



Roads & Trails Update

Roads and trails are in good shape throughout the area. Aside from about an inch of rain in the past week, it's been very dry. The Thompson Road, portions of which have been closed this fall for construction, will be completely open by the end of this week – October 23. Conditions are great for the deer, trapping, and the last part of grouse season. And with the cold weather, everything's freezing up, including small ponds.

Spruce Grouse Research

The spruce grouse survey work begun in 2014 resulted in a survey whereby a DNR staff person or project volunteer walks transects in spruce grouse habitat during late winter and counts spruce grouse pellets that have accumulated over the winter. That survey will be continued annually throughout spruce grouse range in Minnesota and 2020 marked its third year.

Since the development of that survey, Researcher Charlotte Roy has procured a grant from LCCMR to fund additional work on spruce grouse habitat use. Focuses of the research include identifying the impact of timber harvest on spruce grouse and development of a population model that will help determine if the population is increasing, decreasing, or stable in size. Roy also hopes to develop a habitat model that will identify core habitat areas and minimum viable habitat size.

All of these goals require capturing spruce grouse, following them via radio telemetry, and collecting various habitat metrics. There are two study areas for the research that are centered in



Big Falls and at Norris Camp, with a technician stationed at each location for

two years. Volunteers with trained dogs and DNR staff have helped in the capture effort which have continued through this past summer using hen and then chick distress calls. If you happen to harvest a radio marked or banded spruce grouse, please let us know.

One interesting note from the research was that two grouse hens moved 6-8 miles from their winter range near Norris Camp to be in lowland conifer habitat for the summer. They have recently returned to the jack pine.

Browns Creek Campgrounds

The two Browns Creek Campgrounds and the Norris Picnic Area have been busy this year with both day and overnight people out to pick berries, go 4-wheeling, bird watch, and/or hunt.



Song Bird Research

Natural Resource Research Institute (NRRI) staff worked on a project to learn more about birds in lowland conifer forests this summer. The research focused specifically on Connecticut warblers and boreal chickadees in order to learn more about their habitats.

NRRI researchers Josh Bednar and Steve Kolbe have been putting out nest boxes in six different sites to help with the boreal chickadee research. There were a total of 245 nest boxes available for use in the study area in the spring of 2020 and 19 were used by boreal chickadees. At the highest-density site, more than 15% of all boxes were occupied in 2020.



This past spring, Kolbe led a crew to monitor the boreal chickadee nest box use as well as search for boreal chickadee nests in natural cavities and Connecticut warbler nests.

In total they located 20 chickadee nests (one natural and 19 in boxes) and nine Connecticut warbler nests.

They color banded all young from these nests (98 chickadees and 16 warblers) and put radios on a subset from each nest (33 chickadees and 10 warblers). The radios were attached to nestlings right before they fledged and fell off the birds after a couple of months.

They collected habitat data from nest sites as well as at daily locations from the radioed birds.

This part of the research will be done again in the spring/summer of 2021 if funds are available. The

habitat information will be used for the next phase of the project.

Future work on this project will be for experimental harvest treatments of lowland conifers. These alternative management strategies will be assessed for their wildlife habitat benefits. For example, Connecticut Warblers are of interest because their populations have declined more than 80% in Minnesota since 1995. The experimental timber harvests will consist of three or four stands totaling about 160-200 acres in two locations within the interior boundaries of the Beltrami Island State Forest and Red Lake WMA. Experimental treatments may include thinning, group cuts (shelterwood), and strip cuts, with controls consisting of clear cuts and no harvest areas. Tree retention levels may vary between 10-50%. Ground-layer plants will also be inventoried within the treatment areas as another measure of habitat change.

State Wolf Plan Update

The DNR is currently asking the public, via online input, to weigh in on various questions about wolves, including specific questions and open comment opportunities about wolf numbers and geographic range, conservation options, and impacts on agriculture and other wildlife species.



We are seeking this input as we update the state's current 20-year-old wolf management plan. There were virtual open houses in early

October that included informational presentations and allowed real-time public input and Q&A. The online input is available for comments on the [DNR website](#) until Sunday, November 1st. Once a draft plan is ready, anticipated later this year, people will be able to comment on the draft plan itself.

Difficulty in Estimating Bear Populations

Why does it seem like there are always too many or too few critters of a particular species of interest? Well, partly because perception of the “right amount” varies from person to person. Another reason is that some populations of wild animals fluctuate naturally or as a result of conditions that humans cannot control. Finally, even if we could all agree on the perfect number of critters, and even if we could control all the factors affecting a particular population, sometimes it is difficult to know how many critters we have in the first place, which makes managing them for a particular population size even more difficult.



