



Kemp's Point

Volume 18, Number 1, Spring 2017

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

The Sound of Silence over Tomahawk Lake

By Mara Braun (with Chris Yahnke)

Learning how to use bat detectors is one of several cool things I, along with my fellow mammalogy students from UW-Stevens Point, learned in August during a week at Kemp Station. It was time to use the detectors to do a census, or count, of the little brown bats (*Myotis lucifugus*) emerging from known roost sites at Kemp. The first place we checked out was the front porch of the Lodge, the historic structure that has housed generations of students and scientists. How many bats did we count? Zero! At the lodge in 2013 and 2014 students in this course counted 58 bats and 67 bats, respectively, flying from the eave above the Lodge porch. Next we went down to the Boathouse where little brown bats were detected the past 6 years and again we found none. We sat on the dock for 15 minutes listening for bats and it was eerily quiet.

The recent decline in our nation's bat communities is one of the most urgent problems facing wildlife biologists today. This situation is caused by a fungus that causes bats to arouse from hibernation, using up vital energy needed to survive the winter. The disease, known as White-nose syndrome (WNS), was first reported in a cave in New York State in February 2007, and has been spreading south and west since then. In some hibernation caves, bat mortality has reached 90-100%.

In April 2014 the first Wisconsin cave infected with WNS was documented in Grant County. A census of that cave by the Wisconsin Department of Natural Resources (WDNR) found a 94% decline in hibernating bats between 2014 and 2016. In 2015 infected caves were documented in seven counties in southwestern Wisconsin and Door

County, with seven more counties added in 2016, thus extending the range of infection north in the state. Furthermore, a number of infected caves have been documented in the upper peninsula of Michigan, where many of Wisconsin's northern bat populations hibernate.

While wildlife health experts are working on ways to control the spread of the fungus, the WDNR is continuing to monitor bat populations throughout the state. One of the ways they do this is through the acoustic monitoring of bats using ultrasonic microphones. Very soon after the arrival of WNS in the winter of 2006-2007, the WDNR implemented the Wisconsin Bat Monitoring Program to census bats statewide. Kemp Natural Resources Station has been involved with bat acoustic data collection for nearly a decade.



UW-Stevens Point summer 2016 mammalogy class pictured in front of the bat monitoring station at Kemp.

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Silence (From page 1)

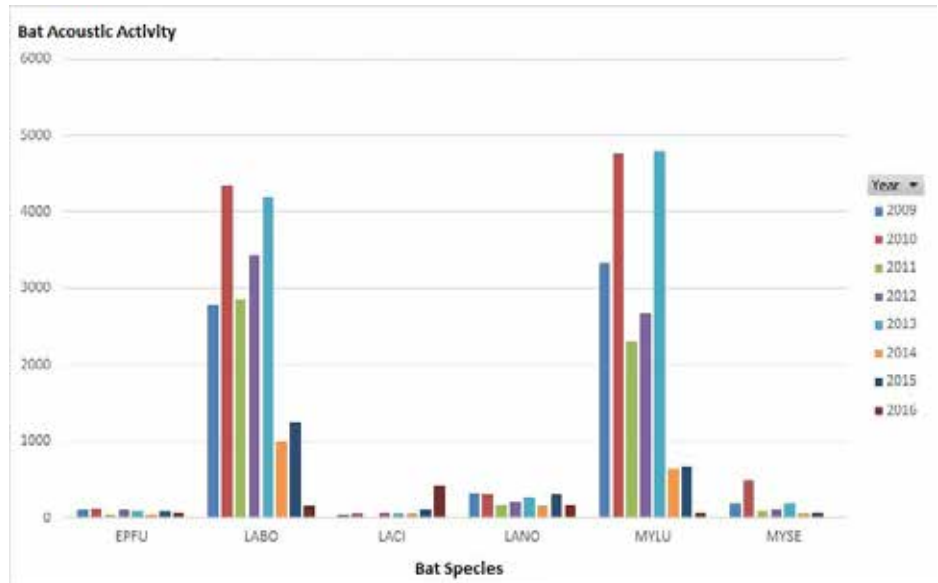
Acoustic monitoring works by recording one of the bats' most extraordinary evolutionary traits: echolocation. Bats have the ability to emit inaudible high-pitched sounds which they use to create an image of their landscape. Just like waves in the lake, sound waves bounce off of impermeable objects and travel back towards their location of origin. In the bats' case, the sound waves they emit come right back to them like a boomerang. Objects that are closer to the bat will reflect the sound waves back faster than objects that are farther away. Amazingly, bats are able to use the speed at which the sound waves come back to them to create a 3-D image of their surroundings which they use to navigate and hunt in the dark.

