

**Missouri Wetland Program Plan
2013 – 2018**



Prepared by the
Missouri Department of Natural Resources
Water Resources Center

Water Resources Center
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Introduction

Missouri's wetlands are as diverse as the benefits they provide. They occur as marshes along the major rivers or as tiny fens in the rugged Ozark hills. Tracts of bottomland forests are widespread and scrub-shrub swamps can be found along certain Missouri streams. The benefits are economic, environmental, and social. Wetlands provide flood water retention, water quality improvement, sediment retention, and wildlife habitat. Wetlands can provide unique places to enjoy natural settings for plants and birds not often seen elsewhere. Wetlands also provide recreational areas for bird watching, photography, and sport hunting. Unfortunately, wetlands are not as numerous as they were before settlement of the country. Most wetlands in Missouri have been drained or filled. The remaining wetlands in Missouri occur both on public and private lands. Sometimes little is known about the functions that occur in these unique ecosystems. Many times they face the threat of destruction by filling or draining due to urbanization, road construction, and agriculture. Therefore it is important to promote the further understanding and protection of wetlands in Missouri.

Those persons concerned with managing and protecting wetland resources are also diverse. Federal and state agencies, academia, and private interests are all involved in protecting, managing and studying Missouri's wetland resources. Some of these agencies regulate wetlands to protect habitats and functions. Universities and other agencies help monitor and promote scientific knowledge about wetlands and their rare or endangered inhabitants. Other entities, both private and governmental, provide incentives and assistance for restoring wetlands.

The goal of this document is to provide a coherent and concise collection of wetland education, management, monitoring, restoration, and protection activities planned for the State of Missouri. This document addresses EPA's four core elements of a state wetland program plan and an additional core element titled education. The core elements of this plan include: 1) Monitoring and Assessment; 2) Regulation; 3) Voluntary Restoration and Protection; 4) Water Quality Standards; and 5) Education. Outlined are the actions and timeframes provided by those entities that have contributed to the Missouri Wetland Program Plan.

Wetland Action Plan Timeframe

This wetland program plan includes the years 2013-2018 with triennial reviews and updates anticipated.

Contacts/Agency

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Planning Process

Missouri's Water Resources Center has been collaborating with EPA Region 7 since 1988 on wetland research and protection projects. In recent years, the EPA has been approaching states on the need for more focus and better use of resources to enhance wetland protection and restoration efforts. The WRC received federal cost share support to facilitate this wetland program plan. Additionally, EPA Region 7 is providing MDNR and other resource agencies support in developing a state action plan to assist in focusing wetland resources and increasing collaboration amongst public and private wetland resource agencies. The State of Missouri has no specific wetland protection statutes nor do we have state specific permitting rules or penalties to control or promote protection or restoration of wetland activities. However, wetland protection and restoration activities have been achieved by state agencies and private entities on their respective properties. Additionally, USDA-NRCS's Wetland Reserve Program has had notable success in restoring many acres of frequently flooded wetlands. Notable wetland restoration success has also been achieved by state and federal agencies along the Mississippi and Missouri Rivers. The National Flood Insurance Program has indirectly protected acres through floodplain permitting activities. Additionally, the USDA Swampbuster Act and Federal Clean Water Act Section 404-401 have controlled many wetland degrading activities in the State.

The Missouri Department of Natural Resources has sought wetland protection and enhancement through research and education and actively seeks collaborators to promote wetland science and education.

This plan was made possible by the cooperation and consultation of the contributors listed below.

List of Contributors

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List of Acronyms and Abbreviations

ASWM	Association of State Wetland Managers
DOI	Department of Interior
DU	Ducks Unlimited
EPA	Environmental Protection Agency
MARC	Mid-America Regional Council
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MoDOT	Missouri Department of Transportation
MORAM	Missouri Rapid Assessment Methodology
MU	University of Missouri - Columbia
NRCS	Natural Resources Conservation Service
NWMAWG	National Wetlands Monitoring and Assessment Workgroup
SCORP	Statewide Comprehensive Outdoor Recreation Plan
UCM	University of Central Missouri
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WRP	Wetland Reserve Program

Core Element: Monitoring and Assessment

Goal: Develop a monitoring and assessment strategy that provides state resource managers with information to protect and promote wetland resources in Missouri.

