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CALENDAR

Sept. 1 (Saturday) 10:00 a.m. Butterfly Walk at Young Conservation Area. Directions: Take I-44 west to Hwy 109 exit. Turn left onto Hwy 109 (formerly called Hwy “W”). Go south on 109 for 2 miles. At the T intersection, turn right onto Hwy FF and go for 2.7 miles to a well-marked parking lot on the left. There is a Mo. Dept. of Conservation sign at the parking lot. There are gasoline stations on Hwy 109 to stop for restrooms; these are the last public facilities.

Sept. 16 (Sunday) Count at Busch C.A. Meet at 10:00 a.m. at the Butterfly Garden by the Visitor's Center. Picnic lunch afterwards in the Pavilion.

Sept. 18 (Tuesday). Tom "Terrific" will present a video program about Monarchs. 7:00 p.m., St. Louis County Library Headquarters, S. Lindbergh across from Plaza Frontenac.

Oct. 5 (Friday) Idaho Butterfly Conservation 7:00 p.m. at the home of Tom "Terrific", 9016 Robyn Road in St. Louis, MO.

Nov. 14 (Wednesday) Power Point presentation by Dave Larson about his trip to Peru this summer. 7:00 p.m., Powder Valley Nature Center 11715 Cragwold Drive St. Louis, MO 314.301.1500.

-Other events of interest –

Sept. 6 (Thursday) Presentation by Randy Korotev about his birding the Upper Midwest. 7:00 p.m., St. Louis County Library Headquarters on S. Lindbergh.

Oct. 2 (Tuesday) "Hawks of the St. Louis Area". A video presentation by Jim Ziebol. 7:00 p.m. St. Louis County Library Headquarters, on S. Lindbergh.



Garden Tour

Article and photos by Mary-Eileen Rufkahr

After nearly a week of temperatures in the high 90's (with heat indices in the triple digits), the weather "cooled" to 90 or so on the evening of Friday, August 10, 2007. With such a "break" in the weather, NABA/St. Louis members were ready for a little fun and socializing. The place to be that night was Kraig Paradise's home and garden for a tour. Ellie (Kraig's dog) was the official greeter, meeting everyone in the front yard and leading them around to the side yard where the tour began.

Kraig welcomed the many guests to his multiple garden areas, even providing hand-lettered cards identifying the various plants and greenery. Visitors weaved in and out of the lush growth seeing both sun and shade gardens and, of course, lots of butterflies flitting about. From the fiery hot colors of the Mexican sunflowers to the exotic composition of the passion flowers, visitors were continually heard commenting on the scope and depth of Kraig's many gardens. Kraig has spent several years converting his **entire** yard into butterfly-friendly habitat. (Not a blade of grass to be mowed!) Native wildflowers abound, including milkweed, sunflower and rattlesnake master. One corner has even been reserved as a vegetable garden.

Soon it was time for inside socializing and refreshments. Guests crowded into Kraig's home, admiring his many pieces of artwork and antique furniture. Kraig's friend Terry prepared a table laden with home-made snacks and treats.

All too soon, it was time for the guests to depart and everyone was escorted to their car under the watchful eye of Ellie!

Special thanks go to Kraig and Terry for arranging such a pleasant and enjoyable evening for the NABA/St. Louis members.



Ellie – the official greeter

MER photo



Enjoying the garden as only butterflies can!!

