Volume 45, Number 3 Autumn 2003

NEWS OF THE LEPIDOPTERISTS' SOCIETY

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Volume 45, No. 3 Autumn 2003

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Cover: Emperor moths, *Saturnia pavonia*, male and female, shown on blackthorn, *Prunus spinosa*, a favorite larval host, which is also called sloe in Britain. This moth ranges from Ireland and Scotland throughout most of Europe and across Siberia to northern China. Transparent Watercolor painting by Richard Peigler. (Original measures 22 x 29 inches).

The Lepidopterists' Society is a non-profit educational and scientific organization. The object of the Society, which was formed in May 1947 and formally constituted in December 1950, is "to promote internationally the science of lepidopterology in all its branches; to further the scientifically sound and progressive study of Lepidoptera, to issue periodicals and other publications on Lepidoptera; to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field; to compile and distribute information to other organizations and individuals for purposes of education and conservation and appreciation of Lepidoptera; and to secure cooperation in all measures" directed towards these aims. (Article II, Constitution of The Lepidopterists' Society.)

The **News of the Lepidopterists' Society** (ISSN 0091-1348) is published quarterly by The Lepidopterists' Society, c/o Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007-4057, USA., and includes one or two supplements each year. The **Season Summary** is published every year as Supplement S1 and is mailed with issue 1 of the News. In even numbered years a complete **Membership Directory** is published as Supplement S2 and is mailed with issue 4 of that volume of the News. Please see the inside back cover for instructions regarding subscriptions, submissions to, and deadline dates for, the News.

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A Fallout of Black Witches (*Ascalapha odorata*) Associated with Hurricane Claudette.

Brush Freeman

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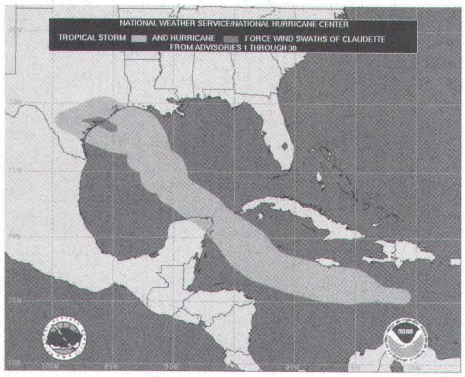
A weak category two hurricane came onshore on the Texas coast near the small coastal town of Port O'Connor on July 15, 2003. Petra and Ladd Hockey, along with myself, weathered the storm in their home which is located directly on the front beach over-looking west Matagorda Bay. We believe that we

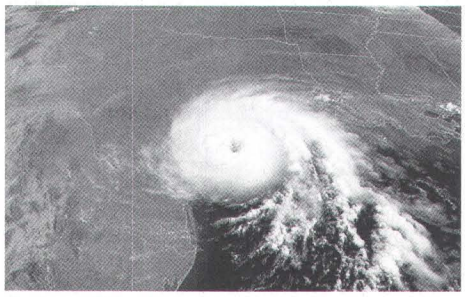


*The track of Hurricane Claudette (**www.nhc.noaa.gov/ftp/graphics/AT04/refresh/AL0403S+GIF/160443S.gif**) through the western Caribbean and Gulf of Mexico. Note the close contact with the south coast of Jamaica and the northern tip of the Yucatan Penninsula of Mexico.*

experienced sustained winds of 110-120 mph (177-193 km/hr), though further back in town sustained winds of 97 (156) with gusts of 113 mph (182 km/hr)were recorded. As this hurricane came ashore it had a very well defined eye. Winds were directly from the north on the lead side of the storm switching to the south on the back side. We were in the eye for 45 minutes to an hour.

We went directly through the eye where winds dropped from ~110 mph to near 0 in just a matter of a few minutes. Within the eye the skies cleared and it became very still and hot. The Hockey's and I are serious birders and during the calm we went out on the Hockey's second story balcony to scan the bay with scopes for any possible pelagic species that are usually only seen near shore during such storm events.

As we began scanning the bay we quickly became aware of large numbers of Black Witches flying over the very rough waters. We soon realized that these moths were literally everywhere, many had made landfall and were flying around the homes on the beach. More than 10 were seeking shelter in the rafters under the Hockey's balcony alone. All in all we estimated that there must have been hundreds along the front beach or over the bay and every scope view of the bay produced one to several individuals.



A view of the hurricane (www.srh.noaa.gov/hgx/projects/claudette03/images/claudette071503-1615z2.jpg) as it crosses onto the Texas coast at Port O'Connor.

We soon saw the other wall of the hurricane approaching so retreated back into the house where we once again experienced terrific winds. After the storm's passage we were busy with clean up and repairs but not so busy that we did not have the time to see these moths in virtually every nook and cranny where they had sought shelter. I saw Great-tailed Grackles *Quiscalus mexicanus* and a Loggerhead Shrike *Lanius ludovicianus*, pick up moths from the wet grass. The grackles beat them against the ground on two occasions but for some reason did not eat them. We worked around the moths for the remainder of the day and also noted large numbers of dragonflies cursing over the nearby yards and beach front.

Electricity had been knocked out by the storm and at twilight Ladd and I went outside to enjoy the cool evening. Immediately 7 of these moths began flying around me, often landing on me. We had cold beer and I poured a small amount into my cupped palm and within seconds 2-3 of these moths landed on my hand and began drinking the beer. A most unusual experience for us.

It should be noted that prior to this storm we had not noticed any Black Witches in town, and in a typical year I might see only 3-4 of these moths on the coast and maybe 1-2 inland to Bastrop County east of the Austin area. None of us had ever seen such a large concentration of these moths before.

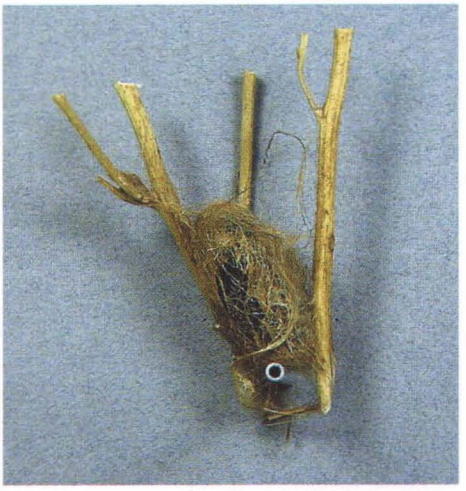
Acknowledgements

*I wish to thank Jeff Crolla, Ladd and Petra Hockey, Mike Quinn, Alan Wormington who provided much helpful information and who encouraged me to report this remarkable event. See Mike Quinn's web page (***home.satx.rr.com/txento/witch.htm***) for updated information.*

View of Hurricane Claudette from the International Space Station. *See the story by Brush Freeman on the previous page. Image from* **www.srh.noaa.gov/hgx/projects/claudette03/images/claudettefromspacestation.jpg**.

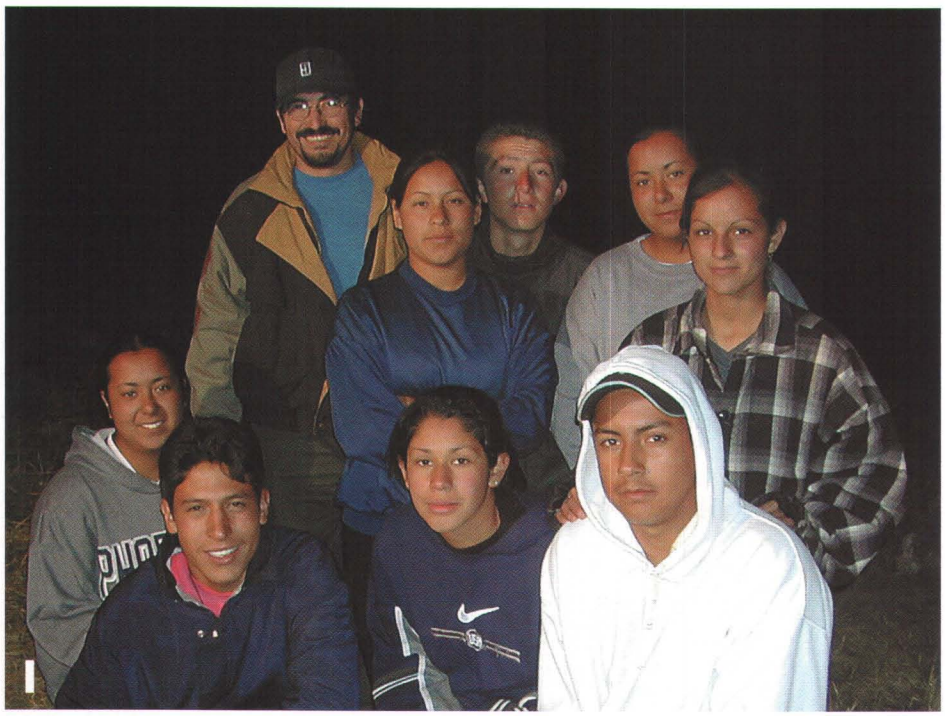
Guatemala: Traveller's Beware!

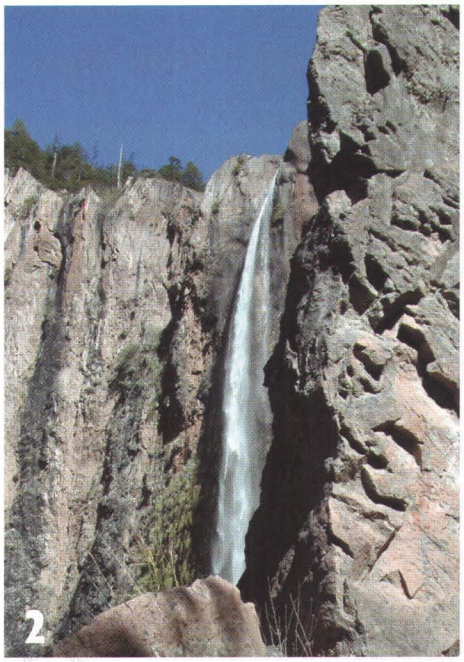
See George Krizek's story on pp. 74. Above, top: Arawacus jada, *25 VI 2003. Above, right:* Miraleria cymothoe, *24 VI 2003. Above:* Autochton cellus, *27 VI 2003. Right:* Chlosyne janais, *26 VI 2003. All photos taken near Antigua by Geo. O. Krizek.*

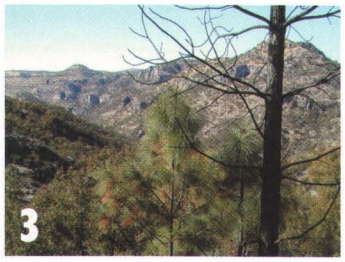


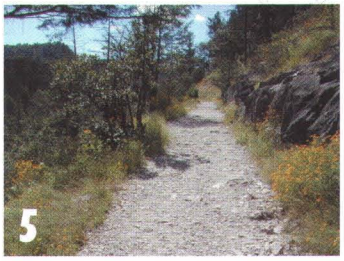
Megalopyge opercularis: the Southern Flannel Moth.

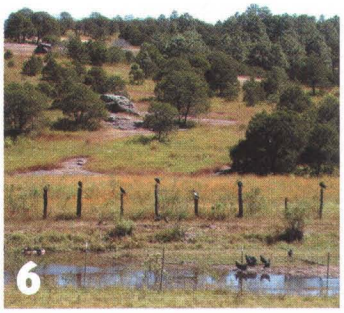
See the story by J. F. Doyle on pp. 75. Right (top to bottom): last instar larva, 35 mm, dorsal view; same, lateral view; cocoon; Adult male, dorsal, spread, 28 mm wingtip to wingtip. Photos by J. F. Doyle.











Collecting Moths in Mexico with CONABIO...

During 2002 Manuel Balcázar and M. Alma Solís were awarded a grant from CONABIO, the bio-diversity organization of Mexico, to study the Bombycoidea and Pyraloidea of the Tarahumara region in northwestern Mexico. Our base of operation was in Yecora, Sonora, although we had one site in Chihuahua. Field work was conducted about every two months and students from the high school in Yecora collected moths at other times during the year.

1. Yecora high school students with Manuel Balcázar during a collecting night (Mar 1); ***2.*** *Basaseachic National Park, Chihuahua (Oct. 3);* ***3.*** *Road east from Yecora, Sonora to Baseachic, Chihuahua (Mar 4);* ***4.*** *Sunset, east of Yecora, Sonora on road to Mina Trinidad (June 1);* ***5.*** *Basaseachic National Park, Chihuahua, 1930 m. (Oct 4);* ***6.*** *Rio Yecora, Sonora (Oct. 2);* ***7.*** *Manuel Balcázar teaching Yecora high school students to spread moths (Mar 3);* ***8.*** *Arroyo La Culebra, west of Yecora, elev. 1650 m. (Mar 2);* ***9.*** *Yecora, Sonora (Oct. 1);* ***10.*** *Manuel Balcázar at collecting sheet, Mina Trinidad, east of Yecora, Sonora, 1320 m. (Oct. 5).*

Guatemala: Dangerous for Lepidopterists!

George O. Krizek

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"They will kill you one day, just because of your camera," I have been told periodically by my wife whenever I departed for the jungle during my trips to the tropics. However, I underestimated her warnings...

This past June (2003) we decided to visit Guatemala, a country famous for its high culture and civilization. On June 21st, we arrived at the Guatemala City airport. In our 5-star hotel the staff warned us not to wear any kind of jewelry (we don't have any anyhow). "They will cut off your finger just because of the wedding ring," we were told. Later we learned that, on July 5, 2003, BBC News issued a warning: "150 women were killed in Guatemala in the first three months of this year—twice as many as a year ago—many had been dismembered..."

After arriving in the tourist city of Antigua, Guatemala, we decided to stay in the famous "Hotel Casa Santo Domingo," a former monastery. Its location is favorable to a lepidopterist, being on the utmost eastern margin of the city. Almost immediately behind its walls there are old coffee plantations and a small river surrounded by the jungle. The weather was excellent, usually about 70% sun with only short rains. Local people told us that June is the last month with heavy rain, and that July is—as a rule—much drier.

During our visit we were surprised to see many armed guards and policemen in front of many buildings, with their fingers literally on the triggers of submachine guns. In the offices of local travel agencies we were informed, that most of the trips that they organized (e.g. to climb the volcanoes) are now accompanied by security guards. Our impression was, that half of the country must be living off of crime! I spent 6 days photographing and collecting more or less at the same location (this was a big mistake!) in the close vicinity of the river and the people working on the coffee plantation. I did not realize that these people probably tipped off the local robbers about my daily routine.

I saw many tropical species of butterflies, but also many northern ones (e. g. *Autochton cellus*, *Danaus plexippus*, *Ascia monuste*, *Euptychia hermes*, *Pyrgus oileus*, *Agraulis vanillae*, *Hylephila phyleus*, *Lerema accius*, *Poanes zabulon*). At an elevation of above 2000m, in the city Chichicastenango, I saw a fresh *Nymphalis antiopa* (unfortunately no *Nymphalis cyanomelas*). For tropical species I saw *Arawacus jada*, many different *Phyciodes*, *Calephelis*, *Chlosyne janais* and *C. erodyle*, *Siproetta epaphus*, *Smyrna karwinskii*, *Lycorea ceres* and its "mimic" *Melinaea ethra*, *Miraleria cymothoe*, *Dircenna* sp., *Leptophobia eleusis*, *Eurema salome* and *E. nise*, several species of *Phoebis*, some *Parides* sp. and *Battus polydamas*. Skippers were everywhere, including *Astraptes naxos*, *A. anaphus*, *Epargyreus exadeus* and many small hesperiids. Of course, I saw lot of species that were unknown to me but Dr. Paul A. Opler was kindly able to determine those I was able to photograph (see photos on pp. 72). Once I saw a huge nymphalid looking like *Adelpha melanthe*, but twice as large. At Lake Atitlan I took two *Erinnyis crameri* coming at night to the hotel lights.

