NEWSLETTER

of the
MICHIGAN ENTOMOLOGICAL SOCIETY

Volume 42, Number 1 **February, 1997**

1996 Michigan Surveys for the Hungerford's Crawling Water Beetle

John Legge
Michigan Natural Features Inventory, Lansing, MI

In June 1996, zoologists at the Michigan Natural Features Inventory (MNFI) made an exciting rediscovery when they reconfirmed an earlier record for the Hungerford's crawling water beetle (*Brychius hungerfordi*). This insect, listed as federally and state endangered, is known worldwide from only three sites. The populations are isolated in separate river systems in Michigan's northern Lower Peninsula and the Bruce Peninsula of Ontario.

The beetle is best known from Michigan's Maple River, where large numbers have been observed along a 1.25 mile stretch. A statewide status survey in 1989 located only one other population, in the Black River, but only two individual beetles were found at a single site on the Black River

In 1996, Dave Cuthrell, Daria Hyde, and John Legge (all MNFI zoologists) and Kevin Stubbs (US Fish and Wildlife Service) were able to relocate this endangered beetle at that same spot on the Black River. In addition, another individual beetle was found 1.5 miles upstream from the initial site on the Black River, substantially extending the known occupied area. Numerous other locations were sampled in the Black River, but no other Hungerford's crawling water beetles were located.

In 1997, more surveys will be conducted along the Black River between the two currently known beetle sites. With so few known beetle locations rangewide, an understanding of the Black River population will be critical to preserving this endangered species.

Shaw Lake Prairie Restoration Work Day Set for March 8th

Michigan Lepidoptera Survey and Michigan Natural Features Inventory are sponsoring a prairie restoration work day at Barry State Game Area on Saturday, March 8, 1997 at 10 am. Work will consist of pruning back woody shrubs and trees that are encroaching on a tallgrass prairie remnant near Shaw Lake. This small prairie contains the only known population of the Michigan-endangered underwing moth, *Catocala amestris* [Kriegel, R. 1996. Habitat restoration underway for endangered underwing. Mich. Entomol. Soc. Newsletter 41(2-3): 15]. Those wishing to travel from Lansing to the site as a group should meet in front of the Natural Science Building at MSU **(see map on page 8)**. The caravan leaves at 8:30 am. If you will be traveling separately, or need directions to the Shaw Lake site please contact Mogens Nielsen (517-353-7294, email: nielsen4@pilot.msu.edu) or Bob Kriegel (517-432-1678, email: kriegelr@pilot.msu.edu) for more details. Be sure to dress for outdoor work and bring a sack lunch.

Upcoming Events Details Inside

Prairie Restoration Work Day
8 March 1997

Breaking Diapause Meeting
15 March 1997

Michigan Odonata Survey Workshop
18 May 1997

1997 MES Annual Meeting
23 May 1997

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Update on the Revision of Michigan's State-Listed Insects

Robert A. Haack
USDA Forest Service, 1407 S. Harrison Rd., East Lansing, MI 48823

Over the past 2 years, various committees have been assisting the Michigan Department of Natural Resources (DNR) to evaluate Michigan's state-listed plants and animals (Haack 1994). In 1995, the Endangered Species Insect Technical Advisory Committee was formed. The members were Roger Bland (CMU), Dave Cuthrell (MNFI), Bob Haack (Committee Chairperson, US Forest Service), Bob Kriegel (MSU), Mo Nielsen (MSU), Mark O'Brien (UM), Ron Priest (MDA), Mary Rabe (MNFI), Fred Stehr (MSU), and Bill Westrate (avocational entomologist).

The insect committee met various times in 1995 and 1996 and discussed each of Michigan's 87 currently listed insect species (see Haack 1994) as well as proposed new species for listing. In our discussions, we used collection data from several sources, including several individual MES members, the Michigan Lepidoptera Survey, the Michigan Natural Features Inventory database, and university collections. As can be imagined, a wide range of opinions were expressed at these meetings. Nevertheless, we finally reached consensus on each species.

The final changes proposed by the Insect Technical Advisory Committee for Michigan's currently listed insects were as follows. Lepidoptera - (1) dusted skipper, *Atrytonopsis hianna*, Hesperiidae, change from "threatened" to "special concern;" (2) pipe-vine swallowtail, *Battus philenor*; Papilionidae, change from "threatened" to "special concern;" (3) Columbian silk-moth, *Hyalophora columbia*; Saturniidae, currently listed as "special concern," proposed change was to remove from list;(4) Karner blue, *Lycaeides melissa samuelis*; Lycaenidae, change from "threatened" to "endangered;" and Odonata - (5) greyback, *Tachopteryx thoreyi*; Petaluridae, change from "threatened" to "special concern."