MER photo

August Butterfly Report

By Yvonne Homeyer

Late July Report: Dennis Bozzay photographed a Swamp Metalmark caterpillar at St. Francois State Park on 7/31. Also on 7/31, at least 30 Meadow Fritillaries were still flying at Marais Temps Clair, along with 10 Hackberries, 25 Cabbage Whites, 2 Checkered Whites, 25 Monarchs, 50 Cloudless Sulphurs, 1 Clouded Sulphur, 50 Orange Sulphurs, 20 Little Yellows, 5 Buckeyes, 5 Variegated Fritillaries, 5 Eastern Tailed-Blues, 10 Pearl Crescents, 1 Question Mark, 40 Viceroy, 30 Silvery Checkerspots, 1 Least Skipper, and 15 Common Sootywings (Mary Eileen Rufkahr, Evelyn Luecke, Mary Hillebrand). Afterwards, Mary Eileen, Ev, and Mary checked out Blanchette Park and observed 1 Question Mark, 1 Viceroy, 1 Eastern Tailed-Blue, 5 Tiger Swallowtails, 10 Monarchs, 25 Sachems, 5 Fiery Skippers, and 10 Common Sootywings.

August - St. Louis Area: On 8/1, Jim Ziebol observed 1 Bell's Roadside Skipper, 12 Silvery Checkerspots, 1 Giant Swallowtail and 1 Spicebush Swallowtail at Sandy Creek in Jefferson County. Jim Ziebol counted 13 species at the NABA Butterfly Garden at Busch C.A. on 8/2, including 5 species of Swallowtails (Black, Pipevine, Spicebush, Tiger and Giant), Red Admiral, and Wild Indigo Duskywing. On 8/5, the NABA Butterfly Garden was the hottest spot at Busch C.A., with 10+ Spicebush Swallowtails, 6 Buckeyes, 1 Southern Dogface (extremely rare at Busch which makes it an especially welcome visitor at the Butterfly Garden), 10 Orange Sulphurs, 10 Pearl Crescents, 1 Little Glassywing, 1 Common Sootywing, 1 Silver-spotted Skipper, and 1 Tawny-edged Skipper. A Monarch caterpillar on Common Milkweed was spotted by Anna Garcia and her dad, David Garcia. With few flowers blooming elsewhere in Busch, the numerous flowers in the Butterfly Garden – Swamp Milkweed, Rose Verbena, Ironweed, Missouri Coneflower, Mist flower, Purple Coneflower, Blazing Star, Rattlesnake Master, Compass Plant, and Hairy Mountain Mint - were attracting lots of butterflies. The composite number of species observed just at the Butterfly Garden on 8/2 and 8/5 was 17. Jeannie Moe found a Southern Dogface at the Weldon Spring Interpretive Center not far from Busch; generally, Dogface is only found at Horseshoe Lake so two sightings in St. Charles County are of interest.

Meadow Fritillaries were still present at Marais Temps Clair on 8/2 (Tom "Terrific") and 8/5 (YH, JMoe, EL, JZ). By 8/5, the number of individual Meadow Fritillaries had dwindled to about 16, down from a high count of 50+ in late July. Also flying on 8/5 at MTC were numerous Cloudless Sulphurs, Orange Sulphurs, Little Yellows, and Sleepy Oranges, numerous Viceroy, Pearl Crescents, and Question Marks, several Buckeyes, Hackberries, Monarchs, Common Sootywings, and Common



Viceroy at Marais Temp Clair 31-July-07

MER photo

Checkered-Skippers, 1 Red Admiral, 1 Eastern Tailed-Blue, 1 Silver-spotted Skipper, 2 Painted Ladies, and 1 Bronze Copper. Marais Temps Clair is a wetlands habitat (most wetlands in the St. Louis area have been destroyed by development) and it offers a variety of caterpillar food plants such as Common Milkweed, Partridge Pea, Wild Senna, Curly Dock, white and red clover, violets, grasses and sedges, Willow trees, Hackberry trees and more, to support the numerous species found there.



Dennis Bozzay saw 23 species at Busch C.A. on 8/7, including Red-banded Hairstreak and Tawny-edged Skipper. Jim Ziebol reported Duke's Skipper at Horseshoe Lake on 8/10 and 8/12. Sherry McCowan found a Dainty Sulphur in Forest Park on 8/14; this migrant has been scarce this year. A Checkered White was a good find at Busch on 8/15; Dennis Bozzay saw it in the Butterfly Garden, which was full of butterflies.

