

Massachusetts Butterflies



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*Cover photo: Viceroy (Limenitis archippus), by Thomas Whelan
Chelmsford, MA, September 9, 2002*

Keeping Track of Scaled Jewels: The Maine Butterfly Survey

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Good morning everyone. Thank you for inviting me to discuss the initial stages of a statewide butterfly atlas effort in Maine. Modeled largely after the nearly completed Maine Damselfly and Dragonfly Survey (MDDS), the Maine Butterfly Survey is intended to be a 5-year, state-sponsored, volunteer atlas initiative. I want to stress that we are at the early planning stages of the project and certainly hope to benefit from the advice of other New England states, such as Connecticut and Vermont, that have experience with volunteer-driven butterfly surveys. Please also note that I am speaking today on behalf of a third collaborator in this effort, Dr. Ronald Butler from the University of Maine at Farmington.

The information conveyed in Figure 1 is likely something that many of you have been exposed to in previous form but it is worth revisiting. Indeed, I occasionally need to remind some of my

Editor's Note: This is a revised version of a presentation given at the Massachusetts Butterfly Symposium, Athol, MA, April 16, 2005.

vertebrate-oriented colleagues of the fact that a majority (~68%) of the approximately 1.5 million known species on earth are invertebrates, and more specifically, of the described animal life, fully three-quarters are insects. Furthermore, you can be sure that of the millions of species that have yet to be described, mainly from the tropics, the vast majority will be of the six-legged form. So if you care about conserving earth's biodiversity, by definition you have to care about insects -- the little things that run the earth, as Dr. Edward O. Wilson refers to them. Among the more diverse and better-studied groups of insects in the Northeast are the moths and butterflies (Order: Lepidoptera). Hence, here we are today.

The overwhelming diversity of insects can be daunting, if not paralyzing, for federal and state agencies that are charged with regulating and protecting all "wildlife" (defined by my agency as "any species of the animal kingdom"). One of the strategies wildlife agencies use to address this awesome responsibility is that of crisis management, focusing primarily on those insect species that are most threatened, the rarest of the rare. To this end, nearly all of the states in the Northeast now have invertebrates on their official lists of endangered, threatened, and special concern species, which is encouraging (Figure 2). However, in most cases, states have been extremely conservative about including invertebrates when you consider their proportional representation on such lists (0.4% in Maine) compared to better-known vertebrate groups such as birds (18% in Maine) and mammals (28% in Maine). Of course some states are better represented than others, with Massachusetts probably leading the pack in terms of the breadth and volume of invertebrates protected by state listing. I guess there are two ways to view the data in Figure 2 depending on whether you tend to perceive the glass as half full or half empty. The bad news is that there are clearly a large number of butterflies in biological trouble in the Northeast, with some species on the

brink of extirpation and others already lost from significant portions of their former range (e.g. Karner Blue, Regal Fritillary, Tawny Crescent, Persius Duskywing, Frosted Elfin). The good news is that butterflies (and moths) are at least getting listing and recovery attention in this region. Indeed, along with freshwater mussels and damselflies and dragonflies, lepidoptera can be considered members of the privileged “charismatic microfauna” that comprise nearly 80% of state invertebrate listings in the Northeast.

One of the primary motivations for Maine’s wildlife agency in sponsoring a butterfly survey is to improve understanding of the status and distribution of it’s butterfly fauna, with a particular focus on assessing rare and vulnerable species for potential listing status (McCollough et al. 2003). To this end, we are planning a three-pronged approach to the Maine Butterfly Survey: 1) a baseline assessment of previously published literature records and public (museum) and private specimen collections, 2) a participatory survey by volunteer citizen-scientists, and 3) professional surveys for rare target species. Again, this methodology is modeled largely after the approach we took during the Maine Damselfly and Dragonfly Survey (<http://mdds.umf.maine.edu/>). Unfortunately, the first step, that of comprehensively assembling what is already known about a jurisdiction, is one that’s often overlooked during wildlife atlasing efforts. Let’s face it, it’s not as sexy to wade through dusty Cornell drawers and out-of-print manuscripts as it is to launch a highly visible, volunteer survey. However, by reviewing data from published accounts as early as 1880, specimens from most major northeastern museums and numerous private collections, and data compiled from years of previous invertebrate field surveys (Maine Department of Fish and Wildlife and Maine Natural Areas Program), we amassed a database of nearly 9,000 records, without

swinging a net or recruiting any new volunteers. The research needed to complete this first step is now considered nearly complete with the publication of “A Baseline Atlas and Conservation Assessment of the Butterflies of Maine” (Webster and deMaynadier 2005; available as a pdf at: www.state.me.us/ifw/wildlife/wildlife.htm .

Our intention for the second step, pending outside funding support, is to kick off a participatory, citizen science approach to the project starting in 2006. During this multi-year, volunteer atlasing phase we hope to address outstanding information gaps identified in the baseline atlas (above) with regard to issues such as incomplete species distributions, poorly-documented flight windows, and limited information on habitat and nectar plant preferences. To be successful, this phase will require significant investment on the part of the coordinators in terms of organizing training workshops, designing site and voucher forms and a website presence, developing protocols for confirming observations (specimens or photos), data entry procedures, and specimen curation and storage. Experience accumulated during the MDDS suggests that the initial investment in a well-planned wildlife atlas can pay dividends in terms of the extent and quality of data accumulated over a relatively short period of time.

The third prong of the Maine Butterfly Survey project is a component that is already underway in ours and most agencies that actively monitor and manage a specific suite of rare or state-listed butterflies – targeted species surveys. These species-specific efforts, usually conducted by agency staff or contracted professionals, provide a more intensive assessment of the status and biology of species of conservation concern. Funding is limited for this work and is generally driven by small internal or grant-driven sources of state nongame and endangered species funds.

While these rare species surveys are by definition directed at relatively few butterflies (generally less than 10 in Maine), they inevitably generate a wealth of incidental data on other, more common, flight- and habitat-associated species, useful for the larger butterfly atlas project. In summary, these are the three complementary approaches that we envision contributing to the Maine Butterfly Survey over the course of the project.

Returning to the first phase of the project for a moment, I want to share a few of the results from the 2005 baseline butterfly atlas, including a revised checklist of the butterflies of Maine (Appendix 1). Dr. Auburn Brower listed 103 species of butterflies for Maine in the last formal assessment of the state's lepidoptera over 30 years ago (Brower 1974). Following a review of the literature and voucher sources described previously, we have added 11 new butterfly species bringing the state's total list to 114 species. A few of the additions are the result of taxonomic changes that split formerly one species into two, but most result from new species discoveries. Of special note is the relatively high proportion (13%) of Maine butterflies that are extirpated (5 species) or currently state-listed as endangered or special concern (10 species), a result unfortunately consistent with global trends elsewhere for the group (Stein et al. 2000, Thomas et al. 2004). Much has been learned regarding butterfly rarity and threat in Maine since the previous state-listing process in 1997, with several additions to the endangered and special concern list recommended as a result of the data summarized in the baseline atlas. For example, when employing a fairly conservative (and unofficial) three-tiered vulnerability criteria of either: 1) global rarity (NatureServe status of G1-G3¹), 2) extreme state rarity (fewer than 5 modern locales),

¹ The Natural Heritage system (and its parent organization "NatureServe" – www.natureserve.org) is an international network with a mission of organizing

or 3) moderate state rarity (fewer than 10 modern locales) combined with high habitat risk (e.g. barrens and xeric fields in southern Maine), one finds that the current list of 10 state-listed butterfly species is increased to potentially 21 species, or approximately 19% of Maine's extant butterfly fauna (Table 1).

