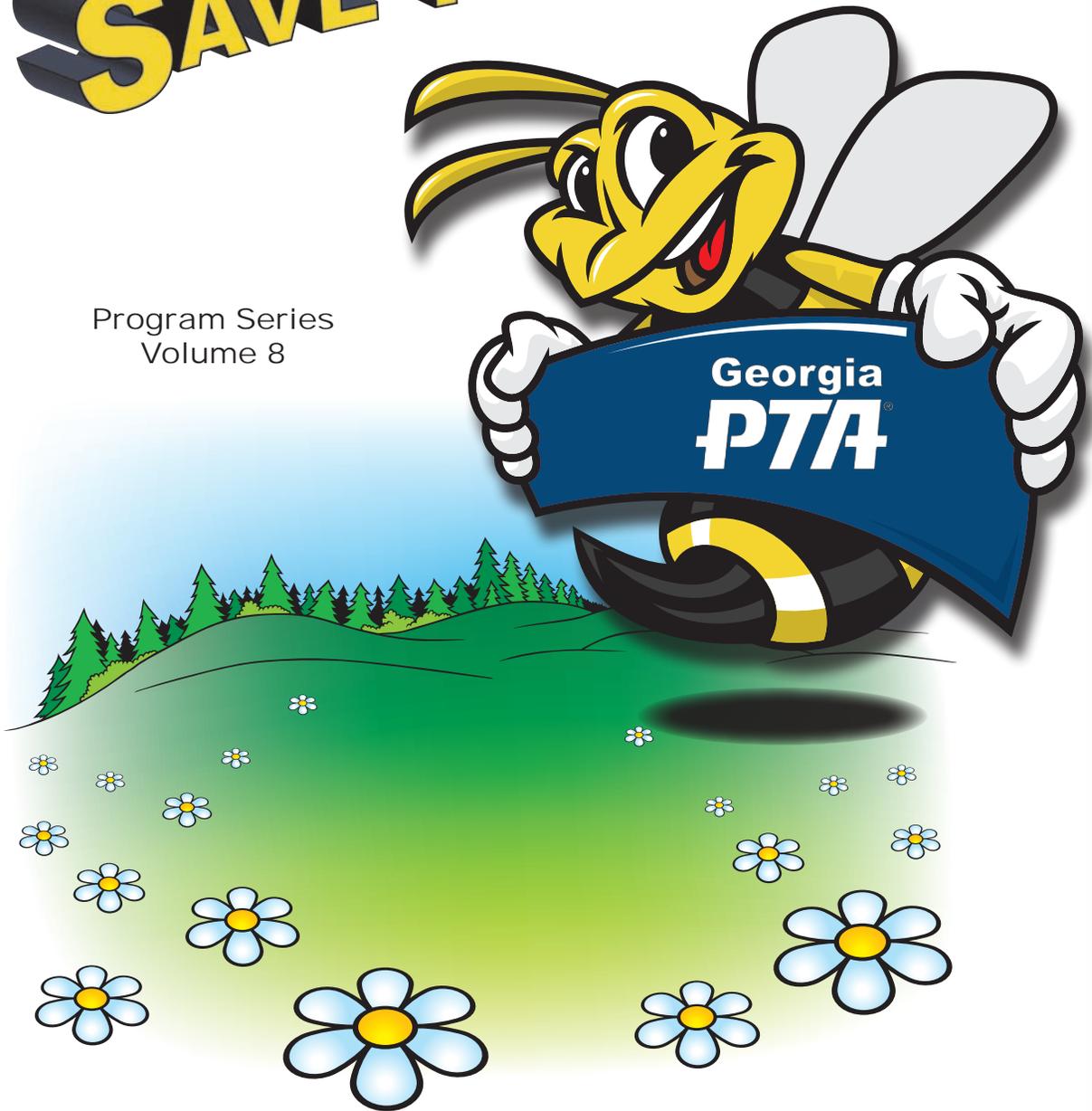


SAVE THE BEES... SAVE THE WORLD

Program Series
Volume 8



Save the Honey Bees...Save the World!

You may be wondering what honey bees have to do with saving the world. Let us explain, **Everything!** According to the US Department of Agriculture, these under-appreciated workers pollinate 80% of our flowering crops which constitute 1/3 of everything we eat. Their loss could effect not only dietary staples such as apples, broccoli, strawberries, nuts, asparagus, blueberries and cucumbers, but may threaten our beef and dairy industries if alfalfa is not available for feed. One Cornell University study estimated that honeybees annually pollinate \$14 billion worth of seeds and crops in the US. Essentially, if honeybees disappear, they could take most of our insect pollinated plants with them, potentially reducing mankind to little more than a bread and water diet.



