



NEWS

of the LEPIDOPTERISTS' SOCIETY

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NEWS
FROM
EUROPE
W. O. De Prins

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Incisalia irus Revisited: A Response to Reverend Ronald Gatrell

For months I have had Rev. Ronald Gatrell's illuminating discussion of the geographic variation in Incisalia irus (Lep. Soc. NEWS July/Aug. 1991) on my desk intending to comment on his foodplant statements. His discussion of geographic variability is indeed interesting, and I believe becomes even more so when one plugs in correct foodplant information for New Jersey and New England populations, which he did not have. It is not true that most populations from those areas feed on Lupinus. In fact, rather few do...at least now that Lupinus perennis has become quite scarce. Southern New Jersey populations probably all feed on Baptisia tinctoria, and very few have access to Lupinus.

Foodplant information is seldom available for pinned specimens. However, I have been keeping track of this in the field for about 20 years. I cannot phenotypically separate New England adults based on foodplant with reliability, but at least in my collection, the Baptisia feeders are on average a bit duller, darker, and probably larger even in New England. As Rev. Gatrell states, those in New Jersey, Virginia and Maryland populations are of a slightly darker phenotype, but he incorrectly (at least for New Jersey) states that these feed on lupine. New Jersey and southeastern Pennsylvania adults are apparently a bit larger than most too. Rev. Gatrell has studied more specimens than I have and his smaller, brighter Rhode Island populations, which he considers to be lupine feeders, could have fed on either plant...a population a few hundred meters over the line in Connecticut, in fact does feed on lupine and to my eye they are quite bright. Baptisia is common in Rhode Island and parts of Connecticut, while lupine is rather rare. It is my understanding that Virginia populations feed on Baptisia, but I have little information on this (and no personal observations there) and neither did Rev. Gatrell. While the one colony I have information for in coastal Maryland apparently feeds on lupine, I would expect Baptisia to be the principal foodplant there as it is far more common.

My purpose in submitting this article, is largely to supply accurate foodplant information at the county level for northeastern states I know well. Apparently from my own observations and from what several collectors have told me all populations feed on one or the other plant, even in the few cases where both plants grow together. The foodplant information I present below is definitely accurate, but may

well be incomplete and thus could be misleading for Maryland at least. Anyway, the only county where both plants were used that I know of is New Haven County, Connecticut where populations on the Wallingford-North Haven sand plain used lupine, while others from places like Woodbury, Southbury, and New Haven used Baptisia tinctoria. I. irus has declined substantially in Connecticut recently.

Specific records by county are:

Maine

Oxford, only lupine would have been at the Norway site (both the butterfly and the plant are apparently extirpated in Maine now.)

New Hampshire

Merrimack, lupine (both plant and butterfly are state listed).

Massachusetts

Franklin, lupine
Middlesex, Norfolk, Plymouth, Baptisia

Connecticut

Windham, lupine
New Haven, lupine and Baptisia

New York

Albany and Saratoga, Suffolk (Long Island) (information from Jeff Glassberg), Genesee (information from Shapiro), all lupine.

New Jersey

Passaic (=Newfoundland), Monmouth, Ocean (Lakehurst, etc.), Burlington, Cumberland, Atlantic, and Cape May, all Baptisia.

Pennsylvania

Chester, Monroe, Baptisia.

Maryland

Wicomico/Worcester, lupine.

There is some pattern to this actually, but it is not as simple as Rev. Gatrell suggests. As far as I know, all populations from Ohio (where both the plant and butterfly are endangered or threatened), upstate New York, and westward seem to be feeding on lupine as Rev. Gatrell indicates. The distribution of lupine feeding populations is very similar to that of the Karner Blue, Lycaeides melissa samuelis,

except that these irus populations extend sporadically a bit farther southeast, and then reappear in eastern Maryland and Florida. The lupine feeders on Long Island seem anomalous, but recall that the Karner Blue allegedly once occurred in Brooklyn, which would be practically the same area. In New England, the very few inland populations mostly feed (or fed) on Lupine, as do all of those in upstate New York so far as I know. Clearly Baptisia feeding populations are the rule on the coastal plain (none of the Connecticut records I give are coastal plain), including both unglaciated southern New Jersey, and glaciated Massachusetts, but Long Island is coastal plain.

Thus, Rev. Gatrell's "darker populations" feed on Baptisia tinctoria in New Jersey, probably Virginia, and quite possibly generally in Maryland despite my contrary record above. Based on my small series, Baptisia feeding populations from Massachusetts may approach that phenotype. I have not examined the lupine feeding adults from Maryland. Similar darker populations in Chester County, Pennsylvania also feed on Baptisia. While I defer to Rev. Gatrell on this, this mostly coastal plain "darker phenotype" might be considered transitional to arsace which he indicates also feeds on Baptisia and is also found mostly on the coastal plain. I am not personally familiar with that subspecies. I also note that the fauna and flora of the New Jersey coastal plain is decidedly austral in character, as is the climate, with many striking similarities particularly to southeastern North Carolina which I won't go into here. This brings us to the lupine feeding typical looking irus from Florida that Rev. Gatrell discusses. Like him, I cannot help but wonder if similar specimens from Savannah, Georgia might also feed on lupine. If so, then typical northern phenotype Lupinus feeding irus may prevail south of, as well as north and west of, the Baptisia feeding "darker phenotype" and subspecies arsace. If this is true then I would expect such northern type populations to turn up with lupine in the Carolina sandhills at least.

Besides foodplant, the mode of larval feeding is different between these entities that one could call two ecotypes. Lupine feeding larvae feed on the flowers and seed pods during May and June. This is not an option for mid-latitude and northern Baptisia feeders. Baptisia tinctoria flowers in summer, late June to August in New Jersey for instance and late in New England. Baptisia feeding larvae eat the developing leaves. Also Baptisia shoots appear about three to six weeks later than Lupinus in the Northeast and Incisalia irus flies later at comparable latitudes where it uses Baptisia. In fact the lupine feeders start about the same time or earlier at Albany, New York (early date 21 April) than do the Baptisia feeders in southern New Jersey (early date 25 April), and definitely earlier at Albany and Franklin County, Massachusetts than for Baptisia feeders in Monroe and Chester Counties, Pennsylvania. I have seen a fair number of the lupine feeding larvae in New York and New Hampshire and they were uniformly pale green with no prominent markings. The few Baptisia feeding larvae I have seen in New Haven County, Connecticut had the prominent diagonal dorsal stripes typical of at least some populations of I. henrici. I don't know if this is a consistent difference.

Are there two sibling species? I don't know. Rev. Gatrell seems to be in a better position to explore this possibility, but his discussion and mine above certainly seem to raise the possibility. I suggest trying to obtain more larvae, and reevaluating adult phenotypes in light of accurate foodplant information...especially for both ecotypes from southern New England and the lupine one farther south. However, one cannot be absolutely sure of foodplants for some specimens, especially in southern New England. Obviously, foodplant cross acceptance tests would be helpful, but probably would not settle the matter since Lupinus and Baptisia are in the same family. Still, failure of these ecotypes to accept each other's foodplants would be suggestive of possible taxonomic separation, but would not prove it. The apparently closely related Incisalia henrici for instance shows considerable flexibility in foodplants, and has even recently evolved a

strain that apparently feeds in nature only on non-native Rhamnus in at least the Boston area. Likewise, eastern Incisalia augustus feeds on several genera of Ericaceae, but does use more than one at some sites (e.g. Vaccinium vacillans and Arctostaphylos uva-ursi at Lakehurst, NJ; Vaccinium spp. and Gaulthacia baccata at Medford, MA).

