Minnesota Chapter of The Wildlife Society

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President's Message

Hello Wildlifers! Fall is finally here. It is my favorite time of year, but not for the same reasons as most perhaps. I am a research biologist with the National Park Service and fall is when I do most of my fieldwork. I get to spend many beautiful fall days live trapping beavers in Voyageurs National Park. It really is the best time of year: cool temps, beautiful colors, no bugs, and relatively few people this time of year. I look forward to it all year as it is fun, rewarding, and never fails to recharge my batteries and remind me why I so strongly believe in conservation. I think that is the case for most of us in this profession. Whether it is hunting, fishing, shooting, camping, kayaking, hiking, or exploring, being outdoors doing the things we love keeps us connected to the resource and tethered to the collective ideal of preserving our wildlife for future generations to enjoy. I hope this fall is a fun, productive, safe, and energizing time for you all.

It was an exciting summer for the Chapter. The summer workshop, "Minnesota's Forest Habitats: Managing Across the Forest Continuum", held on August 18 at Long Lake Conservation Center was a resounding success. Congrats to the planning team for putting together such a great platform of speakers and an informative field tour. More information about the summer workshop and field trip, including presentation abstracts, can be found elsewhere in the newsletter. We also had our first Copper Bullet Demonstration on August 17 at nearby Wealthwood Rod and Gun Club. Though the weather kept many participants away, those that came were impressed and appeared convinced to switch to nontoxic ammunition for big game hunting. There was also a nice feature article in Outdoor News on the event. MNTWS is holding 2 or 3 more demonstrations this fall, and we look forward to working with the Raptor Center and other partners on the LCCMR grant "Alternative Ammunition" that will start in July 2015 to conduct more workshops and outreach on the subject in the years ahead.

Plans are coming together for the joint Minnesota-Wisconsin TWS Annual Meeting to be held in Duluth February 17 -19, 2015. President-elect Rich Olsen has been doing an outstanding job of organizing this event and the Plenary session promises to be another provocative and informative event. Hard to believe but this is the FIRST time that MN and WI chapters have had a joint meeting together. In case you've never noticed, there is a bit of a rivalry between the states. I suspect that there will be a few Vikings/Packers or Gophers/Badgers jokes during the conference. Someone might even take the uneasy plunge into the Duck-Duck-Gray Duck/Duck-Duck-Goose territory. Despite the ever-simmering bitterness towards Wisconsin that resides just beneath my "Oh, that's OK, 4th place is just fine" Scandinavian façade, I know I personally am really looking forward to visiting with our cheese-loving neighbors to learn more about current wildlife issues, policies, and research across the border. And if you are a craft beer fan, the Twin Ports has a lot to offer these days with new breweries popping up all the time. I think it has the potential to be

President's Message (continued)

one of the most enjoyable conferences in our history.

Enjoy the fall and I look forward to seeing you all in February!

Steve Windels
President, MNTWS
Ph: 218-324-3400

NEW WEBSITE!

Bookmark the new website for the Minnesota Chapter to keep up to date on all the latest news and information.

http://drupal.wildlife.org/minnesota/

The Wildlife Society

Excellence in Wildlife Stewardship Through Science and Education

2015 Annual Meeting Announcement

Greetings MN TWS Members

Save the Date on your calendar for February 17-19, 2015 and be ready to head up to Duluth, MN as planning is underway for our annual TWS Conference. This exciting event will be held jointly with our WI TWS neighbors. The venue will be the Duluth Holiday Inn and the Duluth Entertainment and Convention Center, as we are expecting a gathering of around 400 members.

We are busy planning the essentials right now, and will soon be sending information out about how to get on the agenda for presentation and poster sessions. As is usually the case, this is a great opportunity to share information and results about your research to your peers.

Our theme this year will focus on Global Warming - Solutions for a Warming World; but not the doom and gloom that we hear nearly daily on the news. There is hope yet for all, and our plenary speakers are confirmed: Peter Donovan, Judith Schwartz, and Seth Itzkan will set the stage and challenge the way we look at and address the defining issue of our day - global warming.

If you are interested in volunteering or contributing with this conference or our Wildlife Society chapter, don't hesitate to contact me (Richard.olsen@state.mn.us).

The Minnesota Chapter of The Wildlife Society

Regional Reports - News from the Field

Region I— Kyle Arola

News from the Northwest

Elk: The mid-winter aerial survey of elk in the Grygla herd was below the target level, and as a result no season was offered for the herd this year. However, elk hunting continues this year in Kittson County with a total of 9 licenses issued.

Waterfowl: Counts of breeding waterfowl were up from last year in the Thief Lake area, and another delayed spring may have spread out production again. While the spring was late, there was a good nesting effort from local Canada geese, and more typical production. Further north, migrant goose populations like the EPP birds that migrate through the Thief Lake area had a good production season. Of course, weather will drive migrant goose use of the area and refuges further north. Duck production seems more drawn out than usual this year, and somewhat later, but there seems to be decent local production

Roseau River Bog Owl Project- Jessica Parson, Assistant Wildlife Area Manager, DNR

We are excited to have so much interest from many different organizations regarding the Roseau River Bog Owl Brush Treatment Project in the Lost River State Forest. It is a project that will benefit a wide variety of species, and give everyone involved an opportunity to work with professionals from various agencies toward a common goal. We are looking forward to discussing each organizations visions and goals related to the project and what role/ involvement would like to be achieved by each.
The main goal of this project is:
To set back succession in brushlands adjacent to lowland conifers in order to improve foraging habitat for Great Gray and Northern Hawk Owls. The project will also improve habitat for other brushland species, e.g. golden-winged warbler, American woodcock, sharp-tailed grouse, white-tailed deer, etc. The project surrounds the Roseau Bog Owl Management Unit, which is a special management unit (SMU) within Lost River State Forest.

