

Missouri Bird Conservation Initiative Newsletter

Working together to conserve bird populations and their habitats

Editor's Note

Celebrating 40 Years of Missouri Natural Areas

by Allison Vaughn

Missouri Bird Conservation Initiative Chair

Stepping into the woodlands at 6:15 on a warm May morning, the red-headed woodpeckers surrounded me, chuckling from the old growth post oaks. In summer 2011, following a landscape-scale prescribed fire across 972 acres in March, I embarked on a bird survey in the nucleus of the Ha Ha Tonka Oak Woodland Natural Area. This wasn't an original survey, but a follow-up study wherein I replicated the point count stations and methodology of a landmark 1996 study from the University of Missouri comparing bird populations in burned and unburned woodlands.

The 1996 study, conducted by Terry Callahan as a Master's thesis project, concluded that bird abundance and diversity was higher in burned woodlands compared to the unburned woodlands that lack the lush grass-forb herbaceous matrix that entices invertebrate life upon which so many breeding birds depend. Ha Ha Tonka State Park's natural communities have been managed with regularly occurring, low intensity fires since March 1983. Callahan's thesis determined that through time, as the structural component of a distinct shrub

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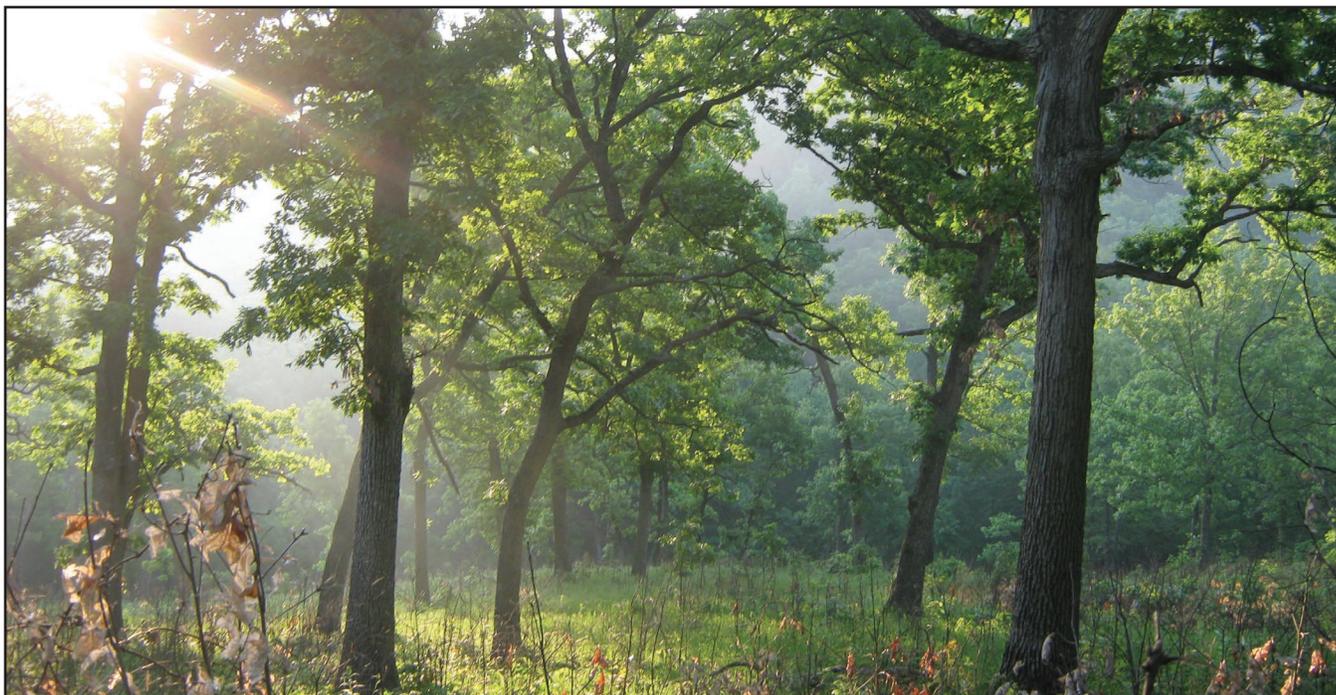
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layer develops with a regular fire program, heterogeneity and grassland-shrubland bird species will increase in abundance and species richness. Blue-winged warblers, prairie warblers, field sparrows, eastern woodpeckers, chipping sparrows, and indigo buntings, brilliant blue birds that require a shrub layer for nesting purposes, were incredibly abundant that summer I replicated the Callahan study. Callahan was right in his hypothesis.



Managed with fire since 1983 the woodlands at Ha Ha Tonka State Park, in the Ha Ha Tonka Oak Woodland Natural Area, harbor a rich suite of native plant species upon which invertebrates thrive thereby resulting in a teeming population of bird species.

The burned woodlands of the natural area allowed for more breeding birds and of greater species richness than the adjacent unburned woodlands. And I spent a wonderful field season birding in this scenic mecca of biodiversity, a 2,995 acre designated natural area.

The mission of the Missouri Natural Areas Program includes identifying and protecting the best remaining examples of Missouri's natural landscapes. Forty years ago in April 1977, the Missouri Department of Conservation and the Missouri Department of Natural Resources signed a Memorandum of Understanding to establish the Missouri Natural Areas Committee. One of the original signed documents (likely not on acid-free paper) is framed and posted in my cubicle next to the great emblematic Natural Area sign with the illustration of a Jack-in-the-pulpit, a charming and charismatic plant found in intact woodlands, a sign that graces the boundaries of all of our state's natural areas. The Missouri Natural Areas Committee is a diverse group of representatives from land managing agencies that include MDC, MoDNR, the National Park Service, The Nature Conservancy, the U.S.

Forest Service, and the U.S. Fish and Wildlife Service, all united in an effort to protect biodiversity across all suites of biota, including birds. Guided by science, MoNAC continues to identify and protect Missouri's best landscapes and helps to guide restoration and maintenance regimes. According to the revised Memorandum of Agreement, "natural areas are defined as biological communities or geologic sites that preserve and are managed to perpetuate the natural character, diversity, and ecological processes of Missouri's native landscapes."