Action (a): Identify program decisions and long-term environmental outcomes that will benefit from a wetlands monitoring and assessment program.						
Activity	2013	2014	2015	2016	2017	2018
MDNR Water Resources Center will continue to maintain six wetland monitoring stations at various wetlands throughout the state. These monitoring stations will continue to record and transmit real-time data for hydrologic and meteorological conditions. Consider expansion of monitoring network by installing additional instrumentation at other wetland locations.	X	X	X	X	X	X
MDNR Water Resources Center will continue to maintain a webpage dedicated to the promotion of wetland resources. Links to monitoring site real-time data, wetland research and collaborative projects will be available.	X	X	X	X	X	X
MDNR participates in NWMAWG webinars to share wetland information and to support EPA's mission to promote and protect wetland resources.	X	X	X	X	X	X
MDNR Water Resources Center participates in planning and sampling for the EPA's National Wetland Condition Assessment.			X	X		
MDNR will test wetland rapid assessment methodology (MORAM) on sites throughout Missouri's ecoregions. Additionally, MDNR will apply MORAM to Lower Grand River wetland sites as a supplement to the Our Missouri Waters Initiative.	X	X				
MDNR collaborates with NRCS for future monitoring and assessment of select Wetland Reserve Program sites.			X	X		
USGS will develop a wetland restoration potential index from streamflow and topographic data for floodplains of the Blue River and Brush Creek in Kansas City. The index will identify areas where wetland restoration is most favorable and demonstrate the technique for use on floodplains throughout Missouri.	X	X				

USGS, in cooperation with MDNR, MDC, and other federal, state and local agencies will continue to monitor streamflow conditions throughout Missouri that influence wetland hydrology and provide access to real-time hydrologic data.	X	X	X	X	X	X
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Action (b): Cooperation between state agencies and universities on joint research to advance wetland knowledge.						
Activity	2013	2014	2015	2016	2017	2018
MDNR and MU will continue to collaborate on the ways in which GIS analyses can provide solutions for wetland protection and enhancement—including connectivity, water quality, and the identification of sites that warrant special protection or may be most suitable as mitigation locations.	X	X	X	X	X	X
MDNR and MU researchers will continue to explore different research projects to advance knowledge of wetland conditions in Missouri.	X	X	X	X	X	X
MDNR hydrologists and UCM botanists will consider projects to monitor and assess wetland conditions to document and highlight high quality wetland sites. Also, MDNR and UCM will consider developing a wetland integrity Index based on hydrology, soils, vegetation and wildlife indicators for each wetland type among the major Missouri ecoregions. Finally, MDNR and UCM will consider developing management protocols for managing invasive species that are deemed detrimental to wetland functioning and biological diversity.			X	X	X	X
MDC and university researchers will continue to explore different research projects to advance knowledge of the relationships between wetland habitats, the role they play for wetland-dependent species, and people.	X	X	X	X	X	X

Action (c): Missouri Department of Conservation will update the 1989 MDC Wetland Management Plan.						
Activity	2013	2014	2015	2016	2017	2018
MDC will revise the 1989 MDC Wetland Manual, attempting to integrate conceptual models that reflect a shared understanding of past and present wetland systems, the extent of alterations to the landscapes in which they are	X					

located, and the role they play for wetland-dependent species and people. The models will depict current systems understanding as gained from both managers' experience and as reflected in scientific literature. The models will provide the foundation from which priorities are made, coordination is facilitated, and research is targeted.	
MDC will attempt to identify strategies necessary to meet department objectives.	X
MDC will evaluate management and monitoring efforts to improve outcomes, increase knowledge of wetland system dynamics, and to better understand how wetland habitats and complexes are used both by wetland-dependent species and people. The departmental goal is to adapt management strategies when necessary to meet objectives.	X

Action (d): Urban planning efforts to restore and conserve wetlands.						
Activity	2013	2014	2015	2016	2017	2018
In the highly urbanized areas of the state, MARC will support the development of high-resolution land cover data to catalyze the following actions: establish natural area and corridor targets for restoration and conservation prioritization, identify strategic transportation mitigation opportunities, assess ecosystem services provided by existing and enhanced green infrastructure, locate urban areas underserved by green infrastructure, develop urban stream health index and conduct impervious cover assessments.	X	X	X	X	X	X
MARC will encourage regional planning efforts that lead to protection and restoration of riparian and wetland acres, including development and implementation of green infrastructure plans, stream setback ordinances and investments in trails and greenways.	X	X	X	X	X	X

Core Element: Regulation

Goal: To preserve, enhance and restore the quantity and quality of Missouri's Wetlands while avoiding, minimizing and mitigating for impacts.

