A 3D Model set by Ken Gilliland

Nature's Wonders Flies

Base Model

Manual

Field Guide

Nature's Wonders Flies

Introduction

Flies are insects of the order *Diptera*, and are so named because they use only a single pair of wings to fly. Flies have a mobile head, with a pair of large compound eyes, and mouthparts designed for piercing and sucking (mosquitoes, black flies, and robber flies), or for lapping and sucking in the other groups. Their wing arrangement gives them great maneuverability in flight, and claws and pads on their feet enable them to cling to smooth surfaces.

Diptera are of considerable ecological and human importance. Flies are major pollinators, second only to bees. Flies may have been among the evolutionarily earliest pollinators responsible for early plant pollination. They can also have some considerable negative attributes. Some leaf-miner flies, fruit flies and gall midges are pests of agricultural crops, while others such as tsetse flies, screwworm and botflies attack livestock, causing wounds, spreading disease, and creating significant economic harm. Still others such as mosquitoes, blackflies and drain flies impact human health, acting as vectors of major tropical diseases.

This set comes with a fully articulated fly model that can fold its wings, be it flight, and even rub its two forward legs together. Four basic fly textures are included; the common housefly, a horse fly, a fruit fly and a robber (or assassin) fly.

The Nature's Wonders Fly base set comes in both Poser and DAZ Studio native versions and support Firefly, Superfly and Iray render engines.

Overview and Use

This set uses a common model to recreate digitally the *Diptera* species included in this volume. Each species uses specific morphs from the generic model to single-out it's unique features. Select **Figures** in the Runtime Folder and go to the **Nature's Wonders Insects** folder:

- **Models included in this volume:**
  - **Nature's Wonders Fly Base** - This model is used with all flies included in this set. The "blank" version of this model is in the Resources folder.

Creating a Housefly using Poser

1. For this example, we'll create a Common Housefly.

2. Load Poser, select the FIGURES library and go to the Animals / Nature's Wonders / Fauna Libraries / Insects / **Flies of the World** folder and the Firefly or Superfly sub-folder.

3. Select the Common Housefly (or a fly of your choice).

Creating a Housefly using DAZ Studio

1. For this example, we'll create a Common Housefly

2. Load DAZ Studio and go to the Animals / Nature's Wonders / Fauna Libraries / Insects / **Flies of the World** folder and select the sub-folder of which renderer you want to use, 3Delight or Iray.

3. Select the Common Housefly (or a fly of your choice).

The InsectCam

All of the *Diptera* species in this set have been scaled to their appropriate sizes in relation to human figure models. In most cases, these can be very small. With that in mind, this set comes with an "InsectCam".

The InsectCam is a camera set-up to focus on the default position of the insect. With Poser, it will also change the "hither" setting from its default value of 0.800 to 0.0 to allow close focus.

Posing the Model, Sizing & Poser Issues

With most figure-based models the center of the model is the "hip" area. The thorax is considered the "hip" in this model.

An issue that can appear when rendering in Poser, with only a fly (no other items) in the scene, is that it will produce a default square shadow. It is a known bug within Poser. To correct this issue, include a second larger item off-screen and the shadows will render correctly.

Poser's Superfly Renderer has trouble with overlaying transparency planes and can causes streaks and artifacts in the render. Using the "Physical Renderer Fix" morph and altering the hair morphs (in Creation Controls/Hair Controls) can help to minimize these issues. As a last resort, the "Hide Hair" controls turned to "1" (in Creation Controls/Hair Controls) remove the offending transparency planes and will resolve the issues.

Nature's Wonders Flies

FIELD GUIDE

About Flies (from Wikipedia)