In this issue of the Missouri Bird Conservation Initiative newsletter, we highlight several natural areas across Missouri, especially noting the importance of these areas to bird populations. Considering that our state's natural areas represent the best landscapes for biodiversity, I encourage readers to seek out birding opportunities in natural areas. Krista Noel's article about birding hotspots in north Missouri natural areas will set the stage for your next adventure.

Happy Birding! 

North Missouri Designated Natural Areas as Birding Destinations

by Krista Noel

Natural History Biologist, Missouri Dept. of Conservation



North Missouri may be generally characterized by row crops and cattle farms, but throughout the region are scattered high quality natural areas with abundant flora and fauna, like oases in the desert. For nature enthusiasts, there are three birding and wildflower hotspots within a short drive of each other and within an hour of Kirksville.

Union Ridge Conservation Area in Sullivan, Putnam and Adair counties is a sprawling 8,262-acre area of timber, grasslands and wetlands including a 1,769-acre natural area called Spring Creek Ranch. Spring Creek Ranch Natural Area (SCRNA) was once a cattle farm dominated by fescue, but the Department of Conservation began restoration in 1990. Today, SCRNA is covered mostly in savanna and is one of the largest examples of this rare natural community in the state, and scattered woodlands and prairies complete the habitat mosaic with over 230 species of native plants and 194 bird species earning it a spot on the [Great Missouri Birding Trail](#). Highway D offers easy access to the natural area with several parking lots and field roads

for birding and botanizing. A combination of tree thinning, prescribed burning, and control of invasive plants has stimulated native grasses and wildflowers across its rolling hills. On open grassland ridges, you can hear the Henslow's sparrow, field sparrow, Eastern meadowlark and the upland sandpiper among the pale purple coneflower and scurfy pea. Where there are oaks and wooded draws, one can find the red-headed woodpecker, yellow-breasted chat, indigo bunting, and prairie warbler. The Henslow's sparrow, red-headed woodpecker and prairie warbler are all species of highest conservation concern on the North American Bird Conservation Initiative (NABCI) Watchlist due to high vulnerability of extinction. A Breeding Bird Survey route (BBS) that includes the natural area has documented 67 breeding bird species including the Kentucky warbler, chuck-will's-widow and bobolink, all species on the NABCI Watchlist. A Mississippi kite, a rare find, was documented on the route this year right on Hwy D at Spring Creek.

Union Ridge Conservation Area (left) is the representative landscape type for true savanna in *The Terrestrial Natural Communities of Missouri* by Paul Nelson. Red-headed woodpeckers (right) thrive in this environment.



Photo by Krista Noel



Photo courtesy of Missouri Department of Conservation



Photo by Krista Noel



Photo courtesy of Missouri Department of Conservation

Abundant wildflowers in Morris Prairie Conservation Area (left); Henslow's sparrow (right) are common visitors there.

Morris Prairie Conservation Area, in Sullivan and Putnam counties, is 167 acres with a 47-acre high quality natural area prairie. Its natural area sits in the Unionville Upland Prairie Plain which was historically vast upland prairie with oak wooded draws. With over 220 plant species, this is a favored destination for plant enthusiasts due to the brilliant colors of wildflowers April through October. Fifty-five bird species have been documented by observers in eBird. Thirty-nine bird species were detected in a two-hour survey of the natural area the first week of May this year! The wooded draws on either side of the prairie host vireos, orioles, catbirds and woodpeckers, while blue-winged warblers, northern bobwhite, rose-breasted grosbeaks and sparrows call from the prairies edges and interior. The natural area is also a great place to see pollinators. Monarchs are common on rattlesnake master and milkweeds and numerous other butterfly species visit the abundant blazing star, coneflower, lead plant and asters. Access is via a gravel parking lot and then a 0.5 mile walk to the natural area along a grass field road. Though there's a short steep hill, the walk is well worth it because it passes prairie in the restoration phase, woodlands, and a small wetland with abundant birds, butterflies, and wildflowers along the way. A small pond on the north end of the natural area increases the chances of seeing herons.

Dark Hollow Natural Area in Sullivan County is a 315-acre natural area in the Upper Chariton River Woodland/Forest Hills. Purchased in 1993, it was designated a natural area due to its diverse woodland and forest communities with over 192 plant species and 34 bird species. The southernmost 82 acres are managed as a savanna/woodland unit with shrubby grassland habitat near the parking lot and open, park-like woodland further east into the area. The remainder of the area is a mix of rich forests along drainages and woodlands along ridges. The old growth forest has diverse tree canopy cover and numerous conservative plant species including liverleaf, interrupted fern, American spikenard and blue cohosh. Forest birds including yellow-throated vireos, wood thrush, ovenbirds and Kentucky warblers are prevalent. Mid-slope and higher on the ridgetops, woodland birds are more prevalent such as red-shouldered hawks, summer tanagers, red-eyed vireo, white-breasted nuthatch, whippoorwills, and the black and white warbler. For the best birding, access the natural area via a grass field road off the gravel parking lot. As you head east into the natural area, the savanna and woodland unit will be on the south side of the road and the older woodland and forest will be on the north side of the road. One can access the interior of the area by walking ridges out into the forested drainages. The



The woodlands at Dark Hollow Natural Area are rich with bristly sunflowers and other forbs dependant on light.

diversity of spring ephemeral wildflowers makes this a great place to visit early spring. Due to the steep terrain of the interior, Dark Hollow Natural Area is not birded often but has the potential for numerous additional bird species to be noted there.