For the most part, the same factors that have led to the recent catastrophic decline of the Karner Blue in most of its range have also affected lupine feeding Incisalia irus at the same sites. Restoration of habitat for the Karner Blue, which has begun and should accelerate with Federal listing should benefit both species. Even Baptisia feeding I. irus is very local, seldom numerous, absent from the great majority of potential habitats, and should be collected with restraint.

Dale F. Schweitzer
The Nature Conservancy
Port Norris, New Jersey

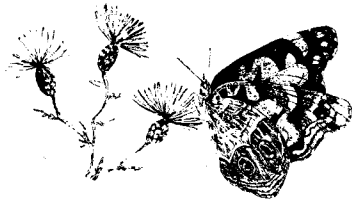
George Krizek, M.D.

A Poem, by Lowell Harris, M.D.

Heading for the forest
with stamina
My friend George with
Nikon Camera
Armed with fermenting mash
Illumination from electronic flash
The psychiatrist was content
to wait
Close to his odiferous, stinking
bait
Timing and Patience galore
He photographed on the
Forest floor
Three or four rotting fish
Provide to insect an attractive
dish
Sulphur fires of Hell
Take second place to the
dead fish smell
But it takes all
This to try
To photograph the
Agrias Butterfly!

...Lowell Harris to George, in fond memory of Rondonia trip April 1992....





Painted Ladies Migrate Again

....."Avid bug collectors, get out your nets. Avid motorists, fill up your window washing fluid. A billion butterflies are headed your way".....

So began an article from the April 24, 1992 Salem, Oregon Statesman Journal which was sent in by Bill Howe. Newspapers across the country including the Memphis Commercial Appeal, sent in by Bryant Mather, carried similar Associated Press articles, spreading the news about the migration of the painted lady butterfly.

Swarms of butterflies invaded California, plastering windshields and clogging radiators as they fluttered north to Canada. A firsthand account as to the messiness of butterflies mashed on a windshield was given by a truck driver from Fresno, California. "It's like somebody threw some mustard at you. They are all over the lights, the radiator, the windshield. I use soap and water and a long brush to get them off, but you've got to scrub hard."

The article related that Dennis Murphy, head of the Center for Conservation Biology at Stanford University, estimated the population at several billion, and said the numbers haven't been so high since 1965. He said he believes this year's population is 100 to 1,000 times its usual size. He indicated that the butterflies were moving north because their food supply in the deserts of northwestern Mexico ran out. Murphy is quoted as saying, "They've eaten themselves out of house and home. They've eaten up all the food they would have been laying eggs on and they've got a one-way ticket northward where it's still green." The article further stated that scientists say the butterfly boom is a dramatic sign that California's water picture is brightening. Murphy is quoted "I think the butterflies are a bellweaver of environmental change. This is Mother Nature flexing her muscles and suggesting (she) is on a comeback."

An accompanying article in the same newspaper stated that Jeffrey Miller, professor of entomology at Oregon State University, predicted the swarms would arrive in Oregon about a week or so later. They may have been flying a bit faster than expected, as another article, this time from the Sunday April 26th edition of the Portland Oregonian (also sent in by Mather), reported that Rick Westcott, a state Agriculture Department entomologist, spotted his first painted lady of the season at 10 a.m. Saturday and watched swarms build up all afternoon. He was impressed by the numbers. "It's kind of an interesting phenomenon. It doesn't happen very often."

On April 27th I was perched in a small draw (about 20 feet across) along the rim of the Owyhee River canyon in (Owyhee County) southwestern Idaho. I was part of a four-person team and the duty of the day was to search for and record all raptors, observe their behavior and record raptor nests and roosts seen along a six mile stretch of the Owyhee River. We had been flown into this roadless area by helicopter and dropped off before daybreak. As the sun came up the raptors began flying. The weather was absolutely wonderful. The temperature was about 80°F. accompanied by a slight breeze and a touch of humidity. I was using my binoculars to scan for nests and perches on the opposing 300-foot sheer cliff face. The canyon has many raptors, and everytime I'd be observing a raptor in flight, several "foreign objects" would float through my binocular's field of vision and thoroughly confuse the picture! It didn't take me long to figure out that these "foreign objects" were actually painted ladies. In addition, my companions and I observed that many of the American

kestrals in the area were preying on the painted ladies. Since my mindset had been raptors and not butterflies, it took a few minutes before the quantity of butterflies flying in the canyon began to register.

Since continuously gazing through binoculars has a tendency to make my eyes tire, I had to take several breaks. During one of these breaks, I decided to attempt to count them as they popped up over the canyon rim and continued up the draw. My best estimate is that I counted 1500 of them flying southwest during five minutes. There were so many I could not count them individually and was doing my best to count them by fives and tens. The peak occurred between 11 a.m. and 3 p.m., with considerably fewer flying at 4 p.m. and fewer still at 6 p.m. I observed nine other species of butterfly on the wing that day.

The following day we were flown in to another six-mile stretch along the river. Although it was cool before the sun came up, it quickly warmed up to a high of 84°F. accompanied by a hot dry wind. A few butterflies were flying after dawn and into the mid-morning, but by noon, there were almost none flying. There were still a few painted ladies straggling through as the tall end of the migration I'd seen a day earlier, but not many.

Stephanie McKown
Boise, Idaho

Lepidopterists' Society Member Wins Recent Awards

Colorado has had and has many outstanding lepidopterists such as Theo Cockerell, F. M. Brown, and James Scott to name just a few, and I think I see another one on the horizon. Andrew D. Warren, age 18, a member of this Museum and the Lepidopterists' Society, has just graduated from Cherry Creek High School and will begin this fall at Cornell University as an Entomology major. He has won several recent awards during his senior year. Although he already had developed considerable expertise on butterflies, his science project dealt with Arctiidae. The title was "Colorado Tiger Moths in the genus *Grammia*", in which he presented distributional data on all species in the state and new life histories on four species: *G. f-pallida*, *G. cervinoides*, *G. oblitterata*, and a possible new species. This project demonstrated diverse skills including research in field, lab, and library, use of museum collections, preparation of a scientific paper, and cooperation with colleagues.

By winning the Intermountain Science & Humanities Symposium in Salt Lake City, Utah, he was awarded a trip to Knoxville, Tennessee (National Science & Humanities Symposium). By winning the Denver Metropolitan Science Fair in Golden, Colorado, he won another trip to the International Science and Engineering Fair in Nashville, Tennessee. There he won the first place award from the Entomological Society of America, and the top award from the U.S. Army which included a personal IBM Compatible computer and a trip to the Japanese National Science Fair in Tokyo in January 1993.

I am pleased that a member of our Society and my Museum has achieved these honors and recognition. We congratulate Andy for his hard work and success!

Richard S. Peigler
Denver Museum of Natural History



Malathion Follow-up

An article in NEWS #3 (May/June 1991), page 48, reported on butterfly counts performed in a power line easement in Easton, Norfolk County, Massachusetts, in late August 1990. The counts occurred one day before and two days after a single aerial spraying with malathion. The spraying was designed to reduce the numbers of the mosquito vector of eastern equine encephalitis, a disease which is uncommon but carries high mortality for humans. The "before count" defined 109 individuals in 21 species, the "after" count: 4 individuals in three species.

Brian Cassie, who had performed the original counts, repeated the process in the same power line cut in August 1991, on a similarly hot, sunny, and calm day, but two and a half weeks earlier to compensate for the markedly advanced flight periods experienced by most butterflies in the area in 1991.

On this occasion 85 butterflies were sighted, representing 17 species. Two of the species had not been seen the previous year, and four from the previous year were not represented.

While these results indicate an encouraging recovery from the chemical insult, they do not leave one with the sense that the spraying process can be considered benign.

Dave Winter
Dedham, Massachusetts

Genetic Mosaic?

