

REFUGE GOALS, OBJECTIVES, AND STRATEGIES

Refuge Vision

When this plan is fully implemented, a diverse, productive, and enduring representation of the plant and animal communities of the Marais des Cygnes River Basin will be protected and maintained. The Refuge will contain tracts of woodlands, wetlands, and prairie. Migration habitat will be provided for about 300 species of birds, and another 100 species will nest on the Refuge. Management activities will foster the conservation of five federally-listed species and several state listed species.

Since people are a part of this ecosystem, the Refuge will provide wildlife-dependent public use opportunities, including environmental education, interpretation, and compatible recreation. In order to accommodate more than 100,000 visitors expected annually, a visitor center and interpretive route will illustrate the values of wildlife and habitat, as well as cultural and historical features of the Refuge.

Goals, Objectives, and Strategies

The objectives presented here are to be accomplished on the Marais des Cygnes National Wildlife Refuge within the 15-year horizon of the plan. The timely completion of these objectives will depend on funding and staff levels, additional land acquisition, and Service directives.

Landscape Goal: *Restore and maintain an area of Oak-Hickory Deciduous Forest/Tallgrass Prairie Ecotone in as natural a condition as possible, to provide quality habitat for federally and state-listed species and support a diverse community of native plants and animals.*

Strategies

- Gather baseline information on the quantity and quality of wildlife habitat. Inventory community species (trees, shrubs, herbaceous plants, wildlife).
- Identify the extent and distribution of existing savannah, prairie, and native cordgrass communities on the Refuge and the hydrogeomorphic factors and disturbance regimes necessary for the restoration and enhancement of these habitat types.
- Develop baseline information on the distribution and abundance of existing plant and animal species.
- Develop information on the conditions and techniques necessary for restoration, enhancement, and maintenance of native woodland, prairie, savannah, and wetland communities.

Oak-Hickory Forest Objectives: Restore and maintain a core block of bottomland hardwoods, on all adaptable sites, totaling approximately 3,300 acres along the Marais des Cygnes River and associated floodplain: to reduce fragmentation effects on breeding forest

interior birds and to provide habitat for migrating interior forest songbirds and waterbirds, as well as other native species of wildlife.

Reestablish approximately 125 acres of bottomland hardwood forest in the Trading Post slough area to provide habitat for resident and migratory songbirds, waterbirds, and other native wildlife species.

Discussion: The Refuge was established to protect the hardwood habitat of the river bottoms. Native hardwood stands are important to wildlife due to their permanent nature and high level of plant diversity. Floodplain hardwoods, being the most diverse of this group in plant species, are also the most diverse in animal species. The hardwood bottoms are seasonally flooded by the Marais des Cygnes River and by rainfall.

Federal and state-listed endangered species, waterfowl, other migratory birds, and other wildlife will benefit from the production of food sources (i.e., mast, invertebrates, vertebrates, and vegetation), improvement of water quality, and reduction of soil erosion. The northern redbelly snake prefers mature forests and is dependent on the few areas of this habitat still existing in Kansas. All species of cavity dwelling birds and animals are dependent on woodlands.

Strategies:

- Evaluate hydrologic restoration alternatives for the Trading Post slough site.
- Coordinate forest restoration with the state of Kansas to link with their forests.
- Utilize natural succession to reestablish bottomland hardwood and upland tree stands by eliminating row cropping of approximately 300 acres of bottomland hardwood forest outside the flood protection levee.
- Plant trees by direct seeding or seedlings including mass-producing species such as oaks, pecans, hickories, and walnuts in sites where the center of the field is more than 100 m from a forest edge.
- Apply forest management practices such as thinning, selective cutting and small clear cutting.
- Evaluate hardwood sites outside the core area of bottomland hardwoods as potential sites for small green-tree reservoirs.
- Study the feasibility of restoring hydrology using ditch plugs.
- Construct low-level dikes and employ pumping to enhance flooding of tree areas.
- Assist private landowners to restore bottomland hardwoods.
- Target acquisitions and easements to restore or enhance corridors linking public and private lands along the Marais des Cygnes River and associated tributaries.
- Use seeding, interseeding, sprigging, prescribed fire, tree removal, weed control, mowing, prescribed fire, and tilling to restore hardwoods.
- Based upon life-history requirements of target species; management should consider spatial arrangement of habitat patches; areas to be burned should have some form of cover immediately adjacent to them to provide adequate escape