These birding hotspot natural areas are in the Department of Conservation’s Spring Creek Watershed Priority Geography (SCW). This 46,800-acre complex of public and private lands has high potential for conservation of terrestrial and aquatic natural communities and their associated flora and fauna. Prioritizing conservation efforts in the SCW will result in landscape-scale habitat improvement and conservation of Missouri’s fish, forests and wildlife. Prescribed fire, control of invasive plants and tree thinning are important tools the Department of Conservation uses to ensure these natural areas are the best

examples of Missouri’s natural communities in the region. A visit to these three natural areas would make an exciting birding and botanizing day due to the diversity of species in the outstanding quality prairie, savanna, woodland and forest habitats. 🦉

Chuck-will’s-widows call on May nights in the forest at Dark Hollow Natural Area.



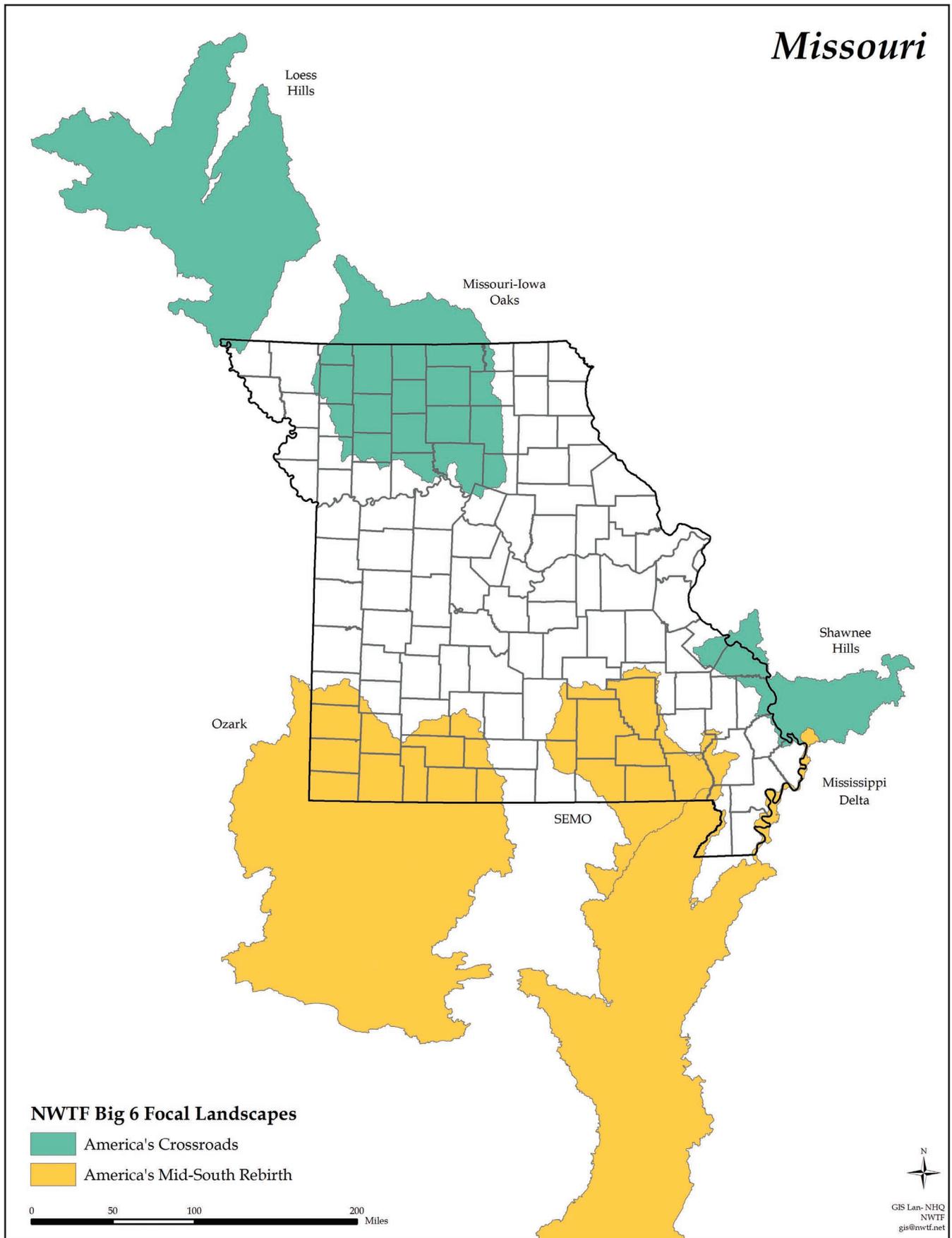
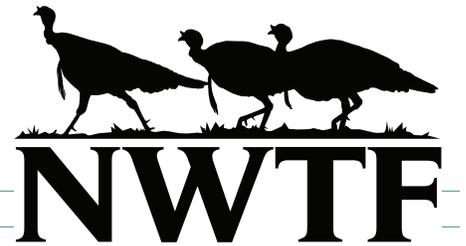


Figure 1. NWTF Focal Landscapes including counties in Missouri.

Savanna and Open Woodland Restoration in Northeast Missouri and Southeast Iowa

by John Burk

National Wild Turkey Federation



In 2012, the National Wild Turkey Federation state board adopted Missouri-specific goals outlined in the Missouri **Save the Habitat. Save the Hunt. Strategic Plan** to guide superfund dollar allocation. These goals ensure that the dollars raised at banquets are spent on the best projects to achieve mission delivery across the state addressing conservation and hunting heritage deliverables.

Primary conservation goals are to increase the use of prescribed fire, increase forest management activities, and increase the establishment of native warm season grasses (NWSG). These practices are all pivotal in providing key nesting and brood-rearing habitats for ground nesting birds, functions widely accepted as the most significant limiting factor for successful reproduction.

Since it is not practical to use an opportunistic “shotgun approach” when implementing conservation-related projects, especially when precious dollars are limited, the best

strategy is a focused approach. Identifying key landscapes and combining efforts and dollars with other interested partners allow for the “biggest bang for the buck.”

