

Kemp's Point

A newsletter of the Kemp Natural Resources Station
Volume 4, Number 2 - Fall 2003

Groundbreaking of New Residence Hall Celebrated

Over 80 researchers, instructors, friends and special guests enjoyed a spectacular September afternoon, celebrating the groundbreaking of the new Mead Residence Hall. The mood was festive as people participated in building tours, guided nature walks, and even pontoon boat rides along Kemp Station shores. The day's activities culminated with the formal groundbreaking ceremony. Dick Straub, Director of Agricultural Research Stations, served as program emcee. "This is a milestone in the history of the Kemp Natural Resources Station," Straub told the audience.

One of the special guests was CALS Dean, Elton Aberle. Dean Aberle noted that while UW-Madison is a state university, only 25% of its budget comes from the state legislature. "Private support plays an increasingly important role in our ability to have facilities. It also provides faculty and student support required to discover new knowledge to solve tomorrow's challenges."

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Kemp Research Report: Learning from Disturbance

When you drive into Kemp Station the most striking thing you see is a large swath of wind-thrown trees. Known as "the blowdown," the windthrow happened over three years ago in August 2000. If it looks shocking today, you should have seen it the morning after the storm. Before the storm, this stretch of road was a tunnel through a dark, hemlock forest. Disbelief, sadness and shock were some of the emotions I felt the morning after. But as we all know, change is the rule and to have these 250+ year-old trees topple in a storm is simply part of the natural process. In fact, research indicates that blowdowns like Kemp's are the most common form of disturbance in the Great Lakes region. It was this forest disturbance that brought Jake Hanson to Kemp Station this summer.

Jake is a first year PhD student in the Department of Forest Ecology and Management at UW-Madison, working under the advisement of Dr. Craig Lorimer. Over the next 3 years, Jake will be building on previous research done by Dr. Lorimer as he quantifies the effects of moderate severity

natural disturbances, like the one that occurred at Kemp. In doing so, a new recipe for forest management will be formulated; one that is sustainable, economically viable, and that will mimic the most common natural disturbance in the Great Lakes region.

Considering a New Approach

It is widely accepted that all forests are shaped by natural disturbance, and that native



Mike (left) and Jake take "fish-eye photos" to gather canopy density data. Jake's dog, Cedar, assists with all field work.

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Dean Aberle then introduced and publicly thanked the major donors to the project. These included: Andrew and Barbara McEachron, Don and Greta Janssen, William and Doris Willis, Jim Fralish, Dudley and Mary Pierce, Mary Mead LaMar, George Mead and Susan Feith, and Gilbert and Jaylee Mead. "The children of Stanton and Dorothy Mead wanted to honor the legacy of their parents in the area they both loved so much. It is my pleasure to now formally announce that the new residence hall will be officially known from this day forward as the Stanton and Dorothy Mead Residence Hall," said Aberle.

At this point, the group grabbed commemorative shovels and officially broke ground on the new facility. Refreshments and good fellowship followed. The Stanton and Dorothy Mead Residence Hall will create long-term, cost-effective lodging at the Kemp Natural Resources Station. It will provide scientists and students with convenient access to Kemp

Station's modern laboratory, office, and computing resources and its ecologically unique forests and lake. And, it will reinforce Kemp Station's position as a national center for natural resources research and education.



From left: Marcy Heim, Dudley Pierce, Mary Pierce, William Willis, Doris Willis, Don Janssen, Greta Janssen, Jim Fralish, Barbara McEachron, Andy McEachron, Mary Mead Lamar, George Mead, Elton Aberle, Richard Straub, Tom Steele, Gail Janssen, Rose Barroilhet. Not present are Gilbert and Jaylee Mead.

Funding opportunities for the project still exist. If you would like to support construction of the new Mead Residence Hall, you can make your gift payable to **UW Foundation – Mead Residence Hall Project**, 1848 University Avenue, Madison, WI 53726. Or for more information, please contact Tom Steele at 715-356-9070. 📞 -T.S.

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Small group tours of the Station were one of the day's activities.



