Kemp's Point

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

A Tour of Learning *By Hannah Uhlenhake*

As president of the University of Wisconsin-Madison student branch of the American Society of Agricultural and Biological Engineers (ASABE), I was glad to help arrange our group's travel to Kemp Station early in March. The reason for the trip was to tour facilities around the Rhinelander area that deal with agricultural and forest products engineering. ASABE had a great time learning about different manufacturing facilities and visiting the beautiful facilities at the Kemp Research Station.

We left Madison early afternoon on a Friday. On the way to Rhinelander, we stopped to tour Wood Residuals Solutions in Montello. This new company is full of growth and expansion in wood processing. One of the main products they make is wood shavings, however their new pride and joy is making wood pellets. The innovative processes were really interesting, and it was a great visit.

Saturday morning we toured Pukall Lumber in Woodruff and learned how a sawmill works. It was fascinating and really interesting to see all the different products they make. Next, our group

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Limnology North *By Kristen Palzkill*

I am a student at the Milwaukee Institute of Art and Design. My limnology class, (twelve students and two instructors) took a weekend long field trip to Kemp Station. We began the weekend with dinner at the Minocqua Brewing Company for their Friday Night Fish Fry. It was a welcome meal after the five-hour drive from Milwaukee. After dinner, we drove the few short miles to Kemp Station, braving an unexpected snowstorm. Once we arrived at the Station, I was pleasantly surprised by all the Station had to offer. We were put up in a very nice residence hall equipped with a large double kitchen, rooms to sleep us all, a very nice gathering area and bathrooms, an awesome fireplace (which we kept burning all weekend), and some pretty great scenery too.

The day of adventure would be Saturday, when we drove to a nearby lake to collect some water samples. Since it had just snowed the day before, we observed wolf tracks on the frozen lake, and spotted many bald eagles. These are really cool things that we don't get to witness very often in Milwaukee.

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Tour *(Cont'd from Page 1)*

stopped by the Rhinelander Paper Company. This was especially beneficial for the students who study natural resources. We learned about their water treatment system, as well as the general papermaking process. Our last morning stop was the Rhinelander Agricultural Research Station where we learned a lot about potatoes. All of the time and research that goes into potatoes was very interesting and made for a great tour.

That afternoon we toured ABX, LLC, an injection molding facility that makes rolls of plastic. This newly built facility uses state of the art injection molding processes and testing equipment. When we returned to Kemp Station, we took a tour of the station facilities. Although there was snow on the ground and the lake was frozen, we enjoyed the gorgeous surroundings. Our trip was short, but the students who participated had a great time and learned a lot. I thank everyone at Kemp Station who helped make our visit a success.

Limnology *(Cont'd from Page 1)*

There we were, drilling holes into the ice, when all of a sudden, the ice began to pop and it sounded like fireworks and bass (no, not the fish) coming from underground. Fearing sinking, and a sure drowning death, the girls screamed, pushed the boys out of the way, and darted across the lake. Maurizio, our professor, just looked at us like we were crazy, and told us that we were being big babies. He assured us that we were not going to sink; the ice was about two feet thick, after all. He was right, we didn't sink, and the whole experience was a lot of fun.

After surviving the ice attack, we went back to the Station and used the video-microscope unit to view the critters that we had captured from the lake. It was very cool to be able to see what lives in the water. The rest of the day was spent exploring the property, keeping the fire going, conquering puzzles, and grilling out on the porch. I was very impressed with my Kemp Station field trip, and I hope it is something that a lot of other people get the chance to experience. It really is refreshing to get out of the city funk for a while, and nice to learn a little something while doing so.

Planting Against Lakeshore Erosion

Last September, Kemp hosted a meeting of the Wisconsin Lake Leaders Institute. The program assists citizens in developing and enhancing both their technical and people skills and teaches them how to enrich their communities and the waters within them. Seminar topics include "Society and Environment: Philosophy and Ethics of Lake Management," "Aquatic Ecology and Watershed Management: Impact of Development on Lakes," and "Organizations, People, Politics." Graduates of the UW-Stevens Point program take their new skills and personal connections back to their communities where they help preserve and protect Wisconsin waters. Graduates have been elected to town boards, county lake associations, the Wisconsin Association of Lakes' board, and teams developing state water policy.

