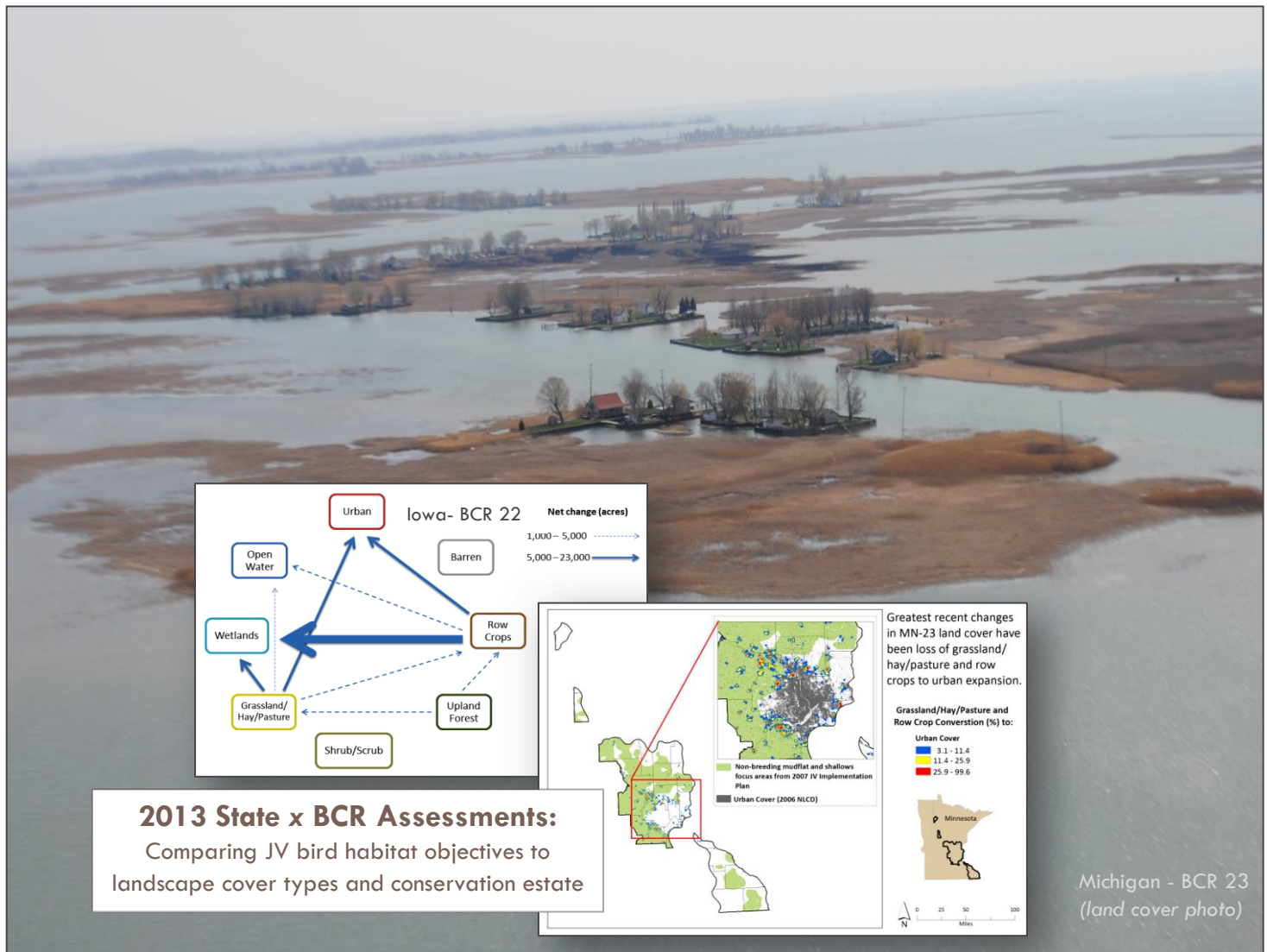


UPPER MISSISSIPPI RIVER AND GREAT LAKES REGION JOINT VENTURE



2013

Science Office Annual Report

Sixth Annual Report: Developed to inform and update on the role, vision, and recent accomplishments of JV science staff and partner biologists forming the JV Science Team.



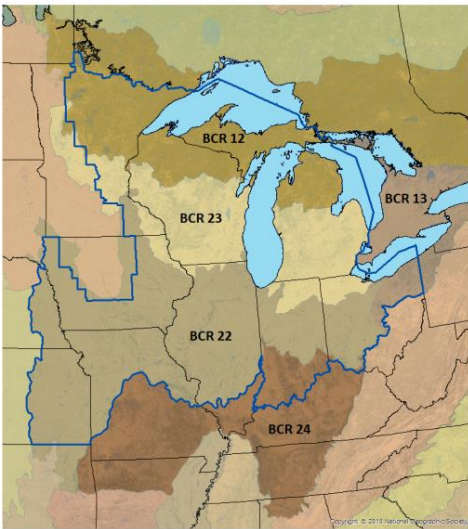
The UMRGL JV region encompasses all or portions of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. At over 240 million acres it is one of the largest and most diverse JV regions in the U.S.

