

U.S. Fish & Wildlife Service

# Final Environmental Impact Statement

*Rocky Mountain Arsenal National  
Wildlife Refuge*



The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.



The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

# Final Environmental Impact Statement

## *Rocky Mountain Arsenal National Wildlife Refuge*

**Colorado**

**August 2015**

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# Abstract

## Final Environmental Impact Statement Rocky Mountain Arsenal National Wildlife Refuge, Adams County, Colorado

**Type of Action:** Administrative  
**Lead Agency:** U.S. Fish and Wildlife Service  
**Responsible Official:** Noreen Walsh, Director, Region 6, U.S. Fish and Wildlife Service

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This final environmental impact statement identifies the purpose and need for a management plan; outlines the legal foundation for management of the Rocky Mountain Arsenal National Wildlife Refuge (refuge); and describes and evaluates four alternative plans for managing wildlife, habitat, wildlife-dependent public uses, cultural resources, infrastructure, operations, and transportation. This process has involved the development of a vision and goals that meet the legal directives of the U.S. Fish and Wildlife Service (Service) and considered stakeholder input.

Under alternative A, No-Action Alternative, we would continue to implement the approved Habitat Restoration Plan (FWS 1999b), Habitat Management Plan (FWS 2013a), Water Management Plan (FWS 2014b), and Fire Management Plan (FWS 2013i) to manage the various refuge habitats to provide for a wide variety of resident and migratory species. Wildlife populations would continue to be managed as they currently are, and the range of the bison herd would continue to expand in keeping with appropriate infrastructure development. Prairie dogs would continue to be managed in accordance with the approved Black-Tailed Prairie Dog Management Plan (FWS 2013h). Invasive plant species would be treated in accordance with the approved Integrated Pest Management Plan (FWS 2014d). There would be no additional public uses beyond those already available on the refuge. The Legacy Loop would continue to be open to the public while the Wildlife Drive would remain closed to public use except for refuge-guided tours. We would continue to maintain our existing partnerships in and around the refuge. Future land protection efforts would be restricted to the acquisition of private inholdings within the existing refuge boundary. Funding and staff levels would remain the same with little change in overall trends. Programs would follow the same direction, emphasis, and intensity as they do now.

Under alternative B, Traditional Refuge Alternative, we would focus on providing traditional refuge visitor uses and to convey the importance of conservation, wildlife protection, and the purposes of the Refuge System. Access to the refuge would remain more limited than under alternatives C and D. Wildlife-dependent recreation and community outreach would be minimally expanded. We would continue to manage the refuge's habitat and wildlife as under alternative A, and would reintroduce to the refuge black-footed ferrets as well as self-sustaining populations of greater prairie-chicken and sharp-tailed grouse. We would maintain the same levels of access and transportation as under alternative A, but would enhance the main refuge entrance, improve visitor services facilities, and seek to improve trail accessibility.

Under alternative C, Urban Refuge Alternative (preferred alternative), we would seek to increase the visibility of the refuge within the Denver metropolitan area and to welcome many more nontraditional visitors to the refuge. Through an expanded visitor services program, an abundance of instructional programming, and widespread outreach, we would endeavor to connect more people with nature and wildlife. In addition to the existing compatible public uses, we would endeavor to provide limited opportunities for hunting. We would increase refuge access for outlying communities with the opening of additional access points and the development of an enhanced transportation system. We would work with nontraditional users' trusted avenues of communication to increase outreach success. We would expand our conservation education in surrounding communities and schools, develop youth-specific outreach, and employ social marketing to broaden our agency's reach. We would manage the refuge's habitats and wildlife similar to alternative B.

Under alternative D, Gateway Refuge Alternative, we would work with partners to increase the visibility of the refuge, the Refuge System, and other public lands in the area. There would be less visitor services programming on the refuge than under alternative C, but our efforts to engage with the public would be extended to offsite locations. We would work with Denver International Airport to improve physical connections between the refuge and the airport. The trail system within the refuge would be more extensive than under Alternative C. Working with our partners, we would manage access to the perimeter trail and promote trail linkages to the Rocky Mountain Greenway Trail and other regional trails. We would manage the refuge's habitat and wildlife as under alternative B, and we would work with neighboring landowners and state agencies to extend the range of native species.

