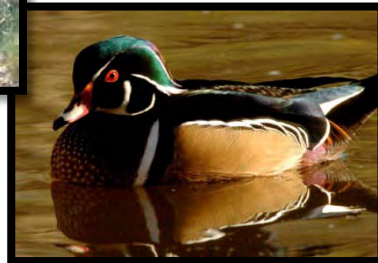


Rio Grande Nature Center State Park

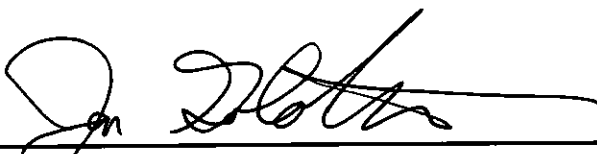
Management Plan 2010



New Mexico State Parks Division
Energy, Minerals, and Natural Resources Department



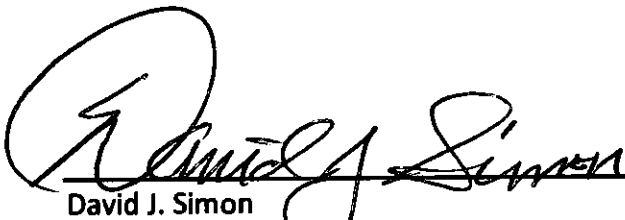
**Rio Grande Nature Center State Park
Management Plan 2010**



Jon Goldstein
Secretary, Energy, Minerals, and Natural Resources Department

2.3.10

Date



David J. Simon
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1/29/10

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INTRODUCTION

The Plan

The “Rio Grande Nature Center State Park Management Plan” provides guidance on operations and management, and proposed improvements over a five year period. The planning process has included thoughtful evaluation of the Rio Grande Nature Center State Park (Park) from multiple perspectives so that future actions balance the need for environmental education and the protection of natural resources. The plan provides a description of the Park’s existing conditions, issues of concern, and recommendations.

The Park

The Park is located within the City of Albuquerque (City), and highlights the habitat and conservation issues of the Rio Grande bosque. The ponds were created to provide wildlife habitat and attract birds, waterfowl, and other wildlife, which is the main attraction for birdwatchers and students. These two activities, birdwatching and environmental education are the two activities that account for the largest number of visitors to the Park. The Park is located next to the Rio Grande Valley State Park (managed by the City), and thus sees many visitors that are on their way to the trail system along the river.

The Park is managed by the State Parks Division through a lease with the landowner - the City. While park visitors and the educational programs may visit lands outside the park boundary, the Park itself is only 38 acres. The scope of this plan addresses the 38 acres and includes recommendations for partnering with the City of Albuquerque and other agencies to cooperatively manage the adjacent public lands.

The many programs offered at the Park would not be possible without the contributions of the Friends of the Rio Grande Nature Center (Friends). Volunteers assist in the management of the visitor center, research and monitoring, leading school groups, and providing funds for park projects. To support its efforts, the Friends also operates the gift shop in the visitor center.

In addition to the volunteers, there are a multitude of other partners that are involved with a variety of activities at the Park. These include the City of Albuquerque Open Space Division, the New Mexico Museum of Natural History and Science, Wildlife Rescue Inc., and Albuquerque Public Schools. Included in the plan is discussion of the many partners and stakeholders, and cooperative projects and programs at the Park.

Park Mission

To preserve and protect the Rio Grande Bosque, educate the public about the Rio Grande ecosystems, and to foster positive human interactions with those systems.

Key Facts

Park established: 1982
Park management area: 38 acres
Partner agency:
City of Albuquerque Open Space
Division

Recommendations

The following is a summary of the key recommendations – a detailed explanation of all the recommendations, including the “Action Plan” with cost estimates and scheduling, is in the “Recommendations” section of the plan.

Education & Interpretation

- Install interpretive signs on park trails.
- Upgrade visitor center exhibits.
- Develop resources for park visitors to conduct self-guided tours.
- Develop multi-lingual materials, such as signs and brochures.

Park Resources

- Develop a vegetation management plan to improve the ecosystem health of the Park.
- Develop management zone policies that address the numbers and frequency of visitors per zone.

Management

- Establish an agreement with appropriate agencies regarding joint management of the “100 Acre Woods”.
- Develop a joint management plan for the “Special Management Areas” with the City of Albuquerque.
- Work with partners to secure reliable funding for the Bosque Education Guide and Workshops.

Facilities

- Construct an education building to accommodate school groups and educational programs.
- Replace all exterior park signs with a standard design.
- Improve accessibility of park facilities.



Park Mission, Goals, and Key Facts

The following is the mission of the State Parks Division:

Protect and enhance natural and cultural resources, provide first-class recreational and education facilities and opportunities, and promote public safety to benefit and enrich the lives of visitors.

The mission specific to the Rio Grande Nature Center State Park is:

To preserve and protect the Rio Grande Bosque, educate the public about the Rio Grande ecosystems, and to foster positive human interactions with those systems.

The Park's mission statement was adopted in 1989 by park staff and the Friends, with only a slight variation in wording. The following goals guide park management:

- protect the Park's natural resources, and ensure that visitor use does not adversely affect those resources;
- serve as an outstanding educational resource for environmental education;
- strengthen partnerships with other organizations on restoration and education projects and programs.

**City of Albuquerque
Open Space Division
Mission Statement**

To acquire, protect, maintain, and manage significant natural landscapes and cultural resources for present and future generations. Major Public Open Space enhances the urban environment and provides wildlife habitat while offering opportunities for public enjoyment through outdoor education and low-impact recreation.

Management of the Park is authorized by a lease agreement between the landowner, the City of Albuquerque Open Space Division, and the Energy, Minerals, and Natural Resources Department, State Parks Division. The public open space adjacent to the Park is a myriad of different landowners and land managers (described in further detail under the "Lands" section to follow). This park management plan will focus on the lands for which State Parks Division has direct management authority - the 38 acres leased from the City. The adjacent "Major Public Open Space" lands are under the management authority of the City, including the Rio Grande Valley State Park, and are addressed in management plans for those respective areas. The exception is those lands south of Candelaria Road (excluding the Discovery Pond area), which will be included in a joint management plan for "Special Management Areas" (defined in the lease agreement) to be developed jointly by the City and State Parks Division.



Key Facts	
Park established:	1982
State Parks Division managed (owned by City):	38 acres
State Parks Division owned:	½ acre
Partner Agency:	City of Albuquerque Open Space Division
Agreement Type:	Lease
Agreement Term:	2006-2026
Park Elevation:	5000'
Average Annual Visitation:	130,811
County:	Bernalillo

Park History

A citizen-based grassroots effort is responsible for the Park's ultimate creation and was the result of public concern for protecting the remaining bosque in Bernalillo County. This interest spurred the formation of the Bosque del Rio Grande Nature Preserve Society, which was fundamental in the Park's creation. The idea for a nature center along the Rio Grande was first documented in 1969 in a feasibility study and preliminary plan for the Rio Grande Valley State Park. The plan described the proposed Rio Grande Nature Center as:

“primarily an educational facility, with interpretive exhibits, nature trails, natural and ‘conservation-type’ areas, and a botanical garden. It should be in the character of an outdoor museum...concerned with illustrating and interpreting the river environment... especially interesting to children, although the general public should be able to use the center. It is believed that it would serve mainly school children in the Albuquerque school system, although it would of course be used by the Bernalillo, Los Lunas, and Belen systems.” (pages 69 and 72)

A 1974 citizen perception study that was part of the “City Edges Study” explored the relationship of the river to city residents. The findings of this study reinforced the desire to establish the river corridor as protected public open space. As a result of the intensive irrigation and flood controls that resulted in a physical separation of the river from the City by levees, people no longer had physical or intellectual attachment to the river that is the foundation of the City's history. The combination of restrictive land ownership and lack of access to the river across the drains and levees prevented the public from experiencing and understanding the bosque. In one of many efforts to protect and restore the bosque, the City pursued the acquisition of lands for a nature center. In 1977 the City purchased Candelaria Farms (167 acres) with funding from a variety of sources, including the federal Land and Water Conservation Fund (LWCF).

The City convened a 20 member citizens ad hoc task force to oversee the planning and design of the nature center. The firm of architect Antoine Predock was selected to develop a master

plan for this “unusual educational and recreational resource”. The plan was commissioned jointly by the State of New Mexico and the City, and was completed in 1979. The purpose of the plan was to “provide a guide for development of the Candelaria Farms site which will not only explore its exciting educational and recreational potential, but will also preserve and reinforce its existing beneficial open space qualities”.

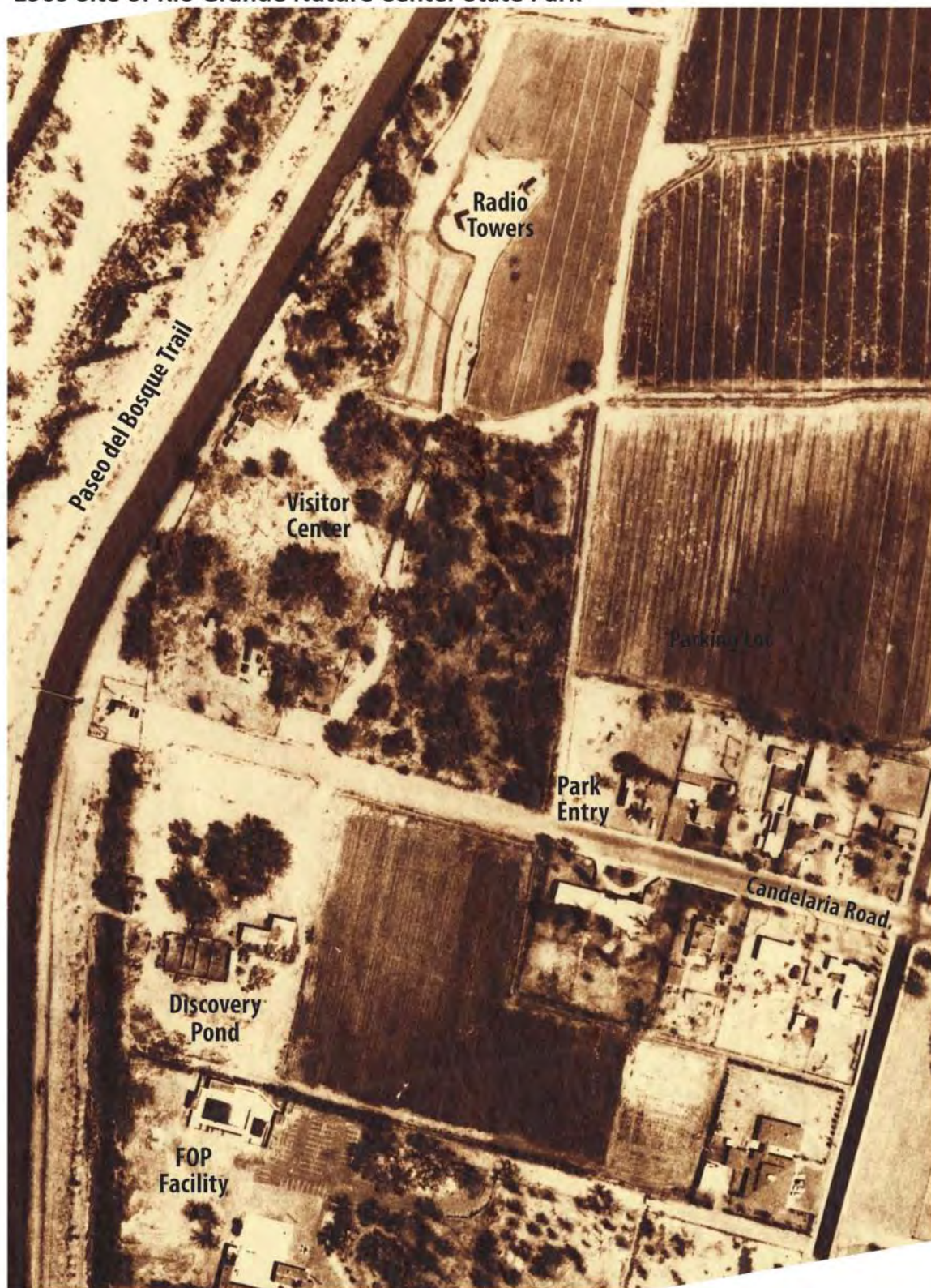
Much of what was proposed in 1979 can be seen today: interpretive building, agricultural crops for wildlife forage, ponds, and trails. The plan also outlined possible interpretive programs, such as programs for the general public, school classes, and teachers; extracurricular programs for children; an apprentice naturalist program; and research. The plan states that the “fundamental objective of this nature center would be the stimulation of the visitor’s awareness of his environment, both natural and altered. This would be accomplished through use of programs and facilities.”

The 1979 “Master Plan – Rio Grande Nature Center and Preserve” remains the foundation for the Park’s management and development. It should be noted however, that there are certain elements of the plan that are reflective of the situation at that time. The master plan covered 267 acres and was developed prior to the establishment of the 38 acre lease boundary between the State and the City. The master plan also references a nature “preserve” and refers to it as an area where public pedestrian access is prohibited. It does not however specify the location of the preserve within the planning area. The master plan also does not include an explicit mission statement for the Park. Since 1979, the Park has evolved while adhering to the original intent and recommendations of the master plan.

The City and the State Parks and Recreation Commission had been partnering on the project for years, and in 1980 began a 25 year lease agreement. The agreement, which was renewed in 2006, leased 38 acres of City owned land to the State Parks Division to manage the Park. The State Parks Division oversaw construction and development of park facilities. Antoine Predock was selected to design the contemporary and unique Visitor Center. The pond, trails, parking lot, and plantings were also completed during the first phase of park construction, and in 1982 the long-awaited nature center was opened to the public.

