



MIDWEST FURBEARER GROUP ANNUAL REPORT MAY 2011

MEETING TIME AND PLACE

The Wisconsin Department of Natural Resources (WDNR), Wisconsin Trappers Association (WTA) and the Friends of Crex hosted the Midwest Furbearer Workshop on May 2 – 5, 2011. Presentations, discussion and lunch took place at the Crex Meadows Education Center in Grantsburg, Wisconsin. A field trip was held on the Crex Meadows Wildlife Area and Folle Avonne historic fur trading center and fort.

ATTENDANCE

Twenty-eight (28) participants attended the workshop in 2011, including state furbearer biologists from 10 Midwest member states (North Dakota, Nebraska, Kansas, Oklahoma, Missouri, Minnesota, Michigan, Ohio, Kentucky and Wisconsin) and attendees from other organizations/agencies including: U. S. Fish & Wildlife Service, Association of Fish and Wildlife Agencies, WDNR Integrated Science Services, Bad River Band of Ojibwa Indians, Fur Takers of America, Wisconsin Trappers Association, and wildlife biologists from the Bureau of Wildlife Management, WDNR. A complete list of attendees and contact information for state furbearer biologists is available in Appendices 1 and 2.

EXECUTIVE SUMMARY

Attendees at the 2011 Midwest Furbearer Workshop were welcomed by Mike Zeckmeister, Northern Region Wildlife Supervisor, Steve Hoffman, Wildlife Biologist, Burnett County, and Allison Thomas, Naturalist, Crex Meadows Education Center. Numerous speakers presented information on issues relative to furbearer research and management (Appendices 3 and 4). Professional presentations were given on the following topics:

- Marten research in northern Wisconsin and northern Minnesota
- Fisher research in northern Minnesota
- River otter management in Kansas
- Bobcat management in northern Wisconsin
- Bobcat research in southern Wisconsin
- Bobcat genetic research in Ohio

- Cougar management in North Dakota and Missouri
- Best Management Practices for Trapping in the United States
- Scat Detector Dogs and Genetic Analysis of Lions in Northwest Nebraska
- Trapper Education in Kentucky
- Citizen Science & Endangered Marten in Wisconsin
- Furbearer Management on the Upper Mississippi River National Wildlife and Fish Refuge

The somewhat isolated setting allowed for relaxed, group participation in numerous discussions throughout the course of the meeting, during our homemade lunches at the Center and well into the evenings. Marten, fisher and cougar management were a few of the highlights of these discussions. In addition, the living history tour at Folle Avonne (wild rice in French) set the stage regarding the history and value of the fur trade in North America. This was then followed by the premiere showing of “Green Fire” a documentary recently developed by the Leopold Foundation that covers the life of Aldo Leopold, other key conservationists (Theodore Roosevelt, John Muir, Gifford Pinchot, and Sigurd Olson), and the development of key components of the North American Model of Wildlife Conservation. All present then received a copy of the ***Sand County Almanac*** for future reference and sharing.

Forums such as the Midwest Furbearer Workshop provide valuable opportunities for state furbearer biologists to become acquainted with emerging issues and exchange information and ideas related to furbearer research and management. The need for state fish and wildlife agencies to establish and maintain furbearer biologist positions and support travel of furbearer biologists to the annual Midwest Furbearer Resources Workshop is imperative for exchanging information to promote quality furbearer management and research in each state. It is more important than ever that state agencies are in the forefront of issues related to furbearer management and trapping in order to protect the heritage and recreational opportunities of hunting and trapping for future sportsmen and sportswomen.

DIRECTOR ACTION ITEMS

1. The Midwest Furbearer Working Group requests continued strong support and funding for Best Management Practices (BMPs) for trapping. The Furbearer Working Group would like to emphasize the need to maintain commitment to BMPs by AFWA and Directors. BMPs have been used by several states to defend trapping through science and even allow new types of traps which were previously prohibited.
2. The Midwest Furbearer Working Group, with the aid of Bryant White, AFWA, has developed and supported a resolution on continued funding for science-based trap research in the United States (Appendix 5).

3. The Midwest Furbearer Working Group requests continued support and funding for furbearer management and research positions. Increased involvement by several components of today's society has increased the need to carefully manage species and habitat in addition to sharing our knowledge and information with other organizations, agencies, and the public.

DIRECTOR INFORMATION ITEMS

1. Actions taken at the CITES Conference of the Parties in 2010 resulted in no action on a global scale relative to transfer of bobcat from Appendix II to Appendix III. This prompted an AFWA letter to the Department of the Interior requesting that they implement the joint recommendation stemming from the work of an AFWA/USFWS work group to eliminate the existing physical tagging requirement for river otter and bobcat. Meetings were held in August of 2010 and January of 2011 at the NTA Annual Rendezvous and the AFWA Trap Research Group, respectively. Representatives of the USFWS, AFWA, states, national trapper organizations, and the fur industry were present. Although various alternatives were suggested little to nothing has happened to date. Gordon Batcheller, Director of Fish and Game for the New York Division of Fish, Wildlife & Marine Resources and past chair of the Trap Research Group, continues to lead the discussion with the Service and a CITES sub-committee of the Trap Research Group.
2. The Midwest Furbearer Working Group thanks state Directors for their continued support of travel of state furbearer biologists to the annual Midwest Furbearer Resources Workshop. With tight budgets and restricted travel this annual workshop continues to be a critical component of sound resource management in the Midwest. Annual meetings allow for an open, thorough exchange of information and knowledge resulting in efficient, effective, and sound management of these unique species.

