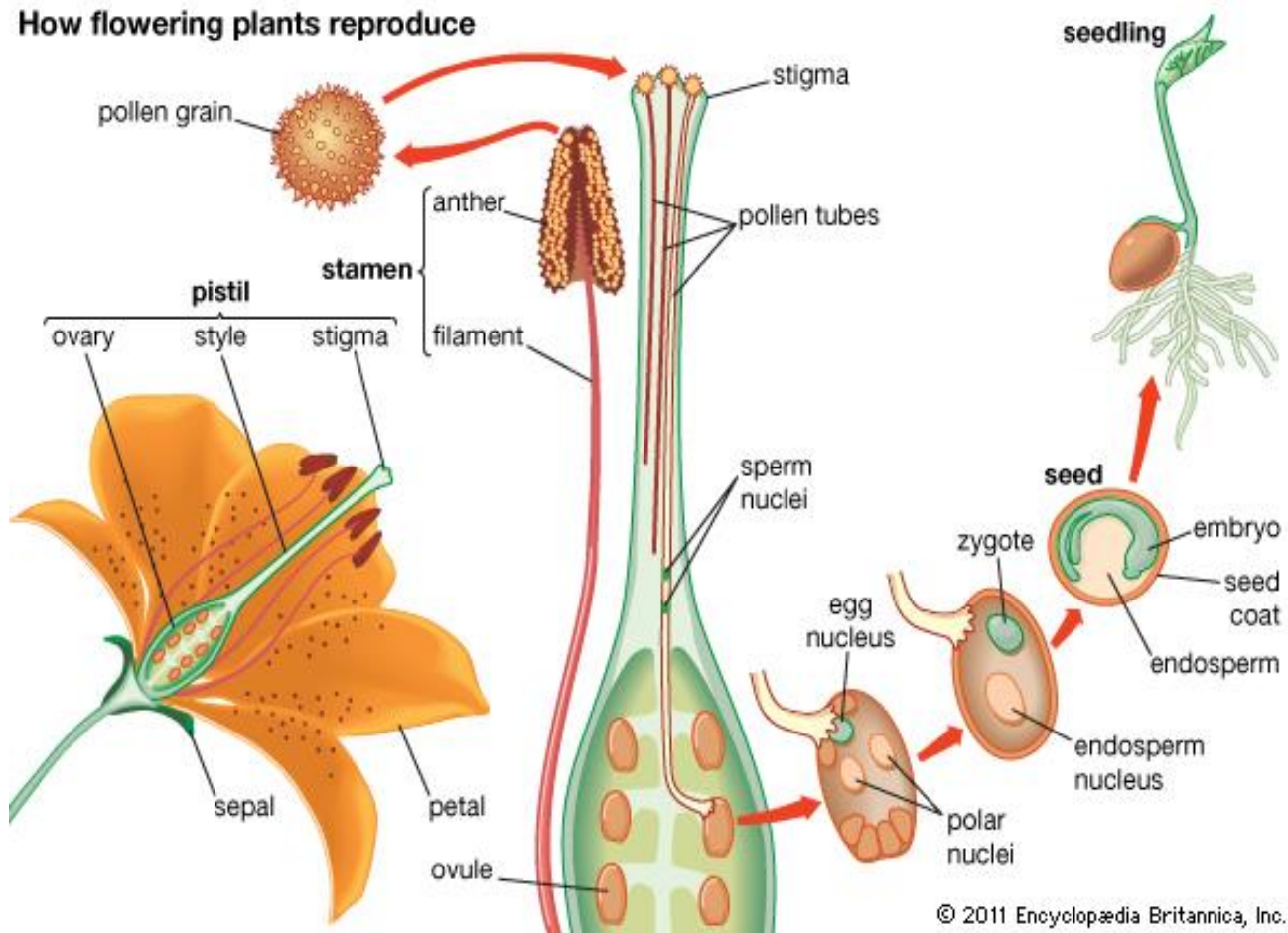


Pollinator Conservation



What is pollination?



Who are the pollinators?



Why are pollinators important?



Pollinators need flowers that bloom in Spring, Summer and Fall.