R. H. Hagen and Sir Cyril A. Clarke reply

Charles Bordelon is puzzled by a possible "genetic mosaic" tiger swallowtail (NEWS, #3, 1992). By coincidence, the issue of the NEWS with his letter appeared on my desk while I was in the thick of revising sections of a manuscript dealing with the same subject ("Genetics of mimicry in the tiger swallowtail butterflies, Papilio glaucus and P. canadensis"; J.M. Scriber, R.H. Hagen, and R.C. Lederhouse; in preparation). The manuscript is based on 12 years' accumulated results from Mark Scriber's laboratory at Michigan State University--representing data on thousands of reared individuals. Naturally, the topic of P. glaucus color morphs has been very much on my mind of late!

A simple answer to the question "Is this a genetic mosaic?" is "probably not". The "sooty" appearance of the specimen in the photographs (caused by a relatively uniform mixture of dark and yellow scales) differs from the distinctly "blotchy" appearance of other intermediate specimens ... "true mosaics" (see: J.M. Scriber and M.H. Evans, Journal of Research on the Lepidoptera, 26:39-57, for color photographs of a number of these specimens). Most true mosaics are also sexual mosaics: areas of yellow scales correspond to genetically male tissue, and areas of dark scales correspond to genetically female tissue. I'm convinced that all true mosaic tiger swallowtails are also sexual mosaics: both phenomena resulting from a developmental abnormality affecting the sex chromosomes. True mosaics are quite rare, perhaps 1/1000 or fewer among reared specimens.

Sooty-type P. glaucus females occur more frequently (especially in some populations) and vary from almost pure yellow to almost pure dark scale mixtures. What causes this? High temperature during pupal development has been identified as one important factor in studies by David Ritland (and is certainly a possibility for Texas in late summer!)

Sooty-type females may also possess a variant of one of the genes

responsible for determining scale color. However, after struggling to make sense of the genetic data, all I can say with assurance is that the story isn't simple. Here's a condensed version of my interpretation:

There appear to be two major genes responsible for the dark color form in P. glaucus. The first is transmitted exclusively from mother to daughter via the Y chromosome. (Dark males have never been reported in P. glaucus, which implies that this color gene is tightly associated with female-determining genes on the Y.) The second gene is on the other sex chromosome (the X). Whereas the first gene determines dark scale pigmentation, the second controls whether it can be expressed. Nearly all P. glaucus carry a form of the second gene which permits expression of the dark pigment if the first gene is present. Thus, dark mothers usually produce dark daughters and yellow mothers produce yellow daughters.

However, there are variants of the second gene that don't allow expression of dark pigment. One of these occurs in P. canadensis and results in yellow females, regardless of the mother's color. We suspect that a low frequency of such canadensis genes may occur in some P. glaucus populations, as a result of occasional natural hybridization between the species.

There is also evidence for still other variants which permit partial expression of the dark pigment ... resulting in a range of sooty-type daughters. (Such variant genes may be "damaged", or partially functioning, versions of the normal glaucus gene.) Recall that sooty color is produced by a mixture of yellow and dark scales on the wing: in a female with a damaged expression gene, dark scales develop from cells in which the gene worked, and yellow scales from cells in which it didn't. The uneven distribution of lighter and darker areas (as on the butterfly in the photographs) presumably reflects subtle variation in how well this gene functioned in different parts of the developing wing.

Up to this point, the story is rather tidy ... unfortunately, there are a few cases which do not follow the inheritance pattern expected from the simple two-gene explanation I've described. These may reflect rare chromosomal abnormalities, some type of genetic instability, or the presence of additional color-related genes. For the present they are unexplained. I regard them as a salutary reminder that natural mysteries still can be found in one's own backyard!

Robert Hagen
University of Kansas
Lawrence, Kansas

No! Your animal on pg. 55 of the NEWS #3, 1992 is not a mosaic but the black of a black female has been suppressed by a suppressor gene which is well known to occur in certain races of P. glaucus and in P. rutulus, etc.

Your animal might be a hybrid between a black P. glaucus female and a male P. rutulus.

For more information see:
West, D.A., & Clarke, Sir Cyril A., 1988. Suppression of the black phenotype in females of the P. glaucus group (Papilionidae). Journal of Research on the Lepidoptera. 26: 187-200.

Clarke, Sir Cyril A., Rees, H.H., & West, D.A., 1989. Suppression of the black pigment in female hybrids of Papilio glaucus and P. multicaudatus: further evidence of the value of ecdysone in breaking pupal diapause. Journal of Research on the Lepidoptera. 28 (1-2): 84-87.

With kind regards,
C.A. Clarke
Merseyside, England

Is Cecropia a Sibling Species Pair?

D.C. Ferguson, in fascicle 20.2B of Moths of America North of Mexico, mentioned the possibility of the two different types of *Hyalophora cecropia* cocoons ("baggy" and "compact") being indicative of a sibling species pair. I would like to point out a possible further indication of this, although it is based on only two series of hybrids.

The first series was a set of hybrid cocoons received from Hal Donley of Ontario, Canada. They were offspring of a ♀ *H. gloveri* from Utah and a wild baggy type cocoon ♂ *H. cecropia* from Ontario. The cocoons were all of the baggy type, and all emerging moths were as described by Collins and Weast (1961): "Dull gray ground color, no red wing bands."

The following year, I mated a ♀ *H. gloveri* from Utah with a local wild ♂ *H. cecropia*, which was of the compact cocoon type. The resulting hybrids formed compact cocoons and the emerging adults were entirely different: all with conspicuous red wing bands.

Each series was consistent in either having or not having the red wing bands.

I would therefore be interested in hearing if this is consistent with other breeders' results. Is the red winged hybrid restricted to compact cocoon parents? If the two hybrid types can be correlated with cocoon types, a further case could be made for a sibling species pair in *Hyalophora cecropia*.

George F. Holbach
Adell, Wisconsin



News From Europe

Report on the 8th European Congress of Lepidopterology

The main event in European lepidopterology in the first half of 1992 was without a doubt the 8th European Congress of Lepidopterology, held at Helsinki (Finland) the 19th through the 23rd of April. Though Helsinki is not the geographical center of Europe, this was one of the best attended congresses ever organized by SEL (Societas Europaea Lepidopterologica) with almost 150 participants coming from 25 different countries.

Though only one full congress member represented the North American lepidopterists (Dr. J.D. Lafontaine, Canada), we welcomed several lepidopterists from Eastern Asia: Indonesia, Japan, Korea and the Vladivostok region of Russia. The European congress members came from (in alphabetical order): Austria, Belgium, Czechoslovakia, Denmark, Estland, Finland, France, Germany, Hungary, Italy, Latland, Luxemburg, the Netherlands, Poland, Roumania, Russia, Spain, Sweden, Switzerland, Ukraina and the United Kingdom.

All congress members and their accompanying persons were lodged in nice rooms in the Savings Bank Institute, a modern building some

kilometers west of Helsinki. In the same complex all meals could be taken and in several rooms lectures were given, whilst in others workshops on Noctuidae, Lepidoptera larvae and Microlepidoptera were held. There was a continuous exhibition of twenty different posters and Apollo Books (Denmark) showed all recent publications on worldwide lepidopterology.

The congress was officially opened by Dr. O. Lehto, Chancellor of the University of Helsinki and the inaugural lecture was given by Dr. J.D. Lafontaine on "Classification of Lepidoptera: Stability Through Cooperation". Later that day, all participants visited the special "Lepidoptera '92 Exhibition" organized in the Gallery Diana. A welcoming reception was hosted by the City of Helsinki, represented by the Director of the Finnish Museum of Natural History, Prof. M. Meinander, followed by a luncheon reception organized by the Finnish Lepidopterological Society and the Organizing Committee of the Lepidoptera Exhibition, represented by the Chairman of the Finnish Lepidopterological Society, Dr. A. Aalto.

