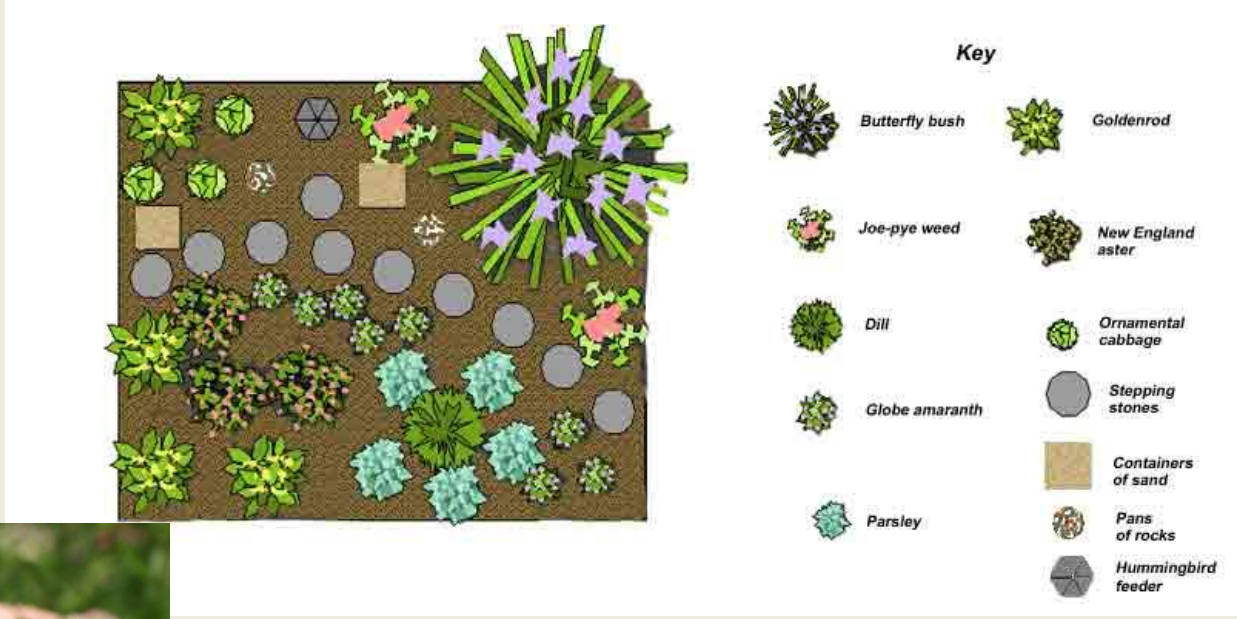
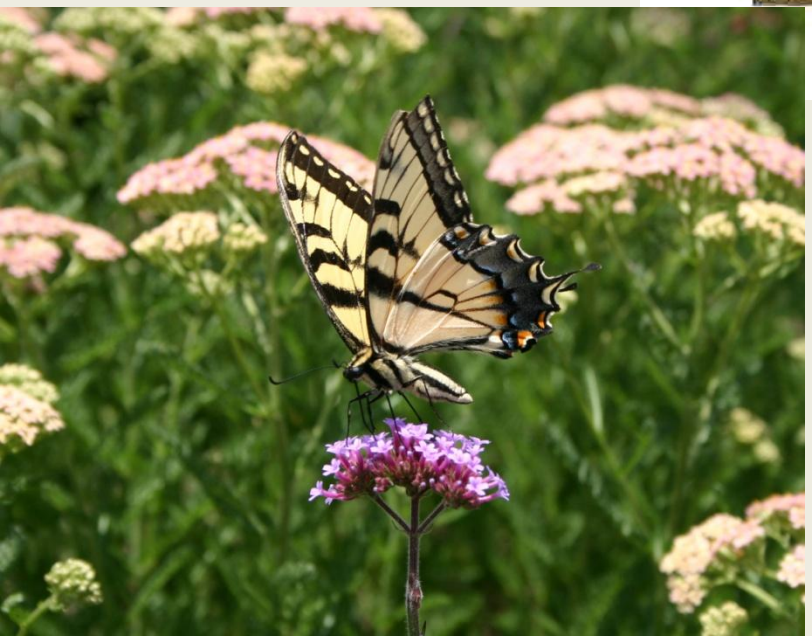
INSECT/BUTTERFLY “GARDENING”-FORT COLLINS, COLORADO





GARDENING WITH NATURE

BUTTERFLY GARDENING

How to encourage butterflies to visit and breed in your garden

Jenny Steel

Butterfly Gardener

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Attracting Butterflies to the Garden

by P. A. Opler and W. S. Cranshaw

Quick Facts...

