

Massachusetts Butterflies



Fall 2010, No. 35

Massachusetts Butterflies is the semiannual publication of the Massachusetts Butterfly Club, a chapter of the North American Butterfly Association. Membership in NABA-MBC brings you *American Butterflies*, *Butterfly Gardener*, *Massachusetts Butterflies*, and our spring mailing of field trips, meetings, and NABA Counts in Massachusetts. Regular NABA dues are \$30 for an individual, \$40 for a family, and \$60 outside the United States. Send a check made out to NABA to: NABA, 4 Delaware Road, Morristown, NJ 07960. An “MBC only” membership is \$15, and includes a subscription to *Massachusetts Butterflies* and all club mailings. Send a check made out to Massachusetts Butterfly Club to our Secretary, address below.

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*Front Cover: 1,592 Cabbage Whites (Pieris rapae), Barbara Spencer
Worthington, Massachusetts August 28, 2010*



Steve and Barbara in Hawaii



Jim Snyder pointing out a Lesser Grass-Blue

Photos: Sue Cloutier

Hawaiian Butterflies

Steve Moore

Hawaii – visions of volcanoes, luxury resorts, high surf, endemic honeycreepers, sun, Waikiki Beach, *etc.* Perhaps butterflies do not come quickly to mind, but there are 17 species of butterflies on the Islands of which 2 are endemic and 7 cannot be seen anywhere else in the NABA area.

The 2 endemics are Hawaiian Blue and Kamehameha Lady; the 10 introduced species that can be seen on the North American mainland are Cabbage White, Large Orange Sulphur, Lantana Scrub-Hairstreak, Western Pygmy-Blue, Gulf Fritillary, American Lady, Painted Lady, Red Admiral, Monarch and Fiery Skipper. The 5 introduced species not normally seen on the mainland include Chinese Swallowtail, Red-spotted Hairstreak, Pea Blue, Lesser Grass-Blue and Banana Skipper. In addition to the normal orange form, there are forms of the Monarch that are brownish or white and black rather than orange and black. The whitest of these can be found in the Kona area on the Big Island (Hawaii).

Ron and Sue Cloutier, Tom and Joyce Prince and Barbara and I traveled to Hawaii in early February, 2010. We visited only the islands of Oahu and Hawaii (the Big Island). All of the butterflies present on the Islands are present on Oahu and Hawaii, although there are certainly many individuals on the other islands. We were guided by Jim Snyder, a resident of Oahu, who was the discoverer of the Lesser Grass-Blues on Oahu in 2008 (see *American Butterflies*, Spring 2008, Vol. 16 (1): 42). Jim spent three days with us showing us the localities where the butterflies were expected.

Assuming the reader would not travel 6,000 miles one-way to see species that can be seen on the mainland, I will provide information only on the 7 species that cannot be seen on the mainland, including locations where we saw them.

A. Endemic Species

1. Hawaiian Blue (*Vaga blackburni* or *Udara blackburnii*) – a blue/green butterfly that resembles our Early and Arizona Hairstreaks found in both islands wherever its hostplant Koa (an endemic acacia) exists (Photo 1). We found it about 1,000 yards up the Manumae Trail in Honolulu at the first good overlook, at Kipukapuauulu (“bird park”) in the Volcanoes National Park and the Makaula O’ma Tract near Kona on Hawaii.
2. Kamehameha Lady (*Vanessa tameamea*) – a dark red lady which uses Mamaki as its hostplant (Photo 2). We found it at Pipukapuauulu in the Volcanoes National Park which is on Mauna Loa Road off of Route 11 just 2 miles east of the Volcanoes Visitors Center. Park in the rotary circle and walk the 1 mile loop nature trail. A second location is the Honuaula Forest Trail aka Makaula O’ma Tract near Kona where we followed the trail uphill through the woods until we reached a trail heading left to a large field.

B. Introduced Species

1. Chinese Swallowtail (*Papilio xuthus*) – An Asian species which we found on both islands. A large black and white swallowtail which is most easily seen at the Foster Botanical Gardens in downtown Honolulu. Also seen on the Manumae Trail in Honolulu and on Hawaii at the



1. Hawaiian Blues mating

Photo: S. Cloutier



2. Kamehameha Lady

Photo: B. Volkle

Pololu Valley Overlook at the end of Route 270 east of Kapa'au. Its larva feeds on citrus (we saw it on what appeared to be a grapefruit tree on at the Pololu Valley Overlook on Hawaii).

2. Lesser Grass-Blue (*Zizina otis*) – A small Grass-Blue with scattered dark spots on the ventral side. This butterfly was first found on Oahu by Jim Snyder in 2008 and appears to have spread considerably around Oahu. We did not find it on Hawaii. We found it at the location Jim first found them on Kapahuu Boulevard in Honolulu near the Ala Wai Golf Course in the short grass along side the Boulevard, the Koko Crater Botanical Garden near Kaloko Point and the Kukaniloko Birthing Stones State Monument just north of Wahiawa on Route 80. This Blue is native to Southeast Asia, India and Japan and feeds on legumes, including sensitive mimosa on Oahu.
3. Pea Blue (*Lampides boeticus*) – a Blue with long tails which is fairly common on both islands (Photo 3). This widespread species (Eurasia, Australia and Africa) was introduced to Hawaii in the late 1800s. We found it at the US military National Cemetery of the Pacific in Honolulu (the “Punchbowl Cemetery”) at the circle overlooking downtown Honolulu, the Kukaniloko Birthing Stones State Monument, the Manumae Trail, the Koko Crater Botanical Garden and at Kipukapuauulu on Hawaii. It feeds on Rattlebox and other members of the pea family.
4. Red-spotted Hairstreak (*Tmolus echnion*) – a hairstreak that normally is found from Brazil to northern Mexico and very rarely in South Texas. It was introduced into Hawaii in 1902 (along with the Lantana Scrub-Hairstreak) in a failed

attempt to control invasive Lantana. Its hostplants include Verbena, and plants in the mint and potato families. We found it plentiful at the Kukaniloko Birthing Stones State Monument just north of Wahiawa. When we were there many were mating.