Midwest Student Conclave

The University of Minnesota-Crookston and Bemidji State University are co-hosting the student conclave this year. If anyone has any suggestions for speakers or would like to volunteer to help out please contact Alisha Mosloff at mosl0003@crk.umn.edu.

USFWS and MNDNR - Comings and Goings

Ruth Anne Franke named Karlstad Area Manager.

Tammy Baden selected as Wildlife Lake Specialist in Detroit Lakes Office.

Nicole Kovar selected as Invasive Species Specialist at Itasca State Park.

Doug Wells retired August 22 from the USFWS at the Fergus Falls Wetland Management District.

Regional Reports (continued)

Region 2 – Dawn Plattner

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Moose calf survival/cause-specific mortality study 2014 Summary

We captured and collared 25 calves from 19 dams from 8 May to 19 June 2014 (6 sets of twins, 13 singletons [32% twinning rate]; 11 females, 14 males). After modifying our capture and handling approach/methods (see previous updates), capture-related abandonment was nearly eliminated. To date, 10 calves have slipped their collars prematurely (7-91 days post-capture), as have the 2 test bovine calves we had collared.

Weekly (age-specific) Kaplan-Meier survival was 95% at the end of week 1, 75% at week 2, 66% at weeks 3 and 4, 50% at weeks 5-13. Survival dropped to 0% midway through week 14 (age 94 days; see K-M plot below). The number of calves at risk dropped from 25 to 15 by the end of the first week (of age) due to a single wolf-kill and 9 capture-related abandonments (and retrievals for most). Three collars slipped during week 2, 3 during week 4, 1 during week 5, 2 during week 6, and 1 during week 14.

After censoring capture-related abandonments/mortalities and slipped collars, we had 6 calves to study natural mortality for the summer. Of those 6 calves, all 6 have died. Natural mortality causes were:

- 4 wolf-kills
- 1 bear-kill
- 1 abandonment due to umbilical infection

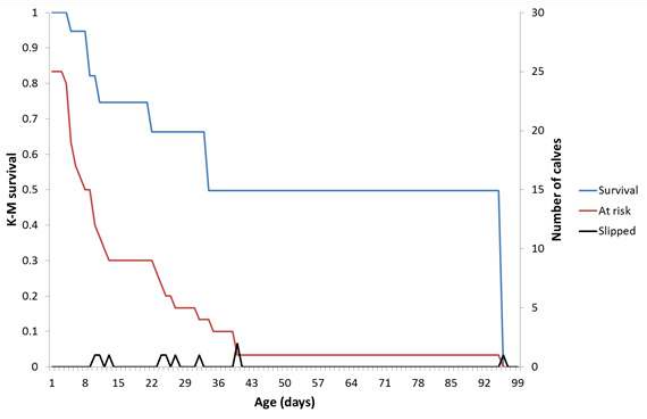
Overall natural mortality was 100% (6 of 6), with 83% (5 of the 6) predator-related. Over the past 2 field seasons, 54 calves of various risk exposure times (38 in 2013, 16 in 2014) have been studied for natural survival and specific causes of mortality.

Calving/Mortality Site Habitat Work

We completed habitat surveys on 29 sites (from 2013 and 2014) over the summer (2 calving sites, 2 pre-calving move sites [location of dam before she made her long distance calving move], 16 mortality sites, and 9 slipped collar sites). These 29 sites were surveyed during leaf out because their associated events (calving, mortality, etc.) occurred after leaf out. We plan to visit additional sites in October/November (after leaf off) that correspond to events that occurred before leaf out (e.g., May calving, early mortalities, etc.). At each site, we are characterizing forage availability, hiding/concealment cover, visibility, and impediments to escape to assess trade-offs dams may make between predator avoidance and forage requirements. We plan to supplement all measurements on the ground with LiDAR.

Thank you for your continued interest in the project,

Glenn and Bill



Regional Reports (continued)

USGS Wolf Trapping Update

USGS wolf-trapping technicians have radio collared 13 wolves since they started trapping in mid-June as part of the agency's long-term wolf-deer study in the Superior National Forest. Live-trapping of wolves for radio collaring will shift soon from logging-roads to focus on the Boundary Waters Canoe Wilderness Area and might continue through October (weather dependent).

Carmen Converse, Minnesota Biological Survey Supervisor with DNR, helps participants identify prairie plant species by their vegetative features at Ordway Prairie Preserve near Belgrade, MN. Photo by Fred Harris.