Everything went well until Saturday, June 28. I realized (too late) that on this day no-one was working around the coffee plantations. Several minutes before noon two men on bikes drove by and we exchanged some conventional phrases. One of the men commented that I am interested in "*maripositas*" (small butterflies). I did not ask myself, what these men were actually doing in the jungle on Saturday, when nobody was working. Some twenty minutes later these two men came back, from the opposite direction. Because it was already afternoon, I tried to say "*buenos tardes*," but I was not able to say a half of it. I was sitting on the ground, just ready to change film, when suddenly they jumped off their bikes, the first man said "I want your camera" and tore the camera off my neck. The other man raised his bike above my head ready to crush and kill me with it. They also stole my bag with irreplaceable exposed film. I was unable and had no chance to resist them. I was on the ground, they were two and much younger than I, and everything went very quickly...they were obviously professional thieves. (It may be the truth, that Hernan Cortez and his soldiers enriched (with their genes) the local Mayan population. Even today the local Indians look friendlier than the Mestizos).

This episode spoiled the rest of our vacation. The local police produced, with my help, a report, which I hope to give to my insurance. I now believe that a large part of Guatemala is living from crime and that no amount of aid from us (USA, UNO etc.) will change it—just the contrary. What would I suggest to possible travellers to this area? Never go anywhere alone. Even if you have a gun, you may not have enough time to use it, especially while focusing your camera on some butterfly. It might be a good idea to hire an armed escort from your hotel, (everybody knows them). Keep in mind, that the robbers—as a rule—operate in tandem. Either on motorcycles (e.g. in Morocco), or on bikes. Watch for men on bikes in areas where no-one is around except you and the butterflies.

Be warned!

Megalopyge opercularis (J.E. Smith) (Megalopygidae), Southern Flannel Moth

Joseph F. Doyle

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The pictured moth caterpillar (see pp. 72) was collected by Genave Wilson on Indian Creek Rd. in Bandera, Texas, Bandera County on 1 July 2003. It was feeding on Texas Madrone, *Arbutus xalapensis* Kunth.(Ericaceae) a new larval foodplant record for this species. It was taken to the River Nature Center for possible identification on 2 July 2003. It was shown to J. F. Doyle that same day. Doyle requested and was given permission to identify the insect. Please note that the caterpillar of this species have stinging hairs hidden in dense, soft hairs. A supply of madrone leaves from the Center were supplied and placed with the larva in the author's home. The larva was a noctural feeder. On 9 July 2003, the caterpillar constructed a cocoon and pupated. On 7 August, 2003, a male adult emerged. The adult specimen and cocoon are presently in the J. F. Doyle collection.

Thanks to the staff of the Riverside Nature Center, Kerrville, Texas for their assistance with this project. Graphic art photographed and digitally enhanced (see pp. 72) by J.F. Doyle.

Manduca lanuginosa form *crocala* (Druce), (Blackened Sphinx), a New Record for Texas and the USA.

Charlie Sassine[1], Ed Knudson[2] & Charles Bordelon[2]

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Charlie Sassine's Narrative:

The Blackened Sphinx (*Manduca lanuginosa* f. *crocala*) was collected on El Rancho San Francisco, in NW Hidalgo Co., TX, just 12 miles east of Starr Co., on July 11, 2003 (Sassine). This is a new US Record. The ranch is located in a biotic community known as Upland Thorn Scrub. "This community can be thought of as a transition zone between the Chihuahuan and Mid-delta (Tamaulipan) Thorn Forests. It is the most widespread habitat type in south Texas and occurs to the north and west of the Rio Grande Delta. (USFWS, 1998)."

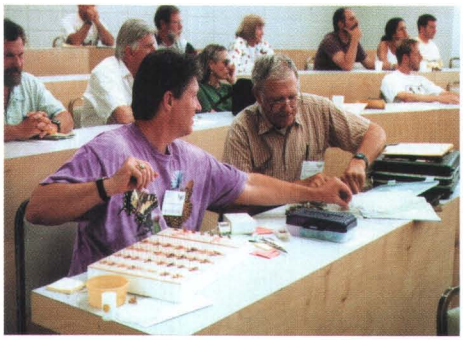
"The ranch is owned and managed by a native habitat minded botanist and is an oasis of unique plants, butterflies, and moths. Large portions of the ranch are protected and undisturbed native thickets. Native plant re-vegetation and habitat restoration projects are ongoing. The moth was collected on an unbaited white sheet with a 2800 series BioQuip™ night collecting light on a second floor balcony. I've had much better results at this location, with the setup at elevation rather than on ground level. I typically get the light set up way before dark, specifically for crepuscular flying Sphingids. On this occasion, the Blackened Sphinx appeared on the sheet just after dusk. I knew immediately this was a Manduca sp. like I'd never seen before and when I consulted my field references, it was nowhere to be found. At this point I was very excited, knowing that this could be something of great significance. Hurricane Claudette was still in the gulf, but passed to the north of this location several days later. The specimen was papered and donated to the collection of the Texas Lepidoptera Survey (TLS), two weeks later."

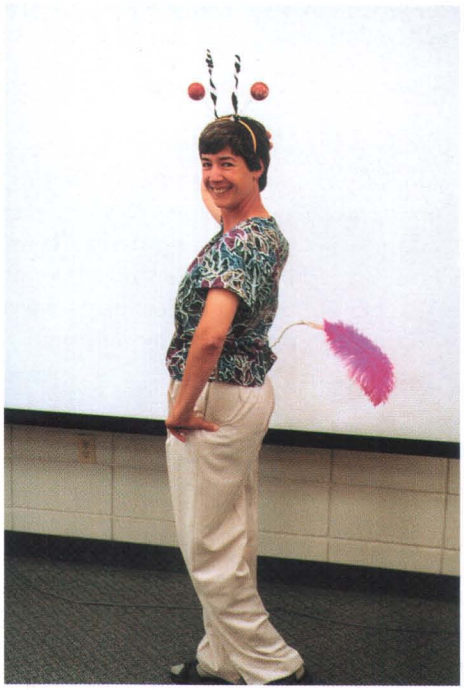
"A previous visit to this location on May 23-25, yielded the following: *Sphingicampa heiligbrodti , Manduca sexta, M. quinquemaculata, M. rustica, Eumorpha vitis, Xylophanes tersa, Hyles lineata*, and an amazing diversity of Cerambycid beetles. Total numbers of all orders of insects on the sheets were well into the thousands by midnight."

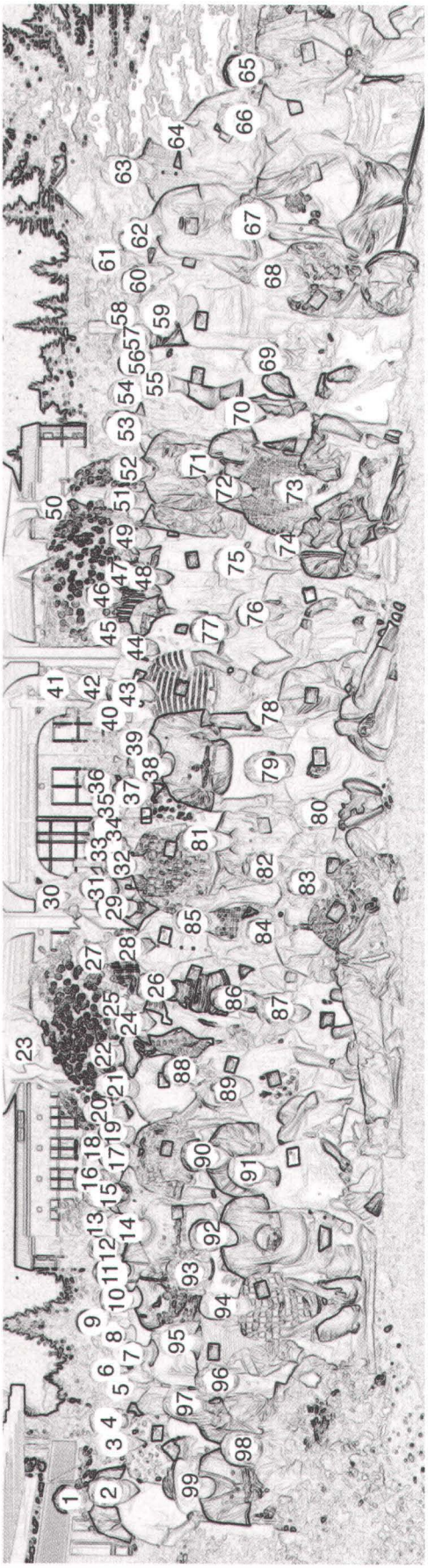
Commentary:

The highly distinctive Hawk-moth *Manduca crocala,* was first described by Druce in 1894, from examples from Honduras and Guatemala. Later in 1926, Clark reluctantly described the subspecies, *tepic,* from southern Mexico, based on maculation only. In 1940,

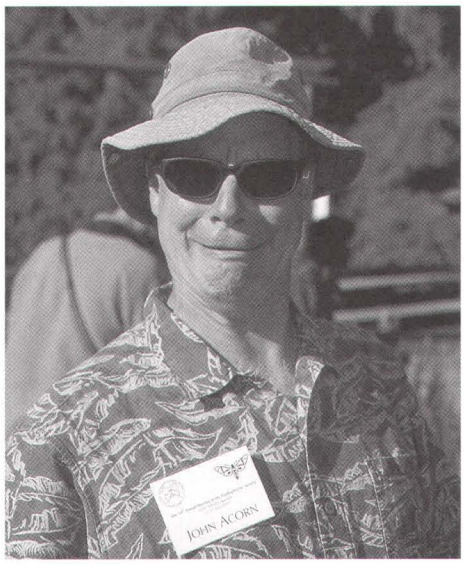
continued on pp. 98







1. Davin Bagdonas; **2.** Karõlis Bagdonas; **3.** Patrice Lussy-Bagdonas; **4.** Ernest Mengerson; **5.** Mandy Heddle; **6.** Karen Mengerson; **7.** Yanli Du; **8.** Paul Larson; **9.** Bruce Christianson; **10.** Barbara Loudan; **11.** Lee Miller; **12.** Niklas Wahlberg; **13.** Don Miller; **14.** Reggie Webster; **15.** George Balough; **16.** John Addicott; **17.** Malcolm Douglas; **18.** Jens Roland; **19.** John Brown; **20.** Akito Kawahara; **21.** Ken Bliss; **22.** Andy Warren; **23.** Evgueni Zakharov; **24.** Theresa Fowler; **25.** Mike Toliver; **26.** June Preston; **27.** Don Lafontaine; **28.** Daniel Glaeske; **29.** Reed Watkins; **30.** Amanda Roe; **31.** Thomas Simonsen; **32.** Les Ferge; **33.** Paul Milner; **34.** Julian Donahue; **35.** George Ball; **36.** Fred Stehr; **37.** Sally Warren; **38.** Eleaner Adams; **39.** Suzette Slocomb; **40.** Robert Reed; **41.** Jerry Powell; **42.** Eric Runquist; **43.** Charlie Covell; **44.** Sarah Burns; **45.** Dave Lawrie; **46.** Chuck Harp; **47.** R. J. Iveson; **48.** John Burns; **49.** Matthew Garhart; **50.** Andy Brower; **51.** Larry Gall; **52.** Brian Scholtens; **53.** John Masters; **54.** Karl Gardner; **55.** Waleska Rivera-Rios; **56.** John Nelson; **57.** Jackie Miller; **58.** Greg Pohl; **59.** Astrid Caldas; **60.** John Shuey; **61.** Vazrick Nazari; **62.** Bob Robbins; **63.** Chris Schmidt; **64.** Giovanny Fagua; **65.** Stan Gorodenski; **66.** Gary Anweiler; **67.** Bob Pyle; **68.** Thea Pyle; **69.** Bernard Landry; **70.** Dan Rubinoff; **71.** Steve Mueller; **72.** Ernest Williams; **73.** Phil DeVries; **74.** Carla Penz; **75.** Bill Russell; **76.** Keith Brown; **77.** Pat Russell; **78.** Kathy Parker-Adams; **79.** James Adams; **80.** Patrick Adams; **81.** Charlie Bird; **82.** John Peacock; **83.** John Acorn; **84.** Ruth Anne Peacock; **85.** Jean-Francois Landry; **86.** Gary Gier; **87.** Rosli Gier; **88.** Floyd Preston; **89.** Steve Heard; **90.** Byron Weber; **91.** Jayne Yack; **92.** Paul Opler; **93.** Evi Buckner; **94.** Susan Weller; **95.** Diane Debinski; **96.** Rudy Mattoni; **97.** Helena-Maija Bagdonas; **98.** Felix Sperling; **99.** Will Kerling (Photo by John Acorn).



Opposite (top to bottom): *Kelly Richers & Ron Leuschner pin moths during the meeting; President Larry Gall bestows presidential accoutrements on President-Elect Susan Weller while incoming Journal Editor, Mike Toliver, looks on; the annual lep-theme tie/clothing photo gets larger every year; new President Susan Weller models the complete set of accoutrements (including what can only be described as hair pencils!).* **This page (top to bottom):** *Portrait of John Acorn as, well, as a nut; Floyd & June Preston pose beside their "Portable Pad and Lepidopterology Lab"; Meeting Organizer, Ernest Mengersen with Mike Toliver. Photos opposite by (top to bottom) Charlie Covell, John Acorn, Steve Mueller (Phil DeVries) and John Acorn; this page by John Acorn (top two) and Steve Mueller.*

Minutes of the 2003 Annual Business Meeting

1. President Larry Gall opened the annual business meeting of The Lepidopterists' Society at 10:43 a.m. in Room 314, James Murray Building, Olds College, Olds, Alberta.

2. President Gall first thanked the host institution and the meeting organizers for a fantastic meeting. He noted that a short meeting of the Pacific slope section would follow conclusion of the general membership meeting. He reported that the state of the Society is very good, and he gave thanks to the Society's members for many accomplishments during the past year.

He then asked for a moment of silence in memory of those who had passed away during the past year.

Next, he called on Bernard Landry for an announcement. Bernard reported that SEL (Societas Europaea Lepidopterologica) met about a month ago in northern Italy at SEL's first declared study site. A field congress will be held at this site in June or July, 2004, and a congress in Rome the following year, and those interested are invited to participate. SEL has about 650 members and welcomes manuscripts on palearctic lepidoptera for their publication, *Nota Lepidopterologica*.

President Gall then announced that the Olds insect collection would remain open until 3:00 p.m. that afternoon.

Finally, he read parts of the Society's constitution about our publications, and all present gave a round of applause for Phil Schappert, Editor of the *News*, and Carla Penz, Editor of the *Journal*.

3. Secretary Ernest Williams summarized the meeting of the Executive Committee. He first remarked that a number of people had spent much time on behalf of the Society. The Executive Committee meeting ran for five and one-half hours on Thursday, July 24, and was preceded by a one and one-half hour committee meeting; furthermore, many members spent an additional two hours in discussion Wednesday evening.

He reported that much of that time was spent discussing the *Journal*, including the trade-off in expenses between the number of pages published and the use of color. The E.C. decided to ask authors to pay more for color plates (up to $550 per plate).

Much additional time was spent discussing issues of membership. Like all societies, our Society has experienced a decline in membership, but it appears that the decline has leveled off. We currently mail about 1380 journal subscriptions. We discussed ways to recruit new members, actions to take to retain current members, and what we should be doing generally for the membership.

Financially, the Society is in good shape. We were in the red by $6000 for last year, but we have taken care of that deficit and expect to break even this year. We have received important donations from life members and others in the Society. The E.C. approved a budgetary guideline for the first time; most of our budget supports our two publications, so the guideline pertains mostly to the *News* and *Journal*. The techniques manual, Memoir #5, has sold about 700 copies, past the financial break-even point.

Our schedule for future meetings is as follows:

2004: July 14-18, Univ. Maryland (co-sponsored by USDA and Syst. Ent. Lab.)
2005: uncertain, but likely somewhere in the West
2006: Univ. Florida, Gainesville

Secretary Williams then reported some personnel changes in the functioning of the Society. By her request, Carla Penz is leaving the editorship of the *Journal*. She will be replaced January 1, 2004, by Mike Tolliver, and the current plan is to replace Mike on January 1, 2007, with Brian Scholtens. After 15 years as Editor of the Memoirs, Bill Miller is stepping down from that position and being replaced by Larry Gall. The E.C. also appointed Ron Leuschner as Assistant Treasurer. Finally, changes are being made in the membership of the Society's standing committees: along with the Editorial Board, standing committees on Budget and Publications, Membership, Education, Awards, Records, and Web and Technology. Once the committee assignments have settled, the results will be published in the *News*.

