

E1266 (Revised August 2019)

Butterfly Gardening

in North Dakota

Do you enjoy watching beautiful butterflies fluttering from one colorful flower to the next? If you do, you'll enjoy attracting butterflies to your backyard or garden.

Many people enjoy the delight and wonder of butterflies. Butterflies bring a sense of excitement to a flower garden and are relaxing and uplifting at the same time.

Butterfly gardens are a simple and easy way to improve people's quality of life and beautify a community or backyard. This publication describes how to get started on creating your special butterfly garden and attract the species of butterflies found in North Dakota.



Figure 1. A colorful flower garden with a butterfly feeder can be attractive to butterflies.

(Photo by J. Knodel, NDSU)

Revised by

Janet J. Knodel

Extension Entomologist

Gerald M. Fauske

Entomology Research Specialist

Esther E. McGinnis

Extension Horticulturist

NDSU

EXTENSION

North Dakota State University
 Fargo, North Dakota

What is a butterfly garden?

A butterfly garden (Figure 1) is a flower garden designed to attract and retain butterflies. A successful butterfly garden must have nectar sources and host food plants. Flowers provide food and water for adult butterflies in the form of nectar, and host plants provide food for growing caterpillars.

The garden should contain a variety of flowers that will bloom throughout the season. Remember, the greater the variety of floral colors and plants, the greater the variety of butterflies that will visit your garden.

Helpful Hints in Planning a Butterfly Garden

First and foremost: Location, location, location. What kinds of native and exotic flowers do well at your location? Also, knowing what butterfly species are found in your geographical location will help you decide what kind of flowers and host plants to select. Finally, pick a sheltered but sunny location.

Second: Create a habitat that will attract butterflies. A sunny, south-facing butterfly garden will attract more butterflies, and cause their eggs to hatch sooner and caterpillars to develop more quickly, resulting in more butterflies.

Plant your butterfly garden in a sheltered spot that is protected from the strong northwest to western winds that we typically have in North Dakota. In sheltered areas, butterflies will expend less energy fighting the wind. Bushes, gazebos or trellises often are used as windbreaks.

Plants should be arranged with shorter ones in the foreground to maximize sun exposure. A perch, such as sun dials or garden ornaments, in the garden will provide butterflies with a place to bask in the sun (warming sites) as well as rest. Butterflies need sun to warm their bodies to 85 to 100 degrees so they can fly easily.

Some other ways to help attract butterflies are:

- A water source such as mud puddles (Figure 2) or wet, sandy areas, which provide the necessary salts or minerals for butterflies (for example, a salt or mineral block used for livestock)

- Butterfly feeders (Figure 1) filled with a 10 percent sugar-water solution for an additional nectar source

Third: Here are a few things to avoid. Because bees and wasps also are nectar feeders and like to visit flowers, they often will nest in the vicinity of your garden. Any nests from bees or wasps under house eaves should be discouraged and removed for human safety.

Also, butterflies are insects, so insecticides should **not** be used in the butterfly garden. Insecticides will kill the butterflies in addition to their real targets—the insect pest of the garden. Foliar-applied bacterial insecticides such as Bt (*Bacillus thuringiensis*) also will kill the caterpillars of butterflies. Remember, most insecticides do not discriminate among insect species.

Lastly, butterfly houses provide “lunch boxes” for squirrels, birds or even bats or ants, especially in suburban areas where at least birds

and squirrels have been “trained” to investigate similar objects as a source of food.

In wooded areas, a butterfly house may provide an overwintering site for species such as the mourning cloak, which hibernate as adults. But if these butterflies are present, the habitat already will provide plenty of overwintering sites.

Life Cycle of Butterflies

Butterflies transform from egg to caterpillar (or larva) to chrysalis (or pupa) to winged adult through a process called complete metamorphosis. This process begins with the overwintering stage as temperatures warm in the spring.

In North Dakota, different butterflies may overwinter as eggs, partly grown larvae, chrysalids or, rarely, as winged adults. Regardless of the overwintering life stage, the adult butterfly emerges from the chrysalis.

Female butterflies typically mate within a day. The female butterfly then seeks the proper host plant and deposits her eggs. She is very selective in searching for the correct host plants; she looks for healthy plants that will provide food for developing caterpillars.

Caterpillars (or larvae, Figure 3) will emerge from the eggs in a few days. Caterpillars often are referred to as “eating machines” and pass through five stages, or instars, growing larger with each molting of the exoskeleton.

The caterpillar stage may last for a week to several months, depending on species. When the caterpillar is mature, it forms a chrysalis (or pupa, Figure 4).



Figure 2. Canadian swallowtails congregate at a mud puddle.
(Photo by G. Fauske, NDSU)

During the chrysalis stage, the caterpillar transforms into the adult butterfly (Figure 5). The adult butterfly splits open the chrysalis and slowly crawls out, expanding and drying its wings for an hour or two. The newly emerged adult butterfly is ready for flight and the cycle continues.

Some butterflies produce several generations each year. The cabbage butterfly is an example of this in North Dakota. Other species have a short flight season and only one brood per year. An example is the Canadian tiger swallowtail. Others are single-brooded but have a relatively long flight season, such as the great spangled fritillary, which may fly for more than a month, or the mourning cloak, which may live for almost a year as a butterfly.

Some species, such as the variegated fritillary, migrate into the state on an annual basis and survive until the first frost of autumn. Still others, such as the monarch butterfly, migrate to and from North Dakota each year because they cannot survive the cold winters in any life stage.

Adult butterflies visit flowers for sugar, a source of energy and water (to prevent dehydration). Exceptions to the nectar-feeding butterflies are the woodland butterflies, which are attracted to fermenting fruit or sap. However, the majority of the butterfly species of North Dakota are nectar feeders, and this brings us back to the theme of a butterfly garden.



