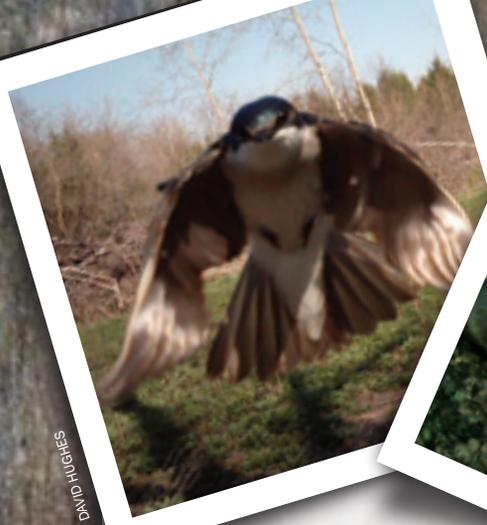
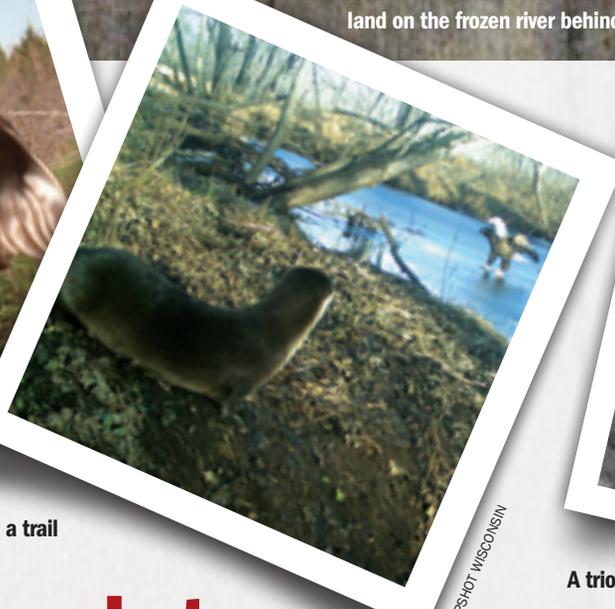


A river otter watches a bald eagle land on the frozen river behind him.



DAVID HUGHES

A tree swallow triggers a trail camera in mid-flight.



SNAPSHOT WISCONSIN



SNAPSHOT WISCONSIN

A trio of fat raccoons.

Get the picture with Snapshot Wisconsin

DNR'S NEWEST VOLUNTEER OPPORTUNITY WILL HELP TRACK AND MONITOR WILDLIFE POPULATIONS.

Kathryn A. Kahler

Some of the photos are cute, funny, amazing, even a little eerie or ghostly. Others are mundane or just plain boring. Identifying the subject can be quite simple, or can require scrutiny and a great deal of imagination. These intriguing snapshots are part of an exciting new volunteer opportunity open to anyone with a computer willing to become a wildlife detective.

The project is called "Snapshot Wisconsin" and is an offshoot of the Deer Trustee Report that called for better ways to monitor wildlife, count deer and understand their predators. It is funded by federal Pittman-Robertson monies generated from sales of firearms and ammunition. Its ultimate goal is to help wildlife managers make decisions by providing them with population estimates for all Wisconsin wildlife species statewide.

With the help of volunteer citizen scientists, a network of trail cameras will eventually be set up around the state to track wildlife in the forests, fields and streams of Wisconsin. Volunteers sign up for two kinds of opportunities — to host a trail camera or to help identify animals in photos taken by the cameras. You don't need a wildlife degree, just a little training in how to set up and maintain a trail cam-

era, a computer with internet access, and a willingness to spend a little time looking at photos. Be careful, though, that part can become an addiction.

How it works

Jennifer Stenglein was hired by the Department of Natural Resources in December 2013 to oversee the project. Her background in statistics and modeling of wildlife populations has been complemented by a team of agency scientists with expertise ranging from wildlife management to the social sciences.

