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COMMON BUTTERFLIES OF SOUTHERN NEVADA

Maria Ryan, Area Extension Specialist

Few insects are as strikingly beautiful and much appreciated as butterflies. For thousands of years, humans have celebrated these incredible creatures in stories and art. The ancient Greeks' word for the soul, psyche, was also their word for butterfly. Butterflies were seen as an emblem for the immortal soul because the insect passes through a kind of death in the pupa stage, then is "resurrected" as an adult butterfly. To this day, cultures around the world celebrate their unique attributes and benefits of these extraordinary creatures.

What makes butterflies so beautiful are their amazing wing colors and patterns that are derived from pigmented scales that cover their wings in various patterns. Since they are cold blooded creatures, their flight activity is generally associated with warm, sunny days. The combination of colorful butterflies and clear blue skies is particularly appealing.



Butterflies are particularly intriguing because of their life changing process of metamorphosis-a structural form change during development. Butterflies go through several life stages that include egg, larvae (commonly referred to as caterpillar), pupa, and adult (butterfly). Although other organisms (e.g. grasshoppers) pass through partial metamorphosis, butterflies experience complete metamorphosis. Complete metamorphosis involves not only distinct life changes and structure, it also includes a change in habitat or environment.

Many aspects of butterfly morphology and diversity, habits, physiology and reproduction, temperature regulation, mate-finding behavior, and life cycle, have led to advances in understanding sensory and response mechanisms, population dynamics, genetic variation, mimicry, migration, and evolution in other organisms. These have advanced our understanding of the natural world and aid conservation of butterflies, moths, and other creatures.

Butterflies are particularly important as pollinators. In fact, many butterflies have evolved to utilize and pollinate specific families or genera of plants.

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SKIPPER BUTTERFLIES (Hesperiidae)

Skippers are found worldwide and are most numerous in the tropics. There are more than 250 species found in North America. Most live out their life locally, but a few species migrate. Skippers are named for their very fast, powerful flight that occurs over short distances.

Fiery Skipper (*Hylephila phyleus*)

Description -

Adult fiery skippers are mostly bright orange or brown. Both hindwings and forewings have wavy brown-black borders. Males are bright orange to dull brown on top. Females are dull yellow-brown with a greenish tinge. Adults in the Las Vegas and Death Valley areas are lighter orange than other places.



Fiery Skipper (*Hylephila phyleus*)

Photo by Maria Ryan

Life Cycle - Adults lay eggs singly on the underside of grass leaves or other plants or objects. The eggs are generally pale bluish white or greenish white.

Larvae or caterpillar, of the fiery skipper emerge from the eggs and eat monocotyledons (grasses and grass-like plants). They are dark yellow-brown, gray, greenish-brown, or dull green and have a brown stripe down their top side. They also have lateral stripes and a dark brown or black collar and head. The larvae not only eat the leaves of the grasses, but they roll the leaves to make silk-leaf nests at the bottom of the plant, or they live partially underground. These silk and underground nests supposedly keep them safe from grazers and lawnmowers.

Pupa (chrysalis) are light brown or yellowish-brown with brown mottling and the blackish dorsal blind and black spots on the abdomen.

Location - Since Fiery Skippers are grass eaters they can be found in lawns and grassy areas. Host plants in southern Nevada include:

- Bermudagrasses - *Cynodon* spp.
- Lovegrass - *Eragrostis* spp.
- Bentgrasses - *Agrostis* spp.
- St. Augustinegrass - *Stenotaphrum secundatum*
- Bluegrasses - *Poa* spp.
- Fescue - spp.
- Rye grasses - *Lolium* spp.
- Brome grasses - *Bromus* spp.
- Wheat grasses - *Thinopyrum* spp.

Flights - There are multiple generations per year, mostly March through December in southern Nevada.

Western Tiny Skipper (*Copaeodes aurantiaca*)

Description -

Adults are small with tawny-orange angular wings. Males have almost no markings, and females often have a dark line on the forewing, a dark lower wing margin and a broad border on the margin of both fore- and hind wings.



Western Tiny Skipper
(*Copaeodes aurantiaca*)

Photo by Maria Ryan

Life Cycle -

Adults lay cream-colored eggs.

Larvae are green with a pale mid-dorsal line that is edged with wide purple bands that become red at two points on the tail. There are wide dark green bands on each side. The head has four vertical pink bands, a purplish area on each side and two horns. Larvae shake when they walk.