### **Next Steps**

The draft comprehensive conservation plan and environmental impact statement was available for public review from May 6 to July 6, 2015. The final EIS can be viewed at [http://www.fws.gov/mountain-](http://www.fws.gov/mountain-prairie/refuges/co_rkm.php)

[prairie/refuges/co\\_rkm.php](http://www.fws.gov/mountain-prairie/refuges/co_rkm.php). We will issue a record of decision no sooner than 30 days after publication of the notice of availability in the Federal Register. For further information, contact Bernardo Garza at 303 / 236-4377.

### **Cooperating Agencies**

Cooperating agencies under NEPA are: Adams County, City and County of Denver, City of Commerce City, Colorado Parks and Wildlife, Denver International Airport, Denver Water, Tri-County Health Department, Urban Drainage and Flood Control District, U.S. Army, U.S. Department of Agriculture—Animal and Plant Health Inspection Service, U.S. Department of Transportation—Federal Highway Administration.

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# Summary



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*Burrowing owls*

*On this sand farm in Wisconsin, first worn out and then abandoned by our bigger and better society, we try to rebuild, with shovel and axe, what we are losing elsewhere.*

*Aldo Leopold, A Sand County Almanac*

The Rocky Mountain Arsenal National Wildlife Refuge Complex, consisting of some of the newer properties in the National Wildlife Refuge System, is a work in progress. Offering unique assets to surrounding communities, these lands promise to become some of the premier urban wildlife refuges in the country. At the heart of the refuge complex is the Rocky Mountain Arsenal National Wildlife Refuge: 16,000 acres of shortgrass and mixed-grass prairie that is home to bison, bald eagles, migratory songbirds, prairie dogs, and much more—all within the Denver Metropolitan area.

The comprehensive conservation plan that is being prepared and for which this environmental impact statement was prepared will be the first in the country designed to begin implementing the Ref-

uge System's new Urban Wildlife Conservation Program. To accomplish this, in this environmental impact statement we analyzed a wide range of options on how best to support up to one million visitors per year without compromising our principal purposes to protect and preserve fish and wildlife and their habitats.

We are fortunate to have inherited a great deal of infrastructure from the U.S. Army, but we are also constrained by the current condition and layout of these facilities. Some of this infrastructure may be acting as barriers to the public—a condition inconsistent with the purposes of the refuge. Accordingly, we have developed a goal to increase and improve suitable access to the refuge, develop sustainable transportation options, and provide more connections among the units of the refuge complex. This increased access will enable people from all walks of life to visit the refuge. The vision we have developed for the refuge complex calls for the restoration of the refuge's historical habitats, and the reconnection of people with the natural lands of the refuge and of the region at large using a network consisting of multi-modal trails, a far-reaching light-rail system, and the Denver International Airport.

This refuge is well positioned to leverage and catalyze early investments to create world-class

wildlife habitat and a conservation education facility in the heart of a rapidly growing urban metropolis. So positioned, the refuge represents the ideal intersection of nature and education to transmit the message of conservation, outdoor recreation, and stewardship to future generations. Toward this end, collaboration is essential to the refuge's future success. We will continue to foster and improve our strong public and private partnerships in the surrounding communities. These partnerships will enable us to act quickly and effectively as we invest in education and outreach efforts to fulfill our potential as a conservation catalyst in neighboring communities, the larger Intermountain West, and the world.

## A New Chapter

The homesteader and wartime eras of the Rocky Mountain Arsenal represent important chapters in American history, but how these lands can benefit wildlife and people well into the future is an equally important chapter. Following the massive environmental cleanup that concluded in 2011, the next chapter in the story of the Rocky Mountain Arsenal National Wildlife Refuge will teach us lessons about healing wildlife habitats and the resiliency of our natural environment. The refuge offers a destination for millions of people to learn about and connect with their natural environment. Our hope is that these people will love nature as we do and join in the stewardship of our public lands.