1854 Treaty Authority Wild Rice Survey

An aerial survey of wild rice stands was completed August 26 and 27 across Carlton, St. Louis, Lake and Cook Counties. The survey is a cooperative effort between DNR Wildlife and Enforcement, 1854 Treaty Authority, Fond du Lac Resource Management Division and the Superior National Forest. Photographs of rice stands and estimates of coverage and density were obtained from 97 established photo points. Data was entered using DNRSurvey software. Photos from the survey can be found on the Fond du Lac Reservation's and 1854 Treaty Authority's websites. Rice was generally better in Carlton County than in other areas of this survey. With exceptions, many rice stands looked at as part of this survey appeared to produce relatively poor rice crops this fall.

Region 3— No Report

Region 4—Kristin Fritz

Plant Identification courses focus on prairie plant species

Recently, over 150 participants from 16 state, federal and non-profit agencies and organizations, including wildlife managers, biologists and plant ecologists, attended four plant identification courses on the prairie lands of Minnesota. The primary objective of the sessions was to learn and practice identifying plants in native prairies and classifying native plant community types.

Participants visited four sites that covered a range of prairie community types (dry to wet prairie, wet meadow) and conditions (high quality to degraded). The sites included areas within and around Hole in the Mountain Prairie Preserve (The Nature Conservancy) and Chanarambie Creek in southern Minnesota, Ordway Prairie Preserve (The Nature Conservancy) in central Minnesota and Tympanuchus Wildlife Management Area (Minnesota Department of Natural Resources) in northwest Minnesota.

Over the course of a day, eleven instructors - Fred Harris (DNR), Megan Benage (DNR), Becky Marty (DNR), Greg Hoch (DNR), Rhett Johnson (Midwest Natural Resources), Robert Dana (DNR), Brad Bolduan (DNR), Carmen Converse (DNR), Michael Lee (DNR), Scott Zager (Wildlands Ecological Services) and Sara Vacek (U.S. Fish and Wildlife Service) - introduced participants to identifying plants by their vegetative features and discussed the landscape settings, soils and condition of the native prairies found at the four sites.

Regional Reports (continued)

The concept for these courses arose a year ago when the Minnesota Biological Survey (MBS) conducted a brief demonstration of a vegetation plot at last year's "Prairie Summit" meeting of local Prairie Plan team coordinators. The event generated great interest from several agencies that wanted more training on prairie plant identification.

Fred Harris, DNR MBS plant ecologist, and Emilee Nelson, Pheasants Forever coordinating wildlife biologist, organized the effort. Initially, three 40-person sessions were planned, but the waiting lists grew and a fourth session was added.

"I hope that we improved the participants' knowledge of the prairie flora and provided them with some tools to use in expanding their knowledge, said Fred Harris, DNR MBS plant ecologist and course instructor. "In a one-day workshop there is only so much you can pack into peoples' brains."

Nelson coordinates three Local Prairie Technical Teams implementing the Prairie Plan in southwest Minnesota (Lac qui Parle, Prairie Coteau and Red Rock). There are 10 Local Prairie Technical Teams located across western Minnesota. These teams were formed to consider common sense solutions to keep grass on the land in western Minnesota. They work closely with farmers, landowners, local officials and citizens to promote prairie and grassland conservation and grass-based agriculture as outlined in the Prairie Conservation Plan.

"This effort truly embodies the partnerships formed through the Minnesota Prairie Conservation Plan," said Nelson. "We have received such positive feedback from attendees that we hope to make this an annual refresher course for the local teams implementing such important work to protect, restore and enhance our prairies and grasslands in Minnesota."

The Prairie Conservation Plan addresses the loss of grass and wetlands and creates a vision of connected grassland and wetland habitat from Canada to Iowa. It demonstrates unprecedented cooperation between federal agencies, state agencies and conservation organizations.

For more information on the Prairie Conservation Plan, visit dnr.state.mn.us/prairieplan/.

If you are interested in future training sessions, contact Emilee Nelson, Pheasants Forever coordinating wildlife biologist, 507-430-8499, ENelson@pheasantsforever.org.

A group of participants gathers on Tympanuchus WMA near Crookston. Over 150 attendees representing 16 agencies completed the refresher course. Photo by Emilee Nelson.

Region 5 – Stephen Winter

Multiple agencies cooperate to sample aquatic vegetation on the Upper Mississippi River

On August 5th, almost 50 individuals representing six natural resource conservation agencies conducted aquatic vegetation sampling in Pool 3 of the Upper Mississippi River. This effort was coordinated by the Upper Mississippi River Conservation Committee (UMRCC), a partnership organization created in 1943 to promote a continuing cooperation between conservation agencies on the Upper Mississippi River. Pool 3 is bordered by the states of Minnesota and Wisconsin, with the Minnesota cities of Hastings at its northern end and Red Wing at its southern end. Agencies participating in the Pool 3 aquatic vegetation sampling included the Minnesota DNR,

Regional Reports (continued)

Wisconsin DNR, Iowa DNR, Prairie Island Indian Community, the US Army Corps of Engineers, and the US Fish and Wildlife Service. Agency personal supplied a variety of boats, 15 in all, that allowed access to all areas of Pool 3. Airboats and boats with pro-drive and mud motors were used to access shallow water and marshy areas characteristic of backwater lakes and sloughs, while boats with conventional outboard motors were used to access main channel, side channel and open water impounded areas.