The Governor created an advisory board in 1983. Bylaws were approved in 1989, and stated that the purpose of the organization was “to provide counsel and support to the director and staff of the Rio Grande Nature Center and to provide opportunities for communication among the various groups who use or are involved with the Rio Grande Nature Center.” Membership was made up of at-large members and representatives of partner organizations, such as the Friends, Wildlife Rescue, Inc., the Middle Rio Grande Conservancy District (MRGCD), Albuquerque Public Schools, etc. The advisory board was disbanded in 2006 as attendance to meetings became sporadic and interest seemed to wane. Additionally, park staff found itself communicating directly with partner organizations on specific projects and programs.

1969 Site of Rio Grande Nature Center State Park



Location of current features labeled for orientation to site

The Friends was established in 1984 and is still active today. The Friends is a non-profit 501 (c) (3) whose stated purpose it to support the Park's mission. Over the years it has raised funding for a variety of projects, programs, and supplies. Friends volunteers are essential to park operations. The following have been programs of interest for the organization: fundraising, community relations, marketing and publicity, education, habitat management, and government support.

Key Historical Events	
1969	"Rio Grande Valley State Park Feasibility Study and Preliminary Plan" proposes the Rio Grande Nature Center
1976	\$587,424 LWCF contingency reserve fund awarded for project
1977	City purchases 166.98 acres for \$1,707,000
1979	"Master Plan, Rio Grande Nature Center and Preserve" by Antoine Predock
1980	City and State Parks Division sign 25-year lease for park management
1982	Park opens and Visitor Center completed
1983	"Rio Grande Nature Center Management Plan" adopted by city and State Parks Division
1984	Friends of Rio Grande Nature Center established
1996	½ acre lot acquired by State Parks Division for \$95,365
2002	Wildlife Rescue Center constructed by State Parks Division
2004	"Rio Grande Nature Center State Park Management Plan" for FY05-FY09
2006	Lease agreement between City and State Parks Division renewed for 20 years

Regional Setting

The Park is located within the City in Bernalillo County, in an area known as the North Valley. West of the Park, along the river corridor is the City managed Rio Grande Valley State Park. Although the Park is the only facility in the county whose *primary* focus is on the protection of and education about the bosque, the Albuquerque area facilities listed below also cater to school groups and offer similar activities and experiences.

Regional Recreational and Educational Opportunities		
Facility	Manager	Activities/Type of Facility
Albuquerque Biological Park: - Rio Grande Botanic Garden - Albuquerque Zoo - Albuquerque Aquarium - Tingley Beach	City	Gardens and greenhouses Wild animal viewing Aquatic animal viewing Fishing, walking, picnicking
City of Albuquerque Open Space Visitor Center	City	Gardens, art gallery, meeting room, wildlife viewing, bosque access, agricultural fields, and archaeological resources
Explora	Explora Board of Directors	Educational youth programs
New Mexico Museum of Natural History & Science	State of New Mexico – Department of Cultural Affairs	Exhibits and programs
Rio Grande Valley State Park	City	“Major Public Open Space”, trails for hiking, mountain biking, horseback riding

Community characteristics can influence park management and visitation. The Park is located at the center of the state’s largest population area, and while the Park serves residents from the immediate area, it also attracts a large number of visitors from the greater metropolitan region. Thus, the growth of the City has influenced park visitation since its opening in 1982.

Census Data	2000 Population	1980 Population	Percent Change
New Mexico	1,819,046	1,302,894	40%
Bernalillo County	556,678	419,700	32%
City of Albuquerque	448,607	332,920	35%

Park Planning

The master plan for the Park was completed in 1979. The first park management plan was completed in 1983 and focused primarily on plantings and wildlife habitat improvements for the newly established park, as the property had been greatly modified from its natural state. The second park management plan was completed in 2004 and covered fiscal years 2005 to 2009.

In 1996, Title 19, Chapter 5, Part 3 of the New Mexico Administrative Code (19.5.3 NMAC) established the requirement that each state park have a management and development plan, and that the State Parks Division review and update plans every five years. The stated objective is “to provide direction for the management and development of the parks in the New Mexico state parks system in a manner that enhances recreational opportunities, protects park resources, and provides for public input and protects the environment” (19.5.3 NMAC). Section 13 of the State Parks Division’s *State Parks Policy and Procedures Manual* explains in more detail the planning process, content, and format of park management plans.

The audience for the plan may include park visitors, park staff, partner agencies, elected officials, and other stakeholders. The following are the primary values and purpose of the park management plan.

- The plan is a:
 - tool to guide decisions and management;
 - a reference tool that documents park history, facts, and conditions;
 - a tool for identifying land use within a park’s boundary; and
 - five-year capital improvements plan.
- The planning process provides opportunities to:
 - discuss the “big picture” and long-term future of the Park; and
 - address issues, trends, and changing conditions and uses affecting the Park.
- The plan and the process allows communication with the public to:
 - learn their concerns, expectations, and values for the Park; and
 - share with the public the purpose, significance, opportunities, and constraints of the Park.

This plan is divided into two sections. The first part –Introduction and Park Assessment - includes a summary of the Park’s history, existing conditions, and resources. The second part – Recommendations - lists the issues that were identified during the planning process, and the proposed actions recommended by the State Parks Division.

The planning process to develop this plan actually began with efforts in 2006 and 2007 to develop a modification to the 2005 plan. Two public meetings on the modified plan were held on October 14, 2006 and November 3, 2007. The modification was never finalized as it became apparent that the development of a new plan in 2009 would be preferable. Feedback from these meetings and comments submitted at the time have all been considered during this plan’s development.

The 2009 planning process began with a State Parks Division staff assessment of the Park and a scoping workshop. Several meetings were held with volunteers, teachers, and members of the Friends. An informal survey was distributed to collect additional information for the plan, the results of which confirmed other feedback. Staff met with the City of Albuquerque Open Space Division staff and presented to the Advisory Board for the City of Albuquerque Open Space Division. A meeting with the Alvarado Gardens Neighborhood Association was held on September 17, 2009 to discuss the proposed education building. There was a 30 day public review period that gave the public and stakeholders an opportunity to comment on the draft plan. Finally, a public meeting was held on December 21, 2009 to review the draft list of issues and solicit feedback on additional issues of concern to the public.

Recent Accomplishments

The 2005 park management plan proposed a variety of park improvement projects, some of which are on-going or have been completed. Several of the proposed projects either did not have funding or were found to no longer be appropriate. The following projects have been completed since 2004.

- New energy efficient heating and cooling system for Visitor Center
- Replaced roof and insulation on Visitor Center
- Replaced Visitor Center reception desk
- Replaced skylight in Visitor Center
- Replaced flooring in Visitor Center classroom, Observation Room, and restrooms
- Upgraded Visitor Center's Observation Room furnishings
- Developed the Mariposaville pollinator garden
- Planted trees and shrubs throughout the Park, and removed some non-native plants
- Installed benches throughout the Park
- Hazard tree abatement
- Enhanced the native plant garden with the addition of new plants; removal of an old storage shed, and addition of a smaller garden shed
- Implemented \$60,000 grant from the Office of Natural Resources Trustee for fire prevention and habitat restoration
- Completed a year-long series of events in honor of the Park's 25th anniversary.

PARK ASSESSMENT

PARK RESOURCES

The State Parks Division approved a written natural resource management policy in 2008 for all parks in the system. The policy outlines “guiding principles for the management and stewardship of natural resources”, and states that:

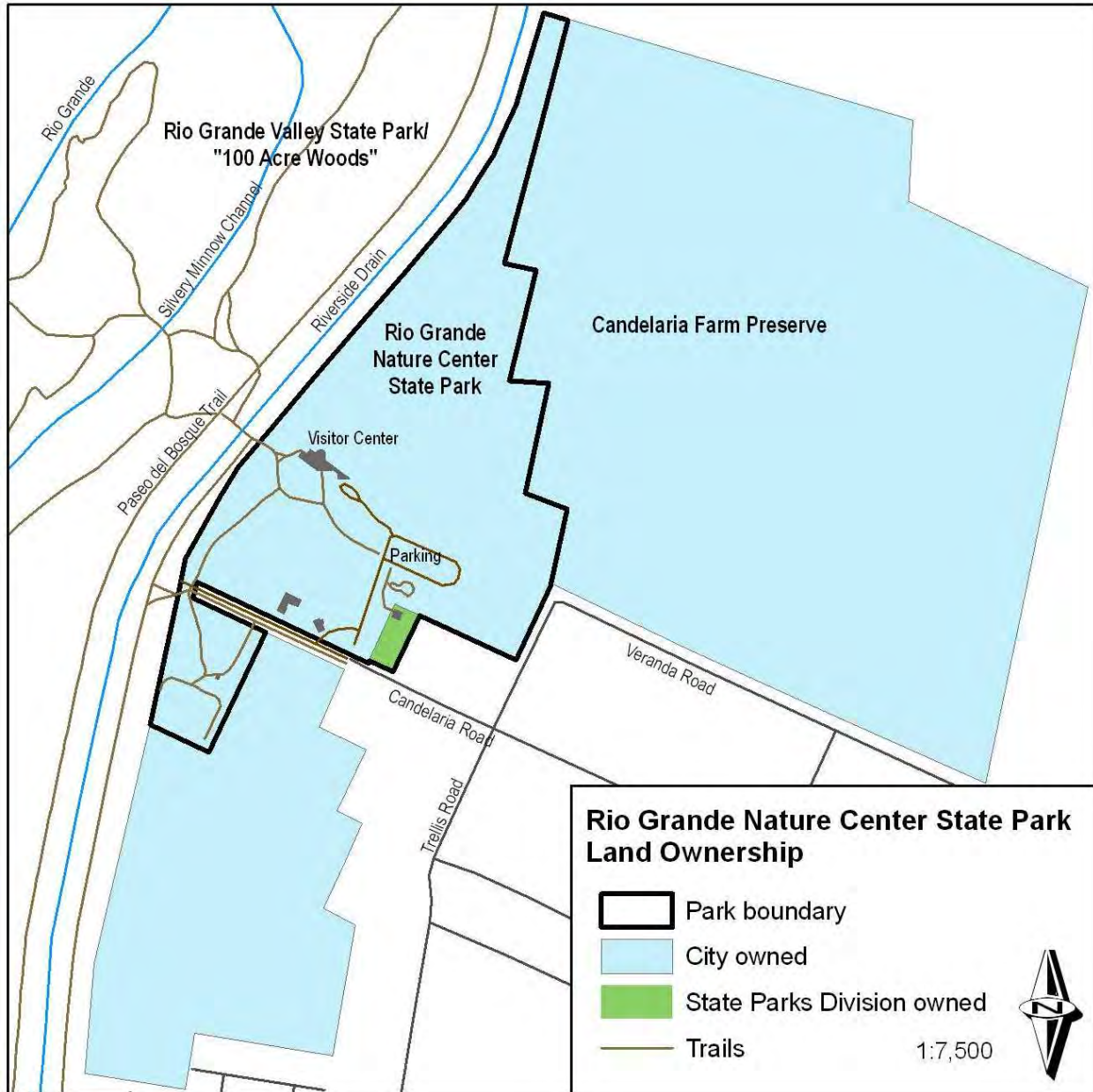
Natural resource management serves varying goals including but not limited to protection, preservation, conservation, restoration, reclamation, or enhancement... As a responsible steward, the Division manages all natural resources under its jurisdiction, and the human enjoyment of such resources, in a manner that perpetuates the quality and health of those resources indefinitely into the future, for the benefit of present and future visitors and all others.

The State Parks Division must comply with a variety of natural and cultural resource protection laws. As such, the State Parks Division’s staff must document any proposed projects conducted at the Park on a “State Park Project Form” (see the appendix for a copy), assess impacts from proposed projects, and take appropriate measures to protect natural and cultural resources in conjunction with park improvement projects.

Land

The Park includes 38 acres under the State Parks Division’s direct management (see map below). The City owns the land, and a lease between the City and State authorizes the State Parks Division’s management of this 38 acres. The Park also includes a half-acre lot at the Park’s entrance that the State Parks Division purchased in 1999. The City owns the adjacent Candelaria Farm Preserve and the open space south of Candelaria Road. What is referred to as the “100 Acre Woods” between the Riverside Drain and the river, is part of the Rio Grande Valley State Park, under the City’s management (ownership is contested between MRGCD and the United States Department of the Interior, Bureau of Reclamation). The 100 Acre Woods is a popular destination for Park visitors and guided groups as it provides direct access to the river.

The Candelaria Farm Preserve, managed by the City, is approximately 87 acres and is located immediately adjacent to the Park. The City prepared the “Open Space Resource Management Plan for the Candelaria Farm Preserve” in 2004, which defines the preserve’s mission as “provide habitat for wildlife, demonstrate sustainable farm operation that increases the diversity and health of the local environment, and encourage public education about wildlife and traditional and innovative agriculture”. The farming operations are leased to a private agricultural company that is required to plant 25% of the crops for wildlife, with the remainder for commercial production. During the fall, the farm attracts migrating sandhill cranes and Canada geese.

