

Biennial Report  
Fiscal Years 2013-2014

# Wildlife and Forestry Research Program

Bureau of Science Services



Edited by Jessica Kitchell and Karl Martin  
July 2014





## Program Overview

### Wildlife and Forestry Research Program

The Wildlife and Forestry Research program provides a balance of research on landscape-scale ecosystem projects, on socially and economically important species, and on species and habitats that are rare, threatened, or endangered. A critical role of section staff is to investigate emerging issues such as deer-habitat relationships, nongame population monitoring, toxicology, changing environmental conditions, restoration, and to assist and cooperate with the management programs to address issues as they develop.

#### Wildlife and Forestry Research Mission

- *To conduct, sponsor, and coordinate priority research in support of the agency's natural resource management programs to manage, protect, and enhance the forest and wildlife resources of Wisconsin;*
- *To provide a balance of research ranging from the landscape-scale for ecosystem management to the species scale, including socially and economically important species as well as species that are rare, threatened, or endangered;*
- *To provide technical expertise to meet Department needs for science-based decision making;*
- *To transfer scientific findings to DNR and partners;*
- *To define and address emerging information needs.*

The section is staffed by professional scientists and research technicians possessing diverse individual expertise in wildlife ecology, population monitoring, forest ecology, wildlife biology, landscape ecology, social science, economics, and applied ecology. The Wildlife and Forestry Research Section provides the science foundation for programs within the WDNR's Bureaus of Wildlife Management, Natural Heritage Conservation, Watershed Management, Fisheries Management, Air Management, the Division of Forestry, and the Office of the Great Lakes. Section staff members accomplish this by conducting, sponsoring, and coordinating research on natural resource issues to solve important management problems; identifying and testing new and better ways of managing natural resources; providing scientific expertise to technical committees making management decisions, and to legislative staff; providing scientific expertise for agency policy development; providing training for forest management, waterfowl identification, deer aging, deer harvest management, furbearer management, and other topics for wildlife management, forestry, and law enforcement personnel; serving as department representatives to interagency teams; providing short-term problem solving and data analysis to address critical short-term problems; and providing scientific information to other agencies and the public. Wildlife and Forestry Research Section scientists secure significant state, federal, and nongovernmental grant funding to implement and complete priority research activities and transfer information to managers, policymakers, and administrators. This section also coordinates and manages the statewide wildlife surveys program and collaborates closely with the University of Wisconsin-Madison's U.S. Geological Survey Cooperative Wildlife Research Unit, Department of Forest and Wildlife Ecology and the University of Wisconsin Stevens Point's College of Natural Resources. Scientists also collaborate with researchers from academic institutions across the Great Lakes Region.

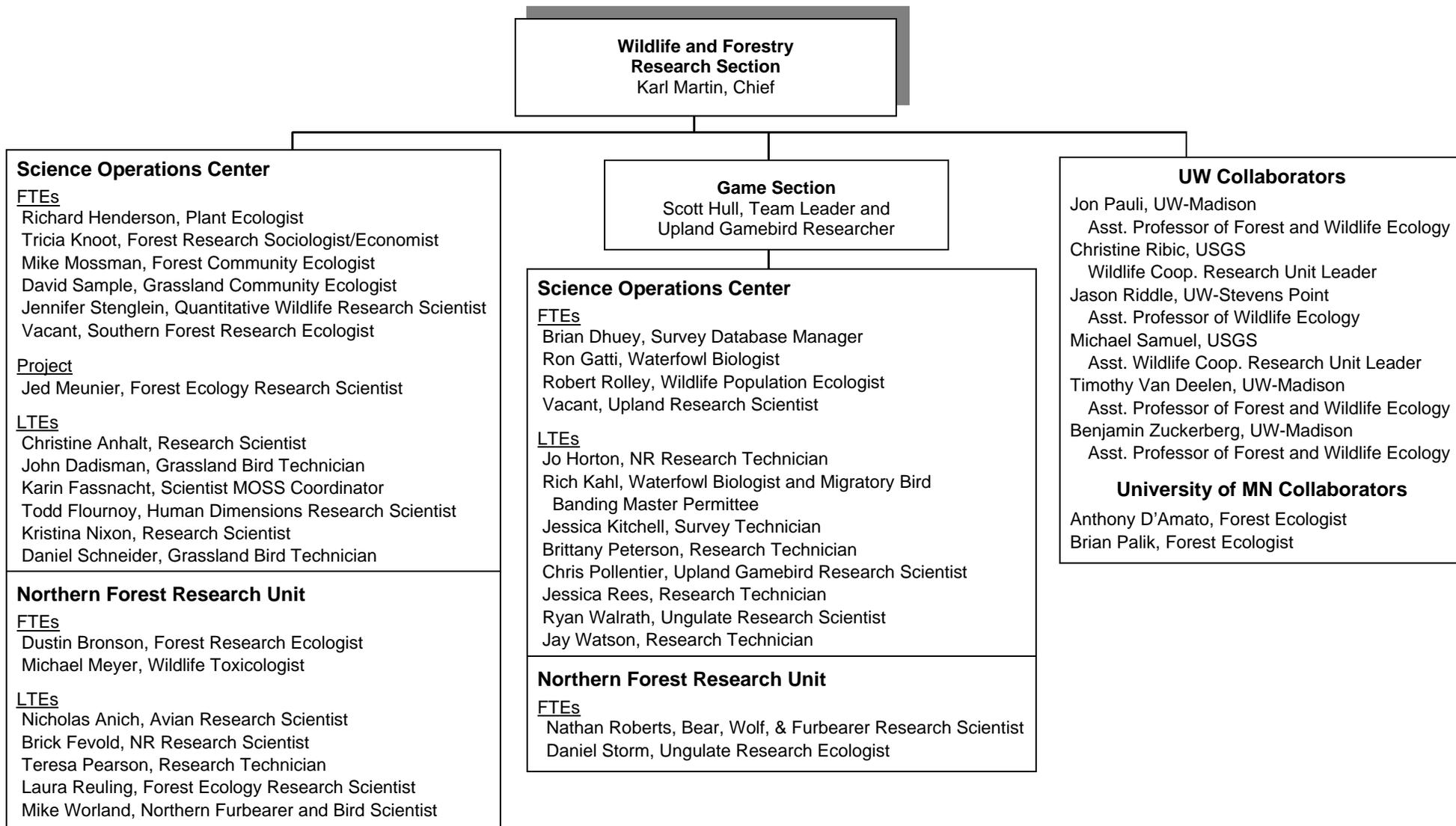
In this document, we describe our scientific contributions via technical consultation and provide summaries of current research projects, recent publications, and presentations, as well as short biographies of our scientists and technicians.

**This report covers activities from July 1, 2012 - June 2014 (fiscal years 2013 and 2014).**

# Wildlife and Forestry Research Section – Organizational Chart

## Section Organizational Chart

The following organizational chart identifies the Wildlife and Forestry Research Section staff members and partners located at five research stations: Science Operations Center-Madison (SOC), Northern Forest Research Unit (Rhinelander), UW-Madison, University of Minnesota, and UW-Stevens Point.



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## List of Abbreviations

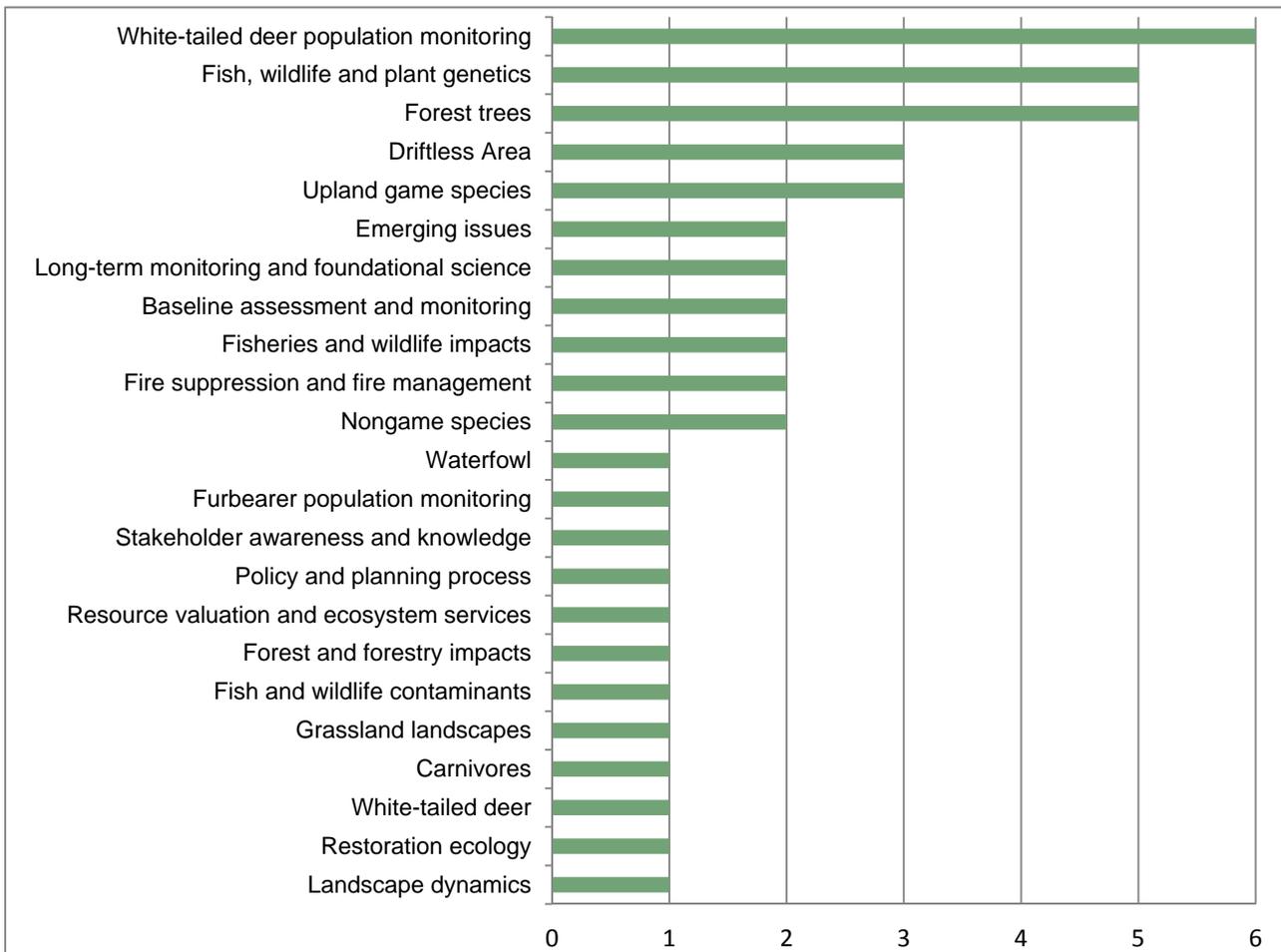
- CWD..... Chronic Wasting Disease
- DMAP..... Deer Management Assistance Program
- FY..... Fiscal Year
- GHRA..... Glacial Habitat Restoration Area
- GLIFWC..... Great Lakes Indian Fish and Wildlife Commission
- NHC..... Natural Heritage Conservation
- NRCS..... Natural Resources Conservation Service
- PI..... Principal Investigator
- SGCN..... Species of Greatest Conservation Need
- SWGSCA.... Southwest Grasslands and Stream Conservation Area
- TNC.....The Nature Conservancy
- USDA..... United States Department of Agriculture
- USEPA..... United States Environmental Protection Agency
- USFS..... United States Forest Service
- USFWS..... United State Fish and Wildlife Service
- USGS..... United States Geological Survey
- USNPS..... United States National Park Service
- UW..... University of Wisconsin
- WBCI..... Wisconsin Bird Conservation Initiative
- WDATCP.....Wisconsin Department of Agriculture, Trade and Consumer Protection
- WICCI..... Wisconsin Initiative on Climate Change Impacts
- WM..... Wildlife Management

# Biennium in Review: 2013-2014 Highlights

## Biennium in Review

### Areas of Research

During this biennium there were a total of 46 research projects that spanned 23 priority focus areas under 7 of the major research themes in the DNR's Biennial Research Agenda that guide research topics across the state. The breakdown of research projects is displayed below, with the majority of projects covering topics specific to white-tailed deer population monitoring; fish, wildlife, and plant genetics; and forest habitats.



*The 46 current research projects for the 2013 – 2014 biennium. Projects are grouped by their priority focus area in the DNR Biennial Research Agenda (note, several focus areas overlap).*

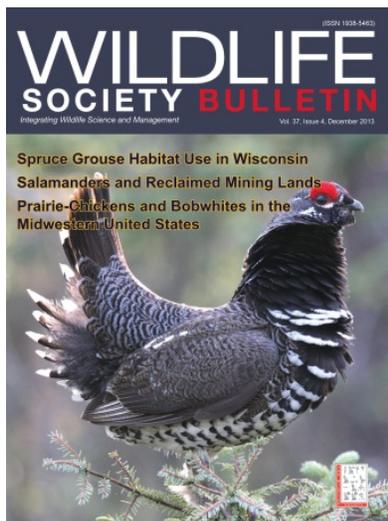
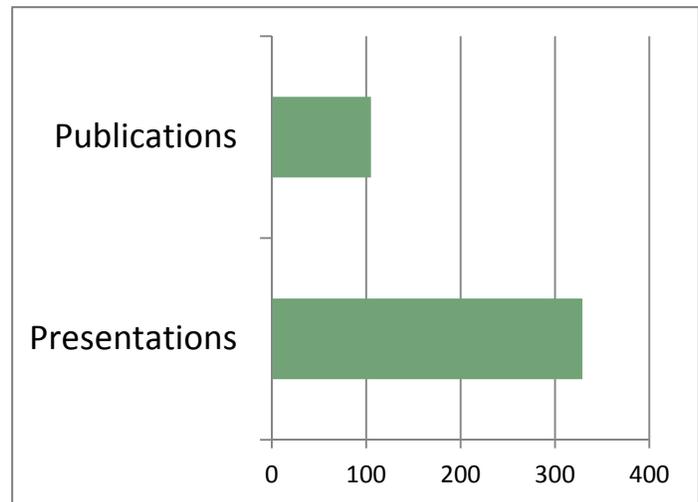
### Funding

Projects are funded through a variety of sources, including state funds, federal Wildlife Restoration funds (PR), bureau-to-bureau contracts with partner programs, donations, and external grants. Over fiscal years 2013-2014, Wildlife and Forestry Research Scientists have been Co-Principal Investigators on external grant projects that totaled \$913 thousand!

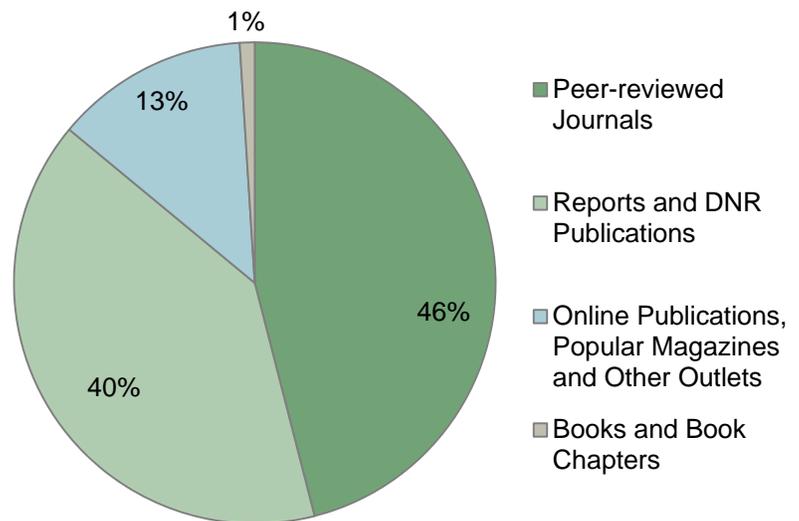
## Biennium in Review: 2013-2014 Highlights

### Publications and Presentations

Communicating research results to our internal and external partners and stakeholders is a critical component to any project. The professionals employed by the Wildlife and Forestry Research Section routinely publish the results of their work in a variety of outlets from peer-reviewed journals to internal reports. Presenting research results to a variety of professional, internal customers, and public audiences is also a critical way in which researchers share their study results. Presentations range from hour-long academic seminars to short scientific talks and are given to a variety of audiences. There were 105 publications and 329 presentations from July 2012 - June 2014.



*Nick Anich, Mike Worland, and Karl Martin published a recent paper on spruce grouse habitat use in the Wildlife Society Bulletin which was featured on the journal cover.*



*For the 2013-2014 biennium there were a total of 105 publications. Forty-eight were in peer-reviewed journals, 42 in various reports and DNR publications, 14 in various online publications, popular magazines and other outlets, and 1 book chapter.*

## Biennium in Review: 2013-2014 Highlights

### *Awards, Grants, and Recognition*

Scientist(s)	Award, recognition or accomplishment
Dustin Bronson	PI on external grant awarded by Sustainable Forestry Initiative FY14 to 15 - \$39k.
Rich Henderson	Recognized at the Gathering Waters annual land conservation awards ceremony for volunteer contributions made over 20 years towards The Prairie Enthusiasts' land protection program.
Scott Hull	Presented with the Don Rusch Memorial Award by the Wisconsin Chapter of The Wildlife Society for outstanding contributions to wildlife conservation.
Tricia Knoot	PI on grant awarded by Wisconsin's Turkey Stamp program for a study designed to better understand how to engage landowners in oak management for turkey habitat - \$76k.
Karl Martin	Co-PI on external Landscape Conservation Cooperative grant in FY13-FY14 to assess the vulnerability of climate change sensitive species - \$140K.
Karl Martin	Co-PI on an external Landscape Conservation Cooperative Grant in FY14 assessing the impact of Emerald Ash Borer on Black Ash Swamps - \$170K.
Mike Meyer	Received the US Environmental Protection Agency Scientific and Technological Achievement Award, Honorable Mention, for Research Demonstrating Wildlife Risk Assessment for Lake Ecosystems Affected by Mercury and Other Human Stressors.
Mike Meyer and Brick Fevold	Co-PI's on external USFS Great Lakes Restoration Initiative grant awarded in FY 13 to 14 - \$163k.

## Teaming Up – Identifying Research Needs, Sharing Results, and Technical Consultation

### Teaming Up - Identifying Research Needs, Sharing Results, and Technical Consultation

The Wildlife and Forestry Research section collaborates closely with natural resource managers to identify research needs, as well as share relevant research results in a timely manner. In addition to the project-based research identified in the next section, individual staff members in the Wildlife and Forestry Research Section routinely provide technical consultation services to our natural resource management programs. These services support programmatic functions ranging from routine management decisions to setting statewide policy on a particular issue. This section highlights team participation, technical consultations, and policy development efforts by the section during the past biennium. Services provided are listed by team and by individual staff. This is only a partial listing of the types of services section staff members have contributed, but provides an overview of the wide range of technical consultations routinely provided, but difficult to quantify.

We have multiple systems in place to ensure our partnership with management programs will achieve shared goals. Specific processes for integrating research and management include:

- Development of Management Bureau Strategic Plans (6-year)
- Development of agency-wide research agenda (biennial)
- Wildlife Management and Science Services Bureau Statewide Meetings (biennial)
- Division of Forestry Statewide Meetings (biennial)
- Wisconsin Wildlife Society Annual Meetings
- Species, Monitoring, Policy Technical Teams (monthly to annual)
- Wildlife Policy Team (monthly)
- Interactions with Wildlife Management, Natural Heritage Conservation, and Division of Forestry staff (daily - weekly)
- Recruitment of new staff (as needed)

Our staff are assigned to Wildlife Management, Natural Heritage Conservation, and Division of Forestry statewide teams providing routine input and consultation regarding monitoring, regulations, management, population modeling, species guidance, status assessment, habitat designation, study design, certification, policy development, guidelines, permit review, and serve as instructors for Wildlife Management's new employee orientation training.

## Teaming Up – Identifying Research Needs, Sharing Results, and Technical Consultation

Below we list the formal team assignments of research section staff on management program or other teams or councils.

Team	Scientist(s)
Baraboo Hills Oak Management Working Group	Rich Henderson, Jed Meunier, Mike Mossman
Beaver Management Plan Task Force	Nathan Roberts, Robert Rolley
Continuous Forest Inventory Team	Karl Martin
CWD Team Leaders	Robert Rolley, Daniel Storm
Deer Metrics Team	Dustin Bronson, Brian Dhuey, Scott Hull, Karl Martin, Robert Rolley, Daniel Storm
DMAP Forest Metric Team	Dustin Bronson
Driftless Forest Network Steering Committee	Tricia Knoot
Fire and Oak Management Working Group	Rich Henderson, Tricia Knoot, Jed Meunier
Interagency CWD Health and Science Team	Robert Rolley
Lake Superior Landscape Restoration Partnership – Kirtland’s Team	Nick Anich
LANDFIRE National Task Force Group	Jed Meunier
LoonWatch Advisory Council	Mike Meyer
Master Planning Team: Lower Wisconsin State Riverway	Mike Mossman
Master Planning Team: Sauk Prairie Recreation Area	Mike Mossman, David Sample
Midwest Deer and Wild Turkey Study Group	Robert Rolley
Mississippi Flyway Council Technical Section-many committees within	Ron Gatti
NHC SGCN Revision – Bird Species Team	Nick Anich, Mike Mossman, David Sample
Northwoods Land Trust	Mike Meyer
Ramsar nomination committee for Lower Wisconsin River	Mike Mossman
Science Team for Climate and Forests	Dustin Bronson, Tricia Knoot, Karl Martin
Technical Team for the Wisconsin Council on Forestry Review of Forest Certification	Tricia Knoot
Technical Team for the Woody Biomass Harvesting Guideline Review	Dustin Bronson, Tricia Knoot
Upper Mississippi River and Great Lakes Region Joint Venture Technical Team	Ron Gatti
Upper Mississippi River and Great Lakes Region Joint Venture Waterfowl Science Committee	Ron Gatti
USFWS Bobolink Conservation Plan Committee	David Sample
UW-Madison Grassland Bird Climate Change Vulnerability Assessment Collaborator Team	David Sample
WBCI Southern Forests Working Group	Tricia Knoot, Mike Mossman
WDNR Southwest Grassland and Stream Conservation Area Team	Rich Henderson, David Sample

## Teaming Up – Identifying Research Needs, Sharing Results, and Technical Consultation

Team	Scientist(s)
White-nosed Syndrome Advisory Team	Karl Martin
WI American Marten Advisory/Stakeholder Committee	Mike Worland
WI Wildlife Action Plan Update Taxa Teams	Rich Henderson, Mike Mossman, David Sample
WICCI Driftless Area Working Group	Tricia Knoot, Jed Meunier
WICCI Wildlife Working Group	Mike Meyer, David Sample
Wisconsin Biomass Guidelines Advisory Team	Dustin Bronson
Wisconsin Bird Conservation Initiative Grasslands Committee	David Sample
Wisconsin Breeding Bird Atlas Planning Team	Nick Anich, Mike Mossman
Wisconsin Conservation Congress Bear Advisory Committee	Nathan Roberts
Wisconsin Conservation Congress Deer & Elk Advisory Committee	Daniel Storm
Wisconsin Conservation Congress Fur Harvest Advisory Committee	Nathan Roberts
Wisconsin Conservation Congress Turkey & Upland Game Advisory Committee	Brian Dhuey
Wisconsin Fire Needs Assessment	Rich Henderson, Jed Meunier
Wisconsin Important Bird Areas Technical Committee	Mike Mossman
WM Bear Advisory Committee	Robert Rolley
WM Deer Advisory Committee	Robert Rolley, Daniel Storm
WM Deer Trustee Implementation Team	Brian Dhuey, Scott Hull, Karl Martin, Daniel Storm
WM Elk Advisory Committee	Robert Rolley, Daniel Storm
WM Furbearer Advisory Committee	Nathan Roberts, Robert Rolley
WM Greater Prairie-Chicken Advisory Committee	Scott Hull
WM Migratory Gamebird Advisory Committee	Ron Gatti
WM New Employee Orientation	Dustin Bronson, Rich Henderson, Karl Martin, Mike Meyer, David Sample
WM Pb Working Group	Mike Meyer
WM Private Lands Advisory Committee	David Sample
WM Ring-necked Pheasant Committee	Scott Hull
WM Sharp-tailed Grouse Advisory Committee	Scott Hull
WM Turkey Advisory Committee	Brian Dhuey
WM Wildlife Policy Team	Karl Martin
WM Wolf Advisory Committee	Brian Dhuey

## Science Consultation Services

### *Individual Contributions*

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#### **Nick Anich**

##### WDNR Consultation

- Consulted with the Bureau of Natural Heritage Conservation and provided input for species guidance documents.
- Worked with Bureau of Wildlife Management to include information in the small game regulations as well as the ruffed grouse internet hunting page about how to identify state-threatened spruce grouse to educate hunters.
- Member of the 2<sup>nd</sup> Wisconsin Breeding Bird Atlas planning team, and chair of the data management subcommittee.
- Advised the Bureau of Natural Heritage Conservation regarding management and monitoring of several boreal bird species.
- Assisted the Bureau of Wildlife Management in informing the public about shorebird migration and viewing areas.
- Revised the Spruce Grouse entry of the All-Bird Conservation Plan for Wisconsin Bird Conservation Initiative.
- Participated in the Monitoring Our Migratory Birds Workshop led by the Bureau of Natural Heritage Conservation.
- Provided the Bureau of Natural Heritage Conservation with shapefiles, maps, and ground-truthing to help plan Kirtland's warbler surveys.
- Assisted the Bureau of Natural Heritage Conservation by performing several bird surveys during spring migration on Clough Island.

##### Other State and Federal Agency Consultation

- Provided advice to the Minnesota DNR regarding surveying for spruce grouse.
- Provided information to the USFS in Michigan on surveying and habitat use of boreal birds.
- Provided advice to Illinois Natural History Survey regarding attaching radiocollars to galliforms.
- Headed the development team directed to produce management guidelines and focal areas for Kirtland's warbler management for the Lake Superior Landscape Restoration Partnership.

##### Other conservation organizations and stakeholders

- Provided private landowners and partners with boreal bird detections from spring surveys.
- Provided peer review for professional journals: Animal Conservation, Landscape Ecology, American Mathematical Monthly, Studies in Avian Biology, Canadian Journal of Zoology, Journal of Caribbean Ornithology, Journal of Field Ornithology, Passenger Pigeon, and U.S. Geological Survey (internal peer reviewer).

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#### **Dustin Bronson**

##### WDNR Consultation

- Worked with Forestry Division Nursery staff to establish a new project focused on analyzing data related to artificial reforestation.
- Analyzed data for Division of Forestry State Nursery program to determine how to improve survival and growth of tree seedlings.

## Science Consultation Services

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- Assisted Forestry Division staff on ephemeral pond data collection and analyses
- Co-led the Forest Biomass Guideline Review Ecological Subcommittee, which reviewed Wisconsin's forest biomass guidelines, implementing the latest scientific developments in a guidebook format to be shared with foresters and logging operators.
- Member of the deer metrics committee and co-chair of the forest metrics subcommittee.
- Provided input to the Bureau of Wildlife Management staff on deer metrics related to the development of the new DMAP program.

### Other State and Federal Agency Consultation

- Participated in the USFS Forest Adaptation and Planning workshop.

### Other Conservation Organizations and Stakeholders

- Serving on a UW-Madison Ph.D. graduate student committee, a project investigating deer use patterns in Wisconsin's northern hardwood forests.
- 

## **Brian Dhuey**

### WDNR Consultation

- Serves on the Turkey Advisory Committee.
- Serves on the Wolf Advisory Committee.
- Provided results from the on-line Elk Management Plan to Bureau of Wildlife Management for presentations to the public and a secretary briefing.
- Provided input to Bureau of Wildlife Management staff on deer metrics related to the development of the new DMAP program.
- Consulted on wolf season and zone closure issues with the Bureau of Wildlife Management and the Secretary's office.
- Led a group of department personnel in defining and designing a system for the electronic registration of deer for the Archery, Youth, Muzzleloader, 9-day, and December antlerless deer season.
- Partnered with the Water Division and surveyed fur trappers in the Lower Green Bay and Fox River Area of Concern to help gauge habitat remediation efforts on furbearer populations.
- Provided survey data to department personnel for use in setting harvest levels and permit issuance, news releases, and predicting game hunting seasons.

### Other State and Federal Agency Consultation

- Provided furbearer harvest data from trapping and hunting surveys to the USFWS for use in their master planning documents.

### Other Conservation Organizations and Stakeholders

- Provided harvest, abundance, hunter participation, and license trends to independent writers.
  - Provided preliminary survey data to GLIFWC, and the press for use in harvest and permit level discussions, and predicting game hunting seasons.
- 

## **Karin Fassnacht**

### WDNR Consultation

- Provided technical consultation to the Water Division in requirements for growing trees in wetlands.

- Provided information to Bureau of Wildlife Management staff as part of a forest certification training.
- Conducted data analysis for Division of Forestry.
- Provided input to Division of Forestry regarding possible data sources for determining bat habitat in Wisconsin.

### Other State and Federal Agency Consultation

- Consulted with US Forest Service staff on using hemispherical canopy photos for characterizing forest understory conditions.
- 

## **Ron Gatti**

### WDNR Consultation

- Serves on the Migratory Gamebird Advisory Committee.
- Provided maps, input, results, and analyses to Bureau of Wildlife Management for statewide spring duck survey.
- Provided input to Bureau of Wildlife Management Migratory Gamebird Committee on the FY14-15 duck stamp proposals.
- Analyzed and provided mallard, blue-winged teal, and turkey nesting data to Bureau of Wildlife Management in response to a proposal for earlier mowing on state lands.
- Gave technical support to Bureau of Wildlife Management on issues of proposed teal season, goose management, banding, and research.
- Hosted a meeting of GHRA managers and researchers to present and discuss results and implications of the land cover changes in the GHRA study area that were classified from satellite data.
- Provided input to Bureau of Wildlife Management on the new banding needs document and duck harvest management strategy models from the USFWS/Flyway.
- Provided technical consultation to the Bureau of Wildlife Management Migratory Gamebird Committee.
- Provided input to Bureau of Wildlife Management on Tundra Swan hunting seasons.

### Other State and Federal Agency Consultation

- Provided input to the Mississippi Flyway Council on the draft Environmental Assessment for General Swan Seasons.
- Provided data to the Missouri Department of Conservation for a flyway-wide study on mallard migration using satellite radio transmitters.
- Provided data to Michigan DNR/Michigan State University for correlation with regional mallard breeding populations.
- Reviewed and scored USFWS flex-fund grant proposals for research in the Great Lakes Region Joint Venture.
- Served as chairman of the Swan Committee for the Mississippi Flyway Council Technical Section.
- Reviewed USFWS reports as part of the Flyway Tech Section proposal for a special teal season in WI.
- Worked on the revision of the Upper Mississippi River and Great Lakes Region Joint Venture Waterfowl Habitat Conservation Strategy.
- Headed the revision of the Management Plan for the Interior Population of Trumpeter Swans in the Mississippi and Central Flyways

### Other Conservation Organizations and Stakeholders

- Provided interviews to UW-Madison and UW-Stevens Point students in natural resources.
  - Provided data to Ducks Unlimited for evaluation of their wetland restoration efforts in northwest Wisconsin.
  - Interviewed with Dan Small's radio show on the blue-winged teal study.
  - Provided information on Joint Venture priorities to a Douglas County non-profit group's request on priority watersheds and wetlands.
  - Provided alfalfa mowing phenology data to the UW-Madison grassland bird project.
  - Represented the WDNR on the science team and technical committee at the Upper Mississippi River and Great Lakes Region Joint Venture meeting.
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### **Rich Henderson**

#### WDNR Consultation

- Provided Bureau of Natural Heritage Conservation a formal written response to public comments asking for changes to be made in DNR 's proposed Incidental Take Protocol for two listed leafhoppers.
- Serves on Southwest Grassland and Stream Conservation Area core guidance, technical, partner, and planning team.
- Provided consultation to Bureau of Natural Heritage Conservation and the USFWS on proposed critical habitat designation in WI for the Federal candidate endangered species Poweshiek Skipperling.
- Provided locational State listed species data to Bureau of Natural Heritage Conservation.
- Provided input to formal review of Bureau of Natural Heritage Conservation programs.
- Provided field consultation to the State Natural Areas Program.
- Provided technical consultation to Bureau of Natural Heritage Conservation for updating the Wildlife Action Plan, revising the list of Species of Greatest Conservation Need for plants and invertebrates.
- Provided consultation to Bureau of Natural Heritage Conservation on fire history in the upper Midwest.
- Provided consultation to Bureau of Natural Heritage Conservation on new incidental take protocols for Ottoe skippers.
- Cooperated with Bureau of Science Services and Bureau of Natural Heritage Conservation staff in planning burn records and developing research projects on prescribed fire and oaks.
- Consulted with representatives of the Alliant Energy Foundation and TNC about work their donations have been supporting and what opportunities there might be for future donations.
- Provided data and assessment to Bureau of Natural Heritage Conservation on the status and history of the endangered regal fritillary butterfly population at Muralt Bluff State Natural Area (Green Co) as it relates to fire and other land management.
- Provided written comment to Bureau of Natural Heritage Conservation on the status assessment and proposed State delisting of tuberous Indian plantain.
- Met with Bureau of Natural Heritage Conservation staff and private landowners in the SWGSCA about progress and effectiveness of LIP grant supported work to improved critical habitat for several state and federally listed species and SGCN, including release of beetles to control spotted knapweed.
- Met with Division of Forestry, Bureau of Natural Heritage Conservation, UW-Madison, USFWS, and TNC to discuss oak ecosystem maintenance and fire issues.