In addition, several other insect species were proposed for listing as "special concern" in Michigan. They were: Homoptera - (1) *Dorydiella kansana*, Cicadellidae; (2) *Flexamia delongi*, Cicadellidae; (3) *Flexamia reflexa*, Cicadellidae; (4) *Philaenarcys killa*, Cercopidae; Odonata - (5) pygmy snaketail, *Ophiogomphus howei*, Gomphidae; and Orthoptera - (6) *Neoconocephalus retusus*, Conocephalidae.

The above proposed changes, along with supporting evidence, were presented to Tom Wiese, who is the Endangered Species Coordinator for the Michigan Department of Natural Resources. In late 1996, the Michigan DNR had an internal meeting where they discussed all of the proposed changes to Michigan's state-listed animals. Some of the changes that the various committees had suggested were accepted while others were not.

As for the insects, the Michigan DNR agreed with the proposed changes for *Battus philenor*, *Hyalophora columbia*, *Tachopteryx thoreyi*, *Dorydiella kansana*, *Flexamia delongi*, *Flexamia reflexa*, *Philaenarcys killa*, *Ophiogomphus howei*, and *Neoconocephalus retusus*. However, based on the evidence presented, the Michigan DNR did not accept the proposed changes for *Atrytonopsis hianna* or *Lycaeides melissa samuelis*. The Michigan DNR felt that several more populations of *Atrytonopsis hianna* need to be found in Michigan before they can justify "down-listing" of this species. In the case of the Karner blue, although listed federally as endangered, the MI-DNR felt that Michigan populations are relatively healthy and thus no change in the butterfly's current status as "threatened" is needed.

What's next? Later in 1997, all proposed changes to Michigan's state-listed plants and animals will be published in the Michigan Register and public comment will be invited. The Michigan DNR will then hold a public hearing. After that, the final list will be presented to the State of Michigan's Joint Rules Committee for final approval.

This whole process will begin again near the turn of the century. All MES members can help. In the years ahead, please share any information you have on Michigan's state-listed insects with any of the above technical committee members. Remember that permitting is required for all insects currently listed as "threatened" or "endangered." You can also assist in two state-wide efforts: the Michigan Lepidoptera Survey and the Michigan Odonata Survey. Also, start thinking now of any new insects that should be added to the list. Only with a large group effort can we logically assess the status of Michigan's insects.

Haack, R.A. 1994. A review of Michigan's state-listed insects: Your assistance is requested. Michigan Entomological Society Newsletter 39(4): 10-12.

Notices

(Notices will be run for a year or 4 numbers of the Newsletter unless notified to drop them. Members desiring longer runs should notify newsletter editor, Robert Haack, USDA Forest Service, Nisbet Bldg., Rm. 220, 1407 S. Harrison Rd., East Lansing, MI 48823.)

Virtual Field Guide for Butterflies and Moths: US Geological Survey scientists are developing a virtual field guide for butterflies and moths on the Internet (http://www.npsc.nbs.gov). Since butterflies and moths can be good indicators of changes in the environment and may also reflect changes in plant diversity, it is expected that the website will be useful to managers as well as scientists and the public. The website currently includes distribution maps and images of adults and caterpillars. Plans are for the site to be expanded to add text on the identification, ecology, conservation, and management of each species. (Ron Kirby, Jamestown, ND, 701-252-5363).

Wanted: Interested in obtaining large silk moth cocoons, eggs, or larvae. Contact: R. Scott Cargill, 6903 Sunset Drive, Allendale, MI 49401. 616-530-6330 (days) or 616-895-5550 (evenings).

Michigan Odonata Survey Workshop

The Michigan Odonata Survey has scheduled a meeting/workshop for Sunday, May 18, 1997 from 1-5 pm at the University of Michigan Matthaei Botanical Gardens. Anyone interested in assisting with the Odonata Survey should attend the meeting. A workshop will also be held on the collecting and identification of Odonata larvae, as well as general information on collection and preservation of adults. If you are interested in attending the meeting, please write to: Mark O'Brien, Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079. You can also contact me by e-mail at: mfobrien@umich.edu or you can visit our webpages at: http://insects.ummz.lsa.umich.edu/michodo/mos.html

Retirement plans. Robert Husband plans to retire from Adrian College on 1 May 1997. Bob has described 71 species of podapolipid mites so far and will search for many more to describe, especially mites that are associated with beetles.