An analysis of habitat associations of the 27 species of conservation concern listed in Table 1 provides an overview of the breadth of habitats currently hosting Maine's rarest butterflies (Figure 3). Clearly, any comprehensive conservation strategy for this group needs to include protections for a diversity of upland and wetland systems. Unlike the rivers, lakes, and larger wetland complexes that host the majority of Maine's other listed invertebrates (mainly mussels, mayflies and dragonflies), many of the state's rarest butterflies occupy habitats at direct risk of conversion from development. Of special note, is the large number of species associated with barrens (often pitch pine-scrub oak dominated), special forests (mature beech ridges, mesic hardwoods, Atlantic white cedar, black spruce woodland, and others), and dry scrubby fields – habitats that are often accessible, imminently developable, and threatened by high rates of population growth and development in southern Maine. Ecological succession is an additional “natural threat” to many old field and barren habitats because former disturbance factors (e.g. farming, fire) are often no longer functioning (Wagner et al. 2003).

It's important to recognize that the habitat protections afforded rare butterflies through most state endangered species acts are extremely limited in scale and often contentious. Successful approaches to conserving large blocks of habitat for viable populations of butterflies and other species, will require landscape-

and distributing information on biodiversity. See Table 1 for an explanation of global rarity ranks (G-ranks).

scale planning and close partnerships among state agencies, municipalities, local land trusts, and environmental organizations such as The Nature Conservancy. I am aware of two such initiatives currently underway in New England including the “BioMap” project in Massachusetts (www.mass.gov/dfwele/dfw/nhosp/nhbiomap.htm) and the “Beginning With Habitat” project in Maine (www.beginningwithhabitat.org/).

In the hopes of enticing some of you to venture north and participate in Maine’s future atlas efforts I want to spotlight a few of the state’s unique butterflies -- species that are found in few, if any, other places in the northeastern United States (though most are represented in Canada). Perhaps considered Maine’s claim to butterfly fame, these include such northern specialties as the Common Branded Skipper (ME, northern NH & VT), Clayton’s Copper (ME), Western Pine Elfin (ME, northern NH), Western-tailed Blue (ME), Greenish Blue (ME), Crowberry Blue (ME), Bog Fritillary (ME, northern NH), Frigga Fritillary (ME), Arctic Fritillary (also known as Purple Lesser Fritillary; ME), Satyr Comma (ME, northern NH), Jutta Arctic (ME, NH), and Katahdin Arctic (ME), a unique subspecies found only on the summit of Mount Katahdin in Baxter State Park. As with the recent exciting discovery of Frigga Fritillary, far outside of its previously documented range in northern Quebec, it’s our expectation that other important surprises await Maine during the volunteer butterfly atlas. Specifically, we estimate the potential for hundreds of new county records and as many as 5-10 new state records -- a significant contribution for an insect group that has attracted considerable study over the previous century.

So far I have focused largely on the *scientific* benefits of a Maine Butterfly Survey, mainly for its contributions toward improving

species status information for listing considerations, and for honing our statewide habitat planning and protection efforts. Another significant benefit of this and other citizen science-based wildlife projects (e.g. Maine Breeding Bird Atlas 1978, Maine Amphibian and Reptile Atlas Project 1998, Maine Damselfly and Dragonfly Survey 2005) is their ability to stimulate public awareness and concern for biodiversity. Colorful and conspicuous, butterflies and dragonflies are excellent ambassadors to the larger world of insect conservation for members of the public who may lack formal training in invertebrate ecology. Furthermore, engaging the public in participatory science contributes toward an informed constituency that state agencies and other conservation partners can rely on to help support future policy and protection initiatives for threatened invertebrates and other nongame wildlife.

In closing, I would like to recognize the primary sources of financial support for this project to date including Maine's conservation license plate ("Loon Plates"), the state income tax form's "Chickadee Check-off", and the Maine Outdoor Heritage Fund, a grant program dedicated to wildlife conservation and supported by sales of conservation lottery tickets. I think it's fair to assume that every northeastern state has one or more similar mechanisms in place for supporting nongame and endangered wildlife projects. Thank you for participating in these and other voluntary conservation funding programs.

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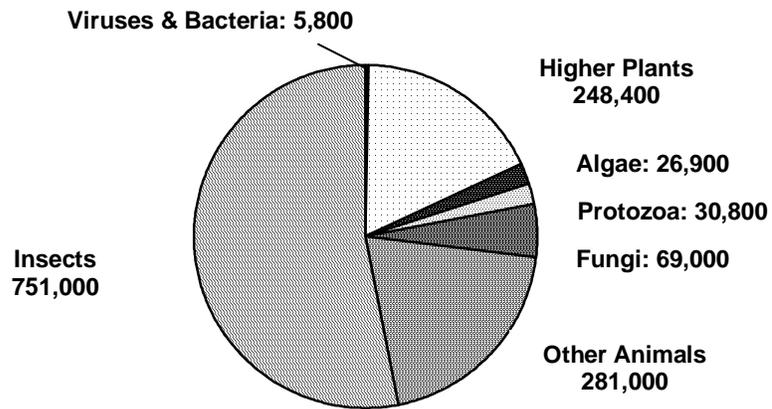


Figure 1. Total Number of Living Species by Major Taxonomic Group
(Source: Wilson 1992)

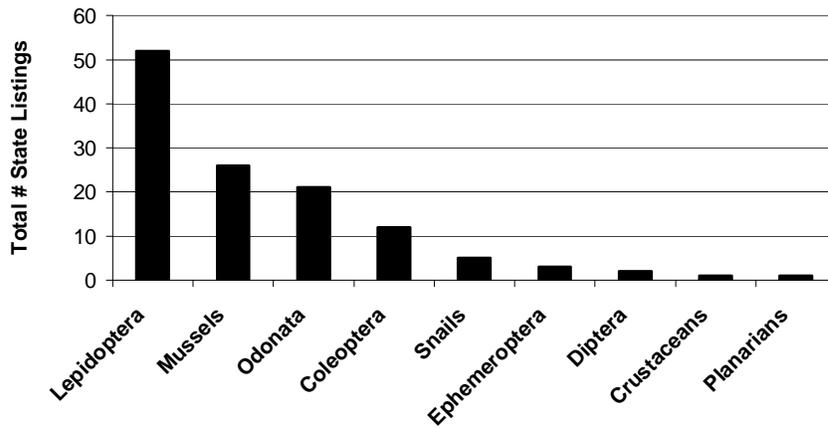


Figure 2. State-listed Invertebrates in the Northeastern United States: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York. (Source: French and Pence 2000)

Table 1. Current and Proposed Listing Status for Butterflies in Maine.

Species	G-Rank ¹	# Modern Occurrences ²	State Status ³
SKIPPERS			
Sleepy Duskywing	G5T5	6	PSC
Persius Duskywing	G5T2T3	0	EX
Leonard's Skipper	G4	2	PSC
Cobweb Skipper	G4G5	0	PSC
Little Glassywing	G5	2	PSC
SWALLOWTAILS			
Spicebush Swallowtail	G5	0	SC
GOSSAMER WINGS			
Clayton's Copper	G5T1	11	E
Hessel's Hairstreak	G3G4	4	E
Juniper Hairstreak	G5	2	(SC), PE/T
Frosted Elfin	G3	0	EX
Bog Elfin	G3G4	30	SC
Western Pine Elfin	G5	7	SC
Coral Hairstreak	G5	2	PSC
Edward's Hairstreak	G4	5	E
Early Hairstreak	G3G4	0	PSC
Western Tailed Blue	G5T3T4	5	PSC
Crowberry Blue	G5T3T4	16	SC
Karner Blue	G5T2	0	EX
Greenish Blue	G5	0	PSC
BRUSHFOOTS			
Regal Fritillary	G3	0	EX
Bog Fritillary	G5T4	12	(SC)
Frigga Fritillary	G5	1	PE/T
Arctic Fritillary	G5	1	PE/T
Tawny Crescent	G4T1	0	EX
Satyr Comma	G5	2	PSC
Appalachian Brown	G4	2	PSC
Katahdin Arctic	G5T1	1	E

1: “G-ranks” are global rarity ranks employed by the Natural Heritage system (www.natureserve.org) and are summarized as follows: G1 (critically imperiled; generally 1-5 populations globally), G2 (imperiled; generally 6-20 populations globally), G3 (vulnerable; generally 21-100 populations globally), G4 (apparently secure), or G5 (secure). “T” values combined with G-ranks are taxonomic rarity ranks assigned to subspecies.