During the next days more than 30 lectures in four symposia were given. The four symposia were: 1. evolutionary systematics, 2. comparative ecology, ethology and physiology; biogeography, 3. autecology, faunistics and applied lepidopterology, 4. biology and taxonomy of rare and endangered butterflies and moths; conservation. Several congress members took the opportunity to work in the scientific collections of the Zoological Museum of the Finnish Museum of Natural History. The Proceedings of the congress will be published towards the end of this year.

The organizers (chairman Dr. K. Mikkola) were not only concerned with the pure scientific side of the congress, but also tried "to make life easier" for all participants, and to make the Finnish public aware of the fact that Helsinki was the center of European Lepidopterology for a couple of days.

The latter was done with the organization of an exhibition of butterflies and moths, and with the issue of three special butterfly stamps. The former was achieved by the organization of a ladies' program (by Mrs. M. Louekari-Mikkola), several receptions at the beginning of the congress, a sauna with swimming pool and an informal punch reception the last evening.

During the General Meeting some new Council members were elected. Mr. E. De Bros was elected as Honorary Member for his important contribution to the Society as editor of the journal, *Nota lepidopterologica*. Dr. P.S. Wagener decided to step down from the office of treasurer after serving the the Council of the Society from its foundation in 1976, first as Membership Secretary, later as Treasurer. He was unanimously elected as Honorary Member by acclamation.

After the congress, more than half the participants joined the four days' visit to Saint-Petersburg (Russia). The itinerary of these days consisted of sight seeing tours in the vast city, visits to several art museums, of which the luxurious "Hermitage" is the most famous, or just walking alone or in small groups along the large boulevards mixing with the Russian crowd. In the evening, lovers of the famous Russian ballet could choose to admire either Giselle or the Swan Lake. Lepidopterists had the opportunity to visit the scientific collections of the Zoological Museum, where they were welcomed by Dr. V. I. Kuznetsov and his staff, assisted by several lepidopterists from Ukraina and Lithuania who regularly work in the museum. On the last evening participants could say good bye over a fantastic dinner with cabaret, of which especially the Russian songs and dances impressed the public.

On the 9th Congress...

On their way home, many lepidopterists were already dreaming of the next congress, to be held near Brno (Czechoslovakia) at the end of

August or beginning of September 1994. It would be very nice if Dr. D. Povolny (chairman of the organizing committee) could welcome more lepidopterists from North America. To encourage the attendance of both professional and amateur lepidopterists, a special symposium on Holarctic biogeography will be organized, and the congress fee will be incredibly low.

More about SEL

During discussions in several SEL Council Meetings the need of a closer contact with the US-based Lepidopterists' Society was expressed. Members of The Lepidopterists' Society should know how to become a member of SEL and vice versa. Therefore, parts of a SEL leaflet are given below;

The European Lepidopterological Society (SEL) was founded in September 1976 and since June 1977 it has been a registered society based at Karlsruhe, Federal Republic of Germany.

SEL's aims are: to further closer collaboration among Lepidopterists worldwide, especially among those in Europe; to support scientific work and nature-conservation in the field of Lepidopterology; to produce its own publications and to hold a Copngress of Lepidopterology every two years.

Membership of the Society is open to any person with an interest in Lepidoptera, professional or otherwise, who agrees to abide by the Statutes and By-Laws of the Society.

The members will receive: Nota lepidopterologica, a journal, each year four parts, containing contributions in English, German and French, from the whole field of Lepidopterology; the News, appearing irregularly, provides an exchange of information within the society; the Membership List, giving the addresses and special interests of the members; and Bibliographia europaea lepidopterologica, once a year, which informs about the newest literature in the field of Lepidopterology.

The Congress (1978 - Paris, 1980 - Karlsruhe, 1982 - Cambridge, 1984 - Wageingen, 1986 - Budapest, 1988 - Sanremo, 1990 - Lunz, 1992 - Helsinki) brought together lepidopterists from more than 20 European countries, both east and west.

Ordinary members pay an annual subscription of DM 50.-; outside Europe DM 65.- if posting by air-mail is required. On joining the society, an entrance fee of DM 5.- is payable. Non members can subscribe to Nota lepidopterologica at an annual rate of DM 80.-

If you wish to become a member of the European Lepidopterological Society please fill out a xerox copy of the application form below and send it to: Manfred Sommerer, Volpinistrasse 72, D-8000 München 19, Federal Republic of Germany. All other correspondence should be addressed to: Dr. Hansjürg Geiger, Zoologisches Institut Universität Bern, Baltzerstrasse 3, CH-3012 Bern, Switzerland. All payments should be made by "International Post Money Order" or by transfer from your own Postal Cheque Account to the Postgiro Account (CCP) Köln no. 1956650-507. All payments should be sent to: Societas Europaea Lepidopterologica Volpunistrasse 72, D-8000 München 19, Federal Republic of Germany.

Let us hope that more North American lepidopterists join the European Lepidopterological Society and vice versa, in order to establish closer contacts and to start or intensify the dialogue between Holarctic and Nearctic workers.

Willy De Prins
Antwerp, Belgium

SOCIETAS EUROPAEA LEPIDOPTEROLOGICA

Application for membership in SEL

Please type or print

I hereby apply to become a member of SEL

Name: _____
last first title

Address: _____
street

_____ City state/province zip/postal code

Country

Phone number (home): _____ work: _____

Special interests in lepidoptera: _____

I would be prepared to undertake identification of material of the following groups: _____

I am interested in the exchange of material _____ reprints _____

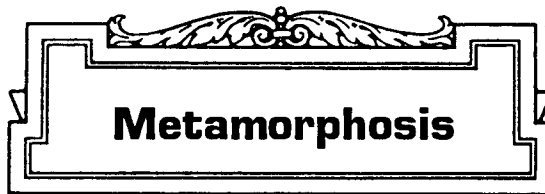
I have a lepidoptera collection with emphasis on (geographic locality; family, genus, etc.) _____

I have a local collection of : _____
from: _____

I acknowledge the aims of SEL and I agree to pay the annual subscription.

Signature: _____

Date: _____



The Society has recently been informed of the following members' deaths:

Frank W. Hedges, M.D.....

of Kissimmee, Florida, on 30 July 1991. He had been a member of the Society since 1976.

James M. Cook, III....

of Boca Grande, Florida, on 15 December 1991. He had been a member since 1972.

Donors

Some members of The Lepidopterists' Society who have not chosen the Sustaining Membership category contribute money to the Society above and beyond their dues. In sincere thanks and recognition, their names are printed below.

\$1 - \$9: Wayne R. Dawes, Edward R. Fuller, Michio G. Kimura, David C. Lees, J. Kevin Leonard, Jamieson C. Little, B. John Mix, Thomas D. Stelnick.

\$10 - \$24: Henry S. Barlow, David L. Bauer, Stanwood Bolton, Gary Collier, Thomas D. Eichlin, Gustav G. Garay, R. Stephen Harley, Leroy C. Koehn, George C. Leslie, Melville W. Osborne, Frederick H. Rindge, Lenora Stair, Viola N. Stallings, Ian A. Watkinson, Franklin M. West, Benjamin D. Williams.

\$25 - \$49: Robert C. Busby, William H. Lange, J. McCaffrey, Fumio Nagasaki, Duncan Robertson.

\$50 - \$99: Douglas C. Ferguson, Don McDow.

