Kemp's Point

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

Rooted in Kemp: A Career Shaped by the Northwoods

By Dr. Nick Balster, University of Wisconsin-Madison

As I reflect on more than 25 years at UW–Madison, I am profoundly grateful for the many people who have supported me along the way, from my hard-working students to the talented staff and collaborative colleagues across campus and beyond. Yet, at the top of that list is not a person, but a place, a location on a map, a remarkable 230-acre gem in the Northwoods of Wisconsin known as Kemp Natural Resources Station.

Dr. Nick Balster stands in a soil pit at Kemp Station surrounded by undergraduate forestry students.

Since my arrival at UW–Madison on a snowy morning in January 1999, Kemp has been a steadfast companion throughout my tenure. Its mosaic of old and second-growth forests, bogs, and lake coves has been critical to my research, teaching, and outreach, not to mention a place of personal renewal. The magnitude of my partnership with Kemp is difficult to capture in a short newsletter (but of course, my gratitude compels me to try).

I was first introduced to Kemp while serving as a postdoc overseeing Dr. Jim Bockheim's program during his sabbatical abroad. Jim generously allowed me to teach his Forest Soils course at Forestry Camp. That summer of 2000, I stayed at Kemp's majestic Lodge and simply fell in love with the place as most people do. From that moment, Kemp became central to my program at UW. I can say without hesitation that I would not have enjoyed this position as much or been as successful without partnering with this magical landscape of old-growth hemlocks, glacial soils, diverse northern hardwood forests, wetlands, wildlife, and so much more. Kemp has served as a respite from the hustle and bustle of the Madison campus and a reminder of why I chose to become an environmental scientist. It has never failed to inspire, teach, and reconnect me to the grandeur of the natural world. If my words seem overly sentimental, you likely have not walked among Kemp's towering trees or listened to the spring peepers of its bogs, loons of its lakes, or peered into the beauty of its soils.

Scientifically, the forests and soils of Kemp have been the foundation of much of my research. Whether it be biogeochemical cycling, water relations, tree seedling physiology, or outdoor education, Kemp has provided a key landscape for our environmental science. Presently, my lab is conducting two studies (both highlighted in this issue), one quantifying the effects of freeze-thaw cycling on soil processes and another examining the potential homogenization of below-ground properties from deer herbivory. As someone passionate about forest ecosystems, Kemp continues to provide us a glimpse into the fascinating mysteries of how these systems

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work and respond to change.

Equally valuable is the role that Kemp plays in my teaching and outreach. For example, since 2000, I have gladly volunteered my time to teach the Forest Soils section of Forestry Camp, introducing students to novel soil ecosystems (Spodosols!) they cannot find around Madison. It has been my delight and privilege to observe as Kemp expands their horizons and immerses students in the living laboratory of the Northwoods. I eagerly await the full return of Forestry Camp to Kemp post-COVID, as it is a gift to teach in a tactile space where 2-D screens and sterile classrooms give way to soil pits and tree canopies.

Above: Balster Lab members enjoy a meal break during a lab retreat. Right: Balster's graduate students visiting study plots at Kemp.

Kemp has also become a place for building community among my research groups, drawing us back year after year. We have held countless lab retreats there, focused on scientific reading, writing, experimental design, and team-building. These memorable experiences have left my students better equipped as scientists and more connected to each other.

I honestly cannot think of another place that offers such a unique, accessible, and powerful combination

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Winter Field Work at Kemp Station

By Aundrea Taylor, University of Wisconsin-Madison

This winter (2025) I had the opportunity to conduct fieldwork at Kemp Natural Resources Station as part of my study examining deer herbivory impacts on forest floor vegetation and soil physiochemical properties. A key part of understanding how deer might impact vegetation-soil relations involves measuring the decomposition rates of woody and herbaceous litter. The decomposition rate of plant material provides valuable insight into soil health indicators such as organic matter input, nutrient cycling, and aggregate stability.