2: Includes both confirmable and unconfirmable (literature and sight records lacking vouchers) records after 1974, the date of the most recent annotated checklist of the butterflies of Maine by A.E. Brower.

3: State Status abbreviations as follows: EX - Extirpated; E – Endangered; SC – Special Concern; PE/T – Proposed Endangered or Threatened; PSC – Proposed Special Concern; (SC) – Proposed removal of Special Concern status.

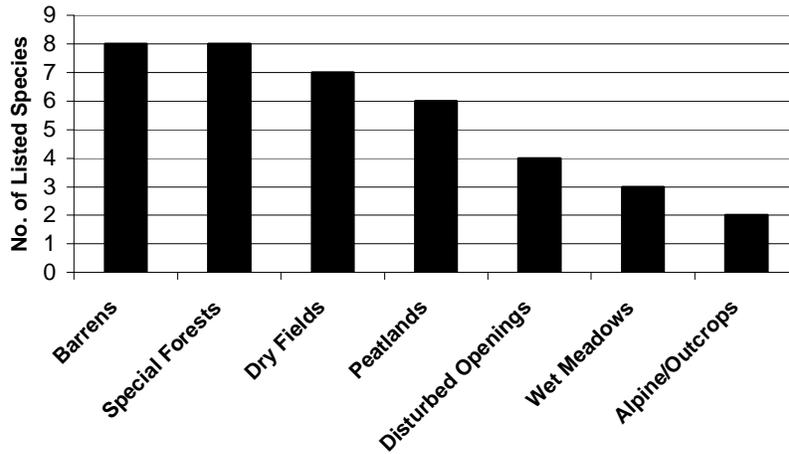


Figure 3. Habitat Associations of 27 Rare and Extirpated Butterfly Species in Maine. (Note: Several species are assigned to more than one habitat-type; see Table 1 for list of included species.)

Appendix 1. A Revised Checklist of the Butterflies of Maine

(Adapted from: Webster and deMaynadier 2005)

The following is a complete checklist of the butterfly species currently known from Maine. Accompanying the scientific and common names of each species is its breeding status and state conservation status. Information on the occurrence of these species comes from a variety of sources, including Brower (1974) and other publications, specimens contained in all major northeastern museums and many private collections, the Maine Department of Inland Fisheries and Wildlife (MDIFW) ecoregional survey project, and MDIFW's rare species tracking database.

The nomenclature followed in this list follows Opler and Warren (2003) and includes all recent changes in nomenclature since the Miller and Brown (1981) Catalogue/Checklist of the Butterflies of America North of Mexico and the supplement by Ferris (1989).

Scientific Name	Common Name	Status ¹
Family Hesperiidae	Skippers	
<i>Epargyreus clarus</i> (Cramer)	Silver-spotted Skipper	BR
<i>Thorybes pylades</i> (Scudder)	Northern Cloudywing	BR
<i>Thorybes bathyllus</i> (J. E. Smith)	Southern Cloudywing	BR or RS
<i>Erynnis icelus</i> (Scudder & Burgess)	Dreamy Duskywing	BR
<i>Erynnis brizo</i> (Boisduval & LeConte)	Sleepy Duskywing	BR
<i>Erynnis juvenalis</i> (Fabricius)	Juvenal's Duskywing	BR
<i>Erynnis persius</i> (Scudder)	Persius Duskywing	EX
<i>Pholisora catullus</i> (Fabricius)	Common Sootywing	BR or RS
<i>Carterocephalus palaemon</i> (Pallas) subsp: <i>mandon</i> (W. H. Edwards)	Arctic Skipper	BR
<i>Ancyloxypha numitor</i> (Fabricius)	Least Skipper	BR
<i>Thymelicus lineola</i> (Ochsenheimer)	European Skipper	BR
<i>Hesperia comma</i> (Linnaeus) subsp: <i>laurentina</i> (Lyman)	Laurentian Skipper	BR
<i>Hesperia leonardus</i> Harris	Leonard's Skipper	BR
<i>Hesperia metea</i> Scudder	Cobweb Skipper	BR
<i>Hesperia sassacus</i> Harris	Indian Skipper	BR
<i>Polites peckius</i> (W. Kirby)	Peck's Skipper	BR
<i>Polites themistocles</i> (Latreille)	Tawny-edged Skipper	BR
<i>Polites origines</i> (Fabricius)	Crossline Skipper	BR
<i>Polites mystic</i> (W. H. Edwards)	Long Dash Skipper	BR

<i>Wallengrenia egeremet</i> (Scudder)	Northern Broken Dash	BR
<i>Pompeius verna</i> (W. H. Edwards)	Little Glassywing Skipper	BR
<i>Anatrytone logan</i> (W. H. Edwards)	Delaware Skipper	BR
<i>Poanes hobomok</i> (Harris)	Hobomok Skipper	BR
<i>Poanes viator</i> (W. H. Edwards) subsp: <i>zizaniae</i> (Shapiro)	Broadwinged Skipper	BR
<i>Euphyes bimacula</i> (Grote & Robinson)	Two-spotted Skipper	BR
<i>Euphyes vestris</i> (Boisduval) subsp: <i>metacomet</i> (Harris)	Dun Skipper	BR
<i>Amblyscirtes hegon</i> (Scudder)	Pepper & Salt Skipper	BR
<i>Amblyscirtes vialis</i> (W. H. Edwards)	Common Roadside Skipper	BR
Family Papilionidae	Swallowtails	
<i>Battus philenor</i> (Linnaeus)	Pipevine Swallowtail	RS
<i>Papilio polyxenes</i> Fabricius subsp: <i>asterius</i> (Stoll)	Black Swallowtail	BR
<i>Papilio glaucus</i> Linnaeus	Eastern Tiger Swallowtail	RS
<i>Papilio canadensis</i> Rothschild & Jordan	Canadian Tiger Swallowtail	BR
<i>Papilio troilus</i> Linnaeus	Spicebush Swallowtail	RS or RC; SC
<i>Papilio cressphontes</i> Cramer	Giant Swallowtail	RS
Family Pieridae	Sulphurs and Whites	
<i>Pontia protodice</i> (Boisduval & LeConte)	Checkered White	RC
<i>Pieris rapae</i> (Linnaeus)	Cabbage Butterfly	BR
<i>Pieris oleracea</i> Harris	Mustard White	BR
<i>Colias philodice</i> Godart	Clouded Sulphur	BR
<i>Colias eurytheme</i> (Boisduval)	Alfalfa Butterfly	BR
<i>Colias interior</i> Scudder	Pink-edged Sulphur	BR
<i>Phoebis sennae</i> (Linnaeus)	Cloudless Sulphur	RS
<i>Phoebis philea</i> (Linnaeus)	Orange-barred Sulphur	RS
<i>Phoebis agarithe</i> Boisduval	Large Sulphur	RS
<i>Pyrisitia lisa</i> (Boisduval & LeConte)	Little Sulphur	FS
Family Lycaenidae	Hairstreaks, Blues, Coppers, and Harvesters	
Subfamily Miletinae	Harvesters	
<i>Feniseca tarquinius</i> (Fabricius)	Harvester	BR
Subfamily Lycaeninae	Hairstreaks, Blues, and Coppers	