EntoPrint: Label Making Software. A new product from Entomation to prepare insect labels for the Apple Macintosh. Print thousands of multiple-line labels in minutes. You can **serialize** your labels and use any font. EntoPrint requires a Macintosh II or better, System 7.0, and a laser printer for best results. Cost $29 plus $2 shipping. Contact: Entomation, 2742 Beacon Hill, Ann Arbor, MI 48104-6502. Phone: 313-971-6033; Email: entomation@aol.com.

Wanted: Michigan Orthoptera Records. Contact: Roger Bland, Department of Biology, Central Michigan University, Mt. Pleasant, MI 48859. Telephone: 517-774-3455; FAX 517-774-3462.

Research Opportunities for qualified investigators at the Huron Mountains in the upper peninsula of Michigan. Submit project proposal and resume (and budget if financial support is requested) by March 1 of each year to: Dr. David Gosling, Director of Research; Huron Mountain Wildlife Foundation; 69063 Wallowa Road; White Pigeon, MI 49099-9745. Phone: 616-651-6417; FAX: 616-651-3679.

Wanted: Data on Michigan butterflies for use in a new publication on the butterflies of Michigan. Doubtful specimens can be forwarded for determination or confirmation. Especially interested in Lycaenidae and Hesperiidae records. Contact M. C. Nielsen, 3415 Overlea Dr., Lansing, MI 48917. Phone: 517-321-2192.

Young Entomologists' Society Receives Donations

Gary Dunn
Young Entomologists' Society, 1915 Peggy Place, Lansing MI 48910-2553

The Young Entomologists' Society (YES) was the recent recipient of three significant donations. In August 1996, YES was given hundreds of insect specimens collected in Utah and Arizona by Roy Fritz, who has been a member of YES since 1993. The donated insects will be used in displays and educational presentations.

In September the Flink family of Lansing, Michigan, donated over 375 entomological items to YES. The items were given in memory of Paul Flink, a retired forest entomologist with the Michigan Department of Natural Resources, who passed away late summer 1996.

The Society was also fortunate to receive a substantial cash donation from the Growald Family of San Francisco, California. The Growalds have been members of YES for the past several years. Their donation will be used to strengthen the various outreach programs of the Society.

For more information on the programs and services of the Young Entomologists' Society, or to make donations, contact the Young Entomologists' Society by mail (see above), by phone or fax (517-887-0499), or by e-mall (YESbugs@aol.com).

4-H Thank You Notes to MES

Thank you for your continuing support of the 4-H State Awards in Entomology. Your contributions are greatly appreciated. Winning the 1996 State 4-H Entomology Award was a thrilling experience that will never be forgotten. Thank you

—**Charley VanHusan**, 57304 M-51 South, Dowagiac, MI 49047

I would like to thank you for supporting the 1996 State 4-H Award in the area of Entomology. Although I did not win the 1996 award, I received an Honorable Mention. It was my first year to enter the Entomology contest, even though I have been collecting for 7 years.

—**Carolyn R. Benjey**, 7535 Walsh Rd., Denton, MI 48130

Michigan Lepidoptera Survey on the World Wide Web

Robert Kriegel
Department of Entomology, Michigan State University, East Lansing, MI 48824

Would you like to know which butterfly species are found in Michigan? Do you want to learn more about Michigan's threatened and endangered Lepidoptera? Maybe you have some insect specimen location data you'd like to convert to longitude and latitude coordinates. Or, you are curious about arthropod collections in museums around the world. Did you ever wonder where to find insect images on the Internet? These and many other interesting questions about moths and butterflies can be investigated at the Michigan Lepidoptera Survey homepage on the World Wide Web.

This web site is part of the survey's mission to disseminate information concerning Michigan Lepidoptera and raise public awareness about butterflies and moths. To find our web pages, point your WWW browser to the following location:

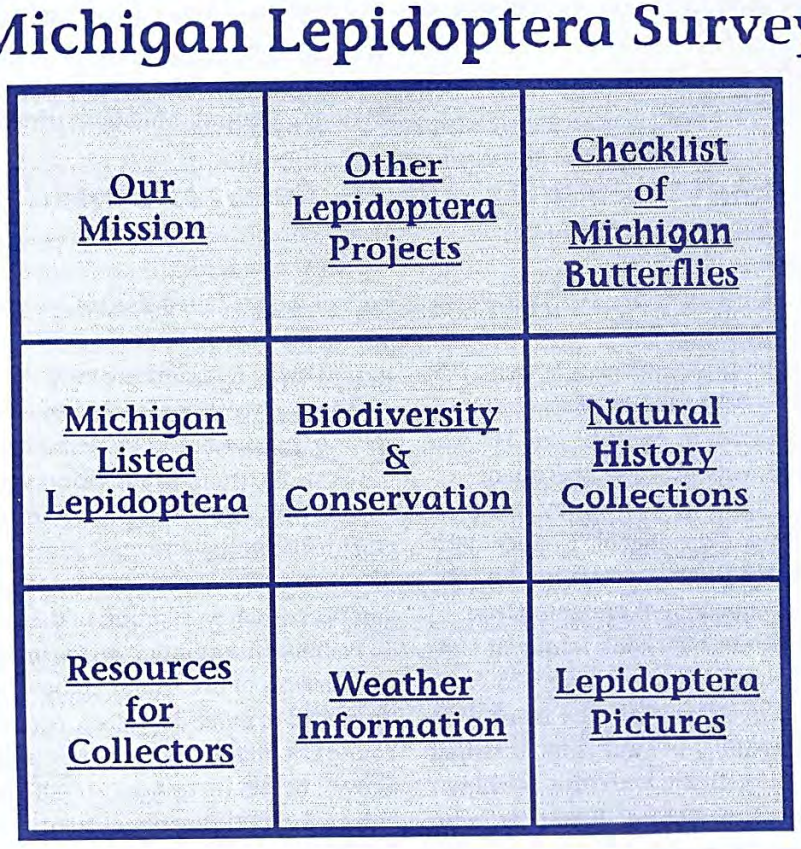
http://pilot.msu.edu/user/kriegelr/mls

If you lose the address, we can be found by searching for "Michigan Lepidoptera Survey" using any of the popular search engines such as Alta Vista, Excite, Webcrawler, or Yahoo. The site is also listed in several of the large Entomology resource lists on the Internet including "Entomology on World Wide Web", the "Michigan Electronic Library", "Electronic Resources on Lepidoptera", and the "Electronic Zoo".

The web pages contain many kinds of information including a checklist of Michigan butterflies; links to moth and butterfly survey projects around the world; and a current listing of Michigan's 54 endangered, threatened, and special concern species of Lepidoptera. There are pages containing information about biodiversity and conservation; links to moth and butterfly pictures on the Internet; and links to online exhibits and catalogs from over 30 natural history collections worldwide. Some of the museums listed include the American Museum of Natural History, Australian National Museum, (British) Natural History Museum, Chicago Field Museum, Natural History Museum of Los Angeles County, Peabody Museum (Yale), Royal Ontario Museum, Smithsonian, Transvaal Museum (South Africa), and the University of Michigan Museum of Zoology. In the "Resources for Collectors" page you will find links to maps of Michigan, geographical names databases for the U.S. and Canada, and search engines to help you find people and places.

There is also a page of weather information to help you plan your collecting excursions. This page includes links to current conditions, weather forecasts, satellite and radar imagery, and agricultural meteorology reports for several Great Lakes states. During the growing season, the Michigan Lepidoptera Survey web site mirrors degree day information for 63 Michigan locations. This information is originally distributed by the MSU Agricultural Weather Office. Currently, our site contains an index to degree day accumulations for the entire 1996 growing season.

The Michigan Lepidoptera Survey web pages first went online about six months ago. As the webmaster, I am always looking for new ideas for these pages. If you have an idea for something you'd like to see on our web site or are interested in trying your hand at some web authoring, please give me a call. I can be reached weekdays from 9 AM to 5 PM at (517) 432-1678, or by email at *kriegelr@pilot.msu.edu*. See you online and happy surfing.



Update on Loosestrife Biological Control in Illinois

Late in the summer many wetlands throughout northern Illinois and the upper half of the U.S. turn into seas of bright pink-purple. Although pretty from a distance, the beauty is deceiving. The sea of purple is due to the invasion and takeover of wetland habitats by an exotic weed — purple loosestrife.

Purple loosestrife is a European perennial that invaded the U.S. over a century ago. In Illinois, it has become a serious pest in the last two decades, crowding out native vegetation in once pristine sedge meadows, bogs and other high-quality wetlands. With few herbivores feeding on them, these large plants grow unchecked, producing millions of long-lived seeds and forming dense stands in which little else will grow.