BLOOM PERIODS

FOR THE SOUTHEASTERN MIXED FOREST

The following chart lists plants and their bloom periods in the Southeastern Mixed Forest. Choose a variety of flower colors and make sure something is blooming at all times! Note: All charts: When more than one species of the same genus is useful, the genus name is followed by "spp."

Botanical Name	Common Name	March	April	May	June	July	Aug	Sept	Oct
Trees & Shrubs									
<i>Aesculus sylvatica</i>	Painted Buckeye		yellow-green to creamy white	yellow-green to creamy white					
<i>Analis spinosa</i>	Devil's-walking-stick				white	white			
<i>Asimina triloba</i>	Pawpaw		maroon	maroon					
<i>Carya alba</i>	Mockernut Hickory								
<i>Ceanothus americanus</i>	New Jersey Tea				white	white			
<i>Cercis canadensis</i>	Redbud	pinkish-purple	pinkish-purple	pinkish-purple					
<i>Chionanthus virginicus</i>	Ringed-tree		white	white					
<i>Crataegus marshallii</i>	Parsley Haw		white						
<i>Crataegus virens</i>	Green Hawthorne	white	white						
<i>Diospyros virginiana</i>	Persimmon			yellow	yellow				
<i>Fothergilla major</i>	Witch-alder		white	white					
<i>Hydrangea quercifolia</i>	Oak-leaf Hydrangea			white	white	white			
<i>Ilex opaca</i>	American Holly		white	white	white				
<i>Magnolia tripetala</i>	Umbrella Magnolia		pale yellow to cream	pale yellow to cream					
<i>Philadelphus hispidus</i>	Hairy Mock-orange		white	white					
<i>Rhododendron canadense</i>	Fladmont Azalea		pink						
<i>Rhus aromatica</i>	Fragrant Sumac		white						
<i>Rosa palustris</i>	Swamp Rose				pink	pink			
<i>Vaccinium arboreum</i>	Sparkleberry		white	white					
Perennial Flowers									
<i>Anemone latifolia</i>	Eastern Bluestar		blue						
<i>Anemone ranunculifolia</i>	Lanceleaf Anemone	white	white	white					
<i>Asclepias incarnata</i>	Eastern Swamp Milkweed							pink	
<i>Baptisia alba</i> var. <i>alba</i>	White Wild Indigo			white	white				
<i>Baptisia australis</i> var. <i>australis</i>	Blue Wild Indigo		blue	blue					
<i>Chamaelirium luteum</i>	Devil's-bit	white	white	white					
<i>Chrysogonum virginicum</i> var. <i>virginicum</i>	Green-and-gold	yellow	yellow	yellow					