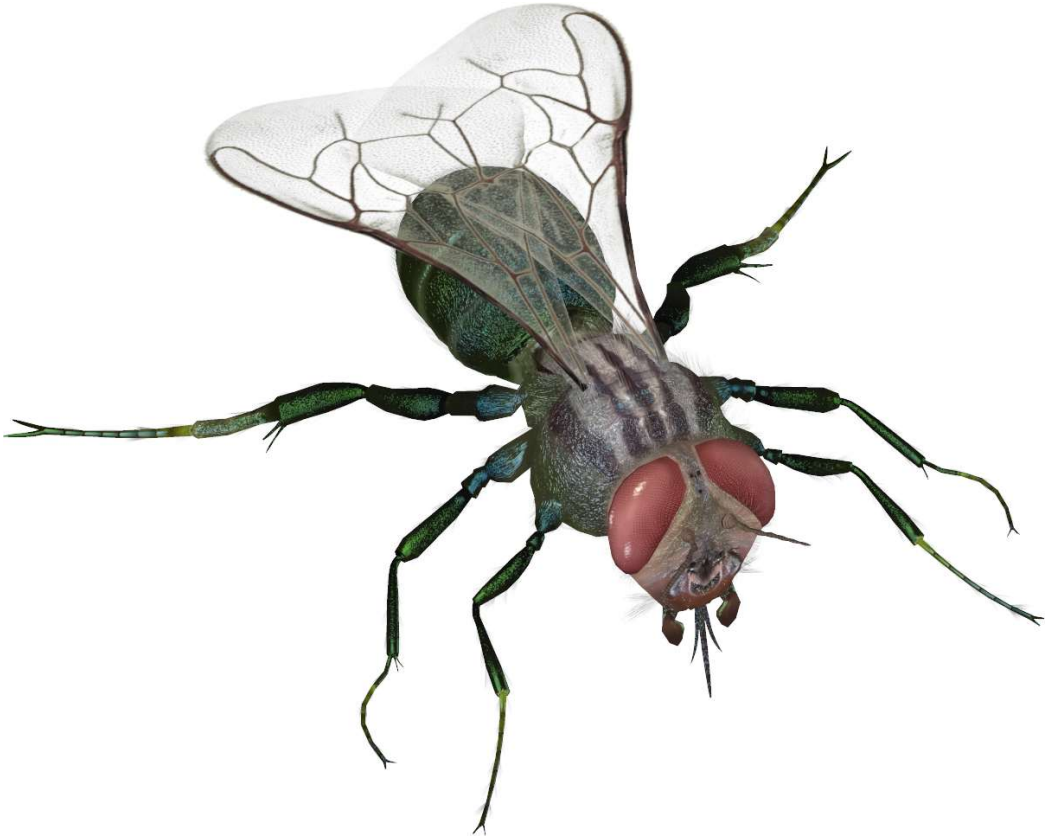
Flies are insects of the order *Diptera* (from Ancient Greek δι- di- 'two' and πτερόν pteron 'wing'), so named because they use only a single pair of wings to fly. The hindwings have evolved into advanced mechanosensory organs, halteres, that sense rotation and allow dipterans to perform advanced aerobatics. Diptera is a large order containing more than 150,000 species, including horse-flies, crane flies, hoverflies, mosquitoes and others.

Flies have a mobile head, with a pair of large compound eyes, and mouthparts designed for piercing and sucking (mosquitoes, black flies, and robber flies), or for lapping and sucking in the other groups. Their wing arrangement gives them great maneuverability in flight, and claws and pads on their feet enable them to cling to smooth surfaces. Flies undergo complete metamorphosis; the eggs are often laid on the larval food-source and the larvae, which lack true limbs, develop in a protected environment, often inside their food source. Other species are ovoviviparous, opportunistically depositing hatched or hatching larvae instead of eggs on carrion, dung, decaying material, or open wounds of mammals. The pupa is a tough capsule from which the adult emerges when ready to do so; flies mostly have short lives as adults.

Diptera is one of the major insect orders and of considerable ecological and human importance. Flies are major pollinators, second only to bees and their Hymenopteran relatives. Flies may have been among the evolutionarily earliest pollinators responsible for early plant pollination. Fruit flies are used as model organisms in research, but less benignly, mosquitoes are vectors for malaria, dengue, West Nile fever, yellow fever, encephalitis, and other infectious diseases; and houseflies, commensal with humans all over the world, spread foodborne illnesses. Flies can be annoyances especially in some parts of the world where they can occur in large numbers, buzzing and settling on the skin or eyes to bite or seek fluids. Larger flies such as tsetse flies and screwworms cause significant economic harm to cattle. Blowfly larvae, known as gentles, and other dipteran larvae, known more generally as maggots, are used as fishing bait, as food for carnivorous animals, and in medicine in debridement, to clean wounds.

Common Housefly *Musca domestica*

It possibly originated in the Middle East, and spread around the world as a commensal of humans. Adults are gray to black, with four dark, longitudinal lines on the thorax, slightly hairy bodies, and a single pair of membranous wings. They have red compound eyes, set farther apart in the slightly larger female. Adult houseflies are usually 6 to 7 mm (0.25 to 0.28 in) long with a wingspan of 13 to 15 mm (0.5 to 0.59 in). The females tend to be larger winged than males, while males have relatively longer legs. Females tend to vary more in size.



The housefly is probably the insect with the widest distribution in the world; it is largely associated with humans and has accompanied them around the globe. It is present in the Arctic, as well as in the tropics, where it is abundant. It is present in all populated parts of Europe, Asia, Africa, Australasia, and the Americas.

Houseflies are often considered a nuisance, disturbing people while at leisure and at work, but they are disliked principally because of their habits of contaminating foodstuffs. They alternate between breeding and feeding in dirty places. During the process of feeding on human foods, they soften the food with saliva and deposit their feces, creating a health hazard.

Common Horse-fly *Haematopota pluvialis*

Horse flies are found all over the world except for some islands and the polar regions (Hawaii, Greenland, Iceland). This specific species of horse-fly is present in most of Europe, in the Near East, and in the eastern Palearctic realm. It mainly lies in heath and moorland, and in spruce forest edge. It is also known as the notch-horned cleg fly, or simply “cleg” in Scotland and northern parts of Ireland.