- Consulted with Bureau of Wildlife Management, USFWS, NRCS, and TNC staff at project sites in the SWGSCA to discuss successes and challenges on habitat conservation work in the area.

### Other Conservation Organizations and Stakeholders

- Provided technical and field consultation to a UW-Madison professor for a National Science Foundation grant proposal on prairie conservation/management related to climate change in Wisconsin.
- Provided consultation and field training to TNC.
- Provided consultation to TNC on their oak woodland ecosystem management plan for the Baraboo Hills.
- Provided consultation to Driftless Area Land Conservancy.
- Provided consultation to The Prairie Enthusiasts.
- Provided consultation to University of Missouri graduate student.
- Provided consultation and specimens to UW-Madison Entomology graduate students.
- Provided guidance to UW-Madison graduate students on selecting research projects related to prairie and savanna conservation, restoration, and management.
- Consulted with instructors of a UW-Madison graduate class on developing a conservation and management plan as a class project for Westport Drumlin State Natural Area.
- Reviewed for TNC, Bureau of Natural Heritage Conservation, and DNR-Division of Forestry a UW-Stevens Point MS thesis that analyzed the effects of tree harvest and prescribed fire in restoring over-grown and degraded oak & pine barrens at Quincy Bluff State Natural Area to their pre-settlement state.
- Consulted with UW-Madison and TNC staff to discuss methodology and study site opportunities, in the SWGSCA, for research on the effects of biomass harvest in grassland/prairie habitat on bee pollinator communities.
- Consulted with staff from UW-Madison, TNC, USFWS Private Lands, DNR-Wildlife Management, DNR- Natural Heritage Conservation, WDATCP, and other SWGSCA partners to learn about patch-burn grazing research in Iowa and discuss proposals for testing its usefulness in managing grasslands in the SWGSCA.
- Consulted with the Tallgrass Prairie & Oak Savanna Fire Science Consortium about information and research needs.

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### **Scott Hull**

#### WDNR Consultation

- Serves on WM Sharp-tailed Grouse Advisory Committee.
- Serves on WM Ring-necked Pheasant Advisory Committee.
- Serves on WM Greater Prairie-Chicken Advisory Committee
- Consulted with the Land Division on communicating research results.
- Provided input to Bureau of Wildlife Management on sharp-tailed grouse harvest frameworks, survey data, and lek surveys.
- Provided input to Bureau of Customer Service on survey design.
- Provided input to Bureau of Wildlife Management staff on deer metrics related to the development of the new DMAP program.
- Provided input on greater prairie-chicken management to the Bureau of Natural Heritage Conservation.

## Science Consultation Services

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- Provided guidance to Bureau of Wildlife Management on greater prairie-chicken feather collection for genetic sampling purposes.
- Consulted with Bureau of Wildlife Management on elk research and monitoring.
- Provided guidance to Bureau of Wildlife Management on the impacts of harvest on sharp-tailed grouse populations.
- Participated with Bureau of Customer Service staff in briefing the Secretary's office on proposed hunting and fishing license delivery mechanisms.
- Redesigned the statewide ring-necked pheasant survey in collaboration with Bureau of Wildlife Management staff.
- Provided information and analysis to Bureau of Wildlife Management personnel on greater prairie-chicken nesting and habitat use in regards to proposed management actions on wildlife areas in central Wisconsin.
- Worked with Bureau of Wildlife Management regarding the agencies master bird banding permit, transition plan, overall banding logistics, and operational issues.
- Consulted with the Land Division and Secretary's office on deer registration issues.
- Provided input to WISCLAND 2.0 team on Science Services habitat mapping needs.
- Worked with Wildlife Management Western District staff related to prairie chicken management and research needs and logistics.
- Consulted with Bureau of Wildlife Management field staff on greater prairie chicken research project issues and logistics.
- Provided input to Bureau of Wildlife Management on the implementation of the Sharp-tailed Grouse Management Plan and Habitat Corridor Plan.
- Provided input to Bureau of Wildlife Management on the Glacial Habitat Restoration Area project.
- Consulted with Bureau of Wildlife Management staff on sharp-tailed grouse habitat implementation and effectiveness measures.
- Consulted with Bureau of Wildlife Management staff on wild turkey demographic modeling and harvest frameworks.

### Other State and Federal Agency Consultation

- Joined the USFWS Surrogate Species Technical Team as the WDNR representative.
- Represented WDNR on the USFWS Federal Surrogate Species Technical Team.
- Reviewed version 1.0 of the USFWS Surrogate Species list and conservation delivery proposal.

### Other Conservation Organizations and Stakeholders

- Served as a technical advisor to the National Wildlife Federation who is developing guidelines for biomass production in the Northern Great Plains.
- Assisted the National Wildlife Federation in the development of Biomass Harvesting guidelines for the Northern Great Plains.
- Consulted with UW-Madison faculty in the development of a WI turkey demographic model.
- Consulted with the Wisconsin Society for Ornithology to discuss adding a peer-reviewed section to their regular publication, the Passenger Pigeon.
- Interviewed by a UW-Madison undergraduate on the greater prairie chicken translocation project.
- Reviewed a manuscript from the International Crane Foundation on Whooping Crane habitat use in central Wisconsin.

- Consulted with UW researchers on multiple turkey research projects and manuscripts.
  - Represented WDNR on the Whooping Crane Eastern Partnership- Science and Research Team.
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### **Rich Kahl**

#### WDNR Consultation

- Participated in reviewing several project proposals for the WDNR Animal Care and Use Committee.
  - Provided advice, direction, and analyses on migratory bird banding recoveries and issues for several Bureau of Wildlife Management, Bureau of Natural Heritage Conservation, and Bureau of Science Services staff.
  - Provided technical consultation to Bureau of Natural Heritage Conservation in obtaining authorization and subpermits for a common tern project from the USGS Bird Banding Lab.
  - Provided a historic overview of aquatic vegetation changes and water quality in the Upper Winnebago Pool lakes to Bureau of Fisheries Management and local sporting interests.
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### **Tricia Knoot**

#### WDNR Consultation

- Serves as a member of the Technical Team within the Division of Forestry for the review of Wisconsin's Forestland Woody Biomass Harvesting Guidelines.
- Served as a member of the Technical Team within the Division of Forestry on the review of Forest Certification programs.
- Served as a member of the planning team within the Division of Forestry to design and carry out a forest industry training session as part of the 2014 Division Statewide Meeting.
- Consulted with the Division of Forestry's Fire Protection Bureau staff to identify research needs and coordinate the new LANDFIRE research project agenda.
- Consulted with staff in the Division of Forestry to refine research avenues that address the topics of timber supply and availability and the cumulative costs and benefits of forest policies, as requested by the Wisconsin Council on Forestry.
- Consulting with the Division of Forestry on evaluating visitor use of the Northern Highlands American Legion State Forest.
- Consulting with the Division of Forestry on evaluating landowner satisfaction with the Managed Forest Law Program.
- Consulting with the Division of Forestry on the implementation and evaluation of woodland owner outreach and education campaigns.
- Worked as part of the Science and Research Action Team for the Deer Trustee Report Implementation Process.

#### Other State and Federal Agency Consultation

- Consulted with partners from the USFS to review their evaluation plan for climate change training workshops.
- Provided research assistance to the MAFWA (Midwest Association of Fish and Wildlife Agencies) Climate Change Committee to assess state agency efforts to address climate change in the region.

### Other Conservation Organizations and Stakeholders

- Serves as an advisory member of the National Landowner Impact Center, in collaboration with the Aldo Leopold Foundation and the American Forest Foundation.
- Serves as a member of the Science Team for Climate Change and Forests.
- Serves as a member of the Steering Committee and Evaluation Team for the Driftless Forest Network Project.
- Serves as a member of the WBCI Southern Forests project team.
- Served as a member on the WICCI Driftless Area Working Group.
- Consulted with members from the Shared Landscapes Initiative concerning research to understand landowners' and land managers' perspectives on climate change adaptation in northern WI.
- Consulted with the LANDFIRE Business Lead group concerning collaboration and coordination of the research project funded by the Great Lakes Forest Fire Compact.
- Worked with partners within the Driftless Forest Network towards the development of a collaborative US Forest Service- State & Private Forestry grant.
- Consulted with the Young Forest Initiative to discuss landowner engagement and outreach in relation to the Driftless Forest Network project.
- Consulted with the Tallgrass Prairie and Oak Savanna Consortium coordinators on planning for the State Fire Needs Assessment, and the use of social network analysis as a tool for evaluating information exchange and learning.
- Consulted with the Ecological Landscapes Team on the Ecological Landscapes of Wisconsin Handbook.
- Co-led a training session for the Wisconsin Chapter of The Wildlife Society, focusing on tools for improving conservation decision making in Wisconsin.
- Consulted with The Nature Conservancy on a survey concerning the use of the LANDFIRE data products.
- Provided peer review for professional journals Journal of Forestry, Landscape Ecology and Society and Natural Resources, and for the US Geological Survey Manuscript Review Process.
- Provided a survey review for the American Forest Foundation.
- Serves on graduate student committees at UW-Madison.

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### **David MacFarland**

#### WDNR Consultation

- Worked with Bureau of Wildlife Management staff and volunteers from UW-Stevens Point to sample furbearer carcasses for age and reproductive information.
- Trained Bureau of Wildlife Management Furschool attendees on furbearer carcass sampling procedures.
- Conducted wolf scat sampling as part of newly initiated wolf population monitoring research.
- Worked with Bureau of Wildlife Management, GLIFWC and the USFS to collect biological samples from wolf carcasses.
- Consulted with Bureau of Wildlife Management staff to review furbearer surveys in a year-long effort to refine survey methodology in consultation with the furbearer advisory committee.
- Consulted with Bureau of Wildlife Management and Law Enforcement staff on wolf registration procedures.

## Science Consultation Services

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- Consulted on wolf season and zone closure issues with the Bureau of Wildlife Management and the Secretary's office.

### Other Conservation Organizations and Stakeholders

- Collected otter digestive tracts for parasite analysis as part of a cooperative study with University of Minnesota-Winona.
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### **Karl Martin**

#### WDNR Consultation

- Co-chaired the Science and Research Action Team as part of the Deer Trustee Report Implementation and public outreach.
  - Provided input to Wildlife Management staff on deer metrics related to the development of the new DMAP program and is the Chair of the Deer Metrics Oversight Team.
  - Regularly consulted with the Land and Forestry Divisions on management issues, policy decision-making, research priorities, research status updates, communicating research results, library services, employee training, hiring committees/panels, annual meeting agendas and logistics, etc.
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### **Jed Meunier**

#### WDNR Consultation

- Consulted with Division of Forestry's Fire Protection Bureau staff to identify research needs for LANDFIRE research project.
- Consulted with Bureau of Natural Heritage Conservation on Northern Long-eared Bat research

#### Other State and Federal Agency Consultation

- Consulted with partners from the Hiawatha National Forest on a LANDFIRE fuels calibration and critique workshop.
- Consulted with LANDFIRE Business Lead group to coordinate Great Lakes LANDFIRE research project.
- Consulted with partners from the USFS, USFWS, The Nature Conservancy, MN, MI, and MO Department of Natural Resources on LANDFIRE research.
- Served as regional representative to National Task Force on removing barriers to the Cohesive Strategy.

#### Other Conservation Organizations and Stakeholders

- Representative for the Tallgrass Prairie and Oak Savanna Fire Science Consortium at the Northeast Missouri Woodland Management Workshop (June 2014).
  - Member of technical advisory team for the Wisconsin Fire Needs Assessment.
  - Consulted with Tallgrass Prairie and Oak Savanna Fire Science Consortium to discuss a fire and oak management working group.
  - Served as advisory member in The Nature Conservancy Baraboo Hills oak management working group.
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**Mike Meyer**

WDNR Consultation

- Provided consultation to Bureau of Watershed Management by reviewing aquatic plant management herbicide treatment permit applications.
- Provided consultation to Bureau of Wildlife Management toxicologist and USNPS and USFWS toxicologists on bald eagle contaminant sampling and findings in Wisconsin. Evaluated bald eagle PCB exposure on the lower Fox River following sediment remediation.
- Provided consultation to Bureau of Wildlife Management toxicologist and USNPS and USFWS toxicologists as to the impact of lead fishing tackle on common loons in Wisconsin.
- Demonstrated loon capture, blood collection, and banding to Bureau of Wildlife Management Health Team to discuss the feasibility of conducting joint Wildlife Management/Science Services loon capture efforts in 2014 to track long-term trends of mercury exposure in Northern Highland lakes susceptible to mercury bioaccumulation.
- Provided consultation to Bureau of Watershed Management by providing review of ecotoxicology research related to lake management.
- Provided Bureau of Watershed Management science oversight on research conducted at UW-Madison to evaluate the impact of 2,4-D herbicides on native fish reproduction.
- Provided Bureau of Watershed Management with recommendations for new research to evaluate the toxicological risk of current herbicide use to control aquatic invasive species.
- Provided consultation to Bureau of Watershed Management on development of a study design to evaluate herbicide concentrations in sediment pore water after application of pelleted herbicides designed to control aquatic invasive species.
- Provided technical review of Forest County Potawatomi Hg emission risk assessment for the Bureau of Air Management.
- Consulted with Bureau of Watershed Management to review NR 115 Shoreland Management rules and to recommend the Best Management Practices of Lakeshore Habitat Restoration in the Northern Highlands, a mitigation option under NR115 rule revisions.
- Consulted with WDNR Deputy Secretary, Division Administrators, and Dead Pike Lake Association members to discuss the toxicological risk of manganese.

Other State and Federal Agency Consultation

- Consulted with Wisconsin State Lab Toxicology staff concerning aquatic herbicide food web and sediment toxicity testing.
- Collaborating and consulting with USGS Upper Midwest Environmental Science Center to use satellite telemetry and geolocators to identify migration pathways, winter grounds, and staging areas in an effort to assess the risk of botulism E toxicity and exposure to the BP oil spill on loons breeding in the Upper Midwest states.

Other Conservation Organizations and Stakeholders

- Serves on the Conservation Committee and Board of Directors of the Northwoods Land Trust.
- Consulted with Sigurd Olson Environmental Institute and Northland College to develop a collaborative research effort on common loons.
- Conducted WDNR Loon Citizen Science workshops in conjunction with WDNR Citizen-Based Lake Monitoring Program and LoonWatch.
- Serves on the Sigurd Olson LoonWatch Advisory Committee.
- Participated on the Sigurd Olson Research grant review committee for Northland College.

- Consulted with City of Ashland staff to discuss the Chequamegon Bay/Ashland Shoreland Restoration Project, an ongoing project initiated by a USEPA and USGS Great Lakes Restoration Initiative grant.
- Collaborated with colleagues from UW-Extension, Northland College, and Iron County Land and Water Conservation Department to hold a Lake Superior Decision Maker's Workshop on lakeshore habitat restoration.
- Serves as co-chair of the WICCI Wildlife Working group.
- Serves on UW-Madison graduate student committees.
- Coordinated with Sigurd Olson Environmental Institute, Northland College, and LoonWatch to develop improved citizen science survey methods to improve the quantitative rigor of loon abundance and demography measures in Wisconsin.
- Coordinated with the Voigt Task Force regarding an Aquatic Plant Management workshop.

### **Mike Mossman**

#### WDNR Consultation

- Serves on Southern Forest Bird Working Group committee.
- Serves on Red-shouldered Hawk Monitoring committee.
- Serves on WI Breeding Bird Atlas committee.
- Serves on Sauk Prairie Recreation Area and Lower Wisconsin State Riverway Master Planning teams.
- Provided technical consultation to Bureau of Natural Heritage Conservation on bird, herptile and mammal taxon teams for revision of the Wildlife Action Plan.
- Worked with the Southern Forest Bird Working Group and WDNR forestry staff to identify and plan Forest Conservation Areas in the Driftless Area.
- Consulted with a private landowner, WDNR Division of Forestry, Bureau of Natural Heritage Conservation, and private foresters on private tracts on the Lower Wisconsin State Riverway to discuss forest management and birds.
- Met with DNR Office of Science and Sustainability, and Bureau of Wildlife Management, International Crane Foundation, and the Aldo Leopold Foundation on potential impacts of American Transmission Co. powerlines through the Leopold-Pine Island Important Bird Area.
- Gave a field tour of the Sauk Prairie Recreational Area to WDNR Facilities and Lands master planner.
- Hosted Chinese exchange students as part of the DNR-sponsored "Rivers As Bridges" project.
- Consulted with Bureau of Natural Heritage Conservation staff to discuss participation in an "Important Herptile Areas" program.
- Serves on technical team for Lower Wisconsin State Riverway Master Plan.
- Serves on Wildlife Action Plan committees for herptiles, mammals and birds.

#### Other State and Federal Agency Consultation

- Consulted with partners from the USFS to review their evaluation plan for upcoming climate change training workshops.
- Worked with museums and USGS to evaluate disease parameters and determine methods for transporting and displaying neotenic tiger salamanders.
- Coordinated neotenic specimens for analysis with the USGS National Wildlife Health Center.

### Other Conservation Organizations and Stakeholders

- Represented “endangered resources” at public meeting for the Lower Wisconsin State Riverway master plan.
  - Provided technical reviews to NPS and contractor consultants regarding birds of Apostle Islands and Ozaukee County.
  - Worked with the Aldo Leopold Foundation to map habitats and analyze bird habitat data from the Leopold-Pine Island Important Bird Area.
  - Provided peer review for professional journal Natural Areas Journal.
  - Consulted with Wisconsin Society for Ornithology on ecological management plans for the Honey Creek State Natural Area.
  - Helped plan and host a field day at Badger Army Ammunition Plant for wildlife and agriculture researchers, to share information and discuss potential collaborations.
  - Assisted The Nature Conservancy staff on planning oak management in the Baraboo Hills.
  - Consulted with WDNR, USGS, UW scientists, and Partners in Amphibian and Reptile Conservation on management and research issues regarding the neotenic salamanders at Badger Army Ammunition Plant.
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### **Nathan Roberts**

#### WDNR Consultation

- Serves on the Wolf Advisory Committee.
- Serves on the Beaver Task Force.
- Serves on the Furbearer Advisory Committee.
- Provided input to Bureau of Wildlife Management on bear management.
- Provided input to the Bureau of Wildlife Management on badger research and management implications.
- Participated with Bureau of Wildlife Management and Outreach staff in conducting an online furbearer “Chat”.
- Met with staff from the Wildlife Health program to discuss fisher diseases.
- Trained Bureau of Wildlife Management Furschool attendees on furbearer carcass sampling procedures.

#### Other State and Federal Agency Consultation

- Serves on the United States Furbearer Conservation Working Group.
- Consulted with USFWS, and other states, on CITES issues.
- Consulted with St. Louis River Area of Concern regarding aquatic mammal inventory efforts and research.

#### Other Conservation Organizations and Stakeholders

- Consulted with GLIFWC and Wildlife Management staff on furbearer concerns and research topics.
- Consulted with the WI Cooperative Trapper Education Program to discuss otter avoidance research and techniques for beaver trapping.
- Consulted with the WI Bear Hunters Association about current and pending bear, wolf, and bobcat research.
- Consulted with the WI Trappers Association about current and pending wolf, bobcat, otter, and beaver research.

- Moderated a session at the WI Chapter of The Wildlife Society Conference.
- Presented, and led discussions on, furbearer monitoring programs at the North American Joint Furbearer Workshop in Ohio.
- Consulted with WI State Senator on bobcat monitoring and research questions.

### **Robert Rolley**

#### WDNR Consultation

- Serves on the WM Deer Advisory Committee.
- Serves on the WM Bear Advisory Committee.
- Serves on the WM Furbearer Advisory Committee.
- Served on the WM Elk Advisory Committee.
- Serves on the WM Beaver Management Plan Task Force.
- Serves on the CWD Team Leaders.
- Serves on the Deer Metrics Team and co-chairs the population metric subteam.
- Consulted with Bureau of Wildlife Management on various aspects of CWD management including development of surveillance plans, analysis of prevalence estimates and trends, development of speaking points and materials for public meetings, future research needs, preparing legislative and Board testimony, providing information for the Herd Health and CWD Deer Trustee Report Action Team, preparing Interagency Health and Science Team response to the Deer Trustee Report, potential sales of paid permits in CWD affected counties, and assisted with CWD sampling.
- Consulted with Bureau of Wildlife Management's Bear Advisory Committee: providing analyses of bear harvest, population modeling, effects of various harvest quotas, and research needs related to population status and human dimensions of bear management.
- Consulted with Bureau of Wildlife Management on numerous components of deer management including development of the Deer Management Assistance Program, effects of the Deer Trustee Rule package on deer population analysis and antlerless quota setting, a pilot study for telecheck, deer population analysis, antlerless quota and permit setting, preparing for Secretary Office briefings, preparing Natural Resources Board testimony on the science associated with deer harvest management, research needs, and provided training of new wildlife managers on deer management.
- Consulted with Bureau of Finance regarding contracts for pick-up and disposal of vehicle-killed deer.
- Consulted with Bureau of Wildlife Management on furbearer population management including analysis of survey data related to population status of bobcats, fisher, and otters; modeling the effects of various harvest levels; reviewing Wildlife Policy Team issue briefs; assisting with preparation of Board testimony; responding to questions from stakeholders and Board members; assessing the adequacy of furbearer surveys; and development of research needs for furbearers.
- Assisted the Bureau of Wildlife Management with development of the beaver management plan.
- Assisted with consultations with Bureau of Wildlife Management on elk population size and suitability of a hunt.
- Consulted with Bureau of Science Services staff on a turkey modeling manuscript.

### Other State and Federal Agency Consultation

- Serves on the Interagency CWD Health and Science Team.
- Member of the Midwest Deer and Wild Turkey Study Group.
- Consulted with the Ohio deer management program on deer survival rates, factors affecting hunter success, and ecologically based deer management units.
- Consulted with USDA-Animal Plant Health Inspection Service Wildlife Services regarding their draft environmental assessment on mammal damage management in Wisconsin.

### Other Conservation Organizations and Stakeholders

- Provided data to a study at Michigan State University on the relationship of deer-vehicle accidents and deer population changes.
  - Consulted with a Michigan State University doctoral student on the status of deer populations in areas identified by Leopold as overpopulated.
  - Consulted with UW-Madison Entomology grad student on research related to deer movements in Wisconsin.
  - Consulted with UW-Stevens Point graduate student regarding bobcat research in the central forest region.
  - Provided peer review for the Journal of Wildlife Management.
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## **David Sample**

### WDNR Consultation

- Co-chairs Southwest Wisconsin Grassland and Stream Conservation Area Technical team.
- Serves on the Wisconsin Bird Conservation Initiative Grassland Committee.
- Serves on the WM Private Lands Advisory Committee.
- Consulted regularly with Bureau of Wildlife Management staff on the Southwest Wisconsin Grassland and Stream Conservation Area project.
- Consulted with Bureau of Natural Heritage Conservation on draft bird Species Guidance documents.
- Consulted with Bureau of Wildlife Management staff on matters relating to grassland bird management, agricultural ecosystems, and the Farm Bill.
- Participates in the DNR Master Planning process for the Sauk Prairie Recreation Area.
- Consulted regularly with Bureau of Wildlife Management project coordinator on the Southwest Wisconsin Grassland and Stream Conservation Area (SWGCSA) partnership.
- Provided the Bureau of Natural Heritage Conservation with grassland bird nesting habitat requirements for a broad incidental take permit and authorization.
- Assisted with reconvening the Wisconsin Greater Prairie-Chicken Conservation Genetics Advisory Group.
- Drafted the Incidental Take Protocol for the newly state-listed Upland Sandpiper for the Bureau of Natural Heritage Conservation.
- Consulted with the Bureau of Natural Heritage Council on the update of the Incidental Take Protocol for the Greater Prairie-chicken.
- Consulted with WDNR and UW-Milwaukee personnel on the outcome of the American Badger genetics study.
- Provided technical assistance to the Bureau of Natural Heritage Conservation Bird Team, charged with updating the avian Species of Greatest Conservation Need for the revised state Wildlife Action Plan.

Other State and Federal Agency Consultation

- Serves on the USDA NRCS State Technical Committee wildlife subcommittee.
- Consulted with the USDA Farm Services Agency to discuss acreage goals for the Conservation Reserve Program in Wisconsin.
- Consulted with the National Park Service, U. S. Fish and Wildlife Service, and DNR Wildlife Management on grassland and savanna management issues at a NPS-owned tract of the Ice Age Trail.
- Consulted with cooperators from USFWS, UW-Madison, USGS, and WDNR on the status of the Grassland Bird Conservation Area Evaluation Study.
- Consulted with a diverse group of agency and NGO partners; developing the USFWS's Bobolink Full Life Cycle Conservation Plan.

Other Conservation Organizations and Stakeholders

- Serves on graduate student committee for the badger ecology study project.
  - Served on graduate student committee for a study of grassland bird use of potential bioenergy grasslands.
  - Consulted with UW-Madison and DNR research staff on a project to develop a nesting phenology dataset from all of the grassland bird nesting data collected in Wisconsin since 1992.
  - Consulted with the Vermont Center for Ecostudies and High Branch Conservation Services on developing a Strategy to Create and Sustain Grassland Bird Landscapes in the Midwest.
  - Provided consultation to The Prairie Enthusiasts on SGCN use of prairie thickets.
  - Regular consultation with UW-Madison Departments of Zoology, Agronomy, and Forest and Wildlife Ecology staff on potential biofuel landscape scenarios and their impacts on grassland wildlife.
  - Consulted with The Prairie Enthusiasts about current and future grassland bird monitoring activities.
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**Jen Stenglein**

WDNR Consultation

- Provided population modeling input to the Wolf Advisory Committee.
  - Kicked-off the Snapshot Wisconsin pilot project with 80 cameras in 20 townships with the help of DNR and Lac du Flambeau wildlife biologists.
  - Provided consultation to Wildlife Management on elk monitoring methods.
  - Provided input to Natural Heritage Conservation on research planning for Northern Long-Eared Bats.
  - Assisted with the Wolf Carnivore Tracking and Wolf Ecology two-day workshop at Crex Meadows.
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**Daniel Storm**

WDNR Consultation

- Served on the Deer Trustee Implementation Team.
- Serves on the Elk Advisory Committee.
- Serves on the CWD Team Leaders.
- Consulted on deer registration and the Deer Trustee Implementation process.
- Videotaped instructions for conducting nutritional assessment of car-killed training staff.
- Participated in online Deer Trustee chats.

- Filmed a segment on research for the annual 'Deer Show'.
- Provided technical consultation to Bureau of Wildlife Management on elk population abundance.
- Provided input to Bureau of Wildlife Management staff on deer metrics related to the development of the new Deer Management Assistance Program.
- Consulted with Bureau of Wildlife Management on electronic registration pilot study ideas.
- Provided consultation to Bureau of Wildlife Management on research priorities for white-tailed deer, black bears, and furbearers.
- Provided input to Bureau of Wildlife Management regarding furbearer population monitoring.
- Provided consultation to Bureau of Wildlife Management on winter severity for consideration of deer harvest quota goals.
- Consulted with Bureau of Finance regarding contracts for pick-up and disposal of vehicle-killed deer.
- Consulted on numerous components of deer management related to the implementation of the Deer Trustee Rule package.
- Helped prepare Natural Resources Board testimony on the science associated with deer harvest management.
- Provided training of new wildlife managers on deer management.
- Consulted with Bureau of Wildlife Management DMAP coordinators about metrics, data collection needs, and options.

### Other Conservation Organizations and Stakeholders

- Wrote an article on deer mortality research for Wisconsin's Whitetail Classic magazine.



*Banding a Common Tern chick, Superior, WI.*

## Current Research Projects

### Current Research Projects

This section of our report highlights current research efforts by staff members working in the Wildlife and Forestry Research Section. Brief project summaries describe each project and identify the lead scientist(s), collaborating scientists and agencies, and Wisconsin DNR and external customer programs. Projects are funded through a variety of sources, including state funds, federal Wildlife Restoration funds (PR), bureau-to-bureau contracts with partner programs, and external grants.

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Ecosystems	Landscape Dynamics	Evaluation of Landscape Management in the Stewardship Fund's Habitat Restoration Area Program	Ron Gatti	Christine Ribic, Wisconsin Cooperative Wildlife Research Unit, University of Wisconsin	Evaluate the impact of the Stewardship Fund's Habitat Restoration Area (HRA) program of landscape management on habitats and key wildlife species. Document HRA program benefits for designing similar restoration efforts in the next century. Document the efficiency of using a Geographic Information System (GIS) for habitat management and evaluation.	WDNR Wildlife Management, Facilities and Lands, and Natural Heritage Conservation
Manage & Sustain Ecosystems	Restoration Ecology	Measuring the Value of Fish and Wildlife Habitat Restoration on Northern Wisconsin Lakes: the Wisconsin Lakeshore Restoration Project	Michael Meyer	Michigan Technological University, Vilas County Land and Water Conservation Dept., WDATCP, City of Ashland	This study demonstrates the ecological benefits of shoreland habitat conservation and restoration by measuring aquatic ecosystem health (via biotic surveys) before, during, and after conservation and restoration activities on 5 developed lakes in northern Wisconsin and the City of Ashland waterfront on Chequamegon Bay, Lake Superior.	WDNR Bureaus of Wildlife Management, Water, Fisheries, Natural Heritage Conservation, Forestry
Manage & Sustain Ecosystems	Driftless Area	Engaging Landowners in Landscape-scale Oak Management for Turkey Habitat: A Social Marketing Approach	Tricia Knoot, Todd Flournoy, and Christine Anhalt	Tony Sharp, Yoyi Steele, Mike Finlay, Carol Nielsen, the American Forest Foundation, the Aldo Leopold Foundation (Steve Swenson and Alanna Koshollek), and Bret Shaw, UW-Madison	Our overall goal is to design and test a socially-informed oak management campaign that can encourage greater landowner engagement in oak management across southwestern WI and thereby directly enhance opportunities for oak regeneration and maintain wildlife habitat at the landscape scale. Our objectives include: 1) identify barriers and motivators to oak management by private landowners, and 2) design and test oak management messages that can encourage greater landowner receptivity towards oak management practices and goals.	WDNR Division of Forestry

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Ecosystems	Driftless Area	Moving landowners down the path towards sustainable forest management	Tricia Knoot and Bret Shaw, UW-Madison	Todd Flournoy, Mark Rickenbach, UW-Madison, Aldo Leopold Foundation, and the American Forest Foundation	This study is designed to evaluate the impact of the Driftless Forest Network campaigns on landowner pathways towards active forest management. Key objectives include identifying factors that predict landowner behavior and translating this understanding into tangible, usable, and useful recommendations to improve landowner outreach and extension programming.	WDNR Division of Forestry
Manage & Sustain Ecosystems	Driftless Area	Expanded Driftless Forest Network (DFN) Landowner Outreach Data Evaluation and Technology Transfer for Application	Tricia Knoot and Mark Rickenbach, UW-Madison	Jennifer Nuñez, UW-Madison, Aldo Leopold Foundation and the American Forest Foundation	The project is designed to inform adaption of current and future landowner engagement strategies based on recent data to improve its on-going work. Key objectives include using existing DFN data to quantitatively evaluate landowner response to various marketing campaigns and engagement strategies, determine characteristics of respondents and non-respondents towards marketing messages or other engagement strategies, and conceptualize evaluation in the context of private forestry programming toward improved program delivery and accountability in WI.	WDNR Division of Forestry
Manage & Sustain Ecosystems	Grassland Landscapes	Evaluation of the Grassland Bird Conservation Area concept in Wisconsin	David Sample, Christine Ribic and Michael Guttery	UW-Madison, USGS, USFWS	This study focuses on evaluating the concept of the Grassland Bird Conservation Area in the Southwest Grassland and Stream Conservation Area, the Western Prairie Habitat Restoration Area, and the Central Wisconsin Grassland Conservation Area. Objectives include assessing grassland bird abundance, occupancy and population trends within and outside of grassland Bird Conservation areas, and determining grassland bird response to patch size and landscape composition at different scales.	WDNR Division of Lands, USFWS, USDA NRCS, NGOs

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Forest Trees	Oak Ecosystem Management	Rich Henderson	David Sample and Mike Mossman, WDNR	Document oak regeneration problems in southern Wisconsin and the effects of prescribed burns and silvicultural techniques on oak regeneration, avian abundance, and the maintenance of the oak ecosystem as a whole.	WDNR Division of Forestry, and Bureau of Natural Heritage Conservation
Manage & Sustain Populations	Forest Trees	Creating tools to assess post-biomass harvest fine woody debris	Dustin Bronson	Tricia Knoot	Current biomass guidelines, for Wisconsin and all other states that permit biomass harvesting, request that loggers leave a particular amount of fine woody debris post-harvest, yet no tools exist for loggers or forester to verify if the desired threshold has been reached. This study tests the recently published equations linking coarse woody debris to fine woody debris. The hypothesis is that a forester or professional logger could quickly count coarse woody debris pieces along a transect, input the number of counted CWD pieces and accurately model the amount of post-biomass harvest fine woody debris.	WDNR Division of Forestry
Manage & Sustain Populations	Forest Trees	Managed Old-Growth Silviculture Study	Dustin Bronson, Karl Martin, and Karin Fassnacht	UW-Madison & USFS	This on-going study continues to investigate a variety of silvicultural techniques that have been designed to increase the old-growth characteristics, which includes an increased diversity in canopy gaps, greater tree species diversity, greater down wood and as a result is capable of providing a wider array of habitat for fauna.	WDNR Division of Forestry, and Bureau of Natural Heritage Conservation
Manage & Sustain Populations	Forest Trees	Assessing Stand History and Future Viability of Relict Hemlock-Pine Stands	Jed Meunier	Tricia Knoot, Karl Martin, Tony D'Amato	Determine precise climate-disturbance-recruitment relationships and know if or how these dynamics have changed over time, which in turn will aid in management and conservation efforts.	Bureau of Natural Heritage Conservation