Botanical Name	Common Name	March	April	May	June	July	Aug	Sept	Oct
<i>Chrysopsis mariana</i>	Maryland Golden-aster					golden-yellow	golden-yellow	golden-yellow	golden-yellow
<i>Clematis ochroleuca</i>	Curlyheads		white	white	white				
<i>Clinopodium georgianum</i>	Georgia Savory					light lavender	light lavender	light lavender	
<i>Coreopsis auriculata</i>	Lobed Coreopsis		golden-yellow	golden-yellow	golden-yellow				
<i>Coreopsis verticillata</i>	Threadleaf Coreopsis			yellow	yellow	yellow			
<i>Critium americanum</i>	Swamp Uly				white	white	white		
<i>Eupatorium hyssopifolium</i>	Hyssopleaf Eupatorium						white	white	white
<i>Helianthus scaberrimus</i>	Hairy Sunflower				lemon yellow	lemon yellow	lemon yellow	lemon yellow	
<i>Heuchera americana</i>	American Alumroot		white	white	white				
<i>Hieracium anglicum</i>	Little Brown Jugs	brown	brown						
<i>Liatris microcephala</i>	Small-head Blazing-star					rosy-pink		rosy-pink	rosy-pink
<i>Liatris pilosa</i> var. <i>pilosa</i>	Shaggy Blazing-star							rosy-pink	rosy-pink
<i>Phlox amoena</i>	Hairy Phlox		lavender	lavender	lavender				
<i>Phlox glaberrima</i> var. <i>glaberrima</i>	Fladmont Smooth Phlox		pink	pink	pink				
<i>Pityopsis graminifolia</i> var. <i>latifolia</i>	Grass-leaved Golden-aster							yellow	yellow
<i>Ruellia humilis</i>	Wild Petunia			lavender blue to white	lavender blue to white				
<i>Saururus cernuus</i>	Lizard's-tail			white	white				
<i>Silphium asteriscus</i> var. <i>laevicaule</i>	Rash Weed				yellow				
<i>Solidago odora</i> var. <i>odora</i>	Sweet Goldenrod					yellow	yellow	yellow	yellow
<i>Tephrosia virginiana</i>	Virginia Goat's-rue			pink/yellow	pink/yellow				
<i>Trillium catesbaei</i>	Catesby's Trillium		pink to white	pink to white					
<i>Trillium cuneatum</i>	Toad Trillium	red	red						
<i>Viola waltieri</i>	Walters' Violet	blue	blue	blue					
Vines									
<i>Centrosema virginianum</i>	Spurred Butterfly Pea			blue	blue	blue			
<i>Clematis vitalba</i>	Leather-flower			blue	blue	blue		blue	
<i>Decumaria barbara</i>	Climbing Hydrangea			white	white				
<i>Gelsemium sempervirens</i>	Yellow Jessamine	yellow	yellow						
<i>Lonicera sempervirens</i>	Coral Honeysuckle	red	red	red	red	red			
<i>Matelaea gonocarpus</i>	Eastern Angelpod				purple/yellow-green	purple/yellow-green	purple/yellow-green		
<i>Passiflora incarnata</i>	Passion Flower			blue	blue	blue			

Butterflies require specific host plants on which their caterpillars (larvae) feed.

Butterflies of Georgia Gardens and Their Food Sources

The "host plant" column lists some specific plants required for the larval stage of the butterfly. The "adult food" column lists the nectar plants or other food sources preferred by the adult butterfly. The "flight period" column gives the dates when adults have been seen in Georgia. The butterflies may appear more than a month later in the northern portion of the state and disappear sooner due to temperature and seasonal differences.