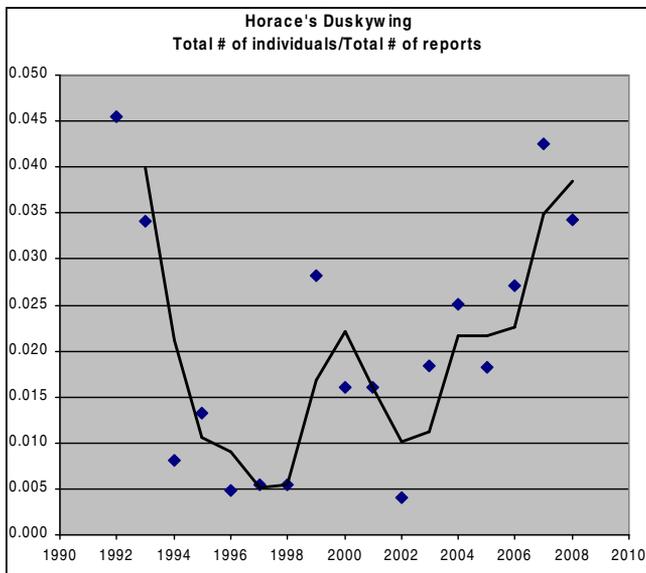
5. Banana Skipper (*Erionota thrax*) –one of only two Skippers on the islands, this one is very rare. If one googles Banana Skipper, most of the hits refer to the natural control methods of eradicating this butterfly as its caterpillar does damage to the leaves of the banana tree. We were unable to find one during our 10 day stay and we looked at a lot of banana trees.



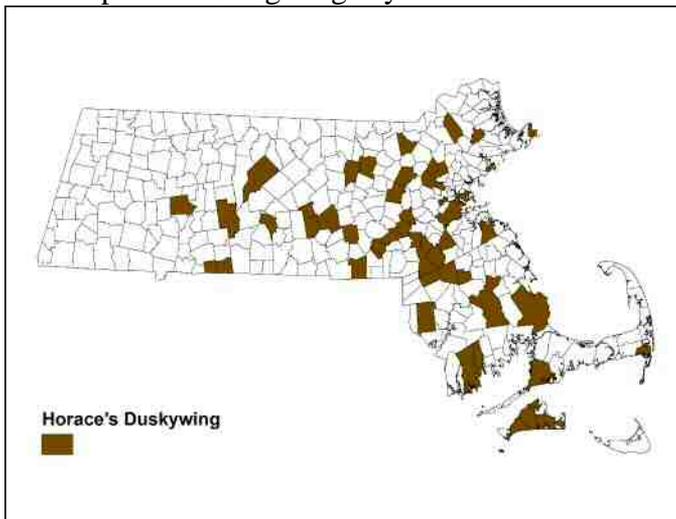
Photo: Sue Cloutier

3. Pea Blue---not found in North America

Chart 1: MBC Sightings 1992-2008



Map 1: MBC Sightings by Town 1992-2010



A New Guide to Massachusetts Butterflies

Sharon Stichter

A new guide to the study, monitoring and conservation of butterflies in our state will be available in January 2011. Located at <http://www.butterfliesofmassachusetts.net> the Butterflies of Massachusetts website is written by Sharon Stichter and produced in cooperation with the Massachusetts Butterfly Club.

This resource presents new Species Accounts for some 110 species of butterflies which occur here. Each account includes (1) A bit of history. Many of our species were first described and named by Thaddeus W. Harris or Samuel Scudder, both at Harvard, or W.H. Edwards, working in West Virginia. In some cases the 'type localities' of the early specimens are right here in Massachusetts. Many skippers were named for Native Americans prominent in New England history. Scudder's magisterial summaries give us some idea of most species' abundance here in the 19th century.

(2) Host plants and habitats specific to our state are discussed. (3) The section on relative abundance and trend today includes change since 1900, recent change since 1986-90 MAS Atlas, and MBC sightings trend 1992-2008. This section is based on the extensive MBC database compiled over the years by Club Records Keeper Erik Nielsen. (4) The distribution of the species in the state today is shown in a map of MBC sightings by town. (5) Broods and flight periods are covered, based on the Checklist flight charts and subsequent data. In some cases we are getting second and third broods and earlier and later flight dates compared to a century ago. (6) Finally, the conservation outlook for the species is assessed, including the potential impact of climate warming. Each account

has a photograph taken by one of the many photographers in the Club, along with a link to the other photographs on the Club website.