Every species of bat emits sounds at different frequencies. So if bats were radio stations, each species would have their own channel. Luckily for biologists, this means that it is possible to identify different species by analyzing the recordings of these ultrasonic calls.

At Kemp Station six species of bat have been detected: the big brown bat (*Eptesicus fuscus*), the eastern red bat (*Lasiurus borealis*), the hoary bat (*Lasiurus cinereus*), the silver-haired bat (*Lasionycteris noctivagans*), the northern long eared bat (*Myotis septentrionalis*), and the little brown bat (*Myotis lucifugus*). Three of these species, the little brown bat, big brown bat, and northern long-eared bat, roost in caves and are therefore more susceptible to White-nose syndrome.

In past years at Kemp Station, the red bat and the little brown bat were the most prevalent species to be detected by the monitor with numbers between 4,000 and 5,000 detections. In 2016 there were less than 300 detections of the red bat and less than 200 detections of the little brown bat. In fact, no species were detected more than 400 times in 2016, except one: the hoary bat.

The hoary bat not only was detected more



Acoustic monitoring data from 2009-2016. Bat species from left to right: big brown bat (EPFU), eastern red bat (LABO), hoary bat (LACI), silver-haired bat (LANO), little brown bat (MYLU), and northern long eared bat (MYSE).

than the other bat species, but actually saw a dramatic increase in activity from 2015-2016. Why would one species of bat see a record high number of detections in 2016 when others were experiencing record low numbers? To answer this we need to learn a little more about how bats use their environment.

All six of the bat species present at Kemp station are insectivorous and hunt at night so it would seem like there would be stiff competition for food resources. Bats coexist because they partition the habitat, and they can do this in a number of ways. Bats have adaptations in their wings and echolocation calls that enable them to hunt different prey. For instance, little brown bats have short, broad wings and high-pitched calls that allow them to easily maneuver close to the water's surface and in cluttered forests and hunt small insects. Hoary bats, on the other hand, have longer, narrower wings and low-pitched calls that allow them to hunt moths and other larger insects above the tree-tops and over the water.

Bats also live in a three-dimensional space allowing them to partition the sky by foraging at different altitudes. It is possible that with a decline of other bat species near Kemp Station, hoary bats are foraging lower and thus recorded more frequently by the microphone. However, when we looked more closely at the data, much of the increase in

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Silence (From page 2)

hoary bat activity occurred on a single night. Other studies in the eastern United States and by Dr. Jeff Huebschman at UW-Platteville have found that as the proportion of cave-dwelling species like little-brown bat and northern long-eared bat decline in the community because of WNS, the proportion of tree-cavity nesting bats like hoary bat and red bat increase as a proportion of the bat community. We expect that this will also be the case at Kemp.

What is most important is that wildlife biologists and wildlife health experts remain engaged in the White-nose syndrome problem so that bats will continue to thrive in North America and perhaps end the sound of silence over Tomahawk Lake. 🦇

Mara Brown is an undergraduate student at UW-Stevens Point and participated in Dr. Chris Yahnke's mammalogy field course.

The Hoary Bat

The hoary bat is Wisconsin's largest bat. Their fur is dark and usually tipped with white. The overall appearance of the hoary bat is dark brown to yellow with a white or cream underbelly and fur covering the tail membrane and the ventral side of wings. The ears of the hoary bat are large, round and framed in black. The silver-haired bat may, at first glance, be confused with the hoary bat because of the coloring, but the silver-haired bat is much smaller and lacks the same amount of hair on the tail membrane and wings.

