Kemp's Point

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

A Connection Between Wolves and CWD?

By Madelyn Anderson, Kemp Station Communications Intern

There are many sights to see while strolling Kemp Station – lapping waves, sprouting wildflowers, and occasionally hands-on research. For graduate researchers Ekaterina Khadonova and Michael Menon, the latter was a common experience this summer. The two were often found outside of the lab, dissecting deer carcasses to retrieve lymph nodes. While this may sound like a gruesome task, it was vital to test for one thing: the presence of chronic wasting disease (CWD).

CWD is a lethal disease prevalent in Wisconsin white-tailed deer, and even a few elk. It is caused by a prion, which affects the folding of proteins in the brain. Once an animal contracts it, there is no cure. Experts in the field are unsure of how CWD affects humans, so the Wisconsin Department of Natural Resources (WDNR) recommends not eating harvested game that tests positive for the disease.

Fortunately, the northern part of the Wisconsin white-tailed deer herd is currently clean from CWD. Menon, who is pursuing his PhD in wildlife ecology at UW-Madison, wonders why this is. "One hypothesis is that gray wolf predation pressures are keeping it from spreading into northern counties, because they selectively predate on sick deer," said Menon. "Another aspect is that wolf pressure on the landscape may cause less scavenging by species that would carry large parts of a carcass away, spreading the disease on the landscape."

In order to answer these questions, Menon is working with Ekaterina Khadonova, who is seeking her Masters in environmental biology at State University of New York, College of Environmental Science and Forestry (SUNY-ESF). Together, the two have been giving new purpose to deer who lost their lives in vehicle collisions. After retrieving the animal, they remove its lymph nodes to test for CWD, and then construct a research site with the carcass. Sites are spread across the state, and consist of the deer as well as trail cameras to observe scavenging behavior.

Additionally, the study will use drone surveillance and gray wolf collar data to identify kill sites. "This allows us to actually go in where a wolf has killed something,

Above: Khadonova and Menon extract lymph nodes from road killed deer. Below: The deer carcass is trasnported to a study site where it will be monitored for scavengers. Image credits: Madelyn Anderson.

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Kemp Profile: Ekaterina Khadonova

Hometown: Saint Petersburg, Russia

Educational Background: BA in Human Ecology from College of the Atlantic, ME (2021). Currently an M.Sc. student in Gurarie's Animal Movement and Spatial Ecology lab at SUNY ESF, NY.

What is the purpose of your project?
Our work is a part of the larger research project exploring the effects of selective predation by grey wolves on the spread of chronic wasting disease (CWD) in white-tailed deer. My portion focuses primarily on creating an interactive, web-hosted app that would allow wildlife managers and the general public to forecast and visualize different scenarios of CWD spread in Wisconsin. This app will be based on a spatially explicit epidemiological model that I am creating under co-supervision of Dr. Gurarie (SUNY ESF) and Dr. Van Deelen (UW-Madison).

Wolves & CWD *(Continued from Page 1)*

sample that tissue for CWD, and determine whether there is a relationship between wolves on the landscape and the CWD curve," said Menon.

Khadonova is using data collected from these various methods to develop a spatially explicit predator-prey disease model. This project's interdisciplinary efforts are supported by a diverse group of organizations, including the WDNR, United States Geological Survey Wisconsin Cooperative Wildlife Research Unit, SUNY ESF, and Colorado Parks & Wildlife.

However, the most unique and impactful funder of Menon and Khadonova's research is the Great Lakes Indian Fish & Wildlife Commision, which operates on behalf of the Ojibwe people. "They are interested in our project due to the cultural significance of the gray wolf," said Menon. "To them it's a brother; they roam the earth equally." Whether you are a member of the Ojibwe, a part of the deer hunting community, a conservationist, or a curious citizen this project has a piece for you. Menon will be furthering his research for years to come, and Kemp Station is honored to play a role in supporting it.

This first field season was dedicated to a different facet of the project, for which Michael Menon, a Ph.D. student at UW-Madison, and myself were placing roadkill white-tailed deer in various locations around the state with camera traps nearby. By reviewing the footage later, we will be able to tell which species primarily feed on the carcass and how long it takes for it to be fully consumed. By comparing that data between locations with or without recorded grey wolf presence, we are hoping to estimate predator pressure and the duration of carcass persistence in the environment.

