



# Kemp's Point

Volume 15, Number 2, Fall 2014

News from the University of Wisconsin-Madison's Kemp Natural Resources Station

## To Bee or Not to Be

by Cindy Fiser

Among the great white pines, hemlocks, lakes and bustling summer towns, Wisconsin is also home to another treasure: wild bees and wasps. Over the summer, I collected and studied the many native bees, wasps and other pollinators found in the

Woodruff, Rhineland, and St. Germain area.

I am a second year Applied Ecology and Environmental Sciences major at Michigan Technological University (MTU) in Houghton, Michigan. I came to the Northwoods interning as a summer

field technician on a multi-disciplinary, NSF-funded research project. More specifically, I've been working with Colin Phifer a PhD student who is co-advised by two UW-Madison alumni, MTU professors David Flaspohler and Christopher Webster.

The overall goal of the project is to study the ecological impacts of bioenergy development and biodiversity conservation, focusing on insects and birds and related ecosystem services in Wisconsin, Argentina, Mexico, and Brazil. The current research focuses on aspen forests in Wisconsin because aspen is a fast growing native tree which can

*(Continued on Page 2)*



## Song of Summer

by Kaley Genthner

*"I think that I cannot preserve my health and spirits, unless I spend four hours a day at least – and it is commonly more than that – sauntering through the woods and over the hills and fields, absolutely free from all worldly engagements."*

*-Henry David Thoreau*

This quote perfectly describes how I spent my summer at Kemp Natural Resources Station. My name is Kaley and this was my second summer living and working out of Kemp for a long term research project being carried out by Michigan Technological University. This is a lakeshore restoration project, replanting trees and shrubs on lakeshores that are over-developed, and comparing different species of animals and plants that are found there over the years. Just to give you a taste of what my colleagues and I were up to, I'll give you a snapshot

of what we did each day.

Waking up early was for the birds... not literally -- we got up early to go survey birds as that is when they are most active.

We would

walk slowly along the lakeshore and stop every 10 meters to look and listen for birds in the area. We

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## To Bee .... (From page 1)

be intensively managed and burned for energy. This summer I sampled for bees in several age classes of mostly pure aspen stands, ranging from 10 to 42 years since the last regeneration cut. These data provide us with information on how the abundance and diversity of pollinator species changes through time in managed forests. The Kemp Natural Resource Station was crucial as a base from which to carry out our research. The station offered a well-equipped lab, field gear, a beautiful spot to spend the summer months, and friendly smiles all around.

In the field, I focused on preparing and collecting insect samples. I would begin by arranging small painted cups (blue, yellow, and white), that were filled with water and diluted dish soap and attached to wooden stakes, along each transect. I also prepared canopy traps (metal "cages" holding larger bowl versions of the cups) and hoisted them by ropes approximately 20 feet in the air. I let the traps sit for 24 hours, before collecting the samples from the cups/bowls using an aquarium net. The samples collected were then sorted into Hymenoptera (the taxonomic order containing bees and wasps) and pinned, or saved for identification later. Because we are studying pollinators specifically in the aspen stands of Wisconsin, we focused on identifying the Hymenoptera first. Using several field guides on North American insects and a magnifying glass, I was able to identify the bees and wasps. Other surveys such as vegetation and floral cover, tree diameters in a given radius at each transect, and coarse

woody debris were also completed throughout the summer between insect sampling periods.

Not only has this project given me valuable research experience, but also the experience and responsibility earned while working in the field, as well as knowledge in the



*Cover photo: Author works in the lab at Kemp Station, identifying pollinators with the use of field guides and on-line resources. Traps await deployment on back lab benches. Above: After pollinators are identified, they are labeled and mounted. A display of pollinators trapped at Kemp Station during this project can be viewed at Kemp's Office Conference Room.*

fields of entomology and taxonomy. I hope our research helps to inform the development of sustainable management practices that support not only forests but broader ecosystems and communities as well. I hope my summer experience working on this project will inspire other young scientists to pick up the call to action and see where a career in science can take

them, or where they could take science. 🐝



### BEE FACTS & RESOURCES

- There are no native **honey** bees in North America.
- Wisconsin is home to about 500 species of native bees.
- About 70% of bees nest underground, about 1-2 feet deep.
- Bumblebees nest in abandoned rodent nests.
- Blue, yellow and white are the most popular color shades for bees.
- Bees are attracted to dense floral displays.

To learn more about bees, visit:

[energy.wisc.edu/bee-guide](http://energy.wisc.edu/bee-guide)

[www.xerces.org](http://www.xerces.org)



# Night Lights

By Karla Ortman

Have you ever captured fireflies and placed them in a jar? At Ortman family gatherings at my Grandpa's house in Cooksville, my sister and I, along with two of our younger cousins, Jeremy and Ben, would do just that. While the adults and older cousins were doing boring stuff, we would take to the yard and chase the lightening bugs. It was fun to capture and hold them in our hands, watching as they turned themselves on and off. We would show these magic insects to our parents and eventually let them go before we went home.