No Swamp Metalmarks were seen at Victoria Glade on 8/10 (Jim Ziebol) or at Cuivre River State Park on 8/11 (Dave Berry, Ev Luecke, and Yvonne Homeyer). The Tall Thistle plants at both locations were severely wilted, although there were a few in bloom at Cuivre River. The 100 degree heat has taken its toll on the host plants. At Cuivre River on 8/11, 20 species were seen, but only 68 individual butterflies! Twelve Little Yellows and 11 Northern Pearly-eyes accounted for 1/3 of the total seen that day. Highlights were 2 Tawny Emperors and 2 Red-banded Hairstreaks. On an outing to Sandy Creek Covered Bridge in Jefferson County on 8/13, Mary Eileen saw 1 Cabbage White, 2 Pearl Crescents, 2 Hackberries, 1 Great Spangled Fritillary, 2 Little Wood Satyrs, 3 Tiger Swallowtails (black form), and 1 Pipevine Swallowtail.

Then, on 8/16, Dennis Bozzay found the first August sighting of Swamp Metalmark – a single individual at St. Francois State Park. Scott Marshall and Annie Marshall found another Swamp Metalmark at St. Francois on 8/18. Four Swamp Metalmarks were seen at Victoria Glade on 8/18 by Yvonne Homeyer. They were not easily visible, hiding under leaves or flying in the shade under the lowest branches of red cedars. The Tall Thistle plants at Victoria Glade were in bloom but were showing signs of heat distress. Some of the leaves had small, round holes that indicated caterpillar activity.

Mark Peters counted 13 species of skippers at his prairie in Jefferson County on 8/16, including a Hoary Edge. At Sandy Creek on 8/16, Jim Ziebol spotted a very nice Juniper Hairstreak, along with two Gray Hairstreaks, and at Busch C.A. on 8/17, he found 20 Hackberry Emperors, 7 Tawny Emperors, and 6 Gray Commas. Mary Eileen Rufkahr observed 13 species at Point DuSable Park on 8/17, including Orange and Cloudless Sulphurs, 30+ Cabbage Whites, Tiger and Spicebush Swallowtails, 3 Hackberry Emperors, 5 Buckeyes, and 1 Horace's Duskywing. On 8/18, Scott & Annie found a

female Zabulon Skipper at St. Francois State Park (during their survey for Swamp Metalmarks – see above). Frank Holmes photographed a Dainty Sulphur at Horseshoe Lake on 8/19. On 8/23, Frank observed Little Yellow, Cloudless Sulphur, Southern Dogface, Hackberry, Red-spotted Purple, Silver-spotted Skipper, Duke's Skipper, Dun Skipper and Monarch at Horseshoe Lake. A walk on the four-mile lake trail at Cuivre River on 8/25 failed to turn up any Swamp Metalmarks, and only 3 Tall Thistle plants were found on the entire trail (YH, EL). Sarah George saw Red-spotted Purples, Southern Dogface, Summer Azures, Pearl Crescents, Hackberry Emperors and Tawny Emperors at Cahokia Mounds on 8/25.

Scott Marshall, Dennis Bozzay, and Mary Eileen Rufkahr checked St. Francois State Park on 8/25 but did not find any adult Swamp Metalmarks. They did find a probable Swamp Metalmark caterpillar, although it was not on its host plant. Both Swamp Thistle and Tall Thistle are present at this park.

