



On The Wing

Newsletter of the Tennessee Valley Chapter,
North American Butterfly Association

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Editor: Bill Haley, wgh@tnaqua.org

No Monthly NABA Meetings October-January

During the cooler fall and winter months, our club will not have monthly meetings. We will start regular meetings again in February 2011. You will continue to receive monthly newsletters from the Tennessee Valley NABA Chapter, as well as regular publications from the North American Butterfly Association.

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Remember to send in any winter butterfly sightings!

Although January butterfly sightings in our area are quite uncommon, it is always a possibility. Be on the lookout during any warm spells we might have. If you have a wintertime butterfly sighting, please send them in to your editor, Bill Haley at wgh@tnaqua.org. Let everyone know what you see. One butterfly in January will definitely brighten the day! Plus, you'll have bragging rights for having seen the first butterfly of 2011!

Happy New Year!

This is being written on the Winter Solstice, the "shortest day of the year". By the time you receive your January newsletter the daylight hours will already be a bit longer. We are beginning the slide towards the first butterflies of spring and pleasant, warm days in the field watching them.

I hope everyone had a very nice holiday season and a Happy New Year.

Bill Haley
President, Tennessee Valley NABA

How Do Butterflies Spend the Winter Months? Part 2

The book Butterflies of the East Coast, An Observer's Guide by Rick Cech and Guy Tudor contains some interesting information about overwintering strategies used by butterflies. Following are some selections from the book.

"Many butterflies also undergo *diapause*, an insect resting period, analogous to hibernation in mammals." In the next paragraph they go on to state "Butterflies can diapause at any life stage. Most species use a single stage exclusively, or very occasionally two. Even eggs may diapause. Instead of hatching in 4 to 10 days, a diapausing egg will remain dormant for months, producing a caterpillar only in the following spring."

"Though most temperate zone butterflies are cold hardy, few are truly *freeze tolerant*. In order to survive the winter, they produce one or more *antifreeze chemicals* in their body fluids, such as glycerol or sorbitol, that lower their freezing point and prevent ice crystals from forming on particles within the cell (*nucleators*). Supercooled body fluids can sustain an insect during all but the most severe winter weather without solidifying. A butterfly is considered *freeze tolerant*, on the other hand, not merely because it can survive when the air temperature falls below 32 degrees F, using the techniques just described, but rather because it can tolerate having its *entire body frozen solid*. In very cold weather, the body fluids of *freeze tolerant* species enter an unusual, glasslike solid state, called *vitrification*. Miraculously enough, frozen larvae are able to awaken from this state in the spring, with no apparent harm (Leather, et al., 1993, pp. 94-95). Relatively few of our butterflies are *freeze tolerant*, the best examples being alpine satyrs."

The Handy Bug Answer Book, by Dr. Gilbert Waldbauer, has some interesting information about insects and diapause.

-(cont. pg. 2, Overwintering)

Around The Puddle

by Bill Haley

Winter Beauty

Earlier this morning it snowed, a typical Chattanooga snow....less than 1/2 inch. The north wind howled and the temperature would hover below freezing all day.

By mid-morning the clouds finally began to break up. The brightly shining sun spelled doom for snow, except in the shaded spots where tiny drifts would persist. The blustery breath of winter wind kept people from loitering between sheltering buildings, and they sped across the plaza like dried, windblown leaves.

I peered out on this wintery scene, glad I wasn't one of the chilled and hurrying people out in it. I was inside and it was warm!

A large, metallic blue butterfly, followed closely by another, caught my attention as they fluttered past my head. I suddenly had flashbacks from several years earlier when the same thing happened in a Costa Rican rainforest. Blue Morphos appear like magic in their native haunts, seeming to materialize as a flash of brilliant blue, then disappearing as the wings close.

Speaking of a butterfly which is able to vanish, I spotted a clearwing, a rare sight, on a lantana bloom. Although we release quite a few of these tiny butterflies with unscaled, clear wings, we seldom see them again. They are specialists at disappearing within dense understory.

Winter outside the window was forgotten as a stunningly beautiful lime green and brown butterfly paused to nectar on purple spikes of porterweed flowers nearby.

I was again transported back in time to a hike through dry upland forest in Central America and the very first Malachite I ever saw in the wild. At the time it was on my most-wanted-to-see list, and I find that it *still* is. I have never gotten tired of looking at, and sometimes getting to hold these beauties as I release them into the Tennessee Aquarium's Butterfly Garden exhibit. The Malachite never fails to get plenty of oohs and aahs from the crowd.