The Problem

A drastic recent reduction in the number of honeybees in the US could constitute a major threat to our food supply. While the honeybee population has been steadily diminishing in the last fifty years, the extensive losses in 2006 have caused some scientists to label this the first bee epidemic in US history. It is estimated that this year, US beekeepers lost 1/4 of their colonies which is five times the normal average. What's more concerning is that the bee disappearances are a mystery: they leave their colonies seeking food and simply never return. Few dead bees have been found in or around the colonies, leaving beekeepers and scientists puzzled.

Colony Collapse Disorder (or CCD) is a phenomenon in which worker bees from a beehive or Western honey bee colony abruptly disappear. While such disappearances have occurred throughout the history of apiculture, the term Colony Collapse Disorder was first applied to a drastic rise in the number of disappearances of Western honey bee colonies in North America in late 2006.

The cause or causes of the syndrome are not yet fully understood, although many authorities attribute the problem to biotic factors such as mites and insect diseases. Other proposed causes include environmental change-related stresses, malnutrition and pesticides, and migratory beekeeping. More highly speculative possibilities have included both cell phone radiation and genetically modified crops with pest control characteristics.

What can we do to save the honey bees?

Bee Native: Use local and native plants in your yard and garden. These plants thrive easily and are well suited for local bee populations, providing pollen and nectar for bees to eat.

Bee Diverse: Give your bees some variety! Plant lots of different kinds of plants in your yard. Plant diversity ensures that your garden attracts many different varieties of bees throughout the year. Bees have good vision and are attracted to several different colors of flowers.

Bee Open to Pollen: Pollen is bee food. Genetically engineered pollen-free plants trick bees into thinking they'll find food, and then leave them hungry. (Don't worry, flower pollen isn't a big contributor to most people's allergies.)

Bee Pesticide Wary: There are many natural methods to control pests in your garden. Researchers believe pesticides are a contributing factor to Colony Collapse Disorder. Moreover, some insecticides are harmful to bees and wipe out flowers that provide bees with food. If you must, use targeted pesticides and spray at night -- when bees aren't active -- on dry days.

Bee a Hive Builder: Building your own bee hive is easy and fun. Creating a wood nest is a good place to start -- wood-nesting bees don't sting! Simply take a non-pressure treated block of wood and drill holes that are 3/32 inch to 5/16 inch in diameter and about 5 inches deep and wait for the bees to arrive.

PROJECTS FOR HOME AND SCHOOL

Great Sunflower Project

www.greatsunflower.org Plant sunflowers in your school gardens. A community science project with the goal of increasing our understanding of why bees are doing poorly and how the pollination of our garden and wild plants is being affected. **You will receive free native sunflower seeds and fertilizer to produce abundant plants.** Record how long it takes for 5 bees to visit one flower on that sunflower. Record this information to be compared across the United States. Once data is collected on where bees are in trouble, a plan will be developed to help them.

helpthehoneybees.com

Dynamite, interactive web page. Learn about the importance of the busy honey bees as together you fly from tree to tree, flower to flower. Create your own animated honey bee and send a Bee-mail! Bee tees and more. Profits from Bee store go toward funding honey bee research. Wallpaper and screen saver "free-bees". Sponsored by Haagen Dazs, one of the more prominent businesses lending a hand to the honey bees. Their support is directly related to the large percentage of their ice cream flavorings produced by honey bee pollination.



Practice Integrated Pest Management (IPM)

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment. The IPM approach can be applied to both agricultural and non-agricultural settings, such as the home, garden, and workplace. IPM takes advantage of all appropriate pest management options including, but not limited to, the judicious use of pesticides. In contrast, organic food production applies many of the same concepts as IPM but limits the use of pesticides to those that are produced from natural sources, as opposed to synthetic chemicals.

Bees are insects. If you are using pesticides on your property, the bee population will be impacted. Over 97 percent of insects usually seen in the home landscape or schoolyard are either beneficial or are "innocent bystanders". Bees are extremely beneficial and our lives depend on them. It is more than just honey. It is the pollination of our fruits and vegetables for which we depend on bees. There is no artificial, or industrial replacement for the activity of bees.

