



Wisconsin Entomological Society Newsletter

Volume 38, Number 3

September 2011

July 16, 2011

My husband came in from pulling weeds under a lilac bush and showed me a truly strange caterpillar stuck to his shirt. I was sure it must be the larva of Harris' Three-spot Moth *Harrisimemna trisignata*, (Hodges #9286), one of the most bizarre caterpillars to be found in our region. Some quick Internet research proved this to be the case.

These larvae have unique protective coloration plus a shape that mimics a crooked stick. The dark-colored "stick"

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A Harris' Three-Spot Moth Caterpillar Diary

Article and photos by Carroll Rudy

appears to have a very fresh wet, slimy bird dropping running off the back and down the sides. In the resting position, the rear portion of the caterpillar is attached to a branch or leaf of the host plant, while the anterior portion is elevated like a broken twig. Humps on various parts of the body resemble dead buds attached to the branch-shaped body, which is seriously bent as if it were a crooked stick. There are appendages on the head that appear to be rubbish of some sort as if old spider webs with dead insects were stuck on the twig. Whenever the caterpillar is disturbed, it freezes in the front-elevated position, and if further threatened or touched, the head swings wildly back and forth, lashing the appendages which perhaps look like insect or spider legs. Perhaps it looks like something that might grab at a predator.

The anterior "appendages" are not part of the living caterpillar. They are the head cap-

sules from the previous instars stuck to the anterior bristles, along with the previous bristles they were

attached to, so that each instar adds a new layer of bristles with the old head capsules attached at the tips. There were three former "heads" stuck on this one so I believed it was in the fourth instar.

Since it probably fell out of a lilac bush, we assumed and hoped that it would eat lilac, and a bit of research indicated that *Harrisimemna trisignata* larvae eat a wide variety of hardwood trees and shrubs including lilac.



Caterpillar in fourth instar stage.

July 17

The bizarre caterpillar was placed in a small plastic "critter cage" and was quietly

Please see **HARRIS**, page 2

The Wisconsin Entomological Society Newsletter is published three times a year, at irregular intervals. The newsletter is provided to encourage and facilitate the exchange of information by the membership, and to keep the members informed of the activities of the organization. Members are strongly encouraged to contribute items for inclusion in the newsletter. Please send all news items, notes, new or interesting insect records, season summaries, and research requests to the editor by Jan. 15, May 15, or Sept. 1st:

J. Mingari, P.O. Box 105, New Holstein, WI 53061, email: turkeyfeather@tds.net (Put WES in subject line)

NOTE: Please report any address changes to Les Ferge, 7119 Hubbard Ave., Middleton, WI 53562, email: lesferge@gmail.com.

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eating lilac leaves from a twig inserted through a hole in the lid of a pill vial containing water.

July 19

It did not eat or move.

July 20

It molted into the fifth instar. Now there were 4 head-shells stuck on the thoracic bristles along with the previous bristles themselves, composing an odd four-tiered antenna-like structure. The tiniest head capsule from the first instar was located on the outermost tip, but soon broke off. These retained bristles, along with the previous "heads," increase the bizarre appearance of the headgear, and provide more material to lash back and forth when the caterpillar feels threatened.



Caterpillar (5th Instar) beginning to dig hole.

July 21

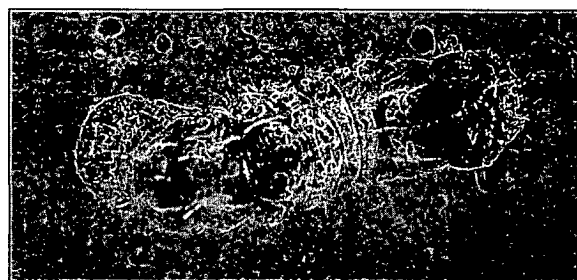
Eating and growing fast, this fifth instar looked even more bizarre. It is said to be the mimic of a nice fresh wet bird dropping, perhaps dripping off a dead twig, but bird droppings don't have lashing antennae, do they? It spent nearly all of its time in a frozen position, only moving to eat. When swinging the anterior end violently in response to perceived threats, the club-like appendages lash around like whips. Meanwhile the tail end resembles a large fierce-looking head. This thing definitely does not look good to eat from my perspective, though one wonders how a bird perceives a wildly lashing "bird dropping" with club-like attachments, and a head on the back end. It looked like a thrashing trash pile to me. It was nearly 3 inches long now and almost fully grown. It was very difficult to photograph, for when I took it into the light, the head-whipping became so violent I wondered if the insect might damage itself if it struck an object. I had to wait some time for it to settle down and hold still.