OUR MISSION

The Upper Mississippi River and Great Lakes Region Joint Venture will deliver a full spectrum of bird conservation through regionally based, biologically driven, landscape-oriented partnerships. The JV strives for sustainable populations of all birds through regionally coordinated conservation actions based on the best scientific information and techniques available. Explicit bird population goals, decision tools, and an implementation plan are used to guide resources for efficient conservation delivery, research, and evaluation.

SCIENCE OFFICE VISION

Working with partners, the JV Science Office will help achieve regional population objectives for priority bird species and increase habitat conservation efficiency and effectiveness. JV scientists will integrate bird population and environmental trends in a proactive approach to conservation planning, design, and evaluation. Efforts will result in expanded bird viewing and hunting opportunities plus other societal values (improved water quality, flood reduction, and carbon sequestration) associated with healthy plant and wildlife communities. Superior outcomes will result from strong partner relationships built on trust, common purpose, and mutual support, exemplifying the synergy of an effective joint venture.



CONTACT INFORMATION

Upper Mississippi River and Great Lakes Region
Joint Venture Science Office
U.S. Fish and Wildlife Service
2651 Coolidge Road, Suite 101
East Lansing, MI 48823-6316

SCIENCE PARTNERS

THE SCIENCE TEAM

The Joint Venture Science Team consists of 10 Technical Committee members plus several ad hoc members with expertise in bird habitat conservation and biological modeling. There are four committees, one for each primary bird group. With the exception of JV staff (Forbes, Kahler, and Soulliere) Science Team members serve on a voluntary basis. Their contributions and dedication reflect the best of the JV science partnership.

Waterfowl	Shorebirds	Waterbirds	Landbirds
Co-chairs: John Coluccy¹, DU Greg Soulliere¹, JV-FWS	Co-chairs: Tom Cooper, FWS Bob Russell, FWS	Co-chairs: Dan Holm¹, IL DNR Steve Lewis, FWS	Co-chairs: David Ewert¹, TNC Tom Will, FWS
Mike Eichholz, SIU	David Ewert ¹ , TNC	Ben Kahler, JV-FWS	Andy Forbes, FWS
Bob Gates ¹ , OSU	Bob Gates ¹ , OSU	Brian Loges, FWS	Mark Nelson ¹ , USFS
Ron Gatti ¹ , WI DNR	Katie Koch, US FWS	Mike Monfils, MI NFI	Brad Potter, FWS
Heath Hagy, IL NHS	Ben O'Neal, FC	Bob Russell, FWS	Charlotte Roy, MN DNR
Dave Luukkonen ¹ , MI DNR	Brad Potter, US FWS	Rick Schultheis, KS WPT	Greg Soulliere ¹ , JV-FWS
Doreen Mengel ¹ , MO DOC	Greg Soulliere ¹ , JV-FWS	Greg Soulliere ¹ , JV-FWS	Wayne Thogmartin ¹ , USGS
Dave Rave, MN DNR			Mike Ward, IL NHS
John Simpson, WPMC			

¹Member also serves on JV Technical Committee

(Abbreviations: DU-Ducks Unlimited, DNR-Dept. of Natural Resources, DOC-Dept. of Conservation, FWS-U.S. Fish and Wildlife Service, NFI-Natural Features Inventory, NHS-Natural History Survey, OSU-Ohio State Univ., FC-Franklin College, SIU-Southern Illinois Univ., TNC-The Nature Conservancy, USFS-U.S. Forest Service, USGS-U.S. Geological Survey, WPMC-Winous Point Marsh Conservancy, WPT-Wildlife Parks and Tourism.

JV SCIENCE OFFICE STAFF



Greg Soulliere: Greg has served as the JV Regional Science Coordinator since 2004 and is the chair of the JV Science Team. His goal is to improve the JV science foundation and promote application of business concepts to conservation decisions. He has a B.S. in Wildlife Biology, an M.S. in Wildlife Management, an M.B.A., and 25 years of experience as a wildlife biologist and wetland scientist.



Ben Kahler: Ben is a Wildlife Biologist/Spatial Modeler and has served the JV office since 2010. His work involves assisting the partnership with wildlife habitat and population models and organizing and distributing GIS data. He has a B.S. in Fisheries and Wildlife Management, a B.A. in Anthropology and an M.S. in Natural Resources specializing in Wildlife Science.