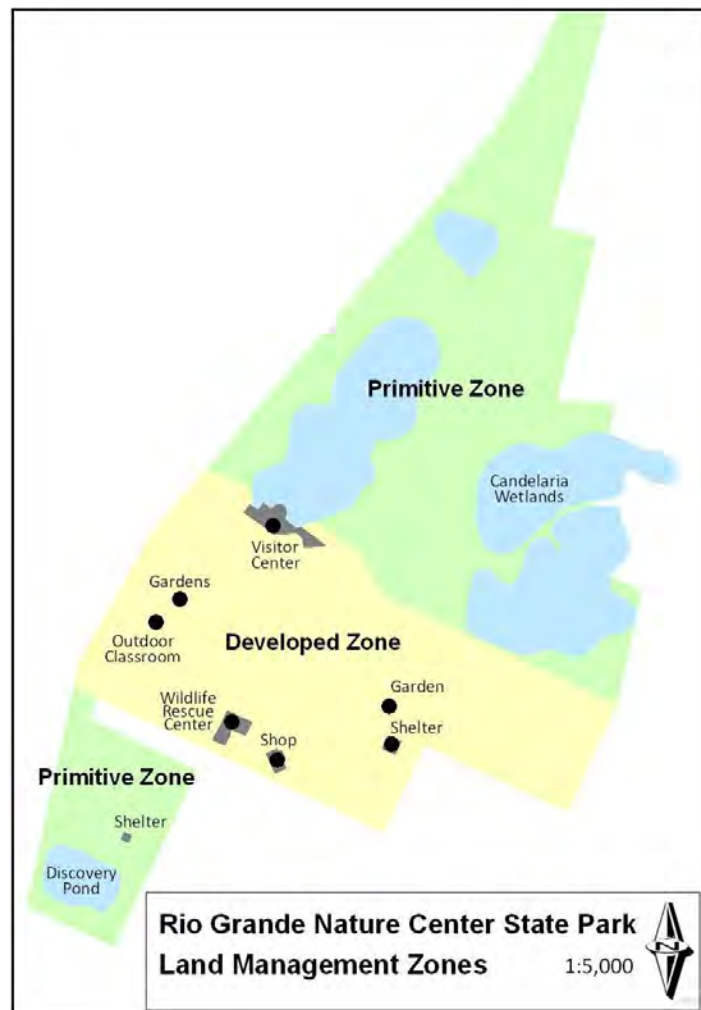


When the Park was created, there was a 1977 agreement between the State Park and Recreation Commission and the MRGCD that authorized the 100 Acre Woods to be managed by the state for recreation purposes for a period of 25 years, which expired in 2002. That agreement was not renewed. Instead, the land was included in an agreement between the MRGCD and the City that authorized the City to manage the Rio Grande Valley State Park. At the time, it was thought that inclusion of the 100 acres in the Rio Grande Valley State Park was sufficient and a separate agreement between MRGCD and State Parks Division was not necessary. In 2005, an amendment to the Rio Grande Valley State Park Act authorized State Parks Division to expend funds, as it deems appropriate, within the boundary of the Rio Grande Valley State Park. It is now recommended, however, that an agreement similar to the 1977 agreement be re-established to better define the roles of the different agencies involved (see

Issues and Recommendations section). This is especially important as nearly all visitors to the Park access the river through the 100 Acre Woods, making it an essential component of the park visitor's experience.

Management Zones

The State Parks Division's natural resource management policy calls for delineation of land management zones, acknowledging that "areas intended for different types and intensities of use call for varying degrees of protection in natural resource management practices". Each zone will have distinct characteristics, levels of development and protection, levels of visitor use, and visitor expectations. The State Parks Division is in the process of developing best management practices for land management zones that will be used in all of its parks. Pending completion of these guidelines, all park lands under the State Parks Division's jurisdiction will be placed in one of three land management zones: developed, primitive, and conservation. The Developed Zone has a high level of visitor use and includes park facilities, with the primary purpose of education and recreation. The remainder of the Park is in the Primitive Zone, where the primary purpose is resource conservation and education, and visitor use is low (guided tours only).



Special Management Areas

The 2006 lease agreement (see appendix) between the City and the State Parks Division designated three “Special Management Areas” (SMAs): Candelaria Wetlands (nine acres); the Candelaria Farm Preserve access roads (five acres); and the land south of Candelaria Road, sometimes referred to as the FOP property, but not including the Discovery Pond (26 acres). The Special Management Areas “are those lands within or adjacent to the premises with unique characteristics that require close coordination between staff

of the City and the Lessee for managing natural resources and public access”. With the exception of a portion of the Candelaria Wetlands, the SMAs are lands outside of the Park’s 38-acre leased management area. Staff from both agencies will be developing a joint management plan for these areas (see “Recommendations”).



Cultural Resources

Park personnel work under a mandate to preserve and protect cultural resources from impacts caused by human or environmental factors. Cultural resources within Park boundaries are subject to state and potentially federal cultural resource protection laws (see “Rules” in the Appendix). Development within the Park will be coordinated with the Division’s Cultural Resources Planner to avoid impacts to cultural resources and to comply with state statutes and rules and any applicable federal statutes and regulations. Prior to any activities that would result in ground disturbance, the State Parks Division will ensure that appropriate cultural resource management measures are undertaken to protect and/or minimize impacts to cultural resources. Remnants of the site’s historic agricultural use, such as acequias, are the most likely cultural resources to be found.

Natural Resources

When the park land was purchased in 1977, the majority of the land was highly disturbed. It had been the site of a slaughterhouse, radio towers, farms, and a variety of buildings and

structures. There were large cottonwood trees, and combined with the farms, the property was seen as having educational values and restoration potential to site a nature center. Since that time, the ponds were constructed, and trees, shrubs, and grasses planted to increase wildlife habitat and educational opportunities.

The Park is a small part of the larger Rio Grande bosque ecosystem, and there have been many regional planning, research, and restoration efforts addressing the “middle Rio Grande bosque ecosystem” (between Cochiti Lake and Elephant Butte Lake). In the early 1990s the Rio Grande Bosque Conservation Committee was charged with the task of examining the problems facing the bosque and making recommendations for its long-term protection. In 1993 the “Bosque Action Plan” and “Bosque Biological Management Plan” were completed. Twenty-one recommendations were set forth for preserving and restoring the floodplain ecosystem, most of which are relevant to managing the Park’s natural resources. A summary of the recommendations appears in the Appendix. A review and update to the plan was published in 2005 that evaluated the efforts undertaken since 1993, and reaffirmed the appropriateness of the original 21 recommendations. A 22nd recommendation was added in 2005 that is particularly relevant to the Park’s mission:

Develop outreach initiatives through public education programs and events, and community participation activities and projects, to broaden public understanding of and generate more active interest in bosque restoration and river ecosystem management in the Middle Rio Grande.

The “Bosque Landscape Alteration Strategy” was also published in 2005. It provides additional guidance for resource management activities at the Park. While the document focuses primarily on “rehabilitation/remediation/restoration of the Rio Grande’s riparian zone between the levees”, the objectives and strategies are still relevant to the Park, although the park management area (38 acres) is outside of the levee. One of the key recommendations is to create communication and teamwork opportunities among those groups working on the bosque. This type of collaboration has been, and will continue to be, a critical element of all park management and restoration activities.

Research, Monitoring, and Restoration

The Bosque Ecological Monitoring Program (BEMP) is a long-term research program designed to monitor the health of the bosque using students and teachers to collect the data. The information collected and analyzed includes groundwater level, water quality, river flow, water level in ditches, plant productivity, and vegetation cover. There are 25 monitoring sites along the Rio Grande, and one of the sites is located in the 100 Acre Woods. The students from Bandelier Elementary School monitor this site monthly.

There are several monitoring projects specific to the Park. One of the longest studies conducted at the Park began in 1979 by Rio Grande Bird Research Inc. The group, along with volunteers, nets and bands birds at the Park to obtain information on species, sex ratio, age, and population trends of avian migrants and winter residents. The information collected is

then provided to the New Mexico Department of Game and Fish and the U. S. Geological Survey's banding laboratory.

The Friends have a Preservation, Protection, & Research committee that does a variety of research projects. The Friends volunteers conduct monthly water quality testing of the ponds within the Park, as well as the Riverside Drain and the Rio Grande. The volunteers keep track of water quality and research invertebrate populations. Members of this committee also monitor the Silvery Minnow Channel located in the 100 Acre Woods to learn more about the birds, invertebrates, small mammals, and water conditions of the area.

Wildlife Rescue Inc. oversees volunteer high school students in the monitoring of three sizes of nest boxes that have been placed in the areas near the Discovery Pond and the Candelaria Farms. Some of the boxes have been confirmed as nesting sites for ash throated flycatchers and American kestrels while western screech owls have also been seen in the boxes.

In 2001, after the Candelaria Wetlands were constructed, a wetland monitoring team was formed of scientists, volunteers, and students from Rio Grande High School. The program was funded for three years (2002-2005) by the General Electric Fund Environmental Stewardship Program, and coordinated by the Friends. The new wetlands were monitored for water quality, soils, and the diversity and abundance of plants, insects, birds and small mammals. The Friends volunteers continue this monitoring project.

The Park has completed several natural resource restoration projects over the last five years. In 2005, a grant from the New Mexico Office of Natural Resources Trustee funded the removal of non-native trees from around the main pond and replanting of the area with native plants. In 2007, in partnership with the Energy, Minerals and Natural Resources Department, Forestry Division, extensive amounts of dead and down wood were removed from the central portion of the Park, between the Visitor Center and the Wildlife Rescue Center.

Water Resources

An important element of the preservation and education component of the Park is the bosque ecosystem, which is dependent on river water to support the cottonwoods and other vegetation. While the Park is not located directly on the banks of the river, the original intent of creating the ponds was to mimic the wetlands that were once created by the meandering and overbank flooding of the river. The ponds today provide valuable wildlife habitat, wildlife viewing opportunities, and teaching opportunities for visitors to the Park.

The Park has no surface water rights, but does have permits from the State Engineer for three ground water wells. Two of the wells are used to add water to the ponds, and the third is used for irrigation in the demonstration gardens.

The first pond to be built when the Park was established in 1982 is the Observation Pond adjacent to the Visitor Center. In 2009, the pond's surface area was approximately 2½ acres. It is lined with plastic and fed by well water using water rights owned by the City. It is a closed

system, and thus must be maintained and monitored. In 1996 it was dredged to remove accumulated sediment. The water quality is variable, and a long-term strategy is needed for maintaining the pond's water quality.

The north pond is 1/3 of an acre and was excavated in 1989 as a mitigation project of the



New Mexico Department of Transportation. This is a shallow pond and the presence of water fluctuates depending on the ground water levels, as it is neither lined nor supplemented with well water.

The Discovery Pond was built to serve as a teaching laboratory for schoolchildren. Having a separate pond for this purpose allows wildlife using the other ponds to remain undisturbed by the activity of school groups. The Discovery Pond features a wooden deck and tables so that students can study the pond's aquatic ecosystem. The pond is a ½ acre and is fed from a well that is operated by a solar powered pump, and is lined with plastic. Next to the pond is a picnic shelter with tables to provide shade for school groups using the pond as an outdoor classroom. The Discovery Pond area is accessible to the general public only with a staff or volunteer guide in order to ensure availability to school groups and to deter vandalism of the area.

The Candelaria Wetlands is the wetland complex north of the parking lot. It was built in 2001 by the City of Albuquerque Open Space Division. The land was once part of the Candelaria Farm Preserve, and a five acre area was taken out of production to create the wetlands. The wetlands are addressed in the City's "Open Space Resource Management Plan for the Candelaria Farm Preserve" which explains that the intent was to "create a matrix of deep, open water and shallow, vegetated areas, to support a broad variety of native vegetation and bird life. The shallow water areas are designed specifically to attract shore and wading birds, which do not enjoy extensive habitat at the three RGNSP ponds". The Candelaria Wetlands are two lined ponds (or cells) that now cover approximately four acres. The water source is the same well that supplies the pond adjacent to the Visitor Center. A system of valves and pipes is manipulated to select which pond to supply water to. Initially, 40 species of aquatic and moist soil plants were planted, including sedges, rushes, and bulrushes. Native grasses were planted in the grassland areas around the ponds. While willows now surround the ponds, screening them from view, the southern pond is visible from the viewing blind located at the edge of the parking lot.

Vegetation

Prior to its designation as a state park in 1982, much of the land was disturbed by a variety of human activities. The existing vegetation is a combination of native plants that survived the disturbances, more recent native and non-native plants that have taken root on their own, and a variety of trees, shrubs, perennials, and grasses planted by park staff and volunteers. The 1976 “Albuquerque Bosque Land Acquisition Environmental Assessment” states that “the project area has a long history of irrigation farming, agricultural and low-intensity urban-residential uses. Repeated disturbance by tillage, alfalfa haying operations and grazing have combined to essentially obliterate the native flora and fauna communities. Presently, ‘natural’ vegetation exists only on the fringes, ditch banks, fence rows and small isolated plots left undisturbed over several seasons.” Most of the plants identified in that 1976 assessment are still present throughout the property. A comprehensive survey of all the plants within the park boundaries has not been done.



The Rio Grande cottonwood (*Populus deltoides* subsp. *wislizenii*) is the signature tree species of the Middle Rio Grande Bosque. Cottonwoods normally grow well where roots can reach the water table and where their seeds can germinate on bare, periodically wetted soil. However, because of the restriction of flooding along the river since the construction of the levees, the natural spread and reproduction of these native trees has been severely hindered.

Numerous efforts have been undertaken to plant cottonwoods and other tree and shrub species in the Park. Between 1982 and 1987, Park staff planted Rio Grande cottonwoods, New Mexico olive (*Forestiera neomexicana*), Russian olive, three leaf sumac (*Rhus trilobata*), four-wing saltbush (*Atriplex canescens*), and fringed sage (*Artemisia frigida*). Additional cottonwoods have been planted more recently, both as pole plantings and as balled and burlapped trees, but many have struggled to take hold, probably as a result of the dropping water table or the lack of irrigation in some areas of the Park.

Several native plant demonstration gardens have been developed in the Park. The gardens serve to educate the public about the different types of regional native plants and their functions in nature. The 2003 edition of the “Bosque Education Guide” contains a recent inventory of vegetation found in the Middle Rio Grande bosque, although not all of the listed species are found within the Park.