Since molting into the fifth instar, it has eaten

about five lilac leaves or portions thereof. Meanwhile I did some research on the Internet and found that this creature has a unique way of protecting the pupal stage. When the caterpillar matures, it wanders around until it finds a dead branch or stick, and starts drilling (chewing) a hole. It makes a hole big enough to crawl into and pupates inside the branch until the next spring. Thus it becomes a wood-boring caterpillar. So I looked around our grounds until I found a couple dead sticks I thought would be big enough for it to pupate in (about one inch in diameter and six inches long). I thought poplar would be soft enough for it to chew easily, and added a stick of dead plum in case it preferred harder wood. I laid these on the bottom of the caterpillar's critter cage residence.

July 22

At about 9 p.m. the caterpillar was sitting on the poplar stick starting to chew a hole. I carefully changed the paper on the cage bottom so I could photograph the process with a clear white background instead of all the black frass on the old paper. It thrashed back and forth while I handled the stick.



*Caterpillar halfway inside hole:
Top view as a bird would see it.*

The caterpillar's progress as you might imagine was slow. By 10 p.m. the head was inside the hole. The insect reached into the hole, and small movements indicated that it was chewing. After chewing for several minutes, the head was withdrawn with the jaws gripping a ball of sawdust. The sawdust ball was manipulated by rolling it around in the jaws and first pair of prolegs to form a perfect tiny sphere 2mm in diameter, that was dropped and rolled off the stick, where it remained intact after falling to the floor about an inch below. Promptly the caterpillar began digging inside the hole again.

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HARRIS, from page 2

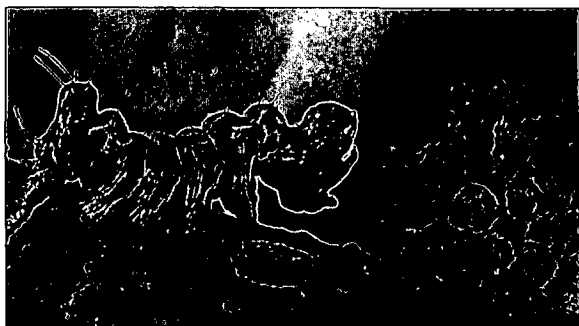


Caterpillar is inside hole except for posterior 2-1/2 segments.

By midnight, the head and all prolegs were inside the hole digging. As digging proceeded, the balls of sawdust got bigger. By now the head appendages had been worn away and the head was bare. If the larva sensed anyone disturbing the stick, it withdrew from the hole and started to thrash the anterior end back and forth as usual. The caterpillar would rest from time to time with the head in the hole, leaving the rest of the body inert on the surface, looking like a stick covered with a bird dropping. The hole-digging phase is a very vulnerable time for the caterpillar when it is quite helpless. At this time the bird dropping disguise is very important. The only part of the body that moves is the head, chewing inside the hole. The remainder of the body on the surface is motionless.

July 23

By morning, half of the caterpillar was inside the hole digging, and the balls of sawdust were bigger. After 13 hours of digging, only the head-mimic posterior end could be seen at the hole's entrance. I picked up the stick to see if I could hear the caterpillar chewing inside. No luck, be-



Caterpillar beside its completed hole. Sawdust balls at right.

cause the insect immediately backed all the way out of the hole and lashed the body around. Then it rested until I went away. With only that enlarged, fierce-looking, black, head-shaped back-end sticking out of the hole, an onlooker sees either what looks like a black bird-dropping at the surface, or what resembles the head of a large fierce ant or wasp, perhaps depending on who the onlooker is. The whole caterpillar appears only when it has to pull out ever larger balls of sawdust which by now were 3mm in diameter.

I wondered if the caterpillar would pupate in the hole head-first or tail-first. It seemed logical to me that it would turn around so the moth could come out head-first. After digging for 24 hours, it backed all the way out of the hole and relieved itself, leaving a deposit of reddish-brown liquid about an inch distant from the hole, turned around, and backed into the hole. Then began the process of plugging the hole. First the head moved round and round the edge of the opening, coating it with fine white silk. After this base attachment was completed, it began to spin a web over the entire opening. First it was thin enough to see the head moving inside, then it grew thicker and thicker until it resembled a round piece of bark.