What an irony to be enclosed in a tropical wonderland, a profusion of greenery brimming with colorful blooms of penta, lantana, porterweed, Hawaiian lei flowers and numerous orchids, while the winter winds whistled outside a thin glass skin just a few feet away.

Try it sometime this winter.

Overwintering, cont. from pg. 1:

In answer to the question, **How do insects know when to go into the state of diapause?**, the author answers:

"Most insects initiate diapause in response to the short days of late summer and autumn, the only reliable clue to the approach of winter. Cold temperature is not a reliable clue. In a warm year, cold weather may be delayed until development has proceeded past the point of no return. Thus, an insect that diapauses as an egg will not go into diapause if cold weather is delayed and will hatch so late in the season that it will freeze to death before it can become an adult."

Another interesting question, which you may have wondered about, was, **How do the diapause of insects and the hibernation of mammals differ?** The reply:

"They are similar in that both are dormant or resting stages. But they differ in that insect diapause usually ends only after a period of chilling, while hibernation ends in response to warmth with no need for a previous period of chilling."

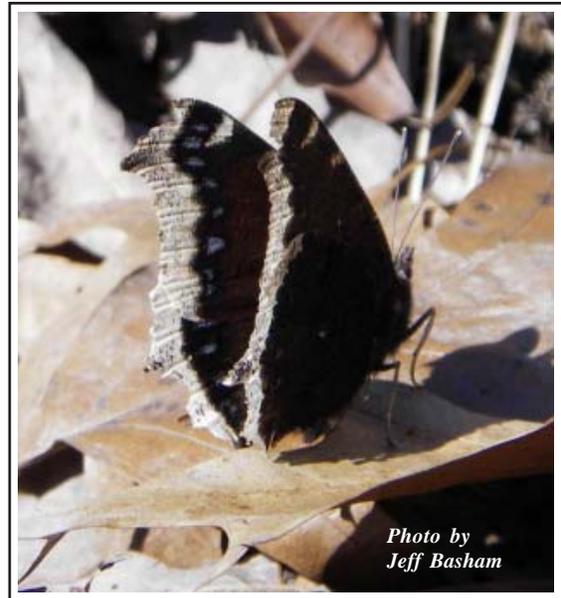


Photo by
Jeff Basham

Interesting Mourning Cloak diapause info from **Butterflies of the East Coast:**

"In the North, diapause occurs only in the nymphalids, especially anglewings, tortoiseshells and ladies. In single-brooded adult diapausers, such as Mourning Cloaks, diapause technically begins as soon as fresh adults emerge in early summer. The diapause induction trigger in such cases is set to the longest day-length the species will experience in its environment, and thus is immediately "tripped" (Leather, et. al., 1993, p. 67). Mourning Cloaks are inactive during much of the summer (*estivation*), then fatten up in the fall before finding a dark crevice in which to pass the winter. Female reproductive organs do not mature until the following spring."



Join the North American Butterfly Association

Joining online is easy. Go to the NABA website at <http://www.naba.org> and click on Membership. Individual membership is \$30. Family membership is \$40 and an institution/library can join for \$50.

Anyone who joins the national organization within a zip code area beginning with 374, 373 (with the exception of 37355, which is allocated to the Middle Tennessee NABA chapter), 307, 357 or 359 will automatically become a member of the Tennessee Valley chapter.

It is also possible for persons living outside this zip code area to become members of the Tennessee Valley chapter. When you join or renew your NABA membership, be sure to specify that you'd like to be affiliated with the Tennessee Valley chapter.

How Do Butterflies Spend the Winter Months?

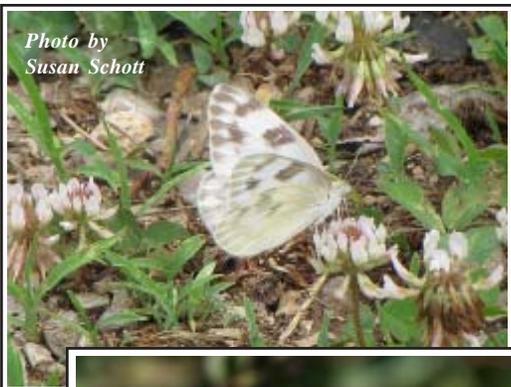


Photo by Susan Schott



Photo by Mike O'Brien

The **Checkered White** (above) and **Cabbage White** (below) both overwinter as a pupae. The Cabbage White is the earliest pupal diapauser to emerge in the spring.



Photo by Jeff Basham

The **Harvester**, which boasts the only carnivorous caterpillar in this country, obviously has a unique lifestyle. (Don't worry, this adult isn't interested in eating Jeff's finger, it is after his sweat). Researchers are unsure at which stage it enters diapause, but figure it is either the mature larvae or the pupal stage.