Non-native and Invasive Species

Introduced, non-native plants have had a significant impact on native plant communities in the bosque. The three most conspicuous introduced species are Russian olive (*Elaeagnus angustifolius*), salt cedar (*Tamarix* sp.), and Siberian elm (*Ulmus pumila*), which have proven to

be invasive. Other common invasive exotic species found in the Park include Russian thistle (*Salsola tragus*) or tumbleweed, cheatgrass (*Bromus tectorum*), and red bladdervetch (*Sphaerophysa salsula*). Most strategies to restore the bosque suggest removal of these invasive species, but some, such as Russian olive, have become habitat for birds and other wildlife. Broad scale removal of Russian olives without replacement by other species could mean a loss of habitat. Further, with the dropping



water table, the absence of seasonal flooding, and climate change, it is questionable whether a traditional bosque landscape can thrive throughout the entire Park. Some non-native tree and shrub species may be thriving because they have good adaptations to these changes, and some native species may have similar adaptations. Future management of vegetation in the Park will have to reconcile or consider these competing resource management goals.

Wildlife

The Park is intended to be a haven for all wildlife. While birds may be the most conspicuous, many species of animals make their home in the Park, or pass through the Park. Those species known to inhabit the Park include, but are not limited to beaver, muskrat, raccoon, skunk, fox, coyote, badger, squirrel, pocket gopher, tawny bellied cotton rats, long tailed weasel, rabbit, mice, porcupine, and 15 species of bats.

Birds are the signature attraction for most park visitors. The bosque and riparian habitat found along the river and around the ponds attract a variety of birds and waterfowl. In addition, the Park's location along the Rio Grande corridor places it within the Central Flyway, a path for migrating birds. Several feeding stations are located throughout the Park to augment natural food sources. Rio Grande Bird Research Inc. has been surveying birds at the Park for over 30 years and now lists over 270 species that have been observed at the Park. The ponds serve as a wintering ground for migrating waterfowl. During the spring, several species of birds and waterfowl nest in the Park. The farms also attract sandhill cranes during the fall and winter.

Species of Conservation Interest

Species of conservation interest as considered in this plan are those considered at-risk and are designated as one or more of the following: federally designated as endangered, threatened, candidate species, and species of concern; state listed species of concern (endangered, threatened, sensitive) by the Department of Game and Fish; and plant species identified by New Mexico Rare Plant Technical Council (NMRPTC).

The four species listed below have been observed in or near the Park, although sightings are rare and uncommon. Since the Park is considered potentially suitable habitat for these species, they present a management concern and opportunity. The legal ramifications are that park management and improvement projects cannot adversely impact the species. The opportunity they present is the potential for habitat restoration or enhancement projects that would attract or introduce these species to the Park, thus contributing to restoration of the bosque ecosystem. A list of “Potential Species of Interest” is in the appendix, and lists species at risk that may occur in the region, but are not known to occur in the Park.

Species of Conservation Interest		
Common name	Scientific Name	Status
Rio Grande silvery minnow*	<i>Hybognathus amarus</i>	Federal & NM: Endangered federal: critical habitat designation
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Federal & NM: Endangered federal: critical habitat designation
yellow-billed cuckoo	<i>Coccyzus americanus</i>	Federal: Candidate NM: Sensitive
Bell’s Vireo	<i>Vireo bellii</i>	Federal: FWS Species of Concern NM: Threatened
FWS = listed by U.S. Department of the Interior, Fish and Wildlife Service NM = listed by the Department of Game and Fish *would occur in the 100 Acre Woods (not within the Park’s jurisdiction)		

The Middle Rio Grande Endangered Species Collaborative funded the construction of the Rio Grande silvery minnow channel, which was completed in 2008 by the U.S. Army Corps of Engineers. During high flows in the Rio Grande, the channel will fill with slower moving water to provide habitat for this federally endangered species. The channel is located in the 100 Acre Woods and thus is not currently under direct management by the Park, although the Park was a participant in development of the project.



Wildfire

The invasion of non-native vegetative species into the bosque created a much more dangerous fire situation than that posed by the historic bosque vegetation, which was characterized by a mosaic of open grassy areas and cottonwood copses in what the 2005 “Bosque Landscape Alteration Strategy: Objectives, Basic Requirements, and Guidelines” calls “savanna-like woodland patches with an understory of native grasses and shrubs”. Recognition of the bosque’s threatened condition prompted a number of efforts to study and implement strategies to reduce the damage from the inevitable fires. Two bosque fires came dangerously close to the Park, also threatening nearby residences. The June 24, 2003, Atrisco Fire burned 150 acres on both sides of the river, reaching the City’s “Major Public Open Space” area between Campbell Road and Candelaria Road. The following day, the Montaña Fire burned 113 acres around the Montaña Bridge on the north side of the Park. Water was taken by helicopter from the Candelaria Wetlands to fight these fires.

The evolving theory of fire management and prevention in the bosque was described and summarized in the 2005 “Bosque Landscape Alteration Strategy”; which provides a roadmap for achieving what is believed to be the best defense against raging wildfires—a more healthy bosque ecosystem. Self-described as a living document, it recognizes that bosque restoration is a relatively new, untested science. The actions encouraged ultimately result in the removal of most of the non-native trees, the creation of new native plant communities to replace the non-native vegetation, and the opening of the cottonwood canopy in areas to create a mosaic of dense groves and grassy areas.

These fire prevention objectives have been carried out by various means, but most often by the use of heavy equipment to mechanically remove the dead trees and underbrush from amongst the cottonwoods, remove jetty jacks for improved fire-fighting access, remove forest floor debris in some cases, and in others spread chipped wood waste to form a kind of mulch. Several manual clearing projects have also been undertaken. Although these treatments have successfully reduced the fuel load, they have also resulted in a change in wildlife habitat and introduction of weed species. Because of the importance of wildlife habitat to the Park’s mission and the proximity of residences to the property, fire prevention strategy for the park property is a sensitive issue. As the “Bosque Education Guide” points out, concerns about habitat destruction can partially be addressed by conducting clearing in stages over several years, combined with native vegetation reintroduction, and undertaking the work to avoid the breeding season. A careful analysis of the results of past bosque fuels reduction/restoration efforts can significantly inform the preferred strategy for the Park so as to reduce the impact on wildlife to the greatest extent possible.

INTERPRETATION AND EDUCATION

At the core of the Park's mission is "to educate the public about Rio Grande ecosystems and to foster positive human interactions with those systems". The goal of nearly all park programs is to achieve that mission through educational and interpretive activities and resources.

The casual park visitor has several opportunities to learn during their visit to the Park. There are exhibits in the Visitor Center and a library in the Observation Room where visitors have access to nature-themed books and periodicals for adults and children. The park reception desk is staffed by park employees or volunteers, who can answer questions and can check out binoculars, field guides and "Discovery Packs" to visitors to assist them in learning more about the Park's flora and fauna.

The following is a summary of all of the interpretive and educational facilities, activities, and programs offered at the Park.

Exhibits

The exhibits in the Visitor Center include interpretive panels, hands-on exhibits, and photographs. Many are the original exhibits installed in 1982, with some upgrades to several of these exhibits in 1998. The life-size log and tree were also added in 1998. The mobile exhibits in the Discovery Room were added in 2002 and funded by an Urban Enhancement Trust Fund grant to the Friends.

Visitor Center Interpretive Exhibits:

- The Geologic Past
- Water
- Forage Lands
- The Tree
- Wetlands and Waterfowl
- Water Table
- Naturalists Notebook
- The Pond
- Life Zones of the Sandias
- Habitat
- Aquatic Plants
- The Rio Grande from Source to Sea
- River Habitat
- Bosque Habitat
- Wetlands Habitat
- Naturalists Notebook Series
 - Bird Nests



Outdoor Interpretive Signs

There are few interpretive signs outside of the Visitor Center. There are four signs on the Visitor Center viewing blind on the ring-necked duck, wood duck, red-eared slider, and painted turtle. Another sign, about the rock squirrel, New Mexico whiptail, and Woodhouse's toad, is located at one of the bird feeding stations. Unfortunately the sign has not withstood the elements and is in need of replacement. The Candelaria Wetlands viewing blind (next to the parking lot) has several small interpretive panels with artwork by noted artist and park neighbor, Margy O'Brien.

The Mariposaville pollinator habitat garden has a comprehensive series of interpretive signs throughout the garden. Topics cover the role of pollinators, butterflies, hummingbirds, bees, flowers, and moths. In addition, flowers seen in the garden are identified in photos. There are also signs explaining the various methods of irrigation being demonstrated.

Public Programs

There are many public programs for children, adults, and families available throughout the year. Programs vary by season but often include full moon walks, pond study, owl prowls, nature walks, and birding tours. Bird walks and nature walks are offered every weekend throughout the year and full moon walks are offered monthly. Lectures, workshops, and special tours are offered about once a month. Examples of program topics include xeriscaping, wildflowers, mountain lions, nature journaling, hummingbirds, dragonflies, butterflies, geology, and star parties. Programs are led either by staff or volunteer guides, and the following are the most common programs offered.

- Nature walks are offered every Sunday. In 2008, 209 adults and 134 children attended.
- Bird walks are every Saturday and Sunday morning. In 2008, 1,128 adults and 59 children attended.
- Twilight hikes are on or close to each full moon. In 2008, 288 adults and 78 children attended.

The Friends sponsor the Nature Discovery Classes, which provide pre-school and elementary school students an opportunity to explore the Park to learn more about the animals and plants that reside in the bosque. A group of eight certified elementary school teachers take turns leading the classes. During 2008, there were nine weekday sessions that served 207 children and 15 Friday Night Nature Discovery classes with 237 attendees. The cost is \$20 per Friday session and \$50 per week-long session. This programming takes place primarily during the summer season when children are on summer break.

The Junior Rangers Program is held during the summer for middle-school students. Students spend 40 hours over a two-week period during the summer at the Park and learn about the Middle Rio Grande ecosystem while working with two college interns and several natural resource professionals in



the field on hands-on projects. The paid seasonal interns are trained by the Interpretive Rangers. There are four sessions of 12 students each, and in 2009 participants paid \$100 per session, although at one time the tuition was free thanks to the Friends.

School and Group Programs

The Park is one of the premier environmental education locations in the region, and plays a significant role in providing environmental education opportunities to schools in the region. School programs and teacher trainings include materials from the Bosque Education Guide curriculum, and all activities are correlated with state and national education standards. Guided group programs are provided for K-12 schools, college classes, home-schools, scouting groups, community centers, senior organizations, and others. Park interpretive staff schedule and plan these programs, primarily on weekdays, and the guides are either staff or volunteers. The only cost to the participants is the \$15 per bus entrance fee. In 2008, 5,295 kids and 1,106 adults attended these programs.

Many teachers bring students every year and some visit multiple times per year. Notably, Mountain Mahogany Community School has one class that convenes at the Park every Friday and has done so every year for three years; and the Bandelier Elementary School third grade class visits monthly to monitor the Bosque Ecosystem Monitoring Program plot and has done so for years.

The “Bosque Buddies” program was designed to give children of low-income families an opportunity to learn about nature. Students study the bosque and pond ecosystems in both the classroom and on a field trip to the Park. Students in the third, fourth, and fifth grades from schools in the Albuquerque South Valley have participated in the program in the past. The program was originally funded by a grant from the Albuquerque Community Foundation, and the Friends were recently awarded another grant from the foundation to continue this program, which had been suspended due to a lack of funding.

The following are programs offered at the Park for school groups and others such as groups from home schools, Boy Scouts and Girl Scouts, and community, youth, and senior centers.

- Guided walks – Guides take the group through the bosque to the Rio Grande and back and teach about the ecosystem and natural history of the area.
- Pond programs – Guides assist group members in catch-and-release and identification of aquatic macro-



invertebrates (and the occasional mosquito fish or tadpole!) at the Discovery Pond.

- Trunk presentations – Guides teach the following topics using “travelling trunks” which include teaching tools and props (such as skeletons and nests). These trunks are used at the Park and off-site programs.
 - Amphibian & Reptile
 - Arthropods
 - Bats
 - Birds
 - Cottonwood Habitat
 - Mammals
 - Bosque Education Guide River Model
 - Rock Cycle
- Special request programs – Guides provide programs (at the Park and off-site) tailored to specific needs of a group. For example, schools sometimes request Park Rangers as participants in career day, or community organizations ask for a lecture at their location about the Park.

Teacher Workshops

The Park along with the New Mexico Museum of Natural History and Science (the “Museum”), co-sponsors the Bosque Education Guide, an interdisciplinary curriculum about the Middle Rio Grande bosque ecosystem for students from kindergarten through 12th grade. Park and Museum staff offer workshops several times a year on the guide and its use. The first edition was published in 1995, and was most recently updated in 2008. Numerous individuals and organizations contributed to its development. The guide provides 45 lesson plans, including river model activities, school-based and field activities, and service learning projects. Some of the subjects that are covered include natural history, geology of the valley, surface and ground water, the water cycle, human impacts to the river, and fire in the bosque. A portion of the guide has been translated into Spanish. All activities are correlated with the “New Mexico Content Standards, Benchmarks, and Performance Standards”, which is the basis of annual student testing required by public schools statewide.

Workshops are held several times a year at the Park to introduce teachers to the curriculum and prepare them to lead lessons about the Middle Rio Grande bosque ecosystem, in both the field or in the classroom. The workshops, which are free for teachers, are taught by park staff and staff from the Museum. In 2008 and 2009, the workshop was offered seven times with 110 educators attending. Since the workshops



began in 1995, 1200 teachers have taken the training.