Beginning in 2008, NWTF worked with key partners to identify specific target areas for restoration work (see map at left.) Our membership’s interest was driven by a significant regional decline in turkey populations. The original area included the Southern Iowa Oak Savanna Alliance (SIOSA) landscape in south-central and eastern Iowa and the Thousand Hills and Union Ridge Conservation Opportunity Areas (COAs) in northeast Missouri. Since that time, the Missouri Department of Conservation redefined a smaller focus area within our larger circle called the Spring Creek Comprehensive Conservation Area; we increased our circle and renamed it the Missouri/Iowa Oaks Focal Landscape as a primary part of our *Save the Habitat. Save the Hunt.* strategic conservation work in Missouri and Iowa.

The 8 acre portion where the timber stand was thinned included in the 22 acre burn area on Putnam County landowner Gary Gordon’s property (left). Post burn view of restored 22 acre open woodland (right).



Photos courtesy of National Wild Turkey Federation

Landowner	County	Practice	Acres	Cost	Date Approved	Date Completed	Paid
Gary Gordon	Putnam	NWSG	5	\$2,306.25	6-29-2016	5-31-2017	\$2,306.25
Gary Gordon	Putnam	TSI	8	\$1,400.00	6-29-2016	5-31-2017	\$1,400.00
Gary Gordon	Putnam	PB	22	\$2,415.50	6-29-2016	5-31-2017	\$2,415.50
Harold Hardin	Adair	TSI	160	\$15,296.50	3-14-2017	5-1-2017	\$15,296.50
Andrew Coy	Adair	TSI	10.3	\$1,802.50	8-5-2016	3-22-2017	\$1,802.50
Andrew Coy	Adair	PB	10.3	\$653.00	8-5-2016	3-22-2017	\$653.00
Shaun Klingsmith	Adair	PB	64	\$2,087.50	7-13-2016	3-23-2017	\$2,087.50
John Williams	Adair	TSI	9	\$1,062.50	7-19-2016	3-8-2017	\$1,062.50
Mike Ivie	Adair	PB	51	\$1,800.00	7-19-2016	4-9-2017	\$1,800.00
Mike Turner	Adair	TSI	16.9	\$1,478.75	7-22-2016	3-27-2017	\$1,478.75
Mike Turner	Adair	PB	161	\$3,106.25	7-22-2016	3-27-2017	\$3,106.25
John Hays	Putnam	NWSG	30.7	\$1,535.00	8-23-2016	6-19-2017	\$1,535.00
John Hays	Putnam	TSI	30.7	\$3,991.00	8-23-2016	10-12-2016	\$3,991.00
Jeff Sparks	Adair	TSI	47	\$3,991.30	3-8-2017	3-22-2017	\$3,991.30
Jeff Sparks	Adair	PB	66	\$7,782.20	3-8-2017	3-22-2017	\$7,782.20

Tables 1 & 2. The money for grant 276 (n=\$20,000) in combination with other sources including: NWTF (n=\$15,411.75) and USFWS (n=\$15,296.50) was allocated to the 9 landowners (listed above.) A total of 692 acres of habitat was enhanced (as detailed below.) The many partners, including MoBCI, help to make this project that spans political boundaries possible.

Total Spent	Total PB Acres	Total TSI Acres	Total WCC Acres	NWSG Acres
\$50,708.25	374.3	113.9	168	35.7

The primary function of this initiative is to provide cost-share money prioritizing practices designed to restore open woodland and savanna conditions on private lands throughout the focus area. Since 2009, MoBCI grant funds have been matched 4:1 by other partners including USFWS Partners dollars, Audubon Society of Missouri, NWTF, and Missouri Department of Conservation (MDC) Habitat Challenge Grant dollars. The cumulative \$220,000 was used to augment the existing MDC cost-share program in the participating counties primarily to pay for timber stand improvement (TSI), prescribed burning (PB), and native warm season grass establishment (NWSG). Woody cover control (WCC), the mechanical removal of smaller diameter woody vegetation to enhance the process of savanna and open woodland restoration was also implemented in areas where burning alone would take longer and be less effective. The

MDC Private Lands Conservationists and local Forester work with interested landowners to develop management plans, line up contractors, and approve completed projects.

To date, this initiative has impacted 73 landowners and achieved 926 acres of PB, 1,225 acres of TSI, 255 acres of WCC, and 113 acres of NWSG on private land totaling 2,519 acres conserved and in the process of restoration. The 42 open woodland units restored by this project through TSI thinning and burning average 24 acres in size and are scattered throughout the focus area. As previously stated, the vegetative structure of these units provides ideal nesting and brood rearing habitat. Although it is impossible to accurately measure the actual influence of these units in additional birds produced, it is probably safe to assume that their impact goes far beyond the actual acres improved. 

Missouri River Bird Observatory Celebrates Success after 7 Years

by Dana Ripper

Missouri River Bird Observatory



Etan Duke and I attended our first MoBCI conference in August of 2010, and to say that the Missouri River Bird Observatory (MRBO) was in its infancy would be an understatement. We had received 501(c)3 status from the IRS on August 10th, making MRBO just 10 days old at the time. Both of us were nervous attending that first meeting; we didn't yet know that so many MoBCI partners would soon become very close friends and conservation allies.

At that time, MRBO consisted of a migration monitoring station at Grand Pass Conservation Area. We had also conducted several education programs at the Grand Pass station and with schools around Saline County. However, major plans were in the works for a Monitoring Avian Productivity and Survivorship (MAPS) project (implemented in 2011) and a statewide secretive marshbird survey project (eventually piloted in 2012).

There were a few key people in these early days that recognized MRBO's potential and were instrumental in sending the organization on its course to expansion and improvement. Gene Gardner, then of MDC, Rick Thom, then of the Missouri Conservation Heritage Foundation, and Katie Koch of the US Fish and Wildlife Service identified the potential usefulness of MRBO and assisted us in obtaining funds for monitoring and education. The migration monitoring, marshbird survey, and education programs seeded in 2010 and 2011 thanks to these folks continue today and have evolved significantly over the years. Later, in 2012 and 2013, we embarked on a relationship with the MDC's grasslands coordinator, Max Alleger, which led to the development of a

large prairie bird monitoring program. All of these programs have allowed MRBO the good fortune of forming partnerships with entities such as the Upper Mississippi River/Great Lakes Joint Venture, the USFWS Partners for Fish and Wildlife Program, Missouri Audubon Chapters, the Audubon Society of Missouri, the Missouri Department of Natural Resources, the National Audubon Society, the Natural Resources Conservation Service and several Divisions within the MDC.