<i>Lycaena phlaeas</i> (Linnaeus) subsp: <i>hypophlaeas</i> Boisduval; not <i>americana</i> Harris (See Emmel & Pratt 1998)	American Copper	BR
<i>Lycaena hyllus</i> (Cramer)	Bronze Copper	BR
<i>Lycaena epixanthe</i> (Boisduval & LeConte)	Bog Copper	BR
<i>Lycaena dorcas</i> (W. Kirby) subsp: <i>claytoni</i> Brower	Clayton's Copper	BR; EN
<i>Callophrys hesseli</i> (Rawson & Ziegler)	Hessel's Hairstreak	BR; EN
<i>Callophrys gryneus</i> (Hübner)	Olive Hairstreak	BR; SC
<i>Callophrys augustinus</i> (Westwood)	Brown Elfin	BR
<i>Callophrys polios</i> (Cook & Watson)	Hoary Elfin	BR
<i>Callophrys irus</i> (Godart)	Frosted Elfin	EX
<i>Callophrys henrici</i> (Grote & Robinson)	Henry's Elfin	BR
<i>Callophrys lanoraieensis</i> (Sheppard)	Bog Elfin	BR; SC
<i>Callophrys niphon</i> (Hübner) subsp: <i>clarki</i> (T.N. Freeman)	Eastern Pine Elfin	BR
<i>Callophrys eryphon</i> (Boisduval)	Western Pine Elfin	BR; SC
<i>Satyrium titus</i> (Fabricius)	Coral Hairstreak	BR
<i>Satyrium acadica</i> (W. H. Edwards)	Acadian Hairstreak	BR
<i>Satyrium edwardsii</i> (Grote & Robinson)	Edwards' Hairstreak	BR; EN
<i>Satyrium calanus</i> (Hübner) subsp: <i>falacer</i> (Godart)	Banded Hairstreak	BR
<i>Satyrium liparops</i> (LeConte) subsp: <i>strigosum</i> (Harris)	Striped Hairstreak	BR
<i>Strymon melinus</i> (Hübner)	Grey Hairstreak	BR
<i>Erora laeta</i> (W. H. Edwards)	Early Hairstreak	BR
<i>Cupido comyntas</i> (Godart)	Eastern Tailed Blue	BR
<i>Cupido amyntula</i> (Boisduval) subsp: <i>maritima</i> (LeBlanc)	Western Tailed Blue	BR
<i>Celastrina lucia</i> (W. Kirby) Populations from northern black spruce bogs may represent another species. <i>C. ladon</i> (Cramer) applies to another species that has not yet been found in Maine but could occur in southern parts of the state.	Spring Azure (and what is often referred to as the Cherry Gall Azure)	BR
<i>Celastrina neglecta</i> (W. H. Edwards)	Summer Azure	BR
<i>Glaucopsyche lygdamus</i> (Doubleday) subsp: <i>couperi</i> Grote	Silvery Blue	BR
<i>Plebejus idas</i> (Linnaeus) subsp: <i>empetri</i> (T.N. Freeman)	Crowberry Blue	BR; SC
<i>Plebejus melissa</i> (W. H. Edwards) subsp: <i>samuelis</i> Nabokov	Karner Blue	EX ²

<i>Plebejus saepiolus</i> (Boisduval) subsp: <i>amica</i> (W.H. Edwards)	Greenish Blue	BR
Family Nymphalidae	Brushfoots, Monarchs, Satyrs	
Subfamily Libytheinae	Snouts	
<i>Libytheana carinenta</i> (Cramer) subsp: <i>bachmanii</i> (Kirtland)	Eastern Snout	RS
Subfamily Danainae	Monarchs or Milkweed Butterflies	
<i>Danaus plexippus</i> (Linnaeus)	Monarch	TC
Subfamily Heliconiinae	Fritillaries	
<i>Euptoieta claudia</i> (Cramer)	Variegated Fritillary	RC
<i>Speyeria cybele</i> (Fabricius)	Great Spangled Fritillary	BR
<i>Speyeria aphrodite</i> (Fabricius)	Aphrodite Fritillary	BR
<i>Speyeria idalia</i> (Drury)	Regal Fritillary	EX
<i>Speyeria atlantis</i> (W. H. Edwards)	Atlantis Fritillary	BR
<i>Boloria eunomia</i> (Esper) subsp: <i>dawsoni</i> (Barnes & McDunnough)	Bog Fritillary	BR; SC
<i>Boloria selene</i> (Denis & Schiffermüller) Two poorly differentiated subspecies occur in Maine; <i>myrina</i> (Cramer) in the southwest, and <i>atrocotalis</i> (Huard) in the north. A broad blend zone occurs across central Maine.	Silver-bordered Fritillary	BR
<i>Boloria bellona</i> (Fabricius)	Meadow Fritillary	BR
<i>Boloria frigga</i> (Thunberg) subsp: <i>saga</i> (Staudinger)	Frigga Fritillary	BR
<i>Boloria chariclea</i> (Schneider) subsp: <i>grandis</i> (Barnes & McDunnough)	Purple Lesser Fritillary	BR
Subfamily Nymphalinae	Checkerspots, Tortoiseshells, Commas, and Ladies	
<i>Chlosyne nycteis</i> (Doubleday)	Silvery Checkerspot	BR
<i>Chlosyne harrisii</i> (Scudder)	Harris's Checkerspot	BR
<i>Phyciodes tharos</i> (Drury)	Pearl Crescent	BR
<i>Phyciodes cocyta</i> (Cramer)	Northern Pearl Crescent	BR
<i>Phyciodes batesii</i> (Reakirt)	Tawny Crescent	EX
<i>Euphydryas phaeton</i> (Drury)	Baltimore Checkerspot	BR
<i>Junonia coenia</i> Hübner	Common Buckeye	RS

<i>Polygonia interrogationis</i> (Fabricius)	Question Mark	TC
<i>Polygonia comma</i> (Harris)	Eastern Comma	BR
<i>Polygonia satyrus</i> (W. H. Edwards)	Satyr Comma	BR
<i>Polygonia faunus</i> (W. H. Edwards)	Green Comma	BR
<i>Polygonia gracilis</i> (Grote & Robinson)	Hoary Comma	BR
<i>Polygonia progne</i> (Cramer)	Grey Comma	BR
<i>Roddia vaualbum</i> (Dennis & Schiffermüller)	Compton Tortoiseshell	BR
<i>Aglais milberti</i> (Godart)	Milbert's Tortoiseshell	BR
<i>Nymphalis antiopa</i> (Linnaeus)	Mourning Cloak	BR
<i>Vanessa atalanta</i> (Linnaeus)	Red Admiral	BR
<i>Vanessa cardui</i> (Linnaeus)	Painted Lady	TC
<i>Vanessa virginiensis</i> (Drury)	American Lady	BR
<i>Limenitis arthemis</i> (Drury) The northern limit of the blend zone between the subspecies <i>L. astyanax</i> (Fabricius) (Red Spotted Purple) and <i>L. arthemis</i> occurs in southwestern Maine where some individuals may show reduced white banding on the wings and rare individuals may closely resemble the Red Spotted Purple phenotype.	White Admiral	BR
<i>Limenitis archippus</i> (Cramer)	Viceroy	BR
Subfamily Satyrinae	Satyrns and Arctics	
<i>Enodia anthedon</i> A. H. Clark	Northern Pearly-Eye	BR
<i>Satyrodes eurydice</i> (Linnaeus)	Eyed Brown	BR
<i>Satyrodes appalachia</i> (R. L. Chermock)	Appalachian Brown	BR
<i>Megisto cymela</i> (Cramer)	Little Wood Satyr	BR
<i>Coenonympha tullia</i> (Hübner) subsp: <i>inornata</i> W. H. Edwards	Inornate Ringlet	BR
<i>Cercyonis pegala</i> (Fabricius) In southwestern Maine is subspecies <i>alope</i> (Fabricius), which has a well-developed yellowish to orange patch on the forewing. In northern Maine is subspecies <i>nephele</i> (Kirby), which lacks the forewing patch. A broad blend zone occurs between these two subspecies in southern and coastal Maine producing phenotypes of intermediate appearance.	Common Wood Nymph	BR
<i>Oeneis jutta</i> (Hübner) subsp: <i>ascerta</i> (Masters & Sorensen)	Jutta Arctic	BR
<i>Oeneis polixenes</i> (Fabricius) subsp: <i>katahdin</i> (Newcomb)	Katahdin Arctic	BR; EN

1: BR = Breeding resident; TC = Frequent to common temporary colonist; RC = Rare temporary colonist; FS = Frequent stray; RS = Rare Stray; EX = Extirpated; EN = State Endangered; SC = State Special Concern

2: *Plebejus melissa samuelis* (Karner Blue) is the only federally endangered butterfly in Maine; It is now extirpated.



