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Utah Butterfly Field Trips

Utah Bug Club

### Introduction

Butterflies (as well as moths) belong to that order of insects called lepidoptera or scaled-winged insects. These insect beauties have a world of fascinating attributes. The fascinating life cycle of butterflies contains four phases and is called metamorphosis.

Another fascinating attribute of some butterflies is mass migrations. Two of the more popular Utah butterflies involved in mass migrations are the onarch (*Danaus plexippus*) and the painted lady (*Vanessa cardui*).



Female Monarch butterfly lays eggs on milkweed

Butterflies are quite attractive and aesthetically pleasing insects. Some associate butterflies with delicacy like icons of peace, flower petals or reverent classical music.

Nevertheless, don't let their beauty deceive you into thinking that butterflies are fragile. Those who have carefully studied their life history, which sometimes can be in the most inhospitable of habitats, have learned to respect butterflies' capabilities of survival.

Butterflies are inherently resilient. Because of butterflies' reproductive capabilities coupled with adaptive self-defense mechanisms such as mimicry, camouflage, population size, extended diapause (hibernation), etc., the destruction of their habitat should be of concern for their long-term viability and welfare. (Habitat destruction can either be caused by man or by natural means--i.e, an invasive plant choking out a native hostplant for a butterfly.)

# **Butterfly Life Cycle**

As stated earlier, butterflies and moths go through a four-phased life cycle called complete metamorphosis. (Contrast this to the life cycle of a dragonfly which has three stages and is called incomplete metamorphosis.)

The first stage of complete metamorphosis occurs when an adult female butterfly lays an egg or "ovum" on the specific hostplant for that species. After the egg is laid, it takes, on average, five days for the ovum to hatch. The newly hatched hungry caterpillar is termed a first instar because it has not yet molted its skin. When a first instar consumes enough foodplant that its skin is too tight to support further growth, the caterpillar becomes dormant for a day or so, and then sheds its skin revealing a larger head and new skin capable of sustaining further growth. This caterpillar is now a second instar.



Butterfly caterpillars repeat this pattern of feeding and molting until the mature fifth instar caterpillar sheds its skin one last time to form a chrysalis or pupa. (Note: The term "cocoon" is a chrysalis or pupa with an outer shell of protection spun by a moth prior to pupation and mostly applies to moths; not butterflies.)

Some butterfly pupae will emerge from their chrysalis after 1-2 weeks. Others wait until the next year to emerge because their larval hostplant cannot sustain another flight during the year in question. When the fully grown butterfly emerges from the chrysalis, the cycle repeats itself.

Adult butterflies no longer "feed" as their caterpillars did. They do not have chewing mouthparts to ingest plants. Instead, in order to sustain themselves, they have a coiled tubular straw or "proboscis" with which they obtain only liquid nutrients from flowers, streams, and sometimes animal dung. Adult butterflies do not grow. They will die the same size they were when they emerged from their chrysalis.

	Larva	Chrysalis	Adult
Julia Orangetip ( <i>Anthocharis julia</i> browningi)			
Great Spangled Fritillary ( <i>Speyeria</i> <i>cybele</i> <i>letona</i> )		- P	
Western Tiger Swallowtail ( <i>Papilio</i> <i>rutulus</i> )			
Monarch ( <i>Danaus</i> <i>plexippus</i> )			
Weidemeyer's Admiral ( <i>Limenitis weidemeyeri</i> <i>latifascia</i> )			

### Where to Find Utah Butterflies

People curious about Utah butterflies will often ask three basic questions. Where and when should they go to find butterflies and what varieties will they find?

The most basic answer lies with two fundamental resources--water and sunshine. When it comes right down to it, butterflies, whether in the adult or immature stage, need plants to survive, and plants need precipitation and sunshine. It is that simple.

The best places to find butterflies are in areas that receive plenty of precipitation. These habitats include mountain canyons, mountain hilltops, arctic alpine, valley wet meadows, valley rivers, cultivated alfalfa fields, and even disturbed areas.

Other, drier habitats, such as desert areas still have butterflies; but usually do not have as many species and are subject to sudden increases/decreases depending upon recent rainfall. City Parks can also be a good place to find butterflies mostly if they happen to be adjacent to any of the habitats explained above.