cover and forage immediately following a burn; time of burns in regards to nesting, brooding, and other life-history requirements of target species should be explicitly considered; early successional habitats could be maintained adjacent to row crops to provide cover for depredating wildlife and make the crop fields more attractive; location of plots should consider their proximity to major highways because of concerns for smoke management.

Savannah Objective: Restore and maintain approximately 750 acres of savannah/grove habitat, consisting predominantly of post oak, blackjack oak, and pin oak with native grass understory.

Upland Shrub Objective: Maintain approximately 450 acres of upland shrub outside of the core bottomland forest to provide habitat for migrating and nesting migrating and nesting migratory birds and other native wildlife species.

Native Prairie Objectives: Restore and maintain approximately 1,300 acres of native upland prairie continuing big and little bluestem, switchgrass, Indiangrass, sideoats grama, and native forbs.

Restore and maintain 300 acres of native lowland prairie dominated by cordgrass.

Discussion: Grasslands provide food, cover, and breeding habitat for migratory birds and other grassland dependent wildlife. Mead's milkweed, a federally-listed threatened plant, is found in prairie haymeadow habitats in the Refuge. The habitat needed by this species is gradually being lost to agricultural expansion, detrimental agricultural practices such as overgrazing, and the general elimination of tallgrass prairie. In addition, the maintenance, rehabilitation, and reestablishment of native grassland communities will protect water quality and soils from the effects of erosion. A diverse mixture of native grasses and forbs will provide greater wildlife benefits in terms of food and cover than the monotypic introduced grasses that currently exist.

Strategies:

- Utilize livestock grazing and haying as grassland management tools to increase vigor and structural variation in grassland communities.
- Develop and implement a prescribed burning program.

Wetlands Objectives: Maintain 93 acres of riparian woodland habitat along Marais des Cygnes River.

Maintain 104 acres of ponds and oxbows.

Develop and maintain about 500 acres of moist-soil cells to enhance the production of natural foods for migratory birds and other wildlife.

Provide up to 300 acres of seasonal wetlands to enhance wildlife diversity in the area.

Maintain and enhance 94 acres of water-filled mines.

Discussion: These habitat types are extremely important for migratory birds (including waterfowl), endangered or threatened species of plants and animals, and resident wildlife. The piping plover (threatened) is an uncommon seasonal spring and fall migrant through the Refuge. It has been observed in the immediate vicinity of the Refuge in 1990-1991. It is associated with unvegetated shorelines, sandbars, and mudflats of wetlands and streams, utilizing aquatic invertebrates for food. Interior least terns (threatened) use similar unvegetated wetland habitat as do piping plovers, feeding on aquatic invertebrates and small forage fish. They also would occur as uncommon spring and fall migrants through the area. They have been observed in the immediate vicinity of the Refuge in 1990-1991.

The flat floater mussel is a State-listed threatened mollusk located within and adjacent to the Refuge. The only fish listed as a State-threatened species, the hornyhead chub, has been found in Big Sugar Creek, adjacent to the Refuge. Broadhead skink, a threatened lizard, prefers dead, standing trees along water, a particular habitat in abundance on the Refuge. Eastern hognose snake (State threatened) reaches its greatest abundance along the eastern border of Kansas, where there is plenty of water for toads. The eastern hognose snake feeds exclusively on toads.

