



United States Department of Agriculture

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Natural Resources Conservation Service

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## Common Beneficial Insects and their Habitat

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# Plant Materials Technical Note

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### Background:

Insects are commonly viewed as pests. However, without insects earth would be a very different place. Webster's dictionary defines pest as an animal or insect that causes problems for people, especially by damaging crops. Most insects encountered daily are not pest rather they are harmless or beneficial.

Beneficial insects are any of a number of species of insects that perform vital ecological functions such as pollination, pest control, decomposition and maintenance of wildlife species. These ecological services provide an estimated annual economic value \$57 billion in the United States of America. Considering the ecological and economic values, greater effort and investments should be spent in conserving these insects.

NRCS-Texas

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**Purpose:**

The purpose of this technical note is to provide general beneficial insect information and identify common beneficial insects and habitat that supports the occurrence of these species. Previous technical notes have addressed the value, benefit and habitat of pollinators. This technical note concentrates on insects that assist with pest management.

**Types of Beneficial Insects:**

In general, there are two kinds of pest management beneficial insects: predators and parasitoids.

**Predators** feed directly on other insects by chewing with their mandibles or by piercing the predators and consuming the body liquids. Predators must kill and consume more than one prey to complete their development, and are free-living as immature and as adults. The action of predators is often obscure. Many predator species are small and hidden on the plant.

**Parasitoids** or parasites must have a host insect to complete their development. These types of insects lay their eggs in or on other insects. Once the eggs hatch the larvae become predators and eat the insect. Parasitoids are free-living only as adults.

**Attracting Beneficial Insects:**

The first step in attracting beneficial insects is providing optimum habitat for their basic needs. As with most things, diversity is the key. Providing a diversity of plants with varying times of flowering, plant architecture and flower color increases the amount of insect population. Some beneficial insects utilize diverse habitats for shelter and cover. Other beneficial insects consume the nectar and/or pollen from flowering plants for added energy. To help with general conservation planning and application of providing beneficial insect habitat the following list of common plants which provide food and cover for beneficial insects:

Common Annual Plants	Common Perennial Plants
Baby's breath Bachelor's button Barley Basil Phacelia Birdsfoot trefoil Borage California poppy Celery Common vetch Coriander Corn Cosmos	Alfalfa Anise hyssop Asters Blanketflowers Boneset California buckwheat Canada anemone Catmints Cinquefoils Coneflowers Coreopsis Crocus Cup plant Elderberry

Common Annual Plants	Common Perennial Plants
Crimson clover Dill Johnny jump-up Lobelia Mexican sunflower Pincushion flower Rye Marigolds Subterranean clover Sunflowers Sweet alyssum Sweet marjoram Triticale White sweetclover	Engelmann daisy Evening primrose Goldenrod Horsemint Lavenders Lupines Maximilian sunflower Milkweeds Ironweed Peonies Purple prairie clover Wild bergamot Yarrow

Beneficial insect habitat may be provided throughout the landscape by planting a diverse mix of herbaceous plant species or it may be provided by planting habitat areas within the landscape. As a general rule, 5% to 10% of the field, garden, etc. should be designated and planted to beneficial insect habitat for optimum results.

**Conservation Practices Supporting Beneficial Habitat:**

The following conservation practices may be used to plan and apply beneficial insect habitat:

- Conservation Cover (327)
- Cover Crop (340)
- Cross Wind Ridges (588)
- Cross Wind Trap Strips (589C)
- Field Border (386)
- Filter Strip (393)
- Forage and Biomass Planting (512)
- Hedgerow Planting (422)
- Range Planting (550)
- Riparian Herbaceous Cover (390)
- Riparian Forest Buffer (391)
- Shallow Water Development and Management (646)
- Stream Habitat Improvement and Management (395)
- Streambank and Shoreline Protection (580)
- Tree/Shrub Establishment (612)
- Upland Wildlife Habitat Management (645)

**Common Beneficial Insects:**

There are many beneficial insects in the landscape of which several are common. Following is a list of common beneficial insects found throughout Texas. This list has the associated prey and plants that support these beneficial insects. Please note, this is not an all-inclusive list.