This was the memory I relived this past June while visiting my folks in Madison. I was sitting on their sunporch one evening and noticed fireflies in the yard, blinking on and off, and I was quickly transported back to Cooksville. As I watched the flying lights, I realized I had no memories of capturing these critters in that very yard as a kid. I wonder why?

I didn't have to wonder long as the answer surfaced quickly once I began reading about fireflies -- our yard was just too dry! During summer, female fireflies lay their eggs on or just below the surface of the soil. The larvae hatch about 4 weeks later and live in the ground, burrowing deeper to overwinter and emerge in spring. The larvae need a certain level of moisture and scientists have observed that standing water and humidity are two things common to firefly

habitat. Back in the 1970's, most of our yard was drenched in sunlight during the day. It was great for running through the sprinkler but not for firefly propagation! On the other hand, Grampa Ortman's yard was dark and damp, shaded by large old trees. And today, my parent's yard is similar to that, making it ideal habitat for these blinking beetles.

Yes, beetles! Not flies and not bugs, as their names imply. The largest order of insects, Coleoptera, essentially translates from Greek to mean "sheathed wing." This refers to the two pairs of wings found on most beetles, the outermost being hard and thick to protect the second pair of wings and the body of the beetle. If you take a close look at a firefly, you will see it has these two sets of wings. When a beetle flies, it holds the two thick wings out to the sides and uses the second pair of wings for movement.

During the day, it's unlikely you would recognize a firefly with just a casual glance. But flip it on its back, and you may notice that the tip of its abdomen is different from the rest of the belly. That lighter area is where the "light organs" reside and is the part of the beetle's body that glows, a chemical reaction known as bioluminescence. It's interesting to note that no heat is produced in this process, only

light. Most, but not all species of fireflies produce light, so we are fortunate to live where the light producing species are found.

It is thought that the primary reason fireflies flash is to attract a mate. The firefly dating game usually goes like this -- the girls hang out on vegetation while the guys fly around flashing. If the girl likes the looks of one of the guys flash, then she will flash back and mating will commence. While it sounds simple, it can be a dangerous game. Some fireflies imitate other fireflies to lure them in and eat them!

Among the light producing fireflies, there is a lot of variation among the different species in terms of

how they flash, known as their flash pattern.

This pattern

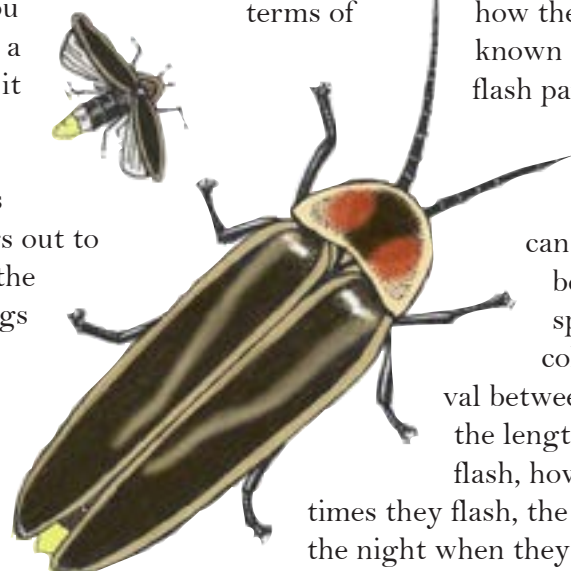
can differ between species by color, interval

between flashes, the length of the flash, how many

times they flash, the time of the night when they flash and their flight pattern while flash-

ing. I was intrigued to read about one male of a species that "writes" the capital letter "J" with a combination of a half-flash and an upward flight move. Reminds me of writing in the air with sparklers!

The ability to light up is not limited to the adult fireflies -- the young, or larvae, glow too. In their case, it's thought to be a defense



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**Night Lights ....** (From page 3) mechanism, warning toads and other predators that they are mildly toxic and should not be eaten. In North America, this larval form is often referred to as a glowworm.

My experience observing lightning bugs is limited to a handful of them dispersed over a relatively large area with random blinking. Imagine seeing a massive group of lightning bugs blinking in unison! There are species that do just this, referred to as synchronous species. In the United States, there are at least three places where you can see this marvel – Tennessee, Pennsylvania and South Carolina. In Tennessee, the synchronous

fireflies live in the Great Smokey Mountains National Park and visitors can ride a trolley during the firefly event to observe this special natural occurrence.