\$100 - \$249: George J. Balogh

From Dissertation Abstracts International vol. 52, no.1, July 1991

"Field investigations of a facultative mutualism between Lycaeides melissa samuelis Nabokov (Lycaenidae), the Karner blue butterfly, and attendant ants. Savignano, Dolores Anne, Ph.D. *The University of Texas at Austin*, 1990. 130pp. Supervisor: Lawrence E. Gilbert Order Number DA9116971

Using a variety of field techniques, I demonstrated that larvae of Lycaeides melissa samuelis Nabokov (Lepidoptera: Lycaenidae) receive a benefit from attendant ants, in the form of reduced predation. The magnitude of the benefit varies with attendant ant species.

There is variation both between and within sites in the frequency of ant attendance of Lycaeides melissa samuelis larvae. Through a series of field manipulations I investigated a variety of intrinsic and ecological factors that might affect frequency of ant attendance. The main determinants of tending frequency for L. m. samuelis larvae are age and location within its habitat. Individual variation among larvae or their host plants, larval density, and nutrient enhancement of the host plants had no detectable effect on tending frequency. Differences in tending frequency among locations is likely to be a result of spatial (and possibly temporal) variation in ant nest sites and foraging activity.

Fourteen species of ants were recorded tending Lycaeides melissa samuelis larvae at my study site. I sampled ants at my study site using pitfall traps and baits. I determined that L. m. samuelis larvae are not attractive to a particular subset of ants, either based on taxonomy or foraging biology, but are generally attractive to the ants they are likely to encounter in this habitat. Specificity of the relationship may be limited by the patchy distribution of ants and short duration of the larval stage of the butterfly.

The results of this study support both the "appeasement" and "protectionist" theories as to the function of the ant-associated organs of lycaenid butterfly larvae. The function of the organs may vary with

ant species. Larvae may be protected from ants that otherwise would prey upon them, and attractive to high quality ant mutualists which reduce their mortality. Alternatively, all ant associations may be mutualistic, but to varying degrees. Further study of facultative polyphillic associations will be required to resolve this question."

Announcements and Notices



Membership Directory

A complete cross-indexed membership directory, including alphabetical listing of names, addresses and lepidopterological interests is published as NEWS #6 (November/December) of every even-numbered year. Please be reminded that this is the year! If you would like to edit or change your field of interests or add or delete your phone or fax number, please notify the Assistant Secretary, Julian Donahue, AS SOON AS POSSIBLE at the address on the back page of the NEWS. There will be no ads, notices, articles, etc. published in that issue of the NEWS.

Lost Members

WARDEN W. BEEBE (formerly of Miami, Florida); RONALD F. HIRZEL, JR. (Monterey, California); and ALTON G. LOYD (Garden Grove, California); If you know their present addresses please notify Julian Donahue (address on back cover).

Newark Museum of Arts and Sciences

John Michalski of The Newark Museum has been curating, reorganizing and cataloguing the museum's insect collection which has lain fallow since the 1940's. He is entering the entire holdings into dBase, and will soon have completed the Lepidoptera. He states..."It is a small collection by institutional standards, but I feel it's a fairly complete series of New Jersey Lepidoptera. I believe it is an important collection since almost all of it was collected between 1880 and 1940, in an area that has undergone drastic development since that time. Many interesting species were taken in such unlikely places as Newark and the Bronx." On the Museum's behalf, he invites interested persons to contact the museum to examine specimens or to receive a list of their holdings. Contact him at The Newark Museum, 49 Washington Street, P.O. Box 540, Newark, New Jersey 07101-0540. Phone: (201) 596-6550.

Philatelic Lepidopterists of America

An informal organization for people who enjoy collecting moth and butterfly postage stamps has been formed! Members receive a quarterly newsletter. Dues are \$10/year. Contact Charles V. Covell, Jr., Dept. of Biology, University of Louisville, Louisville, KY 40292.

Kentucky Lepidopterists

The Society of Kentucky Lepidopterists, now in its 18th year, invites you to join! In addition to annual meetings and spring and fall field

trips, each member receives four newsletters annually. Dues are \$5.00 each year. For more information and membership contact: Charles Covell, Department of Biology, University of Louisville, Louisville, KY 40292.

SUBJECT: Endangered Species

There has been much discussion regarding lepidoptera that are considered threatened and endangered. It was a hotly discussed subject at the recent 42nd annual meeting of the Lepidopterists' Society held at East Lansing, Michigan. The discussion has continued through the mail and over phone lines. It appears that there is much confusion regarding collecting permits, export permits, import permits, purchase or trade of specimens, which species are endangered, which species are threatened. Some members who prefer to remain anonymous have asked the editor of the NEWS to research and publish the answers to these and other questions. A series of articles, beginning in the September/October 1992 issue (NEWS #5) will attempt to answer these questions in a clear and concise manner. If you have any specific questions you would like to see addressed in this manner, send them to the Editor of the NEWS (address on front page of NEWS).

Society Decals Available

Lepidopterists' Society decals are 3-inch yellow disks, with the Society logo in black. It is designed to be applied to the inside of a window. \$1.00 for first decal ordered; additional decals sent to same address 50¢ each. Send SASE and check payable to The Lepidopterists' Society to C.V. Covell, Jr., Dept. of Biology, University of Louisville, Louisville, KY 40292-0001.

India Tour

Julian Donahue, curator of Lepidoptera at the Natural History Museum in Los Angeles, will escort a **Natural History Tour of India** 11 October - 5 November 1992, with optional extension to Darjeeling. Julian collected and studied butterflies and birds when he lived in India. This trip will concentrate on the post-monsoon wildlife of central and southern India. Ideal for birders and general natural historians, but the trip is NOT a collecting trip. For further information or brochure call Geostar Travel at 1-800-624-6633, or Julian at (213) 744-3364.

Society T-Shirts Available

Get in the swing of things with a Lepidopterists' Society T-shirt! The shirts are high-quality 100% cotton: pre-shrunk, generous length, proudly displaying your Society's distinctive logo on the front (logo diameter 7": did you know that the stylized initials of the Society ("LS") form the butterfly design on our logo?).

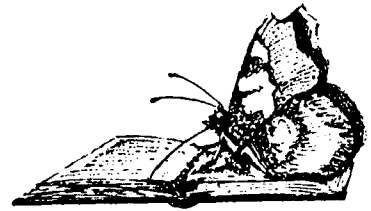
The shirt is available in four adult sizes, in your choice of two colors: Navy Blue with white logo and Papilio Yellow with black logo.

The prices are: \$10.00 U.S. each. Add postage: 1 - 3 shirts: Just \$3.50 in U.S. (\$5.50 to Canada); postage for each additional shirt: \$2 (U.S. or Canada). Contact the Assistant Secretary, Julian Donahue at the address printed on the back page of the NEWS.



Butterfly Nursery

Mercer Arboretum and Botanic Garden near Houston, Texas has a new "butterfly nursery" with host plants, eggs, larvae and pupae within a 10' x 16' screened enclosure. Five kinds of swallowtails, Luna, Cecropia, Io and Imperial moths, are just a few of the lepidoptera being raised here. Butterflies and moths that are native to Texas, are raised from eggs and the adults are released on the 214-acre arboretum grounds. Recently 112 Luna moths emerged from their cocoons at the same time. "It was like an emerald green curtain," said Linda Moats, Education Director for the arboretum. Though the nursery is not open to walk through traffic, the enclosure has plexiglas viewing panels that enable visitors to view the immature stages. There are illustrated signs to inform the public about the different species' life cycles. In addition, the grounds surrounding the nursery and elsewhere in the arboretum are planted with host and nectar plants. Near the plants are signs stating which lepidoptera utilize the plant and whether it is a host or nectar plant. Mercer Arboretum is at 22306 Aldine-Westfield in Humble, 12 miles north of Houston. Admission is free. For information call (713) 443-8731. A similar facility is planned for Zilker Park in Austin, Texas.