Hoary bats are not a common species in the state but are found throughout Wisconsin in favorable habitats from May through September. They do appear to be more common in the northern part of the state.

Hoary bats migrate in September and October to wintering grounds in Arizona, California, Mexico and Central America, and return in April and May to Wisconsin. They breed in the fall during migration, and sperm is stored over winter in the uterus of the female until she migrates back in the spring. The female gives birth to usually two pups in late May or June, although up to four pups per female have been recorded. The young are able to fly by themselves about one month after birth. The hoary bat is a reclusive bat by nature preferring to be alone most of its life except during mating and in the fall when they may migrate in groups. They roost alone



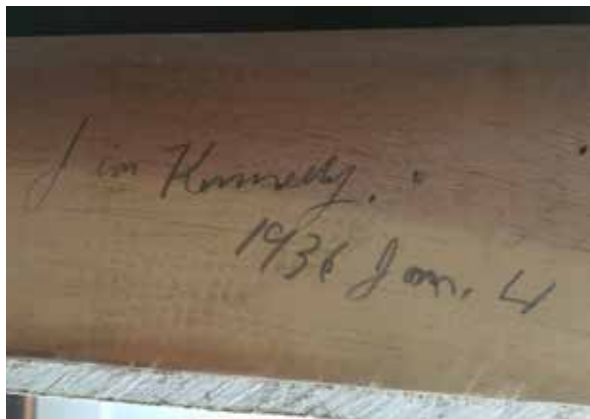
and rarely, if ever, form maternity colonies. Hoary bats roost readily in both hardwood and coniferous forests and prefer large, mature trees. They roost 10-15 feet above the ground on branches among foliage oriented to the south for warmth. Because of its coloring, they can often be mistaken for pinecones at first glance.

Hoary bats are larger and less maneuverable than other bats, and tend to forage in open areas or at high elevations. They will sometimes establish feeding territories and will actively chase other bats away. Their diet consists heavily of moths, but they are also known to eat beetles, flies and true bugs and sometimes even other bats, although those occurrences are rare.

*Source: Wisconsin Department of Natural Resources
Photo Credit: Heather Kaarakka*



Bits of Kemp History Revealed



While completing renovations to the Superintendent's house ("caretaker's house") at Kemp Station last fall, two bits of history were uncovered. The signature of Jim Kennedy, noted area fishing guide who worked for the Kemp family, recorded a January 4, 1936 remodeling date on a beam in the upper level of the house. Also discovered was stenciled shipping information from the Chicago Milwaukee Shipping Company to Mrs. E. M. Kemp, Woodruff, Wis. This stenciling appeared on a few pieces of baseboard used in the house. It is thought that these boards were outermost in bundles of lumber shipped by train to the northwoods.

Carpenter Shop Gets a Facelift

It takes a great deal of skill and effort to maintain the buildings and grounds at Kemp Station. The ages of the buildings range from roughly 100 years to less than one year, so the maintenance needs vary greatly, and Gary Dalka, Kemp Station's Facilities Maintenance Specialist, works hard to keep them all in tip top condition. Over the winter, Gary worked on an update of the station's carpenter shop, originally built in 1926, it is now the hub for many maintenance and carpentry projects. The heated area of the building was expanded and several machine centers were added, including a dust extractor to improve air safety concerns. The shop also serves a critical role for researchers and class groups who need to build field sampling devices and process large samples, such as "wood cookies." Support from Kemp Station's many friends helped make this improvement project possible. The expanded and updated space and equipment will continue to serve the station and its many users for decades to come.



Connor Forestry Center is Ready for Use!

When the Connor Forestry Center was dedicated in October, a significant amount of finishing work remained throughout. Now that most of the final touches are complete and furnishings are in place, it is our honor to give you a glimpse into Kemp Station's newest facility. We look forward to having groups utilize the Connor Forestry Center for teaching and advancing natural resources work in Wisconsin.