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Forest Trees	Investigations of reforestation, nursery data	Dustin Bronson	WDNR Division of Forestry - Nursery	This study focuses on the seven years of collected reforestation data collected by the state's nurseries. The goal of this study is to identify strategies and techniques behind successful reforestation across Wisconsin as well as to identify reasoning behind reforestation failures. We seek to identify and promote specific metrics that are paramount to identifying future reforestation success as well as to identify variables that are no longer needed in the on-going nursery data collection program.	WDNR Division of Forestry
Manage & Sustain Populations	White-tailed Deer	Relationships of deer ecology, disease ecology, and hunter behavior to manage chronic wasting disease (CWD) in Wisconsin	Robert Rolley and Jordan Petchenik	Timothy R. Van Deelen, University of Wisconsin; and Michael Samuel, Cooperative Wildlife Research Unit	The objectives of this study is to provide the science needed to manage CWD in Wisconsin, use an adaptive management approach to evaluate the effectiveness of an aggressive CWD eradication program, and provide new scientific information upon which to base future decisions. This study will document deer movements and behavior in the CWD affected area of southwestern Wisconsin. It will determine the geographic distribution and prevalence of CWD, its transmission rates and its spread, relative to age, sex and genotype. Perceptions of human risk factors, attitudes of hunters, landowners, and the public and economic effects from CWD will be assessed. Size of the deer population in the CWD affected area will be determined and monitored.	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Upland Game Species	Eastern Wild Turkey Distribution and Patch Occupancy Across Northern Wisconsin	Scott Hull and Chris Pollentier	R. Scott Lutz, UW-Madison	The objective of this project is to determine the current distribution of wild turkeys across heavily-forested landscapes in northern Wisconsin, and further assess colonization, extinction, and occupancy rates of habitat patches.	WDNR Bureau of Wildlife Management

Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Upland Game Species	Analysis and Implementation of Population Surveys and Strategies for Ring-Necked Pheasants at Multiple Scales in Wisconsin	Scott Hull	Jason Riddle, UW-Stevens Point	The primary goal of this study is to initiate the development and implementation of survey techniques that will produce statistically valid population trend estimates for ring-necked pheasants that are robust to variation in detection rates associated with changing habitat conditions and observers at multiple spatial and temporal scales. This goal will be accomplished in the context of population response to landscape scale habitat management initiatives and harvest management of ring-necked pheasants.	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Upland Game Species	Prairie Grouse Viability Analysis	Scott Hull and Chris Pollentier	Ben Zuckerberg, UW-Madison	The goal of this project is to assess landscape scale factors limiting prairie grouse (sharp-tails and Prairie Chickens) distribution, survival, and reproduction in central and northern Wisconsin.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation
Manage & Sustain Populations	Carnivores	Development and Assessment of Novel Approaches to monitor Wisconsin Wolf Population	Nathan Roberts	Tim Van Deelen, Karl Martin and David MacFarland	The research will assess new techniques for monitoring wolves in Wisconsin including, occupancy modeling, a combination of telemetry and camera approaches, and, potentially genetic monitoring. The goal is to determine if there are more economical and valid approaches to assess Wisconsin's Wolf population.	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Nongame Species	Using audio playback to establish additional Kirtland's Warbler populations in Wisconsin	Nick Anich	Michael Ward, Illinois Natural History Survey, University of Illinois Urbana-Champaign	We deployed audio speakers in 4 stands in northern Wisconsin in an attempt to attract wandering Kirtland's warblers and facilitate the establishment of additional populations. Prior studies have exploited conspecific attraction (the propensity of birds to set up where other birds are already singing) to provide a means to attract birds to settle in an area.	Bureaus of Wildlife Management, and Natural Heritage Conservation, USFS, Bayfield County Forest, Marinette County Forest, Vilas County Forest

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Nongame Species	Characterizing Cerulean Warbler Distribution and Habitat	Mike Mossman	Brad Hutnik, Yoyi Steele, The Nature Conservancy-Baraboo office	Determine distribution, and habitat associations of Cerulean Warblers and associated forest breeding-birds, and effects of forest management options in southern Wisconsin.	WDNR Division of Forestry, Bureaus of Natural Heritage Conservation and Wildlife Management
Manage & Sustain Populations	Fish, Wildlife, & Plant Genetics	Evaluating the Impact of Disease, Habitat Management Treatments, Dispersal Barriers and Genetic Diversity and Inbreeding on Sharp-tailed Grouse Populations in the Northwest Sands Ecological Landscape	Scott Hull; Scott Lutz and Matthew Reetz, UW-Madison Department of Forest and Wildlife Ecology.	Brad Swanson, Central Michigan University; WDNR Northern Region Field Staff; U.S Forest Service; Friends of Crex Meadows; Friends of Namekagon Barrens; Wisconsin Sharp-tailed Grouse Society	The overall goal of this project is to investigate the decline in sharp-tailed grouse lek counts by evaluating the impacts of disease, ring-necked pheasant interference, habitat management, habitat connectivity and genetic diversity on local reproductive success and survival at 2 managed properties in the Northwest Sands Ecological Landscape.	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Fish, Wildlife, & Plant Genetics	American Badger Genetics, Population Size, Distribution, and Ecology in Wisconsin	David Sample	Tim Van Deelen, UW-Madison; David MacFarland and John Olson, WDNR; and Emily Latch, UW-Milwaukee	Determine the genetic structure, population size, and distribution, of American badgers statewide, and investigate badger ecology (demographics, habitat use, movements, home range, and diet) in an intensive study area in southwest Wisconsin. The overall goals of the genetics study are to a) document the distribution of genetic diversity within and among groups of American Badgers in Wisconsin and the overall distribution of badgers throughout the state and b) identify landscape features that are associated with the presence of badgers or that prohibit or facilitate movements of badgers between isolated sub-populations.	WDNR Bureaus of Natural Heritage Conservation, and Wildlife Management

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Fish, Wildlife, & Plant Genetics	Evaluating the Factors Impacting Juvenile Survival of Greater Prairie-Chickens in Central Wisconsin	Scott Hull and Dr. Jason Riddle, UW-Stevens Point		Quantify juvenile prairie-chicken cause-specific mortality and identify factors such as micro and macro-scale habitat variables and configuration on survival from hatching to fledging (roughly zero to 14 weeks) on two core managed properties within the Central Wisconsin Grassland Conservation Area (Paul Olson and Buena Vista Wildlife Areas).	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Fish, Wildlife, & Plant Genetics	An Evaluation of the Translocation of Greater Prairie-chickens from Minnesota to Central Wisconsin	Scott Hull	David W. Sample, WDNR; Peter Dunn, UW-Milwaukee; Dan Svedarsky, University of Minnesota-Crookston; Scott Walter, WDNR; MN Department of Natural Resources	The overall goal of this project is to increase the genetic diversity of Wisconsin's Prairie-chicken population by conducting summer translocations of up to 120 greater prairie-chicken hens from northwest Minnesota to the Buena Vista Grassland Management Area in central Wisconsin. The study is a cooperative effort between WDNR, University of Wisconsin – Madison, University of Wisconsin – Milwaukee, University of North Dakota – Fargo, and the Minnesota Department of Natural Resources. The current research proposal will specifically address the habitat use, reproductive success, and survival of the translocated birds, resident Wisconsin birds, and their offspring. We will also be collecting all of the genetic material of the F1, F2, and F3 chicks resulting from nests of Minnesota hens and Wisconsin males. Concurrent research by the University of Wisconsin – Milwaukee will evaluate the impacts of the translocation on prairie-chicken genetic diversity as well as the breeding behavior of Wisconsin and Minnesota birds. Importantly, the results of this study will also add data and knowledge to the prairie grouse translocation literature for potential future translocations to help enhance and sustain declining prairie grouse populations in other states and regions.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Manage & Sustain Populations	Fish, Wildlife, & Plant Genetics	Black Bear Diet in Northern Wisconsin	Nathan Roberts and Jon Pauli, UW-Madison		To quantify the relative use of native food items versus human-derived food items for black bears in Northern Wisconsin. We are using stable isotopic analyses to estimate diet contributions in hunter-harvested black bears.	WDNR Bureau of Wildlife Management
Manage & Sustain Populations	Fire Suppression & Fire Management	Evaluating Prescribed Fire: Seasonal Suitability for Prescribed Burns	Jed Meunier	Tricia Knoot, Karl Martin, Rich Henderson, and Amy Dubriel	Compile and analyze occurrence of burns on state lands and evaluate prescribed burn prescription "windows" over time.	WDNR Division of Forestry, Bureau of Wildlife Management
Pollutants & Human Health	Fish and Wildlife Contaminants	Effects of Contaminant Exposure on Top Predator Populations in Wisconsin Aquatic Habitats	Michael Meyer, Kevin Kenow USGS, Bill Route USNPS, Sean Strom WM.	USGS, Upper Midwest Environmental Science Center, USNPS-Apostle Islands, USFWS, UW-Madison, USEPA Narragansett	Develop and maintain the Wisconsin Great Lakes Biosentinel Program, a biosurveillance and early warning system where sensitive organisms are monitored to identify, spatially and temporally, ecosystems and populations impacted by persistent bioaccumulating toxic substances in the Great Lakes basin. Quantify the ecological risk of anthropogenic emissions of mercury (Hg) and carbon dioxide (CO <sub>2</sub> ), both now regulated as atmospheric pollutants by USEPA under the federal Clean Air Act.	WDNR Bureau of Wildlife Management, Natural Heritage Conservation, Watershed Management, Air Management
Support Adaptation to Change	Forest & Forestry Impacts	Forest Operations in the Context of Multiple Stressors	Tricia Knoot and Adena Rissman, UW-Madison	Ellen Geisler, UW-Madison	The main objectives of this project are to characterize the impacts of changing environmental conditions on forestry operations and forest management in Wisconsin, in the context of multiple social and ecological stressors, and to examine and develop adaptation strategies across multiple forest management objectives (timber production, wildlife habitat, water quality, and recreation).	WDNR Division of Forestry
Support Adaptation to Change	Fisheries & Wildlife Impacts	Snowshoe Hare Abundance and Distribution Across Central and Northern Wisconsin	Mike Meyer, Karl Martin, and Ben Zuckerberg, UW-Madison		Assess distributional changes in snowshoe hare across central and northern Wisconsin. Compare current distributions to past distributions and assess potential impact on key furbearer predators including bobcats, fisher, etc.	WDNR Bureau of Wildlife Management

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Support Adaptation to Change	Fisheries & Wildlife Impacts	Assessing the Impact of Environmental Change on Wisconsin's Wildlife, Habitats, and the Development of Proactive Management and Policy Recommendations	Karl Martin and Ben Zuckerberg, UW-Madison	Lars Pomera University of Wisconsin-Madison and Olivia LeDee, Minnesota DNR	Conduct applied research on the direct and indirect impacts of changing environmental conditions and landscape scale conservation issues on Wisconsin wildlife, forestry, and management priorities. The overarching goal is to develop a better understanding of the role and impact of environmental change on Wisconsin's wildlife and natural resource landscapes and to use this knowledge to guide natural resource management practices and policy development.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation
Social & Economic Values	Resource Valuation & Ecosystem Services	Assessing the Opportunity Cost and Operational Cost of Enhancing Stand Complexity in Northern Hardwood Stands	Tricia Knoot, Karin Fassnacht, and Thomas Steele, UW-Madison	Karl Martin	The goal of this aspect of the ongoing project (Managed Old-Growth Silviculture Study) is to assess the opportunity cost and operational costs associated with novel timber harvesting practices that can enhance stand complexity and ecosystem services.	WDNR Division of Forestry
Social & Economic Values	Policy & Planning Process	Planning, Development and Budget Activities in Support of Wildlife Restoration Grant	Karl Martin	Jescie Kitchell, Ryan Marty, and Carol Bentzler	Ongoing project to provide resources to manage Wisconsin's Federal Aid in Wildlife Restoration Grant W-160-P. Activities typically include research project planning, exploratory work on candidate research studies, and managing the Wildlife Restoration budget.	WDNR Bureau of Science Services, Management
Social & Economic Values	Stakeholder Awareness & Knowledge	Technology Transfer	Karl Martin	Jescie Kitchell and Wildlife and Forestry Research Section Scientists	Provide resources for technology transfer of wildlife and forestry research as part of Wisconsin's Federal Aid in Wildlife Restoration Grant W-160-P. Activities typically include research report and peer review paper preparation, presentation of research results to both technical and lay audiences, and preparation and presentation of education materials.	Division of Land and Forestry

Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Social & Economic Values	Fire Suppression & Fire Management	Ecological Revisions to LANDFIRE Vegetation and Fuels Classifications	Jed Meunier	Tricia Knoot, Dustin Bronson, Tony D'Amato, Kristi Nixon	To update principal LANDFIRE vegetative classifications in the Great Lakes Region (Zones 41, 50, 51) to better represent soil and climate regimes in the region. Subsequent revisions to fuel and fire regime characterizations will improve fire risk assessments, prescribed burning decisions, and incident management analyses.	WDNR Division of Forestry
Assessment, Monitoring, Modeling	Furbearer Population Monitoring	Bobcat Population and Habitat Use in Southern Wisconsin	Nathan Roberts	Robert Rolley, Karl Martin, Jen Stenglein, and John Olson	To estimate the bobcat population within a proposed southern bobcat harvest unit and to evaluate bobcat habitat use in the agricultural transition area of Central and Southern Wisconsin. Research is being conducted south of highway 64 to support the decision making process of the furbearer management committee.	WDNR Bureau of Wildlife Management
Assessment, Monitoring, Modeling	Baseline Assessment & Monitoring	Boreal Bird Surveys in Northern Wisconsin	Nick Anich	Mike Worland, Karl Martin	Randomly selected 130 conifer swamps across northern Wisconsin to search for four rare resident boreal bird species: spruce grouse, black-backed woodpecker, boreal chickadee, and gray jay. Developed population-size estimates, examined the status and distribution of each species, studied survey methodology, and made management recommendations.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation, USFS
Assessment, Monitoring, Modeling	Baseline Assessment & Monitoring	Implementation of the Wisconsin Lakes and Wildlife Citizen Science Project	Michael Meyer	University of Wisconsin Lakes Partnership, Northland College	This project will further develop the existing Wisconsin Loon Citizen Science Network (50 participants in 2013) to monitor long-term abundance of lake-dependent wildlife in the Northern Highland Ecological Landscape. Specific objectives include conducting workshops and training volunteers for the Wisconsin Loon Citizen Science Network, producing project reports, informational packets for Citizen Scientists, annual newsletter, and developing additional citizen science monitoring activities on Northern Highland lakes to monitor trends and impacts of environmental change on lake-dependent wildlife.	WDNR Bureaus of Wildlife Management, Watershed Management, and Natural Heritage Conservation

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Assessing the Nutritional Condition of White-tailed Deer using Car-killed Deer	Daniel Storm	Tim Van Deelen and Robert Rolley	The objective of this research is to develop techniques to necropsy road killed deer to determine the condition, health and reproductive condition of Wisconsin's deer herd in the Spring of the year. The goal is to develop techniques and an implementation approach to make this an annual wildlife assessment.	WDNR Bureau of Wildlife Management
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Evaluation of Deer Population Monitoring and Management System	Robert Rolley	Timothy Van Deelen, University of Wisconsin	Quantify the accuracy of Sex-Age-Kill (SAK) population estimates and harvest predictions; assess the importance of hunting season conditions on factors that affect buck harvest rates; quantify the relationship of population size, carrying capacity, and winter severity on the rate of post-hunt to pre-hunt population increase and incorporate this relationship into future harvest predictions; determine whether alternative population modeling approaches are less sensitive to potential changes in hunter behavior and hunter effectiveness; determine whether alternative formulations of winter weather variables more accurately reflect the response of deer populations to winter severity; and assess the accuracy and precision of fawn:doe ratios based on roadside observations.	WDNR Bureau of Wildlife Management
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Rates and Cause of Fawn Mortality in Northern and East-central Wisconsin	Daniel Storm	Tim Van Deelen, Ryan Walrath, Andrew Norton	This study is designed to determine survival rates of white-tailed deer fawns and causes of mortality. Involvement of citizens in all aspects of the project has been critical for success.	WDNR Bureau of Wildlife Management
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Deer Population Assessment	Dustin Bronson and Karl Martin	UW-Madison & USFS	This study is designed to assess the ecological impacts of differing deer population densities. Ecological assessment includes assessing deer browsing on tree regeneration, understory plants, bird and mammal populations and forest ecosystem functions in Wisconsin.	WDNR Bureau of Wildlife Management, Division of Forestry, and Bureau of Natural Heritage Conservation

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Evaluating Distance Sampling for Estimating White-tailed Deer Populations in Wisconsin	Daniel Storm	Karl Martin	This study is designed to evaluate use of aerial distance sampling to estimate white-tailed deer population abundance in the farmland regions of Wisconsin. Specific objectives of our evaluation include 1) estimating white-tailed deer abundance (density and population) in the Eastern and Western farmland regions of Wisconsin using fixed-wing distance sampling, 2) compare population estimates (density and abundance) of deer from line transect surveys and accounting-style population models from the Eastern and Western farmland regions of Wisconsin, and 3) evaluate the cost-effectiveness of distance sampling relative to alternative aerial survey techniques (helicopter quadrats, fixed wing strip-counts) currently used in the Southern farmland region of Wisconsin.	WDNR Bureau of Wildlife Management
Assessment, Monitoring, Modeling	White-tailed Deer Population Monitoring	Estimating Survival and Cause-specific Mortality of Adult Male White-tailed Deer in Wisconsin	Daniel Storm	Timothy Van Deelen, University of Wisconsin-Madison; Shelli Dubai, University of Wisconsin-Stevens Point; Jim Klatt, AFL-CIO/Union Sportsmen's Alliance; Whitetails Unlimited; William Moritz, Safari Club International; Mike Riggle, Wisconsin Conservation Congress	Our objective is to obtain rigorous direct estimates of adult male deer survival and cause-specific mortality across Wisconsin. We intend to use a complementary 3 technique approach (telemetry, mark-recapture, age structure) to evaluate potential biases inherent in any single approach (hunter bias, non-reporting, non-stable age structure, non-stationary population), to capture temporal variations and habitat effects on survival and harvest rates (i.e., a specific recommendation by the SAK review panel), and to evaluate a cost-effective method for monitoring change in harvest rates (e.g. age structure) after the formal research has ended.	WDNR Bureau of Wildlife Management

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Assessment, Monitoring, Modeling	Waterfowl	Evaluation of Duck Production within the Upper Mississippi River and Great Lakes Region Joint Venture of the North American Waterfowl Management Plan	Ron Gatti	Kent Van Horn	Directly estimate productivity of ducks on the private landscape of southern Wisconsin in relation to wetland and grassland habitat restoration, evaluate the benefits of the Conservation Reserve Program to ducks in Wisconsin, and develop planning tools for management in the Upper Mississippi River and Great Lakes Region.	WDNR Bureau of Wildlife Management
Ensure Solid Science Foundation	Long-term Monitoring & Foundational Science	Surveys and Databases	Brian Dhuey	University of Wisconsin; U.S. Fish and Wildlife Service; U.S. Forest Service; and Great Lakes Indian Fish and Wildlife Commission	Consolidate data sets from throughout the state into the mainframe computer system at the Hill Farms Regional Computing Center (HFRCC); coordinate collection of wildlife survey information; maintain and update these data sets so the information can be provided to managers, researchers, administrators, and other users in a timely manner; provide guidance so that future data collections will be conducted to maximize their compatibility and comparability to existing data sets; provide a system of programs that allow easy access to the data sets and/or provide assistance in the use of the data sets; institute an automated information dissemination system for data currently being gathered through various surveys and projects; and evaluate the accuracy, precision, and effectiveness of these wildlife surveys.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation
Ensure Solid Science Foundation	Long-term Monitoring & Foundational Science	Statewide Trail Camera Assessment using Citizen Scientists	Jennifer Stenglein and Karl Martin	University of Wisconsin-Madison; NASA; Adler Planetarium	This project will utilize trail camera and web-based technology to engage over 3000 citizen scientists in a statewide assessment of predator and deer populations, distribution, and reproduction on an annual basis.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation
Ensure Solid Science Foundation	Emerging Issues	Assessment of Species Most Vulnerable to Environmental Change	Karl Martin and Ben Zuckerberg, UW-Madison	Lars Pomera and Olivia LeDee	Assessment of species most vulnerable to changing environmental and landscape conditions. Results will help determine best management approaches for species under changing land-use and environmental conditions.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation

## Current Research Projects

Project Theme	Priority Focus Area	Project Title	Lead Scientist(s)	Collaborators	Project Description & Objectives	Customers
Ensure Solid Science Foundation	Emerging Issues	Impacts of Non-forest Biomass Production on Wildlife in Wisconsin	David Sample	Carol Williams, Christine Ribic, Monica Turner, Michael Guttery, Peter Blank, UW-Madison	a) Foster and implement interdisciplinary research on the relationships between biomass and other alternative energy production systems and agricultural and grassland ecosystems – including ecologic, economic, and sociological parameters – in Wisconsin through the Agricultural Ecosystems Research Group; b) Compare grassland bird density and nesting productivity between potential biomass energy crops, including monotypic switchgrass, low-diversity mixes of several native warm season grasses, and diverse plantings of multiple native grasses and prairie forb species; and c) Model future landscape scenarios illustrating potential biomass markets, as well as the impacts of future land use/land cover changes on wildlife Species of Greatest Conservation Need, and identify landscape configurations that may simultaneously offer opportunities for economic development and wildlife enhancement.	WDNR Bureaus of Wildlife Management, and Natural Heritage Conservation



*Releasing a male adult white-tailed deer after fitting it with a radio-collar as part of the Estimating Survival and Cause-specific Mortality of Adult Male White-tailed Deer in Wisconsin research project, Sawyer County, WI.*

## 2012-2014 Wildlife and Forestry Research Publications

The professionals employed by the Wildlife and Forestry Research Section routinely publish the results of their work in technical reports and peer-reviewed journals, serials, monographs, and books produced by scientific societies and other publishers. They also make their findings available to people who make and influence decisions about natural resources and environmental management through internal reports, impact assessment and guidance documents, brochures, fact sheets, and informational leaflets. A subset of staff publications appearing in print from 2012 into 2014 are listed below. Internal management reports, and unpublished grant products are not included. We list customer programs benefiting directly from the work and briefly overview the significance/management implications of each effort.

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### Christine Anhalt

Anhalt, C.M., T.R. Van Deelen, R.N. Schultz, and A.P. Wydeven. In Press. Effectiveness of a simulated pack to manipulate wolf movements. *Human-Wildlife Interactions*.

Martin K., T. Knoot, C. Anhalt, A. Sharp, O. LeDee, and B. Zuckerberg. 2014. Barriers and opportunities to managing for disturbance and environmental change in the upper Midwest. Final Report for the Upper Midwest and Great Lakes Landscape Conservation Cooperative March 2014.

Martin, K., T. Rittenhouse, C. Anhalt, T. Knoot, D. MacFarland, B. Bakshi, and T. Van Deelen. 2013. An assessment of woody biomass harvests in northern Wisconsin. Final Report for the Environmental and Economic Research and Development Program of Wisconsin's Focus on Energy December 2013. [http://www.focusonenergy.com/sites/default/files/research/0805Martin\\_FinalReportx.pdf](http://www.focusonenergy.com/sites/default/files/research/0805Martin_FinalReportx.pdf).

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### Nick Anich

Anich, N.M. 2014. Ground foraging by typically arboreal passerines during the cold spring of 2013. *Passenger Pigeon* 76:89–95.

*Customer programs:* WDNR NHC, Ecologists, Ornithologists, land managers

*Significance/management implications:* This article describes unusual observations of songbirds observed foraging on the ground rather than trees during the late leaf-out in spring 2013.

Anich, N., J. Bodine, T. Doolittle, D. Eklund, K. Grveles, B. Hanson, B. Heeringa, G. Kessler, R. Magana, A. Wydeven. 2014. Recommended practices for Kirtland's warbler habitat restoration in the Lake Superior Basin. Report to the Lake Superior Landscape Restoration Partnership.

Anich, N.M. 2013. An apparent Dunlin × White-rumped Sandpiper hybrid at Chequamegon Bay, Wisconsin. *Passenger Pigeon* 75:137–146.

*Customer Programs:* Ornithologists.

*Significance/management implications:* This article describes the finding of a hybrid sandpiper in Ashland, provides a number of photos for documentation, and summarizes the 16 known previous occurrences presumed to be this hybrid combination.

Anich, N.M., M. Worland, and K.J. Martin. 2013. Habitat use by spruce grouse in northern Wisconsin. *Wildlife Society Bulletin* 37:766–777.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

*Significance/management implications:* This article reports on results from radiotracking 55 spruce grouse in Wisconsin. Black spruce and tamarack were the most common components of habitat. Unlike previous reports from this region, we found no use of hemlock or white cedar, and we found considerable use of red pine for winter feeding, though red pine is unlikely to provide quality male display or nest habitat. Management should be focused on areas with extensive conifer, especially near black spruce–tamarack swamps. Retaining or establishing closed-canopy coniferous uplands,

## Recent Publications

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especially jack pine stands 15–30 years old, adjacent to lowland conifer swamps should benefit spruce grouse populations.

Anich, N.M., M. Worland, and K.J. Martin. 2013. Nest-site selection, nest survival, productivity, and survival of spruce grouse in Wisconsin. *Wilson Journal of Ornithology* 125:570-582.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

*Significance/management implications:* This article reports on results of several years of radiotelemetry on spruce grouse and an analysis of habitat at the first spruce grouse nests ever reported in the state. Black spruce swamp was the most common habitat for nesting spruce grouse, and moderately dense and uniform vegetation cover was associated with successful nests. Nest survival appears decent; however chick survival is somewhat low, and models suggest a declining population.

Anich, N.M., W.P. Mueller, and G. Zimmer. 2013. Spruce grouse. In K. Kreitinger, Y. Steele, and A. Paulios, editors. Wisconsin All-Bird Conservation Plan, Wisconsin Bird Conservation Initiative, Wisconsin Department of Natural Resources. <http://www.wisconsinbirds.org/plan/species/spgr.htm>

*Customer programs:* land managers, conservation planners, WDNR NHC, WBCI partners

*Significance/management implications:* This revision of the WBCI All-Bird Plan account incorporates recent research findings into this document, which provides natural history information and management guidelines for Spruce Grouse specifically for Wisconsin.

Prestby, T.G., and N.M. Anich. 2013. The summer of the Dickcissel: 2012. *Passenger Pigeon* 75:155–168.

*Customer Programs:* Wisconsin land managers, ornithologists.

*Significance/management implications:* This article describes the invasion of Dickcissels in summer 2012. Dickcissels have apparently been expanding their range northward as breeders in Wisconsin. Periodically, especially in drought years, Wisconsin sees an invasion of Dickcissels, and last summer, the species was seen in all 72 counties, the first time this has been recorded.

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### Dustin Bronson

Fassnacht, K.S., D.R. Bronson, B.J. Palik, and A.W. D'Amato, C.G. Lorimer, and K.J. Martin. In review. Accelerating the development of old-growth characteristics through active management – a case study of Wisconsin's northern hardwood forest. USDA Forest Service General Technical Report.

Bronson, D. 2014. Understanding the relationship between forest management and white-tailed deer and their habitat. WDNR Wildlifer Spring 2014.

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### John Dadisman

Ellison, K.S., C.A. Ribic, D.W. Sample, M.J. Fawcett, and J.D. Dadisman. 2013. Impacts of tree rows on grassland birds and potential nest predators: a removal experiment. *PLoS ONE* 8(4): e59151. doi:10.1371/journal.pone.0059151.

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### Brian Dhuey

Dhuey, B. 2014. Fall turkey hunter questionnaire 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Dhuey, B. 2014. Spring turkey hunting questionnaire 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Dhuey, B. 2014. Ten week brood observations 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

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- Dhuey, B. 2014. Wolf hunter/trapper activities and attitudes. WDNR Wildlifer March 2014.
- Rees, J., and B. Dhuey. 2014. Deer hunter wildlife survey 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.
- Dhuey, B. 2013. Regional bobwhite quail and cottontail rabbit survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B. 2013. Ruffed grouse drumming survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B. 2013. Rural mail carrier pheasant survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B. 2013. Small game harvest 2012-13 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B. 2013. Winter track counts 1977-2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B. 2013. Wisconsin fur buyers report 2012-2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and D. MacFarland. 2013. Gray wolf hunter / trapper questionnaire 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Olson. 2013. Beaver trapping questionnaire 2012-2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Olson. 2013. Bobcat harvest 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Olson. 2013. Fisher harvest 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Olson. 2013. Fur trapper survey 2012-2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Olson. 2013. Otter harvest 2012-2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., and J. Rees. 2013. Fall turkey hunter questionnaire 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.
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- Dhuey, B., J. Rees, and J. Olson. 2013. Bobcat hunter/trapper 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Dhuey, B., K. McGinley, and S. Walter. 2013. Fall turkey harvest report 2012 in 2012 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2013.
- Dhuey, B., K. McGinley, and S. Walter. 2013. Spring turkey harvest report 2012 in 2012 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2013.
- Dhuey, B., K. Wallenfang, S. Roepke, and S. Jonas. 2013. The 2012 Wisconsin deer hunting summary in 2012 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2013.
- Dhuey, B., K. Wallenfang, S. Roepke, and S. Jonas. 2013. Wisconsin black bear harvest report 2012 in 2012 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2013.

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- Hull, S., B. Dhuey, S. Lutz, C. Pollentier, and S. Walter. 2013. Why turkeys thrive in Wisconsin: blending social science and ecology for optimal management. *The Wildlife Professional* 7(3):22-26.
- Rees, J., and B. Dhuey. 2013. Deer hunter wildlife survey 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.
- Rees, J., and B. Dhuey. 2013. Spring turkey hunting questionnaire 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.
- Van Horn, K., J. Christopoulos, and B. Dhuey. 2013. Wisconsin Canada goose harvest report. Wisconsin Department of Natural Resources WM-432.
- Dhuey, B. 2012. Ruffed grouse drumming survey 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
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- Dhuey, B., K. McGinley, and S. Walter. 2012. Spring turkey harvest report 2011 in 2011 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2012.
- Dhuey, B., K. Wallenfang, and D. Hirchert . 2012. The 2011 Wisconsin deer hunting summary in 2011 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2012.
- Dhuey, B., K. Wallenfang, and L. Olver. 2012. Wisconsin black bear harvest report 2011 in 2011 Wisconsin Big Game Harvest Summary. Wisconsin Department of Natural Resources PUB-WM-284 2012.
- Van Horn, K., J. Christopoulos, and B. Dhuey. 2012. Wisconsin Canada goose harvest report. Wisconsin Department of Natural Resources WM-432.
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## Recent Publications

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### Karin Fassnacht

Fassnacht, K.S., D.R. Bronson, B.J. Palik, A.W. D'Amato, C.G. Lorimer, and K.J. Martin. In review.

Accelerating the development of old-growth characteristics through active management – a case study of Wisconsin's northern hardwood forest. USDA Forest Service General Technical Report.

Fassnacht, K.S., E.A. Padley, T.W. Steele, C.G. Lorimer, B.J. Palik, A.W. D'Amato, and K.J. Martin. 2013.

Development and implementation of treatments in a long-term experiment to enhance forest structural and compositional complexity in second-growth northern hardwoods forests. Technical Bulletin 198. Bureau of Science Services, Wisconsin Department of Natural Resources, Madison, WI. Submitted July 2013.

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### Ron Gatti

Gatti, R. 2013. A tale of two species: blue-winged teal and mallard recruitment in Wisconsin. WDNR Wildlifer September 2013.

Gatti, R., and J. Horton. 2014. Land cover mapping and change in the GHRA 1990-2012. Wisconsin Department of Natural Resources Research Report #196.

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### Rich Henderson

Henderson, R. 2013. Managing for oak ecosystems – How do the birds respond? WDNR Wildlifer November 2013.

Henderson, R., and J. Watson. 2013. Distribution and status of *Silphium* gall-wasps and associated insects in Wisconsin. Final report for WI State Wildlife Grant #2006.

Henderson, R., and J. Watson. 2013. Prairie restricted insects and fire. Final report for WI State Wildlife Grant #1051.

Woods, B., and R. Henderson. 2012. Effects of bio-control agents on purple loosestrife in Wisconsin. Final report to USFWS for PR Federal Aid.

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### Jo Horton

Gatti, R., and J. Horton. 2014. Land cover mapping and change in the GHRA 1990-2012. Wisconsin Department of Natural Resources Research Report #196.

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### Scott Hull

Pollentier, C.D., S.D. Hull, and R.S. Lutz. In Press. Eastern wild turkey demography: sensitivity of vital rates between landscapes. *Journal of Wildlife Management*.