July 24

All that was left was a poplar stick with an almost invisible round cap covering the hole and a pile of sawdust spheres that lay below the hole. The hole-covering almost exactly matches the color



Completed hole capped with silk. Sawdust balls above.

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of the poplar bark. The sawdust balls are so light that the slightest breeze would blow them away. I examined one under a microscope and found that the sawdust particles were held together by very thin strands of silk. Only a slight touch crumbles them into sawdust. Out of doors, the evidence of the caterpillar's work would quickly be blown away or destroyed by rain, leaving no evidence whatsoever of the winter hiding place.

Harrisimemna trisignata is single-brooded in our latitude, and the pupa will remain inside the cavity in the wood until spring. This species of caterpillar is especially interesting in that it exhibits several types of mimicry and protective coloration, and some seem to be more important than others in different stages of the insect's development, such as the head-shaped structure on the posterior that is the only part visible during the last stage of cavity construction.



Fall Mystery Insect



This insect was found in Manitowoc County on Aug. 18. The body's upper side is furry black and yellow; the legs are black; the wings are transparent. The body is 22mm in length.

Send your identification to the editor:

turkeyfeather@tds.net
(with WES in the subject line) or
P.O. Box 105,
New Holstein, WI 53061

Member Information

Please note that the year through which dues are paid appears on the newsletter's mailing label after your name.

Membership Dues

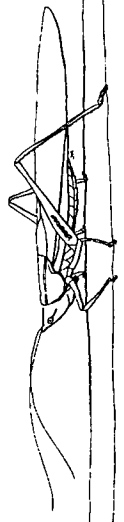
Individual \$10 per year	Sustaining \$15 per year
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Member contributions, images and links, etc., are welcome on the WES website.
Contact Les Ferge for more information: lesferge@gmail.com



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I'd start with **Wicked Bugs** by A. Stewart - a darkly comical book about "100 of our worst entomological foes--creatures that infest, infect, and generally wreak havoc on human affairs." **Sex on Six Legs** by M. Zuk is not just about insects' sexual escapades, but yet another fascinating reading full of weird facts and unusual information regarding insect lives.

In the unlikely case you missed this book before, the newest edition of J. Glassberg's **Butterflies of North America** is out, with ever better photos of the majority of American species. If you're tired of Glassberg's North American offerings, check out his **A Swift Guide to the Butterflies of Mexico & Central America**. Since bed bugs are becoming a really serious issue, a couple of useful books will help alleviate your fear and, in case of infection, help you deal with it: **The Bed Bug Book** by R. Maestre and **The Bed Bug Survival Guide** by J. Eisenberg. Of more detailed works, **Illustrated Identification Guide to Adults and Larvae of Northeastern North American Ground Beetles** by I. Bousquet can come really handy for Midwesterners, too (watch out - pricey!). Also of possible interest to many is the richly-illustrated **Catalogue of Aleocharine Rove Beetles of Canada and Alaska** by N. Gouix and others. No serious insect professional will miss ZooKeys - a series of scientific books and papers published by Pensoft. Among its publications, the following ones deal with North American species: **Biodiversity, Biosystematics, and Ecology of Canadian Coleoptera** (2 Volumes) by C. Majka and others; **Contributions to the Systematics**

of New World Macro-Moths (2 Volumes) by B. Schmidt and others; **A Revision of Genus Lasionycta (Lepidoptera: Noctuidae) for North America** by L. Crabo and others; **Genus Calosota (Hymenoptera, Chalcidoidea, Eupelmidae)**