Photo by Jeff Basham

Jeff Basham 2010

The beautiful little **American Copper** is also the subject of disagreement on the diapause stage. Some say larval, many say it overwinters as a pupae.

How Do Butterflies Spend the Winter? (Continued):

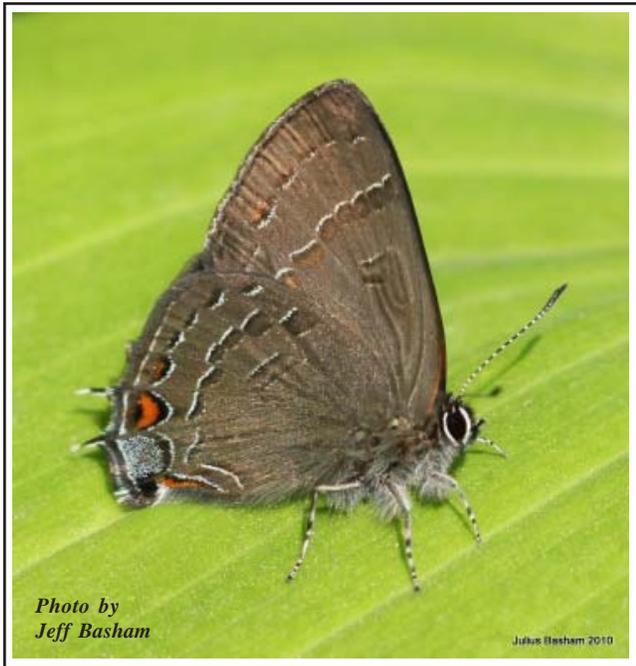


Photo by
Jeff Basham

Julius Basham 2010

Banded Hairstreak overwinters as an egg.



Photo by
David Spicer

© David Spicer

Red-banded Hairstreaks overwinter as 4th stage instar caterpillars.



Photo by
Jeff Basham

Julius Basham 2010

The stunning green and reddish-brown **Juniper Hair-streak** overwinters in the pupal stage.

Did You Know? Most butterflies have a maximum lifespan of a few short weeks, and *life expectancy* - taking all mortality factors into account - barely exceeds a single week in most species. Female butterflies generally outlive males, but only by a few short days. Longest-lived butterflies are those that overwinter as adults.



Photo by
Tommie Rogers

Gulf Fritillary is a "straight-line migrant". You will not find them in our area during the winter in any life stage. The species moves southward from August to November, and spends the winter as adults on the Gulf coast and in Florida. From Florida, they begin to move northward as winter loosens its grip, usually starting in February and continuing into June. The speed of this northern movement can be affected by many things, such as late cool weather or drought. Last season, they were quite late arriving in Tennessee and were almost, or completely, absent on many early counts. Few were seen before early July.

22nd Annual Warrior's Path State Park
Winter Garden Seminar
with Kris Light
of EastTennesseeWildflowers.com

"Butterfly Gardening"

Saturday, January 15, 2011, 10:00am

Discover how to create a healthy landscape that will also attract butterflies. Winter is the perfect time to plan your natural yard and garden.

Butterflies are beautiful and fascinating insects. We can entice butterflies to feed or to lay their eggs in our yards and gardens by planting certain plants as nectar sources or caterpillar food sources. Join Kris Light as she discusses butterflies, moths and the plants that attract them. Kris will share some of the best ways to keep our gardens lovely and our natural landscape full of beautiful, useful native insects. Because everyone's garden is different, we will set aside time for answering gardener's questions.

Plan to spend a brisk winter morning learning how to create a more beautiful, more natural neighborhood. The seminar will be held at the Recreation Building on Duck Island, at Warrior's Path State Park.

This event is free and open to all, but please pre-register to attend.

For more information, or to pre-register: Warrior's Path State Park, P.O. Box 5026, Kingsport, TN 37663, (423) 239-6786. E-mail: Marty.Silver@tn.gov

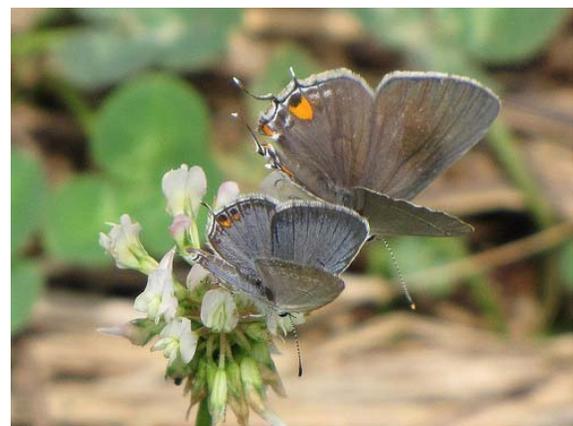
Directions to Warrior's Path State Park:

Warrior's Path State Park is located near Kingsport, TN, in the northeast corner of the state, about 100 miles northeast of Knoxville. It is very close to exit #59 on Interstate 81. From exit #59, travel north 1.4 miles to Hemlock Road and turn right. Follow Hemlock Road 1.6 miles into the park. Once in the park, follow the signs to the park's Recreation Building.



Butterfly Weedis hardy, drought tolerant, a good nectar source and host plant to Monarch Butterflies. An Aphrodite Fritillary enjoys these blooms.

Below: A very good choice for your home flower garden is the purple coneflower. It is a hardy and long-lasting native perennial flower and a good nectar source for many butterfly species. An **American Lady** enjoys the nectar in this shot by Mike O'Brien.



Eastern Tailed-Blue (smaller butterfly at bottom of photo) and **Gray Hairstreak** are both good examples of butterflies that are considered to be generalist species. They have a wide range of hostplants and thus are found in a wide variety of habitats. You are almost sure to attract these two butterflies to a home butterfly garden, as chances are good you'll have one of their caterpillar hostplants growing nearby. In this shot they nectar on a white clover bloom, which they utilize both as a host plant and a nectar source. Females often oviposit on flower buds and the larvae eat both flowers and developing seeds.

-Photo by Susan Schott

Gorgone Checkerspot

The Butterfly That Was Not Supposed to Be Here

Anyone in our Tennessee Valley NABA chapter who has ever been on a field trip to the so-called "Torture Hill" area on Bakewell Mountain knows how it got the name. The temperature is usually very hot, the wind rarely blows and the sun beats down unmercifully on all intrepid butterfly watchers.

The trip begins on a steep gravel road dropping down from the parking area. It isn't too bad going down. Coming back up is a whole 'nother thing! We dubbed it "Torture Hill" several years ago after we almost lost a butterfly to heat stroke trying to get back up that darn hill. We've found it is twice as tall and three times steeper climbing back up than it was when you descended. Perhaps a bit of exaggeration, but you get the picture.

Once at the bottom of the hill you walk about a mile along the dusty, rutted track, checking areas along the road for butterflies. One side of the road is a regenerating pine plantation in early succession growth with plenty of bushes, young pines, weeds, briars and wildflowers. The other side is a forested edge with some wildflowers. It is the combination of these two different edge types that makes this area so intriguing. The butterflying can be quite good and we routinely find some really neat species there.

The last time I visited the area, during the Soddy-Daisy butterfly count on August 3rd, the heat index was 107 F. As usual, one target butterfly was the Gorgone Checkerspot. I didn't find any that day.

If you visit this area in late April and May it can be quite easy to find Gorgones. I have also seen a few into June. However, it seems they probably aren't around in July and August.

According to most butterfly field guides, they aren't supposed to be on Bakewell Mountain at all, no matter what the season. They are a Great Plains species that has small widely scattered disjunct populations in the East. Our southeast TN population hadn't been documented before I blundered onto it!

It is interesting that the first Gorgones I ever saw were not on Bakewell Mountain. They were found on Flat Top Mountain, just north of Soddy-Daisy, and several miles south of their presently known locations. At first I identified them as Silvery Checkerspots, but their wavy, black and white ventral hindwing pattern told me otherwise. I found them there 3-4 times in May and June that year. I haven't seen another in that area since. Hmmm.

The next May I was exploring some pine plantations on Bakewell Mountain. The first dirt road I walked produced over 25 of these little beauties. That was certainly exciting!



Dorsal (*top*) and ventral (*bottom*) shots of a **Gorgone Checkerspot** taken near "Torture Hill" on Bakewell Mountain by David Spicer May 19, 2009. Females are reported to lay eggs in clusters on wild sunflowers, which are found there. This species overwinters as a third stage caterpillar. They are possibly single-brooded. A search through three years of photo files reveals most pictures were taken from late April through May.

Request from NABA - Facebook Page Input:
NABA now has a Facebook page. We would like to invite all chapters to have information posted. If your chapter has some photos, field trips, outings, etc. that you would like posted, please send a few sentences (along with photos if you have any), to Jane Hurwitz at hurwitz@naba.org and she will put up the information. We look forward to hearing from you.

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