The program was funded primarily by FWS from 1995 to 2007. Since then the partners that have supported the program with funding, by publishing the guide, providing instructors and materials, and hosting the workshops include: the United States Department of the Interior, Fish and Wildlife Service's (FWS) Bosque Initiative Group, PNM, the State Parks Division, the New Mexico Museum of Natural History & Science, University of New Mexico Biology Department, and Friends. The program has been such a success that the State Parks Division developed a similar program for the Lower Rio Grande ecosystem and it is now being implemented in a similar fashion at Mesilla Valley Bosque State Park and other state parks in southern New Mexico. Other organizations such as Project WILD, Project Learning Tree, Discover a Wetland and Project WET conduct teacher workshops on their respective curriculums at the Park as well.

Outreach Programs

There are some occasions in which staff and volunteers present educational programs at events, schools, and organizations outside the Park. The interpreters will take travelling trunks filled with teaching materials to classrooms, community centers, home schools, and service clubs. Participation in special programming off-site makes people who may have never visited the Park aware of the Park's mission and what it has to offer the community. The following are special events in which park staff and volunteers have participated.

- BioBlitz 2009 – The New Mexico Museum of Natural History and Science won a grant to produce three BioBlitz events starting in 2009. In an effort to determine the biodiversity in the Park, during a single day in May, scientists and citizens participate in catch and release of arthropods, reptile and small mammal trapping, and bird and plant walks to document the species present that day at the Park. 150 people attended walks led by 28 scientists during the 2009 BioBlitz.
- Big Read 2008 & 2009 – The Big Read is a program of the National Endowment for the Arts that encourages people of all ages to read for “pleasure and enlightenment”. The Park has participated for two years as a major partner along with the Santa Fe Opera and the City of Albuquerque Public Library.
- Celebra la Ciencia 2008-2009 – This coalition of Albuquerque area science education organizations is hoping to encourage Hispanic youth to choose careers in science, math, and engineering. The Park hosted two events targeting specific schools, and had a booth both years during the Celebra la Ciencia day at Expo New Mexico and will participate in an event at the New Mexico Museum of Natural History and Science.
- Festival of the Cranes, Bosque del Apache National Wildlife Refuge – Since the Park is a destination for birdwatchers from around the world, the Park has a booth at this popular annual festival in order to interact with those who may be interested in visiting the Park.
- Sevilleta National Wildlife Refuge Open House – The Park also sets up a booth at this annual event, which is the only day this refuge is open to the public.

- Children's Water Festivals – This two-day event occurs in Albuquerque, Rio Rancho, Santa Fe, and elsewhere around the state. Park staff does an activity from the Bosque Education Guide about the water cycle with 10 classes of fourth and fifth graders at the Albuquerque and Rio Rancho programs.
- Teacher's Open House – This annual event is held at the Old Town Museums, and park staff host a table to highlight the Bosque Education Guide and the Park as opportunities for Albuquerque area teachers.
- Dia del Rio – This annual river and bosque volunteer clean-up event that is sponsored by the City of Albuquerque Open Space and REI was held at the Park in 2009. In years past the Park has participated at other locations to educate volunteers and visitors about the bosque.

RECREATION

While resource conservation and education are the Park's primary focus, the Park has a diverse audience that visits the Park for a variety of activities. According to the 2009 park planning survey, the number one activity at the Park is walking, and the second most popular activity is birdwatching. There are also some visitors that may only visit the Park for special events, most of which are held annually and include a wide variety of activities.

Birdwatching

Birdwatching ranks among the top 10 most popular recreational activities for Americans and New Mexicans. Twenty-three percent of New Mexicans are considered birders, compared with the 21% national average. Birders are defined by FWS as: "an individual must have either taken a trip one mile or more from home for the primary purpose of observing birds and/or closely observed or tried to identify birds around the home" (FWS, NM SCORP, NSRE sources are listed in the appendix).

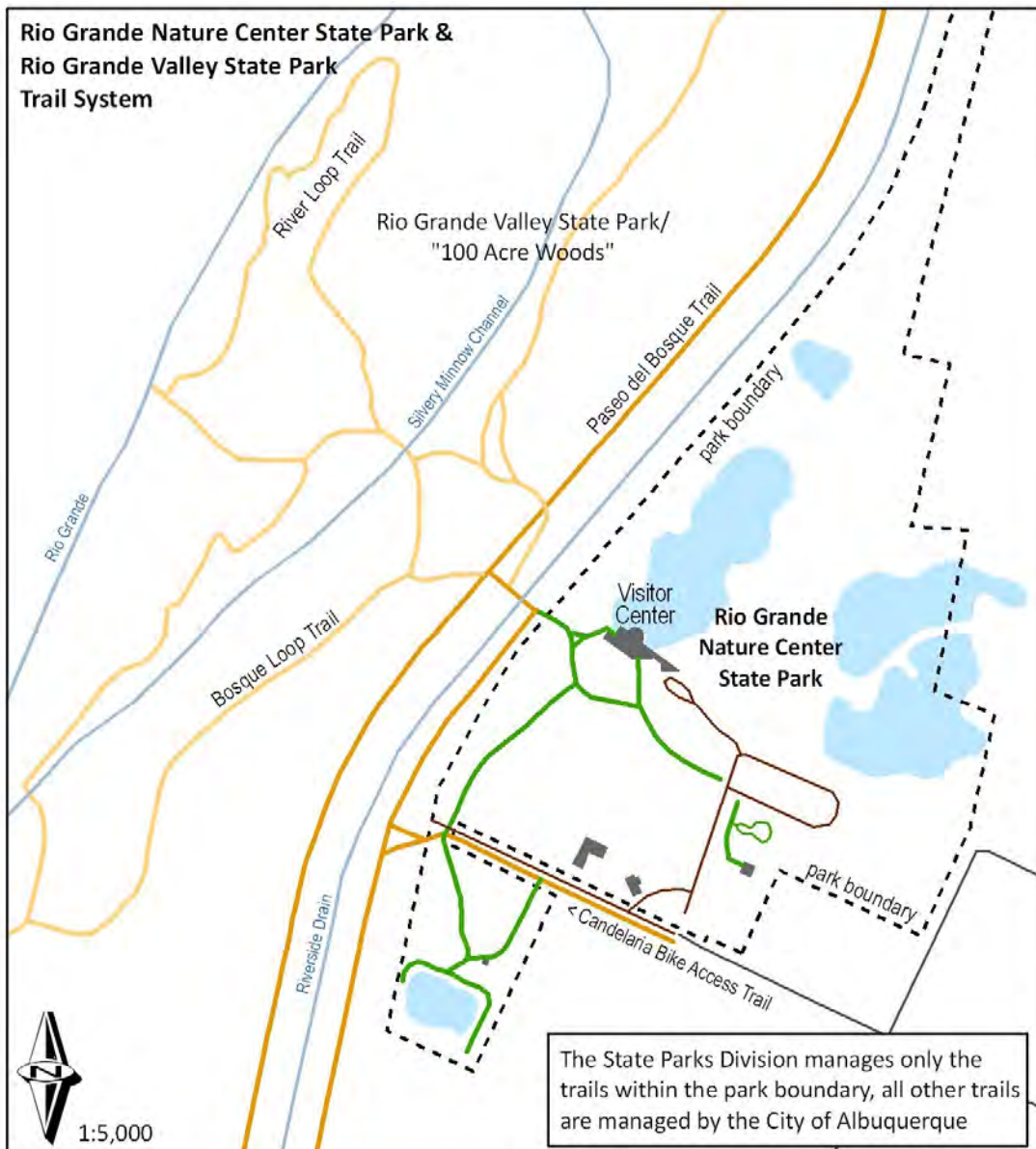
The Park is an attraction for many birders because of the wide diversity of birds they can view in a small area without disturbing them. The Visitor Center acts as one large viewing blind, with multiple points from which to observe the birds drawn to the ponds and feeding stations. The Park's most popular and unique feature is the Observation Room in the Visitor Center. With a glass wall overlooking the pond, it is a comfortable place to relax and view birds with easy access to reference books and a current list of sightings. The Visitor Center also has windows facing north next to the exhibits, and outside the north entrance to the building is a built-in viewing blind with windows overlooking the pond.

There are several feeding stations in the Park, with two at the main pond that are visible from the Observation Room. These are particularly helpful to beginning birdwatchers and children who are new to birding. There is also a constructed viewing blind located on the north side of the parking lot overlooking the Candelaria Wetlands.



Walking

Walking is the most popular activity for park visitors. This is reflective of findings that walking is the most popular recreational activity in the state and nation. The park trails connect the Visitor Center, gardens, and Discovery Pond. Some park visitors also use trails in the Rio Grande Valley State Park, such as the Bosque Loop and River Loop Trails (1¼ miles) in the 100 Acre Woods, and the Paseo del Bosque Trail that runs 16 miles along the Rio Grande. The Paseo del Bosque Trail is one of the most heavily used trails in the City. The primary users of this trail consist of bicyclists, walkers, and joggers. Park rules prohibit bicycle riding within the Park for the safety of all visitors. There are several bike racks in the Park for those that ride their bicycle to the Park. Bicyclists heading to the Paseo del Bosque Trail must use the Candelaria Trail (at the end of Candelaria Road), and not ride through the Park.



Events

There are three annual events at the Park that are sponsored by the Friends. Friends volunteers contribute their time to plan, coordinate, and manage the events. Most of the events feature bird and nature walks, presentations, children's craft activities, and educational displays all provided by a variety of individuals and organizations. The annual events are as follows:

- Winter Bird and Bat Festival
Held every January, this event focuses on birds and bats.
- Herbfest
Held in May, this event focuses on native and xeric plants; and features a plant sale which is a fundraiser for the Friends.
- Summer Wings Festival
Held every August, this event celebrates hummingbirds, dragonflies and butterflies.

There are a variety of other events at the Park, some are one-time, occasional, and others are held annually. Several of these are listed under "Outreach Programs" above.

OPERATIONS

Park operations, facilities, and administrative management follow the guidelines set forth in the Energy, Minerals, and Natural Resources Department (EMNRD) and State Parks Division's "Policy and Procedures Manual". All park facilities are maintained according to guidelines set forth in the State Parks Division's "Standards of Care Manual", which ensures quality, safety, and consistency.

Park management, rules, and law enforcement authority are authorized by New Mexico statutes and the implementing rules in the New Mexico Administrative Code. See Appendix A for the complete list.

Park Facilities

The following built structures are within the Park: the Visitor Center, maintenance shop, Wildlife Rescue Center, and two group shelters.

Visitor Center

The Visitor Center is the hub of activity at the Park for visitors, staff, and volunteers. The building was constructed in 1982, and the unique design is that of architect Antoine Predock. The structure is built of thick concrete walls and features an unusual entrance through a corrugated metal culvert. The building itself is an attraction for architecture enthusiasts. The south side of the building is inconspicuous, as it is partially underground and obscured by vegetation. The north side of the building overlooks the pond and the Observation Room extends out over the pond. Renovations were done in 1994 and 1998 with the addition of a classroom, expansion of staff offices, restroom upgrades, and other improvements. The Visitor Center features a classroom, interpretive exhibits, a gift shop, amphitheater seating, restrooms, offices, a library and Observation Room, and the multi-purpose Discovery Room.

The most popular feature of the building is the library and Observation Room, in which one wall entirely of glass offers unobstructed views of the pond. One wall is a library with field guides, books, and binoculars that are available for visitor use. An added attraction are the comfortable chairs for relaxing while viewing the turtles, herons, ducks, geese, and songbirds outside the window. The Discovery Room serves multiple uses and features hands-on children's activities and interpretive exhibits that can be moved when the space is needed as a classroom or meeting room. The gift shop is operated by the Friends as a fundraising endeavor to support their programs.



Wildlife Rescue Center

The Wildlife Rescue Center was completed in 2002. The building houses the operations of Wildlife Rescue Inc. of New Mexico. Over 3,000 members of the public have brought injured wildlife to the center every year. Wildlife Rescue Inc. of New Mexico leases the space from the State Parks Division, and the building also houses the Friends' offices.

Group Shelters

The Park has one group shelter next to the Mariposaville Garden that is used by school groups for their lunches and by casual visitors for picnics. This is currently the only location with picnic tables for public use. Another shelter, located at the Discovery Pond is used by school groups during guided programs.

Access & Parking

The Park is accessed by Candelaria Road, which is a City maintained street, and thus not within the State Parks Division's control. Park staff and information encourages visitors to respect the neighbors and follow traffic regulations (such as no parking signage and posted speed limits). The Park has worked cooperatively with the City and will continue to do so on traffic calming measures and other road improvements. It should be noted that the State Parks Division has no authority to fund improvements to Candelaria Road.

The parking lot for park visitors is designed to accommodate 52 cars. The vacant lot to the east is occasionally used for overflow parking during events. Parking for the Wildlife Rescue Center is located in front of that building. Staff parking is available at the maintenance shop, the staff entry to the Visitor Center, or the general parking lot.

Utilities and Infrastructure

One significant expense for the Park is the cost of utilities. For this reason, improvements to park facilities strive to be energy efficient and conserve water whenever possible.

Utility Providers	
Water	Albuquerque Bernalillo County Water Utility Authority
Electricity	PNM
Solid Waste Management	City
Wastewater Management	City

Park Management

Hours of Operation and Seasonal Closures

The Park is open daily and closed on Thanksgiving, Christmas, and New Year's Days. The Park is open at 8:00 am and the gates close at 5:00 pm year-round. The Visitor Center is open 10:00 am to 5:00 pm. Guided nature walks (such as the full moon walks) and lectures are occasionally held in the evening outside of normal operating hours.

Fees

Day-use fees are \$3.00 per vehicle, and \$15.00 for buses. State Parks Division annual day-use permits can be purchased for \$40, which are valid at all state parks except Living Desert Zoo and Gardens State Park in Carlsbad. The day-use fee is waived for members of the Friends, which are given a parking pass upon payment of an annual membership fee. There is a self-service pay station located in the parking lot. This is the only park in the system that charges \$3 a day per vehicle instead of the standard \$5 day-use park fee. The fee was instituted in 2004; previously there was a per-person fee that was collected at the Visitor Center. The fees and permit sales are the only source of self-generated revenue for the Park. Registration fees for the educational programs (e.g. Junior Ranger, Nature Discovery) go to the Friends, which in turn pay for classroom supplies and instructor salaries.