*Many kinds of butterflies can be found in Colorado. Encourage butterflies by planning a butterfly garden.

*Butterflies seek out areas with food plants for the caterpillar stage.

*Adult butterflies also feed on fluids such as nectar from flowers.

*Butterfly visits increase when environmental needs are met.

*Gardening practices to attract and retain butterflies often differ from regular gardening practices.

Garden plantings can affect occurrence

- **Butterflies**
- **Hummingbird moths**
- **Miller moths**
- **Honey bees**
- **Bumble bees**
- **Leafcutter bees**
- **Lady beetles**
- **Flower flies**
- **Tachinid flies**
- **Lacewings**
- **Parasitoid wasps**
- **Nuisance species/pests**

SUCCESS for ATTRACTING INSECTS

- Food for their immatures
- Food for the adults
- Shelter

Common Conflicts

Often the most attractive nectar plants are considered **"weeds"** in other settings. Examples: thistles and dandelion, all highly attractive to several common butterflies. **Well-manicured and tended gardens** usually discourage insect/butterfly species that develop on wild types of plants.

A few butterflies also develop on certain garden crops and may be pests if the vegetable is considered more desirable than the insects. The European cabbage butterfly (on broccoli, cabbage and other mustards) and the black swallowtail (on parsley and dill) are common garden species.

Use of most **insecticides** are not **compatible** with attracting and increasing the number of butterflies in a yard, killing the caterpillar stages. Adult butterflies also can be killed by resting on insecticide-treated surfaces.

Principles of Butterfly Gardening

- **Provide for food resources for adults- nectar or fruit sources**
- **Provide for food plants for caterpillars**
- **Provide some shelter if sites are exposed**
- **Avoid use of harmful insecticides**

Diverse plantings are most often visited by butterflies, throughout season

Some annual plants commonly preferred by butterflies

- Zinnia
- Larkspur
- Cosmos
- Verbena
- Sunflowers
- Asters
- Sweet pea

Some *Perennial Plants* Commonly Used by Butterflies

- **Butterfly Bush**
- **Milkweed**
- **Sedums**
- **Lilac**
- **Rabbitbrush**
- **Potentilla**
- **Thistles**
- **Monarda**

Other nectar-bearing plants commonly visited by butterflies.