### **Butterflies, Plants, Mountains and Streams**

A common saying amongst Utah butterfly collectors is that spring moves up the mountains and fall moves down the mountains.

What that means is that there are a certain number of canyon dwelling butterflies that prefer to fly in the spring when fresh growth of its larval hostplants appear. But, spring arrives in our mountains along a progression of time corresponding directly to altitude and snowpack levels.

For example, the Anise Swallowtail (*Papilio zelicaon nitra*), flies at the mouths of Wasatch Canyons at elevations of 5000' to 6000' from mid April to early May. A little higher up, at near 7000', Anise Swallowtails start flying in mid to late May. They fly along Skyline Drive near Bountiful Peak, at 9300' from mid June to early July.

Although the Anise Swallowtail follows a progression of spring emergence at increasing elevations from 5000' to 9000' between April and July, other Wasatch Front butterflies only fly at more restricted elevations and timeframes based upon the range and availability of its larval hostplants.

A perfect example of this is the Cliff Swallowtail (Papilio indra indra).



Cliff Swallowtail male and its larval hostplant *Lomatium graveolens*. Both can be found along rocky terrain near the summit of the Wasatch Mountains.

Like the Anise Swallowtail, caterpillars of the Cliff Swallowtail feed on mountain parsleys. However, in the Wasatch Range, where Anise Swallowtails feed on a variety of parsleys that grow at all elevations, Cliff Swallowtails only feed on one variety (*Lomatium graveolens*) that grows mostly between 8000 to 10,000 feet.

Therefore, Cliff Swallowtails only fly in late June through July at these higher elevations in association with its larval hostplant. (Except, males, from time to time, may descend from the tops of the mountains down to the canyon bottoms to nectar on damp soil adjacent to rivers and streams.)

Another example of the Cliff Swallowtial's connection to its larval hostplant occurs along the Bear River Range in Cache Valley where another parsley, *Cymopterus terebinthinus*, grows between 5,000' to 8,000'. Since Cliff Swallowtail caterpillars feed on *Cymopterus terebinthinus*, one can find butterflies of the Cliff Swallowtail flying at the mouths of Blacksmith Fork Canyon and Logan Canyon in early May.

### **Mountain Canyons**



Adams Canyon Trail—Davis County

Most any natural canyon found along Utah's Wasatch Front will provide a nice mix of butterflies at different times of spring and summer. Utah's most popular canyons include Payson Canyon, Provo Canyon, Rock Canyon, American Fork Canyon, Big Cottonwood Canyon, Millcreek Canyon, City Creek Canyon, Lambs Canyon, and Sardine Canyon. Whether these canyons contain active rivers, or are dry gulches, there are plenty of butterfly species to be found in these riparian and adjacent areas. In fact, the majority of species from the state can be found in Wasatch Canyons and hilltops.

The best areas to seek out butterflies in these canyons is along rivers accessible through hiking trails, mountain parks, campground areas, and turnouts. Males of some species of butterflies patrol right along the river or ravine in search of females. Examples include the Two-Tailed Swallowtail, (*Papilio multicaudata pusillus*,) The Western Tiger Swallowtail (*Papilio rutulus rutulus*,) The Mourning Cloak, (*Nymphalis antiopa*,) Weidemeyer's Admiral (*Limenitis weidemeyeri latifascia*), and Thistle Crescent (*Phyciodes mylitta mylitta*).

The reason for this is that the larvae of most of these species feed on plants that grow nearby.

Although many butterfly and moth species in the Wasatch Mountains are "riparian"—meaning they fly along river courses, some mountainous species in the Wasatch Mountains fly in habitats away from the river right along the side of the mountain because that is where their larval hostplants grow. Finding these species oftentimes requires hiking along trails or a steep climb up the mountain itself. Examples are the Wyoming Satyr (*Neominois wyomingo*,) Spring White (*Pieris sisymbri sisymbri*,) Pacuvius Duskywing (*Erynnis pacuvius lilius*) and Queen Alexandra's Sulphur (*Colias alexandra alexandra*.)

As stated earlier, timing, elevation, and snowfall is critical in finding certain species of butterflies in the Wasatch Mountains.



