



Kemp's Point

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

It Was A Spectacular Show

By Karla Ortman

It's just an ordinary red maple (*Acer rubrum*). But in the fall, it becomes a kaleidoscope of colors. I make a point of looking at it each day because it changes. The tree is dappled in colors, from green to a brilliant red, and every shade of yellow and orange in between. The show is spectacular. But it doesn't last long and one day, the tree is bare of leaves.

The summer field season at Kemp Station is over. It feels like only yesterday the researchers were rolling in...unpacking their gear and getting ready for the busy months of field work, data collection and cool dips in the lake at the end of hot, buggy days.

Looking back, it was a spectacular show – much like that red maple.

There were researchers from many schools and agencies – Michigan Tech University, UW-Madison, Wisconsin DNR, UW-Stevens Point, Lumberjack RC&D, Great Lakes Indian Fish and Wildlife Commission, Iowa State University, Michigan State University and UW-Milwaukee.

They were studying all kinds of

natural resource topics – golden-winged warblers; shoreland restoration; forests as renewable energy; impacts of increased carbon dioxide and ozone on insect ecology; forest and wildlife management on tribal and public lands; innovative forest management techniques; invasive weevils; fish habitat; phenology and flying squirrels.

experiences and knowledge with others working from the Station.

At the same time, coming and going throughout the summer, were students of all ages, here to learn about Wisconsin's natural resources. UW-Madison students made Kemp their home for three weeks as they studied forest ecology. Wisconsin land owners spent an extended weekend

learning how to manage their land for wildlife and timber. For an entire week, high school seniors and college freshmen were introduced to a variety of natural resource professions.

The red maple I admire each day reminds me that we all need to stop and watch the show, before it's over and we're wishing we'd enjoyed it more. Fortunately, the show at Kemp never completely ends.

Throughout the fall and winter, there will be a steady, albeit reduced flow of researchers and students here to visit field sites and learn. This quieter time of year gives us a chance to catch up on loose ends, tackle larger projects, and get ready for the next summer field season, and the next spectacular show. 🍂



The 2008 Coverts Program attendees spent 3 days learning how to manage their land for wildlife and timber. They will take this knowledge back to their communities to share with others. They are just one act in the spectacular show that's held at Kemp Station each summer.

And they were monitoring various aspects of natural resources — streams, forest vegetation, wild rice beds, and northern goshawks.

They stayed for a few nights at a time, or all summer long. At the end of each day, they returned to Kemp where they shared their

Hands full of Timberdoodles



Amber Roth, a PhD student at Michigan Tech University, worked out of Kemp Station this summer. She volunteers as part of the Wisconsin DNR woodcock banding effort. This effort primarily helps the DNR and USFWS track woodcock survival, hunting mortality, and migratory routes/destinations. Her study sites are in good woodcock nesting habitat so it's common for her and her field techs to come upon broods while out doing their research. Amber decided they may as well band the broods when they find them. She wrote: "It's all part of my many collaborative projects with other researchers, agencies, and universities. I mostly do it for fun. My field techs have fun. Sava (Amber's dog) enjoys it too! It's fun for everyone so why not do it? Plus they are just way cute! A little known piece of trivia...everyone thinks golden-winged warblers are my favorite bird but timberdoodles had already stolen my heart!"

Exploring the Field



A diverse group of high school seniors and college freshmen spent a week at Kemp learning about jobs available in natural resources. Taught by WDNR professionals, students were introduced to field data collection techniques in various areas. At left, a student holds a mouse captured during a small mammal trapping exercise. At right, Karin Fassnacht discusses understory vegetation.





Spending two summers snorkeling in lakes near Kemp Station has nearly spoiled the allure of fishing for me. Below the water's surface are fish and other animals that we rarely have the opportunity to observe in their natural habitat. Such things are fascinating to watch and now I would rather dive in to look around rather than wait at the surface for a bite. As part of my research, I used snorkel gear to see and measure habitat in the near-shore area of eleven different lakes for my Master of Science Degree with the Cooperative Fishery Research Unit at UW-Stevens Point. While measuring habitat, field technicians and I came across some interesting happenings just below the surface.

In late spring, spawning smallmouth bass are really something to see. Male smallmouth will build a nest, which is generally a saucer-shaped depression comprised of gravel on the lake bottom, and wait for a female. When she arrives they swim side-by-side in circles along the border of the nest, which is about the size of a standard wall clock. Sometime during this ritual, the female will lie sideways and shudder to release her eggs and the male will then fertilize them. The female then swims off leaving the male to guard the eggs, which soon hatch into larval fish. One of the lakes we surveyed this summer had a high number of spawning smallmouth and a generous number of rusty crayfish. Since rusty crayfish are an exotic animal and a food source for bass, we took a few moments to capture some "rusties" and feed them to the hard-working smallmouth still on their nests. If you can brave the cooler water in late spring or, better yet, find yourself a wetsuit, it is well worth the effort to don snorkeling gear and check this out.