Herbaceous litter bags were collected bi-weekly and woody litter bags were collected monthly from six deer exclosures and their corresponding control plot. The bags were transported to our forest soils lab at UW-Madison and dried in a convection oven prior to weighing. The remaining weight of the leaf litter was used to obtain a decomposition rate (k), which will be compared between deer exclosures and control plots. With the help of Kemp Station staff, I was able to maintain a consistent sampling schedule despite snow cover and freezing conditions. Winter field work is not a common practice due to the challenges that can occur, but I believe that gathering this data is an integral component in understanding seasonal influences on decomposition rates. Winter field work has given me time to reflect on how I might tackle challenging field conditions going forward and has given me deeper appreciation for what it takes to conduct year-round ecological research.

Aundrea established study plots at Kemp Station in the fall.)Photo by: Shannon Maynes)

Winter Soils Research at Kemp: Challenges, Discoveries, and Reflection

By Daniel Igirimbabazi,
University of Wisconsin-Madison

My research explores how variations in snow cover over multiple winters influence soil structure and microbial communities—ultimately uncovering the hidden effects of winter climate shifts on forest soil health and ecosystem stability. Specifically, I aim to understand how winter freeze-thaw cycles impact forest soil aggregate stability in northern and southern Wisconsin.

One of my key research sites is Kemp Natural Resources Station, where I spend much of the fall, winter, and spring seasons monitoring and preparing my snow manipulation experimental plots in both coniferous and deciduous forests. Beyond being a place for scientific discovery, Kemp offers a perfect setting for reflection. With its peaceful lakes, towering trees, and fascinating wildlife—including my personal favorite, the mighty forest squirrels—it is a place that blends research with an appreciation for nature.

Kemp is more than just a research station; it is a community. Throughout the year, students and researchers from Wisconsin and beyond gather here, making it an ideal place to exchange ideas, socialize, or simply enjoy the camaraderie of field work. The staff is incredibly professional and welcoming, always ensuring that my time here feels like a home away from home. The station's amenities—cozy study spots, a fireplace, and well-equipped classrooms—create an environment where I can be both productive and comfortable during my stay.

The Reality of Winter Fieldwork

Conducting research in winter comes with its share of challenges. Equipment that works flawlessly in the lab can become unpredictable in sub-zero temperatures. One frigid day at Kemp, I needed to solder some sensor wires in the field using a butane-powered torch. Simple enough—except the temperature was well below zero. The butane tank refused to cooperate, so

Above: Daniel works at one of his study plots at Kemp Station. Lower left: Dealing with the reality of winter!

I had to sprint back to the lab to warm it up. Then it was a race against time—soldering as fast as possible before the tank froze again. Let's just say I got my daily steps in… probably a week's worth in under an hour. Frozen soil makes it difficult to install research sensors, and batteries drain faster than expected. Trekking through snow with gear in tow is no easy task, but it is all part of the adventure.

Did reality live up to my expectations? In some ways, yes—I anticipated the logistical hurdles of winter research. But I did not expect just how much winter itself would shape my work. Snow cover, or the lack of it, transforms the landscape, influencing soil temperatures and microbial activity in ways that are both fascinating and difficult to predict.

Lessons and Gratitude

This experience teaches me patience and adaptability. Sometimes, fieldwork does not go exactly as planned, but the best discoveries often happen when things do not go according to schedule. And while winter research may mean frozen fingers and biting winds, it also offers amazing sunrises and sunsets over frozen lakes, the quiet crunch of snow underfoot, and a deep appreciation for the hidden world beneath the frost.

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Do Not Disturb the Sleeping Bear

By Karla Ortman, Editor

The prospect of seeing a bear asleep in its winter den was exciting. Julia Olson, a Natural Resource Technician with the Wisconsin Department of Natural Resources, was staying at Kemp Station while working in the area on a bear study. One of Julia's tasks was to check potential bear den sites to see if a bear was actually using it. I was fortunate to tag along one day.

Quietly keeping up with Julia.