Butterfly	Flight Period	Larval Host Plants	Adult Nectar Plants & Food
Pipeline Swallowtail <i>Battus philenor</i>	Feb. - Nov.	pipevines (<i>Aristolochia</i> spp.)	thistles (<i>Oxalis</i> spp.), bergamot (<i>Monarda fistulosa</i>), milkweed, azalea, phlox, lilac, petunia
Zebra Swallowtail <i>Euryides marcellus</i>	Feb. - Oct.	pawpaws (<i>Asimina</i> spp.)	blueberry, redbud, blackberry, milkweed, verbena, lilac
Eastern Tiger Swallowtail <i>Papilio glaucus</i>	Feb. - Nov.	tulip poplar, wild cherry, sweet bay, ash	milkweed, buttonbush, ironweed, Joe-pye weed, thistle, butterfly bush
Black Swallowtail <i>Papilio polyxenes</i>	Feb. - Oct.	umbelliferous plants (wild carrot, fennel, dill, parsley)	milkweeds, thistles, red clover, butterfly bush, Mexican sunflower (<i>Tithonia rotundifolia</i>)
Spicebush Swallowtail <i>Papilio troilus</i>	Feb. - Nov.	sesamefrs, spicebush	jewelweed, milkweeds, thistles, dogbane (<i>Apocynum</i> spp.), azalea
Cabbage Butterfly <i>Pieris rapae</i>	Jan. - Nov.	collards, cabbage, mustard, winter cress, peppergrass (<i>Lepidium</i> spp.)	mustard, dandelion, dogbane, asters, mints, red clover
Alfalfa Butterfly <i>Colias eurytheme</i>	Jan. - Nov.	pea family (clover, vetch, wild indigo, alfalfa, sesbania)	dandelion, dogbane, coreopsis, goldenrod, asters
Cloudless Sulphur <i>Phoebastria sennae</i>	Jan. - Nov.	sicklepod (<i>Cassia obtusifolia</i>), partridge pea (<i>Cassia fasciculata</i>), various <i>Cassia</i> spp.	cypress vine, wild morning-glories, hibiscus, lantana, cardinal flower
Great Purple Hairstreak <i>Atlides halesus</i>	Mar. - Nov.	mistletoe	goldenrod, Hercules club, sweet pepperbush (<i>Celtis</i> spp.), shepherd's needle (<i>Eidens pilosa</i>), wild plum
Red-banded Hairstreak <i>Calycopis cecrops</i>	Mar. - Oct.	staghorn sumac, dwarf sumac, wax myrtle, several oaks	wild cherry, dogbane, yarrow, sumac (<i>Rhus</i> spp.), New Jersey tea, milkweed
Gray Hairstreak <i>Stymon melinus</i>	Feb. - Oct.	vetch, bean, lespedeza, clover, mallow, cotton	dogbane, milkweeds, white sweet clover, goldenrod, winter cress
Spring Azure <i>Colastina argilocus</i>	Feb. - Sept.	wild cherry, New Jersey tea (<i>Geanotus americana</i>), dogwood, blueberry, viburnum	wild plum, dogbane, New Jersey tea, common milkweed, spicebush, blackberry, winter cress
Eastern Tailed Blue <i>Eversmannia</i>	Feb. - Nov.	pea family plants (vetches, clovers, beggar's tick, alfalfa, lespedeza)	cinquefoils, wild strawberry, butterfly weed, fleabane (<i>Erigeron</i> spp.), asters, dogbane
Gulf Fritillary <i>Agriades vanillae</i>	April - Nov.	maypop and other Passiflora spp.	lantana, shepherd's needle, composites, maypop
Variegated Fritillary <i>Euphyas claudia</i>	Mar. - Nov.	maypops, viciates, false periwinkle	dogbane, milkweeds, coreopsis, peppermint, red clover
Blackeye <i>Junonia coenia</i>	Feb. - Dec.	false foxglove (<i>Agrostis</i> spp.), plantain, <i>Ruellia</i> spp., verbena, toad flax (<i>Urtica canadensis</i>)	chicory, asters, dogbane, coreopsis, peppermint
Mourning Cloak <i>Nymphalis antiopa</i>	Mar. - Oct.	willows, elms, cottonwood, hackberry	sap flows of trees, fermenting fruit, milkweeds, dogbane, wild plum
Pearl Crescent <i>Phycodes tharos</i>	Feb. - Nov.	asters	dogbane, milkweeds, black-eyed susans, asters, coreopsis