4. President Gall then opened the floor for comments and questions from the membership. John Masters, who has been a member since 1961, stated that the Society has become too expensive, and he passed out a document about membership and a proposed constitutional amendment that would create a new membership class (affiliate members, who would not receive the *Journal*). Secretary Williams read from the Constitution to clarify what was needed for a constitutional amendment. The Masters amendment was not signed by the necessary five members, but several officers stated that the E.C. would discuss his ideas and concerns.

5. The Resolutions Committee—Matt Garhart, Akito Kawahara, Vazerik Nazari, Amanda Roe, Erik Runquist, and Evgueni Zakharov—then came forward and sang their version of *Hotel Olds*. They received a standing ovation.

6. President Gall then called up Susan Weller to receive the presidential gavel, antennae, and coremata of office. New President Weller thanked Larry for his outstanding service. She stated that there is good collegiality in our Society and that she is working on communi-

cation among members, looking for input from the membership and new volunteers for the committees.

7. A move to adjourn was moved, seconded, and passed at 11:15 a.m.

Ernest H. Williams,
Secretary

Lepidopterists Society Annual Resolutions

Matt Garhart, Akito Kawahara, Vazerik Nazari, Amanda Roe, Erik Runquist and Evgueni Zakharov

*Hotel Olds

On a straight prairie highway
Cool wind in my hair
Fine sight of *Boloria*
In the mountain air.

Up ahead in the distance
Saw Jerry's light
Jars grew heavy with torts and nocs
We stopped at Olds for the night.

Welcome to Olds College in Alberta, Eh?
Such a lovely place; Such a lovely space.
Welcome to Olds College in Alberta.
Only this time of year, you can find leps here.

We listened to Jayne's drumming
And caught Andy's barcodes.
We thank the Alberta Guild
For the beautiful abodes.

We are from both Hemispheres,
From many countries.
A forecast for the future,
And many molecular trees.

Welcome to Olds College in Alberta, Eh?
Such a lovely place; Such a lovely space.
Welcome to Olds College in Alberta.
Only this time of year, you can find us here.

Eanie-meanie chile-beanie
All the talks hit the mark
Two received the stinky sock
The girls showed real spark

As we look in our crystal ball,
Peace reigns among factions.
We hoped that you liked our rhymin'
We'll soon see DC's attractions.

Goodbye to Olds College in Alberta, Eh?
Such a lovely place; we will miss this place.
Goodbye to Olds College in Alberta.
Now that we are outta beer, we're outta here!

**sung to the tune of Hotel California*

Photo by John Acorn.

Tolman Bridge

Charles Bird
Box 22, Erskine, AB, Canada, T0C 1G0, ***cdbird@telus.net***

Various folks took part in mothing field trips, primarily on Wednesday July 23 and Thursday July 24, to Tolman Bridge on the Red Deer River east of Olds, during the 2003 meetings of the Lepidopterist's Society. This area is more formally known as the "Tolman Bridge Recreational Area" and it has recently been made part of Dry Island Buffalo Jump Provincial Park.

Permission to inventory Lepidoptera in this area in 2003 was given to Charles Bird and Ernest Mengersen on the condition that a report listing the species collected be submitted prior to the 2004 collecting season. All those who made collections during the Lep Soc meetings are therefore requested to send lists of what they collected to Charles Bird by mid winter and definitely before March 1.

A list of Lepidoptera collected in the area prior to 2003 may be found at the Alberta Lepidopterists' Guild website at ***www.biology.ualberta.ca/old_site/uasm//alg/index.html***, under "Projects," then "Faunal Inventory Projects."

L-R: Brian Scholtens, Greg Pohl and Jean-Francois Landry, July 24, 2003. Photo by Charles Bird.

Lep Soc 54th Annual Meeting Field Trips, Olds, Alberta 2003

Ranger Steve Mueller

HCNC, Kent Intermediate School District, 2930 Knapp, N.E., Grand Rapids, MI 49525, ***odybrook@chartermi.net***

Sixty butterfly species were encountered on the Field trips for the Olds Alberta 54th Lepidopterists' Society Annual Meeting (Tables 1-5). One collecting outing had a string of 14 cars. Thanks to Ted Pike, John Acorn, Felix Sperling, Chris Schmidt, and Dave Lawrie for leading great outings. Peace River and Cardinal Divide field trips were opportunities before and after the regularly scheduled field trips. The 23-24 July observing/collecting outings provided excellent conversation with fellow enthusiasts along with the watching and collecting activities. *Oeneis macounii* (Macoun's Arctic) at Wild Hay River north of Hinton was an additional species I collected in addition to those listed in tables. This additional species bring the total butterfly count to 61 species.

Moth outings kept people out until after 2 a.m. A moth species list has not been compiled. The field trips are great for making new acquaintances and renewing old friendships. The knowledge and experience of enthusiastic people is contagious, stimulating, and a great learning opportunity. The tables include locality, date and species encountered and the Opler/Warren number. Use the tables as a guide for your own visit in these Canadian wildlands.

Thanks to Ernest Mengersen for making the Olds College Lepidoptera collection available for examination throughout the conference.

Please provide additional observation supplements I may have omitted.

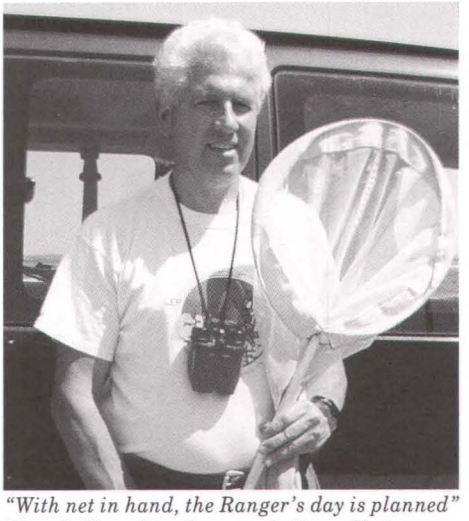
Scientific names follow the recently published *Butterflies of North America 2. Scientific Names List for Butterfly Species of North America, north of Mexico* by Paul Opler and Andy Warren in Contributions of the C.P. Gillette Museum of Arthropod Diversity, Colorado State University, with 16 July 2003 additions. Unlike Miller/Brown list, this list does not include subspecies

Table 1: Coalcamp Road, 51.654N, 115.18W and 1370 Meters. East of Deer Creek Recreation Area, Alberta Canada (23-Jul-03). 24 Species.

Common Name	*Scientific Name (Opler/Warren)*
Draco Skipper	Polites draco
Anise Swallowtail	Papilio zelicaon
Canadian Tiger Swallowtail	Papilio canadensis
Cabbage White	Pieris rapae
Mustard White	Pieris oleracea
Clouded Sulphur	Colias philodice
Christina Sulphur	Colias christina
American Copper	Lycaena phlaeas
Dorcas Copper	Lycaena dorcas
Mariposa Copper	Lycaena mariposa
Western Tailed Blue	Cupido (Everes) amyntula
Silvery Blue	Glaucopysche lygdamus
Greenish Blue	Plebejus saepiolus
Variegated Fritillary	Euptoieta claudia
Aphrodite Fritillary	Speyeria aphrodite
Northwestern Fritillary	Speyeria hesperis
Mormon Fritillary	Speyeria mormonia
Bog Fritillary	Boloria eunomia
Purple Fritillary	Boloria chariclea
Northern Crescent	Phyciodes cocyta
Milbert's Tortoiseshell	Aglais milberti
White Admiral	Limenitis arthemis
Inornate Ringlet	Coenonympha tullia
Common Alpine	Erebia epipsodea

Table 2: Limestone Mountain Lookout trail, Alberta, Canada (23-Jul-03). 36 species.

Common Name	*Scientific Name (Opler/Warren)*
Draco Skipper	Polites draco
Smintheus Parnassian	Parnassius smintheus
Anise Swallowtail	Papilio zelicaon
Canadian Tiger Swallowtail	Papilio canadensis
Western White	Pontia occidentalis
Cabbage White	Pieris rapae
Mustard White	Pieris oleracea
Clouded Sulphur	Colias philodice
Christina Sulphur	Colias christina
Nastes Sulphur	Colias nastes
American Copper	Lycaena phlaeas
Dorcas Copper	Lycaena dorcas
Mariposa Copper	Lycaena mariposa
Western Tailed Blue	Cupido (Everes) amyntula
Silvery Blue	Glaucopsyche lygdamus
Northern Blue	Plebejus idas
Greenish Blue	Plebejus saepiolus
Rustic Blue	Plebejus glandon
Variegated Fritillary	Euptoieta claudia
Callippe Fritillary	Speyeria callippe
Edith's Checkerspot	Euphydryas editha
Purple Fritillary	Boloria chariclea
Astarte Fritillary	Boloria astarte
Anicia Checkerspot	Euphydryas anicia
Hydaspe Fritillary	Speyeria hydaspe
Northwestern Fritillary	Speyeria hesperis
Mormon Fritillary	Speyeria mormonia
Bog Fritillary	Boloria eunomia
Rockslide Checkerspot	Chlosyne whitneyi
Compton's Tortoiseshell	Roddia (Nym.) vau-album
Milbert's Tortoiseshell	Aglais milberti
Mourning Cloak	Nymphalis antiopa
White Admiral	Limenitis arthemis
Inornate Ringlet	Coenonympha tullia
Common Alpine	Erebia epipsodea
Melissa Arctic	Oeneis melissa



"With net in hand, the Ranger's day is planned" Photo by Karen Mueller, quote by Bruce Christensen.

nomenclature. Species numbers do not correspond with the MONA Checklist by Hodges.

Common Names correspond with the North American Butterfly Association Checklist.

Thank you to Felix Sperling for submitting the Peace River data, Chris Schmidt and Ranger Steve for the Cardinal Divide data, and to Felix for adding omitted species for Tables 1, 2, and 3.

Burnt Timber Mountain Fire Lookout Field Trip, Alberta, July 24, 2003. Photo by Ranger Steve Mueller.

Table 3: Burnt Timber Mountain Fire Lookout, Alberta (24-Jul-03). 26 Species.

Common Name	*Scientific Name (Opler/Warren)*
Arctic Skipper	Carterocephalus palaemon
Smintheus Parnassian	Parnassius smintheus
Cabbage White	Pieris rapae
Clouded Sulphur	Colias philodice
Christina Sulphur	Colias christina
Mead's Sulphur	Colias meadii
Nastes Sulphur	Colias nastes
American Copper	Lycaena phlaeas
Mariposa Copper	Lycaena mariposa
Silvery Blue	Glaucopysche lygdamus
Northern Blue	Plebejus idas
Acmon Blue	Plebejus acmon
Rustic Blue	Plebejus glandon
Callippe Fritillary	Speyeria callippe
Atlantis Fritillary	Speyeria atlantis
Northwestern Fritillary	Speyeria hesperis
Mormon Fritillary	Speyeria mormonia
Astarte Fritillary	Boloria astarte
Purple Fritillary	Boloria chariclea
Edith's Checkerspot	Euphydryas editha
Anicia Checkerspot	Euphydryas anicia
Milbert's Tortoiseshell	Aglais milberti
Painted Lady	Vanessa cardui
White Admiral	Limenitis arthemis
Inornate Ringlet	Coenonympha tullia
Chryxus Arctic	Oeneis chryxus

Table 4: Peace River (3 Sites). 16 Species. Dunvegan, grassland hillsides (19-Jul-03).

Common Name	*Scientific Name (Opler/Warren)*
Cabbage White	Pieris rapae
Coral Hairstreak	Satyrium titus
Striped Hairstreak	Satyrium liparops
Great Spangled Fritillary	Speyeria cybele
Northwestern Fritillary	Speyeria hesperis
Satyr Comma	Polygonia satyrus
Milbert's Tortoiseshell	Aglais milberti
White Admiral	Limentis arthemis
Common Wood-Nymph	Cercyonis pegala

Highland Park, grassland hillsides (19-Jul-03)

Old World Swallowtail	Papilio machaon
Cabbage White	Pieris rapae
Clouded Sulphur	Colias philodice
Coral Hairstreak	Satyrium titus
Striped Hairstreak	Satyrium liparops
Great Spangled Fritillary	Speyeria cybele
Northwestern Fritillary	Speyeria hesperis
Common Wood-Nymph	Cercyonis pegala

Kleskun Hills Park, badlands and native grass meadow (21-Jul-03)

Cabbage White	Pieris rapae
Pink-edged Sulphur	Colias interior
Coral Hairstreak	Satyrium titus
Northern Blue	Plebejus idas
Great Spangled Fritillary	Speyeria cybele
Aphrodite Fritillary	Speyeria aphrodite
Northwestern Fritillary	Speyeria hesperis
Tawny Crescent	Phyciodes batesii
Green Comma	Polygonia faunus
White Admiral	Limentis arthemis
Common Wood-Nymph	Cercyonis pegala

Table 5 Cardinal Divide. Whitehorse Creek near Cadomin, Alberta (18-Jul-03). 40 Species.

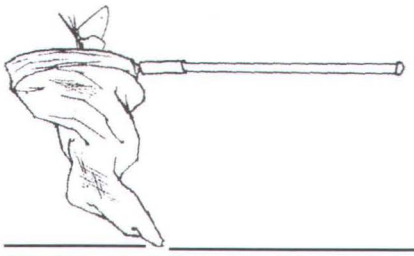
Common Name	*Scientific Name (Opler/Warren)*
Arctic Skipper	Carterocephalus palaemon
Canadian Tiger Swallowtail	Papilio canadensis
Cabbage White	Pieris rapae
Large Marble	Euchloe ausonides
Christina Sulphur	Colias christina
Mead's Sulphur	Colias meadii
Mariposa Copper	Lycaena mariposa
Western Tailed Blue	Cupido (Everes) amyntula
Silvery Blue	Glaucopysche lygdamus
Northern Blue	Plebejus idas
Greenish Blue	Plebejus saepiolus
Rustic Blue	Plebejus glandon
Mormon Fritillary	Speyeria mormonia
Bog Fritillary	Boloria eunomia
Purple Fritillary	Boloria chariclea
Anicia Checkerspot	Euphydryas anicia
Zephyr Anglewing	Polygonia gracilis
Mourning Cloak	Nymphalis antiopa
White Admiral	Limenitis arthemis
Common Alpine	Erebia epipsodea
Chryxus Arctic	Oeneis chryxus

Prospect Creek trail and Prospect Mtn. (27-Jul-03)

Persius Duskywing	Erynnis persius
Arctic Skipper	Carterocephalus palaemon
Draco Skipper	Polites draco
Smintheus Parnassian	Parnassius smintheus
Cabbage White	Pieris rapae
Mustard White	Pieris oleracea
Clouded Sulphur	Colias philodice
Christina Sulphur	Colias christina
Mead's Sulphur	Colias meadii
Nastes Sulphur	Colias nastes
Pink-edged Sulphur	Colias interior
Lustrous Copper	Lycaena cupreus
Mariposa Copper	Lycaena mariposa
Western Tailed Blue	Cupido (Everes) amyntula
Silvery Blue	Glaucopysche lygdamus
Northern Blue	Plebejus idas
Greenish Blue	Plebejus saepiolus
Rustic Blue	Plebejus glandon
Variegated Fritillary	Euptoieta claudia
Atlantis Fritillary	Speyeria atlantis
Mormon Fritillary	Speyeria mormonia
Bog Fritillary	Boloria eunomia
Purple Fritillary	Boloria chariclea
Field Crescent	Phyciodes pulchella
Anicia Checkerspot	Euphydryas anicia
Milbert's Tortoiseshell	Aglais milberti
Common Alpine	Erebia epipsodea
Melissa Arctic	Oeneis melissa
Chryxus Arctic	Oeneis chryxus

Tripoli Mtn. (28-Jul-03)

Western White	Pontia occidentalis
Cabbage White	Pieris rapae
Clouded Sulphur	Colias philodice
Christina Sulphur	Colias christina
Mead's Sulphur	Colias meadii
Nastes Sulphur	Colias nastes
Lustrous Copper	Lycaena cupreus
Northern Blue	Plebejus idas
Rustic Blue	Plebejus glandon
Variegated Fritillary	Euptoieta claudia
Mormon Fritillary	Speyeria mormonia
Bog Fritillary	Boloria eunomia
Alberta Fritillary	Boloria alberta
Astarte Fritillary	Boloria astarte
Purple Fritillary	Boloria chariclea
Edith's Checkerspot	Euphydryas editha
Milbert's Tortoiseshell	Aglais milberti
Common Alpine	Erebia epipsodea
Polixenes Arctic	Oeneis polixenes
Melissa Arctic	Oeneis melissa



Mailbag...