TIME AND PLACE OF NEXT MEETING

The Missouri Department of Conservation will host the 2012 Midwest Furbearer Workshop in early May, 2012 in a remote location of southwestern Missouri. A complete list of past host states is available in Appendix 6.

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Appendix 1. 2011 Midwest Furbearer Workshop Attendees.

Name	Agency/Affiliation
Bryant White	Association of Fish & Wildlife
Nick McCann	Purdue University
Bob Hanson	WI Department of Natural Resources
Jeff Beringer	Missouri Department of Conservation
Brian Stemper	U.S. Fish and Wildlife Service
Doug Fendry	WI Department of Natural Resources
Joe Kramer	KS Dept of Wildlife, Parks and Tourism
Matt Peek	KS Dept of Wildlife, Parks and Tourism
Dave Hastings	Fur Takers of America
Robert Rolley	WI Department of Natural Resources
Stephanie Tucker	ND Game and Fish Department
Gail Morris	WI Department of Natural Resources
Cortney Schaefer	WI Department of Natural Resources
Bruce Bacon	WI Department of Natural Resources
Matthew Gross	UW Stevens Point
Laura Patton	Kentucky Dept. of Fish and Wildlife Resources
Adam Bump	MI Department of Natural Resources & Env.
Sam Wilson	Nebraska Game and Parks Commission
Mike Zeckmeister	WI Department of Natural Resources
John Olson	WI Department of Natural Resources
Steve Hoffman	WI Department of Natural Resources
Shawn Rossler	WI Department of Natural Resources
Erik Bartholomew	Oklahoma Department of Wildlife Conservation
Kyle Anderson	WI Department of Natural Resources
John Erb	MN Department of Natural Resources
Allison Thomas	WI Department of Natural Resources
Lyman Lang	WI Department of Natural Resources
Bill Smith	WI Department of Natural Resources

APPENDIX 2. Midwest Furbearer Biologists – Contact Information.

Colorado

Contact Info Needed

Illinois

Bob Bluett, Illinois Dept. Of Natural Resources
1 Natural Resources Way, Springfield, IL 62702
217-782-7580 bob.bluett@illinois.gov

Indiana

Contact Info Needed

Iowa

Current Contact Information (moving shortly)
Vince Eversizer, Iowa Dept. of Natural Resources
109 Trowbridge Hall, Iowa City, IA 52242-1319
319-335-1574 vince.eversizer@dnr.iowa.gov

Future Address

Fish & Wildlife Research Station
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Clear Lake, IA 50428
Office Phone: 641-357-3517

Cell Phone #: 319-530-1648

Kansas

Matt Peek, Kansas Dept. of Wildlife and Parks
PO Box 1525, Emporia, KS 66801
620-342-0658 & 620-340-3017 mattp@wp.state.ks.us

Kentucky

Laura Patton, KY Dept. of Fish and Wildlife Resources
1 Sportsmen's Lane, Frankfort, KY 40601
800-858-1549 ext. 4528 laura.patton@ky.gov

Michigan

Adam Bump, Michigan Dept. of Natural Resources
Mason Building, P.O. Box 30444, Lansing, MI 48909-7944
517-373-9336 bumpa@michigan.gov

Dwayne Etter, Ph.D., Michigan Dept. Of Natural Resources
8562 E. Stoll Road, East Lansing, MI 48823
517-373-9358 ext. 256 etterd@michigan.gov

Minnesota

John Erb, Ph.D., Minn. Dept. of Natural Resources
1201 East Hwy 2, Grand Rapids, MN 55744
218-999-7930 john.erb@dnr.state.mn.us

Missouri

Jeff Beringer, Missouri Dept. Of Conservation
1110 South College Avenue, Columbia, MO 65201
573-882-9909 jeff.beringer@mdc.mo.gov

Nebraska

Sam Wilson, Nebraska Game and Parks Commission
2200 North 33rd Street, Lincoln, NE 68503
402-471-5177 sam.wilson@nebraska.gov

North Dakota

Stephanie Tucker, North Dakota Game and Fish
100 N. Bismarck Expressway, Bismarck, ND 58501
701-328-6302 satucker@nd.gov

Ohio

Suzanne Prange, Ph.D., Ohio Dept. of Natural Resources
360 East State Street, Athens, OH 45701
740-589-9924 suzie.prange@dnr.state.oh.us

South Dakota

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523 East Capitol, Pierre, SD 57501
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Andy Lindbloom, South Dakota Dept. of Game, Fish and Parks
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Wisconsin

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Dave MacFarland, Ph.D., Wisconsin Dept. of Natural Resources
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715-365-8917 david.macfarland@wi.gov

Appendix 3. 2011 Midwest Furbearer Workshop – Agenda.