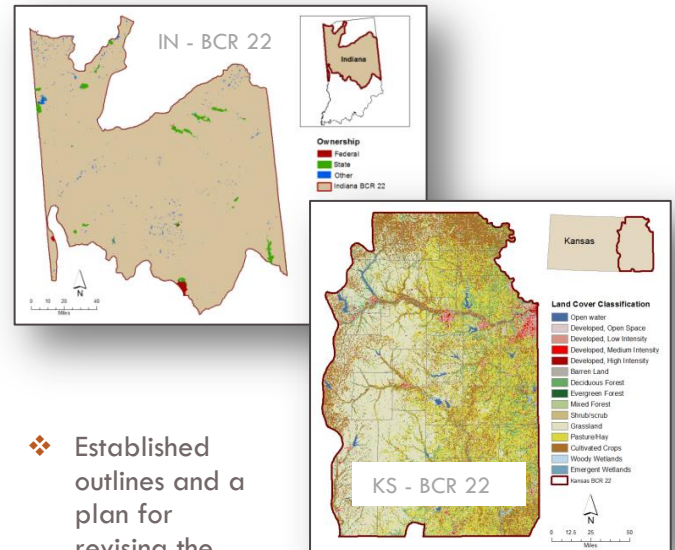
Rachael Pierce: Rachael is a Wildlife Technician serving the JV and the Upper Midwest Great Lakes Landscape Conservation Cooperative (LCC) since 2012. She provides GIS and technical support to advance the JV science office and LCC visions. She has a B.S. in Zoology and Environmental Biology and an M.S. in Environmental Biology with an emphasis on waterbird and wetland ecology.

SCIENCE ACCOMPLISHMENTS

The JV Science Office is recognized for bird habitat planning and spatial modeling expertise. In 2013, our efforts remained focused around these broad themes, as well as building our science foundation, improving information sharing, and strengthening JV science partnerships.

IDENTIFY HABITAT REQUIREMENTS FOR REGIONAL SPECIES OF CONCERN

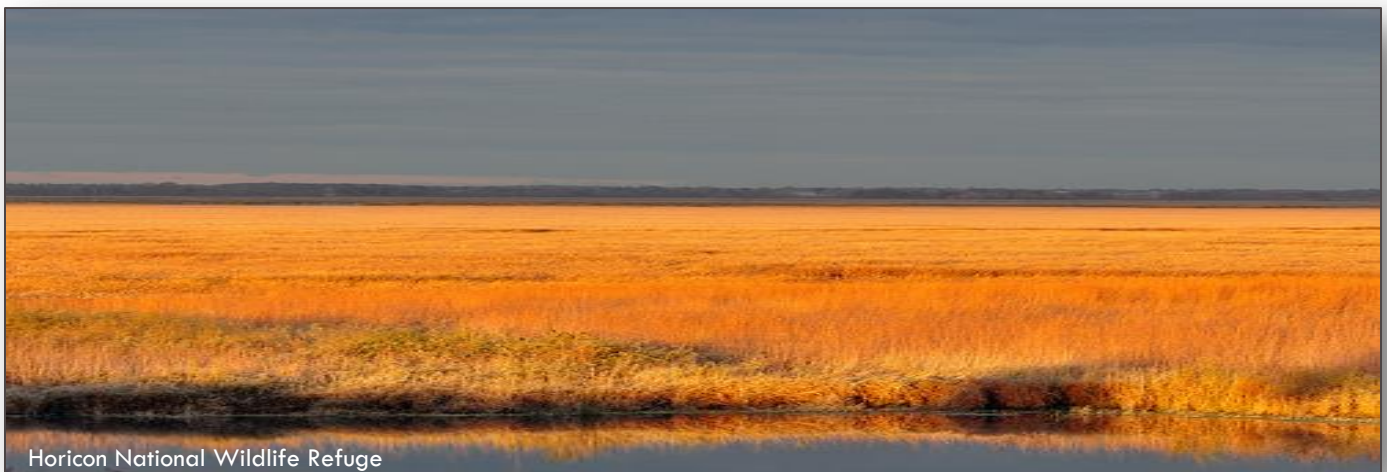
- ❖ A primary emphasis was development of State x BCR (Bird Conservation Region) Assessments; 11 (of 18) draft assessments were completed and are in the review process. These documents are stepped-down versions of the JV Implementation Plan, with new information related to bird habitat objectives, availability of key cover types, and land cover trends for each State x BCR polygon. State x BCR Assessments compare bird habitat objectives to landscape cover types and conservation estate (e.g., public lands).
- ❖ Completed species accounts for American Wigeon and American Bittern, 2 species of greatest management concern occurring in FWS Region 3. These accounts include updated demographic information and will be used in JV planning updates.
- ❖ Conducted an analysis for the Great Lakes Piping Plover that identified landscape habitat associations and predicted landscape suitability across their current breeding range. Produced a JV technical report describing the analysis and how the results can be applied to target future monitoring and restoration efforts.
- ❖ Developed a population model to assist the Kirtland Warbler Recovery Team in better understanding information gaps that could improve habitat management.



