



**Kansas
Wetlands and Aquatic
Resources Plan
Framework**

**Prepared by:
Kansas Conservation Commission
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Appendix A: Wetland and Aquatic Resources Protection Plan Format A-1

I. Executive Summary

The purpose of the Wetland and Aquatic Resources Plan (WARP) Framework is to identify the existing status of wetland and aquatic resource protection and make recommendations on the development of a State Comprehensive Plan including goals and policies for the future of Kansas. This WARP Framework was developed as a part of Kansas State Conservation Commission –Wetlands, Streams, and Riparian Areas cooperative agreement with the US Environmental Protection Agency.

The WARP Framework was developed with the assistance of the Kansas Alliance for Wetlands and Streams (KAWS). An interdisciplinary team was formed in 2006 and met several times from 2006 through 2008. The team reviewed the previous 1993 Kansas Wetland and Riparian Areas Project documents (Kansas Water Office, 1993) and researched existing policies and data for the development of the framework.

The recommendations contained are the recommendations of the work group and have been reviewed and accepted by the Kansas Natural Resources Sub-cabinet.

II. Introduction

The purpose of the Wetland and Aquatic Resources Plan Framework is to identify the existing status of wetland and aquatic resource protection and make recommendations on the development of a state plan including goals and policies for the future of Kansas. This WARP Framework was developed as a part of Kansas State Conservation Commission –Wetlands, Streams, and Riparian Areas cooperative agreement with the US Environmental Protection Agency.

The WARP was developed with the assistance of the Kansas Alliance for Wetlands and Streams (KAWS). The following agencies and organizations were involved in an interdisciplinary WARP team that developed this framework:

Kansas Water Office
Kansas State Conservation Commission
Kansas Department of Agriculture, Division
of Water Resources
Kansas Biological Survey
Kansas Department of Health and
Environment
Norman Ecological Services
US Environmental Protection Agency
Region 7

Kansas Department of Wildlife and Parks
US Fish & Wildlife Service
USDA Natural Resources Conservation
Service
US Army Corps of Engineers, Regulatory
Branch
Kansas Alliance for Wetlands and Streams
The Watershed Institute

The team reviewed the previous 1993 Kansas Wetland and Riparian Areas Project documents (Kansas Water Office, 1993) and existing data available to make the recommendations that are in this framework

III. Historical background

Status of Wetland and Riparian Areas in Kansas: The U.S. Department of Agriculture (USDA) estimated that around the 1780s, the area that is now Kansas had roughly 841,000 acres of wetland or approximately 1.6 percent of the total area. The U.S. Fish and Wildlife Service (USFWS) reported that in the mid-1980s, Kansas had roughly 435,400 acres of wetland or approximately 0.8% of the total area of Kansas (Dahl, 1990). Thus, Kansas has lost nearly half of the wetland it once had. The Kansas Department of Wildlife and Parks (KDWP) identified 28,766 acres of federally or state owned wetland in Kansas. Consequently, most wetlands in Kansas are located on private lands. There is currently no wetland inventory tracking system in place to monitor wetland losses or gains.

The Kansas Forests 2001-2005, USDA Forest Service, Forest Inventory and Analysis (FIA) Program report estimates 562,000 acres of riparian forests in Kansas which make up about 27% of total timberland area. The Kansas Biological Survey's GAP Land Cover Map Final Report (Kansas Biological Survey Report #98, 2001) has a much higher estimate of 2,460,536 acres of forests and woodlands located in floodplains or about 61% of the total area of woodlands and forests. There are several reasons for the difference in these estimates including methodologies and definitions. For example the FIA inventory requires forestland to be at least an acre in size, 10% stocked and 120 feet wide before it is considered forestland. A 1991, USDA Kansas Natural Resources Conservation Service (NRCS) GIS Riparian Areas Inventory classified 18% of 373,645 "bank miles" as forestland. Land cover in this study was classified in a 100 ft. zone from the bank edge.

Regardless of which estimate is used, there remains a significant area of riparian forestland in Kansas that continues to provide valuable ecosystem services to the people of Kansas including streambank stabilization. While programs do exist for the development and management of riparian forest, there is currently no state authority for the protection of the remaining riparian forests in the state and losses continue to occur from agricultural and urban development. Because of these "services" the protection of riparian forests and the lack of protection authority, there may be a need for additional state efforts to protect and establish riparian forests.