For example, take Horace's Duskywing. This is an oak-feeding species. It is not confined to scrub oak barrens but can be found in almost any dry (rocky, sandy) open habitat with oaks and an adequate supply of nectar. It has two broods here, and flies from May into September. It is not a strongly migratory species.

There has been a strong and fairly steady upward trend in MBC sightings per total trip reports each year, since about 1994 (Chart 1). Partly, this may reflect our members' growing confidence in identifying this sometimes difficult species, and distinguishing it from Juvenal's and Wild Indigo Duskywings. But it also seems likely that Horace's is another "southern" species which is getting more common here due to climate warming.

Horace's is at the northern limit of its range in Massachusetts. There have been none found so far by the ongoing Maine Butterfly Survey, and in Vermont, there is only one recent specimen, found in 2007 in a southeastern bloc. In New Hampshire there is one pre-1990 record from one southern county. So it is of some importance to see exactly what the distribution is in our state. Map 1 shows all MBC records through 2010 for any town in which there has been at least one Horace's Duskywing reported.

The question is, what are the northernmost sightings, and what are the westernmost? The northernmost recently is North Andover 4/20/2010 Weir Hill TTOR, R. Hopping, and two other 2010 reports from North Andover. But the northernmost would actually be a MAS Atlas report from Newbury, by T. French on 7/19/1987, which isn't shown on this map and needs re-confirmation.

The westernmost sighting so far is from Northampton community gardens: 1 worn female seen on 8/21/2008 by Tom Gagnon. There are also sightings in “the valley” from East Longmeadow (5/6/1998, K. Parker), and Hampden (5/14/1995 G. Howe). There is an Atlas report from Southwick (5/9/1989 T. Fowler), and historical reports from Amherst (Scudder), and Montague and Granby (Schweitzer). Can Horace’s Duskywing be re-found in Montague and Granby today? It has never been reported from the Central Franklin NABA Count, or from the Berkshire Counts. Can it be found in these or other locations in western and central Massachusetts?

These new MBC maps already show many new locations and range extensions compared to the 1986-90 MAS Atlas maps. The Atlas found Horace’s Duskywing only east of Worcester, and in Southwick. The MBC map adds many locations for this species in the west and central parts of the state. If this map now reflects Horace’s actual current range, it can be used as a baseline from which to track future changes.

The charts and maps on the Butterflies of Massachusetts website depend on the MBC records database, and that in turn depends on us! Let’s get out in the field and look, and let’s keep our records accurate. In a case like Horace’s Duskywing, we should all study those field marks: lack of two diagnostic ventral HW spots differentiates it from Juvenal’s, palps are usually but not always white, it is larger than Wild Indigo, and the sexes are quite different (see photos next page). If you are unsure of a sighting in the field, take photographs. Please report all sightings either on ‘masslep’ or directly to the club Records Compiler. And, please contact me with any other information you may have that could update any section of this website.



Horace's Duskywing, Canton, Great Blue Hill, 2009 *E. Nielsen*



Horace's Duskywing female, Great Blue Hill 2009 *E. Nielsen*

Out in the Field! Photos from 2010



Westborough WMA and the Crane Swamp Trail 7-18-2010



MBC and the Friends of Mary Cummings Park 8-8-2010



To Weir Hill for the Frosted Elfins 5-15-2010



Kate Hopping photographs a fritillary at Appleton Farms 9-11-10



Before butterflying, Lauren had to get the goats out of the way!
Allen's Neck, 9-18-2010



Erik, Ron and Greg on the trail of the Bronze Coppers in Wayland
9-25-2010



Bronze Copper ovipositing on stem of curly dock 10-2-2010. *M. Rainey*



Bronze Copper egg on curly dock 10-2-2010

M. Rainey

Bronze Copper Host Plant

photos by Mark Rainey

It seems incredible that for one of our most beautiful resident butterflies, the Bronze Copper, *Lycaena hyllus* (Cramer, 1775), the exact host plant used here in Massachusetts has not been known with certainty.

Increasingly throughout its range Bronze Copper has been found to have adopted the non-native but widespread curly dock (*Rumex crispus*) (Allen 1997: Pl. 33, *inter alia*) as its host plant. Its native hosts were great water dock (*Rumex orbiculatus*), and swamp or water dock (*R. verticillatus*), and these may be still used if available (Iftner *et al.* 1992). Bronze Copper is also reported to use a related group of plants, knotweeds (*Polygonum* spp.), some of which are native, and some not. The natives *P. coccineum* and *P. natans*, Erect and Floating Water Smartweed, are the known hosts (Scott (1986); their probable use has been reported most recently from Minnesota (MacLean 1990).

These photos by Mark Rainey, taken on October 2, 2010, at Sedge Meadow Conservation Area in Wayland, illustrate convincingly that Bronze Copper at this location is using the familiar curly dock for ovipositing. By searching curly dock stems, Mark subsequently found several additional eggs at Sedge Meadow and also at Great Meadows NWR in Concord. Ovipositing on dock has also been observed by E. Nielsen and S. Moore in these areas. Of course, *Polygonum*s could also be being used in Massachusetts, but some photographic evidence would be needed to confirm this.

Sources: Allen, Thomas J. 1997. *The Butterflies of West Virginia and Their Caterpillars*; Iftner, David C. et al. 1992. *Butterflies and Skippers of Ohio*; Scott, James A. 1986. *The Butterflies of North America*; MacLean, D. 1990. *J. Lep. Soc.* 44(1): 33-34.