In response to the problem in Illinois, a team from the Illinois Natural History Survey (INHS) is attacking purple loosestrife using biological control as part of a national program against the weed. Biological control of weeds uses herbivorous natural enemies that normally keep plants in check in their native habitats. Because loosestrife is an exotic perennial that is not closely related to agronomic or threatened native plants, the weed is a perfect candidate for biological control. In the early 1980s, U.S. Fish and Wildlife Service (USFWS) biologists and European biocontrol specialists identified the numerous insect species that feed on (and control) purple loosestrife in its native European habitats. Five beetle species that proved extremely host specific were sent from Europe to the USFWS lab at Cornell University for further testing, rearing, and broader U.S. distribution.

Taking advantage of this national effort in 1994, Illinois Department of Natural Resources (DNR) biologists and land managers from several Illinois counties purchased beetles from the USFWS program. Seven thousand leaf-feeding chrysomelid beetles, *Galerucella calmariensis* and *G. pusilla* (at $2 apiece) were released in seven sites in northern Illinois. In 1995, INHS biologists assumed leadership of the Illinois biological control project in partnership with DNR and county land managers. In June 1995, another 3,000 adult beetles were released, as well as several hundred eggs of another agent, the root-feeding weevil *Hylobius transversvittatus*.

Adult beetles, eggs, and larvae from the 1994 releases were found at all release sites, indicating successful overwintering. Because of that finding, the program expanded during the winter of 1995-1996, with plans for large-scale releases in 1996. State and county land managers selected 30 threatened, high-quality wetlands needing control measures as release sites. INHS entomologists conducted training sessions for land managers covering beetle biology, release strategies, and plans for monitoring releases. In preparation for mass rearing, approximately 10,000 beetles were cultured and refrigerated to simulate overwintering; after "overwintering," these beetles were caged on over 500 loosestrife plants in the greenhouse to produce the new generation of beetles for release.

The goal was to release at least 2,000 beetles at each of these 30 sites, from mid-May through June when purple loosestrife was actively growing. Production from the refrigerated adults exceeded expectations with over 170,000 adult *Galerucella* reared and released. Several high-quality sites in McHenry County and Kane County received large numbers of beetles. Also, over 600 *Hylobius* eggs were inoculated in plant stems at several of the sites.

Field observations made in spring 1996 have shown that beetle populations survived a second winter and are growing. Although the 1996 goal for numbers of beetles released was exceeded, the project is not finished. Successful biological control of purple loosestrife will require all of the available control agents, and it will take years for populations of these natural enemies to develop. Over the next few years, Survey entomologists and states and county cooperators hope to rear and release the available control agents at sites where purple loosestrife occurs throughout Illinois.

Purple loosestrife is a European perennial that invaded the U.S. over a century ago. In Illinois, it has become a serious pest in the last two decades, crowding out native vegetation in once pristine sedge meadows, bogs and other high-quality wetlands. With few herbivores feeding on them, these large plants grow unchecked, producing millions of long-lived seeds and forming dense stands in which little else will grow.

The total eradication of purple loosestrife in Illinois or anywhere else in North America is unlikely. However, the goal of this biological control program is to reduce the weed's population to a level low enough that the native plants can regain their competitive edge, and help restore valuable wetland communities in Illinois.

Reprinted in part from: Voegtlin, D. and R. Wiedenmann. 1996. Using biological control to lose loosestrife in Illinois. Illinois Natural History Survey Reports No. 341: 2.

Lupine and The Karner Blue Butterfly

Habitat loss or modification, the main threat to most rare species, has been particularly hard on the Karner blue butterfly (*Lycaeides melissa samuelis*). Its numbers have fallen by 99 percent in some portions of its range, with most of the losses occurring in the past 15 years. Populations survive only in widely scattered remnants of its former range, which once included 10 northern States and the Province of Ontario. Most of the decline can be traced to the butterfly's dependence on the wild lupine (*Lupinus perennis*) and the ecological changes that are reducing lupine habitat.

Wild lupine is a perennial plant in the pea family with beautiful pink to blue flowers. It is found primarily on dry, sandy soils in open to partially shaded habitats. Many of the areas where the lupine grows are oak savanna and pine barrens plant communities. In addition to the Karner blue, these communities support a diverse array of other rare plant and animal species such as the Blanding's turtle and prairie flame flower. If the natural forces (e.g., wildfires) that create or maintain these open habitats are suppressed, management is needed. Lupines can occur in power line right-of-ways and utility corridors, military installations, forest trails, and other open areas that are maintained as early successful landscapes. Without natural or artificial disturbance, savanna and barren communities yield to shrubs or forests. Lupines in semi-shaded habitats do not flower; lupines in more shaded (or closed canopy) habitats may survive, but usually with poor vigor and without flowering. Eventually, the lupines are shaded out, making the site unsuitable for Karner blues.