Today, MRBO is focused on monitoring avian populations in Missouri's most imperiled habitats — prairie, wetland, and bottomland forest. Most of this monitoring is performed to provide feedback to land managers on how their management strategies are affecting birds. In some cases, such as our wetland bird monitoring program, the data are also used as an outreach tool to engage private landowners in non-game species conservation. MRBO is also involved in the National Audubon Society's Conservation Ranching program, which incentivizes bird-friendly management of cattle-grazed grasslands.

SUMMARY OF MRBO'S FIELD PROJECTS IN 2016 AND 2017:

- Wetland Bird Surveys on Private Lands: MRBO monitors between 30–60 private wetlands for the USDA/NRCS and MDC each year. Properties are visited once during migration and once during the breeding season.
- Grassland Spring Migration Monitoring: MRBO monitored migration via banding and counts on public lands undergoing restoration.



Second-graders at Columbia Audubon Society's annual Band with Nature event on the Columbia Audubon Nature Sanctuary. This bird education program involves direct support from MRBO.

- Grassland Breeding Season Surveys: Line-transect surveys on 30–50 public and private grasslands throughout Missouri.
- Grassland Nest Monitoring Study: Monitoring of grassland bird nests is conducted on select sites in concert with MDC Resource Science Division's 15-year study on the effects of patch-burn grazing.
- Bottomland Forests: Point counts are conducted on select bottomland forest tracts in order to provide baseline information on how forest management effects bird occupancy.
- Missouri State Parks: Point counts were conducted at St. Joe State Park in 2016 and we conducted an area census during migration and breeding season at Washington State Park in 2017.
- Northern Saw-whet Owl Banding: Owl banding takes place each fall. As these small migrants arrive on the north winds, they are lured into nets

at Arrow Rock State Historic Site and MRBO headquarters.

- In addition to the various data-collection projects, in past years MRBO has performed about 70 education events each year reaching 3,000 to 4,000 people. Approximately 70% of the events are focused on the K–12 age group while approximately 30% of the events reach adults. With the addition of a new, highly trained and skilled educator this year, MRBO is on track to complete roughly 90 different high-quality education events in 2017.

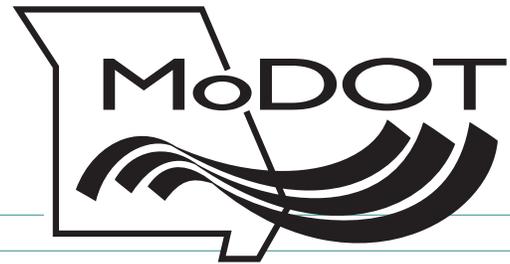
All of the activities in which MRBO is engaged directly reflect our mission — to contribute to the conservation of Missouri's birds and their habitats. Missouri's bird conservation community is one of the strongest in the nation and we at MRBO continue to strive towards making significant and lasting contributions towards our shared goals. 

A Natural Area in a Sea of Agriculture

Thoughts on a Marshland Bird Study

by Evan Hill

Missouri Department of Transportation



When selecting potential study wetlands for my thesis project on marsh bird ecology, I engaged with a wide variety of publicly managed wetlands from which to draw my samples. What I didn't expect, however, was the close juxtaposition between prime wetland habitat and typical Midwest agriculture. I had a firsthand experience with the unexpected association between wetlands and agriculture when I surveyed the Bur-Reed Slough Natural Area at Ted Shanks Conservation Area along the Mississippi River in Pike County. Here was a semi-permanent emergent wetland smack dab in the middle of a cornfield. The planted corn literally abuts the edge of the cattails and bulrush that outline this unique natural area. The Natural Areas Committee designated the 20-acre Bur-Reed Slough Natural Area in September of 1974 after MDC purchased Ted Shanks Conservation Area where the area is located. Early botanical surveys resulted in remnant populations of late-successional emergent vegetation that serves as important habitat for migrating waterfowl, shorebirds, and marsh birds.

Secretive marshbirds enjoy the Bur-Reed Slough Natural Area nestled in the open fields of north Missouri.



Photos by Evan Hill

To access Bur-Reed Slough Natural Area in the Ted Shanks Conservation Area

From Louisiana, Missouri, take Highway 79 north and then turn right (east) on Highway TT. Continue on TT past Ashburn, over the railroad tracks, and to the area headquarters. From the area headquarters you will take area gravel roads to reach the parking lot near the natural area. Use a map of Ted Shanks Conservation Area to help you navigate to the natural area.

While conducting my call-broadcast surveys at Bur-Reed Slough NA, I was treated to the grunting calls of Virginia rail, some sightings of a few especially large snapping turtles, and a hooded merganser weaving through the stands of cattail with several chicks in tow. Least bitterns often clung to the cattail and bulrush in search of prey and a safe place to weave a nest. Standing there amidst the lush emergent vegetation, it would be easy to forget that just meters away were acres and acres of corn stubble. Given the tremendous declines in functional wetland habitat over the course of the last century, it comes as no surprise that conservationists have become creative with protecting what wetland acreage remains. According to the 2012 Census of Agriculture, 64% of the total land area of north Missouri is farmland. Balancing natural areas with cropland and other areas of human use seems like a practical inevitability, especially for an agricultural state like Missouri. Natural areas like Bur-Reed Slough NA, while small, illustrate how important it is for these diverse natural spaces and habitats to be protected in perpetuity. 🦋



Ha Ha Tonka State Park has been managed with regularly occurring prescribed fire since 1983. With the development of a distinct shrub layer in the managed woodlands, prairie warblers thrive. The widely spaced canopy supports other bird species such as Eastern wood pewee and red-headed woodpecker, but the shrubby areas remain a hotspot for prairie warblers, blue-winged warblers, and yellow-breasted chats.