Wetland and Riparian Areas Project (WRAP): In 1991 under the direction of the Kansas Water Office (KWO) and partially funded by a Environmental Protection Agency (EPA) grant, a multi agency team was formed to develop a set of documents that made recommendations on the protection of wetlands and riparian areas in Kansas. The Wetland and Riparian Areas Project (WRAP) represents a cooperative effort involving federal and state agencies and organizations for the purpose of addressing conservation issues related to wetland and riparian areas in Kansas. A primary goal of the project was to provide pertinent information to government agencies, private organizations and the general public regarding wetland and riparian resources. The team developed the following reports/manuals:

1. Conservation Goals and Strategies (Kansas Water Office, 1993) - This document identified the Mission, Goals and strategies for the use of Wetland and Riparian Areas.
2. Classification of Wetland and Riparian Areas in Kansas (Kansas Water Office, 1993) – This document provides definitions and descriptions of wetlands and riparian areas. Estimated acreage of wetlands per county is also provided based on several inventories, USFWS, National Wetlands Inventory, and Natural Resources Conservation Service (NRCS) Swampbuster.
3. Local Planning Guide for Wetland and Riparian Areas in Kansas (Kansas Water Office, 1993) – This document discusses the use of wetlands and riparian areas and make recommendations to planners on options to consider when working with them.
4. Management Practices for Wetland and Riparian Areas (Kansas Water Office, 1993) - This manual is a catalog of best management practices (BMPs) that can be applied to restore or enhance wetland and riparian areas.
5. Wetland and Riparian Areas Program Directory Manual (Kansas Water Office, 1992) - This manual provides a listing and description of programs that directly or indirectly influence conservation of wetland and riparian areas.

Natural Resources Conservation Service Riparian Inventory: NRCS created the inventory in 1995 to support water resource management to improve and enhance the water resources of Kansas. The riparian inventory consists of identified land cover types within 100 foot of all perennial and intermittent streams in Kansas. Its intended use is to identify land cover types along stream corridors that could be changed to benefit the water resource of Kansas.

IV. Inventories and Assessments

A. Current

1. Wetlands

Following are known wetland inventories/assessments:

- a) USFWS National Wetland Inventory (NWI) in all or parts of 29 counties mainly in the Northeast part of the state.
- b) Food Security Act Swampbuster wetland determinations in NRCS field office files and located on Farm Service Agency (FSA) GIS base maps.
- c) Identification of playa soil types by Playa Lakes Joint Venture (PLJV).
- d) Kansas Department of Health and Environment (KDHE) State Special Waters list.

2. Streams

Following are known stream inventories/assessments:

- a) Kansas Department of Health and Environment State Special Waters list.

- b) KS Stream mitigation guidelines developed by the an multi-agency team including state, federal and non-profit agencies.

3. Riparian areas

Following are known riparian inventories/assessments:

- a) The Kansas Forests 2001-2005, USDA Forest Service, Forest Inventory and Analysis (FIA) Program
- b) Kansas Biological Survey's GAP Land Cover Map Final Report (2001)
- c) Natural Resources Conservation Service Riparian Inventory

B. Recommendations

1. Wetlands

- a) Evaluate the development of a state clearing house for the FSA 35 mm slides that have been used for evaluating wetland manipulation.
- b) Complete a wetland inventory for the entire state by supplementing the proposed new NWI using the new wetland mapping standards.
- c) Complete Light Detection and Ranging (LIDAR) mapping for the entire state to help identify wetlands and depressional areas.
- d) Review existing WRAP classification system and refine with a statewide team of professionals and acquire funding for updating wetland and aquatic areas classification.
- e) Additional inventory requirements need to be identified and prioritized by the state team mentioned above.
- f) Review existing wetland designations for public lands and add designated uses for private wetlands.
- g) Review information with the statewide team on existing data from KDWP, KDHE and USFWS. Utilize the team to make recommendations on additional aquatic life use needs.
- h) Utilize the recently approved EPA Region 7 Wetland Program Development Grant (WPDG) with KWO. This grant is to develop a process to remotely identify, evaluate, and prioritize wetlands. This process could then be expanded to make a wetland inventory for the state. This process could also be used as a basis for further policy development on wetland protection in Kansas.
- i) Consider development of wetland specific water quality standards.

2. Streams

- a) Conduct an assessment of economic value of vulnerable streams.
- b) Review and update KDHE stream designations.
- c) Conduct additional monitoring of streams to help focus conservation efforts on those most critical.

3. Riparian areas

- a) Review existing WRAP publications on classification for wetlands and riparian areas and update by a team of professionals (State first needs to determine the extent of protection, i.e. isolated wetlands, treatment wetlands, ephemeral streams, washes).

- b) Riparian areas need to include ephemeral areas (include washes if applicable). (Need more study to determine if this needs to be expanded)
- c) Update NRCS riparian inventory
- d) Conduct an assessment of economic value of vulnerable riparian areas

V. Monitoring and evaluation

A. Current

1. Wetlands

There is no current monitoring and evaluation on a state wide basis. Presently KDHE monitors wetlands on public lands and prepares periodic reports describing their condition. The Natural Resources Conservation Service evaluates wetlands that landowners request to or have altered. They monitor wetlands that they have issued a mitigation agreement on.