The Karner blue butterfly's annual life cycle is inextricably tied to that of lupine. About mid-April, wild lupines sprout from rhizomes and form clumps of flowering stalks. Two generations of Karner blue butterflies are produced each year. The first brood begins around mid-April, when eggs laid the previous summer hatch. Tiny larvae crawl up the lupine stems to feed on the new leaves. They eat the interior portion of the leaf, leaving behind the surface layer and creating a "window pane" effect. Dense stands of lupine are necessary to ensure that enough butterflies are produced to maintain the population over time. Peak bloom is reached by mid- to late May, when flowering lupines may create a sea of blue in the open meadows of oak savanna and pine barrens. About the time of peak bloom, the year's first brood of Karner blue larvae pupate. Adults are usually flying from late May through early June.

During the flowering period, the first-flight adult butterflies lay eggs on or near the lupine plants. In about a week, they hatch. The season's second brood of larvae feed through mid-July, when lupine flowering is ending and seed pods are produced. The second flight adults then emerge through mid-August, depending on weather conditions. Adults feed on a variety of flowers in addition to lupine. By the time second-flight females lay their eggs, the lupine is dying back or is already dormant. The active periods for both the plant and the butterfly last only about 4 months of the year .

The ranges of the wild lupine and Karner blue do not exactly overlap. Instead, Karner blues are found along the northern extent of the lupine's range. The butterfly occurred historically in a rather narrow band extending from eastern Minnesota across portions of Wisconsin, Illinois, Indiana, Michigan, Ohio, Ontario, Pennsylvania, New York, and Massachusetts to New Hampshire. Dirig (1994) surmises that Karner blues are limited to areas where continuous winter snow pack is present for over 80 days. Because the eggs are often deposited on bare sandy soil, where there is little or no vegetative litter to protect them, snow is necessary to insulate the eggs from cold temperatures and the drying effects of the sun.

Wild lupine is a plant that thrives in areas that are periodically disturbed, which reduces or eliminates overhead canopies and plant competition. Historically, fire provided open barrens and savanna habitats for colonization by lupine and Karner blues. Not surprisingly, fire suppression has consistently been identified as the primary factor affecting the butterfly's population decline and reduction in range. It is now extirpated from Ohio, Pennsylvania, Massachusetts, Ontario, and probably Illinois, and is barely hanging on in New Hampshire and Minnesota.

The Karner blue fares better today in Wisconsin and Michigan than anywhere else. Landscapes supporting lupines and in these States vary from public lands managed as savannas or barrens to rights-of-ways and military lands. Wildfire, prescribed burns, and artificial disturbance - such as mowing and grazing — have maintained a patchwork of open-canopied and lupine-dominated sites that continue to support Karner blues.

The future for the Karner blue lies in active management to simulate the historic role of fire in maintaining oak savanna and pine barren habitats. The U.S. Fish and Wildlife Service looks forward to working with its many partners in the protection of this endangered butterfly, the wild lupine, and the ecosystems upon which both depend.

Dirig, R. 1994. Historical notes on wild lupine and the Karner blue butterfly at the Albany Pine Bush, New York. Pages 23-36 *In* D.A. Andow, R.J. Baker, and C.P. Lane (eds), Karner blue butterfly: A symbol of a vanishing landscape. Minnesota Agric. Exp. Station, St. Paul, Misc. Publ. 84-1994.

Reprinted in part from: Mitchell, K. and C. Carnes. 1996. The lupine and the butterfly. U.S. Fish and Wildlife Service, Endangered Species Bulletin 21(6): 6-7.

1997 MES Annual Meeting Details

On Friday, 23 May 1997, the Michigan Entomological Society returns to the Chippewa Nature Center for its Forty-Third Annual Meeting. The Chippewa Nature Center consists of nearly 1000 acres of forests, rivers, ponds, wetlands, and meadows dedicated to the preservation and interpretation of our natural world. Considered one of Michigan's finest nature centers, it features 12 miles of hiking trails and stimulating interpretative exhibits. Those who attended the 36th Annual Meeting held at the Chippewa Nature Center in 1990 will remember the outstanding conference facilities.