Research: Learning from Disturbance (Cont'd from Page 1)

species have evolved to survive, and in some cases depend upon disturbance events. Forest managers are challenged to manipulate forest stands and landscapes to closely resemble natural forests, while at the same time providing sustainable wood production. Therefore, forest management plans are often based on the effects of natural disturbance.

Two common approaches to forest management are single-tree selection and clear cutting. Single-tree selection imitates the natural process at work in an old-growth forest. When an old tree dies and falls, it creates a small opening in the forest canopy where light can reach the forest floor. On the other end of the forest management spectrum is the clear-cut. To imitate the effect of extreme severity winds, like tornadoes, a clear cut removes all trees in the forest. What isn't represented on this spectrum is the "in between." And that's where Jake and his research on moderate-severity disturbances come into play.

Jake explains that moderate-severity wind disturbances have received little attention by ecologists. Moderate damage occurs when 30-60% of trees are blown down. Such disturbances make growing space available for a new population – or cohort – of trees to enter the forest, thus developing what's known as a multi-cohort forest. Research has established that the majority (up to 80%) of northern hardwood stands in the Great Lakes region

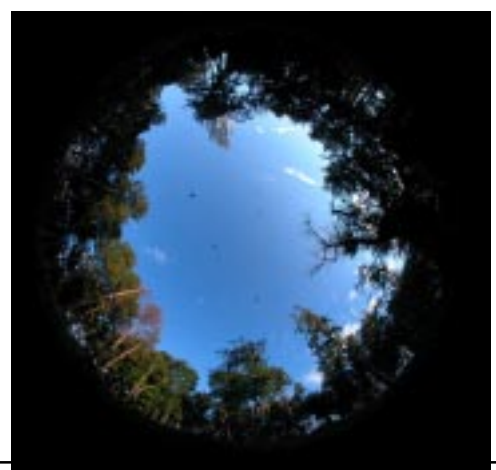
are multi-cohort forests. It follows logically then to have forest management plans designed to replicate this type of natural forest regeneration. By incorporating the entire range of disturbance intensities, forest managers will be able to provide suitable habitat for maintaining native biodiversity and ecosystem processes. But before guidelines can be developed, the immediate effect of moderate severity wind disturbance on these forests must be analyzed.

Quantifying the Rubble

This past summer Jake and his field assistant, Mike Emmenegger, collected data at several Northwoods field sites, including Kemp Station. The Kemp site is one of three stands in Jake's study that were subject to moderate severity windstorms within the past 5 years. Here Jake and Mike sampled 10 hectares (~25 acres) damaged by the August 2000 storm; of which, about 44% of the standing trees were windthrown.

The first component of data collection required Jake and Mike to establish forty 400-square meter plots within the sample area. Within each plot, a detailed analysis of vegetation and plot condition was performed. Every live and windthrown tree greater than 4 centimeters in diameter was identified, measured and counted. Data was collected on how each tree was windthrown, either by stem breakage or uprooting. Finally, information on the local terrain was recorded, including characteristics like slope and elevation.

Once processed and analyzed, this plot data will provide information as to what tree species and sizes are most (or least) susceptible to windstorms. It will also show if topography had an impact on tree survival. The information will then be compared to data from forests managed by single-tree selection in order to demonstrate exactly how naturally disturbed forests differ from human disturbed forests.



These "fish-eye photos" show a closed canopy, at left, and an open canopy, at right. Processing the images with a computer program determines the amount of light that reaches the forest floor at the spot where the camera was placed.

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It seemed to be a good year for daddy long-legs. I don't keep a journal of what I see outdoors, but everywhere I went, I saw lots of these critters, and sometimes in large groups, as shown in the photo. The picture at right was

taken outside at Kemp, right by the door of the Lab. It was neat

to watch them move. Slowly they'd progress across the wall, with two legs extended to the front, checking out what's up ahead. I'd never watched one so close and wondered what the full story was on these leggy beasts.