- ❖ Established outlines and a plan for revising the JV Waterbird and Waterfowl Habitat Conservation Strategies with targeted completion dates of 2015.
- ❖ Continued to participate in the secretive marsh bird population and habitat survey conducted during spring in several JV states. Information gained from this survey effort is used to inform waterbird conservation.
- ❖ Reviewed and contributed to many species-specific plans and research proposals, including development of the Black Duck JV Strategic Conservation Plan, 2014-2019.
- ❖ Working with JV Science Team, updated and prioritized research and monitoring needs, for landbirds, shorebirds, waterfowl, and waterbirds, plus assisted in developing a list of alternate (refined) landbird focal species for planning.

PROVIDE TECHNICAL ASSISTANCE AND IMPROVE THE JV BIRD HABITAT CONSERVATION PARTNERSHIP

- ❖ Hosted a workshop to teach members of the Kirtland Warbler Recovery Team how to use spreadsheet population models to analyze information gaps.
- ❖ Served on committees and provided technical expertise to JV partners and other regional and national initiatives focused on bird conservation, including State Bird Conservation Initiatives, the Upper Midwest and Great Lakes LCC, the Midwest Coordinated Bird Monitoring partnership, the Tri-initiative Science Team (TriST; planning group for non-waterfowl bird species), the Midwest Marsh Bird Working Group, and multiple sub-committees of the NAWMP Science Support Team.
- ❖ Regularly communicated and collaborated with regional and national FWS Migratory Bird Program staff and other FWS programs such as the LCCs, Ecological Services, Partners for Fish and Wildlife, and National Wildlife Refuges. We provided technical reviews for efforts such as grant applications (NAWCA, JV Flex funds), species conservation plans (American Black Duck, Kirtland Warbler, Piping Plover), and draft business/work plans (program priorities, moist-soil management, and models for estimating hunter opportunity and demographics).
- ❖ Provided statistical sampling and GIS support to the Central Hardwoods JV and Missouri River Bird Observatory (MRBO) for their monitoring effort of marsh birds of management concern. Continued collaborating with JV scientists from other areas of the U.S. and Canada, particularly those in regions sharing bird resources with our JV region.
- ❖ Created a Joint Venture reference library and a new spatial data catalog that serves as a communication bridge between potential JV spatial data users and JV staff.
- ❖ Networked with non-FWS members of the JV Science Team as well as other regional science colleagues in an effort to provide science support and improve information sharing. Projects included monitoring waterfowl during the non-breeding period, documenting and evaluating carrying capacity models used for waterfowl habitat planning, identifying marsh bird monitoring priorities, evaluating factors determining diving duck condition, examining national trends in Scaup harvest, and assessing habitat associations for Piping Plovers.
- ❖ Worked with colleagues developing and refining research and monitoring proposals to address priority evaluation needs identified by the JV Science Team.



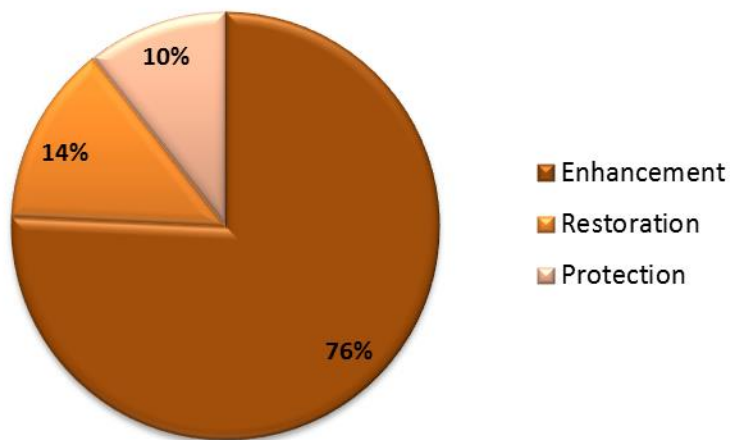
Horicon National Wildlife Refuge

JV PLAN IMPLEMENTATION

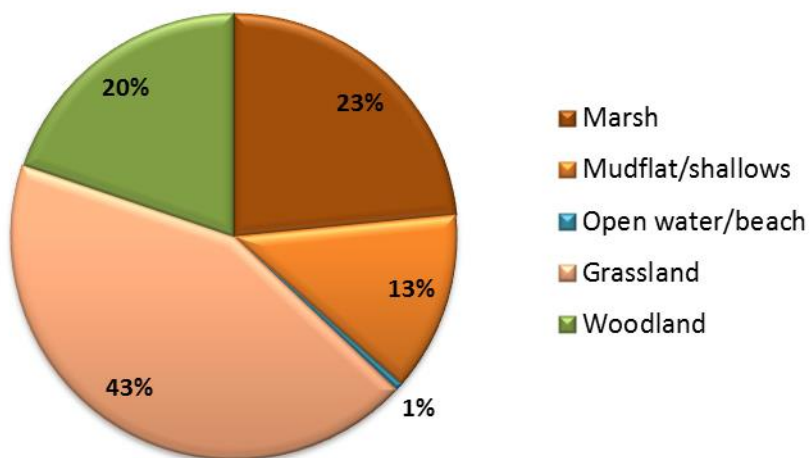
Each year, JV partners submit on-the-ground bird habitat accomplishments to the JV Science Office. Tracking regional habitat conservation actions provides information regarding amount of funding expended and the type and amount of bird habitat influenced relative to JV plan goals.