Backyard Butterflies

Butterfly	Flight Period	Larval Host Plants	Adult Nectar Plants & Food
Hop Merchant, Comma <i>Polygonia comma</i>	Mar. - Nov.	nettles (<i>Urtica</i> spp.), false nettles (<i>Boehmeria</i> spp.), elms	tree saps, rotting fruit, dung, dead animals
Question Mark <i>Polygonia interrogans</i>	Mar. - Nov.	nettles, false nettle, American elm, red elm, hackberry	tree saps, rotting fruit, dung, dead animals
Red Admiral <i>Vanessa atalanta</i>	Mar. - Oct.	stinging nettles (<i>Urtica</i> spp.), false nettle, wood nettle (<i>Laportea canadensis</i>)	sap flows, fermenting fruit, bird droppings, milkweed, thistle
American Painted Lady <i>Vanessa virginensis</i>	Feb. - Nov.	cutweed (<i>Gratiola obtusifolia</i>), pussy toes (<i>Antennaria</i> spp.), ironweed (<i>Vernonia</i> spp.), burdock (<i>Arctium</i> spp.)	dogbane, goldenrod, asters, buttonbush, winter cress, marigold, zinnia
Viceroy <i>Linnetis archippus</i>	April - Oct.	various willows (<i>Salix</i> spp.) and poplars (<i>Populus</i> spp.)	carion, animal dung, aphid honeydew, decaying fungi, Joe-pye weed, asters, goldenrod
Red-spotted Purple <i>Linnetis arthemis astyanax</i>	April - Oct.	wild cherry, poplars, black oaks, hawthorn, dewberry (<i>Vaccinium stamineum</i>)	carion, dung, rotting fruit, sap flows, Hercules club, spiraea
Hackberry Butterfly <i>Asterocampa celtis</i>	May - Oct.	hackberry (<i>Celtis</i> spp.)	tree sap, rotting fruit, dung, dead animals
Common Wood Nymph <i>Ceryx pallas</i>	June - Oct.	various grasses, purple top (<i>Tridens flavus</i>)	females occasionally nectar at ironweed, fleabane, mint, virgin's bower, sunflower
Carolina Satyr <i>Hemipteris sylvia</i>	Feb. - Nov.	carpet grass, centipede grass, probably other grasses	sap flows, fermenting fruit, dung
Monarch <i>Danais plexippus</i>	Mar. - Oct.	various milkweeds	milkweeds, goldenrods, thistles, blazing stars (<i>Liatis</i> spp.), Joe-pye weed, ironweed
Silver-spotted Skipper <i>Ephargyreus claus</i>	April - Oct.	locust trees, beggar's tick, hog peanut (<i>Amphicarpa bracteata</i>), wisteria	purple vetch, dogbane, buttonbush, milkweed, blazing star (<i>Liatis</i> spp.), Joe-pye weed, butterfly bush
Checkered Skipper <i>Pyrus communis</i>	Feb. - Oct.	mallow (<i>Malva</i> spp.), hollyhock, sidas (<i>Sida</i> spp.), velvet-leaf (<i>Abutilon theophrasti</i>)	white-flowered composites, such as fleabane, asters, shepherd's needle; and at red clover, beggar's tick, <i>Centaurea</i> spp.
Long-tailed Skipper <i>Urbanus proteus</i>	Feb. - Oct.	garden beans, beggar's tick, hog peanut, butterfly pea (<i>Catalpa</i> spp.) and other viny legumes	lantana, bougainvillea, shepherd's needle, <i>Eupatorium</i> spp., butterfly bush
Fiery Skipper <i>Hylephila phylus</i>	Feb. - Oct.	weedy grasses, especially crabgrass and Bermuda grass	thistles, ironweed, sneezeweed (<i>Helenium</i> spp.), asters, sweet pepperbush

ADDITIONAL RESOURCES

Opler, Paul A., and Vichai Malakul. 1992. *Peterson Field Guide to Eastern Butterflies*. Houghton Mifflin Company, New York. 396pp.

Pyle, Robert Michael. 1981. *The Audubon Society Field Guide to North American Butterflies*. Alfred A. Knopf, New York. 916pp.

Wright, Amy Bartlett. 1993. *Peterson Field Guide to Caterpillars*. Houghton Mifflin Company, New York. 128pp.

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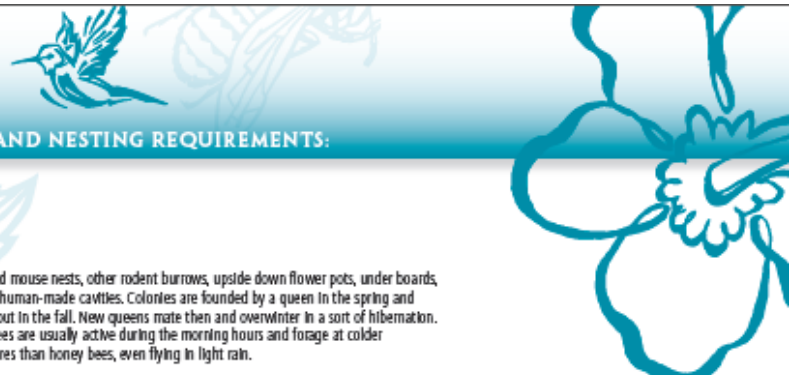
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For more information about nongame wildlife, endangered species or wildlife conservation in Georgia, write Nongame-Endangered Wildlife Program, 116 Run Creek Drive, Forsyth, GA 31029.

Not all bees live in hives!

