

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS**

WETLAND WILDLIFE HABITAT MANAGEMENT

1. Scope

As mandated by state law and reflected in the department's mission statement, the Kansas Department of Wildlife and Parks (KDWP) is responsible for management of the state's living natural resources. This responsibility includes protecting and conserving fish and wildlife and their associated habitats while providing for the wise use of these resources, and providing associated recreational opportunities. Wetland wildlife habitat management will be carried out on wetlands and adjacent areas where game and non-game wildlife are the primary or secondary objective of the landowner or project purpose. This specification provides details, logic, and suggestions that should be used in the planning and implement process, where appropriate, to improve wetland management and to comply with state and federal law.

2. Waterfowl Management

Kansas provides some breeding, migratory, and/or wintering habitat for about 19 different North American waterfowl species. Management activities can be categorized under three general topics: Habitat preservation and/or enhancement, harvest regulations, and disease control. Of the three, loss of habitat is the most critical problem. Refer to Conservation Practice Specifications 657, Wetland Restoration; and 646, Shallow Water Areas for Wildlife, for guidance on restoring wetland functions and values.

At a minimum, document the target specie(s) and the habitat needs in the Form NRCS-CPA-6, Conservation Assistance Notes. Species-specific habitat needs can be found in the Private Lands Wildlife Management Handbook, the Fish and Wildlife Habitat Management (FWHM) leaflets, and technical assistance from the NRCS area biologists. Complete the Kansas Wildlife Habitat Assessment Guide (KWHAG) and complete the appropriate Hydrogeomorphic (HGM) Assessment Model (optional). Management will be carried out according to the Kansas electronic Field Office Technical Guide (eFOTG) conservation practices to maximize wetland wildlife functions and values for the species identified.

3. Moist Soil Management

Water level manipulation and timing water drawdowns is a management technique that can be used to increase seed and invertebrate production in moist soil plants. Seeds of native herbaceous vegetation adapted to germination in hydric soils provide waterfowl with protein, vitamins, and minerals that occur only in small amounts or are absent in other foods. These elements are essential for waterfowl to successfully complete aspects of their annual cycle such as molt and reproduction. A simple moist soil management plan for Kansas provides shallow water during spring migration, drawdown in summer to allow moist soil plant production, and flooding of the area during the fall migration.

See the Wetland Science Institute publication for more information:
Melvin III, Norman C., et al, Wetland Restoration, Enhancement, and Management, January 2003,
USDA-NRCS Wetland Science Institute

4. Macroinvertebrates

Even though Kansas is not noted as a waterfowl production area, it is a critically important area for migration, resting, and feeding. For most waterfowl species, macroinvertebrates from Kansas wetlands that are ingested during spring migration are credited for nesting success in the northern prairie pothole and arctic region. Large body sizes of waterfowl enable them to store nutrients as body reserves. Important nutrients like protein, calcium, and fats present in the tissue of macroinvertebrates offer a

concentrated food source. Examples of macroinvertebrates found in Kansas include snails, midges, water boatmen, and back swimmers.

5. Reptiles and Amphibians

Reptiles and amphibians are important species groups in our biological heritage and in biological diversity. They are critical to the natural functioning of many ecological processes and key components of ecosystems. They have economic, aesthetic, and natural history value. Factors that have negative impacts on native species of this group include drainage and loss of small aquatic habitats and non-native game fish, reptile, and amphibian introduction.

6. Fish

Fish are important to consider in wetland management. Native fish species are part of the natural history of many valuable wetlands. Introduced fish can have a negative effect on the natural nutrient cycles that are important in macroinvertebrate production. When waterfowl food is diverted and used for the production of fish biomass (i.e., carp) fish control can be a positive management option. Periodic water drawdowns are effective in controlling carp and can be accomplished as a part of the conservation plan. The use of certain fishes can be used for mosquito control efforts (i.e., *Gambusia* spp.).

7. Wetland Types in Kansas

Kansas has three major types of wetlands. These are palustrine (marshes and swamps), riverine (wetlands associated with rivers and streams), and lacustrine (wetlands associated with lakes).

Marshes are characterized by shallow water, less than three feet in depth and by herbaceous plants such as cattails, bulrushes, sedges, and arrowheads. Deeper marshes over three feet in depth will support lilies, pond weeds, and bladderworts. Marshes are found in depressions and in the edges of ponds, streams, and rivers.

Swamps are usually dominated by woody plants that include cottonwood, green ash, pin oak, silver maple, and shrubs, such as buttonbush and willows. Swamps are often wet during part of the year. Trees are mostly dormant during the wet part of the year in late fall and winter.

Slow moving streams and oxbows have plant life similar to that found in marshes and swamps. Occasional flooding provides water and nutrients for bottomland hardwood forests. Rocks, cobbles, and woody debris are important in fast moving water where algae and aquatic animals attach themselves to this structure.