A pair of bluegills on their nest.

nests near each other, making spawning an absolute frenzy of activity. Males guard their nest and fervently work to keep other males away. When a female arrives, however, his attention is turned to her, and other males quickly encroach to try to fertilize any eggs she may deposit. Sometimes, the male will successfully keep other suitors away while swimming side-by-side with the female along the border of the nest. Like smallmouth bass, the female will lie sideways in the nest, presumably to deposit eggs. Once eggs are deposited, the female will swim off leaving the male to guard the nest. The water is a little warmer when the bluegills are spawning, so if you miss the smallmouth in spring, definitely get out to watch the bluegills in early summer.

Fish were not the only exciting close encounters we had. Snapping and painted turtles, bullfrogs, river otters, loons, bald eagles, water snakes, and great blue herons all made for interesting days on the lake. Below the water's surface, however, there are fish, clams, insects, and aquatic plants that take on a completely different appearance than we are accustomed to seeing while sitting on a boat or dock. Being underwater gives you a chance to see things you could never see from above the surface. Check it out for yourself next summer but watch out; you may find that you become more fascinated with watching fish than catching them. 🐢

Sara Schmidt worked out of Kemp Station during the summer field seasons of 2007 and 2008.

For more underwater photos of fish nests, see page 7.



You may have noticed a slender grass that blankets the forest floor in profusion along the drive into Kemp Station. It's called wood bluegrass, or *Poa nemoralis*. Today it is the dominant species in sections of the sugar maple-hemlock forest ground layer at Kemp. But 30 years ago, it was barely present here. Its rapid increase in a short time span has puzzled long-time observers. As of yet, it is an uncommon and little known species elsewhere in northern Wisconsin.

Libby Zimmerman, a botanist who has been monitoring the vegetation at Kemp Station for 30 years, has watched *Poa nemoralis* rapidly take over the forest floor. When she started monitoring vegetation plots here in the late 1970's, there was virtually no wood bluegrass. Today, it is the dominant species in many of the study plots she monitors annually.

A similar invasion of the species has not been documented elsewhere in Wisconsin. There are only a few collections from around the state, according to Wisconsin herbarium records. (See the following website: <http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=POANEM>)

Wood bluegrass is native to Europe. It has been introduced across much of the northern U.S. While it is accepted that wood bluegrass is introduced, we have very similar native grasses from the same genus, making identification difficult. A similar, related grass, *Poa interior*, is native to the mountains of the western U.S., and is occasionally found in Wisconsin on rocky bluffs.

The greatest importance in observing the increase of wood bluegrass may be its link to broader changes in the forest. Wood bluegrass is likely influenced by the spike in deer populations. Grasses are not palatable to deer, and with heavy deer browse, are prone to increase in dominance. Deer browse along with a shady canopy eliminates tree regeneration, which reduces competition for the scant light on the forest floor, giving grasses an advantage. A comparison between

undisturbed forest and the blowdown (the ~5 acre area at Kemp where most trees fell during a 200 windstorm) shows that wood bluegrass is much more dominant in the undisturbed area. The blowdown is dominated instead by red raspberry bushes. Some opening in the canopy seems to benefit the wood bluegrass, as it is most prevalent along the driveway and around buildings.

Earthworms could be another factor. Introduced earthworms are present at Kemp, and are known to have impacts on forest ground layer composition. Other trends have occurred along with the rise of wood bluegrass, such as the loss of many forest wildflowers from the Kemp Station woods. Trilliums were formerly found behind the lab building, in an area now dominated by wood bluegrass. Further research is needed to show how these trends are related.

Poa nemoralis will be something to watch over the next decade. 🌾

Josh Sulman is a UW-Madison Dept. of Botany, Masters Student. Josh's home base was Kemp Station this summer while helping Lumberjack RC&D with Wisconsin's CFI State Forest Inventory and research for his Master's study.



Any visitor to Kemp Station will notice the grass growing on the forest floor. Wood bluegrass has become a dominant species in areas of the sugar maple-hemlock forest at Kemp.





Kemp Profile: Stephanie Steinhoff

Hometown: Indian Hills, Colorado, which is in the foothills, just outside of Denver.