"One of the goals is to engage the public in wildlife monitoring and improve the relationship among the public, our partners and the DNR in the process," says Stenglein.

The first year and a half involved intensive planning. Starting out, the team decided to use the statewide township

grid as the basis for the survey. They broke each township into quarters and each quarter became a survey block. Each block is 3 miles on a side, for an average of 9 square miles, and there are 6,000 of them in the state.

"We want one camera per survey block," says Stenglein, "or 90 cameras per county. That's the goal. That's a huge effort and would be impossible if it was just DNR doing it. We do not have the manpower to do this on our own so we're looking for help from volunteers to pull it off."

After the planning phase, the team conducted pilot studies in the two elk ranges in northern Wisconsin. Because elk have been intensively monitored by collaring and radio telemetry, this was a way of comparing this new kind of monitoring with verified results from other methods. It is hoped wildlife managers will be able to extrapolate those findings to other wildlife populations across the state.

Rollout of the current phase began in May. The team is looking for camera hosts with access to at least 10 acres of private property, either by ownership or permission, in Iowa and Sawyer counties, but eventually they will open it up statewide. They're also looking for educators statewide to host cameras. Educators can be from any grade or age level, all the way up to college or adult education.

Once applicants are enrolled in the program they go through in-person or webinar training and are then issued a specially programmed trail camera, two sets of rechargeable batteries, a battery charger, two SD cards with cases and a screw-in mount.

"We give them the equipment, train them in how to use it and then talk about scouting for a location to put the

camera,” says Stenglein. “That’s pretty important because with so many different people deploying the cameras, we’re looking at consistency and the best possible photos we can get.

“First of all, we don’t want cameras on human use trails. We’re looking for wildlife photos, not human photos. Second, we want locations where there’s a diversity of critters, not only deer, but furbearers and carnivores. We don’t want cameras placed on bait piles but would rather see animals naturally walking through the area. So we’re asking that people scout for a location where they’ve seen wildlife or signs — scat, tracks and so forth.”

Another thing the team stresses when training camera hosts is to clear the site of things that could trigger the camera, resulting in blank photos, such as waving ferns and blowing leaves. A bit of pruning to clear the area will help reduce the number of those types of photos.

After hosts have determined the best location for the camera, they mount it on a tree 2 ½ to 3 feet above the ground, 10 to 15 feet away from the target trail. Those parameters are best for getting consistent photos of the wide range of animals in Wisconsin, from weasels to elk.

Once the camera is installed and working, hosts agree to check it at least four times a year, change out the battery, collect some data, replace the old SD card with the new one and take the old one back to their computer.

The cameras are specifically programmed to take encrypted photos. This protects people’s privacy and the information on the card so that someone cannot find the camera, remove the SD card and see the photos from that camera. After trail camera volunteers upload encrypted photos to the DNR, the photos go through an automated process to rename them and remove pictures of humans. The trail camera volunteer is still the first person to see the photos which can be accessed from their personalized web page (MySnapshot).

“If they want to tell us which photos have deer, deer fawns, turkeys and how many poults, elk or any other mammal in Wisconsin, that’s the process we call ‘tagging,’” says Stenglein. “That information is saved with the photo and ends up being part of the data that we use.”

From there, the photos are sent to a website called Zooniverse, the part of the process employing what’s known as “crowdsourcing,” an identification process based on consensus. People from

anywhere in the world can create an account to help identify Wisconsin’s wildlife. When they log on, they are presented with random trail cam shots. They look at the photos, decide what’s in them, choose from a list of animals, click on “identify” and go on to the next photo.

Once enough people identify the same animal, the photo is retired. If people have questions or comments about a photo, the “talk” function can help. Simply click on “talk” and a comment screen pops up where you enter into a conversation. You can ask questions, give comments or enter a hashtag to call attention to an identification you’ve made. A moderator from the research team will get involved and help guide the identification process.

