

Beginners' Guide to Butterflying

Why Butterfly?

If you are reading this, you likely already have an interest in—or at least a curiosity about—butterflies. Satisfying that curiosity will have many rewards! Often described as “flying jewels,” butterflies are pretty to look at. They are also good ecological indicators: if you see a lot of butterflies, you know the environment is healthy. Butterflies are a good excuse to get outdoors and learn more about nature while effortlessly getting exercise. If you are a birder who is becoming interested in butterflies, it might please you to learn that to see butterflies you do not have to get up before dawn or freeze on an icy New Jersey jetty. You don't have to travel far or learn songs, calls, or chip notes—and there are no pelagic butterflies!

Know Your Quarry

In NJ about 112 species of butterflies are either resident (that is, they overwinter in some life stage) or visit as immigrants either commonly or at least somewhat regularly.* Each species is classified into one of the six taxonomic families (or further into one of the 15 subfamilies) present in the state.

Table of NJ Butterfly Families

Family name	Description	Number in NJ*
Papilionidae	Swallowtails	5
Pieridae	Whites and Sulphurs	8
	Subfamilies	
	Whites	3
	Sulphurs	5
Lycaenidae	Gossamer-Winged Butterflies	23
	Subfamilies	
	Harvesters	1
	Coppers	3
	Hairstreaks	16
	Blues	3 [†]
Riodinidae	Metalmarks	1
Nymphalidae	Brushfooted Butterflies	28
	Subfamilies	
	Snouts	1
	Heliconians and Fritillaries	4
	True Brushfoots	11
	Admirals and Relatives	2
	Emperors	2

	Satyrs	7
	Milkweed Butterflies	1
Hesperiidae	Skippers	47
	Subfamilies	
	Spread-winged Skippers	13
	Grass-Skippers	34

* Also occurring very irregularly are natural strays and some exotics possibly released from captive breeding programs.

† The North American Butterfly Association currently recognizes Summer and Atlantic Azures as subspecies of Spring Azure.

Butterfly Structures and Life Cycle

Though species vary greatly in size, all butterflies share a similar body plan. All are insects, and as such the adults have three recognizable body parts: head, thorax, and abdomen. Adult butterflies also have two sets of wings—two forewings and two hindwings. The markings on the underside of the wings (also called “below,” or the ventral side) may be different from the markings visible on the upperside (“above,” or dorsal side). Butterflies have a pair of antennae on their heads. The end of each antenna is enlarged into a club-like form and studded with sensory cells that provide information similar to taste and smell in humans. (In contrast, moths have threadlike or featherlike antennae that are never clubbed.) Adult butterflies live exclusively on nectar and other fluids imbibed through a tube called the proboscis. Like all insects, butterflies have six legs, though in the Nymphalidae the two forelegs are greatly reduced, frequently hairy, and resemble brushes—hence the common family descriptive Brushfooted Butterflies.

Butterflies undergo complete metamorphosis—that is, they start as an egg, hatch into the larval form (commonly called a caterpillar), create a pupal (chrysalis) stage, and then hatch into a flying adult—the main object of interest for most Butterfly Club members. Depending on environmental conditions and on the species, this four-stage life cycle lasts an average of 45 days, not including its overwintering stage. Adults mate and the female lays eggs on or near specific plants known as the larval host plants. Eggs hatch in four to ten days. The caterpillar then spends its time eating and growing, growing and eating, for three or four weeks, after which it creates a hard exoskeleton—the chrysalis, or pupa—around itself (cocoons are the silken envelopes that some moths spin around the pupa). After a pupal stage of one or two weeks the adult emerges, a process called eclosion. It is the adult’s job to find an adult of the opposite sex, mate, and restart the life cycle. As adults, most butterflies sip on sugar-laden nectar as their main energy source. Some will imbibe liquids from tree sap or rotting fruit and some will ingest minerals from moist soil, puddles, or even animal droppings. Once eclosed, adult butterflies do not grow any larger (there are no “baby butterflies”). Some butterfly species go through a number of life cycles a year—that is, they produce more than one “brood” of flying adults. Others have only one brood a year and thus you’ll find them in the field for only a short time.

When and Where To Find Butterflies

The best time to find butterflies is when the weather is warm and sunny. Insects are cold-blooded and thus unable to be very active when temperatures are low. As delicate creatures, they avoid flying in the rain. The best places to look for butterflies tend to be open areas with lots of sun, an abundance of flowering plants to nectar on, and host plants for the caterpillars. (In New Jersey, relatively few butterflies occur in forested habitats.) Some butterfly species are generalists and likely to be found throughout the state in lots of different open habitats, from dry ridgetops to lush wetland meadows. Others occur only in specialized habitats (such as Pine Barrens bogs) or during a specific flight time. For information about some of the best spots to see New Jersey butterflies, check out the Butterfly Sites page on this website. To learn when certain species are flying, refer to the Flight Period listed in the Species Accounts.

What To Take to the Field

Before you go out to look for butterflies, it will help to have a few bits of kit to help you. The first item you need is a good field guide—some excellent ones are listed at the end of this article. Become acquainted with your field guide before you go out with it. Read the introduction to become familiar with the terms the author uses. Check out the way the book is organized. Some books are arranged by family, others by color. See how the authors put in range maps, sizes, and flight periods. (Pay attention to range maps! Printed field guides generally cover many more species than occur in New Jersey, and you don't want to waste time and effort puzzling over a butterfly that's never seen outside of the Rio Grande Valley.)

