MASSACHUSETTS

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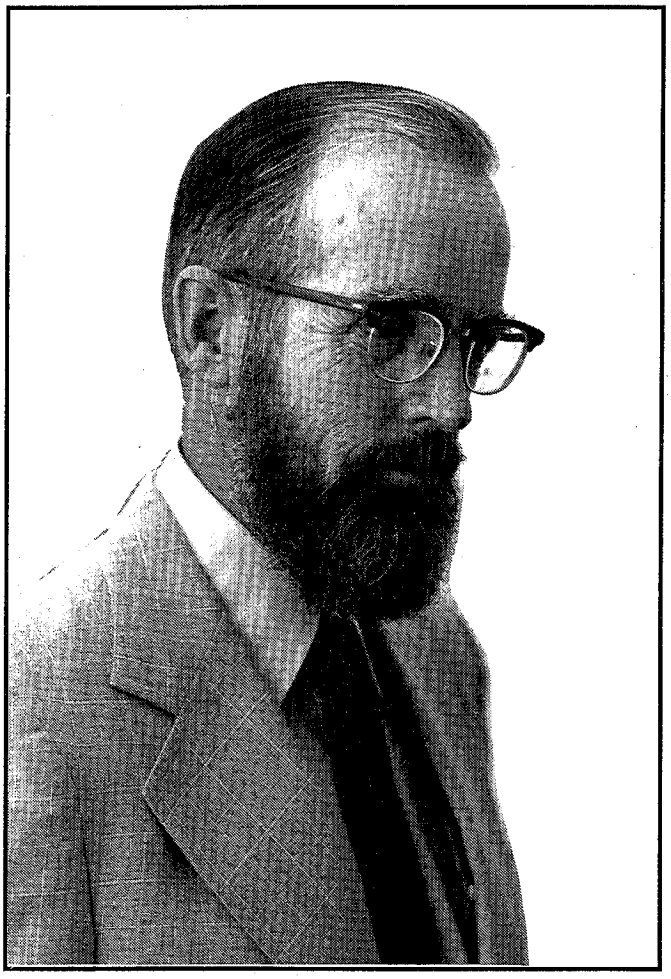

MASSACHUSETTS BUTTERFLIES is the semi-annual publication of the Massachusetts Butterfly Club, a chapter of the North American Butterfly Association. Membership in NABA - MBC brings you *American Butterflies, Massachusetts Butterflies, Butterfly Garden News*, and all of the benefits of the association and club, including field trips and meetings. Regular annual dues are $25.00. Those joining NABA - MBC for the first time should make their checks payable to NABA and send it to our treasurer, Lyn Lovell, at the address listed below. Membership renewals are handled through the national office: NABA, 4 Delaware Road, Morristown, NJ 07960; telephone 973-285-0907.

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Submission of Articles, Illustrations and Season Records Deadlines

We encourage all members to contribute to *Massachusetts Butterflies.* Articles, illustrations, sightings, out-of-state sightings, adventures, book reviews are welcome. Please send 4th of July counts to Tom Dodd by August 1 for the summer issue and your 1998 sightings and records to Tom by December 1 for the winter issue. Sending your records periodically during the season will make data entry an easier task for Tom. He will turn all our records into a summary and inclusive tabulated record, as has been done in the past. Send all other material to Alison Robb by August 15 and January 15.

Contents

Dave Winter, Friend of Lepidoptera

In December, Dave Winter, one of the finest gentlemen in lepidopterological circles, passed away. Dr. William D. Winter, Jr., or Dave, fought a good fight against Legionaire's Disease and its subsequent long-lingering effects. In the face of this constant struggle, he always put on a friendly countenance and was of great help to all of us who study moths and butterflies. Dave's first love was moths (his correspondence was usually stamped somewhere with "Moths are lepidoptera, too.") and he was, indeed, a renowned expert on American moths. He donated beautifully curated collections of moths to Harvard University and the Lloyd Center for Environmental Education.

He was also a fine writer and tireless correspondent. Among his published works are, Butterflies and Moths, A Companion to Your Field Guide, which he wrote with his wife, Jo Brewer, and chapters of Butterfly Gardening, published by the Xerces Society and the Smithsonian Institution. Dave was working on the final draft of a manual of lepidopteran study techniques when he died.

It is a great pity that most members of the Massachusetts Butterfly Club never had the chance to meet their fellow club member, a man with an international reputation for erudition and a sparkling sense of humor. The world will miss him enormously.

Brian Cassie

1998 Invasion of Cloudless Sulphurs

Brian Cassie

The Cloudless Sulphur is one of the handsomest butterflies you can see in Massachusetts. Varying in shade from clear lemon yellow to almost chartreuse, it is both beautiful and unmistakable. Unfortunately, its occurrence in the state is decidely infrequent and typical migrants are confined to southeastern coastal areas, so most butterfly watchers in the Commonwealth have seen few, if any, of these remarkable insects. 1998 was certainly the year to have made their acquaintance.

Resident in the southernmost United States, the Cloudless Sulphur, in common with a variety of other species, expands its population area by spreading northward each summer and fall. The extent of the species' migratory movements varies considerably from year to year. Even in the vicinity of New York City, this sulphur is considered rare, an "irregular and very variable immigrant, mainly in Sept." (Glassberg, 1993). According to Gochfeld and Burger (1997), the Cloudless Sulphur "... immigrates almost annually to southern New England ...." Perhaps the authors are speaking of Connecticut and Rhode Island, for the Cloudless Sulphur is most assuredly not "almost annual" in Massachusetts. In the past thirteen years, there have been but four in which the species has occurred in the state — 1987, 1993, 1995, and 1998. Earlier literature has little to offer in the way of specifics regarding this species, but Scudder (1899) said that it is
"... found in a few places [in New England], mostly in the near neighborhood of Narragansett Bay, but also in Connecticut and on Cape Cod." I have been able to find literature references for its occurrence in Massachusetts in the years 1880, 1892, 1898, 1903, 1909, 1934, 1937, 1941, as well as the aforementioned recent years. The species is conspicuously absent from all of the brief annual summaries of Massachusetts butterflies published by the Lepidopterists Society for the years 1969 and 1972-1981 (all those to which I had access).

Even in those occasional years when Cloudless Sulphurs fly northward as far as Massachusetts, the extent of the flight is probably quite limited. We have some documentation for the 1987, 1993, and 1995 flights. While it may be true that there were fewer persons actively looking for and reporting butterflies then than now, it appears likely that the flights in question were probably not very great in extent — the average number of individuals recorded per flight was 26.

In sharp contrast, more than 500 Cloudless Sulphurs were observed in Massachusetts in 1998. Of these, all but 2-3 were seen on either Cape Cod, Martha's Vineyard, the Elizabeth Islands, or along Buzzard's Bay in lower Bristol County from Westport to Fairhaven. In other words, the flight was apparently more or less restricted to southeastern-most Massachusetts. North of this region, there was one butterfly reported from Duxbury Beach; one on consecutive days (the same butterfly?) at Eastern Point, Gloucester; one at Ipswich River Wildlife Sanctuary in Topsfield; and two reported extralimitally from Maine, the second and third on record — Isles of Shoals (Jackie Sones) and Monhegan Island (Vernon Laux et al).

Before 1998, the greatest concentration of Cloudless Sulphurs observed in the state and reported in the literature (by George R. Minot) was a group of 13 in a small garden on Chappaquidick Island on September 21, 1909. Seven times in the Fall of 1998, greater numbers were seen at a single site: 15 in Chatham on Sept. 27; 16 in Edgartown on Sept. 19; 20 in Chatham on September 5 & 26; 27 at Katama, M.V., on October 25; and the incredible totals of 64 in Chatham on Aug. 30; and 76 in the same town on Sept. 13.

The 1993 Cloudless Sulphur flight, the best-documented up until the

Fall of 1998, spanned 62 days, from August 8 - October 9. The 1998 flight lasted 106 days, from August 24 - December 7 (not coincidentally, the warmest December day ever recorded in both Boston and Worcester). Several December reports from Martha's Vineyard pushed the latest-ever date back by a full six weeks.

Another unprecedented aspect of the flight was the first documented egg laying of the species in Massachusetts. On September 19, Roger Pease and Karen Parker, two Connecticut Valley residents who drove to the Outer Cape for the day specifically to study Cloudless Sulphurs, saw numerous sulphurs from Chatham to Provincetown. At one stop in Chatham, the butterflies "... were hovering around a group of [yellow mustards] along the beach .... There were huge numbers of the yellow mustard on the bank behind the beach at that point. Closer inspection revealed that the Cloudless Sulphurs around the plants were females ovipositing on clotbur, *Xanthium sp.* Their special interest was the burs themselves and laying eggs required some particular dexterity to thrust the ovipositor between the spines of the fruits. During the time we were there there were always two or three females in the process of laying eggs on the plants, preferring the fruits but sometimes the leaves. Three eggs were brought back with us but all collapsed within 72 hours of oviposition." (personal communication)

What were the Sulphurs doing laying eggs on clotburs? Most authorities list various sennas, in the genus *Cassia*, as the sole host plants for this species. Opler and Krizek (1984) say "... reports of clover are probably erroneous ...", while Scott (1986) lists *Crotalaria agatiflora* as an additional host plant. All of these plants are in the pea family, while clotburs (2 species on Cape Cod) are composites. There can be no doubt about the fact that the Sulphurs were indeed ovipositing on the clotburs, but the caterpillars may well have faced starvation had they emerged. There are valid food plants available on Cape Cod for Cloudless Suphurs. Both the Partridge Pea, *Cassia fasciculata*, and Wild Sensitive Plant, *Cassia nictitans*, are noted as "occasional" in The Flora of Cape Cod (Svenson and Pyle, 1979). If caterpillars can also feed on *Crotalaria*, as noted by Scott, there is one species on the Cape that would serve the purpose: *Crotalaria sagittatus*, known commonly as Rattlebox.

A large number of the Cloudless Sulphurs observed in Massachusetts this Fall were said to have been in good to fine condition. This suggests that at least some of them may have been born locally; if not in Massachusetts then somewhere in southern New England.

When Mr. Pease and Ms. Parker discovered their group of egg-laying female Cloudless Sulphurs, they got an unusual opportunity to study a number of these butterflies up close. Typically, Cloudless Sulphurs are seen "... engaging in a very directional movement ... very swift and with no indication that they would pause under any circumstances." (Forster, 1994). Every note I have on the 1998 flight shows the butterflies moving northward or eastward, especially after or during moderate to strong southwesterly winds. In New Jersey, this species exhibits "... northward movements [that] probably follow the coastal plain ..." (Gochfeld and Burger) and this is likely the case throughout the Northeast. Curiously, the one mention in Scott (1986) cites Connecticut Autumn flights toward the southwest.

I am delighted that a number of Massachusetts Butterfly Club members took great pains to help document this extraordinary butterfly migration. My great thanks to Bob Bowker, Betsy Cornwall, Simon Hickman, Richard Hildreth, Paul Jackson, Allan Keith, Carol Knapp, Vernon Laux, Lyn Lovell, Mark Lynch, Wendy Malpass, Joanne Mullen, Blair Nikula, Karen Parker, Roger Pease, Matt Pelikan, Wayne Petersen, Edith Potter, Dolores Price, Alison Robb, Doug Savitch, George Scott, David Small, Jackie Sones, Claudia Tibbetts, Jeremiah Trimble, and others that I may have missed.

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A Look at the Juniper Hairstreak on Martha's Vineyard

Matthew L. Pelikan

One of the most exotic-looking of Massachusetts butterflies is the Juniper Hairstreak, *Callophrys gryneus*. Of our two "olive" hairstreaks, it is by far the most common and widely distributed, associated with a common host plant, Red Cedar, *Juniperus virginiana*, while our other "olive" hairstreak, Hessel's, *C. hesseli*, is an obligate resident of Atlantic White Cedar, *Chamaecyparis thyoides*, swamps, a rare habitat in the state, and is known from only about eighteen locations in Massachusetts (Forster 1997). Juniper Hairstreaks sometimes achieve considerable local abundance in the state (e.g., a 1991 single-location count of 103, Foxboro, appears in the Massachusetts Butterfly Club's "Checklist of the Butterflies of Massachusetts," compiled by Tom Dodd). In general, however, this species is local, unobtrusive, and not often reported by Bay State butterfly-watchers: *Massachusetts Butterflies* lists only nine reports from a total of six locations during a three-year period (*Massachusetts Butterflies* Nos. 7, 8, and 10).

The lack of central sources for information makes it hard to assess the status of butterflies on Martha's Vineyard, or indeed anyplace else. But Juniper Hairstreak does not appear in Place (1929) or Jones and Kimball (1943); Opler, et al. (1995) include no confirmed records for Dukes County; and this species is absent from the "Felix Neck" list (1995), compiled by Allan Keith for Massachusetts Audubon Society and the closest thing to a standard Vineyard butterfly checklist in recent years. The Massachusetts Butterfly Club had

received no reports of this species from the Vineyard prior to 1998 (T. Dodd, pers. comm.), and I am aware of only one such sighting in a large cedar stand on East Beach, Chappaquiddick, (Paul Miliotis,[*fide* A. Keith]). There may of course be other records that have not come to my attention, but it is evident that this butterfly has been noted infrequently, at best, on the Vineyard.

But a paucity of reports needn't reflect a paucity of butterflies. As the Vineyard's agricultural economy subsides into the past, Red Cedars are among the first trees to colonize abandoned dry farmland, and this hardy evergreen is considered an abundant native plant of maritime Red Cedar forest, agricultural grassland, sandplain grassland, and abandoned fields (MVSRP 1997). When I moved to the Vineyard in mid-August, 1997, the wealth of cedars made me think that Juniper Hairstreaks "should" flourish here, and testing this assumption was a high priority for my first full butterfly season on Martha's Vineyard. Observations in 1998 suggested that the Juniper Hairstreak may indeed be a well established, though perhaps rather local, island resident.

The first 1998 sighting came from Vern Laux (pers. comm.), who found a couple of Juniper Hairstreaks on May 12 in the East Chop area of Oak Bluffs. Subsequently, I found this species at five locations in Oak Bluffs, and Vern discovered a single individual in Edgartown (pers. comm.). In 1998, this species exhibited a prolonged flight period on the island and gave ample evidence of reproductive activity. A synopsis of my 1998 observations on this species follows.

May 14, Oak Bluffs/Farm Pond: a total of six individuals, four at one end of the half-mile trail (including one ovipositing female) and two at the other end. This entire location is rich in Red Cedars; all the hairstreaks were on trees on the margins of grassy fields, rather than in the wooded sections. Also one at Oak Bluffs/Trade Winds, on one of three fairly isolated, large cedars at the end of the preserve farthest from the parking area.

May 16, Oak Bluffs/East Chop: one individual near the East Chop Lighthouse.

May 20, one individual in an overgrown field along the access road to the Oak Bluffs School; two at Farm Pond; and one individual at Waban Park, which flushed from the grass as I walked across the park and landed on one of a group of small cedars.

May 24, at least six at Trade Winds, in a small group of cedars located behind the airplane hanger adjacent to the parking area. I observed and photographed two mating pairs; at least two unmated individuals were also present.

June 15, one photographed as it nectared on a daisy, *Chrysanthemum leucanthemum*, in the field near the Oak Bluffs School.