Many reports of potential bear den sites are made by both deer and grouse hunters during the fall. Possible dens are often large holes in the ground, perhaps dug out beneath a fallen tree, that appear to be suitable for a bear to use as a winter hibernation den. Julia told me there were 30-40 den reports in northern Wisconsin that needed to be checked. The bulk of these are checked in January and February, at which time, if a bear was present in the den, it may be equipped with a tracking collar and have information gathered about the animal. Data collected includes gender, weight, possibly a blood sample, and a tooth, which is used to age the bear. The teeth grow rings, much like a tree, which are counted to determine age. If yearlings are denned up with the mother, each receives an ear tag.

A hair sample is also collected and sent to Dr. Jon Pauli's lab at UW-Madison's Forest and Wildlife Ecology Department. The lab performs a stable isotope analysis that provides information about what the bears are eating, helping to answer questions like how much corn is in their diet. Many food items, like donuts, used to bait bears during hunting season have corn as an ingredient.

The two possible dens we visited were on public land in Oneida County. Julia said that sometimes dens they check out are on private land and landowners are sometimes surprised to learn that they have a bear denning on their property. After seeing the sites we visited, I can see how a property owner may not be aware of a bear den.

I quickly discovered three challenges in this adventure. Number one, Julia's stride was much longer than mine and keeping up with her as she trudged through the snow was not easy; she also had the age advantage, but I am sure stride was the bigger issue here. Second, we had to be quiet. But the third challenge made the second challenge more challenging – we were pushing through thick aspen growth and I never realized how noisy a human can be scraping against branches and tromping in snow!

Regardless of these minor hurdles, with the help of the GPS point provided by the discovery report, once Julia spotted the potential den site, she turned and gave me the signal that we were there. Creeping closer, slowly, Julia peered into the hole in the ground only to find...an open hole in the ground. No bear. Julia suspected the site may have been considered by the bear who then decided it was too close to a relatively well-traveled road. On to our next possible site, this one held more promise as it was far off the beaten path. Another hunter reported location, with the same challenges – the long stride, the need to be quiet when everything seemed amplified in the quiet of the forest. Once again, Julia gave me

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Susan Spencer Small, *1926-2024*

Kemp Station has lost a dear friend and benefactor, Susan Spencer Small. Those close to Kemp Station know her as one of the "Kemp Granddaughters." Susan, along with her younger sister, Sally Spencer Greenleaf, gifted the property that is now Kemp Natural Resources Station to the University of Wisconsin in 1960. Since then, thousands of students and scientists have been touched by the beauty and experience that is unique to Kemp, a special place that was once the Kemp family's summer home. Notes Susan wrote to Kemp staff over the years often including stories from her childhood involving wild animals she and her sister Sally encountered during their time at their beloved northwoods retreat. Susan traded the northwoods for the deserts of Tucson, Arizona, where she carried on her love of nature as the longest serving volunteer docent at The Desert Museum. We were fortunate to have Susan in attendance for Kemp Station's 50th anniversary celebration in 2010 where she (*photo, top left)*, along with her sister, Sally, shared memories with guests. *(Top center photo: Susan Small and her two oldest sons in the early years of Kemp Station) (Top right photo, from left to right: Frances Spencer, mother of Sally and Susan Spencer, with their grandmother, Minnie Kemp)*

Sleeping Bear *(Continued from Page 4)*

the signal that we were there. I was truly impressed by the level of camouflage for both sites, and this one even more so. Had I been hiking through the woods, I doubt I would have even noticed the hole beneath the trees. I held my breath and crossed my fingers as Julia shone her flashlight into the sandy darkness...and that is all there was, sand. No bear.

While it would have been very cool to have instead seen a wall of black fur, it was still exciting to chase the possibility of seeing a sleeping bear.

To learn more about the Wisconsin DNR's bear research projects, visit https://dnr.wisconsin.gov/topic/research/wildliferesearch.

"What do we have here?"

This deer was curious about the new snow stake that appeared in the forest. The marked pole serves as a method to record the changing snow depth on the photos taken by the Snapshot Wisconsin trail camera at Kemp Station.