Action (a): Improve 401 Water Quality Certification regulations, policies, and guidance.						
Activity	2013	2014	2015	2016	2017	2018
MDNR will review Requests for Clean Water Act Section 401 Water Quality Certifications.	X	X	X	X	X	X
MDNR will review and/or update the Administrative Rule for Water Quality Certifications at 10 Code of State Regulation 20-6.060 per direction from the Missouri Clean Water Commission (http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6.pdf).		X				X
MDNR will participate in interagency discussions and aid in revisions of the Missouri Stream Mitigation Method, which established procedures for calculating impacts (debits) and improvements (credits) for both riparian and in-stream work. Most recent version approved May 29, 2013.	X					X
MDNR will participate in interagency discussions and aid in development of the Missouri Wetland Mitigation Method, which will establish procedures for calculating impacts (debits) and improvements (credits) for both wetland and buffer work.	X	X				X
Agency coordination with the USACE, USFWS, EPA, and MDC through the Joint Public Notice process of Clean Water Act Section 404 Department of the Army Permit and Section 401 Water Quality Certification applications, pre-application and post-public noticed site visits, and/or partnering meetings.	X	X	X	X	X	X
Establish a Memorandum of Understanding and/or Joint Processing Agreement between USACE and MDNR which will institute a uniform protocol for processing Clean Water Act Section 404 Department of the Army Permits and Section 401 Water Quality Certifications. In addition, products of the process will be the creation of educational materials and an application packet to inform the public on the process.	X	X				

MDNR will actively participate with each USACE District and other partners, such as MDC and USFWS, during the Nationwide Permit renewal process, including development of nationwide and regional conditions.					X	X
MDNR will develop appropriate conditions for pre-certifying certain Nationwide Permits.					X	X
Gravel mining permitting through MDNR Land Reclamation Permit for in-stream commercial mining. This is done to avoid wetland disturbance by access roads and equipment staging areas.	X	X	X	X	X	X

Action (b): Enhance Wetland Data.

Activity	2013	2014	2015	2016	2017	2018
The USFWS and MDNR will review need for and/or update the National Wetland Inventory. Establish LIDAR data-derived parameters to enhance the NWI geodatabase.			X	X		
MDNR plans to update the 401 Certification Management System database to include mitigation tracking. Updates will include debit types and amount, credit types and amounts, monitoring needs, and date of completion.					X	X
MDNR plans to identify priority wetland protection and restoration areas linked to wetland water quality standards and existing GIS data. Areas can be identified based on specific conservation and water quality needs.						X
The USFWS will provide the Status and Trends Report of Wetlands in the Conterminous United States.				X		

Action (c): Provide education and outreach about wetland protection and regulatory process.

Activity	2013	2014	2015	2016	2017	2018
Citizen education on wetland importance and the 401 process (MDNR).	X	X	X	X	X	X
Update MDNR website for online information about the 401 process.		X				X
Make educational brochure with summary points outlining the 401 process for handouts at meetings and conferences (MDNR).		X				

Action (d): Natural Resources Conservation Service oversees Farm Bill compliance for wetland protection.

Activity	2013	2014	2015	2016	2017	2018
The 2014 Farm Bill (The Agricultural Act of 2014) kept certain authorizations from the 1985 Food Security Act intact involving the “Swampbuster” provision of which provides guidance and policy to USDA. This provision discouraged the conversion of wetlands into non-wetland areas. The “Swampbuster” provision denied Federal farm program benefits to producers who converted wetlands to non-wetland areas after December 23, 1985. Later Farm Bills strengthen this provision by making violators ineligible for farm program benefits. A MOU developed in 1994 between USDA, EPA, DOI, USACE gave NRCS authority to make section 404 jurisdictional determinations on ag-lands using Food Security Act definition of agricultural lands.		X	X	X	X	X

Action (e): Missouri Department of Transportation wetland mitigation for road projects.

Activity	2013	2014	2015	2016	2017	2018
The Missouri Department of Transportation (MoDOT) manages created, restored or enhanced wetlands that serve as mitigation for roadway projects. MoDOT currently has five wetland banks, as well as many other smaller site-specific wetland mitigation areas. These wetland banks/sites are minimally managed and may be advertised for sale, once they have met the necessary regulatory monitoring requirements and have the proper legal instruments recorded for protection. MoDOT may have potential road work in the next five years to warrant the purchase of additional sites for wetland bank development.	X	X	X	X	X	X

Core Element: Voluntary Wetland Restoration and Protection

Goals: Restore, increase, maintain and protect wetland ecosystems by voluntary means.

Action (a): Missouri DNR will work with state and federal agencies to advocate restoration projects and voluntary protection.