Worldwide there are over 2,000 species of fireflies and there is much more to be learned about them. If you would like to help scientists who study these night flying wonders, you will want to check out Firefly Watch, a citizen science project coordinated by the Museum of Science, Tufts University and Fitchburg State College (<https://legacy.mos.org/fireflywatch/>). The website provides a virtual habitat where you can see examples of different flash

patterns, to help you learn what to watch for while making observations. An observation form is provided and after you have made your observations, they can be submitted online. Data from previous years, since 2008, can also be viewed online.

When summer rolls around again, keep an eye out for fireflies. If there are youngsters in your life, or young-at-heart-sters around, it may be fun to capture some of these magical insects and take a closer look. If you know they are in your yard, try watching for them during the day too. If you want to make a contribution to the study of these amazing creatures, become a Firefly Watch volunteer. Regardless of how you get involved with these night lights, you will find enjoyment and make memories. 🦋

## Science on Tap Minocqua 2014-2015

**WHERE:** Minocqua Brewing Company, 238 Lakeshore Dr.  
Minocqua – Phone: (715) 356-2600

**WHEN:** 6:30-7:30 pm

**Dec 3, 2014:** How Water Works in the Northwoods, Emily Stanley (UW-Madison Center for Limnology) & Randy Hunt (US Geological Survey)

**Jan 7, 2015:** Scandinavians in Wisconsin, James Leary (UW-Madison Dept. of Scandinavian Studies)

**Feb 4, 2015:** Tourism & the Northwoods Economy, Steve Deller (UW-Madison Dept. of Agricultural & Applied Economics)

**Mar 4, 2015:** To be confirmed

**Apr 1, 2015:** The Great Lakes, Jim Hurley (UW-Madison Sea Grant Institute)

**May 6, 2015:** Antibiotic Resistance: No Longer Just A Hospital Problem, Warren Rose (UW-Madison School of Pharmacy)

**Jun 3, 2015:** To be confirmed



*Dr. Jim Reinartz, Director of the UW-Milwaukee Field Station, has been bringing students to Kemp Station for more than 15 years for his course on Vegetation of Wisconsin. During their visit, students visited some of the deer exclosures on Kemp property.*

**FREE!** No registration required. Come join the conversation! [scienceontapminocqua.org](http://scienceontapminocqua.org)



# Kemp Profile: Michelle Cisz-Brill

## Hometown:

I grew up in the small rural town of Burton, Ohio.

## Educational background & current area of study:

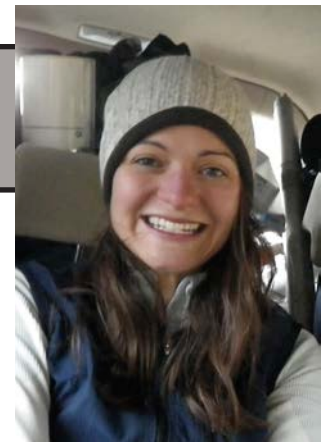
I received my Bachelor of Science in Biology from Ohio University and later joined the Peace Corps Master's International program at Michigan Tech University (MTU) where I had the chance to work with community activities involving environmental science and agroforestry in Paraguay. I am currently a doctoral student in Forest Ecology at MTU studying soil carbon and nutrient dynamics.

## How is your research funded?:

My work is funded through a National Science Foundation Office of International Science & Engineering - Partnerships for International Research & Education project in which we work within interdisciplinary subteams of scientists and students including Ecosystem Services, Policy, Socio-Economics, and Metrics to assess woody bioenergy feedstocks throughout the Americas.

## 2014 field crew/colleagues:

Jose Lopez and Colin Phifer are two Ph.D students that have worked at Kemp Station. They make up our subdivision team of Ecosystem Services. Our research questions within this team cover topics in hydrology, entomology, and soil science. Cindy Fisher (Michigan Tech University), Ingrid Flaspohler, and Tim Butler (Michigan Tech University) were members of our crew this summer, doing great



work in the field. In addition to Ecosystem Services, we also have students in the Policy Team who have also stayed at Kemp after full days of interviewing communities in Wisconsin. They make up part of the Social Science Team on this project.

## What question does your field research answer?

My research will address how soil carbon and nutrients change over time in natural aspen stands. Looking at soil carbon and nutrients is not a novel topic to aspen stands of the Great Lakes Region. Rather than just assess total carbon, I would like to look at how the pools of carbon or types of soil carbon change through time. Within a soil matrix, some types of soil carbon decompose very rapidly on the surface or leach away while others remain fairly stable. These two questions of how soil carbon and how soil nutrients are changing throughout time will help answer basic questions about long-term soil sustainability geared toward potential bioenergy feedstocks.