Aquatic vegetation was sampled at approximately 300 points representing a stratified/random sampling design used for long-term resource monitoring across the Upper Mississippi River. At each sample location, a long-handled double-headed rake was used to collect aquatic vegetation which was identified to species, and measurements of vegetation cover and density were recorded. Water transparency (a proxy for water quality) and bottom substrate data were also collected at each sample location. For details about sampling design and methodology see http://www.umesc.usgs.gov/data_library/vegetation/vegetation_page.html.

Pool 3 is characterized by a notable lack of aquatic vegetation relative to many other Pools on the Upper Mississippi River; approximately 2/3 of the points sampled on August 5th recorded no aquatic vegetation. The data collected in Pool 3 quantify current conditions and can be compared to data that may be collected in the future. Several large-scale habitat restoration projects are planned for Pool 3 and pre- and post-project data will allow resource managers to determine the effect of habitat restoration activities on aquatic vegetation. For more information about the Upper Mississippi River Conservation Committee, explore their website at http://www.umrcc.org/.

Submitted by Steve Winter and Lisa Reid, Wildlife Biologists, Upper Mississippi River National Wildlife and Fish Refuge.

Aquatic invasive species detection, eradication, and education efforts on the Upper Mississippi River

During the summer of 2014, the US Fish and Wildlife Service cooperated with the Minnesota DNR, the Wisconsin DNR, and members of the public to conduct surveys for three aquatic invasive species in Pools 5 and 5a of the Upper Mississippi River. Pools 5 and 5a are bordered by the states of Minnesota and Wisconsin, with the Minnesota cities of Kellogg at the northern end of Pool 5 and Winona at the southern end of Pool 5a. In 2011 and 2012, populations of water hyacinth (*Eichhornia crassipes*), water lettuce (*Pistia stratiotes*), and parrotfeather (*Myriophyllum aquaticum*) were found in multiple areas of Pool 5 and their presence was both surprising and alarming. The native range of all three species are tropical or sub-tropical regions much farther south, and their introduction to the upper reaches of a large river ecosystem poses the threat of their eventual spread through extensive downstream areas if allowed to persist.

In 2011 and 2012, complete eradication of all individual plants of these three species in Pool 5 was attempted each year. Eradication techniques included hand removal and herbicide spraying. Fortunately, surveys in 2013 and 2014 did not reveal any individuals of any of the three species. Eradication efforts in 2011 and 2012 were likely complemented by relatively harsh winters during 2012/2013 and 2013/2014. Public education and outreach efforts directed at these three species, as well as other aquatic invasive species, have been initiated and include the distribution of printed materials to the public and agency personal, the posting of information at boat landings, and boat inspection programs at boat landings staffed by members of the Minnesota DNR and Wisconsin DNR.

Submitted by Lisa Reid and Steve Winter, Wildlife Biologists, Upper Mississippi River National Wildlife and Fish Refuge.

Regional Reports (continued)

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The International Owl Center (IOC) in Houston, MN is conducting a vocal study on Great Horned Owls. As part of this project the IOC is breeding a non-releasable pair of Great Horned Owls and observing them with security cameras and microphones. Live video feeds of the owls are streamed to the internet so anyone anywhere in the world can help make observations.
Three owlets were reared in 2013 and released to the wild with VHF transmitters attached to their tail feathers. They were tracked to document survival and dispersal movements. The two owlets produced in 2014 are being reared with humans to become education birds to compare their vocal development with that of owlets reared by wild parents.
The microphones in the aviaries also pick up the sounds of wild owls and other wildlife in the area, and sometimes these recordings are significant. The live video feeds are online at www.internationalowlcenter.org.

Region 6— No Report

Student Chapters

No Report

COWCH Update

The Minnesota Chapter is working with the parent chapter of The Wildlife Society (TWS) on the Celebrating Our Wildlife Conservation Heritage (COWCH) project to interview influential wildlife biologist, educators, managers and other pioneers who have made a significant contribution to wildlife conservation on a county, state or national level. The COWCH project was established to document the history and evolution of the wildlife profession by interviewing the people who were around when it all started and continue it on today into the following generations. A list of potential and completed interviews can be obtained online at http://drupal.wildlife.org/minnesota/cowch. If there is someone that you feel should be interviewed that is not on the list, please volunteer to interview them.

The National COWCH Project website at http://wildlife.org/history-and-mission/cowch/ has information about how to conduct an interview, along with a set of questions and a release form. Please consult the interview guidelines, equipment requirements and questions before conducting an interview. Have questions or want more information? Please contact Nicholas Snavely, MN TWS COWCH Project Coordinator, at 320-223-7872 or MNTWSCOWCH@gmail.com many weeks ahead of the planned interview to allow time to make arrangements. Email Nicholas Snavely with a brief proposal containing the name of your subject, why they are important to the wildlife profession/COWCH Project, your estimated time for producing the interview and the type of equipment you will be using.

Summer Workshop Summary

Minnesota TWS Summer Workshop a Success!