2010 NABA Butterfly Counts

Compiled by Tom Gagnon

Only 13 4th of July Butterfly Counts were held in 2010. We had two counts that were rained out and could not be rescheduled—Martha’s Vineyard and the North Berkshire County Counts. The “Seasonal” Springfield Count was not held. The good news is that the total butterflies were up over 2009 by more than 1700 individuals. The actual number was 13,729.

Looking at the charts, one thing that jumps out at me are the very low numbers of Hairstreaks. Before the counts started, we were asking one another “Where are the Hairstreaks?” Well, we never did really find them. A first hand example of looking for Hairstreaks was when I participated on the Central Berkshire Count and went to my spot for Acadian Hairstreaks and found only 12. Usually, my figures for this one small spot are around 40 individuals. There were very good numbers for all of the Swallowtails, Clouded Sulphurs, American Coppers, Pearl Crescents, Red Admirals, and Silver-spotted Skippers.

Found on ALL counts were the following 7 species of butterflies: Eastern Tiger Swallowtail, Cabbage White, Orange Sulphur, Pearl Crescent, Common Wood Nymph, Monarch and Silver-spotted Skippers. Seen on only ONE COUNT were the following: Canadian Tiger Swallowtail, Mustard White, Acadian Hairstreak, Edwards’ Hairstreak, Variegated Fritillary, Milbert’s Tortoiseshell, Hoary Edge, Southern Cloudywing, Long Dash and Dion Skipper.

Not to be found on any of the 13 counts were the following: Cloudless Sulphur, Harvester, Bronze Copper, Hickory, Oak,

Juniper, and White M Hairstreak, Harris' Checkerspot, Compton Tortoiseshell, Hackberry Emperor, Dreamy Duskywing, Hobomok Skipper, Zabulon Skipper and Two-spotted Skipper.

Once again, many of us participated in more than one count. Some of us did 3 or 4 counts. The number of participants averaged out to 9.5 participants per count. Seen on the Bristol Count and not listed in the charts was one Juvenal's Duskywing. This would be rather a late date for a Juvenal's. The only other record that jumps out at me as I look the charts over is the one record of the Dion Skipper found on the Central Berkshire Count. It is always fun to find something rare in your area. The highest species count for 2010 went to the Central Franklin Count at 50 species.

It was reported that there were 8 teams spread throughout North Worcester County for their 15th Count. It was not reported how many actually showed up to count butterflies or was it to participate in the pot luck breakfast AND supper that complemented the annual Walker family barbecue that fed them all. Congratulations to all that took part in any one or more of the counts this year.

Tom Gagnon, Florence, Massachusetts



Editor's Note: The Butterfly Count Program is administered by the North American Butterfly Association, 4 Delaware Rd, Morristown, NJ 07960. Official reports for all counts held in the U.S., Canada and Mexico are available from NABA for \$10.00. The unofficial tallies for Massachusetts counts are reported here.

Total	0	120	224	1	76	16	752	2,193	177	0	0	855	0	364	38	12	2	8	0	12	0	
Northern Berkshire																						
Central Berkshire		13	4			16	11	92	4			6			16	12						
Southern Berkshire		43	6		1		99	641	19										1			
Central Franklin		8	20		4		95	505	30			181		353	10				3			
Northampton		20	18		5		152	334	31			43							2			
Northern Worcester		21	93	1	20		72	336	35			312		4				2	1		1	
Concord		3	4		1		23	38	10			22										
Northern Essex		7	44		9		59	197	9			55			1						2	
Springfield																						
Blackstone Corridor			9		4		21	33	7			42										
Bristol			2		13		4	8	2													
Falmouth		2	3		8		12	2	5			7										
Brewster			10		9		121	1	15			123		9				1			1	
Barnstable			6				49	6	9			4										
Truro		3	5		2		34		1			60		7	2						8	
Martha's Vineyard																						
Pipevine Swallowtail																						
Black Swallowtail																						
Eastern Tiger Swallowtail																						
Canadian Tiger Swallowtail																						
Spicebush Swallowtail																						
Mustard White																						
Cabbage White																						
Clouded Sulphur																						
Orange Sulphur																						
Cloudless Sulphur																						
Harvester																						
American Copper																						
Bronze Copper																						
Bog Copper																						
Coral Hairstreak																						
Acadian Hairstreak																						
Edwards' Hairstreak																						
Banded Hairstreak																						
Hickory Hairstreak																						
Striped Hairstreak																						
Oak Hairstreak																						

Total	0	0	16	125	77	1	486	45	10	44	14	0	3,297	49	16	9	0	2	2	48	4	170	
Northern Berkshire																							
Central Berkshire				3	2		22		9				253	3	2						3		11
Southern Berkshire				4			44	2	6	7			292	7	2	2					1		19
Central Franklin			3	11	20		90	10	13	1			52	15	5	3		1		7			39
Northampton				32	15		20		16	6			1221	5	4	3		1	2	6			42
Northern Worcester				23	17		230	33	1				30			1					9		8
Concord			1	4	1								99										5
Northern Essex			3	4	15		49						77	19	1						5		23
Springfield																							
Blackstone Corridor				2	4		19						178										3
Bristol				25	2		12		9				207								3		3
Falmouth			6	7									500+								7	1	4
Brewster			2		1	1							200		1						7	3	10
Barnstable				10									133		1								3
Truro			1										55								1		
Martha's Vineyard																							
	Juniper Hairstreak																						
	White M Hairstreak																						
	Gray Hairstreak																						
	Eastern Tailed-Blue																						
	"Summer" Spring Azure																						
	Variegated Fritillary																						
	Great Spangled Fritillary																						
	Aphrodite Fritillary																						
	Atlantis Fritillary																						
	Silver-bordered Fritillary																						
	Meadow Fritillary																						
	Harris' Checkerspot																						
	Pearl Crescent																						
	Baltimore Checkerspot																						
	Question Mark																						
	Eastern Comma																						
	Compton Tortoiseshell																						
	Mourning Cloak																						
	Milbert's Tortoiseshell																						
	American Lady																						
	Painted Lady																						
	Red Admiral																						

