

*Nature's
Wonders*

Butterflies



A 3D Model set by Ken Gilliland

Nature's Wonders

Butterflies

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Nature's Wonders

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Introduction

Butterflies and moths belong to the insect Order *Lepidoptera*, which is a word that comes from the Greek words for “scale” and “wing.” While most of the 150,000 species in this order are moths, there are an estimated 18,000 butterfly species found globally. The earliest known butterfly fossils date to the mid Eocene epoch, between 40–50 million years ago.

Butterflies and moths are indicators of a healthy environment and healthy ecosystems. They are an important element of the food chain and are prey for birds, bats and other insectivorous animals, as well as, providing a wide range of environmental benefits from pollination to natural pest control.

As masters of metamorphosis, butterflies are significant symbols of transformation, freedom, and rebirth. These winged creatures have long been viewed as otherworldly messengers and heralds of good fortune and joy.

The Nature's Wonders Butterfly is designed to emulate many different species of butterfly and is rigged to give natural movement to the model. Included in this base set are 4 species of butterfly; the iconic Monarch and Viceroy, as well as the Western and Eastern Tiger Swallowtails. It supports Poser's Firefly and Superfly and DAZ Studio 3Delight and Iray render engines.

Overview and Use

The set is located within the **Animals : Nature's Wonder** folder. Here is where you will find a number of folders, such as **Manuals**, **Resources** and **Fauna Libraries**. Let's look at what is contained in these folders:

- **Fauna Libraries:** This folder holds the actual species and poses for the "premade" fauna. The fauna for this set can be found in the following folder(s):
 - **Insects/Butterflies of the World**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your fauna included in the set
 - **... Based Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species. When using physical renderers such as Iray and Superfly, SubD should be turned to at least “3”. For DAZ Studios 3Delight renders, the SubD must be turned from the “High Resolution” setting to the “Base” setting (otherwise some areas will render incorrectly transparent).

Loading a Butterfly using Poser

1. Load Poser, select the FIGURES library and go to the "Animals", "Nature's Wonders" and then the Nature's Wonders Fauna Libraries Insect folder.
2. Go to the Butterflies of the World folder and select the Firefly or Superfly sub-folder.
3. Select a butterfly of your choice and load the model clicking the mouse.

Loading a Butterfly using DAZ Studio

1. Load DAZ Studio and go to the "Animals", "Nature's Wonders" and then the Nature's Wonders Fauna Libraries Insects folder.
2. Go to the Butterflies of the World folder and select the Iray or 3Delight sub-folder.
3. Select a butterfly of your choice and load the model clicking the mouse.

Sizing & Poser Related Issues

All the Butterflies included in this set have been scaled to their appropriate sizes in relation to human figure models. In some cases, these butterflies can be quite small measuring around one-inch.

The size of the butterfly can produce some issues in Poser and may disappear when the camera is in close focus. The "hither" setting on Poser's cameras is set to 0.800 by default. Reducing this setting to "0.0" will correct this issue.







A second issue can appear when rendering a small butterfly solely (without any other items in the scene). It will produce a default square shadow. It is a known bug with Poser. To correct this issue, include a second larger item off-screen and the shadows will render correctly.

Posing

The base body part with this model is the "Thorax 1" part. This part, as well as the main body part, control and entire models XYZ Rotate and Transition. There are several Easy Pose chains. One controls the entire abdomen (Abdomen1-5) from the abdomen to tail. There are two other chains; one controlling the Proboscis (nectar feeding tube) and one with controls for each individual Antennae.

The Proboscis, by default (0), is fully outstretch for feeding. When not feeding, the "ProboscisBendAll" dial spun to 33 is the normal position.

Butterfly Family Types

Family	Common name	Characteristics	Image
<i>Hedylidae</i>	American moth-butterflies	Small, brown, like geometrid moths; antennae not clubbed; long slim abdomen	
<i>Hesperiidae</i>	Skippers	Small, darting flight; clubs on antennae hooked backwards	
<i>Lycaenidae</i>	Blues, coppers, hairstreaks	Small, brightly colored; often have false heads with eye spots and small tails resembling antennae	
<i>Nymphalidae</i>	Brush-footed or four-footed butterflies	Usually have reduced forelegs, so appear four-legged; often brightly colored	
<i>Papilionidae</i>	Swallowtails	Often have 'tails' on wings; caterpillar generates foul taste with osmeterium organ; pupa supported by silk girdle	
<i>Pieridae</i>	Whites and allies	Mostly white, yellow or orange; some serious pests of <i>Brassica</i> ; pupa supported by silk girdle	
<i>Riodinidae</i>	Metalmarks	Often have metallic spots on wings; often conspicuously colored with black, orange and blue	No image available