Dear Editor,

I have a well-preserved collection of butterflies/moths that I collected from Southeast Asia (Vietnam, Thailand, Laos & Cambodia) from the late 60's to mid 70's numbering over a hundred. I no longer have the means to store or maintain them and am looking for a home for them. I have several species that I have been able to identify, but must admit to not really researching too hard—just leafing thru any books available in public libraries. Would be glad to provide pictures if anyone is interested. They are mounted in picture frames and well preserved. Any and all help finding a new home for them would be appreciated. Hate to see all my work go to naught.

Thanks,

Kerry E. Maxwell
(krymax@yahoo.com)

Dear Editor,

Well, I (and others) sure missed you at the meeting this year. It turned out to be a hummer, largely because of the high quality of papers, and some of those by the 11 graduate students who competed for the Clench Award. Not in my memory did we have a bigger and finer group of young scientists at the meeting, all of them showing great promise as Lepidoptera researchers. I was chair of the Awards Committee, and with members Susan Weller and Rebecca Simmons had to choose a winner. We actually decided on two winners (Mandy Heddle and Amanda Roe), plus a close Honorable Mention. A group of 5 of them did the "thank you resolution" that Jo and Jackie used to do poetically. It was corny, to be sure, but funny and set to the song "Hotel California," accompanied by one of them on John Acorn's guitar.

At the banquet the evening before, Jerry Powell received the John Comstock Award and reminisced about the Pacific Slope Chapter which is now 50 years old; John Acorn told jokes and acted as MC; Larry Gall gave a brief slide show as a presidential address; and I gave away 61 door prizes with the help of 3 youngsters. There were exactly 122 at the banquet.

At the lengthy Executive Council meeting we affirmed Univ. of MD as next year's venue, with Bob Robbins, Astrid Caldas and others at the USNM running the show. It will be July 14-18, 2004. Dorm rooms at Maryland will be available for those wishing them. I think it will be a superb meeting. We also affirmed Mike Toliver (Eureka College) as Journal Editor to succeed Carla Penz, who received great thanks for pulling the Journal out of the mire and getting it back on track. Further, after 3 years, Brian Scholtens will succeed Mike in the job. They are determined to keep the periodical on track. Larry Gall is to be the new Memoirs Editor.

We had a nice steak cookout at a place called Red Lodge, which was sort of a park a few miles from Olds, the site of the meeting (Olds Agricultural College, specifically). Bob Pyle and Paul Opler and I had some books to sell, but there were no other "commercial exhibits." There were two or 3 poster presentations along with the usual talks.

I did not go collecting, but a modest bag of fritillaries, sulfurs and a few other butterflies were taken in the mountains. Light trapping was generally good, and I shared some of James Adams' leftovers, pinning about 150 moths. I got home late last night after a long flight home. Now to follow up on the connections made at the meeting. Again, I am sorry you could not be with us this time.

Cheers,

Charlie Covell
(Cvcjr3@netscape.net)

Hello Phil,

I guess it's time to get aboard. I've been so busy taking photos and learning butterflies that I have sadly neglected joining the several Lepidoptera organizations. I don't see an app form on your website so could you let me know how to get one or what info is needed. I know the fee is $45. *(Ed. Note: I did!)*

This year should be a winner in the Rio Grande Valley with all the rain they've had and so many butterfly gardens popping up. I'm in Wisconsin finishing up my "Butterflies of Upper Wisconsin" CD and starting one on Dragonflies and Damselflies. My "Butterflies of South Texas" CD is on sale in most of the Valley nature venues.

Let me know the best way to join the Society. I'll have to wait about three weeks just so the address won't change suddenly when I return to the Valley.

Happy Butterflying,

Dave Hanson
(k9zvz@juno.com)

Fall Creek, WI
(and soon: Mission, TX)

What's for Dinner? A New Look at the Role of Phytochemicals in Butterfly Diets

Gary Noel Ross

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The classic paradigm describing butterfly nutrition is simple: Butterflies feed on flower nectars. No surprise, after all, nectars are sugar-rich solutions produced by plants for the sole purpose of attracting insects (and sometimes other animals) to effect cross-pollination. But this near-symbiosis between butterflies and flowers has now caught the fancy of homeowners and is propelling the landscape industry with the lucrative campaign: "Plant 'em and they will come!" This mantra offers hotshot, fast-paced technocrats with an opportunity to revel in newfound joy and solace, and is transforming many nature-deprived urban settings into wildlife friendly habitats. Butterflies and humans benefit alike.

But things are not always as they seem. While it's true that the many butterflies are content with nectar as their sole source of nutrients, many other species, particularly those within the tropics, supplement their nectar diets with other types of plant and animal fluids ranging from fermenting fruits and saps to urine, blood, tears, perspiration, carrion, and feces. But some butterflies feed exclusively on these organically rich compounds—indeed, some of the world's more energetic and robust species, for example, the nymphaloid genera *Agrias, Anaea, Charaxes,* and *Prepona,* fall into the category of non-nectar feeders. Although such foods may offend our aesthetic palates, the Shakespearian adage that "one man's meat is another's poison" rings loud and true. At any rate, the insects partake with gusto—and thrive.

Then there's "puddling," an arcanum in which males, often of mixed species, congregate around a moist patch of soil saturated with minerals and salts. The solution is siphoned up, inorganic substances ingested and excess water is excreted. These compounds are used in sperm production, or, as with clearwings, males pass them along in the packet of sperm (the spermatophore) to females during copulation. This "nuptial gift" is important in egg production.

More recently, researchers have learned that the group of graceful butterflies known as longwings or heliconians, which utilize species of passionflower (*Passiflora*) as larval hosts, routinely collect pollen from flowers of *Psiguria* and *Gurania* (vines in the Cucurbitaceae). The pollen is packed within the coils of the proboscis and, after secreting saliva to dissolve the proteins, the "cocktail" is siphoned up as a sort of butterfly Ensure®. The amino acids and other ingredients seem to promote longevity, with some species surviving up to a year while remaining reproductive. Morphological studies have shown that the eyes and "brains" of these butterflies are oversized, adaptations that facilitate locating and remembering the specific venues of favorite pollen providers. In what is heralded as a textbook case of coevolution, the pollen producers in turn have adapted unique strategies to optimize visitation by these butterfly "Methuselahs" and "wise guys."

Clearwings or ithomiines have coevolved with plants in the tropics, too. These somnolent, often ghostly species synthesize their sex pheromones from unusual chemicals—pyrrolizidine alkaloids (PA's)—found within the plant genera *Heliotropium*, *Tournefourtia*, and *Myosotis* (Boraginaceae) and *Eupatorium*, *Neomirandia*, and *Senecio* (Asteraceae). Furthermore, the butterflies incorporate these chemicals (or their metabolized by-products) into their body tissues, rendering themselves unpalatable to potential predators (often advertising their distastefulness with bright colors). These potential chemical arsenals for "love" and "war" are infused within flower nectar but only males partake, sequestering a portion in their spermatophore, which is later transferred to females during mating. Interestingly, females appear to prefer males with the high PA concentrations. Since clearwings, like longwings, are many and varied, entomologists hypothesize that PA's have metabolic importance. Interestingly, other ithomiine species have different sources of chemicals, following army ants to feed on antbird droppings from which they obtain their nitrogenous compounds.

Curators of increasingly popular butterfly conservatories and flight exhibits experiment with methods of extending the normal ephemeral life spans of captive insects in order to reduce their capital expenditures for replacement insects. They report that if nectar flowers are misted daily with weak solutions of amino acids, some butterflies are cajoled to "perform" better. Apparently, the protein precursors are siphoned up when the butterflies nectar, and in some way lessen the butterflies' physical trauma resulting from shipment and confinement. In a related genre, Pennsylvania researchers attempting to rear the declining regal fritillary (*Speyeria idalia* (Drury)) for possible reintroduction to suitable habitats in the East, have learned that protein supplements in the form of egg albumen to the diets of female regals significantly increases fecundity and fertility. Their conclusion is that "...late-summer nectar sources may influence the long-term welfare of this species,

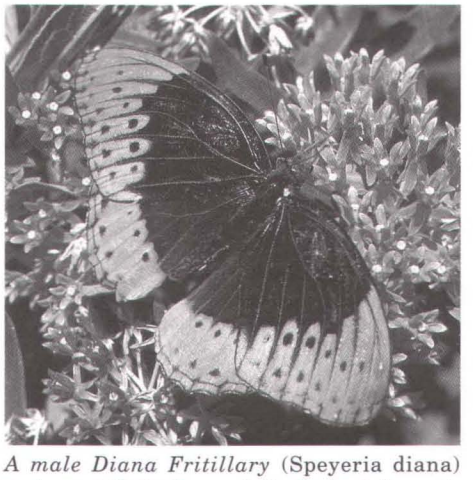
underscoring the importance that nectar plays in the biology of butterflies."

Several researchers have documented that some butterflies—particularly gravid females—are very influenced by quality and quantity of sugars found in nectars. For example, controlled experiments with *Speyeria mormonia* Edwards, a widespread species throughout much of the West, indicate that fecundity in females is directly proportional to amount of sugar content in diet. This same scenario seems operative with other species of western *Speyeria* as well.

In my opinion, however, "the fat lady has yet to sing." Since 1992, I have been conducting extensive field investigations into the life history of three closely related butterflies commonly referred to as Greater Fritillaries: the Diana fritillary (*Speyeria diana* (Cramer)), the great spangled fritillary (*S. cybele* (Fabricius)), and the regal fritillary (*S. idalia*). Locations include northwestern Arkansas (Diana and great spangled) and southwestern Missouri (great spangled and regal). All three species are distinctively marked, strong flyers, but occupy different ecological niches. Dianas are shade tolerant and denizens of eastern forests; great spangled's prefer the borders of eastern forests; and regals are bastions of sunny meadows and prairies (now almost exclusively restricted to the Midwest). However, all share two important specifics. First, they are found in geographic areas that routinely experience significant winter snowfalls. Second, their reproductive biology and life histories are remarkably similar.

They are univoltine, that is there is but one generation each year and their host plants are restricted to various violets (*Viola* sp., Violaceae). Males emerge in early summer a few days or weeks before females but die shortly after mating whereas females continue but postpone egg laying until late summer and early fall when they produce between 1,000-2,000 or more eggs over 3-4 weeks. Eggs are deposited on ground litter, not on the host plants (which are, as a rule, desiccated at the time). The young caterpillars hatch within 3-4 weeks but do not feed, are covered with long setae that have unusual bulbous, fluid filled terminal portions, and diapause (hibernate) within ground litter through the entire cool season (late autumn to late spring). With the return of warm weather and the appearance of fresh violet foliage, larvae break diapause, begin feeding, and complete their development in typical lepidopteran fashion.

Early in my studies I noticed that adults of all three species of *Speyeria,* while peripatetic, usually confine their activities to only those areas hosting specific flowers (see below). Although common during their blooming season, these flowering species are always patchy and the butterflies' distributions matched. Locating clumps of nectar plants almost invariably guarantees good numbers of *Speyeria*. Curiously, warrens of *Viola* are devoid of butterflies if favored nectar sources are absent. Since most authors attribute the decline in *Speyeria* populations to loss of habitat for host plant, that is violets, I was faced with a conundrum.



A male Diana Fritillary (Speyeria diana) *nectars at Butterfly weed* (Asclepias tuberosa). *Photo by Gary Noel Ross.*

I first thought that they were attracted to particular inflorescences because they were stunningly ponderous and packed with multiple nectaries—consummate assets for largish lepidopterans with proportional appetites. But after mulling over my observations, I had an epiphany: many of the attractive plants are known to be important sources of medicinal phytochemicals—the same plant derived substances that seem to have strong metabolic activity for us and which are becoming increasingly common on the shelves of supermarkets, drug stores, and health food establishments. So, an intriguing idea surfaced: Perhaps our general understanding of butterfly nutrition is understated. Perhaps feeding is not simply the gathering of energy-rich sugars?

Could specific nectars furnish *Speyeria* adults, particularly females that must survive many months before ovipositing, with energy and life-supporting phytochemicals? Could the phytochemicals procured by females also be meted out to eggs and first-instar larvae, protecting them from predators and/or cold during their long diapause? Could the presence or absence of these specific nectar plants be used to map the distribution of these butterfly species? Finally, could the waning of these three species of *Speyeria* have to do more with loss of habitat for specific nectar sources rather than depletions of host plants?

Phytochemicals in General

The astute Roman scholar Pliny the Elder proclaimed that "Nature distributed medicine everywhere." Much later, Antonie von Leeuwenhoek commented on herbal medicines by stating that "All we have yet discovered is but a trifle in comparison with what still lies hid in the great treasury of Nature."

The quest for novel compounds, from both plant and animal sources, to treat human diseases and illnesses represents one of the most ancient professions in human culture: the shamans, herbalist and apothecary. The written record abounds with historical references to the use of plant extracts. Who is not familiar with the ancient Egyptians and their reliance on herbs and spices in their art of mummification? And, of course, devotees of Judeo-Christian religions acknowledge the gift of the Magi (gold, frankincense, and myrrh) offered to the Holy Family at the birth

of Jesus, as symbols of royalty—and life itself. (In the ancient world, gold was the most precious element, and frankincense and myrrh were the most honored herbs/spices/medicines.)

Today, searching for new nature-based medicines has a classy-sounding name: bioprospecting. Considered the Holy Grail of current drug study, new technologies increasingly facilitate our ability to discover, study, manipulate, and use unique compounds in therapeutic applications. For example, a recent study of 150 major mainstream pharmaceuticals showed that 100 percent are employed for dermatological, gynecological, or hematological purposes. Of these, 76 percent are used for allergy, pulmonary, and respiratory purposes, 76 percent are used to treat infectious diseases, and 75 percent are employed for general medicine and analgesic purposes. Clearly, the predictions of Pliny and von Leeuwenhoek have been validated many times over!

Paramount among natural products purporting to have health benefits are substances from plants, often referred to as "secondary plant substances." These substances appear to be "useless" to the plants themselves because they seem to have no metabolic function. Found in virtually all fruits, vegetables, herbs, beans, grains, nuts, spices, coffee and tea (for instance, a carrot contains more than 100 different types), this spectrum of odd-ball compounds spans the gamut from vitamins to pigments, oils, fragrances, narcotics and hallucinogens. Although only about 150 such substances have actually been studied, more than 4,000 have been catalogued, and conservative estimates push the figure into the tens of thousands.

Since 1994, the terms nutraceuticals, phytonutrients, pharmafoods, and phytochemicals are employed to categorize these plant-based chemicals, although phytochemicals seems to be the preferred *lingua franca*. By modern definition, phytochemicals include only those micronutrients or biochemicals that are derived from plants and that have important and beneficial effects for our well-being. Strictly speaking, these substances are not nutrients, that is, typical proteins, carbohydrates, fats, minerals, and vitamins, or narcotics. It seems unlikely that such minute concentrations of unrelated compounds could have potent affects on other organisms. But they do. Boy, do they!

Phytochemicals act as antioxidants, some stimulate enzyme systems, and some alter the production of various hormones. Many have anticancer, antifungal, antibacterial, and antiviral properties. Today, phytochemicals are touted as the nutritional buzzword of the new millennium, no less. As powerful agents in their ability to stymie the disease process, these plant-based substances are blurring the line between food and medicine.

Major classes of secondary plant compounds involved in plant-animal interactions (reprinted from Nahrstedt, 1994).