Pupa are pale yellow with brownish lines and two white lines on each side and a horn on the head.

Location - All life stages can be found in grassy areas with bermudagrass or saltgrass. Notice triangled shaped notches in grass leaves where they feed.

Flights - There are multiple generations per year, mostly March through December in southern Nevada.



Grassy patches like this are ideal habitats for skippers.

Photo by Maria Ryan

BLUE BUTTERFLY (Lycaenidae)

As the name indicates, these butterflies are bluish in color-males are generally blue and females are usually brownish-blue. Butterflies of the Lycaenidae family are found around the world with approximately 4700 species. In North America, 142 species can be found, some of which occur in the Arctic. These butterflies are local and non-migratory. Their bodies are large relative to their wing size and they are strong fliers. Blue butterflies generally rest with their wings closed, but may bask in the sun with them open.



Male Marine Blue Butterfly (*Leptotes marina*)

Photo by Jim Brock



Female Marine Blue Butterfly (*Leptotes marina*)

Photo by Maria Ryan

Marine Blue (*Leptotes marina*)

Description - Adults are small and blue, with gray or white wing undersides. Males have a white margin on the outside of their wings and are purplish towards the wing bases. Females are dull violet with broad brown border and brownish towards the wing bases. They have two spots on their hind wings that are iridescent pale blue to silver-colored. These spots can be seen on the top and bottom of the wings.

Life Cycle - Adults lay eggs singly on flower buds of their host plants. The eggs are pale green, but they turn white with time.

Larvae are light green or brown, with a dark band and diagonal stripes. The larvae eat a wide variety of plants, but are often found on legume's (plants in the pea family). They eat flowers and fruits of their host plants.

Pupa are pale brown with brown spots.

Location - Adults can be found sipping mud for water and nectar from flowers. Look for these small blue butterflies on the following plants:

- Locoweed - *Astragalus spp.*
- False Indigo - *Amorpha spp.*
- Wild licorice - *Glycyrrhiza lepidota*
- Wild pea - *Lathyrus latifolius*
- Alfalfa - *Medicago spp.*
- Dalea - *Dalea spp.*
- Acacia - *Acacia spp.*
- Mesquite - *Prosopis spp.*
- Wisteria - *Wisteria spp.*
- Plumbago - *Plumbago spp.*

Flights - There are three or more generations per year in southern Nevada, generally occurring in March through November.



BRUSHFOOTED BUTTERFLIES (Nymphalidae)

The brushfooted butterflies are the most diverse family of butterflies. Brushfoots are famous in the United States mostly because it is the family of the most famous butterfly in North America, the Monarch, which is known for its amazing migrations and its similarity to other species that involves mimicry. They are called brushfooted mostly because their front legs are covered with hairs that vaguely resemble a brush.

There are approximately 4500 species of Nymphalid butterflies worldwide. In size they range from small to large, but they are mostly medium sized in the North America.

Monarch (*Danaus plexippus*)

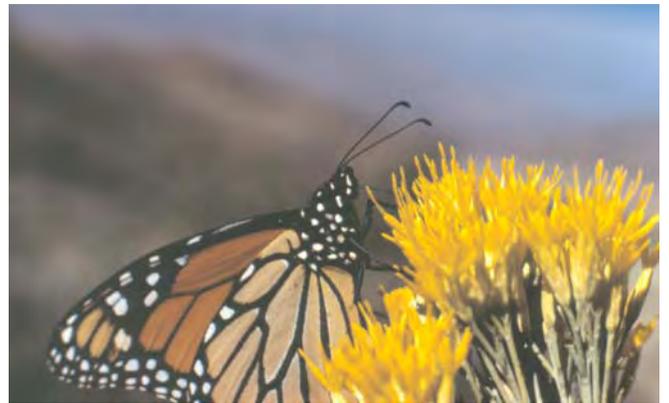
Description - Adult Monarchs are one of the most recognized butterflies in the western hemisphere. There are two subspecies - one that is found in southern Canada, USA, Mexico, most Caribbean Islands, Central America and northern South America (*D. plexippus plexippus*), and the other subspecies occurs in Peru, Bolivia, Chile, Argentina, Uruguay, Paraguay and eastern Brazil (*D. plexippus erippus*). Although they are native to North and South America, they are now found in other parts of the world.