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly or simply “Monarch” is a milkweed butterfly (subfamily *Danainae*) in the family *Nymphalidae*. Other common names, depending on region, include milkweed, common tiger, wanderer, and black-veined brown butterflies. The name “monarch” is believed to have been given in honor of King William III of England, as the butterfly’s main color is that of the king’s secondary title, Prince of Orange. Its wings feature an easily recognizable black, orange, and white pattern, with a wingspan of 3.5–4.0 inches (8.9–10.2 cm).

Where is it found: North and South America, Western Europe and Asia/Oceania. The eastern North American monarch population is notable for its annual southward late-summer/autumn instinctive migration from the northern and central United States and southern Canada to Florida and Mexico. During the fall migration, monarchs cover thousands of miles, with a corresponding multi-generational return north in spring. The western North American population of monarchs west of the Rocky Mountains often migrates to sites in southern California, but individuals have been found in overwintering Mexican sites, as well. In 2009, monarchs were reared on the International Space Station, successfully emerging from pupae located in the station’s Commercial Generic Bioprocessing Apparatus.

Diet: It is among the most familiar of North American butterflies and an iconic pollinator, although it is not an especially effective pollinator of milkweeds.



Threats: In February 2015, the U.S. Fish and Wildlife Service reported a study that showed that nearly a billion monarchs had vanished from the butterfly’s overwintering sites since 1990. The agency attributed the monarch’s decline in part to a loss of milkweed caused by herbicides that farmers and homeowners had used.

Western monarch populations have rebounded slightly since 2014 with the Western Monarch Thanksgiving Count tallying 335,479 monarchs in 2022. The population still has much to go for a full recovery.

On July 20, 2022, the International Union for Conservation of Nature added the migratory monarch butterfly (the subspecies common in North America) to its red list of endangered species. It is still under consideration for endangered species status.

Other Notes: There are three main types of monarch butterfly; the Monarch, the Southern Monarch and the Jamaican Monarch. Also within the Monarch family, there are many subspecies and color variations.

- *D. plexippus*, is the species known most commonly as the “Monarch” Butterfly of North America. Its range actually extends worldwide, including Hawaii, Australia, New Zealand, Spain, and the Pacific Islands.
 - *D. p. plexippus*. First described by Linnaeus in 1758. The nominate subspecies is the migratory subspecies known from most of North America.
 - ◆ *D. p. p. "form nivosus"*. The “white” monarch commonly found on Oahu, Hawaii, and rarely in other locations (Australia, New Zealand, Indonesia, and the United States). The population level of the white morph in Oahu is nearing 10%. On other Hawaiian islands, the white morph occurs at a relatively low frequency.
 - ◆ *D. p. p. (as yet unnamed)* – a color morph lacking some wing vein markings.
 - *D. p. nigrippus*. First described by Richard Haenschin 1909) – South America - as forma: Danais.
 - *D. p. megalippe*. First described by Jacob Hübner in 1826– nonmigratory subspecies, and is found from Florida and Georgia southwards, throughout the Caribbean and Central America to the Amazon River.
 - *D. p. leucogyne*. First described by Arthur G. Butler in 1884. Endemic to St. Thomas.
 - *D. p. portoricensis*. First described by Austin Hobart Clark in 1941. Endemic to Puerto Rico.
 - *D. p. tobagi*. First described by Austin Hobart Clark in 1941. Endemic to Tobago
- *D. erippus*. First described by Pieter Cramer in 1775. The “Southern Monarch”. This species is found in tropical and subtropical latitudes of South America, mainly in Brazil, Uruguay, Paraguay, Argentina, Bolivia, Chile, and southern Peru. The South American monarch and the North American monarch may have been one species at one time. Some researchers believe the southern monarch separated from the monarch's population some two million years ago, at the end of the Pliocene. Sea levels were higher, and the entire Amazonas lowland was a vast expanse of brackish swamp that offered limited butterfly habitat.
- *D. cleophile*. First described by Jean-Baptiste Godart in 1819. The “Jamaican Monarch” ranges from Jamaica to Hispaniola.

The Viceroy butterfly (*Limenitis archippus*) was originally thought to be a subspecies of the Monarch, but was eventually declared a separate species. While Viceroys are a bit smaller than Monarchs, the simplest way to differentiate between them is to check for the extra black line that extends all the way across the lower wing. This giveaway is visible whether the wings are open or closed.