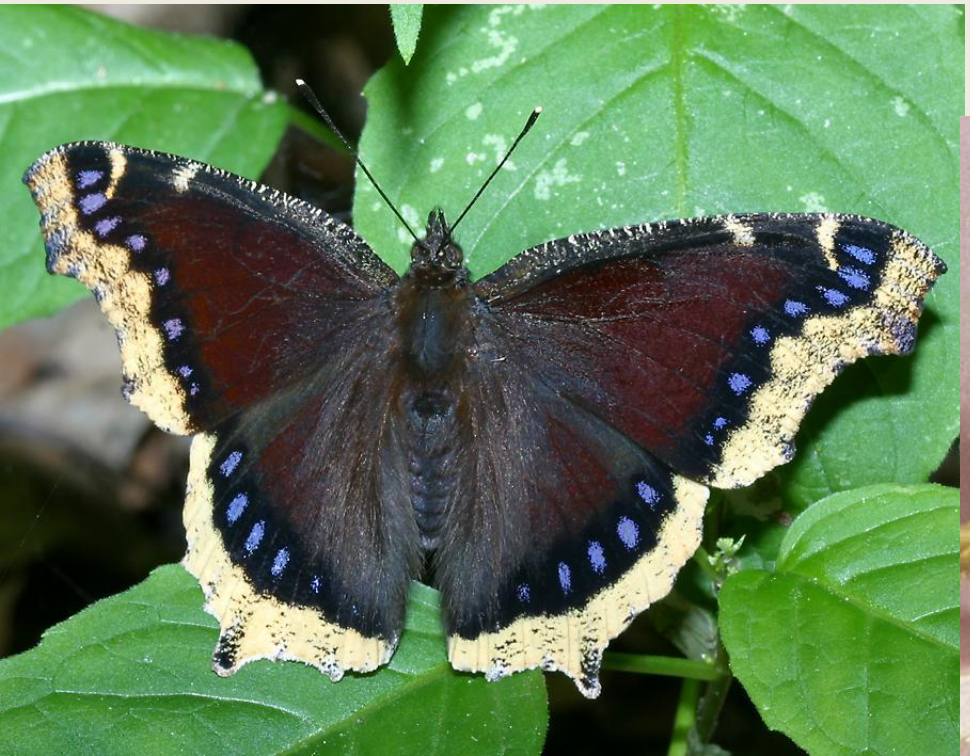
Asters (*Aster* spp.)
Bee balm (*Monarda*)
Butterfly bush (*Buddleia davidii*)
Butterfly plant (*Asclepias tuberosa*)
Bush cinquefolia (*Potentilla fruticosa*)
Cosmos (*Cosmos* spp.)
Gaillardia (*Gaillardia* spp.)
Lilac (*Syringa vulgaris*)
Marigold (*Tagetes* spp.)
Ornamental thistles
Rabbitbrush (*Chrysothamnus nauseosus*)
Sunflower (*Helianthus* spp.)
Sweet pea (*Lathyrus odoratus*)
Verbena (*Verbena* spp.)
Zinnias (*Zinnia* spp.)

Mass plantings of butterfly food plants, rather than “scattered plantings”

Consider sequence of desirable flowering plants throughout season

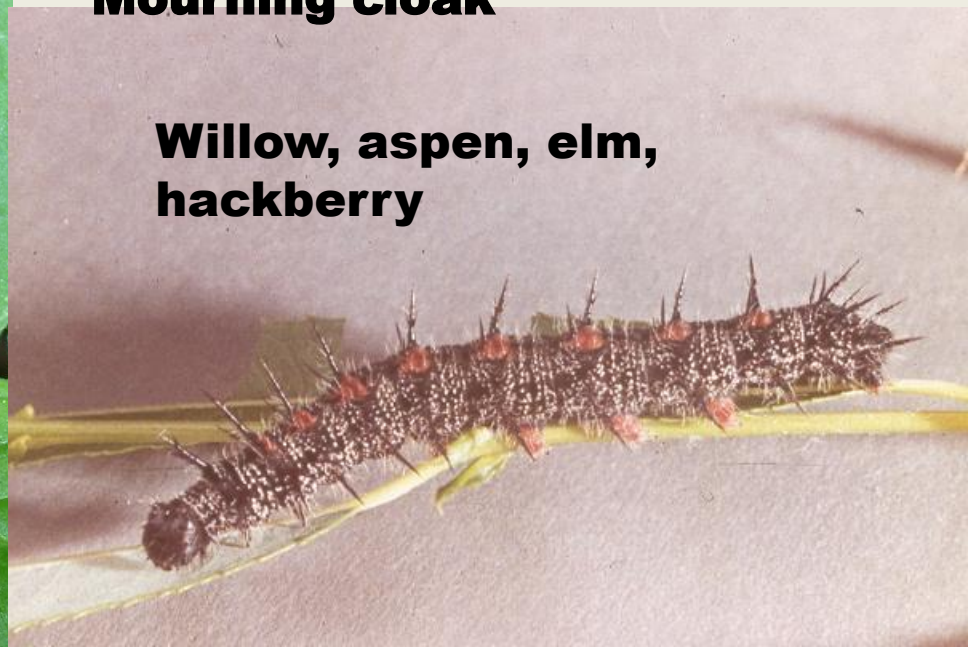
Typical peak should be in mid to late summer-choose appropriate flowering plants

Provide food plants used by caterpillars-joy of observing life cycle!