2013 HABITAT ACCOMPLISHMENTS

CONSERVATION TYPE



COMMUNITY TYPE CONSERVED



- ❖ Partners reported accomplishments on about 269,000 acres of bird habitat.
- ❖ Accomplishments included habitat enhancement, habitat restoration, and habitat protection.
- ❖ Partners reported \$72 million dollars spent, averaging \$275 dollars/acre.

See JV Habitat Accomplishment Report for more detail.

PROJECT COMMUNICATION

2013 SCIENCE OFFICE PUBLICATIONS AND REPORTS

Brasher M.G., M.J. Petrie, G.J. Soulliere, and J.M. Tirpak. 2013. **How Does This Affect our Day Job? Joint Venture Perspectives on Conservation Planning Amid Scientific Uncertainty.** Ecology and Conservation of North American Waterfowl Symposium Proceedings (extended abstract, plus oral presentation), Memphis TN, USA.

Denton, J.C., C.L. Roy, G.J. Soulliere, and B.A. Potter. 2013. **Nest site availability for cavity-nesting ducks in the Midwestern U.S.** Ecology and Conservation of North American Waterfowl Symposium Proceedings (extended abstract, plus oral presentation), Memphis TN, USA.

Dugger, B.D., M.G. Brasher, J.M. Eadie, D. Jones-Farrand, L. Naylor, M.J. Petrie, G.J. Soulliere, J.M. Tirpak, and J. Vest. *Draft.* **Joint Venture Perspectives on Conservation Planning Amidst Scientific Uncertainty.** Wildfowl – Special Issue, Wildfowl and Wetlands Trust, United Kingdom.

Dugger, B., M.G. Brasher, J. Eadie, J. Farrand, L. Naylor, M.J. Petrie, G.J. Soulliere, J.M. Tirpak, J. Vest. 2013. **The science underlying winter conservation planning for waterfowl: evidence for food limitation and introduction to carrying capacity models.** Ecology and Conservation of North American Waterfowl Symposium Proceedings (extended abstract, plus oral presentation), Memphis TN, USA.

Kahler, B.M. 2013. **Area-sensitivity, landscape habitat associations and distribution of breeding marsh birds within the glaciated region of Ohio, USA.** Master's Thesis. The Ohio State University, Columbus, USA.

Kahler, B.M. and V.S. Cavalieri. 2013. **Modelling Great Lakes Piping Plover habitat selection across several spatial scales.** Upper Mississippi River and Great Lakes Region Joint Venture Technical Report No. 2013-2, Bloomington, MN, USA.

Kahler, B.M., R.L. Pierce, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Iowa 23 – Prairie Hardwood Transition.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

Kahler, B.M., R.L. Pierce, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Michigan 23 – Prairie Hardwood Transition.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

Kahler, B.M., R.L. Pierce, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Minnesota 23 – Prairie Hardwood Transition.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

Kahler, B.M., R.L. Pierce, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Ohio 22/23 – Eastern Tallgrass Prairie and Prairie Hardwood Transition.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

Kahler, B.M., R.L. Pierce, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Wisconsin 23 – Prairie Hardwood Transition.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.

Kahler, B.M., G.J. Soulliere, and R. Pierce. *Draft.* **Identifying marsh bird monitoring priorities in the Midwest United States.** Upper Mississippi River and Great Lakes Region Joint Venture Technical Report, Bloomington MN, USA.

