



Kemp's Point

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

Tiny Backpacks for Birds

By Karla Ortman

When I learned about the tiny backpacks Anna would be placing on birds as part of her research project, I couldn't believe it. I knew that I would need to tag along with her on a study site visit to see just exactly what she was talking about. After all, seeing is believing!

Anna Buckardt is pursuing a Masters in Wildlife Ecology at the University of Maine and is using Kemp Station as home base for her summer field seasons. The overarching theme of Anna's research is to understand how breeding birds, especially American Woodcock and Golden-winged Warbler, are using young forest management on private lands in northern Wisconsin. Anna also wants to understand how landowners can be involved in monitoring wildlife in these managed areas.

According to the website for the Wisconsin Young Forest Partnership (youngforest.org/wi), one example of a young forest is "...the shoots and sprouts of young trees springing up again in incredible numbers from the root systems of older trees following a timber harvest." Forests are considered young for about 10-20 years, after which they mature and become less useful to some wildlife species. The good news is that young forest can be made or renewed by following some specific forest management guidelines, which ultimately result in the production of sustainable forest products and habitat for numerous wildlife species.

Thanks to prior research there are "best management practices" available for creating young forest for both American Woodcock and Golden-winged Warblers. Because the habitat needs of the two



Anna Buckardt holds a Golden-Winged Warbler at one of her study sites.

species seem to overlap, there is a potential opportunity for forest managers to increase conservation for both species by implementing best management practices for the "pickier" of the two birds, namely the Golden-winged Warbler. Anna's study will help determine if this opportunity exists.

We will get to the tiny backpacks on birds soon, but let's start at the beginning of Anna's field season. Woodcock mate in early spring, usually late March to early May in Wisconsin. During the courtship process, the male birds make a peenting call and perform a twittery flight display that happens for just a couple hours each night. One of Anna's specific research questions is: "Are male American Woodcock more abundant in young forest habitat management areas that follow Golden-winged Warblers best management practices than in mature sites?" To help answer this question, Anna

(Continued on Page 2)

Backpacks (From page 1)

conducts singing ground surveys for male American Woodcock. Beginning at sunset, Anna visits the study sites and counts the number of male woodcock heard peenting.

The next phase of her spring field work includes doing early morning breeding bird point counts. On some days, Anna would rise as early at 3:00 am in order to reach certain study sites in time to start point counts one half hour before sunrise. During a point count, she stands at each point for 10 minutes and records every bird she sees or hears during that time period. These surveys can be conducted until four hours after sunrise. In early June that means point counts end around 9:00 am, right when many people are just starting work for the day! Data collected

from point counts will help inform another of Anna's research questions: "Do Golden-winged Warbler habitat management areas provide high quality habitat for breeding birds as indicated by higher species diversity relative to mature sites?"

Finally, it's time to talk about tiny backpacks for birds! Okay, so they aren't actually backpacks that hold tiny gear for birds, but are geolocators worn by the bird just like a person wears a backpack – except the loops go over the bird's legs. This is what I got to see close up and personal in the field with Anna.



Clockwise from left: Anna and Vanessa deploy the mist net along the edge of the young forest habitat; Male Golden-winged Warbler with bands, the unique color is to be able to easily identify him when we see him again without having to recapture him; a Golden-Wing just before release, wearing the "tiny backpack" geolocator.



Anna selected a location for the mist net, a light-weight mesh suspended between two poles. Once in place, she deployed a decoy to represent the "invading male golden-winged warbler" – a bright yellow dish scrubber brush! To help make the decoy more convincing, Anna played a recording of a male



Anna gently removed the bird from the net and carried him to the work space that had been laid out in a shaded area. Vanessa, volunteer-extraordinaire, helped Anna throughout the summer and was on hand that day to assist with the "processing" of the bird. Working quickly and efficiently, the pair took and recorded various physical measurements including weight, wing length, body length, tarsus length, tail length, and beak length, width and depth. The

Golden-winged Warbler. It was amazing to me how quickly I heard Anna exclaim, "We've got one!" Sure enough, a male Golden-winged Warbler was caught in the mist net!

(Continued on Page 3)

Page 2



Backpacks (From page 2)

sex and age of the bird was also determined. Photos were taken of the bird and a non-essential feather collected for DNA analysis. Next, a unique set of bands were placed on the bird's legs – “bracelets for birds,” Anna quipped. Finally, since this bird was big enough to support it, a geolocator with a leg loop harness was attached to the bird. With the tiny backpack carefully in place, the bird was released. Anna watched carefully to make sure the bird could fly uninhibited by his new gear.