LEARNING OPPORTUNITIES

No registration required. Location: Connor Forestry Center. Expanded descriptions at kemp.wisc.edu.

Natural Sciences and Visual Studies Merge!
Saturday, May 31, 1:00 pm
Students of the Milwaukee Institute of Art & Design (MIAD) descend upon Kemp Station to complete a series of short term research studies on the summer ecology of the forests and lakes in the area. You are cordially invited to hear short summary presentations of their findings from their week-long endeavor, exploring a variety of ecological aspects, and including an overview of their art/design interests.

Microbial ecology guided energy and resource recovery from landfills
Monday, June 2, 7:00 pm
Microorganisms in landfills are the key players in breaking down solid waste materials and in converting that waste to useful and recoverable, revenue-generating products such as renewable natural gas. Come learn how UW-Madison's Dr. Erica Majumder, Assistant Professor of Bacteriology, set out to learn more about landfill microorganisms and their role in converting solid waste to methane.

Introduction to Identification of Ferns and "Fern-allies" of the North Woods
Saturday, June 21, 9:00 am
Join Alex Graeff, Ecologist with the U.S. Forest Service, for a hike around Kemp's nature trails – including some time on the bog. We will discuss the morphology and life cycle of ferns, lycopods, and horsetails, including all of the important features for identification!

Balancing Waterfowl and Wild Rice
Tueday, July 8, 7:00 pm
Wild rice (*Zizania Palustirs*), called manoomin in the Ojibway language, is a grass found in shallow lake and river bottoms in the Great Lakes Region. Natural stands of wild rice support diverse animal communities and is an important food source for migrating waterfowl. Learn from Christian Dahlquist, a Natural Resources Field Technician, about wild rice and how the Wisconsin Department of Natural Resources is working to protect this valuable resource in the Great Lakes Region.

Desired Regeneration through Assisted Migration (DReAM): How can we give trees a hand?
Tuesday, August 5, 7:00 pm
Much like the way animals migrate back and forth to follow shifts in their preferred habitat, tree species show similar patterns of migration over much longer time periods. Join Scott O'Donnell, Forester with the Wisconsin Department of Natural Resources (WDNR) for a discussion of DReAM (Desired Regeneration through Assisted Migration), the research the WDNR and the USDA Forest Service are conducting into the potential to introduce assisted migration into forestry practices in the state in response to climate change.

"Eyes" wide open: synthesis of over a decade of walleye research in northern Wisconsin
Tuesday, August 19, 7:00 pm
Walleye are culturally, ecologically, and recreationally important throughout much of their range. Dan Dembkowski, a research scientist with the Wisconsin Cooperative Fishery Research Unit at UW-Stevens Point, will share what fisheries professionals have learned about walleye through over a decade of research in northern Wisconsin.

The Algae of Kemp Station
Saturday, September 13, 10:00 am – 12:30 pm
Join UW-Madison's Marie Trest (Teaching Faculty) and Linda Graham (Professor Emerita) for a morning exploration of the algae of Kemp Station. We will make collections in Tomahawk Lake and use microscopes to observe the diversity of beautiful algae from Jyme Lake Bog and Tomahawk Lake. Wading for algae is optional.

Bats of Wisconsin
Tuesday, September 16, 7:00 pm
Join DNR Conservation Biologist, Heather Kaarakka to learn about Wisconsin's bats, their threats and conservation, as well as how we study bats in the state. After sunset we'll listen for bat calls using special equipment and look for emerging bats from roosts at Kemp!

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of environment, solitude, and intellectual engagement to help build a research lab.

And then, of course, there is the Kemp staff. The upkeep, hospitality, and organization all speak to the pride and professionalism of the personnel that make this station run. Its natural beauty aside, Kemp would not be the place it is without the care and support that these folks pour into it. The number of outside researchers and educators who seek out Kemp stands as a testimony to its national stature as a five-star field station.