July 21, two on the cedars behind the hanger at Trade Winds.

July 25, two or three at Trade Winds.
August 4, two in the field near the school, both nectaring persistently on Queen Anne's Lace, *Daucus carota*.

August 7, one on the cedars behind the hangar at Trade Winds. I also observed several eggs that I believe were of this species, stuck to the cedars at the far end.

Attempts to locate this species on August 8, and on several subsequent days, were unsuccessful.

One of these locations, Farm Pond, has scores or even hundreds of Red Cedars of various sizes, and I found Juniper Hairstreaks on only a very small percentage of these. Other locations, Trade Winds and Waban Park, have only a handful of specimens of this tree: Trade Winds is dominated by Pitch Pine forest and Little Bluestem grassland (it is a splendid location for Leonard's Skipper), and the most productive stand of cedars consists of only a half-dozen trees, six or seven feet tall. As far as I can determine, these trees are about a quarter-mile from any other cedars. This suggests that Juniper Hairstreaks don't require, and may not even benefit from, *extensive* stands of Red Cedar, and it follows that this butterfly could be quite widespread on the Island.

It is unclear whether this species is a recent arrival on Martha's Vineyard, or if it has been overlooked or gone unreported. Also, since Juniper Hairstreak is subject to sometimes extreme annual variations in population, I don't know if 1998 was a typical year for this butterfly on the Vineyard. Summer-flying *Satyrium* hairstreaks were very scarce here in 1998, but *Callophrys* elfins were generally numerous in the spring. Over the next few years, I hope to develop a better understanding of the status and distribution of Juniper Hairstreaks on the Vineyard. Likely locations for additional colonies include several large, cedar-rich areas in the Katama portion of Edgartown, and similar habitat in West Tisbury near the Land Bank's "Green Fields" property.

Unfortunately, the recently abandoned farmland preferred by Juniper Hairstreaks is also preferred by developers, and this habitat is rapidly being lost to subdivision. The field near the Oak Bluffs School has been partially cleared and, as of December 1998, contained a house under construction; some cedars still remain but, though the location may still be accessible to Juniper Hairstreaks, it will probably be off-limits to human observers.

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*** *The author would welcome additional information on Juniper Hairstreaks, or butterflies in general, on Martha's Vineyard, and is grateful to Vern Laux, Allan Keith, and Lulalie Reagan, librarian at the Vineyard Gazette, for their help on this article.*

Moths — The "Other" Lepidoptera

Joe Choiniere

"I must become a borrower of the night for a dark hour or twain...." thus spoke Banquo on his fateful day. Banquo was little aware, I suppose, of his own fate; borrowing life as he did until the dark evening of that same day, when Macbeth had him murdered; Banquo was unaware that he would borrow the night no more. I have come to realize that the nocturnal moths borrow the night as well. Upon attaining their adult and often short-lived scale-winged forms, they have had their advent days in the sunny green canopy world, and now they borrow both the night and life, and as with Banquo, appear again transformed, if only as specters. Shakespeare had a gift for prophetic irony. Banquo, a borrower of life from the cold Scottish mountains, was to repay his loan within a few hours, and borrow no more. Moths have borrowed the night in fulfillment of a different prophecy — the slow pressure of natural selection upon the diverse options of a body plan. It is diversity I have long studied, but have been, over time, led to night, and the "other" lepidoptera, the moths.

The lepidoptera, commonly known as the butterflies and moths, are one of the most populous insect orders. Eleven out of every hundred known species of animals on earth is a lepidopteran (there are just over a million described animal species.) Of the eleven lepidoptera, 10 or more are moths! Thanks to Mass. Audubon's successful butterfly atlas project and the ensuing work of the Massachusetts Butterfly Club, much is now known about the butterfly portion of the lepidoptera fauna in Massachusetts. But moths constitute over 90% of the known species of butterflies and moths. In ten years of censusing, 66 species of butterflies have been documented at Wachusett Meadow Wildlife Sanctuary in Princeton. In contrast, 66 moth species might easily be seen in a single week (if not on a good July evening) at the sanctuary, or anywhere, city or country! Unbelievably, even just the day-flying moths, at over 140 species, outnumber Massachusetts butterflies! Surely the moths are worth censusing, monitoring, and studying simply for their sheer numbers. Their larval effects on vegetation and their function as a food source for birds must position them as important components of ecosystems.

How do you start in learning such a vast biota? Learn the butterflies first. Anything left is probably a moth. I'm serious! The next step is to get a field guide. *The Golden Guide*, Butterflies and Moths, is the best bet, followed by Moths of Eastern North America in *The Peterson Field Guide Series*. Here's where the trouble begins. The classic collection image in moth identification guides, that of spread and flattened moths, while necessary for scientific documentation, is misleading and contributes to confusion with moth identification. Our moth species are tremendously diverse, vibrant creatures, full of surprises. Moths in life hold their wings in distinctive three-dimensional ways, and their coloration and patterns create numerous moving illusions, including an incredible array of startling "false faces". These patterns are never obvious in the entomologically spread moth. In addition, freshly emerged moths in life are hairy, fuzzy, crested, crowned, bat-faced, iridescent, even fluorescent! Their often subtle colors and bold patterns are trashed by sunlight, wasted in the overwash of intensity. Most older moth collections are faded, having lost the life force that moths exude. As an example, a common moth, the Pale Beauty, *Campaea perlata*, a geometer listed in the "white pages" of moth identification books, is not just white — there is a greenish wash in the fresh moths flying in July, which photography seldom captures. The holographic patterns of the darts; the sparkling dusting of the Idia, milky ways in their minute way; and the fluorescent pinks of the underwings are other examples of the beauty of the live moth which is lost in the specimen and guide book. After observing these strikingly beautiful

forms, it can be a letdown as well as an impossibility to compare them with the two dimensional lifeless representations in books.

In addition to their diversity, the free variation in moths can be exasperating for those new to indentification, because these moth variations can be so drastic as to cloud normal field marks. Why should moths, or any other organisms, vary pattern and color within the same species? In his great book, Legion of the Night: The Underwing Moths (1976), Ted Sargent proposes a theory and tests it: variation as a way for moths to defeat a phenomenon of predator behavior known as search image. Predators, having once found a suitable prey, rapidly become more adept at finding similar prey. With variation, some moths of the same species escape detection because their search image differs from the predator's recent prey. Variation, this survival tactic of many species, makes moth identification more difficult.

Despite these pitfalls, moths can be identified to group, such as geometers, darts, by their body "jizz", much as can birds. They approach, flutter, and land in very recognizable ways. Once perched, their three dimensional silhouettes are diagnostic. I believe that once the fauna is learned by careful collection and study, visual cues — field marks, as with butterflies — can be developed for many hundreds of our common moths, cues which do not depend upon captured, killed and spread specimens. Hopefully, one day our field guides for moths will rely more on live moth observations. So, recognition of moths needs to begin in a broad view, and gradually be brought to a finer level. I offer a few points below to help you begin.

The **Geometrids**, a huge family encompassing 13% of our Massachusetts moths, have wide, often angular outlined wings, thin bodies, and butterfly-like flight and form. Geometer refers more to their inchworm, "earth-measuring" larvae, not to their adult geometric shape. They are perhaps the easiest family to learn to recognize by body form. They appear to fly as well as any other moths except the hawkmoths.

Unfortunately, the gigantic **Noctuid** family, 27% of all moths, is more difficult to describe, even though it includes many well known subfamilies like the darts, underwings, daggers, prominents, and deltoids, each of which has a basic cue for recognition. The darts, whose cutworm larvae are the bane of gardeners, often have holographic dark "panes" in their forewing patterns. The underwings are notorious for their use of two separate survival ploys: brightly colored and startling hindwings hidden under cryptic forewings. Daggers have slash-like black lines on their wings, and deltoid noctuids are shaped like equilateral triangles, with a prominent "nose" (really palpi, as with the American Snout butterfly). The huge group designation noctuid is similar to the passerine designation in birds, nice to spout out at a conservation commission meeting but rarely used by the practical biologist.

These two families are considered to be part of the *macrolepidoptera*, one part of a colloquial dichotomy used to parcel all the moth superfamilies. The *microlepidoptera*, which, as their name implies, are usually less than three quarters of an inch in wingspan, are less often studied by beginners due to the difficulty of pinning specimens and identification, but they contain some of the most influential and important moth families, thanks to their detrimental effects on human concerns.

The **Pyralids**, about as numerous as the **Geometrids**, including the beekeeper's nemesis Greater Wax Moth, and the Indian Meal Moth; and the **Tortricids**, with their characteristic squared-off forewing apices, featuring the Codling Moth and the Spruce Budworm, are the two largest and recognizable micro families. These four families alone account for over half of our moths.

Sphingids, the sphinxes or hawk moths, include the Hummingbird Moth (Clearwing) and are easy to recognize by their hovering, flower-feeding behaviors. Hawk moths are easy to identify and well represented in many field guides. The **Saturnids**, or giant silk moths, are astronomical sounding and

include the Luna Moth and Cecropia as well as the declining giant silk moths like Promethea, and a favorite of many, the Rosy Maple Moth. Woolly Bear caterpillars grow up into Isabellas, one of the many Tiger Moths, or **Arctiids**, the place to start with wing venation, if you must, due to their many transparent winged species; and the trapezoidal-winged micros, the **Gelechids**, with their gall-producing species, have collectively caused far more grief than the Gypsy Moth.

What are the moths doing to achieve their coup of dominance over butterflies in lepidopteran ranks? They are certainly more ancient, the clear ancestors of the group. Both moths and butterflies are primarily plant and plant produce eaters. Certainly moths use trees more often, effectively extending the cubic volume of usable plant material. In fact, moths feed on just about any type of plant and virtually any part. They have found hundreds of scores of feeding niches, from the palisades layer between the upper and lower leaf surfaces in which the leaf miners, larval moths, feed; in everything from water lilies to the high canopy pine needles. Stem borers thrive in underwater plants; hemlock geometers to the last twig on 125-foot trees. No plant is left unused, not even ferns, which are seldom plagued by obvious insect pests, and are reputed to be insect-proof or repellent by some sources. Some larval borers in the noctuid moth subfamily *Cucullinae* have become specialized as fern borers in native species such as Ostrich, Bracken, and Sensitive Ferns. These uses of unique feeding niches are one way that moths have achieved their large species numbers.

But there is still something missing for me. I have a feeling of congestion about the space that moths occupy. There must be some other factor which contributes to the moths' dimensionality of numbers. I have trouble fitting over a thousand species into the suitcase of a New England woodland. Even all the vertical and horizontal, above and under, inside and outside, dry and wet, cold and hot, and all the other specialized dwelling places won't be enough for so many species. There is something else, another way moths use niches — time, both seasonally and daily. Moths are as good at working with seasonality as any animals, flying routinely in every month of the year, even in the Worcester County colder elevations. They have certainly pressed seasonality to its potential, depending upon the wind's breakage of tree branches in the winter for early February flights energized by sap flows, and plying the fecundity of the summer tree canopy, as a gluttonous leaf smorgasbord, for larvae.

Another way moths use time effectively is through their daily cycle of activity. Flight period variations in moths far exceed those of butterflies and are extremely diverse and interesting. Certain moths, as the giant silk moth species, despite lengthy monthly flight periods, fly only at specific hours during the night. One could say the environment uses moths, for these stereotypical denizens of the darkness boast a couple of hundred species of diurnal and crepuscular fliers, many of which figure prominently in the pollination of late-day flowering plants such as Evening Primrose and Common Milkweed. Try walking a few hundred yards at dawn, day, dusk or night and not seeing a moth in July or August. A wing on the pavement, dried mummy in the porch spider web, and jumble of carcasses in the car grilles all are evidence. The clothes closet, the cherry tree, the tomato plants; you can't escape moth presence at any time of day.

By looking at food plant diversity and temporal creativity, we may answer how moths have achieved diversity, but a far more poignant and fertile questions is: Why so many species? Moths exist, perhaps, to paint the night, to collect its essence, to use its interstices, to ply the dust of the dark much as the phosphorescent and bold deep sea fish, to look up on a layer of the true form of the universe. There is a strange force when the moon is new and the skies cloudy and warmth prevails. It is a weak force, like gravity, with an overwhelming effect. Diversity it is, showing off its fecundity. Hundreds and hundreds of insects fly, led by the moths. Within this flight lie questions as well as truths. What is night trying to say, with all this life force? Like Longfellow's "Hymn to

the Night," it is a hymn to life, this dark spectacle of diversity:

Descend with broad-winged flight,
The welcome, the thrice-prayed for, the most fair,
The best-beloved Night!

It is all one place, the earth, and life is perhaps only one infinitely lobed amoeba — draining, oozing, filling all the niche cracks rent in the old plan of an older planet, waxing and waning with the wants of an unknown creator. To not use the night would surprise me more. And I should not be surprised to see the darkness drip its black ink and conjure up another species tomorrow — you can see that's the way it seems to work, as you learn more about moths. Why do moths fly? We cannot answer; we can only leave the light on.

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Illinois Moths & Butterflies — A Poster

A new poster entitled "Illinois Moths & Butterflies" has been produced cooperatively by the Illinois Department of Natural Resources, the Illinois State Museum, the Illinois Department of Natural Resources Division of Education, the Illinois Natural History Survey, and the Illinois Department of Transportation. The double-sided poster features twenty-five beautiful full-color photographs and information on butterfly and moth gardens, conservation, anatomy and other useful resources.

The poster is the third in a series of educational posters focused on fauna of Illinois. The first poster, which was printed in 1996, featured mussels of Illinois. The second featured frogs and toad.

Posters are available free of charge from the Educational Services Section of the Illinois Department of Natural Resources, and the Natural History Survey. Call (217) 524-4126 or (217) 333-6833 for more information. The "Illinois Moths & Butterflies" poster may be accessed online via the Internet at the Illinois Department of Natural Resources web page: http://dnr.state.il.us/moth.

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1998 Season Summary and Record *Tom Dodd*

While on the Massachusetts Butterfly Atlas Project, I attended one of my first butterfly meetings at Wachusett Meadow Wildlife Sanctuary in Princeton. I was just starting to learn my butterflies. I can remember people returning from the field with their butterfly list, a number of them reporting "question marks". At the time, I thought it strange that everyone reported unidentified butterflies in the same manner. I think it was weeks later, while looking through my "Klots" butterfly book, when I realized what a Question Mark was. We all have to start somewhere. Brian Cassie got me started in butterflying some 12 years ago. I've learned a lot about butterflies from him. Brian has been writing the season summaries for "Massachusetts Butterflies" since he started the club. I would like to acknowledge the tremendous effort that Brian has put into these summaries in past years. Brian has an incredible knowledge of butterflies, and natural history in general, that he has happily shared with us all. I will strive to do as well.

Thanks to all observers for submitting their records. Also, thanks to Cathy Dodd for help with entering the 7000+ records received this year into a computer database. If you keep records, and you should, please send them in. The required information (or fields) are: butterfly name, quantity seen, date, town, and observer(s). If possible, list the sightings by species. If sending them on disk or by email, format the records so that there is one record per line, with each field separated by commas or tabs.