<b>Beneficial Predator Insect</b>	<b>Associated Prey</b>	<b>Plants Supporting Their Habitat.</b>
Celer Crab Spider	Various insects	Daisy fleabane Coreopsis spp. Goldenrod Snapdragons Marigold Buckwheat sunflowers Various Aster species
Jumping Spider	Bollweevil Caterpillars Flea hoppers Ants	Buckwheat Coreopsis. Sunflowers Diverse herbaceous plants
Green Lacewings Brown Lacewings	Aphids Mites Whiteflies Bollworms Budworms Armyworms Loopers	Wallflower Bee balm Coreopsis Common boneset Buckwheat Cinquefoil Caraway Oregano Various nectar-producing plants
Ground and Tiger Beetles	Caterpillars Ground insects	White clover Bee balm Coreopsis Common boneset Buckwheat
Seven-Spotted Lady Beetle	Aphids Moth eggs and Caterpillar	Milkweed Buckwheat Bee balm Coreopsis Caraway Cinquefoil Common boneset Dill Bishops lace Wild carrot Chamomile Goldenrod Sunflowers

<b>Beneficial Predator Insect</b>	<b>Associated Prey</b>	<b>Plants Supporting Their Habitat.</b>
Asian Lady Beetle	Aphids Scale Soft-bodied Arthropods	Milkweed Coreopsis Bee balm Buckwheat Caraway Cinquefoil Common boneset Dill Bishops lace Wild carrot Chamomile Goldenrod Sunflowers Tansy Wallflower
Pink Spotted Lady Beetle	Aphids Caterpillars	Milkweed Buckwheat Bee balm Coreopsis Caraway Cinquefoil Common boneset Dill Bishops lace Wild carrot Chamomile Goldenrod Sunflowers Tansy Wallflower
Collops Beetle	Moth Eggs Moth Caterpillars Chinch bug eggs Leafhoppers Aphids White flies Spider mites Stink bug eggs	Bee balm Cotton Coreopsis Soybeans Flowering forbs Buckwheat Common boneset
Hooded Beetle	Budworm eggs Bollworm eggs Stinkbugs Moth pupae and larvae	Branches and foliage of trees and shrubs Under decaying vegetation Various flowers

<b>Beneficial Predator Insect</b>	<b>Associated Prey</b>	<b>Plants Supporting Their Habitat.</b>
Rove Beetle	Aphid Caterpillar Spiders Variety of soft bodied small insects and eggs	Decaying plant debris
Damsel Bugs	Moth Eggs Moth Larvae Aphids Fleahoppers Lygus plant bugs Tarnished plant bugs	Alfalfa Bee balm Winter wheat Coreopsis Orchards Cotton Soybeans Buckwheat Various clovers Common boneset
Spined Soldier Bug	Caterpillars Colorado potato beetle	Shasta daisy Coreopsis Sunflowers Smooth oxeye Buckwheat Common boneset Cinquefoil Bee balm
Spined Assassin Bug	Caterpillars Aphids Lady beetles Spiders	Sunflowers Buckwheat Coreopsis Common boneset Cinquefoil Bee balm
Leafhopper Assassin Bug	Caterpillars Boll weevils Moving insects	Coreopsis Bee balm
Big-Eyed Bugs	Caterpillars Bollworm Budworms Whiteflies Plant bugs Aphids Mites	Sunflowers Boltonia Buckwheat Coreopsis Common boneset Cinquefoil Caraway Oregano Bee balm

<b>Beneficial Predator Insect</b>	<b>Associated Prey</b>	<b>Plants Supporting Their Habitat.</b>
Syrphid Fly	Aphids Moth eggs Moth caterpillars	Buckwheat Boltonia Caraway Coreopsis Common boneset Cinquefoil Dill Fennel Bishops lace Wild carrot Cosmos Sunflowers Tansy Yarrows Allysum Brassicas Pincushion flower Wallflower
Minute Pirate Bug	Thrips Mites Aphids Whiteflies Budworms Bollworms Armyworms Loopers	Boltonia Cinquefoil Caraway Sunflowers Buckwheat Bee balm Common boneset Coreopsis Oregano
Tachinid Fly	Bollworm Armyworm Cabbage Looper Black Cutworm	Boltonia Cinquefoil Coriander Coreopsis Bishops lace Common boneset Allysum Bee balm Buckwheat

<b>Beneficial Predator Insect</b>	<b>Associated Prey</b>	<b>Plants Supporting Their Habitat.</b>
Trichogramma Wasps	Caterpillar pests Bollworms Budworms Loopers Green lacewing	Gayfeather Cinquefoil Goldenrod Caraway Common boneset Coreopsis Buckwheat Sunflowers Yarrow Tansy Anise Coriander Oregano Dill Fennel Lovage Bishops lace Wild carrot Pincushion flower

**For More Information:**

More information regarding beneficial pollinator insects and plants that support them may be found from:

*Pollinator Plants for Texas Conservation Practices*, Texas Plant Materials Technical Note TX-PM-08-02.

*Pollinator Plants for North-Central and West Texas and Southwester Oklahoma*, Texas Plant Materials Technical Note TX-PM-11-02.



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