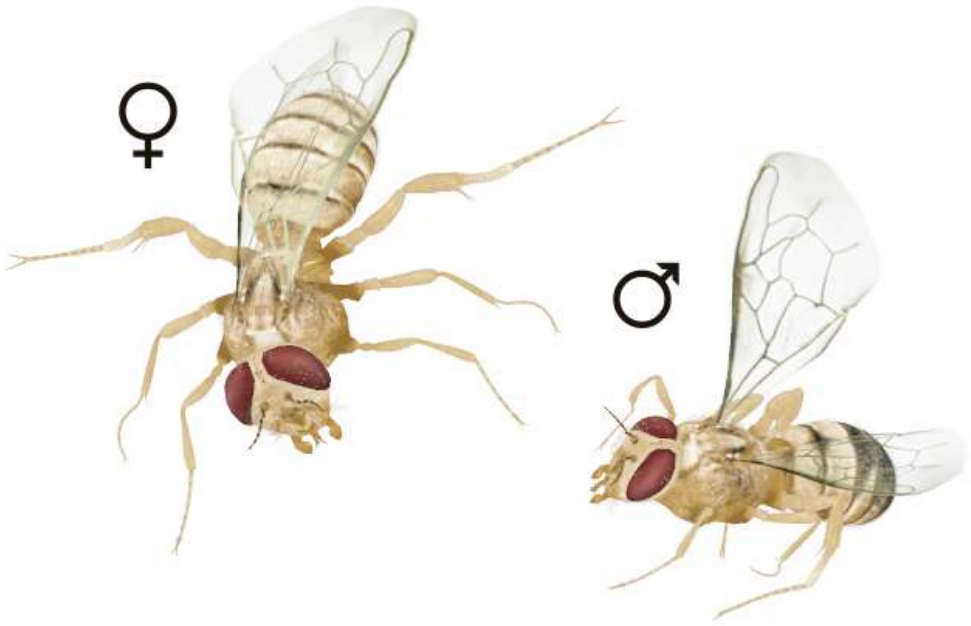
They can reach a length of 5–11.5 mm (0.20–0.45 inches), with a wingspan of 8–10 mm. This species has large compound eyes necessary for locating its prey. They are hairy and brightly colored, with stripes extended over most of the eye. In males, the eyes touch at the center of the frons and the colored stripes are restricted to the lower part.

They can be encountered during the daylight hours from late May through late October. The males are harmless and feed on nectar, while the females feed on mammal blood. They feed mainly on cattle and horses, needing blood for developing eggs (hence the Latin and Common name). They can also bite humans, which can be very painful.

Common Fruit Fly *Drosophila melanogaster*

The species is often referred to as the fruit fly or lesser fruit fly, or less commonly the "vinegar fly", "pomace fly", or "banana fly". It is attracted to rotting fruit and fermenting beverages and is often found in orchards, kitchens, and pubs/bars.

Fruit flies are yellow-brown, with brick-red eyes and transverse black rings across the abdomen. They exhibit sexual dimorphism; females are about 2.5 mm (0.10 inches) long, while males are slightly smaller. Females have bodies that are up to 30% larger than an adult male.



It is sometimes referred to as a pest due to its tendency to live in human settlements where fermenting fruit is found. The name and behavior of this species of fly have led to the misconception that it is a biological security risk. While other "fruit fly" species do pose a risk, *D. melanogaster* is attracted to fruit that is already rotting, rather than causing fruit to rot.

This species is called the "Queen of Genetics" because its use by scientists, starting with Thomas Hunt Morgan, revolutionized genetics through its simple genetics (few chromosomes, easy to see mutations like eye/wing color), short life cycle (many generations quickly), high reproductive rate, and surprising genetic similarity to humans, allowing breakthroughs in understanding heredity, development, and human diseases like cancer and Alzheimer's.

Giant Robber Fly *Promachus leoninus*

The species is also called the Assassin Fly. It occurs in all zoogeographical regions except Antarctica. It prefers regions that are in warm climates; tropical or subtropical and arid or semi-arid regions tend to have the greatest variety of species, followed by areas where rainfall is highly seasonal. It can be found in lesser numbers in the Northern Hemisphere in the tundra.

It attacks a very wide range of prey, including other flies, beetles, butterflies and moths, various bees, ants, dragonflies and damselflies, ichneumon wasps, grasshoppers, and some spiders. They seem to do so irrespective of any repugnatorial chemicals the prey may have at their disposal. When attacked or mishandled by humans, they do not hesitate to defend themselves, using their proboscis to inject saliva with which they deliver intensely painful bites.

Adult robber flies have an average body width of 1 to 1.5 cm (0.39 to 0.59 inches), and a range of 3 mm (0.12 inches) to more than 5 cm (2.0 inches) in length. They have stout, spiny legs and three simple eyes (ocelli) in a characteristic depression on the tops of their head between their two large compound eyes. They also have a dense moustache of stiff bristles on the face; this is called the mystax. The mystax has been suggested to afford some protection for the head and face when the flies deal with struggling prey.

Special Thanks to:

.. to my beta testers, Alisa and FlintHawk

Sources:

Wikipedia (https://www.wikipedia.org/)

The Smithsonian (https://www.si.edu/spotlight/buginfo/true-flies-diptera)

Species Accuracy and Reference Materials

Many insects of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants.

The author-artist 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 insect species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.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