The building features two classrooms, each lined with windows offering views of the surrounding forest and lake. At left, the W. D. Connor Classroom is suitable for groups up to 45 in size. At right, the Gordon R. Connor Classroom will seat up to 85 people. Both classrooms are furnished with tables, chairs, a projection screen and projector. The larger classroom is also equipped with a speaker system and microphone.



A spacious entry lounge invites users to gather during class and meeting breaks. A bright catering kitchen is equipped with a large commercial refrigerator, a freezer, stove and microwave. The kitchen has been supplied with essentials for groups, such as large coffee pots and cups, water pitchers and glasses, serving bowls, plates and utensils. A large serving island is situated in the room so that users may comfortably move through the space. Remaining is the completion of the outdoor landscaping and the construction of a large patio on the north end of the building. The patio will feature a fire pit and outdoor seating.



DISCOVERY WALKS AT KEMP STATION

Kemp Station is home to numerous habitat types -- old-growth forest remnants, second-growth forests of hemlock, pine, and northern hardwoods, lake coves, bogs, a bog lake, ponds and over a mile of lakeshore. It is a wonderful place to go for a walk and discover some of the many wonders in nature. This year we are pleased to offer some "discovery walks" on the property, each led by experts in their field. These walks are open to all knowledge and interest levels -- so if you have always wanted to learn some of your birds or plants or mushrooms, please join us! Dress appropriately for the weather, wear comfortable walking shoes for rough trails and possible wet conditions, and bring insect repellent. Unless otherwise noted, meet at the Outdoor Pavilion. **Advance sign-up requested with Karla, 715-358-5667 or kortman@wisc.edu, but walk-ins are welcome!**



Discover the Birds of Kemp Station, led by Anna Buckardt, University of Maine
Saturday, May 6, 7:00 am (Inclement weather date, May 7)

Note: Binoculars recommended.

Discover the Flora of Kemp Station, led by Libby Zimmerman, UW-Madison
Saturday, June 10, 2:00 pm (Inclement weather date, June 11)

Notes: Meet at Connor Forestry Center. Binoculars and hand lens optional.



Discover the Fungi of Kemp Station, led by Cora Mollen & Anne Small, Northstate Mycological Club

Sunday, August 27, 1:00 - 3:00 pm

Notes: Bring a basket and knife if interested in collecting specimens.

EVENING PRESENTATIONS

Held at the Connor Forestry Center. Walk-ins welcome or advance sign-up with Karla, 715-358-5667.

Fantastic Fungi -- Movers and *Shapers* of Forest Ecosystems

Thursday, June 29, 7:00 pm

Fungi are often overlooked and definitely underappreciated. Yet these diverse and highly evolved organisms are critical to function of forest ecosystems. Their varied lifestyles provide roles as symbiotic mutualists, nature's recyclers, or disease-causing tree pathogens. Fungi profoundly influence the initiation, development, composition, stability, and change of forests. Join UW-Madison's Dr. Glen Stanosz for a "fun-gi" filled talk about these amazing life forms!

Research in the Northwoods: Golden-winged Warblers, Woodcock & Young Forests

Thursday, July 13, 7:00 pm

Anna Buckardt is a Master's candidate at the University of Maine spending her second summer at Kemp Station. Join her for a look at her research! Anna has been monitoring American Woodcock and Golden-winged Warbler in managed forest areas on private properties in Northcentral Wisconsin. Part of her study is also to understand the potential for these landowners to act as citizen scientists. She will also discuss how she is using geolocator technology to understand the migratory path of Golden-winged Warblers to better inform the conservation strategy for this declining species.

A Journey Through the Seasons

Monday, July 17, 7:00 pm

Be transported through the seasons during this beautiful 40-minute nature photo presentation by local hobbyist Mark Westphal. With the majority of the photos taken in Northern Wisconsin and many of the subjects found in Vilas and Oneida Counties, the photos feature a wide variety of native bird and mammal species. The program focuses on a special kind of beauty found throughout the seasons and reminds us to look, listen and appreciate the moments that are right before our eyes.