A guide that organizes all the information on a single page is easier to use than one that separates photos of butterfly species from their descriptions. Then put the book in your pocket or pack. When you see a butterfly in the field, though, resist the urge to take out the guide and start leafing through it. The book will stay with you, the butterfly won't. Instead of looking at the book, look at the butterfly. Note its size and overall color. Does it rest with its wings up, showing you the underside, or with the wings spread open, displaying the top-side?

Try to make special notes of the placement of spots and lines. Form a mental image in your brain. When the butterfly moves on—and they almost always do—try to follow it and note the flight pattern. If it lands, look at it some more. If it flies out of view that is the time to take out the field guide and try to match up what you have just seen. Read the description of what you think you saw. Are you in the right habitat? Is it the right time of year? Were all or most of the field marks mentioned in the book visible on the butterfly? Do the pictures or drawings in the guide match with your mental image? If so, you have just identified your first butterfly. Congratulations!

To see the details on even the largest butterflies in NJ, like the swallowtails, it is most rewarding to view them through a pair of close-focusing binoculars. The science of optics and the choice of binoculars is beyond the scope of this article, but more information can be found by using your favorite search engine to look up “close focus binoculars” and “butterfly binoculars” on the internet.

Important facts to consider are the magnification, objective lens size, field of view, and focus distance. Binoculars are described by the formula A x B, where A is the magnification, such as 6, 7, or 8 times. B is the diameter of the objective lens (the one closest to the object

you are looking at). Common objective lens sizes for butterfly binoculars are between 20 and 40. For small objects, bigger is not better. The field of view is determined by the magnification and the size of the objective lens, so if the magnification is too large, the field of view will be small, making it hard to find small objects like butterflies. Perhaps the most important consideration in choosing binoculars for butterflies is the focus range. The very best allow you to focus as close as one and a half feet—half a meter. Binoculars that force you to move 10 or 20 feet away from a butterfly to get it into clear focus are close to useless.

Before you buy a pair of binoculars, try them out. Make sure that at closest focus you are getting a single field of view, not overlapping circles. The NJ Butterfly Club has a few pairs to lend to participants on our club field trips, and it's always worthwhile to talk with other participants about the binoculars they are using.

Many people like to take pictures of butterflies to help with identification. It's tremendously helpful to be able to sit down after a day in the field and compare the images of the butterflies you've seen with field-guide photos to refine your identifications. Some butterfly photographers use close-up lenses to approach their quarry, some use telephoto lenses that allow them to keep their distance, and some use stealth to get pictures with cell-phones. (Cellphone images of butterflies may not be of award-winning quality, but they can be surprisingly helpful in nailing down an ID.) If you choose to take pictures and are with a group, just make sure that everyone who wishes has seen the butterfly before you move in to get a shot. You may miss a butterfly or two, but it is better than creating ill feelings by chasing a butterfly away before everyone has seen it.

Net Zero

The stereotypical, mid-twentieth-century image of someone interested in butterflies was a country gentleman or dowager wearing tweeds and sensible shoes and carrying a net. They would collect, euthanize (politically-correct-speak for kill), and pin their quarry inside frames. Collecting made butterfly identification easy but could decimate local populations. Happily, the twin developments of affordable binoculars and digital photography have made collecting butterflies for identification or as a hobby unnecessary. It is illegal to collect on federal, state, county, or municipal lands without a permit, and it is unethical for hobbyists to collect anywhere in these days of widely-reported declines of insect populations.

Speaking of ethics, do not buy butterfly specimens for display or collecting. Almost all the specimens sold are collected from the wild, often illegally—further depleting populations. Also, buying butterflies to release at special events is strongly discouraged. Jeffrey Glassberg, President of the North American Butterfly Association, has issued this [statement against releasing butterflies](#). The same reasons apply to buying eggs or caterpillars to raise and release. If you want an up-close look at the incredible process of metamorphosis, continue reading

Butterflying at Home —Plant It and They Will Come

Want to see butterflies in your own yard, patio, or balcony? Invite them to join you by performing three simple acts. The first is Use No Pesticides. Butterflies, like most insects, are subject to chemical extermination through the constant use of insecticides, herbicides,

fungicides, and a lot of other -cides. Keep a chemical-free yard and you are more likely to have butterfly visitors. Next, plant nectar plants and larval host plants for the common butterflies (and their caterpillars) that are likely to occur in your area. A good guide to planting for butterflies can be found on this site at <http://www.njbutterflies.org/gardening.html>. NABA's *Butterfly Gardening* magazine abounds with stories of unpromising properties large and small transformed into thriving butterfly habitats. Finally, plant nectar-producing flowers. Check out the above referenced link on gardening. Plan your butterfly garden so that one or more plants will be in bloom from spring through fall. Avoid the showy varieties that promise long bloom times. Many of these do not produce the nectar that the butterflies seek.

Join the Club!

Want to learn more about butterflies from other folks who love to share their expertise? Want to go out and see these beautiful creatures in the wild? Want to try out some butterfly binoculars? Join the New Jersey Butterfly Club, the oldest chapter of the North American Butterfly Association. You'll find membership information at:

<https://naba.org/membership/>

Field Guides

Some of the most useful printed butterfly field guides are:

A Swift Guide to Butterflies of North America, J. Glassberg, Sunstreak Books

Field Guide to Butterflies of North America, K. Kaufman, Houghton Mifflin

Audubon Society Guide to Butterflies, various regional editions