From left to right, Kim Becken, of UW-Extension Lakes, help Lake Leaders, Joe McDaniel (Lake Tomah, Monroe County) and Jessica Rice (Silver Lake, Waukesha) plant along the Kemp Station shore of Tomahawk Lake.

A shoreland planting activity was planned for last year's Kemp session. Despite thorough preparation for the activity by instructor Patrick Goggin, nothing could have prepared him for the drenching rain that fell during his time slot. A few of the lake leaders helped Patrick and his colleagues put some plants along the shore at Kemp after the rain stopped. Patrick pointed out that there was one bright spot – "… the rain's runoff allowed me to see the worst of the shoreline erosion in relation to the Boathouse, which was where we planted most of the material."

For more information on the Lake Leaders Institue, visit: www.uwsp.edu/cnr/uwexlakes/lakeleaders/

First Bees -- Now Bats

By John Paul White, Wisconsin DNR

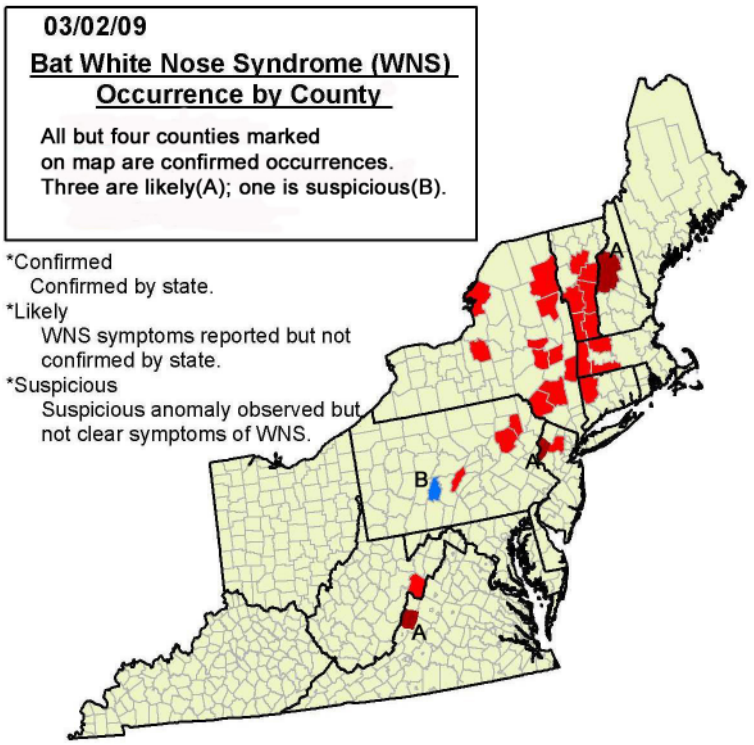
At a Kemp outreach session last summer, WDNR Bat Ecologist, David Redell, spoke of a new threat to bats, a fungus known as White Nose Syndrome. Here, David's colleague, Paul White, shares more information and an update on how Wisconsin bat populations are being monitored.

Only after discovering that honey bees were dying in large numbers due to a mysterious affliction called Colony Collapse Disorder (CCD), did many humans realize the essential "behind the scenes" roles that honey bees provide in crops produced and pollination services. A similar situation is happening in the northeastern United States, only now Bats are unexplainably dying off in massive numbers.

Overall, bat populations are very susceptible to decline because of low reproductive rates and many species congregate at a limited number of locations during critical stages of their natural history (i.e., winter resting sites or hibernacula and maternity sites). Bats provide many benefits to the landscape we live in; from seed distribution, flower pollination, and most notably in Wisconsin pest control. The loss of our bat species would increase the demand for chemical pesticides, jeopardize whole ecosystems of other animal and plant species, and harm human economies. Unfortunately the loss of bat species may become a grim reality as hundreds of thousands of bats have died already in the northeastern U.S. in only 3 years time.

