

## POSTER ABSTRACTS FOR 2008 JOINT SAF/TWS CONFERENCE

“Making a place for prescribed fire in managing Minnesota ecosystems: *Overcoming technical, social and cultural barriers*”

Rutgers Sugar Lake Lodge, Grand Rapids, MN  
February 6, 2008

### 1. Aerial Ignition

Doug Lloyd, DNR – Forestry, 454 Hwy 169, Hill City, Mn 55748  
218-697-2476 [doug.lloyd@dnr.state.mn.us](mailto:doug.lloyd@dnr.state.mn.us)

Posterboard will consist of photo's showing aerial ignition equipment and burn patterns. Also on display (set-up on Wednesday) will be the Premo Mark III Aerial Ignition device. I'll be on hand as well on Wednesday to answer questions.

### 2. Movements of Painted Turtles (*Chrysemys picta bellii*) in Relation to Habitat Characteristics in Clay County, Minnesota

Megan R. Lisburg, Morgan B. Elfelt, Hallie L. A. Ladd, Jill L. Wavra, Stephanie A. Stene, Amanda A. LaPlante, Ashley L. LaPlante, Stacy M. Wanzek, Molly M. Dowling, Melissa S. Pederson, Kyle J. Noyes, Rachel L. Spiess, Nathaniel B. Bishop, and Donna M. Bruns Stockrahm

Department of Biosciences, Minnesota State University Moorhead, Moorhead, Minnesota 56563 USA

Donna M. Bruns Stockrahm [stockram@mnstate.edu](mailto:stockram@mnstate.edu) 218-477-5280

In a long-term study, about 630 painted turtles (*Chrysemys picta bellii*) have been live-trapped during the summer/early fall of 2001-2007 in Clay County, MN, to study growth rates, survival, population characteristics, and movements. Two sloughs (< 2 km apart) were trapped, 2.7 ha and 6.2 ha, respectively, with 3 traps per slough. For each captured turtle, outer scutes were notched for individual identification. Turtles were weighed, sexed and measured for length of plastron, width of carapace, and length of curvature of the carapace, then released. During the 2006 and 2007 field seasons, we also incorporated PIT tagging into our study to uniquely identify each turtle and reduce error associated with reading scute notches. A total of 169 turtles were successfully PIT tagged in 2006 and an additional 95 in 2007 for a total of 264. Our main objective for the 2007 field season was to examine movements more closely, including comparing 2006 and 2007 data. We also measured habitat variables at each trap location to determine if there was a turtle/habitat relationship. We have movement data for 92 and 90 turtles for 2006 and 2007, respectively. In 2006, 6 turtles moved between sloughs and 1 (adult male) in 2007. The adult male moved between sloughs both years, indicating periodic movements. In 2006, in the smaller slough, 9 turtles were captured at 2 different traps, with 2 turtles captured at all 3 traps. In 2007, only 1 turtle moved between 2 traps. In the larger slough in 2006, 63 turtles moved between 2 traps and 12 between all 3 traps, whereas in 2007, 59 and 29 turtles moved between 2 and 3 traps, respectively. Overall, there were considerable movements of turtles, especially within the larger slough. However, many of these moving turtles were also caught multiple times at the same location. Water temperature, pH, dissolved oxygen, and phosphate and nitrate levels differed little between sloughs or between trap locations within sloughs. We are further investigating the relationship of turtle captures with trap location regarding distance to

shore, water depth, and vegetation density, all of which varied between trap locations.

### **3. Interactions of fire, soils, and water on nutrient dynamics and vegetation in managed emergent marshes: A Multi-Refuge Long – Term Fire – Wetland Ecology Project**

In the conterminous United States, many freshwater emergent wetlands on National Wildlife Refuges (NWR) have been greatly modified by past land use and management. Some modifications include installation of numerous levees, ditches, diversion channels, wells, and water control structures to manipulate the flow and direction of surface and ground waters within and outside NWR boundaries. However, when prolonged flooding occurs at depths less than the long-term tolerance level of emergent plants, dense monotypic stands of flood tolerant species such as cattail (*Typha* spp.) can dominate, eventually eliminating other species of native plants as well as existing open water areas. These monocultures are unproductive invertebrate habitats and also are not preferred habitat for most vertebrate species. Fire has been used as a management tool to control monotypic stands and reduce litter accumulation. The goal of this multi-refuge study is to provide the information necessary to improve fire planning by quantifying the effects of fire in relation to different abiotic factors (e.g., hydrology, soils) to facilitate development of more effective management strategies to control cattail in emergent marshes. This study will assess the effects of growing season and dormant season fires on nutrient cycling and cattail in relation to abiotic conditions. The study aims to assist in understanding efficient and effective applications of fire, development of long-term monitoring protocols, and establishment of an adaptive management process to examine the use of fire in wetland management on NWRs.