**Wyoming Satyr (***Neominois wyomingo***)** Flies locally mostly in Utah County along steep mountain sides strewned with its hostplant grasses during the hot month of August. This male was found on a steep hillside adjacent to Hobble Creek Golf Course driving range. These butterflies spend most of their time resting during a hot summer day.



The mix of butterflies you will find in Mountain Canyons will be about the same depending on what time of year you visit differing elevations of these canyons. The next section discusses what common butterflies can be found in most Wasatch canyons between the months of March and August.

## When to find Butterflies in Wasatch Canyons

#### <u>March</u>

There is a group of what we call brushfoot butterflies called anglewings and tortoiseshells which are unique in that they spend the winter not as a chrysalis, larva, or egg; but, as an adult butterfly. These butterflies emerged as adults the previous fall. These butterflies include the mourning cloak (*Nymphalis antiopa*), milbert's tortoiseshell (*Nymphalis milberti*), California tortoiseshell, (*Nymphalis californica*), satyr comma (*Polygonia satyrus*), hoary comma (*Polygonia gracilis zephyrus*), and less commonly, the green comma (*Polygonia faunus hylas*).

In the late winter, on sunny, 50+ degree days, some of these butterflies will break hibernation and it is quite possible to find some of them cruising along canyon roads and creeks or even in our valleys.

With exception of the mourning cloak, these butterflies emerged early the previous fall from higher elevations and worked their way down the canyon towards lower elevations where temperatures remained warmer for a longer period of time. As spring progresses, these butterflies will return to higher elevations to mate and repeat their life cycle.



Mourning Cloak (Nymphalis antiopa) Flies along water courses in valleys and mountains throughout the state appearing the first warm days of late winter



**Milbert's Tortoiseshell** (Nymphalis milberti furcillata) Flies in the valley floors near rivers during the summer. This temporal migrator is equally at home at the canyon mouths in April, midelevation canyons in June and the tops of the mountains in August.



satyrus) Picture of male ventral surface.



**California Tortoiseshell** (Nymphalis californica) Flies in the lower canyons in early spring working its way to higher elevations in mid summer. Larvae feed on Ceanothus velutinus.



Milbert's Tortoiseshell (Nymphalis milberti furcillata) Ventral surface pictured.



**California Tortoiseshell** (Nymphalis californica) Ventral surface pictured.



Satyr Comma (Polygonia satyrus satyrus) Can be found in mountain canyons from March until June. A fresh generation appears from July to September.



Satyr Comma (Polygonia satyrus Hoary Comma (Polygonia gracilis zephyrus) Can be found in mountain canyons from spring until June. A fresh generation appears from high elevation during August and September.



Hoary Comma (Polygonia gracilis zephyrus) Underside view. (Also known as the ventral surface.)

#### <u>April</u>

Just as the tortoiseshell and anglewing adult butterflies break hibernation and fly during March, many other species of butterflies that spent the winter as a chrysalis, break diapause and emerge as adult butterflies during the months of April and May.

These butterflies include the Anise Swallowtail, (Papilio zelicaon nitra), Spring White (Pontia sisymbri), Julia Orangetip (Anthocharis julia browningi), Large Marble (Euchloe ausonides coloradensis), Yellow Sulphur (Colias philodice eriphyle), Silvery Blue (Glaucopsyche lygdamus oro) Spring Azure, (Celastrina ladon echo), Thistle Crescent (Phyciodes mylitta mylitta), Gray Hairstreak (Strymon melinus franki) and, less commonly, Sheridan's Green Hairstreak (Callophrys sheridani neoperplexa).

Towards the end of April, skippers such as the rocky mountain duskywing (*Erynnis telemachus*), sleepy duskywing (*Erynnis brizo burgessi*), afranius duskywing, (*Erynnis afranius*), checkered skipper (*Pyrgus communis*), and the juba skipper (*Hesperia juba*) start flying. About a week or so later, one might find patrolling males of the very large two tailed swallowtail (*Papilio multicaudatus pusillus*) patrolling gracefully up and down canyons. The spring azure, (*Celastrina ladon echo*) also fly in May.



Sheridan's Green Hairstreak (Callophrys sheridani neoperplexa) This small hairstreak butterfly flies in very isolated pockets near the mouth of Farmington Canyon and Taylor Canyon.