Butterfly Study in Massachusetts

by Roger Pease

The first thing that turned me on to butterflies was a Monarch butterfly in the summer of 1944. It was resting on the white berries on a snowberry bush and I thought it was one of the most fantastic things I'd ever seen and so did the other guys in the neighborhood. So I took it from there. If you look at the various versions of Holland (1) you know that in 1898 the first edition came out, and there were 48 plates and there were some egregious mistakes in the book. Egregious by the way we think of butterflies today. It wasn't until 1931 that he increased the size of the book to 77 plates, and I was horrified to find that in preparing this presentation I didn't have a copy of the 1931 version. So I went to the University of Massachusetts and they have three copies of Holland in one library, two copies in another, and they were all before 1931! That was at the very depths of the Depression and the book was apparently not on the budget at that time.

So I checked the Web and I clarified that Scudder (2)—three volumes of Scudder-- cost about \$2,700, with one copy available. By contrast you can get a copy of Holland for between \$8 and \$134 but be careful—two things: first, you want the 1931 edition or one later and second, be sure the plates are in registration because they're very difficult to use. I used to read the early version of Holland in the library in junior high school, and it was my favorite book. But a couple of things I got confused about. One was the Zabulon and the Hobomok skippers. So I turned to a little volume called *How to Know the Butterflies* by Comstock & Comstock (3). Karen Parker pointed out to me the other day

Editor's Note: This is a revised version of a presentation given at the Massachusetts Butterfly Symposium, Athol, MA, April 16, 2005.

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that the names are right in Scudder but one of the figures is wrong. I was always confused by the Zabulon until I went to college and Remington straightened me out. The figure just doesn't fit the butterfly.

The other egregious mistake was the West Virginia White and Mustard White, which I'll come to shortly.

Last night, I received a telephone call from a physician friend in Boston who reported that there was a stuffed butterfly collector on display at the Museum of Fine Arts. The show was by Damien Hirsch, an avant-garde British artist, whose work *The Collector* was its star exhibit. An animatronic scientist in a large glass cage is sitting at his desk at work with his microscope. He twitches every once in a while due to electronic motivation and peers through his microscope. Dead specimens, the object of his study, are scattered around him, but he is surrounded by living butterflies flying freely. The living butterflies are periodically renewed by the museum curators, not the artist. The work seems to suggest that while the scientist is enslaved by the objects of his pursuit, the objects themselves remain free and may in fact be regarding the scientist as an object of amusement.

The exhibit takes me back to my final days as a graduate student when I was defending my thesis before a panel of Yale biologists comprised of Professors G. Evelyn Hutchinson, Charles L. Remington, Don Poulson, and John Brooks. When my presentation was completed, Remington, my major professor, asked Hutchinson with a wry smile if "he" [I wasn't a member of the club yet.] had done enough. Hutchinson replied to the effect that I had done more than enough. Everyone relaxed, but then Hutch asked me to tell them about my experiences in the field. I

hesitated and then Professor Poulson seeing my hesitation said in explanation “We are old men, Roger, and we don’t get outside the laboratory very much anymore. Tell us what is going on out there.” And so, I related my adventures in Canada, the United States, and the Caribbean, first as Remington’s student and research assistant in the pursuit of hybridizing populations of butterflies in Florida; and then in the study of hybridizing swallowtails in the Riding Mountains of Ontario; and in Glenwood Springs, Colorado, sampling the alpine butterflies of the high Rockies; and finally in sampling populations for my own thesis on the bella moth (*Utetheisa sp.*) in the United States, Jamaica, Puerto Rico, Saint Thomas, and Saint Croix.

Now having reached a certain age of seniority I find myself in the position of the members of my thesis committee. That is, now I find myself wondering what is going on in the field, so to speak without being able to make an effortless transition between indoor work and the field that was possible forty years ago. That is where the Massachusetts Butterfly Club and its marvelous system of Internet communication comes in; it alerts us almost momentarily to the status of rare lepidopterological phenomena in the field.

Traditionally, Massachusetts has been the state which you drive through to get to butterfly territory. If you’re going west, you go to Albany, New York. Oh, boy. You’ve got Scudder’s Karner Blue, and if you’re going north you used to be able to find the Early Hairstreak (*Erora laeta*) in Vermont or New Hampshire. That was before we really knew it was headquartered in Mount Greylock. Though Scudder did find his only specimen in Mount Greylock. And if you’re going south, of course, you go to West Rock, New Haven to find the Falcate Orangetip.

Traditionally Remington used to send students and lepidopterists on field trips financed by Yale. He sent Paul Erlich up to Point Barrow, Alaska, to collect butterflies, and Paul was forced to carry a gun with his butterfly net and his backpack. He passed over the coastal dunes all right and was checking territory when he saw a couple of snow patches on the dunes. He didn't pay them any mind but suddenly the snow patches started moving toward him and it turned out they were polar bears with Erlich-steaks in mind. So he threw away his gun and his backpack, but he kept his butterfly net-- which turned out to be a very wise choice because the polar bears stopped to inspect the back pack and the gun and Paul—as you know, must have escaped.

Remington also sent Sid Hessel and me up to Vermont to collect the Early Hairstreak. That was supposedly at one time the rarest butterfly in New England, if not in North America. (Although it subsequently turned up in Arizona, but I think that's now considered a separate species.) Sid and I stayed overnight at a motel in West Bridgewater, Vermont, and the next morning we started inspecting the brook which ran behind the motel and things looked pretty dim. Sid had sort of a short attention span and he wouldn't spend all day in one place with no result. So he said, I'm going over to Mount Equinox to check that area out and I'll leave you here and to patrol the brook, which I did. Well, six specimens of *Erora laeta* turned up but I was only able to get the net over one which I was embarrassed about. (The butterflies would rest on the edge of the rocks sipping water from the stream, and you'd flop a net over and they'd crawl underneath. Well that's really adaptive.) Sid came back and he was empty-handed I was gratified to see, and he was a little miffed. We started back with this one gorgeous specimen of *Erora laeta*, having fulfilled our mission and about halfway home Sid said hey, there's some great cress, I want some for my garden. So he stopped the car. I was cradling this killing jar

(hate to use the word, but that was the way it was back then) between my knees. We got out to get the cress. He was ecstatic to get it; he got something out of the trip. About 10 miles further on I said hey Sid, where's the *Erora laeta*? And we couldn't find the killing jar. We turned around and went back to this place and it was a long stretch along the road. We stopped and we searched and we searched and we could not find that jar. Well, Remington is not one to get upset but he was a little perturbed that we didn't bring back the specimen our trip was supposed to get. So even today if you're traveling that road, and you find a killing jar— it belongs to Yale!

There used to be a colony of Hessel's Hairstreak (*Callophrys hesseli*) in Wilbraham, Massachusetts, on the Connecticut River, and there's an interesting story about that colony. In the early 1970s I had an idea—let's celebrate Ecology Day at one of the high schools here in Springfield. So I set it up with the Cathedral High School, the Catholic high school in the area. They have a floating bog in the pond right next to their athletic field and this floating bog is pretty terrific. When the water is down it rests on the substrate and doesn't move. In the spring when the water rises and the wind comes up, the bog floats from one end of the pond to the other. There were a number of trees on the island so I said hey, let's plant some white cedars, which are the food plant of Hessel's Hairstreak. There had been a white cedar bog elsewhere in Springfield, but as things go in an urban area it gets built up. It gets trampled and probably the Hessel's Hairstreak was there at one time, but by the time I came to Springfield it was gone. So we decided to focus first on the white cedar, and then maybe something would happen. The kids loved it. We took canoes and we rowed out to the island and planted the trees and it was a success. Well, the janitor of the Cathedral High School took me aside and said you know, there's a big bog in Wilbraham in its

primeval state, that hasn't been disturbed. I said oh, yeah. So I went out there and collected a couple of Hessel's Hairstreaks. I think they're all in the Peabody Museum at the present time.