*Customer programs:* WDNR Bureau of Wildlife Management, Wisconsin Conservation Congress, National Wild Turkey Federation, Turkey Hunters.

*Significance/management implications:* This article describes expected population growth of turkeys on the Wisconsin landscape in different habitats.

Bateson, Z.W., P.O. Dunn, S.D. Hull, A.E. Henschen, J.A. Johnson, and L.A. Whittingham. 2014. Genetic restoration of a threatened population of greater prairie-chickens. *Biological Conservation* 174:12-19.

*Customer programs:* WDNR Land Division; Central Wisconsin Grassland Conservation Area Partnership; Wisconsin Society of Ornithology, Dane County Conservation League.

*Significance/management implications:* This article describes the results of the 5-year prairie chicken genetic rescue project in Central Wisconsin.

McGinley, K., and S. Hull. 2014. Sharp-tailed grouse harvest & hunter survey 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

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## Recent Publications

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Pollentier, C.D., R.S. Lutz, and S.D. Hull. 2014. Survival and productivity of eastern wild turkey females in contrasting landscapes in Wisconsin. *Journal of Wildlife Management* 78(6):985–996.

*Customer programs:* WDNR Bureau of Wildlife Management, Wisconsin Conservation Congress, National Wild Turkey Federation, Turkey Hunters.

*Significance/management implications:* This article describes the results of the 2-year field study of wild turkey survival and reproductive success between forested and open-agricultural landscapes in southwest and west-central Wisconsin.

Hull, S. 2013. Prairie-chicken translocation at Buena Vista Wildlife Area. *WDNR Wildlifer* December 2013.

Hull, S., B. Dhuey, S. Lutz, C. Pollentier, and S. Walter. 2013. Why turkeys thrive in Wisconsin: blending social science and ecology for optimal management. *The Wildlife Professional* 7(3):22-26.

Hull, S., K. McGinley, and S. Walter. 2013. Wisconsin sharp-tailed grouse survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

McGinley, K., and S. Hull. 2013. Sharp-tailed grouse harvest & hunter survey 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

Hull, S. 2012. Spring ring-necked pheasant survey 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.

Hull, S., and C. Pollentier. 2012. Spring ring-necked pheasant survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Ventura, S., S. Hull, R. Jackson, G. Radloff, D. Sample, S. Walling, and C. Williams. 2012. Guidelines for sustainable planting and harvest of nonforest biomass in Wisconsin. *Journal of Soil and Water Conservation* 67:17A-20A.

*Customer Programs:* WDNR Land and Water Divisions; WDATCP, Wisconsin farmers, producers and landowners; Wisconsin extension educators; Wisconsin land managers; Wisconsin energy producers and users; Wisconsin legislators; U.S. Departments of Agriculture and Interior; Wisconsin Bioenergy Council, and conservation organizations (NGO's).

*Significance/management implications:* This publication provides guidance for sustainable approaches to planting and harvesting nonforest biomass energy crops in Wisconsin.

Walter, S., K. McGinley, and S. Hull. 2012. Wisconsin sharp-tailed grouse survey and status 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.

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### Rich Kahl

Kahl, R. 2014. Bird banding accomplishments 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Kahl, R. 2013. Bird banding accomplishments 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

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### Jessica Kitchell

Kitchell, J. 2014. Annual mammal survey 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Kitchell, J. 2014. Summer wildlife inquiry 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Christopoulos, J., J. Kitchell, and K. Van Horn. 2013. Wisconsin youth waterfowl hunt 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Kitchell, J. 2013. Annual mammal survey 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

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- Kitchell, J. 2013. Summer wildlife inquiry 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.
- Kitchell, J., and T. Bergeson. 2013. Frog and toad survey 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Christopoulos, J., J. Kitchell, and K. Van Horn. 2012. Wisconsin youth waterfowl hunt 2011 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Kitchell, J., and T. Bergeson. 2012. Frog and toad survey 2011 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
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### Tricia Knoot

- Knoot, T. 2014. The Driftless Forest Network Project: Making strides towards greater landowner engagement in Wisconsin. WDNR Wildlifer March 2014.
- Knoot, T.G., and M. Rickenbach. 2014. Forester networks: The intersection of private lands policy and collaborative capacity. *Land Use Policy* 38:388-396.
- Knoot, T.G., G.L. Drake Larsen, and L.A. Schulte. 2014. So you need a social monitoring plan: Now what? *Journal of Soil and Water Conservation* 69(3):84A-88A.  
<http://www.jsowconline.org/content/69/3/84A.full.pdf+html>.
- Customer programs:* WI DNR Land, WDNR Land, Water, and Forestry Division, Wisconsin's natural resource NGO's, and WI extension educators
- Significance/management implications:* This paper offers a systematic approach to the development of a social monitoring plan that can help project managers and partners understand social implications of a natural resource management project and provide a sound baseline from which social and ecological measures can be compared over time.
- Martin K., T. Knoot, C. Anhalt, A. Sharp, O. LeDee, and B. Zuckerberg. 2014. Barriers and opportunities to managing for disturbance and environmental change in the upper Midwest. Final Report for the Upper Midwest and Great Lakes Landscape Conservation Cooperative March 2014.
- Arbuckle, J.G., L.S. Prokopy, T. Haigh, J. Hobbs, T. Knoot, C. Knutson, A. Loy, A. Saylor Mase, J. McGuire, L. Wright Morton, J. Tyndall, and M. Windhalm. 2013. Climate change beliefs, concerns, and attitudes toward adaptation and mitigation among farmers in the Midwestern United States. On-line First - Climate Change Letters. DOI 10.1007/s10584-013-0707-6.
- Christianson, L., T. Knoot, D. Larsen, J. Tyndall, and M. Helmers. 2013. An ecosystem services approach to farmer adoption potential of drainage water quality improvement strategies. *International Journal of Agricultural Sustainability*. DOI 10.1080/14735903.2013.835604.
- Kittredge, D., M. Rickenbach, T. Knoot, E. Snellings, and A. Erazo. 2013. It's the network: How personal connections shape decisions about private forest use. *Northern Journal of Applied Forestry* 30(2):67-74.
- Martin, K., T. Rittenhouse, C. Anhalt, T. Knoot, D. MacFarland, B. Bakshi, and T. Van Deelen. 2013. An assessment of woody biomass harvests in northern Wisconsin. Final Report for the Environmental and Economic Research and Development Program of Wisconsin's Focus on Energy December 2013.  
[http://www.focusonenergy.com/sites/default/files/research/0805Martin\\_FinalReportx.pdf](http://www.focusonenergy.com/sites/default/files/research/0805Martin_FinalReportx.pdf).
- Rickenbach, M., T. Knoot, K. Silbernagel, C. Nielsen, and A. Hellman. 2013. Expanding sustainable forestry on Wisconsin woodlands. UWEX Learning Store Publication G3996, Madison, WI.  
<http://learningstore.uwex.edu/Assets/pdfs/G3996.pdf>
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### Dave MacFarland

- Dhuey, B., and D. MacFarland. 2013. Gray wolf hunter / trapper questionnaire 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Martin, K., T. Rittenhouse, C. Anhalt, T. Knoot, D. MacFarland, B. Bakshi, and T. Van Deelen. 2013. An assessment of woody biomass harvests in northern Wisconsin. Final Report for the Environmental and Economic Research and Development Program of Wisconsin's Focus on Energy December 2013. [http://www.focusonenergy.com/sites/default/files/research/0805Martin\\_FinalReportx.pdf](http://www.focusonenergy.com/sites/default/files/research/0805Martin_FinalReportx.pdf).
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Black bear population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Bobcat population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Fisher population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Otter population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- MacFarland, D. 2012. Estimating Wisconsin's black bear population. WDNR Wildlifer October 2012.
- Rittenhouse, T.A.G., D.M. MacFarland, K.J. Martin, and T.R. Van Deelen. 2012. Downed wood associated with roundwood harvest, whole-tree harvest and unharvested stands of aspen in Wisconsin. *Forest Ecology and Management* 266:239-245.
- Rolley, R.E., and D.M. MacFarland. 2012. Black bear population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Bobcat population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Fisher population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Otter population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., D.M. MacFarland, and J.F. Olson. 2012. Beaver population analyses 2011 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.

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### Karl Martin

- Fassnacht, K.S., D.R. Bronson, B.J. Palik, A.W. D'Amato, C.G. Lorimer, and K.J. Martin. In review. Accelerating the development of old-growth characteristics through active management – a case study of Wisconsin's northern hardwood forest. USDA Forest Service General Technical Report.
- Martin K., T. Knoot, C. Anhalt, A. Sharp, O. LeDee, and B. Zuckerberg. 2014. Barriers and opportunities to managing for disturbance and environmental change in the upper Midwest. Final Report for the Upper Midwest and Great Lakes Landscape Conservation Cooperative March 2014.
- Pomara, L.Y., O.E. LeDee, K.J. Martin, and B. Zuckerberg. 2014. Demographic consequences of climate change and land cover help explain a history of extirpations and range contraction in a declining snake species. *Global Change Biology* 20: 2087-2099.
- Anich, N.M., M. Worland, and K.J. Martin. 2013. Habitat use by spruce grouse in northern Wisconsin. *Wildlife Society Bulletin* 37:766–777.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

## Recent Publications

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*Significance/management implications:* This article reports on results from radiotracking 55 spruce grouse in Wisconsin. Black spruce and tamarack were the most common components of habitat. Unlike previous reports from this region, we found no use of hemlock or white cedar, and we found considerable use of red pine for winter feeding, though red pine is unlikely to provide quality male display or nest habitat. Management should be focused on areas with extensive conifer, especially near black spruce–tamarack swamps. Retaining or establishing closed-canopy coniferous uplands, especially jack pine stands 15–30 years old, adjacent to lowland conifer swamps should

Anich, N.M., M. Worland, and K.J. Martin. 2013. Nest-site selection, nest survival, productivity, and survival of spruce grouse in Wisconsin. *Wilson Journal of Ornithology* 125:570-582.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

*Significance/management implications:* This article reports on results of several years of radiotelemetry on spruce grouse and an analysis of habitat at the first spruce grouse nests ever reported in the state. Black spruce swamp was the most common habitat for nesting spruce grouse, and moderately dense and uniform vegetation cover was associated with successful nests. Nest survival appears decent; however chick survival is somewhat low, and models suggest a declining population.

Fassnacht, K.S., E.A. Padley, T.W. Steele, C.G. Lorimer, B.J. Palik, A.W. D'Amato, and K.J. Martin. 2013. Development and implementation of treatments in a long-term experiment to enhance forest structural and compositional complexity in second-growth northern hardwoods forests. Technical Bulletin 198. Bureau of Science Services, Wisconsin Department of Natural Resources, Madison, WI. Submitted July 2013.

LeDee, O.E., S. Hagell, K. Martin, D. McFarland, M. Meyer, A. Paulios, C.A. Ribic, D. Sample, and T. Van Deelen. 2013. Climate change impacts on Wisconsin's wildlife: a preliminary assessment. Wisconsin Department of Natural Resources Technical Bulletin No. 197.

Martin, K., T. Rittenhouse, C. Anhalt, T. Knoop, D. MacFarland, B. Bakshi, and T. Van Deelen. 2013. An assessment of woody biomass harvests in northern Wisconsin. Final Report for the Environmental and Economic Research and Development Program of Wisconsin's Focus on Energy December 2013. [http://www.focusonenergy.com/sites/default/files/research/0805Martin\\_FinalReportx.pdf](http://www.focusonenergy.com/sites/default/files/research/0805Martin_FinalReportx.pdf).

Storm, D., K. Martin, K. McCaffery, E. Verbeten, K.A. Kahler, and R. Manwell. 2013. Wisconsin's dedication to deer research; Investing in our white-tailed herd. Wisconsin Department of Natural Resources PBL SS-1122-2013.

Watt, M., A. Norton, T. Van Deelen, K. Martin, J. Duquette, S. Dubay, C. Warbington, and R. Rolley. 2013. Wisconsin deer research studies, annual report 2011–2012. Wisconsin Department of Natural Resources and UW-Madison. [http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer\\_annual\\_report\\_2011-2012.pdf](http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer_annual_report_2011-2012.pdf)

Rittenhouse, T.A.G., D.M. MacFarland, K.J. Martin, and T.R. Van Deelen. 2012. Downed wood associated with roundwood harvest, whole-tree harvest and unharvested stands of aspen in Wisconsin. *Forest Ecology and Management* 266:239-245.

Steinhoff, S.G., T.R. Van Deelen, K.J. Martin, D.M. MacFarland, and K.R. Witkowski. 2012. Nesting patterns of southern flying squirrels in managed northern hardwoods. *Journal of Mammalogy* 93: 532-539.

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### Jed Meunier

Meunier, J., P.M. Brown, and W.H. Romme. 2014. Tree recruitment in relation to climate and fire in northern Mexico. *Ecology* 95:197-209.

Meunier, J., W.H. Romme, and P.M. Brown. 2014. Climate and land-use effects on wildfire in northern Mexico, 1650 to 2010. *Forest Ecology and Management* 325:49-59.

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Bruggink, J.G., E Oppelt, K.E. Doherty, D.E. Andersen, J. Meunier, and R.S. Lutz. 2013. Fall survival of American woodcock in the Western Great Lakes Region. *Journal of Wildlife Management* 77:1021-1030.

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### Mike Meyer

Kenow, K.P., M.S. Meier, L.E. McColl, R.K. Hines, J. Pichner, L. Johnson, J.E. Lyon, K.K. Scharold, and M. Meyer. 2014. Hand-rearing, growth, and development of common loon (*Gavia Immer*) chicks. *Zoo Biology* 9999: 1-12.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* Loon chicks can be successfully hatched and reared in captivity – the data is of use for toxicology experimentation and hacking projects currently completed or underway.

Meyer, M. 2014. Northwoods loon protection program has merged with LoonWatch. *Red Eye News* April 1 2014.

Haskell, D.E., C.R. Webster, D.J. Flaspohler, and M.W. Meyer. 2013. Relationship between carnivore distribution and landscape features in the Northern Highlands Ecological Landscape of Wisconsin. *The American Midland Naturalist* 169(1):1-16.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* Developed shorelands on lakes in the Northern Highlands have less abundant and diverse furbearer populations.

Haskell, D., M. Meyer, A. Schotthoefer, and P. Goggin. 2013. Wisconsin Lakeshore Restoration Project. *Lakeline* Spring 2013.

Haskell, D., M. Meyer, A. Schotthoefer, and P. Goggin. 2013. Wisconsin Lakeshore Restoration Project—Some Preliminary Results. *LakeTides* 38(3).

Kenow K.P., P. Garrison, T.J. Fox, and M.W. Meyer. 2013. Historic distribution of common loons in Wisconsin in relation to changes in lake characteristics and surrounding land use. *The Passenger Pigeon* 75(4):375-389.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* Common loon breeding ranged has receded northward considerably over the past 100 years. Factors association with this range recession were documented – and will be used to recommend lake management practices which promote the return of common loons to central and southern Wisconsin lakes.

LeDee, O.E., S. Hagell, K. Martin, D. McFarland, M. Meyer, A. Paulios, C.A. Ribic, D. Sample, and T. Van Deelen. 2013. Climate change impacts on Wisconsin's wildlife: a preliminary assessment. Wisconsin Department of Natural Resources Technical Bulletin No. 197.

Meyer, M. 2013. Loony for data, CLMN volunteers moonlight as loon citizen scientists. *Lake Tides* 38(1).

Meyer, M. 2013. Potential effects of climate change on inland glacial lakes and implications for lake-dependent biota in Wisconsin. Final Report for Environmental and Economic Research and Development Program Grant 08-06; Wisconsin Focus on Energy Environmental Research and Development Program.

Meyer, M. 2013. Wisconsin citizen-based lake monitoring volunteers moonlight as loon citizen scientists. *WDNR Wildlifer* January/February/March 2013.

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Meyer, M., and D. Haskell. 2013. Restoring lakeshore habitat on Little St. Germain Lake, Vilas County-developing Best Management Practices and evaluating the ecological and water quality benefits. Wisconsin Lake Protection Grant LPT334-10 Final Report.

Piper, W.H., M.W. Palmer, N. Banfield, and M.W. Meyer. 2013. Can settlement in natal-like habitat explain maladaptive habitat selection? *Proceedings of the Royal Society B* 280:20130979. <http://dx.doi.org/10.1098/rspb.2013.0979>

Custer, T.W., C.M. Custer, W.E. Thogmartin, P.M. Dummer, R. Rossmann, K.P. Kenow, and M.W. Meyer. 2012. Mercury and other element exposure in tree swallows nesting at low pH and neutral pH lakes in northern Wisconsin USA. *Environmental Pollution* 163:68-76.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation, Bureau of Air Management

*Significance/management implications:* As is the case with fish-eating birds, insectivorous birds nesting near low pH lakes in the northern Highlands have elevated mercury exposure. The source of exposure is primarily atmospheric deposition.

Haskell, D., D. Flaspohler, C. Webster, and M.W. Meyer. 2012. Variation in soil temperature, moisture, and plant growth with the addition of downed woody material on lakeshore restoration sites. *Restoration Ecology* 20: 113-121.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* The addition of coarse wood enhances the success of lakeshore habitat restoration on northern Wisconsin lakes.

Piper, W.H., J.S. Grear, and M.W. Meyer. 2012. Juvenile survival in common loons (*Gavia immer*): effects of natal lake size and pH. *Journal of Avian Biology* 43:001–009.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Watershed Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* Juvenile loon survival is lower on low pH lakes in the Northern Highlands. Loons on these lakes have elevated mercury exposure.

Weinandt, M.L., M.W. Meyer, M. Strand, and A.R. Lindsay. 2012. Cues used by the black fly, *Simulium annulus*, for attraction to the common loon (*Gavia immer*). *Journal of Vector Ecology* 37:1-6.

*Customer programs:* Division of Land, Division of Water, Bureau of Wildlife Management, Bureau of Natural Heritage Conservation

*Significance/management implications:* Visual and olfactory cues are used by black flies to target their primary host, the common loon – loon nest abandonment can exceed 70% when black fly abundance is high.

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### Mike Mossman

Mossman, M., Y. Steele, and S. Swenson. 2013. The Leopold-Pine Island Important Bird Area: Science, Partnership and Adaptive Management. *WDNR Wildlifer* September 2013.

Matteson, S.W., M.J. Mossman, and D.A. Shealer. 2012. Population decline of black terns in Wisconsin: a 30-year Perspective. *Waterbirds* 35:185-193.

*Customer programs:* WDNR Bureaus of Wildlife Management and Natural Heritage Conservation.

*Significance/management implications:* This paper presents results from the Black Tern Survey, established in 1979 and repeated in subsequent years. It provided the main basis for establishing Threatened status for this marsh bird, which declined so remarkably since the 1960s.

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### Kristi Nixon

Nixon, K.N., J.M. Price, J.M. Silbernagel, N. Miller, and R. Swaty. 2014. Habitat availability for multiple avian species under modeled alternative conservation strategies in the Two-Hearted River Watershed in Michigan's Upper Peninsula, USA. *Journal for Nature Conservation* 22(4):302-317.

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### Teresa Pearson

Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Black bear population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Bobcat population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Fisher population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Otter population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

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### Chris Pollentier

Pollentier, C.D., S.D. Hull, and R.S. Lutz. In Press. Eastern wild turkey demography: sensitivity of vital rates between landscapes. *Journal of Wildlife Management*.

*Customer programs:* WDNR Bureau of Wildlife Management, Wisconsin Conservation Congress, National Wild Turkey Federation, Turkey Hunters.

*Significance/management implications:* This article describes expected population growth of turkeys on the Wisconsin landscape in different habitats.

Pollentier, C.D., R.S. Lutz, and S.D. Hull. 2014. Survival and productivity of eastern wild turkey females in contrasting landscapes in Wisconsin. *Journal of Wildlife Management* 78(6):985–996.

*Customer programs:* WDNR Bureau of Wildlife Management, Wisconsin Conservation Congress, National Wild Turkey Federation, Turkey Hunters.

*Significance/management implications:* This article describes the results of the 2-year field study of wild turkey survival and reproductive success between forested and open-agricultural landscapes in southwest and west-central Wisconsin.

Hull, S., and C. Pollentier. 2013. Spring ring-necked pheasant survey 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.

Hull, S., B. Dhuey, S. Lutz, C. Pollentier, and S. Walter. 2013. Why turkeys thrive in Wisconsin: blending social science and ecology for optimal management. *The Wildlife Professional* 7(3):22-26.

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### Jes Rees

Rees, J., and B. Dhuey. 2014. Deer hunter wildlife survey 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Dhuey, B., and J. Rees. 2013. Fall turkey hunter questionnaire 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

Dhuey, B., and J. Rees. 2013. Firearm deer hunting questionnaire 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

Dhuey, B., and J. Rees. 2013. Ten week brood observations 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

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- Dhuey, B., J. Rees, and J. Olson. 2013. Bobcat hunter/trapper 2012 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rees, J., and B. Dhuey. 2013. Deer hunter wildlife survey 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources, PUB-SS-970 04/2013.
- Rees, J., and B. Dhuey. 2013. Spring turkey hunting questionnaire 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.
- Dhuey, B., J. Rees, and J. Olson. 2012. Bobcat hunter/trapper 2011 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
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### Laura Reuling

Reuling, L.F. 2014. Initial effects of structural complexity restoration treatments and deer browsing on ground-layer community composition and tree regeneration in northern hardwood forests. Thesis. University of Minnesota, St. Paul, MN.

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### Robert Rolley

Storm, D.J., M.D. Samuel, R.E. Rolley, T. Beissel, B.J. Richards, and T.R. Van Deelen. In Press. Estimating ages of white-tailed deer: age and sex patterns of error using tooth wear and-replacement and consistency of cementum annuli. *The Wildlife Society Bulletin*.

Jennelle, C.S., V. Henaux, G. Wasserberg, B. Thiagarajan, R.E. Rolley, and M.D. Samuel. 2014. Transmission of chronic wasting disease in Wisconsin white-tailed deer: Implications for Disease Spread and Management. *PLoS ONE* 9(3): e91043. doi:10.1371/journal.pone.0091043.

*Customer programs:* WDNR Wildlife Management, Illinois DNR.

*Significance/management implications:* We used hunter harvest data from 2002 to 2013 to investigate chronic wasting disease (CWD) infection rate and transmission modes, and address how alternative management approaches affect disease dynamics in a Wisconsin white-tailed deer population. Harvest data strongly supports a frequency-dependent transmission structure with sex-specific infection rates that are two times higher in males than females. We show that harvest focused on the greater-affected sex (males) can result in stable population dynamics and control of CWD within the next 50 years, given the constraints of the model. We also provide a quantitative estimate of geographic disease spread in southern Wisconsin, validating qualitative assessments that CWD spreads relatively slowly.

Rolley, R.E. 2014. White-tailed deer population status 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Robinson, S.J., M.D. Samuel, R.E. Rolley, and P. Shelton. 2013. Using landscape epidemiological models to understand the distribution of chronic wasting disease in the Midwestern USA. *Landscape Ecology* 28(10):1923-1935.

*Customer programs:* WDNR Wildlife Management, Illinois DNR, U.S. Geological Survey National Wildlife Health Center.

*Significance/management implications:* We used spatial diffusion and barriers to gene flow to model the distribution of chronic wasting disease (CWD) in the infected region of southern Wisconsin and northern Illinois. Risk of CWD infection declined exponentially with distance from current outbreaks, and inclusion of gene flow barriers dramatically improved fit and predictive power of the model. Our results indicate that CWD is spreading across the Midwestern landscape from these two endemic foci, but spread is strongly influenced by highways and rivers that also reduce deer gene flow. We used our model to plot a risk map, thereby identifying likely routes of disease spread. This map may aid in prioritizing disease monitoring and containment efforts.

Rolley, R.E. 2013. White-tailed deer population status 2012 in Wisconsin Wildlife Surveys April 2013. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

## Recent Publications

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- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Black bear population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Bobcat population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Fisher population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Rolley, R.E., D.M. MacFarland, and T.R. Pearson. 2013. Otter population analyses 2013 in Wisconsin Wildlife Surveys August 2013. Wisconsin Department of Natural Resources PUB-SS-970 08/2013.
- Storm, D.J., M.D. Samuel, R.E. Rolley, P. Shelton, N.S. Keuler, B.J. Richards, and T.R. Van Deelen. 2013. Deer density and disease prevalence influence transmission of chronic wasting disease in white-tailed deer. *Ecosphere* 4(1):10. <http://dx.doi.org/10.1890/ES12-00141.1>
- Customer programs:* WDNR Wildlife Management, Illinois DNR, U.S. Geological Survey National wildlife Health Center.
- Significance/management implications:* We evaluated how frequency-dependent, density-dependent, and intermediate transmission models predicted CWD incidence rates in yearling deer. Our results indicated a combination of social structure, non-linear relationships between infectious contact and deer density, and distribution of disease among groups are important factors driving CWD infection in young deer. Lack of strong density-dependent transmission rates indicate that controlling CWD by reducing deer density will be difficult.
- Watt, M., A. Norton, T. Van Deelen, K. Martin, J. Duquette, S. Dubay, C. Warbington, and R. Rolley. 2013. Wisconsin deer research studies, annual report 2011–2012. Wisconsin Department of Natural Resources and UW-Madison. [http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer\\_annual\\_report\\_2011-2012.pdf](http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer_annual_report_2011-2012.pdf)
- Rolley, R.E. 2012. Wisconsin deer status report, 2012. 2012 Proceedings Midwest Deer & Wild Turkey Study Group Meeting. South Dakota Department of Game, Fish and Parks.
- Rolley, R.E. 2012. Wisconsin deer status report, 2013. 2013 Proceedings Midwest Deer & Wild Turkey Study Group Meeting. Illinois Department of Natural Resources.
- Rolley, R.E., and D.M. MacFarland. 2012. Black bear population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Bobcat population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Fisher population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., and D.M. MacFarland. 2012. Otter population analyses 2012 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Rolley, R.E., D.M. MacFarland, and J.F. Olson. 2012. Beaver population analyses 2011 in Wisconsin Wildlife Surveys August 2012. Wisconsin Department of Natural Resources PUB-SS-970 08/2012.
- Storm, D., and R. Rolley. 2012. Does deer-vehicle accident data index deer population size? WDNR Wildlifer November/December 2012.
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### David Sample

Ellison, K.S., C.A. Ribic, D.W. Sample, M.J. Fawcett, and J.D. Dadisman. 2013. Impacts of tree rows on grassland birds and potential nest predators: a removal experiment. *PLoS ONE* 8(4): e59151. doi:10.1371/journal.pone.0059151.

*Customer Programs:* WDNR Land and Forestry Divisions; USFWS Private Lands Program and Wetland Management Districts; USDA Natural Resources Conservation Service; conservation NGO's; UW-Extension, private landowners and agricultural producers.

*Significance/management implications:* This work has implications for grassland management of both public and private lands for grassland birds in Wisconsin and other parts of the Midwest. The study results showed that removal of tree rows resulted in greater production of young, primarily due to increased nest density. However, the results also show that the impacts of tree-row removal on grassland birds are tied to the nature and composition of the predator community in specific places.

LeDee, O.E., S. Hagell, K. Martin, D. McFarland, M. Meyer, A. Paulios, C.A. Ribic, D. Sample, and T. Van Deelen. 2013. Climate change impacts on Wisconsin's wildlife: a preliminary assessment. Wisconsin Department of Natural Resources Technical Bulletin No. 197.

Sample, D. 2013. Should we remove tree rows from our grassland landscapes? A grassland bird perspective. *WDNR Wildlifer* September 2013.

Sample, D.W., and C. Williams. 2013. An ecosystem management approach to biomass production in southern Wisconsin. Final report for the Focus on Energy Program.

Williams, C.L., P. Charland, G. Radloff, D. Sample, and R. Jackson. 2013. Grass-shed: place and process for catalyzing perennial grass bioeconomies and their potential multiple benefits. *Journal of Soil and Water Conservation* 68(6):141A – 146A.

*Customer programs:* WDNR Land and Water Divisions; WDATCP; Wisconsin farmers, producers and landowners; Wisconsin extension educators; Wisconsin land managers; Wisconsin energy producers and users; Wisconsin legislators; U.S. Departments of Agriculture and Interior; Wisconsin Bioenergy Council, and conservation organizations (NGO's).

*Significance/management implications:* This article is an introduction to the concept of a Grass-Shed: a collaboratively designed and implemented grass-based landscape targeted to a specific geographic area. A Grass-Shed is anchored to commercial-scale biomass conversion facilities, but includes other sorts of perennial grass production and protection. As such, Grass-sheds can increase landscape multifunctionality and support conservation goals of lands within them.

Ribic, C.A., M.J. Guzy, T.A. Anderson, D.W. Sample, and J.L. Knack. 2012. Bird productivity and nest predation in agricultural grasslands. *Pages* 119-134 in C.A. Ribic, F.R. Thompson, and P.J. Pietz, editors. *Video surveillance of nesting birds*. University of California Press, Berkeley.

*Customer Programs:* WDNR Land and Forestry Divisions; USFWS Private Lands Program and Wetland Management Districts; USDA Natural Resources Conservation Service; conservation NGO's (e.g., The Nature Conservancy, The Prairie Enthusiasts, other land trusts); private landowners and agricultural producers.

*Significance/management implications:* This work has implications for the conservation of grassland birds on both public and private lands in Wisconsin and other parts of the Midwest. The study shows that the ability to identify predators at grassland bird nests is critical to understanding patterns of bird nest productivity.

Ventura, S., S. Hull, R. Jackson, G. Radloff, D. Sample, S. Walling, and C. Williams. 2012. Guidelines for sustainable planting and harvest of nonforest biomass in Wisconsin. *Journal of Soil and Water Conservation* 67:17A-20A.

*Customer Programs:* WDNR Land and Water Divisions; WDATCP, Wisconsin farmers, producers and landowners; Wisconsin extension educators; Wisconsin land managers; Wisconsin energy

## Recent Publications

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producers and users; Wisconsin legislators; U.S. Departments of Agriculture and Interior; Wisconsin Bioenergy Council, and conservation organizations (NGO's).

*Significance/management implications:* This publication provides guidance for sustainable approaches to planting and harvesting nonforest biomass energy crops in Wisconsin.

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### Jennifer Stenglein

Delamaide Gasper, J., H. Rylander, J. Stenglein, and K. Waller. 2014. Osseous-associated cervical spondylomyelopathy in dogs: 27 cases (2000-2012). *Journal of the American Veterinary Medical Association* 244:1309-1318.

Dolrenry, S., J. Stenglein, L. Hazzah, L. Lutz, and L. Frank. 2014. A metapopulation approach to African lion (*Panthera leo*) conservation. *PLoS ONE* 9:e88081.

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### Daniel Storm

Storm, D.J., M.D. Samuel, R.E. Rolley, T. Beissel, B.J. Richards, and T.R. Van Deelen. In Press. Estimating ages of white-tailed deer: age and sex patterns of error using tooth wear-and-replacement and consistency of cementum annuli. *The Wildlife Society Bulletin*.

Storm, D. 2014. Deer aging and condition report 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2013.

Storm, D.J. 2014. Summer deer observations 2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Storm, D.J. 2014. Winter severity indices 2012-2013 in Wisconsin Wildlife Surveys April 2014. Wisconsin Department of Natural Resources PUB-SS-970 04/2014.

Storm, D., K. Martin, K. McCaffery, E. Verbeten, K.A. Kahler, and R. Manwell. 2013. Wisconsin's dedication to deer research; Investing in our white-tailed herd. Wisconsin Department of Natural Resources PBL SS-1122-2013.

Storm, D.J., M.D. Samuel, R.E. Rolley, P. Shelton, N.S. Keuler, B.J. Richards, and T.R. Van Deelen. 2013. Deer density and disease prevalence influence transmission of chronic wasting disease in white-tailed deer. *Ecosphere* 4(1):10. <http://dx.doi.org/10.1890/ES12-00141.1>

Storm, D., and R. Rolley. 2012. Does deer-vehicle accident data index deer population size? *WDNR Wildlifer* November/December 2012.

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### Ryan Walrath

Robinson, S., R. Walrath, T.R. Van Deelen, and K. VerCauteren. In Press. Genetic measures confirm familial relationships and strengthen study design. *The Wildlife Society Bulletin*.

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### Jay Watson

Henderson, R., and J. Watson. 2013. Distribution and status of *Silphium* gall-wasps and associated insects in Wisconsin. Final report for WI State Wildlife Grant #2006.

Henderson, R., and J. Watson. 2013. Prairie restricted insects and fire. Final report for WI State Wildlife Grant #1051.

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### Mike Watt

Watt, M., A. Norton, T. Van Deelen, K. Martin, J. Duquette, S. Dubay, C. Warbington, and R. Rolley. 2013. Wisconsin deer research studies, annual report 2011–2012. Wisconsin Department of Natural Resources and UW-Madison. [http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer\\_annual\\_report\\_2011-2012.pdf](http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer_annual_report_2011-2012.pdf)

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### Mike Worland

Woodford, J.E., D.M. MacFarland, and M. Worland. 2013. Movement, survival, and home range size of translocated American martens in Wisconsin. *Wildlife Society Bulletin* 37(3):616-622.

*Customer programs:* WDNR NHC and WM Divisions, GLIFWC, WI Universities, U.S. Forest Service, USDA APHIS, U.S. Fish and Wildlife, National Park Service, private wildlife managers

*Significance/management implications:* Overviewed a re-introduction project where 90 American martens were translocated from Minnesota to Wisconsin. Found no advantages for slow-release (held in pen for 6 d) over quick release methods. Recommended that stress to translocated animals should be an important consideration in introduction projects.