Total	2	2	0	17	87	0	5	16	20	56	139	174	1,504	276	532	1	1	3	0
Northern Berkshire																			
Central Berkshire				1	13			4					88	11	6				
Southern Berkshire				1	7		1	1		10	3		387	19	14				
Central Franklin	1	2			6			5	3	9	14	2	6	12	120	1	1	1	
Northampton				1	25		4	1		4	3	36	256	32	35				
Northern Worcester				1	2			1	5		51	5	5	84	147			2	
Concord				1	3					1	5		45	8	7				
Northern Essex				4					10	18	25	2	53	31	154				
Springfield																			
Blackstone Corridor					9			4	2	11	19		281	5	7				
Bristol					21					3		6	23	8	1				
Falmouth				4								52	271	9					
Brewster				1									32	19	8				
Barnstable	1			2	1							71	21	35	3				
Truro				1						19			36	3	30				
Martha's Vineyard																			
	Common Buckeye																		
	Red-spotted Admiral																		
	White Admiral																		
	Red-spotted Purple																		
	Viceroy																		
	Hackberry Emperor																		
	Tawny Emperor																		
	Northern Pearly Eye																		
	Eyed Brown																		
	Appalachian Brown																		
	Little Wood-Satyr																		
	Common Ringlet																		
	Common Wood Nymph																		
	Monarch																		
	Silver-spotted Skipper																		
	Hoary Edge																		
	Southern Cloudwing																		
	Northern Cloudwing																		
	Dreamy Duskywing																		

Total	20	128	45	41	226	118	46	24	5	240	99	143	47	0	0	36	1	10	0	388
Northern Berkshire																				
Central Berkshire				2	4	31	6	1		8	3	7				4	1			36
Southern Berkshire				1		1	2			5	2	1	8							50
Central Franklin		1	18	3	29		3	3		42	12	25	3						2	59
Northampton		6	14	13	2	33	9			10	2	1	3			4				10
Northern Worcester		3	1	14	173		4	3	5	36	18	84	2						2	25
Concord		44			2					1	1	2	2			1				29
Northern Essex		3	1	2	15					21	42	6	6			1		6		22
Springfield																				
Blackstone Corridor	5	15	11	1	1	5	1	7		27	11	13	23			8				70
Bristol	15	32		2		23	5	3		7						2				9
Falmouth		8					1				4									5
Brewster						1		7		48	2	1				6				64
Barnstable		12		3		24	15			6										
Truro		4						2		29		3				10				19
Martha's Vineyard																				
	Horace's Duskywing																			
	Wild Indigo Duskywing																			
	Common Sootywing																			
	Least Skipper																			
	European Skipper																			
	Peck's Skipper																			
	Tawny-edged Skipper																			
	Crossline Skipper																			
	Long Dash																			
	Northern Broken Dash																			
	Little Glassywing																			
	Delaware Skipper																			
	Mulberry Wing																			
	Hobomok Skipper																			
	Zabulon Skipper																			
	Broad-winged Skipper																			
	Dion Skipper																			
	Black Dash																			
	Two-spotted Skipper																			
	Dun Skipper																			

Summary	No. of Individuals	No. of Species	No. of Participants	Party Hours	Date	Compiler
Northern Berkshire	Rained out					Tom Tynning
Central Berkshire	708	35	5	18	7-17	Tom Tynning
Southern Berkshire	1,709	35	9	19	7-9	Rene Laubach
Central Franklin	1,862	50	14	51.5	7-4	Mark Fairbrother
Northampton	2,482	43	7	40.5	7-18	dottie case
Northern Worcester	1,923	44	8 teams	N/A	7-5	Carl Kamp
Concord	363	27	18	14.5	7-10	Dick Walton
Northern Essex	1,001	37	11	28	7-3	Sharon Stichter
Springfield						Roger Pease
Blackstone Corridor	858	33	8	24.5	7-10	Tom Dodd
Bristol	451	29	2	6	7-24	Mark Mello
Falmouth	918	21	3	5	7-24	Alison Robb
Brewster	704	28	9	15	7-17	Alison Robb
Barnstable	415	21	16	N/A	7-31	Alison Robb
Truro	335	23	5	9	7-10	Alison Robb
Martha's Vineyard	Rained out					Matt Pelikan
Total	13,729	66				