- Larkin, D.J., R.S. Brady, B.M. Kahler, K.E. Koch, D.G. Krementz, M.J. Monfils, G.J. Soulliere, and E.B. Webb. 2013. **Collaborative Research on Secretive Marsh Birds in the Midwest Region: Linking Monitoring and Wetland Management.** Upper Mississippi River and Great Lakes Region Joint Venture Technical Report No. 2013-1, Bloomington MN, USA.
- Monfils, M.J., P.W. Brown, D.B. Hayes, G.J. Soulliere, and E.N. Kafkas. *In press.* **Breeding bird use of diked and undiked coastal wetlands in Michigan.** Journal of Wildlife Management.
- Monfils, M.J., D.B. Hayes, B.M. Kahler, and G.J. Soulliere. *Draft.* **Evaluating marsh bird habitat use at multiple scales to inform conservation design.** Michigan Natural Features Inventory, Report, Lansing MI, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Illinois 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Indiana 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Iowa 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Kansas 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Missouri 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., B.M. Kahler, and G.J. Soulliere. *Draft.* **State X BCR Assessment: Nebraska 22 – Eastern Tallgrass Prairie.** Upper Mississippi River and Great Lakes Region Joint Venture, U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Pierce, R.L., G.J. Soulliere, and B.M. Kahler. 2013. **Upper Mississippi River and Great Lakes Region Joint Venture Science Office 2012 Annual Report.** U.S. Fish and Wildlife Service, Bloomington MN, USA.
- Soulliere, G.J., B.W. Loges, E.M. Dunton, D.R. Luukkonen, M.E. Eichholz, and K.E. Koch. 2013. **Monitoring Midwest waterfowl during the non-breeding period: priorities, challenges and recommendations.** Journal of Fish and Wildlife Management 4(2):395-405.
- Soulliere, G.J. and B.M. Kahler. *Draft.* **Harvest and hunting**, chapter in North American Scaup Conservation Plan. U.S. Fish and Wildlife Service Report.
- Soulliere, G.J., B.M. Kahler, and J.E. Austin. *Draft.* **Trends in scaup harvest and hunting community: implications for harvest management and sustaining scaup hunting traditions.** Journal of Fish and Wildlife Management.
- Soulliere, G.J., M.J. Monfils, R.B. Bricklin, and B.M. Kahler. 2013. *Draft.* **Shorebird migration timing through Michigan's Eastern Upper Peninsula.** American Midland Naturalist.
- Williams, C.K., R. Boyer, J. Coluccy, D.M. Cramer, B.D. Dugger, J.M. Eadie, H.M. Hagy, M. Gray, M.G. Brasher, S.R. McWilliams, M. Petrie, G.J. Soulliere, J. Stafford, J.M. Tirpak, J. Vest, and E. Webb. *Draft.* **Estimating Habitat Carrying Capacity for Waterfowl: Considerations, Pitfalls, and Improvements.** Wildfowl – Special Issue, Wildfowl and Wetlands Trust, United Kingdom.

2013 SCIENCE OFFICE PROFESSIONAL PRESENTATIONS

Brasher, M.G., M.J. Petrie, G.J. Soulliere, and J.M. Tirpak. January 2013. **So how does this affect our day job? Joint Venture perspectives on delivering habitat programs in the face of scientific uncertainty.** Presentation at Ecology and Conservation of North American Waterfowl Symposium, Memphis TN.

Denton, J.C., C.L. Roy, G.J. Soulliere, and B.A. Potter. January 2013. **Nest site availability for cavity-nesting ducks in the Midwestern U.S.** Presentation at Ecology and Conservation of North American Waterfowl Symposium, Memphis TN.

Dugger, B.D., M.G. Brasher, J.M. Eadie, D.T. Jones-Farrand, L. Naylor, M.J. Petrie, G.J. Soulliere, J.M. Tirpak, and J. Vest. January 2013. **The science underlying winter conservation planning for waterfowl: evidence for food limitation and introduction to carrying capacity models.** Presentation at Ecology and Conservation of North American Waterfowl Symposium, Memphis TN.

Kahler, B.M. March 2013. **Kirtland's Warbler population viability analysis workshop.** Workshop lead for Kirtland's Warbler Recovery Team members. East Lansing, MI.

Soulliere, G.J. February 2013. **Monitoring objectives for secretive marsh birds in the upper Midwest.** Presentation to the Mississippi Flyway Council Technical Section, Jackson MS.

Soulliere, G.J. September 2013. **Achieving continental and regional goals via local implementation.** Presentation at Moist Soil Management Workshop for Michigan FWS and DNR Wetland Managers, Saginaw MI.

Soulliere, G.J., B.M. Kahler, and R.L. Pierce. August 2013. **State x BCR assessments: stepping-down and testing the JV plan.** Upper Mississippi River and Great Lakes Region Joint Venture Management Board Meeting, Emporia KS.



RESEARCH AND MONITORING

The JV Science Team developed and prioritized a list of research and monitoring needs to improve habitat conservation decisions. Science partners use this list to plan projects that fill information gaps and test assumptions stated in the JV Implementation Plan. Evaluation needs are periodically updated as new information is obtained. The following projects all had significant funding from the JV in 2013. These projects provide critical information for targeting conservation efforts and improving JV bird habitat conservation strategies.

RECENTLY COMPLETED AND ONGOING PROJECTS

Evaluating factors limiting Blue-winged Teal production and survival in the Great Lakes region.

Lead Organization: *Wisconsin Department of Natural Resources*

This study was developed to better understand survival, recruitment success, and habitat characteristics of breeding Blue-winged Teal in the Great Lakes region. Birds were captured at two locations in Wisconsin and marked with radio transmitters from 2007-2009 and again in 2012 and researchers tracked these birds with radio receivers on a daily basis during the breeding period. Results from this project will be used to refine the Blue-winged Teal habitat model in the next version of the JV Waterfowl Conservation Strategy.

Missouri marsh bird monitoring program.