Anich, N.M., M. Worland, and K.J. Martin. 2013. Habitat use by spruce grouse in northern Wisconsin. *Wildlife Society Bulletin* 37:766–777.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

*Significance/management implications:* This article reports on results from radiotracking 55 spruce grouse in Wisconsin. Black spruce and tamarack were the most common components of habitat. Unlike previous reports from this region, we found no use of hemlock or white cedar, and we found considerable use of red pine for winter feeding, though red pine is unlikely to provide quality male display or nest habitat. Management should be focused on areas with extensive conifer, especially near black spruce–tamarack swamps. Retaining or establishing closed-canopy coniferous uplands, especially jack pine stands 15–30 years old, adjacent to lowland conifer swamps should benefit spruce grouse populations.

Anich, N.M., M. Worland, and K.J. Martin. 2013. Nest-site selection, nest survival, productivity, and survival of spruce grouse in Wisconsin. *Wilson Journal of Ornithology* 125:570-582.

*Customer programs:* WDNR NHC, WM, and Forestry Divisions; U.S. Forest Service, Wisconsin land managers

*Significance/management implications:* This article reports on results of several years of radiotelemetry on spruce grouse and an analysis of habitat at the first spruce grouse nests ever reported in the state. Black spruce swamp was the most common habitat for nesting spruce grouse, and moderately dense and uniform vegetation cover was associated with successful nests. Nest survival appears decent; however chick survival is somewhat low, and models suggest a declining population.



*Conducting a bird survey at Shea Prairie, a Prairie Enthusiast property in Iowa County.*

## 2012-2014 Wildlife and Forestry Research Presentations

In addition to publishing research results, the professionals employed by the Wildlife and Forestry Research Section routinely present the results of their work in the form of presentations. Presentations range from hour-long academic seminars to short scientific talks and are given to a variety of audiences. A subset of staff presentations conducted from July 2012 into June 2014 is listed below.

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### Christine Anhalt

- Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, and A. Rissman. Addressing disturbance and environmental change: perspectives from managers in the Upper Midwest. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.
- Knoot, T., K. Martin, C. Anhalt, A. Sharp, O. LeDee, B. Zuckerberg, and A. Rissman. Barriers and opportunities to managing for environmental change and disturbance in the Upper Midwest. 74<sup>th</sup> Midwest Fish and Wildlife Conference, 26-29 January 2014, Kansas City, MO.
- Stenglein, J., Anhalt, C., and K. Martin. Statewide camera trap project overview. DNR Wildlife Management Statewide Meeting, 16 January 2014, Oshkosh, WI.
- Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, B. Zuckerberg, and A. Rissman. Managing for environmental change and disturbance in the Upper Midwest. Wisconsin DNR Wildlife Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Anhalt C., T. Van Deelen, R. Schultz, and A. Wydeven. Effectiveness of a simulated pack to manipulate wolf movements. Carnivore Tracking and Wolf Ecology Workshop, 12 January 2014, Grantsburg, WI.
- Knoot, T., C. Anhalt, A. Sharp, K. Martin, O. LeDee, and B. Zuckerberg. Barriers and opportunities to managing for disturbance and environmental change in the Upper Midwest. Webinar to Science Team for Climate Change and Forests, 5 December 2013, Madison, WI.
- Anhalt, C., K. Martin, T. Rittenhouse, T. Knoot, D. McFarland, and T. Van Deelen. Assessment of woody biomass harvests in northern Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Anhalt C., T. Van Deelen, R. Schultz, and A. Wydeven. Using remote technologies in gray wolf research. 'Uncanny Sensing' Artist Talk, 24 August 2013, University of Wisconsin Milwaukee Institute of Visual Arts, Milwaukee, WI.
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### Nicholas Anich

- Anich, N.M. Kirtland's warbler audio playback site tour. Field trip with WDNR regional ecologists, 20 May 2014, Barnes, WI.
- Anich, N.M. Birding Birch Grove. Field Trip for Chequamegon Bird and Nature Festival, 17 May 2014, Ashland, WI.
- Anich, N.M. Shorebirds made simpler. Field Trip for Chequamegon Bird and Nature Festival, 17 May 2014, Ashland, WI.
- Anich, N.M. Bay area birding. Field Trip for Chequamegon Bird and Nature Festival, 15 May 2014, Ashland, WI.
- Ward, M., N.M. Anich, K. VanBeek, and K. Grveles. Using audio playback to establish additional Kirtland's Warbler populations in Wisconsin. Kirtland's Warbler Recovery Team Winter Meeting, 19 March 2014, Roscommon, MI.
- Anich, N.M., and T.G. Prestby. 2014. Introduction to eBird: How can 1 million Wisconsin bird observations per year help managers and scientists? Wisconsin Chapter of The Wildlife Society Winter Meeting, 12 March 2014, Rothschild, WI.

## Recent Presentations

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- Anich, N.M., M. Worland, K.J. Martin, and B. Zuckerberg. Boreal birds in northern Wisconsin: populations along the trailing edge. The Wildlife Society's 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. American Ornithologists' Union 131<sup>st</sup> stated meeting and Cooper Ornithological Society's 83<sup>rd</sup> annual meeting, 15 August 2013, Chicago, IL. Poster session.
- Anich, N.M. All things eBird! Wisconsin Society for Ornithology's 74th Annual Convention, 25 May 2013, Ashland, WI.
- Anich, N.M. Clam Lake boreal birds. Field trip for 74<sup>th</sup> Annual Wisconsin Society for Ornithology Convention, 24 May 2013, Ashland, WI.
- Anich, N.M. Birding the Bay. Field trip for 74<sup>th</sup> Annual Wisconsin Society for Ornithology Convention, 23 May 2013, Ashland, WI.
- Anich, N.M. Birding Birch Grove. Field trip for Chequamegon Bird and Nature Festival, 18 May 2013, Ashland, WI.
- Anich, N.M. Shorebirds made simpler. Field trip for Chequamegon Bird and Nature Festival, 18 May 2013, Ashland, WI.
- Anich, N.M. Boreal forest birding. Field trip for Chequamegon Bird and Nature Festival, 17 May 2013, Ashland, WI.
- Anich, N.M., M.L. Worland, and K.J. Martin. Nest-site selection and habitat use of spruce grouse in Wisconsin. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2013, Wisconsin Dells, WI.
- Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Anich, N.M., M.L. Worland, and K.J. Martin. Spruce grouse in Wisconsin. Chequamegon Audubon Society, 21 February 2013, Ashland, WI.
- Anich, N. M. Surveying for resident boreal birds in Wisconsin: an applied example to generate discussion about avian monitoring programs. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI.
- Anich, N. M., M.L. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI. Poster session.
- Anich, N.M. Chequamegon Bay birding. Field trip for Northland College Bioblitz, 22 September 2012, Ashland, WI.

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### Dustin Bronson

- Bronson, D. Deer density study background and rationale. Wisconsin Wildlife Federation, 13 June 2014, Wisconsin Rapids, WI.
- Bronson, D. Forest vegetation metrics; a potential tool for deer management. DNR Wildlife Management New Biologists Training, 18 February 2014, Oshkosh, WI.
- Bronson, D. Assessment of fine woody debris in post-harvest biomass stands: Creating new tools to assist professional loggers. Science Services Open House, 14 February 2014, Madison, WI.
- Bronson, D. Developing forest metrics from known deer density in northern Wisconsin. Science Services Open House, 14 February 2014, Madison, WI.
- Bronson, D. Estimating post-harvest fine woody debris for biomass harvests. Science Services Open House, 14 February 2014, Madison, WI.

## Recent Presentations

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- Bronson, D. Developing deer metrics using known deer density. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. LANDFIRE revisions in the Great Lakes region. MNICS/IMT Annual Meeting, 4 December 2013, Duluth, MN.
- Worland, M., K.J. Martin, K.S. Fassnacht, D.R. Bronson, T. Prestby, and M.J. Mossman. Increasing the conservation importance of northern hardwood bird communities: key old-growth characteristics and threshold values. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.
- Bronson, D. Research updates. Forest Leadership Team meeting, 1 October 2013, Madison, WI.
- Bronson, D. Creating tools to help professional loggers and foresters assess post-biomass harvest fine woody debris. Sustainable Forestry Initiative grant review panel, October 2013, Tomahawk, WI.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. Linking LANDFIRE to Great Lakes Landscapes. Great Lakes Forest Fire Compact Annual Meeting, 17-19 September 2013, Wisconsin Dells, WI.
- Bronson, D., K. S. Fassnacht, M. Worland, B. Williams, and C. Matula. 2013. Managing second-growth northern hardwoods for increased compositional and structural complexity. 2013 Society of American Foresters State Conference, 17 September 2013. Field tour.
- Bronson, D. Deer density effects on forest regeneration. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Bronson, D. Ecological review of recent literature. Biomass Harvest Guideline review advisory meeting, 6 June 2013, Tomahawk, WI.
- Bronson, D., K. Martin, E. Kruger, and A. Royo. Evaluating the interdependency between white-tailed deer and northern hardwood habitat; increasing our understanding of forest management and white-tailed deer health. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Fassnacht, K.S., T.W. Steele, E.A. Padley, C.G. Lorimer, K.J. Martin, B.J. Palik, A.W. D'Amato, T. Knoot, and D. Bronson. Assessing the use of silvicultural techniques to enhance forest complexity. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Knoot, T., T. Steele, K. Martin, K. Fassnacht, D. Bronson, B. Palik, T. D'Amato, E. Padley, and C. Lorimer. Managing northern hardwood forests for old-growth characteristics and forest products: An economic assessment of novel forestry practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, and T. D'Amato. Linking LANDFIRE data to Great Lakes Landscapes. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

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### John Dadisman

- Dadisman, J.D. The evolution of video camera technology and its application to avian ecology research. Wisconsin Chapter of the Wildlife Society Winter Meeting, 12 March 2014, Rothschild, WI.
- Dadisman, J.D. Grassland bird conservation. The Prairie Enthusiasts, Inc. Annual Prairie Conference and Banquet, 1 March 2014, Pewaukee, WI.
- Dadisman, J., D. Sample, C. Ribic, M. Guttery, and A. Paulios. Evaluation of the Grassland Bird Conservation Model in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Dadisman, J. Evaluating Grassland Bird Conservation Area model. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Schmitz, C., J. Dadisman, C.A. Ribic, D.W. Sample, and D. Schneider. Factors affecting grassland bird density in warm season grass fields in Southwest Wisconsin. 73rd Midwest Fish and Wildlife Conference, 12 December 2012, Wichita, KS.
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## Recent Presentations

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### Brian Dhuey

- Dhuey, B. A preliminary summary of the Wolf Hunter/Trapper Survey. Wolf advisory committee meeting, 19 May 2014, Wausau, WI.
- Dhuey, B. Furbearer surveys. Wildlife Management Fur School, 2 April 2014, Madison, WI.
- Dhuey, B. Gray wolf hunter/trapper attitudes, efforts, and methods in Wisconsin. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.
- Dhuey, B. Wisconsin wildlife surveys and databases and citizen science. Science Services Open House, 14 February 2014, Madison, WI.
- Dhuey, B.J. Gray Wolf (*canis lupis*) hunter/trapper attitudes, efforts, and methods in Wisconsin from research performed after Wisconsin's first modern day wolf hunt. 74th Midwest Fish & Wildlife Conference, 28 January 2014, Kansas City, MO.
- Dhuey, B. Wisconsin wildlife surveys and database & citizen science. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Dhuey, B. Furbearer surveys. Wildlife Management Fur School, 20 March 2013, Madison, WI.
- Rees, J., and B. Dhuey. Wisconsin's elusive cat: Using citizen science to collect evidence on Wisconsin's southern bobcats. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Dhuey, B.J. Furbearer surveys and their importance in the furbearer management program. Conservation Congress members and members of the public, Mead Nature Center, 16 February 2013, Miladore, WI.
- Dhuey, B.J. Furbearer surveys and population monitoring. Furbearer Track Training Workshop, 10 December 2012, Tomahawk, WI.
- Dhuey, B.J. Furbearer surveys and population monitoring. Law Enforcement Recruit Training Class, 28 November 2012, Madison, WI.

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### James Doyle

- Doyle, J., T. Van Deelen, D. Sample, and D. MacFarland. Life history of American badgers in southwest Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

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### Karin Fassnacht

- Knoot, T.G., T. Steele, K. Fassnacht, and K. Martin. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. National Council for Air and Stream Improvement, Inc. Northern Regional Meeting, 6-8 May 2014, Wausau, WI.
- Knoot, T., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity. Science Services Open House, 14 February 2014, Madison, WI.
- Knoot, T.G., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. Society of American Foresters (SAF) National Convention, 23-27 October 2013, North Charleston, SC.
- Worland, M., K.J. Martin, K.S. Fassnacht, D.R. Bronson, T. Prestby, and M.J. Mossman. Increasing the conservation importance of northern hardwood bird communities: key old-growth characteristics and threshold values. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.
- Bronson, D., K. S. Fassnacht, M. Worland, B. Williams, and C. Matula. 2013. Managing second-growth northern hardwoods for increased compositional and structural complexity. 2013 Society of American Foresters State Conference, 17 September 2013. Field tour.
- Fassnacht, K. Managed old growth silvicultural study – silvics. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

## Recent Presentations

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- Padley, E.A., D.M. Donner, K.S. Fassnacht, R.S. Zalesny, B. Birr, and K. J. Martin. 2013. Carbon pools in adaptively-managed northern hardwood forests. 2013 North American Forest Soils Conference, 16-20 June 2013, Whitefish, MT. Poster session.
- Fassnacht, K.S., T.W. Steele, E.A. Padley, C.G. Lorimer, K.J. Martin, B.J. Palik, A.W. D'Amato, T. Knoot, and D. Bronson. Assessing the use of silvicultural techniques to enhance forest complexity. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Knoot, T., T. Steele, K. Martin, K. Fassnacht, D. Bronson, B. Palik, T. D'Amato, E. Padley, and C. Lorimer. Managing northern hardwood forests for old-growth characteristics and forest products: An economic assessment of novel forestry practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Padley, E.A., D.M. Donner, K.S. Fassnacht, R.S. Zalesny, B. Birr, and K.J. Martin. Carbon sequestration in northern hardwood forests under traditional and adaptive management practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Worland, M., K. Martin, K. Fassnacht, M. Mossman, and T. Prestby. The Managed Old-growth Silvicultural Study: Impacts on bird communities. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
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### **Brick Fevold**

- Fevold, B. Ashland Chequamegon Bay Shoreland Restoration Project (CBSRP). Field Presentation, NCWMA Workshop, Invasive Plant ID and Herbicide Use Training, 3 June 2014, Northern Great Lakes Visitor Center, Ashland, WI.
- Fevold, B. Ashland Chequamegon Bay Shoreland Restoration Project (CBSRP). Field Tour of Stopover Habitats Grosbeaks Galore Workshop, 31 May 2014, Northern Great Lakes Visitor Center, Ashland, WI.
- Fevold, B. Ashland Chequamegon Bay Shoreland Restoration Project (CBSRP). Field Tour of Stopover Habitats: Wisconsin Stopover Initiative, 12 May 2014, Ashland, WI.
- Fevold, B. Exploring aspects of integral ecology within the context of invasive species management. Wisconsin Lakes Partnership Convention, 24-26 April 2014, Stevens Point, WI.
- Fevold, B. Restoring nature: Practical considerations in restoration design and implementation to enhance migratory bird habitat. Landscaping for Migratory Birds: A Workshop for Land Managers, Wisconsin Stopover Initiative, 12 February 2014, Northland College, Ashland, WI.
- Fevold, B. Application of quality control principles for ecological restoration. Pre-conference Training Workshop. Society for Ecological Restoration World Conference on Ecological Restoration, 6-11 October 2013, Madison, WI.
- Fevold, B., and M. Meyer. Measuring effects of planting density on surface-water runoff quality, soil organic matter and carbon sequestration. Society for Ecological Restoration World Conference on Ecological Restoration, 6-11 October 2013, Madison, WI.
- Fevold, B., M. Meyer, and D. Haskell. Evaluating the ecological benefits of green infrastructure on watershed protection. Wisconsin Lakes Partnership Convention, 9-11 April 2013, Green Bay, WI
- Meyer, M.W., P.W. Rasmussen, C.J. Watras, B.M. Fevold, and K.P. Kenow. Bi-phasic trends in mercury concentrations in blood of Wisconsin common loons during 1992-2010. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M., D. Haskell, C. Scholl, B. Hanson, B. Fevold, A. Schotthoefer, and P. Goggin. The Wisconsin Lakeshore Restoration Project. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M.W., B. Fevold, and D. Haskell. The Wisconsin Shore Land Restoration Project - preliminary findings 2007-2012. St. Louis River Summit, University of Wisconsin Superior, 27 February 2013, Superior, WI.

## Recent Presentations

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Fevold, B. and M. Meyer. Ashland Chequamegon Bay Shoreland Restoration Project: Evaluating the ecological benefits of a constructed wetland . Wisconsin Wetlands Association 2013 Conference: Great Wetlands, Healthy Watersheds, 12 February 2013, Sheboygan, WI.

Fevold, B., and M. Meyer. The Ashland Chequamegon Bay Shoreland Restoration Project: 2011-2022. Science on Tap, September 2012, Ashland WI.

Fevold, B. Using an Integrated Vegetation Management (IVM) approach: Coordinated invasive plant control. Lake Superior Decision Maker's Workshop, August 2012, Ashland, WI.

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### Todd Flournoy

Flournoy, T. Applications of zoning in land use conflict. Guest lecture to UW-Madison Environmental Studies 843: Land Use Policy & Planning, 26 June 2014, Madison, WI.

Marcouiller, D., and T. Flournoy. Forest-based tourism. Presentation to the 9<sup>th</sup> Annual Sustainable Forestry Conference, 11 April 2013, Florence, WI.

Flournoy, T. A practitioner's perspective on the development review process. Guest lecture to UW-Madison Urban & Regional Planning 601: Site Planning, 2 April 2013, Madison, WI.

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### Ron Gatti

Gatti, R. Glacial Habitat Restoration Area (GHRA) evaluation update. Science Services Open House, 14 February 2014, Madison, WI.

Gatti, R.C. Blue-winged teal research study. Minnesota Waterfowl Symposium, 1 February 2014, Minneapolis, MN.

Gatti, R. Glacial Habitat Restoration Area land cover changes. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Gatti, R. Evaluation of the Glacial Habitat Restoration Area. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Gatti, R. Factors limiting blue-winged teal survival and production in Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Gatti, R. A tale of two species –blue-winged teal and mallard recruitment in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Gatti, R.C. Evaluation of factors limiting blue-winged teal survival and production in Wisconsin. Ducks Unlimited Statewide Convention, 26 January 2013, Green Bay, WI.

Gatti, R. Evaluation of factors limiting BWT in Wisconsin: working through the challenges with the health team. DNR Wildlife Management central office staff quarterly meeting, 31 October 2012, Devil's Lake, WI.

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### Rich Henderson

Henderson, R.A. Effects of fire in Wisconsin's original plant communities. Guest lecture at UW-Madison Summer Session course Botany 100 – Survey of Botany, 12 June 2014, Madison, WI.

Henderson, R.A. Panel discussion on restoration of native ecosystems & landscaping with native plants. WI Chapter of American Society of Landscape Architects, 21 March 2014, Madison, WI.

Henderson, R.A. Spring verses fall burns. DNR Fire In-Service Day-Northeast Region, 26 February 2014, Shiocton, WI.

Henderson, R.A., P. Trochlell, and K. Wade. Wetland restoration in peat/muck soil: DOT Barneveld wetland mitigation. 19<sup>th</sup> Wisconsin Wetlands Conference, 19-20 February 2014, La Crosse, WI.

Henderson, R. Prairie insect status and response to fire. Science Services Open House, 14 February 2014, Madison, WI.

## Recent Presentations

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- Henderson, R.A. Spring verses fall burns. DNR Fire In-Service Day-Southeast Region, 11 February 2014, West Bend, WI.
- Henderson, R.A. Purple loosestrife, prairie, and oak research. DNR Wildlife Management New Biologists Training, 29 January 2014, Madison, WI.
- Henderson, R.A. Spring verses fall burns. DNR Fire In-Service Day-South Central Region, 28 January 2014, Spring Green, WI.
- Henderson, R.A. Shrub/brush identification and use by wildlife. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Henderson, R.A., and J. Watson. Prairie insect status and response to fire. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Henderson, R.A. and K. Kretinger. Oak woodland management effect on breeding birds. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Henderson, R.A. Wetland restoration in organic peat/muck soil: DOT Barneveld Mitigation Site. WDNR Science Seminar series, 8 November 2013, Madison, WI
- Henderson, R.A. The history, ecology, & conservation of prairie and oak savanna in the Driftless Area of WI. East Side Garden Club, 22 October 2013, Madison, WI.
- Henderson, R.A. Prairie, grassland, wetland, & coldwater stream restoration in the Military Ridge Prairie Heritage Area. Field trip for the Society of Ecological Restoration's World Conference, 11 October 2013.
- Henderson, R.A. Monitoring rare plant populations. WI Science Festival Workshop, 28 September 2013, Barneveld, WI.
- Henderson, R.A. Monitoring responses of rare prairie-restricted insects to fire. WI Science Festival Workshop, 28 September 2013, Barneveld, WI.
- Henderson, R.A. WI Science Festival Workshop on using research and data collection to inform management of prairie/grasslands ecosystems in Southwest Wisconsin. Guest on the Larry Meiller radio program (WPR), 26 September 2013, Madison, WI.
- Henderson, R.A. Prairie and savanna plants of Wisconsin. Keynote address - UW-Madison Arboretum's annual Native Landscaping Conference, 15 September 2013, Madison, WI.
- Henderson, R. Oak woodland management – birds. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Henderson, R. Prairie insects. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Henderson, R.A. The history of prairie in Wisconsin and how invasive plants invade prairie. Invasive Plant Association of Wisconsin annual conference, 6 August 2013, Arlington, WI.
- Henderson, R., and J. Watson. Distribution and status of *Silphium* gall-wasps in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Henderson, R.A. History & ecology of prairie in Wisconsin and the upper Midwest. Dodge County Master Gardener Association, 28 February 2013, Juneau, WI.
- Henderson, R.A. Controlling invasive cool-season grasses with fire. DNR Northeast District's Fire In-Service Day, 26 February 2013, Navarino Nature Center, Shiocton, WI.
- Henderson, R.A. Rosinweed gall wasp response to fire. Regional Fire Conference – Tallgrass Prairie and Oak Savanna, 31 January 2013, Dubuque, IA.
- Henderson, R.A. Controlling invasive cool-season grasses with fire. Regional Fire Conference–Tallgrass Prairie and Oak Savanna, 30 January 2013, Dubuque, IA.

## Recent Presentations

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Henderson, R.A. Panel Discussion: Fire's role in today's woodlands - how can we better utilize prescribed fire as a forest management/silvicultural tool as well as a land management/restoration tool? Regional Fire Conference—Tallgrass Prairie and Oak Savanna, 30 January 2013, Dubuque, IA.

Henderson, R. Results of research and experience on the effects of fire on cool-season grasses and on insects in prairie remnants and restorations. Upper Midwest Invasive Species Conference, 30 October 2012, Arlington, WI.

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### Jo Horton

Horton, J. Land cover mapping of the Glacial Habitat Restoration Area using satellite image classification. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

Horton, J. Land cover mapping of the Glacial Habitat Restoration Area (GHRA). 2014 Wisconsin Land Information Association Annual Conference, 14 February 2014, Middleton, WI.

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### Scott Hull

Hull, S.D. Impacts of agricultural policy on wildlife conservation. UW-Madison undergraduate wildlife ecology course, April 2014, Madison, WI.

Hull, S. Saving Wisconsin's greater prairie-chickens from the extinction vortex. Science Services Open House, 14 February 2014, Madison, WI.

Hull, S., D. Drake, P. Dunn, L. Kardash, C. Pollentier, and D. Sample. Reproduction and survival of translocated Minnesota and local Wisconsin greater prairie-chicken hens in central Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Hull, S. Counting ditch parrots & assessing the long-term viability of Wisconsin' prairie grouse. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Hull, S.D. History of biomass and bioenergy in Wisconsin and the conservation implications for wildlife populations. Wildlife Management Class, April 2013, Madison, WI.

Hull, S., D. Drake, L. Kardash, C. Pollentier, D. Sample, and B. Sadler. Nesting success and survival of translocated Minnesota and local Wisconsin greater prairie-chicken hens in central Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Hull, S. Prairie grouse conservation genetics. Fall 2013 Science Communication Series, 8 February 2013, Madison, WI.

Hull, S., and K. Martin. State agency perspective on the use of surrogate species for strategic conservation planning and implementation. USFWS Regional Leadership Meeting, October 2012, St. Paul, MN.

Hull S., C. Williams, and S. Walling. Wisconsin's nonforest biomass guidelines. USDA-NRCS Webinar, September 2012, Madison, WI

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### Tricia Knoot

Knoot, T.G., T. Steele, K. Fassnacht, and K. Martin. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. National Council for Air and Stream Improvement, Inc. Northern Regional Meeting, 6-8 May 2014, Wausau, WI.

Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, and A. Rissman. Addressing disturbance and environmental change: perspectives from managers in the Upper Midwest. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

Knoot, T., J. Nuñez, M. Rickenbach, A. Koshollek, J. Greenberg, C. Nielsen, J. Simoni, H. Schnitzler, and S. Swenson. Can we improve our ability to encourage active land stewardship on private lands in Wisconsin? Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

## Recent Presentations

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- Hand, A., T. Knoot, J. Tyndall, L. Schulte, and L. Westphal. Loss of oak in the Driftless Area: An examination of oak management and policy tools for private woodlands. Tri-state Forestry Conference (woodland owner conference), 8 March 2014, Sinsinawa, WI.
- Knoot, T., J. Nuñez, M. Rickenbach, A. Koshollek, J. Greenberg, C. Nielsen, J. Simoni, H. Schnitzler, and S. Swenson. Driftless Forest Network: Designing and evaluating innovative methods to encourage active land stewardship. Science Services Open House, 14 February 2014, Madison, WI.
- Knoot, T., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity. Science Services Open House, 14 February 2014, Madison, WI.
- Knoot, T., K. Martin, C. Anhalt, A. Sharp, O. LeDee, B. Zuckerberg, and A. Rissman. Barriers and opportunities to managing for environmental change and disturbance in the Upper Midwest. 74<sup>th</sup> Midwest Fish and Wildlife Conference, 26-29 January 2014, Kansas City, MO.
- Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, B. Zuckerberg, and A. Rissman. Managing for environmental change and disturbance in the Upper Midwest. Wisconsin DNR Wildlife Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Knoot, T., S. Swenson, Y. Steele, C. Nielsen, M. Finlay, A. Koshollek, and T. Flournoy. Engaging landowners in landscape-scale oak management for turkey habitat: A social marketing approach. Wisconsin DNR Wildlife Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Knoot, T., C. Anhalt, A. Sharp, K. Martin, O. LeDee, and B. Zuckerberg. Barriers and opportunities to managing for disturbance and environmental change in the Upper Midwest. Webinar to Science Team for Climate Change and Forests, 5 December 2013, Madison, WI.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. LANDFIRE revisions in the Great Lakes region. MNICS/IMT Annual Meeting, 4 December 2013, Duluth, MN.
- Knoot, T.G., J. Greenberg, B. Huffaker, A. Koshollek, C. Nielsen, J. Nuñez, M. Rickenbach, H. Schnitzler, J. Simoni, and S. Swenson. Driftless Forest Network: Building, sustaining, & evaluating landowner engagement strategies. Society of American Foresters (SAF) National Convention, 23-27 October 2013, North Charleston, SC. Poster session.
- Knoot, T.G., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. Society of American Foresters (SAF) National Convention, 23-27 October 2013, North Charleston, SC.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. Linking LANDFIRE to Great Lakes landscapes. Great Lakes Forest Fire Compact Annual Meeting, 17-19 September 2013, Wisconsin Dells, WI.
- Knoot, T. Forest Economics: Evaluating forest management alternatives and assessing trade-offs. Wisconsin Society of American Foresters, 18 September 2013, Minocqua, WI.
- Knoot, T. Review of Wisconsin's woody biomass harvesting guidelines. Council on Forestry's Advisory Committee, 4 September 2013, Tomahawk, WI.
- Anhalt, C., K. Martin, T. Rittenhouse, T. Knoot, D. McFarland, and T. Van Deelen. Assessment of woody biomass harvests in northern Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Knoot, T. The Driftless Forest Network. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Knoot, T. Review of Wisconsin's Woody Biomass Harvesting Guidelines. Council on Forestry's Advisory Committee, 6 June 2013, Tomahawk, WI.
- Knoot, T. Review of Wisconsin's woody biomass harvesting guidelines. Public Forest Resources Group, 29 May 2013, Stevens Point, WI.
- Knoot, T. Understanding the Midwest farmer: Negotiating production and conservation. Wisconsin Chapter of the Wildlife Society, 13-14 March 2013, Wisconsin Dells, WI.

## Recent Presentations

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Fassnacht, K.S., T.W. Steele, E.A. Padley, C.G. Lorimer, K.J. Martin, B.J. Palik, A.W. D'Amato, T. Knoot, and D. Bronson. Assessing the use of silvicultural techniques to enhance forest complexity. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Knoot, T., T. Steele, K. Martin, K. Fassnacht, D. Bronson, B. Palik, T. D'Amato, E. Padley, and C. Lorimer. Managing northern hardwood forests for old-growth characteristics and forest products: An economic assessment of novel forestry practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, and T. D'Amato. Linking LANDFIRE data to Great Lakes landscapes. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Núñez, J., M. Rickenbach, A. Koshollek, T. Knoot, J. Greenberg, J. Simoni, H. Schnitzler, S. Swenson, and C. Nielsen. Evaluating the effectiveness of a targeted marketing approach to unengaged woodland owners in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Knoot, T. Social and cultural aspects of landscape ecology. Guest lecture to UW-Madison Principles of Landscape Ecology 565, 23 February 2013, Madison, WI.

Knoot, T. Sharpening our tools: Managing oak systems using fire. Science Services Brown Bag Series, 17 December 2012, Madison, WI.

Knoot, T. Managing northern hardwood forest for old-growth characteristics and forest products: An economic assessment of novel forestry practices. Heartland Environmental and Resource Economics Workshop, 10 November 2012, Champaign, IL. Poster session.

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### David MacFarland

Kirbyl, R., D.M. MacFarland, and J.N. Pauli. Characterizing diet and the importance of human-derived food to black bears in Northern Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

MacFarland, D.M., and T. Pearson. Black bear capture-recapture population estimate. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Manlick, P.J., J. Woodford, D. MacFarland, J. Gilbert, D. Eklund, and J. Pauli. Assessing Wisconsin's American marten reintroductions through noninvasive and genetic techniques. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

MacFarland, D. Furbearer population monitoring. Conservation Congress representatives, 16 February 2013, Mead Wildlife Area, WI.

MacFarland, D. Bear population research and quota setting process; and wolf management. Wisconsin Bear Hunters Executive Committee meeting, 5 January 2013.

MacFarland, D. Future wolf population monitoring research plans. Conservation Congress wolf committee, 15 December 2012.

MacFarland, D. Preliminary results of black bear tetracycline research. Bear management committee, 5 December 2012.

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### Karl Martin

Knoot, T.G., T. Steele, K. Fassnacht, and K. Martin. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. National Council for Air and Stream Improvement, Inc. Northern Regional Meeting, 6-8 May 2014, Wausau, WI.

Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, and A. Rissman. Addressing disturbance and environmental change: perspectives from managers in the Upper Midwest. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

Knoot, T., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity. Science Services Open House, 14 February 2014, Madison, WI.