The keynote speaker will be Dr. Lowell R. "Skip" Nault, who will provide an overview of his many years of research on adaptations of Homoptera for supporting mutualistic interactions with ants. The ant side of this interaction has received the most attention, so Skip promises to provide an interesting look at the other side of these fascinating evolutionary relationships.

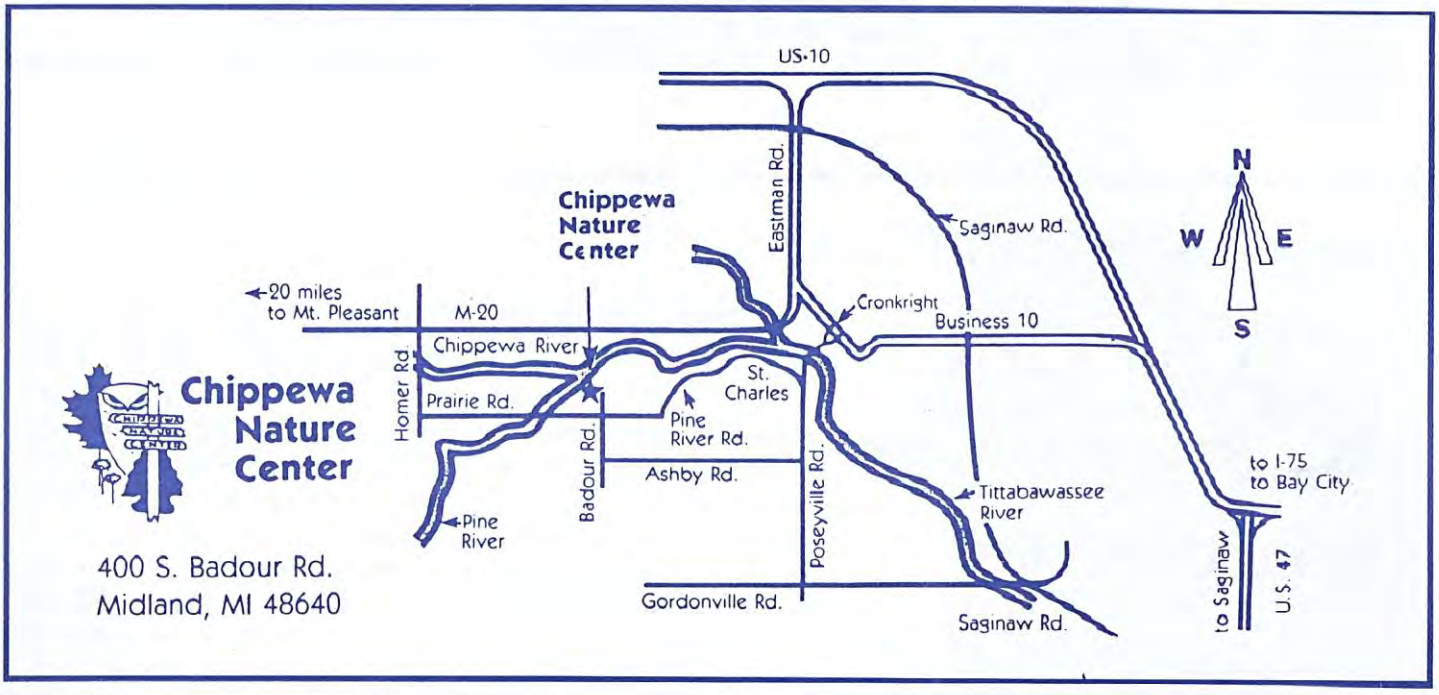
Skip is currently the Associate Director of the Ohio Agricultural Research and Development Center of The Ohio State University in Wooster, where he has served 30 years in the Department of Entomology. Truly a distinguished scientist, Skip has been named a fellow by the American Association for the Advancement of Science, the Entomological Society of America, and the American Phytopathological Society, the only person to be so honored by all three of these professional societies. He has also served as president of the Entomological Society of America.

If you plan to attend the meeting, **please complete and mail, fax, or email the enclosed "Pre-Registration and Call for Papers" form by 9 May 1997** to Dr. Daniel A. Herms, Department of Entomology, OARDC, 1680 Madison Ave., Wooster, OH 44691. Phone (330) 202-3506, Fax (330) 263-3686, email: herms.2@osu.edu.

Here is some hotel and camping information for the Midland area.