Observers

S. Barry [SBa], J. Berry [JB], B. Bowker [BB], S. Carrol [SC], d. case [DC], B. Cassie [BC], J. Choiniere [JC], C. Dodd [CD], T. Dodd [TD], M. Fairbrother [MF], T. Fowler [TF], B. Fregeau[BF], T. Gagnon [TG], F. Goodwin [FG], S. Hickman (fide V. Laux)[SH], R. Hildreth [RH], G. Howe [GH], C. Jackson [CJ], C. Kamp [CK], A. Keith [AK], V. Laux [VL], L. Lovell [LL], M. Lynch [ML], W. Malpass (fide M. Pelikan)[WM], J. Mullen [JM], B. Nikula [BN], K. Parker [KP], R. Pease [RP], M. Pelikan [MP], W. Petersen (fide B. Cassie)[WP], C. Phillips [CP], M. Polana [MPo], D. Potter [DPo], D. Price [DP], A. Robb [AR], D. Savich [DS], D. Small [DSm], J. Sones [JS], B. Speare [BS], S. Stichter [SS], C. Tibbets, [CT], J. Trimble [JT], B. Tyning [BT], J.Tyrrell[JTy], B. Walker [BW], P. Weatherbee [PW], R. Wolniewicz (fide F. Goodwin) [RWo], company(other observers) [co]

Locations

MAS Broad Meadow Brook Wildlife Sanctuary, Worcester[BMBS] ---MAS Broadmoor Wildlife Sanctuary, Natick[BMOOR] --- Crane WMA, Falmouth[CRFAL]---Crane Pond WMA, Groveland[CRGRO] ---Fannie Stebbins Refuge, Longmeadow[FANST] ---Gooseberry Neck, Westport[GOOS] ---MAS Ipswich River Wildlife Sanctuary, Topsfield[IRWS] ---Katama Plains, Martha's Vineyard[Katama] ---MAS Wellfleet Bay Wildlife Sanctuary, Wellfleet[WELLF] ---MAS Wachusett Meadow Wildlife Sanctuary, Princeton[WMWS]

1998 Season Summary

SWALLOWTAILS

Maximum counts of Black Swallowtails were found in two coastal locations, with Brian Cassie and the MBC finding 13 in Westport, and Matt Pelikan finding 20 at Katama Plains on Martha's Vineyard during the year. Tiger Swallowtails had a good flight with both early and late dates. Doug Savich and Claudia Tibbets found one October 25th on Cape Ann, a month later than normal.

WHITES AND SULPHURS

If you have the opportunity to go on a field trip to Gooseberry Neck this year, don't pass it up. On September 12, Brian Cassie, Lyn Lovell, Richard Hildreth, Alison Robb and JoAnn Mullen found a rare Checkered White there! This is the third sighting at this same location (all within 200 yards of the parking lot) in the last three years. Roger Pease and Karen Parker reported 30 Mustard Whites in a field along the Housatonic River in Lenox. Matt Pelikan observed a record high count of 2000 Orange Sulphurs at Katama on September 19th. Late summer and fall is a great time to head to the coastal areas in Massachusetts. Major butterfly movements (both northerly and southerly directions) occurred here from August through October, with some late sightings into December. The coastal flight of Cloudless Sulphurs was incredible! Jackie Sones, Blair Nikula, and Jeremiah Trimble sighted 64 in Chatham on August 30, and two weeks later, Blair Nikula observed another 76 (see Brian Cassie's article for more details).

COPPERS, HAIRSTREAKS, ELFINS, AND BLUES

Harvesters were seen in only a few locations this year. From my own observations this fall, I noted a number of locations with larvae. Maybe next year will bring a bigger flight. Overall numbers of hairstreaks were low. Coral, Acadian, Hickory, Southern and Juniper Hairstreaks all had recorded early sightings. Also three of the elfins and one blue had early sightings. Other than a report of 420 American Coppers in Northhampton and one Bronze Copper seen by MBC members in Brookfield, there was not much out of the ordinary to report.

BRUSH-FOOTED BUTTERFLIES

Roger Pease and dottie case found two clusters of Tawny Emperor eggs, totaling about 150, at Forest Park, Springfield on August 15. Roger has been monitoring the Hackberry and Tawny Emperors at this location for many years. Dottie brought some of the eggs home and has been raising them. It's interesting that most of them have been over-wintering as young caterpillars (at least five as of January 30, 1999), but one completed its' life cycle, emerging on October 24. Tom Gagnon led a MBC field trip to Forest Park on August 22 and recorded a new high count of nine Hackberry Emperors. There were two records of Variegated Fritillaries on Martha's Vineyard. Matt Pelikan suggested that these may be the islands first records of this species. There were 143 Atlantis Fritillaries sighted at October Mountain in Washington. Undoubtedly one of the biggest highlights of the year were the sightings along the coast in the fall. MBC members recorded 178 Question Marks and 62 Mourning Cloaks on the move on September 12th. These are astounding numbers, and shatters the previous high counts of 10 and 19 respectively. There were reports of similar movements, though not as large, at other coastal locations as well. This excitement has stirred the MBC to create a more formal coastal watch this year. Stay tuned for future developments! The Monarch count at Gooseberry Neck, Westport was 1700, close to the highest count in the state (2000), recorded in Gloucester in 1994.

SKIPPERS

Skipper numbers were low throughout the state. I wonder if the 19 rainy days in June had anything to do with it? Worcester recorded 9.68" (normal is 3.88"), and Boston sopped up 11.58". A real treat is getting to observe a Long-tailed Skipper. There were two seen this year. One was sighted by Jim Berry on September 6, nectaring on buddleia in his own backyard. The second was seen

September 25 by Blair Nikula and Jeremiah Trimble on Morris Island. Richard Hildreth reported 18 Hoary Edges in Charlton, breaking the previous high count of 7. Dave Small recorded 105 Juvenal's Duskywings around Quabbin. Ten of them were found on scat (probably coyote)! Arctic Skippers, an uncommon butterfly, are typically found in the northern and western parts of Massachusetts. There were a few more reports this year, with three found at BMBS in Worcester. Richard Hildreth got photos of a Fiery Skipper on October 5 in Truro nectaring on an aster. There was a partial second flight of Long Dashes that appeared in a few locations this year. Also, a lone, very fresh Delaware Skipper was photographed by dottie case on September 23 in Northhampton. Tom Gagnon kept a watchful eye for Zabulon Skippers, and recorded seven (previous high count was six) at Forest Park in Springfield and also five at Fannie Stebbins Refuge in Longmeadow. Tom was also fortunate to observe an Ocola Skipper in his backyard nectaring on a tall verbina. Tom mentioned he has over 30 butterfly bushes that help to attract butterflies to his yard.

1998 Butterfly Records

*=new early flight date,

=new late flight date, high counts in **bold

Pipevine Swallowtail

Sep	27	FANST	1	TG
Oct	4,5	Florence	1	TG

Black Swallowtail

Apr	29	IRWS	1	FG+co
	30	Hadley/Williamstown	1/1	TG/PW
May	6	Sunderland	5	DC
	24	Framingham	5	TD+CD
Jul	18	Katama	**20**	MP
	24	Shrewsbury	4	BW
Aug	15	Holland	5	LL+MBC
Sep	1	Katama	11	MP
	12	Allens Pond,Westport	13	BC+co
	25	Oak Bluffs/Chilmark	1/1	MP/AK

Eastern Tiger Swallowtail & Canadian Tiger Swallowtail

Apr	30	*Amherst	1	TG
May	16	New Salem	15	DSm
	25	Savoy/Mt. Greylock	40/25	DPo/DP+DSm
	26	IRWS	12	FG
	30	Savoy/Petersham	**65**/25	DPo/DSm+MBC
Jul	1	Charlton	11	RH
	11	Shrewsbury	5	BW
	13	CRFAL	5	AR
	27	Oak Bluffs	5	MP
Aug	1	FANST	6	TG+MBC
	16	Sheffield	6	ML+SC
Sep	27	Florence	1	TG
Oct	25	**Gloucester	1	DS+CT

Spicebush Swallowtail

May	16	Holyoke	1	TG
	23	BMBS	3	TD+CD+MBC
Jul	1	Charlton	6	RH
	13	CRFAL	5	AR
	5	Gloucester	5	DS+CT
	19	Tisbury	**11**	MP
	27	Oak Bluffs	5	MP
Aug	16	Sheffield	2,2	ML+SC
	22	Gloucester	2	DS+CT
Oct	1	Gloucester	1	DS+CT

Checkered White

Sep	12	GOOS	1	BC+co

Mustard White

Apr	18	*Lenox	**17**	RP
	30	Lenox	**24-36**	RP
Jul	5	Lenox	**30**	KP+RP
	12	October Mtn SF	1	TG

West Virginia White

Apr	18	*Sunderland/Williamstown	1/1	DPo/PW
	28	Sunderland	2	DC
May	25	Mt Greylock/Windsor	2/3	DP+DSm

Cabbage White

Mar	28	Gloucester/Foxboro	1/1	DS+CT/BC
Apr	30	Gloucester/IRWS	14/13	DS+CT/FG+co
May	27	Wellfleet	24	AR+ID
Jun	20	BMOOR	24	BB
Jul	3	Katama	200	MP
	18	Eastham	50	ML+SC
Aug	9	Rowley	115	JB+MBC
Sep	12	GOOS	290	BC+co
	19	Katama	400	MP
	27	Rowley/Northampton	141/211	FG/TG
Oct	25	W Tisbury/Northampton	10/36	AK/TG
Nov	13	Chatham	2	JS

Clouded Sulphur

Apr	12	*Falmouth	1	AR
	27	Deerfield/Prescott	1/3	DC/DSm
May	14	Holliston	21	RH
Jul	18	Katama	50	MP
Aug	16	Hadley/Katama	**500**/200	CK+MBC/MP
	16	Sheffield	132,**270**	ML+SC
	30	Barre	121	ML+SC
Sep	12	Petersham/Northfield	150/125	DSm/MF+MBC
	26	Barre	130	ML+SC
Oct	25	MV	200	MP+VL
Nov	22	Katama	2	MP
Dec	4	Tisbury	1	VL
	5	**Rockport	1	BW

Orange Sulphur

May	3	Katama, Chilmark	10,3	AK
Jul	18	Katama	50	MP

Aug	16	Hadley/Katama	35/200	CK+MBC/MP
	22	Katama	500	AK
Sep	12	Petersham/Gill,Northfield	50/40	DSm/MF+MBC
	19	Katama	**2000**	MP
	26	Barre	107	ML+SC
	27	Rowley	27	FG
Oct	5	GOOS	38	AR
	25	MV	400/90	MP+VL/AK
Nov	29	Katama	12	MP
Dec	4	W Tisbury	2	MP

Cloudless Sulphur

Aug	25	Edgartown	3	MP
	30	Chatham	**64**	JS+BN+JT
Sep	5	Monomoy/Chatham/Duxbury	1/**20**/1	CJ/JT/DSm+DP
	8	Lincoln	1	JS
	12	GOOS/IRWS	**13**,1	BC+co/FG
	12	Edgartown/Penikese I/MV-var loc	2/**12**/8	MP/JS+co/AK
	13	Chatham	**76**	BN
	17	Pasque Island	7	AR
	18	GOOS	5	RH
	19	Edgartown	**16**	MP
	20	Gloucester	1	DS+CT
	20	West I,Fairhaven/MV-var loc	5/7	ML+SC/AK
	26	Morris Island,Chatham	**20**	BN+JT
Oct	5	GOOS	5	AR
	24	Harwich	1	JT
	25	Katama	**27**	MP+VL
Dec	1	W Tisbury/Tisbury	1/1	SH/VL
	4	**Edgartown	1	WM

Harvester

Aug	16	Sterling,Clinton	1	TD+CD+MBC
Sep	5	Cummington/Uxbridge	1/1	TG/TD

American Copper

Apr	30	Falmouth	1	AR
May	14	Oak Bluffs/Northampton	20/**420**	MP/TG
	17	WELLF,Truro	30,53	TD+CD+MBC
Jul	3	Northampton	57	TG
	18	Broadmoor	18	BB
Aug	16	Sterling,Clinton	28	TD+CD+MBC
Sep	5	CRGRO	23	FG
	20	Monomoy	12	BN+JT
Oct	24	Milford/W Newbury	1/1	RH/FG
	25	Northampton	1	TG

Bronze Copper

Oct	18	Brookfield	1	RH+BW+LL+co

Bog Copper

Jun	25	Tisbury	4	MP
Jul	3	Edgartown	6	MP
	9	Gloucester	5	DS+CT
	16	Boylston	1	TD
	18	Gloucester	3	DS+CT

Coral Hairstreak

Jun	27	*Hampden	1	KP
	28	Holliston	1	RH
Jul	3	Oak Bluffs	1	MP
	4	Savoy	1	DPo
	9	Mansfield	7	RH
	10	Holliston	3	RH
	12	Lexington	2	MP
	15	Easthampton/Savoy	2/2	TF/DPo
	18	Gloucester	1	DS+CT
	24	Chilmark	6	MP
Aug	2	East Longmeadow	1	KP

Acadian Hairstreakaa

Jun	21	*Grafton	1	DP+DSm
	28	Framingham	1	TD+CD+MBC
Jul	2	Williamstown	1	PW
	10	Holliston	1	RH
	12	Pittsfield/Lexington	1/1	TG/MP
	13	Royalston	1	CK
	15	Savoy	1	DPo

Edwards' Hairstreak

Jun	21	Florence	1	TG
Jul	3	W Tisbury/Grafton	22/1	MP/DP
	4	Quabbin	2	CP
	6	Chilmark	16	MP
	14	W Tisbury	80	MP
Aug	8	W Tisbury	3,1	MP

Banded Hairstreak

Jun	21	Northbridge	1	MBC
	23	Shrewsbury	1	BW
	28	Millbury/Millers Falls/Holliston	6/1/3	DP/DC/RH
Jul	3	Forest Park,Springfield	2	TG+DSm
	9	Mansfield	9	RH
	14	Gloucester	3	DS+CT
Aug	8	Upton/BMBS	1/1	TD+CD/

LL+MBC

Hickory Hairstreak

Jun	26	*Northampton	1	TG
Jul	6	World's End,Hingham	1	BC+co
	26	Florence	1	TG

Striped Hairstreak

Jun	26	Holliston	1	RH
Jul	3	Millbury	2	DP
	9	Mansfield	3	RH
	12	Pittsfield,October Mt SF	4,3	TG
	22	Holliston	3	RH
	24	W Tisbury	3	MP
Aug	2	Upton	1	TD+CD