Photo by Stephen Maxson

Let's use bears as an example. Bear populations are notoriously difficult to assess because their

population is low enough that they cannot be easily surveyed visually and they don't make enough noise to be surveyed aurally, so their population must be estimated other ways. Many indices of game populations are based in large part on harvest numbers from the prior year. This method is not perfect because harvest can vary with hunter effort, and it's a particularly poor measure of bear population size because bear harvest is largely dependent upon the availability of foods that bears commonly eat. Typically, the most important natural bear foods in Minnesota are dogwood berries, acorns, and hazelnuts. In years when these foods are available in good supply, bears are less likely to visit hunter bait piles and hunter success will decline. Conversely, when food availability is low, bears become more susceptible to hunting pressure. This means that increasing hunter success is not necessarily indicative of an increasing population. So how are wildlife managers supposed to know how many bears are in Minnesota?

Basically, the DNR uses a variety of information to estimate the overall bear population. In order to compensate for the impact of natural food availability on hunter success during population modelling, DNR Wildlife staff are surveyed annually about the abundance of bear foods in the area where they work. These data are used to fit the harvest data, human-bear conflict numbers, and hunter observations into a broader context that can help researchers identify population trends. Historically, bear researchers in Minnesota have been able to predict about 89% of the annual harvest variation based on the number of available permits and the food availability indices reported by DNR Wildlife staff.

Knowledge of the age and sex structure of the bear harvest is critical to understanding what is happening in the population. The age and sex ratio of the population are both important

metrics that can influence the population's reproductive potential.

Reproductive females are the driving factor in bear populations, as with most mammals, and older females have higher reproductive output than younger females. Female black bears in Minnesota typically don't reproduce until they are five years old, and in the extreme northern portion of the state a female bear may not reproduce until she is six or seven. Females can reproduce until about 25 years old. A bear population with a large proportion of older females will have a higher reproductive potential than a population with a different age and sex structure, and can therefore tolerate a higher level of hunting. Furthermore, in years of food failure, a disproportionate number of reproductive females are attracted to hunters' baits and shot. This can have catastrophic consequences to the population. To reduce the possibility of overharvest, DNR limits the hunting in each permit area with a quota. So, how do we conduct a bear population estimate to set these quotas?

The DNR determines age and sex ratio information from hunter harvest. Hunters are required to submit data on the sex of their harvested bear. But this doesn't answer the entire question because both sexes are not equally likely to visit hunter baits (thus skewing the sex ratio available to hunters). In recent years, about 60% of bears harvested annually in Minnesota are males.

Successful hunters are also required to submit a tooth sample that can be used for aging and this is very helpful for reconstructing the population age structure. We can also learn which years females had cubs and how many litters they had just by the spacing in the annuli rings in their teeth. However, accuracy is compounded by non-

compliance. So, what other information do we have?

Mark-and-recapture is a time-tested technique for assessing wildlife populations. The DNR has used mark-and-recapture in several ways. The first way is by placing radio collars on bears and following them to determine what kills them. One can reasonably assume that the relative likelihood of bears with collars dying of a particular cause is similar to the likelihood of other bears dying from the same cause. In recent years, about 95% of bear mortality in MN is caused by humans (primarily hunting, but this includes getting killed by cars or shot as nuisance animals).

Another form of mark and recapture that the DNR uses periodically to adjust population models is a tetracycline marker. Tetracycline is an antibiotic that leaves a marker in bone tissue. DNR staff leave tetracycline-laced baits out for bears to eat. After the hunting season, we assess the proportion of bear samples with tetracycline marks vs. the proportion without marks in the bear teeth and bones sent in by looking at them under UV light. The marks glow a green color like day-glo colors under a black light. This method has been used to calibrate the bear population estimates.