The majority of documented deaths have been observed in or around caves or mines, which is where cave bats (5 of 8 bat species in WI) spend the winter months to deal with freezing temperatures and limited food abundance. First documented in New York in the winter of 2006-07, the large die-off of bats is suspected to be caused by a white fungus (known as White Nose Syndrome or WNS) found on the noses of infected bats. Researchers believe bats are losing their fat reserves (necessary to survive hibernation) earlier than normal, forcing the infected bats to arouse more frequently and possibly attempt to forage during mid-winter conditions which ultimately leads to death. As recently as early March, nine states have confirmed or observed peculiar behavior in and around bat hibernaculas (caves and mines where bats overwinter).

As biologists attempt to answer questions regarding WNS, the role of citizens has become increasingly important. Citizens from the infected region have been helpful by reporting to state and federal agencies where suspicious bat activity and/or die-offs are occurring, while also determining where bat hibernation sites exist. Although researchers have yet to observe WNS in Wisconsin bat populations, citizens continue to play a vital role in monitoring bat health in Wisconsin. Currently the Wisconsin Citizen-Based Acoustic Bat Monitoring Project is accepting volunteers to help collect acoustic bat data as well as identify bat hibernacula (caves and mines) in your area. The volunteer data will provide information on basic ecology and trends in bat populations, which will aid conservation efforts of bat species. With more than half of our bat species in Wisconsin susceptible to WNS, the need for statewide monitoring effort of bats is imperative. Please contact John Paul White, John.White@Wisconsin.gov, at the Wisconsin Department of Natural Resources for more information on how you can help.



The Citizen Based Monitoring bat project was featured on the PBS television show, "In Wisconsin." Watch the segnment at:
http://www.wpt.org/inwisconsin/index.cfm?did=36643

Nature's Road Crew

By Karla Ortman

By human standards, dogs like gross things. And they often choose to eat them or roll in them. These things are usually rotten and smelly, like dead animals and fecal matter. I don't have a problem with this, because it's just what dogs do. However, because the consequences of their actions impact me, requiring some kind of clean up, I prefer that our dogs not participate in these activities.

That's what was on my mind during our morning walk one day last summer as I scanned the ground ahead for "dog treats." And there it was — a chipmunk that did not escape the morning traffic. The dogs hadn't zeroed in on it yet, but as if they could read my mind, they began to veer in that direction. The body was far enough on the other side of the road that walking by without incident was simple enough, but I knew a slight detour would be required on the return trip.

About a half hour later, we were nearing the carcass again. Do I challenge the dogs to a "leave it" so I could remove the body from the road and toss it into the woods, or just lead the dogs around it? I needn't worry because it was gone! An explanation for the disappearance appeared in the form of a blue jay that flew from a nearby tree. It was likely that somewhere a bird or two was having chipmunk for breakfast.

That got me thinking about what a great road crew nature has. It's interesting to note that the word scavenger was originally derived from the Middle English word, scawageour, defined in 1373 as "person hired to remove refuse from streets." In 1596 the word scavenger was extended to animals. I decided to do some research into the various animals that feed on the carcasses, or carrion. These animals are referred to as scavengers. Some feed nearly exclusively on carrion, like the turkey vulture, and for others carrion is just a portion of their diet.

A few special adaptations make the turkey vulture Wisconsin's ultimate scavenger. They have excellent eyesight and a highly developed sense of smell in order to locate carrion while soaring high above. A featherless head allows the bird to feed on a carcass without getting messy. These birds even have some unique ways to clean up after a meal. The bird basks in the sun to bake off any bits of food clinging to its head. Likewise, urinating on its own legs, acids from the digestive system kill bacteria picked up while stepping on its meal. If you've never met a turkey vulture, I encourage you to visit the Northwoods Wildlife Center in Minocqua where you can meet Hortense. She lost a wing to injury years ago and has lived at the Center ever since. On a sunny day, you might get to see her, wing fully-extended, basking in the sun; or, less regally, regurgitating her breakfast. Regardless, seeing a turkey vulture up-close is a treat.