They are orange with black veins and their forewing is longer and more pointed than the hindwing. Males have a small black scent patch on the hind wing.



Monarch (*Danaus plexippus*)
Photo by Maria Ryan

Some Monarchs are non-migratory, but those that are migratory are well known for their long-distance travel. Non-migratory Monarchs live from two to five weeks and migratory adults may live for up to nine months. The migratory butterflies live for such a long time because they spend their winters in cool weather where they go into diapause metabolism and arrested reproduction. Diapause, a quiescent state of slowed metabolism, occurs in organisms during both the winter and summer, but in the Monarch it occurs overwintering in central Mexico and California.



Monarch (*Danaus plexippus*)
Photo by Jim Brock

Migratory Monarchs fly up to 3,000 miles to reach overwintering grounds. There are essentially two populations of migratory Monarchs. Those that occur east of the Rocky Mountains generally fly south to the mountains of central Mexico in the states of Michoacán and México. Most of these originate in the midwest and this population is larger than the Western population by two orders of magnitude.

Monarchs occurring west of the Rocky Mountains overwinter in California in Monterrey. New information suggests, however, that some of the western Monarchs may move south and southeast from the inland northwest and the Great Basin to Mexico via Arizona.



The eastern population of Monarchs originate from a vast range of over 250 million acres and following migration may converge in an area of 50 acres. They roost in fir trees and enter diapause, often covering entire trees as they congregate. Migratory species are notoriously difficult to count accurately, and although millions of butterflies come to overwinter in a relatively small area in México, they are still difficult to count. Estimates of Monarch densities are highly variable (3-6.5 million per acre).

It is not completely clear how Monarchs orient themselves for and through migration. It is generally agreed that the sun is the celestial clue for migration. However, since they also fly on cloudy days, some scientists believe they also use a magnetic compass to orient themselves just like some migratory birds. Migration goes north and south and they need orientation on both trips.

Northward and southward monarchs must rest on their long migrations and frequently stop and roost for at least two days. Some researchers believe that they follow flowering plants and their nectaries, which may also influence migration.

In the spring, northward migration begins and within about a two-week period millions of butterflies take flight. Many have already mated and those that have not, mate on the journey north. These Monarchs breed and over two generations they repopulate their northern range in southern Canada and the eastern United States.

The western Monarch population spends its summer breeding season scattered west of the Rocky Mountains. They migrate to the coast of southern California and overwinter in woodlands dominated by Monterey pines, Monterey cypress and non-native eucalyptus trees. These sites are sheltered and provide a necessary microclimate that is neither too cold nor too warm.

Monarchs are also famous because they are involved in mimicry. This process includes one species resembling another that is poisonous. This results in the mimic being less likely to be eaten by predators. Monarchs are poisonous to

predators because in their larval stage (caterpillar) they eat plants with poisonous alkaloids. The Viceroy butterfly (*Limenitis archippus*) closely resembles the Monarch, but is not poisonous. Thus, it mimics the Monarch and predators do not eat this look-alike to avoid being poisoned.

Life Cycle - Adults lay single, greenish-white or cream colored eggs under leaves, along stems, or in the flowers of their host plants. Larvae emerge and eat host plant leaves. These familiar caterpillars are transversely striped black, yellow, and white. There are two black filaments on the front and two shorter filaments protruding from the back end. Their heads are black.

Pupa are green with a black gold-edged line and many gold spots.

Location - Host plants for the Monarch are generally in the milkweed family (Asclepiaceae), but larvae also feed on plants of the dogbane family (Apocynaceae). Monarch host plants found in southern Nevada are listed below.

Desert milkweed (*Asclepias erosa*)
Narrow-leaf milkweed (*A. fascicularis*)
Mojave milkweed (*A. nyctaginifolia*)
Rush milkweed (*A. subulata*)
Showy milkweed (*A. speciosa*)
Antelope horns (*A. asperula*)
Oleander (*Nerium oleander*)
Periwinkle (*Vinca major*)

Flights - Multiple generations occur each year in southern Nevada from February through December. Monarch butterflies found June through November are mostly migrants in southern Nevada.