Books

BOOK REVIEW

The Common Names of North American Butterflies, edited by Jacqueline Y. Miller with a forward by Paul A. Opler. Smithsonian Institution Press, Dept. 900, Blue Ridge Summit, PA, 17294. 1992. ix, 177 pp. Paperback, \$14.95 plus postage and handling.

This compendium of existing published common names for North American butterflies is the equivalent of the American Ornithologists' Union Checklist of North American Birds, now in its sixth edition. This long-awaited scholarly, yet easily readable, work lists all published common names and a preferred name for all species of North American butterflies. Scientific nomenclature follows the 1981 Miller and Brown Catalogue/Checklist of the Butterflies of America North of Mexico and recent separate modifications by Bridges, Ferris and Opler. The selection of a preferred common name is a much-needed attempt to eliminate confusion, because often the same common name has been applied to more than one taxon. Indexing is both by Latin name and common name. An extensive bibliography of sources for common names is given, although only the ten books most frequently used for broad coverage of North American butterflies are cited in the common name list. To show general distribution of butterflies, North America is divided into seven large geographic regions. Species level taxa are assigned to one or more of these regions. Notation is made as to which butterflies are threatened, endangered, or extinct.

This work, which started in 1980 as a cooperative effort of the Xerces Society and the Lepidopterists' Society, fills a growing need among professional and amateur lepidopterists and will appeal to both groups. It is hoped that the book will now accomplish the editor's goals of furthering popular interest in butterflies through the use of common names, reducing the creation of additional common names for those butterflies already having them, and, above all, furthering public interest in conservation and the scientific study of butterflies.

June D. Preston
832 Sunset Drive
Lawrence, Kansas 66044

Magazine

The July 1992 issue of Texas Parks and Wildlife contains an eight-page article about butterflies entitled *Wildflowers on the Wing*. The article, by Carlos Hernandez, contains brief text accompanied by beautiful color photographs of living butterflies taken by Hernandez and others. In addition to the 21 photographs in the article, the back cover of the magazine is devoted to a color photograph of a tiger swallowtail on a dried flower head. Lepidopterists' Society members who do not subscribe to Texas Parks and Wildlife may obtain single copies of this issue by sending a note requesting the specific issue accompanied by a check for \$1.86 to Texas Parks and Wildlife, attention: Tammy Couser - MAGAZINE, 4200 Smith School Road, Austin, Texas 78744.

Research Notices

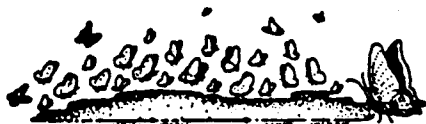


REVISION OF *Thessalia theona*. Wanted for revision of the *Thessalia theona* group with M.J. Smith: information of location or possible location of the types of the following names: *Melitaea theona* Ménétrés (possibly in Leningrad), *Melitaea chinatiensis* E. R. Tinkham, and *Phyciodes hondana* Weymer. Contact: George T. Austin, Nevada State Museum and Historical Society, 700 Twin Lakes Drive, Las Vegas, Nevada 89158.

Lycaenid Studies. I should like to obtain North American Lycaenid material for my studies. I also need reprints, and most especially a book that illustrates the genitalic structures of the North American Plebejinae. I can offer Palaearctic, mainly Central European, East European Rhopalocera for exchange. Please contact ZSolt Bálint, Lepidoptera Collection, Zoological Department, Hungarian Natural History Museum, H - 1088 Budapest, Baross u. 13. HUNGARY.

Papilio RESEARCH: I am studying the influence of plant chemistry on host shifts by members of the *Papilio machaon* group. I would like to obtain live pupae of *Papilio machaon oregonius*, *Papilio machaon aliaska*, and *Papilio polyxenes*. Please write to Kim Woodbury, Ecology and Systematics, Corson Hall, Cornell University, Ithaca, NY 14853.

GYPSY MOTH RESEARCH: WANTED: Male and/or female gypsy moths for research (dissection, morphometric analysis). Need many specimens for database from anywhere in U.S., Europe and especially Asia. Specimens in most any condition welcomed (no pinning necessary). T.D. Eichlin, Insect Biosystematics Lab., 340-E, Calif. Dept. of Food & Agric., 1220 N Street, Sacramento, CA 95814. USA.



Forthcoming Meetings

High Country Lepidopterists - 3rd Annual Meeting will be held at the Denver Museum of Natural History on Friday and Saturday, September 11-12, 1992. The meeting and the High Country Lepidopterists' Society are open to anyone interested in Lepidoptera.

Those who attended one or both of the two previous meetings know that this get-together is an excellent opportunity to meet and interact socially and scientifically with other lepidopterists in this rich faunal region.

The meeting will be organized and hosted by Richard S. Peigler, Collections Manager of the Department of Zoology. Assisting Ric will be Boyce Drummond and Ray Stanford, the two entomological Research Associates of the Department. Boyce will organize and chair the session of scientific papers on Saturday. Ray will host the opening reception Friday evening at his home in Denver (near the Museum), and his large personal collection will be open for viewing and study. Registrants to the meeting will have free access to the Museum on Saturday, 9AM to 5PM. The banquet will be catered in the Museum Saturday evening and will feature an outstanding speaker, followed by a drawing for door prizes.

Several special events will highlight the meeting. The group will honor the many accomplishments of Dr. F. Martin Brown, one of the nation's leading lepidopterists and well-known for his significant contributions to our knowledge of Rocky Mountain Lepidoptera. We hope that Brownie's health will permit him to attend the meeting. The collection at the Museum contains the John T. Mason historical collection (described in the Journal of the Lepidopterists' Society, Vol. 44, pp. 194-198, 1990). Also on display will be two art collections: butterfly paintings by William Howe and prints of moth paintings by Dr. John Cody (both artists live in neighboring Kansas). On public display in the Museum is an exhibit of Colorado butterflies that was installed in August 1990.

Many areas in the Front Range offer excellent collecting of fall species of butterflies and moths in early September, and, of course, there are many other interesting attractions in the region, including the turning of the aspens in the surrounding high country. For more information, registration materials, or other assistance, please contact: Richard S. Peigler, Department of Zoology, Denver Museum of Natural History, 2001 Colorado Boulevard, Denver, Colorado 80205-5798.

The 19th Annual Natural Areas Conference and the 14th Annual Meeting of the Natural Areas Association, Rediscovering America: Natural Areas in the 1990's, is scheduled for 27-30 October 1992 at Indiana University in Bloomington, Indiana. Please contact: Natural Areas Conference Registration, Div. of Nature Preserves, 402 W. Washington St., Room W267, Indianapolis, IN 46204. (317) 232-4052.

1992 Annual Meeting of the Entomological Collections Network will be hosted by USDA-ARS Systematic Entomology Lab and Maryland Center for Systematic Entomology in cooperation with the Entomological Society of America on 5 and 6 December 1992 at the USDA Beltsville Agricultural Research Center in Beltsville, Maryland. Planned sessions include: Materials Conservation in Entomological Collections; Biodiversity sampling methods; Data security and ownership; Demonstrations of collections- & systematics-related software. For early arrivals, a tour of the Beltsville Agricultural Research Center (BARC) is expected to be available the afternoon of 4 December. A block of rooms has been reserved at the College Park Holiday Inn, near BARC. The meeting will run Saturday morning through Sunday morning, allowing midday departure to Baltimore (25 miles away) for those attending the ESA meetings. For additional program information contact: Richard L. Brown, Dept of Entomology, Drawer EM, Mississippi State University, Mississippi State, MS 39762, USA. Phone (601) 325-2085; FAX (601) 325-8837.