29th MIDWEST FURBEARER WORKSHOP

AGENDA

CREX MEADOWS NATURE CENTER

Grantsburg, Wisconsin

May 2 – 5, 2011



MONDAY, MAY 2nd

- | | |
|--------------|--|
| 3 PM – 10 PM | REGISTRATION |
| 6 PM | Informal Social and Dinner On-the-Town! |
| 7 PM | Social Continues! Knife Throwing Demos by John Olson.
Knife Catching Demos by John Erb! |

TUESDAY, MAY 3rd

- | | |
|----------------|---|
| ALL DAY | REGISTRATION |
| 6:00 – 7:45 AM | Lodge Breakfast |
| 8:00 AM | Travel to the Crex Education Center (Car pool if possible) |
| 9:00 AM | Logistics, Agenda Repair, Introductions.
John Olson – Furbearer Specialist, Wisconsin Department of
Natural Resources (WDNR) |
| 9:15 AM | Welcome
Mike Zeckmeister, Regional Program Manager, WDNR |
| 9:30 – 9:55 AM | Crex History, Friends of Crex and Education Center
Steve Hoffman, Wildlife Biologist, WDNR
Alison Thomas, Wildlife Educator, WDNR |



FISHER AND MARTENS OF THE UPPER MIDWEST

Moderator: Shawn Rossler, Assistant Furbearer Specialist, WDNR

- | | |
|------------------|---|
| 10:00 – 10:45 AM | Relationship between Rest Sites, Kill Sites, and Selection of Cover Types
within Home Ranges of Martens
Nicholas McCann, PhD Candidate, Purdue University |
|------------------|---|

10:50 – 11:35 AM	Reproductive Ecology of Fishers in MN John Erb, Furbearer Researcher, Minnesota Department of Natural Resources
11:45 AM – NOON	BREAK
NOON – 12:55 PM	In-house lunch, specialty (?) soups, salad and sandwiches.
1:00 – 1:45 PM	Factors Affecting Harvests of Fishers and American Martens in Northern Michigan Adam Bump, Furbearer Specialist, Michigan Department of Natural Resources and Environment
1:50 – 2:35 PM	Causes of Mortality for Fisher and Marten in MN John Erb, MDNR
2:35 – 3:00 PM	BREAK
3:00 – 3:45 PM	Wildlife Diseases: Coyote and Coon Research Amanda Cyr, Wildlife Health Biologist, WDNR
3:50 – 4:35 PM	River Otter Status and Harvest Proposal in Kansas Matt Peek, Furbearer Specialist, Kansas Department of Wildlife and Parks
4:35 – 5:00 PM	Open Discussion on Fisher and Marten in the Midwest
5:00 PM	Begin travels back to Siren.
5:45 – 6:45 PM	Pre-Dinner Informal Hospitality DINNER ON YOUR OWN !



L.H.2

WEDNESDAY, MAY 4

6 – 7:45 AM	Lodge Breakfast
7:45 AM	Depart Lodge for Crex Education Center (Car pool!)
8:00 – NOON	REGISTRATION (Find Shawn Rossler)

CATS OF THE MIDWEST

Moderator: Laura Patton, Furbearer Specialist, Kentucky

8:10 – 8:50 AM	Bobcat Population Monitoring and Harvest Management in Wisconsin Robert Rolley, Wildlife Researcher, WDNR
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8:50 – 9:30 AM	Distribution, Abundance, and Genetic Structure of a Recovering Bobcat Population Suzie Prange, Wildlife Researcher, Ohio Department of Natural Resources
9:30 – 9:50 AM	Estimating bobcat abundance in central Wisconsin using non-invasive mark-recapture techniques and a habitat-density relationship John Clare, MS Graduate Student, UW Stevens Point
9:50 – 10:15 AM	BREAK
10:15 – 10:50 AM	Using Scat Detection Dogs and Genetic Analysis to Assess a Recently Established Mountain Lion Population in Northwest Nebraska Sam Wilson, Nongame Mammal/Furbearer Program Manager Nebraska Game and Parks Commission
10:50 – 11:30 AM	Cougar Management in North Dakota Stephanie Tucker, Furbearer Specialist, North Dakota Fish and Game
11:30 AM – NOON	Cougar Management in Missouri Jeff Beringer, Furbearer Researcher, Missouri Conservation Department
NOON – 1:00 PM	In-house lunch, soup, salad and sandwiches.
1:10 - 1:20 PM	Climb on the Bus! Head Out! Steve Hoffman, WDNR - Bus driver and back-up Interpreter
1:20 – 3:00 PM	Trek Through the Crex Meadows Wildlife Area Ali Thomas, Wildlife Educator, WDNR
3:00 – 5:00 PM	Ft. Avonne & Living History Walk-about Friends of the Fort
5:00 – 5:30 PM	Refreshments and Gift Shop
5:30 – 6:30 PM	Ft. Avonne Dinner – Friends of the Fort
6:30 PM	Climb on the Bus! Head Back!
7:00 PM	Arrive at the Crex Center
7:15 – 8:30 PM	“Green Fire” Premier Show Friends of Crex and Aldo Leopold Foundation
9:00 PM	Wander back to the Motel