Viceroy Butterfly (*Limenitis archippus*)

The viceroy was long thought to be a Batesian mimic of the monarch butterfly, but since the viceroy is also distasteful to predators, it is now considered a Müllerian mimic instead. It can be distinguished from the monarch by its smaller size and the postmedian black line that runs across the veins on the hindwing. Viceroys display geographic color polymorphism, which occurs when the viceroy butterflies are observed having different color forms in different regions of their territory. Color polymorphism is hypothesized to be affected by interaction between the viceroy, monarch and queen's overlapping environments. In the northern areas of their region, where monarchs predominate, viceroys are lighter, while in southern Florida, they are darker due to queens being more abundant than monarchs. It has a wingspan of 2.1–3.2 inches (5.3–8.1 cm).

Where is it found: North America. The viceroy ranges through most of the contiguous United States as well as parts of Canada and Mexico. The westernmost portion of its range extends from the Northwest Territories along the eastern edges of the Cascade Range and Sierra Nevada mountains, southward into central Mexico. Its easternmost range extends along the Atlantic and Gulf coasts of North America from Nova Scotia into Texas. It has been possibly extirpated from California.

Diet: Adult viceroys feed on nectar from milkweeds, thistles, and other common flowers. Adults are strictly diurnal, flying preferentially in the late morning and early afternoon.



Threats: The Viceroy Butterfly is currently facing a number of threats that are causing its population to decline at an alarming rate. The most significant threat to the Viceroy Butterfly is habitat loss. As human populations continue to grow and expand, natural habitats are being destroyed at an alarming rate. The Viceroy Butterfly relies on a specific type of habitat, including wetlands and riparian areas, for its survival. Unfortunately, these habitats are disappearing due to factors such as urbanization, agricultural development, and deforestation. As the Viceroy Butterfly loses its natural habitat, its

population declines, and it becomes more vulnerable to other threats such as predation and disease.

To combat habitat loss, conservation efforts are currently focused on preserving and restoring critical habitats.

Other Notes: The viceroy was named the state butterfly of Kentucky in 1990.

Western Tiger Swallowtail (*Papilio rutulus*)

These large butterflies are brightly colored. The wings are yellow with black stripes and blue and orange spots near their tail. They have the "tails" on the hindwings that are often found in swallowtails. It has a wingspan ranging from 3 to 4 inches (7 to 10 cm).

Where is it found: North America. The usual range covers much of western North America, from British Columbia to North Dakota in the north to Baja California and New Mexico in the south. Individuals occasionally turn up east of this range; in eastern North America, though, it is replaced by the similar eastern tiger swallowtail, *Papilio glaucus*.

Diet: Adults on nectar from a large variety of flowers.



Threats: This species is not threatened however habitat loss and climate change are causing declines in overall population.

Other Notes: The species was first described by Hippolyte Lucas in 1852.

Eastern Tiger Swallowtail (*Papilio glaucus*)

These large butterflies are brightly colored. The male is yellow with four black "tiger stripes" on each forewing. The striping tends to not extend to the end of the forewings as in the Western Tiger Swallowtail (*Papilio rutulus*). Females may be either yellow or black, making them dimorphic. The yellow morph is similar to the male, but with a more conspicuous band of blue spots along the hindwing, while the dark morph is almost completely black. It has a wingspan ranging from 3.1 to 5.5 inches (7.9 to 14 cm).

Where is it found: North America. One of the most familiar butterflies in the eastern United States, ranging north to southern Ontario, Canada to the southeastern United States (east of the Rockies).

Diet: Adults on nectar from a large variety of flowers.



Threats: This species is not threatened however habitat loss and climate change are causing declines in overall population.

Other Notes: The eastern tiger swallowtail is the state butterfly of Alabama, Delaware, Georgia, North Carolina and South Carolina, and is the state insect of Virginia.

Special Thanks to my Beta-Testing Team...

Alisa & FlintHawk

Species Accuracy and Reference Materials

The author has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique species, some give and take is bound to occur. The texture maps were created in Corel Painter with as much accuracy as possible.

Field Guide Sources:

- **Wikipedia** https://en.wikipedia.org/wiki/Main_Page
- **Cambridge Butterfly Conservatory** <https://www.cambridgebutterfly.com>
- **Butterfly Conservation** <https://butterfly-conservation.org>
- **US Fish and Wildlife** <https://www.fws.gov>
- **What's That Bug** <https://www.whatsthatbug.com>

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