Over 90 participants attended the 2014 Minnesota TWS summer workshop held on August 18, 2014 at the Long Lake Conservation Center near Palisade, MN. The focus of this year's workshop was on forest management in Minnesota. The title of the workshop was *Minnesota's Forest Habitats: Managing Across the Forest Continuum*. The workshop was guided by a vision statement developed by the planning committee:

Minnesota is blessed with over 17 million acres of forest habitat, represented by a diversity of forest types and age classes. Equally diverse are the wildlife species that rely on Minnesota's forest habitats. Some species may require undisturbed mature forest, some require periodic disturbance creating young forest habitat, while others require a dynamic mix of different forest types and age classes. Almost as diverse are the stakeholders (e.g., various public land management agencies, forest industry, and private landowners) that care about Minnesota's forest habitats. At times, these stakeholders have divergent views on how our forests should be managed. The goal of this forest workshop is to bring together diverse stakeholders and have a safe, constructive dialogue about the integrated management of Minnesota's forest habitats from a landscape perspective, where the full continuum of forest types and age classes, along with the species relying on them and stressors affecting them, are considered.

Directed by this vision, 11 presentations covering a wide breadth of forest topics were presented (see below for a brief abstract of each presentation). At the conclusion of the workshop, participants were asked a series of questions regarding their views on various forest management topics that are pertinent in Minnesota. The survey, sponsored by the American Bird Conservancy, was administered by D.J. Case and Associates, a natural resources consulting firm specializing in communications. D.J. Case and Associates will prepare a summary of the workshop including analysis of participant responses to the series of questions. The summary will be widely distributed to forest stakeholders throughout Minnesota.

A half-day field tour was held the morning after the workshop for 20+ participants. Participants had the chance to view and discuss various management strategies in Aitkin County on county, state, and private lands. Visited sites included old shrubby field, open landscape habitat, hardwoods and oaks, mixed spruce and aspen, and old growth pine. The tour was arranged by Aitkin County and Minnesota DNR forestry and wildlife staff and sponsored by the American Bird Conservancy.

Special thanks are extended to the workshop planning committee which included Steve Windels, Becky Marty, Bryan Lueth, David Andersen, Dawn Plattner, Harvey Tjader, Henry Streby, Tony Hewitt, Jerry Niemi, Jodie Provost, John Erb, Mark Nelson, Mike North, Andrew Rothman, and Kevin Sheppard.


Workshop presentations


Old Growth Tour

Summer Workshop Summary (continued)

Presentation Abstracts

The State of Minnesota Forest Habitats – Mark Nelson, U.S. Forest Service, Forest Inventory and Assessment Program and Brian Tavernia, U.S. Geological Survey, Patuxent Wildlife Research Center

Minnesota forests provide habitats for numerous species of amphibians, reptiles, birds, and mammals. Quantity and quality of habitat is affected by extent, composition, and structure of forests. These characteristics are quantified by Forest Inventory and Analysis (FIA), a research program within the USDA Forest Service. A wealth of habitat-related forest data and information are available in the FIA database, online estimation and mapping tools such as FIDO, and EVALIDator, FIA state reports, and special studies. We present an overview of Minnesota forest extent, composition, and structure, with emphasis on both early and late successional stages, and from historical, current, and future perspectives.

The State of Forest Breeding Birds in Minnesota – Results from Minnesota's first Breeding Bird Atlas –Jerry Niemi, University of Minnesota –Duluth, Natural Resources Research Institute

The state of Minnesota recently completed gathering data for its first breeding bird atlas. These data were gathered by volunteers and included the systematic gathering of point counts for over 99% of the 2300 plus townships in the state from 2009-2013. These data along with those from the Chippewa and Superior National Forest monitoring program gathered from 1991-2014 and several other studies collectively represent data from 8,376 count locations in Minnesota. I will review these data, summarize recent breeding bird trends in Minnesota, and describe plans and context for these data with respect to forest management issues.

Current and Future Stressors on Minnesota's Forest Ecosystems – Mark White and Meredith Cornett, The Nature Conservancy

Northern Great Lakes forests are in period of transition that began with dramatic shifts in composition and structure dating from Euro-American settlement and subsequent land use change. In northern Minnesota, dominance shifted from long-lived conifers to shorter-lived sprouting hardwood species. A variety of abiotic (climate change, CO_2 enrichment, N deposition, wildfire, windstorms, forest management, land-use change) and biotic factors (native and non-native pests and pathogens, invasive plant species, earthworms, white-tailed deer) will interact and have a strong influence on forest distribution, composition, and structure over the next century and beyond. Because of the high degree of uncertainty inherent in projecting future ecosystem conditions in a changing climate, we examine a range of possible climate and forest futures. Despite the high uncertainty associated with climate change, we expect a decrease in boreal hardwoods and conifers, and an increase in temperate hardwoods. We may also see a loss of forest structure and corresponding shift to savanna conditions in some areas. However we expect that these shifts will be either mediated or amplified by biotic-abiotic interactions (climate-management-earthworms-deer).