THURSDAY, MAY 5

6:00 – 7:45 AM
7:45 AM
8:00 – Noon

Lodge Breakfast
Depart Lodge for Crex Education Center (Car pool!)
REGISTRATION (Find Shawn Rossler)

FURBEARER MANAGEMENT AND FURBEARER OUTREACH

Moderator: Steve Hoffman, Wildlife Biologist, WDNR

8:00 – 8:40 AM

**Best Management Practices for Trapping in the United States:
An Overview and Update**

Bryant White, Furbearer Specialist, Association of Fish and
Wildlife Agencies, Missouri

8:45 – 9:15 AM

Trapper Education in Kentucky

Laura Patton, Furbearer Specialist, Kentucky Fish and Game

9:20 – 10:00

**Furbearer Management on the Upper Mississippi River National
Wildlife and Fish Refuge (A Challenge for Managers)**

Brian Stemper, Refuge Manager, US Fish and Wildlife Service,
Winona, MN

10:00 – 10:30 AM

BREAK

10:30 - 11:00 AM

History of Trap Incidents in Wisconsin

Shawn Rossler, Assistant Furbearer Specialist, WDNR

11:00 – 11:30 AM

Youth Citizen Science and American Martens in Iron Co. Wisconsin

Bruce Bacon, Wildlife Biologist, DNR

11:30 - NOON

Open Discussion

NOON

DEPARTURE FOR MOST! SAFE TRAVELS !

NOON – 1:30 PM

Midwest Furbearer Group - Business Meeting

That sorry gang of state furbearer specialists!



Appendix 4 – 2011 Midwest Furbearer Workshop – Abstracts.

Following American Marten in Iron County with Citizen Scientists

Bruce Bacon¹

¹Wisconsin Department of Natural Resources, 5291 N State House Circle, Mercer, WI 54547

Using students to monitor the state endangered American marten found in an unstudied population in Iron County was an outgrowth from their existing fisher project. From 1999 through 2006 students from the Mercer and Hurley high schools monitored radio collared fisher. In 2007 we decided to trap and follow collared American marten in an area where a few incidentally trapped marten showed up. This marten population had not been previously identified. We also solicited sightings from the general public and additional trappers through news articles and a citizen' scientists monitoring meeting. The trappers' information proved valuable and our trapping found marten in the same general area identified by trappers. Sightings (including photos) sent to us from the public were not accurate and included flying squirrels and mink. Several individuals living in the newly identified marten area did provide accurate sightings. Using citizen scientists we were not able to document marten outside of the core 6 mile by 6 mile area our collared marten used, which would indicate we have a fairly small population. The students have gained valuable knowledge and respect for our wildlife resources through this program and their daily supervision by Zach Wilson, North Lakeland Discovery Center naturalist. The public has become more aware of the American marten as part of the local wildlife. And the WDNR has gained valuable information on a previously unknown population of a state endangered mammal.

An Update on the Status of Mountain Lions in Missouri

Jeff Beringer¹

¹ Missouri Conservation Department, Resource Science Center, 1110 S. College Avenue, Columbia, MO 65201,

The mountain lion (*Puma concolor*) until recently was state-listed as “endangered” in Missouri. The Conservation Commission first designated the mountain lion as “endangered” in 1973, due to the belief at the time that a small population “may have become tenuously re-established” in parts of the Ozarks. A Missouri “endangered” species is: “one whose prospects for survival within the state are in immediate jeopardy.” In 2006 mountain lions were removed from the list of “endangered species” in Missouri. With this action the Conservation Commission clarified the Department’s policy on mountain lions, and sent a message that we understood and sympathized with the public’s

concern over safety issues. Yet they did not condone indiscriminate killing of mountain lions just because they may occasionally wander into Missouri. In response to mountain lion reports, a verified sighting (carcass), and a need to demonstrate to the public that MDC takes mountain lion reports seriously and investigates credible incidents, the MLRT was formed in 2001. The current goal of the MLRT is to collect and record mountain lion sightings, verify credible reports, collect information about recovered animals and to be the “go-to” source of information for media and agency personnel. Although the Missouri Department of Conservation (MDC) annually receives 100’s of mountain lion sighting reports only 17 mountain lions have been verified in Missouri since 1994. Prior to that, the last confirmed mountain lion was killed in 1927 in southeast Missouri. This past year we verified 7 lions in the state. Genetic tests revealed that 2 of the lions originated from South Dakota. The recent spate of lion verifications has resulted in renewed discussions regarding the legal status of mountain lions in our state. For the purposes of response protocol, science-based evidence is a primary consideration in the confirmation of wild mountain lions. Inventory, marking with transponder tags, and collecting tissue for DNA identification is our current method of monitoring captive mountain lions, in the state. To date there are currently 32 captive mountain lions held by 20 individuals on Wildlife Breeder Permits.