Area of study: I am pursuing a Master's Degree from the Department of Forest and Wildlife Ecology at UW-Madison. Dr. Tim VanDeelen is my major advisor.

Your 2008 field crew: I had an absolutely amazing group of people to work with: Chris Pollentier, Lili Prahl, Haley Underberg and many volunteers. They weren't phased by any of the tasks we had to do, no matter how challenging the task.

What question will your field research answer? We want to see how flying squirrels respond to new forest management techniques designed to mimic natural disturbances. These treatments should restore old-growth forest conditions and promote wildlife habitat. They incorporate creating different sized gaps and leaving behind coarse woody debris, logs and branches. To determine the effects of these manipulations on wildlife, we are analyzing variation in flying squirrel home ranges between treatment types.

How is your research funded? My research is funded by the Wisconsin DNR as part of the larger managed Old-Growth Silvicultural Study.

Describe a typical day of field work. Each day is different. For the first part of the summer, we trapped and radio-collared flying squirrels, meaning we woke up early each morning to check and reset our 250 live traps. Now we are using radio telemetry to track the flying squirrels at night. We venture into the forest (trying not to trip over the downed wood) at all hours of the night and take bearings on our 30 radio-collared squirrels.

What's the biggest challenge you've faced working on this project? Adjusting to working third shift has been somewhat tricky. I've discovered that caffeine is a necessity to stay awake for night work. At the same time, being out when stars cover the sky and hearing loons on the lake calling make it worth the switch from a normal sleep pattern.

What do you like most about flying squirrels? Flying squirrels are small, light-weight and seemingly fragile, but they endure snowy, cold winter conditions by communal nesting. Their hardiness and willingness to depend on one another is something we all could learn from.

Where do you see yourself after you've completed your degree? I would like to manage and research wildlife for a state agency and share what we're learning with the public. Many people are curious about the wildlife in their backyard but don't know about the population dynamics. I hope to help bridge the gap between scientific research and peoples' understanding of wildlife.

When you're old and gray, what will you tell your grandkids about this project? I had the time of my life doing meaningful research to see how we can better manage our forests for wildlife. We studied flying squirrels not just for the adventure and thrill of it but to preserve the woods around us for them and the generations to follow.



A flying squirrel in the "recovery box" after being radio collared. Each squirrel was briefly anesthetized to reduce stress during collaring. The collar itself weighs only 3.8 grams (which is equivalent to about 7 paperclips), so does not impact the squirrel's movement.



Noise in the Night

By Karla Ortman

There was a noise in the night. But it wasn't night; it was actually 4:00 a.m. And I was asleep, so I didn't even hear the noise, until my husband woke me. Thanks, Bill! Yes, there was definitely a noise and it sounded like chewing. More specifically, it sounded like an animal chewing on a building. I listened and peered out the bedroom window alongside one of the cats. I could hear a whippoorwill in the distance, which made the 4:00 am disruption worthwhile. Meanwhile, with flashlight in hand, Bill went out to investigate and exclaimed loudly that a porcupine was chewing on the trim around the garage service door. That little stinker! With the noise mystery solved and the chewer scared off, I made a mental note to do something to deter the porkie and went back to sleep.

Clearly, the porcupine and I were not on the same schedule. We planned to come up with porcupine deterrent for the trim over the weekend. But the next night, at about 9:15 pm, we heard the noise again. This time I wanted to get a good look at the critter. The outdoor light did not cause the chewing to stop; and neither did my presence as I walked toward the garage. But once the motion light above the garage door lit up and I spoke to the porkie, he took notice. I'm one of those people who talks to animals, so I asked him why he was chewing on the garage. In reply he merely grunted, gnashed his teeth and slowly lumbered off, around the corner of the garage, and disappeared into the night.

Since I didn't understand what the grunting and gnashing meant, I had to do the research on my own. It turns out to be quite simple. Porcupines have a nutritional/biological need for salt. This is summed up in "Nutrition of the North American Porcupine, *Erethizon dorsatum*," by Kerrin Grant:

"The spring diet is high in protein and allows for large weight gains, but the plants are also high in potassium and prompt porcupines to seek out additional sodium sources. The intense salt seeking behavior has two peak periods for the porcupine. The first occurs in April-May, the second in August-September (Roze, 1989). The explanation for in-

creased seasonal intakes of sodium may be related to three factors:

1. The need to balance the skewed dietary ratio of potassium to sodium
2. Reproductive hormones in pregnant and lactating females
3. Urinary and/or fecal sodium loss"

Porcupines are vegetarians. In winter, they eat the tender layers of tissue (the phloem and cambium) below the bark of trees, such as fir, hemlock, aspen and pines. In spring and summer, they eat buds, leaves, twigs and green plants.