Way back when the world was young William Henry Edwards proved that the many forms of the Zebra Swallowtail were all one species. And since that time taxonomists have been troubled by dimorphic forms of butterflies. How do you know these guys all belong to the same species? How do you prove it? Edwards proved by rearing them that they were all the same species, getting one form from another. But if you look at photos of the Great Southern White (*Ascia monuste*), there is a dark female form and a white female form of the species. We thought the black was a migratory form, the other one was not, because the black form is found in the winter and the white one is found in the summer. I had the idea, which wasn't awfully original, that they were motivated by photoperiod. So I persuaded Dick Archibald to help. I was doing research for Remington at the time and I needed something to make a name for myself. I said, let's do a photoperiod experiment. Let's build a cage and we'll raise one under eight hours of daylight and the other under 16 hours. The result was that the ones under 16 hours of light were all of the dark female form or an intermediate between that and the white form, while ones under 8 hours light were all of the white form. I got that into *Science* and it got me another fellowship for another year.

Well, let's look at *Pieris napi* or the Mustard White which caused so much trouble for so many people for so long. William Henry Edwards and Sam Scudder were mortal enemies—well, not mortal. You know what I mean. They didn't get along and whenever Scudder could quote a dubious observation by Edwards he did so. And so you'll find a lot of his stuff as questionable observations. But in this case Edwards was right. He described *Pieris*

virginiensis as a good species. Scudder thought it was a variety of the Mustard White, and so did Holland, as well as Comstock and Comstock. In the magnificent spring of 1945, when the West Virginia White came out in New Britain, CT in the first ten days of April, I labelled it *Pieris napi*, following Comstock. C.L. Remington set me straight, as did later published guides. There was a population in Dalton in western Massachusetts about 40 or 50 years ago. At one time it was thought that in the Waconah Falls state park in western Massachusetts the two species were hybridizing. If you go up there now the park is still there, but around it you've got this sort of development which is depressing. So the place to go for *Pieris napi* now is in the bridge over the Housatonic, New Lenox Road in Lenox, Massachusetts. If you want to see them you'd better go there, and at the right time.

In the woods you'll find *Pieris virginiensis*, but in the field you'll find the Mustard White in abundance. And the putative (I don't think anybody has raised them on it) larval food plant of the Mustard White here is the Cuckoo Flower (*Cardamine pratensis*). I offer that for what it's worth. At this spot, you can find them mating, you can find them laying eggs. I don't think anybody has found flowers there yet. Now a good question: Is this Mustard White-- that's so common in that field and doesn't integrate with the West Virginia White at all-- the same thing--is it the same genetic beast that we saw 40 or 50 years ago? I won't generalize, but well, gee, should we have taken specimens for a record on that?

Notes

(1) Holland, W.J. 1898. *The Butterfly Book*. Doubleday and McClure, New York. Holland, W.J. 1931. *The Butterfly Book*. Revised edition. Doubleday, Doran, Garden City, N.Y.

(2) Scudder, S. H. 1899. *The Butterflies of the United States and Canada with Special Reference to New England*. 3 vols. Cambridge, Mass.

(3) Comstock, J.H. and A.B. Comstock. 1904. *How to Know the Butterflies*. D. Appleton, New York.

Just published, April, 2005:

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2005 Fourth of July Butterfly Counts

Compiled by Erik Nielsen

How did the counts this year compare to previous years? Participants on several eastern counts complained of very low numbers. In Concord, the numbers of both individuals and species were at their second lowest level in 17 years of counting. Not all the eastern counts were below normal; on the Vineyard, Matt Pelikan noted that if compensated for observer effort and geographical coverage, the count was among the better ones. Highlights there included 134 Edward's Hairstreaks, 49 Crossline Skippers, and 100 Dun Skippers.

Unfortunately, no data was received from the Northern and Central Berkshire count circles, making it difficult to get a good sense of the butterfly populations in the western part of the state this year. Postings by Tom Gagnon on Masslep with numbers from his sections on these counts, however, hint at good overall numbers. At least two species can be added to the statewide total from his area on Mt. Greylock alone: Canadian Tiger Swallowtail and Atlantis Fritillary. Other sightings from his sections include 2 Hickory Hairstreaks and 12 Compton Tortoiseshells on Mt. Greylock, and 134 Acadian Hairstreaks on the Central Berkshire count.

Other statewide highlights include 32 Meadow Fritillaries, 119 Baltimore Checkerspots, 1 Tawny Emperor, and 848 Common Wood-Nymphs in the Southern Berkshire circle. 658 Bog Coppers were seen in Central Franklin, and 2 Hickory Hairstreaks, 105 Milbert's Tortoiseshells, 1 Tawny Emperor, and 1 Northern Pearly-Eye (new) on the Northampton/Amherst count. 103

Banded Hairstreaks and 50 Painted Ladies were nice totals in Falmouth.

Singles of Bronze Copper and Oak Hairstreak were species reported from only the Concord circle, with the last one being new to the count. A Silvery Blue and 3 Northern Cloudywings were seen in Northern Worcester, a Hoary Edge was reported in Central Franklin, and a Juvenal's Duskywing was in Bristol on the new late date of July 19.



Count	Southern Berkshire	Central Franklin	Northampton	Northern Worcester	Concord	Northern Essex	Brewster	Truro	Blackstone Valley	Martha's Vineyard	Bristol	Falmouth	Middleboro	Barnstable	Total
Swallowtail Sp.			1												1
Black Swallowtail	7	1	46	6	1	2			16			2	11		92
Tiger Swallowtail (spp)				20					8					1	29
Eastern Tiger Swallowtail	6	18	7		6	16	1			5		1	3		63
Spicebush Swallowtail		14	14	7		2	2		9	11	2	5	5		71
Cabbage White	65	19	133	133	106	113	96		24	37	1	12	105	13	857
Clouded Sulphur	315	122	578		40	167	10	1	76	159	5	21	50	7	1551
Orange Sulphur	13	8	38	56	5	42	5	3	25	84	8	14	10	9	320
American Copper	10	9	28	231	25	3	26	10	73	123	3	8		2	551
Bronze Copper					1										1
Bog Copper		658		39		8		11		4					720
Coral Hairstreak	1	5	2		6				2	5	5		1	1	28
Acadian Hairstreak	7								3		12				22
Edwards' Hairstreak	2			4					3	138		58			205
Banded Hairstreak	39	73	18	9	1		1		3	2		103	1		250
Hickory Hairstreak			2												2
Striped Hairstreak	10	2	2	6	2	2			4	1	1				30
Oak Hairstreak					1										1
Gray Hairstreak			1	1					3						5
Eastern Tailed-Blue	24	13	15	45	40	13		2	53	3	2	13	1	1	225
Summer Spring Azure	4	6	7		3	22			16	1	2				61
Silvery Blue				1											1
Greater Fritillary (spp)		22		16					27						65
Great Spangled Fritillary	83	29	36	57	26	25			49		11		5		321
Aphrodite Fritillary	2	2		7					1						12
Smaller Fritillary	2														2
Silver-bordered Fritillary	2	32	38										1		73
Meadow Fritillary	32														32
Pearl Crescent	14		313	5	1	1	3		103	1	19	1	26	52	539
Baltimore Checkerspot	119	94	23			55			18	10		6	1		326
Question Mark			1	1											2
Eastern Comma	9	9	31	2	1	4			3						59