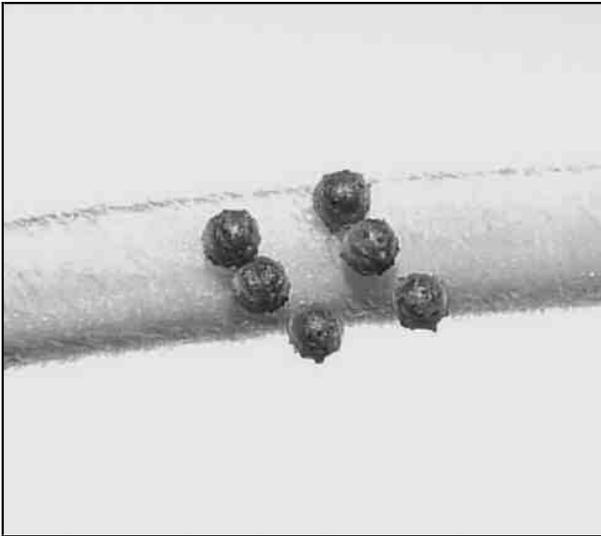
Raising Pipevine Swallowtails

Betsy Higgins

I planted *Aristolochia durior*, Dutchman's Pipe, on a trellis on my garage in Florence, Massachusetts, a few years ago, hoping to attract a Pipevine Swallowtail butterfly. To be honest, I never really thought it would happen. Since I started butterflying about ten years ago, I have seen one Pipevine Swallowtail butterfly. It was a male, in the Northampton Community Gardens, a few years ago. Never in my yard, and never a female.

When my husband came home from work on July 29 and asked if I'd seen the big butterfly fluttering around my plant, I flew outside to look and sure enough, a Pipevine Swallowtail was ovipositing on the plant! I could barely believe my eyes. She laid six eggs that afternoon (see photo), on the stem close to the smallest, freshest leaves on the plant, and flew away. She made a brief showing in my garden the next afternoon, but never returned to lay more eggs.

Now, I had the big debate (with myself). Should I leave the eggs outside, or bring them in and rear them inside? I decided on a compromise. I found a small children's bug catching container, made of mesh. It was a cylinder, with a zipper opening on the end. I carefully put the end of the vine with the eggs into the cylinder, and zipped it closed around the stem. I then clothes-pinned the whole thing to the trellis. The eggs were on the live plant, and protected from predators. I was pleased with myself and congratulated myself on my cleverness!



Pipevine Swallowtail -- adult and eggs *B. Higgins*

Well. The next day I was showing the eggs to a friend. I carefully removed the stem from the container, and it just snapped right off of the vine. Disaster! Now I was committed to rearing the eggs inside, but what if the vine dried up before they hatched? Would they be ok? I brought the vine in and put it in water and crossed my fingers. Happily, the vine did last and the eggs all hatched on Aug. 4, six days after being laid. The caterpillars spent the morning eating their egg shells. I got a fresh, very small leaf and positioned it over the stem, and by 3 in the afternoon the cats had crawled onto the new leaf and commenced eating! They seemed to like to stay all together in a little clump and continued to do that for their entire time as caterpillars (see photo).

I had read online that like the Monarch, the Pipevine caterpillar is poisonous as a result of eating the poisonous *Aristolochia* plant. The article said that the tiny caterpillars had to eat the smallest leaves which have the least toxin; that they must build up the toxin in their bodies gradually. I brought them the smallest leaves and only gradually moved to bigger and bigger leaves. They shed their first skins on 8/6. I kept them in a plastic container with a lid, cleaned it out every day and put in more and more fresh food as they ate more and more ravenously. On Aug. 19 I moved the now very big and fat caterpillars into a hanging mesh butterfly rearing container, gave them a bunch of fresh food, and left them in the (not too enthusiastic) care of my daughter while I went on a four day mini vacation to Connecticut Lakes, N.H. My hope was that my daughter would not have to do anything more than add food to the container, if that. In fact, when I called on Aug. 20, she reported that they had begun to attach to the sloping top of the mesh, and by the next day they were all hanging.

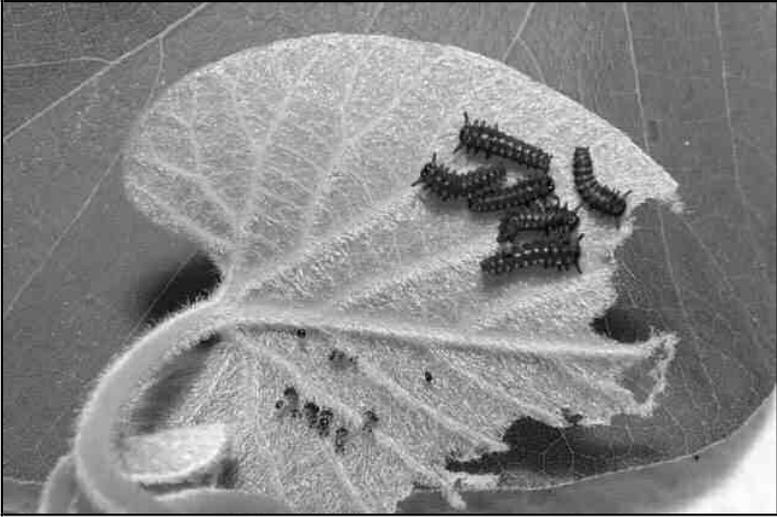
Unlike the Monarch which hangs in a "J", the Swallowtails attach at both the head and tail end, with a silk sling in the middle adding

strength to the attachment. When I came home on the 23rd, I was surprised to find all but one still hanging, and only the one changed into the chrysalis. They were slow to change. I was worried that maybe they would not make it, but the final caterpillar transformed into a chrysalis on Aug. 28.