### **4. Birds of Minnesota wetlands: The influence of a plant invasion**

Emily J. Hutchins and Brock R. McMillan, Department of Biological Sciences, Minnesota State University, Mankato, MN 56001

[emily.hutchins@mnsu.edu](mailto:emily.hutchins@mnsu.edu); [emily.hutchins@dnr.state.mn.us](mailto:emily.hutchins@dnr.state.mn.us)  
(507) 583-6001 (h); (507) 455-5841 (w)

The relationship between diversity of birds and complexity of vegetation has been well documented. During the past few decades, diversity and complexity of native plant communities in wetlands of southern Minnesota have become threatened by reed canarygrass (*Phalaris arundinacea*). Reed canarygrass is a perennial, cool season grass that, once established, rapidly out-competes native wetland vegetation, thereby altering structure and complexity of the plant community. The consequences for wildlife of widespread conversion of diverse sedge communities to reed canarygrass are largely unknown. The purpose of this study was to determine the effects of reed canarygrass on bird population and community dynamics. We hypothesized bird populations and communities would be negatively affected by the invasion of reed canarygrass. We paired four diverse sedge wetlands with four wetlands dominated by reed canarygrass that were similar in size and landscape juxtaposition. We used the fixed circular-plot survey to determine composition and diversity of the bird community. We assessed nesting success for red-winged blackbirds using the Mayfield method. Wetlands invaded by reed canarygrass had greater species richness of birds than wetlands with diverse native vegetation in both 2006 and 2007. In addition, we found no differences in species diversity or nest success between treatments in either year. None of our measures of community or population characteristics indicate that invasion by reed canarygrass negatively affects birds and, therefore, we reject our hypothesis.

### **5. Interactions between Fish, Invertebrates, and Diving Ducks at Hamden Slough NWR**

Adam Johnson, Kyle Hilleren, Craig Lachowitzer, Sean Lofgren, Mark Iverson, and Greg Hoch, Biology Dept, Concordia College, Moorhead MN

Waterfowl abundance, fish biomass, and invertebrate biomass and communities were recorded at Hamden Slough NWR over the summer of 2007 at five pools. Three pools had fish present, fathead minnows and sticklebacks. The pools with minnows had significantly lower invertebrate biomass. Diving ducks (7 species) as well as summer broods (5 species) all showed a strong preference for fishless wetlands. These data show that waterfowl are able to select habitat on the landscape based on the presence of fish in wetlands.

## **6. Strategic Habitat Conservation: From Concept to Projects**

Ray Norrgard, Wetland Wildlife Program Leader, MNDNR Wildlife Management Section

Strategic Habitat Conservation is an adaptive management approach to conservation planning, implementation, and evaluation. The process involves the four basic steps of Biological Planning, Conservation Design, Delivery, and Monitoring. This process formed the backbone of the Working Lands Initiative, an ongoing approach to restore and protect prairie wetland complexes by working with local communities. Can this approach be applied to other landscapes within Minnesota?

## **7. Strategic Habitat Conservation: Applying the Process to Brushlands**

Jodie Provost, Private Lands Wildlife Habitat Specialist, Ray Norrgard, Wetland Wildlife Program Leader, MNDNR Wildlife Management Section

The Working lands Initiative has shown how Strategic Habitat Conservation can be applied to prairie landscapes. The same process is starting to be applied to brushland management in the forested region of Minnesota. The authors share the process from past management and opportunity, assessing LTAs for open landscape information, designating OL LTAs through SFRMP, and beginning the sharp-tailed grouse/brushland habitat modeling effort including potential monitoring.

## **8. Native Plant Diversity and Invasive Species in Restored Prairie, Clay County MN**

Dan Ram, Anna Skauge, Brittany Tostenson, Aron Gorackzkowskim and Greg Hoch, Biology Dept, Concordia College, Moorhead MN

We surveyed plant diversity in a series of plots in Waterfowl Production Areas (WPAs) in Clay County MN. At each WPA, five 10m<sup>2</sup> circular plots were randomly located in areas with high Canada thistle (*Cirsium arvense*) density and five plots in areas with low thistle density. All species, native and introduced, were recorded. Species diversity is compared to thistle density. There were weak, but significant correlations between diversity and thistle density.

## **9. Can Hostile Habitat Removal Improve Waterfowl Nest Success?**

Sara Vacek and Audrey Respet, Morris Wetland Management District, U.S. Fish and Wildlife Service, Morris, MN 56267