Turns out that a number of leggy beasts are known as "daddy long-legs." To me, the critters in the photo are daddy long-legs, but they are more correctly known as harvestmen (Order Opiliones, formerly Phalangida). They are arachnids (Class Arachnida, 8-legged arthropods) but NOT spiders. This is an important distinction as many folks probably see a daddy long-legs and think "spider." Spiders have two body parts, two fangs and produce silk. Harvestmen have one body part, no fangs and do not produce silk. Perhaps the key difference here lies in the body part comparison. A spider's two body parts are its fused head-thorax and its abdomen. The harvestman's one body part is its fused head-thorax-abdomen. And neither spiders nor harvestmen are insects, since insects have three body parts: head, thorax, and abdomen.

Another leggy beast known to some as a daddy long-legs is the cellar spider, or daddy long-legs spider. And this critter really is a spider; its two body parts are evident. I've seen my share of these critters in the cellar at my grandparent's old farmhouse. They're usually hanging in a web (another indication that they're a spider), with their



legs bent and, to me, are much creepier than harvestmen. I've never thought of these as daddy long-legs, but I can see how they could be referred to as such.

Finally, the leggy beast which is the adult crane fly is sometimes called a daddy long-legs. This bug looks like a giant mosquito and thank goodness it's not – in fact, they do not bite. Some fishers may be familiar with the adult crane fly. This creature is a true fly, an insect, with three distinct body parts.

Will the real daddy-long legs please stand up? Well, in my mind, that's the harvestmen and they are interesting critters, starting with the legs they stand on. The ratio of leg to body is amazing – the legs can be up to 30 times as long as the body – imagine what we would look like with such long limbs! These legs are very sensitive, which you'll see if you gently touch one. Harvestmen can shed part



A number of harvestmen gather on the door of the Lab. Nobody knows for sure why they do this, but it is under investigation. One possible reason is that the defensive secretions of a mass would be more effective than those of a single individual.

or all of a leg if it is in danger. The leg will twitch for a while, hopefully distracting the threat. The harvestman will then regenerate a new leg. Remember that there are 8 legs, but the second pair is used also as feelers. If you watch a harvestman closely, you'll see these two legs exploring, likely in search of food.

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Wild Wonders (Continued from Previous Page)

Harvestmen feed on a variety of things, taking advantage of the bountiful *harvest* available to them. Dead insects, plant juices, fruit and small living insects are some of their more common food items. And they chew their food, ingesting both juices and food particles.

Harvestmen are not poisonous and do not have fangs, so humans need not worry about them being a threat. They do, however, have chelicerae, which are similar to the claws of a crab, complete with a moveable finger. So one may slightly pinch the skin, but it's unlikely to break it.

Besides being able to shed a twitching leg to confuse a predator, harvestmen also produce defensive secretions. A pair of scent glands is located on the front end of the body. When threatened, the harvestman will secrete a drop of smelly fluid. You may see this on the animal's body if you pick one up and look closely, and sniff! It's not dangerous to us, but if a small predator got this in its mouth and eyes, it would feel a burning sensation and release the harvestman.

In Wisconsin, summer is mating season for harvestmen. A simple process, the male climbs on the body of the female and transfers his spermatozoa into her gonopore. In the fall, the female deposits eggs into soil or crevices in wood where they remain over winter. In spring they hatch out. The hatchlings are tiny versions of the adult. They grow by splitting and shedding their "skin."

If you have a chance, take some time to watch a daddy long-legs in action. Maybe you'll see it meticulously clean its legs, carefully running one leg at a time through its jaw, nibbling off any debris. And watch how they explore their area for food. A small leggy beast like a harvestman can provide a great deal of wonderment. 🐜 -K.O.

Research: Learning from Disturbance (Cont'd from Page 3)

The second component of Jake's data collection involved photography. Hemispherical, or "fish-eye," photos were taken within the study sites. At Kemp alone, 180 random photos were taken with a camera bearing a special dome-shaped lens. These photos show how much of the forest canopy is open and how much of the sky is blocked out by trees. Using a computer program to process the images, Jake can determine how much light, in total, reaches the spot where each photo was taken during the growing season. The amount of light reaching the forest floor is important because it, in large part, determines what tree species will grow in the forest. Maps of Kemp Station will be produced to show how the amount of light varies over the area affected by the windstorm.

What's Next?