Figure 3. Caterpillar (or larvae) of black swallowtail. (NDSU photo)



Figure 4. Chrysalis (or pupae) of black swallowtail. (NDSU photo)

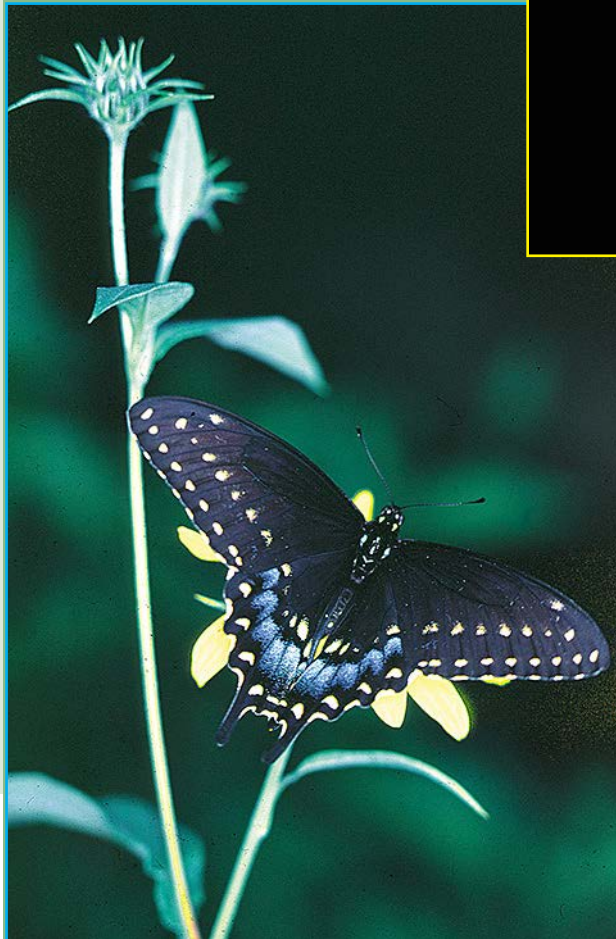


Figure 5. Adult butterfly of black swallowtail. (NDSU photo)

Butterfly Attractants – Flowers

Which Flowers to Plant

You can enjoy the delicate beauty of butterflies in your own yard by planting a colorful flower garden. Many plants developed showy and colorful flowers to attract insects for pollination. Their bright colors are bold advertising banners signaling the presence of nectar rewards to nourish adult butterflies.

Butterflies are attracted to red, orange, yellow, pink and purple. Many flowers have additional light patterns in the ultraviolet part of the spectrum, which are visible to bees and butterflies but not humans. These floral patterns accent the flower center and are called nectar guides; they're like airport runway lights.

A significant number of butterfly species are present during late spring in North Dakota. Spring-flowering shrubs such as lilacs, spireas, dogwoods and chokecherries provide good early season sources of nectar. Also good are allium and chives. Even lawn weeds such as dandelions can be a nutrition source for these early butterflies.

In Table 1, nectar-producing perennials are listed for your garden by season. Native plants usually are preferable because they have evolved in conjunction with native butterflies. However, many non-native plants also will provide much-needed nectar.

Midsummer flowering perennials to plant in your garden include blazing stars (Figure 6), Joe Pye weed, black-eyed Susans, phlox, purple coneflower,

sunflowers, gaillardia (Figure 7), thistles and milkweeds, especially butterfly weed and bee balm (Figure 8). Butterflies prefer inflorescences that are flat-topped



Figure 6. Monarchs feeding on *Liatris ligulistylis*, a blazing star that is native to North Dakota. Both native and ornamental blazing stars will attract butterflies.

(Photo by E. McGinnis, NDSU)

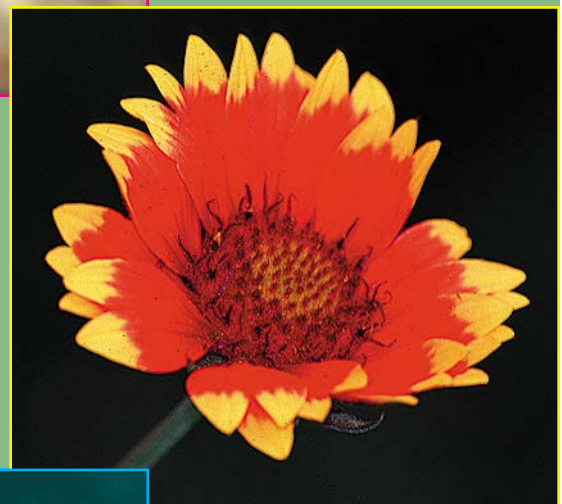


Figure 7. Gaillardia is a midseason flower for attracting butterflies.

(Photo by G. Fauske, NDSU)



Figure 8. Bee balm is a midseason flower for attracting butterflies.

(Photo by G. Fauske, NDSU)

Table 1. Nectar-producing perennials to attract adult butterflies.

Common Name	Botanical Name	Native or Ornamental	Notes
Late Spring/Early Summer Flowering Perennials			
Allium	<i>Allium</i> spp.	Ornamental	Plants come from bulbs
Chives	<i>Allium schoenoprasum</i>	Ornamental	Edible herb with attractive purple flowers
Golden Alexander	<i>Zizia aurea</i>	Native	Bright golden clusters of flowers resemble dill
Pinks	<i>Dianthus</i> spp.	Ornamental	May bloom a second time if spent flowers are pruned
Mid-Summer Flowering Perennials			
Anise hyssop	<i>Agastache foeniculum</i>	Native and ornamental selections available	Short-lived perennial but may self-seed; leaves smell like a cross between mint and licorice
Bee balm	<i>Monarda</i> spp.	<i>Monarda fistulosa</i> is native; many ornamental selections available	Use ornamental selections in a smaller landscape; native species can be aggressive in a smaller garden
Black-eyed Susan	<i>Rudbeckia</i> spp.	Three species native to North Dakota; many ornamental selections available	Butterflies like to land on the brown cones
Blazing stars	<i>Liatris</i> spp.	Four species native to North Dakota	Butterfly magnet; native species in this genus provide more nectar than ornamental species
Catmint	<i>Nepeta x faassenii</i>	Ornamental	This is different than catnip; great low-maintenance plant with purple flowers
Joe Pye weed	<i>Eupatorium maculatum</i>	One native species; many ornamental selections available	Does better in medium to moist soils
Phlox	<i>Phlox paniculata</i>	Ornamental	Chose a cultivar that is resistant to powdery mildew
Purple coneflower	<i>Echinacea</i> spp.	<i>Echinacea angustifolia</i> is native to North Dakota; many ornamental selections available	Don't choose a plant that has more than a single row of petals circling the cone
Purple prairie clover	<i>Dalea purpurea</i>	Native	Great for drier soils
Russian sage	<i>Perovskia atriplicifolia</i>	Ornamental	Butterflies love purple-blue flowers
Sunflower	<i>Helianthus</i> spp.	Native	Many native perennial sunflower species are available
Fall Flowering Perennials			
Golden rod	<i>Solidago</i> spp.	Many species native to North Dakota	Improved cultivar called 'Fireworks' is less aggressive than native species
New England aster	<i>Symphotrichum novae-angliae</i>	Native	Important fall source of nectar for bees and butterflies
Sedum	<i>Sedum spectabile</i>	Non-native	'Autumn Joy' is a very common cultivar; does best in well-drained soils
Sneezeweed	<i>Helenium autumnale</i>	One native species and many ornamental selections available	Don't let the name fool you — it won't make you sneeze; it has become a very trendy plant in recent years