Mourning cloak

Willow, aspen, elm, hackberry



Twotailed swallowtail, ash, chockecherry, hoptree

Foods Used by ADULT Butterflies, especially males of Nymphalidae:

***Nectar*, fruit juices, oozing sap….**

Brushfooted butterflies (Nymphalidae) will visit a variety of foods, in addition to nectar-bearing flowers…..

Butterfly Feeder

Butterfly and honey bee visiting droppings

‘Mud puddling’ by tiger swallowtail

Foods Used by Caterpillars:

Leaves of their host plant

Painted lady	**thistles, hollyhock, mallow, legumes**
Western tiger swallowtail	**aspen, willows, wild cherry, ash**
Alfalfa buttefly/orange sulfur	**alfalfa, sweetclover**
Clouded sulfur	**alfalfa, clover**
Checkered white	**Brassicaceae, *Cleome***
Imported cabbageworm/butterfly	**mustards: broccoli, cabbage, etc.**
Monarch	**milkweeds (*Asclepias)***
Mourning cloak	**willow, aspen, elm, hackberry**
Melissa blue	**wild licorice, alfalfa**
Variegated fritillary	**pansy, many other plants**

Twotailed Swallowtail

Eggs are laid on ash, chokecherry, hoptree

Mourning Cloak

Larval host plants are willow, aspen, hackberry and elm

Painted Lady

Larval host plants are thistles, hollyhock, mallow, occasionally legumes and some other plants

Hummingbird Moths

Hornworms

Caterpillars of the family Sphingidae

Tomato hornworm and tobacco hornworm are notorious garden pests

The moth of the hornworm is known as a sphinx moth or hawk moth, Five-spotted hawk moth

Conflict?

You like this….

..but not this.

Whitelined sphinx

Hyles lineata

The most common hummingbird moth of the western US

Plant most visited by hummingbird moths typically have deep sources of nectar that are accessed by their long mouthparts

Some plants most often visited by hummingbird moths include:

Four o’clocks

Evening primrose

Larkspur

Honeysuckle……

Photo courtesy Joseph Berger

Army Cutworm

Euxoa auxiliaris

Army cutworm larva

Army cutworm feeding in a winter wheat field. Primary feeding occurs on broadleaf weeds.

Army cutworm pupa

Pupae are present from March through late May

Adult form of the army cutworm – the Colorado ’Miller Moth’

The Annual Migration

Move from the Plains to the mountains in May-June

Return to the Plains in September and early October

Plants Commonly Used as Miller Moth Nectar Sources

- **Lilac, Chokecherry and other *Prunus***
- **Spirea**
- **Cotoneaster**
- **Russian olive**

Plants Commonly Used as Miller Daytime Shelter Areas

- Densely growing pines
- Spruce
- Dense evergreen deciduous shrubs (e.g., cotoneaster)

USE OF FLOWERING PLANTS BY BENEFICIAL INSECTS

Some insect natural enemies

Principles of Gardening for Beneficial Insects

- **Learn to recognize them – and don't kill them**
- **Provide for food needs of adults**
- **Provide for food needs of immature stages**
- **Provide nest sites, if required**

Lady beetles

(“Lady bugs”, “Lady birds”….)

Lady beetle larvae

Full-grown larvae settle and attach, shed their skin, and transform to the pupal stage