For more information about IPM, visit www.epa.gov/opp00001/factsheets/ipm.htm

Georgia Beekeepers Association

Junior beekeeping class open to ages 7–18. Goal is to introduce children and young adults to beekeeping. Parents welcome and encouraged to attend. www.gabeekeeping.com

Honey and Honey Bees - The Incredible Story www.honey.com/consumers/kids/beefacts.asp

National Honey Board provides a great set of educational resources for kids and teachers. Use the materials to learn about honey and how it is produced. Some of the things you learn may surprise you! Have fun exploring the links provided such as Honey and Health, Honey Buzz, and recipes.

Plant a Pollinator Garden at home or at school

Because of concerns of mixing active children with busy bees, you should locate your bee garden away from active areas of your campus. Certainly the front door, or around play areas are not the best choice. Learning to admire and respect bees, fears of sting will subside, but it is best not to create a situation where the bees will be aggravated by human activity.

1. Dozens of true bee species are in Georgia gardens; most are small and rarely sting. If they do, their stings are mild. Most insect stings aren't from bumblebees or even honey bees. The number 1 culprit is the yellow jacket. Honey bees and bumblebees definitely have better things to do than search you out.
2. Focus habitat conservation efforts on sunny, open undisturbed meadows, field margins, sun-drenched patches of bare soil, roadsides, ditch banks, and woodland edges.

3. As the diversity of flowering plants increases, so does the diversity of bee species. A large diversity of bee species is good insurance for crop pollination. If you have lots of different plants with different bloom times, the garden will feed the bees from early spring through fall. Good nectar plants for butterflies will generally attract other pollinators.
4. Many species of bees build nests in the ground. Make the garden more bee-friendly by limiting the use of mulch, black plastic, and landscape cloth.
5. What plants do not attract bees? Spend some time in the garden and send your observations to Paul Thomas, Extension Service Horticulturist, UGA College of Agricultural and Environmental Sciences. at pathomas@uga.edu. Add to the list of non bee attractors: Dianthus, geraniums, chrysanthemums, marigolds, strawberries, some zinnias and many roses.



Here is a partial list of tried-and-true bee attractors:

Annuals

Asters
Calliopsis
Clover
Marigolds
Poppies
Sunflowers
Zinnias

Perennials

Buttercups
Clematis
Cosmos
Crocuses
Dahlias
Echinacea
English Ivy
Foxglove
Geraniums
Germander
Globe Thistle
Hollyhocks
Hyacinth
Rock Cress
Roses
Sedum
Snowdrops
Squills
Tansy
Yellow Hyssop

Garden Plants

Blackberries
Cantaloupe
Cucumbers
Gourds
Peppers
Pumpkins
Raspberries
Squash
Strawberries
Watermelons
Wild Garlic

Herbs

Bee Balm
Borage
Catnip
Coriander/Cilantro
Fennel
Lavender
Mints
Rosemary
Sage
Thyme

Shrubs

Blueberry
Butterfly Bush
Button Bush
Honeysuckle
Indigo
Privet

Trees

Alder
American Holly
Basswood
Black Gum
Black Locust
Buckeyes
Catalpa
Eastern Redbud
Fruit Trees (especially Crabapples)
Golden Rain Tree
Hawthorns
Hazels
Linden
Magnolia
Maples
Mountain Ash
Sycamore
Tulip
Poplar
Willows

Garden Safety Tips:

1. Move slowly, especially near flowers bees are feeding on. Watch your hands. If you brush a bee off a flower, it may instinctively cling to you. If you do nothing, it will almost always fly off.
2. Never try to hit, swat or pick off a bee that may land on you.
3. Never go into a garden or lawn with bare feet. Stepping on a honey bee in the clover is a common way to get stung.
4. Strong perfumes may attract defensive insects if your near their nests. The odor of banana mimics an alarm chemical honey bees use to alert nest-mates to danger.