Activity	2013	2014	2015	2016	2017	2018
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MDNR will fund eligible 319 NPS Program grant projects for wetlands floodplain and riparian needs. Missouri's new Nonpoint Source Management Plan (NPSMP) includes prioritization of wetland projects as a best management practice for reducing NPS water pollution and improving aquatic live use. Similarly, dam/stream obstruction removal and riparian protection and restoration are among the NPSMP top priorities. Preference may be provided to OMW watersheds and NPS impaired waters or TMDLs. Funding eligibility of projects will be determined by federal guidance, the Clean Water Act, the Missouri NPS Management Plan, and Department priorities. Wetland protection and restoration are recognized as priorities of the 319 NPS Program due to their multiple environmental and ecological benefits, including substantial NPS pollutant load reduction potential.	X	X	X	X	X	X
MDNR will partner with NRCS to promote the National Water Quality Initiative, coordination effort with other federal and state agencies, Soil and Water Conservation Districts and local citizens to prioritize and focus financial assistance in selected watersheds with the goal of reducing nitrogen, phosphorous, sediment, and pathogen contributions from agricultural land.	X	X	X			
MDNR will help facilitate EPA's Five Star grant opportunities for communities and municipalities seeking to restore wetland, floodplain and riparian areas.	X	X	X	X	X	X
Educational activities that promote 319 projects (MDNR). Efforts in the 319 grants help to educate professionals and local citizens on best management practices they can implement to help improve the water quality in their watershed. The 319 projects vary on project focus and watershed location so educational efforts are occurring throughout the state.	X	X	X	X	X	X
MDNR Division of State Parks continues to protect and manage wetlands located in all state parks.	X	X	X	X	X	X
MDNR Soil and Water Conservation Program partners with MDC to develop a cost-share practice to construct wetland treatment cells for agricultural runoff or provide buffer incentives to protect sensitive wetland areas.	X	X				
MDNR supports Natural Resource Damages (NRD) wetland restoration activities.	X	X	X	X	X	X

MDNR will work to establish the Missouri Corporate Aquatic Restoration Team as a way to implement the Corporate Wetland Restoration Program in Missouri. MDNR will seek corporate participants for the program and develop a technical team to provide guidance to the corporate board from among its partner agencies and organizations.	X	X	X	X	X
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Action (b): NRCS facilitates voluntary restoration and protection of wetlands on private lands with federal funding.

Activity	2013	2014	2015	2016	2017	2018
<p>Currently, the 2014 Farm Bill (The Agricultural Act of 2014) has rescinded the authorities for WRP and has replaced the popular wetland program with the Agricultural Conservation Easement Program (ACEP). Within ACEP is a Wetland Reserve Easement Program (WRE) very similar to the 2008 Farm Bill’s WRP. WRE still offers enrollment of lands into permanent and 30 year easements. WRE has changed from being an “acreage based program” with an acreage base not to exceed to a “dollars based program” with \$2.03 billion available to secure easements from 2014 – 2018. WRE is a volunteer program where private landowners offer property they own for the purpose of protecting, restoring and enhancing wetlands. In Missouri, 1068 easements totaling over 146,667 acres are enrolled statewide. Typically, restoration occurs on previously farmed fields where shallow wetlands are constructed and special herbaceous plantings are established adjacent to the wetland.</p> <p>Initiated in 2011, an updated policy (Circular 21) was developed that initiated a monitoring effort on all easements nationwide. The condition of each easement is to be reported annually. Each easement is checked to see if the terms and conditions of the warranty easement deed are being upheld either on-site or by remote sensing. Biological aspects of vegetative progression and habitats created for threatened and endangered species are reviewed during the monitoring process.</p>		X	X	X	X	X

MDC will work with NRCS in implementing the WRP program.	X	X	X	X	X	X
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Action (c): MDC plans wetland restoration and enhancement on state managed lands.

Activity	2013	2014	2015	2016	2017	2018
MDC will continue to manage wetland habitats throughout Missouri. MDC will continue efforts to improve ecological function of wetlands, enhance management capabilities, and conserve and manage wetlands for nature and for people to use and enjoy.	X	X	X	X	X	X

Action (d): Ducks Unlimited cooperative efforts with government and private entities for wetland enhancement and restoration.

Activity	2013	2014	2015	2016	2017	2018
Mississippi and Missouri Rivers Confluence Focus Area – DU Easement Program to protect wetlands on private lands.	X					
Missouri Agricultural Wetlands Initiative (MAWI) partnership between NRCS, MDC and DU that promotes compatibility between wetlands and agriculture.	X	X				
Mingo National Wildlife Refuge and Duck Creek Conservation Area restoration work. Additional hydrology improvement will take place at Clarence Cannon National Wildlife Refuge.	X	X				
Plans for future wetland restoration work at Swan Lake National Wildlife Refuge, Schell Osage Conservation Area, and Truman Reservoir lands are being discussed.	X	X				

Core Element: Water Quality Standards for Wetlands

Goals: Improve and protect the water quality of Missouri wetlands in accordance with the Clean Water Act and MDNR Water Protection Program recommendations.