In the winter, we will start using GPS data from wolf collars to visit kill sites and take tissue samples from depredated deer after a pack leaves the site. We will reference GPS collar data to determine the location of the kill by location 'point clustering' and visit those sites for data collection. Testing those samples for CWD will allow us to compare the proportion of infected vs. uninfected deer that get targeted by wolves. All of this information can then be used to conclude whether selective predation by this species is an effective tool in slowing down or altering the spread of CWD through the landscape, ultimately contributing to the pool of knowledge regarding grey wolves' ecological role in the Great Lakes Region and potential to manage the spread of this devastating disease in local ungulate populations.

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Khadonova *(Continued from Page 2)*

The duration of the bi-seasonal studies will be from summer 2023 through winter 2026.

How is your project funded?: This project is funded by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC). Other collaborating parties include the Wisconsin Department of Natural Resources (WiDNR), UW-Madison, and SUNY ESF.

Describe a typical day of project/fieldwork: A day begins by driving to the county where we plan to place a carcass. We travel a 10-mile radius around our pre-determined site looking for fresh roadkill white-tailed deer to collect from alongside major roads. The carcass must be as fresh as possible – ideally, we would want to find ones that have been around for less than 24 hours. Once we find a suitable specimen, we collect it and take it to where we can extract the lymph nodes and the lower jaw. The lymph nodes will eventually be sent to a lab to be tested for CWD, and the teeth will be used to age the deer. After the extraction is complete, we take the carcass over to the site – usually, a relatively remote location off the trail. At the site, we secure the carcass using natural-fiber rope (to prevent it from being carried away by larger predators like bears or wolves) and place two game cameras facing the carcass to record any activity around it (*Photos at right*). We take precautions to not track too much scent in and move around carefully, minimizing our impact on the surrounding area. We leave the site and allow natural processes to take place for the duration of the season. By the end of the season, we collect the cameras and review the footage to determine what species were present and how quickly the carcass was "cleaned up."

What challenges have you faced while working on this project?

The process of obtaining the necessary permits and accessing the data necessary to run this project at full capacity has been rather lengthy and difficult. We spent a fair amount of time working with agency representatives and figuring out all the steps needed to obtain government approval to conduct our studies. That being said, this summer proved to be incredibly helpful for getting to know the many people who will be helping us with the project in the future.

What have you enjoyed most working on this project?

My favorite practical part about this project was learning how to perform lymph node and jaw extractions! It requires a little bit of skill to know where to look and how to remove them in the cleanest way. Thanks to Michael, I had a chance to practice it. I also really enjoyed getting to know more about Wisconsin natural history, politics, and people. As someone who is based in upstate New York, I was thankful for the opportunity to learn more about this place and meet with many stakeholders and collaborators this summer.

Reflection on Summer -- Why not?

By Madelyn Anderson, Kemp Station Communications Intern

When my friends and family asked why I was moving to a tiny town in the middle of the woods for the summer, I answered with a question: "Why not?" It seemed like a simple response at the time. I had been searching for an internship to merge my passions of art and science, and when my professor recommended this one, applying felt like common sense. Little did I know those two words would become the genesis of my experience at Kemp Station.

Want to jump into Tomahawk Lake after a morning run? Why not! Interested in holding a golden-winged warbler or dissecting a deer? Why not! Ready to board a boat at midnight and interview researchers while they electrofish? Why not! Don't get me wrong, a large piece of my role as Kemp's Natural Resources Communicator involved creating spreadsheets, editing photographic details, and planning content. But for every mapped-out moment, there was another totally unexpected memory.

For example, one July morning I was lucky enough to join The Loon Project and observe their fieldwork. My eyes were so heavy from sleep when I met up with technician Claudia Kodsuntie, I had to rub them to believe what I was seeing. Our site for the day was a pristine lake, and there were two life vests and a canoe waiting for us on the dock. As the sun rose we paddled the body of water, searching for a tagged loon to collect data on.

I will never forget the way my heart leaped when we found one. I photographed my new feathered friend for an hour, all the while getting a lesson in loon behavior. We watched an intruder fly into the property and the two performed a circle dance. Feelings of awe and wonder flooded me. Those emotions only heightened throughout the summer. Everywhere I looked, there was another story to tell.

Thanks to those passing through the station, I got to talk with a truly unique and engaging group of people. I interviewed researchers in diverse locations, from the top of carbon flux towers to the bouncy floor of bogs. My camera ventured between tree branches, on top of boat seats, and underneath bird wings. I felt like a constant student -- of experts in scientific fields, of local community members, and of the world around me.