Lead Organization: *Missouri River Bird Observatory*

Several rail species are of conservation concern throughout their ranges and breeding rails are considered “imperiled” in Missouri. Two species (Sora and Virginia Rail) are hunted during the migration period with 25% of harvested rails in the Mississippi Flyway being taken in Missouri. However, information on secretive marsh bird abundance and population trends is limited. The goal of this project was to establish monitoring of marsh birds (King Rail, Yellow Rail, Virginia Rail, Black Rail, Sora, and American and Least Bittern) with a history of occurrence in Missouri by implementing the North American Marsh Bird Monitoring Program. Results will provide initial information on abundance, population trends, and management impact form marsh birds in Missouri.

Habitat use by spring migrating landbirds within the Great Lakes basin with special emphasis on shoreline habitats.

Lead Organization: *University of Scranton*

Data suggest landbird migrants concentrate along the Great Lakes shoreline during both spring and fall. However, our understanding of the types of coastal habitat used by birds and factors driving these bird-habitat relationships is limited. This study will map landbird distribution to identify important stopover areas, quantify broad-scale patterns in migration phenology, determine flight height and direction, model how landscape-level factors influence migrant distribution, conduct habitat surveys to determine which factors most influence specific landbird species, and use stable isotopes to determine the extent of aquatic foraging. Results from this project will improve our understanding of migrant habitat selection throughout the Great Lakes Basin, allowing us to better predict landbird habitat needs and target conservation areas.



Aerial observer's identification guide and training manual for surveying North American waterfowl.

Lead Organization: U.S. Fish and Wildlife Service

The objective of this project is to create a high quality multi-media guide to improve aerial waterfowl identification and standardize survey training and protocols. The guide focuses specifically on aerial surveys with a "top-down" perspective of birds and will include all North American waterfowl and some waterbirds routinely encountered during aerial surveys. High resolution digital still photos and high definition video will be used to highlight key features for waterfowl identification and to clearly illustrate techniques and protocols of primary waterfowl monitoring surveys. The overall goal is to improve accuracy of waterfowl monitoring, which is critical to effective waterfowl population and habitat management.

Foraging ecology of migrating shorebirds in the Lake Erie basin.

Lead Organization: Ohio State University

A primary assumption of the JV Shorebird Habitat Conservation Strategy is that food energy is a limiting resource to migrating shorebirds during non-breeding seasons, particularly during spring migration. This research aims to test that assumption. Researchers are examining changes in body mass of marked individuals to estimate rates of change in body mass per day of migration stopover, plus they are estimating stopover duration of migrating shorebirds. Invertebrate abundance and habitat conditions at banding sites and distribution, movements, and habitat use of color-marked shorebirds is also being assessed during both autumn and spring migration.



Red-headed woodpecker habitat use in upland and floodplain areas.

Lead Organization: Illinois Natural History Survey

Partners-In-Flight established a goal for doubling the Red-headed Woodpecker population. However,

information about factors influencing habitat use, demography, or the relative contribution of different habitat types to state and regional populations are lacking, especially in the Midwest. Researchers are using radio-telemetry to determine home-range size required for breeding pairs in upland and floodplain woodland communities. Results will provide information critical to understanding the potential of existing habitat for supporting this species within Illinois and throughout the Midwest as well as how management can best contribute toward state and regional population goals.



Audubon Prairie Bird Initiative.

Lead Organization: National Audubon Society

Grassland birds have experienced the most precipitous population declines of any bird group in North America. The vast majority of tall- and mixed-grass prairie throughout the central plains has been lost to habitat alteration and this trend continues in most states. Federal and state agencies and NGO's have targeted grasslands for protection and restoration. However, with the majority of grasslands in private ownership, conservation efforts must focus on individual private landowners in order to achieve landscape-scale habitat conservation for grassland birds. To answer this need, partners have initiated the Prairie Bird Initiative (PBI) and a goal to provide cattle producers with increased economic incentives for bird-friendly habitat management. In this study, researchers performed preliminary surveys for grassland birds on private lands in Missouri, Kansas, and Nebraska. These surveys were intended to provide a snapshot of bird communities on private lands prior to bird-oriented management actions initiated by landowner-PBI partnerships. Survey data will be used to illustrate the importance of these lands to bird conservation.

Waterfowl abundance and productivity in the Great Lakes: assessing and refining biological models for conservation planning.

Lead Organization: University of Minnesota

In the JV region waterfowl abundance is estimated by various methods: breeding pair surveys, BBS data, or banding and harvest data. Inconsistency in methodologies among states, however, produce estimates that vary from each other by orders of magnitude and that are rarely correlated. To improve abundance estimates, this project is evaluating roadside surveys as a cost-effective alternative to obtaining basin-specific data on waterfowl pairs. Researchers are also assessing potential bias in current predictive models resulting from sampling frame and sightability issues as well as sightability-adjusted brood:pair ratios as a potential method to monitor waterfowl. Project results will be used to develop enhanced habitat suitability models for common waterfowl species of the region and will allow JV scientists to develop more effective conservation targeting maps for future iterations of the JV Waterfowl Conservation Strategy.