To Find the Prairie Warblers, Find the Habitat

Missouri Natural Areas and Partners in Flight Priority Birds

Jane Fitzgerald

Central Hardwoods Joint Venture



Central Hardwoods Joint Venture

While many species of birds are generalists, meaning they inhabit a wide-range of habitat types (e.g. red-tailed hawks), and a number now are closely linked to very specialized nesting structures that only humans provide (like chimney swifts and chimneys, or purple martins and purple martin “houses”), other species still need habitats that were much more like those that occurred before widespread European settlement altered their species’ composition and natural disturbance regimes. Henslow’s sparrows, for example, are much more abundant in large tracts of native prairie grasses than the fescue pastures that now typify much of Missouri’s historic prairie lands. In my experience, the species that is most in need of native habitat is the prairie warbler.

The prairie warbler, and to a large degree the blue-winged warbler as well, are the rarer members of a group of birds that I call “forest shrub” birds. Other members of the group include white-eyed vireo, yellow-breasted chat and eastern towhee, but those often can be found in disturbed habitat whose structure might well be formed in part by non-native grasses and shrubs. But if I want to find a prairie warbler, a Partners in Flight species of conservation concern throughout its range, I look for a well-managed complex of glades and surrounding open woodlands.

Glades are typified by prairie-like plant communities associated with shallow bedrock outcroppings of a few to hundreds of acres in size. In Missouri, glades can occur on limestone, dolomite, sandstone, igneous

and chert bedrock types. Glades are usually embedded in a woody matrix, often on sites that are relatively dry, like south-facing slopes and ridges, with stunted trees that live in droughty conditions. Historically, fire kept the trees somewhat widely spaced and allowed sunlight to get through to the ground, thereby allowing grasses, shrubs, wildflowers, prairie warblers and other grassland-shrubland birds to flourish. Without fire following a long history of open range grazing, trees, especially eastern red cedar, grew too thick and shaded out the understory vegetation that characterizes healthy systems. Subsequently, the warblers disappear.

Fortunately, glade and open-woodland restoration and ecosystem management regimes have become widely accepted among conservation professionals in Missouri, and many of our state’s designated natural areas protect and showcase high quality glades and woodlands. Some examples where I have found prairie warblers include Butler Hollow NA in Barry County, a glade-woodland complex near Roaring River State Park; Caney Mountain in Ozark County; Ha Ha Tonka Oak Woodland NA, another high quality glade-woodland setting located in Camden County; Indian Trail Conservation Area, Dent County; Meramec Mosaic Natural Area at Meramec State Park, located in Crawford and Franklin Counties; and in the St. Francois Mountains Natural Area, Iron and Reynolds Counties, one of the largest designated natural areas spanning over 7,000 acres. During a recent fieldtrip with the Columbia Audubon Society, prairie



Prairie warblers depend on grassland shrubland habitat with ample invertebrate life and shrubby trees. Glade edges in well-managed woodlands provide ample habitat for prairie warblers that will sustain them throughout their life history.

warblers were so abundant at Ha Ha Tonka State Park that eBird questioned the submission, with administrators asking if there really were that many prairie warblers along the Acorn Trail in the natural area. The importance of a high quality grass-forb structure with a distinct shrub layer, in the case at Ha Ha Tonka SP, which is managed with regularly occurring fire, is vital to the life cycle of the prairie warbler.

Given that many birders also consider themselves environmentalists, I think some are tempted to think that management of glades and woodlands with thinning and prescribed fire may be ‘unnatural’ since the management requires the human hand. Yet many of our native ecosystems that the Missouri Natural Areas Program attempts to preserve and protect were out of character

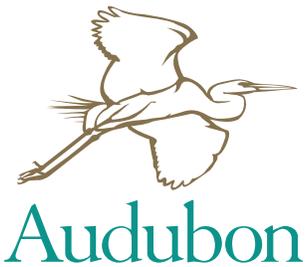
with their historic conditions because we have overharvested, overgrazed, suppressed fire, or converted native plant communities to non-native species that provided easier or greater economic benefits. Missouri’s distinct natural communities cannot heal themselves, and if we care about the birds that depend on our state’s natural heritage and history, we must often act to restore functioning ecosystem health. Support your professional land-managing agencies and organizations including the Missouri Departments of Conservation and Natural Resources, the Mark Twain National Forest, the National Park Service and The Nature Conservancy in their restoration efforts and help to educate others to the ecosystem services that trickle down to creating significant, and often vital, bird habitat. 🐦

The Audubon Center at Riverlands

A Conservation Update

by Jean Favara

Conservation Manager, Audubon Center at Riverlands



The Audubon Center at Riverlands (ACR) is both a project of the National Audubon Society (NAS) and a partnership with U.S. Army Corps of Engineers River Project Office (USACE RPO). The Center is located in the 3,700-acre Riverlands Migratory Bird Sanctuary, which is public property managed by the USACE RPO. Together, the Center and Sanctuary provide the platform for a unique collaboration between Audubon and the Rivers Project Office to conserve the Mississippi River through nature-based education and tourism, outdoor programs, science-based species monitoring and the restoration and protection of 50,000

acres of floodplain habitat in the Great Rivers Confluence Important Bird Area (IBA), a globally significant place for birds.

May and June are very busy months at the center with both center and USACE RPO staff focused on a bottomland forest avian survey project that was initiated in 2012. This project uses avian point count survey data to determine the abundance and density of breeding birds in the bottomland forests of islands and areas in the Mississippi River managed by the USACE RPO. Currently, the survey covers 25 islands/areas with approximately 145 survey points. Survey areas are found across 100 river miles located on the Mississippi River between Maple Island, which is sited on the sanctuary, to Gilbert Island, located near Ted Shanks CA north of Louisiana, MO. This year, May flooding on the Mississippi River delayed the survey season by almost 2 weeks while also limiting access to some points due to high water remaining on survey areas. Despite these challenges, we were able to complete 125 survey points on 22 islands. This data will inform future adaptive management practices that support avian populations in the bottomland forests of the Mississippi River.