**Desert Elfin (Incisalia fotis fotis)** Flies along hillsides of Utah County Canyons in associaton with its larval foodplant—*Purshia mexicana.* The ventral surface of this butterfly is pictured.



Sheridan's Green Hairstreak (*Callophrys sheridani neoperplexa*) Female ventral surface is pictured.



**Desert Elfin (Incisalia fotis fotis)** Flies along hillsides of Utah County Canyons in associaton with its larval foodplant—*Purshia mexicana.* The ventral surface of this butterfly is pictured.



**Brown Elfin (Incisalia augustinus annettae)** Flies along hillsides of Davis County Canyons in associaton with its larval foodplant—*Purshia tridentata.* The ventral surface of this butterfly is pictured here.



Anise Swallowtail (*Papilio zelicaon nitra*) Flies near mountain canyon trails and hillsides in April and May. Caterpillars feed on *Lomatium dissectum*; which usually can be found growing und scrub oaks.



Spring White (Pontia sisymbri) Flies near mountain canyon trails and hillsides during the latter part of April.



Large Marble (Euchloe ausonides Large Marble (Euchloe ausonides coloradensis) Flies along dry ravines coloradensis) Female pictured. and mountainsides in mid April.



Spring White (Pontia sisymbri) Female pictured. Caterpillars feed on dyar's woad and rock cresses.



Caterpillars feed on dyar's woad and rock cresses.



**Southern Rocky Mountain** Orangetip (Anthocharis julia browningi) Males patrol canyon trails and washes in search of females.



Silvery Blue (Glaucopsyche lygdamus oro) Flies in ravines and dry gullies in lower canyons during the middle of April. Females lay eggs on Hedysarum boreale.



**Southern Rocky Mountain** Orangetip (Anthocharis julia browningi) Females are less noticeable and can be found mostly in May.



Silvery Blue (Glaucopsyche lygdamus oro) Female is pictured.



Spring White (Pontia sisymbri) Male ventral surface pictured.



Large Marble (Euchloe ausonides coloradensis) Female pictured. Caterpillars feed on dyar's woad and rock cresses.



Southern Rocky Mountain **Orangetip** (Anthocharis julia browningi) Male ventral surface pictured.



Silvery Blue (*Glaucopsyche* lygdamus oro) Ventral surface is pictured.



**Gray Hairstreak (Strymon** *melinus franki*) Muliple flights starting in April and ending in September. Caterpillars can be found on Astragalus or Hedysarum blooms in the spring and Eriogonum racemosum blooms in the fall.



**Thistle Crescent (***Phyciodes mylitta mylitta***)** Flies in ravines and dry gullies in lower canyons during the middle of April. Larvae feed on thistles.



**Painted Lady (Vanessa cardui)** Migrates into Northern Utah on a limited to massive basis every spring. Equally at home in mountain canyons as well as city parks and agricultural areas where their caterpillars feed on thistles.



**Sleepy Duskywing** *(Erynnis brizo burgessi)* Males patrol dry washes in lower canyons in late April and May.



Juba Skipper (*Hesperia juba*) Males quickly dart and land around ravines, trails, dry washes, and dirt roads in lower canyons during the middle of April. Males fly so fast that it is sometimes hard to keep your eye on them.



**Two Tailed Swallowtail (***Papilio multicaudatus pusillus***)** Males of this very large butterfly fly along mountain streams and city streets lined with ash trees from May to July. Females lay eggs on choke cherries in Canyons.



**Rocky Mountain Duskywing** (*Erynnis telemachus*) Males patrol and perch in dry washes.



Northern Cloudywing (*Thorybes pylades*) This dark skipper appears in late April and early May in our canyons and looks like duskywings in flight. The lesser amount of gray markings on the dorsal forewing will distinguish it. Its larvae feed on Sweet Clover.



**Western Tiger Swallowtail (***Papilio rutulus rutulus***)** Males patrol along moist mountain canyons between May and August.



**Afranius Duskywing (***Erynnis afranius***)** This butterfly has three flights in April, June, and August.



**Common Checkered Skipper** (*Pyrgus communis*) Males quickly fly around ravines, trails, and dry washes in canyons. Caterpillars feed on cheese weed (*Malva neglecta*.)



Pale Swallowtail (*Papilio eurymedon*) Males patrol along mountainous canyons and sometimes dry gullies from late May and July. Larvae feed on *Ceanothus velutinus*.