Action (a): MDNR works to develop a classification and water quality standards system.

Activity	2013	2014	2015	2016	2017	2018
Begin wetland classification discussion.	X					
Refine wetlands language in Water Quality Standards rule.	X	X				
Establish reference wetlands for Missouri:	X	X	X	X		
-Identify candidate reference wetlands.	X	X				
-Habitat metrics – Develop habitat metrics for wetlands.		X	X			
-Develop methodology for determining reference wetland conditions.			X	X		
-Begin establishment of statewide reference wetland dataset.			X	X	X	X
Macroinvertebrate index of biological integrity (IBI) - Develop an IBI for wetlands. Development of an IBI is intended to follow the collection of water quality and biological data, and the identification of reference wetlands for Missouri. The IBI quantifies the invertebrate community with respect to its overall tolerance to pollution by summing the tolerances of individual taxon. The goal of establishing an IBI is to provide a tool for characterizing wetland function and condition, and to ultimately establish numeric water quality criteria.				X	X	X
Establish designated uses and numeric standards for wetland water quality.					X	X
Develop method for wetland water quality monitoring and assessment.					X	X
USFWS and partners will participate in the triennial review of Water Quality Standards rule (timeframe has not been determined).			?			

Core Element: Education

Goal: Develop educational strategies that provide state resource managers and citizens with information to protect and promote wetland resources in Missouri.

Action (a): Participate in meetings, workshops and outreach activities with interested parties to promote wetland resources.						
Activity	2013	2014	2015	2016	2017	2018
MDNR participates in Association of State Wetland Managers webinars for continuing education and training in wetland sciences and issues.	X	X	X	X	X	X

Various agencies may provide training on Regulatory topics for 404 updates (i.e. delineation, stream geomorphology).	X	X	X	X	X	X
Resource specific training through EPA and ASWM by webinar and classroom (MDNR and MDC).	X	X	X	X	X	X
Conduct wetland education and outreach as part of the Missouri Wetland Program Plan development process and grant.	X	X	X			
Conduct MDNR staff education and training in cooperation with USACE on stream and wetland mitigation methods.				X	X	

Additional Resources

Missouri Department of Natural Resources <http://dnr.mo.gov/env/wrc/wetlands.htm>

Core Elements of an Effective State and Tribal Wetlands Program Framework, U.S. Environmental Protection Agency webpage http://water.epa.gov/grants_funding/wetlands/cefintro.cfm

Wetland Program Plans: A Strategic Tool for States & Tribes http://aswm.org/pdf_lib/wetland_program_plans.pdf

Wetland Program Plans, Association of State Wetland Managers webpage <http://aswm.org/wetland-programs/wetland-program-plans>

Wetland Program Plans Handbook, http://www.aswm.org/pdf_lib/wetland_program_plans_handbook.pdf

Appendix: Statements of Concurrence

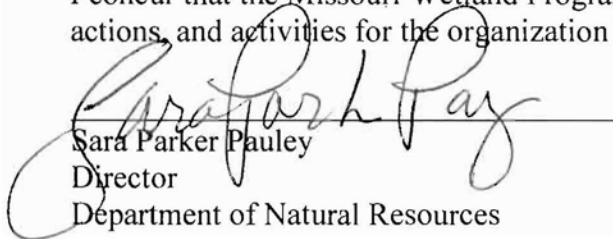
1. Missouri Department of Natural Resources
2. Missouri Department of Transportation

Missouri Wetland Program Plan – Statement of Concurrence:

The Missouri Department of Natural Resources, along with fellow contributors, has participated in the development of the Missouri Wetland Program Plan. The Missouri Wetland Program Plan was developed through an EPA Region 7 wetland program cost share agreement. It is intended to outline goals and objectives for wetland conservation and management in the State of Missouri from 2013 through 2018. The document's contributors include federal, state and private entities involved in the management and conservation of Missouri's wetland resources.

The purpose of this request is to verify that the activities listed for your agency are accurate. Please be advised that this plan is a non-binding document that lists current and future wetland goals, actions, and activities.

I concur that the Missouri Wetland Program Plan lists current and future wetland goals, actions, and activities for the organization I represent.


Sara Parker Pauley
Director
Department of Natural Resources

Date: 5-9-2014

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Gayle Uhrh Date: 5/5/14
Gayle Uhrh
Environmental and Historic Preservation Manager
MoDOT