Recently, the USACE RPO office and ACR celebrated a conservation success with the banding of 55 (two banding sessions) interior least tern chicks on nesting barges located on Teal Pond. We initiated the interior least tern project to provide appropriate nesting habitat for this endangered species. Least Tern decoys and playbacks are deployed to



Photo courtesy of Audubon Center at Riverlands

Jean Favara (Conservation Manager, ACR) navigating to a survey point in the West Alton survey area.



Linda Tossing (Banding Team Leader, WBS), Lane Richter (US ACE RPO Wildlife Biologist), Jean Favara (Conservation Manager, ACR) and Jeff Meshach (Deputy Director, WBS) work together to band one of the Least Tern chicks

attract nesting adults to the sand-and-gravel-covered barges. Previously, Ellis Bay housed the barges, but fluctuating water levels made safe anchoring of the barges difficult at that location. Predator protection on the barges includes fencing that surrounds the barges and wooden boxes that provide safe hiding areas for the young birds. Automatic game cameras monitor the barges.

Despite these precautions, last year a very motivated raccoon swam out to the barges (captured by the automatic game cameras) and predated some of the tern eggs. The addition of electric fencing on the barges helped to protect the young birds this year. The World Bird Sanctuary, the USACE RPO and ACR cooperated this year to band a bumper crop of interior least tern young on the barge. Flooding on the river may have



Justin Garrett (USACE RPO Wildlife Biologist) keeps the unbanded Least Tern chicks separate from banded Least Tern chicks.

inundated other natural areas usually utilized by the nesting adults, which may have lead to a higher nesting density on the barges this year. The increased density of adults could also help protect eggs and young from aerial predators such as crows.

ACR and our partner USACE RPO were recently awarded a \$25,000 MOBCI grant to begin a prairie restoration project encompassing approximately 12 acres in the sanctuary. The goal is to continue restoration of a diverse native plant community that can be used as a cost-effective seed source for diversifying other portions of the 1200-acre bottomland prairie and marsh system at the Riverlands Migratory Bird Sanctuary. This project will also support the habitat needed to foster grassland bird populations in the area. Birds such as eastern meadowlarks and horned



A picture of the prairie conditions typically found in the targeted restoration area.

larks utilize the area, both species recently identified by Partners in Flight as grassland birds that have lost more than 50% of their population over the last 40 years.

A previous grant from MoBCI (FY2015) allowed us to help control invasive species, establish a seed collecting and propagation program, and to purchase a high diversity seed mix for a newly renovated marsh and wet-prairie site. For the current project, we identified a restoration area and began invasive species management and mowing in preparation for overseeding this winter. Local

Master Naturalist groups from Illinois and Missouri volunteered to help with the project and we anticipate seed collection efforts to begin shortly and continue through the fall. Approximately 8 acres will be seeded this winter using a purchased high-diversity seed mix. The remaining area (4 acres) will be seeded using locally collected prairie seed stock. We look forward to providing other updates as the project progresses and to the resulting enriched prairie habitat that will support both our grassland birds and pollinators that inhabit Riverlands. 🐦

The prairie conditions in the targeted restoration area during the flooding in May 2017.





Feral hog damage in a high quality glade. The hog damage here evidenced by churned up soil, rock and plant material is flanked by conservative glade flora. The destroyed portion will not recover in the short term.

Feral Hog Management in Missouri

by **Tim Turpin**

Natural Resource Steward, Missouri Department of Natural Resources



Invasive species management is an issue most resource managers contend with on a daily basis. Invading plants and animals disrupt natural communities, threaten conservative species, and eat away at budgets that are already stretched thin.

My first exposure to an invasive species occurred more than two decades ago. I was asked to help shoot feral hogs from federal land in central Missouri. It was 100 degrees in July, ticks everywhere, and I thought we

would kill all the pigs on the property. After the first batch of hogs ran by in the brush with nobody firing a shot, I realized I may have overestimated our success rate.

Missouri has always been a leader in the conservation field, and the feral hog problem has captured the attention of both state and federal agencies since the 1990's. In 2005, then-Governor Matt Blunt encouraged the formation of the Feral Hog Task Force. This task force organized state and federal agen-

cies into a cohesive group of dedicated land managers with one common goal: the elimination of feral hogs from the sensitive natural landscapes of Missouri.

The immense hurdles to accomplish eradication included reconciling landowner issues with agency policy, agency budget constraints, a small contingent of dedicated feral swine hunters that promoted the sport in Missouri, and the continued release of feral swine on the landscape. Feral swine populations, mainly south of Interstate 44, were concentrated on public ground. This made feral swine — called sounders — accessible to land managers, but also allowed hunters to harass them away from the bait locations, thereby making it harder to catch entire groups.

The task force's success was slow at first,

but has continued to accelerate due to innovations by the field staff. Trapping, shooting, setting snares, hiring contract hunters from other states and aerial gunning from helicopters are used to reduce the overall population.

Recently, MDC has outlawed the hunting of feral livestock on land owned or managed by the department. This has allowed agency staff to be more effective in trapping feral hogs. In the last few years, the reported kill numbers of feral swine by state and federal agency staff have increased. The recent success can be directly attributed to the focused attempt to remove the feral hogs from the landscape. More staff and increased funding have, together, proven valuable in trapping success. 

WHY REMOVE FERAL HOGS?

Feral hogs are not native to North America. They do not have native predators and the natural communities do not have a defense against their feeding activities. Feral hogs root and displace soil, killing native plants and leading to erosion problems. One plant in particular is significantly impacted by feral hog rooting: the federally listed Mead's Milkweed, a long-lived perennial forb. The heart of the Missouri population is located in the St. Francois Mountains on rhyolite glades. Glades naturally possess shallow soils over bedrock; feral hogs flip the soil looking for invertebrates, salamanders and other

prey. The rooting damage affects entire landscapes, but the direct damage to Mead's Milkweed has elevated the need for feral hog eradication. Natural community damage from feral hogs not only disrupts plant populations, but invertebrate and herptile populations as well. Without a suite of native flora the ecosystem collapses — a cascade effect resulting from the disappearance of insect life that depends on native plants. Without insects, bird populations diminish as well. Feral hog control and eradication remains a primary goal for the Feral Hog Task Force in Missouri.