“The members of the team take turns moderating the forum and answer questions or encourage people to use different hashtags. That helps us track things like deer behavior so we can go back and have a more consistent way to look at them,” says Stenglein.

Funding and partners

Besides the roughly 100 volunteers signed up so far to host cameras, and the dozen DNR staff in the wildlife management and research bureaus, the project has had help from many partner organizations and agencies. The Ho-Chunk Nation and Jackson County Forest and Parks have been involved in the elk monitoring effort in Jackson County, and the U.S. Fish and Wildlife Service in the Clam Lake area. Other partners include the UW-Madison Department of Forest and Wildlife Ecology, UW-Extension, National Aeronautics and Space Administration (NASA), Adler Planetarium and Zooniverse.

Stenglein credits grants from the Wisconsin Society of Science Teachers (WSST) and the Wisconsin Environmental Education Board (WEEB) for helping to get the project started, especially by putting trail cameras in the hands of educators.

“WSST helped get cameras to 10 educators, and the WEEB grant will get another 50 educators trail cameras and develop training resources to make Snapshot Wisconsin more applicable for educators,” Stenglein says. “We’re working with Gretchen Marshal in the UW-Stevens Point LEAF program which will focus on educators who want to put trail cameras for long-term monitoring projects on school forest sites. It’s been a lot of fun working with educators. The excitement there is contagious!”

What the Department of Natural Resources hopes to learn

The project went live just a few short months ago, so it’s a little early to begin analyzing data. But the two pilot projects conducted a year ago in the northern Wisconsin elk range around Clam Lake and the Black River State Forest preview the kind of data that Snapshot Wisconsin will provide.

About 350 trail cameras — 208 in the Black River State Forest and 156 around Clam Lake — set out in the summer of 2015 provided wildlife managers with a clearer picture of the elk population.

“We’re able to see where the highest concentrations of elk are in the grid and can map those areas,” says Stenglein. “We can also map where wolves and coyotes are in the grid and can document a kind of small scale spatial separation — the elk are concentrated in the northern part of the grid and the predators are concentrated in the southern part.

“We can also see when elk are most active throughout the day — most elk photos are taken between 7 and 8 a.m. and 7 and 8 p.m. — and when they are most active throughout the season. The number of bull elk photos went up remarkably in August and September, so we were able to determine exactly when the rut was occurring. At the same time, the number of photos of cows decreased. I guess that showed us that when bulls are roaming the woods chasing cows, the cows are hiding out! We were able to see that just from our photos.”

Other data wildlife managers were able to get from the pilots were elk population estimates, cow-to-calf ratios and verification of modeling approaches used in the past. Much like the elk data, wildlife managers expect to use deer data at the county level.

“We expect to be able to give the data to the CDACs — or county deer advisory councils — who are interested in deer patterns over time. If one year there are many deer photos and the next there might be more or less, they can see how that relates to the quotas they recommend,” Stenglein explains. “We can also get fawn-to-doe ratios, get some health metrics of deer, the number of yearling bucks that have spikes versus forked antlers, and of course, get an idea of the patterns of predators of deer, on a much bigger scale than we’ve been able to see in the past.”

Snapshot Wisconsin will provide information for other species as well, such as bobcats and black bears. Most of the



SKYLAR PRIMM



SKYLAR PRIMM

High Marq Charter School students help with a school project on the Montello School Forest by mounting a camera on a tree (left) and “tagging” some of the 10,000 photos taken by the camera (right).

information the department currently gets about bobcats comes from winter tracking surveys in the northern third of the state, and from bobcat harvest data statewide. Snapshot Wisconsin will provide a consistent way to monitor their populations statewide.

“Anecdotally over the last few years, we’ve seen black bears expanding their range to the south,” says Stenglein. “With Snapshot Wisconsin, we’ll be able to look at the data and say, ‘yes, there are more pictures of black bears from cameras in the southern part of the state.’”