Kids Programs

Kemp Station is pleased to partner with the Minocqua Public Library to offer the following programs for kids. To register for one or more of these, call 715-356-4437 or visit the Library on or after the registration date for each program.



Youth Forestry (Ages 5 to 11)

Thursday, July 6, 10:00 am and 2:00 pm
Outdoor Pavilion

Have you ever wondered how forests grow, change, and provide all of the products we use every day? Please bring your children or grandchildren for a hands-on adventure to learn about the forests around us. Kids will learn how a tree's age is determined and how to measure a tree. Spectacular works of art will be created with leaf rubbings while kids learn to identify trees by their leaves. Kids will love making homemade paper which will introduce them to the science of manufacturing forest products. Each child will go home with a wooden leaf necklace to help them remember all of the important products that come from forests. Registration for this program begins June 27.

Evening Family Campfire Storytime

Tuesday, July 11, 6:30 pm - 8:00 pm
Lodge Fire Ring

Join us for an evening singalong around the campfire with popular area performer, David Dall. Enjoy roasting marshmallows and making s'mores, too. This program is open to all ages and does not require registration.

Skulls, Fur & Chompers!

Thursday, July 27, 2:00 pm
Outdoor Pavilion

Discover the amazing mammals that live in northern Wisconsin! See and touch animal skulls, fur and teeth! Registration for this program begins July 18.

UP CLOSE & PERSONAL

Hands on Learning: Shiitake Workshop 2017

Saturday, May 20, 10:00 am & 1:00 pm

Back for the sixth year! Join Drs. Glen Stanosz and Scott Bowe, UW-Madison, for an introduction to Shiitake mushroom cultivation. This hands-on demonstration will begin with a discussion of the life cycle of Shiitake mushrooms. We will demonstrate how hardwood logs are prepared, inoculated, and tended to grow these delicious mushrooms. Come ready to work! Participants will be asked to form an assembly line to prepare and inoculate logs that can be taken home at the end of the session. You will have an opportunity to perform each step in the Shiitake process so you have the skills to build your own mushroom garden. Mushroom samples will be served to reward your efforts. Advance registration required with Karla at 715-358-5667 or kortman@wisc.edu. Fee: \$10 per person payable in advance; Registration limit, each session: 15

Bird Banding Demonstration

Saturday, July 8, 7:00 am (Inclement weather date, July 9)

Join Anna Buckardt for a demonstration of bird banding. A great chance to see some birds up close. Participants should gather near the white house on your left by the gate.



Kemp Natural Resources Station
9161 Kemp Road
Woodruff, WI 54568



Wood Frog (*Lithobates sylvaticus*)

As a child I learned that the robin was a sign of spring. The robin's song is certainly a welcomed tune after a quiet winter of only the occasional word from chickadees and woodpeckers. But there are other creatures that seem to say "spring" even more loudly than the robin. One that I have recently come to appreciate is the wood frog. Wood frogs spend most of their adult life in moist woods, forest swamps and bogs. On sight, you will recognize the wood frog by its dark eye mask and white line on its upper lip. They emerge from dormancy in early spring and migrate to a vernal pond to breed and lay masses of eggs. To survive, the young must complete their metamorphosis from tadpole to froglet before the pond dries up. Adult frogs eat a variety of small invertebrates found on the forest floor. Wood frogs overwinter under leaf litter, close to the surface of the soil, with their blood and tissues freezing until spring thaw. There are a lot of lowlands near my home, so after snowmelt, some warm days and rain, the ephemeral ponds in the woods are alive with calling frogs. At one of my favorite spots, if you listen carefully, you will hear the duck-like quacking of the wood frogs. They seem to be in competition with their peeper pondmates for the loudest frog award! Listen for the quacking wood frog -- it just may become your favorite sound of spring.



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*Karla Ortman, Editor
Kemp Natural Resources Station
9161 Kemp Road
Woodruff, WI 54568
(715) 358-5667
kemp@cals.wisc.edu*

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