1993 - The 4th National Pesticide Conference is scheduled for 1-3 November 1993 in Richmond Virginia. For more information

contact Diana L. Weigmann, Conference Director, Virginia Water Resources Research Center, Virginia Polytechnic Institute & State University, 617 N. Main Street, Blacksburg, VA 24060-3397. (703) 231-6673.

Corrections



The editor apologizes for all misspellings and omissions in the previous issue. The wrong files were imported into the document resulting in many typos in several of the articles. (Sigh.)

New Members



ADAMSON, CHRIS: 5010 Solano Avenue, Richmond, CA 94805.
BREWSTER, CYNTHIA: 650 Allens Creek Road, Rochester, NY 14618.
CAPPLEMAN, J. (Mr.): 204 4th Street N.E., Childress, TX 79201.
CROSSON DU CORMIER, ALAIN: 51 Avenue Raymond Poincare, F-75116 Paris, FRANCE.
DAVIS, CHRISTOPHER D.: 3811 Marlin Lane, La Porte, TX 77571.
DOAK, DONALD P., Jr. (D.D.S.): 2674 North Halsted Street, Chicago, IL 60614-2361.
EXPOSITO HERMOSA, VICENTE: c/. Pinos Baja, 60 - 2 dcha., 28029 Madrid, SPAIN.
HAWTHORNE, LYNN: 2510 Starlight Blvd., Redding, CA 96001.
LARSON, JEFF: 685 Maple Avenue, LaSalle, Ontario N9J 1P8, CANADA.
LA VELLE, WILLIAM: 104 La Vernel, Fenton, MO 63026.
LEVICOFF, JUDITH: Habitat Consultant, P.O. Box 212, Jenkintown, PA 19046.
MANNING, GAIL: Invertebrate Department, Dallas Museum of Natural History, P.O. Box 150433, Dallas, TX 75315-0433.
MASUL, TAKEHIKO: 51-25 Ohgi-Machi 1, Takamatsu-shi, Kagawa-ken 760, JAPAN.
NATTINGER, JAMES R. (Dr.): 2031 S.W. Stephenson Street, Portland, OR 97219.
ORIOLO, CHRIS: P.O. Box 8343, New Fairfield, CT 06812.
POLLOCK, DAVID D.: Dept. of Biological Sciences, Stanford University, Stanford, CA 94305-5020.
REPPERT, STEVEN M. (Dr.): [address omitted by request]
RICHARDS, NEIL W. (Ph.D.): 2726 Radcliffe Avenue, Ann Arbor, MI 48104.
SPRUIELL, PHILIP A.: 500 East Cypress Street, Elizabeth City, NC 27909.
STEPHENS, GEORGE: 355 South Walnut, Boise, ID 83712.
TAPP, BRUCE: 340 Monson Turnpike Road, Ware, MA 01082.
TRUNK, JOHN J.: P.O. Box 866, 1306 North Harmony Lane, Newberg, OR 97132.
TRUNK, MARITA: P.O. Box 866, 1306 North Harmony Lane, Newberg, OR 97132.
VOUKOVITCH, IGOR V.: 212 Harvard Street, #8, Norfolk, VA 23505.
WILLIAMS, LYNN: 1779 Darrell Circle, Grants Pass, OR 97527.
WOYCIESJES, MICHAEL M.: 403-1/2 McCool Avenue, East Syracuse, NY 13057.

Address Changes



ARTHUR, FREDDY: P.O. Box 643, McClellanville, SC 29458.
BORDELON, CHARLES W.: 8440 Washington, Beaumont, TX 77707
BURNS, WILLIAM S.: 128 Mechanic Street, Orange, MA 01364-1239.
CHILSON, ROBERT: 4531 Tomlinson Avenue, Riverside, CA 92503.
DUDLEY, ROBERT (Dr.): Dept. of Zoology, University of Texas, Austin, TX 78712-1104.
GAGE, EDWARD V.: P.O. Box 63447, Pipe Creek, TX 78063.

HARRINGTON, DON: Heard Natural Science Museum and Wildlife Sanctuary, Rural Route 06, Box 22, McKinney, TX 75069.

HENRY, PARKER R.: 1777 SE 15th Street, Fort Lauderdale, FL 33316-3049.

LACEY, WILLIAM: 2239 Benson Garden Blvd., #2V, Omaha, NE 68134.

PAYNE, TROY A.: 3159 Berry Lane SW, Roanoke, VA 24018.

PLONCZYNSKI, MARIA W.: 710 Laney Road, Clinton, MS 39056.

SOULE, GEORGE F.: 4295 Niblick Drive, Longmont, CO 80503-8326.

STRUCK, B.: 3029 Lazy Acres, Brownsville, TX 78521-3860.

TINTPULVER, MEL: 215 Indian Grove, Toronto, Ontario M6P 2H4, CANADA.

TUCKER, JAMES R.: 1762 Almaden Drive, Redding, CA 96001.

VORNHOLT, TORY: 4402 Blackland Drive, Marietta, GA 30067.

YOUNG, BRAD: 410 McLevin Avenue, #202, Scarborough, Ontario M1B 5J5, CANADA.

The Market Place

Buy • Sell • Exchange • Wants



Items submitted for inclusion in this section are dealt with in the manner set forth on page 9 of the Jan/Feb 1992 NEWS. Please note that in keeping with the guidelines of the Society, henceforth no mention of any species on any threatened or endangered species list will be accepted in these items. This will include all Ornithopterans now and for the foreseeable future. Items will be accepted from members only and will be printed only once unless entry in the maximum of two successive issues is requested. Please keep items short. A maximum of 100 words is allowed. SASE in an ad stands for "self addressed stamped envelope". Ads may request bids by mail.

The Society, as always, expects all notices to be offered in good faith and takes no responsibility for the integrity of any advertiser. Any disputes arising from such notices must be resolved by the parties involved outside of the structure of the Society.

WANTED: Used envelopes with butterfly stamps on them. Will purchase or exchange. Contact: Charles V. Covell, Jr., Department of Biology, University of Louisville, Louisville, KY 40292.

FOR SALE: T-shirts, drawn and coloured by hand, with your preferred butterfly. Each t-shirt is an individual, unique item! No two will be alike! Choose the species and I will put it on the t-shirt for you. Send 5.000.-pesetas by cheque (4.500 + 500 for shipping and handling) and indicate the species you desire on your t-shirt to: Manuel Ortiz Garcia, Virgen de la Soledad 20-A, 4º D, 19003 - Guadalajara - Spain.

FOR SALE: New in Paperback at low cost: Scott, James A., 1986. The butterflies of North America, a natural history and field guide. \$24.95 (hardbound \$65.00) plus \$3 shipping/handling on mail orders sent to Stanford University Press, Stanford, CA 94305-2235

AVAILABLE FROM THE AUTHOR: *A Field Guide to Moths of Eastern North America*, by C.V. Covell, Jr., 1984. 3rd printing with most errors corrected and six black and white plates improved. Soft cover only \$16.95. Also available: Opler and Malikul's *NEW A Field Guide to Butterflies of Eastern North America*. Hard cover - \$24.95, soft cover - \$18.95. Write to: C.V. Covell, Jr., Dept. of Biology, University of Louisville, Louisville, KY 40292-0001.

WANTED: Contact with person(s) who can supply me with livestock (ova, cocoons) of Arizona and Mexican Saturniidae. Contact Lenny Hicks, Rt. 3, Box 758, Banner Elk, NC 28604.

WANTED: African Cetonidae Beetles, willing to exchange or purchase. A1 quality essential as well as full collecting data. Contact I.R. Willem, PO Box 1625, Margate 4275, South Africa.