In the early 1930s, Aldo Leopold purchased an 80-acre farm in Sauk County, Wisconsin. On this farm, Leopold and his family focused much of their effort on the restoration of the natural environment. Many people believe that Leopold was one of the first to consider restoration as a land management tactic. His essay "The Land Ethic"—published in 1949 and incorporated into later editions of *A Sand County Almanac*—proposed a new relationship between people and nature and set the stage for the modern conservation movement. In December 2013, members of our planning team participated in a Land Ethic Leadership Workshop facilitated by the Aldo Leopold Foundation. Members of the team decided that "The Land Ethic" would be a centerpiece in the development of the Rocky Mountain Arsenal National Wildlife Refuge comprehensive conservation plan.

Like Leopold's farm, our lands were once harmed, and our efforts to transform the refuge will require a landscape approach to land management, linking conservation science, policy, and ethics in an effort to

ensure the future health of land and water. This transformation will take time, and we must recognize that the refuge is only in its infancy. We will strive to restore a diverse, native prairie ecosystem made up of vegetative mosaics of varying composition, height, and density that provide important wildlife habitat. We will restore 4,500 acres to native shortgrass prairie and 8,000 acres to mixed-grass prairie. We will also maintain shrublands as nesting habitat for birds and as forage and shelter for other species. Finally, we will employ the historic cultural landscape left by the prior landowners to maintain the wetlands and reservoirs on the refuge, creating an oasis for wildlife in a highly urbanized environment.

The last master plan for the refuge was completed in 1996. This plan served us well and guided the refuge through its establishment and the Superfund cleanup process. Almost 20 years have passed since this plan was finalized; this new plan will guide management and conservation of the refuge for the next 15–20 years.

## Restoration of Native Prairie

Restored prairies, along with a few remnants of prairie that escaped the plow, are mere fragments of what once existed. Fertile soils created by glacial action were kept treeless and nutrient-rich by periodic fires and the prairie plants themselves (Mlot 1990). However, when prairie grasslands—like those on the land occupied by the refuge—have been converted to agriculture and other human-centric uses, restoration is challenging, and the mechanisms are not always well understood (Camill et al. 2004). To date, more than 10,000 acres of the refuge have been treated and seeded, but the true restoration of these lands will take an unknown amount of time. Our restoration efforts are guided by a habitat restoration plan (FWS 1999a) and a long-term habitat management plan (FWS 2013a). In the short term, we will continue to battle the establishment of invasive plant species. In the long term, we seek to improve the richness of plant species found on the refuge through increased bison grazing and the use of prescribed fire.

## Reintroduction of Native Wildlife Species

Over time, many of the terrestrial species originally found on the refuge and surrounding prairie



Cindy Sounders / USFWS

*Prickly poppy*

were extirpated. Wild bison were reintroduced to the refuge in 2007 and have been helping us to restore the prairie. Over time we may also reintroduce greater prairie-chicken and plains sharp-tailed grouse.

Once again we refer to Aldo Leopold, who is credited with first describing the mechanism known as trophic cascade (Leopold 1944; Leopold et al. 1947; Ripple and Beschta 2005). A trophic cascade is an ecological phenomenon triggered by the addition or removal of top predators, the subsequent changes throughout the food chain, and the dramatic changes witnessed in ecosystem structure and nutrient cycling. In the draft comprehensive conservation plan and environmental impact statement, as well as in this final environmental impact statement, we have proposed reintroducing the endangered black-footed ferret to the refuge. This will not only assist with the species' recovery; but because the ferret is a key predator in the prairie ecosystem, its reintroduction will also assist with the ecological restoration of the refuge.

At the same time, it is important to recognize that, because of the size, isolation, and continuing restoration of the refuge, we must actively manage populations of certain wildlife species. Allowing unregulated population growth of grazing species would jeopardize the long-term sustainability of native prairie and shrublands and contribute to the worsening condition of individual animals, in turn increasing the potential incidence of wildlife diseases.