Count	Southern Berkshire	Central Franklin	Northampton	Northern Worcester	Concord	Northern Essex	Brewster	Truro	Blackstone Valley	Martha's Vineyard	Bristol	Falmouth	Middle-boro	Barnstable	Total
Compton Tortoiseshell	5	4		1											10
Mourning Cloak	19	14	6	12	3	6					2				62
Milbert's Tortoiseshell	3	6	105						1						115
American Lady		1	2	7	11		1		9	33		16	2		82
Painted Lady	5		31	2		10	7		5	4	1	50	4	4	123
Red Admiral	3	5	26	5		5	2		10				1		57
Red-spotted Admiral	6					2									8
White Admiral		2	3												5
Red-spotted Purple		8	12	5							1		1		27
Viceroy	2	4	9	3		1							1		20
Tawny Emperor	1		1												2
Northern Pearly-Eye	3	2	1	1		1			1						9
Satyrodes Sp.				1											1
Eyed Brown	3	5	2		2	8			1	6					27
Appalachian Brown	6	4	3	6		6			8	8	5				46
Little Wood-Satyr	24	8	10	24	32	22	1	2	97	6	6		3		235
Common Ringlet	8	1	4	4		2							1		16
Common Wood-Nymph	848		85	1	4	1	12		227	91	20	32	3	12	1336
Monarch	11	7	30	5		16	1	4	5	12		4	9	6	110
Skipper Species											2				2
Silver-spotted Skipper	15	62	36	113	56	46	2	1	19	49	2	11		1	413
Hoary Edge		1													1
Southern Cloudywing		11		2	1				1			2			17
Northern Cloudywing				3											3
Juvenal's Duskywing											1				1
Horace's Duskywing									1		3				4
Wild Indigo Duskywing			3						7	3					13
Common Sootywing			106						13						119
Grass Skipper Sp.		10	5												15
Least Skipper	19	5	1		1	6			3	8			3	1	48
European Skipper	92	750	12	723		60	1		6	94	4		1		1743
Peck's Skipper	17										1		10	4	32

Count	Total													
Tawny-edged Skipper	1	2	3	4	20	9	32	21	20	1	1	29	1	52
Crossline Skipper	3	3	3	4	13	13	15	5	3	1	1	29	1	75
Long Dash	4	4	3	5	21	9	32	21	20	2	2	29	2	14
Dash	18	15	20	4	20	9	32	21	20	2	2	29	2	131
Little Glassywing	8	4	21	24	11	4	4	4	4	2	2	17	1	116
Delaware Skipper	5	4	21	24	11	4	4	4	4	2	2	17	2	124
Mulberry Wing	4	4	21	24	11	4	4	4	4	2	2	17	2	65
Hobomok Skipper		4	21	24	11	4	4	4	4	2	2	17	2	6
Broad-winged Skipper		1	21	24	11	4	4	4	4	2	2	17	2	15
Black Dash		1	21	24	11	4	4	4	4	2	2	17	2	12
Dun Skipper	50	7	75	8	6	5	2	52	100	1	24	1	1	336
No. Individuals total	1942	2089	1975	1629	443	703	37	1139	1056	134	432	264	115	12165
No. Species	45	45	45	42	31	35	20	10	45	31	28	22	30	67
Participants	14	10	13	11	11	11	10	1	10	9	1	4	1	4
Party Hours		33	44	12	12	6	3	31.5	13	4	4	5.2	10	

Count	Date	Compiler
Barnstable	7/30	Ellen Jedrey Alison Robb
Middle-boro	7/23	Karen Holmes
Falmouth	7/17	Alison Robb
Bristol	7/19	Mark Mello
Martha's Vineyard	7/16	Matt Pelikan
Blackstone Valley	7/16	Tom Dodd
Truro	7/13	Tor Hansen
Brewster	7/23	Alison Robb Linda Hewitt
Northern Essex	7/10	Bob Speare Fred Goodwin
Concord	7/10	Dick Walton
Northern Worcester	7/10	Carl Kamp
Northampton	7/16	Dottie Case
Central Franklin	7/3	Mark Fairbrother
Southern Berkshire	7/12	Renee Laubach

2004 Correction:
In *Massachusetts Butterflies* 23,
Fall 2004, p. 21, "Middlesex" should
have been "Middleboro."

Trip Reports: The Early Hairstreak at Mt. Greylock

by Bill Benner

Few butterflies in the East hold more allure than the almost-mythical Early Hairstreak (*Erora laeta*). It is tiny, but gemlike in coloration--an aqua green, a color very unusual in our butterfly fauna--and studded with ruby-red dots. The female above is a stunning combination of rich, royal blue inner wings and wide black borders. Also, it is rare and elusive--elusive, anyway, even if not really rare--thanks to its apparent predilection for remaining high in the canopy of the mature beech forests that it requires. It may be more common than is known, but it is so rarely observed that colonies can easily remain undiscovered. Moreover, even in those areas where it is known to occur, sightings are far from guaranteed.

Early Hairstreaks are members of the Lycaenid family. Many of our other butterflies in this family have a larval lifestyle that is different from what we think of as the usual for caterpillars. Instead of the adults laying their eggs on the host plant's leaves, and the caterpillars eating those leaves until it reaches its time for pupation, many of our lycaenids lay their eggs on flower buds, and the caterpillars then eat these. Spring Azures, Eastern Tailed-Blues, Brown Elfins, and Gray Hairstreaks all share this lifestyle. So, apparently, does the Early Hairstreak, although in this case the caterpillars feed on the developing beech nuts. Because it takes 40 to 60 years for a beech tree to begin fruiting, Early Hairstreaks seem to require a fairly mature forest; not just any beech woods will do. We undoubtedly still have a lot to learn about the specific habitat requirements that seem to keep this butterfly so uncommon and localized.

According to Rick Cech in his great new book, *Butterflies of the East Coast*, there is only one fairly reliable site anywhere for the Early Hairstreak, and that is the area the Massachusetts Butterfly Club visited on Sunday, June 5, 2005, on Mt. Greylock. The weather couldn't have been better: sunny, with just a few passing clouds, and temperatures in the 80's. When we met at the parking lot at the visitor's center, we were a group of 17. Tom Gagnon and I were leaders; Tom has been studying butterflies in western Massachusetts for decades, and it is he who was the real leader and expert for the day. The other participants were Joe Wicinski, Bruce Callahan, Sue and Ron Cloutier, Barbara Spencer, Dolores Price, Marvin St. Onge, Elaine Pourinski, Wendy Miller, Elise Barry and her sister Beth Herr, Christine Holmes, and Richard Kopell from Long Island. Later in the day, we met up with a larger New York contingent, including John Askildson leading several members of his New York club, and my friends Tom Fiore and Kristine Wallstrom, also visiting from New York. Erik and Seth Nielsen met up with us at the campground. Last but not least, we had the benefit of the expertise of Massachusetts Natural Heritage & Endangered Species Program's Mike Nelson.

And so the day began! We carpooled up the hill and headed for our target butterfly, but made a couple of quick stops along the way. At one of these, we stopped at a fairly extensive stand of Garlic Mustard, and everyone got excellent looks at perched West Virginia Whites, flying a bit later than they do down in the valleys. For me, it was a life butterfly, especially great to see. We arrived at the campground and parked, and then started walking up the road. At the base of the hill, Sue Cloutier spotted and called out our first EARLY HAIRSTREAK! It was a fresh female, who



Some of the happy butterflyers on the Early Hairstreak trip



From the left: Elise Barry, Mike Nelson, Tom Gagnon
Photos: Sue Cloutier

put on an excellent display, including some dorsal basking that gave everyone an eyeful of that rich ultramarine upperwing. We meandered up the road, and soon had another, and yet another. As Mike Nelson reported, we seemed to have hit the perfect day in terms of both phenology and weather, including having had a few warm days preceding the trip to get things going.

We also got some nice looks at some other butterflies along the way. Especially good were the Pepper and Salt Skippers along the same road as the Early Hairstreaks. This is a subtle little skipper, and not commonly seen. Tiger Swallowtails were seen patrolling throughout the day; according to Mike Nelson, most, or all, of these were CANADIAN. (Do you need to ask to see their passport?? Looking for underwing spots on the forewing edge is great, but they hardly ever land, it seems...) There were also a number of Spring Azures, all of the *violacea* form, and there was some speculation that these might be the recently-described Cherry Gall Azure race.

We then stopped at Jones' Nose parking area, where we had nice looks at quite a few Dreamy Duskywings, and our only American Lady. We had lunch at the parking lot at the monument at the top, and spotted several Mourning Cloaks, as well as a worn anglewing-type butterfly that got away from us. Some folks also had ice cream. Finally, some of us went on to Moran WMA in Windsor on the way back east, and here at this special place we had great looks at a number of Arctic Skippers, as well as perched and in-flight views of beautiful Silvery Blues, and our only Black Swallowtails of the day. Overall, it was an outstanding day, full of terrific butterflies and a very friendly crowd of folks to enjoy them. It doesn't get any better!