ADDITIONAL RESOURCES

- **Atlanta Beekeepers Association**
www.metroatlantabeekeepers.org/education.htm
- **Flight of the Honey Bee CBS 60 Minutes**
www.cbsnews.com/stories/2007/05/07/eveningnews/main2771899.shtml
- **University of Georgia Bee Conservation in the Southeast**, Keith S. Delaplane, Extension Entomologist, Bulletin 1164, 1998
http://department.caes.uga.edu/entomology/bees/bee_pubs/conservation/bee_conservation.ht

PLANTS FOR PROLONGED BLOOMING-POLLINATOR GARDEN IN THE SOUTHEAST

Common Name	Scientific Name	Type	Availability	Resource (<u>n</u> ectar or <u>p</u> ollen)	Bloom Dates
Cajeput (Tea Tree)	<i>Melaleuca quinquenervia</i>	tree	feral	n,p	much of the year
Chickweed	<i>Stellaria</i> spp.	ann. or per. herb	feral	n,p	much of the year
Cucumber	<i>Cucumis sativa</i>	ann. herb	cultivated	n,p	much of the year
Pumpkin	<i>Cucurbita</i> spp.	ann.	cultivated	n,p	much of the year
Alder	<i>Alnus</i> spp.	tree	feral	p	January-June
Blueberry	<i>Vaccinium</i> spp.	shrub	cultivated, feral	n,p	January-June
Maple	<i>Acer</i> spp.	tree	feral	n,p	January-May
Cantaloupe	<i>Cucumis melo</i>	ann. herb	cultivated	n,p	February-August
Citrus	<i>Citrus</i> spp.	tree	cultivated	n,p	February-May
Dandelion	<i>Taraxacum</i> spp.	bien. or per. herb	feral	n,p	February-September
Dead Nettle (Henbit)	<i>Lamium</i> spp.	ann. or per. herb	feral, ornamental, sometimes invasive	p	February-October
Elm	<i>Ulmus</i> spp.	tree	feral	n,p	February-April
Groundsel	<i>Senecio</i> spp.	ann. or per. herb, shrub	feral, ornamental	n,p	February-May
Hawthorn	<i>Crataegus</i> spp.	shrub, tree	feral	n,p	February-June
Peach	<i>Prunus persica</i>	tree	cultivated	n,p	February-April
Pine	<i>Pinus</i> spp.	tree	cultivated, feral	p	February-April
Skunk Cabbage (Polecat Weed)	<i>Symplocarpus foetidus</i>	per. herb	feral, ornamental	p	February-April
Titi (Spring Titi)	<i>Cliftonia</i> spp.	shrub	feral	n,p	February-April
Willow	<i>Salix</i> spp.	tree	feral	n,p	February-June
Apple	<i>Malus</i> spp.	tree	cultivated	n,p	March-May
Ash	<i>Fraxinus</i> spp.	tree	feral	p	March-May
Blackberry	<i>Rubus</i> spp.	shrub	cultivated, feral	n,p	March-June
Black Locust	<i>Robinia pseudoacacia</i>	tree	feral	n,p	March-June
Cherry (cultivated uncultivated)	<i>Prunus</i> spp.	tree, shrub	cultivated, feral	n,p	March-May
Cottonwood	<i>Populus</i> spp.	tree	feral	p	March-May
Flowering Dogwood	<i>Cornus florida</i>	tree	feral	n,p	March-April
Gallberry	<i>Ilex glabra</i>	shrub	feral	n,p	March-June
Mustard	<i>Brassica</i> spp.	ann. or bien. herb	feral	n,p	March-September
Oak	<i>Quercus</i> spp.	tree	feral	p	March-May
Persimmon	<i>Diospyros virginiana</i>	tree	cultivated, feral	n,p	March-June
Plum (cultivated)	<i>Prunus</i> spp.	tree	cultivated	n,p	March-April
Rape (Canola)	<i>Brassica napus</i>	ann. herb.	cultivated oilseed	n,p	March-May
Rattan Vine	<i>Berchemia scandens</i>	shrub	feral	.	March-June
Redbud	<i>Cercis</i> spp.	shrub, tree	feral, ornamental	n,p	March-May
Tupelo	<i>Nyssa</i> spp.	tree	feral	n,p	March-June
Vervain	<i>Verbena</i> spp.	ann. or per. herb	feral, ornamental	n,p	March-October
Alsike Clover	<i>Trifolium hybridum</i>	per. herb	cultivated forage	n,p	April-September
Bindweed	<i>Convolvulus</i> spp.	ann. or per. herb	feral, ornamental, sometimes invasive	n,p	April-September
Buckeye	<i>Aesculus</i> spp.	shrub, tree	feral	n,p	April-May
Buckthorn	<i>Rhamnus</i> spp.	shrub, tree	feral, ornamental	n,p	April-June
Catclaw	<i>Acacia greggii</i>	shrub, tree	feral	n,p	April-July
Coneflower	<i>Rudbeckia</i> spp.	ann., bien. or per. herb	feral, ornamental	n,p	April-September
Corn	<i>Zea maize</i>	ann.	cultivated	p	April-September
Crimson Clover	<i>Trifolium incarnatum</i>	ann. herb	cultivated forage	n,p	April-June