Southern Hairstreak

Jun	20	*BMOOR	1	BB
	22	Milford	1	RH

	28	Holliston	1	RH
Jul	2	Edgartown	1	MP
		Brown Elfin		
Apr	12	Chilmark	1	MP
	18	Gloucester	3	DS+CT
	22	Edgartown	9	MP
May	1	BMBS	4	GH
	7	Truro, Pamet	20	CP+AR+JS
	12	W Tisbury,Edgartown	5,5	MP
	15	Turners Falls	2	TG
	17	BMBS/WELLF	2/5	DP/TD+ CD+MBC
	23	BMBS/Ipswich	3/1	TD+CD+MBC/FG
		Hoary Elfin		
Apr	14	*W Tisbury	1	MP
	22	Edgartown, W Tisbury	4,8	MP
May	7	Truro, Pamet	2	AR+CP+JS
	12	W Tisbury	3	MP
	17	Truro, WELLF	2,1	TD+CD+MBC
		Frosted Elfin		
May	1	*BMBS	2	GH
	15	Turners Falls	5	TG
	22	Katama,Edgartown	2	MP
	23	BMBS	1	TD+CD+MBC
		Henry's Elfin		
Apr	28	IRWS	1	FG
	29	Amherst/IRWS	1/2	DC/FG+co
May	25	Heath	1	DPo
	30	Petersham	1	DSm+MBC
		Eastern Pine Elfin		
Apr	12	*Westfield/Oak Bluffs	1/2	TG/MP
	13	Grafton	1	DP
	22	Edgartown, W Tisbury	4,3	MP
	29	IRWS	2	FG+co
May	2	Uxbridge	11	TD+CD
	5	Sherborn	7	RH
	12	East Longmeadow	6	KP
	25	Boxford	1	JB
Jun	10	Sherborn	1	RH
		Juniper Hairstreak		
May	2	*Foxboro	25	BC
	14	Oak Bluffs	6	MP
	17	WELLF	2	TD+CD+MBC
	24	Oak Bluffs	6	MP
Jun	6	Foxboro	1	BC+MBC
Jul	21	Oak Bluffs	2	MP
Aug	7	Oak Bluffs	2	MP
		Gray Hairstreak		
May	20	Oak Bluffs	2	MP
Jun	4	Grafton	1	DP
Jul	11	Uxbridge	2	TD+CD
Aug	16	Sterling,Clinton	3	TD+CD+MBC
	20	Boylston	4	DP

	30	W Tisbury	6	MP
Sep	1,6	W Tisbury	5,5	MP
	12	GOOS	3	BC+co
	13	W Tisbury/Worcester/Upton	2/1/6	MP/ML +SC /TD+CD
	27	Holliston	2	RH
Oct	3	GOOS	1	BC

Early Hairstreak

May	24	Mt Greylock/Heath/Mt Greylock	1/1/1	PW/DPo/BC+co
	25	Mt Greylock	1	DP

Eastern Tailed-Blue

Apr	22	*Gloucester	1	DS+CT
May	18	Gloucester	7	DS+CT
	30	Edgartown	12	MP
Jun	28	Holliston	8	RH
Aug	4	BMBS/Falmouth	6/5	BB+BT/AR
	15	Holland	11	LL+MBC
	30	W Tisbury	40	MP
Sep	1	W Tisbury	85	MP
	12	Northampton/Gill,Northfield	16/14	TG/MF+MBC
	19	Northampton	19	TG
	26	Edgartown/Milford	8/9	MP/RH
Oct	5	GOOS	1	AR

Spring Azure (and other azure species)

Mar	31	BMBS/IRWS	2/2	GH+co/FG
Apr	13	Grafton	21	DP+DSm
	30	IRWS	90	FG+co
May	5	Holliston	35	RH
	15	Gloucester	14	DS+CT
	16	Chilmark	50,30	MP
	23	Falmouth/BMBS/Ipswich	32/23/25	AR+co/TD+CD
+MBC/FG				
Jul	12	Lexington	12	MP
Aug	2	Petersham	8	DSm
Sep	12	Tisbury	1	MP
Oct	5	*Sunderland	1	DC

Silvery Blue

May	14	Sunderland/Merrimac	1/1	DC/BC
	20	Northfield	30	DPo
	24	Holyoke/Clinton	10/10	RP/TD+CD
	26	Gloucester	2	DS+CT
	29	Prescott	25	DSm
Jun	7	Mt Greylock	2	MF
	9	Groveland	1	FG
	11	Gloucester	2	DS+CT

Variegated Fritillary

Jul	22	Edgartown	1	VL
Aug	28	West Boylston	1	TD
Sep	11	Katama	1	MP
	19,20	Florence	2	TG
	20	Monomoy	7	BN+JT
	30	Florence	1	TG

Great Spangled Fritillary

Jun	6	*Charlemont	1	DPo
	28	Newbury	6	SS+MBC
Jul	1	Charlton	7	RH
	9	Mansfield	8	RH
	12	Barre	20	ML+SC
	25	Charlton	19	RH
Aug	8	Barre	8	ML+SC
	26	Florence	6	TG
	30	Barre/Charlton	7/11	ML+SC/RH
Sep	5	CRGRO	7	FG
	13	Upton	10	TD+CD
	29	Northampton	1	TG

Aphrodite Fritillary

Jun	10	*Heath	1	DPo
Jul	1	Charlton	7	RH
	15	Savoy	17	DPo
	19	Monroe	11	DPo
Aug	15	Holland	3	LL+MBC
Sep	5	CRGRO	4	FG
	13	Upton	11	TD+CD

Atlantis Fritillary

Jun	19	Savoy	1	DPo
Jul	4	Savoy	7	DPo
	12	Cummington,October Mtn SF	20,143	TG
	15	Savoy	36	DPo
	19	Monroe	20	DPo
	22	Holliston	1	RH
Aug	9	Florida	5	DPo
	16	Florence	1	TG

Silver-bordered Fritillary

May	24	Tolland	3	TF
	30	Gloucester	5	DS+CT
Jun	6	Gloucester	17	DS+CT
Jul	2	Amherst	7	DC
Aug	14	Gloucester	15	DS+CT
	22	Belchertown	11	ML+SC
Sep	6	Gloucester	14	DS+CT
	13	Athol/Upton	53/95	DSm/TD+CD
	29	West Boylston/Amherst	2/7	TD/DC

Meadow Fritillary

May	7	*Williamstown	1	PW
Jul	3	New Marlborough	1	ML+SC
	5	Greenfield/Gill	2/1	DPo/DSm+DP+MPo
Aug	16	Sheffield	1	ML+SC

Harris' Checkerspot

May	25	*Savoy	1	DPo
Jun	6	CRGRO	1	FG
	10	Sherborn/Shrewsbury/BMBS	1/2/8	RH/BW/CP+co
	14	Barre	2	ML+SC
	21	Royalston	10	CK+MBC
	28	Newbury	1	SS+MBC

Pearl Crescent

May	13	Williamstown	1	PW
	22	Shrewsbury	12	BW
	28	Tisbury	20	MP
Jun	7	CRFAL	32	AR
Jul	25	Grafton/Provincetown	33/**200**	DP/SBa
Aug	2	Upton	39	TD+CD
	16	Edgartown	24	MP
	29	Longmeadow	40	TG
Sep	12	Allens Pond,Westport	23	BC+co
	12	Gill,Northfield	35	MF+MBC
	13	Upton	110	TD+CD
Oct	25	**Northampton	2	TG

Baltimore Checkerspot

Jun	25	Amherst	1	DC
	27	Barnstable	6	JC
Jul	2	Tisbury	6	MP
	5	Greenfield	3	DPo
	13	CRFAL	6	AR
	18	Greenfield	8	DPo

Question Mark

May	20	Northfield	1	DPo
Jun	2	Gloucester	5	DS+CT
	23	Shrewsbury	2	BW
	27	Longmeadow	3	TG
Aug	2	Hadley	3	DC
	2-7	Sunderland	2	DC
Sep	12	GOOS/Penikese I	**178/25**	BC+co/JS+co
Oct	4	Gay Head	11	MP
	17	Westport	4	RH
	21	Holliston	1	RH
	25	Gay Head	2	MP+VL

Eastern Comma

Mar	27	IRWS/East Longmeadow	2,1/1	FG,BS/KP
	28	Mt Tom	**12**	TG
	29	Harvard/Grafton/Holyoke	5/5/4	DP+DSm/DP/TG
Apr	28	East Longmeadow	1	KP
Jun	2	Sandwich	1	AR
	26	Holliston	4	RH
Jul	3	Northampton	5	TG
Aug	16	Hadley	4	CK+MBC
	30	Grafton	3	DP
Sep	27	Bolton	2	ML+SC
Oct	25	Northampton	1	TG

Mourning Cloak

Feb	22	IRWS	1	RW
	27	BMBS/Chilmark	1/1	GH+co/AK
Mar	27,28	Mt Tom	3,9	TG
	30	IRWS	**28**	FG
	31	BMBS	5	CP+co
Apr	12	BMBS	7	GH
	14	IRWS	18	FG
	30	IRWS	10	FG+co
May	18	Falmouth	4	AR

Sep	12	MV/Tisbury/Penikese I	5,7/3/12	AK/MP/JS+co
	12	GOOS	**62**	BC+co
Oct	5	Westport/Outer Cape Cod	3/3	AR/RH
	17	GOOS	5	RH
	20	Heath	1	DPo
Nov	13	Truro	1	JS

Compton Tortoiseshell

Mar	25	IRWS	1	FG
	27	Woburn,Lexington/Hadley	1,1/1	MP/DC
	28	Mt Tom/IRWS/Boxford	**15/7/10**	TG/FG/JB
	30	IRWS	5	FG
Apr	7	IRWS	2	FG
	8	IRWS	2	FG
May	25	Mt Greylock	1	DP+DSm
Jul	2	Amherst	1	DC
	8-11	Holliston	1	RH
Sep	7	W Tisbury	1	MP
Oct	16	Florence	1	TG
	18	IRWS	1	FG

Milbert's Tortoiseshell

May	16	Northampton	1	TG
Jul	25	Savoy	1	DPo
Aug	2,8	Heath	2,1	DPo
	18	Hubbardston	1	DSm
Sep	13	Athol	1	MPo+DS
	16	North Andover	1	PW
	30	Boylston	1	CK
Oct	25	Heath	1	DPo

American Lady

Apr	12	*Chilmark	1	MP
	30	Sunderland/Florence	1/1	DC/TG
May	19	W Tisbury	6	MP
	25	Gloucester	4	DS+CT
Jun	16	Edgartown	5	MP
Jul	13	CRFAL	5	AR
	25	Peru	3	DPo
Sep	12	Gloucester/GOOS	26/46	DS+CT/ BC+co
	17	Mt Wachusett	50	JC
Oct	4	N Monomoy I	31	BN
	17	GOOS	14	RH
Nov	1	Katama	1	MP
	22	S Monomoy I	1	WP

Painted Lady

May	13	Williamstown	1	PW
	14	Merrimac	1	BC+JTy
	22	BMBS	1	JM+co
Jun	2	IRWS	1	FG
	6	Gloucester	1	DS+CT
	15	Oak Bluffs	1	MP
Sep	2	Gay Head	6	MP
	11	Gloucester	5	DS+CT
	12	GOOS	4	BC+co
	19	Edgartown	9	MP

	19-21	Northampton	max 3	TG
Oct	4	Katama/N Monomoy I	2/2	MP/BN
	5	Outer Cape Cod	2	RH
	25	Katama	1	MP+VL

Red Admiral

Apr	12	Gloucester	1	DS+CT
	30	Charlemont	2	DPo
May	26	W Tisbury	2	MP
Jun	20	Gloucester	3	DS+CT
	28	Northbridge	4	RH
Jul	3	Northampton	4	TG
	4	Brimfield	3	ML+SC
	11	Uxbridge	3	TD+CD
Aug	16	Hadley	2	CK+MBC
Sep	12	GOOS/Penikese I	10/6	BC+co/JS+co
	17	Gay Head	4	MP
Oct	3	GOOS	5	BC
	4	N Monomoy	12	BN
	16	Gay Head	6	MP
	17	GOOS	6	RH
	25	Chilmark,Gay Head	1,1	MP+VL
Dec	5	**Edgartown	1	VL

Common Buckeye

Jun	22	Athol	1	DSm+BF
Jul	25	Katama,Edgartown	4	MP
Aug	9	Rowley	1	JB
	13	Off Gay Head	2	MP
	16	Gloucester	1	DS+CT
	19	Tisbury	2	MP
	27	Falmouth	3	AR
	29	Longmeadow	2	TG
Sep	12	GOOS	8	BC+co
	12	Dartmouth/Penikese I/Chilmark	6/4/1	BC+co/JS+co/AK
	18	GOOS	6	RH
Oct	4	N Monomoy I	2	BN
	25	Katama	2	MP+VL
Nov	1	Katama	1	MP

White Admiral (banded form of Red-spotted Purple)

Jun	19	Savoy	8	DPo
	21	Royalston	5	CK+MBC
	26	Granville	6	TF
Jul	4	Savoy	4	DPo
	28	CRGRO	1	FG
Aug	9	Florida	3	DPo
	28	Grafton	1	DP
	31	Heath	2	DPo
Sep	29	**Heath	1	DPo

Red-spotted Purple (unbanded form of Red-spotted Purple)

May	3	*Holliston	1	RH
Jun	6	Foxboro	9	BC+MBC
	19	Savoy	10	DPo

	22	New Salem/Rowe	5/18	DSm/DPo
Jul	16	Falmouth	3	AR
Aug	8	Rowe,Charlemont,Hawley	3,2,4	DPo
	30	Oak Bluffs,W Tisbury	1,2	MP
Sep	15	Florence	1	TG
	23	Katama	1	MP

Viceroy

May	29	BMBS	3	JM
Jul	26	Grafton	5	DP
Aug	16	Sterling,Clinton	4	TD+CD+MBC
Sep	5	Northbridge	5	RH
	12	Uxbridge/Gill,Northfield	4/4	TD/MF+MBC
	13	Holliston	4	RH
	29	West Boylston	3	TD
Oct	24	**W Newbury	1	FG

Hackberry Emperor

Jul	3	Forest Park, Springfield	3	TG+DSm
Aug	9	Forest Park, Springfield	5	TG
	16	Forest Park, Springfield	3	TG
	22	Forest Park, Springfield	9	TG+MBC
Sep	6	**Forest Park, Springfield	2	TG

Tawny Emperor

Aug	15	**Forest Park, Springfield	1	DC+RP

Northern Pearly-Eye

Jun	26	Holliston	2,1	RH
Jul	3	New Marlborough	11	ML+SC
	12	October Mt SF/Barre	3/10	TG/ML+SC
	15	Savoy	3	DPo
	28	Royalston	2	CK
Aug	1	FANST	2	TG+MBC
	22	Northbridge	1	RH

Eyed Brown

Jun	20	*Braintree	1	BC
Jul	10	Sherborn	3	RH
Aug	2	East Longmeadow	1	KP
	22	FANST	2	TG+MBC
Sep	5	Northbridge	1	RH

Appalachian Brown

Jul	3	Springfield	1	TG+DS
	13	Northbridge	5	RH
	30	W Tisbury/Gloucester	8/8	MP/DS+CT
Aug	8	W Tisbury	2	MP
	16	Longmeadow	3	TG
	20	Gloucester	3	DS+CT
	25	Gloucester	1	DS+CT

Little Wood-Satyr

May	27	Grafton	61	DP
	28	Framingham	a few hundred	BC
	29	BMBS	48	JM
Jun	2	E. Sandwich	30	AR
	3	Falmouth	38	AR

	4	Oak Bluffs	30	MP
	5	Washburn Island	43	AR
	6	Mansfield,Raynham,Foxboro	120	BC+MBC
	9	CRGRO	50	FG
	10	BMBS	36	CP+co
	28	Newbury	20	SS+MBC
Jul	6,7	Gloucester	50	DS+CT
	30	Gloucester	4	DS+CT
Aug	22	**Northbridge	1	RH