(e.g., wetland, grassland, forest, grassland, cropland) on survival probability, and evaluating the effects of hen-related parameters (e.g., age, condition, nesting effort) on survival probability.



Factors influencing breeding female Mallard survival in the Great Lakes region.

Lead organization: Ducks Unlimited

Female Mallards incur exhaustive energetic demands and are exposed to a number of ecological risks during the breeding season that impact survival. Previous studies conducted in the mid-continent prairie region have shown breeding-season survival is influenced by female age and nesting effort. Understanding how breeding season survival is impacted by age, nesting effort, and condition in the Great Lakes region can provide our waterfowl managers information to better understand which components of the breeding season most impact survival. Using data collected during the Great Lakes mallard study (2001–2003), researchers are estimating breeding season survival rates for female mallards, evaluating the effects of landscape features

NEW PROJECTS IN 2013

Historical and current Black Tern habitat relationships in the Great Lakes region.

Lead Organization: *University of Minnesota*

Knowledge of Black Tern habitat associations is needed for effective conservation to help reverse current population declines for this species. Researchers completing this project will analyze factors affecting Black Tern habitat use in the Great Lakes region from both historical and contemporary perspectives. They will use long-term colony occupancy data to determine what habitat-related changes have been most closely associated with changes in Black Tern colony-site use (colonization and abandonment) over the past thirty years. In addition, to improve predictions of current habitat use, researchers will validate the JV's habitat suitability model and identify additional landscape-level habitat factors that can improve the model's effectiveness in targeting conservation.

Intrinsic and extrinsic factors determining diving duck condition and habitat quality during spring migration in the Upper Midwest.

Lead Organization: *Illinois Natural History Survey*

The goal of this project is to concurrently measure population abundance, behavior, food abundance, food use and selection, and levels of stress hormones, environmental contaminants, and blood plasma metabolites of Lesser Scaup and Canvasbacks during spring migration through the JV region. JV habitat quality assumptions for these focal species will be evaluated and study results should inform future habitat models for these and other species of diving ducks with similar life history requirements. Work will be conducted at major spring-migration stopover locations of lesser scaup and canvasback in BCRs 22 and 23. Investigators will determine utility of above factors as indicators of habitat quality, determine energetic carrying capacity of emergent and riverine wetlands, identify food use and selection, and evaluate the JV assumption that energetic carrying capacity is related to condition of foragers and a suitable surrogate for foraging habitat quality.

Using agent-based waterfowl movement models to identify conservation solutions to large-scale environmental variation and land use change.

Lead Organization: *USGS Missouri Coop Unit*

Using location data from transmitter-marked Mallards and American Black Ducks, researchers will develop and parameterize spatially explicit agent-based models of movement and habitat selection during the nonbreeding period. The accumulated effects of habitat selection and movement decisions made by individual birds ultimately determine waterfowl population dynamics and distributions. This project will combine quantitative movement metrics with existing information about habitats, landscapes, energetics, weather and demography in migratory waterfowl populations. New models will be used to evaluate alternative approaches to managing migratory waterfowl and their habitats under a range of potential future land-use scenarios. Investigators will also identify timing and locations of critical waterfowl resources most at risk due to environmental variability and land use changes, as well as management practices and conservation strategies and locations most likely to promote conservation effectiveness under a range of environmental conditions.



GOALS AND FUTURE EFFORTS

JV Science Office Near-term Goals (<2 years)

- ❖ Complete 18 State x BCR Assessments and provide information to Midwest regional bird conservation planners and managers.
- ❖ Revise JV Waterbird and Waterfowl Habitat Conservation Strategies.
- ❖ Continue collaboration with key science partners on bird research and monitoring critical to regional conservation planning.
- ❖ Develop and refine GIS planning products important to enhance bird habitat delivery as new spatial data and associated information is acquired.
- ❖ Continue working toward the three integrated goals of the 2012 North American Waterfowl Management Plan related to waterfowl populations, habitat, and people.
- ❖ Seek means for regional bird conservation to complement societal initiatives, concerns, and trends, including a focus on mitigation and adaptation to landscape and climatic change.

Long-term Goals (>2 years)

- ❖ Expand knowledge of bird ecology, contemporary conservation practices, measuring landscape change, and the potential impacts of climate change on priority bird species. New information will be used to develop and refine JV species accounts, bird-habitat conservation objectives, planning documents, and bird habitat accomplishment reporting.
- ❖ Grow JV partnership as a national leader in bird conservation by continually improving scientific foundation, efficiency, and effectiveness of conservation initiatives in the JV region. Strategic Habitat Conservation (SHC) via planning-implementing-evaluating will be central to improving JV conservation approaches over time.
- ❖ Identify regional bird-habitat conservation projects important to counter environmental threats to birds and human populations. Working with others, determine whether targeting conservation to benefit birds can also provide significant values to society. The potential exists to communicate / market JV conservation actions to people and help assure sustainable financial and political support for bird-habitat conservation programs in the future.