## Recent Presentations

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- Knoot, T., K. Martin, C. Anhalt, A. Sharp, O. LeDee, B. Zuckerberg, and A. Rissman. Barriers and opportunities to managing for environmental change and disturbance in the Upper Midwest. 74<sup>th</sup> Midwest Fish and Wildlife Conference, 26-29 January 2014, Kansas City, MO.
- Stenglein, J., C. Anhalt, and K. Martin. Statewide camera trap project overview. DNR Wildlife Management Statewide Meeting, 16 January 2014, Oshkosh, WI.
- Anhalt, C., T. Knoot, A. Sharp, K. Martin, O. LeDee, B. Zuckerberg, and A. Rissman. Managing for environmental change and disturbance in the Upper Midwest. Wisconsin DNR Wildlife Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Knoot, T., C. Anhalt, A. Sharp, K. Martin, O. LeDee, and B. Zuckerberg. Barriers and opportunities to managing for disturbance and environmental change in the Upper Midwest. Webinar to Science Team for Climate Change and Forests, 5 December 2013, Madison, WI.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. LANDFIRE revisions in the Great Lakes region. MNICS/IMT Annual Meeting, 4 December 2013, Duluth, MN.
- Knoot, T.G., T. Steele, K. Martin, and K. Fassnacht. Assessing the opportunity cost of enhancing stand complexity in northern hardwood stands. Society of American Foresters (SAF) National Convention, 23-27 October 2013, North Charleston, SC.
- Martin, K.J. Deer research update. Natural Resources Board Meeting, 22 October 2013, Madison, WI.
- Zuckerberg, B., L. Y. Pomara, O. LeDee, and K. Martin. Seasonality and climate change vulnerability assessment: the importance of winter conditions for documenting and forecasting species demographic and distributional change. Co-organizer and speaker at "Warming winter and wildlife" symposium at The Wildlife Society's 20<sup>th</sup> Annual Society Meeting, 7-11 October 2013, Milwaukee, WI.
- Worland, M., K.J. Martin, K.S. Fassnacht, D.R. Bronson, T. Prestby, and M.J. Mossman. Increasing the conservation importance of northern hardwood bird communities: key old-growth characteristics and threshold values. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.
- Anich, N.M., M. Worland, K.J. Martin, and B. Zuckerberg. Boreal birds in northern Wisconsin: populations along the trailing edge. The Wildlife Society's 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Norton, A.S., D. Heisey, T.R. Van Deelen, M. Watt, and K.J. Martin. A Bayesian approach to estimating white-tailed deer abundance using an integrated age-at-harvest model. The Wildlife Society, 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Van Deelen, T.R., J.L. Stenglein, A.S. Norton, B. Peterson, C. Warbington, D.J. Storm, and K.J. Martin. Climate and local deer migrations. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Warbington, C., T. Van Deelen, K. Martin, A.S. Norton, and J. Stenglein. Linking bedsite selection, summer weather, and weekly survival of neonatal white-tailed deer. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Warbington, C.H., T.R. Van Deelen, K. Martin, A. Norton, C.N. Jacques, J. Stenglein, and M. Watt. Cause-specific mortality of neo-natal white-tailed deer in different ecological contexts. The Wildlife Society 20<sup>th</sup> Annual Conference, 8 October 2013, Milwaukee, WI.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, T. D'amato. Linking LANDFIRE to Great Lakes landscapes. Great Lakes Forest Fire Compact Annual Meeting, 17-19 September 2013, Wisconsin Dells, WI.
- Anhalt, C., K. Martin, T. Rittenhouse, T. Knoot, D. McFarland, and T. Van Deelen. Assessment of woody biomass harvests in northern Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. American Ornithologists' Union 131<sup>st</sup> stated meeting and Cooper Ornithological Society's 83<sup>rd</sup> annual meeting, 15 August 2013, Chicago, IL. Poster session.

## Recent Presentations

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- Padley, E.A., D.M. Donner, K.S. Fassnacht, R.S. Zalesny, B. Birr, and K. J. Martin. 2013. Carbon pools in adaptively-managed northern hardwood forests. 2013 North American Forest Soils Conference, 16-20 June 2013, Whitefish, MT. Poster session.
- Reuling, L.F., A.W. D'Amato, B.J. Palik, and K.J. Martin. Effects of old-growth restoration treatments and deer browsing on understory community composition and tree regeneration in northern hardwood forests. North American Forest Ecology Workshop, 17 June 2013, Bloomington, IN.
- Norton, A., T. Van Deelen, M. Watt, and K. Martin. Preliminary survival rates for adult male white-tailed deer in Wisconsin. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal deer in different ecological contexts. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI. Awarded Best Student Presentation.
- Anich, N.M., M.L. Worland, and K.J. Martin. Nest-site selection and habitat use of Spruce Grouse in Wisconsin. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2013, Wisconsin Dells, WI.
- Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Bronson, D., K. Martin, E. Kruger, and A. Royo. Evaluating the interdependency between white-tailed deer and northern hardwood habitat; increasing our understanding of forest management and white-tailed deer health. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Duquette, J., A. Norton, M. Watt, T. Van Deelen, and K. Martin. Buck and doe mortality and spatial ecology in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Fassnacht, K.S., T.W. Steele, E.A. Padley, C.G. Lorimer, K.J. Martin, B.J. Palik, A.W. D'Amato, T. Knoot, and D. Bronson. Assessing the use of silvicultural techniques to enhance forest complexity. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Knoot, T., T. Steele, K. Martin, K. Fassnacht, D. Bronson, B. Palik, T. D'Amato, E. Padley, and C. Lorimer. Managing northern hardwood forests for old-growth characteristics and forest products: An economic assessment of novel forestry practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, and T. D'Amato. Linking LANDFIRE data to Great Lakes landscapes. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Norton, A., M. Watt, T. Van Deelen, K. Martin, J. Duquette, C. Jacques, and C. Warbington. Integrating vital rates into white-tailed deer population models. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Padley, E.A., D.M. Donner, K.S. Fassnacht, R.S. Zalesny, B. Birr, and K.J. Martin. Carbon sequestration in northern hardwood forests under traditional and adaptive management practices. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal white-tailed deer in different ecological contexts. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Worland, M., K. Martin, K. Fassnacht, M. Mossman, and T. Prestby. The Managed Old-growth Silvicultural Study: Impacts on bird communities. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Anich, N.M., M.L. Worland, and K.J. Martin. Spruce grouse in Wisconsin. Chequamegon Audubon Society, 21 February 2013, Ashland, WI.

## Recent Presentations

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Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, and M. Watt. Cause-specific mortality of neonatal white-tailed deer in different ecological contexts. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 10 December 2012, Wichita, KS.

Hagell, S., S.D. Hull, M.J. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in natural resource management at the state level. Fourth International EcoSummit - Ecological Sustainability, 30 September-5 October 2012, Columbus, OH. Poster session.

Anich, N. M., M.L. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI. Poster session.

Hagell S., S.D. Hull, M.R. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in conservation planning at the state level. North American Congress for Conservation Biology, 15-18 July 2012, Oakland, CA. Poster session.

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### **Jed Meunier**

Meunier, J. 2014. Fire, climate, and land-use relationships. University of WI-Platteville, Fire Ecology Course, 22 April 2014, Platteville, WI.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. LANDFIRE revisions in the Great Lakes region. MNICS/IMT Annual Meeting, 4 December 2013, Duluth, MN.

Meunier, J. The carbon forest: Disturbance, forest patterns and ecological change. Madison Area Technical College, Environmental Issues course, 25 November 2013, Madison, WI.

Meunier, J. The lake states LANDFIRE revisions effort. LANDFIRE Business Leads and TNC partners WebEx, 12 November 2013, Madison, WI.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. Linking LANDFIRE to Great Lakes landscapes. Great Lakes Forest Fire Compact Annual Meeting, 17-19 September 2013, Wisconsin Dells, WI.

Meunier, J. Linking LANDFIRE data to Great Lakes landscapes. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, and T. D'Amato. Linking LANDFIRE data to Great Lakes landscapes. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

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### **Michael Meyer**

Meyer, M.W. Potential effects of climate change on inland glacial lakes and breeding common loons in Wisconsin. Wisconsin Lakes Convention, 25 April 2014, Stevens Point, WI.

Meyer, M.W. Loon Citizen Science monitoring protocols and 2013 research results. Training workshop for LoonWatch/WDNR Loon Citizen Scientists and Wisconsin Citizen Based Lake Monitoring Program, 15 April 2014, Rhinelander, WI.

Meyer, M.W. Loon Citizen Science monitoring protocols and 2013 research results. Training workshop for LoonWatch/WDNR Loon Citizen Scientists and Wisconsin Citizen Based Lake Monitoring Program, 1 April 2014, Boulder Junction, WI.

Meyer, M.W. Evaluating the impact of multiple stressors on common loon population demographics - an integrated laboratory and field approach. Webinar, 18 March 2014.

Kenow, K., and M. Meyer. Use of archival tags to document movements and foraging patterns of common loons. Wisconsin Chapter of the Wildlife Society Winter Meeting, 12-13 March 2014, Rothschild, WI.

Meyer, M.W., and K. Kenow. Assessing the impact of mercury contamination on the Northern Highlands loon population. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

## Recent Presentations

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- Strom, S., M. Meyer, and S. Easterly. Recovery of a contaminant-impacted Great Lakes bald eagle population. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.
- Meyer, M. 2011-2013 Wisconsin Bald Eagle Biosentinel Project. WDNR Bald Eagle and Osprey Management Team, 18 February 2014, Stevens Point, WI.
- Meyer, M.W. Evaluating the environmental toxicity risk of aquatic herbicide use in Wisconsin lakes. Aquatic Plant Management Summit, 12 February 2014, Madison, WI.
- Meyer, M.W. Recovery of a contaminant impacted Great Lakes bald eagle population. WDNR Wildlife Management Training Session, 29 January 2014, Madison, WI.
- Meyer, M.W. Lakeshore habitat restoration in the Northern Highlands. WDNR Wildlife Management Statewide Meeting, 16 January 2014, Oshkosh, WI.
- Meyer, M.W. Recovery of a contaminant impacted Great Lakes bald eagle population. WDNR Wildlife Management Statewide Meeting, 16 January 2014, Oshkosh, WI.
- Meyer, M.W. Ongoing and completed WDNR ecotoxicology projects as case studies. Guest lecture to UW-Madison EMTC634-Ecotoxicology, 6 December 2013, Madison, WI.
- Meyer, M.W., and D. Haskell. Evaluating the success of restoration on human-altered lakeshores in the upper Midwest, USA. 5<sup>th</sup> World Conference on Ecological Restoration Symposium, 9 October 2013, Madison, WI.
- Fevold, B., and M. Meyer. Measuring effects of planting density on surface-water runoff quality, soil organic matter and carbon sequestration. Society for Ecological Restoration World Conference on Ecological Restoration, 6-11 October 2013, Madison, WI.
- Meyer, M.W. Evaluating the ecological benefits of lakeshore habitat restoration in the Northern Highlands. Vilas County Lakes and Rivers Association (VCLRA), 8 October 2013, St. Germain, WI.
- Strom, S., M. Meyer, and S. Easterly. Recovery of a contaminant-impacted Great Lakes bald eagle population. The Wildlife Society's 20<sup>th</sup> Annual Conference, 8 October 2013, Milwaukee, WI.
- Meyer, M.W. Conserving Northern Highland loons for future generations. Northwoods Land Trust Annual Banquet, 26 September 2013, Star Lake, WI.
- Meyer, M.W. 25 Years of loon research in Wisconsin. North Lakeland Discovery Center, 3 September 2013, Manitowish Waters, WI.
- Meyer, M. Wisconsin lakeshore restoration project. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Meyer, M. Wisconsin Wildlife Biosentinel Project. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Meyer, M., and E. LeMoine. Loon natural history. Northland College Loonwatch Citizen Scientists, 17 August 2013, Crystal Lake Nature Center, WI.
- Meyer, M.W. Loon research and natural history. UW-Stevens Point "Becoming and Outdoor Woman" workshop, 21 July 2013, Woodruff, WI.
- Meyer, M.W. Conserving northern Wisconsin common loons for future generations. Science on Tap forum, 1 May 2013, Minocqua, WI.
- Fevold, B., M. Meyer, and D. Haskell. Evaluating the ecological benefits of green infrastructure on watershed protection. Wisconsin Lakes Partnership Convention, 9-11 April 2013, Green Bay, WI
- Meyer, M.W. Impacts of impervious surface on fish and wildlife habitat. Wisconsin Association of Lakes Conference, 11 April 2013, Green Bay, WI.
- Meyer, M.W. Preliminary findings 2007–2012: The Wisconsin Shoreland Restoration Project. Wisconsin Association of Lakes Conference, 11 April 2013, Green Bay, WI.
- Meyer, M.W. 25 years of Wisconsin loon research. UW-Arboretum, 19 March 2013, Madison, WI.

## Recent Presentations

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- Meyer, M.W. Lakeshore restoration research in Vilas and Ashland counties. Michigan Shoreline and Shallows Conference at Michigan State University, 6 March 2013, East Lansing, MI.
- Kenow, K.P., M.W. Meyer, R. Rossmann, A. Gendron-Fitzpatrick, and B.R. Gray. A field egg injection study to evaluate methylmercury toxicity in common loons (*Gavia immer*). 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M., D. Haskell, C. Scholl, B. Hanson, B. Fevold, A. Schotthoefer, and P. Goggin. The Wisconsin Lakeshore Restoration Project. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M.W., D. Killian, and D. Stockwell. Northwoods Loon Protection Program – Wisconsin Loon Citizen Science Project. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M.W., P.W. Rasmussen, C.J. Watras, B.M. Fevold, and K.P. Kenow. Bi-phasic trends in mercury concentrations in blood of Wisconsin common loons during 1992-2010. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M., S. Strom, and S. Easterly. Recovery of a contaminant-impacted Great Lakes bald eagle population: Fox River clean-up associated with reduced bald eagle PCB exposure/bald eagles nesting in Green Bay AOC continue to express elevated contaminant exposure. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Route, B., M. Meyer, U. Gafvert, and M. Martell. Emerging contaminants in nestling bald eagles at three National Parks in the upper Midwest. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Meyer, M.W., B. Fevold, and D. Haskell. The Wisconsin Shore Land Restoration Project - preliminary findings 2007-2012. St. Louis River Summit, 27 February 2013, University of Wisconsin Superior, Superior, WI.
- Fevold, B. and M. Meyer. Ashland Chequamegon Bay Shoreland Restoration Project: Evaluating the ecological benefits of a constructed wetland . Wisconsin Wetlands Association 2013 Conference: Great Wetlands, Healthy Watersheds, 12 February 2013, Sheboygan, WI.
- Meyer, M.W. Toxicology of herbicides used to treat aquatic invasive plants in Wisconsin lakes. Voigt Task Force workshop, 5 December 2012, Hayward, WI.
- Meyer, M., P. Goggin, and D. Haskell. Measuring the value of habitat restoration on northern Wisconsin lakes: the Wisconsin Shoreland Restoration Project. NALM conference, 9 November 2012, Madison, WI.
- Meyer, M. Botulism E toxicity and Wisconsin common loons. WDNR Bureau of Wildlife Management retreat, 31 October 2012, Devil's Lake State Park, WI.
- Meyer, M. Evaluating the impact of mercury exposure to Wisconsin's breeding loon population, Senior Seminar Series, 25 October 2012, Northland College, Ashland, WI.
- Meyer, M. Research into Wisconsin loon migration. Easy Eagles Businessmen's Club, 9 October 2012, Eagle River, WI.
- Hagell, S., S.D. Hull, M.J. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in natural resource management at the state level. Fourth International EcoSummit - Ecological Sustainability, 30 September-5 October 2012, Columbus, OH. Poster session.
- Fevold, B., and M. Meyer. The Ashland Chequamegon Bay Shoreland Restoration Project: 2011-2022. Science on Tap, September 2012, Ashland WI.
- Meyer, M. Conserving Northern Wisconsin common loons for future generations. Hasbrook Lake Association Annual Meeting, 28 July 2012, Lake Tomahawk, WI.
- Meyer, M. Conserving northern Wisconsin common loons for future generations. Deerskin Lake Association Annual Meeting, 21 July 2012, Eagle River, WI.

## Recent Presentations

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Hagell S., S.D. Hull, M.R. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in conservation planning at the state level. North American Congress for Conservation Biology, 15-18 July 2012, Oakland, CA. Poster session.

Meyer, M. Conserving northern Wisconsin common loons for future generations. Presque Isle Lake Association Annual Meeting, 17 July 2012, Presque Isle, WI.

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### **Mike Mossman**

Mossman, M. Baraboo Hills forests, birds and oak management. The Nature Conservancy Board - field trip, 25 June 2014, Baxters Hollow, WI.

Mossman, M. Bird ecology and forest management in the Baraboo Hills. The Nature Conservancy, Board Meeting, 12 June 2014, Baraboo, WI.

Mossman, M. Summer birds at Baxter's Hollow, Sauk County. The Nature Conservancy, 31 May 2014.

Mossman, M. and Y. Steele. Baxter's Hollow bird trek. Natural Resources Foundation, 19 May 2014, Baraboo WI.

Mossman, M. and Y. Steele. Canoe and bird the Lower Kickapoo River. Natural Resources Foundation, 19 May 2014, Wauzeka, WI.

Mossman, M. Birding the Wyalusing Bottoms by canoe. Wisconsin Society for Ornithology annual convention, field trip, 18 May 2014, Prairie du Chien, WI.

Matteson, S.W., P. Manthey, M. Mossman, and L. Hartman. Wisconsin's Trumpeter Swan Recovery Program 1989-2013: A 25-Year retrospective. Wisconsin Society for Ornithology 75<sup>th</sup> Annual Convention, 17 May 2014, Prairie du Chien, WI.

Mossman, M. Birds and conservation on the Lower Wisconsin State Riverway. Wisconsin Society for Ornithology 75<sup>th</sup> Annual Convention, 17 May 2014, Prairie du Chien, WI.

Mossman, M. Field trip to Bakkens Pond: Annual Spring Green Bird City Celebration, 10 May 2014, Spring Green, WI.

Steele, Y., and M. Mossman. Birds of the Leopold Memorial Reserve: An introduction to bird identification & bird-habitat relationships. Woodland School, 10 May 2014, Aldo Leopold Foundation, Baraboo WI.

Mossman, M. and J. Kinney. Badger Army Ammunition Plant: History, nature & future. Natural Resources Foundation, 2 May 2014, Baraboo, WI

Linton, M., M. Mossman, and A. Thompson. Fish, fowl, flood, water lily mud: Using poetry to get to the heart of wetlands. Wisconsin Wetlands Association Annual Conference, 19 February 2014, La Crosse, WI.

Mossman, M. Cerulean warblers and forest birds in southern Wisconsin. Science Services Open House, 14 February 2014, Madison, WI.

Mossman, M. Forest bird research in Wisconsin. Wildlife Biologist Training, 29 January 2014, Madison WI.

Mossman, M., and Y. Steele. Using birds to help guide forest management. WDNR Wildlife Management Statewide meeting, 15 January 2014, Oshkosh WI.

Worland, M., K.J. Martin, K.S. Fassnacht, D.R. Bronson, T. Prestby, and M.J. Mossman. Increasing the conservation importance of northern hardwood bird communities: key old-growth characteristics and threshold values. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Mossman, M. History and ecology of the Sauk Prairie Recreation Area. Guest lecture to UW-Madison Environmental Studies 600 Class, 24 September 2013, Madison, WI.

Mossman, M. The beginnings of BRAW: Don't mourn, organize. Annual conference of the Bluebird Restoration Association of Wisconsin, 21 September 2013, Darlington, WI.

## Recent Presentations

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- Mossman, M. Reservoir waterdogs: neotenic tiger salamanders of the Badger Army Ammunition Plant. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Mossman, M. The Badger Army Ammunition Plant. Natural Resources Board Tour, 13 August 2013, Sauk Prairie Recreation Area, Sauk City, WI.
- Mossman, M. Reservoir waterdogs: The neotenic tiger salamanders of the Badger Army Ammunition Plant. Annual Conference, Midwest Partners for Amphibian and Reptile Conservation, 3 August 2013, Belgium, WI.
- Mossman, M. Birds and ecology of the Leopold-Pine Island IBA. Natural Resources Foundation field trip and fundraiser, 19 May 2013, Baraboo, WI.
- Mossman, M. Birds, herptiles and ecology of the Blue River Barrens and floodplain forest. Natural Resources Foundation field trip and fundraiser, 16 May 2013, Blue River, WI.
- Mossman, M. Birds, ecology and landscapes of the Lower Wisconsin River IBA: Cassell Prairie and Ferry Bluff. Natural Resources Foundation field trip and fundraiser, 15 May 2013, Spring Green, WI.
- Mossman, M. Badger Army Ammunition Plant, Tour for researchers: Sauk Prairie Conservation Alliance, DNR, Dairy Forage Research Center and UW, 14 May 2013, Baraboo, WI
- Mossman, M. Badger Army Ammunition Plant birds, history and ecology. Sauk Prairie Conservation Alliance, 12 May 2013, Baraboo, WI.
- Mossman, M. Birds of the LWR IBA and Bakkens Pond. Spring Green Bird City celebration, 11 May 2013, Spring Green, WI.
- Mossman, M., and T. Persche. Big Day bird count. Natural Resources Foundation, Baraboo Hills and Badger Army Ammunition Plant field trip and fundraiser, 10 May 2013, Baraboo, WI.
- Mossman, M. Badger Army Ammunition Plant: Past, present & future. Natural Resources Foundation, Armchair Field Trip, 7 May 2013, McFarland Public Library, McFarland, WI.
- Mossman, M., J. Kenney, and D. Brusoe. Badger Army Ammunition Plant history, ecology and future. Natural Resources Foundation field trip, 4 May 2013, Baraboo, WI.
- Mossman, M. Baraboo Hills spring birds and wildflowers. Madison Audubon field trip, 20 April 2013, Honey Creek Nature Preserve, WI.
- Mossman, M. The Lower Wisconsin River Important Bird Area. Ferry Bluff Eagle Council, 7 April 2013, Tripp Museum, Prairie du Sac, WI.
- Mossman, M. Trees as living history: How to read a woods. Witness Tree Exhibition and Community Conversation, 1 March 2013, Common Wealth Gallery, Madison, WI.
- Worland, M., K. Martin, K. Fassnacht, M. Mossman, and T. Prestby. The Managed Old-growth Silvicultural Study: Impacts on bird communities. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Mossman, M. What's going on with Badger Ammo? Cabin Fever Public Lecture Series, Baraboo Range Preservation Association, 6 February 2013, Baraboo, WI.
- Mossman, M. The Badger Army Ammunition Plant: History, grassland birds, and planning its future. Madison Audubon Society public meeting, 15 January 2013, Madison, WI.
- Mossman, M. History and future of the Badger Army Ammunition Plant and Sauk Prairie Recreation Area. Sauk County Pheasants Forever Sponsor Banquet, 18 October 2012, Wisconsin Dells, WI.
- Mossman, M. Different strokes for different folks: Accommodating forest interior songbirds across the landscape. WCD forestry in-service workshop, 10 October 2012, Neillsville, WI.
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## Recent Presentations

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### **Kristi Nixon**

Nixon, K. 2014. Coupling population viability analyses and scenario optimization modeling. Guest lecture at UW-Madison, Applications of GIS in Natural Resources course, 23 April 2014, Madison, WI.

Nixon, K. 2014. Using Arcmap's ModelBuilder to perform spatial wildlife habitat assessments. Guest lecture at UW-Madison, Applications of GIS in Natural Resources course, 2 April 2014, Madison, WI.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, and K. Nixon, T. D'amato. LANDFIRE revisions in the Great Lakes region. MNICS/IMT Annual Meeting, 4 December 2013, Duluth, MN.

Meunier, J., T.G. Knoot, D.R. Bronson, K.J. Martin, K. Nixon, and T. D'amato. Linking LANDFIRE to Great Lakes landscapes. Great Lakes Forest Fire Compact Annual Meeting, 17-19 September 2013, Wisconsin Dells, WI.

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### **Teresa Pearson**

MacFarland, D.M., and T. Pearson. Black Bear Capture-recapture Population Estimate. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

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### **Brittany Peterson**

Van Deelen, T.R., J.L. Stenglein, A.S. Norton, B. Peterson, C. Warbington, D.J. Storm, and K.J. Martin. Climate and local deer migrations. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.

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### **Chris Pollentier**

Pollentier, C. S. Hull, and S. Lutz. Wisconsin turkey population growth: sensitivity to demographic parameters. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Hull, S., D. Drake, P. Dunn, L. Kardash, C. Pollentier, and D. Sample. Reproduction and survival of translocated Minnesota and local Wisconsin greater prairie-chicken hens in central Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Pollentier, C., S. Lutz, and S. Hull. Influence of landscape composition on survival and productivity of wild turkey hens in Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Pollentier, C. Wisconsin turkey population growth: sensitivity to demographic parameters. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Hull, S., D. Drake, L. Kardash, C. Pollentier, D. Sample, and B. Sadler. Nesting success and survival of translocated Minnesota and local Wisconsin greater prairie-chicken hens in central Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Pollentier, C., S. Hull, and S. Lutz. Investigating the effects of landscape patterns on abundance, survival, and productivity of wild turkeys in Wisconsin. Wildlife Policy Team, 16 January 2013, Madison, WI.

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### **Jes Rees**

Rees, J., and B. Dhuey. Wisconsin's elusive cat: Using citizen science to collect evidence on Wisconsin's southern bobcats. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Rees, J. Using online surveys to save agency resources. Fall 2013 Science Communication Series, 11 January 2013, Madison, WI.

Rees, J. Using online surveys to save agency resources. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 12 December 2012, Wichita, KS.

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## Recent Presentations

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### **Laura Reuling**

Reuling, L.F., A.W. D'Amato, B.J. Palik, and K.J. Martin. Effects of old-growth restoration treatments and deer browsing on understory community composition and tree regeneration in northern hardwood forests. North American Forest Ecology Workshop, 17 June 2013, Bloomington, IN.

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### **Nathan Roberts**

Roberts, N.M. Predicted population responses to wolf harvest quotas. Wolf Advisory Committee, 19 May 2014, Wausau, WI.

Roberts, N.M. Furbearer monitoring – past, present, and future. Joint North American Furbearer Workshop, 2 May 2014, East Cambridge, OH.

Roberts, N.M. Bear, wolf, and bobcat research. WI Bear Hunters Association, 29 March 2014, Wausau, WI.

Roberts, N.M. Ongoing and upcoming furbearer research. WI Trappers Association Board of Directors and General Membership, 15 March 2014, Wausau, WI.

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### **Robert Rolley**

Rolley, R.E. Furbearer population modeling. Wildlife Management Fur School, 2 April 2014, Madison, WI.

Rolley, R.E. 2013 Chronic wasting disease update. Interagency CWD Health and Science Team, 1 April 2014, Madison, WI.

Rolley, R.E. Bobcat population and habitat use in southern Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Rolley, R.E. Relationships of deer ecology, disease ecology, and hunter behavior to manage chronic wasting disease (CWD) in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Jennelle, C., E. Osnas, M. Samuel, R. Rolley, J. Langenberg, D. Walsh, and D. Heisey. Improved surveillance for detecting chronic wasting disease: Lessons from Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Rolley, R.E. Bobcat population and habitat use in southern Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Rolley, R.E. Relationships of deer ecology, disease ecology, and hunter behavior to manage chronic wasting disease (CWD) in Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Rolley, R.E. Bear population monitoring. Bear Advisory Committee meeting, 26 August 2013, Wausau, WI.

Rolley, R.E. Wisconsin deer status report, 2013. Midwest Deer and Wild Turkey Study Group meeting, 20 August 2013, Monticello, IL.

Rolley, R. The basics of deer population estimation with the Sex-Age-Kill method. Science and Research Action Team of the Deer Trustee Report Implementation process, 18 May 2013, Stevens Point, WI.

Rolley, R. CWD prevalence trends, deer harvests and deer population trends in the CWD Management Zone. Interagency CWD Health and Science Team, 11 April 2013, Madison, WI.

Rolley, R. CWD prevalence trends in the CWD Management Zone. Herd Health/CWD Action Team of the Deer Trustee Report Implementation process, 6 April 2013, Stevens Point, WI.

Rolley, R. Furbearer population modeling. Bureau of Wildlife Management's Fur School, 20 March 2013, Madison, WI.

## Recent Presentations

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Rolley, R. CWD prevalence trends in the CWD Management Zone. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Rolley, R. Deer Trustee review of Wisconsin's deer management program. Midwest Deer and Wild Turkey Study Group meeting, 17 October 2012, Custer State Park, SD.

Rolley, R. E. Deer-vehicle collisions. Lecture for Complexity and Conservation of White-tailed Deer course at University of Wisconsin, Department of Forestry and Wildlife Ecology, 27 September 2012, Madison, WI.

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### David Sample

Sample, D. Spring migration at Baaken's Pond field trip. 2<sup>nd</sup> annual Spring Green Bird City festival, 10 May 2014, Spring Green, WI.

Blank, P.J., C.L. Williams, D.W. Sample, T.D. Meehan, and M.G. Turner. Alternative scenarios of increased bioenergy production in southern Wisconsin and implications for bird communities. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2014, Rothschild, WI.

Sample, D. Evaluating the Wisconsin Bird Conservation Area Model. Science Services Open House, 14 February 2014, Madison, WI.

Sample, D. Grassland bird and predator research in Wisconsin. DNR Wildlife Management New Biologists Training, 29 January 2014, Madison, WI.

Dadisman, J., D. Sample, C. Ribic, M. Guttery, and A. Paulios. Evaluation of the Grassland Bird Conservation Model in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Sample, D.W., J. Doyle, and T. Van Deelen. The ecology of badgers in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Sample, D., and T. Anderson. Grassland birds in southwest Wisconsin. Landowners on grazing in southwest Wisconsin meeting, 14 December 2013, Dodgeville, WI.

Sample, D. Land cover in southwest and central Wisconsin using remote sensing. WDNR WM Wildlife Policy Team meeting, 16 October 2013, Madison, WI.

Blank, P.J., D.W. Sample, C. Williams, and M.G. Turner. Bird communities and biomass yields in potential bioenergy grasslands in Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Blank, P.J., M.G. Turner, and D.W. Sample. Grassland bird communities in potential bioenergy crop fields in southern Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI. Poster session.

Hull, S., D. Drake, P. Dunn, L. Kardash, C. Pollentier, and D. Sample. Reproduction and survival of translocated Minnesota and Local Wisconsin greater prairie-chicken hens in central Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Ribic, C.A., A. Paulios, and D. Sample. An overview of grassland bird ecology and conservation. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Paulios, A., and D. Sample. Grassland bird conservation areas: taking a partner-driven landscape-scale approach to grassland conservation in an agro-ecosystem. The Society for Ecological Restoration's 5<sup>th</sup> World Conference, 10 October 2013, Madison, WI.

Sample, D. Grassland bird conservation. Wisconsin Science Festival, 28 September 2013, Blue Mounds, WI.

Sample, D. Southwest Wisconsin Grassland and Stream Conservation Area project. Bureau of Wildlife Management Wildlife Ecology section retreat field trip, 19 September 2013, Blue Mounds, WI.

## Recent Presentations

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- Sample, D., and A. Dubriel. The Prairie Enthusiasts Mounds View Grasslands field trip, 7 September 2013, Blue Mounds, WI.
- Sample, D. The ecology of badgers in Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Blank, P.J., M.G. Turner, and D.W. Sample. Grassland bird communities in potential bioenergy crop fields in southern Wisconsin. Ecological Society of America annual meeting, 4-9 August 2013, Minneapolis, MN.
- Sample, D. Grassland birds 101. Rock/Green counties Audubon Society March monthly meeting, 20 March 2013, Evansville, WI.
- Doyle, J., T. Van Deelen, D. Sample, and D. MacFarland. Home range size and habitat selection of American Badgers in southwest Wisconsin. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. Wisconsin Chapter of The Wildlife Society winter meeting, 13 March 2013, Wisconsin Dells, WI.
- Blank, P.J., M.G. Turner, and D.W. Sample. Grassland bird communities in potential bioenergy crop fields in southern Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Doyle, J., T. Van Deelen, D. Sample, and D. MacFarland. Life history of American badgers in southwest Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Hull, S., D. Drake, L. Kardash, C. Pollentier, D. Sample, and B. Sadler. Nesting success and survival of translocated Minnesota and local Wisconsin greater prairie-chicken hens in Central Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Kierepka, E.M., D. Sample, and E.K. Latch. Combining citizen science and genetics to assess the status of the American badger in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Sample, D. Grassland bird structured decision making. USFWS webinar, 15 January 2013, Madison, WI.
- Schmitz, C., J. Dadisman, C.A. Ribic, D.W. Sample, and D. Schneider. Factors affecting grassland bird density in warm season grass fields in Southwest Wisconsin. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 12 December 2012, Wichita, KS.
- Guttery, M., C.A. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating the Wisconsin's Grassland Bird conservation area model. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 11 December 2012, Wichita, KS. Poster session.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. 2012 Midwest Bird Conservation and Monitoring Workshop, 31 July-2 August 2012, Milwaukee, WI. Poster session.
- Ribic, C., D. Sample, and K. Koch. A landscape scale framework for cooperative grassland bird conservation. Midwest Bird Conservation and Monitoring Workshop, 31 July-2 August 2012, Milwaukee, WI.
- Ribic, C., and D. Sample. A landscape level approach to cooperative grassland bird conservation throughout the Annual Cycle. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI.
- Sample, D., and C. Bleser. Birds of the Southwest Grassland and Stream Conservation Area, 7 July 2012, Blue Mounds, WI.
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## Recent Presentations

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### **Daniel Schneider**

- Schneider, D. Bird conservation in Wisconsin. Mayville Middle School, 29 May 2014, Mayville, WI.
- Schneider, D. Birds of the Horicon Marsh and surrounding area field trip. 20<sup>th</sup> Annual Horicon Marsh Bird Festival, 10 May 2014, Horicon, WI.
- Schneider, D. Bird migration in Southern Wisconsin field trip. Arington Tree Farm 2<sup>nd</sup> Annual Earth Day Celebration, 25 April 2014, Cambridge, WI.
- Schneider, D. Birds that depend on grassland thickets. Wisconsin Science Festival, 28 September 2013, Blue Mounds, WI.
- Schneider, D. Birds of the Horicon Marsh and surrounding area field trip. 19<sup>th</sup> Annual Horicon Marsh Bird Festival, 11 May 2013, Horicon, WI.
- Schneider, D. Bird migration in southern Wisconsin field trip. Arington Tree Farm 1<sup>st</sup> Annual Earth Day Celebration, 22 April 2013, Cambridge, WI.
- Schmitz, C., J. Dadisman, C.A. Ribic, D.W. Sample, and D. Schneider. Factors affecting grassland bird density in warm season grass fields in Southwest Wisconsin. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 12 December 2012, Wichita, KS.