Estimating Bobcat Abundance in Central Wisconsin Using Non-invasive Mark-Recapture Techniques and a Habitat-Density Relationship

John Clare¹, Eric M. Anderson¹, David MacFarland²

¹College of Natural Resources, University of Wisconsin-Stevens Point, 800 Reserve St, Stevens Point, WI 54481

²Wisconsin Department of Natural Resources, Bureau of Science Services, 107 Sutliff Ave, Rhinelander, WI 54501

Bobcats (*Lynx rufus*) are managed as a fur-bearing species in Wisconsin, with harvest exclusive to the northern third of the state since 1980. Both public interest in bobcat harvest and evidence of bobcat range expansion have led the Wisconsin Department of Natural Resources to explore increasing the harvest zone. The investigators hope to take advantage of advances in non-invasive sampling and mark-recapture theory and build upon established habitat modeling methods with the ultimate objective of estimating bobcat abundance via a density-habitat relationship model. The results should be used to inform WDNR’s decisions regarding boundary revisions and permit limits.

Reproductive Ecology of Fishers in Minnesota

John Erb¹ and Barry Sampson¹

¹ Minnesota Department of Natural Resources

As part of a larger project on *Martes* ecology in Minnesota, we began monitoring reproductive success of radio-collared fishers (*Martes pennanti*) and martens (*Martes americana*) during spring 2009. Including the pilot year of the study, we have captured 128 martens (58F, 70M) and 65 fishers (36F, 29M). To date, age and reproductive status have been confirmed on 12 adult (≥ 2 years old) female martens, 83% of which produced litters. Of the 10 that produced litters, we have obtained litter counts for 8 (ave. minimum litter size = 3.4). Of the 15 natal or maternal dens identified, 53% have been in underground burrows, commonly in rock-laden soils, while 47% have been in elevated tree cavities (primarily cedar trees). We have also confirmed litters for 21 adult (≥ 2 years old) female fishers, all but 1 for which we have confirmed litter size (average litter = 2.7). Excluding 2 potential juveniles, 83% of adult (≥ 2 years old) female fishers produced litters, though initial data suggests that pregnancy rate and average litter size is smaller for 2 year old fishers compared to older adults. All of the fisher natal or maternal dens we have located prior to June 1 (n=23) have been in elevated cavities of large diameter (ave. dbh = 20.6) live trees or snags, predominantly in aspen (75%) and oak (17%). The only fisher maternal den located after June 1 was in a hollow log on the ground. Fisher kits appear to be born during the last 2 weeks of March, while marten parturition appears to be centered on the last 2 weeks of April. Both species appear to move their kits from the natal den to 1 or more different maternal dens in the first 6 weeks following birth.

Causes of Mortality for Fisher and Marten in Minnesota

John Erb¹, Barry Sampson¹, and Pam Coy¹

¹ Minnesota Department of Natural Resources

As part of a larger project on *Martes* ecology in Minnesota, we began monitoring survival of radio-collared fishers (*Martes pennanti*) and martens (*Martes americana*) during winter 2007-08. Including the pilot year of the study, a total of 128 martens (58F, 70M) and 65 fishers (36F, 29M) have been radio-collared. An additional 6 animals (3 martens, 3 fishers) were ear-tagged only. Of the 128 martens radio-collared, 51 are still actively monitored (18F, 33M), radio-contact has been lost on 23 (8 slipped collars, 15 missing), and 54 deaths have occurred. Of the 54 known marten deaths (26F, 28M), most have been from regulated fur trapping (n=16; 13M, 3F) and predation (n=29; 19F, 10M). Of the 29 predation events, 21 marten were killed by mammalian predators, 7 by raptors, and 1 unknown predation. While predation mortality of marten has occurred in most seasons, the majority has occurred during late winter and spring. While total marten mortality has not been noticeably sex-biased, predation mortality has been very female-

biased (~ 2F:1M), while harvest mortality of marten is significantly male-biased (~ 4M:1F). The combination of male-biased harvest mortality and female-biased non-harvest mortality may produce offsetting effects on the population sex ratio. Of the 65 fishers radio-collared, 24 are still being monitored (14F, 10M), radio contact was lost on 17 (12 belting hardware failures, 4 missing, 1 collar removed), and 24 deaths (12F, 12M) have occurred (12 (8F, 4M) were killed by other predators (scavenging by an eagle can't be ruled out in 1 case), 4 (1F, 3M) died from unknown but apparently natural causes, 4 were legally trapped (1F, 3M), 2 (1M, 1F) were struck by vehicles (both while apparently dispersing in the fall), 1 male was accidentally trapped out of season, and 1 female was illegally). Although sample size is small, 10 of the 12 predation deaths of fishers took place from late winter through spring. Seven of the 8 female fisher predation mortalities were attributed to other mammalian carnivores, while 3 of the 4 male fisher predation mortalities were attributed to raptors (all bald eagles). Of greatest significance, 7 of the 8 female fishers killed by predators were adults, and 5 of the 7 were killed while they still had dependent young in natal dens, indirectly resulting in the death of their 14 kits. The deaths of these 5 kit-rearing females represent 36% of the adult female fishers monitored during the kit-rearing season since the study began. We hypothesize that the timing and magnitude of female mortality is a result of increased movement and increased vulnerability at this time of year. However, it remains unclear whether the pattern we have observed to date is consistent with past dynamics, and if not, whether the underlying explanation is related to short-term (e.g., periodic fluctuations in prey) or long-term (e.g., deteriorating habitat quality) changes affecting fisher energetics/activity, or a result of changes in the predator community. What is clear from initial results is that for both species, predation has been the dominant source of mortality.