or provide a convenient landing pad, such as purple coneflower (Figure 9).

When selecting coneflowers or other perennials, avoid purchasing overly hybridized cultivars in which extra petals have replaced the nectar-producing reproductive parts (Figure 10).

Make sure to include some fall-flowering perennials to feed the last of the butterflies. Asters, goldenrod and fall-blooming sedums (Table 1) help sustain the last wave of adult butterflies before winter arrives.

In addition to perennials, annuals or bedding plants flower for most of the summer and can provide a steady source of nectar through the whole summer.

Favorite annual plants such as zinnia (Figure 11), cosmos and lantana attract butterflies in droves (Table 2). Annual sunflowers are also a good choice (Figure 12).

No butterfly garden is complete without milkweed. Not only will milkweed provide a nectar source for many adult butterfly species, these plants are also a necessity for monarchs to complete their life cycle.

Adults lay their eggs on the milkweed leaves. The eggs hatch and the larvae consume the leaves as they proceed through five larval stages. Milkweeds such as *Asclepias tuberosa* (Figure 13), otherwise known as butterfly weed, are a popular choice because of the bright orange flowers. Butterfly weed is recommended for the drier, sandier soils of western North Dakota (Table 3).

Common milkweed, *Asclepias syriaca*, may not be a good choice for a small home garden because it can spread aggressively by

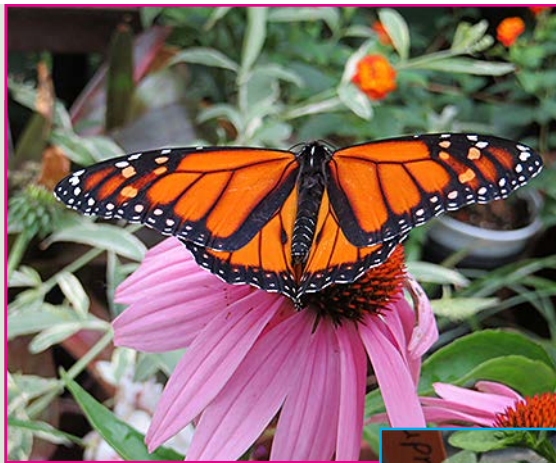


Figure 9. Purple coneflower (*Echinacea*) provides a convenient place for butterflies (Monarch) to land and feed.

(Photo by E. McGinnis, NDSU)

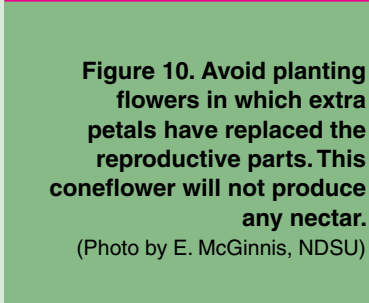


Figure 10. Avoid planting flowers in which extra petals have replaced the reproductive parts. This coneflower will not produce any nectar.

(Photo by E. McGinnis, NDSU)



Figure 11. Zinnia with painted lady. Zinnia is a late-season flower for attracting butterflies.

(Photo by L. Mance, L.M. Professional Pest Control Services)

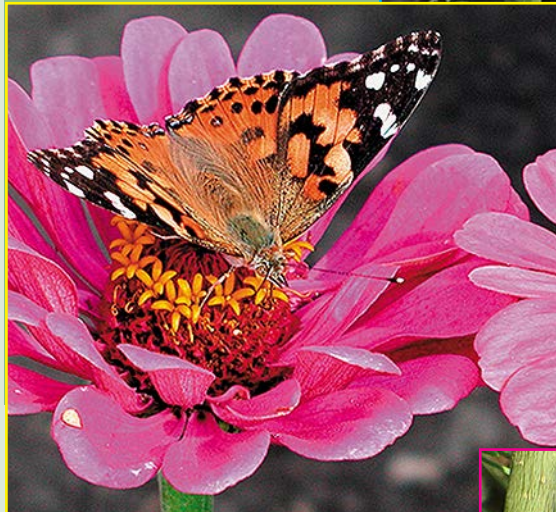


Figure 12. A painted lady is perched on a sunflower leaf.

(Photo by E. McGinnis, NDSU)



Figure 13. Butterfly weed is an orange-flowered milkweed.

(Photo by E. McGinnis, NDSU)

rhizomes. Only plant it if you have room for it to spread. Common milkweed is listed as a noxious weed in Cavalier, Renville, Sheridan, Traill and Wells counties. However, it is not listed on the North Dakota state noxious weed list.

Other attractive milkweeds that are less aggressive include prairie milkweed (*Asclepias sullivantii*)

and swamp milkweed (*Asclepias incarnata*). These pink flowering plants are good choices for heavier soils. Please consult Table 3 to select a milkweed that matches your area's soils and moisture levels.

In general, smaller, "shallower" flowers will attract smaller butterflies with shorter tongues; milkweeds and asters are beloved

by hairstreaks and crescents. Bee balm are "deeper" flowers, which attract butterflies with longer tongues, such as painted ladies and swallowtails. Besides the plants mentioned here, almost any colorful, heavily scented flower is likely to be some butterfly's favorite.

Table 2. Top 12 Nectar-producing annuals to attract butterflies.