The Army Corps of Engineers has done some monitoring on their permits, but there is no long range plan for monitoring.

2. Streams

There is no current monitoring and evaluation on a state wide basis. KDHE stream monitoring network covers the water quality in a number of streams, but does relate to the stream quality.

3. Riparian areas

None exist at this time.

B. Recommendations

1. Wetlands

- a) Develop a monitoring plan with specific monitoring criteria, lead by the same agency utilized as the central depository, preferably the Kansas Water Office
- b) Establish a list of wetlands of statewide importance (i.e. those that cannot be replaced).-review Classification of Wetlands of Statewide Importance.
- c) Review existing monitoring such as permits from the COE and DWR
- d) Review existing monitoring of streams and wetlands being done by KDWP, USGS, KDWP, KDHE and expand where needed
- e) Develop a process to evaluate and improve the monitoring process and review on a regular basis
- f) Utilize the recently approved EPA Region 7 Wetland Program Development Grant (WPDG) with KWO. This grant is to develop a process to remotely identify, evaluate, and prioritize wetlands. This process could then be expanded to monitor changes in wetlands and used as a basis for further policy development on wetland protection in Kansas.
- g) Improve and monitor mitigation performance.

2. Streams

- a) Develop a monitoring plan with specific monitoring criteria including stream functional assessment, lead by the same agency utilized as the central depository, preferably the Kansas Water Office
- b) Kansas Department of Health and Environment State Special Waters list needs to be reviewed and updated.
- c) Review existing monitoring such as permits from the COE and DWR
- d) Review existing monitoring of streams and wetlands being done by KDWP, USGS, KDWP, KDHE and expand where needed
- e) Develop a process to evaluate and improve the monitoring process and review on a regular basis

3. Riparian areas

- a) Develop a monitoring plan with specific monitoring criteria, lead by the same agency utilized as the central depository, preferably the Kansas Water Office
- b) Review existing monitoring such as permits from the COE and DWR
- c) Review existing monitoring of streams and wetlands being done by KDWP, USGS, KDWP, and KDHE and expand where needed.
- d) Develop a process to evaluate and improve the monitoring process and review on a regular basis utilizing the statewide team.

VI. Goals/objectives

A. Current

The Kansas Wetland and Riparian Resources: Conservation Goals and Strategies that were developed in 1993 are still valid today. They were:

- a) Increase public understanding and awareness of wetland and riparian values and functions, and associated conservation efforts.
- b) Attain no-net-loss of remaining wetland and riparian resources, considering acreage, function, and values.
- c) Maintain diversity of wetland and riparian ecotypes and size classes across the state.
- d) Increase quantity and quality of high priority wetland and riparian ecotypes.
- e) Optimize sustainable and multipurpose uses of wetland and riparian areas.
- f) Improve coordination and cooperation among federal, state, local and private entities responsible for wetland and riparian stewardship.
- g) Balance public benefits supplied by wetland and riparian resources with the rights of private property owners.
- h) Enhance scientific knowledge of wetland and riparian values, functions and management.
- i) Implement a statewide inventory system to identify, monitor, and evaluate the status and trends of existing wetland and riparian areas.

B. Recommendations

Update the Wetland and Riparian Area Project - Conservation Goals and Strategies to include:

- a) Restoration and Protection Goals
- b) Tracking system for project efforts
- c) Evaluation of impacts within watersheds
- d) Prioritization methodology
- e) Existing and innovative restoration techniques (demonstration)
- f) Strategy to implement

VII. Wetlands and Riparian programs - recommendation

The 1993 Wetland and Riparian Areas Program Directory Manual did an excellent job in identifying all the agencies and programs to protect and enhance the wetland and Aquatic Resources. Presently there is no single source that has updated information on the existing programs today.

- a) The Directory should be updated and posted on a website.
- b) The Wetlands and Riparian Areas Project- Management Practices for Wetland and Riparian Areas should be updated.

VIII. Education and outreach - recommendation

The 1993 Wetlands and Riparian Areas Project did not develop an education and outreach strategy to the public concerning the value and benefits for maintaining and improving wetlands and stream riparian areas. Information existing today is fragmented and there is no coordinated plan.

- a) A team should be assembled to develop a comprehensive plan for education for all levels of decision makers.

IX. Glossary of terms

Riparian Area: refers to lands adjacent to a water body that are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects water bodies with their adjacent uplands. (US Army Corps of Engineers, 2008)

Best Management Practices (BMPs): Conservation practices or systems of practices and management measures that control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics, and sediment.