Over the course of the field season, Anna captured 48 male Golden-winged Warblers and placed geolocators on 28 of them. The non-backpacked birds are used as control birds. If all goes as planned, each geolocator will be in place on each birds back for a year to track the bird's annual movement. The geolocators collect data on when it's light out which can be used to estimate longitude and latitude. Next year Anna will return to her study sites, recapture the same birds and remove the geolocators. The data from the geolocators will be analyzed and she will be able to determine where the birds migrated and spent the winter. This will inform another of her research questions: “Where do Golden-winged Warblers breeding in Wisconsin young forest management areas go during migration and winter?”

With bird surveys completed and warblers banded and backpacked, Anna's work in late summer turned to vegetation surveys and landowner interviews. At her field sites, Anna measured things like tree diameters, counted shrubs, and identified lots of plant species. The vegetation surveys are used to determine what habitat features the birds are associated with and to determine how closely the habitat management meets Golden-winged Warbler Best Management Practices. Both of these pieces of information will have implications for improving conservation.

Her other activity in late summer was conduct-

ing interviews with landowners. These people have implemented young forest management techniques on their properties and have hosted Anna's research sites by providing her access for surveys. During these visits she spoke with people about what they knew about citizen science and shared opportunities for them to get involved with wildlife monitoring on their properties. What Anna learned from these interviews informs her final research question: “What is the best way to engage landowners in wildlife monitoring after pursuing young forest management on their properties?”



Above: The age of the bird can be determined by its plummage. Right: Volunteer Vanessa holds a male Indigo Bunting, an accidental capture in the mist net that day.

Clearly Anna had a very busy summer with all the surveys and tasks she needed to complete for her study. She said the greatest challenge she faced



was the logistics of getting everything done on time. She had to schedule 5 different surveys at each of 49 different survey points across 32 different sites between April and July. That was a lot to keep straight and accomplish in a short amount of time. Anna credits her volunteers for helping her to accomplish her goals, and that without them, she would not have been able to do it all!

My bias is that Anna's research project is pretty neat and she is the perfect fit with her enthusiasm

(Continued on Page 4)



The Case of the Magic Spider?

By Karla Ortman

One night I discovered a large bodied spider suspended about 8-inches below the kitchen window just outside the back door. It appeared to be hovering there by some magic force, but a closer look revealed a nearly invisible web. The web was about 16-inches in diameter; it was intricate, beautifully constructed and very clean.

Each night, the spider was in the same spot, in the center of the web, suspended head down. But each morning, the spider was missing, as though it had vanished into thin air! After some investigation, I found her tucked away above the web, under the trim of the kitchen window.

I sent a photo of the spider to PJ Liesch at the Insect Diagnostic Lab on campus for identification. What I had was an orb-weaver spider, although he couldn't determine the species because of the photo quality. Orb-weavers belong to the spider family *Araneidae*, the third largest family of spiders. The word "orb" was once used in English to mean "circular," thus the circular shape of the orb-weaver's web.

When beginning construction of the web, the spider casts a line to the breeze in hopes of it fastening to something nearby. Once that line is secure, a second line is dropped to form a 'Y' and then the remainder of the circular web is constructed, like adding spokes to a wheel. Orb-weavers are most active at night, which explains why I was only seeing the spider in the web after dark. My spider was taking advantage of the outdoor light attracting insects to that area of the house, including the many mosquitoes that were after us and our dogs! Orb-weavers also perform web maintenance, repair or reconstruction at night, which explains the cleanliness of the web. Many orb-weaver spiders consume the old web and build a new one each day. It takes about an hour to build the web. Male orb-weavers do not spin webs, but spend their time looking for mates, and sometimes end up as the first meal of the female after mating!

Thanks to the appearance that this spider had magic powers with an invisible web and daily disappearance act, I was encouraged to learn a bit more about nature's magic, just outside the back door. 🕷️



Backpacks (From page 5)

and passion for not only the topic, but also for sharing the experience and knowledge with others. When asked what she enjoyed most about her project so far, she said one thing she loves is getting to be outside so much to enjoy Wisconsin's beautiful habitats and wildlife. "The second aspect of this project that I found so enjoyable was meeting and working with so many wonderful people. Getting to know the people whose properties I have studied and being able to share my knowledge and excitement with them was such a joy! And the volunteers I worked with this summer were so knowledgeable, helpful, and fun! I'm looking forward to another summer spent at Kemp!"