Class	Approx. number of structures	Distribution	Physiological activity
NITROGEN COMPOUNDS			
Alkaloids	6,500	Widely in angiosperms, especially in root, leaf and fruit	Many toxic and bitter tasting
Amines	100	Widely in angiosperms, often in flowers	Many repellent smelling; some hallucinogenic
Amino acids (non-protein)	400	Especially in seeds of legumes but relatively widespread	Many toxic
Cyanogenic glycosides	30	Sporadic, especially in fruit and leaf	Poisonous (as HCN)
Glucosinolates	75	Cruciferae and ten other families	Acrid and bitter (as isothiocyanates)
TERPENOIDS			
Monoterpenes	1,000	Widely, in essential oils	Pleasant smells
Sesquiterpene lactones	1,500	Mainly in Compositae, but increasingly in other angiosperms	Some bitter and toxic, also allergenic
Diterpenoids	2,000	Widely, especially in latex and plant resins	Some toxic
Saponins	600	In over 70 plant families	Haemolyse blood cells
Limonoids	100	Mainly in Rutaceae, Meliaceae and Simaroubaceae	Bitter tasting
Cucurbitacins	50	Mainly in Cucurbitaceae	Bitter tasting and toxic
Cardenolides	150	Especially common in Apocynaceae, Asclepiadaceae and Scrophulariaceae	Toxic and bitter
Carotenoids	500	Universal in leaf, often in flower and fruit	Coloured
PHENOLICS			
Simple phenols	200	Universal in leaf, often in other tissues as well	Anti-microbial
Flavonoids	4,000	Universal in angiosperms, gymnosperms and ferns	Often coloured
Quinones	800	Widely, especially Rhamnaceae	Coloured
OTHER			
Polyacetylenes	650	Mainly in Compositae and Umbelliferae	Some toxic

Anthropologists, botanists statisticians, biologists, food technologists, chemists, and nutritionists are all working feverishly to detect, isolate, analyze, and evaluate the effects of these natural food chemicals on the process of disease. And the consensus of opinion is that the more vegetables, fruits, and nuts we include in our diets, the better off we are. It would appear that phytochemicals are far from "secondary."

Generally, biochemists classify phytochemicals into a number of families (see table). Specific modes of action are not always completely clear, but it is thought that while some phytochemicals act alone others work in combination with one another—and sometimes in conjunction with vitamins and other nutrients. In their capacity as raw materials, phytochemicals can directly destroy or inactivate disease-causing or parasitic organisms, or detoxify/dilute environmental carcinogens; by blocking various hormone actions and metabolic pathways they can prevent cancer, heart disease, arthritis, osteoporosis, macular degeneration, and cataracts; by acting as precursors for important enzymes and coenzymes they can prevent the onset of a wide variety of diseases and disabilities; and by activating protective enzymes and the immune system they can facilitate cell-to-cell communication, again preventing diseases and disabilities.

Ever the entrepreneur, the food industry raved. Advertisers quickly ignited a media blitz, disregarding the frontier nature of the science. Tantalized, people from all walks of life began consulting practitioners of naturopathic medicine for cures for practically every known malady. Health food stores, drug stores, and even supermarkets began stocking shelves with a cornucopia of "natural" food supplements—all, of course, in packaged form. But even as sales soared and more and more doctors began recommending antioxidants for their patients, researchers were not content. While modern scientific testing has now substantiated some claims, many others have never been validated; and some have even been proven bogus. Emerging evidence indicates that the potency of most phytochemicals decreases when they are obtained not through diets but through supplements. Perhaps this is due to interactions between the chemicals themselves and as yet, unknown associates. But, no one really knows. Also, some substances in high doses may behave like potent drugs or even be toxic. Recently, no less an authority than the American Medical Association has issued caveats declaring that we are still a long way from understanding the role of phytochemicals in human health. Caution aside, high-tech genetic engineers are now actively altering the genetic codes of plants (and animals) to produce "function" or "designer" foods that come preloaded with just the right combinations and doses of "healthy" phytochemicals. No bottles here! Apparently, Mom was right when she admonished, "eat your veggies." But now, of course, we must add, "from whatever source!"

Research into phytochemicals is expensive. Sometimes plant populations are small and under attack by poachers, who remove species for their personal use or for the commercial market. Sometimes research nursery plots have to be established for easy access and standardization. Since the greatest economic payoffs oft accrue to the pharmacology industry, it is this market that has become the "phytochemical fiefdom." Needless to say, the constellation of research centers on human interactions. From a biological perspective, however, this is parochial and ignominiously biased toward anthropocentrism. Obviously, plants did not design their chemical arsenals for human beings—latecomers to the ancient Earth. So, the fundamental question remains: What role do phytochemicals serve in the natural world?

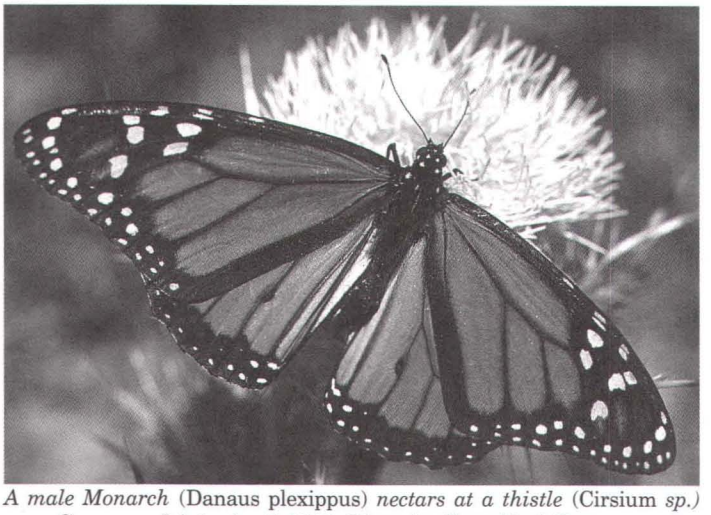
Phytochemicals and Insects

Nature has been dabbling in alchemy for eons. With the appearance of single-cell life forms perhaps as long ago as 4.0 billion years, chlorophyll and photosynthesis became the nexus for the most important energy-transforming process this planet had ever witnessed. It is reasonable to assume that autotrophs ranging from single to multicellular forms have been devising complex chemical, physical, and behavioral strategies for defending themselves from each other, from pathogens, and from predators for a very long time. Additionally, sexually-reproducing forms that could not rely on the wind to disseminate their spores or seeds had to entice visitations by animals for pollination. Voila! The evolution of attractive fragrances, colors, and shapes.

However, while this new, charismatic "flower power" may have garnered copasetic relationships between plants and insects, there lurked an inherent danger: pollinators can cause physical damage to flowers and other plant parts. To protect themselves from hard-core visitors, many plants developed an arsenal of obnoxious chemicals. Once again the animal kingdom counteracted. New metabolic strategies were invented to meet this chemical revolution head on. Many of the so-called repellents were refigured so that instead of toxic, they became useful in various metabolic processes—and then some. For example, recently, we have learned that animals ranging from domesticated dogs and cats to wild elephants, lemurs and chimpanzees actively search for specific plants to eat for medicinal purposes—including birth control and even the selection of the sex of their offspring. Additionally, a surprisingly wide variety of creatures—including lepidopterans—ingest and store toxic plant compounds in their own bodies, not for medicinal purposes, but to employ the poisons for their own purposes, that is, either to equip themselves with the ability to deliver a poisonous bite, or to deter predators from eating them.

Now, consider insect lineage. Insects and their living arthropod relatives (arachnids, crustaceans, centipedes, and millipedes) constitute some of the most ancient invertebrate animals, having evolved from dubious ancestry

early in the Devonian Period of the Paleozoic Era—about 400 million years ago. Of these groups, the insects constitute some of the first land-based animals. It is safe to say that insects have been interacting with the elements, plants, and even the more ancient microbes and fungi for great periods of geological time. Such interactions have allowed the fine-tuning of strategies for either repelling or attracting. I think that it is no coincidence that the greatest diversity in chemical weaponry and other chemical messengers known within the animal kingdom occurs among the insects and their relatives.



A male Monarch (Danaus plexippus) *nectars at a thistle* (Cirsium *sp.) near Cameron, LA in April 1993. Photo by Gary Noel Ross.*

The colors, aromas, and flavors of the compounds themselves in their natural sources—flowers, vegetables and fruits—provide another clue into the role of pytochemicals in nature. Of course, we have known for a long time that rank and file colors and fragrances of flowers act as visual and olfactory clues for attracting pollinators such as insects, birds, and bats. Similarly, the accoutrements of fruits target the senses of animals, which after feeding, inadvertently spread seeds through defecation. But then there are those conspicuous colors and tastes that ostensibly mystify. Buried beneath the soil, the flamboyant colors and fragrances associated with many root vegetables such as carrots, beets, radishes, etc. are certainly covert. Perhaps these idiosyncrasies are simply by-products of specific chemical compounds manufactured to repel subterranean predators as well as microbes and fungi that would find the roots a nutritious larder? I think so. All in all, I am convinced that plants in the far distant past began manufacturing chemicals not only to safeguard their own cellular processes, but also to protect themselves from the elements, pests, and infectious diseases. While the modes of action differ greatly between compounds, most, if not all, act at the cellular level. But because the earth's biota are so ancient, we are most likely denied the goal of learning just what launched these adaptive chemical syntheses.

But that is not all bad. Since so many phytochemicals seem to operate at the cellular level, it is reasonable to assume that while the original associations between plant and predator/pathogen no longer exist, similar causes and effects in contemporary biota do. And it is precisely because of these fine-tuned pharmacological interplays at the microscopic level that we humans have been able to capitalize on phytochemicals. Indeed, nonpreferential cellular responses can actually prompt unique reactions that on the face of it display unrelated actions in us.

For instance, take *Ginko biloba*. The tree-based herb of the same name was used in Chinese medicine as far back as 2800 B.C. and today, is the most popular prescription drug in Germany and France. Extracts are claimed to help alleviate senility, short-term memory loss, ringing in the ears, asthma, coughs and intestinal worms. Similarly, consider saw palmetto (*Serenoa repens*). Extracts from the berry common in southeastern U.S. are reported to be effective in the treatment of benign prostatic hyperplasia (BPH) in men. Obviously, the herbal extracts that are active in these unrelated human maladies were not evolved because of them. However, because the pharmacology involves individual cells within our circulatory, endocrine, immune, and urogenital systems, we realize clinical benefits. To quote another adage, "We are what we eat!"

Furthermore, since angiosperms are today's bastion of the plant kingdom and the flower is their stock and trade, I think it is reasonable to assume that the flower is a key player in understanding the current role of many phytochemicals. With this in mind, let us return to the phytochemistry of the species of plants that are preferred nectar sources of the Diana, Great Spangled, and Regal Fritillary butterflies.

Butterfly weed (*Asclepias tuberosa*) (Family Asclepiadaceae). Milkweeds are the host species for the monarch butterfly (*Danaus plexippus* (Linneaeus)). Monarch larvae obtain specific alkaloids such as cardenolides, cardenolide glycosides, and agylcones from their hosts. These phytochemicals render the caterpillars—and later, the adults—distasteful to potential vertebrate predators. Humans, too, utilize at least one of these plant-derived steroids to treat congestive heart failure. Several researchers indicate that other phytochemicals may be present in milkweeds.

Coneflowers (*Echinacea purpurea* and *E. pallida*) (Family Asteraceae). Native Americans used coneflowers more than any other plant in the treatment of illness and injury ranging from healing wounds, burns, abscesses, and insect bites, internal infections, toothache, joint pains, and for rattlesnake bites. More than 350 scientific studies have been conducted on coneflowers, indicating strong pharmacological effects including: tissue regeneration and anti-inflamatory properties, immunostimulatory properties (affecting white blood cells, T lymphocytes, and macrophages), antiviral properties, anti-

bacterial properties, and anticancer activity. Specific compounds include a complex of polysaccharides, a complex of alkylamides such as echinacoside, caffeic acid derivatives such as cichoric acid, flavanoids, essential oils, polyacetylenes, resins, glycoproteins, sterols, minerals, and fatty acids. Many experts consider the fresh-pressed juice of *E. purpurea* to be the best preparation because it provides the greatest range of active compounds and has by far the greatest level of clinical support.

Thistle (*Cirsium altissimum* and *C. discolor*) (Family Asteraceae). I know of no studies on these specific species. However, a relative called milk thistle (*Silybum marianum*) contains silymarin, a mixture of flavonolignans consisting chiefly of silibinm, silidianin, and silichristine. The concentrations are highest in the fruit, but are also found within the seeds and leaves. Silymarin is active in assisting nursing mothers to produce milk and in various functions of the liver. Since 1755 silymarin has been extensively used to treat hepatic disorders such as hepatitis, cirrhosis of the liver, gallstones, and psoriasis. Because of its association with the liver, milk thistle is recommended after an evening of overindulgence of alcohol to avoid a hangover and liver damage.

Mountain mint (*Pycnanthemum tenuifolium* and *P. albescens*) (Family Lamiaceae). Although I am aware of no specific studies on Narrowleaf mountainmint, several other mints, for example, peppermint (*Mentha piperita*) and spearmint (*Mentha spicata*) have been widely investigated. In fact, mints in general have been used for their medicinal effects for thousands of years. Pharmacologically, the mints contain high levels of menthol (alcoholic) compounds. These have carminative (elimination of intestinal gas), antispasmodic (elimination of smooth muscle contractions), and choleretic (stimulating the flow of bile) properties. Additionally, mints are used as external analgesics (stimulating nerves that perceive cold, heat, and pain), and nasal decongestants.

Monarda or **wild bergamot beebalm** (*Monarda fisulosa*) (Family Lamiaceae). Same as for mountain mint.

Blazing star or **liatris** (*Liatris aspera* and *L. pycnostachya*) (Family Asteraceae). I know of no pharmacological studies on these species.

Recently, other investigators (Matthew Moran and Charles Baldridge) have reported that *Speyeria diana* in Arkansas is attracted to not only *Echinacea* and *Pycnantenum* but also to **Buttonbush** (*Cephalanthus occidentalis*) (Family Rubiaceae), **Compass plant** (*Silphium laciniatum*) (Family Asteraceae), **Dewberry** (*Rubus* sp.) (Family Rosaceae) and **Arkansas calamint** (*Satureia arkansana*) (Family Lamiaceae). While the researchers observed only a total of 69 individuals, the majority of which were reported on *Cephalanthus, Echinacea*, and *Silphium*. they suggest that the "loss of... habitats and associated nectar plants has been the primary cause of the butterfly's decline."

Ruefully, the study of phytochemicals is still in its infancy. Too, some research suggests that the leaf, the flower, the stem, and the root of the same plant can contain a diverse array of substances and in different concentrations, and as far as I know, no study has been conducted to isolate phytochemicals solely from nectars. To complicate the matter even further, research indicates that different varieties of the same plant commonly contain vastly different chemical profiles. Even differences in soil and location can influence chemical content. And if all these variables are not sufficient to confuse the issue, we must remember that the very chemicals and methods that scientists employ to extract and identify phytochemicals are directly correlated to the type and quantity of compounds finally identified. Plainly, one has to have some inkling as to what may be present in order to assay. (Sounds ridiculous, but true!) Obviously, a considerable number of new substances could be present but unidentified simply because of current techniques of extraction. One wonders if indeed we will ever be able to understand the holistic role of these super compounds in the natural world.

But for the moment, let us assume that flower nectars DO harbor phytochemicals. While the potential benefits to insects are fairly obvious, the plants benefit, also. By increasing the longevity of their insect guests, plants ensure longterm visitation. And so, nectars spiked with phytochemicals could serve both insect and plant alike. Such coevolutionary phenomenon may be far more common than we have ever dared to imagine. Furthermore, such symbioses may be critical with insect species that have demanding life cycles, for example, *Speyeria* whose females must endure for several months and whose first-instar larvae must endure winter months with subfreezing temperatures, escape a vast array of microbes and ground-based predators—all the while with no intake of food. Under such circumstances, substances contained in tissues that are capable of warding off microbes and facilitating cellular metabolism could be extremely beneficial. Only empiricism, but compelling.

That said, I offer the following: At least for *Speyeria cybele, S. Diana*, and *S. idalia* in Arkansas and the midwest, the availability of nectar sources plays a crucial role in determining the current distribution of each species. Adult females most likely harvest specific phytochemicals from floral cocktails, which are then used in maintaining metabolic health. Furthermore, some of these physiologically active substances are most likely propagated to egg and subsequent first-instar larvae where they assist in a long winter diapause. While these plant-based compounds don't offer *Speyeria* butterflies a panacea for reproductive success, the butterflies are dependent upon them to complete their complex life cycles.

Of course, I fully realize that I have presented more questions than resolutions. But such is the nature of science. But with a tour de force mounted to

gather qualitative and quantitative data—and with a bit of luck thrown in for good measure—I predict that in the not-so-distant future, what is now scarcely the stuff of dreams will be accepted as standard schoolbook fare. For evolutionary biologists, a "brave new world" is about to dawn.