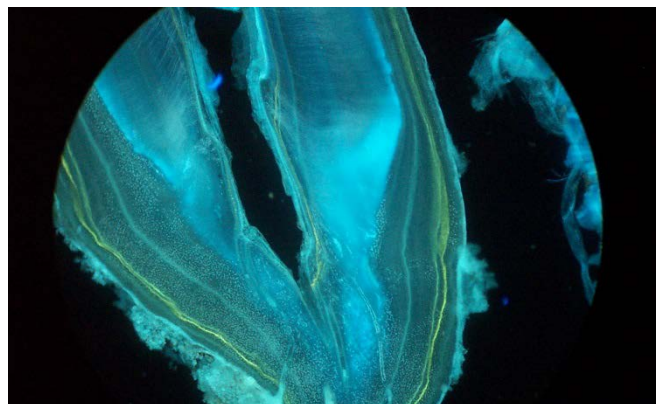
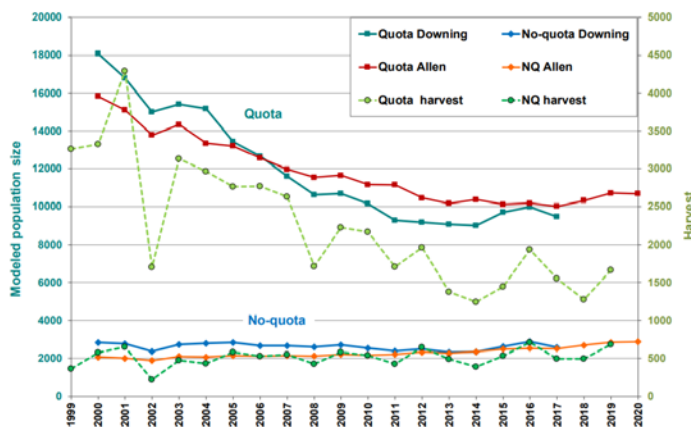


Photo of a tetracycline marked bear tooth. Notice the line is not the outermost ring, meaning the bear was marked in a previous year.

The last mark-recapture method DNR has used is with hair. DNR staff set up corrals of barbed wire around a good smelling lure or bait. The bears crawl under or between the wires to get to the treat. When they do this, they leave their hair which we can send to a lab to extract DNA. The DNA tells us who we have “caught” in the hair corral before and who is a new bear, giving us the proportion of marked to unmarked bears. This ratio can give us an estimate of population size, but is pretty expensive in relation to other methods.



Population trends during the 2000s derived from two independent population models (Downing and Allen) for quota and no-quota zones, compared to respective harvests.

All of the above data can be helpful in determining the size of the bear population within the bear range, but they don’t necessarily provide enough information on the geographic extent of bear range in Minnesota. Bears seem to be more common in agricultural areas of the state in the past 30 years (possibly due initially to a food failure in 1995 that forced many bears to those areas to find food). This has become evident by hunters harvesting more bears on the periphery of bear range and by complaints that the DNR receives about bears from areas where bears were previously rare. Understanding this, the DNR has launched a web page where the public can report bear sightings from areas

outside of the historic bear range in MN. This helps the DNR understand the current black bear range in Minnesota. Here is the page <https://www.dnr.state.mn.us/hunting/bear/bear-sightings.html>

Other information the DNR uses to assess the bear population include the number of car kills and complaints from the public. All of these data are synthesized into an estimate of the statewide bear population, acknowledging that an estimate for a given year is less important than the overall trend. Knowledge of population trends helps the DNR identify and maintain a reasonable population size for all of Minnesota’s citizens to appreciate.

Historical Society Grant

The Minnesota Historical Society awarded a \$55,000 Historical Cultural Heritage Grant to Norris Camp in 2018. Historical architect Mina Adsit of Adsit Architecture and Planning in Minneapolis was hired to write a historic structures report. This report was completed this past spring and included detailed descriptions of the current conditions of all 14 historic Norris Camp building and recommendations and priorities for maintaining or restoring those buildings.

Based on that report, preparations were made for another grant request to the MHS. This next grant is for the first phase of a development grant to complete the priorities identified in the historic structures report. This historical predevelopment grant will be submitted in early 2021. If funded, it will pay for shovel-ready architectural plans to complete the maintenance and restoration of three of the Norris Camp historic buildings. The Friends of Norris Camp account may be used for matching funds for that application.

**Friends of Norris Camp
Treasurer's Report
By June Foss**

Account Balance = **\$7,740.40**

This funding can be used for matching on future grants to do preservation work on the historic Norris Camp buildings.

Thanks so much to the following people for donations they have made since December 2019:

Mary & Chris Foret

and

Cyl Laudenslager



Address Updates Needed!

We've had to delete several names from our mailing list as we no longer have working emails for some people. If you know of anyone who would like to be added to our mailing list – just let us know.

We can be reached at:
redlake.wildlife@state.mn.us or at
(218) 783-6861

Thanks!