Strategies:

- Emulate historic hydrologic regimes, where feasible, to benefit native plant communities and associated wildlife aggregations.
- Identify the presence, size, and flow regimes of farm field ditches, the effects of interior roads on water movement, and the land use practices on adjacent lands that affect amount and pattern of flow onto the Refuge.
- Restore natural flow of water through the bottomland forest.
- Head cutting is a major problem in this area because the river is incised. Water should be directed away from the manmade modifications that tend to capture water (road ditches and field drains) and concentrate the flow, increasing the velocity of movement. Some ditches are small and can be filled. Possibly the placement of drop structures at key locations will provide a hedge against head cutting.
- Serve on the Basin Advisory Committee (Kansas Water Office) to address issues of water rights, water quality, and water use relevant to the Basin ecosystem.
- Cooperate with Kansas by cost sharing for the Wetland and Riparian Areas Program.
- Collaborate with Kansas Department of Wildlife and Parks in fisheries management programs.
- Collaborate with Kansas Department of Health and Environment and the Department of Water Resources for water quality and stream flows.

- Restore natural drainage patterns to farmed fields.
- Plug *w*-ditches and use existing levees to hold water on the wetlands.
- Develop water management units using existing and additional low head diking with water outlet control structures.
- Develop water sources (pumping from the river or reservoirs) to inundate managed wetlands.
- Time flooding to meet specific habitat needs. For example: Shallowly flood (no more than 12 inches) 15 percent of seasonally flooded habitats beginning August 15 for early migrating blue-winged teal and shorebirds, etc.
- Evaluate the feasibility of establishing additional moist-soil units to provide additional seasonally flooded emergent wetland habitat for resident and migratory waterfowl.

Croplands Objective: Reduce the amount of farmed land to 1,500 or less.

Discussion: Croplands produce grain and browse foods to complement the natural foods available to wildlife and reduce crop depredation (which has been well documented) on private and state lands by deer and waterfowl. They may also be used as an intermediate step in restoration of native plant communities. However, croplands reduce natural diversity, breeding habitat, and use by wintering passerines.

Strategies:

- Research and demonstrate farming practices that are good for both wildlife and farmers by using sustainable agricultural practices and integrated pest management to control undesirable vegetation.
- Use sound land management practices ensuring long-term productivity of the soil and prevent damage to environmentally sensitive areas.
- Produce small grains (wheat/rye) on about 375 acres, under cooperative farming agreements to reduce crop depredations on private lands by geese.
- Produce corn or milo on about 375 acres for migratory birds and resident wildlife and reduce crop depredations by deer on adjacent private and state land.
- Produce a legume such as alfalfa or red clover on about 375 acres, for nitrogen-fixing benefits and sustainable crop rotation.
- Produce soybeans on about 375 acres for migratory and resident wildlife.
- Farm rotational crops as needed for weed control.

Recreation Goal: *Provide wildlife-dependent recreation opportunities for up to 100,000 visitors which meet Minimum Standards for Public Use on National Wildlife Refuges, emphasizing hunting, fishing, wildlife observation, photography, environmental education, and interpretation conducted in a manner compatible with the Refuge's primary purposes.*

Consumptive Recreation Objective: Provide consumptive wildlife-dependent recreation opportunities for public enjoyment while limiting disturbance to wildlife and wildlife habitat in selected areas of the Refuge.

Discussion: Wildlife-dependent recreational activities are recognized as priority uses of the National Wildlife Refuge System. The area has a long history of use by local hunters and anglers, and this tradition is expected to continue, as promised during initial acquisition. Hunting, especially for waterfowl, already exists on private lands within the Refuge boundary on the south side of the Marais des Cygnes River. Because of this situation, the Refuge located south of the river cannot be considered a viable waterfowl sanctuary. Decisions regarding areas of the Refuge open to public hunting, species to be hunted, authorized methods of hunting, and other regulations will be addressed when the Service prepares a hunting plan in the near future.