The primary grassland management goal of the Morris Wetland Management District is to provide waterfowl nesting habitat. Removing hostile habitat is an increasingly common tool for improving existing grassland habitat on waterfowl production areas (WPAs). Hostile habitat refers to features that are not natural parts of the tallgrass prairie and that

tend to favor predators by providing dens, perches, roost sites and travel ways. We hypothesize that if hostile habitat (particularly planted and encroaching woody plants) can be completely removed from a unit, waterfowl and their nests would be more isolated from predators and nest success should increase. Although several studies have demonstrated that woody encroachment in prairies can harm grassland passerines, little information is available regarding the effects of woody cover or other hostile habitat on waterfowl nest success. We monitored waterfowl nest success in association with a comprehensive hostile habitat removal project at Rothi WPA in central Big Stone County, MN. Since 2003, we have removed all scattered trees and tree groves, and have buried 6 of about 60 rock piles on the 480 ha (1200 ac) WPA. We observed a significant increase in duck nest success during the project, from 7.3% in 2003 to 41.7% in 2007. Although there are certainly other factors that influenced nest success during the project, this small study suggests that hostile habitat removal is a worthwhile waterfowl habitat management tool. We will continue monitoring nest success at Rothi WPA for several years and hope to make this part of a larger, more rigorous study to examine the effects of woody vegetation on waterfowl nest success.

#### **10. Survey Results (2003-2007) of Wild Turkey (*Meleagris gallopavo*) Distribution and Human-Turkey Interactions in Cass (ND) and Clay (MN) Counties**

Todd M. Zielinski, Kari O'Brien, Megan A. Zadach, and Donna M. Bruns Stockrahm  
Department of Biosciences, Minnesota State University Moorhead, Moorhead,  
Minnesota, 56563, USA [zielinto@mnstate.edu](mailto:zielinto@mnstate.edu) 1-414-303-1107

This study was initiated in 2003 with an initial objective of using mail surveys to estimate the minimum wild turkey (*Meleagris gallopavo*) population in the Red River Valley (RRV) in the Fargo, North Dakota/Moorhead, Minnesota, area. The RRV offers suitable turkey habitat in a relatively narrow corridor surrounded by a dense human population. In 2004, urban human-turkey interactions were monitored as well, adding in 2005, a survey to assess public opinion on wild turkey management options in the event abatement measures were necessary due to problematic urban turkeys. A follow-up survey was created in 2006, to see if changes in survey respondents' opinions occurred. In 2007, we did a slightly different follow-up survey which was mailed only to former respondents. Turkey observations reported from 2003 through 2007 show a strong turkey population thriving in the RRV, with a steady increase in numbers and sightings. In 2004, 12.5% of survey respondents (respondents = 40, out of 150 mailed surveys) reported negative human-turkey interactions. In 2005, negative reports rose to 24% (respondents = 75, out of 500 mailed surveys). In 2006, negative human-turkey interactions dropped to 7% (respondents = 190, out of 537 mailed surveys). In 2007, negative human-turkey interactions increased to 10% (respondents = 115, out of 220 mailed surveys). Negative interactions included such things as turkeys blocking traffic routes, entering yards, eating from bird feeders/gardens, and aggressive behaviors. Public opinion surveys of management options for abatement indicated that in 2005, 2006, and 2007 that 61.3% (46 out of 75 respondents), 57% (85 out of 149 respondents), and 63% (30 out of 115 respondents), respectively, agreed or strongly agreed with a turkey hunting season to reduce potential problems.

#### **11. Recognition of Private Partners in Prescribed Fire Implementation on National Wildlife System Lands**

Steve Schumacher, Fire Management Officer, Detroit Lakes Wetland Management District

Wildlife habitat has no respect for property boundaries. Wildlife managers continue to take a landscape view as they develop plans to manage wildlife populations. This landscape view/approach has served the wildlife resources well in the past and is even

more important with today's shifting demographics and suburban sprawl that lead to habitat fragmentation. The National Fire Plan directs federal land management agencies to 1) improve prevention and suppression capabilities, 2) reduce hazardous fuels, 3) restore fire-adapted (plant) communities, and 4) promote community assistance. As we strive to implement these goals we are to collaborate with "governments and representative stakeholders" looking at and addressing landscape issues regardless of land ownership and to build "social awareness and support".

Many of our prescribed burns include neighboring private lands. We include these private lands in our prescribed burns when doing so will make the burn safer for our employees and the public, and more efficient, providing a cost savings to the government. In recognition of the private landowners assistance by allowing us to burn on their lands, we present them with a token of appreciation: a t-shirt, sweatshirt or hat with an image of prairie grasses, flowers and butterflies and the words "Prescribed Fire Makes the Prairie Bloom and Grow". This is our way of saying thank you and in turn these garments will stimulate conversations between our cooperators and others in the community.

## **12. Effects of Fire in the Blowdown Area of Northern Minnesota**

Patty Johnson, East Zone Fuels Planner  
Superior National Forest  
218-370-0392 (Cell), 218-387-3230 (Grand Marais), 218-663-8081 (Tofte)  
pjjohnson@fs.fed.us

Since the blowdown event of 1999 in Northern Minnesota, the area has experienced over 45,000 acres of prescribed fire and 90,000 acres of wildlife. The effects of these fires are being monitored in various manners. Some of the effects are immediate and some will take decades to see. These effects include wildlife, soils, vegetation, aquatics, and fuel hazards. This poster summarizes the monitoring that is taking place and some of those immediate effects that are being observed.