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A Note on the Larval Hostplants of the Giant Swallowtail

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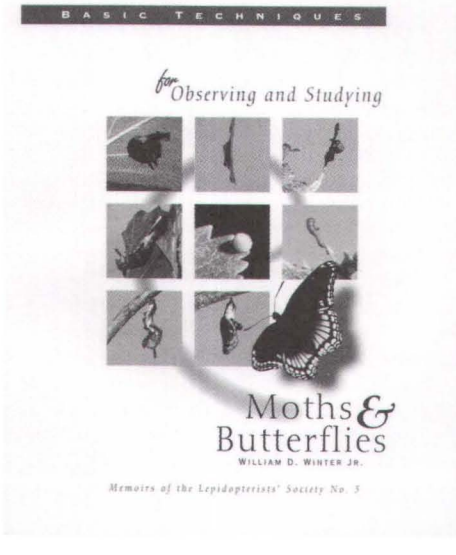
I have established small trees of hoptree (*Ptelea trifoliata*) and corktree (*Phellodendron amurense*) in my backyard in San Antonio. Both trees are in the family Rutaceae. The hoptree is native, and common in this area. The corktree is native to eastern Russia and Japan. Hoptree is a well-known natural host of the Giant Swallowtail (*Papilio cresphontes*), and corktree is known to be a food of some of the East Asian swallowtails, including *Papilio maackii*.

In early July 2003 I found a small larva of *P. cresphontes* on hoptree in my yard, and transferred it to the corktree. It moved all over the plant, always resting on top of the leaflets, because it is an effective mimic of bird droppings. It grew slowly for almost three weeks, but when it became about half mature, I found it dead, hanging off the tip of a leaflet. I do not know if it died from an infectious disease or from hostplant toxicity.

Soon after, on August 2nd, I observed a female of *P. cresphontes* fluttering around the corktree for several minutes, sometimes flying several meters away, but returning and lighting on the leaves briefly. However, I did not find any eggs on the tree. Although many more observations would be necessary to make generalizations, it appears that corktree would probably not serve as an alternate hostplant for *Papilio cresphontes*, despite the fact that one ovipositing female showed an interest and one larva survived and grew for about 20 days feeding on it. Although corktree is commonly grown in the northern United States, I have not found any reference in the literature to its being used as a food by the Giant Swallowtail.

Announcement...

Basic Techniques for Observing and Studying Moths & Butterflies



by William D. Winter.

Lep. Soc. Memoir #5 is a 350-page book (with 82 pages of Appendices) packed with information for study of Lepidoptera. Both beginners and experienced students of Lepidoptera will find this book to be a valuable reference.

To get your copy, send check or Money Order for $29.00 (Members), $44.00 (Non-members), postpaid (Canada add $6.00; other countries add $10.00), made payable to "The Lepidopterists' Society," to:

Ken Bliss, Publications Mgr.
28 DuPont Ave. Piscataway, NJ 08854

Announcement:

Kern/Tulare Co., CA Faunal Paper Available

The Kern/Tulare County, California butterfly faunal paper is now out in print in the Contributions of the C.P. Gillette series of Colorado State University. The paper has been updated and much more information included than in the original informal paper written some 2 1/2 years ago. Many more specific records have been included, more references used and flight periods updated. Additional taxa and information have been included. This is a very important paper and describes the complexities of the very rich butterfly faunas of these two counties that span the southern Sierra Nevada, north Transverse ranges, northern Mojave Desert, and Central Valley.

The paper runs 49 pages and covers 175 species, many additional subspecies and geographical variation are covered. A list is given for the butterflies of Sequoia and Kings Canyon National Parks. Many recently described names apply to butterflies of Kern and Tulare County. Taxonomy is updated in several instances.

Contact Paul A. Opler for your copy. Checks for $14 should be made out to Gillette Publications and mailed to him at Department of Bioagricultural Sciences, Colorado State University, Fort Collins, CO 80523. There is no charge for mailing. Proceeds over the cost of publication will go to the C.P. Gillette Museum including care of the CSU Collection.

Photo by Paul Opler

The Marketplace

***IMPORTANT NOTICE TO ADVERTISERS:* If the number following your advertisement is "451" then *you must renew your advertisement* before the next issue! Remember that all revisions are required in writing.**

Books/Videos

Used Books for Sale: Used books and some journals, mostly Lepidoptera, i.e. Strecker, Packard, Fabricius. For a printed list send SASE #10 business envelope with $.80 US postage. For faster access, the list is available at: ***my.ohio.voyager.net/~spruance/booksale/booksforsale.txt*** or I will send the list via email. Send request to: ***spruance@infinet.com***. Thanks for your interest. Eric H. Metzler, 1241 Kildale Sq. N., Columbus OH 43229-1306. 451

For sale: Seitz, A., **Macrolepidoptera of the World**. German ed., First division: Palaearctic Regions, Volumes I to IV. Plates and German text are bound separately in 1/2 morocco. Volume I (1909): 89 plates/3470 specimens; Volume II (1912/1913): 56 plates/2489 specimens; Volume III (1914): 75 plates/4338 specimens; Volume IV (1915): 25 plates/1977 specimens. All in firm binding without damage to spines and corners. Best offer >US$ 2,500. Dr. Baldhard Falk, 19 Tanfield Rd., Tiburon, CA 94930, ***falktibrn@aol.com***. 451

Livestock

Eggs of various *Catocala* species from Prince Edward Island, Canada, available fall and winter of 2003. Visit ***www.silkmoths.bizland.com/catPEI.htm*** to see what may be available. Contact Bill Oehlke, Box 476, 155 Peardon Road, Montague, Prince Edward Island, Canada C0A 1R0, 902-439-2462, ***oehlkew@islandtelecom.com***. 453

Overwintering cocoons of many Saturniidae species from Northeastern North America available fall and winter: *Actias luna*, *Antheraea polyphmeus*, *Automeris io*, *Callosamia promethea*, *Hyalophora cecropia*, *Hyalophora columbia*, *Samia cynthia*. Price list at ***www3.islandtelecom.com/~oehlkew/supplies.htm*** or contact Bill Oehlke, Box 476, 155 Peardon Road, Montague, Prince Edward Island, Canada C0A 1R0, 902-439-2462, ***oehlkew@islandtelecom.com***. Foodplants, rearing instructions, overwintering instructions, online help available at ***www3.islandtelecom.com/~oehlkew*** 453

For Sale (USA only): cocoons of *Antheraea polyphmeus*, *Callosamia promethea* and *Hyalophora cecropia*. Ova available in spring. SASE to Karl Ploran, 110 Route 20, Chester, MA 01011-9642, 413-354-7852 (6-9 pm, eastern time). 453

For Sale: pupae of *Eacles imperialis* or will trade for *Hyalophora gloveri* pupae. Leroy Simon, 5975 SE 122 Pl., Belleview, FL 34420, 352-245-8351. 453

For Sale: captive-bred Philippine butterfly pupae, year round. Imogene L. Rillo, P.O. Box 2226, Manilla 1099, Philippines, (fax) 632-824-0222, ***clasinse@mindgate.net*** 453

The aim of the Marketplace in the **News of the Lepidopterists' Society** is to be consistent with the goals of the Society: "to promote the science of lepidopterology...to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field,..." Therefore, the Editor will print notices which are deemed to meet the above criteria, *without quoting prices*, except for those of publications or lists.

No mention may be made in any advertisement in the **News** of any species on any federal threatened or endangered species list. For species listed under CITES, advertisers must provide a copy of the export permit from the country of origin to buyers. **Buyers must beware and be aware.** Advertisements for credit, debit, charge cards or similar financial instruments or accounts, insurance policies and those for travel or travel arrangements cannot be accepted because they jeopardize our nonprofit status.

Only members in good standing may place ads. All advertisements are accepted, in writing, for two (2) issues unless a single issue is specifically requested and must be renewed before the deadline of the following issue to remain in place. All ads contain a code in the lower right corner (eg. 386, 391) which denote the volume and number of the **News** in which the ad. first appeared.

Advertisements must be under 100 words in length, or **they will be returned for editing**. Ads for Lepidoptera or plants must include full latin binomials for all taxa listed in your advertisement.

Send all advertisements to the Editor of the News.

The Lepidopterists' Society and the Editor take no responsibility whatsoever for the integrity and legality of any advertiser or advertisement. Disputes arising from such notices must be resolved by the parties involved, outside of the structure of The Lepidopterists' Society. Aggrieved members may request information from the Secretary regarding steps which they may take in the event of alleged unsatisfactory business transactions. A member may be expelled from The Lepidopterists' Society, given adequate indication of dishonest activity.

Buyers, sellers, and traders are advised to contact your state department of agriculture and/or PPQAPHIS, Hyattsville, Maryland, regarding US Department of Agriculture or other permits required for transport of live insects or plants. Buyers are responsible for being aware that many countries have laws restricting the possession, collection, import, and export of some insect and plant species. Plant Traders: Check with USDA and local agencies for permits to transport plants. Shipping of agricultural weeds across borders is often restricted.

Specimens

Wanted: The less common species, subspecies and forms of *Heliconius* and *Eueides*. Willing to trade or purchase. Contact me for list of the forms I need. Ronald Flaspohler, 504 Glendale, Parchment, MI. 49004, (269) 345-4653, ***flaspohler@wmich.edu*** 452

Butterflies from the Neotropics and Holarctic, later from Africa and Asia. Very large selection of hard to obtain butterflies. Please visit ***www.theinsectcollector.com*** or ***www.insectcollector.com***. Want to trade all American *Papilio*, mainly ssp's of *P. indra*. Robert Westphal, Calle Llimoner 6, E-43892 Miami Playa (Tarragona) Spain, Tel/Fax: ++34-977-810787 452

I have a rich variety of *Charaxes* and Papilionidae from Africa available. List available on request. Wanted: *Charaxes*, Papilionidae from East and Southern Africa, *Prepona* from South America. Giancarlo Veronese, Viale Venezia 138-33100 Udine (Italia), Fax: ++39-0432-232654, ***gc.veronese@virgilio.it*** 451

Parnassius, Papilionidae, Nymphalidae, Pieridae, Lycaenidae, Satyridae, Nanaidae, Hesperiidae, moths, stag beetles, Carabidae, Lucanidae, Scarabaeidae, Cerambycidae, Curculionidae, Elateridae, Odonata, Cicadidae, Buprestidae from China. Mr. Ng Yuk-Ming, Room 414, Trans Asia Centre, 18 Kin Hong St., Kwai Chung N.T., Kowloon, Hong Kong. Fax: 0852-27440979, 0952-24283926. Phone: 0852-24011392. 451

For Sale: Large collection of Iranian butterflies, perfect quality with data. Papiliondiae, *Colia chlorocoma*, *C. sagarttia*, *C. hofmannorum*, *C. aurorina*, *C. thisca*, *Colitis zegris*, *Euchloe lessei*, *Anthocharus damone*, *Archon apollinus*, *Allancastria deyrollei*, *A. louristana*, *Hypermnestra helios*, *Melitaea*, Lycaenidae, *Agrodiaetus*. Many species from other families available. Ahmad Karbalaye, P.O. Box 11495-175, Tehran, Iran. Phone/Fax: 0098-21-7531604, ***karbalaye@yahoo.com*** 451

Equipment

FOR SALE: Quantum Black Light Bulbs. 100% more effective that current 350 black light bulbs. The new bulbs are the first advancement in UVA light technology in over 50 years. Available in 15 Watt 18" (F15T8), 20 Watt 24" (F20T12), 40 Watt 48" (F40T12) and 22 Watt Circline (FC8T9). Interchangeable with 350 black light bulb and operate with the same ballast. For a free color brochure and price list, contact: Leroy C. Koehn, 202 Redding Road, Georgetown, KY 40324-2622, 502-570-9123; ***Leptraps@aol. com***. 451

For Sale: Traps for Collecting Lepidoptera. **Light traps:** 12 Volt DC or 110 Volt AC with 15 watt or 20 watt black lights. Portable and easy to use. Rain drains and sorting screens protect specimens from damage. Straight tube design provides 360 degree light visibility. Stainless steel or plexiglass vanes. **Bait Traps:** Three types available, Tropical, Inverted Funnel and Flat Bottom. 25" W x 36" H, nylon

Membership Update...

Julian Donahue

This update includes all changes received by 5 Sept. 2003.

"LOST" MEMBER

(publications returned: "temporarily away," "moved," "left no address," or "addressee unknown"):

Benoit, Mery (Versailles, France)—lost for two years, but dues have been paid!

New and Reinstated Members:

members who have joined/renewed/ been found/or rescinded their request to be omitted since publication of the 2002 Membership Directory (not included in the 2000 Membership Directory; all in U.S.A. unless noted otherwise)

Barton, Barbara J: 95 Oakwood Street, Apt. 3, Ypsilanti, MI 48197-3086.
Cheicante, Richard L.: 1003 Jessicas Court, Apt. F, Bel Air, MD 21014-6961.
Christensen, Ann L.: HC 64, Box 8288, Ketchum, ID 83340-9704.
Christenson, John A. (Dr.): 6960 Green Meadow Drive, Helena, MT 59602-9394.
Fratello, Steve: 11 1st Street, West Islip, NY 11795-4307.
Gibson, Nate: P.O. Box 96, Patagonia, AZ 85624-0096.
Harrington, Tom: 30 South Windham Road, Willimantic, CT 06226-3831.
Hulse, George: 1542 Dellwood Avenue, Cookeville, TN 38506-4149.
Komperda, Edward J., III: 65 Marbourne Road, Bethpage, NY 11714-6430.
Lill, John (Ph.D.): Dept. of Biology, 340 Lisner Hall, George Washington University, 2023 G Street NW, Washington, DC 20006-4205.
Lombardini, J. Barry. 3507 41st Street, Lubbock, TX 79413-3015.
Marcus, Jeffrey M. (Dr.): Department of Biology, Western Kentucky University, Bowling Green, KY 42101-3576.
Mattoni, Rudi (Dr.): 1631 Dewey Street, Santa Monica, CA 90405-5854.
Moore, Rex E.: 1124 North 11th Street, Duncan, OK 73533-3702.
Nazari, Vazrick: CW-405, Biological Sciences Center, University of Alberta, Edmonton, Alberta T6G 2E9, **Canada.**
Pearce, John M.: 717 West 19th Avenue, Anchorage, AK 99503-1834.
Sackett, Arthur William: Midford, Ledbury Road, Ross-on-Wye, Hereford HR9 7BG, **England.**
Sirch, Jim: 2315 Shepard Avenue, Hamden, CT 06518-1536.
Sosa, Francisco: Departamento de Ciencias Biológicas, Universidad Centroccidental "Lisandro Alvarado," Lara, **Venezuela.**
Stirn, Bradley A.: 590 Albion Avenue, Woodside, CA 94062-3665.
Swafford, Carleton L. (Ph.D.): P.O. Box 47, Collegedale, TN 37315-0047.
Yake, Bill: 4032 Green Cove Street NW, Olympia, WA 98502-3520.