Our count at Horseshoe Lake on 8/26 was a success in terms of both butterflies and participants. A total of 40 species and 962 individuals were seen, with high counts of 43 Pipevine Swallowtails, 65 Orange Sulphurs, 107 Southern Dogface (a record), 54 Cloudless Sulphurs, 223 Eastern Tailed-Blues, 62 Pearl Crescents, 80 Buckeyes, 33 Monarchs, and 35 Silver-spotted Skippers. Also of interest were 11 Sleepy Oranges, 19 Dainty Sulphurs, 6 Gray Hairstreaks, 1 Snout, 1 Red Admiral, 7 Red-spotted Purples, 12 American Ladies, 24 Common Checkered-Skippers, 16 Common Sootywings, and 16 Dukes's Skippers. Thanks to Jim Ziebol, Frank Holmes (for arranging to get a key to the gate), Bob & Nancy Pryde, Karen Van Berkel, Jeannie Moe, Kraig Paradise, and guests David Garcia and his daughter Anna, Bob Bailey, Evelyn Luecke, Mary Hillebrand, Frank Graser, Pat Colclasure, Mark Paradise, Connie Paradise, and their daughter Julia.

Southern Missouri Report: On 8/19, David Rogles found 2 Gulf Fritillaries at Gayson Conservation Area near Hayti, MO. On 8/22 a Gulf Fritillary was in a soybean field near Lilleborn. Systematic sampling at Towoshagy State Historic Site and Big Oak Tree State Park (BOT) demonstrate that peak butterfly species diversity is currently occurring, even if individual numbers are low due to the lack of rain. On 8/12, 15 individual Creole Pearly-Eyes were photographed at BOT. Two fresh Southern Pearly-Eyes and a Carolina Satyr were part of the 29 species flying at BOT on 8/26.



A very worn Creole Pearly-Eye, BOT 26-Aug-07

July Garden Reports: In June, Anne McCormack tallied 12 species at her Kirkwood garden: 4 species of swallowtails (Pipevine, Tiger, Zebra and Black), Pearl Crescent, Summer Azure, Cabbage White, Snout, Red Admiral, Monarch, Silver-spotted Skipper,

and Horace's Duskywing. The Snout was nectaring on Wild Hydrangea, and the Horace's Duskywing was nectaring on Ohio Horsemint. The Zebra Swallowtail may have laid eggs on Anne's Paw-paw tree, which is an uncommon tree species in the suburbs. On 7/1, Yvonne saw a Spicebush Swallowtail and a Monarch at her condo; the Monarch was checking out the Swamp Milkweed. Linda Virga's garden was full of butterflies – Spicebush (host plant in yard), Pipevine caterpillars, Tiger Swallowtail, Horace's Duskywing, Red Admiral, Monarch, Sachem, Snout, Cabbage White, and Eastern Tailed-Blue (seen 7/2-7/5). On 7/8, Mary Eileen observed one each of Cabbage White, Spicebush Swallowtail, Eastern Tailed-Blue, Monarch and Sachem. Monarchs were flying around the Swamp Milkweeds in Yvonne's garden on several dates in July. On 7/24, Mary Eileen saw 7 species in her garden: 3 Spicebush, 1 Tiger, 12 Cabbage Whites, 1 Eastern Tailed Blue, 2 Monarchs, 1 Silver-spotted Skipper and 1 Common Sootywing. Linda Virga ended the month with 19 species, including Great Spangled Fritillary, Snout, Question Mark, Red-spotted Purple, Spicebush Swallowtail, Zabulon Skipper, Horace's Duskywing, Fiery Skipper, Sachem – and a Monarch that laid 8 eggs on Common Milkweed. Linda has caterpillar food plants for 17 species of butterflies in her garden.

August Garden Reports: Dave Berry observed a Hobomok Skipper in his yard in early August. Monarchs have been nectaring daily (and hopefully laying eggs) on the Swamp Milkweed in Yvonne's condo garden. Linda Virga's garden in August was a busy place. A superbly fresh Pipevine Swallowtail, velvet black and iridescent blue, graced her garden on 8/6; Pipevine caterpillars had been seen in her yard a week or so earlier. On 8/7, Linda saw a Gray Hairstreak and several Black Swallowtail caterpillars in various instar stages on both dill and parsley. On 8/9, Linda reported a Giant Swallowtail and a Red-banded Hairstreak, an especially good yard butterfly. A Red-spotted Purple was flying in her garden on 8/13 and 8/17. Least Skipper seen on 8/16 was a good yard butterfly. On 8/17, she found a Peck's Skipper and a Snout. Mary Eileen Rufkahr spotted a Gray Hairstreak in her yard in early August and again on 8/19. Scott & Annie Marshall saw a female Zabulon Skipper on their porch in mid-August; female Zabulons are hard to find anywhere so this is an especially good yard butterfly. They also saw a female black Tiger Swallowtail and a Question Mark at their Webster Groves home. The host plants in Dave Berry's yard were doing their job – he has seen fresh Pipevine Swallowtails drying their wings almost every day, and there were chrysalises of Black Swallowtail, Monarch and Sleepy Orange in his garden.