Elderberry	<i>Sambucus</i> spp.	shrub, tree	feral, ornamental	n,p	April-July
Holly	<i>Ilex</i> spp.	shrub, tree	feral, ornamental	n,p	April-June
Honey Locust	<i>Gleditsia triacanthos</i>	tree	feral	n,p	April-June
Honeysuckle	<i>Lonicera</i> spp.	shrub	feral	n,p	April-August
Horsemint (Bee Balm)	<i>Monarda</i> spp.	ann. or per. herb	feral, ornamental	n,p	April-October
	<i>Gaylussacia</i> spp.	shrub	feral	n,p	April-June
Johnson Grass	<i>Sorghum halepense</i>	per.	cultivated forage, feral, sometimes noxious		April-November
Marigold	<i>Gaillardia pulchella</i>	ann.	feral, ornamental	n,p	April-October
Mesquite	<i>Prosopis glandulosa</i>	shrub, tree	feral	n,p	April-June
Pear	<i>Pyrus</i> spp.	tree	cultivated, ornamental	n,p	April-May
Pepper Vine	<i>Ampelopsis</i> spp.	vine, shrub	feral	n,p	April-August
Persian Clover	<i>Trifolium resupinatum</i>	ann. herb		n,p	April-September
Privet	<i>Ligustrum</i> spp.	shrub	feral, ornamental	n,p	April-July
Red Clover	<i>Trifolium pratense</i>	short-lived per.	cultivated forage	n,p	April-September
Sage	<i>Salvia</i> spp.	ann. or per. herb, shrub	ornamental	n,p	April-May
Sweet Clover (White, Yellow)	<i>Melilotus</i> spp.	bien. herb	cultivated forage	n,p	April-October
Thistles	<i>Cirsium</i> spp.	ann., bien., or per. herb	feral	n,p	April-October
Tickseed	<i>Coreopsis lanceolata</i>	per. herb	feral	n	April-June
Titi (Summer Titi)	<i>Cyrilla racemiflora</i>	shrub	feral	n,p	April-July
Tulip Poplar	<i>Liriodendron tulipifera</i>	tree	feral	n,p	April-June
Vetch	<i>Vicia</i> spp.	ann. or bien. herb	cultivated forage	n,p	April-September
White Clover (White Dutch, Ladino)	<i>Trifolium repens</i>	per.	cultivated forage	n,p	April-October
Yellow Rocket	<i>Barbarea vulgaris</i>	bien. or per. herb	feral, sometimes noxious	n,p	April-June
Alfalfa	<i>Medicago sativa</i>	per. herb	cultivated forage	n,p	May-October
American Beautyberry (French Mulberry)	<i>Callicarpa americana</i>	shrub	feral, ornamental	n	May-June
Aster	<i>Aster</i> spp.	per. herb	feral	n,p	May-November
Bermuda Grass	<i>Cynodon dactylon</i>	per. grass	cultivated forage		May-November
Bitterweed	<i>Helenium amarum</i>	ann.	feral	n,p	May-November
Carpet Grass	<i>Phyla nodiflora</i>	per. herb	feral, groundcover	n	May-frost
Catalpa (Catawba)	<i>Catalpa</i> spp.	tree	feral	n,p	May-June
Chinese Tallow Tree	<i>Sapium sebiferum</i>	tree	ornamental	n	May-June
Grape	<i>Vitis</i> spp.	per. vine	cultivated	n,p	May-July
Palmetto (Cabbage Palm)	<i>Sabal</i> spp.	palm	feral	n,p	May-July
Palmetto (Saw Palmetto)	<i>Serenoa repens</i>	palm	feral	n,p	May-July
Prickly Pear	<i>Opuntia</i> spp.	cacti, tree-like	feral, ornamental	n,p	May-June
Raspberry	<i>Rubus</i> spp.	shrub	feral	n,p	May-June
Smartweed	<i>Polygonum</i> spp.	ann. or per. herb	cultivated, feral, ornamental	n,p	May-November
Sorghum	<i>Sorghum bicolor</i>	ann.	cultivated	p	May-October
Sourwood	<i>Oxydendrum arboreum</i>	tree	feral, ornamental	n,p	May-July
Spanish Needles	<i>Bidens</i> spp.	ann. or per. herb	feral, ornamental	n,p	May-November
Sumac	<i>Rhus</i> spp.	shrub, tree	feral	n,p	May-September
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	vine	feral, ornamental	n,p	May-August
Watermelon	<i>Citrullus lanatus</i>	ann.	cultivated	n,p	May-August
Anise Hyssop	<i>Agastache</i> spp.	per. herb	feral, ornamental	n,p	June-September
Balloon Vine	<i>Cardiospermum halicacabum</i>	ann. or bien. vine	feral, ornamental		June-August