Address Changes

(all U.S.A. unless noted otherwise)

Allen, Thomas J.: 2120 SW 8th Court, Cape Coral, FL 33991-3601.
Berezhnoi, Yuri: 24-4 Fokina Street, Vladivostok 690 000, **Russia.**
Bowman, Donald E.: 496 South Avenida del Oro East, Pueblo West, CO 81007-2097.
Carr, Heather: 112 Tall Pine Lane, Athens, GA 30605-7706.
Ciavola-Carboni, Teddie: 1231 Irma Road, Warminster, PA 18974-1929.
Clark, Dale: 1732 South Hampton Road, Glenn Heights, TX 75154-8530.
Douglas, Matthew M. (Dr.): 1258 Hillburn Avenue NW, Grand Rapids, MI 49504-2481.
Dunford, James C.: 906 70th Drive East, Sarasota, FL 34243-1213.
Goldstein, Stephan: 11 Anglewood Lane, North Reading, MA 01864-2801.
Hansen, Tor (M.F. Arts): P.O. Box 775, North Truro, MA 02652-0775.

continued on pp. 98

coated fiberglass screen with heavy cloth top, plastic zipper in side for access, and a plywood platform. Optional shroud/hood provides dark area for moths to hide. For a free color brochure and price list, contact: Leroy C. Koehn, 202 Redding Road, Georgetown, KY 40324-2622, 502-570-9123; ***Leptraps @aol. com***. 451

Miscellaneous Research Requests

Wanted: Correspondence with persons interested in any of the following (Nearctic and Palaearctic species only): Papilionidae, Sphingidae, Arctiidae, *Catocala*. Exchange of livestock and/or specimens a possibility. Stephen Miller, 11200 Township Rd., Browns Valley, CA 95918, U.S.A. 451

Slide Exchange: I need A1 color slides of Phyciodes texana seminole from Florida and am able to trade for it with slides of Nearctic, Neotropical and/or Palearctic species. Please call 202-234-2401 to make arrangements. George O. Krizek, 2111 Bancroft Place, N.W., Washington, D.C. 20008. 451

Classic Collecting Campaigns

Buckhorn Flats

Kelly Richers

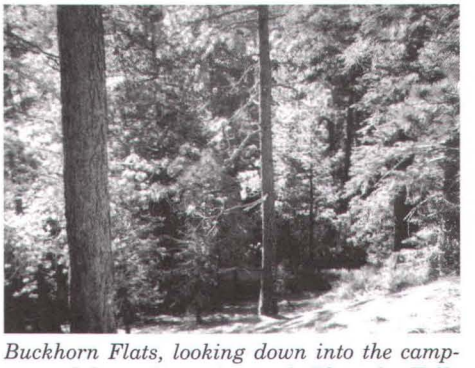
9417 Carvalho Court, Bakersfield, CA 93311

The greater Los Angeles area sprawls over a larger land area than any person from outside the area can easily comprehend. Stretching from the outskirts of San Bernardino in the northeast, through Riverside and down to Orange County, then across the Pacific Ocean in an unbroken sea of urban development, there are easily over 1000 square miles of city that has developed over the last 70 years. Within this huge area live more lepidopterists than any other area in the United States.

This Los Angeles area is restricted somewhat by the San Gabriel Mountains on the north side, perhaps more so than by any other geographical landform in any other direction, excluding the Pacific Ocean. The San Gabriel Mountains run in an east-west direction bordering Pasadena and extending to the Lytle Creek area west of Interstate 15. They are virtually inaccessible along most of their length, and are cut by a few well-known roads that periodically are in disrepair due to rockslides or flooded support areas. Since the roads go nowhere but to ski areas or are so winding as to be time inefficient for commuting, there is not the huge amount of traffic just below in the valleys.

Considering how difficult it is to access many places just outside Los Angeles, it becomes easy to understand why the many lepidopterists in the Los Angeles area have historically headed to a few well known spots, some of which no longer exist, but some of which are still as inaccessible and therefore still as interesting as they have been from the beginning of collecting in California. Some of these lie in the San Bernardino Mountains, east of Los Angeles, and some are in the San Gabriel Mountains, to the north.

To those on the east coast who collect in the gentle rise of the Appalachians or the Great Smokey Mountains, it is very difficult to envision the tortuous shapes and precipitous rises of the mountains in California. The San Gabriel range rises from the valley, which is only about a hundred feet above sea level, to over 8000 feet elevation (Mt. Waterman) in a matter of a few miles of winding, steeply climbing road. It is so difficult to cross that the three freeways into the valley north of Los Angeles still remains the only feasible commuting road for several million people. However, enterprising lepidopterists have discovered a few accessible locations within the mountains.



Buckhorn Flats, looking down into the campground from the main road. Photo by Kelly Richer.

One of these well-collected spots in the San Gabriel Mountains is known as Buckhorn Flats. Buckhorn Flats lies in the mountains in an area where snow regularly falls in the winter, adjacent to where palm trees grow and surfers ride waves in December. In these mountains enough snow and rain falls to provide several streams with year round water and skiing in winter.

Nonetheless, there is little summer rain, and forest fires are a constant threat to the area. Frequent fires are the norm, and they are often uncontrollable for long periods of time due to the rugged terrain, winds in canyons and lack of roads.

The easiest access to Buckhorn Flats is via State Route 2, rising from the city of La Canada Flintridge. Since the city has grown to encompass the area southeast, south and southwest foothills, the San Gabriel Mountains, heavy traffic could be expected, but in reality only motorcyclists love the road, as it winds and climbs precipitously out of the city. Visited by a few lovers of nature, but not heavily traveled, the road has virtually no accommodations in the mountains themselves, so except for a few hardy campers there is not a lot of overnight traffic. Not too many hikers visit compared to the number that live below, because the terrain is so intimidating.

As the road climbs, it passes a Forest Service building, a reminder that a pass is needed to park alongside the road while visiting. Therein lies one of the interesting aspects of life in California. On my last visit, for instance, at the Forest Service building I was told to get the pass higher up at a fork in the road where another small building exists for that purpose. That building was closed up, so I did not pay my five dollars to anyone or get a pass. Later Forest Service personnel told me that such a situation as what I experienced was not unusual. They run out of passes on almost a daily basis, are understaffed, and do not enforce the passes because they do not know who is able to get them and who is not. Only in California!

Climbing, the road becomes the Angeles Crest Highway, and runs behind the first set of mountains, or virtually east-

west through the center of the mountain chain, climbing as it goes eastward. Eventually one begins to wonder if there are any flat areas at all, and then suddenly Newcomb's Ranch is on your left and you are at Chilao Flats, at an elevation of 5600 feet.

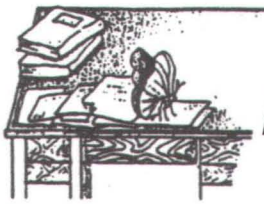
Newcomb's Ranch is a welcome sight, and sits all alone along the Angeles Crest Highway, a haven for bikers, families and lepidopterists seeking a meal or a cold beer. Personally, if you visit, I would recommend a stop, as it is somewhat traditional, and makes the collecting go better, especially after about two of the local draft beers. Lepidopterists have been visiting Newcomb's for over sixty years, and there are at least two insects bearing the name, as the original owner was interested in Lepidoptera and supported the collecting efforts. For the weary moth collector, Chilao Flats has moths in abundance, but Buckhorn Flats lies another few miles up the road.

Buckhorn Flats area, at a turnoff from the main road. Photo by Kelly Richer.

Continuing the climb, there is a very small turnoff to the north about seven miles beyond Chilao Flats that takes one into the Buckhorn Flats campground. Ignoring the turnoff, the average person would not see a flat area, because it lies below the road level in thick trees. Fortunately, there are other turnoffs in the area, and they are all good collecting spots. Simply pull off the road and throw up a blacklight and sheet or mercury vapor light, and the moths will appear.

Some of the more interesting moths that can be found here include (MONA number included) 2683 *Comadia arenae* 6338 *Macaria adonis*, 6380 *Digrammia* (formerly *Semiothisa*) *californiaria*, 6569 *Pterotaea newcombi newcombi*, 6760.b *Pero behrensaria smithii*, 7244 *Hydriomena sierrae*, at least ten species of *Eupethecia*, 7613 *Prorella leucata*, 8563 *Asticta victoria*, 10318.2 (newly described) *Hadena gabrieli*, 10705 *Euxoa messoria*, 10721 *Euxoa austrina*, 10721 the beautiful *Euxoa cinnabarina* and a host of other moths that make a visit rewarding and repeat visits different as the months change.

At the end of the evening of blacklighting, another stop at Newcomb's might be called for on the return trip, as by that time there might be moths on the outdoor lights and a cool drink inside. Then it is back to the big city, the lights of which can be seen shining brightly below on three sides of this range, showing clearly the fragility of this ecosystem in such close proximity to the second largest city in the United States.



From the Editor's Desk

Phil Schappert

This column is always the last thing that I do after putting an entire issue together. I here confess that I thanked all of the powers that be, wherever they may be, that I finally got this one done! Sit back, my friends, and let me regale you with my tale of woe (yep, another long string of excuses are coming)...

It began with a new slide scanner that wouldn't. Scan, I mean. I hooked it up, checked it twice (okay, a half dozen times) in every possible configuration, on two computers, but no dice. It either had taken an intense dislike to me (not unheard of) or it was DOA. Not liking to lose contests to inanimate objects, I prefer the latter explanation. So, get it exchanged, right?

Not so fast. Here's a little known caveat for you online purchasers: make sure you know the return policy of the people that take your money. In this case, they wouldn't exchange it and told me that the scanner had to go back to the manufacturer for 'repair' (never mind that it was brand spanking new and must have either been broke to begin with or been damaged in transit). Grrr!

So, no scanner, meaning I had to get to campus. This is not something I do frequently these days—my position is managing a field station so I prefer not to go anywhere where there are a crowd of jaywalkers(which, for those of you who don't know, is a pretty good description of any university campus anywhere). However, before I could even get to student-town I got sick...and I do mean *sick!*

You all should know by now that I don't do anything by half measures so it shouldn't come as too much of a shock to learn that yours truly has all of the classic symptoms of West Nile disease: bad (and frequent) headaches, lethargy, weak and aching joints, upset stomach (but no real nausea thankfully). Have you ever felt so bad that going to a doctor was just not an option? As I told Pat, "whatever doesn't kill me, makes me strong." Since there is no known treatment, I'll either die or get well. What this means is that this entire issue was done in sessions that rarely lasted longer than 2 hours, early in the mornings for the last two weeks. But it IS done (finally).

It's not easy being a field biologist... (I'm happy to report that I'm feeling much better, and—as far as I know—am not dead yet).

Hermes Copper (*Lycaena (Hermelycaena) hermes*): An update on this unique species

Michael W. Klein and David K. Faulkner

P.O. Box 4326, San Diego, CA 92164 (keps2@flite-tours.com) and
5434 Redland Place, San Diego, CA 92115 (dkfaulkner41@aol.com)

Hermes Copper is a very localized species within the United States. Other than a few records in northern Baja California, it has never been recorded anywhere but San Diego County, California. The northern-most record is near Fallbrook, another one near Pala, and a few more south at Bernardo Mountain west of the I-15 corridor from 1981 and 1982 (pers. com. G. Bryeau). Currently the range of the butterfly is the City of Poway south to the border and Miramar Marine Air Station east to near Pine Valley.

Taxonomy

W. H. Edwards (1870) first described this butterfly as *Chrysophanus hermes*. In 1907, W. S. Wright re-described it as *delsud*. Comstock (1927) considered the species to be *hermes*, but under *Tharsalea*. Hoffman (1940) placed it in *Lycaena*, where it has remained. More recently, Miller and Brown (1979) erected the monotypic genus *Hermelycaena* on the basis of *hermes'* unique morphology and ecological characteristics. This genus was not generally accepted.

Biology

The most extensive published account on the biology of this butterfly is by Fred Thorne (1963).

The butterfly is univoltine with the adult flight period from late May through early July, depending on elevation. Its peak flight time is from 10 to 20 June. Eggs are laid singly on stems of its only larval host plant, spiny redberry (*Rhamnus crocea*), where it diapauses until the following year. Thorne (1963) noted how unique it was for *hermes* to use *Rhamnus* as a host plant since the rest of the known North American *Lycaena* use primarily *Polygonacae* and intermittently *Rosaceae*, *Saxifragaceae*, and *Ericaceae*. Larvae have five instars with the mature apple green larvae feeding on the leaves of redberry. The time from hatching to mature larvae is about 14 days. Pupation is 10 to 14 days.

Males emerge first and seek out females for mating. Males and females are similar in appearance: brown and yellow, about 1 to 1 ¼ inches (25 to 32 mm) in wingspan. Dorsal forewings are brown with a yellow center and small brown spots. Dorsal hindwings are also brown with a small somewhat yellow tail. Ventral forewings are yellow with 4–6 brownish spots and ventral hindwings are also yellow with 3–6 brownish spots. Adults have been observed nectaring on chamise (*Adenostoma fasciculatum*), flat-topped buckwheat (*Eriogonum fasciculatum*), golden yarrow (*Eriophyllum confertiflorum*), slender sunflower (*Helianthus gracilentus*), and even short-podded mustard (*Hirshfeldia incana*). The chamise, yarrow and mustard observations are from June 2003.

An additional observation in 2003 is that the diapausing egg apparently has an extended drought adaptation. The largest recorded colonies are on a California Department of Fish and Game Ecological Reserve called Crestridge, in east San Diego County. Mr. Klein was part of a team of biologists performing an inventory of the flora and fauna of the reserve from 1999 to 2001. During that time adult numbers fluctuated from as low as 600 butterflies to as high as 1,000 in 2001. Even though San Diego County recorded lower than normal winter rains, the 2001 rainy season was timely and stimulated a significant adult emergence. The following year, 2002, recorded the lowest rainfall in the region's 150-year history of maintaining weather records. Insect diversity and abundance were impacted, including *hermes*. On the Reserve only one adult male was observed the entire flight season. The 2003 winter rains were average with late winter and early spring temperatures cool, wet, and timely. The number of *hermes* observed this year was approximately 400. This total was down from 2001, but it did reveal an early emergence record. Seven adults were observed on May 16th, which according to our Region Coordinator, Ken Davenport, is earlier by 4 days. It seems this butterfly has the ability to extend its winter diapause during times of extreme drought.

Habitat / Conditions

Appropriate *hermes* habitat is continuous stands of mixed chaparral/sage scrub in well-drained soil. This soil type is usually found on canyon bottoms or on hillsides with a northern exposure. Host and nectar plants should be either side by side or in very close proximity to one another.

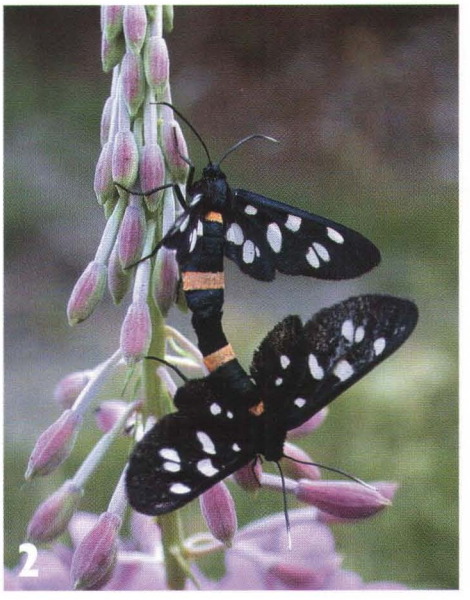
The redberry needs to be mature. Densities have not been studied but it is possible that a mature dense habitat adjacent to open dirt roads might be more suitable for maintaining the butterfly. New growth redberry, especially after a fire appears to be incompatible for sustaining the larvae. A case in point: in 1982 a fire went through Mission Valley and destroyed a large population of *hermes*. Annual post-fire searches were done and the

The endangered Hermes Copper, *Lycaena (Hermelycaena) hermes*.

Left: dorsal. Right: ventral. Photos by Michael Klein.

***Manduca lanuginosa* form *crocala*.**

Dorsal view of specimen taken by Charlie Sassine at Hidalgo Co., TX, July 11, 2003. The specimen is now in the Texas Lepidoptera Survey collection. Photo by Ed. Knudson.



Moths from the SEL Study Site, Sesvenna Mtns, Northern Italy.

1. *Zygaena exulans*, male. **2.** *Syntomis phegea*, mating pair. **3.** *Zygaena exulans*, female. **4.** *Zygaena purpuralis*, mating pair. Photos by Bernard Landry.

butterfly was not observed again until June 2000. In this instance, it required eighteen years before colonies re-established.

Conservation

Since this butterfly is limited in its range and habitat requirements, conservation becomes very important. To date, no papers have reported any parasites or predators.

Fire is still an unknown for the survival of the butterfly. As to host plant, it is adapted to intermittent fires that are a normal component of this habitat, and regular brush fires have not extirpated the species. Whether fire management or suppression is good or bad is still unknown and more studies need to be made.

Finally, edge effects and fragmentation from development are key for *hermes'* continued survival. Comstock, in **Butterflies of California** (1927), states, "It will always be a rarity, and may, in fact, some day become extinct, if San Diego continues to expand at its present rate." W. S. Wright, in **Annotated list of the butterflies of San Diego County** (1930), states that, "Its trysting places are being rapidly taken over by realtors and the species may soon become extinct, unless colonies yet undiscovered are located in other regions."

New colonies have been discovered and the species maintains itself. However, it does not mean that we can be lax in protecting existing colonies from development and its associated impacts.

