

SPRING EPHEMERAL BUTTERFLIES —DON HOLT

Butterfly watching can be a game for all seasons. The ubiquitous yellow butterfly species known as the Orange Sulphur was observed in our area every month of the winter of 2001-2002, and will be active throughout the rest of the season. However, as much fun as it was to see one butterfly species all year, the mind craves variety and becomes addicted to anticipation. This need is catered to by butterfly species that are active as adults only for a short season each year. These ephemeral species are eagerly awaited, providing great sport in planning trips to be in the right place at the right time to see them.

Butterfly species that produce only one generation each year are said to be single-brooded. Other species may be double brooded (like the Zebra Swallowtail) or multi-brooded (like the Orange Sulphur).

Single-brooded species usually have larvae with specialized food requirements, and the timing of their reproduction is linked to their host plant's life cycle.

Falcate Orangetips are small white butterflies with slightly hooked, or falcate, wingtips. In the males the wingtips are orange. For two or three weeks in April or May they fly low over the floor of deciduous forest looking for small herbs on which to nectar or lay eggs. The females select hostplants in the mustard family such as bittercresses (*Cardamine spp.*), field cresses (*Lepidium spp.*), rockcresses (*Arabis spp.*), and toothworts (*Dentaria spp.*). On these eggs are laid singly on stems, leaves and buds. The larvae must grow and finish development into pupae by early summer when their hostplants will shrivel and die as they normally do in the heat of summer. They attach the chrysalids to plant stems close to the ground where they remain in the leaf litter through summer, fall and winter. Some even wait an extra year before emerging as adults, thus allowing the species to survive the occasionally disastrous weather fluctuations of early spring.

Another white butterfly that has a 'spring ephemeral' lifestyle is the West Virginia White. It also uses small herbs of

the mustard family as hostplants. Usually it chooses toothworts, but it may make do with others like bittercresses and rockcresses. In April and May it is fun to follow female West Virginia Whites from plant to plant in the forest, inspecting the undersides of the leaves for eggs which she places singly. One toothwort apparently provides only enough food for about one caterpillar. The larvae develop into pupae in about four weeks and overwinter as chrysalids on the forest floor.

Many people have had the experience of walking along a woodland path and encountering swarms of small blue butterflies swirling about their feet. Traditionally called 'millers' because they 'mill around in a crowd', these butterflies come in several varieties, many of which are hard to distinguish from each other.



One species, the Appalachian Azure, is so similar in appearance to two other kinds, the Spring Azure and the Summer Azure, that they are usually identified according to the date that you see them. Appalachian Azures have a very specialized relationship with a single species of hostplant, black cohosh, and begin laying eggs on the earliest stages of the flowerbuds as they appear in May. Their larvae eat only the flowers and young fruits, and must get started in time to finish development into pupae by late July. The adults therefore are active in May and early June, after the Spring Azures and before the Summer Azures, making a calendar a useful aid for identification.

Other species of millers also feed on flowerbuds and have short seasons of adult activity. The Dusky Azure's larvae feed on goatsbeard (*Aruncus dioicus*), starting on young leaves and switching to flowerbuds. The peak of their flight is in April. The males are distinguished from other millers by their charcoal gray upper surface. The Silvery Blue is distinguished by conspicuous round spots circled in white on the lower surface of the wings. Their larvae feed mainly on Carolina Vetch (*Vicia caroliniana*). The adults fly in April through May and into June.

Henry's Elfin is a widespread species, but is infrequently seen, because it is small, brown, and fast. It has wing edges with exaggerated scallops that make a sort of rudimentary 'tail' on the hind wing. Not much bigger than a man's thumbnail, they alternate sitting unnoticeably on a twig and suddenly zooming into erratic flights that cannot easily be followed with the human eye. This challenging species can be found in our area in April and May in the vicinity of redbud trees, which often

grow in forest edges, thin dry woods, rocky banks and power-line right-of-ways, especially in the valleys where limestone bedrock is present.. Its larvae feed on flowers and very young leaves. A closely related species, the Brown Elfin, has a somewhat similar appearance and lifestyle. It's hostplants are heaths like blueberries and huckleberries which grow



in more acidic soil than redbuds. Therefore in our region it tends to be found more on the non-limestone bedrock of the mountains, also in April and May.