Light Detection and Ranging (LIDAR): is a technology similar to RADAR that can be used to create high-resolution digital elevation models (DEMs) with vertical accuracy as good as 10 cm. LIDAR equipment, which includes a laser scanner, a Global Positioning System (GPS), and an Inertial Navigation System (INS), is generally mounted on a small aircraft. The laser scanner transmits brief laser pulses to the ground surface, from which they are reflected or scattered back to the laser scanner. Detecting the returning pulses, the equipment records the time that it took for them to go from the laser scanner to the ground and back. The distance between the laser scanner and the ground is then calculated based on the speed of light. While flying, the airplane's position is determined using GPS, and the direction of the laser pulses are determined using the INS. Because one laser pulse may reflect back from multiple surfaces, such as the top of a tree, a house, and the ground surface, there are multiple returns from each pulse that can be used to map such things as the top of the tree canopy, buildings, and the ground. Post-processing is used to differentiate between these multiple returns to determine the bare-earth surface. Using the combined information from the laser scanner, the GPS, and the INS, very accurate, closely spaced (typically 1 per square meter) X, Y, Z coordinates are determined from which a DEM is made. (Mark, 2004)

National Wetland Inventory (NWI): In 1974, the US Fish and Wildlife Service directed its Office of Biological Services to design and conduct an inventory of the Nation's wetlands. The mandate was to develop and disseminate a technically sound, comprehensive data base concerning the characteristics and extent of the Nation's wetlands. The purpose of this data base is to foster wise use of the Nation's wetlands and to expedite decisions that may affect this important resource. To accomplish this, state-of-the-art principles and methodologies pertaining to all aspects of wetland inventory were assimilated and developed by the newly formed project. By 1979, when the National Wetlands Inventory (NWI) Project became operational, it was clear that two very different kinds of information were needed. First, detailed wetland maps were needed for site-specific decisions. Second, national statistics developed through statistical sampling on the current status and trends of wetlands were needed in order to provide information to support the development or alteration of Federal programs and policies. The NWI has produced wetland maps (scale = 1:24000) for 74% of the conterminous United States. It has also produced wetland maps (scale = 1:63360) for 24% of Alaska. Nearly 9000 of these wetland maps, representing 16.7% of the continental United States, have been computerized (digitized). In addition to maps, the NWI has produced other valuable wetland products. These include a statistically-based report on the status and trends of wetlands that details gains and losses in United States wetlands that have occurred from the mid-1970's to the mid-1980's. Other wetland

products include a list of wetland (hydric) soils, a national list of wetland plant species, wetland reports for certain individual States such as New Jersey and Florida, and a wetland values data base. (Bates, 1995)

Stream: A stream is a flowing body of water, confined within a bed and stream-banks. Streams are important as conduits in the water cycle, instruments in groundwater recharge, and they serve as corridors for fish and wildlife migration. The biological habitat in the immediate vicinity of a stream is called a riparian zone. Given the status of the ongoing Holocene extinction event, streams play an important corridor role in connecting fragmented habitats and thus in conserving biodiversity.

Swampbuster: The Wetland Conservation provision (Swampbuster) of the 1985 and 1990 farm bills requires all agricultural producers to protect the wetlands on the farms they own or operate if they want to be eligible for USDA farm program benefits. Producers will not be eligible if they plant an agricultural commodity on a converted wetland that was converted by drainage, leveling, or any other means after December 23, 1985, or convert a wetland for the purpose of or to make agricultural commodity production possible after November 28, 1990. (Wetlands and Agriculture:)

Wetlands: The Corps of Engineers (*Federal Register* 1982) and the EPA (*Federal Register* 1980) jointly define wetlands as: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

X. References

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Appendix A: Wetland and Aquatic Resources Protection Plan Format

The team offers the following outline for the plan format.

- I. Introduction
 - Definitions
- II. Executive summary
- III. Historical background
- IV. Current conditions
 - Inventories/assessments – current
 - Wetlands
 - Streams
 - Riparian areas
 - Inventories/assessments - needed
 - Wetlands
 - Updated inventory of wetlands and potential wetlands
 - Assessment of economic value of vulnerable wetlands
 - Hydrologic conditions
 - Impacts on groundwater recharge
 - Streams
 - Assessment of economic value of vulnerable streams
 - Riparian areas
 - Updated riparian inventory
 - Assessment of economic value of vulnerable riparian areas
- V. Goals/objectives
 - Wetland Restoration and Protection Plan
 - Stream Restoration and Protection Plan
 - Restoration and Protection Goals
 - Tracking system for project efforts
 - Evaluation of impacts within watersheds
 - Prioritization methodology
 - Innovative restoration techniques (demonstration)
 - Strategy to implement

VI. Regional concerns/strategies

Threats

VII. Wetlands and Riparian programs/agencies

VIII. Monitoring and evaluation

Wetlands

Streams

Riparian areas

IX. Education and outreach

Wetlands

Ephemeral and intermittent streams (watershed level)

Methods to protect streams

Target audiences, messages, methods

Measurements of success

Riparian areas

X. Research needs

XI. Regulatory strategies

XII. Glossary of terms