Common Name	Botanical Name	Notes
African marigold	<i>Tagetes erecta</i>	Taller than the French marigold
Ageratum	<i>Ageratum houstonianum</i>	Purplish-blue flowers
Blanket flower	<i>Gaillardia x grandiflora</i>	May self-sow for continuous supply
Cosmos	<i>Cosmos bipinnatus</i>	Easy to grow from seed
Flowering tobacco	<i>Nicotiana glauca</i>	May attract hummingbirds depending on flower color
French marigold	<i>Tagetes patula</i>	Easy to germinate by seed
Heliotrope	<i>Heliotropium arborescens</i>	Wonderful sweet scent
Lantana	<i>Lantana camara</i>	Grows best in well-drained soils
Nasturtium	<i>Tropaeolum majus</i>	Very easy to grow
Pentas	<i>Pentas lanceolata</i>	Great star-shaped flowers
Verbena	<i>Verbena</i> spp.	Verbena bonariensis may self-seed prolifically the following year
Zinnia	<i>Zinnia elegans</i>	Comes in a wide range of colors and shapes

Table 3. Milkweeds for North Dakota.

Common Name	Botanical Name	Native or Not	Soils	Notes
Butterfly weed	<i>Asclepias tuberosa</i>	Not	Medium to dry soils	Attractive orange flowers; does not tolerate clay soils
Common milkweed	<i>Asclepias syriaca</i>	Native to eastern 2/3 of North Dakota	Adaptable to wide range of soils	Pink or lavender flowers; rhizomes may spread aggressively in home gardens
Prairie milkweed	<i>Asclepias sullivantii</i>	Native to Cass and Richland counties, N.D.	Adapted to heavier soils	Pink flowers; spreads slower than common milkweed
Showy milkweed	<i>Asclepias speciosa</i>	Native to most of North Dakota	Best in medium to dry soils	Has longer pink petals
Swamp milkweed	<i>Asclepias incarnata</i>	Native to eastern North Dakota	Best in moist soils	Rosy pink flowers; doesn't tolerate drought
Whorled milkweed	<i>Asclepias verticillata</i>	Native to most of North Dakota	Medium to dry soils	White flowers

Nectar Sources of Common North Dakota Butterflies

Flowers are listed roughly in order from earliest to latest flowering dates. This is not an exclusive list and many exotic annual plants are highly attractive to our butterflies. Some flowers may not be suitable for growing in all areas of North Dakota, because of our variable weather or not suitable at a given location every year.

Table 4. Common nectar sources of widespread North Dakota butterflies.

	Lilac Dogwood Spirea Fleabane Dandelion	Phlox Bee balm Sunflower Purple coneflower Thistle Milkweed Alfalfa Vervain Marigold	Blazing star Zinnia Aster
	Early Flowering	Mid-Season Flowering	Late Flowering
Silver spotted skipper	■	■ ■ ■ ■ ■ ■ ■	■
Checkered skipper	■ ■	■ ■ ■ ■ ■ ■ ■	■
Long dash skipper		■ ■ ■ ■ ■ ■ ■	■ ■
Peck's skipper		■ ■ ■ ■ ■ ■ ■	■ ■ ■
Black swallowtail		■ ■ ■ ■ ■ ■ ■	■
Canadian tiger swallowtail	■ ■	■ ■ ■ ■ ■ ■ ■	
Checkered white		■ ■ ■ ■ ■ ■ ■	■
European cabbage butterfly	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■
Alfalfa butterfly	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■
Common sulphur	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■
Bronze copper		■ ■ ■ ■ ■ ■ ■	
Gray copper		■ ■ ■ ■ ■ ■ ■	
Gray hairstreak		■ ■ ■ ■ ■ ■ ■	
Coral hairstreak		■ ■ ■ ■ ■ ■ ■	
Summer azure	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Eastern tailed blue	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Melissa blue	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■
Variagated fritillary	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■ ■
Great spangled fritillary	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■
Regal fritillary	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■
Gorgone checkerspot	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Pearl Crescent	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■
Question mark	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Comma	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Mourning cloak	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Red admiral	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Painted lady	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■
White admiral	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	
Viceroy	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■ ■
Monarch	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	■ ■
Common wood nymph	■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■	

Caterpillar Host Plants

Most butterfly caterpillars feed on plant parts: leaves, flowers, buds or seeds. While nectar sources will attract many species of butterflies, providing larval food sources will augment local populations of widespread butterflies. Host plants of 30 common butterfly caterpillars are listed in Table 5.

Table 5. Host plants of common butterfly caterpillars.

Butterfly	Caterpillar Food Plants
Silver spotted skipper	Woody legumes such as wild licorice, false indigo, hog peanut, showy tick trefoil and black locust
Checkered skipper.....	Wild mallows such as scarlet mallow or introduced horticultural species such as rose mallow
Peck's skipper.....	Grasses such as Kentucky bluegrass, smooth brome and rice cutgrass
Long-dash skipper.....	Grasses, including Kentucky blue grass, timothy, quackgrass and barnyard grass
Black swallowtail.....	Wild plants of the dill family including heart-leaved alexanders, water hemlock, meadow and water parsnips. Larvae are called parsley worms and are a minor garden pest of dill, parsley and carrots
Canadian tiger swallowtail	Leaves of ash, poplar, willow, birch and wild cherry
Checkered white	Plants of the mustard family, including cabbage, turnip, various wild mustards and shepherd's purse
Cabbage butterfly	Plants of the mustard family. Often damages lettuce, cabbage and other cole crops such as cauliflower and broccoli. The larva is known as the imported cabbageworm.
Alfalfa butterfly	Legumes, with a preference for alfalfa and vetches.
Clouded sulphur	Legumes, with a preference for white and sweet clovers; also locoweed and alfalfa.
Bronze copper	Curled and water dock; also knotweed.
Gray copper	Curled and western dock; probably other dock species, too
Gray hairstreak	Prefers legumes and mallows, but has a wide variety of hosts: hops, mallows, knotweeds, beans, hawthorns, cotton, oak, strawberry and mint. Eat fruits and seeds of host.
Coral hairstreak	Flowers and fruits of wild cherry and plum
Summer azure	Flower and leaf buds of dogwood and spiraea
Eastern tailed blue.....	Flower, leaf buds and leaves of white and red clovers, vetches, also other legumes
Melissa blue.....	Leaves of alfalfa, lupines, and less frequently, other legumes such as wild licorice and vetches
Variiegated fritillary.....	Primarily violets, but also flax (wild and cultivated), stonecrop, purslane and sunflowers. The larvae, known as the pansy caterpillar, is a minor horticultural pest of cultivated violets.
Great spangled fritillary	Violets
Regal fritillary.....	Violets
Gorgone checkerspot	Asters, black-eyed susan, soybean and sunflowers
Pearl crescent.....	Smooth-leaved asters
Question mark	Leaves of elm, hackberry, hops and nettle
Comma.....	Leaves of hops, nettle and hackberry. Larva known as the hop merchant.
Mourning cloak	Leaves of willow, elm, birch, aspen and cottonwood. Occasionally a defoliator of elm. Larva is the elm caterpillar.
Red admiral	Nettle and thistle
Painted lady.....	Thistle, hollyhock, mallows. The thistle caterpillar is occasionally a minor pest of sunflower and soybean.
White admiral.....	Leaves of birch, poplar, aspen and wild cherry
Viceroy.....	Leaves of willow and poplar
Monarch.....	Milkweeds, including butterflyweed
Common wood nymph.....	Wide variety of grasses including wild oats