One of the earliest emerging butterflies of spring is the Sleepy Duskywing. Dark brown with a subtle pattern of silver, it can be seen as early as late March along forest paths and roadsides, sipping moisture at the edge of mud puddles and basking in the spring sunshine. They have a relatively long flight season for a single-brooded species, continuing into June. Their larvae feed on oak leaves, living in leaf shelters and overwintering there. Pupation occurs in spring with emergence shortly thereafter. Oak leaves are relatively indigestible, especially as they age. A longer time is probably required for growth and development of species feeding on oak leaves.

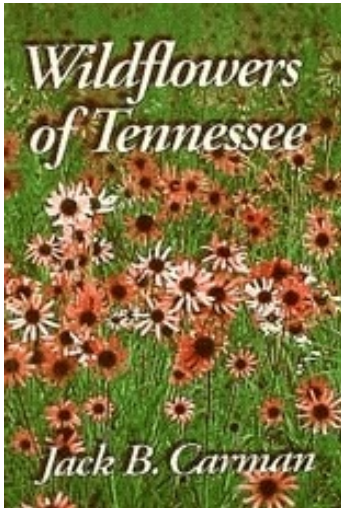
One of the shorter flight seasons is that

of the Cobweb Skipper. They are medium brown with cream to tawny orange patches above, and a white V-shaped band on the underside of the hindwing that points to the outer margin. White veining on the underside gives them their name. They may not be large and showy, but on close inspection they have a delicate beauty. The larvae feed on little bluestem (*Andropogon scoparius*) and related grasses, which grow on dry sites, often in poor, thin soil. They fly in April and early May, and by late May the adults are gone.

The pageant for 2002 has already begun, and will be over before you know it. Life is short, time's a-wasting, and butterflies are flying. Mother Nature in and around Roan Mountain is more beautiful than you know, especially if you have not yet seen each of her creatures up close and intensely. Join us at the Naturalist Rallies for delight and discovery as we come together to appreciate that which we will always depend on but must never take for granted.



Don Holt, native of Carter Co., TN, has worked as a naturalist, environmental instructor, and camp counselor in East Tennessee. Don will be the featured speaker on Friday at our Spring Naturalists' Rally. His topic is Bugs through Binoculars: East Tennessee Leps and Odes (that's butterflies & moths and dragonflies & damselflies). Don is a regular fount of knowledge, so you won't want to miss it!



Wildflowers of Tennessee

Ample rainfall, moderate climate and habitat diversity are just a few of the reasons why Tennessee is blessed with such an abundance and variety of flowering plants. Tennessee contains portions of five of the six major physiographic provinces of the Southeast, namely: Coastal Plain (Mississippi River Valley and Plateau Slope subdivisions), Interior Low Plateau (Western Highland Rim, Central Basin and Eastern Highland Rim subdivisions), Appalachian Plateau (Cumberland Plateau and Cumberland Mountain subdivisions), Ridge and Valley, and Blue Ridge Mountains. These provinces are distributed in Tennessee as follows.

West Tennessee, located between the Mississippi and Tennessee rivers, is about 110 miles wide and a part of the Coastal Plain. Its flora includes many aquatic plants along with other wildflowers more commonly found in the midwestern prairies, and in the Coastal Plain of Arkansas, Louisiana and Mississippi.

Middle Tennessee is about 180 miles wide, with the western three-fourths a part of the Interior Low Plateau and the eastern one-fourth a part of the Cumberland Plateau. The Central Basin is almost exclusively a Tennessee region with "cedar glade" areas that support many interesting and endemic plant species. Plants normally found in the midwestern prairies, and in the Gulf and Atlantic coastal plains have found areas of the Highland Rim and Cumberland Plateau to their liking.

East Tennessee, the part of Tennessee lying within the Eastern Time Zone, consists of portions of the Cumberland Plateau, Cumberland Mountains, Ridge and Valley, and Blue Ridge Mountains. Almost all of East Tennessee provides prime habitat for wildflowers, and the high mountains are virtually a natural living botanic greenhouse.

Therefore, from the Mississippi River alluvial plain in the west to the highlands in the east, the habitat for wildflowers varies widely across the state. Wildflowers that are found throughout Tennessee are those that can adapt to these habitat differences. Other species with specific habitat needs may be locally abundant, but their distribution will be limited to areas where those specific needs are met. One of my goals for *Wildflowers of Tennessee* was to feature our widespread species along with regional and rare species from all over the state.

In the course of my travels across the state, it has been most gratifying to meet so many of Tennessee's wildflower enthusiasts, and their feedback concerning the book has been most favorable. One of the most appreciated comments has been "...the pictures look like what I see." For a wildflower identification field guide, there could be no nicer compliment! I look forward to attending the Spring Naturalist Rally and sharing my images of the wildflowers of the Volunteer State with you.