Although each week was a new adventure, with tasks ranging from field tag-alongs to outreach sessions, Kemp Station provided a sense of peace. I had the opportunity to acquaint myself with Northwoods flora and fauna, identifying what I saw while paddleboarding or hammocking each day. Beyond this connection with nature, I bonded with the amazing residents and staff at the station. There are few places where folks will gather around a campfire or help you jump your car at the drop of a hat, but Kemp is one of them.

I am so thankful to have lived and worked here, and to have brought a slice of sanctuary to those outside of Kemp. As I continue my science communication journey, I will carry the lessons I learned this summer with me. And, who knows, they might even lead me to come back and visit the place where I fell in love with my field again someday. After all, why not?

Kemp Station Joins Wisconet

A new weather and soil monitoring station was installed at Kemp Station this fall. Part of the Wisconsin Environmental Mesonet (Wisconet), which is a growing network of weather and soil monitoring stations across Wisconsin, designed to provide high quality data at high spatial and temporal resolutions. There are currently 14 Wisconet stations with plans to expand to around 90 by 2026. Each Wisconet station provides more than one dozen measurements every 5 minutes.

The two longest-running stations in Wisconet (Arlington Research Station and Hancock Research Station) have provided data since 1985. In the 2010s, eight stations were added to the Door Peninsula to support cherry and apple growers, and in 2021, four stations were installed at University of Wisconsin research stations.

"Fish Up Close" --- an outreach success!

After four failed attempts due to weather, full schedules and the pandemic, we were so happy to finally host the summer outreach session, "Fish Up Close," in collaboration with the Wisconsin Cooperative Fisheries Research Unit of UW-Stevens Point. The 5th time was the charm! Over 30 participants of all ages visited Kemp Station for a close up look at electroshocking equipment, larval fish in microscopes, and active adult fish in holding tanks. Some brave kids even observed an otolith (ear bone) dissection! If this sounds interesting to you, be sure to watch for the opportunity to learn about aquatic friends next year.

Early 2024 Learning Opportunity

Wildlife Mini-Symposium
Saturday, February 10, 8 am - Noon
UW-Madison graduate and post-doc students will present 15 minute talks about student research projects on a variety of wildlife related topics.

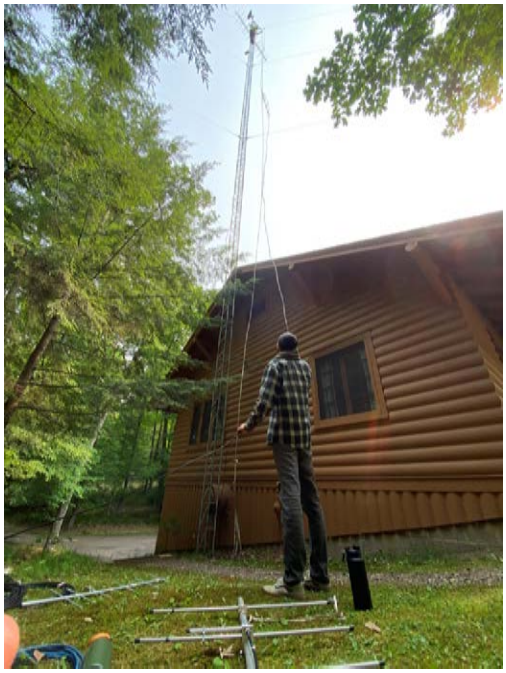
Additional information will be available at kemp.wisc.edu/outreach.

Forest Industry Conference at Kemp Station

State and federal agency employees from gathered at Kemp Station in October for The Wood Utilization & Marketing Boot Camp Academy. Participants from California, New York, DC, Alabama, Tennessee, Virginia, Oklahoma, Minnesota, and Iowa toured multiple forest industry sites helping to fill gaps in their knowledge of forest operations, the primary supply chain, sawmills, mass timber and wood energy.

An Unusual Friendship

Kemp Station Facilities Technician, Gary Dalka, befriended a ruffed grouse this year. It would come out of the forest behind the Shop and over time became more tolerant of Gary's presence. We call him the Grouse Whisperer.