Common North Dakota Butterflies

North Dakota butterflies (Figure 14) are placed easily into recognizable groups. For each general group, the following information is given: identification hints, habits, life history data and number of North Dakota species.

Skippers

are small to medium-sized butterflies. Unlike all other butterflies, the antennal club in skippers is about twice as long as wide and narrowed or even hooked at the tip. Skippers hold their antennae widely spread rather than in the narrow “V” often observed in other butterflies. Skippers have a more stoutly built body, compared with other butterflies. When visiting flowers, most skippers appear as small orange “right-triangles.” Caterpillars are distinctive in having a constriction or “neck” behind the head. Larvae feeding on broad-leaved plants construct a silken shelter within a rolled leaf, where they hide in the day. Those feeding on grasses construct a silken tube at the base of the plant. Resident skippers overwinter as eggs, early stage larvae or chrysalids. At least 42 species of skippers are found in North Dakota. Pictured in Figure 14: Peck’s skipper (33), long-dash skipper (34), silver-spotted skipper (35) and checkered skipper (36).

Swallowtails

are large to very large butterflies with one or more tails on each hindwing. Females have a blue submarginal band or row of spots on hindwings. The same area is largely black in males. Larvae possess an orange or red Y-shaped, reversible structure, the osmeterium, displayed when the caterpillar is threatened. This defensive structure, located behind the head, resembles a snake’s tongue and releases a pungent odor (like dill or musty apple sauce). Resident swallowtails overwinter as chrysalids. Nine species of swallowtails occur in North Dakota. Pictured in Figure 14 are the Canadian tiger swallowtail (31) and black swallowtail (32).

Sulphurs and whites

are usually white or yellow, as their common name implies. Most of their caterpillars are green, usually with one or more pale lateral stripes. Their body surface is covered with minute hairs, which gives them a velvety appearance. Larvae form a chrysalis, which is oriented head upward and supported about the middle with a silken strap like a window-washer’s belt. Resident species overwinter as chrysalids. At least 14 species of this group occur in North Dakota. Pictured in Figure 14: clouded sulphur (21-23), checkered white (24 and 29), cabbage butterfly (25 and 30) and alfalfa butterfly (26-28).

Gossamer-winged butterflies

are small to medium-sized butterflies, recognized by the lustrous wings and/or the presence of hairlike tails on hindwings. In the hand, they are recognized by the fact that their eyes touch the bases of the antennae. Larvae are somewhat sluglike, with a velvety appearance, due to the presence of minute hairs. Larvae of many species are attended to by ants in a symbiotic relationship. Larvae secrete a sugary liquid (honeydew), which ants drink. Ants, in turn, protect the caterpillars from insect predators. Many species feed on buds, flowers or seeds. At least 29 species of gossamer-winged butterflies occur in North Dakota. Pictured in Figure 14: Melissa blue (12-13), Eastern tailed blue (14-15), summer azure (16-17), gray hairstreak (37), coral hairstreak (38), gray copper (39) and bronze copper (40-41).

Brush-footed butterflies

are distinguished from other butterflies because their front legs are reduced in size and are used to clean their eyes or as antennae and to “taste” flowers. Therefore, these butterflies have only four walking legs. The caterpillars of most have branching spines. At least 54 species occur in North Dakota. For identification purposes, these butterflies are broken into seven smaller groups.

Fritillaries are medium-sized to large butterflies. Most have silver spots on the ventral surface of the hindwings. Larvae feed on violets. At least 11 species occur in North Dakota. Pictured in Figure 14 are: variegated fritillary (20), great spangled fritillary (42) and regal fritillary (43).

Checkerspots and crescents are medium-sized to small butterflies with an orange and black dorsal pattern similar to fritillaries but tend to have solid black wing margins. Like fritillaries, their antennal clubs are spatulate (spoon-shaped). At least eight members of this group occur in North Dakota. Pictured in Figure 14 are the northern crescent (18) and Gorgone checkerspot (19).

Angle-wings and tortoise-shells are medium to large butterflies whose scalloped wing margins impart a ragged appearance. Most are brightly

colored above and resemble tree bark or dried leaves beneath. These butterflies are rarely attracted to flowers but are common at sap flows in the spring and fermenting fruit in midsummer and fall. They hibernate as butterflies in crevices or cracks in tree bark. At least 10 species occur in North Dakota. Pictured in Figure 14 are: comma butterflies (3-4), question mark (5-6) and morning cloak (9).

Thistle butterflies are medium-sized butterflies having bright colors, pale-tipped antennae and eyespots on the ventral hindwings. These butterflies, in common with angle-wings, have a spiral flight pattern and may be territorial. Thistle butterflies are annual migrants and do not survive North Dakota winters. Four species have been found in the state. Pictured in Figure 14 are the red admiral (10) and painted lady (11).

Admirals are large butterflies with bold pattern: black and white, black and blue or orange with black veins and lines. The antennal club is very weak in all species and hardly more than a gradual thickening. They often circle with a flat-winged glide. North Dakota species overwinter as partially grown larvae within a rolled leaf. Three admirals occur in North Dakota. Pictured in Figure 14 are the viceroy (1) and white admiral (2).