## Surrogate Species

Recently, the U.S. Fish and Wildlife Service refined its strategic habitat conservation (SHC) approach to focus conservation design on creating functional landscapes capable of supporting self-sustaining populations of fish and wildlife species (FWS 2012a). This approach is based on the selection of surrogate species, which Caro (2010) defines as “species that are used to represent other species or aspects of the environment.” This approach is still under development, but offers promise for a systematic method of landscape conservation design that could address the absence of key species that are necessary to preserve biodiversity and habitat function.

The use of surrogate species allows us to achieve our conservation mission more strategically by using a smaller number of species to inform our goals and future management of the refuge. For planning purposes, we have chosen four species (black-tailed prairie dog, lark bunting, Cassin's sparrow, and American bison) as surrogates that are consistent with our goals to focus on threatened and endangered species, declining populations of migratory birds, and the genetic conservation of bison to represent the majority of other species that occur on the refuge. These species and their habitat (shortgrass and mixed-grass prairies with a shrubland component) act as reliable indicators of any impacts on wildlife and their habitats associated with future management. We believe that if we are successful in managing these four species, these habitat types and our other refuge habitats (lacustrine, riparian, wetlands, and woodlands) should react favorably as well.

## Urban Wildlife Conservation Program

Periodically, the Refuge System develops a vision document to assist in guiding its national network of conservation lands. In July 2010, refuge managers from across the nation met in Madison, Wisconsin, to develop our most recent vision, “Conserving the Future,” which is supported by three pillars: wildlife and wildlands, a connected conservation constituency, and leading conservation into the future. The recommendations from this group are clear, stating that we should strive to engage urban audiences in order to remain relevant to the American people.

With 80 percent of Americans living in cities, we must find ways to connect urban America with our wild places, such as our national wildlife refuges. It is

important that we teach each new generation to love the land and that we help children learn to find inspiration in nature even in their urban surroundings. We believe that Americans will have much of their direct contact with nature while in an urban setting, and that we, as stewards of our natural heritage, must reach beyond the boundaries of our wildlands to shape the Nation's conservation values, ethics, and priorities.

## Planning Process

Over the past year, we met with the public on several occasions to solicit their input on the content of the comprehensive conservation plan and environmental impact statement. Based on that input, a large and diverse group of stakeholders, representing Federal, State, and local governments with important relationships to the refuge, met and prepared a draft plan and environmental impact statement.

The primary purposes of a new comprehensive conservation plan and of an environmental impact statement for the refuge are to:

- Develop a vision to guide the future management of the Rocky Mountain Arsenal National Wildlife Refuge.
- Develop a set of alternatives and analyze their effects in order to understand the environmental, social, and cultural impacts of proposed changes to the management of the refuge.
- Identify ideas and actions for transforming a wildlife refuge in the middle of a major metropolitan area into one of the Nation's premier national wildlife refuges.
- Describe what will be necessary to balance our goals of providing high-quality experiences for an increasing number of visitors while also protecting the resources that make the refuge significant.

The planning team has evaluated four alternatives in this environmental impact statement and has selected alternative C, the "Urban Refuge Alternative," as the preferred alternative. Alternatives C and D both seek to implement the Service's Urban Wildlife Conservation Program: alternative C represents the refuge's steps toward implementing the Urban Wildlife Conservation Program, while alternative D constitutes a slightly different approach focusing more effort external to the Refuge.

## Colorado's Front Range Refuges

While the planning team has outlined a vision for all our refuge holdings along Colorado's Front Range (figure 1), the final environmental impact statement and the final comprehensive conservation plan contain provisions specific to the Rocky Mountain Arsenal National Wildlife Refuge in Adams County, Colorado. A comprehensive conservation plan was completed for the Rocky Flats National Wildlife Refuge in 2005. Once we finalize the comprehensive conservation plan, we will begin to update the 1997 plan for the Two Ponds National Wildlife Refuge. In the draft comprehensive conservation plan and environmental impact statement, we explored administratively renaming the refuge complex so that it better reflects all the units we manage and the geographic locale where the refuges occur.

## Vision for the Refuge Complex

We developed a vision for the complex at the beginning of the planning process. The vision describes the focus of refuge complex management and portrays a picture of the refuge complex in 15 years.