Although Jake completed a lot of work this summer, gathering mountains of data, he has only just begun. Next summer he will be working in the Upper Peninsula of Michigan on permanent research plots established by Dr. Craig Lorimer in 1981. Jake will take current measurements and make comparisons with past data to see how stands previously affected by moderate severity windstorms change through time.

The final component of Jake's study, scheduled for summer 2005, is to develop sustainable, multi-cohort forest management guidelines based on the short- and long-term effects of moderate intensity wind disturbance. Jake will do this by inputting his data in a forest modeling computer program and simulating windstorms. These results will be closely analyzed and used to develop management prescriptions that more closely similar natural processes. Perhaps you, or a woodland owner you know, will someday use these new guidelines to manage a forest near you. 🌲

-K.O.

Jake Hanson is originally from Washington where he earned his undergraduate degree in Botany at Western Washington University. He went on to complete a Master of Science degree in Forest Ecology at Humboldt State University in Arcata, California. His Master's research involved a comparison of vegetation at forest edges created naturally by fire and those created where logging had occurred.



2003 Outreach Sessions Enjoyed by Many

We were pleased to offer a fine variety of outreach sessions this past summer. And we were even more pleased to have so many folks come out to the Station to enjoy them!

We kicked off the month of May with John Zasada, a Research Forester with the US Forest Service. John shared his knowledge and love of paper birch with us, along with many beautiful weavings crafted from birch bark. As a special treat, John invited local artist, Ferdy Goode, to do a little show and tell.



Next up, Susan Knight, a UW Trout Lake Station scientist, gave a delightful and informative talk on aquatic plants. On hand were samples of the numerous plants found in area lakes.

Wrapping up the month of July was UW-Extension Entomology, Phil Pellitteri, speaking on the beetles of Wisconsin. Phil shared oodles of information and fun anecdotes about this most numerous and fascinating group of insects.

For our first August session, we combined two of our mission components, outreach and research. We were glad to have UW-Madison graduate students, Todd Hawbaker and Charlotte Gonzalez-Abraham, return to Kemp Station to present their research findings on the historical patterns of development in northern Wisconsin. Todd and Charlotte were happy for the opportunity to not only share their findings, but also to hear first hand from folks who have lived in the area and experience the changes.

The ever popular “Fishing for Walleye” session was led this year by Tom Sheffy. Tom reported that the group had a great discussion with lots of folks sharing their own walleye fishing experiences. Guaranteed everyone went home with new information to apply to their next fishing adventures!

July began with a neat session on the dragonflies and damselflies of northern Wisconsin. WDNR Ecologist, Bob Dubois, gave a presentation on the species we are most likely to see in our part of the state and also spoke about life cycles and natural history of these unique insects. Participants got an up close look at dragonflies during a visit to Jyme Lake on the Kemp property.



We were sad to have to cancel the Mushrooms & Fungi session due to the hospitalization of leader Dan Czederpiltz. We heard from Dan later, reporting that he was back on the road to recovery.

The “Birds Up Close!” session originally scheduled for June was cancelled due to rain, but leader, Anna Pidgeon returned to Kemp in August to hold the session. Anna shared information on migratory bird activity and conservation before showing the group her mist nets and banding equipment. We were lucky enough to net a downy woodpecker, which Anna

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banded after gathering and recording information about the bird.



Bats were the topic of a late August session and it was a real treat to have live bats in attendance! Ken and Barb Bowman of Bat Conservation of

Wisconsin spoke about basic bat ecology, their bat rehabilitation work, bat houses and their educational work. State Wildlife Specialist, Scott Craven, was also on hand to discuss ways people can keep bats from entering living quarters. He also shared information about a research project involving bats at the Neda Mine in southern Wisconsin.

To wrap up the season, Scott Craven led a fireside chat on various wildlife topics. He provided updated information on numerous state wildlife issues, includ-

ing CWD and deer baiting and feeding. Attendees joined in with questions and comments, making for a fun and informative evening.

Many thanks to all our session leaders, for without them, the Kemp Outreach Program could not happen. And to all the folks who came out to participate in the session, thank you for sharing your great interest in the natural resources of the Northwoods. 🐾 -K.O.



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