Factors Affecting Harvests of Fishers and American Martens in Northern Michigan

Tim L. Hiller¹, Dwayne R. Etter², Jerrold L. Belant³, Andrew J. Tyre¹

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² Rose Lake Wildlife Research Station, 8562 East Stoll Rd., Michigan Department of Natural Resources, East Lansing, MI 48823-9454

³ Carnivore Ecology Laboratory, Forest and Wildlife Research Center, Mississippi State University, Mississippi State, MS 39762-9690

Presenter: Adam Bump, Michigan Department of Natural Resources, Wildlife Division, P.O. Box 30444, Lansing, MI 48909

Harvest data (e.g., number of animals harvested, trapper effort) are an important source of information for state wildlife agencies to manage harvested furbearers. These data provide evidence to support adapting harvest regulations when necessary. Setting appropriate harvest regulations for fishers (*Martes pennanti*) and American martens (*M. americana*) is critical, as these species often exist at low densities, are sensitive to timber-management practices and trapper-harvest, and experience some level of interspecific

predation and competition in sympatric populations. We estimated effects of management (e.g., number of fishers or martens harvested per trapper per season [harvest limit], season length) and extrinsic (e.g., weather, pelt prices) factors on regulated harvests of fishers and martens in the Upper Peninsula of Michigan during 1996–2007. We used generalized linear mixed models in an information-theoretic approach (quasi-likelihood adjusted Akaike Information Criterion [QAIC]) to discern which factors most strongly influenced fisher and marten harvests. For harvest of fishers, the 3 QAIC-best models included harvest limit, season length, and number of trappers, suggesting that regulatory changes within the ranges tested may be implemented to influence harvest. The QAIC-best model (harvest limit) contained 26% of the weight of evidence, and using an independent subset of data, showed no difference between model predictions and harvest data. In contrast, harvest of martens was not strongly influenced by any factors we tested. Possible reasons for a lack of measurable effects while modeling harvest of martens include a low harvest limit (i.e., 1 marten) or incidental harvest of martens by fisher or bobcat (*Lynx rufus*) trappers. Knowledge of influences on harvest will lead to informed decision-making when managers are setting harvest regulations, particularly for low-density furbearers.

Relationship Between Rest Sites, Kill Sites, and Selection of Cover Types Within Home Ranges of Martens

Nicholas P. McCann^{1*}, Patrick A. Zollner¹, and Jonathan H. Gilbert²

¹ Department of Forestry and Natural Resources, Purdue University, IN 47907

² Great Lakes Indian Fish and Wildlife Commission, WI 54806.

Animals select paths to travel during daily activities based on their perceptions of habitat quality. Habitat selection is hierarchical and based on a combination of factors, including prey availability, energetic costs and benefits, and risk of mortality. American martens (*Martes americana*) select forest cover with abundant coarse woody debris (CWD) and relatively continuous canopy closure due to increased prey availability and protection from weather and predators. Habitat selection for martens occurs at multiple spatial scales, including within their home ranges. To measure within home range selection, we followed paths of martens in snow while recording cover types they used and locations they rested and killed prey. We evaluated selection using 3 metrics: path sinuosity (i.e., path shape), displacement, and use minus availability. We also compared the number of rest and kill sites to expected values. Martens moved more sinuously, less efficiently, and greater distances than expected in hemlock-cedar, and 3.6 times more rest and kill sites occurred in hemlock-cedar than expected. This suggests that martens selected and behaved differently in hemlock-cedar because of a greater availability of rest sites and prey. Martens may select hemlock-cedar because hemlock-cedar contains abundant CWD, root masses, snags, and trees with large boles where martens can hunt, rest, and avoid predation and harsh weather. Other studies that did not detect selection of hemlock and cedar used coarse-resolution (≥ 4 ha) cover type data. Ninety-six percent of the distance we trailed martens in hemlock-cedar would have been classified as another cover

type using cover data from those studies. This indicates that the scale at which cover types are measured influences results from studies that investigate cover type selection for martens. Studies of selection for martens require cover type data that accurately identify heterogeneity important to martens. Hemlock-cedar appears to be an important cover type for martens on our study area, but often occurs in small patches that are misclassified by coarse-resolution cover type data.

Promoting Fur Trapping Awareness & Trapper Education In Kentucky

Laura Patton¹

¹Kentucky Department of Fish and Wildlife Resources, 1 Sportsmen's Ln, Frankfort, KY 40601

The sale of trapping licenses in Kentucky has mirrored most states with numbers fluctuating greatly in conjunction with fur prices. As the marked decline in fur prices peaked in the late 1980s, the number of trapping licenses purchased in Kentucky declined from a record of 7,071 in 1981 to a low of 515 in 1994. In recent years, however, a renewed interest in trapping has reversed this declining trend and is reflected in a steady increase of license sales. During the 2010–2011 furbearer trapping season, trappers in Kentucky purchased 1,840 licenses, which is the highest number of licenses sold since 1988. The United Trappers of Kentucky and Kentucky Fur Takers, Kentucky's two trapping organizations, have been instrumental in recruiting new trappers through educational programs. The Kentucky Department of Fish and Wildlife Resources is actively promoting trapper education and awareness through the Kentucky Afield magazine and television show, press releases, the department web page, and the hunter education program. The Department also has begun offering two-day furbearer trapping workshops for beginner trappers. These workshops are well-received and demand for additional workshops remains high. Public education efforts appear to be largely influencing this resurgence in license sales as annual trapper surveys identify "recreation", rather than "profit", as the primary reason for purchasing a trapping license.