Most vegetable matter is very low in sodium. Sodium is required to balance cell potassium levels in the blood. With this need for sodium, porcupines seek out salt sources. These may be natural, like fresh animal bones, mud in salt-rich soils, outer tree bark or certain plants that are high in sodium (yellow water lily, aquatic liverwort). Or they may take advantage of salts from human activity, such as road salt, some paints, glue found in plywood, or human perspiration on things like ax handles or canoe paddles.

I have a suspicion that a passing cat may have scent marked our garage doorways by urinating on them, thus making them attractive to the porcupine. For now, we've tacked hardware cloth over the trim to protect it from further damage....so there shouldn't be any more of that noise in the night.

Resources:

<http://www.adfg.state.ak.us/pubs/notebook/smggame/porky.php>

<http://www.desertusa.com/mag99/mar/papr/porcupine.html>

http://fwp.mt.gov/wildthings/livingwildlife/porcupines/porc_biodmg.html

Olson, Rich; Andrea M. Lewis (May 1999). Porcupine Ecology and Damage Management Techniques for Rural Homeowners. University of Wyoming, Cooperative Extension Service.

Did you know...??

AM is an acronym for ante meridiem, which in Latin means "before midday" or "before the middle of the day." PM stands for post meridiem, which in Latin means "after midday" or "after the middle of the day." Therefore AM and PM do not *literally* apply to the 12:00 hours, even though we know noon as 12:00 PM and midnight as 12:00 AM. In Latin, meridies literally means midday, so would represent noon, but M is not a commonly used abbreviation.



Internet Resources for Further Learning

Each summer Kemp Station hosts a number of outreach sessions for the public to attend. This summer, sessions were held on a number of interesting topics, including Wisconsin soils, cellulosic ethanol, hibernation and bats. Speakers often provide handouts or Internet resources during their presentations. What follows is a list of Internet resources that have been provided by past speakers. In the near future, these links will be available from the Kemp website. But for now, if a topic is of interest to you, please visit the site and bookmark it as a favorite if you find it useful.

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. Allows user to look up soil types at specific locations.

<http://websoilsurvey.nrcs.usda.gov>

Maps of Wisconsin lakes.

http://www.dnr.state.wi.us/org/water/fhp/lakes/lakemap/lkmaps_a.htm

Information, alternatives, and resources for non-lead fishing tackle.

www.moea.state.mn.us/sinkers

Citizen-Based Monitoring Network of Wisconsin: opportunities to participate in monitoring various species of plants and animals in the state

<http://wiatri.net/cbm/>

Wisconsin dragonflies and damselflies

<http://inventory.wiatri.net/odonata/>

Wisconsin Society for Ornithology (general bird information)

<http://www.wsobirds.org/>

Forest Birds of the Western Great Lakes

<http://www.nrri.umn.edu/mnbirds/>

Bug Guide: Identification, Images, & Information for Insects, Spiders & Their Kin for the United States & Canada

<http://bugguide.net>

Intergovernmental Panel on Climate Change

<http://www.ipcc.ch/>

Information on auroral activity and solar images

<http://spacew.com/>

Space weather predictions and information

<http://www.swpc.noaa.gov/>



More underwater photos from Sara Schmidt (see page 3 for her story). A pumpkinseed (above) tends its nest; below, a smallmouth bass does the same.



American Marten (*Martes americana*)



You can imagine Stephanie Steinhoff's surprise when she discovered an American marten in one of her flying squirrel traps! The American marten was placed on the Wisconsin Endangered Species List in 1972. The animal was eliminated from the state by 1925, as a result of unregulated trapping and loss of habitat. Attempts to reestablish the animal to Wisconsin occurred most recently between 1975 and 1983 when 172 animals from Ontario and Manitoba were released in the Chequamegon-Nicolet National Forest. Then, between

1987 and 1990, 139 martens from northern Minnesota were relocated to the Forest. Today it is estimated that the marten population on the Forest is about 400 and studies are taking place to better estimate and monitor the population. American martens live in mature, dense conifer forests or mixed conifer-hardwood forests. Here the critical feature is many large limbs and fallen trees in the understory which provide prey, protection and den sites. Martens are members of the weasel family, and like the fisher are good climbers. They tend to be active at night and are shy. Martens are mostly carnivorous, with their primary prey being mice and other small rodents, but at certain times of the year feed extensively on wild fruit. They have been observed moving over ground in a zig-zag manner, followed by a series of jumps.



Reference: <http://www.dnr.state.wi.us/org/land/er/factsheets/mammals/Marten.htm>

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