In closing, this brief entry is as much about Kemp's profound influence on my growth as a university professor as a long overdue thank you letter to the facility and the people who make it thrive. From its natural environment to its facilities, from morning mist on the lake to conversations around the fire pit, Kemp has shaped who I am as a scientist, educator, and mentor. My students continue to test novel research hypotheses among its ecosystems, including two featured in this newsletter. And though I joke that I want Kemp all to myself, the truth is: I hope more of you discover what you've been missing. See you in the Northwoods.

Just for Kids!

No registration required. Meet at Outdoor Pavilion.

Colors in Nature Scavenger Hunt & Learn
Thursday, June 26, 10:00 am
Search the forest at Kemp Station for colors in nature and learn some interesting facts about the forest along the way.

The Colors of Insects
Tuesday, July 15, 10:00 am
Beetles and butterflies are some of the most colorful creatures in nature! Discover why they come in so many bright colors and how their colors help them hide, stay safe, or find friends.

Colorful Nature Collage
Thursday, July 24, 10:00 am
Create a colorful nature collage with collected items from the forest and field.

Winter Soils *(Continued from Page 3)*

I am from Rwanda, a tropical country in East Africa, where snow is something you only see in movies. That changed in 2021 when I arrived in Wisconsin for grad school at UW-Madison. Never in my wildest dreams did I think I would end up researching snow—but here I am, knee-deep in it (literally). Every snowfall still fascinates me, and you can bet I am always snapping photos to send to my family and friends back home, who probably think I have moved to the Arctic.

I am incredibly grateful for the resources and support that Kemp Station provides, allowing me to explore my academic curiosity in a safe and encouraging environment. Whether conducting research or simply enjoying the beauty of the season, Kemp is a place where winter is not just endured—it's embraced.

The Practical Science of Forestry

A Special Event Sponsored by the Hamilton Roddis Foundation

Join professional forester, Matt Carothers, of Superior Woodlands Company, for a special three part program about the practical application of science in the forest. First, learn the words that are used in the woods, from "stewardship" to "basal area." Next, walk through the forest at Kemp Station and apply the language of forestry in this living laboratory. Finally, visit a nearby working forest and learn how the language of forestry applies in there.

Tuesday, July 15, 7:00 pm
The Language of Forestry and Logging

Tuesday, July 22, 7:00 pm
Forest Walk at Kemp Station

Tuesday, August 12, 6:30 pm
Explore a Working Forest
(Note earlier start time. Participants will caravan from Kemp Station to a nearby forest in personal vehicles, departing from the forest when done.)

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Broad-winged Hawk (*Buteo platypterus*)

It was a good day for hawks. A friend and I were on a road trip through central Wisconsin and we could have been counting hawks. Often perched at the very top of a large tree, red-tailed hawks watched and listened patiently for their next meal to reveal itself on the ground below. These sightings brought to mind a common hawk at my north woods home. This hawk is usually heard before seen, with its piercing single-note whistle being hard to miss. If I am lucky, I will spot the bird high in the tree branches, but more often I catch sight as it flies from one tree to another. I suspect we have had a breeding pair in the forest behind the house, an area that matches their preferred habitat perfectly -- mixed forest near an opening (much of the yard and road being open), and near water, a small lake and the Wisconsin River is nearby. Broad-wingeds eat a varied diet of small mammals, frogs, toads, young birds, and insects. Broad-wingeds migrate to Central and South America for winter. According to the website for Hawk Ridge Bird Observatory in Duluth, "In order to conserve energy on their long journey, they float upward on vertical air currents as high as they can go, and then shoot forward. When one broad-wing discovers a thermal or updraft, others quickly join it, all swirling upward in a 'kettle.' Their migration is one of the most exciting spectacles of the natural world." These "kettles" or flocks of broad-wingeds, can number into the tens of thousands of birds. Broad-wingeds improve their migratory efficiency by soaring on these thermals and updrafts. It is also believed that traveling in groups help aid with orientation and navigation. Make this the summer to learn the broad-winged's call! "Kee-eee"

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