River Otter Status and Harvest Proposal in Kansas

Matt Peek¹

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The North American river otter (*Lontra canadensis*) was extirpated from Kansas in the early 1900's. However, otters have become well established in eastern Kansas following successful reintroduction programs in Kansas and Missouri in the 1980's and 90's. The Kansas Department of Wildlife and Parks has been involved in a variety of projects evaluating the distribution and health of river otters in Kansas. I will report on the

findings of some these efforts. I will also discuss some of the social, biological, and political factors being taken into account as we consider the possibility of a harvest season.

Distribution, Abundance, and Genetic Structure of a Recovering Bobcat Population

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Bobcats (*Lynx rufus*), once common throughout Ohio, were extirpated by the mid 1800s and have only recently shown signs of reestablishment. Since 1970, there have been 464 verified reports of bobcats in Ohio, of which the great majority have occurred since 2000 ($n = 436$; 94%). Our objectives were to determine the distribution, relative abundance, and genetic variability of bobcats in Ohio. We used cameras and hair snares to survey bobcats at 12 randomly selected sites to estimate occupancy. Bobcats were detected at 5 of these and detection rates were positively correlated with verified sightings within a 5-km radius ($r^2 > 0.68$, $P < 0.001$). Consequently, we used verified sightings as a range-wide index to bobcat distribution and relative abundance. Their current range encompasses all or part of 24 southeastern counties. Initial reestablishment occurred in 2 spatially distinct areas. Relative abundance is uneven and remains high around these eastern and southern focal points. Furthermore, the eastern subpopulation increased more rapidly and annually approximately 70% of sightings originate from about 20% of bobcat range. Based on microsatellite DNA data, the 2 subpopulations are genetically distinct, within-population genetic variation is high suggesting limited inbreeding, and the eastern subpopulation was likely recolonized by individuals from a distinct subpopulation including individuals from southern Ohio, Kentucky, West Virginia, and western Pennsylvania. Woodland restoration in southeastern Ohio and increasing bobcat populations in neighboring states allowed for the reestablishment of bobcats in Ohio. Our findings will aid in setting proper management guidelines to ensure their continued recovery.

Bobcat Population Monitoring and Harvest Management in Wisconsin

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Bobcats (*Lynx rufus*) are potentially vulnerable to overharvest due to their low reproductive rate and low population density. Sound harvest management requires knowledge of population size and/or trends, but monitoring population status of bobcats in the upper Midwest is challenging due to their low density, wide distribution, and elusive behavior. Bobcat harvest in northern Wisconsin has been regulated with a limited permit system since the early 1990s. Population trends have been monitored primarily through winter-track surveys with supplemental information obtained from hunter/trapper questionnaires and observations by agency personnel. Harvest levels have been documented through mandatory registration. We combined harvest age and sex structure and reproductive data from annual mandatory carcass collections with harvest information in an accounting-style population model to estimate population size. Reproductive rates varied considerably during the past 25 years. Changes in harvest methods appear to have affected the sex and age composition of the harvest during this time. Estimates of bobcat population size in northern Wisconsin increased consistently during the 1990s and early 2000s but have since stabilized and declined slightly. We used modeling to assess effects of variation in harvest rates on rate of population change. Harvest demand and success rates have increased during the past 20 years as bobcats have gained trophy status resulting in pressures to expand harvest opportunities.

Furbearer Management on the Upper Mississippi River National Wildlife and Fish Refuge (A challenge for managers)

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The Upper Mississippi River National Wildlife and Fish Refuge is one of the most complex of the 553 Refuges in the National Wildlife Refuge System. The diversity of plant, fish and wildlife species and the large number of Refuge users (visitors) makes it a challenge for managers to maintain a healthy balance. Refuge trappers compose only a small but important fraction of the users of the Refuge. The Refuge has had a regulated trapping program ever since the establishment of the Refuge in 1924. An updated Refuge Furbearer Management Plan was approved in the fall of 2007, however managers continue to face challenges that affect these wildlife populations and their associated user groups. Managers are working with partners to address issues concerning habitat loss, assessment of wildlife populations, damage to infrastructure, recreational use, and policy, laws, regulations and guidance from Agency and Department.