Monitoring Device Added to Kemp Station Tower

On the cover of Kemp's Point 2023 spring issue was a story about a bird, an American redstart, that had been captured and tagged while in Jamaica. It had found its way to northern Wisconsin and was found to be breeding near Rhinelander. University of Maine Master's student, Emily Filiberti discovered this while checking data collected by the two Motus Wildlife Tracking Systems she had deployed to help her find "her birds," the golden-winged warblers she had tagged the previous year. Now one of these tracking station lives on the tower above the Office/Lab building at Kemp Station. The Motus Wildlife Tracking System is a network of hundreds of collaborative researchers that independently manage thousands of telemetry stations across the globe. All stations in the network are able to receive signals and upload detections from over 35,000 tagged birds, bats, and insects. The network allows both researchers and the interested public to track the movements of wildlife around us, whether that entails tracking the small, local movements of Monarch Butterflies, or following a well-traveled Sandhill Crane as they migrate south to overwinter. The station recently erected at Kemp has the capacity to detect all tagged migratory birds passing within a 15 km radius, and each detection will play its role in piecing together the often mysterious migratory journeys of the birds around us.

Kemp Profile: Divana Bynoe

Hometown: Miami, Florida

Educational background: I attend Florida International University, pursuing a major in Environmental Studies and a minor in Hospitality. I expect to graduate in Spring 2024.

Tell us about your summer internship: This summer internship was my "foot-in-the-door opportunity" to do ecology and research. Employed by Student Conservation Association (SCA) and sponsored by Americorps, my internship entailed working with the National Science Foundation's National Ecological Observatory Network (NEON), which is managed by Battelle. NEON specializes in monitoring various ecosystems nationwide to provide data that in turn give answers and support in researching and mitigating climate change.

Describe a typical day of fieldwork: A typical day in the field was driving to one of our many sites around Northern Wisconsin and the Upper Peninsula. At the field sites, our team starts by navigating through the lush forests and locating the established NEON plots that have been sampled over the course of 10 years by field technicians. Once there, we do a variety of activities such as recording this year's vegetative growth or seasonal phase ("phenology"), collecting plant samples, maintaining infrastructure, and more.

What challenges did you face during this internship?: A challenge faced during this internship was becoming familiar with the world of ecology and research – a world I have not had the opportunity to learn until now. My personal, biggest feat has been learning the native Wisconsin plants by their scientific names. Being a Florida girl immersed in a new and vibrant ecosystem very different from what I have always known did not make this a smooth endeavor. However, with the knowledgeable, supportive, and great team at NEON, nothing felt unachievable.

What did you enjoy most about this internship?: I most enjoyed being in a space surrounded by like-minded conservationists who strive to see the world preserved and who want improvement in the future. New found knowledge – scientifically and culturally – is information I will treasure, along with the people with which I shared this experience. Time in the field with my team – whether it was having lunch in a wet bog, swatting at a swarm of mosquitoes, or kneeling with a face full of sedges to find one tiny maple seedling – these were some of the best moments of my summer.

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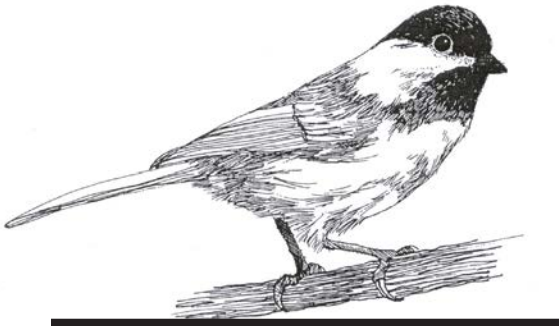

Black-capped chickadee (*Poecile atricapillus*)

Wherever you are at Kemp Station, the call of the black-capped chickadee can often be heard. Part of the songbird (*Paridae*) family, these birds have a distinct tune. In our area, many say it sounds like "hey, sweetie" or "fee-bee". Their charming two note whistle is just one of many reasons the black-capped chickadee is a beloved species. The birds also have cartoon-like proportions, with large heads and an otherwise small body, typically around 5 inches in length. If you find yourself in a habitat with deciduous or mixed trees, keep your eyes open for their black cap, white cheeks, and grey and white feathers. They are common year round across the northern United States and into southern Canada. Black-capped chickadees are known for their inquisitive spirit, living in flocks and often associating with other small species. And, if you encounter one in a park, do not be surprised if they come to check you out. Want to ensure an interaction? These birds are easy to attract with feeders and nest boxes! Their summer nutrition is typically largely insects, but they will gladly enjoy a seed or nut treat in your yard. I inherited an old nest box that hung for years on a fence post at my grandparent's farm, used by bluebirds there. It now hangs on a post near our large garden. While working in the yard this summer, I heard sounds coming from the nest box. As I paused to look over in that direction, a chickadee landed on the nest box with a mouth full of what I imagined were tiny catepillars. I was thrilled to know the box was home to little chickadees who would later treat me to their "fee-bee" whistles. *-M.A. & K.O.*

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