Common Ringlet

May	14	*Northampton	3	TG
	26	IRWS	102	FG
	30	Uxbridge	91	TD+CD
Jun	3	Uxbridge	42	CP
	6	Gloucester/Foxboro/Ipswich	33/16/12	DS+CT/ BC+MBC/JB
	21	Royalston	153	CK+MBC
Aug	3	Gloucester	25	DS+CT
	8	W Tisbury	20	MP
	15	Holland	63	LL+MBC
	16	Sheffield/Sterling,Clinton	25/19	ML+SC/TD +CD+MBC
	30	Barre	33	ML+SC
Sep	19	Northampton	1	TG

Common Wood-Nymph

Jul	2	Williamstown	1	PW
	9	Mansfield	20	RH
	13	CRFAL	44	AR
	18	Katama/BMOOR	60/34	MP/BB
Aug	7	Edgartown,Oak Bluffs	16,20	MP
	8	Gloucester	83	DS+CT
	9	Rowley	140	JB+MBC
	21	Pasque I	63	AR
Sep	17	Pasque I	3	AR
	26	Heath	1	DPo
	27	Holliston	1	RH

Monarch

May	5	MV	1	AR
	19	BMBS/Edgartown	1/1	GH/MP
Jul	18	Katama	10	MP
Aug	16	Katama	30	MP
Sep	1	Katama	80	MP
	11	Gloucester	500	DS+CT
	12	GOOS/Gay Head/Penikese I	440/150/65	BC/MP/JS+co
	12	Gill,Northfield	15	MF+MBC
	17	Gay Head	400	MP
	24	Gloucester	94	DS+CT
	28	Woods Hole	137	AR
Oct	3	Chappaquiddick	150	AK
	3	GOOS/Gloucester	**1700**/147	BC/DS+CT
	4	N Monomoy I/Gloucester	400/123	BN/DS+CT
	17	GOOS	50	RH
	25	Northampton/MV	1/30	TG/MP+VL
	26	Sunderland	1	DC

Silver-spotted Skipper

May	14	* Sunderland	1	DC
	24	Montague	3	MF
Jun	9	Groveland	6	FG
Jul	1	Charlton	12	RH
	6	Florence	18	TG
	12	Florence/Gill	19/9	TG/DPo
	13	CRFAL	30	AR
	25	Gloucester/Charlton	18/12	DS+CT/RH
	26	Sterling,Clinton	23	TD+CD
Aug	22	FANST	5	TG+MBC
Sep	19	**Florence	2	TG

Long-tailed Skipper

Sep	6	Ipswich	1	JB
	26	Morris I,Chatham	1	BN+JT

Hoary Edge

Jun	21	Grafton/Florence	2/1	DP+DSm/TG
	27	Milford	5	RH
Jul	1	Charlton	18	RH
	2	Amherst	1	DC
	24	Milford	2	RH
	25	Charlton	2	RH

Southern Cloudywing

Jun	7	Falmouth	1	AR+JS
	10	Holliston	1	RH
	21	Grafton	2	DSm+DP
	25	W Tisbury	6	MP
Jul	3	W Tisbury	3	MP
	3,4	Florence	1	TG
	10	W Tisbury	1	MP

Northern Cloudywing

May	28	Gloucester	1	DS+CT
Jun	3	Gloucester	12	DS+CT
	5	Holliston	4	RH
	10	BMBS	6	CP+co
	21	Grafton	6	DSm+DP
Jul	5	Gill	1	DSm+DP+MPo
	9	Mansfield	1	RH

Dreamy Duskywing

May	2	Uxbridge	2	TD+CD
	12	W Tisbury,Edgartown	2,2	MP
	19	Northfield	4	DPo
	22	BMBS	26	JM+co
	26	IRWS	6	FG
Jun	2	Shrewsbury	5	BW
	23	Easthampton	3	TF
	24	Grafton	1	DP

Sleepy Duskywing

Apr	22	*Great Blue Hill	5	BC
	29	Gloucester	2	DS+CT
May	12	Edgartown	fairly common	MP
	15	Sunderland	1	DC

	19	Edgartown	3	MP
	21	Belchertown	2	DSm
Jun	6	Chilmark	1	MP

Juvenal's Duskywing

Apr	18	*Westfield	1	TG
	21	Tisbury	5	MP
May	1	BMBS	14	GH
	5	Gloucester	23	DS+CT
	14	Holliston	13	RH
	16	New Salem	105	DSm
	27	Edgartown	9	MP
	29	Mashpee	18	AR
	30	Petersham	10	DSm+MBC
Jun	10	BMBS	3	CP+co
	23	Easthampton	2	TF

Horace's Duskywing

Jul	12	Woburn	2	MP
	25	W Tisbury	1	MP
Aug	2	Chilmark	1	MP
	24	Mansfield	1	RH

Wild Indigo Duskywing

Apr	29	BMBS	1	CP
May	25	Holyoke	"hundreds"	RP
Jun	4	Oak Bluffs	5	MP
Jul	24	Milford	10	RH
	26	Boylston	17	TD+CD
	28	CRGRO	15	FG
	29	Falmouth	30	AR
Aug	4	BMBS	13	BB+BT
	19	Falmouth	15	AR
Oct	16	**Northampton	1	TG

Common Sootywing

Apr	30	*Florence	1	TG
May	19	Grafton	2	DP
	20	Northfield	4	DPo
	24	Clinton,Framingham/Westfield	3,2/4	TD+CD/TG
Jul	5	Deerfield	3	DPo
	25	Grafton	3	DP
Aug	29	Amherst	2	DC

Arctic Skipper

May	20	*BMBS	2	JM+co
	24	BMBS	3	GH+co
	26	Williamstown	1	PW
	27	WMWS	3	CK
	29	Chelmsford	5	BC
	30	Savoy	2	DPo
Jun	3	Groveland	1	FG

Least Skipper

May	31	Chilmark	1	AK
Jun	20	Woods Hole/Chilmark	7/5	AR/AK
Jul	3	New Marlborough	10	ML+SC
Aug	14	W Tisbury	20	MP
	20	Edgartown	12	MP

	22	FANST	41	TG+MBC
	30	Chatham/Edgartown	16/20	JS+BN+JT/MP
Sep	19	Northampton	16	TG
	26	Edgartown	13	MP
	28	Northbridge	1	RH
		European Skipper		
Jun	6	Foxboro	120	BC+MBC
	19	Mansfield	273	RH
	20	Broadmoor	420	BB
	21	Grafton/Royalston	405/245	DSm+DP/
CK+MBC				
	22	Oak Bluffs	200	MP
Jul	1	Gloucester	158	DS+CT
	3	New Marlborough	300	ML+SC
	6	Oak Bluffs, Tisbury	20,20	MP
	12	N Worc Co cnt - Mt Wachusett	198	TD+CD+JC
	15	N Berk Co cnt,	36	RH
		Fiery Skipper		
Oct	5	Truro	1	RH
		Leonard's Skipper		
Aug	22	Uxbridge	1	TD+CD
Sep	1	Oak Bluffs, W Tisbury, Edgartown	18,4,5	MP
	11	Oak Bluffs	27	MP
	13	Upton	7	TD+CD
	13,17	Wellfleet (along 2-3 mile bike path)	38,42	CK
	17	Pasque Island	14	AR
	26	Milford/Barre	1/2	RH/ML+SC
	27	Chilmark	2	MP
		Cobweb Skipper		
May	12	W Tisbury, Edgartown	1,1	MP
	15	Turners Falls	6	TG
	19	Edgartown	20	MP
	20	BMBS	3	GH
	24	Holden/Oak Bluffs/Florence	3/1/14	TD+CD/MP/TG
	27	Edgartown	2	MP
	29	BMBS	1	JM
		Indian Skipper		
May	30	Petersham	6	DSm+MBC
Jun	4	Oak Bluffs	7	MP
	6	Charlemont	1	DPo
	10	Oak Bluffs/BMBS	2/2	MP/CP+co
	20	BMOOR/Wenham	1/1	BB/FG
		Peck's Skipper		
May	20	BMBS	2	GH
	23	BMBS	8	TD+CD+MBC
	28	Tisbury	12	MP
	30	Upton	12	TD+CD
Jul	25	Peru	55	DPo
Aug	4	Oak Bluffs	11	MP
	9	East Longmeadow	13	KP
	29	Longmeadow	31	TG
Sep	17	Oak Bluffs	3	MP

Oct	5	Sunderland/Florence	1/1	DC/TG
		Tawny-edged Skipper		
May	21	*Tisbury	1	MP
	26	IRWS	3	FG
	30	Uxbridge	6	TD+CD
Jun	6	Charlemont	2	DPo
	10	Oak Bluffs	3	MP
Jul	9	Mansfield	3	RH
Aug	15	Holland	4	LL+MBC
	22	Ware	3	ML+SC
	26	Oak Bluffs	3	MP
Sep	19	Florence	1	TG
	20	Framingham	1	TD+CD
		Crossline Skipper		
Jul	1	Charlton	1	RH
	2	Oak Bluffs	5	MP
	3	W Tisbury	6	MP
	9	Mansfield	5	RH
	10	Holliston/Oak Bluffs,W Tisbury	1/3,4	RH/MP
	19	Boylston	4	DP
	25	Charlton/Oak Bluffs	2/1	RH/MP
Aug	2	Upton	2	TD+CD
		Long Dash		
May	22	BMBS	4	JM+co
	30	Uxbridge	12	TD+CD
Jun	3	Edgartown	7	MP
	10	BMBS	9	CP+co
	11	Gloucester	6	DS+CT
	16	Edgartown	6	MP
	24	Grafton	10	DP
Jul	18	BMOOR	1	BB
	19	Monroe	1	DPo
	28	CRGRO	1	FG
Aug	16	Sterling,Clinton	4	TD+CD+MBC
	19	Oak Bluffs, Tisbury	2,2	MP
Sep	6,13	**W Tisbury	2,1	MP
		Northern Broken-Dash		
May	29	Chelmsford	1	BC
Jun	28	Northbridge	1	RH
Jul	10	Petersham	4	DSm
	11	Shrewsbury	6	BW
	12	Lexington/Barre	9/20	MP/ML+SC
	21	Oak Bluffs	5	MP
	25	Amherst	10	DC
Aug	2	Petersham	3	DSm
	8	W Tisbury	1	MP
	15	Holland	1	LL+MBC
		Little Glassywing		
May	28	Florence	1	TG
Jun	20	East Longmeadow	1	KP
	28	Framingham	2	TD+CD+MBC
Jul	3	Millbury/Florence/Holliston	1/4/1	DP/TG/RH
	9	Prescott	5	DSm

	21	Prescott	2	DSm
Aug	9	East Longmeadow	2	KP
	24	Mansfield	2	RH
		Delaware Skipper		
May	31	*Northampton	1	TG
Jun	20	Wenham	1	FG
Jul	9	Mansfield	2	RH
	10	Barre	2	CP
	24	Shrewsbury	3	BW
	25	Uxbridge	1	TD
Sep	23	Northampton	1	TG+DC
		Mulberry Wing		
Jul	5	Foxboro 4thJuly cnt	1	TD+CD
	15-27	Gloucester	max 5	DS+CT
Aug	1	Gloucester	1	DS+CT
		Hobomok Skipper		
May	19	Sunderland/BMBS	1/1	DC/GH
	23	BMBS/Amherst	14/6	JM+co/DC
	30	Petersham	8	DSm+MBC
Jun	3	Groveland	8	FG
	3,9	Oak Bluffs	9,9	MP
	6	Chilmark/Gloucester	5/7	MP/DS+CT
	10	BMBS	8	CP+co
	25	Gloucester	3	DS+CT
Jul	5	Gill/Leyden	1/1	DSm+DP +MPo/DPo
		Zabulon Skipper		
Aug	1	Forest Park, Springfield	1	TG+MBC
	8	Forest Park, Springfield	7	TG
	9	Forest Park, Springfield	3	TG
	22	Longmeadow	5	TG+MBC
		Broad-winged Skipper		
Jul	19	Ipswich	7	BS+co
	20	Petersham	8	DSm
	23	Wenham	14	FG
	27	Gloucester	10	DS+CT
Aug	2	Chilmark	21	MP
	5	Gloucester	7	DS+CT
	22	FANST/Newburyport	1/1	TG+MBC /ML+SC
		Dion Skipper		
Jul	15	Savoy	1	DPo
		Black Dash		
Jul	5	Gill/Greenfield	1/1	DSm+DP+MPo/DP0
	12	Lexington	1	MP
	20,27	Gloucester	2	DS+CT
Aug	1	Gloucester	2	DS+CT
		Dun Skipper		
Jun	27	Oak Bluffs	1	MP
Jul	4	Oak Bluffs	12	MP
	9	Prescott/Mansfield	13/9	DSm/RH

	10	Edgartown	16	MP
	15	Savoy	7	DPo
	18	Katama	14	MP
	25	MV/Charlton	11/10	AR+MP/RH
	26	Boylston, Sterling	15/30	TD+CD
Aug	15	Holland	3	LL+MBC
	25	Edgartown	1	MP

Dusted Skipper

May	23	BMBS/Easthampton	4/1	TD+CD+MBC/TF
	24	Holden	11	TD+CD
	27	Shrewsbury	5	BW
Jun	1	Barre	11	CP
	6	Foxboro	6	BC+MBC
	19	Mansfield	1	RH

Pepper and Salt Skipper

May	20	BMBS	2	JM+co
	23	BMBS	4	TD+CD+MBC
	29	BMBS	2	JM
	30	Savoy	3	DPo
Jun	7	Mt Greylock	2	mf
	21	Ashfield	1	DPo
	22	Heath	1	DPo

Common Roadside-Skipper

May	16,18,21	*Sunderland	1,2,2	DC
	22	Florence	1	TG
	24	Westfield	2	TG

Ocola Skipper

Sep	20	Florence	1	TG

In the Spring of 1998, Chris Phillips prompted interested butterfliers with access to e-mail to post their butterfly observations to each other. If you have an e-mail account and want to know what's going on around the state, you can email Chris at "chris@dharma.org" to get connected. It's a great way to know what butterflies are flying.