I too look forward to having Anna at Kemp Station again next year. And I am eager to

hear about the returning birds and just what their tiny backpacks reveal! 🐦

Anna's research is funded by grants and small donations. Each topic in her research is funded separately. In 2016 and 2017 the American Woodcock surveys and basic study design logistics are funded by a US Fish and Wildlife Service Grant. With funding from the Wisconsin Sustainable Forestry Initiative Anna was able to expand her study to include breeding bird surveys and landowner interviews. The Golden-winged Warbler banding and geolocator deployment is funded by a collection of sources, including the Natural Resource Foundation of Wisconsin, Ozaukee Washington Land Trust, the Wisconsin Audubon Council and Audubon chapters across the state (Aldo Leopold, Chappée Rapids, Chequamegon, Winnebago, Northeast Wisconsin, Green-Rock, Hunt Hill), and three private donors (Shirley Klapperich, Chris and Jude Ford, and John and Laurie Johnson).



Kemp Profile: Nick Rydell

Hometown: I grew up in St. Peter, a small town located in southern Minnesota.

Educational background & current area of study:

I received my BS in Biology from Minnesota State University, Mankato in 2014. After receiving my BS I worked for the Minnesota Department of Natural Resources for a short time conducting fisheries surveys. In 2015 I began my pursuit of a MS at UW-Stevens Point as a graduate research assistant under the Wisconsin Cooperative Fisheries Research Unit.

How is your research funded? This project is funded through the Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Species Fund.

What question does your field research answer?

My project is trying to determine the effects of whole lake 2, 4-D herbicide treatments on fish and zooplankton. The herbicide 2, 4-D is commonly used to control the invasive aquatic plant Eurasian Watermilfoil (*Myriophyllum spicatum*), with whole lake treatments being a fairly new development. While the effects of 2, 4-D on aquatic plants has been well studied, little is known regarding the effects of these herbicides on other aquatic organisms. This project will have a primary focus on fine scale changes such as larval fish growth and changes in zooplankton communities, among others, to determine if the chemical is having an effect in some way.

Describe a typical day of fieldwork: Sampling is quite variable, but a typical day involves traveling to 3 lakes to collect larval fish, zooplankton, water quality,



Field technician Ben Breaker uses a seine net near the shoreline to survey juvenile fish.

algal and chlorophyll-a samples. After a full day of sampling we typically head



back to Kemp Station to eat supper, resupply and head out just before dark to set light traps (used to collect larval fish) or go electrofishing at night. Then get up the next morning and repeat on the other 3 lakes. Other days may involve seining for juvenile fish, collecting water samples for 2, 4-D concentrations, conducting aquatic plant surveys or lab work.

What is the biggest challenge you've faced working on this project? Things can and will go wrong when you're doing field work and especially when you have a large amount of sampling equipment. Between



The field crew prepares the electroshocking boat for its evening use.

having equipment break to having boat motors inoperable, it has been tough to keep up with a stringent sampling schedule. This project has definitely taught me to think on the fly and problem solve to get things done.

What have you enjoyed most working on this project? Not everyone gets to call the lakes in the Wisconsin northwoods their office, but from May through August, I do! Getting to work on a lake every day and sample things people rarely get to see is a dream job to me.



Forests and Sustainability

By Scott Bowe

In June I had the opportunity to travel in China for a wood products conference and trade show. The venue was in the southwestern city of Chongqing, located at the confluence of the Yangtze and Jialing Rivers. The city itself has a population of 8 million people, which is average by Chinese standards. Chongqing plus the surrounding urban area contains more than 30 million people making it the fourth largest urban area in China. Imagine, there are six times more people in Chongqing than in all of the state of Wisconsin.



Looking out of the 55th story window of the hotel one evening, I could see concrete, steel, and glass buildings to the horizon. I suppose this is no different than any other major city in the world, but when I look out my office window at Kemp Natural Resources Station, I see trees. I consider myself lucky to live in the northwoods -- an urban area of 30 million people is a bit too crowded for me. The experience in Chongqing made me think about our natural resources.

What choices do we make when we choose the products we consume in our everyday lives? Certainly some choices must be better than others? I believe that forests, including the forests all around us here in northern Wisconsin, are a perfect example of sustainability.

In forestry, we have a great story to tell about sustainability. There are two important facts about forests in the United States and in Wisconsin: 1) forest area is increasing and, 2) wood volume is increasing.