Contributors: Dave Berry, Dennis Bozzay, Kent Fothergill, Sarah George, Mary Hillebrand, Frank Holmes, Yvonne Homeyer, Evelyn Luecke, Anne McCormack, Sherry McCowan, Jeannie Moe, Bob & Claudia Noe, Mark Peters, Bob & Nancy Pryde, Mary-Eileen Rufkahr, Tom Terrific, Linda Virga, Belle Warden, Jim Ziebol.

Fall Programs

By Yvonne Homeyer

Monarchs, Idaho butterflies, and Peru are the topics of our three fall programs. We're starting the season off with Tom "Terrific", a riveting speaker on any topic. Tom raises Monarchs from the wild ones in his garden, which is packed with milkweeds and other

host plants. Tom is a good videographer so I'm sure there will be lots of imagery to go along with his talk on Sept. 18 at the County Library HQ. Then, on October 5, Kent Fothergill will join us from Sikeston for a Friday night presentation at the home of Tom Terrific. Kent has extensive field experience studying the butterflies of Idaho, where he lived before moving to Missouri about a year ago. An excellent photographer, Kent will have some incredible photos to share with us. Make this a relaxing, sociable Friday night with your NABA friends. On November 14, we will learn about Dave Larson's exciting trip to Peru this summer. Dave is also an excellent photographer. Whether you've been to South America or not, sharing Dave's experience will make you want to go there. Dave's presentation will be at Powder Valley.

Check the Calendar for details and directions. When you're adding these programs to your calendar, make sure you note the location, because each of our programs is at a different place. We will have more great programs coming up in the Spring, so stay tuned!

Butterflying 2007 – a summary

By Jim Ziebol

Another summer drawing to a close . . .

On the plus side: Red-banded Hairstreaks were seen in good numbers this year. Anglewings (Commas and Question Marks) were also found in good numbers. Skippers were about normal with large numbers of Bell's Roadside and a few Pepper and Salt. Sightings of Funereal Duskywings and Eufala Skippers occurred again this year.

On the minus side: There were very few reports of any other hairstreak species besides Red-banded. Hackberry Emperor and Tawny Emperor continue to decline, with no reversal of the trend this year, unfortunately. Orange Sulphurs and Clouded Sulphurs are really in trouble. Other sulphur species have been reported in average or below average numbers. Clouded Skipper sightings were definitely down in the St. Louis area this year. Monarchs were average to somewhat lower than normal.

Please join us on Sunday, Sept. 16 at Busch C.A. at 10:00 a.m. for our final count of the season. We'll have a picnic lunch in the pavilion behind the Visitor's Center afterwards. A few of us will be working in the Butterfly Garden before the count so come a little early if you would like to help. The garden has looked exceptionally good this year, thanks to the care and attention by Jeannie Moe, Kathy Thiele, Dennis Bozzay, Bob Noe, Linda Virga, and Mary Eileen Rufkahr.

El Cielo Butterfly Festival

By Yvonne Homeyer

The El Cielo Butterfly Festival will take place Oct. 31 through Nov. 4, 2007. The meeting place is McAllen, Texas in the Rio Grande Valley. The destination is in the

Sierra Madre Mountains about 250 miles south of Brownsville. I went on the trip last year and we collectively saw over 250 species in 5 days (see article in the Dec. 2006 issue of our newsletter - available online at our web site:

www.naba.org/chapters/nabasl/stlouis.htm).