Basswood	<i>Tilia</i> spp.	tree	feral	n,p	June-July
Blue Vine	<i>Cynanchum laeve</i>	per. herb	feral	n,p	June-September
Boneset (Joe-Pye Weed)	<i>Eupatorium</i> spp.	per. herb, shrub	feral, ornamental	n,p	June-November
Buckwheat	<i>Fagopyrum esculentum</i>	herb	cultivated	n,p	June-frost
Buttonbush	<i>Cephalanthus</i> spp.	shrub, tree	feral	n,p	June-September
Clethra (Sweet Pepperbush)	<i>Clethra alnifolia</i>	shrub	feral	n,p	June-September
Cotton	<i>Gossypium</i> spp.	ann. herb	cultivated	n,p	June-September
Cowpea	<i>Vigna unguiculata</i>	ann. herb	cultivated	n,p	June-September
Cranberry	<i>Vaccinium macrocarpon</i>	evergreen	cultivated, feral	n,p	June-July
Ironweed	<i>Vernonia</i> spp.	per. herb, shrub, tree	feral, ornamental	n,p	June-October
Lespedeza (Bush Clover)	<i>Lespedeza</i> spp.	per. herb, shrub	feral, ornamental	n,p	June-October
Lima Bean	<i>Phaseolus lunatus</i>	herb	cultivated	n,p	June-July
Loosestrife (Purple Loosestrife)	<i>Lythrum salicaria</i>	per. herb	cultivated, feral	n,p	June-September
Mexican Clover	<i>Richardia scabra</i>	ann. herb	cultivated, feral	n	June-frost
Milkweed	<i>Asclepias</i> spp.	per. herb	feral	n	June-August
Mint	<i>Mentha</i> spp.	per. herb	cultivated, feral, ornamental	n	June-September
Partridge Pea	<i>Cassia fasciculata</i>	ann. herb	feral	n,p	June-October
Prickly Ash	<i>Aralia spinosa</i>	shrub, tree	feral	n	June-August
Star Thistle	<i>Centaurea</i> spp.	ann., bien., or per. herb	feral, ornamental	n,p	June-October
Sunflower	<i>Helianthus</i> spp.	ann. or per. herb	cultivated ornamental and oilseed, feral	n,p	June-November
Vitex (Chaste Tree)	<i>Vitex</i> spp.	shrub, tree	ornamental	n,p	June-July
Broomweed	<i>Gutierrezia texana</i>	per. herb	feral		July-October
Goldenrod	<i>Solidago</i> spp.	per. herb	feral	n,p	July-November
Ragweed	<i>Ambrosia</i> spp.	herb	feral, often noxious	p	July-October
Snowvine	<i>Mikania scandens</i>	per. vine	feral	n,p	July-frost
Soybean	<i>Glycine max</i>	ann. herb	cultivated	n,p	July-October
Woodbine	<i>Clematis virginiana</i>	per. herb	feral, ornamental	n,p	July-September
Brazilian Pepper Tree	<i>Schinus terebinthifolius</i>	shrub, tree	feral, ornamental,		August-October
Crown-beard	<i>Verbesina</i> spp.	ann. or per. herb, shrub, tree	feral sometimes noxious	n,p	August-October
Matchweed (Snakeweed)	<i>Gutierrezia sarothrae</i>	per. herb	feral	n,p	August-October
Prairie clover	<i>Dalea</i> spp.	herb, shrub	feral	n,p	September-October
Baccharis (Groundsel)	<i>Baccharis</i> spp.	shrub	feral, ornamental	n,p	October-November
Strawberry	<i>Fragaria x ananassa</i>	per. herb	cultivated,feral	n,p	December-May