After some cool nights, I thought these might overwinter as the chrysalis, but not so. The first butterfly eclosed on Sept. 11, mid-morning. I was gone all afternoon, and when I got home I quickly released the butterfly which flew at lightening speed up high into the trees and was gone. The second eclosed early that evening. I released it around 9:30 on the 12th. It was a cool morning and this butterfly stayed around until noon and then left. The final four all eclosed on Sept. 14 and all left the yard fairly quickly.

Now, I wait to see if any of the beauties find mates and locate this plant again in time to complete another cycle. I don't really expect it. It seems like a bit of a miracle that the lone female, who barely belongs here in the first place, found my Pipevine plant. It was an adventure for me; I enjoyed every minute of it and hope to do it again someday.

Note: Interestingly, more Pipevine eggs and caterpillars were found in Worthington, MA, on July 26, 2010. They were at a child care center run by Betsy's friend Susan Warner, and found by Aine McDonald, age 12, who looked them up and identified them herself. The children raised the caterpillars, and released them after they emerged from their chrysalises --- Ed.



Pipevine caterpillars

B. Higgins



Pipevines newly emerged from chrysalises *B. Higgins*

An Aid to the Breeding of Saturniid Silk Moths

Don Adams

Raising the Saturniid silkmoths (Sats) has inspired a dedicated following of breeders and enthusiasts all over the world for decades, and I can recall raising my first *Promethea* moth in the 50's in a 'cage' I made from an old wooden nail crate to which I added a simple hinged screen door top.

In those years, *promethea* and *cecropia* in particular were both quite easy to find as cocoons, and those of us in my neighborhood who shared an interest in this quickly learned that if one of our cocoons eclosed a female, she would attract (call) a male, and sometimes many males, mate and then we would have eggs to raise. *Promethea* was the most fun for us because females would attract a male during the afternoon hours when it was easy to see what was happening. When males began to arrive, I'd just carefully prop open the screen door top to my cage with a stick, and a male would fly right in and pair with the female.

Cecropia was a tad harder since I would have to leave my cage door open all night, sometimes with the female on the door itself, and hope she would stay put until the next morning. Most of the time this would be the case, but occasionally I'd suffer the disappointment of finding an empty cage the next morning, or worse, finding an empty cage surrounded by moth wing fragments. Just the same, when this all worked out as intended, I can still remember the excitement of finding my 'free' male paired with female and the fun to come of lots of caterpillars to raise.

By the time I graduated from college in 1971 with an Electrical Engineering degree, I had continued to maintain my interest and



Photo: Don Adams

Calling Cage

fascination with the natural world. I had gotten into Sat breeding in a really big way, raising all our familiar native species including luna, polyphemus, io, and cynthia. It was at this time that I decided a better method was needed to deploy female moths for attracting males that could work on a relatively hands-off basis, while at the same time providing better protection for the moths from potential predators. My past experience demonstrated that these included primarily skunks, raccoons, and birds.

Females of many moth species use chemical pheromones, a 'perfume' of sorts I suppose, to attract males of their species.

However it's probably safe to say this ability is most highly developed with Sats. Experiments with Sats have demonstrated that males can be attracted from a distance of a mile or more downwind, and even adverse weather does not seem to thwart this. Additionally, this 'perfume' is quite species specific; that is a female cecropia moth will not attract say a male polyphemus moth. Slight differences in 'calling periods' between species may aid in this as well. Therefore, the first attribute of my new deployment scheme needed to allow the females scent plume to escape and drift downwind normally.

The other primary considerations were providing some protection for the moths while, at the same time, permitting reasonable access for attracted males to find the calling female and pair. Since these 'design goals' are conflicting, some sort of compromise was needed. The cage design I ended up with, and have used ever since, resulted from some trial-and-error experimenting, and is shown in the accompanying photo. It's a simple affair made of 'clear grade' (no knots) pine board and window screen which can be purchased at any lumber yard and hardware store. Use the following steps outlined below along with the photo as a reference to construct this cage. Although it's possible to build this with simpler tools, you'll find it easiest if you have...

- 1) An electric drill with 1/2 inch wood bore
- 2) A table saw
- 3) A scroll saw
- 4) Staple gun with 3/8 inch staples

The pine board should be of lumber dimensions 1 x 12 (this will actually measure 3/4 x 11-1/2 inches), and purchase a length of 4 ft. With a table or circular saw, cut one piece from this 2 ft long, then cut the remaining piece exactly in half. Next, measure and

make a mark on the 2 ft piece exactly in its center, and from this point use a compass to scribe a circle of radius 2-1/4 inches. Now with a 1/2 inch or larger wood drill, make a pilot hole just inside this circle, and with a scroll saw carefully saw out the entire circle. This side of the cage is now complete.

Preparation of the cage wood ends consists simply of sawing a notch at the middle top of each end piece to receive a brace which spans the 2 ft length of the cage and gives it extra strength. The exact dimensions of this brace are not critical, so I make one from a 2 ft length of 2 x 4 lumber by using my table-saw and simply rip-sawing off a 1 inch piece. This gives me a 1 x 1-3/4 inch brace 2 ft long. Now using the table saw with blade set at 1 inch above the table, I make a 1-3/4 inch wide notch in the middle of both 11-1/2 inch wide ends.