Garden Reports: False Nettles vs. True

by Sharon Stichter

As a larval host plant for Red Admirals, Eastern Commas, and Question Marks, many sources recommend False Nettle (*Boehmeria cylindrica*) as a more benign, native alternative to Stinging Nettles (*Urtica dioica*), which most sources consider to be naturalized rather than truly native. False Nettle is native to New England, but generally has a more southerly range than Stinging Nettles. In 2004 I purchased some seeds of *Boehmeria cylindrica* from a wonderful source in Alabama called Biophilia Nature Center (www.biophilia.net) In addition to selling hard-to-find southern native plants and seeds for butterfly gardening, Biophilia is an educational and ecological center which is preserving and restoring a large natural area along the Gulf coast.

The False Nettle seeds germinated well, and in fall 2004 I planted a clump side by side with a patch of Stinging Nettle in my garden in Newbury, in northeastern Massachusetts. But by May 19, 2005, when the first Red Admirals were just arriving from the south looking for host plants to lay eggs on, the False Nettle was only one-half inch high, barely poking out of the ground, whereas the Stinging Nettle was two feet high, fresh and green and ready to nourish little caterpillars. So the first brood of Red Admirals, obviously, could use only Stinging Nettles.

By mid-July however, the False Nettle was two to two and a half feet high and looking good. I did find Red Admiral caterpillars on it at this time, probably the second brood, making their usual folded-leaf houses for protection. It was a pleasure to be able to handle and search the plants without wearing gloves. By July 25

the Stinging Nettles were a striking five feet high, whereas the False Nettles were still at their maximum height of 2.5 feet. Nevertheless, they were a good midseason host plant.

By the end of August, my upland garden site usually becomes very dry. The Stinging Nettles partly dry up during this time, but then put out new green growth in September. The False Nettles, on the other hand, completely dried up, because they require moister soil. I only hope the plants survived and will return next year. Perhaps because my site is so dry, I have never had Red Admiral larvae late in the summer.

I concluded that on the whole Stinging Nettles, irritating and non-native though they may be, actually work better as Red Admiral host plants at my site than do False Nettles.



Reviews: Two New Guides to Caterpillars

Caterpillars in the Field and Garden : A Field Guide to Butterfly Caterpillars of North America. By Thomas J. Allen, Jim P. Brock, and Jeffrey Glassberg. Viii+232 pages; over 900 color photos; color range maps. Oxford University Press, 2005. Paperback \$29.95

Caterpillars of Eastern North America : A Guide to Identification and Natural History. By David L. Wagner. 512 pages; 1200 color photos. Princeton University Press. 2005. Paperback. \$29.95

Reviewed by Brian Cassie

We have not had any good over-the-counter North American caterpillar books for all these years and now here we are with two. I suggest you buy them both. Here are some of the reasons why.

The Oxford guide has a number of good things going for it. First, it narrows the playing field to butterfly caterpillars only. There are thousands of species of caterpillars out there, many confusingly alike, so focusing on the butterflies is a good way to start sorting caterpillars out. Second, this book includes the vast majority of U.S. and Canadian butterfly caterpillars and pictures examples of all butterfly groups. Third, the photos are quite large and well reproduced, with all of the caterpillars facing in the same direction - right. Finally, the maps are good (In my opinion, maps are always preferable to written range descriptions), as are the introductory

pages covering caterpillar finding, identification, biology, butterfly gardening, and caterpillar raising. The two things I do not like about this guide are the 16-page section dedicated to photo locations and credits (Am I the only one who doesn't give a hoot about this stuff?), and the fact that some of the text is with the photos and some of the text is in an appendix at the rear of the book.

The Princeton guide is a caterpillar book of a different color, to be sure. It devotes the majority of its pages to moths, which far outnumber butterflies in terms of species and, of course, sheer numbers of individuals. The chances are the caterpillar you discover in your yard or almost anywhere else will be a moth caterpillar and so it makes sense to illustrate and write about moth caterpillars, at least the most common and conspicuous species. Still, there are 113 butterflies covered. This book has even larger photos, all of which, again, have the head facing in the same direction-- but this time, left. There is a page full of text for all of the main species and very interesting introductory matter, including a section entitled "Caterpillar Projects for Schools, Nature Centers, and Universities."

The question arises almost immediately with caterpillar or other field guides, "Is it going to help identify the organism in question?" The authors take quite different approaches in their text descriptions. Following are the descriptive accounts of what I consider the two most common butterflies in Massachusetts, Cabbage White and European Skipper. You need to judge for yourself if the authors are short-changing the reader, providing the proper amount of text, or going overboard with their descriptions. Naturally, at least some of this depends on your experience with these and other caterpillars.

Cabbage White

Oxford : Note yellow sub-lateral dashes.

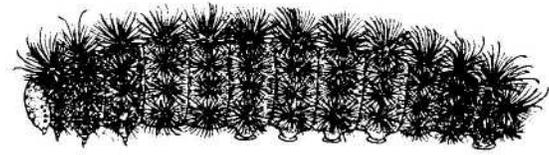
Princeton : Sea or pea green, with faint yellow middorsal line; some individuals also have broken yellow spiracular line that may be represented by just a yellow spot fore and aft of spiracle. Body and head densely set with short hairs and minute black spots (visible with lens). Larva to 3 cm.

European Skipper

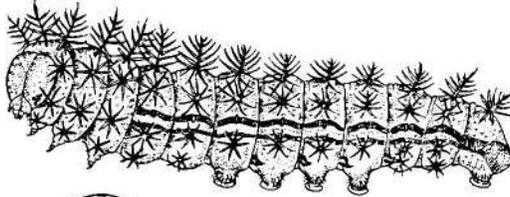
Oxford : Green with dark dorsal stripe and two lateral yellow lines; head greenish-tan with two white or yellow vertical stripes.

Princeton : Distinguished from other grass skippers by whitish lines on head that run from vertex to mandibles and the absence of a constricted “neck.” White, paired wax glands on underside of A7 and A8. Rusty hairs contrast with green ground color. White lines on head sometimes bounded outwardly with black. Greenish middorsal stripe edged with pale addorsal stripe that in turn is flanked by cream subdorsal stripe that runs from T2 back over abdomen. Subspiracular stripe runs from A1-A8. Anal plate extends well beyond proleg. Ground color of head pale green. Larva to 2.5 cm.

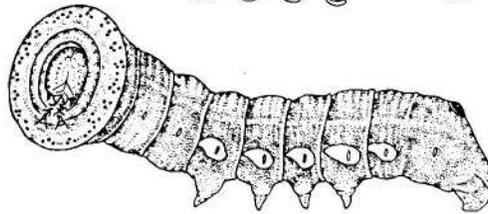
Follow the advice of all of the authors and take time to get to know caterpillars in the field, with one or both of these field guides in tow. There are plenty of less-than-perfect-weather days when caterpillar hunting can take the place of butterfly watching. We have far too few caterpillar hunters in Massachusetts. Why not join the ranks?



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Caterpillar Drawings by Tor Hansen
(previous page)

1. Salt Marsh Acraea Moth *Estigmene acraea*
2. Io Moth *Automeris io*
3. Pandora Sphinx Moth *Eumorpha pandorus*
4. Zebra Army Worm *Ceramica picta*
5. Elm Span Worm *Ennomos subsignaria*

Drawings used with permission

Submission of Articles, Illustrations, and Season Records

We encourage all members to contribute to *Massachusetts Butterflies*. Articles, illustrations, butterfly field trip reports, garden reports, and book reviews are all welcome, and should be sent to the Editor by September 15 for the Fall issue, and January 15 for the Spring issue.

Send Fourth of July count results to Erik Nielsen by August 1 for inclusion in the Fall issue, and your season sightings and records to Erik by December 31 for inclusion in the Spring issue. Records may now be submitted via the online checklist and reporting form, which is available for download from <http://www.massbutterflies.org/club-publications.asp> or from <http://www.massbutterflies.org/downloads/massbutterflies.xls>

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