Full-season Habitat Associations of Forest Nesting Songbirds – Henry Streby, National Science Foun-

Summer Workshop Summary (continued)

dation Postdoctoral Research Fellow, University of California – Berkeley ; David Andersen, Minnesota Cooperative Fish and Wildlife Research Unit; Sean Petersen and Gunnar Kramer, University of Minnesota

Songbird habitat associations are traditionally defined as areas used during the nesting period, and habitat quality is often measured using density of singing birds and nest productivity. However, territorial singing and nesting last only a few weeks in a breeding season that lasts 4-5 months. We will discuss full-season habitat associations including cover-type selection from spring arrival to fall departure for two migratory songbirds, Ovenbirds and Golden-winged Warblers. Based on traditional monitoring methods, Ovenbirds are described as mature-forest specialists and Golden-winged Warblers as early-successional specialists. Our research over the past decade in northern Minnesota demonstrates that both of these species are better described as diverse-forest species. During the post-fledging period, Ovenbirds select sapling dominated clear-cuts and forested wetlands over mature forest, and Golden-winged Warblers select sapling dominated clear-cuts and mature forest over the shrublands in which they usually nest. Sapling dominated clear-cuts, with moderately dense vegetation and canopies ranging from 3 – 15 meters tall, can be overlooked in debates about the relative importance of early-successional shrublands vs. mature forest. Our results demonstrate that stands in these middle seral stages play an important role for Ovenbirds, Golden-winged Warblers, and many other migratory and resident birds. This may be why Minnesota, with its natural and human induced diverse forest landscape hosts thriving populations of many forest associated songbirds.

Marten and Fisher Use of Forest Habitat in Minnesota – John Erb, Minnesota Department of Natural Resources, Forest Wildlife Research Group

As part of a larger project on *Martes* ecology in Minnesota, we began monitoring various aspects of habitat use by radio-collared fishers (*Martes pennanti*) and martens (*Martes americana*) during spring 2009. Distribution of these species in North America, and within Minnesota, illustrates that both are clearly forest-dependent. However, fine-scale forest attributes likely determine the suitability of a forest stand or landscape to these species. In particular, structure that provides den and rest sites, protection from predators, prey habitat or cues for locating prey, and thermal protection appears critical. All but 2 of the 56 fisher natal or maternal dens we have located have been in elevated cavities of large diameter (ave. dbh = 20.5") live trees or snags, predominantly in aspen (66%) and oak (14%). The remaining 2 fisher maternal dens were in hollow logs either on or suspended above the ground. Elevated tree cavities (ave. dbh = 20.1") are also the most common structures used by fishers as resting sites, though in summer more 'open' structures in trees ('witches brooms', leaf and stick nests, large branches, etc) are commonly used as well. Of 45 marten natal or maternal dens identified, 36% have been in underground burrows, commonly in rock-laden and lacustrine soils, while 64% have been in elevated tree cavities (ave. dbh = 18.6"). Most tree cavity marten dens have been in aspen (38%) and white cedar (34%) trees. Data on winter rest sites shows that marten use of underground or subnivean sites is highest during fall and winter, and often associated with lowland conifer stands. In summer, marten use of elevated tree structures (tree cavities, branches, leaf/stick nests, and 'witches brooms') increases and is correlated with more use of mixed-wood stands. Compared to random sites, den and rest structures used by martens occur in sites with higher amounts of coarse woody debris, higher average tree diameter, higher snag density, and greater stem densities. Preliminary data indicates that both species spend ~ 75% of their time in den structures during winter, suggesting that such structures are likely critical to survival. Predation has been the dominant non-human cause of mortality for both species, further suggesting that structural complexity (escape cover and structures) may be critical. Human activities or forest management strategies that reduce or fragment forest cover, or that do not produce or maintain structural complexity in forest stands will be detrimental to fishers and martens.

Summer Workshop Summary (continued)

Beaver Management in Forested Landscapes: Opportunities for Co-existence – Steve Windels, National Park Service, Voyagers National Park

Beavers are an important component of forested ecosystems in Minnesota. Their damming activities create ponds that store water, slow downstream transport of sediment and nutrients, and serve as important habitat for many plants, fish, and wildlife species. They also can alter forest successional pathways through their tree cutting for food and construction materials. Conversely, these same activities can have negative impacts for forest or land management agencies and businesses by flooding of roads and property and through the loss of merchantable timber. Considerable time and money is often spent by private, county, state, and federal organizations to manage beaver issues at local scales. The goal of my talk is to present an overview of the ecological benefits of beavers for ecosystem health and wildlife conservation in the context of managing beavers at local and population scales to minimize conflicts with forest and land management.

Moose and Deer Habitat use in Northeast Minnesota – Amanda McGraw and Ron Moen, University of Minnesota – Duluth, Natural Resources Research Institute

Moose and deer overlap across much of northeast Minnesota and thus rely on a similar matrix of habitat types to meet life history requirements. Both species rely on early successional forests to provide forage opportunities. Each also use mature conifer forests, largely for thermal cover. However, moose typically use mature cover types as an escape from heat, while deer use conifer cover as refuge from cold temperatures in winter. We collared 64 moose across northeast Minnesota in 2011. GPS collars on moose recorded locations every 20 minutes and activity counts every 5 minutes for 2 years. With this dataset we have been able to assess habitat use and response to environmental conditions at a finer temporal scale than has been possible elsewhere. Additionally, we collared 32 deer within moose range in winter 2014. Deer GPS collars are recording locations at 2 hour intervals and activity counts at 5 minute intervals for 2 years. These data will allow us to determine deer habitat use and to estimate the level of interaction between moose and deer with respect to similarities in resource use. Evidence of either overlap or of resource partitioning would inform management decisions with regard to forest and deer management.