Milkweed butterflies are large butterflies with orange wings and black veins. When resting on a flower, the antennae with the downturned club is used to identify our only common species, the monarch, from the viceroy, one of the admirals. Flight is characterized by a few vigorous flaps followed by a long glide with wings held as a "V." Monarchs are our only regular, annual migrant butterfly. Occasionally, a second species, the queen butterfly, strays into the northern U.S. The monarch (7) is pictured in Figure 14.

Satyrs are medium-sized butterflies. Most are somber uniform brown or dull orange, with one or more eye spots on the ventral wing surfaces. Swollen veins at the base of the forewings, which function as a tympanum (ear), are visible at close range. Satyrs overwinter as partially grown larvae or less commonly as eggs. At least 11 species of this butterfly are in North Dakota. The common wood nymph (8) is pictured in Figure 14.



Caterpillar of red admiral. (Photo by J. Knodel, NDSU)

Seasonal Calendar of Common North Dakota Butterflies

In the following table, a ‘-’ indicates presence, either early individuals or older, worn butterflies later in the season, while a ‘■’ indicates peak flight periods.

Species	May	June	July	Aug.	Sept.
Silver spotted skipper		- ■ ■	- -		
Checkered skipper		- ■	■ - -	- ■ ■	■ ■ -
Long dash skipper		- - ■	■ ■ -	-	
Peck's skipper		- ■	■ ■ -	- - -	
Black swallowtail	- ■	- - -	■ ■ ■	- - -	- -
Canadian tiger swallowtail	-	■ ■ ■	- -		
Checkered white	- -	- - -	- - -	- - -	- ■ ■
European cabbage butterfly	- -	- ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
Alfalfa butterfly	-	- - -	- ■ ■	■ ■ ■	■ ■ -
Common sulphur	- - -	- ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
Bronze copper		- -	■ - -	- ■ ■	- -
Gray copper		■	■ ■ -		
Gray hairstreak	- - -	- - -	- - -	- - -	- -
Coral hairstreak		-	■ ■ ■	- - -	
Summer azure		-	- ■ -	- - -	- - -
Eastern tailed blue	- - -	- - -	- - -	- - -	- - -
Melissa blue		- ■ ■	■ - -	- ■	■ - -
Variiegated fritillary		- -	- - ■	■ - -	- -
Great spangled fritillary		- -	■ ■ ■	- - -	-
Regal fritillary		- - -	■ ■ ■	■ ■ ■	- - -
Gorgone checkerspot		■ ■ -		■	- -
Pearl Crescent	-	■ ■ ■	■ ■ ■	■ ■ ■	■ - -
Question-mark	- - -	- - -	■ ■ ■	■ ■ ■	- - -
Comma	- - -	- - -	■ ■ ■	■ ■ ■	■ ■ -
Mourning cloak	- - -	- - -	■ ■	- - -	■ - -
Red admiral	-	- -	- - -	- - -	- - -
Painted lady		- - -	- - -	- - -	- - -
White admiral		- ■ ■	■ ■ -	- - -	-
Viceroy	-	- ■ ■	■ - -	■ ■ ■	- - -
Monarch		- - -	- - -	- ■ ■	■ ■ -
Common wood nymph			■ ■ ■	- - -	- - -

Further Information

Websites on Butterflies and Butterfly Gardening

Butterflies of America

<http://butterfliesofamerica.com/>

Color photographs of living and spread specimens of most butterflies north of the Panama Canal, including dorsal and ventral views as well as larvae.

Butterflies and Moths of North America

www.butterfliesandmoths.org/

Information on many butterfly and some moth species, website steadily developing.

The Butterfly Website

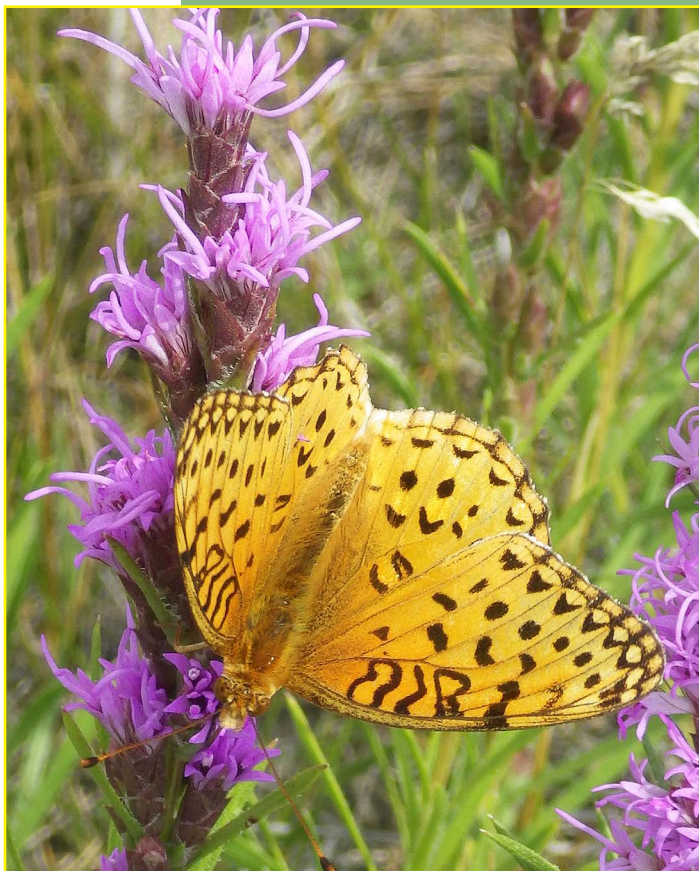
www.butterflywebsite.com/butterflygardening.cfm

Information on butterfly gardening.

North American Butterfly Association

www.naba.org/

Information on butterfly gardening and habitat conservation following North American Butterfly Association guidelines.