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### **Jennifer Stenglein**

- Stenglein, J. Trail camera monitoring. Citizen-based Monitoring for Educators Field Course, 24 June 2014, Waukesha, WI.
- Stenglein, J. Survival of Wisconsin's gray wolves from endangered to harvested, 1980 – 2013. Aldo Leopold Foundation Brown Bag Seminar, 29 April 2014, Baraboo, WI.
- Stenglein, J.L., T.R. Van Deelen, D. Heisey, and A.P. Wydeven. Survival of Wisconsin's gray wolves, 1979-2012. Winter Meeting of The Wisconsin Chapter of The Wildlife Society, 13 March 2014, Wausau, WI.
- Stenglein, J. Snapshot Wisconsin: A statewide trail camera project to monitor wildlife. Science Services Open House, 14 February 2014, Madison, WI.
- Stenglein, J., C. Anhalt, and K. Martin. Statewide camera trap project overview. DNR Wildlife Management Statewide Meeting, 16 January 2014, Oshkosh, WI.
- Stenglein, J., Van Deelen, T., Wydeven, A., and D. MacFarland. Wisconsin wolf harvest modeling. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Stenglein, J. and T. Van Deelen. Population dynamics of Wisconsin's wolves, 1979 – 2012. Carnivore Tracking and Wolf Ecology Workshop, 12 January 2014, Grantsburg, WI.
- Stenglein, J.L, and T.R. Van Deelen. Mate-finding and spatial variation in mortality cause a demographic Allee effect in Great Lakes wolves. The International Wolf Symposium, 10-13 October 2013, Duluth, MN.
- Van Deelen, T.R., J.L. Stenglein, A.S. Norton, B. Peterson, C. Warbington, D.J. Storm, and K.J. Martin. Climate and local deer migrations. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Stenglein, J.L, and T.R. Van Deelen. Effect of additional human-caused mortality on Wisconsin's wolf population: an individual-based modeling approach. The Wildlife Society 20<sup>th</sup> Annual Conference, 8 October 2013, Milwaukee, WI.
- Stenglein, J.L., J. Zhu, and T.R. Van Deelen. An integrated population model to uncover informative discrepancies in population growth. 98<sup>th</sup> Annual Meeting of The Ecological Society of America, 4-9 August 2013, Minneapolis, MN.
- Stenglein, J.L, and T.R. Van Deelen. Integrated population models and unobserved mortality in Wisconsin's wolf population. 2013 Midwest Wolf Stewards Conference, 17 April 2013, Silver City, MI.

## Recent Presentations

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- Stenglein, J.L., and T.R. Van Deelen. Modeling the population-level effect of Wisconsin's proposed wolf harvest. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal deer in different ecological contexts. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI. Awarded Best Student Presentation.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal white-tailed deer in different ecological contexts. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Warbington, C., T. Van Deelen, K. Martin, A.S. Norton, and J. Stenglein. Linking bedsite selection, summer weather, and weekly survival of neonatal white-tailed deer. The Wildlife Society 20th Annual Conference, 9 October 2013, Milwaukee, WI.
- Warbington, C.H., T.R. Van Deelen, K. Martin, A. Norton, C.N. Jacques, J. Stenglein, and M. Watt. Cause-specific mortality of neo-natal white-tailed deer in different ecological contexts. The Wildlife Society 20th Annual Conference, 8 October 2013, Milwaukee, WI.
- Stenglein, J.L., T.R. Van Deelen, and D. Heisey. Quantifying cryptic mortality in radio-telemetry survival data when censoring is not independent of death: a case study of gray wolves in Wisconsin. 19<sup>th</sup> Annual Conference of The Wildlife Society, 16 October 2012, Portland, OR.
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### **Daniel Storm**

- Storm, D. Survival and cause-specific mortality of white-tailed deer. Wisconsin Conservation Congress, Big Game Committee Meeting, 22 March 2014, Wausau, WI.
- Storm, D. Survival and cause-specific mortality of white-tailed deer. Wildlife Biologist Training, 18 February 2014, Sandhill Wildlife Area, WI.
- Storm, D. Survival and cause-specific mortality of white-tailed deer. Science Services Open House, 14 February 2014, Madison, WI.
- Storm, D. Survival and cause-specific mortality of white-tailed deer fawns. Wildlife Management statewide meeting, 15 January, 2014, Oshkosh, WI.
- Storm, D. Deer reproduction and nutritional condition. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Storm, D. Survival and cause-specific mortality of white-tailed deer. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Storm, D. Survival and cause-specific mortality of white-tailed deer in Wisconsin. Wolf Committee Meeting, 18 July 2013, Wausau, WI.
- Storm, D. Background on the Science and Research Action Team. Deer Trustee Report Implementation Meeting, 9 March 2013, Stevens Point, WI.
- Storm, D.J., and R.E. Rolley. Does deer-vehicle accident data index deer population size? 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Storm, D. Integrated population models and their potential for monitoring furbearer populations. Furbearer Monitoring and Survey Review meeting, 5 October 2012, Rhinelander, WI.
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## Recent Presentations

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### Jay Watson

Henderson, R.A., and J. Watson. Prairie insect status and response to fire. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.

Henderson, R., and J. Watson. Distribution and status of *Silphium* gall-wasps in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

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### Mike Watt

Duquette, J., A. Norton, M. Watt, T. Van Deelen, and K. Martin. Buck and doe mortality and spatial ecology in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Norton, A., M. Watt, T. Van Deelen, K. Martin, J. Duquette, C. Jacques, and C. Warbington. Integrating vital rates into white-tailed deer population models. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Watt, M. Deer research update. WDNR Bureau of Wildlife Management retreat, 31 October 2012, Devil's Lake State Park, WI.

Watt, M. Deer research overview. Buckorama, 12 October 2012, Hayward, WI.

Watt, M. Deer research update. Optimist Club, 3 October 2012, Shawano, WI.

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### Mike Worland

Worland, M., J. Woodford, D. MacFarland, and, A. Dubruiel. Rest site habitat of recently translocated American martens in the Chequamegon National Forest. American Marten Committee Meeting, 8 November 2013, Tomahawk, WI.

Woodford, J., M. Worland, A. Dubruiel, and D.M. MacFarland. Seasonal rest site habitat of recently translocated American martens. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI. Poster session.

Worland, M., K.J. Martin, K.S. Fassnacht, D.R. Bronson, T. Prestby, and M.J. Mossman. Increasing the conservation importance of northern hardwood bird communities: key old-growth characteristics and threshold values. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.

Anich, N.M., M. Worland, K.J. Martin, and B. Zuckerberg. Boreal birds in northern Wisconsin: populations along the trailing edge. The Wildlife Society's 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.

Bronson, D., K. S. Fassnacht, M. Worland, B. Williams, and C. Matula. 2013. Managing second-growth northern hardwoods for increased compositional and structural complexity. 2013 Society of American Foresters State Conference, 17 September 2013. Field tour.

Worland, M. Avian responses to old-growth management. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.

Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. American Ornithologists' Union 131<sup>st</sup> stated meeting and Cooper Ornithological Society's 83<sup>rd</sup> annual meeting, 15 August 2013, Chicago, IL. Poster session.

Worland, M., and L. Johnson. Birds and old-growth forest at Van Vliet Hemlocks. Group field trip at North Lakeland Discovery Center Birding Festival, 11 May 2013, Manitowish Waters, WI.

Anich, N.M., M.L. Worland, and K.J. Martin. Nest-site selection and habitat use of spruce grouse in Wisconsin. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2013, Wisconsin Dells, WI.

Anich, N.M., M. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

## Recent Presentations

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Worland, M., K. Martin, K. Fassnacht, M. Mossman, and T. Prestby. The Managed Old-growth Silvicultural Study: Impacts on bird communities. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.

Anich, N.M., M.L. Worland, and K.J. Martin. Spruce grouse in Wisconsin. Chequamegon Audubon Society, 21 February 2013, Ashland, WI.

Worland, M., and T. Steele. Managed old-growth silvicultural study tour. Group field trip with UW-Madison forestry and wildlife graduate students and faculty, 31 August 2012, Star Lake, WI.

Anich, N. M., M.L. Worland, and K.J. Martin. Examining occupancy, abundance, and distribution of resident boreal birds in northern Wisconsin. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI. Poster session.



*Restoring Lakeshore Habitat at WDNR Northern Highlands Crystal Lake Campground.*

## 2012-2014 Publications and Presentations by UW Collaborators

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### Publications

#### **Christine Ribic**

Ellison, K., C.A. Ribic, D.W. Sample, M.J. Fawcett, and J.D. Dadisman. 2013. Impacts of tree rows on grassland birds and potential nest predators: a removal experiment. *PLoS ONE* 8(4): e59151. doi:10.1371/journal.pone.0059151.

LeDee, O.E., S. Hagell, K. Martin, D. McFarland, M. Meyer, A. Paulios, C.A. Ribic, D. Sample, and T. Van Deelen. 2013. Climate change impacts on Wisconsin's wildlife: a preliminary assessment. Wisconsin Department of Natural Resources Technical Bulletin No. 197.

Ribic, C.A., M.J. Guzy, T.A. Anderson, D.W. Sample, and J.L. Knack. 2012. Bird productivity and nest predation in agricultural grasslands. Pages 119-134 in C.A. Ribic, F.R. Thompson, and P.J. Pietz, editors. Video surveillance of nesting birds. University of California

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#### **Jason Riddle**

Cava, J., J. Riddle, and D. Thiel. In press. Apparent survival and capture probabilities of woodpeckers and nuthatches wintering in central Wisconsin. *Northeastern Naturalist*.

Dittrich, J.J., J.D. Riddle, and S. Hull. In review. Improving survey techniques for the ring-necked pheasant in Wisconsin. *Journal of Wildlife Management*.

Dittrich, J.J., J.D. Riddle, and S. Hull. In revision. Lack of observer differences in ring-necked pheasant detection rates. *Wildlife Society Bulletin*.

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#### **Michael Samuel**

Storm, D.J., M.D. Samuel, R.E. Rolley, T. Beissel, B.J. Richards, and T.R. Van Deelen. In Press. Estimating ages of white-tailed deer: age and sex patterns of error using tooth wear and-replacement and consistency of cementum annuli. *The Wildlife Society Bulletin*.

Jennelle, C.S., V. Henaux, G. Wasserberg, B. Thiagarajan, R.E. Rolley, and M.D. Samuel. 2014. Transmission of chronic wasting disease in Wisconsin white-tailed deer: Implications for disease spread and management. *PLoS ONE* 9(3): e91043. doi:10.1371/journal.pone.0091043.

Magle, S.B., M.D. Samuel, T.R. Van Deelen, S.J. Robinson, and N.E. Mathews. 2013. Evaluating spatial overlap and relatedness of white-tailed deer in a chronic wasting disease management zone. *PLoS ONE* 8(2):e56568.

Robinson, S.J., M.D. Samuel, R.E. Rolley, and P. Shelton. 2013. Using landscape epidemiological models to understand the distribution of chronic wasting disease in the Midwestern USA. *Landscape Ecology* 28(10):1923-1935.

Storm, D.J., M.D. Samuel, R.E. Rolley, P. Shelton, N.S. Keuler, B.J. Richards, and T.R. Van Deelen. 2013. Deer density and disease prevalence influence transmission of chronic wasting disease in white-tailed deer. *Ecosphere* 4(1):10 <http://dx.doi.org/10.1890/ES12-00141.1>

Blanchong, J.A., D.A. Grear, B.V. Weckworth, D.P. Keane, K.T. Scribner, and M.D. Samuel. 2012. Effect of chronic wasting disease on reproduction and fawn harvest vulnerability in Wisconsin white-tailed deer. *Journal of Wildlife Diseases* 48:361-370.

Johnson, C.J., J.M. Aiken, D. McKenzie, M.D. Samuel, and J.A. Pedersen. 2012. Highly efficient amplification of chronic wasting disease agent by protein misfolding cyclic amplification wit beads (PMCAb). *PLoS ONE* e35383.

## Recent Presentations

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- Matsumoto, T., M.D. Samuel, T. Bolinger, M. Pybus, and D.W. Coltman. 2012. Association mapping of genetic risk factors for chronic wasting disease in wild deer. *Evolutionary Applications* doi: 10.1111/eva.12003.
- Robinson, S.J., M.D. Samuel, D.L Lopez, and P. Shelton. 2012. The walk is never random: subtle landscape effects shape gene flow in a continuous white-tailed deer population in the Midwestern United States. *Molecular Ecology* doi: 10.1111/j.1365-294X.2012.05681.x.
- Robinson, S.J., M.D. Samuel, K.I. O'Rourke, and C.J. Johnson. 2012. The role of genetics in chronic wasting disease of North American cervids. *Prion* 6:155-164.
- Robinson, S.J., M.D. Samuel, C.J. Johnson, M. Adams, and D.I. McKenzie. 2012. Emerging prion disease drives host selection in a wildlife population. *Ecological Applications* 22:1050-1059.
- Walsh, D.P., and M.D. Samuel. 2012. Factors affecting chronic wasting disease: a deer is not a deer is not a deer. Pages 1-9 in D. P. Walsh, ed. *Enhanced surveillance strategies for detecting and monitoring chronic wasting disease in free-ranging cervids: U.S. Geological Survey Open-File Report 2012–1036*.

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### Timothy Van Deelen

- Anhalt, C.M., T.R. Van Deelen, R.N. Schultz, and A.P. Wydeven. In Press. Effectiveness of a simulated pack to manipulate wolf movements. *Human-Wildlife Interactions*.
- Hygnstrom, S., D. Drake, T. Van Deelen, and S. Vantassel. In Press. Managing overabundant white-tailed deer: is it time to consider regulated commercial harvest? *Outlooks on Pest Management*.
- Robinson, S., R. Walrath, T.R. Van Deelen, and K. VerCauteren. In Press. Genetic measures confirm familial relationships and strengthen study design. *The Wildlife Society Bulletin*.
- Storm, D.J., M.D. Samuel, R.E. Rolley, T. Beissel, B.J. Richards, and T.R. Van Deelen. In Press. Estimating ages of white-tailed deer: age and sex patterns of error using tooth wear-and-replacement and consistency of cementum annuli. *The Wildlife Society Bulletin*.
- Berkley, E.A., S.D. Peckham, H. Sampath, J. Bodewes, J.M. Ntambi, and T.R. Van Deelen. 2014. Ingestion of fat tissue from wolf prey species and its influences on fatty acid composition in sled dogs. *The Wildlife Society Bulletin* 38:51-59.
- Van Deelen, T.R. 2014. The science of deer harvest management. *Deer and Deer Hunting Magazine* January 2014 58-64.
- Bartnick, T.D., T.R. Van Deelen, H.B. Quigley, and D. Craighead. 2013. Variation in cougar (*Puma concolor*) predation habits during wolf (*Canis lupus*) recovery in the southern Greater Yellowstone Ecosystem. *Canadian Journal of Zoology* 91:82-93. (CJZ's Most read paper for 2013)
- LeDee, O.E., S. Hagell, K. Martin, D. McFarland, M. Meyer, A. Paulios, C.A. Ribic, D. Sample, and T. Van Deelen. 2013. Climate change impacts on Wisconsin's wildlife: a preliminary assessment. Wisconsin Department of Natural Resources Technical Bulletin No. 197.
- Magle, S.B., M.T. Samuel, T.R. Van Deelen, S.J. Robinson, and N.E. Mathews. 2013. Evaluating spatial overlap and relatedness of white-tailed deer in a chronic wasting disease management zone. *PLoS ONE* 8 (2):e56568.
- Malcolm, K.D., W.J. McShea, T.R. Van Deelen, H.J. Bacon, F. Liu, S. Putnam, X. Zhu, and J.L. Brown. 2013. Analysis of fecal and hair glucocorticoids to evaluate short- and long-term stress and recovery of Asiatic black bears (*Ursus thibetanus*) removed from bile farms in China. *General and Comparative Endocrinology* 185:97-106.
- Martin, K., T. Rittenhouse, C. Anhalt, T. Knoop, D. MacFarland, B. Bakshi, and T. Van Deelen. 2013. An assessment of woody biomass harvests in northern Wisconsin. Final Report for the Environmental and Economic Research and Development Program of Wisconsin's Focus on Energy December 2013. [http://www.focusonenergy.com/sites/default/files/research/0805Martin\\_FinalReportx.pdf](http://www.focusonenergy.com/sites/default/files/research/0805Martin_FinalReportx.pdf).

## Recent Presentations

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- Storm, D.J., M.D. Samuel, R.E. Rolley, P. Shelton, N.S. Keuler, B.J. Richards, and T.R. Van Deelen. 2013. Deer density and disease prevalence influence transmission of chronic wasting disease in white-tailed deer. *Ecosphere* 4(1):10. <http://dx.doi.org/10.1890/ES12-00141.1>.
- Watt, M., A. Norton, T. Van Deelen, K. Martin, J. Duquette, S. Dubay, C. Warbington, and R. Rolley. 2013. Wisconsin deer research studies, annual report 2011–2012. Wisconsin Department of Natural Resources and UW-Madison. [http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer\\_annual\\_report\\_2011-2012.pdf](http://dnr.wi.gov/topic/wildlifehabitat/research/documents/deer_annual_report_2011-2012.pdf)
- Rittenhouse, T.A.G., D.M. MacFarland, K.J. Martin, and T.R. Van Deelen. 2012. Downed wood associated with roundwood harvest, whole-tree harvest and unharvested stands of aspen in Wisconsin. *Forest Ecology and Management* 266:239-245.
- Steinhoff, S.G., T.R. Van Deelen, K.J. Martin, D.M. MacFarland, and K.R. Witkowski. 2012. Nesting patterns of southern flying squirrels in managed northern hardwoods. *Journal of Mammalogy* 93: 532-

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### Benjamin Zuckerberg

- Cooper, C., J. Shirk, and B. Zuckerberg. In review. The invisible prevalence of citizen science in global change research. *PLoS ONE*.
- Dickinson, J.L., E. Ferree, C. Stern, R. Swift, and B. Zuckerberg. In press. Delayed dispersal: Teasing apart the importance of resources and parents. *Behavioral Ecology*.
- Jarzyna, M.A., W.F. Porter, A.O. Finley, and B. Zuckerberg. In review. Synergistic effects of climate and land cover: Are grassland birds more vulnerable to climate change? *Diversity and Distributions*.
- Jarzyna, M.A., W.F. Porter, A.O. Finley, B. Maurer, C. Beier, and B. Zuckerberg. In press. Accounting for the space-varying nature of the relationships between temporal community turnover and the environment. *Ecography*.
- Princé, K., and B. Zuckerberg. In review. Climate change in our backyards: the reshuffling of North America's winter bird communities. *Global Change Biology*.
- van der Hoek, Y., B. Zuckerberg, and L.L. Manne. In review. A way forward on the application of habitat thresholds in conservation: new directions for threshold studies. *Biological Conservation*.
- Zuckerberg, B., E.J. Ross, K. Princé, and D.N. Bonter. In press. Climate variability on wintering grounds drives spring arrival of short-distance migrants to the Upper Midwestern United States. *Studies in Avian Biology*.
- Martin K., T. Knoot, C. Anhalt, A. Sharp, O. LeDee, and B. Zuckerberg. 2014. Barriers and opportunities to managing for disturbance and environmental change in the upper Midwest. Final Report for the Upper Midwest and Great Lakes Landscape Conservation Cooperative March 2014.
- Pomara, L.Y., O.E. LeDee, K.J. Martin, and B. Zuckerberg. 2014. Demographic consequences of climate change and land cover help explain a history of extirpations and range contraction in a declining snake species. *Global Change Biology* 20: 2087-2099.
- Bonter, D.N., B. Zuckerberg, C.W. Sedgwick, and W.M. Hochachka. 2013. A tradeoff between starvation and predation risks in bird foraging behavior? *Proceedings of the Royal Society B: Biological Sciences* 280(1760): 20123087
- Jarzyna, M.A., B. Zuckerberg, and W.F. Porter. 2013. Climate change and wildlife. Pages 262-278 in Krausman, P. R., and Cain, J. W, editors. *Wildlife management and conservation: contemporary principles and practices*. Johns Hopkins University Press, Baltimore, Maryland, USA, and The Wildlife Society, Bethesda, Maryland, USA.
- Kujala, H., V. Vepsäläinen, B. Zuckerberg, and J. Brommer. 2013. Range margin shifts of birds revisited - the role of spatiotemporally varying survey effort. *Global Change Biology* 19(2): 420-430.
- Pauli, J.N., B. Zuckerberg, J.P. Whiteman, and W. Porter. 2013. The subnivium: a decaying seasonal refugium. *Frontiers in Ecology and the Environment* 11: 260-267.

## Recent Presentations

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- Sadoti, G., B. Zuckerberg, M. Jarzyna, and W.F. Porter. 2013. Applying occupancy estimation and modeling to the analysis of atlas data. *Diversity and Distributions* 19: 804–814.
- Jones, G.M., B. Zuckerberg, and A. Paulios. 2012. The early bird gets earlier: a phenological shift in migration timing of the American Robin (*Turdus migratorius*) in the state of Wisconsin. *Passenger Pigeon* 74(2): 131-142.
- Ma, Z., B. Zuckerberg, W.F. Porter, and L. Zhang. 2012. Spatial Poisson models for examining the influence of climate and land cover pattern on bird species richness. *Forest Science* 58(1): 61-74.
- Ma, Z., B. Zuckerberg, W.F. Porter, and L. Zhang. 2012. Use of localized descriptive statistics for exploring the spatial pattern changes of bird species richness at multiple spatial scales. *Applied Geography* 32: 185-194.
- Zuckerberg, B., and K. McGarigal. 2012. Widening the circle of investigation: the interface between citizen science and landscape ecology. Pages 114-124 in J.L. Dickinson and R. Bonney, editors. *Citizen Science: Public Collaboration in Environmental Research*. Cornell University Press, Ithaca, NY.
- Zuckerberg, B., A. Desrochers, W.M. Hochachka, D. Fink, W.D. Koenig, and J.L. Dickinson. 2012. Overlapping landscapes: A persistent, but misdirected concern when collecting and analyzing ecological data. *Journal of Wildlife Management* 76(5):1072–1080.

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## **Presentations**

### **Christine Ribic**

- Dadisman, J., D. Sample, C. Ribic, M. Guttery, and A. Paulios. Evaluation of the Grassland Bird Conservation Model in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Ribic, C.A., A. Paulios, and D. Sample. An overview of grassland bird ecology and conservation. The Wildlife Society Annual Meeting, 5-10 October 2013, Milwaukee, WI.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. Wisconsin Chapter of the Wildlife Society Winter Meeting, 13 March 2013, Rothschild, WI.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Schmitz, C., J. Dadisman, C.A. Ribic, D.W. Sample, and D. Schneider. Factors affecting grassland bird density in warm season grass fields in Southwest Wisconsin. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 12 December 2012, Wichita, KS.
- Guttery, M., C.A. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating the Wisconsin Grassland Bird Conservation Area Model. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 11 December 2012, Wichita, KS. Poster session.
- Hagell, S., S.D. Hull, M.J. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in natural resource management at the state level. Fourth International EcoSummit - Ecological Sustainability, 30 September-5 October 2012, Columbus, OH. Poster session.
- Guttery, M.R., C. Ribic, A. Paulios, D. Sample, and C. Trosen. Evaluating Wisconsin's Grassland Bird Conservation Area Model. 2012 Midwest Bird Conservation and Monitoring Workshop, 31 July-2 August 2012, Milwaukee, WI. Poster session.
- Ribic, C., D. Sample, and K. Koch. A landscape scale framework for cooperative grassland bird conservation. Midwest Bird Conservation and Monitoring Workshop, 31 July-2 August 2012, Milwaukee, WI.

## Recent Presentations

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Ribic, C., and D. Sample. A landscape level approach to cooperative grassland bird conservation throughout the Annual Cycle. Midwest Bird Conservation and Monitoring Workshop, 31 July 2012, Milwaukee, WI.

Hagell S., S.D. Hull, M.R. Reetz, K.J. Martin, M.W. Meyer, and C.A. Ribic. Enhancing the capacity for climate change adaptation in conservation planning at the state level. North American Congress for Conservation Biology, 15-18 July 2012, Oakland, CA. Poster session.

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### Jason Riddle

Broadway, M., J. Riddle, and S. Hull. The effect of landscape variables on greater prairie-chicken lek persistence in central Wisconsin. Annual Meeting of the Wisconsin State Chapter of The Wildlife Society, Spring 2014, Wausau, WI.

Francios, N., J. Riddle, J. Dittrich, S. Hull, and T. Simons. Two heads are better than one...or the other one. College of Natural Resources Undergraduate Research Symposium, Spring 2014, Stevens Point, WI.

Francios, N., J. Riddle, J. Dittrich, S. Hull, and T. Simons. Observer discrepancies with environmental covariates: let's agree to disagree. Annual Meeting of the Wisconsin State Chapter of The Wildlife Society, Spring 2014, Wausau, WI.

Riddle, J., S. Hull, L. Kardash, and E. Grossman. Estimates of greater prairie chicken population trends, detection probability, and lek abundance. Wisconsin Greater Prairie-Chicken Conservation Genetics Panel Meeting, Winter 2013, Madison, WI.

DeRubeis, A., P. McNaughton, J. Riddle, and S. Hull. Is there a relationship between diurnal raptor and greater prairie-chicken abundances at Buena Vista Wildlife Area (in Bancroft Wisconsin)? 20th Annual Conference of The Wildlife Society, Fall 2013, Milwaukee, WI.

Golden, N., S. Dubay, J. Riddle, and C. Jacques. Seroprevalence of *Leptospira interrogans* antibody in white-tailed deer from two sites in Wisconsin. 20th Annual Conference of The Wildlife Society, Fall 2013, Milwaukee, WI.

Moratz, K., K. Borgstrom, S. Dubay, and J. Riddle. Abundance of eastern gray squirrels in response to stand age within Sandhill Wildlife Area. 20th Annual Conference of The Wildlife Society, Fall 2013, Milwaukee, WI.

Riddle, J., S. Hull, L. Kardash, E. Grossman. Incorporating detection probability to estimate lek size in greater prairie-chickens: An example from Wisconsin. 20th Annual Conference of The Wildlife Society, Fall 2013, Milwaukee, WI.

Cava, J., J. Riddle, and R. Thiel. Survival and detection probabilities of woodpeckers and nuthatches wintering in central Wisconsin. Annual Meeting of the Wisconsin State Chapter of The Wildlife Society, Spring 2013, Wausau, WI.

Dittrich, J., J. Riddle, and S. Hull. Observer differences in ring-necked pheasant surveys: nothing to crow about. Annual Meeting of the Wisconsin State Chapter of The Wildlife Society, Spring 2013, Wisconsin Dells, WI.

Moratz, K., K. Borgstrom, S. Dubay, and J. Riddle. Abundance and occupancy modeling of eastern gray squirrels (*Sciurus carolinensis*) within Sandhill Wildlife Area in response to stand age. College of Natural Resources Undergraduate Research Symposium, Spring 2013, Stevens Point, WI.

Dittrich, J., J. Riddle, and S. Hull. Effect of detection probability on ring-necked pheasant abundance estimates. 19th Annual Conference of The Wildlife Society, Fall 2012, Portland, OR.

Dittrich, J., J. Riddle, and S. Hull. Detection probability basics and survey design considerations. Midwest Bird Conservation and Monitoring Workshop, Fall 2012, Milwaukee, WI.

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## Recent Presentations

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### Michael Samuel

- Jennelle, C., E. Osnas, M. Samuel, R. Rolley, J. Langenberg, D. Walsh, and D. Heisey. Improved surveillance for detecting chronic wasting disease: Lessons from Wisconsin. The Wildlife Society's 20<sup>th</sup> Annual Conference, 5-10 October 2013, Milwaukee, WI.
- Johnson, C.J., M. Thompson, C.B. Smith, M. Samuel, and J.A. Pedersen. Protein associated with cervid chronic wasting disease in environmental samples. Prion 2013, 26-29 May 2013, Banff, Canada. Poster session.
- Jara, R.F., and M.D. Samuel. Seroprevalence of Lyme disease, anaplasmosis, ehrlichiosis and heartworm in Gray Wolves from Wisconsin between 1985 and 2008. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Jara, R.F., and M.D. Samuel. Seroprevalence of Lyme disease, anaplasmosis, ehrlichiosis and heartworm in Gray Wolves from Wisconsin between 1985 and 2008. Annual Conference of The Wildlife Society, 13-18 October 2012, Portland, OR. Poster session.
- Samuel, M.D. What you always wanted to know about chronic wasting disease, but were afraid to ask. Annual Conference of The Wildlife Society, 13-18 October 2012, Portland, OR.
- Johnson, C.J., C.J. Booth, C.B. Smith, J.M. Aiken, M.D. Samuel, and J.A. Pedersen. Detection of prion protein associate with cervid chronic wasting disease in environmental samples. 61st International conference of the Wildlife Disease Association, 22-27 July 2012, Lyons, France. Poster session.
- Robinson, S., M. Samuel, D. Lopez, and P. Shelton. Dispersal across an infected landscape: landscape genetics informs landscape epidemiological models of chronic wasting disease spread in the Midwest. 61st International conference of the Wildlife Disease Association, 22-27 July 2012, Lyons, France. Poster session.
- Johnson, C.J., C.J. Booth, C.B. Smith, J.M. Aiken, M.D. Samuel, and J.A. Pedersen. Detection of prion protein associated with cervid chronic wasting disease in environmental samples. S11.03-P-7 Eurosoil 2012, 2-6 July 2012, Bari, Italy.
- Piazza, T.M., D.S. Blehert, M.D. Samuel, F.M. Dunning, F.N. Zeytin, and W.C. Tucker. A new in vitro method for detecting botulinum neurotoxin type E. Avian botulism in distressed Great Lakes environments project planning meeting. Environmental Protection Agency Great Lakes National Program Office, 10 January 2012, Chicago, IL.

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### Timothy Van Deelen

- Van Deelen, T.R. Wolves, bears, deer, hunters, and other trivialities in Wisconsin. Biology Colloquium, University of Wisconsin, 11 April 2014, Whitewater, WI. Invited speaker.
- Van Deelen, T.R. Deer, wolves, and humans in Wisconsin, USA. School of Life Sciences, Peking University, 22 March 2014, Beijing, Peoples Republic of China. Invited speaker.
- Van Deelen, T.R. Conservation and the recovery of a top carnivore in Wisconsin USA. Workshop on Nature Conservation and Sustainable Development in Sichuan Province of China, 17 March 2014, Chengdu, People's Republic of China. Invited speaker.
- Stenglein, J.L., T.R. Van Deelen, D. Heisey, and A.P. Wydeven. Survival of Wisconsin's gray wolves, 1979-2012. Winter Meeting of The Wisconsin Chapter of The Wildlife Society, 13 March 2014, Wausau, WI.
- Norton, A.S., T.R. Van Deelen, M. Watt, R. Walrath, D. Storm, and D. Heisey. A Bayesian approach to estimating white-tailed deer abundance using an integrated age-at-harvest model. Winter Meeting of The Wisconsin Chapter of The Wildlife Society, 12 March 2014, Wausau, WI.
- Van Deelen, T.R. Professionalism, praxis, and The Wildlife Society's certification program and why you should care. Winter Meeting of The Wisconsin Chapter of The Wildlife Society, 12 March 2014, Wausau, WI.

## Recent Presentations

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- Sample, D.W., J. Doyle, and T. Van Deelen. The ecology of badgers in Wisconsin. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Stenglein, J., T. Van Deelen, A. Wydeven, and D. MacFarland. Wisconsin wolf harvest modeling. DNR Wildlife Management Statewide Meeting, 15 January 2014, Oshkosh, WI.
- Stenglein, J. and T. Van Deelen. Population dynamics of Wisconsin's wolves, 1979 – 2012. Carnivore Tracking and Wolf Ecology Workshop, 12 January 2014, Grantsburg, WI.
- Anhalt C., T. Van Deelen, R. Schultz, and A. Wydeven. Effectiveness of a simulated pack to manipulate wolf movements. Carnivore Tracking and Wolf Ecology Workshop, 12 January 2014, Grantsburg, WI.
- Van Deelen, T.R. Life history of badgers in southern Wisconsin. Friends of the Arboretum, 23 October 2013, Madison, WI. Requested presentation.
- Van Deelen, T.R. Comments to Wisconsin's Natural Resources Board on science and deer management, 22 October 2013, Madison, WI. Requested presentation.
- Stenglein, J.L, and T.R. Van Deelen. Mate-finding and spatial variation in mortality cause a demographic Allee effect in Great Lakes wolves. The International Wolf Symposium, 10-13 October 2013, Duluth, MN.
- Norton, A.S., D. Heisey, T.R. Van Deelen, M. Watt, and K.J. Martin. A Bayesian approach to estimating white-tailed deer abundance using an integrated age-at-harvest model. The Wildlife Society, 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Van Deelen, T.R., J.L. Stenglein, A.S. Norton, B. Peterson, C. Warbington, D.J. Storm, and K.J. Martin. Climate and local deer migrations. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI. Invited speaker.
- Warbington, C., T. Van Deelen, K. Martin, A.S. Norton, and J. Stenglein. Linking bedsite selection, summer weather, and weekly survival of neonatal white-tailed deer. The Wildlife Society 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Stenglein, J.L, and T.R. Van Deelen. Effect of additional human-caused mortality on Wisconsin's wolf population: an individual-based modeling approach. The Wildlife Society 20<sup>th</sup> Annual Conference, 8 October 2013, Milwaukee, WI.
- Warbington, C.H., T.R. Van Deelen, K. Martin, A. Norton, C.N. Jacques, J. Stenglein, and M. Watt. Cause-specific mortality of neo-natal white-tailed deer in different ecological contexts. The Wildlife Society 20<sup>th</sup> Annual Conference, 8 October 2013, Milwaukee, WI.
- Anhalt, C., K. Martin, T. Rittenhouse, T. Knoot, D. McFarland, and T. Van Deelen. Assessment of woody biomass harvests in northern Wisconsin. Wildlife and Forestry Research Section Meeting, 29 August 2013, Kemp Research Station, Minocqua, WI.
- Anhalt C., T. Van Deelen, R. Schultz, and A. Wydeven. Using remote technologies in gray wolf research. 'Uncanny Sensing' Artist Talk, 24 August 2013, University of Wisconsin Milwaukee Institute of Visual Arts, Milwaukee, WI.
- Stenglein, J.L., J. Zhu, and T.R. Van Deelen. An integrated population model to uncover informative discrepancies in population growth. 98<sup>th</sup> Annual Meeting of The Ecological Society of America, 4-9 August 2013, Minneapolis, MN.
- Van Deelen, T.R. A deer nerd looks at wolf hunting in Wisconsin. 2013 Midwest Wolf Stewards Conference, 18 April 2013, Silver City, MI.
- Stenglein, J.L, and T.R. Van Deelen. Integrated population models and unobserved mortality in Wisconsin's wolf population. 2013 Midwest Wolf Stewards Conference, 17 April 2013, Silver City, MI.
- Doyle, J., T. Van Deelen, D. Sample, and D. MacFarland. Home range size and habitat selection of America Badgers in southwest Wisconsin. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.