Lady beetle adults maintain themselves on nectar and pollen

Flower (Syrphidae) Flies

Syrphid egg in aphid colony

Flower fly larvae

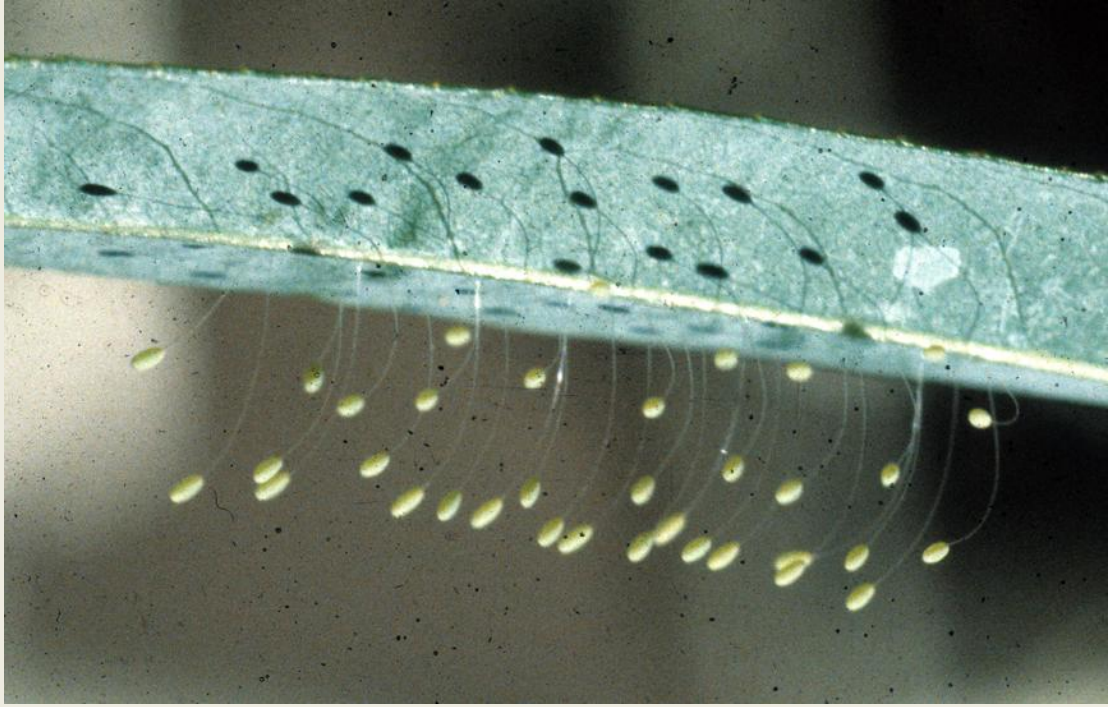
Syrphid flies are remarkable mimics of bees and wasps