Aphrodite fritillary (*Speyeria aphrodite*).
(Photo by G. Fauske, NDSU)

Books

Butterflies

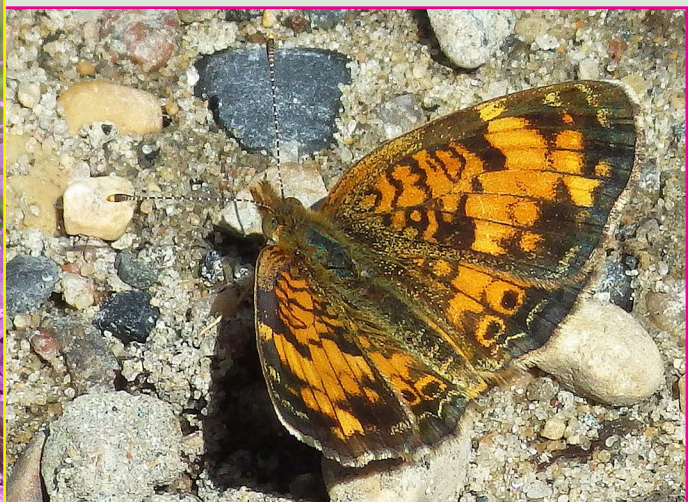
- Brock, Jim P., and Ken Kaufman. 2009. Kaufman Field Guide to Butterflies of North America. Houghton Mifflin. New York, N.Y.
- Glassberg, Jeffrey. 1999. Butterflies through Binoculars, the East. Oxford University Press, New York, N.Y.
- Glassberg, Jeffrey. 2001. Butterflies through Binoculars, the West. Oxford University Press, New York, N.Y.
- Layberry, Ross A., Peter W. Hall and J. Donald Lafontaine. 1998. The Butterflies of Canada. University of Toronto Press. Toronto, Ontario.
- Marrone, Gary M. 2002. Field Guide to Butterflies of South Dakota. South Dakota Department of Game, Fish and Parks. Pierre, S.D.
- McCabe, Tim L. and Richard L. Post. 1977. Skippers (*Hesperioidea*) of North Dakota. North Dakota Insects Publication #11. Schafer-Post series. North Dakota State University. 70 pp.
- Royer, Ron A. 2003. Butterflies of North Dakota, an atlas and field guide. Minot State University Science Monograph 2: 192 pp.

Caterpillars

- Allan, Thomas J., Jim P. Brock and Jeffrey Glassberg. 2005. Caterpillars in the Field and Garden. Oxford University Press, New York, N.Y.
- Wagner, David L. 2005. Caterpillars of Eastern North America. Princeton University Press, Princeton, N.J.

Butterfly Gardening

- Kline, Christopher. 2015. Butterfly Gardening with Native Plants. Skyhome Press. Kleinburg, Ontario.
- Xerces Society. 1998. Butterfly Gardening: Creating summer magic in your garden. Sierra Club, Smithsonian, University of Minnesota Press.



Northern pearl crescent (*Phyciodes cocyte*).
(Photo by G. Fauske, NDSU)

Figure 14. Key to Color Plate

1. Viceroy - *Limenitis archippus*
2. White admiral - *Limenitis arthemis*
3. Comma/hop merchant - *Polygonia comma*, winter form
4. Comma/hop merchant - *Polygonia comma*, summer form
5. Question-mark - *Polygonia interrogatoris*, winter form
6. Question-mark - *Polygonia interrogatoris*, summer form
7. Monarch - *Danaus plexippus*
8. Common wood nymph - *Cercyonis pegala*
9. Mourning cloak - *Nymphalis antiopa*
10. Red admiral - *Vanessa atalanta*
11. Painted lady - *Vanessa cardui*
12. Melissa blue - *Plebejus melissa*, ♂
13. Melissa blue - *Plebejus melissa*, ♀
14. Eastern tailed blue - *Cupido cornyctas*, ♂
15. Eastern tailed blue - *Cupido cornyctas*, ♀
16. Summer azure - *Celastrina neglecta*, ♂
17. Summer azure - *Celastrina neglecta*, ♀
18. Northern crescent - *Phyciodes cocyta*
19. Gorgone checkerspot - *Charidryas gorgone*
20. Variegated fritillary - *Euptoieta claudia*
21. Clouded sulphur - *Colias philodice*, ♂
22. Clouded sulphur - *Colias philodice*, ♀
23. Clouded sulphur - *Colias philodice*, ♀, albinic
24. Checkered white - *Pontia protodice*, ♂
25. Cabbage butterfly - *Pieris rapae*, ♂
26. Alfalfa butterfly - *Colias eurytheme*, ♂
27. Alfalfa butterfly - *Colias eurytheme*, ♀
28. Alfalfa butterfly - *Colias eurytheme*, ♀, albinic
29. Checkered white - *Pontia protodice*, ♀
30. Cabbage butterfly - *Pieris rapae*, ♀
31. Canadian tiger swallowtail - *Papilio canadensis*
32. Black swallowtail - *Papilio polyxenes*
33. Peck's skipper - *Polites peckius*
34. Long-dash skipper - *Polites mystic*
35. Silver-spotted skipper - *Epaargyreus clarus*
36. Checkered skipper - *Pyrgus communis*
37. Gray hairstreak - *Strymon melinus*
38. Coral hairstreak - *Satyrus titus*
39. Gray copper - *Lycaena dione*
40. Bronze copper - *Lycaena hylus*, ♂
41. Bronze copper - *Lycaena hylus*, ♀
42. Great spangled fritillary - *Speyeria cybele*
43. Regal fritillary - *Speyeria idalia*