*As the sun rises, bison thunder across the prairie, red-tailed hawks soar overhead, and the urban bustle begins. Lands once known for their agricultural and industrial uses are being restored on the Nation's premiere urban wildlife refuge, where time moves at nature's pace and wildlife have the right-of-way. Propelled by public and private partnerships, refuge stewards at Rocky Mountain Arsenal, Two Ponds, and Rocky Flats National Wildlife Refuges continue to work to repair and regenerate wildlife habitat. These prairie oases nestled within Colorado's Front Range communities welcome visitors from near and far and foster an appreciation for nature. They will connect people with the land for generations to come.*



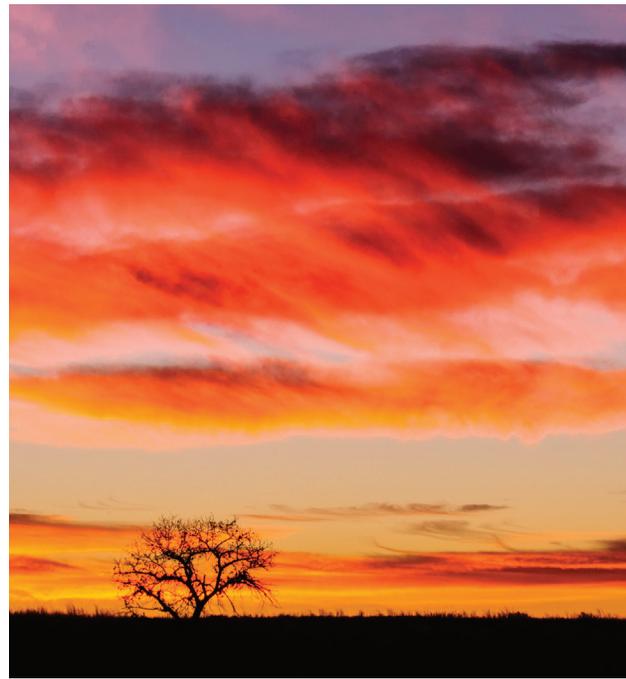
## Goals for the Refuge

We developed nine goals (table S-1) for the refuge based on the Improvement Act, the purposes of the refuge, and information developed during planning. The goals focus work toward achieving the vision and purposes of the refuge and outline approaches for managing refuge resources.

## Implementation

In the past months we have solicited and taken into consideration the public’s opinions and comments. Your comments were instrumental in developing this final environmental impact statement and will also help us to finalize the comprehensive conservation. The final plan will include the objectives and detailed strategies necessary to implement the selected alternative.

The final comprehensive conservation plan will be a 15–20 year plan, and the actions proposed therein will be phased in over time. Full implementation of the final plan will be a slow process. At various stages, we will review the final plan and make changes to it. Fish and wildlife conservation remains our primary responsibility.



© Dawn Wilson

*Sunrise on the refuge*

If conflicts arise between actions delineated in the final comprehensive conservation plan and our management of fish and wildlife resources, we reserve the ability to forgo actions listed in the plan and make decisions to restrict access and public use activities.

**Table S-1. Goals for the refuge.**

<i>Goal Area</i>	<i>Goal</i>
Habitat Management	Use an adaptive management framework to conserve, restore, and enhance the ecological integrity of Front Range prairie communities, including wetlands, grasslands, native shrubs, and trees.
Wildlife Management	Balance and preserve wildlife species of concern through active management.
Visitor Services	Foster the public’s appreciation of natural resources and provide inclusive, accessible, high-quality, wildlife-dependent recreation, education, and interpretation.
Communications and Outreach	Through effective communication and innovative technology, engage the public and stakeholders to help them better understand the importance of natural resources, operations, and history at the refuge complex so that they are inspired to take part in and support management and restoration efforts.
Partnerships	Seek and foster strong partnerships to support research and management, enhance wildlife-dependent recreation, and promote an appreciation of nature.
Cultural Resources	Protect artifacts and interpret the archeological, agricultural, military, and industrial histories of the refuge complex and the story of its restoration in order to connect visitors and the community to the area’s past.
Research and Science	Use science and promote research to advance the understanding of natural resource functions and management within the refuge complex and beyond.
Infrastructure and Operations	Effectively use money, staff, partners, volunteers, and equipment to restore and manage refuge complex habitats, conduct programs, and improve and maintain all necessary infrastructure.
Access and Transportation	Support the improvement of suitable access to the refuges, develop sustainable transportation options, and provide more connections within the refuge complex.