Strategies:

- Establish launch facilities on the river at the State Line Road and near the town of Trading Post to support river fishing. These facilities will be accessible to persons with mobility impairments and will be located to allow maximum usage during periods of high and low water. Parking will be provided at these sites.
- Survey mine pits for viability to sustain fish populations. If fish populations can be maintained, develop bank fishing access to these mine pits for recreational fishing.

Non-Consumptive Recreation Objective: Provide non-consumptive wildlife-dependent recreation opportunities, accessible to people of all abilities, in selected areas of the Refuge while limiting disturbance to wildlife and wildlife habitat.

Discussion: Visitors come to the Refuge with a wide range of expectations and abilities. This objective is intended to meet the broadest range of those abilities and expectations while remaining compatible with the primary purposes for which the Refuge was established.

Strategies:

- Develop foot trails that promote wildlife observation opportunities in different habitats of the Refuge. One trail would incorporate the top of the existing levee that follows the north bank of the river. This trail would offer excellent vistas and wildlife viewing opportunities. A second trail would feature the bottomland hardwood areas.
- Establish launch facilities on the river at the State Line Road and near the town of Trading Post to support boating for wildlife observation. These facilities will be accessible to persons with mobility impairments and will be located to allow maximum usage during periods of high and low water, and will provide adequate parking.

Environmental Opportunities and Interpretation Goal: *Provide wildlife and ecosystem-based education by fostering partnerships, expanding outreach, demonstrating management practices, developing site-specific curriculum, and providing interpretive materials.*

Coordination Objective: Enhance the quality of the visit and appreciation of fish and wildlife populations and associated habitat by coordinating visitor information, education, and interpretive services for visitors to the Refuge and adjacent state wildlife management area.

Discussion: A potential for confusion exists because there are adjacent wildlife areas managed by two different agencies. To the extent possible, public use planning will be closely coordinated with Kansas Department of Wildlife and Parks to prevent contradiction and duplication. By developing a single point of contact for the two areas, information will be disseminated more effectively. Visitors will have easy access to information to enhance learning and the quality of the experience.

Strategies:

- Execute a Memorandum of Understanding with Kansas Department of Wildlife and Parks to develop an interagency interpretive center on Refuge lands.
- Develop a program interpreting the resources of the area.
- Construct an orientation kiosk near the future site of the interpretive center.
- Design an auto tour route, wayside exhibits and kiosks, and Refuge-specific publications.
- Develop environmental education curricula for the site.
- Develop support facilities for environmental education. This would include indoor classroom facilities in conjunction with the visitor center. An outdoor facility (pavilion) would be developed near one of the trails to focus on bottomland hardwood habitat.
- Promote refuge opportunities to schools and conservation groups with the goal of increasing support for interpretive and environmental education facilities.
- Develop all products in cooperation with Kansas Department of Wildlife and Parks so that brochures and checklists will serve both areas, or at least complement each other.

Cultural Resources Objectives: Identify, protect, and interpret cultural and paleontological resources for scientific and educational purposes while meeting natural resource and wildlife objectives.

Encourage and enhance educational, interpretive, and research opportunities for cultural resources oriented activities consistent with the natural resource objectives of the Refuge.

Discussion: Evidence of human use of the Refuge for the past two thousand years has been documented, and the potential for finding evidence of older occupations exists. Resources include a prehistoric campsite, a segment of the original Military Post Road between Forts Leavenworth and Scott, historic farmsteads and coal mines, as well as fossilized plant remains.

Strategies:

- Identify, protect, and interpret prehistoric and historic cultural resources and paleontological resources for scientific and educational purposes.
- Protect, maintain, and plan for the use of Service managed cultural resources for the benefit of present and future generations.
- Identify, evaluate the importance of, and seek the appropriate protective designation of cultural resources in accordance with existing legal requirements, regulations, and professional standards.
- Exercise caution that cultural resources are not inadvertently transferred, sold, demolished, or substantially altered as a result of Service sanctioned activities until appropriate identification, evaluation, and plans are accomplished.
- Avoid damage and deterioration to cultural resources that would result from erosion, abandonment, or benign neglect.