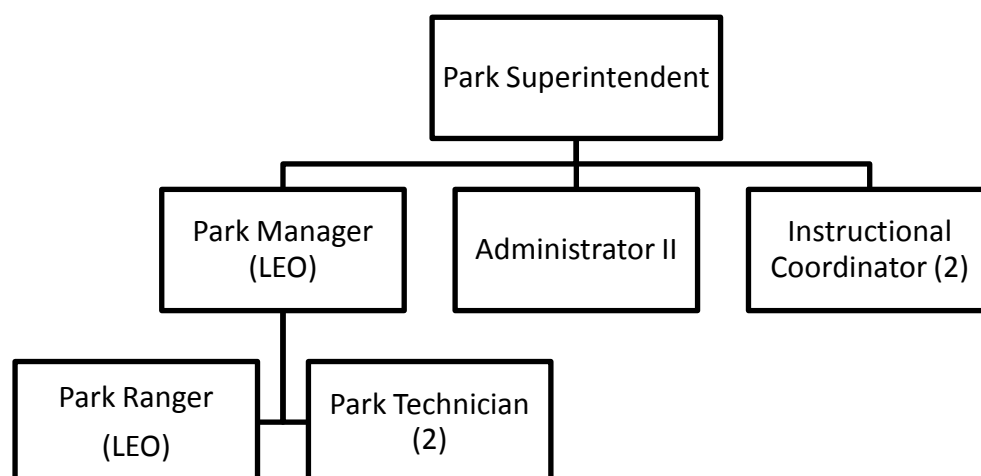
Public Safety

The Park is located within the jurisdiction of the City and Bernalillo County. Both city police and the county sheriff's office can be enlisted to assist the park's two law enforcement officers. Fire protection is provided by the City of Albuquerque and Bernalillo County fire departments. The Park has a wildfire evacuation plan.

Staffing

The Park has eight full-time employees. Two temporary, seasonal employees are hired during the summer season.

- Park Superintendent – oversees all aspects of park operations, management, and education programming
- Park Manager – responsible for day-to-day park operations and administration, and is a certified law enforcement officer (LEO)
- Park Ranger – an LEO responsible for law enforcement and maintenance of park grounds and facilities
- Instructional Coordinator (2) – responsible for coordinating and leading educational programs
- Park Technician (2) – responsible for grounds, facility, and equipment maintenance
- Administrator II – responsible for administrative tasks and employee scheduling



The State Parks Division has four geographic regions. The Park is located in Region 1, which covers the northwest quadrant of the state. The regional office is located in Aztec, New Mexico. The Regional Manager oversees nine parks, and supervises the Park Superintendent. Additional regional support staff includes an Administrator, Plant Operations Specialist, Regional Mechanic, and a Regional Interpretive Ranger. The regional warehouse purchases supplies in bulk and distributes them to the parks in the region. Specialized tools and equipment shared by parks in the region are also stored at the warehouse.

The City of Albuquerque Open Space Division provides additional support such as supplies, equipment, and operators on cooperative projects, and assistance with events and programming.

Partnerships

The following are organizations that have a formal partnership with the Park through a written agreement with State Parks Division.

- City of Albuquerque Open Space Division

The City is the owner of the park property, as well as the Candelaria Farm Preserve and the Special Management Area south of Candelaria Road (see “Lands” section above). The City also manages the adjacent Rio Grande Valley State Park and bosque trails. They are a partner on a variety of Park projects, occasionally providing equipment and staff resources, and participating in educational programs and special events. The lease agreement (see appendix) between the City and State Parks Division was renewed in 2006, for a 20-year term.

- Friends of the Rio Grande Nature Center

The Friends is a non-profit organization that supports the Park. It was established in 1984, and in 2009 had more than 1,400 members, with over 200 active volunteers. Over the years, the Friends has been invaluable in funding park improvement projects, purchasing educational

program supplies, and augmenting park staff. A list of volunteer activities is listed in the following “Volunteers” section.

There are two formal agreements between the Friends and State Parks Division: a cooperative agreement outlining the relationship between the two organizations, and a lease agreement for space at the Park. Among other things, the cooperative agreement lists the following as approved activities:

- Staff front desk and provide visitor information
- Conduct educational programs for community and school groups
- Conduct guided bird and nature walks
- Conduct community festivals
- Conduct fundraising events
- Maintain plants in two different areas on the park grounds:
 1. Herb Garden (including the Aspen Evans Garden)
 2. Mariposaville Pollinator Habitat
- Conduct habitat research on park grounds
- Conduct volunteer recognition luncheons
- Conduct Friends meetings
- Provide Nature Discovery programs

The Friends operates the gift shop in the Visitor Center. The shop generates revenue for the Friends that is returned to the Park in the form of educational programs, equipment, and supplies. The Friends has also sought grant funds on behalf of park projects, and acted as a fiscal agent for projects (such as the Bosque Education Guide). The “Bosque Tracks” newsletter is published by the Friends, and features news about Park activities.

●Wildlife Rescue Inc. of New Mexico

Wildlife Rescue Inc. is a non-profit organization devoted to wildlife, with a mission to “raise, rehabilitate, release, and educate”. Wildlife Rescue Inc. and the State Parks Division have had a formal partnership since 1985. The State Parks Division and Wildlife Rescue Inc. signed a second five-year lease agreement in May 2008 to occupy the Wildlife Rescue Center. This partnership, as stated in the lease, “will complement, support, and contribute to the Park’s mission”. In 2008, Wildlife Rescue Inc. addressed more than 900 park visitors during 32 hours of presentations. These presentations were part of park festivals, a benefit for the Park, the Junior Rangers program, and four visits to other state parks.

●New Mexico Museum of Natural History and Science

The New Mexico Museum of Natural History and Science is the co-sponsor of the Bosque Education Guide with the Park (see detailed description above, under “Education & Interpretation”). The Bosque Education Guide Workshops are jointly coordinated and taught by staff from both organizations, and both pursue grant funding for the program. In addition, the Museum brings its summer camp programs to the Park for nature study, and the Park participates in the museum’s annual teacher open house at the Museum.

The following organizations have participated in park events, activities, research or restoration projects, or use the Park for their own programs.

- Albuquerque Public Schools
- Alvarado Gardens Neighborhood Association
- Audubon Society
- Bosque Ecosystem Monitoring Program
- Boy Scouts of America
- Celebra La Ciencia
- Central New Mexico Community College
- Girl Scouts of America
- Interstate Stream Commission
- Middle Rio Grande Bosque Initiative
- Middle Rio Grande Conservancy District
- Middle Rio Grande Endangered Species Collaborative Program
- Mt. Mahogany Community School
- New Mexico Department of Game and Fish
- EMNRD, Forestry Division
- New Mexico Riparian Council
- Rio Grande Bird Research Inc.
- Rocky Mountain Research Station
- The Nature Conservancy
- University of New Mexico – Biology, Education, and Geology Programs
- U.S. Army Corps of Engineers
- U.S. Department of the Interior, Fish and Wildlife Service

Volunteers

Volunteers are essential to the Park's day-to-day operations. The majority of volunteers that contribute their time and skills at the Park are members of the Friends and are registered as State Parks Division volunteers. The Friends provides a centralized method of communicating with the volunteers, and coordinating programs and projects. Other volunteers may be affiliated with other organizations that are working on specific projects at the Park.

Volunteers are required to attend training that covers the Middle Rio Grande bosque ecosystem, the Park's role in protecting it, and volunteer opportunities at the Park. Once a year, park staff and veteran volunteers offer a training course for new volunteers that is 24 hours spread over six Saturdays. Subsequent trainings are offered throughout the year on relevant topics and skills. In 2009, 27 new volunteers completed the training. The following is a list of volunteer opportunities with the Friends. A handful of short-term, unpaid interns from local high schools and colleges have also volunteered at the Park.

- Education – Lead guided walks, give presentations on or off-site, work with the public at exhibitions and conferences.

- Front Desk – Act as receptionist at the Park and greet visitors at the Visitor Center.
- Nature Shop – Sell merchandise in the gift shop.
- Gardens – Water, weed, and maintain the demonstration gardens or the Mariposaville garden, and inform visitors about the plants found at the Park.
- Special Events – Help organize and manage the Winter Bird & Bat Festival (January), Herbfest (May), Summer Wings (August).
- Research – Conduct hands-on research activities, such as wetlands water sampling, data analysis, bird counts, and silvery minnow habitat restoration monitoring.
- Marketing and Publications – Help with office duties, such as membership and volunteerism, data entry, mailings, phone tree, website maintenance, database management, and computer maintenance.
- General Maintenance – Assist park staff with various tasks, such as trail patrol, maintenance/construction of outdoor structures and systems, and keeping the bird feeders full.

Budget

Park Budget				
	FY 07	FY 08	FY 09	average
Travel and transportation	\$4,184	\$7,631	\$11,175	\$7,663
Maintenance	\$3,513	\$27,822	\$13,181	\$14,839
Supplies	\$2,707	\$17,953	\$22,317	\$14,325
Other operating costs	\$19,842	\$41,175	\$26,513	\$29,177
Other	\$750	\$93	\$8,224	\$3,022
Total	\$30,247	\$94,673	\$81,410	\$69,027

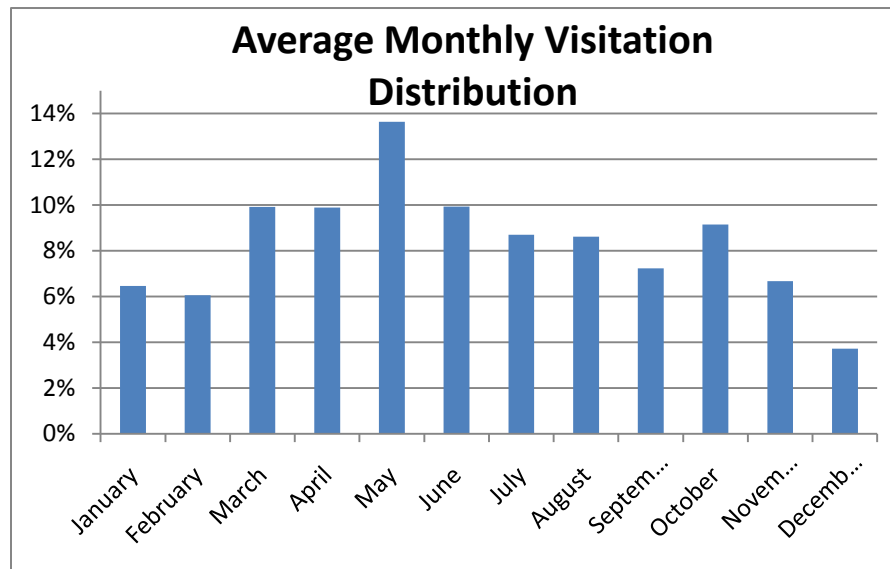
Visitation

Prior to 2003, visitation numbers were estimated from the sign-in sheet at the Visitor Center. This method significantly undercounted visitors, as it did not count those who may have walked the grounds but did not enter the Visitor Center. In 2003, the Park converted to the use of traffic counts for its visitation reports. The traffic counters currently being used do not capture the additional visitors that arrive in vans and buses (such as school groups), or those that walk or bicycle to the Park.

The following table and graph show annual visitation and the seasonal trends in visitation. The annual data collected (and shown below) is captured by the vehicle traffic counter.

*The 2009 visitation is inaccurate due to a malfunction of the traffic counter.

Annual Visitation	
Fiscal Year	Visitation
2009	102,780*
2008	143,298
2007	150,204
2006	127,903
2005	129,869



RECOMMENDATIONS

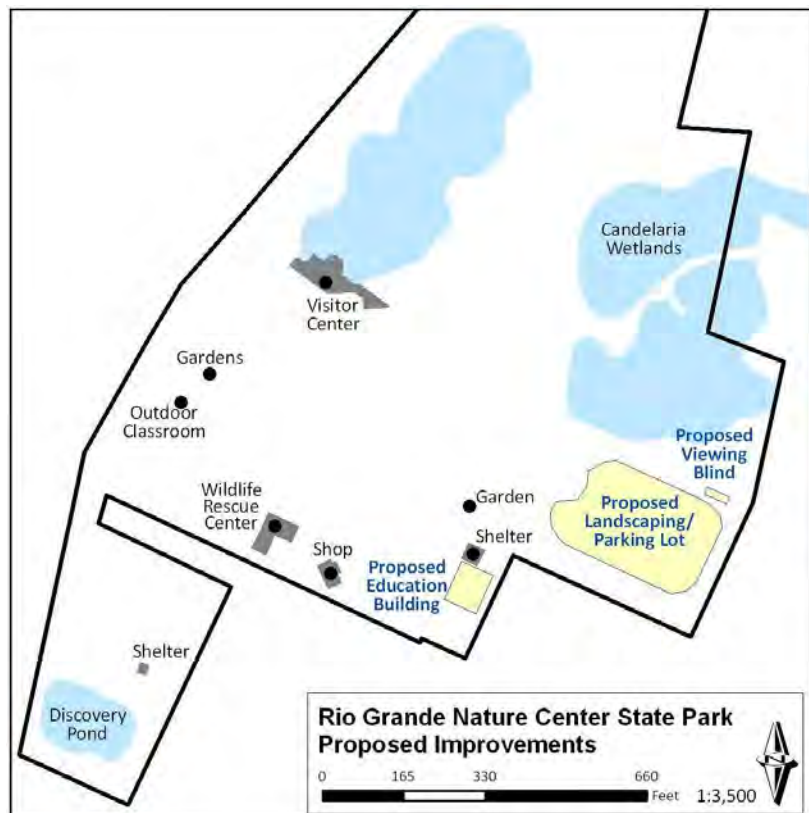
ISSUES AND RECOMMENDATIONS

Issues are concerns, problems, threats, or opportunities. The issues were raised by State Parks Division staff, stakeholders, partner organizations, or other members of the public. Not all issues will result in an action. Some issues may be beyond the State Parks Division's control, or may not be a priority during this planning period. The issues are listed in the categories that correspond to this plan's organization.