Other large Wisconsin scavengers include the Bald Eagle and the Black Bear. It's not uncommon to see an eagle perched on a roadside deer carcass, or cleaning up after ice fishermen. The black bear's diet is composed primarily of non-animal matter; however, if the opportunity exists, it will eat vertebrates in the form of carrion. A study of scavenging ecology at Purdue University found that "…many small carcasses produced in temperate forested ecosystems are scavenged by vertebrates (mostly mammals) instead of undergoing decomposition by microbes and arthropods, thus discounting the common belief that bacteria, fungi, and other decomposers are the primary consumers of dead animals. This work is showing that carrion use by terrestrial vertebrates is much more important than conventional theory implies, and that carrion resources may be exploited by a large variety of terrestrial vertebrates."

Perhaps a common scavenger that comes to mind is the American Crow. Drive along any highway in the summer and you'll see them picking up dead insects (probably lots of grasshoppers) from the roadsides. Or they'll be feeding on larger carrion, like a squirrel, or even a deer. I was surprised to learn that the Crow's bill is not strong enough to break through the skin of even a gray squirrel. It must wait for something else to open the carcass or for the carcass to decompose and become tender enough to eat.

A close relative of the Crow is the Raven and they too make good use of carrion, a practice that has associated them with evil. "Its resonant 'kaw' has signaled pending doom throughout history in societies north of the equator….During the military invasions and plagues throughout Europe in earlier centuries, the raven dined on human corpses, and they apparently loitered near the sites designated for human executions. The word 'ravenstone' means a place of execution in old English. The Germans have a word, 'rabenaas,' meaning raven's carrion, denoting a person who should be hanged." (Alaska Fish & Game, January 1990)

Many insects, like beetles, blowflies and maggots, feed on carrion. Adult and larval yellow jackets have a unique exchange of resources between them. The adult workers chew and condition scavenged meat which is fed to the

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Learning Opportunities at Kemp

Learn about Wisconsin's natural resources at Kemp Natural Resources Station, a University of Wisconsin research and teaching facility in Woodruff. To register for a session, contact Karla at (715) 358-5667 or kemp@cals.wisc.edu. All sessions are free of charge. The complete schedule is available at www.kemp.wisc.edu.

Most sessions are held in the second floor classroom, above the Kemp Boathouse. There is a short walk to the Boathouse from the parking area and the classroom is accessible by stairs only. Participants are reminded to dress appropriately for the weather and planned outdoor activities.

Thursday, May 21, 8:30 am – 2:00 pm
Experience EcoTrek
EcoTrek is an annual event for 7th graders at the Minocqua-Hazelhurst-Lake Tomahawk Elementary School. Small groups of students move from one learning station to the next along the Kemp nature trail. This year, UW-Madison students from the Wildlife Ecology Field Camp will teach students about fish, reptiles and amphibians, forest songbirds, deer and bear, loons and eagles, wolves and waterfowl. A limited number of participants will be allowed to join these student groups on their trek around the nature trail. Participants are asked to bring a bag lunch and beverage. Rain date: May 22

Experience Wildlife Field Camp
Join UW-Madison students for a taste of Wildlife Ecology Field Camp! Affectionately known as "Summer Camp," students spend two weeks at Kemp Station for an intensive study of wildlife ecology. This year you are invited to participate in some of their learning experiences. Enrollment is limited. Participants should dress appropriately for activity and weather.

Monday, May 18, 3:00 pm - ?
Small Mammal Field Experience
Survey and identification techniques for small mammals, including capture, marking and handling.

Friday, May 22, 8:00 – 10:00 pm
Bat Field Experience
Bat ecology, research techniques, capture, handling, marking, and acoustic surveys.

Tuesday, May 26, 1:00 – 3:00 pm
Wildlife Damage Management
Field demonstrations by USDA wildlife services. Bear, deer, beaver, and wolf management.