Kansas also has wetlands that develop from seeps and springs. Under natural conditions, these areas usually support herbaceous vegetation and do not have a defined channel.

Interdunal wetlands are found in the MLRA 79–Great Sand Plains. These are usually small and are important for migrating waterfowl.

Upland depressions in the high plains of western Kansas are called playa lakes. Water is supplied from runoff. Drainage area, soils, and watershed management determine the amount of potential runoff during a season.

8. Comparison Sites

Naturally vegetated wetland sites can be used to aid in the planning of wetland developments or wetland management. Areas in proximity to each other that contain similar soils, hydrology, and past management can be expected to have the potential for similar vegetation and wildlife development. Plant, soil, and hydrology analysis should be part of using comparison sites.

9. Wetland Management

Aquatic vegetation requires periodic flooding and drawdown to maintain plant productivity. Drawdowns expose shoreline and mudflats allowing germination of dormant seeds, and stimulate aquatic invertebrate populations. These techniques provide enhanced feeding opportunities. Natural wetlands fluctuate due to changing rainfall, transpiration, and other factors. Drawdown of water on managed wetlands should allow maximum water availability during spring and fall migration. Benefit can be gained by initiating drawdown in mid-June and reflooding in late September. Slow drawdowns generally are more beneficial for wildlife as compared to fast drawdown. Slow drawdown will yield greater plant diversity.

Land management activities such as prescribed burning, planned grazing, brush management, tree harvest, haying, soil disturbance, controlled water levels, and selective pesticide use can be used to manage for specific successional plant communities and wildlife assemblages. The plan will identify the methods, timing and intensity of those activities, and the desired effects on wetland plants and wildlife.

For the management of hydrology on "Green Tree Reservoir" wetlands, vary the inundation of bottomland hardwood trees, during the dormant seasons from year to year. A manager should flood bottomland hardwood areas on the average of no more than eight inches during the trees dormant season.

See the USDA-NRCS Wetland Science Institute Publication for more information:
Melvin III, Norman C., et al, Wetland Restoration, Enhancement, and Management, January 2003, USDA-NRCS Wetland Science Institute

10. Vegetation Used by Waterfowl

The following wetland plants are valuable for waterfowl habitat:

Brood Cover: bulrushes, cattail, sedges, bur reed, and rush.

Nesting/Escape Cover: Redtop, Garrison creeping foxtail, barnyard grass, switchgrass, orchardgrass, bulrushes, wheatgrasses, alfalfa, sweet clover, smooth brome, retired cropland/ungrazed, or moderately grazed areas with residual vegetation.

Food Species: Pondweeds, wild millet, sedges, smartweed, alkali bulrush, widgeongrass, duckweed, coontail, spike rush, and muskgrass.

Dryland Areas: corn, wheat, barley, proso millet, foxtail millet, cereal rye, clover, an oats.

11. Beaver and Beaver Ponds

Beaver can provide natural, esthetically pleasing wetlands that have a variety of wetland functions and values. Beaver will usually migrate to suitable habitat to use cottonwood and willow for food and building material. Beaver ponds provide fish habitat, stabilize stream channels, and re-hydrate riparian areas.

12. Migrating Shorebirds

In the spring, shorebirds that nest in the Arctic migrate through Kansas and feed to accumulate fat reserves that are necessary for migration and reproduction. These species require specific habitat elements that include wetlands in partial drawdown, invertebrate abundance, a combination of mudflat and shallow water in a wetland with gradual sloping sides and very little vegetation.

13. Aquatic Invertebrates

Management strategies include timing of water movements to coincide with invertebrate exploitation of nutrients and vegetation management to provide nutrition for invertebrates.

14. Wildlife Corridors

The purpose of this practice is to provide travel lanes between wetlands or between wetlands and riparian areas, streams, lakes, wildlife land, or other valuable wildlife habitat. Corridors are migration routes for some species. They are important in dispersal and in genetic exchange.

Corridors are valuable to link areas that are necessary for wildlife food, cover, water, and space. Corridors should be designed for the target specie(s). The corridor length will be adequate to link critical habitat areas to meet producers or program goals and the width will be designed to meet the species needs, producer goals, or program requirements. For general wildlife planning, corridors should be at least 30 feet wide and should be designed to conform to curves in streams or contours and to not be planned in straight lines.

15. Conservation Buffers

Conservation buffers are areas adjacent to wetlands and streams that are used by wildlife as nesting and escape cover, are important are for threatened and endangered species, and are used as corridors to link valuable habitats. The vegetative component of buffers is native grass, forbs, shrubs, and trees. The minimum width of buffers is 25 feet. The recommended width is 26 to 150 feet for wildlife and environmental benefit. In some cases, buffers may need to be designed wider than 150 feet for specific wildlife, endangered specie, habitat fragmentation, or program requirements. Refer to Conservation Practice Standard 645, Upland Wildlife Habitat Management, for planting and seeding criteria.