1998 Fourth of July Butterfly Counts

A = Northern Berkshire County (M Fairbrother)
B = Central Berkshire County (T Tyning)
C = Southern Berkshire County (R Laubach)
D = Central Franklin County (M Fairbrother)
E = Lower Pioneer County (R Pease)
F = Northern Worcester County (G Howe)
G = Concord (R Walton)
H = Ipswich (B Speare)
I = Foxboro (B Cassie)
J = Bristol County (M Mello)
K = Outer Cape Cod (J Sones)

Common Name	A	B	C	D	E	F	G	H	I	J	K
Black Swallowtail	6	5	9	6	1	7	2	7	5		
Eastern Tiger Swallowtail			11	6	4	59	10	19	6		4
Canadian Tiger Swallowtail											
Spicebush Swallowtail			1	13		17	2	4	1	12	17
Mustard White		1									
Cabbage White	35	31	69	41	3	57	17	36	83		224
Clouded Sulphur	149	97	238	253	5	216	27	31	57		10
Orange Sulphur	19	7	36	18	7	13	7	21	17	3	7
American Copper		4	1	39		600	28	69	424		263
Bog Copper				33		5	12				
Coral Hairstreak	3	6	2	3	1	4	5		10		4
Acadian Hairstreak	1	2				7			3		
Edwards' Hairstreak						2	2		7		
Banded Hairstreak	2	2		1		10	1	1	7		1
Hickory Hairstreak	1		1								
Striped Hairstreak	3	6	1	2		4	1	1	1		4
Gray Hairstreak				1		10	4		3	1	7
Eastern Tailed-Blue	1		3	9	3	17	3	2	38	1	17
Summer Azure	6	4	6	1		35	16	6	19		5
Great Spangled Fritillary	34	12	16	45	4	47	12	20	23	4	
Aphrodite Fritillary	41	2	2	18		17		3	1		
Atlantis Fritillary	64	11		1							
Silver-bordered Fritillary			9	4		11	4		4	1	
Meadow Fritillary	2		2	39		2					
Pearl Crescent	10	3	72	5	9	27	15	28		11	
Baltimore Checkerspot	2			51		2			295		
Question Mark	2	4	5	2		2	1	2			1
Eastern Comma	7	1	2	3				3			
Compton Tortoiseshell	4										
Mourning Cloak	7	1	1	3		4		4		1	
Red Admiral	6	4	3	4		3	1	5	1		1
American Lady	2		2	4		13	4	7	9	2	8
Red-spotted Purple	13	5	4	1					1		
White Admiral					1						
Viceroy		1	4	4	1	6		5		8	
Hackberry Emperor			2								
Northern Pearly-Eye	10	11	1	2		3	3				
Eyed Brown	4		18	6			9	1	1		
Appalachian Brown	1			2		1	10	1		2	8
Little Wood-Satyr				4	1	10	22	11	11	1	31
Common Ringlet				3		2				2	

Common Name	A	B	C	D	E	F	G	H	I	J	K
Common Wood-Nymph	51	108	483	10	10	12	36	39	29	1	91
Monarch	12	11	61	9	2	26	11	17	12	2	17
Silver-spotted Skipper	17	6	9	62	3	136	13	28	21	2	71
Hoary Edge						2			3		
Southern Cloudywing				6		1					
Northern Cloudywing				1							
Wild Indigo Duskywing				2	33	6				3	1
Common Sootywing			2	4	1		3		1		
Least Skipper	8	3		12		1		1	3		3
European Skipper	50	123	4	18		321	1	2	260	1	41
Peck's Skipper	22	15	9			2				2	
Tawny-edged Skipper	4	3		3	1	2					
Crossline Skipper	2	1		5		9	1		4		15
Long Dash		4		4		1			1		1
Northern Broken-Dash	15	4	16	13	2	34	6	21	6	1	5
Little Glassywing		6	2	7	1	24	11	11	9		10
Delaware Skipper	7		4	13		16	6	2	12		1
Mulberry Wing			15		3	3	20		1		
Hobomok Skipper		2		4					2		
Broad-winged Skipper					1			7		2	
Dion Skipper	2										
Black Dash	2		7	3		9	9		4		
Dun Skipper	25	17	44	25	3	37	10	15	1	4	83
Total # of Individuals	664	533	1177	834	110	1856	345	430	1396	67	951
Total # of Species	40	35	39	51	23	50	37	33	40	22	29
Total # of Participants	6	7	11	11	1	25	18	12	14	4	
Total # of Party Hours	34.3	22.8	35.5	39	6.2		18	34	26.5	4	
Count Date	7/15	7/11	7/18	7/5	7/18	7/12	7/11	7/19	7/5	7/22	7/12

Compiler Tom Dodd

Butterfly Checklist Available

MBC's "Checklist of the Butterflies of Massachusetts," compiled and edited by Tom Dodd, is something every butterflier should have along on field excursions. Over 19,000 recent Massachusetts butterfly records are the basis of this checklist. An extraordinary amount of information is packed into this listing, the first of its kind ever available for the state. The checklist includes all species, their flight dates, their relative abundance, and highest population densities. A map pinpoints major and minor data collection areas in the state. Copies are available at $1.00 each from the club. Please send a stamped envelope with your order, and a check payable to Massachusetts Butterfly Club, to Tom Dodd, 33 Mechanic Street, Upton, MA 01568. You will be glad you did!

On Watch for the Sachem Skipper

Harry Pavulaan

Thanks in part to a succession of mild winters throughout the 1990's, we have witnessed an increasing number of reports of rare seasonal migrants into southern New England over the past several years. I also attribute part of this increase to the growing number of dedicated butterfly observers, many of whom have developed a knack for knowing precisely where to be at the right moment. The use of email also alerts a wider number of naturalists to biological "events" than previously possible. These factors produced numerous sightings of species such as the Checkered White, Long-tailed Ocola and Fiery Skippers, once considered "lifers" in New England, but which now have almost come to be expected. We've also seen reports of the Gulf Fritillary and Sachem Skipper, previously unreported from the region, and the 1993 and 1998 mass movements of the Cloudless Sulphur.

Among these species, the Sachem Skipper, *Atalopedes campestris*, perhaps better called the "Clown", deserves special mention. Prior to 1995 this remarkable little creature was known only as far north along the east coast as the New York City metropolitan region, and from two records around Ithaca, N.Y. Rick Cech (1993) describes the Sachem as: "A regular breeder in southern New Jersey, but rare and irregular near New York; reported here in 1991 and 1992 after a lengthy absence." Extreme flight dates are given as July 25 through October 29. Arthur Shapiro's earlier work (1974) describes it as, "A much rarer immigrant than the Fiery Skipper..." in New York, though there were historical records from across much of Long Island. Oddly, the Sachem was never reported from New England, even in far southwestern Connecticut, where the species could reasonably be expected to occur. This is not to say it has never occurred here, just never reported, except for an unconfirmed report that the species was once found somewhere in New Hampshire!

For several years beginning in the early 1990's, winters took a turn for the milder. Despite several modest outbreaks of arctic weather in the northeast over the period, the southeastern overwintering stronghold of the Sachem remained relatively mild, apparently allowing the species to multiply way beyond normal numbers. In 1995 the species experienced a major springtime population irruption in the southeast, as far north as northern Virginia, where the species apparently overwintered in large numbers. The overwintering stage is the caterpillar, which weaves a small silken shelter among its host grasses. There was some question as to whether these caterpillars were capable of withstanding winters as far north as the nation's capital, but the hoards of freshly-emerged adults cavorting in the fields of Fairfax County, Va., in mid-May of that year provided an answer. If this was any indicator, Sachems were emerging in unusually large numbers throughout the mid-Atlantic region west of Chesapeake Bay, where they are normally common in summer. This immediately set the stage for a major northward movement that reached well up into southeastern Massachusetts by early summer.

The first 1995 reports for Massachusetts came from Martha's Vineyard. Paul Miliotis reported an individual from West Tisbury on July 1, and a second report came from Chilmark on July 4, reported by Allan Keith. The Martha's Vineyard reports seemed to indicate that the species was making headway along the immediate coast, possibly having flown over open water from Long Island. Additional reports came in from Hingham, further up the coast on August 8, by Brian Cassie and Trevor Wright, with a final report from Tom Dodd on Sept. 27-28, from Sudbury, well inland. This latter report could well have been indicative of a native brood, as opposed to more migrants.

Though the Sachem was not reported in Massachusetts in 1996, it continued to be unusually common again in much of the mid-Atlantic region, being found as far north as New York City and environs. 1997 again saw a repeat, but that year, the Sachem was once again reported from Massachusetts by Tom Dodd, but only as a late-season stray in Uxbridge, on September 20.

My own observations here in Fairfax County, Va., recorded what may have been the largest documented brood of the skipper ever, in 1998. Beginning with major emergence in May, the species irrupted during the second brood in July, outnumbering all other butterfly species combined. The third brood, emerging in mid-August, topped all expectations, and irrupted into phenomenal proportions by early September. The species was found to be swarming by the thousands in virtually all open areas in the mid-Atlantic region, from the Virginia Tidewater region north to the nation's capital, overwhelming suburban flower gardens. Despite such numbers, the species made only a modest showing in the New York City region, and eluded detection in New England. Just not a good year for migration.

Such events portend to continued migrations in the future, some of which may again reach Massachusetts at infrequent intervals. However, the species may easily be overlooked or misidentified. A few basic observational techniques are outlined below, and may help observers both find the species, and make a positive identification. Sachems can be found in virtually any open area. They are especially fond of open grassy fields, scrubby old-growth fields, especially along powerlines, railroad tracks, highways, coastline, and near rivers or other linear features, which may aid in channeling migrations. They can be observed in any suburban butterfly garden and may even be seen laying eggs on lawns. Kentucky Bluegrass, *Poa pratensis*, and Red Fescue, *Festuca rubra*, are commonly-used host grasses, as well as Northern Crabgrass, *Digitaria sanguinalis*. Other host grasses include: Saltgrass, *Distichlis spicata*, Yardgrass, *Eleusine indica*, and Columbian Panic Grass, *Panicum columbianum*, though additional grasses may well be used. Sachems will generally be found where there are abundant nectar sources. The species will visit virtually any wild or cultivated flowers which are known to attract other butterflies or bees. Lavender-colored flowers such as knapweed and *Liatris* are among the favorites, but any Buddleia seems to be the top favorite. During mid-summer, Sachems would literally swarm over my Buddleia here in northern Virginia, becoming a nuisance on occasion.

I suggested that this skipper is more appropriately called the "Clown". Sachems appear to be playful little creatures and perform a range of lively clownish antics. The males commonly give chase to other Sachems or even to other small gold-colored skippers. Often, several males may be involved in an apparent game of tag, wildly chasing each other in jet-fighter fashion throughout a garden or weed field. When the "prey" they are chasing lands to nectar, male Sachems may land on the same flower and stare down their nectaring companion face to face, only to continue the chase when the companion flies off. Often, males will fly from flower to flower, landing near males or females of the same or other species, nervously vibrating their wings, seemingly to attract attention, much as a young puppy would behave when excited. When a garden is full of Sachems, these antics are amusing to observe, but may frighten off some of the more skittish butterflies.

This behavior is actually part of an aggressive courtship strategy. The males are in constant courtship, dividing their time between nectaring and pursuing females or anything that looks or flies like a female, including other males or other species. The tag games are often led by a fleeing female, which are almost continually being courted or "tended" by males. The females by themselves are comparatively sedentary, generally perching and feeding on flowers. However, during certain portions of the day, females have a constant, relentless following of males, who stalk the females with every movement. At these times, the females are never at rest. Frequently, several males will be vying for a female's attention

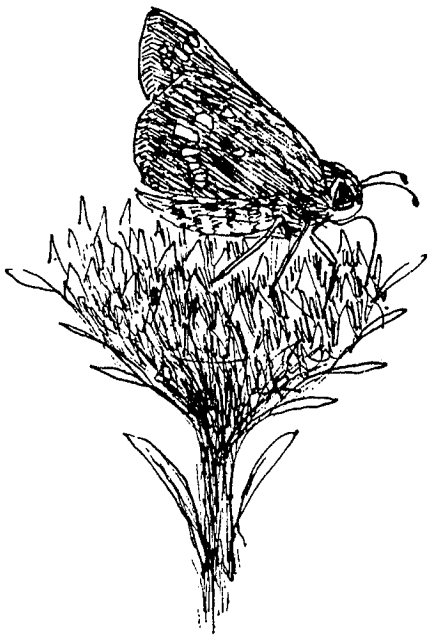
on a flower. Eventually, when she is subdued, one male or several will attempt to couple with the female, sometimes successfully, sometimes not. In the absence of females, I have observed males attempting to couple with other Sachem males, and with both sexes of Peck's Skipper. No doubt other similar species are similarly approached.

Males are conspicuous by the large round black patch in the center of the upperside forewing. This is the defining feature. If you have a copy of Opler & Malikul's A Field Guide to Eastern Butterflies, the male drawing is excellent (Plate 46 in the 1992 edition, plate 37 in the 1998 edition). Note the large patch that is the trademark of the male Sachem. This patch is immediately evident when the males are at rest, with wings folded open in jet-fighter mode. The hindwings will be flat out at the sides, and the forewings will be at about a 45 degree angle to the hindwings. Males of several other skipper species may have large a black dash or stigma, but these are always dashes of varying sizes and shapes.

Beneath, the males can be confused with other species and the males' habit of resting with wings closed half of the time can make identification an exercise in frustration. Glassberg's Butterflies Through Binoculars (1993) shows an excellent plate of a typical resting male (Plate 32, No. 7). The male underside is characterized by a "ghost" pattern of light and dark shades of yellowish orange brown. By examining photos of the resting males of several other species, one can become familiar with the subtle wing details of the underside hindwing. In summer, a Sachem male may have lighter hindwings beneath, infrequently appearing entirely golden, and appearing remarkably like a Delaware Skipper beneath. Thus, never immediately assume a Delaware Skipper is a Delaware Skipper. Give it a hard second look. These "golden" males may also be confused with the immaculate variety of the male Fiery Skipper, in which the characteristic black spots of the male underside hindwing are nearly or wholly absent.

The females are somewhat more difficult to distinguish from several other species, including the Fiery Skipper, Indian Skipper and Long Dash, all of which have fairly similar upper and undersides at a glance. Glassberg shows an excellent female closed-wing resting pose (Plate 32, No. 10), but the upperside photo (Plate 32, No. 9) is not very definitive, though the typical open-wing pose is shown. Opler & Malikul show a much better depiction of the female upperside markings (Plate 46 in the 1992 edition, plate 37 in the 1998 edition), though the pose is for a pinned specimen. However, the 1998 edition shows an excellent open-wing pose on page 380. The best bet is to familiarize oneself with Glassberg's closed-wing pose (Plate 32, No. 10) photo. Note the grainy texture to the wing markings, and the hint of orange along the leading edge of the tucked-back forewing. This is characteristic of female Sachems. However, the ground color of the hindwing beneath is also considerably variable, and some summer females may often appear pale beneath, looking remarkably similar to the Indian Skipper shown in Glassberg (Plate 30, No. 7). The fact that the Long Dash and Indian Skippers fly in June, usually rules out those Skippers from July onward, and Sachems generally would not appear in Massachusetts much earlier than July 1, about when the second mid-Atlantic brood begins, unless the species should overwinter in Massachusetts on a very mild winter, producing an adult emergence in May. Only the Fiery Skipper female should pose an identification problem, late in the season. These females generally have a paler brown ground color beneath, similar to the Sachem, but without the grainy look.

A side note: Peck's Skipper seems to have population explosions in concert with the Sachems. This has become evident here in northern Virginia, over the past 4 years. Both species become abundant at the same time, in similar numbers, and fly together in the same habitats, possibly responding in similar fashion to the same climatic conditions. This could be another reason to watch for the Sachem. Happy hunting!