This year, there will be 3 people from St. Louis going on the tour (myself, Evelyn Luecke and Mary Hillebrand). If anyone else is interested in going, feel free to contact me (314.963.7750 home). The web site for the tour is: www.elcielofestival.com.

An Opening on the Board

Dave Berry is transitioning into his post-retirement lifestyle and plans to give up the Treasurer's job as soon as we can find a replacement. If anyone is interested, please contact Jim Ziebol (314.781.7372) or Yvonne Homeyer (swampmetalmark(AT)sbcglobal.net). Our chapter finances are simple. Knowledge of Quicken or QuickBooks would be a plus.

This is your newsletter

A newsletter is all about communication between the members – why not join the conversation?? Please send your stories, poems, articles, information, cartoons, and photos to: kent(AT)csr-inc.com. By sharing we increase our personal and collective coolness, something that benefits not only NABA St. Louis, but also society at large.



Tawny Emperor BOT 12-Aug-07 KF photo



Carolina Satyr BOT 26-Aug-07 KF photo



Common Checkered-Skipper 26-Aug-07
Big Oak Tree SP KF photo

Butterflies in a soybean landscape

By Kent Fothergill

The first thing a newcomer to the Missouri bootheel notices is that there is a lot of farming. In Mississippi County, where I work, 90% of the land area is devoted to crop production (NASS 2006, Fedstats 2007). The National Agricultural Statistics Service (NASS) data only reports the crop area and doesn't account for ditches, roads, farm home sites, granaries, and other associated agricultural acreages, which makes the agricultural land use percentage even higher. The high percentage of farmland has numerous ramifications for butterfly conservation in the Bootheel region and Missouri at large. The most important of which is that to understand butterfly populations at landscape scales one must have some understanding of the agroecosystems within Mississippi County.

In Great Britain many butterfly conservation efforts take place on agricultural lands, typically lands utilized for livestock grazing (Fox et al. 2006). In Mississippi County, 58% of the land area was utilized for soybean production in 2006, and livestock grazing was a minor land use (NASS 2006, Fedstats 2007). Row crop agriculture presents challenges that livestock grazing doesn't, namely crop rotation and plant diversity issues. A pasture often contains warm



Gray Hairstreak nectaring on soybean

and cool season grasses in addition to forbs with the management goal of producing livestock through decades; in row crop agriculture the goal is to produce a monoculture of one plant species and to cycle different plant species on the land to maximize yields and promote soil health. In the case of second crop beans behind wheat: the field swaps from dominance by grasses to dominance by legumes during the peak growing season; which must have a profound impact on insect communities.

The increased use of pesticides on row crops is also a major difference between pasture lands and row crop agriculture. Most of the soybeans I have seen as a soybean scout in Mississippi County contain Monsanto's Round-up Ready technology, a genetic modification that makes the soybean plants refractory to application of glyphosate herbicide (Monsanto brand name = Round-up). Theoretically, this means that glyphosate could be applied with great frequency, in practice there are economic limits on how often glyphosate can be applied – a farmer needs to make a profit come harvest. Typically, a field will only see glyphosate during the early growth stages, after which the soybeans will close the canopy and prevent sunlight from reaching the developing weeds. The effects of glyphosate on butterflies were not noticed in the field. No effects on the number of common butterfly species were observed when glyphosate was used to control trees, shrubs and blackberry in powerline cuts (Bramble et al. 1997), which appears to be the case in Mississippi County soybean fields over the short term also. If the herbicide is

being used to remove a butterfly species larval host plant, it stands to reason that this should change the ability of the system to support that species.