Grass-fed Beef that Benefits Birds

by Chris Wilson

Conservation Ranching Program Director, Audubon Society



Grassland birds have experienced a steep, consistent, and widespread population decline, more than any other suite of avian species. While conservationists have been sounding the alarm for many years, efforts to reverse these declines have been ineffective. Since the vast majority of grasslands across the Great Plains are privately owned, impactful conservation requires innovative strategies that engage producers in land management practices that support their bottom line while also maintaining healthy habitats for wildlife.

Audubon has initiated a market-based approach to grassland conservation that aims to enhance and restore millions of acres of grassland bird habitat across the Great Plains by partnering with farmers and ranchers to implement regenerative livestock management practices. The Audubon Conservation Ranching program offers market-based incentives for good grassland stewardship through the development of a certification label on beef products, and it allows consumers to participate in conservation efforts that keep ranchers on the land and healthy grasslands on the landscape.

For each farm or ranch in the program, a specific Habitat Management Plan is developed that will benefit target grassland bird species for that particular ecoregion. In Missouri, this includes several species of concern including greater prairie chicken, bobolink, upland sandpiper, Henslow's sparrow, and northern bobwhite quail. Typically, these plans include native plantings, invasive control, and some type of rotational grazing approach that results in a diversity of grassland vegetation across a ranch. The plan outlines programs to help defray the cost of many

habitat management practices.

The ranch must also meet program protocols related to Forage and Feeding, Animal Health & Welfare, and Environmental Sustainability. Animals in the program must spend their entire lives on grasslands. Feedlots are not allowed, and growth hormones and antibiotics are strictly prohibited.

MDC has been a key partner in the development of this program. Max Alleger, MDC's Grassland Coordinator, has used successive NRCS Regional Conservation Partnership Program grants to assist more than a dozen producers in the transition to bird-friendly cattle management practices. The Haubein Farm is the first to gain certification through the program, and beef products from this Audubon-certified ranch will soon be available at retail outlets in Columbia, Missouri and elsewhere.

Bird monitoring occurs at all ranches in the program. Audubon has worked with the Missouri River Bird Observatory and MDC to develop a monitoring protocol using bird occurrence and territory mapping that provides a "Bird-friendliness Score" that can be tracked over time as management practices change. A growing database comprised of thousands of individual bird observations have been recorded over a period of six years and is adding to our understanding of how bird use changes over time as a result of management regimes.

We expect products from Audubon-certified ranches to hit markets in Missouri, North & South Dakota, Texas, Colorado and New Mexico in the next few months. We expect the Audubon certification seal to bring a broad market appeal that should enhance demand by consumers that want options for beef that is sustainably raised and benefits wildlife habitat. 

MoBCI Member Organizations

As of August 2017, the following 72 organizations have signed a Memorandum of Agreement to participate in the Missouri Bird Conservation Initiative:

Academy of Science of St. Louis
American Bird Conservancy/
Central Hardwoods Joint Venture
Audubon Missouri
Audubon Society of Missouri
Audubon Society:
• Chariton Valley Chapter
• Columbia Chapter
• Grand River Chapter
• Greater Kansas City Chapter,
Burroughs Audubon Society
• Greater Ozarks Chapter
• Midland Empire Chapter
• River Bluffs Chapter
• St. Louis Chapter
Avian Conservation Alliance
Bellefontaine Cemetery & Arboretum
City of Des Peres Parks & Recreation Department
Clay County Dept. of Parks,
Recreation & Historic Sites
Coldwater Outing and Game Preserve
Conservation Federation of Missouri
Ducks Unlimited
Eleven Point River Conservancy
Forest Park Forever
Forrest Keeling Nursery
Greenbelt Land Trust of Mid-Missouri
Kansas City Wildlands/Bridging The Gap
LaBarque Watershed Stream Team Association
L-A-D Foundation
Litzsinger Road Ecology Center
Mark Twain National Forest, USDA Forest Service
Massasauga Flats, LLC
Missouri Army National Guard
Missouri Conservation Heritage Foundation
Missouri Department of Conservation
Missouri Department of Natural Resources,
Division of State Parks

Missouri Department of Transportation
Missouri Falconers Association
Missouri Master Naturalists:
• Boone's Lick Chapter
• Hi Lonesome Chapter
• Osage Trails Chapter
• Springfield Plateau Chapter
Missouri Native Plant Society:
• Hawthorn Chapter
• Osage Plains Chapter
Missouri Native Seed Association
Missouri Park and Recreation Association
Missouri Prairie Foundation
Missouri Quail & Upland Wildlife Federation
Grouse Chapter
Missouri River Bird Observatory
Mussel Fork Legacy Marsh LLC
National Wild Turkey Federation, MO Chapter
North American Grouse Partnership, MO Chapter
Ozark National Scenic Riverways
Ozark Regional Land Trust, Inc.
Pheasants Forever
Quail and Upland Wildlife Federation Inc.
Quail Forever
Sierra Club, Ozark Chapter
The Nature Conservancy, Missouri Field Office
Truman State University
U.S. Fish & Wildlife Service:
• Big Muddy National Fish & Wildlife Refuge
• Ecological Services
• Great River/Clarence Cannon National Fish &
Wildlife Refuge
• Mingo National Fish & Wildlife Refuge
• Missouri Private Lands Office
• Squaw Creek National Fish & Wildlife Refuge
• Swan Lake National Fish & Wildlife Refuge
University of Missouri-Columbia
Watershed Institute, Inc
and The Watershed Land Trust
Webster Groves Nature Study Society
Wild Birds for the 21st Century
Wildcat Glades Conservation & Nature Center
Wings Over Weston
World Bird Sanctuary

To find out more about the Missouri Bird Conservation Initiative and how you can participate as a member organization, visit our website: www.mobci.net 