# Abbreviations

<b>°F</b>	degrees Fahrenheit
<b>21CSC</b>	21st Century Conservation Service Corps
<b>Administration Act</b>	National Wildlife Refuge System Administration Act of 1966
<b>ALR</b>	Anthropogenic Light Ratio
<b>APHIS</b>	Animal and Plant Health Inspection Service
<b>Arsenal</b>	Rocky Mountain Arsenal
<b>BFF Center</b>	National Black-Footed Ferret Conservation Center
<b>CCP</b>	comprehensive conservation plan
<b>CDOT</b>	Colorado Department of Transportation
<b>CDPHE</b>	Colorado Department of Public Health and Environment
<b>CEQ</b>	Council on Environmental Quality
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>CFR</b>	Code of Federal Regulations
<b>CLIR</b>	Climate Leadership in Refuge
<b>CMP</b>	Comprehensive Management Plan
<b>CPRA</b>	Colorado Parks and Recreation Association
<b>CPW</b>	Colorado Parks and Wildlife
<b>DIA</b>	Denver International Airport
<b>DOI</b>	Department of the Interior
<b>DRCOG</b>	Denver Regional Council of Governments
<b>Eagle Repository</b>	National Eagle Repository
<b>EIS</b>	environmental impact statement
<b>EPA</b>	Environmental Protection Agency
<b>Federal duck stamp</b>	Migratory Bird Hunting and Conservation Stamps
<b>FHA</b>	Federal Highway Administration
<b>FHWA</b>	Federal Highway Administration
<b>FMP</b>	Fire Management Plan
<b>FONSI</b>	Finding of No Significant Impact
<b>GIS</b>	geographic information system
<b>GPLCC</b>	Great Plains LLC
<b>HMP</b>	habitat management plan
<b>I-</b>	Interstate
<b>IFs</b>	Isolated Finds
<b>Improvement Act</b>	National Wildlife Refuge System Improvement Act of 1997
<b>IPMP</b>	Integrated Pest Management Plan
<b>LCC</b>	Landscape Conservation Cooperative

<b>NEPA</b>	National Environmental Policy Act of 1969
<b>NHPA</b>	National Historic Preservation Act
<b>NPL</b>	National Priority List
<b>NPS</b>	National Park Service
<b>NWR</b>	National Wildlife Refuge
<b>Partners program</b>	Partners for Fish and Wildlife Program
<b>proposed action</b>	proposed actions under alternative C
<b>RAQC</b>	Regional Air Quality Council
<b>refuge</b>	Rocky Mountain Arsenal National Wildlife Refuge
<b>refuge complex</b>	Rocky Mountain Arsenal National Wildlife Refuge Complex
<b>Refuge System</b>	National Wildlife Refuge System
<b>Repository</b>	National Wildlife Property Repository
<b>ROD</b>	Record of Decision
<b>RRS</b>	Refuge Revenue Sharing
<b>RTD</b>	Regional Transportation District
<b>Secretary</b>	Secretary of the Interior
<b>Service</b>	U.S. Fish and Wildlife Service
<b>SHC</b>	strategic habitat conservation
<b>SSP</b>	Station Safety Plan
<b>Superfund</b>	National Priorities List
<b>TCHD</b>	Tri-County Health Department
<b>UCD</b>	University of Colorado at Denver
<b>UDFCD</b>	Urban Drainage and Flood Control District
<b>USACE</b>	U.S. Army Corps of Engineers
<b>U.S.C.</b>	United States Code
<b>USDA</b>	U.S. Department of Agriculture
<b>USDOT</b>	U.S. Department of Transportation
<b>USGS</b>	U.S. Geological Survey
<b>WMP</b>	Water Management Plan