Sachem *Alison Robb*

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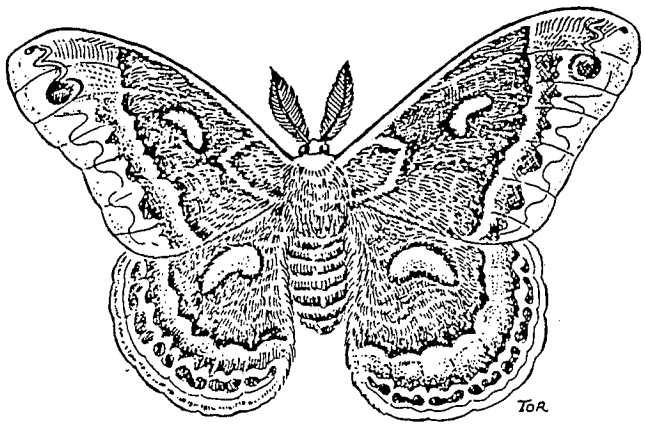
Twinefield Butterfly Cornucopia

Tor Hansen

Reminiscent of the extensive Red Cedar meadows of Eastham, Twinefield today is a rolling grassy sandplain typical of the undulating glacial headland of outer Cape Cod, minus many cedars. It is spotted with isolated thickets of Bayberry, Beach Plum, and Black Cherry, so essential in supporting a surprising bio-diversity including larval Coral and Striped Hairstreaks, Laurel Sphinx and Cecropia Moths. However, the all too invasive Tartarian Honeysuckle, if not selectively managed, will overcrowd these slower growing larval leaf sources, and further reduce insect diversity.



Cecropia Moth

Tor Hansen

So named by fishermen who would retire there to mend their trap nets, Twinefield extends from the DeWire Tract near Pilgrim Heights south across Windigo Lane to Pond Village where it becomes my back yard, south to still more steeply undulating kettle and hogback at Shearwater, and east to the Highland Lighthouse and Horton's Camping Resort, where a prize mosaic milkweed meadow steeped in butterfly diversity nestles in the leeward slope of the glacial scarp that drops abruptly 100 feet to the open Atlantic. Here the width of Cape Cod separating the bay from the ocean becomes a thin wrist in a figurative flexed strongarm less than 2 miles wide.

Only 300 yards inland from my own seaside butterfly garden is a colony of 300 to 500 Baltimore Checkerspot larvae each May. Overwintering as larvae, they thrive on Lanceolate Plantain which sprawls in lush profusion, watered by spring rains. (An account of how I found this colony after an oceanside discovery of some 45 adults, stranded and battered along the Coast Guard Beach tideline in June of 1990, was in *The Cape Naturalist*, 1993-1994, Cape Cod Museum of Natural History). It is reassuring to find them here annually, drawn to Milkweed, Queen Ann's Lace, and Yarrow, and in my own garden on Pink Centrantha.

This is the only known Baltimore mosaic north of Brewster, some 30 miles away, although plaintain is widespread across much of the outer Cape, and has yielded a jewel in genetic phenotype — one female *Euphydryas phaeton suberba*, a double recessive wide white-margined female mating with a typical orange, black & white male, as named by Strecker in 1878 in Ohio. I found another colony, on July 8, 1998, nectaring at Black-eyed Susan and Common Milkweed bordering the glider runway at the airport, Rte. 149, Marstons Mills.

Twinefield is facing housing saturation as more and more 3/4-acre lots are sold and developed. Hopefully the owners will retain the sandplain flora, key to a prospering butterfly diversity. For example, dispersed clumps of Bouncing Bet, whose pink and white blossoms bear deep-seated nectar wells inside the lengthy calyx, by day nectar American Coppers, Coral Hairstreaks, Spicebush and Black Swallowtails, and by night nectar a handful of moths including Laurel and White-lined Sphingids.

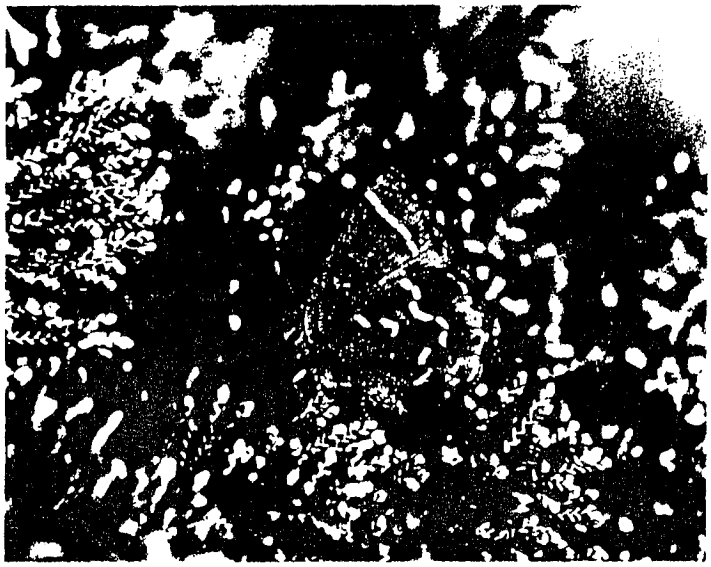
Once almost devoid of vegetation following the relentless need for wood products during colonial expansion, followed next by soil-impoverishing agriculture and sheep grazing, the Outer Cape now hosts the pioneering flora in a thin layer of topsoil. It is for the most part a true dry meadow once again depending on rainfall, seed dispersal, pollinating insects, and forest succession. Extensive acres of Pitch Pines were planted in conservation efforts to reforest the Cape by the Civilian Conservation Corps during the New Deal days of the F. D. Roosevelt administration. Today monotypic pines are growing taller and are interspersed with Black, Red, White, and Scrub Oak, bringing back more insect diversity to an otherwise desert-like habitat, i.e. Scrub Oaks attracting Mourning Cloaks. I have observed 2 adults imbibing fluids extracted from "water wells" (small holes drilled through twig bark to uncover inner fluids).

Twinefield is bordered now and again with Black Locust groves planted by farmers to improve nutrient-poor soil by nitrogen fixing. These shady groves sport lush green grasses and attract Wood Nymphs, Little Wood Satyrs, Question Marks, Red-spotted Purples, and Hobomok Skippers; provide some shade for Baltimore larvae, and add nutrients to support Lanceolate Plantain.

Spring harbingers, as early as April 15 through May, include Brown and Eastern Pine Elfins in Japanese Black Pine, and in Pitch Pine edging fireroads and footpaths. One may see "spot of blue" Spring Azures ovipositing on Highbush Blueberry at woodland edges, and Juvenal's Duskywing and occasional Cobweb Skippers and scarce Hoary Elfins all nectaring in the Bearberry carpet. The woodland fringe is host to those dark dead leaves bursting into whirling light as Mourning Cloaks show their velvety maroon wings edged in gold and blue dots.

With the advancing season, Twinefield nectar oases undergo a natural succession and the butterfly species also. Juniper Hairstreaks appear not widespread, but occur annually in Red Cedar stands, for instance here at Riding Lights, my home. I had great good luck this May 26 in photographing a mating pair far out on a Red Cedar limb by stretching my stance to the limit while standing atop an aluminum step ladder, with one hand pulling their roosting branch into camera range. Had I toppled over, I might have tumbled into the garbage pails below. Mating Juniper Hairstreaks are well worth the risk.

Oxeye Daisies and hawkweeds sprout in waste places and punctuate the grassy fields, nectaring Common Ringlets which have become more common in recent years. In the last 3 years I have witnessed a prolific showing of European Skippers and American Coppers, often seen by the hundreds, nectaring 3 to 4 at a blossom of Queen Anne's Lace. Baltimores still abound here, in triads on Queen Anne's Lace and Yarrow. St. Johnswort nectars next to nothing, but it is host sometimes to the Baltimore's calico "porcelain" chrysalis. Black Swallowtails are abundant and rely on Queen Anne's Lace. With more people turning to butterfly gardening as an alternative way to replenish bio-diversity, garden



Juniper Hairstreak on juniper *Tor Hansen*

favorites include sedums, impatiens, Echinacea, Buddleia, Sickle-leaf Coreopsis, Mexican Sunflower and zinnia. Attracted are Hummingbird Moths, Pearl Crescents, Painted Ladies, Swallowtails, and Monarchs.

If you wonder whether to buy Buddleia, do get one or several of different shades so as not to miss any opportunity. A deep pink Buddleia had been planted in my garden only a few days before a special event: I was photographing at Tilcon Gravel Pit in Eastham, and as the noonday heat was building, and the Northern Broken Dash Skippers were fast in the flowers, I was down on my knees alot and tiring. I listened to an inner voice that said, "Go home." I chose to heed this hunch, saved the Herring River habitat for another day, and drove straight home to find, nectaring at that Buddleia in pristine form, one Great Spangled Fritillary! — a first for me. According to Brian Cassie, *Speyeria cybele* is rare and increasingly uncommon on Cape Cod. It reappeared and nectared repeatedly at the Buddleia during the next hour but was never seen there after that day, August 7, 1998.

Could this orange and greenish-brown splendor have been a caterpillar in my own violets, or how far do the imagos fly, seeking nectaring oases? Could the chrysalis have come attached to the stem of the butterfly bush? Plant violets, yet plant also the Bird-foot wild species with high hopes! Yes, wild violets out in salt marsh edges exist in shady micro-zones and are host to scattered and declining mosaics of the Silver-bordered Fritillary seen at Hatch's Harbor in the Provincelands of Cape Cod National Seashore, also home of the Variegated Fritillary. But I have seen it there in habitat only once. It proved too evasive for the camera and vanished into the shrubbery. One was recorded this July at Horton's Camping Resort in No. Truro.

Butterflies in October

Madeline Champagne

It was late October. In New England the leaves were past their peak colors, and Fall had set in. And there I was, standing in the bright sunshine, watching a feeding frenzy of butterflies on *Eupatorium*. The air was filled with the excited ooh's and ah's of all the observers. Was I dreaming? No, it was real. The day before, I had been in cold, bleak Massachusetts, and now I was at the Butterfly Garden at the Santa Ana National Wildlife Preserve in Texas. We had just finished walking through the semi-tropical thorn forest on boardwalks and on paths through the tall grass, where there was always something in our view, whether it were a special butterfly or dragonfly or bird or caterpillar, and now we were marvelling at the spectacle of butterflies before us.

"In the southern tip of the state of Texas, in a small region known locally as the Rio Grande Valley, exists one of the richest areas for nature on the continent. It is an important migratory route for butterflies and birds, it has a semi-tropical climate with an abundance of native growth, and it is a mecca for butterflying year round." This introduction in the brochure for the Texas Butterfly Festival lured me there, as well as the time of year (my school programs and caterpillars keep me from trips in the spring/summer), the enticing descriptions of the wonderful field trips, the variety of lectures conducted by experts, the affordability of the events, and a special 2-day trip into Mexico following the Festival.

I was in no way disappointed in my expectations about the Festival. The field trips went to a variety of special places, including: Santa Ana, known the world over for its biodiversity (250 species on its butterfly checklist); Toni Trevino's lush ramadero, in the midst of a thorn forest, where he grows native plants; the Wildlife Rescue Center in Zapata; the famous Inn at El Canelo, with fields of wildflowers as far as the eye can see, and featuring the Ferruginous Pygmy-owl.

The butterflies were spectacular. There is no way that pictures can do justice to the breath-taking irridescence of the Blue Wing, or the beauty of the Tiffany-like pattern on the underside of the Giant Swallowtail, or the brilliance of the silver spots of the underside of the Gulf Fritillary, or the delicacy of the pattern of the White Peacock, or the dimunitive size of the Western Pygmy-Blue. And there is no substitute for being there, and listening to the excited exclamations from even the well-seasoned experts. The snouts were abundant, as well as sulphurs, in many varieties of colors and sizes. It was nice to see familiar butterflies like Pearl Crescents and Red Admirals. On the Santa Ana field trip we identified about 40 species, including Queens, metalmarks, fritillaries, Long-tailed and Fiery Skippers, among others. I camped at Bentsen State Park, where the Green Jays and Chachalacas were active, and the butterflies streamed across the roads, gathered on the Texas Olive trees, and drank from the oranges I had at my picnic table.

The well-known experts who led the field trips and conducted the lectures brought an incredible amount of expertise and enthusiasm to the Texas Butterfly Festival. The lectures included all aspects of butterflying, such as identification, behavior, gardening and photography, as well as birding and other nature talks. The keynote speakers were John and Gloria Tveten, naturalists and authors, and Dr. Nancy Greig, Director of the Cockrell Butterfly Center. Other featured speakers were Carrie Cate, naturalist and field guide, Mike Quinn, field guide and photographer, Paul Miliotis, well-known naturalist, and Dr. Timothy Brush, ornithologist. Kathy Clark, butterfly and nature photographer, conducted a photography workshop.

The Nature & Butterfly Expo, with booths for all kinds of books and

butterfly items and binoculars and conservation organizations, and the walk-in butterfly tent, made the Texas Butterfly Festival a complete experience. Joanna Rivera, president of the South Texas NABA chapter, was the Festival Chairwoman and was assisted by many wonderful volunteers. The festival was co-sponsored by the Mission Chamber of Commerce, the South Texas Chapter of NABA, and Eagle Optics.

The 2-day field trip to Monterrey, Mexico, led by Carrie Cate and Mike Quinn, took us to Chipinque National Park, where we investigated the butterflies on garden areas and roadside wildflowers on the way up to the top of a mountain where we spent the night. We were treated to the gracious hospitality of the park staff and members of the Monterrey chapter of NABA. In the morning I took a long walk and found bunches of Monarchs hanging in trees, where they had spent the night. It was beautiful to watch them flutter off as the sun warmed them. Tuesday started out sunny, but late in the morning the fog rolled in. We watched numbers of Monarchs flying under the fog, even flying in the fog as it reached the ground. We were disappointed that the fog continued when we left the mountain, but even in the fog and drizzle on our visit to another park our species list kept growing. Standing under a tree because of the rain, I spied a 2-banded Black Flasher seeking cover also. Our last butterfly was the *Opsiphanes boisduvalii*, a dusk-flying Owl butterfly that had previously not been listed there. Eighty-seven species were identified in our two days in Mexico.

I had one late Monarch caterpillar which became a chrysalis on October 8th, but with the cool weather had still not emerged by the time I left for Texas. So I had made a special box, and had carried the chrysalis with me (I have pictures of it in the airport terminal, on the plane seat, in the cockpit, etc.). I was pleased to learn that the male Monarch butterfly emerged the week after I had returned, well taken care of by a class of 5th graders. I will always wonder if the butterfly had any sense of not emerging in Massachusetts! [I think so! Ed.]

Five days of beautiful butterflies, summer weather, spectacular scenery, opportunities to learn from and get to know the experts, warm Texan and Mexican hospitality, "lifers" for everyone, extremely reasonable expenses, and high levels of enthusiasm made this an unforgettable trip. Maybe I'll see you there next year!

Editor's note:

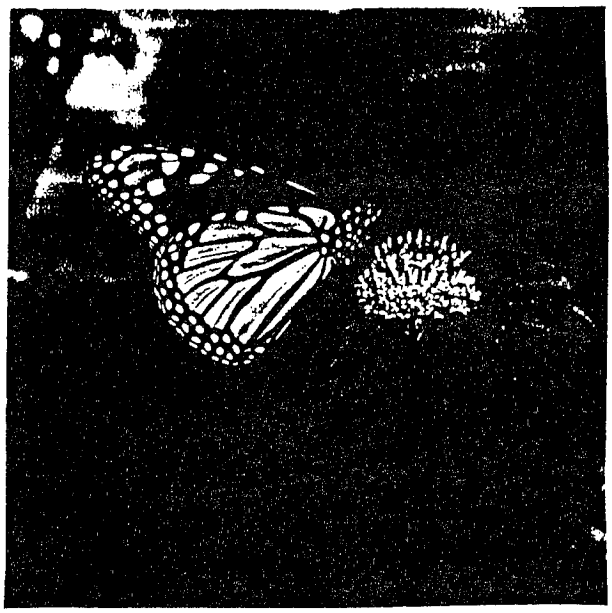
Spelling of species names follows that in the Checklist & English Names of North American Butterflies, published by the North American Butterfly Association (NABA) 1995.