Natural Models for Ecological Forestry – Brian Palik, U.S. Forest Service, Northern Research Station

Changing societal expectations, and an uncertain climate future, call for an ecological approach for restoring and sustaining resilient forests. A natural models approach based on a deep understanding of natural disturbance and forest dynamics can address this need. A natural models approach has three foundational principles: 1) natural disturbances leave a rich legacy of structures, organisms, and patterns in the new forest that are important ecologically, but often managed against; 2) stand development processes, particularly tree decline and mortality, generate structural and compositional heterogeneity that is seldom seen in managed forests; and 3) recovery periods between natural disturbances are long enough to allow complexity to develop; these periods are greatly shortened in managed forests. I and my colleagues have synthesized the scientific underpinnings of natural models forestry into guidelines that are applicable to a wide variety of forests conditions in Minnesota and beyond. In this presentation, I highlight some of the research results from Minnesota forests that validate a natural models approach and I provide examples of implementation in managed forests.

Summer Workshop Summary (continued)

Minnesota GAP Project: Habitat-wildlife Modeling for Forest Species – Gary Drotts, Minnesota Department of Natural Resources (retired)

In 2007, the Minnesota DNR completed a statewide vertebrate wildlife assessment project framed and sponsored by U.S. Geological Survey's Gap Analysis Project (GAP). While this project basically served to benchmark range extent, habitat distribution and land protection status for breeding vertebrate wildlife in Minnesota as of 2007, a range and wildlife habitat relationship database created from that project can still provide useful information for current and future wildlife habitat assessment and management needs at a specie, habitat, and/or landscape scale. A brief summary of the MN-GAP project followed by various forest wildlife and land cover/habitat type examples will be presented for review and comment within the workshop theme of *Minnesota's Forest Habitats: Managing across the Forest Continuum.*

Young Forest Bird Habitat Initiatives in Minnesota – Tom Cooper, U.S. Fish and Wildlife Service and Kevin Sheppard, American Bird Conservancy

American Woodcock and Golden-winged Warblers have both experienced range-wide population declines caused in part by the decline of young forest habitat across their historic range. Although these species have experienced declines throughout their range, both are doing well in Minnesota. In response to long-term declines, stakeholders have developed conservation plans for both of these species with the goal of stabilizing current populations and ultimately reversing the long-term declines. Regional "young forest initiatives" have been created to implement the plans and best management practices have been developed for putting habitat on the ground. Currently, many partners are working in Minnesota to maintain and create young forest habitat benefitting woodcock, golden-winged warblers, and many other species requiring periodic forest disturbance. We will talk about this work and how it fits into Minnesota's forested landscape.

Beyond the Big Trees: Restoring the Function of Old Growth Forests – Becky Marty and Harvey Tjader , Minnesota Department of Natural Resources, Division of Forestry

Sometimes it is hard to know which way to turn to resolve issues about old growth forests and old-forest dependent species. During this presentation, we will share some agency foundation materials and official responses and then expand to creative applications outside the current norms. We will focus on what officially defines Old Growth forest, what values that has and to whom, and end our presentation looking at management considerations for the forests and their buffer lands.

Workshop Sponsors

The Minnesota Chapter of The Wildlife Society

AMERICAN BIRD CONSERVANCY

Voices from the Swamp

Voices from the Swamp 4 Contributed by Ray Norrgard

Naïve Naturalism and Wetlands

Humans have been affecting the environment in which they live for at least 3 millennia. These impacts reached extraordinary levels during the last 250 years and accelerated to levels few would have foreseen just decades ago. There is no watershed in Minnesota unaffected by human activities. Most watersheds bear little resemblance to their condition at the time of statehood.

We know a great deal about the nature of these impacts on wetlands. We know we have drained or filled more than 50% of the wetland acreage that existed prior to settlement. We know that we have lost more than 90% (in some counties more than 99%) of individual prairie wetland basins. Although hundreds of lakes have also been drained and converted to farmland, we know that that the greatest impact has been the destruction of temporary and seasonal wetlands. We know that the quality of remaining wetlands has been compromised by increased runoff, nutrient loading, connectivity, and invasive species. We know that the majority of opportunities for wetland restoration occur on historically permanent wetland basins that are charged by both groundwater and surface water.

We also know a great deal about wetlands themselves. We know that wetland invertebrates, from tiny midges to large snails, play a crucial role in the life cycle of nearly every species of wetland wildlife. We know that nearly all of wetland related species require a mix of wetland water regimes from temporary to permanent in order to complete their life cycles. We know that prime wetland habitat reflects a ratio of 20 or more temporary and seasonal basins for every permanent wetland. We know that dry cycles are every bit as important to the health of wetlands as water.

Yet we persist in restoring wetlands to our preconceived notion of individual historical condition regardless of ecological setting, perturbations in the surrounding landscape, or wetland wildlife needs. Ten or twenty, or two hundred, permanently flooded wetlands do not provide a wetland habitat complex. One permanent wetland surrounded by nine basins managed as seasonal wetlands is infinitely more valuable than ten permanent wetlands controlled by permanent outlet elevations.