#### May

Soon after the two tailed swallowtail starts flying, other butterflies that appear during the month of May might include the western tailed blue (*Everes amyntula*), field crescent (*Phyciodes pulchellus camillus*), common ringlet (*Coenonympha tullia brenda*), and clodius parnassian (*Parnassius clodius menetriesi*).



Western Tailed Blue (*Everes amyntula*) Males fly in isolated colonies along hillsides in association with its larval food plant--*Lathyrus*.



**Field Crescent (***Phyciodes pulchellus camillus***)** Flies in canyons and gullies during the spring and summer months. Larvae feed on blue aster.



Western Tailed Blue (*Everes* amyntula) Female



**Field Crescent (***Phyciodes pulchellus camillus***)** Female is pictured.



**Clodius Parnassian** *(Parnassius clodius menetriesi)* Males fly along hillsides and near canyons from mid-May to June.



**Spring Azure (***Celastrina ladon echo***)** Flies in association with choke cherries and can be found in late April into May.



**Spring Azure (***Celastrina ladon echo***)** Female is pictured.



**Common Ringlet (***Coenonympha tullia brenda***)** The hop flight of this and other satyrid butterflies is somewhat different. Adults start appearing in mid-May.



**Common Ringlet** (*Coenonympha tullia brenda*) Female ventral surface is pictured.

#### <u>June</u>

In June, species that start flying are the western tiger swallowtail (*Papilio rutulus rutulus*), pale swallowtail (*Papilio eurymedon*), coronis fritillary (*Speyeria coronis snyderi*), callippe fritillary (*Speyeria callippe harmonia*), and the weidemeyer's admiral (*Limenitis weidemeyeri latifascia*). You may find great spangled fritillaries (*Speyeria cybele letona*); but, they tend to prefer higher elevations in the Wasatch Mountains. A fresh emergence of mourning cloaks can also be seen in June.



Weidemeyer's Admiral (*Limenitis weidemeyeri latifascia*) Males patrol and perch along mountainous canyons and dry gullies that have willow between May and July. Scarcely files along valley floor rivers as well.



Weidemeyer's Admiral (*Limenitis weidemeyeri latifascia*) Male ventral surface. Larvae feed on willows, poplars, choke cherries, and aspens.



**Callippe Fritillary (Speyeria** callippe harmonia) One of the first fritillaries to emerge in late May and early June. The green coloration of the ventral hind wing disc makes this fritillary unique compared to others in the state.



**Callippe Fritillary (Speyeria** callippe harmonia) Male ventral surface.



**Coronis Fritillary (Speyeria coronis snyderi)** Males appear a few days after Callippe Fritillaries; but females remain scarce almost until fall. The adults of this fritillary are larger than all others that fly in the Wasatch Front; except the Great Spangled Fritillary.



**Coronis Fritillary (Speyeria coronis snyderi)** The ventral surface markings on this male are superficially similar to the Zerene Fritillary; but the Coronis Fritillary is larger.



**Great Spangled Fritillary** (*Speyeria cybele letona*) Male dorsal surface.



**Great Spangled Fritillary** (*Speyeria cybele letona*) Female dorsal surface.



**Taxiles Skipper (***Poanes taxiles***)** Males emerge in late June and patrol and perch along trails near waterways

#### <u>July</u>

Towards the latter part of June and into July, other species of fritillaries begin to fly which include the great basin fritillary (*Speyeria egleis utahensis*), northwestern fritillary (*Speyeria hesperis wasatchia*), and great spangled fritillary (*Speyeria cybele letona*). The great basin wood nymph (*Cercyonis sthenele masoni*) also starts flying in and around the oaks as well as the taxiles skipper (*Poanes taxiles*).



**Great Basin Fritillary (Speyeria** *egleis utahensis*) Starts flying in our canyons in mid-June.



**Northwestern Fritillary** (*Speyeria hesperis wasatchia*) The color of the ventral hind wing disc is much darker red as compared to the Great Basin Fritillary.



**Great Basin Wood Nymph** (*Cercyonis sthenele masoni*) (Male pictured). This butterfly begins flying in early July and continues into August and September.



**Great Basin Fritillary (Speyeria** *egleis utahensis)* The color of the ventral hind wing disc on this fritillary is rusty brown with small patches of tannish coloration.