Capitalization within an article:

1. **One species, upper case: American Lady, Painted Lady, Painted Ladies**
2. **Single species referred to above: American Copper > Coppers**
3. **Several species: ladies, coppers, elfins**

1998 Season Sightings and Records

Please send 1998 sightings and records to Tom Dodd by December 1. He will turn all our records into a summary and inclusive tabulated record as has been done in the past.



Monarch on Mexican Sunflower *Tor Hansen*

Thanks to all contributors to this issue. Thanks to Brian Cassie for editorial assistance. Thanks to Dick Hildreth for support on difficult decisions.
And thank heaven it's almost Spring!!
See you out there on every hill and dale. [Ed.]

Butterfly Conundrum

Bob Bowker

The Butterfly's Assumption Gown
In Chrysoprase Apartments hung
This afternoon put on —

How condescending to descend
And be of Buttercups the friend
In a New England Town —

This poem is by Emily Dickinson, dated c. 1873. Emily, though she wrote eleven butterfly poems, never mentioned a single species. Which species do you think the poet was thinking of? What would she have seen in her garden or in the meadow behind her house in Amherst. (She traveled little.) Best guesses will be published in the September issue.

Send to:
Bob Bowker, 15 Indian Ridge Road, South Natick, Ma. 01760
or e-mail to redpoll@earthlink.net

The President's Page

I am writing this at my cabin in the Maine woods. Outside it is cold and gray with snow falling; not the season when people's thoughts usually turn to butterflies. However, during the Winter season, if we get some warm days, be sure to go out and see if you can find flying any of the butterfly species that overwinter as adults — Mourning Cloak, Compton's Tortoiseshell, Eastern Comma. Be sure to record your sightings and turn them in to Tom Dodd as the season goes along; let's see who finds the first butterfly flying in 1999. The Spring butterfly season will soon be here. I believe this is a somewhat neglected season, many butterfliers don't get out early enough. Get out on those warm days of late April and early May. Let us know what you find. Be on the lookout for early Monarchs. Most Monarchs begin to arrive in early Summer, but a few appear much earlier. Those early records are especially interesting.

1998 was a very successful year for the club and a very interesting one for butterfly activity. 1998 club activities included:

- A full schedule of field trips
- A full schedule of **4th of July butterfly counts**
- Well attended club meetings
- Another successful session of the **Butterfly Institute** produced under Gail Howe's leadership at Broad Meadow Brook WLS
- Two excellent issues of *Massachusetts Butterflies*

Much of this winter issue is devoted to describing the 1998 butterfly season. It was an interesting year for southern strays (see the article in this issue by Brian Cassie, "1998 Invasion of Cloudless Sulphurs"). There was a spectacular Fall migration of brush-footed butterflies — Question Mark, Mourning Cloak, Red Admiral. This surprising flight of hundreds was seen at Gooseberry Neck by the participants of Brian Cassie's Massachusetts Butterfly Club trip on September 12 and on the same day by Jackie Sones et al on Penikese Island.

Winter is the time of year when the club officers and staff are busy getting ready for the 1999 season. The 1999 activity list will include a full schedule of field trips, club meetings and 4th of July butterfly counts. I urge all members to actively participate in these events.

The **Butterfly Institute** has been one of the most successful of all club activities, providing basic training for people just getting started in butterflying. It consists of eight evening presentations and eight field trips.The Institute was the brilliant conception of Chris Phillips. When Chris first proposed the program, I thought it was a great idea, but I wondered if enough participants for the program could be found. The people did sign up and the program has enjoyed three very successful years at Broad Meadow Brook WLS. After Chris left Massachusetts Audubon, Gail Howe took over responsibility for the program. This year there will be two Butterfly Institutes: One co-sponsored by the Athol Bird and Nature Club (to be held in Petersham) and one by Broadmoor WLS (Mass. Audubon, South Natick). This will allow the club to bring the program to new participants. In future years I hope to see the Institute held in other parts of the state, eventually rotating back to Broad Meadow Brook. Many thanks to Chris and Gail and all the club members who acted as instructors.

The presence of good numbers of southern strays and the spectacular Fall migration of brush-footed butterflies in 1998 generated a lot of interest. One possible 1999 club project will be to organize a **September Butterfly Watch**, a program to get observers out at strategic, coastal sites in a systematic way to look for the southern strays and migrating *nymphalidae*.

All the Good Things About Two New Butterfly Books

Anyone at least moderately interested in butterflies needs to acquire some good butterfly books — not just one field guide but several, as well as a few books on butterfly behavior, distribution, and ecology. Here are two recent butterfly books — one completely new and the other revised — that belong in your library. They may have a few minor faults (in my opinion) but I will concentrate on their positive aspects. By the way, both books use the common names recommended by NABA. It is great to see a new generation of books emerging with the same English names for butterflies.

The Butterflies of Canada by Ross A. Layberry, Peter W. Hall, and J. Donald Lafontaine. 1998. 280 pages. 32 color photographic plates; spiralbound. University of Toronto Press. About $24.00

The Butterflies of Canada is a terrific new addition to the North American butterfly literature. It has a large format, scholarly text, excellent illustrations, and a very friendly price. The book begins with a series of essays on various topics, from "The History of Butterfly Study in Canada" to "Canadian Geography and Butterfly Distribution" to "Butterfly Systematics." Following these entries are the species accounts, with introductory notes on families and subfamilies. Life history data on all of the 293 Canadian species are given. Specimen dot maps show each species' range in Canada.

Taxonomic changes introduced in this book and of great interest to northeast butterfly watchers include:

- Mustard White, now considered separate from the European *Pieris napi* and named *Pieris oleracea.*
- Arctic Fritillary, formerly considered the same as European species and known as Titania Fritillary. Scientific name changes from *Boloria titania* to *Boloria chariclea.*
- Maritime Copper and Maritime Ringlet, two newly-named species living in Quebec and New Brunswick salt marshes.

To complement the text, 32 color plates portray 520 specimens (plates # 1-20), 40 eggs, caterpillars, or pupae (plates # 21-22), and 80 butterflies in their chosen habitats (plates # 23-32). At 11 x 8.5" this is not a field guide, though the photos are very fine and can be used for identification purposes.

A Field Guide to Eastern Butterflies by Paul A. Opler. Illustrated by Vichai Malikul. 1998. xvii+486 pages. 4 color photographic plates and 35 color artwork plates; paperbound. Houghton Mifflin Co. $20.00

The Opler & Malikul field guide first appeared in 1992 — it was quite good then and it is much better now. Although the text is virtually unchanged, the common names now have been aligned with the NABA checklist. The range maps, previously black and white, are now three-color. Much has been done to improve the color illustrations, also. Malikul's plates are much more brightly reproduced (and he even painted in the missing white mark on the wing of the Salt Marsh Skipper) and that is a big plus. In addition, nine photo plates from the first edition (showing 68 butterflies) have been replaced with 99 photos interspersed throughout the species accounts. Congratulations to the publisher for giving us a much improved second edition of this very popular field guide.

Book Notes

R.W. Hildreth

Usually book reviews deal with new books. In this review I want to mention two old books which people just beginning to be interested in butterflies should know about:

A Field Guide to the Butterflies of North AmericaEast of the Great Plains by Alexander B. Klots. 1951.

This book was one of the early *Peterson Field Guide Series* (No. 4). It was never revised and Alexander Klots died, so Houghton Mifflin replaced it in 1992 with an entirely new book by Paul Oplar, A Field Guide to Eastern Butterflies. While the new 1998 edition of the 1992 book by Paul Opler uses up-to-date terminology, includes a few more species, and has some very useful range maps, I think it is less useful than the Klots guide, especially for beginners. The Klots book is illustrated by color paintings and by some black and white photographs of spread butterfly specimens. The color illustrations range from good to fair, but are all useful as aids to identification.

The strong point of the book is the great amount of information packed into a field guide-size book. Klots is a very clear, interesting writer who can get you excited about butterfly habitats, life zones, nectaring plants, etc. There are two obvious problems with the book: the names used are out of date and the book is no longer being produced. It is sometimes still available in the remainder or used book market at greatly reduced prices. This was the first comprehensive eastern butterfly guide, a true classic. I learned my butterflies from it and still find it useful today. Every butterfly enthusiast should be familiar with this outstanding book.

Butterflies and Moths of Missouri by J. Richard and Joan E. Heitzman. 1987.

This book, a 6 x 9" paperback, published by the Missouri Department of Conservation, includes information regarding all the species of butterflies ever found in Missouri and information about a large number of moth species. This book is illustrated with color photographs of spread specimens. The quality of these photographs is very high. For the butterflies, photographs of both upper and lower sides of both males and females are included. This very useful book is still available from the Missouri Department of Conservation. I strongly recommend that every butterfly enthusiast acquire a copy.

Order from: Missouri Department of Conservation
P.O. Box 180, Jefferson City, MO 65102

Atlas of Adirondack Caterpillars by Timothy L. McCabe. 1991. New York State Museum Bulletin No. 470.

During two field seasons, caterpillars were collected in the Adirondacks. These caterpillars were reared and the last instar described and photographed. Only a few of the caterpillars were of butterflies. 178 species of moth and butterfly caterpillars are covered. The chief value of this work is the collection of quite good black and white photographs of the caterpillars. This is not a book for the average butterfly enthusiast, but may be useful for people interested in finding and rearing caterpillars.

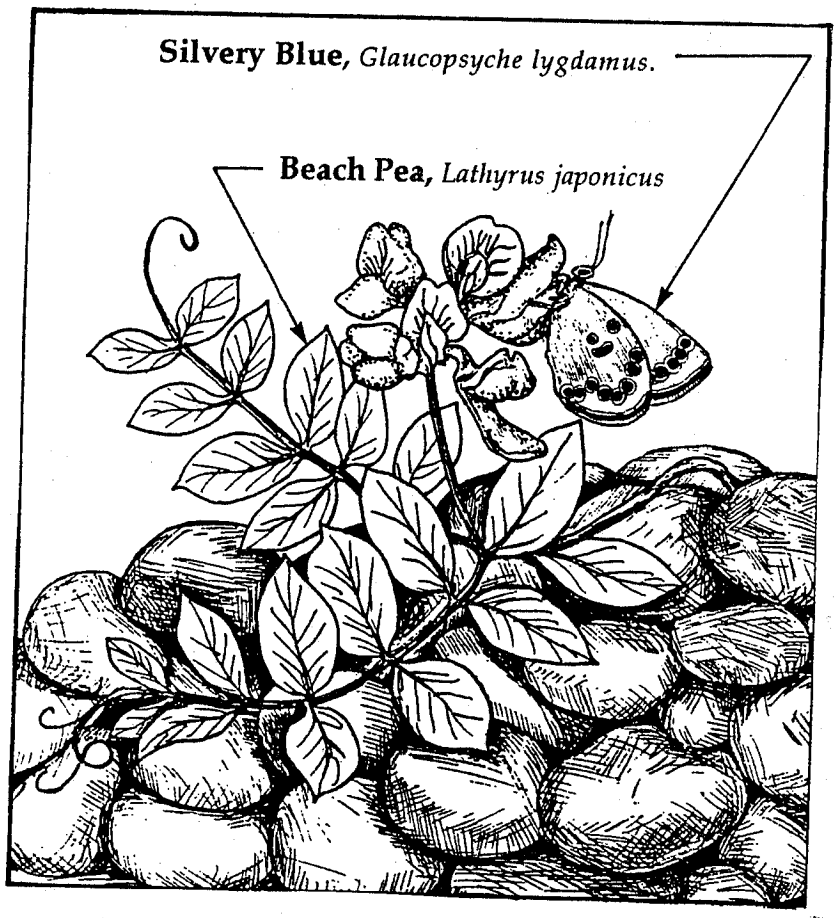
This book may be obtained for ~$20 from Patricia Ledlie Bookseller, Buckfield, ME 04220.

Something to Look For

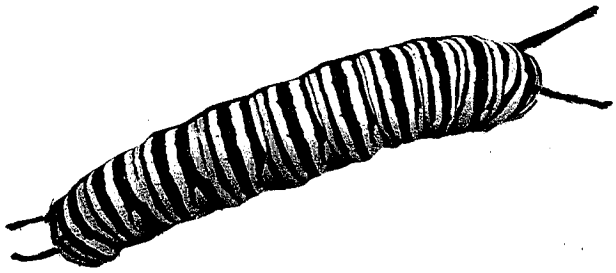
Richard Hildreth

Along the shore in "downeast" Maine and in Atlantic Canada, **The Silvery Blue,** *Glaucapsyche lygdamus,* lays its eggs on **Beach Pea,** *Lathyrus japonica.* For example, on 29 May 1998 I found 22 Silvery Blues laying eggs and nectaring on Beach Pea at Petit Manan National Wildlife Refuge in Steuben, Maine.

Beach Pea is a common seaside plant all along the Massachusetts coast. There is a great patch of it at the southern end of Gooseberry Neck in the Westport area. Let's get out in late May — early June along the beaches and see if we can find some Silvery Blues laying their eggs.



Richard Hildreth



Two Special Nature Tours to Mexico

Brian Cassie will be leading two natural history tours to Mexico in fall 1999 and winter 2000.

The first is to Oaxaca and Palenque in southern Mexico in early November 1999. These are two very beautiful and very different natural regions, with rainforest, savannahs, and rivers in Palenque and mountain forests, brushlands, and desert in Oaxaca. Both areas are famously rich archaeologically and biologically. This tour will concentrate a great deal on birdlife, but butterflies will definitely be looked for and identified.

In January-February 2000 our Massachusetts Butterfly Club will sponsor a trip to south-central Mexico in search of wintering Monarchs and other butterflies and birds of the highlands and lowlands. Early morning walks will focus on birdlife but butterflies will be the focus of most of our later morning and afternoon adventuring. We will visit the internationlly renowned Monarch roosting areas and also get down to the Gulf and/or Pacific lowlands to marvel at the resident swallowtails, hairstreaks, nymphalids, and others.

Both trips will last 10-12 days and be limited in size. Details are being worked out on both. If you would like to get on the mailing list for one or both of these Mexican tours, please call, write, or e-mail Brian soon.

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Auburn, MA 01501-2149

Errata for No. 12

p. 6, line 2, ... one such sighting, in a large cedar stand....

p. 6, last para.:

August 7, one on the cedars behind the hangar at Trade Winds. I also observed several eggs that I believe were of this species, stuck to the undersides of the tips of cedar twigs. A second adult was on one of the cedars at the far end.

p. 13, line 29, ... but one completed its life cycle....

p. 13, line 33, ... may be the island's first records....

p. 14, line 14, ... on a tall verbena.

p. 38, bottom line, ... garden to Pink Centrantha

p. 39, line 4, ... *superba*, a double recessive....

p. 45, line 5, ... Compton Tortoiseshell, ...

p. 47, line 9, ...Paul Opler ....