To supplement the scoping meetings, an informal written survey was distributed to gather additional feedback. 205 completed surveys were received between September and November 2009. The majority of surveys were filled out by park visitors, who have a different perspective from those who utilize the Park as staff, volunteers, and researchers. Of the survey respondents, the most popular activity at the Park was walking and birdwatching. When asked to rate their satisfaction with the Park, the majority of responses were favorable for the Park's facilities, natural areas, school group programs, and public programs.

The survey results corroborated the list of issues that had been developed previously, especially in pointing out the Park's weaknesses. The results found that the top three weaknesses are interpretive signs on the trails (of which there are very few), picnic shelters/tables (there is only one group shelter with picnic tables), and signs (directional/informational/regulatory). Each of these issues is addressed below with recommended actions for improvement.

The proposed actions (shown with ➤) are also listed in the "Action Plan" following this section, along with estimated costs and timeframes. Some actions will require further research, evaluation, planning, or design before they can be implemented. Each action is contingent upon available funding and other resources, and there is no guarantee that it will be feasible or that it can be funded and implemented in the proposed timeframe.



Education & Interpretation - Key Issues:

Interpretive Signs on Trails

There are currently very few interpretive signs outside of the Visitor Center. The Mariposaville Garden has a series of signs based on the pollinator theme. There are also several signs in the demonstration garden. An outstanding opportunity is being missed by not providing more information to park visitors via interpretive signage. It is recommended that interpretive signs be installed along the trails and signs in the gardens be replaced, including plant identification signs. New, easy to read and durable signs shall be of a standard design and material. An interpretive sign plan is needed to determine the subject matter, number, location, and design of the signs.

- Design, fabricate and install interpretive sign panels along park trails.

Visitor Center Exhibits

The exhibits in the Visitor Center were installed in 1982 with additions in 1998. Some of the exhibits have become dated, the images are fading, and several are no longer functional. The height of the exhibits in the Discovery Room is also a problem, in that small children and those in wheelchairs cannot see the exhibits. The information and presentation of many exhibits, especially the original exhibits, could be updated and improved. Since the original exhibits were installed, many aspects of the bosque story, such as endangered species, water use, and restoration efforts have become important components of the overall story of the bosque. In 2007, a preliminary concept design was completed that evaluated and proposed improvements and replacements to the exhibits in the Visitor Center. While the goal is to replace the Visitor Center exhibits, it will be a significant cost that may need to be a focus of future fundraising. In the meantime, the non-functional exhibits will be replaced, and where feasible, made more accessible.

There are other less costly ways of adding exhibits. The Park should try to take advantage of temporary exhibits and displays that would add variety and depth to the permanent exhibits. Using available resources, quality temporary hands-on interactive exhibits could be developed that would offer some variation if changed throughout the year.

- Begin fundraising efforts to replace all of the Visitor Center exhibits.
- Replace Visitor Center exhibits that are no longer functional and modify existing ones to be more accessible.

Improve Partnerships with Schools

Most school groups visit the Park once a year on a field trip. There are several schools, however, that visit the Park on a regular basis during different seasons. There are a variety of benefits to the students from being able to witness the seasonal changes at the Park. While it may not be feasible for many schools to visit regularly (nor could the Park handle such an increase in capacity), there are other ways to extend their visit to the classroom. One such tool is the internet. The field trip experience could be extended into the classroom by including seasonal updates online, podcasts, and possibly web-cams so that students continue learning

about the bosque throughout the year. Pre-visit and post-visit curriculum materials could be posted online for teachers. It may also be possible to streamline the field trip registration and payment process using the internet. Communications between teachers and park staff could be improved using the internet by establishing more online services and educational resources.

The Park will have a continuous need to have trained volunteers who will interface with schools and provide curriculum-based programming. Working with the Statewide Outdoor Classroom Program, which is a partnership between the State Parks Division, the Public Education Department, and many other partners, park staff may be able to take advantage of funding or resources to replenish educational supplies or to increase training programs.

- Create internet resources to improve communication with the schools.
- Increase number of education volunteers to work with school groups.
- Work with Statewide Outdoor Classroom Program and partners to increase educational materials and teacher training opportunities.

Partner with Wildlife Rescue Center

The Wildlife Rescue Center is housed at the Park. They bring non-releasable rescued birds to educational events and some classes, which has been a very popular and effective addition to park programs. It would be mutually beneficial to not only continue this but to improve the partnership. This may result in a more formal partnership that might include cross-training of staff and volunteers, and a written agreement to address roles and responsibilities.

- Develop wildlife education partnership program with the Wildlife Rescue Center.

Self-guided Tour Materials

The Park offers outstanding educational tours led by staff and volunteers for those groups that schedule a tour in advance. There are frequently groups, however, that visit the Park without scheduling in advance and miss out on the guided tours. It is not feasible to have tour guides available at all hours. It is possible to develop a self-guided program for some groups. A prepared packet of materials and information could then be given to groups when they arrive so that they make the most of their visit to the Park.

- Develop resources to provide visitors with the information and materials to conduct self-guided tours and programs.

Create Multi-lingual Materials

The Park does not provide materials in any languages other than English. The written materials that could be provided in multiple languages include brochures, maps, exhibits, and signs. Considering the demographics of the State of New Mexico, providing written material in English and Spanish is important for the overall accessibility of information to all park visitors. As a tourist destination, the Park often sees international visitors. When feasible, materials should be made available in other languages as well. This may need to be a gradual transition as resources are available, and updates and improvements take place.

Portions of the Bosque Education Guide (BEG) have been translated into Spanish. The partners on this program should work together to complete the translation of the entire guide into

Spanish. Partnerships with other agencies will be crucial in supplying the funding and expertise to complete this translation.

- Develop multi-lingual written materials.
- Working with partners, strive to translate the entire BEG program into Spanish.

Park Resources - Key Issues:

Ecosystem Health

There is a prevalent concern about the condition and quality of the Park's natural resources and ecosystem health. Since the Park was established in 1982, a variety of projects have been undertaken to create wildlife habitat through the establishment of artificial wetlands and planting vegetation. Projects at the Park have included planting of trees and shrubs, seeding with native grasses, removal of non-native plant species, and removing vegetation that was considered fuel for wildfires. While there have been numerous efforts over the years, there has been no organized, consistent, holistic approach.

The challenge of restoring the bosque ecosystem has become more difficult as water issues intensify, impacting the ability of native bosque plants to survive without supplemental irrigation. Numerous studies and guidelines for bosque restoration recommend the removal of non-native species (such as salt cedar and Russian olives) while planting in their place native plant species that will afford the same amount of habitat. Given these challenges, a more effective and productive approach to the restoration and maintenance of the Park's natural resources is needed.

The State Parks Division's natural resource management policy requires that each park develop a natural resource management plan integral to the park management plan. Ideally, a comprehensive natural resource management plan would be undertaken to 1) inventory the Park's natural resources, 2) evaluate the condition, health, and interaction of those resources, and 3) propose and prioritize resource management projects. Such a plan would evaluate abiotic and biotic resources such as soils, hydrology, wetlands, vegetation, and fauna (invertebrates, fish, amphibians, reptiles, mammals, and birds). The completion of a thorough natural resource management plan can be a time-consuming and costly effort, yet if funding were to become available this is the recommended approach.

An alternative would be to break the larger planning effort into smaller components that are more likely to be achieved within the next five years. Two projects in particular that would greatly advance efforts to better understand and improve the Park's ecosystem health would be: 1) a compilation of all natural resource studies that have been done in the Park; and 2) a vegetation management plan.

Since the Park was established, there have been a variety of formal and informal research, inventories, and studies on the Park's natural resources. Those conducting the work included

volunteers, park staff, schools and universities, private contractors, or government agencies. Most of these projects were undertaken as separate, unrelated endeavors for different purposes. Some of these projects are described earlier in the plan under “Natural Resources – Research and Monitoring”. Thus, a remarkable amount of valuable information already exists, but it has never been compiled or evaluated. This information could be useful in making resource management decisions. A review should be done of all resource studies, inventories, and research projects that have been completed in the Park. A compilation of known data should accomplish three objectives: 1) determine the health of the Park’s ecosystem; 2) identify resource management needs; and 3) identify needs for more research.

The development of a vegetation management plan would address many of the specific concerns that have been raised about the Park’s ecosystem health, such as: non-native plant species, wildfire threats, decline in cottonwoods, and quality of wildlife habitat. The basic elements of the plan would be an inventory, mapping vegetation communities and issues, and an action plan.

A thorough, geo-referenced assessment of the existing vegetation is needed to establish a baseline inventory for the development of a workable restoration/rehabilitation strategy. Such an assessment would look at what plant species occur in the Park, their condition, distribution, and frequency. The assessment should also look at wildlife for which plant species provide quality habitat during different seasons, and the circumstances that strongly influence their occurrence, health, and proliferation, including such issues as water availability, climate change, soil chemistry, and damage from human and other animal intrusions.

The focus of the plan would be on improving ecosystem health and wildlife habitat, with the goal of maintaining a sustainable vegetation mosaic appropriate to the site. Implementation will need to balance the removal of undesirable plants with the introduction of sustainable native species in order to create and maintain the amount and quality of habitat for wildlife. The proposed implementation strategies would be prioritized with consideration given to available resources to complete the tasks.

An overall park-wide vegetation management plan must prioritize different land parcels based on urgency, capability, and availability of resources. The initial effort would focus first on the 38 acres leased by the State Parks Division. Much of this area includes the ponds and buildings, which decreases the acreage to be evaluated. The second phase or priority would be the “South Special Management Area”, which would be addressed in cooperation with the City and the “Special Management Area” planning efforts. The third priority would be the 100 Acre Woods, following the completion of an agreement with the appropriate landowners and land managers.

Completing a vegetation management plan and implementing its recommendations will require qualified personnel. If funding is not available to contract out all of the work proposed above, it may be possible to accomplish these projects with a combination of State Parks Division staff, partners, stakeholders, volunteers, and contractors. Numerous individuals and organizations

are involved in other Rio Grande bosque projects and they should also be consulted. Many of the existing plans and studies on the Rio Grande bosque could provide guidance, such as the “Bosque Landscape Alteration Strategy” and the “Bosque Biological Management Plan”, discussed earlier in the plan under “Natural Resources”.

Again, if additional funding and resources become available, additional elements of a natural resource management plan could be completed.

- Review and compile natural resource data collected in the Park.
- Develop and begin implementation of a vegetation management plan.

Resource Protection and Management Zone Policies

One of the concerns raised is the question of impacts on the natural resources and wildlife from the increasing numbers of visitors. The Park was created as a destination that invites people to visit so that they may experience and learn about the Rio Grande bosque ecosystem. However, the visitors should not be damaging the very thing they have come to see. The design of the Park and surrounding public lands employs a variety of land management methods to direct and control public access (such as trails and fencing). There are several recommendations that address weaknesses in controlling public access and improving natural resources, such as: the proposed natural resource management plan, special management area guidelines, signage, and gates and fencing.

While the number of individuals and small groups that visit the Park is rarely excessive, some groups can bring large numbers of people to the Park at once. The Park can control the numbers when a group visit is scheduled ahead of time. Staff coordinates the schedules so as to avoid too many people at one time. However, what are not possible to control are those groups that show up unannounced. When this happens at the same time as another scheduled group, then the number of people in the Park can be excessive. In this situation, staff can attempt to distribute people throughout the Park.

The Park is divided into different management zones (a map and description is in the “Land” section, earlier in the plan). There are two zones in the park: developed recreation, and primitive recreation. One difference among the zones is the degree of public access. Significant portions of the Park managed by the State Parks Division are off-limits to the public except for guided tours. In order to address the concerns about the number of people visiting an area (including guided tours), it is recommended that policies be developed for each zone that address the number and frequency of individuals and groups that visit an area. These policies would then influence the process of scheduling groups.

- Develop management zone policies that address the numbers and frequency of park visitors per zone

Hazard Trees

There are many aging cottonwoods throughout the Park, and cottonwood trees are well known for dropping limbs as they get older. A hazard tree is one that may cause property damage or personal injury if it were to fall because of a structural defect or weakness. The Park undertook

a major effort to remove hazard trees and limbs in 2007. However, as the trees age and high winds stress the trees; falling branches will be a continual threat. The National Arbor Day Foundation recommends inspecting trees periodically for hazardous conditions, particularly following storm events. For these inspections, park staff should focus on designated public areas, such as the parking lot, pathways, seating and picnic areas, wildlife viewing areas, and the demonstration gardens. A certified arborist should conduct an annual assessment in these same areas of the Park to identify potentially hazardous conditions. These conditions should be addressed based on the level of risk they pose and the recommendations made by the certified arborist. It should also be noted however, that dead limbs and trees are an important resource for many wildlife species.

- Park staff should conduct periodic surveys of the Park's public areas to identify potential hazards posed by weak trees and damaged limbs, particularly following storm events. A comprehensive hazard tree assessment should be conducted annually by a certified arborist, and corrective action should be taken where it is warranted.