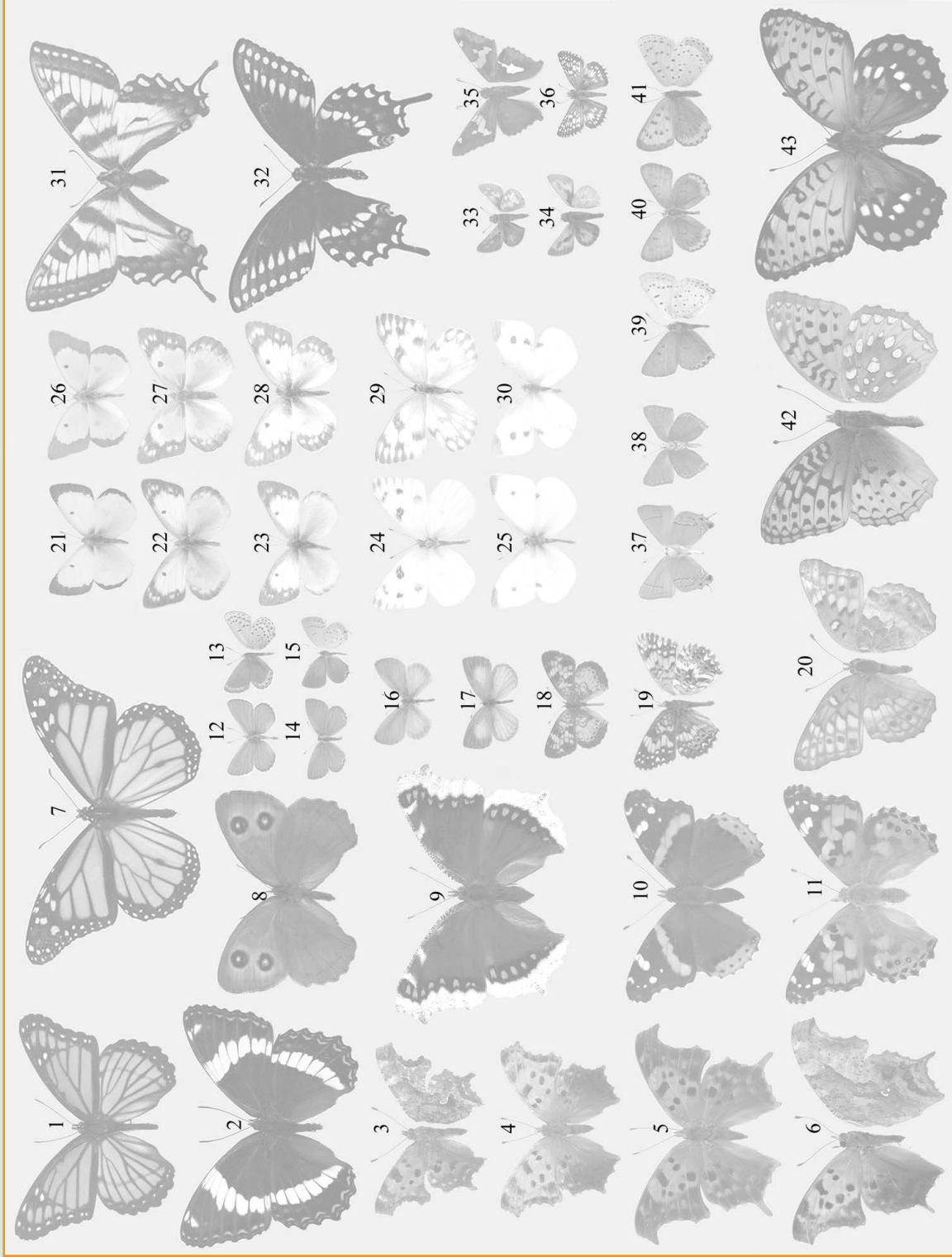


Figure 14. Color Plate of butterflies of North Dakota. (Photos by G. Fauske, NDSU)



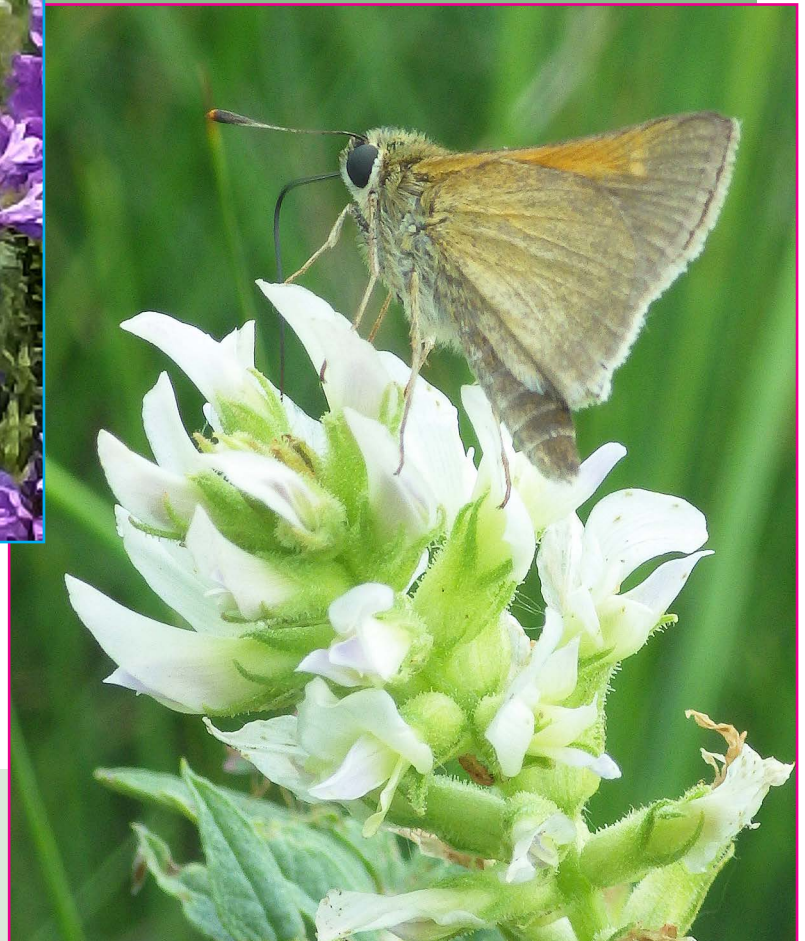
Clouded sulfur (*Colias philodice*).
(Photo by G. Fauske, NDSU)



Siva hairstreak (*Callophrys gyneus siva*) on yarrow. (Photo by G. Fauske, NDSU)



Tawny-edged skipper (*Polites themistocles*) on wild licorice. (Photo by G. Fauske, NDSU)



Printing of this publication is supported by a Great Plains Diagnostic Network grant from a subcontract under the U.S. Department of Agriculture–National Institute of Food and Agriculture.

This publication was authored by Janet Knodel, NDSU Extension entomologist; Gerald Fauske, NDSU entomology research specialist; and Ron Smith, retired NDSU Extension horticulturist.

NDSU Extension does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names. NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit www.ag.ndsu.edu/agcomm/creative-commons.

For more information on this and other topics, see www.ndsu.edu/extension

County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7708, ndsu.eoaa@ndsu.edu. This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881. 1M-3-16, 2M-8-19