## Describe a typical day of field work:

I enjoy waking up early in the morning to hot coffee and the cool weather in the forest. I load the field vehicle with shovels, heavy metal cylinders, and metal pipes. Gary (Kellner, Kemp Station staff) has helped supply me with pipes I use to leverage the cylinders out of the ground. We drive out to our sites, most of which are decorated with bright insect traps hanging from the canopy and little fluorescent bowls in the understory filled with a detergent mixture to collect insect pollinators. I have been coring soil mostly on glacial outwash or pitted moraines.

## What is the biggest challenge you've faced working on this project & what have you enjoyed most?

I think my biggest challenge of working on this project has been trying to avoid rocky soils, ticks, and bears. With this though, has come the great enjoyment of the peaceful woods and the casual encounters of meeting new students and scientists.





**Song .... (From page 1)**

would then mark off their approximate position on a map. We saw everything from loons and eagles to scarlet tanagers and the always curious chickadees. Some mornings the water would be so calm that it felt like we were the only things moving on the planet.

After bird surveys we would switch gears and check the small mammal traps we had set up the night before. What we caught most were mice, chipmunks, and different species of voles. And since this was my second year working I knew what to expect to find in the traps... or so I thought. This year was “The Year of the Flying Squirrel” I guess, but no one informed any of us! There had been a total of 14 caught over the last 7 years -- not too many. But this year? We caught 19 this summer alone. They are such neat little creatures, and not many people ever get to witness them since they are nocturnal. We learned, through trial and error, that if you release them on a tall thin



go out to different lakes just after sunset and listen for different frog species making their calls. I love frog surveys, it's so peaceful and almost eerie being out on a lake and everything is so

quiet that even the smallest croak is deafening. And there are other nights where you can't even hear yourself think over the frog chorus.

After spending my summers working out of Kemp, I am convinced that I have gone into the right field. Anything else just seems like it would be a poor fit, and I love being outdoors all day. There is something absolutely spectacular about waking up to the sunrise and eagles calling, spending your day working with mammals, then getting to watch the sunset turn to dark, while staring up at the most incredible sky full of stars and listening to the frogs singing...the song of summer. 🐿️



*Photo notes:*  
*Left: Author and field tech colleagues collect data about small mammals trapped at study sites.*  
*Above left: Author holds flying squirrel before release.*  
*Above right: Flying squirrel after release.*  
*Cover: Author checks captured white-footed mouse for ticks using the “blow on the belly” technique.*







*UW-Madison Plant Pathology and Botany students visiting with Drs. Caitilyn Allen and Don Waller explore Kemp's diverse fungi.*

Each year Kemp Station is host to various class groups and scientists studying everything from loons to lakeshore development, from native vegetation to forest management. Here is a collection of images from some of the folks who spent time at Kemp this year.



*Kristen Brunk, a field technician working on a Chapman University loon study, collaborated with the DNR to capture and untangle a chick who was hooked and snagged in a lot of fishing line on Lake Minocqua. This photo was taken after the little guy was untangled.*



*No visit to Kemp Station is complete without a campfire. Enjoying the glow are new UW-Madison freshmen in the Forests, Sustainability & the Environment First-Year Interest Group.*



*UW-Milwaukee students take in a lecture in everyone's favorite classroom above the Boathouse.*



*UW-Stevens Point mammalogy students meet in the Pavillion. Small mammal traps stand at the ready.*



*Dr. Beth Frieders show UW-Platteville students some Utricularia (bladderwort) from Jyme Lake.*



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## Lone star tick (*Amblyomma americanum*)

There were some outstanding speakers at Kemp Station's outreach sessions this past summer. I found myself taking notes at several of the talks as some very interesting facts were shared. One of our visiting speakers was Dr. Susan Paskewitz from UW-Madison's Department of Entomology. She had us on the edge of our seats (and a bit itchy!) for nearly two hours as she shared information about her research on ticks and tick borne diseases. One creature she spoke of was the lone star tick. What struck me most as she discussed this animal was its "aggressive nature." The wood tick and deer tick will hang on a blade of grass and wait for a host to come along, a process known as "questing." Ticks have sensory organs on their wrists which detect heat and carbon dioxide. When these are detected, the insect grabs on to the host as it passes by. While lone star ticks do this too, they will also actively move toward their host, and so have been described as "aggressive." Although uncommon in Wisconsin, reports of this tick in the state do occur and Susan wants to know if you meet up with a lone star tick. The body of the tick is more round than the wood and deer ticks we are most familiar with. The female lone star tick has a white spot on her back. To learn more



about the lone star tick, which may become more prevalent in Wisconsin in the near future, and how to submit specimens to Susan's lab on campus, please visit this website: <http://go.wisc.edu/4e113m>.

### Kemp's Point Volume 15, Number 2

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*This newsletter is also available as a PDF at the Kemp website, [www.kemp.wisc.edu](http://www.kemp.wisc.edu)*

To learn more about the lone star tick, which may become more prevalent in Wisconsin in the near future, and how to submit specimens to Susan's lab on campus, please visit