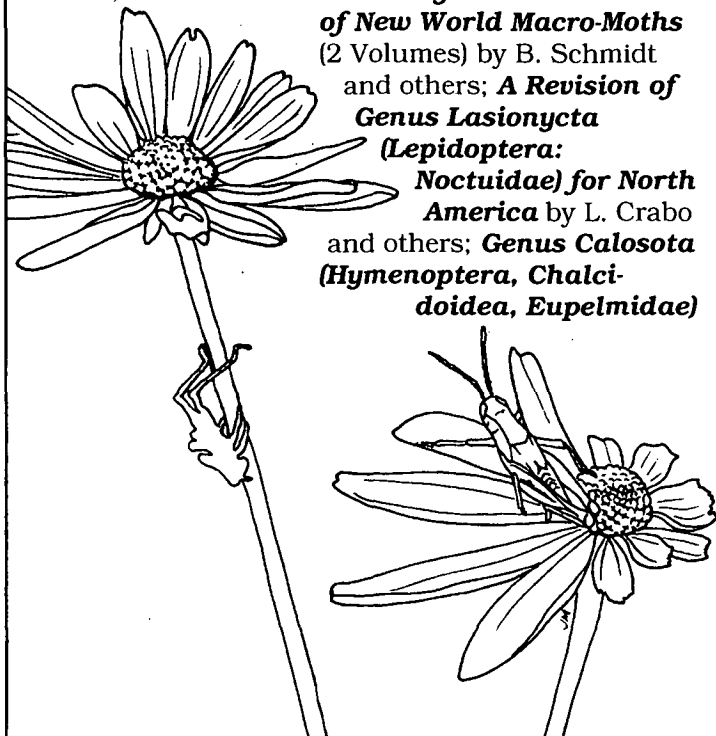


Books & Websites
by Andrew Khitsun

- review of the New World and European fauna by G. Gibson; **An annotated list of the Lepidoptera of Alberta, Canada** by G. Pohl and others; **Annotated check list of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico** by J. Lafontaine and others.

"From Russia with love" come a multitude of websites, usually with amazingly high-quality photos of insects - and just two decades ago we thought there was nothing but snow there! The only downside to them is many of them lack English translation. But on the bright side, Latin is still Latin. Check out **Orthoptera of Baikal region of Siberia** (one the most diverse regions in terms of insects and other animals) at <http://tetrax.narod.ru/>. Not far behind (but still under construction) is **Siberian Spiders** at <http://araneus.narod.ru/>. There is also **Beetles of Russia** (a project dedicated to the 100th anniversary of G.G. Jacobson's book, "Beetles of Russia") at <http://www.zin.ru/Animalia/Coleoptera/eng/atlas.htm>, aiming to produce print edition at some point. Monarch butterflies keep fascinating people, and no matter how many books, calendars and web pages are devoted to them, new ones appear all the time. Look at the latest addition to this craze on **Monarch Butterfly USA** at <http://www.monarchbutterflyusa.com/>. And if you still need more info, **Monarch Watch** at <http://www.monarchwatch.org/> might help. If you're sick of looking insects up on the web and just want to consume them, **Iowa State University's Tasty Insect Recipes** at [http://www.ent.ia.state.edu/misc/insects asfood.html](http://www.ent.ia.state.edu/misc/insects%20asfood.html) might come handy.

Among non-insect books of interest to locals, **Wetland Plants of Wisconsin** by S. Chadde just came out and describes over 800 plant species.



News from the Insect Diagnostic Lab

By Phil Pellitteri

The spring was slow, and I thought it was going to be a slow bug year...then July came. At this moment I am about seven percent ahead of last year's sample load and am praying for an early frost!

If I had to pick a critter of the year, it would be "swallowtail butterflies." I had as many as five **Eastern Tiger Swallowtails** in the yard at one time--including the dark morph females. It was a good year for **Giant Swallowtails**; and received a number of reports of specimens from Eau Claire County and north. I had a chance to get some pictures of larvae and adults of the **Pipevine Swallowtail** at Boerner Botanical Gardens in Milwaukee. It has been a number of years since I have seen such a display.

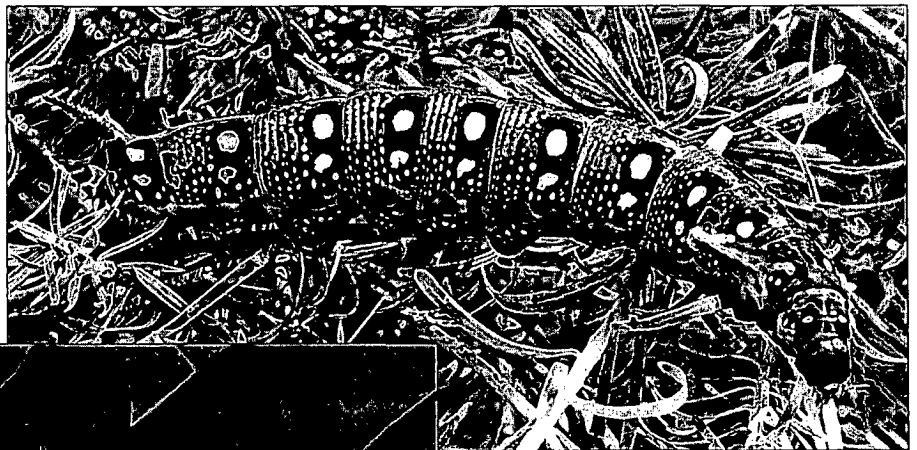
It was also a good year for **sawflies**. I had species on azalea, cherry, pines, ash, oaks, honeysuckle, elm, and columbine. A European species, the **Creeping Loosestrife Sawfly**, *Tegia abdominalis* was found defoliating creeping jenny, lysimachia and ornamental loosestrife in a number of places in the state. This was the first time I had seen this kind of activity, although this species was first found in Canada in 1965.