Hotels - Best Western Bay Valley Resort, 5221 Bay City Rd, Midland (800-825-2700 or 517-496-2700); Fairview Inn, 2200 W. Wackerly, Midland (800-422-2744 or 517-631-0070); Sleep Inn of Midland, 2100 W. Wackerly, Midland (888-837-1010 or 517-837-1010); Auburn Hotel, 101 W Midland Rd, Auburn (517-662-2281, Auburn is 10 miles east of Midland on US-10); Ramada Inn and Conference Center, 1815 S. Saganiw Rd., Midland (800-228-2828 or 517-631-0570); Holiday Inn, 1500 W. Wackerly, Midland (517-631-4220).

Camping - Black Creek County Campground, Sanford, 2 miles north of US-10 on West River Rd, then 250 yards west on Niner Rd. Located between Niner Rd. and north side of Black Creek. Operated by Midland County Parks and Recreation (517-832-6870); this is a rustic, wooded, and in my opinion, quite nice campground with good hiking and fishing opportunities. The drive to Chippewa Nature Center is 20 minutes. The Flats Campground, 4878 N. Lake, Sanford, (517-687-5286). This is a private campground that I don't know anything about.



The NEWSLETTER of the Michigan Entomological Society is published as four numbers yearly, at irregular intervals. Please send all notes, new insect records, news releases, notices, season summaries, membership inquiries, etc. to Robert Haack, U.S.D.A. Forest Service, Room 220, 1407 S. Harrison Rd., East Lansing, MI 48823. Email: haack@pilot.msu.edu

BREAKING DIAPAUSE 1997

Sponsored by the Michigan Entomological Society
and
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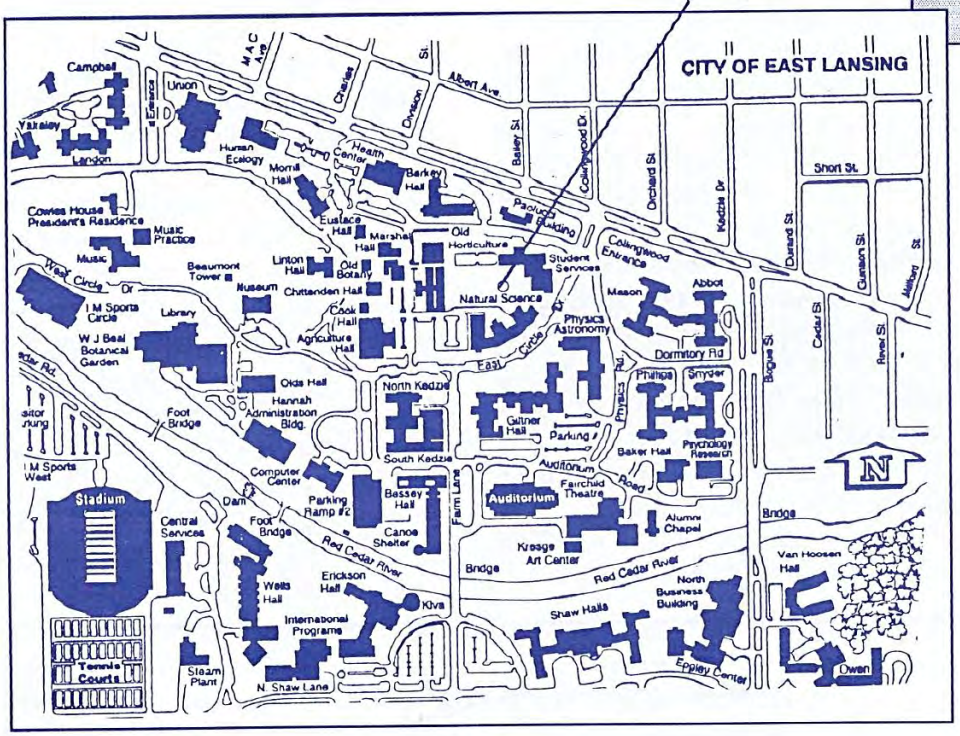
WHEN! WHERE!

Saturday, March 15,
9 am through the afternoon
Room 244, Natural Science Building
East Circle Drive
Michigan State University



Come and meet with other fellow entomologists and insect enthusiasts! Bring along insects to identify. Refreshments will be provided. Tour the Michigan State University Insect Collection, the Butterfly House, and the Bug House.

For those without keys to the Natural Science Building, plan to enter the building through the doors on the southwest corner, close to the parking lot.

For more information, contact Mo Nielsen by phone at MSU (517-353-7294) or at home (517-321-2192), or by email (nielsen4@pilot.msu.edu).

MICHIGAN ENTOMOLOGICAL SOCIETY

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