Jack Carman

COFFEE AND BIRDS: MAKING THE CONNECTION

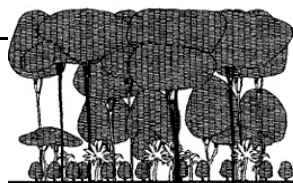
Your coffee could help save habitat for migratory birds!

Coffee is the second most heavily traded product on the world market after oil. It is also a very difficult crop to grow and harvest, requiring large amounts of land and large labor forces. Prior to the last 20 years or so, nearly all commercial coffee production was managed under the canopy of shade trees. But debt strapped nations seeking to boost exports have taken deliberate steps to "modernize" growing practices away from shade coffee.



Scientists and birdwatchers have noticed a marked decline in migratory bird populations over the last 25 years. But, what does coffee have to do with birds? Plenty! In the mid-elevations of Mexico, Central America, the Caribbean, and Colombia, most of the forests still standing are in traditional coffee plantations. These provide the last refuge for birds that have lost their habitat to the vast destruction of tropical forests. Coffee, a shade-loving shrub, flourishes under the canopy of diverse tree species. Hummingbirds, swallows, warblers, orioles, tanagers and other native and migratory birds find a safe haven in the remaining forests of shade coffee plantations. The tree canopy in shade coffee plantations protects the soil from erosion and provides a natural mulch for coffee plants, reducing the need for chemical fertilizers and herbicides.

Shade-Grown Coffee



Migratory birds and many resident birds find sanctuary in the forest canopy of traditional coffee plantations.

Protects the plants from rain and sun, helps maintain soil quality, and the birds aid in natural pest control.

Helps to conserve watersheds, leading to higher water quality and quantity for local populations.

Shade coffee plants can produce crops of beans for up to 50 years.

Sun-Grown Coffee



90% fewer bird species are found in sun-grown coffee areas compared with shade-grown coffee areas.

Requires chemical fertilizers and pesticides and year-round labor, placing financial demands on the growers.

Leads to greater soil erosion and higher amounts of toxic runoff endangering both wildlife and people.

Sun coffee plants produce crops of beans for only 10 to 15 years.

And finally, in addition to hosting hundreds of species of birds, the trees are also home to many other species of wildlife. The following are other animals who rely on shade-grown coffee forest for their survival:

Howler Monkeys	Iguanas	Leafcutter Ants	Ocelots
Peccaries	Pumas	Red-eyed Tree Frogs	Spider Monkeys
White-tailed Deer	Wild Goats	Bats	

By the way, there's no need to sacrifice your pleasure to help the planet. Coffee grown in its natural environment in nutrient-rich soil has time to develop all its sugars as it matures fully. This natural process translates to the best taste for you

Shade grown coffee is available at most health food stores and from several on-line sources. Just type shade grown coffee in your search engine. The cost in dollars is greater than that of sun grown coffee. Please consider the cost in terms of the migratory birds and the environment.



ROAN MOUNTAIN SPECIES DATABASES



Friends of Roan Mountain have assembled these databases as a first approximation at constructing an information resource of data relevant to the enjoyment and preservation of the greater Roan Mountain ecosystem. We invite interested parties to comment on or add to this information. Check out our web site at <http://www.etsu.edu/biology/roan-mtn/>

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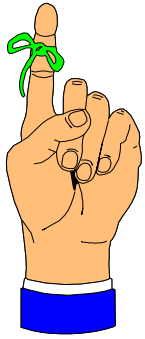
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Dear Friends,

Have you made plans to attend the Spring Rally? Have you mailed in your reservation form and check for the Friday and Saturday night dinners? Our caterer would like to know how many meals to prepare.

Is your membership about to expire? Send a check to our treasurer and you can breeze right through the registration process! Your new membership card will be waiting for you at the door.

Make all checks payable to Friends of Roan Mountain.

Mail to: Anne Whittemore, 208 Mark Drive, Gray, TN 37615

Help us out with mailing costs. Please send us your email address and we can contact you without paying for postage. Send an email to Anne Whittemore at Rewhittemo@aol.com



Friends of Roan Mountain would like to express appreciation to **The Comfort Inn** of Elizabethton. They are providing complimentary rooms for our guest speakers at the Spring Naturalists' Rally. They are also offering a special rate of \$49.99 per night, plus tax if you tell them you are attending this rally! You may call for reservations at 423-542-4466.



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