But the real value of Snapshot Wisconsin, according to Stenglein, is its consistency.

“We have no other survey method

that covers the entire state. We have no other survey method that operates year-round. We have no other survey method that targets more than just a couple of animal populations. Snapshot Wisconsin does all of those things.”

How to get involved

If you’re interested in hosting a trail camera, or want to help classify wildlife photos, go to dnr.wi.gov, and enter keyword “Snapshot Wisconsin.” That will take you to the project’s landing page. From there you can get information about the project, apply to host a camera or view and classify photos on Zooniverse.

“One note of caution,” warns Stenglein. “Because we’re still early in the project,

>>> GETTING KIDS ENGAGED

The Montello School Forest will be part of Snapshot Wisconsin, thanks to Skylar Primm and his students at High Marq Environmental Charter School in Montello.

“I heard about Snapshot Wisconsin two summers ago at the Wisconsin Green Schools Network’s summer conference, No Teacher Left Inside, and I thought it would be a great project for our students,” says Primm who just finished his fifth year with the charter school.

Primm applied, waited patiently for two years, and was excited to get the camera over spring break this year. After doing the webinar training, he and two of his students hiked out to the school forest to set up the camera.

“We went out at lunch time and picked a spot along a game trail that’s near a body of water and met all the requirements,” recalls Primm. “They helped select a tree, chose the angle to aim it and tested it out to make sure it was working.”

After one false start that resulted in accidental selfies and blank photos, they got the camera working correctly. The second visit provided much better results, and a sobering realization for Primm.

“We had thousands of photos! Some were triggered by the wind or grass, but there were pictures of deer, turkeys and raccoons. Right now I have two students who are really into it and I think they’ll take the lead. We have a lot of students who love hunting and outdoor stuff. Next school year I hope to have eight or nine kids involved with the project which will be good. Because when you have 10,000 photos, it takes a long time to review and tag them!”

Primm also hopes the project will result in a renewed appreciation of the school forest.

“We love our school forest but I don’t think it’s used to its full potential. We take a lot of field trips but when you’re out there with 32 students, you don’t see a lot of deer, foxes or other critters,” Primm says laughing. “When the kids see these photos and realize what’s actually out there hiding in the vegetation, I think they’ll be really excited about it.”

we won’t have all counties ready for sign-up. We want people to know that they can eventually sign up to host a trail camera, but if they sign up today, we might not be enrolling their county for another year or so. But they can still help identify the photos we already have!”



Kathryn A. Kahler is an editorial writer for Wisconsin Natural Resources magazine.



VOLUNTEER FOR SNAPSHOT WISCONSIN

- Website: dnr.wi.gov, keyword “Snapshot Wisconsin”
- Email: dnrsnapshotwisconsin@wisconsin.gov
- Phone: Jennifer Stenglein, 608-221-6334



TIPS FOR VIEWING AND CLASSIFYING PHOTOS

Identifying the wildlife in the Snapshot Wisconsin photos can be fun and addicting. It’s worth taking a few minutes before you get started to go through the project tutorial and read the frequently asked questions. Here are a few other tips to consider.

- You can access Snapshot Wisconsin from any device with internet access, even a smartphone. However, bigger screens make for easier identification, so computers or tablets work best.
- Be sure to use the “Play” button at the lower left corner of the photo, and the three radio buttons in the center. They toggle among three photos per trigger and show movement. A deer or squirrel bounding through the target site might show up on only the second and third photos.
- Familiarize yourself with the Field Guide and filters which will help you tell the difference between a young elk and an adult deer, or help with images where only a tail is visible.
- Learn to use the metadata icon in the lower right corner to get information about where and when the photos were taken. Knowing the photo comes from Bayfield County rather than Dane County will help distinguish between a snowshoe hare and a cottontail rabbit, for example.
- Use the “talk,” “favorite” and “collect” functions to interact with other wildlife detectives and project staff. Reading comments from others will help you learn tips and techniques from their experiences.