Lots of pictures of **Hummingbird Clearwings**, **Pandora Sphinx Moths** (both adults and larvae), and a great picture of a **Gallium Sphinx** larva. They come in many color forms, but the black and red combo is my favorite. I have now crossed the over-50 percent jpeg photo sample submission. Thank god for digital cameras.

The plague of the year was **millipedes**- piles of them. It started in late June, and I am still having people with problems. There were a number of species involved. I am not sure if we understand why they go through these migrations- but after a night of migration (they can travel 100 yards in five minutes), they will pile up four inches deep along the cool, damp north side of a home.

The record was three five-gallon pails each morning out of a culvert in one person's yard. I blamed the lush growing conditions of last year as a major factor. It was very dry in the southern part of the state during mid-summer. Did that have something to do with this? It definitely kept the **mosquitoes** down.

We had new records of **Emerald Ash Borer** in LaCrosse and Racine Counties. I have seen a number of species of **stink bugs** but no new records of **Brown Marmorated** yet- but I am waiting for the fall migration into homes. **Japanese Beetles** continued to expand their range and take the fun out of gardening. It was another down year for **Gypsy Moths** and also for **German Yellowjackets**.



Top: Get your crayons out—the tail, head, dorsal stripe, and pale band above the prolegs are all red on this Gallium sphinx larva. Photo by Jim Solberg. Left: Pipevine swallowtail larva.

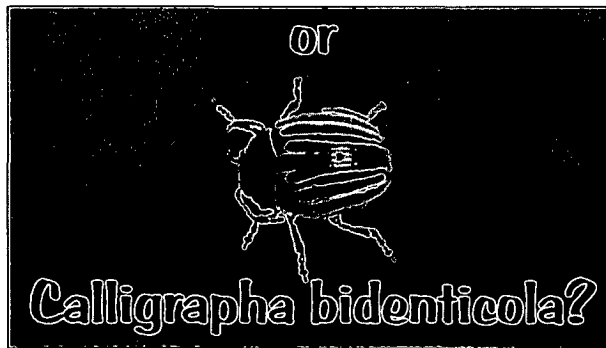
Identification of this beetle was going to be difficult, because the photo does not adequately show the single most useful identifying feature, and because the two specified beetles are so similar that the elytral pattern may not be diagnostic. To complicate matters, both of the species in question have varying elytral patterns.

Jordan Marché is of the opinion that this is *Zygogramma suturalis*. "Although I haven't personally collected one from Wisconsin, I have two specimens in my collection that were taken at southern Indiana (May 18) and northern Illinois (July 3). The darker stripes can be almost black or piceous on some specimens."

Ron Huber agrees that "The mystery insect appears to be one of several phenotypic variants of the Ragweed Leaf Beetle, *Zygogramma suturalis*. It also bears a strong and confusing resemblance to some of the *Calligrapha* species. I have not been fortunate enough to see this one in the wild."

Ron explained how he came to his conclusion: "At first glance, it appeared to be one of the *Calligrapha* species, so I pulled out Stephen Marshall's 2006 *Insects, Their Natural History and Diversity*, which is loaded with great colored photos. I couldn't get a good match, so I looked in Dillon & Dillon's (1972 Dover reprint) *Manual of Common Beetles of Eastern North America*. The stripes on the elytra bore some resemblance to *Calligrapha bidenticola*, but it still didn't fit. I noted that the *Zygogramma* had a very short, wide pronotum, and the pronotum seemed unicolorous with the elytral ground color. Then I went to various Google sites until I found one with seven or eight variants of *Z. suturalis*. Still not a really good match, but better than the others. After playing with these things for about 60 years, I've learned that lots of them remain 'unidentified,' especially without a specimen in hand. But the challenge is always delicious!"

Summer Mystery Insect *Zygogramma suturalis*



Regarding *Z. suturalis* on bugguide.net, "beetle guy" Rob Westerduijn made this comment: "Besides the patterns on the elytra, *Calligrapha* species are different in being more elongate ..." 21 October, 2006 - 2:21 pm. <http://bugguide.net/node/view/68434#94053>.