We have been gaining forestland acreage in the United States since the 1980's, primarily as marginal crop and pasture land has been planted with trees or has reforested naturally. In Wisconsin, we have been gaining forest acreage since the 1930s, so the state now has more forestland than at any time since inventories began in 1936. Many people see what is happening with tropical deforestation and assume the same thing is happening here in our temperate forests, but that is not the case.

Wood volume in the United States and here in Wisconsin is also increasing. The growth to removal ratio in the United States is 2.5 to one. This means that for every 1 cubic foot of wood harvested from the forest, we gain 2.5 cubic feet of new growth. In Wisconsin, the growth to removal rate is 1.8 to one. So for every 1 cubic foot of wood harvested from the forest, we

gain 1.8 cubic feet of new growth. This even takes into account the loss due to natural tree mortality. Imagine a checking account where you gained 1.8 dollars for every dollar you spent!

One of the benefits of our forests is that they have many uses and these uses are not exclusive. We call this a multiple use forest. Forests provide environmental benefits such as wildlife habitat and clean water; forests provide social benefits such as recreational opportunities and forests provide economic benefits such as revenue to the landowner from timber harvests. These are all benefits of a managed forest.

Some people are turned off when we talk about the forest industry's role in forest management. The forest industry plays an important role in the ecological well-being of our forests. Without markets for harvested timber products, landowners would find it less financially viable to maintain large blocks of forests. A decline in our forest industry would lead to parcelization and fragmentation of our forest resource. Additionally, forest landowners would be less willing to tackle other issues affecting the ecological health of the forests if the timber income was not available to support the other projects.

Chongqing China and Woodruff Wisconsin are worlds apart in distance, population, and natural setting, but it does demonstrate our need for sustainable natural resources to meet growing consumer demands. Chongqing was a fun place to visit, but it is hard to beat the multiple use forests of northern Wisconsin. 



Connor Forestry Center Building Dedication

On Saturday, Oct. 15, more than 50 people celebrated the dedication of the Connor Forestry Center at Kemp Natural Resources Station in Woodruff, WI. The Center was made possible through a generous gift from Mary Connor Pierce and her husband Dudley Pierce. On hand for the celebration were family and friends of the Pierce's along with key players who helped in making the building a reality. The 4,500-square foot building includes a large 80-person classroom named after Mary's father Gordon Robert Phelps Connor and a 35-person classroom named after her grandfather William Duncan Connor. Both men played significant roles in Wisconsin's forestry industry (see plaques below).



Speakers at the dedication included Scott Bove, superintendent of Kemp Station, Dean Kate VandenBosch and Mary Connor Pierce. Tom Steele, emeritus superintendent of Kemp Station, closed the program by describing how Mary's legacy gift in honor of her family will have another lasting legacy as the Connor Forestry Center will serve as a place to train future leaders in forestry and natural resource management for decades to come.

The Connor Forestry Center is an all-season building and will be available for instruction, conferences and outreach events related to natural resources. Each room features in its finishings a different species of wood common in northern Wisconsin. Art work and historical photos donated by Mary and Dudley Pierce will be on display permanently throughout the building. An open house for the public is anticipated in 2017.



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Northern Flicker (*Colaptes auratus*)

My neighborhood northern flickers always give me the “heads up” that cold weather is near. While the flicker is a woodpecker, its favorite food is ants, so this bird is often seen feeding on the ground. With its slightly curved bill, it digs in the ground for ants and then uses its barbed tongue to lap them up. The flicker has a long tongue, nearly two inches when fully extended! Besides ants, this bird eats beetles, flies, moths, butterflies and snails. Like other woodpeckers, it nests in a tree cavity. The flicker often reuses the same cavity. A few years ago, a dying aspen next to our garage was home to a family of flickers. Instead of cutting the tree down completely to prevent possible building damage, we had the top removed. The flickers returned to that cavity two more years to raise their young. These were noisy neighbors, especially as the young got older! But they were perhaps some of the best noisy neighbors a person could ask for. The calls of the northern flicker include a “kyeer” call, a “wick-a” call, a “pileated” call, which one can easily mistake for a pileated woodpecker, and drumming which is used by males to mark territory. Each fall I observe a sudden surge of flickers feeding on ants along the road, flashing their yellow shafted feathers and white rump when flushed. I presume these birds are loading up on energy for their migration south. Most woodpeckers do not migrate, but the northern flicker leaves its northern range during the winter. I also watch for the flicker to appear in the spring....once I see him foraging in the yard, I know warm weather is returning.



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