Experience Wildlife Field Camp (*continued*)
Thursday, May 28, 9:00 am – Noon
Fishery Management
Fisheries management, fish surveys, fyke net use and fish identification.

Friday, June 19, 2:00 – 4:00 pm
Lichens!
Matthew Nelson, Field Museum and University of Chicago
Join us for an introduction to the world of lichens, symbiotic associations between fungi and algae. Learn more about those bright splashes of color on rocks and trees, the "reindeer moss" along the side of the road, and the "old man's beard" hanging from trees. We'll begin indoors by looking at the biology and diversity of the lichen symbiosis, the roles lichens play in ecosystem functioning and how lichens are used to monitor air quality and forest health. Following this, we will move outdoors and will examine the lichen biota of the surrounding area. You will gain an appreciation for the abundance and diversity of these often overlooked associations! A hand lens is recommended.

Thursday, June 25, 7:00 pm
The Other End of the Journey
Marisol Escaño, ProAves, Columbia, South America
Wisconsin bird watchers look forward to spring when birds return from their southern wintering grounds. Here they breed and provide us with great song and viewing opportunities. But what do they face at the other end of their journey? Join Marisol Escaño, a biologist with ProAves, for a glimpse into the "other world" our summer birds call home. ProAves is a non-profit organization in Colombia, South America whose mission is to protect birds and their habitats in Colombia, through research, conservation actions and community outreach.

Tuesday, July 7, 4:00 – 6:00 pm
Exploring the Kemp Blowdown
Craig Lorimer, Forest and Wildlife Ecology, UW-Madison
Amber Roth, Forest Resources, Michigan Tech University
Jesse Pfammatter & Kirsten Martin, Entomology, UW-Madison
The storm of August 14, 2000, significantly changed the look of the forest at Kemp Station. Driving onto the Station, visitors see what has come to be known as "the blowdown," the 5-acre patch of old growth hemlock forest that was flattened during the storm. Is this kind of event an unfortunate catastrophe or is it part of Nature's larger design? Take a more in-depth look at Kemp's blowdown with Dr. Craig Lorimer, whose research and teaching program focus on forest stand dynamics, or the study of how forests change over time. Joining him to give a perspective on what this type of forest disturbance means to birds is Amber Roth, and to insects, Jesse Pfammatter and Kirsten Martin.

Wednesday, July 15, 7:00 pm
Snakes of Wisconsin
Scott Craven, Forest and Wildlife Ecology, UW-Madison
Scott Craven will talk about all things "snake" and lead an open discussion/question session. Topics will include snake myths, snakes of Wisconsin (and the Northwoods), snake identification, ecology and management. With any luck some live specimens will be displayed, but there will also be an ample array of snake skins, preserved specimens, fangs and rattles, and other artifacts. Reference material will be suggested and provided.

Monday, July 20, 7:00 pm
Aspen FACE Harvest: Summer 2009
Sarah Eisenlord, Graduate Student, University of Michigan
Aspen FACE research tackles the complex issue of global climate change through examining the effect of greenhouse gasses carbon dioxide and ozone on local forests, and the potential to mitigate the predicted negative effects of climate change facing our planet. Ten years of research here in Rhinelander has aimed to answer questions being asked globally such as: Will forests act as a carbon sink or source in future years? Will forests be more or less productive over time with more C in the atmosphere? How do carbon dioxide and ozone interact and what are the implications for forest seedling recruitment and forest regeneration, photosynthesis and respiration rates, and vulnerability to pests and predators? This summer we will be harvesting this experiment to see how, after a decade, these gasses have changed forests of aspen, maple and birch. Data from this summer's project will help answer these questions and more.