Key Words for Ground-nesting

- Soil, ground
- Burrows
- Banks, cliffs



HABITAT AND NESTING REQUIREMENTS:

Bumble Bees:
Abandoned mouse nests, other rodent burrows, upside down flower pots, under boards, and other human-made cavities. Colonies are founded by a queen in the spring and don't die out in the fall. New queens mate then and overwinter in a sort of hibernation. Bumble bees are usually active during the morning hours and forage at colder temperatures than honey bees, even flying in light rain.

Large carpenter bees:
Soft dead wood, poplar, cottonwood or willow trunks and limbs, structural timbers including redwood. Depending on the species, there may be one or two brood cycles per year. These bees can be active all day even in the hottest weather.

Digger bees:
Sandy soil, compacted soils, bank sides. Anthophorid bees (now in the Apidae) are usually active in the morning hours, but can be seen at other times.

Small carpenter bees:
Pithy stems including roses and blackberry canes. These bees are more active in the morning but can be found at other times.

Squash and Gourd bees:
Sandy soil, may nest in gardens (where pumpkins, squash and gourds are grown) or pathways. These bees are early risers and can be found in pumpkin patches before dawn. Males often sleep in the wilted flowers.

Leafcutter bees:
Pre-existing circular tunnels of various diameters in dead but sound wood created by emerging beetles, some nest in the ground. Leave dead limbs and trees to support not just pollinators but other wildlife. Leafcutter bees can be seen foraging throughout the day even in hot weather.

Mason bees:
Pre-existing tunnels, various diameters in dead wood made by emerging beetles, or human-made nesting substrates, drilled wood boards, paper soda straws inserted into cans attached to buildings. Mason bees are generally more active in the morning hours.

Sweat bees:
Bare ground, compacted soil, sunny areas not covered by vegetation. Like most bees, sweat bees forage for pollen earlier in the morning and then for nectar later.

Plasterer or cellophane bees:
Bare ground, banks or cliffs. Colletid bees can be active in the morning or later in the day.

Yellow-faced bees:
In dead stems. These bees are more active during morning hours.

Andrenid bees:
Sunny, bare ground, sand soil, under leaf litter or in soil in banksides and cliffs. These generally spring-active bees are most commonly seen on flowers during the morning when pollen and nectar resources are abundant.

“MONARCH BUTTERFLIES NEVER FAIL TO CATCH THE VISITOR'S EYE AND ALWAYS LEAD TO A TEACHABLE MOMENT.”
-- LOGAN LEE,
PRAIRIE SUPERVISOR
MIDEWIN NATIONAL TALLGRASS PRAIRIE

Key Words for Tunnel-nesting

- Wood, timber
- Stems, straws
- Tunnels

Planning your garden – think like a pollinator.

Go Native. Pollinators are "best" adapted to local, native plants, which often need less water than ornamentals.

Bee Showy. Flowers should bloom in your garden throughout the growing season. Plant willow, violet, and mayapple for spring and aster, joe-pye weed and goldenrod for fall flowers.

Bee Bountiful. Plant big patches of each plant species for better foraging efficiency.

Bee Patient. It takes time for native plants to grow and for pollinators to find your garden, especially if you live far from wild lands.

Bee Gentle. Most bees will avoid stinging and use that behavior only in self-defense. Male bees do not sting.

Bee Chemical Free. Pesticides and herbicides kill pollinators.

Bee Sunny. Provide areas with sunny, bare soil that's dry and well-drained, preferably with south-facing slopes.

Bee Friendly. Create pollinator-friendly gardens both at home, at schools and in public parks. Help people learn more about pollinators and native plants.

Bee Aware. Observe pollinators when you walk outside in nature. Notice which flowers attract bumble bees or solitary bees, and which attract butterflies.

Bee a little messy. Most of our native bee species (70%) nest underground so avoid using weed cloth or heavy mulch.

Bee Horney. Make small piles of branches to attract butterflies and moths. Provide hollow twigs, rotten logs with wood-boring beetle holes and bunchgrasses and leaf stumps, old rodent burrows, and fallen plant material for nesting bees. Leave dead or dying trees for woodpeckers.

Bee Diverse. Plant a diversity of flowering species with abundant pollen and nectar and specific plants for feeding butterfly and moth caterpillars.