All wetlands, even permanent ones, benefit from seasonal and annual variances in water levels. The plants and animals that inhabit these wetlands have adaptive strategies that benefit from these changes. The changes in the watersheds containing these basins have far too often been modified in ways that tend to support stability rather than variability. It is time to move beyond the naïve notion that historical condition at some predetermined point in time should drive wetland restoration and management. Focusing all of our attention on our rearview mirror robs us of our ability to look forward and apply our scientific knowledge to meet the needs of today and tomorrow.

Other Items

The Minnesota Chapter of The Wildlife Society

MNTWS 2014 Bob Fedeler Memorial Awards

The Minnesota Chapter of The Wildlife Society (TWS) has established this Award in honor of Bob Fedeler. Bob was a popular and longtime biology and natural resources instructor at Staples Technical College and in the Natural Resources Department at Central Lakes College in Brainerd, MN. He served as Chapter President in 1997 and Membership Chair in 1998. Bob died of cancer in March 1999 after teaching for nearly two decades.

This Award consists of two full memberships (one undergraduate student, one graduate student) in The Wildlife Society (TWS) including all publications. The Fedeler Awards will help beginning wildlife professionals get started with membership in TWS providing them with high quality peer reviewed research, issues and discussions through the Society's various publications and access to TWS's regional and local networks of professional wildlife managers, researchers, conservation practitioners, policy makers, academics, other students and opportunities to participate or attend Conferences and Meetings

Students applying for the Fedeler Awards should be undergraduates in their junior or senior year or graduate students in a masters or doctorate program at a Minnesota college or university.

Applicants should:

- Have a 3.0 or better GPA.
- Have a strong interest in a career in wildlife biology.
- Be active in extracurricular activities.
- Have a strong sense of public service.
- Have demonstrated good communication skills.

How to apply:

1. Send a letter of interest by December 31, 2015 to the MNTWS Awards Committee Chair2012 indicating interest and explain how you meet the requirements. Include your address, phone number, and email address, and the name of your academic advisor.
2. Ask your academic or research advisor to send a letter of recommendation to the MNTWS Awards Committee.

Recipients will be notified prior to the Annual Meeting which will be held February 17-19, 2015 in Duluth MN.

Submit Applications to:
Thom Soule, Chair MNTWS Awards Committee
14351 40th St NE
Driscoll, ND 58532
(701) 387-4420
souletp@bektel.com

Other Items

Hunters Can Contribute to Conservation Research for Sharp-tailed Grouse and Prairie-chickens!

By Charlotte Roy, Eric Nelson, and Andrew Gregory

This fall, we are asking licensed sharp-tailed grouse and prairie-chicken hunters for their help with a research study aimed at understanding how prairie grouse move through the landscape. Understanding how areas of habitat are connected, or not connected to each other, helps us to identify factors that limit movements of prairie grouse. With this information, we can prioritize conservation actions and target areas that are likely to produce the most benefit.

We are asking prairie grouse hunters to consider submitting one wing from each bird they harvest, along with the GPS location where the bird was harvested. If GPS coordinates are not available, township, range, section, and quarter-section information is also useful, but GPS coordinates are preferred if possible. We will use this location information, and collect a genetic sample from the wing, to examine how genetic variability occurs spatially on the landscape. Where movement is restricted, we expect birds to be more genetically dissimilar than areas where movements are unimpeded. Conservation efforts directed at restoring connectivity may be necessary where birds aren't able to move successfully across non-habitat to reach good habitat.

If you would like to help: You can submit one wing from each bird you harvest along with the harvest location (GPS location is preferred).

1. Cut the wing at the radius and ulna joint. (See photo below for depiction).
2. Staple or permanently attach the harvest information form (next page) directly to the tip of the wing.
3. Store wings in **paper** envelopes in a cool, dry place out of the sun.

Preferably ship the wing or wings the next day or as soon as possible.

Send to: Eric Nelson, Minnesota Dept. of Natural Resources, 1601 Minnesota Drive, Brainerd, MN 56401

Other Items

Minnesota Dept. of Natural Resources Prairie Grouse Wing Collection

Species: Prairie-chicken / Sharp-tailed grouse (circle one) Sex of bird (if known): _____

Date of harvest: __/_____/_____ Collector: _____(Optional)

Township/Range/Section:_____/_____/_____ Example: T152N R38W S21

GPS Location if Possible (in UTM):_____

_ _Cut here _

Minnesota Dept. of Natural Resources Prairie Grouse Wing Collection

Species: Prairie-chicken / Sharp-tailed grouse (circle one) Sex of bird (if known): _____

Date of harvest:_____/_____/_____ Collector: _____(Optional)

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GPS Location if Possible (in UTM):_____

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The Minnesota Wildlifer is an electronic publication published quarterly by The Minnesota Chapter of The Wildlife Society. Newsletter items to be considered for publication should be sent to the Newsletter Editor by the following dates: March 01, June 01, September 01, and December 01. If you would like to contribute to the next newsletter please send an email to Bailey Petersen, Newsletter Editor at baileyjpetersen@gmail.com and write in the subject line "MN TWS newsletter submission". Previous editions of The Minnesota Wildlifer are available on our website.

The Minnesota Chapter of The Wildlife Society

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