Insecticides are an entirely different case, and are generally injurious to insects. Some like Orthene are short-term in effect, while pyrethroids (e.g. Mustang Max) have some transient residual insecticidal properties. Long-term, systemic insecticides (e.g. Gaucho) are registered for use as seed treatments in soybeans providing protection from chewing insects for the young plant. Economics limit application frequency of these more expensive chemicals such that application may occur as many as three times but much more typically only once during a growing season, usually after the plants reach R3. Next year I hope to examine the interaction of agricultural insecticide applications and non-target insect populations. Even though the answer seems obvious, my observations this summer do not provide a clear picture; detailed study may prove useful for both conservation and agricultural purposes.

I have personally observed over 33 species of butterfly in and around soybean fields this summer, of these butterflies the following species have been observed utilizing the soybean plant for more than a perch:

Species	Soybean use observed
Pipevine Swallowtail	Nectar
Orange Sulphur	Nectar, Oviposition, Larval Food Plant
Cloudless Sulphur	Nectar
Sleepy Orange	Nectar
Dainty Sulphur	Nectar
Gray Hairstreak	Nectar
Eastern Tailed-Blue	Nectar, Oviposition, Larval Food Plant
Gulf Fritillary	Nectar
Variegated Fritillary	Nectar
Pearl Crescent	Nectar
Painted Lady	Nectar, Oviposition, Larval Food Plant
Silver-spotted Skipper	Nectar, Oviposition, Larval Food Plant
Common Checkered-Skipper	Nectar
Common Sootywing	Nectar
Least Skipper	Nectar
Fiery Skipper	Nectar
Sachem	Nectar

It is important to note that these data have been gathered opportunistically during my duties as a soybean scout and as such should not be considered to be complete. Additionally, these data do not quantify the benefit that the butterflies may or may not be receiving from these interactions. Nectaring is claimed when the proboscis was observed within the flower of a soybean plant. Oviposition is claimed when a female butterfly was observed to actually lay an egg upon a soybean plant. For the use category Larval Food Plant (LFP) to be claimed, a caterpillar of the species was observed feeding on the soybean plant.

It is well known that availability of LFP's is important for butterfly populations (Pyle 1984), but it is not the only factor. The quality and availability of nutrient resources during the adult stage correlates with fecundity, egg weight, and longevity (Boggs 1997, Mevi-Schütz and Erhardt 2002, O'Brien et al. 2004). Nectar, a primary nutrient source for adult Lepidoptera varies by plant species in both its carbohydrate and constituent components and differences in these components affect fecundity (Romeis and Wäckers 2002). Therefore, nectar resources available to adult Lepidoptera also influences species occurrence, distribution and density.

Some of the species listed in the table above are very common in soybeans, namely the Orange Sulphur and Eastern Tailed-Blue, and are probably very well supported by the habitat of a soybean field. Large numbers of Gray Hairstreaks are sometimes present in soybean fields, it is possible that this species is also able to utilize soybeans as an LFP. Other crops may be utilized as LFP's in the bootheel: corn and rice are utilized by grass skippers (Scott 1986), cotton use by Gray Hairstreak is documented in Texas (Scott 1986), and I had opportunity this spring to see a mustard crop in Pemiscot County swarming with Checkered and Cabbage Whites. Some species, such as the Common Sootywing, utilize a common weed like pigweed as an LFP and as such are part of the agroecosystem.



Dainty Sulphur nectaring on soybean

While it is very important to study and preserve areas of high species diversity like Big Oak Tree State Park, it is equally important to study and understand the characteristics of the land use matrix within which these refuges exist from both a biological and human perspective. Insects in general, and butterflies in particular, are touted as excellent bioindicators (Hammond and McCorkle 1984, New 1990). As such to study insect diversity and density within human landscapes may be more relevant than the studying the preserves for answering questions of environmental health in highly bio-perturbed areas like Mississippi County. In this case the Canary in the coalmine might be a lyceanid in a bean patch.

It cannot be stated often enough that conservation is not a biological process, but a human process – as such human values cannot be separated from the conservation activities. Conservation needs to be based on biological and human truths (realities). There is still much to discover and understand.

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