To hold the screen in place, I use thin strips of wood as the photo shows. These can be made easily from a 2 ft length of clear 1 x 4 lumber using a table saw with rip fence set to about 1/4 inch. You'll need two 2-ft lengths, and six 1- ft lengths to hold the screen in place on all sides.

The window screen I recommend using is a standard 2 ft wide piece of aluminum screen cut to exactly 3 ft length. Buy a slightly longer piece at the hardware store so there's enough material to make a good straight cut yourself with scissors. For fastening, I use 3 inch 10d stainless clapboard nails or galvanized screw nails to fasten the wood sections together. You're now ready to assemble the cage parts.

On a good flat work surface, start by setting the 2 ft wood section on top of the two ends, and fasten these with four evenly spaced nails. Then insert the brace into the end slots and hold with two

nails at each end. The aluminum screen can now be folded around the wood sections and held in place with a few staples. Finish by nailing the thin wood strips along the screen perimeter with 1 inch finish nails. With all materials and tools at hand, it takes me about one hour to complete these steps, so not a difficult winter project.

Using the cage with your eclosed female Sats is quite simple. Of course a necessary prerequisite for this is that your overwinter cocoon storage has allowed the timing of eclosures to be in synchrony with the natives in your area. For most folks, setting the cage out in your back yard will suffice, but I frequently take the cage with moth to remote locations in order to try a spot I suspect will be good for Sats. Try to locate the cage out of easy view if at a remote site and a couple of feet off the ground to help deter skunks and raccoons which can occasionally be a problem. I set the cage so that the opening is facing sideways as in the photo.

The female is placed inside and it's best if you do this a couple of hours before she starts 'calling'. When female Sats are 'calling', you can observe her scent gland protruded at her abdomen end with a flashlight. Since they are generally quite inactive before mating, there is little risk of her loss from the cage. Attracted males have no difficulty finding their way to the cage opening, and then inside. The cage then provides good protection for both from predators, and makes it a simple matter to move them to a more convenient location.

With Sats such as *cecropia*, *polyphemus*, or *luna*, you should find male and female paired inside the cage the next morning, and they will remain coupled throughout the next day. Others such as *Automeris io*, remain paired for just an hour or so. In most cases, however, the cage retains the male after pairing, so the next morning you should find both but separated inside the cage. In this

case, the safe assumption is that they paired, and the following evening, just before dark, I would place the female inside a large supermarket paper bag closed tightly at the top with paper clips. If the female has paired, she will begin to deposit eggs inside the bag, and I usually leave her this way for a half hour or so. This is long enough for her to deposit a dozen or two eggs, after which I remove her from the bag and release outside. The 'papered' eggs can now be cut from the bag into small strips and these placed on the host plant inside a sleeve.

In the photo, the 'gadget' mounted near my cage opening is an electronic device I designed that works like radar, except using infra-red light pulses instead of radio waves to detect a moth that approaches the cage opening, and then sends an alarm to wake me up. This is not at all necessary for the basic cage functions described, but with this I get to see attracted males homing in on the cage without staying up all night. Not infrequently I have been able to see a dozen or more males attracted to a caged female, which disperse very quickly once one has gotten inside and paired.



Club News: Volunteer Opportunities

In the next year or so, two of Massachusetts Butterfly Club's longtime key staff persons will be moving into a well-deserved "retirement". Thus some exciting new volunteer positions will be opening up.

Records Compiler

The Club is now looking for a new Records Compiler, whose job is to record all members' butterfly sightings, both those posted on masslep and those sent in separately. This new staff person will also work closely with Erik Nielsen in the production of the Season Summary which is published in *Massachusetts Butterflies* each spring. Familiarity with Excel and Access programs is necessary. The position begins January 2011. If you are interested in this position, please send an email to steve@massbutterflies.org, with a copy to erik@massbutterflies.org.

Webmaster

Beginning in 2012 or earlier, the Club will need a new Webmaster to administer our popular site. Ours is the most-visited NABA website, generating more than 15,000 hits per month. This is a fantastic opportunity to work with Dale Rhoda to learn about some of the advanced features of the site. Candidates should be familiar with HTML, ASP or other scripting languages, cascading style sheets, and Unix. If you are interested in this position, please send an email to dale@massbutterflies.org with a copy to steve@massbutterflies.org describing your qualifications. Dale will provide a full job description, and support during the transition.

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 NABA Fourth of July count results to Tom Gagnon tombwhawk@aol.com by **August 15** for inclusion in the Fall issue. Send your season sightings and records to Erik Nielsen by **December 31** for inclusion in the Spring issue. Records may also be submitted via the online checklist and reporting form, which is available at <http://www.massbutterflies.org/club-publications.asp> or at <http://www.massbutterflies.org/downloads/massbutterflies.xls>

Contributions

As a chapter of the North American Butterfly Association, the Massachusetts Butterfly Club is a non-profit, tax-exempt organization under section 501(c)(3) of the Internal Revenue Code. Gifts to the Massachusetts Butterfly Club are tax deductible and are greatly appreciated.

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Massachusetts Butterflies has been published continuously since 1993. Previous issues are viewable at www.massbutterflies.org/club-publications.asp after a three-year time lag. Print copies may be ordered for \$6 each. Send a check made out to Massachusetts Butterfly Club to Sharon Stichter at the address on inside front cover.

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