WANTED TO BUY: *The Lepidopterists' NEWS*, Volumes 6-12 (1952-1958), all issues. Boyce A. Drummond, Natural Perspectives, P.O. Box 9061, Woodland Park, CO 80866-9061.

WANTED: Live specimens (male and female) of the Eastern Hercules Beetle (*Dynastes tityus*) and the Giant Stag Beetle (*Lucanus elaphus*). I am also interested in live specimens of large tropical stag and Hercules beetles. Also any information on keeping and rearing these species would be most welcome and appreciated. Chris Orioli, P.O. Box 8343, New Fairfield, CT 06812, USA.

FOR SALE: One pair *Callodema ribbei* from Papua New Guinea. Male - 42mm, Female - 44mm. Mint condition with full information. SASE for price to: Michael Lockwood, 215 Hialeah Ave., Houma, Louisiana, 70363, USA.

FOR TRADE OR SALE: Pupae, ova and reared papered adults of *Antheraea polyphemus oculate*, *Automeris cecrops pamina*, *Hyalophora gloveri* & others. Also many wild caught adults of above species plus *Hemileuca neumoegeni*, *Coloradia pandora davisii*, *Sphinx chersis*, *Sphinx asella*, *Pachysphinx occidentalis*, *Paonias myops*, many species of *Catocala*, and many other insect orders. I'll have some cocoons of *Attacus atlas* this year and ova later. All above are for sale but prefer to trade for live material of Saturniidae & Sphingidae from your area specially *Hemileuca* species. SASE for list and prices to: William A. Harding, 30 Cactus Drive, Sedona, AZ 86336.

WANTED: Live ova, larvae or pupae of Saturniids - e.g. *Hemileuca* species. (*eglanterina eglanterina*, *eglanterina annulata*, *eglanterina shastaensis*, *hera hera*, *hera marcata*, *griffini*, *nuttalli nuttalli*, *nuttalli uniformis*, *electra electra*, *electra clio*, *burnsi*, etc., etc. Will buy but prefer to trade offering Saturniid & Sphingid species from my area in central Arizona, including *Hemileuca neumoegeni*, *magnifica*, *diana*? and many species of *Catocala*. Please send list of species, availability and prices or wants to: William A. Harding, 30 Cactus Drive, Sedona, AZ 86336.

WANTED: Contact with collectors/breeders/dealers of live Saturniids & Sphingids from Neotropics, Africa, Europe, Asia and Australian area who can supply me with ova or pupae of your local species. Please send list of species, availability and prices to: William A. Harding, 30 Cactus Drive, Sedona, AZ 86336. USA.

FOR SALE: Two forms of butterfly bait traps. For information sheet inquire or phone: William G. Ward, 1474 Melbourne Dr. SE, Girard, OH 44420-1332, USA.

MEMBER'S COMMERCIAL NOTICES



NATURE'S ALL. P.O. Box 225, Kirkwood, NY 13795, USA. Our 30th year providing quality common and elusive lepidoptera, equipment, and international tours for small groups of lepidopterists. Bait traps, breeding sleeves, old books, new books, and more. Available: Arctiids, Nymphalids, Lycaenids, Saturniids, Papilionids, Sphingids, other rare exotic tropical butterflies--most groups of butterflies and moths, with some beetles and other insects worldwide; many with preprinted data tags. Subscription to 10 issues of list - \$4.50; for single copy of current total list send 4 first class stamps.

HARALD SCHMITZ, FAZENDA RANCHO GRANDE, CAIXA POSTAL 361, 78914 ARIQUEMES, RONDONIA, BRASIL. FAX 0055 69535 4301. The FAZENDA RANCHO GRANDE in central Rondonia, Brasil, offers you a real paradise of insects, birds and mammals for private hobby collecting and photography. NO COMMERCIAL COLLECTORS! We offer 2500 acres of Rain Forest with 12 miles of trails. German administration, German food, cold drinks. English, German, Spanish and Portuguese spoken. No Malaria, No Cholera.

To assure you the finest service, we will accept groups no larger than 12 participants. NO COMMERCIAL COLLECTING BY ATTENDEES WILL BE PERMITTED! Write or FAX for more information.

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TRANSWORLD BUTTERFLY COMPANY, Apartado 6951, 100L San Jose, COSTA RICA, Central America. LATEST 12-PAGE WORLDWIDE LEPIDOPTERA CATALOG includes Neotropical, African, Palearctic and Indo-Australian region butterflies. Specialists in rare Papilionidae, Morpho, Brassolidae. Many ex-pupae specimens available. Books and more. ENTOMOLOGICAL, NATURALIST, BIRDING TOUR PROGRAMS AVAILABLE. Transworld Butterfly Company celebrated 15 years serving Lepidopterists in December 1991. Latest Catalog \$1 or one year's monthly lists via airmail \$6.

I.R. WILLEM, P.O. Box 1625, Margate 4275, South Africa. For Sale: Large selection of South African beetles including *Eudicella*, *Amaurodes*, *Anthia*, *Mantichora*, *Iulodis*, Cerambycidae. Also multi-colored rainbow grasshopper *Maphyeteus leprosus*. Butterflies: *Papilio dardanus cenea* ≠ female forms, *Charaxes ethalion*, *xipharex druceanus*. Also butterfly assortments. All material guaranteed A1, papered with full collecting data.

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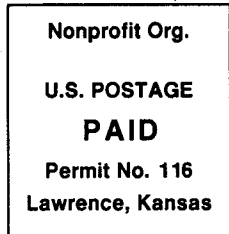
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DEADLINES: Material for the Jan/Feb issue should reach the NEWS EDITOR by 1 Dec of the previous year, and that for the Mar/Apr Issue by 15 Feb, for the May/June issue by 15 Apr and for the July/Aug issue by 1 June, the Sept/Oct issue by 15 Aug and the Nov/Dec issue by 15 Oct. Reports for the Season Summary must reach the Zone Coordinators listed on the front cover no later than 5 January. NEWS EDITOR is **Stephanie McKown**, 650 Cotterell Drive, Boise, Idaho 83709, USA. Phone (208) 323-9547. NEWS FROM EUROPE EDITOR is **W.O. De Prins**, Diksmuidelaan 176, B-2600 Antwerpen, Belgium. Phone 03/322.02.35 (from USA use 011/32.3.322.02.35).

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Membership in the Lepidopterists' Society is open to all persons interested in any aspect of Lepidopterology. Prospective members should send the TREASURER, Fay H. Karpuleon, 1521 Blanchard, Mishawaka, Indiana 46544, USA, phone (219) 258-4893, the full dues for the current year, \$25.00 US, together with mailing address and a note about areas of interest in Lepidoptera; student membership (must be certified) \$15; sustaining membership \$35; life membership \$500. Remittances must be in US dollars, payable to the Lepidopterists' Society. All members will receive the JOURNAL (published quarterly) and the NEWS (published bimonthly). A biennial membership directory will comprise the last issue of the NEWS in even-numbered years.

Changes of address (permanent ones only), **Additions or Changes in Telephone Numbers or Areas of Interest and Information about Mailing List Rental:** Contact the ASSISTANT SECRETARY, Julian P. Donahue, Natural History Museum of Los Angeles County, 900 Exposition Blvd, Los Angeles, California 90007-4057, USA.

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Manuscripts submitted for publication in the JOURNAL are to be sent to Dr. John W. Brown, EDITOR, JOURNAL of the Lepidopterists' Society, San Diego Natural History Museum, P.O. Box 1390, San Diego, California 92112, USA. Work phone (619) 942-5147, home phone (619) 422-1846. See the inside back cover of a recent issue of the JOURNAL for editorial policies.

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