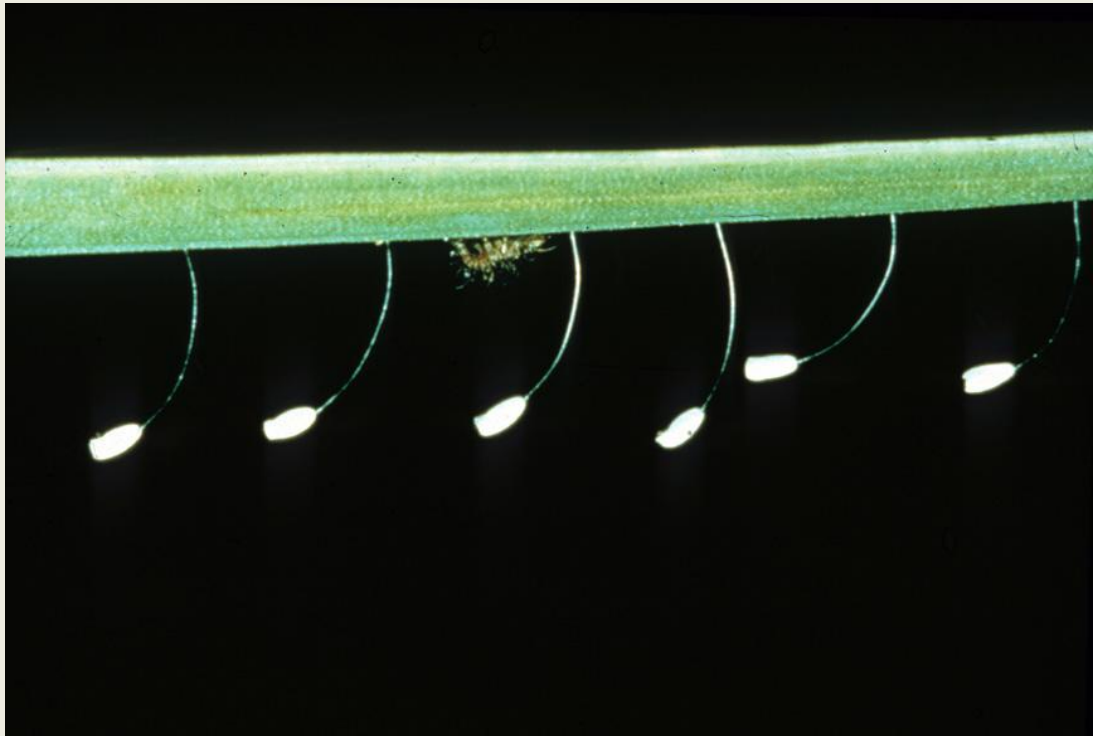
Honey Bees

Adult flower flies sustain themselves on nectar and pollen

Adult green lacewings maintain themselves on nectar and pollen

Green lacewing eggs laid in groups on silk stalks.





Parasitoid wasps

Aphid mummies

– aphids killed by a parasitic wasp

Tachinid Flies

Tachinid fly eggs on caterpillar (above) and stink bug (right)

Small, accessible flowers are most commonly used by natural enemies of garden pest insects

Some plants useful for providing food for adult stages of insect predators and parasites

- Most Apiaceae - (dill, fennel, mooncarrot, etc.)
- Yarrow
- Many sedums
- Spurges
- Alyssum
- Basket-of-gold
- Thyme, several herbs

Provide food for larvae of natural enemies

European Paper Wasp

Paper wasps feed their young “bug burger”. Mostly chewed caterpillars!

Paper wasp gnawing on weathered board for wood fibers

Western Yellowjacket (*Vespula pensylvanica*)

– Key nuisance wasp of Colorado!

Table 1. Plants observed to be most heavily visited by **honey bees.** (Favorability Ranking)

Cultivar	Plant Family
Allium tangitucum	**Alliaceae**
Agastache foeniculum	**Lamiaceae**
Aster novae-angliae	**Asteraceae**
Berkheya purpurea	**Asteraceae**
Berlandiera lyrata	**Asteraceae**
Calamintha nepeta* ssp. *glandulosa	**Lamiaceae**
***Caryopteris* 'Blue Mist Spirea'**	**Verbenaceae**
Chamaebatiaria millefolium	**Roscaceae**
***Chrysanthemum serotinum* 'Herbstern'**	**Asteraceae**
Cleome	**Cleomaceae**
Cotoneaster	**Rosaceae**
Echinops exalta	**Asteraceae**
Eremurus stenophyllus	**Lilliaceae**
Ericameria nauseosa	**Asteraceae**
Eriogonum jamesii	**Polygonaceae**
***Eryngium giganteum* "Miss Willmott's Ghost"**	**Apiaceae**
***Euphorbia* "Diamond Frost"**	**Euphorbiaceae**
Gaillardia aristata	**Asteraceae**
***Geranium* 'Jolly Bee'**	**Geraniaceae**
Geranium himalayense	**Geraniaceae**
Heliotropium	**Boraginaceae**

Inula royleana	Asteraceae
Kniphofia typhoides	Asphodelaceae
Malva alcea	Malvaceae
Nepeta cataria	Lamiaceae
Nepeta x *fausenii*	Lamiaceae
Ocimum	Lamiaceae
Penstemon eatonii	Scrophulariaceae
Rhus typhina	Anacardiaceae
Salvia nemorosa	Lamiaceae
Sedum spectabile	Crassulaceae
Senecio	Asteraceae
Silphium laciniatum	Asteraceae
Solidago	Asteraceae
Spirea x *bumalda*	Rosaceae
Teucrium chamaedrys	Lamiaceae
Teucrium orientale	Lamiaceae
Thymus kotschyanus	Lamiaceae
Tilia americanum	Malvaceae
Veronica spicata ‘Sunny Border Blue’	Scrophulariaceae
Veronica longifolia “Lavender Charm”	Scrophulariaceae

Special thanks to Dr. Whitney Cranshaw for making Information available.