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Update...*continued from pp. 93*

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Manduca...*continued from pp. 75*

Mooser synonymized both forms under *lanuginosa* (Edwards, 1884), and extended the range as far north as Tampico , Cd. Mante, and Valles in the northeastern Mexican state of Tamaulipas. Both typical *lanuginosa* and the form *tepic*, are illustrated in B&W. Typical *lanuginosa* is a brownish-gray species, which may have much green scaling, when fresh. Both *crocala* and *tepic*, are considered melanistic forms of the former species, with wide blackish-brown bands on the inner and outer forewing above, leaving a narrow pale median band. *Tepic* was differentiated by having much green overscaling on the dorsum of the forewings, thorax and abdomen. The Texas specimen (a male), is not fresh, although largely intact. Traces of green scales on the base of the forewings and the thorax are visible under low magnification. Ian Kitching, who confirmed our determination from a photo, made the following comment "There is no doubt that this is a *Manduca lanuginosa*, one of the melanic specimens that was described first under the name of *crocala*....The holotype of *tepici* was generally more green and less brown than "typical" *crocala*, which suggests that the specimen was simply fresher. *Lanuginosa* can be quite green when fresh (as can be seen in your specimens thorax and non-melanic forewing band), but as with many such colored moths, this green rapidly fades to a pale brown. We have both forms collected during the same period at the NHM's field station in Belize." The determination was also confirmed by Ron Hodges, Vernon Brou, and Mike Smith. D'Abrera, 1986, illustrates typical *crocala*, in color, but does not follow Moosers' synonymy, as do Kitching & Cadiou, 2000.

M. lanuginosa has been reared on various plants in the *Bignoniaceae* and *Verbenaceae*, in Costa Rica (see ***www.silkmoths.bizland.com/Mexsphinx.htm***).

We expect that this Texas specimen was a stray, perhaps associated with the approach of Hurricane Claudette,

however, given the reasonably close proximity of breeding populations in Mexico, it may appear in south Texas again. The common name "Blackened Sphinx" is our suggestion and should apply only to the form *crocala*.

Acknowledgements:

The authors wish to thank Vernon Brou, Ron Hodges, Ian Kitching, Bill Oehlke, and Mike Smith for help with the determination of, and literature on, this new record. The senior author thanks the Perez family , owners of El Rancho San Francisco, for their hospitality and the opportunity to collect in such a wonderfully diverse location. The junior authors thank the senior author for the donation of the Texas specimen of M. lanuginosa *to the Texas Lepidoptera Survey collection.*

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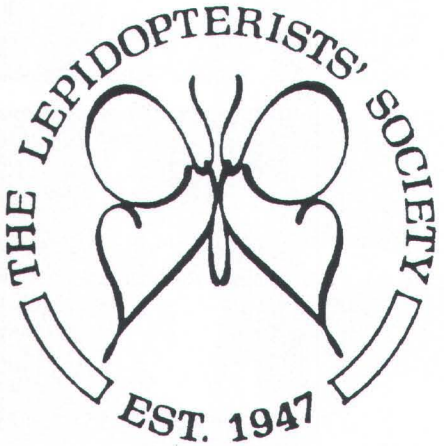


www.lepsoc.org

News from SEL (Societas Europaea Lepidopterologica)

Bernard Landry

Museum d'Histoire Naturelle, C.P. 6434, CH-1211 Geneva, Switzerland

A Council meeting of SEL was held at the end of June 2004 in northern Italy, in the German-speaking province of Bolzano. It was a special event because in the northern part of this area, in the Upper Vintschgau Valley (Alta Val Venosta), the first SEL study site was inaugurated on June 28. This area of the Sesvenna Mountains has more than 180 species of butterflies and probably some 3500 species of moths. Members of SEL wishing to collect there sign a Code of conduct, receive a permit, and are welcome to collect by the local authorities. Inventories are being conducted. The initiator and coordinator of this wonderful project is Gerhard Tarmann (***g.tarmann@tiroler-landesmuseum.at***).

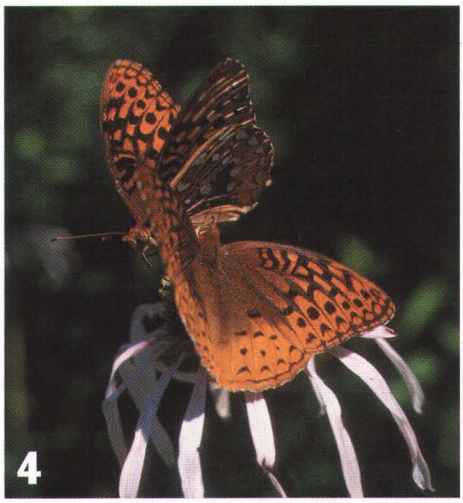
SEL has 650 members and publishes **Nota Lepidopterologica** and a News Bulletin. **Nota** is experiencing a shortage of manuscript submissions. Any member wishing to publish results regarding the Palaearctic fauna of Lepidoptera is welcome to submit manuscripts to the editor (Matthias Nuss, ***matthias.nuss@snsd.smwk.sachsen.de***). There are no page charges, even for colour plates, and the authors receive 25 free reprints.

SEL will hold a Field Congress (with a limited program of scientific presentations, but with a General Assembly) in July 2004 (probably between the 4th and 7th) at the Study Site and a more formal Congress in Rome in 2005, probably in September. Previously SEL held congresses every 2 years, but the General Assembly decided last year in Denmark to change the congresses from even years to uneven years, to avoid conflicts with other congresses.

The Council of SEL is quite concerned with collecting restrictions in several European countries. Discussions at this year's Council meeting focused on recent developments in Turkey, the exotic playground of many European lepidopterists, and not-so-recent problems in Spain.

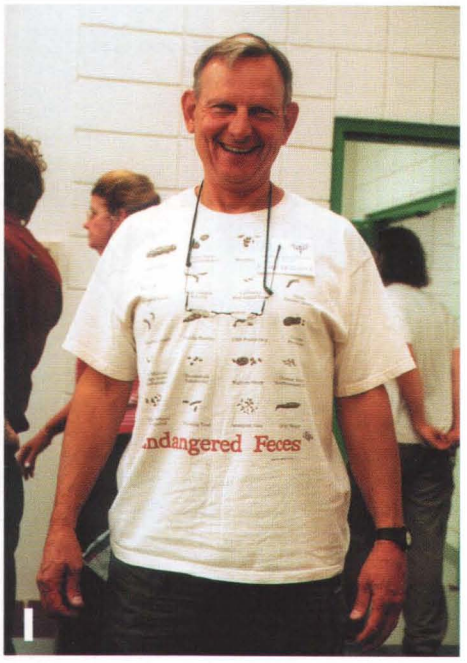
Anyone with an interest in Lepidoptera is welcome to join SEL. One can do that by contacting Willy De Prins, Membership Secretary (***willy.deprins@antwerpen.be***). The annual membership subscription is 35 Euros and entitles receiving the Newsletter and the quarterly journal, **Nota Lepidopterologica**. See www.zmuc.dk/entoweb/sel/sel.htm for further information.

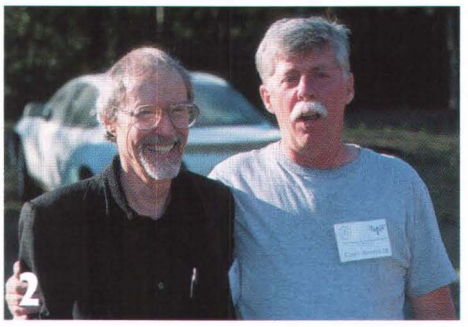
On a sad note we learned that one of SEL's best-known French members, Jacques Plante, famous songwriter, died in Paris on July 17, 2003. His collection of some 160,000 specimens, half of them Noctuidae, was deposited in the Muséum d'histoire naturelle of Geneva, Switzerland.

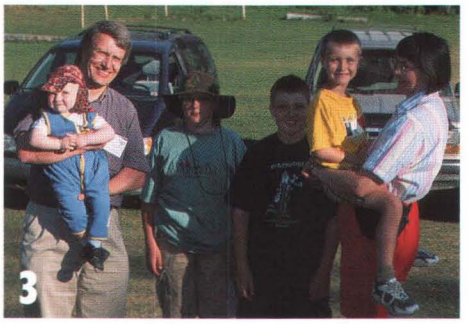


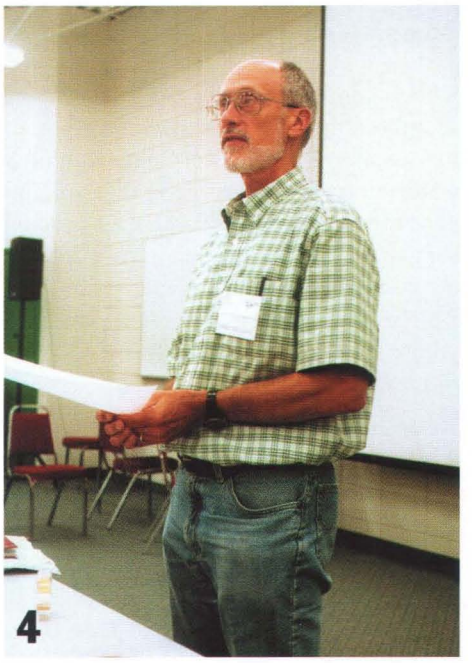
What's For Dinner?

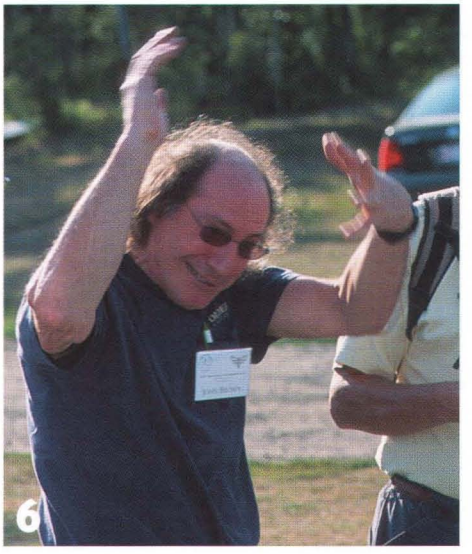
The article by Gary Noel Ross (see pp. 83) asks the question "what if nectar is more important that we thought?" The author seeks to increase awareness and promote research into possible phytochemical compounds in the nectar of some specific plants, especially those that are commonly used by the greater Fritillaries. On this page: ***1.*** *Common milkweed* (Asclepias syriaca) *with Regal Fritillaries, Sulphurs, Painted Ladies and Pipevine Swallowtails.* ***2.*** *Great Spangled Fritillaries and Spicebush Swallowtails at Butterflyweed* (Asclepias tuberosa). ***3.*** *Female Diana Fritillary at thistle* (Cirsium *sp.*). ***4.*** *Great Spangled Fritillaries share a coneflower* (Eupatorium *sp.*). ***5.*** *Painted Ladies mob some* Liatris *blooms. On the back cover: Monarchs, Hoary Edge Skippers and a Great Spangled Fritillary nectar on Ironweed* (Vernonia *sp.*). *Photos by Gary Noel Ross.*



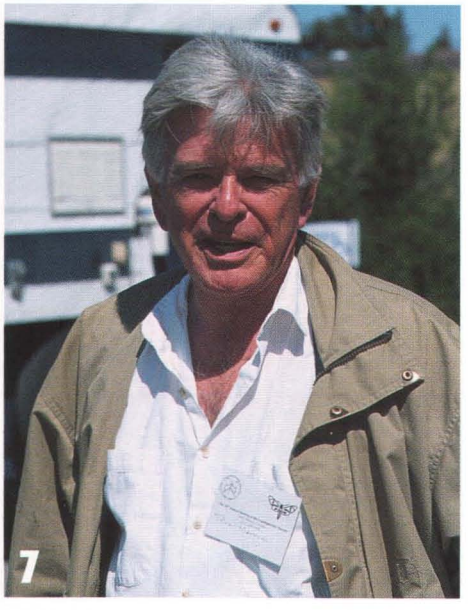




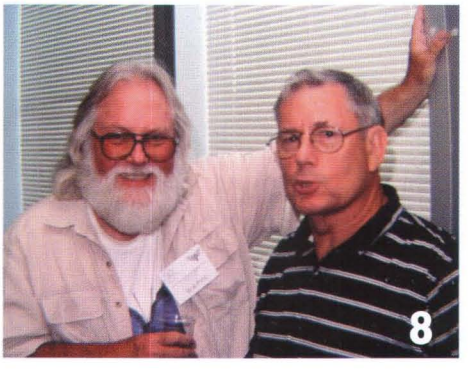




More Meeting Photos...



1. Julian Donahue displays a disgusting sense of humor. ***2.*** *Gary Anweiler embarasses the heck out of John Burns.* ***3.*** *The Felix Sperling clan.* ***4.*** *Society Secretary Ernest Williams.* ***5.*** *Field Trip Participants, Limestone Mtn. Lookout.* ***6.*** *John Brown dances (apparently disco is not yet completely dead).* ***7.*** *Rudi Mattoni.* ***8.*** *Bob Pyle and Charlie Covell.* ***9.*** *Andy Brower (and his spiffy hat!). Photos by Charlie Covell (1, 2), Ranger Steve (5, 8) and John Acorn (rest). (Snide comments by Ed.)*



Membership

The Lepidopterists' Society is open to membership from anyone interested in any aspect of lepidopterology. The only criterion for membership is that you appreciate butterflies or moths! To become a member, please send full dues for the current year, together with your current mailing address and a note about your particular areas of interest in Lepidoptera, to:

Kelly Richers,
Assistant Treasurer,
The Lepidopterists' Society
9417 Carvalho Court
Bakersfield, CA 93311

Dues Rate

Active (regular)	$ 45.00
Affiliate (same address)	10.00
Student	20.00
Sustaining	60.00
Contributor	100.00
Institutional Subscription	60.00
Air Mail Postage for **News**	15.00

Students must send proof of enrollment. Please add $ 5.00 to your Student or Active dues if you live outside of the U.S. to cover additional mailing costs. Remittances must be in U.S. dollars, payable to "The Lepidopterists' Society". All members receive the **Journal** and the **News** (each published quarterly). Supplements included in the **News** are the Membership Directory, published in even-numbered years, and the Season Summary, published annually. Additional information on membership and other aspects of the Society can be obtained from the Secretary (see address inside back cover).

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Please send permanent changes of address, telephone numbers, areas of interest, or e-mail addresses to:

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Natural History Museum of Los Angeles County, 900 Exposition Blvd.,
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Our Mailing List?

Contact Julian Donahue for information on mailing list rental.

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Requests for missed or defective issues should be directed to: Ron Leuschner (1900 John Street, Manhattan Beach, CA 90266-2608, (310) 545-9415, ***ron leusch@aol.com***). Please be certain that you've really missed an issue by waiting for a subsequent issue to arrive.

Memoirs

Requests for Memoirs of the Society should be sent to Publications Manager, Ken Bliss (address opposite).

Journal of the Lepidopterists' Society

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Submission Guidelines for the News

Submissions are always welcome! Preference is given to articles written for a non-technical but knowledgable audience, illustrated and succinct (under 1,000 words). Please submit in one of the following formats (in order of preference):

1. Electronically transmitted file and graphics—in some acceptable format —*via* e-mail.

2. Article (and graphics) on diskette, CD or Zip disk in any of the popular formats/platforms. Indicate what format(s) your disk/article/graphics are in, and call or email if in doubt. Include printed hardcopies of both articles and graphics, a copy of the article file in ASCII or RTF (just in case), and alternate graphics formats. Media will be returned on request.

3. Color and B+W graphics should be good quality photos or slides suitable for scanning or—preferably—electronic files in TIFF or JPEG format at least 1200 x 1500 pixels for interior use, 1800 x 2100 for covers. Photos or slides will be returned.

4. Typed copy, double-spaced suitable for scanning aand optical character recognition. Original artwork/maps should be line drawings in pen and ink or good, clean photocopies. Color originals are preferred.

Submission Deadlines

Material for Volume 45 must reach the Editor by the following dates:

Issue	Date Due
1 Spring	You missed it!
2 Summer	Gone by!
3 Autumn	Too late!
4 Winter	**Oct. 31, 2003**

Reports for Supplement S1, the Season Summary, must reach the respective Zone Coordinator (see most recent Season Summary for your Zone) by Dec. 15. See inside back cover for Zone Coordinator information.

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Monarchs, Hoary Edge Skippers and a Great Spangled Fritillary nectar on Ironweed (Vernonia *sp.). Photo by Gary Noel Ross.*