Queen (*Danaus gilippus*)

Description - Adult Queen butterflies resemble the orange and black Monarch, but are smaller in size. This medium-small butterfly is involved in mimicry with the

poisonous Viceroy butterfly (*Limenitis archippus*). It is a deep mahogany brown-orange with black veins - darker than the Monarch or Viceroy. It has white spots especially on the ends of the forewings that can be seen on the top and bottom of the wing.



Queen (*Danaus gilippus*)

Photo by Maria Ryan

In the southwestern United States the subspecies *D. strigous* is most common.

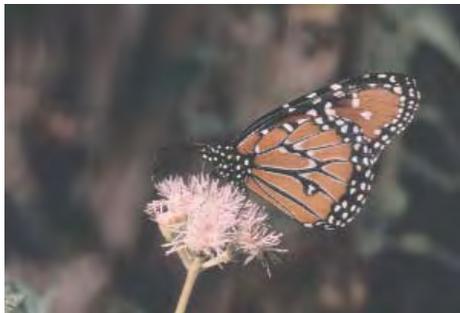
Life Cycle - Adult butterflies often roost communally and overwinter in the southern United States. Adults lay single eggs on leaves, stems or flower buds of the host plant. Eggs are pale green or white.

Larvae are bluish-white on top with reddish-black transverse stripes divided by a band or row of yellow spots. The head is whitish with black triangles on the face.

Pupa are similar to the Monarch-green (rarely pink) with gold spots and black transverse banded edge and gold abdomen.

Location - Queens can be seen in open areas, such as fields, deserts and open woodlands in the southern United States. Host plants include plants in the milkweed (*Asclepraecae*) and nerium (*Apocynaceae*) families.

Flights - There are multiple flights of Queen butterflies. In southern Nevada, look for these in January and December.



Queen (*Danaus gilippus*)

Photo by Jim Brock

Painted Lady (*Vanessa cardui*)

Description - Painted Ladies are the most widely distributed butterfly in the world. The North American subspecies is *V. cardui* ssp *cardui*.



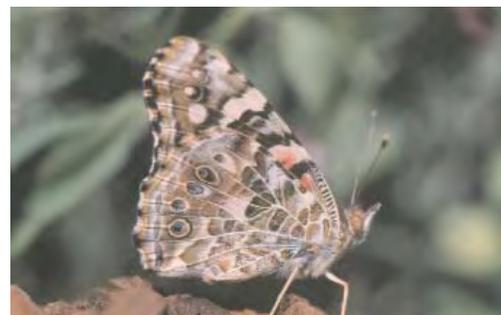
Life Cycle - Adult reproductive systems stop functioning

(i.e. no eggs are produced) from September through October in preparation for hibernation in mild climates. Adults lay single, pale green eggs on the upperside of host plants.

Painted Lady (*Vanessa cardui*)

Photo by Maria Ryan

Larvae have spines that are yellowish, orangish, or brownish, with white tips and black or bluish-gray around the bases. Larvae bodies are either mostly black or grayish-brown (the front and rear of the body being black), and have a reddish-brown underside. Both colors have a dark middorsal line and a yellowish lateral stripe. The head is black or reddish-brown.



Painted Lady Photo by Jim Brock

Pupa of the Painted Lady are metallic greenish, bluish-white, whitish-gold or brown with brown patches and gold points.

Location - Painted ladies are found in virtually all habitats, mostly in open or disturbed areas. Host plants are herbaceous plants (rarely shrubs or trees), and they prefer plants in the sunflower family (*Asteraceae*), especially thistles (*Cirsium*).

Flights - There are multiple flights per year, but Painted Ladies are especially abundant December through January in southern Nevada. At times their numbers are very large during migration.

Other Common and Broadly Distributed Butterflies of Southern Nevada

Papilio polyxenes coloro, Desert Swallowtail; open desert

Pontia protodice, Checkered White; fields

Pontia beckerii, Beckers White; open desert

Colias eurytheme, Orange Sulfur; open desert, fields, yards

Eurema nicippe, Sleepy Orange; open desert, yards

Strymon melinus, Gray Hairstreak; fields, yards

Brephidium exile, Western Pygmy Blue; fields, lots

Hemiargus isola, Reakirt's Blue; yards, mesquite/catclaw

Chlosyne acastus neumoeeni, Neumoegen's Checkerspot; open desert

Vanessa annabella, West Coast Painted Lady; fields, yards

Junonia coenia, Buckeye; open desert, fields

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