In email discussion, Gene Drecktrah advised that he "found a great photo of what was IDed as *Z. suturalis* (see www.texasento.net/suturalis) and compared it to a photo of *C. bidenticola*, and the image of

Zygogramma is definitely longer than wide, whereas the image of *Calligrapha* shows it to be just a 'wee bit' (not good scientific terminology, for sure) longer than wide." (See Atlantic Canada Coleoptera: <http://www.chebucto.ns.ca/environment/NHR/Calligrapha.html>—Ed.)

Gene added that "Wilcox (1954) gives the dimensions of the two species (for whatever it's worth).

C. bidenticola: L 5.5-6.5 mm; W 3.5-4 mm

Z. suturalis: L 5-7 mm; W 3.5-4 mm

"According to Wilcox, the two species are essentially the same size with *suturalis* slightly longer than wide, compared to *bidenticola*. According to two Chrysomelidae keys (see below) I checked, the basic characteristic used to separate *Calligrapha* and *Zygogramma* is: **tarsal claws parallel (*Zygogramma*) or tarsal claws divergent (*Calligrapha*)**".

Dillon, E. and L. Dillon. 1961. *A Manual of Common Beetles of E. NA*. Row, Peterson and Co. (p. 684)

Wilcox, J.A. 1954. "The Leaf Beetles of Ohio." *Ohio Biol. Survey*. Bulletin 43, Vol. VIII #3

The difference in the claws, at 10x, can be demonstrated with your index and middle fingers in the V for Victory sign. Spread the V wide, and you have *Calligrapha* toes. Close the fingers to only half as wide, and you have *Zygogramma* toes. Based on its toes, the pictured mystery beetle is *Zygogramma*.



Wisconsin Entomological Society

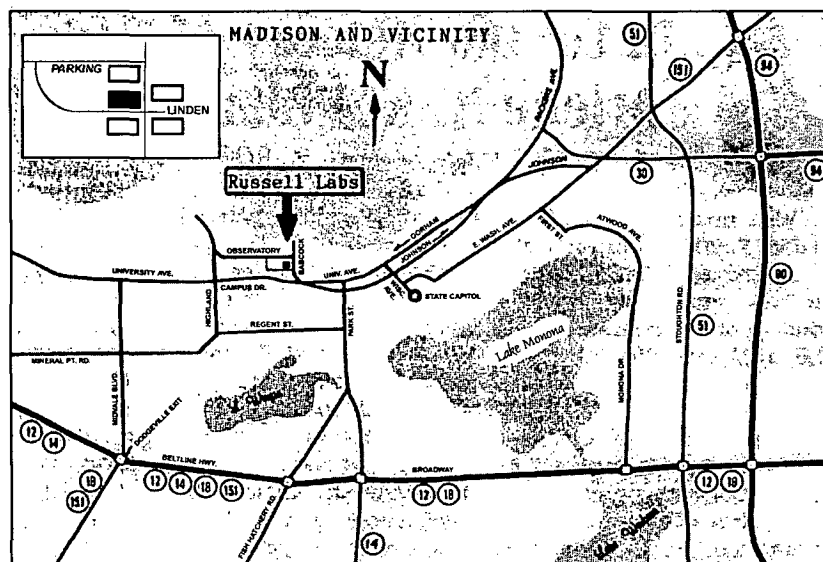


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Address Services Requested

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From the west:

From U.S. Hwy. 12 or U.S. Hwy. 14, take University Ave. east onto campus. Turn left (north) onto Charter Street. Turn left (west) onto Linden Drive.

From the east:

From Interstate 90, take U.S. Hwy. 14/18 (the "Beltline") west. Take the Park Street exit north into the city. Turn left (west) on University Ave. Turn right (north) onto Charter Street. Turn left (west) onto Linden Drive.

At the third stop sign you will be at the intersection of Linden Drive and Babcock Drive. Russell Lab is the building on the northwest corner of this intersection.

Public parking is available one block farther west at the west end of Babcock Hall (on your left), and on the parking ramp located on the north side of Russell Labs.

Fall Meeting

Sat., Oct. 29 1-4 pm

at Russell Lab on the UW-Madison campus

The photo salon will be the main event. Bring a few extra pictures to showcase highlights of the past field season (this is beyond the photo salon). Kyle will try to do a field outing that night and the following day/night, pending weather and interest.

Contact Kyle for meeting room location.