Monday, July 27, 7:00 pm
Walleye Spawning Habitat and Recruitment
Gina Rammer, Graduate Student, UW-Stevens Point
The path from walleye egg to adult is a long and arduous one. In fact, it is not uncommon for egg and larval mortality to reach, and even exceed levels of 99%. In some lakes natural reproduction may be limited by a lack of quality spawning habitat. However, after a review of artificial spawning reefs in northern Wisconsin showed that none were successful in increasing natural reproduction, the need arose to better understand the functional role that spawning habitat plays in lake ecosystems to determine when protecting or adding additional habitat may be beneficial.

Sunday, August 2, 10:00 am
Kemp Wetland Walk
Josh Sulman, Dept. of Botany, UW-Madison
Explore the wetlands and aquatic communities of Kemp Station. Observe a variety of wetland plant communities, from bog to sedge meadow to cedar swamp. This is a great place to see many habitat types in a compact area. We'll look at wetland plants' adaptations to their particular environments. We will attempt to understand why wetland plant communities occur where they do. Be sure to wear boots and be prepared for insects.

Tuesday, August 11, 7:00 pm
Co-existence of Wind Energy and Wildlife in Wisconsin
David Drake, Forest and Wildlife Ecology, UW-Madison
Wind energy is growing in Wisconsin and is a mainstay of our nation's alternative energy policy. While wind energy provides many advantages over fossil fuels, lingering concerns remain about conflicts between wind farms and flying wildlife. David Drake will discuss the benefits of wind energy as well as specific conflicts involving wind farms and wildlife. David will also detail research he and his graduate students are conducting at the largest wind farm in Wisconsin, as well as answer questions about wind energy and wildlife.

Field Research Experience Opportunities

New this year! *A unique opportunity to spend time in the field with researchers.*

Tuesday, June 2 and Wednesday, June 3
Bird Survey & Golden-winged Warbler Research
Amber Roth, Michigan Tech University

Enrollment Limit: 2 people per day (An individual may register for one or both activities on a given date.)

Activity 1: 5:00-9:00 am, Bird Survey: Join us as we count birds of conservation concern that are associated with young forests such as Golden-winged Warbler, Chestnut-sided Warbler, Nashville Warbler, Mourning Warbler, Rose-breasted Grosbeak, Black-billed Cuckoo, Northern Flicker, and many others.

Expectations: Participants must be in good health and highly mobile to go "cross-country" through a brushy aspen clearcut (Two sites are visited each morning; participants can meet field crew for one or both sites).

Activity 2: 9:30 am - 1:00 pm, Mistnetting and Banding Golden-winged Warblers
Expectations: Participants may have to walk a ways but will usually stay on good roads/trails most of the time.

Additional information: Both activities are weather dependent and will be rescheduled for June 4 if the weather is rainy and/or windy on your scheduled date. Dress for the weather: 1) wear layers, especially in the early morning, 2) full rain gear is often needed early due to dew on the vegetation, 3) good boots for walking (waterproof, if going on the early survey). Recommended equipment: 1) binoculars, 2) snacks/bag lunch, 3) water or something else to drink, 4) hat, 5) sunscreen, 6) insect repellent or other insect deterrents, and 7) camera (optional). Participants must provide their own transportation to and from sites.

Field Research Experience Opportunities (cont'd)

Flying Squirrel Research
Stephanie Steinhoff, Forest & Wildlife Ecology, UW-Madison

Enrollment Limit: 2 people per day, 1 activity per person

Activity 1: Small Mammal Trapping
Date: Tuesday June 23, Sunrise-12:00 pm & 6:00 pm-Sunset*
(Rain Date: Thursday June 25)

Description: Check, bait, clean & reset live-traps; assist with ear-tagging small mammals and placing radio collars on flying squirrels.
Participant Requirements: Physically fit, able to walk trap lines with brushy undergrowth and some hilly terrain.
Equipment: Dress in layers of clothing, hiking boots (waterproof preferable), rain gear if appropriate, insect repellent, sunscreen, food & plenty of water, camera (optional).
*Times when research crew will be working; specific participation time will be arranged based on participant's interest at registration.

Activity 2: Day Nest Site Searching
Date: Saturday July 25, 9am – 12pm
(Rain Date: Saturday, August 1)

Description: Assist with tracking flying squirrels to nest sites, often in tree cavities, using hand-held radio telemetry devices.