**Zerene Fritillary (Speyeria zerene platina)** The Zerene Fritillary can be quite common at mid-elevation Wasatch Canyons.



**Great Basin Wood Nymph** (*Cercyonis sthenele masoni*) (Female pictured). Females of the great basin wood nymph are more common in August and September.



**Northwestern Fritillary (Speyeria hesperis wasatchia)** Males are more common in Wasatch Canyons at roughly 7,000 feet.



Zerene Fritillary (*Speyeria zerene platina*) The silver spots on the ventral hind wing disc of the Zerene Fritillary are larger than on the Hesperis or Great Basin Fritillaries.



**Great Basin Wood Nymph** (*Cercyonis sthenele masoni*) (Female ventral surface pictured.)

#### **August-September**

Towards the end of July, it is possible that you might locate adults of the Colorado hairstreak (*Hypaurotis crysalus citima*). This breathtaking butterfly does not frequently come to nectar; but, can be found dancing around the tops of scrub oaks. Unlike other summer butterflies, this butterfly can sometimes be found still flying towards dusk.

Another butterfly that can be extremely common towards the latter end of August into October is the woodland skipper (*Ochlodes sylvanoides napa*.) This skipper may visit some blooming flowers in the Wasatch Mountains during this timeframe.



**Colorado Hairstreak** (*Hypaurotis crysalus citima*) Male pictured. Flies in close proximity to its larval host plants scrub oak (*Quercus gambellii*)



Colorado Hairstreak (*Hypaurotis* crysalus citima) Female pictured.



**Colorado Hairstreak (***Hypaurotis crysalus citima*) Female underside pictured.



**Woodland Skipper (***Ochlodes sylvanoides napa***)** Male pictured. This skipper emerges in the mouths of canyons in late August and can be very commonly found on flowers in September, October, up to hard freeze.



Woodland Skipper (*Ochlodes* sylvanoides napa) Female pictured.



**Woodland Skipper (***Ochlodes sylvanoides napa***)** Male ventral surface pictured.

One of the delectable blooming wildflowers growing along the Wasatch Mountains in September is redroot buckwheat (*Eriogonum racemosum*). Unlike other butterflies that fly during the spring and summer months, the spalding blue butterfly (*Euphilotes spaldingi*) does not emerge from its chrysalis until the redroot buckwheat is nearly in bloom in late August. Also, females of the gray hairstreak (*Strymon melinus franki*) also will lay eggs on *Eriogonum racemosum*. Larvae of both species of butterflies can be found on the blooms of *E. racemosum* throughout most of September.

Another butterfly that can be occasionally found in canyons in Salt Lake County is the Arizona Sister. Populations of this butterfly tend to become less common the further north you venture. The furthest north I have found this butterfly is in Farmington Canyon in Davis County.



**Spalding Blue (Euphilotes spaldingi)** Male pictured. This butterfly flies in Utah and Salt Lake Counties in association with Eriogonum racemosum.



**Spalding Blue (***Euphilotes spaldingi***)** Female pictured.



**Spalding Blue (***Euphilotes spaldingi***)** Male ventral surface is pictured.



**Arizona Sister (***Adelpha eulalia***)** Female pictured. This gorgeous butterfly is not as common in Northern Utah as it is Southern Utah; but can be found occasionally flying in gullies and ravines in late August through September. Caterpillars feed on scrub oak.



**The Monarch (***Danaus plexippus***)** Migrates to Northern Utah from Mexico and California. Occasional adults may be in mountain canyons if there is larval host milkweed (*Asclepias speciosa*) nearby.



**Cabbage White** (*Pieris rapae*) Introduced from Europe, the cabbage white can be a dominant butterfly in Salt Lake Valley as well as in the mouths of our canyons from April through October. Larvae feed on broccoli, cauliflower, cabbage as well as native and invasive mustards.



Yellow Sulphur (*Colias philodice eriphyle*) Equally at home in the Wasatch Mountains as well as in alfalfa fields where larvae feed on alfalfa (*Medicago sativa*).



Yellow Sulphur (*Colias philodice eriphyle*) Female is pictured.



**Yellow Sulphur (***Colias philodice eriphyle***)** Female (albinic form) is pictured.