North Dakota Mountain Lion Management Update

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Historically, mountain lions were found throughout North Dakota, but were considered rare except in the Badlands region. Due to unregulated harvest, by the early-1900s mountain lions were thought to be extirpated from the state. Occasional reports of mountain lion occurrence were documented starting about mid-1900s, with a noticeable increase in the number of reports beginning in 1990s. Currently, it is recognized that there is a relatively small population of mountain lions occurring in western North Dakota. The first regulated harvest season for mountain lions in North Dakota occurred in 2005-2006 with a quota 5. This first harvest season was considered experimental with the goal being to acquire biological and distributional information about the population of mountain lions occurring in the state. Since then, management of mountain lions has focused on maintaining a stable population in suitable habitat, while allowing for limited recreational harvest. Preliminary research investigations are underway.

Best Management Practices for Trapping in the United States: An Overview and Update

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Best Management Practices for Trapping in the United States (BMP) have been under development since 1998. Research to develop trapping BMPs was undertaken by the Association of Fish and Wildlife Agencies (AFWA) partly as a response to the European Union's ban on the import of furs from countries continuing to use foothold traps. BMPs will identify and recommend the most humane, efficient, selective, safe, and practical trapping devices. BMPs will serve as a standard that can be voluntarily adopted and used by state and federal wildlife agencies, trapper organizations, and individuals to improve trapping, trapper education, and furbearer management programs. The AFWA Furbearer Resources Technical Work Group has identified and prioritized 23 species of furbearers for trap testing. Over 100 trap types have been tested through the assistance and participation of 41 state fish and wildlife agencies. Best Management Practices for Trapping beaver, bobcat, coyotes in the eastern U.S. (revised), coyotes in the western U.S. (revised), fisher, gray fox, American marten, mink, muskrat, nutria, raccoon, red fox, river otter, opossum, striped skunk, swift/kit fox, weasels and an Introduction BMP

have been published. Completion of BMPs for ringtails and Canada lynx are expected in 2011. Other projects conducted during BMP development include the Trapping Matters Workshop, new Web-based Trapper Education Program, Train the Trainers Workshop, National Trapper Education Program, Ownership and Use of Traps by Trappers in the United States, National Furbearer Harvest Database and numerous other projects that support regulated trapping in the U.S.

Using Scat Detection Dogs and Genetic Analysis to Assess a Recently Established Mountain lion Population in Northwest Nebraska

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Mountain lions (*Puma concolor*) are native to Nebraska but were extirpated by the late 1800's. Despite being absent for nearly 100 years, mountain lions have recently recolonized the Pine Ridge of Sioux, Dawes, and Sheridan Counties in Northwest Nebraska. Trained scat detector dogs were used to collect mountain lion scat and other genetic samples in the Pine Ridge in order to determine a minimum number of mountain lions in the region (13) and their gender (8 male and 5 female). These data along with an estimate of suitable habitat in the Pine Ridge will be used by the Nebraska Game and Parks Commission in managing this high profile species.

Appendix 5. 2011 Midwest Furbearer Workshop – BMP’s for Trapping Resolution.

CONTINUED SUPPORT FOR THE DEVELOPMENT AND FUNDING FOR BEST MANAGEMENT PRACTICES FOR REGULATED TRAPPING IN THE UNITED STATES

WHEREAS, a principle object of the Association of Fish and Wildlife Agencies is to encourage rational management of fish and wildlife resources using the best available scientific information; and

WHEREAS, modern regulated trapping in North America is consistent with the North American Model of Wildlife Conservation; and

WHEREAS, modern regulated trapping of furbearers is a necessary and beneficial conservation activity, licensed and regulated by the states and provinces; and

WHEREAS, the trapping and utilization of furbearers in a sustainable manner is a sound basis for conserving furbearers as important natural resources; and

WHEREAS, Best Management Practices for Trapping in the United States (BMPs) are being developed to help sustain regulated trapping through a science-based approach that evaluates animal welfare, efficiency, selectivity, safety and practicality to determine and advocate traps and trapping techniques that meet current international standards; and

WHEREAS, the association has previously endorsed the development and research of trapping BMP’s and the development of trapper education materials, and encourages the use of Best Practices in education; and

WHEREAS, BMP research and development has been funded primarily through a cooperative agreement between the AFWA and the USDA-APHIS-WS.

NOW, THEREFORE BE IT RESOLVED, that the Midwest Association of Fish and Wildlife Agencies advocates:

- 1) the continued development of Best Management Practices for Trapping in the United States as a means of improving traps, trapping systems, and trapper education; and
- 2) the continued funding of the development of Best Management Practices for Trapping in the United States via a Cooperative Agreement between the AFWA and USDA-APHIS-WS at a level of \$300,000-\$500,000 annually.

Appendix 6. Host States of Midwest Furbearer Workshops.

Year	State
1979	Kansas
1983	Wisconsin
1984	Illinois
1985	Iowa
1987	Minnesota
1988	Indiana
1989	Missouri
1990	Nebraska
1991	South Dakota
1992	Ohio
1993	Oklahoma
1994	North Dakota
1995	West Virginia
1996	Michigan
1997	Illinois
1998	Kansas
1999	Wisconsin
2000	Missouri
2001	Ohio
2002	Iowa
2003	Minnesota
2004	Illinois
2005	North Dakota
2006	Michigan
2007	Nebraska
2008	Kansas
2009	Kentucky
2010	South Dakota
2011	Wisconsin