Participant Requirements: Physically fit, have normal hearing, able to hike through brushy undergrowth & over logs and traverse some hilly terrain.
Equipment: Compass (if you have one), layers of clothing, hiking boots (waterproof preferable), rain gear if appropriate, insect repellent, sunscreen, food & plenty of water, camera (optional).

Activity 3: Night Radio Telemetry
Date: Saturday, August 8, sunset-10pm
(Rain Date: Sunday, August 9)

Description: Assist in taking compass bearings on flying squirrels at night using hand-held radio telemetry devices; opportunity to observe nocturnal wildlife.
Participant Requirements: Physically fit, have normal hearing, able to hike through brushy undergrowth & over logs and traverse some hilly terrain, willing to be outside at night in the forest.
Equipment: Headlamp or flashlight, compass (if you have one), layers of clothing, hiking boots (waterproof preferable), rain gear if appropriate, insect repellent, snacks & water, camera (optional).

Participants must provide their own transportation to the Northern Highland American Legion State Forest by Star Lake, WI.

Road Crew *(Continued from page 4)*

larvae. Larvae in return secrete a sugar material relished by the adults, an exchange of material known as trophallaxis. In late summer, foraging workers (nuisance scavengers) change their food preference from meats to ripe, decaying fruits or scavenge human garbage, sodas, picnics, etc., since larvae in the nest fail to meet requirements as a source of sugar.

I am always saddened when I see an animal that has been killed on the road. It helps to know that the carcass will not go to waste, as nothing "goes to waste" in nature. Her road crew is impressive, with scavengers as small as insects up to the large black bear. And, despite my preference, my dogs get counted in that mix as very minimal participants. So enjoy watching the scavengers that help us humans keep America beautiful….now if only we could get them to pick up trash!

WATCH FOR TURTLES!

Slow down around wetlands in June
If it is safe for you and other drivers, stop and help the turtle off the road in the direction it is heading.

Interested in invasive species identification?

The National Institute of Invasive Species Science is seeking individuals interested in participating in a two-day training and monitoring event at the University of Wisconsin-Madison Arboretum, May 30-31. The training will include instruction on invasive species identification, GPS use, monitoring protocols, and data management.

If you would be interested in learning more or participating as a citizen monitor or as an expert on invasive species, please contact **Alycia Crall** (crall@wisc.edu; 970-227-3310).

For additional information visit www.citsci.org or visit http://www.wisconsinrivers.org/index.php?page=content&mode=view&id=167 to learn more about aquatic invasive species.

Goldthread (*Coptis groenlandica*)

Last summer I came upon a small flowering plant that was unknown to me. It was growing not far from the road, at the edge of a boggy, forested area. It was a pretty little plant with clover-like leaves and a delicate white flower. After failing to find it in any of my field guides, I photographed it and sent the email to someone who could tell me what it was. One of the benefits of working at Kemp is meeting people who are experts on topics like wildlife, insects, fish, and forests and so on. UW-Madison Professor of Botany, Dr. Tom Givnish, brings his Vegetation of Wisconsin students to Kemp each fall and has been doing so for many years. What better person to ask for help? He identified my mystery plant as goldthread and here's what he said about it:

*Goldthread (*Coptis groenlandica*) has small, evergreen, dark green leaves with three leaflets each, generally held just at ground level, and the flower stem is leafless. The leaves and flowers join to underground rhizomes that are yellow in color. Probably the only look-alikes for the flowers are wood anemone (those flowers are bigger than those of goldthreads) and barren strawberry. The latter is a member of the Rose family, and has substantially bigger, non-evergreen, slightly lighter leaves than those of goldthread (i.e., they are also trifoliate). Usually there are bristles (minute thorns) on the stems and petioles.* Coptis *ranges from Greenland (hence its specific epithet, groenlandica) through boreal North America to NE Asia and Japan. Not quite circumboreal, but almost!*

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