## Recent Presentations

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- Norton, A., T. Van Deelen, M. Watt, and K. Martin. Preliminary survival rates for adult male white-tailed deer in Wisconsin. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.
- Stenglein, J.L. and T.R. Van Deelen. Modeling the population-level effect of Wisconsin's proposed wolf harvest. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal deer in different ecological contexts. Annual Meeting of the Wisconsin Chapter of The Wildlife Society, 14 March 2013, Wisconsin Dells, WI. Awarded Best Student Presentation.
- Doyle, J., T. Van Deelen, D. Sample, and D. MacFarland. Life history of American badgers in southwest Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Duquette, J., A. Norton, M. Watt, T. Van Deelen, and K. Martin. Buck and doe mortality and spatial ecology in Wisconsin. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Norton, A., M. Watt, T. Van Deelen, K. Martin, J. Duquette, C. Jacques, and C. Warbington. Integrating vital rates into white-tailed deer population models. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, J. Stenglein, and M. Watt. Cause-specific mortality of neonatal white-tailed deer in different ecological contexts. 2013 Science Open House, 1 March 2013, Madison, WI. Poster session.
- Warbington, C., T. Van Deelen, C. Jacques, K. Martin, A. Norton, and M. Watt. Cause-specific mortality of neonatal white-tailed deer in different ecological contexts. 73<sup>rd</sup> Midwest Fish and Wildlife Conference, 10 December 2012, Wichita, KS.
- Van Deelen, T.R. Wolves, hunters, bears, and other trivialities in Wisconsin. University of Wisconsin, Department of Forest and Wildlife Ecology, 2 November 2012, Madison, WI.
- Zulueta, R., D. Drake, A. Treves, J.M. Morton, M. Rickenbach, and T.R. Van Deelen. Analysis of residential attitudes, risk perception, and tolerance toward brown and black bears on the Kenai Peninsula of Alaska. 19<sup>th</sup> Annual Conference of The Wildlife Society, 17 October 2012, Portland, OR.
- Stenglein, J.L., T.R. Van Deelen, and D. Heisey. Quantifying cryptic mortality in radio-telemetry survival data when censoring is not independent of death: a case study of gray wolves in Wisconsin. 19<sup>th</sup> Annual Conference of The Wildlife Society, 16 October 2012, Portland, OR.

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### **Benjamin Zuckerberg**

- Zuckerberg, B., K. Prince, and L. Pomara. Climate change impacts on wildlife. Ohio State Changing Climate Webinar, 29 May 2014, Columbus, OH.
- Zuckerberg, B. Sentinels of climate change. Earth Day Conference, 22 April 2014, Madison, WI.
- Zuckerberg, B. Climate change and wildlife. Forum on Climate Change and Wisconsin Hunting and Fishing, 1 April 2014, Baraboo, WI.
- Zuckerberg, B. Cold-adapted birds in a warming world. Department of Natural Resources and Environmental Science Seminar Series, University of Illinois at Urbana-Champaign, 21 March 2014, Urbana-Champaign, IL.
- Knot, T., K. Martin, C. Anhalt, A. Sharp, O. LeDee, B. Zuckerberg, and A. Rissman. Barriers and opportunities to managing for environmental change and disturbance in the Upper Midwest. 74<sup>th</sup> Midwest Fish and Wildlife Conference, 26-29 January 2014, Kansas City, MO.
- Anhalt, C., T. Knot, A. Sharp, K. Martin, O. LeDee, B. Zuckerberg, and A. Rissman. Managing for environmental change and disturbance in the Upper Midwest. Wisconsin DNR Wildlife Statewide Meeting, 15 January 2014, Oshkosh, WI.

## Recent Presentations

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- Strong C., B. Zuckerberg, and J. Betancourt. Climate as a driver of continent-wide irruptions in boreal seed-eating birds. American Geophysical Union Fall Meeting, Session B53F Phenology as Both Forcing and Response: Integrating Measurements and Models Across Terrestrial and Aquatic Ecosystems (Abstract B53F-01), 9-13 December 2013, San Francisco, CA.
- Knot, T., C. Anhalt, A. Sharp, K. Martin, O. LeDee, and B. Zuckerberg. Barriers and opportunities to managing for disturbance and environmental change in the Upper Midwest. Webinar to Science Team for Climate Change and Forests, 5 December 2013, Madison, WI.
- Zuckerberg, B. Cold-adapted species in a warming world. Workshop on Coping with Extreme Weather and Climate Change: Management Strategies for the Upper Midwest, 20-21 November 2013, La Crosse, WI.
- Ross, E., and B. Zuckerberg. Citizen science reveals broad-scale environmental drivers of avian migration phenology and the implications of projected climate change. Center for Climatic Research 50th Anniversary Celebration, 18 October 2013, Madison, WI. Poster session.
- Zuckerberg, B. Cold-adapted species in a warming world. Center for Climatic Research 50th Anniversary Celebration, 18 October 2013, Madison, WI.
- Zuckerberg, B., L.Y. Pomara, O. LeDee, and K. Martin. Seasonality and climate change vulnerability assessment: the importance of winter conditions for documenting and forecasting species demographic and distributional change. Co-organizer and speaker at "Warming winter and wildlife" symposium at The Wildlife Society's 20th Annual Society Meeting, 7-11 October 2013, Milwaukee, WI.
- Sultaire, S., J.N. Pauli, and B. Zuckerberg. 'Tracking' the footprint of climate change: snowshoe hares in Wisconsin. The Wildlife Society's 20th Annual Conference, 5-10 October 2013, Milwaukee, WI. Poster session.
- Anich, N.M., M. Worland, K.J. Martin, and B. Zuckerberg. Boreal birds in northern Wisconsin: populations along the trailing edge. The Wildlife Society's 20<sup>th</sup> Annual Conference, 9 October 2013, Milwaukee, WI.
- Ross, E., and B. Zuckerberg. Citizen science reveals broad-scale environmental drivers of avian migration phenology and the implications of projected climate change. SciMed Graduate Research Scholars Poster Session, 19 September 2013, Madison, WI.
- Princé, K., and B. Zuckerberg. Climate change induced shift in North American wintering bird communities. 131 Meeting of American Ornithologists Union, 14-17 August 2013, Chicago, IL.
- Ross, E.J., B. Zuckerberg, and D.N. Bonter. Regional responses in spring migration phenology to climatic cues for short-distance migrants. 131st Meeting of the American Ornithologists Union, 14-17 August 2013, Chicago, IL.
- Princé, K., and B. Zuckerberg. Climate change induced shift in North American wintering bird communities. Wisconsin Ecology Symposium, 18-19 April 2013, Madison, WI. Poster session.
- Sultaire S., J.N. Pauli, and B. Zuckerberg. Changes in snowshoe hare occupancy along a geographic range boundary. Wisconsin Chapter of The Wildlife Society Winter Meeting, 12-14 March 2013, Wisconsin Dells, WI.
- Zuckerberg, B. Changing migration of bird migration. Rotary club of Madison West Towne, 9 November 2012, Middleton, WI.
- Zuckerberg, B., D.N. Bonter, and W.M. Hochachka. How might human-modified landscapes alter bioclimatic relationships in wintering birds? The Wildlife Society 19th Annual Conference, 13-18 October 2012, Portland, OR.
- Zuckerberg, B. Changing migration of bird migration. Wisconsin Ecology, 21 September 2012, Madison, WI.
- Bonter, D.N., B. Zuckerberg, and W.M. Hochachka. Cache economy: Inter-annual variability in reliance on supplemental food revealed by "smart" feeders. North American Ornithological Conference, 14-18 August 2012, Vancouver, CA.

## Recent Presentations

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Zuckerberg, B., E. Ross, and D.N. Bonter. The early bird gets earlier: analyzing shifts in the migration phenology of spring migrants using citizen science. Symposium on Tracking migratory stopover phenology: Climate change and the phenological synchrony of North American bird migration with seasonal resources. North American Ornithological Conference-V, 14-18 August 2012, Vancouver, CA.

Zuckerberg, B., G.M. Jones, and A. Paulios. Early bird gets earlier: shifts in migration phenology of early-spring migrants in the Midwest. Wisconsin Ornithological Society, 12 May 2012, Middleton, WI.

Zuckerberg, B. Hierarchical responses of wintering birds to weather and climate change. University of Wyoming, 4 April 2012, Laramie, WY.

Zuckerberg, B. Birds, forests, and climate change. Cabin Fever Lecture Series, Baraboo Range Preservation Association, 22 March 2012, Baraboo, WI.

Jones, G.M., B. Zuckerberg, and A. Paulios. The early bird gets earlier: changes in migration phenology. The Wildlife Society State Chapter, 29 February 2012, Rothschild, WI.



*Juvenile bald eagle contaminant sampling, Bayfield, WI.*

## Scientist and Technician Biographies

Scientists in the Wildlife and Forestry Research Section are experts in their fields of study. In the following section, we provide information on their educational background, their area of expertise, and key collaborators.

### Christine Anhalt, LTE Research Scientist

**Education:**

B.A., 2009. Biology & Psychology, Ripon College  
M.S., 2011. Conservation Biology & Sustainable Development, University of Wisconsin-Madison



**Expertise:**

Human dimensions of natural resources, wildlife ecology

**Key Collaborators:**

UW-Madison Forest and Wildlife Ecology Department

### John Dadisman, LTE Grassland Bird Technician

**Education:**

B.S., 1980. Limnology & Biology, University of Wisconsin-Stevens Point  
M.S., 1990. Natural Resources & Water Chemistry, University of Wisconsin-Stevens Point



**Expertise:**

Grassland birds

**Key Collaborators:**

David Sample and Daniel Schneider (WDNR); Christine Ribic (UW-Madison); many students of the UW-Madison Forest and Wildlife Ecology Department

### Nicholas Anich, LTE Avian Research Scientist

**Education:**

B.A., 2002. Biology, St. Olaf College  
M.S., 2008. Biology, Arkansas State University



**Expertise:**

Avian ecology, avian habitat and space use, boreal birds, Kirtland's warbler, Swainson's warbler

**Key Collaborators:**

Mike Worland, Tom Prestby, and Karl Martin (WDNR); WDNR Bureaus of Wildlife Management and Natural Heritage Conservation; U.S. Forest Service; Mike Ward, Illinois Natural History Survey

### Brian Dhuey, Survey Database Manager

**Education:**

B.S., 1987. Biology, Ecology Emphasis, University of Wisconsin-Oshkosh



**Expertise:**

Wildlife harvest, permits, season lengths, and population information for most hunted and trapped species in Wisconsin

**Key Collaborators:**

WDNR Bureaus of Wildlife Management, Natural Heritage Conservation, Division of Forestry, Customer Service and Licensing, and Law Enforcement; UW-System Universities; United States Fish and Wildlife Service; United States Forest Service; Great Lakes Indian Fish and Wildlife Commission; WI Tribal Member; US Military

### Dustin Bronson, Forest Research Ecologist

**Education:**

B.S., 2004. Zoology, Michigan State University  
Ph.D., 2008. Forest Ecology; Minor: Soil Science, University of Wisconsin-Madison



**Expertise:**

Effects of herbivory on forest productivity, sustainable forest biomass harvesting, accelerated old-growth forest management, impacts of climatic variation on forest ecosystem processes

**Key Collaborators:**

Mike Worland, Karin Fassnacht, Daniel Storm, Tricia Knoot, Jed Meunier and Karl Martin (WDNR)

### Karin Fassnacht, LTE Scientist MOSS Coordinator

**Education:**

B.S., 1992. Forest Science, University of Wisconsin-Madison  
M.S., 1995. Environmental Monitoring, University of Wisconsin-Madison  
Ph.D., 1996. Forest Ecosystem Ecology, University of Wisconsin-Madison



**Expertise:**

Forest ecology, satellite remote sensing, GIS

**Key Collaborators:**

WDNR Wildlife and Forestry Research Section; WDNR Division of Forestry; WDNR Bureau of Wildlife Management; UW-Madison Department of Forest and Wildlife Ecology; UW-Madison Kemp Natural Resources Station; University of Minnesota – Twin Cities; US Forest Service - Northern Research Station Research Work Units 07 & 13; US Forest Service - Watershed, Fish, Wildlife, Air & Rare Plants program

## Scientist and Technician Biographies

### Brick M. Fevold, LTE NR Research Scientist

**Education:**

B.S., 1995. Wildlife Ecology, University of Wisconsin-Madison  
C-GIS, 2002. Geography, University of Wisconsin-Madison  
M.S., 2003. Wildlife Ecology, University of Wisconsin-Madison

**Expertise:**

Applied ecology and GIS, field methodology and study design concepts, ecological restoration, ephemeral wetlands, common loons, wolf-livestock interaction

**Key Collaborators:**

Mike Meyer (WDNR), Dan Haskell (MTU), Tom Bernthal (WDNR), Kim Grveles (WDNR), Interagency Working Group on Habitat Restoration Quality Assurance

### Richard Henderson, Plant Ecologist

**Education:**

B.A., 1977. Biological Aspects of Conservation, University of Wisconsin-Madison  
M.S., 1981. Landscape Architecture: Natural Resources, University of Wisconsin-Madison

**Expertise:**

Ecology of prairies, oak savannas, oak woodlands, sedge meadows, and purple loosestrife; and fire ecology and effects

**Key Collaborators:**

University of Wisconsin – Departments of Botany, Landscape Architecture, and Entomology; Dr. Ron Panzer (NEIU); Eric Metzler (The Ohio Lepidopterists); Dr. Paul Goldsteing (FL Museum of Natural History); John Shuey (TNC); Dr. Zhiwei Lu (EIU); Dr. John Tooker (PSU)

### Todd Flournoy, LTE Human Dimensions Research Scientist

**Education:**

B.A., 1991. Psychology, Wheaton College (IL)  
M.Arch., 1998. Architecture, University of Texas at Austin  
M.F., 2012. Forest Ecosystems & Society, Oregon State University  
Ph.D. student. Urban & Regional Planning, University of Wisconsin-Madison

**Expertise:**

Collaborative resource planning and management, land use policy, rural sociology and rural development

### Jo Horton, LTE NR Research Technician

**Education:**

B.S., 2010. Wildlife Ecology-Natural Resources, Landscape Architecture-Natural Resources, University of Wisconsin-Madison  
C-GIS, 2002. Geography, University of Wisconsin-Madison

**Expertise:**

Remote sensing, GIS, land use and land cover change, satellite imagery interpretation

**Key Collaborators:**

Ron Gatti, Dave Sample, Andy Paulios, John Dadisman, and Daniel Schneider (WDNR), Chris Trosen (USFWS), Michael Guttery and Christine Ribic (UW-Madison)

### Ron Gatti, Waterfowl Biologist

**Education:**

B.S., 1974. Fisheries and Wildlife Biology, Iowa State University  
M.S., 1979. Wildlife Ecology, University of Wisconsin-Madison

**Expertise:**

Duck biology, ecology, and population management.  
Geese, pheasants, nongame birds in forests and grasslands, watershed modeling, GIS, and radio telemetry

**Key Collaborators:**

Christine Ribic (UW-Madison); Greg Soulierre (USFWS Joint Venture Science Coordinator); Mississippi Flyway Council Technical Section; Kent Van Horn, Ricky Lien, and Jason Fleener (WDNR)

### Scott Hull, Game Team Leader and Upland Gamebird Researcher

**Education:**

B.S., 1991. Wildlife Management, University of Wisconsin-Stevens Point  
M.S., 1993. Biology, Kansas State University  
Ph.D., 2002. Zoology, The Ohio State University

**Expertise:**

Upland/Grassland wildlife management, wildlife habitat relationships, endangered resources management, bioenergy impacts on wildlife, farm-bill policy and conservation implications

**Key Collaborators:**

WDNR Bureaus of Wildlife Management Natural Heritage Conservation, and the Division of Forestry; UW Forest and Wildlife Ecology Department, Department of Agronomy; UW-Stevens Point College of Natural Resources; USDA-NRCS and FSA; U.S. Forest Service

## Scientist and Technician Biographies

### Rich Kahl, Waterfowl Biologist and Migratory Bird Banding Master Permittee

**Education:**

B.S., 1976. Wildlife Management, University of Wisconsin-Stevens Point  
M.S., 1980. Wildlife Management, University of Missouri-Columbia

**Expertise:**

Shallow lake ecology, waterfowl biology

**Key Collaborators:**

WDNR Bureaus of Wildlife Management and Natural Heritage Conservation; USGS

### Karl Martin, Scientist and Chief

**Education:**

B.S., 1991. Wildlife Ecology, University of Wisconsin-Madison  
M.S., 1994. Wildlife Science, Oregon State University  
Ph.D., 1998. Forest Science, Oregon State University

**Expertise:**

Forest and wildlife management, wildlife habitat relationships, silviculture, and endangered resources management

**Key Collaborators:**

UW-Madison Forest and Wildlife Ecology Department; UW-Stevens Point College of Natural Resources; Gaylord Nelson Institute for Environmental Studies; US Forest Service; US Fish and Wildlife Service; US Geological Survey; Upper Midwest Great Lakes Landscape Conservation Cooperative; Northern Institute of Applied Climate Science; Northern Forest Research Station; University of Minnesota Department of Forest Resources; UW-Extension; WDNR Bureaus of Wildlife Management and Natural Heritage Conservation, and the Division of Forestry.

### Jessica Kitchell, LTE Survey Technician

**Education:**

B.A., 2001. Biological Aspects of Conservation, with a certificate (minor) in Environmental Studies, University of Wisconsin-Madison  
C-GIS, 2002. Geography, University of Wisconsin-Madison

**Expertise:**

Wildlife surveys, GIS

**Key Collaborators:**

WDNR Bureaus of Wildlife Management and Natural Heritage Conservation

### Jed Meunier, Forest Ecology Research Scientist (Project)

**Education:**

B.A., 1999. Natural Resource Management, Colorado State University  
M.S., 2005. Wildlife Ecology, University of Wisconsin-Madison  
Ph.D., 2012. Ecology, Colorado State University

**Expertise:**

Fire ecology, effects of disturbance and climate on forest ecosystems, dendrochronology, American woodcock

**Key Collaborators:**

Tricia Knoot, Dustin Bronson, and Karl Martin (WDNR); WDNR Bureaus of Wildlife Management and Natural Heritage Conservation; U.S. Forest Service, The Nature Conservancy

### Tricia Knoot, Forest Research Sociologist/Economist

**Education:**

B.A., 1997. Zoology and Biological Aspects of Conservation, University of Wisconsin-Madison  
M.S., 2004. Ecology & Evolutionary Biology (emphasis in Wildlife Ecology), Iowa State University  
Ph.D., 2008. Forestry, Iowa State University

**Expertise:**

Human dimensions of natural resources, social and economic survey design and analysis, forest and wildlife ecology, landscape ecology, and GIS

**Key Collaborators:**

WDNR Division of Forestry and Bureau of Wildlife Management; UW-Madison Forest and Wildlife Ecology Department and the Department of Life Sciences Communication; University of Minnesota Department of Forest Resources; Iowa State University Department of Natural Resource Ecology and Management; USDA Forest Service Northern Research Station; UW-Extension; Wisconsin Bird Conservation Initiative; Aldo Leopold Foundation; The Nature Conservancy; and the American Forest Foundation.

### Michael Meyer, Wildlife Toxicologist

**Education:**

B.S., 1978. Biology, University of Wisconsin-Stevens Point  
M.S., 1982. Animal Sciences, Texas A&M University  
Ph.D., 1989. Wildlife Ecology, University of Wisconsin-Madison

**Expertise:**

Impacts of contaminant exposure on Wisconsin wildlife populations, impacts of development on northern lakes wildlife populations, climate change impacts on wildlife and habitat.

**Key Collaborators:**

USGS Upper Midwest Environmental Sciences Center; National Park Service – Ashland; USFWS Green Bay and East Lansing; WDNR Bureau of Watershed Management; UW Forest and Wildlife Ecology Department; Michigan Technological University, Houghton; WDNR Bureaus of Wildlife Management and Natural Heritage Conservation, and the Northern Highlands/American Legion State Forests.

## Scientist and Technician Biographies

### Mike Mossman, Forest Community Ecologist

**Education:**

B.S., 1976. Biology,  
University of Wisconsin-Madison  
M.S., 1984. Wildlife Ecology,  
University of Wisconsin-Madison

**Expertise:**

Effects of land use on bird, amphibian,  
and small mammal populations

**Key Collaborators:**

Aldo Leopold Foundation; The Nature Conservancy; USFWS; US  
Army; Driftless Area Initiative; University of Wisconsin-Madison;  
and the WDNR Bureaus of Wildlife Management, Natural  
Heritage Conservation, and Division of Forestry



### Chris Pollentier, LTE Upland Gamebird Research Scientist

**Education:**

B.S., 2005. Biology, Environmental  
Science Concentration,  
University of Wisconsin-La Crosse  
M.S., 2012. Wildlife Ecology,  
University of Wisconsin-Madison

**Expertise:**

Wild turkey, prairie grouse, and  
pheasant biology, ecology, population  
management. GIS and radio-telemetry.

**Key Collaborators:**

Scott Hull, Karl Martin (WDNR); WDNR Bureau of Wildlife  
Management; R. Scott Lutz, Ben Zuckerberg (UW-Madison);  
Jason Riddle (UW-Stevens Point).



### Kristina Nixon, LTE Research Scientist

**Education:**

B.A., 2005. Biology, Carleton College  
M.S., 2012. Conservation Biology and  
Sustainable Development,  
University of Wisconsin-Madison

**Expertise:**

Landscape ecology and modeling,  
habitat modeling, forest ecology, GIS.

**Key Collaborators:**

Tricia Knoot, Dustin Bronson, Jed  
Meunier, Karl Martin (WDNR); Janet Silbernagel (UW-Madison);  
Nick Miller and Randy Swaty (TNC)



### Jessica Rees, LTE Research Technician

**Education:**

B.S., 2009. Wildlife Ecology,  
University of Wisconsin-Madison  
B.S., 2009. Biology,  
University of Wisconsin-Madison

**Expertise:**

Wildlife surveys, wildlife capture  
techniques, and radio telemetry

**Key Collaborators:**

WDNR Bureaus of Wildlife Management  
and Natural Heritage Conservation



### Teresa Pearson, LTE Research Technician

**Education:**

B.S., 2007. Environmental Biology,  
University of La-Crosse

**Expertise:**

Forest ecology and wildlife  
surveys/sampling.

**Key Collaborators:**

Dustin Bronson and Nathan Roberts  
(WDNR).



### Laura Reuling, LTE Forest Ecology Research Scientist

**Education:**

B.A., 2011. Biology, Ripon College  
M.S., 2014. Natural Resources Science  
and Management,  
University of Minnesota-Twin Cities

**Expertise:**

Forest ecology, interactions between  
ungulates and forest regeneration

**Key Collaborators:**

Dustin Bronson and Karl Martin (WDNR); Anthony D'Amato  
(University of Minnesota); U.S. Forest Service



### Brittany Peterson, LTE Research Technician

**Education:**

B.S., 2010. Wildlife  
Conservation and  
Management,  
Humboldt State University  
M.S., student. Wildlife  
Ecology, University of  
Wisconsin-Madison

**Expertise:**

Deer ecology, wildlife capture,  
radio telemetry

**Key Collaborators:**

Daniel Storm (WDNR), Tim Van Deelen (UW-Madison)



### Christine Ribic, USGS, Wisconsin Cooperative Wildlife Research Unit, Unit Leader

**Education:**

B.S., 1976. Wildlife Biology,  
Colorado State University  
M.S., 1980. Ecology,  
University of Minnesota  
M.S., 1983. Statistics,  
University of Minnesota  
Ph.D., 1984. Ecology,  
University of Minnesota

**Expertise:**

Grassland vertebrate ecology and conservation, landscape  
ecology, biometrics, alternate energy production impacts on  
terrestrial wildlife

**Key WDNR Collaborators:**

David Sample, Andy Paulios, Karl Martin



## Scientist and Technician Biographies

### Jason Riddle, Assistant Professor of Wildlife Ecology

**Education:**

B.S., 1999. Biology,  
The College of William and Mary  
M.S., 2003. Biology, Appalachian State  
University  
Ph.D., 2007. Fisheries and Wildlife  
Science. North Carolina State  
University

**Expertise:**

Upland game bird research and  
management, songbird and upland  
game bird nest ecology, point count  
methods, detection and capture probability estimation

**Key WDNR Collaborators:**

Scott Hull, Lesa Kardash, and Erin Grossman

### David Sample, Grassland Community Ecologist

**Education:**

B.A., 1978. Philosophy,  
Bowdoin College  
M.S., 1989. Land Resources,  
University of Wisconsin-Madison.

**Expertise:**

Birds and other vertebrates of  
grasslands and savannas: community  
ecology; habitat preferences; impacts  
of land use changes; ecology of the  
American Badger; habitat management  
on public and private lands – including  
the production of biomass energy crops; population monitoring;  
grassland and agricultural ecosystems research.

**Key Collaborators:**

Christine Ribic, Monica Turner, Tim Van Deelen, Randy  
Jackson, Michael Guttery, and Carol Williams (UW-Madison);  
Chris Trosen Tom Will, and Katie Koch (USFWS); Scott  
Walter, Scott Hull, Andy Paulios, and Maureen Rowe (WDNR);  
WDNR Bureau of Natural Heritage Conservation; Emily Latch  
and Peter Dunn (UW-Milwaukee); Jim Herkert (IL DNR); Roz  
Renfrew (Vermont Center for Ecostudies)

### Nathan Roberts, Bear, Wolf, and Furbearer Research Scientist

**Education:**

B.S., 2000. Fisheries and Wildlife  
Management, University of Missouri  
M.S., 2003. Wildlife Ecology,  
University of Missouri  
Ph.D., 2009. Wildlife Ecology, Cornell

**Expertise:**

Carnivore/furbearer ecology and  
management

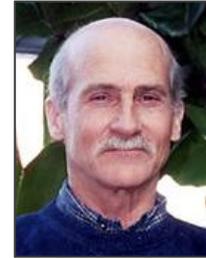
**Key Collaborators:**

Robert Rolley, John Olson, David MacFarland, Molly Wic  
(WDNR); Tim VanDeelen (UW-Madison); Jonathan Gilbert  
(GLIFWC); Bryant White (AFWA)

### Michael Samuel, Assistant Wildlife Cooperative Research Unit Leader

**Education:**

B.S., Computer Science,  
University of California-Berkeley  
M.S., Ecology,  
University of California-Berkeley  
M.S., Applied Statistics,  
University of Idaho  
Ph.D., Wildlife Management,  
University of Idaho

**Expertise:**

Ecology and epidemiology of wildlife  
diseases

**Key WDNR Collaborators:**

Robert Rolley, Karl Martin, Julie Langenberg, and Alan  
Crossley

### Robert Rolley, Wildlife Population Ecologist

**Education:**

B.S., 1977. Wildlife and Fisheries  
Biology, University of California-Davis  
M.S., 1979. Wildlife Ecology,  
University of Wisconsin-Madison  
Ph.D., 1983. Wildlife Ecology,  
Oklahoma State University

**Expertise:**

Wildlife population dynamics,  
monitoring wildlife population trends,  
effect of harvest on wildlife populations,  
modeling population response to management strategies, viability  
and management of small populations, Chronic Wasting Disease  
management

**Key Collaborators:**

Dr. Timothy Van Deelen and Dr. Michael Samuel (UW-Madison);  
Dr. Eric Anderson (UW-Stevens Point)

### Daniel Schneider, LTE Grassland Bird Technician

**Education:**

B.S., 2002. Philosophy, International  
Studies, University of Wisconsin-  
Stevens Point

**Expertise:**

Grassland birds

**Key Collaborators:**

David Sample, Ron Gatti, John  
Dadisman, Scott Hull,  
and Richard Henderson (WDNR);  
Christine Ribic (UW-Madison);  
UW-Madison graduate students Jimmy Doyle and  
Carolyn Schmitz; UW-Stevens Point graduate student  
Joe Dittrich.

## Scientist and Technician Biographies

### Jen Stenglein, Quantitative Wildlife Research Scientist

**Education:**

B.S., 2006. Biology and science education, Grove City College, PA  
M.S. 2009. Environmental Science, University of Idaho  
M.S. 2013. Biometry, University of Wisconsin – Madison  
Ph.D., 2014. Wildlife Ecology, University of Wisconsin – Madison

**Expertise:**

Wildlife population dynamics, Bayesian modeling, noninvasive monitoring, survival analysis

**Key Collaborators:**

Tim Van Deelen, Jun Zhu, Mike Samuel, Ben Zuckerberg, Phil Townsend, Aditya Singh (UW-Madison); Dennis Heisey (USGS); Karl Martin, Christine Anhalt, Mike Kvitrud, Sarath Manne, Dougal Walker (WDNR)

### Daniel Storm, Ungulate Research Ecologist

**Education:**

B.S., 2002. Wildlife and Fisheries Sciences, South Dakota State University  
M.S., 2005. Zoology, Southern Illinois University Carbondale  
Ph.D., 2011. Wildlife Ecology, University of Wisconsin-Madison

**Expertise:**

Ungulate ecology and management, ecology and management of wildlife diseases, wildlife population monitoring

**Key Collaborators:**

UW Forest and Wildlife Ecology Department; Wisconsin Cooperative Wildlife Research Unit; WDNR Bureau of Wildlife Management

### Timothy R. Van Deelen, Associate Professor, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison

**Education:**

B.S., 1988. Biology, Calvin College, Grand Rapids, MI  
M.S., 1991. Wildlife Biology, University of Montana  
Ph.D., 1995. Wildlife Ecology, Michigan State University

**Expertise:**

Interactions of population dynamics, landscape-scale habitat use, behavior, and human impacts in terrestrial wildlife ecology, Wildlife management, Conservation of large mammals, Ecology of exploited populations, Deer ecology and management

**Key WDNR Collaborators:**

David Sample, Karl Martin, Daniel Storm, Nathan Roberts, Robert Rolley, Ryan Walrath, David MacFarland, Jennifer Stenglein, Christine Anhalt

### Ryan Walrath, LTE Ungulate Research Scientist

**Education:**

B.A., 2006. Fisheries & Wildlife, University of Nebraska-Lincoln  
M.S., 2009. Forest & Wildlife Ecology, University of Wisconsin-Madison

**Expertise:**

Ungulate biology and ecology, GIS and radiotelemetry.

**Key Collaborators:**

Daniel Storm, Dustin Bronson and Karl Martin (WDNR); UW-System Universities.

### Jay Watson, LTE Research Technician

**Education:**

B.S., 2005. Biology and Environmental Science, University of Wisconsin-Green Bay  
M.S., 2009. Environmental Science and Policy, University of Wisconsin-Green Bay

**Expertise:**

Prairie insects, pollination ecology

**Key Collaborators:**

Richard Henderson and Brian Dhuey (WDNR); University of Wisconsin-Department of Entomology; WDNR Bureau of Natural Heritage Conservation

### Mike Worland, LTE Northern Furbearer and Bird Scientist

**Education:**

B.S., 1993. Wildlife Ecology and Conservation Biology, Northwest Missouri State University  
M.S., 2008. Conservation Biology, University of Minnesota-Twin Cities

**Expertise:**

Wildlife habitat relationships, population monitoring, avian survey methodology, avian community ecology

**Key Collaborators:**

WDNR Wildlife and Forestry Research Section; WDNR Bureaus of Wildlife Management and Natural Heritage Conservation; Division of Forestry; U.S. Forest Service

### Benjamin Zuckerberg, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison

**Education:**

B.A., 1998. Zoology, Connecticut College  
M.S., 2002. Wildlife and Fisheries Conservation, University of Massachusetts-Amherst  
Ph.D., 2008. Ecology, SUNY College of Environmental Science and Forestry

**Expertise:**

Climate change ecology, avian ecology and conservation, landscape ecology

**Key WDNR Collaborators:**

Karl Martin, Scott Hull, David Sample, Michael Meyer



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