Water Quality of Ponds

The ponds are a closed system in which water is added from wells and is removed by evaporation. All waste (from waterfowl and aquatic life) that enter the ponds stay in the ponds. With no natural cycling of water or nutrients, the ponds do not have the ability to naturally regulate and will become out of balance. One visible example is the occasional proliferation of algae floating at the pond's surface. The water is tested regularly for oxygen and nitrate levels and populations of invertebrates, and it is often not at healthy, productive levels. Fish and invertebrates rely on healthy levels of oxygen. The overgrowth of algae from too much fertilizer (usually waste from waterfowl) can become toxic. The effects of poor water quality can lead to a degraded, lifeless ecosystem.

The Friends research committee has been working on a variety of solutions to improve the water quality of the ponds. In 2009, a pipe was installed in the Candelaria Wetlands in order to allow the process of flushing the ponds periodically to remove some of the nutrient load and increase the circulation of water between the wetland cells. Solar powered diffusers were installed in the Visitor Center pond and the pond was previously dredged of excess sediment. Staff should continue to work with the Friends volunteers and City staff to identify and implement strategies for maintaining the water quality of the ponds by addressing water circulation, and oxygen and nutrient levels in the ponds.

- Monitor water quality to determine if newly installed pipeline improves water quality to acceptable level.
- If water quality does not improve to acceptable levels, develop additional strategies for improving the water quality

Management – Key Issues:

100 Acre Woods Jurisdiction

The “100 Acre Woods” is an area frequently used by park visitors, especially school groups, as it provides the only direct access to the Rio Grande from the Park. Currently, the State Parks Division has no written agreement with the MRGCD or the U.S. Department of the Interior, Bureau of Reclamation (actual land ownership is being determined through the legal system) to manage these lands. There was an agreement between MRGCD and the State Parks Division in 1977 with a 25-year term that expired in 2002. In 1987, the City signed an agreement with MRGCD for management of the Rio Grande Valley State Park. The 100 acres is covered by that agreement, and the Rio Grande Valley State Park Act that authorized the park does not reference the State Parks Division (aside from mentioning State Parks Division’s ability to expend funds, as it deems appropriate, within the Rio Grande Valley State Park and that State Parks Division will not bear operating expenses for operation of the Rio Grande Valley State Park except for the area within the Rio Grande Nature Center State Park). However, neither the Rio Grande Valley State Park agreement nor the Act directly addresses use or management by the Rio Grande Nature Center State Park.

As a destination for most of the Park’s educational programs, it would be advantageous if park staff had the authority to directly influence management issues, such as restoration activities, signage, and fencing. The State Parks Division currently is not authorized to conduct law enforcement within the 100 Acre Woods as it is not part of the Park. A written agreement is needed between State Parks Division or the MRGCD and the United States Department of the Interior, Bureau of Reclamation to make it part of the Park. It is recommended that such an agreement address the roles and responsibilities of each entity involved - State Parks Division; MRGCD; United States Department of the Interior, Bureau of Reclamation; and the City. Final decisions made about the State Parks Division’s roles and responsibilities within the 100 Acre Woods will impact future decisions regarding the types of park staff required to meet the change in responsibilities.

- Develop a management agreement for the 100 Acre Woods.

Lease Area Boundary

Investigate amending the lease boundary with the City to more accurately delineate the jurisdictional responsibilities of the Candelaria wetlands and farms (see the map in the “Lands” section, earlier in the plan). Currently the lease line goes through the middle of the wetlands, and the Special Management Area boundaries overlap with the lease boundary. The recommended property survey (see “Grounds” below), could accurately define the new boundary. Changing the lease boundary would require an amendment to the lease with a new legal description of the boundary lines and a modification to the map in the lease.

- Modify the boundary line of the lease area between the Candelaria Farms and the Candelaria Wetlands.

Special Management Areas

The lease between the City of Albuquerque Open Space Division and State Parks Division lists three “Special Management Areas” (SMAs): the Candelaria Wetlands, the farm access roads, and what is known as the FOP property (south of Candelaria Road). The lease states that “staff shall create a detailed description of each SMA to identify natural resources, public access guidelines, maintenance, other needs, and cost-sharing responsibilities”. State Parks Division and City staff are in the process of developing a plan for the joint management of the SMAs. This project will need to be coordinated with other recommendations in this plan, such as: property survey, lease area amendment, natural resource management plan, management zone policies, signage, and gates and fencing.

- Develop a joint management plan for the special management areas.

Bosque Education Guide Funding

The Bosque Education Guide has been an integral educational program sponsored by the Park and the New Mexico Museum of Natural History and Science since 1995. Between 1995 and 2007, the program was funded primarily by grants from the FWS Bosque Improvement Group. For the last two years there have been multiple funding sources, including the Statewide Outdoor Classroom Program, a grant from PNM, and fundraising by the Friends. There is no guarantee of sufficient funding in the future. A long-term sustainable source of funding should be secured to ensure the continued success of this program. This will be a cooperative effort with the New Mexico Museum of Natural History and Science, the Friends, and other partners. The cost of funding the program would range from \$10,000 to \$20,000 per year, depending on program elements to be included.

- Work with partners to secure funding for the Bosque Education Guide and Workshops.

Balance of Staff Workloads

The Park’s full-time staff, seasonal staff, and volunteers are responsible for a diverse set of tasks. It seems that the balance of work does not accurately match the skills and duties of staff. There are several particularly demanding tasks that are not the primary focus of any one position but are shared among several positions, such as the coordination of volunteers and the scheduling of school groups. At one time, the Friends employed a full-time volunteer coordinator to manage this task. It is now only a 10 hour a week position. To illustrate the complexity of coordinating the volunteers, there is an average of 800 volunteer hours per month. This provides the Park with an equivalent of five or six additional staff positions. However, those hours are donated by over 200 people, making the scheduling, training, and supervising a considerable challenge. In order to determine what, if any, changes should be made – such as additional full-time positions, a careful analysis of job duties and workloads should be undertaken.

- Improve staff workloads and balance of duties.
- Evaluate the need for additional staff positions.

Stakeholder Communications

As discussed throughout this plan, there are numerous stakeholders interested in and involved with Park operations and management. The diversity of activities at the Park includes, among other things, school programs, public events, research projects, volunteer trainings, and teacher workshops. The need to keep everyone informed of what is going on at the park and what is proposed while providing a method for feedback and public participation is an issue that has been raised during the planning process. In order to alleviate this concern, the Park is proposing to host public forums about park activities twice a year. Park staff will provide news and updates about proposed projects, upcoming events, and recent accomplishments. Partner agencies, organizations, and other stakeholders will be given an opportunity for information sharing. Presentations could focus on issues affecting the park as well as larger Rio Grande bosque issues. The public, partners, and stakeholders would then be able to ask questions and provide feedback directly to Park staff and other participating agencies/groups. The public forums would be advertised in the Bosque Tracks newsletter, posted at the Park, and invitations sent to stakeholder group representatives.

- Hold public forums about Park activities twice a year.

Grounds - Key Issues:**Park Signs**

The regulatory, directional, and other informational signs throughout the Park have become over years of additions and replacements, inconsistent, in disrepair, and sometimes ineffective. There are also very few signs indicating park boundaries and rules posted at the boundaries. This becomes a problem when people enter an area not knowing the restrictions, such as people walking dogs or riding bikes where they are prohibited. It is recommended that all of the exterior signs be simple, easy to read and understand, simple to replace, and consistent in colors, materials, and design. The signage package should include signs along the Paseo del Bosque Trail adjacent to the Park and the 100 Acre Woods to direct visitors to and from the Park as well as additional signage along the Candelaria Trail near the entrance of the Park to direct visitors into the Park.

- Replace all exterior park signs with a standard design that is attractive, unobtrusive, durable, and effective.

Property Survey

The Park and surrounding public lands are a complex mixture of land ownership, leases, easements, and special management areas (as described earlier in the plan under “Land”). Some of the boundary lines are more obvious than others. One boundary in particular, the original lease boundary, now runs through the middle of the Candelaria Wetlands, which were built after the boundary was established. This could be modified to a more logical boundary around the wetlands (see the recommendation to modify the lease boundary, under “Management” above). Other boundaries are in need of improved fencing, which may or may not be in the correct location. This would be a collaborative project between the State Parks Division and the City of Albuquerque Open Space Division. The entire park boundary and

management areas should be clearly identified to delineate responsibility areas of the two agencies.

- Survey property ownership and management area boundaries.

Gates and Fencing

Similar to the signage problem, the gates and fences throughout the Park are of a variety of materials, appearances, and functionality. For example, from one vantage point, you can see chain link fence, wrought iron, and wooden post and dowel. A uniform design would improve the Park's appearance. Some of the gates should also be replaced with a more user friendly design. For example, the gates that lead to the Discovery Pond are difficult to lock and unlock. Replacing the fences and gates may be dealt with as a whole, or in stages, and will need to be a collaborative project with the City of Albuquerque Open Space Division. The following locations are recommended for replacement: 1) the chain link fencing along the Candelaria trail, 2) gates to the Discovery Pond, 3) gates at the end of Candelaria, 4) fencing the boundary of the 100 Acre Woods.

- Replace fencing and gates:
1) Candelaria trail, 2) Discovery Pond, 3) end of Candelaria Road, 4) 100 Acre Woods.

Parking Lot Landscaping and Improvements

The east end of the existing parking lot is undeveloped and is used for overflow parking during large events several times a year. The area is relatively barren and aesthetically unappealing and offers little in the way of wildlife habitat. Several trees and shrubs have been planted, but without irrigation they struggle to survive with hand watering. Completing the parking lot (in a similar design and surfacing) and installing irrigation and landscaping will improve the Park's appearance and provide additional wildlife habitat. Park visitors have also raised the issue of a lack of picnic tables in the Park. Locating a few picnic tables near the parking lot would satisfy this visitor need, while keeping the activity of picnics separate from other park uses. These picnic tables would need to be placed in a location that least interferes with the neighbors, possibly along the east edge of the parking lot, with trails or sidewalks that connect this area with the remainder of the Park.

- Complete the development of the parking lot with landscaping, picnic tables, and viewing blind.

Candelaria Farms Viewing Blind

One of the seasonal highlights at the Park is when the sandhill cranes visit the Candelaria Farms during the winter. Many visitors come to the Park specifically to view sandhill cranes and other migratory species. It is difficult to view the birds in the farm fields without disturbing them, and a viewing blind at the northeast corner of the overflow parking lot would allow visitors to unobtrusive viewing of the birds. This would also provide opportunities to better integrate the agricultural story into educational programs. This location was selected because it provides excellent views not only of the fields, but also of the Candelaria Wetlands and the Sandia Mountains. In addition, this portion of the Park is already open to the public and is already a disturbed area. The viewing blind could be integrated into the design and development of the

parking lot landscaping and improvements including connecting trails with the remainder of the Park.

- Construct a viewing blind overlooking the Candelaria Farms.

Discovery Pond Shelter

There is a small 12-foot by 12-foot shelter at the Discovery Pond that provides shade and two picnic tables for the school groups doing programs at the pond. It is not an adequate size for large school groups. Some of the supplies needed for these programs have been kept in storage lockers at the shelter, while most supplies are wheeled from the Visitor Center in a cart. The storage lockers have been the target of vandals. A more effective alternative would be to construct a larger, more functional and secure shelter, including lockable, vandal resistant storage containers for educational materials.

- Replace the Discovery Pond shelter

Facilities - Key Issues:

Improve Accessibility

Improvements were made to the Visitor Center when it was renovated in 1998, such as installing restrooms that were compatible with the Americans with Disability Act (ADA). There are a variety of features in the Visitor Center and throughout the Park that could be improved for universal accessibility. In particular, the pathway between the parking lot and the Visitor Center is not level, firm, or stable enough to provide an adequate surface for wheelchairs. A comprehensive evaluation of the Visitor Center's interior and the outside paths needs to be undertaken to determine if improvements are needed, their feasibility, and cost.

- Identify and prioritize accessibility issues of park facilities, and begin improvements.
- Improve the surfacing of the path between the parking lot and the visitor center.

Maintenance Shop Ventilation

The maintenance shop is an older structure that was not designed for use as a maintenance shop. The building currently has no heating, air conditioning, or ventilation system. This is a concern for the health and safety of staff. While it would be preferable to replace the structure entirely, there is insufficient funding to do so during the next five years. The renovation or possible relocation of the shop building needs to be examined during this five year planning cycle, including meetings with stakeholders on the desirability for keeping the shop in its current location or relocating this facility to a different location within the Park. The actual construction of a new shop would be an action item in a subsequent park management plan. In order to remedy existing health and safety and staff comfort issues in the current facility, an effective ventilation system and adequate heating and air conditioning should be installed.

- Improve the maintenance shop ventilation system.

Visitor Center Restrooms

The plumbing fixtures in the Visitor Center restrooms are 28 years old. The sinks, faucets, counters, urinals, and hand dryers are aging and inefficient. This is a highly visible amenity often commented on by park visitors. They should be replaced with more energy-efficient hand dryers and water saving fixtures at the sinks, urinals, and lavatories.

- Replace fixtures in the Visitor Center restrooms with energy-efficient, water saving fixtures.

Water Columns in the Visitor Center

The floor to ceiling columns in the middle of the Visitor Center are made of fiberglass and filled with water. They were installed in 1982 and have since yellowed in color and are becoming brittle, which makes them more likely to break or become punctured. New columns could be made of a clear material that would provide strength while having a more dramatic appearance.

- Refurbish the water columns in the Visitor Center.

Phone System

The current phone system for the Park is outdated and inadequate. There are only two phone lines and only one voice mailbox for the Park and all employees. The phones are rented for approximately \$2,400 a year. The service needs to be upgraded and individual voicemail added for staff. This would allow for better communication with staff, as the current system of hand-written messages is inefficient and unreliable.

- Replace the phone system in the Visitor Center.

Visitor Center Space

The current layout of the Visitor Center does not adequately provide for all of the needs, which include exhibits, storage, office space, and the gift shop. Evaluate alternative configurations of the use of the various spaces to improve the building's functionality, efficiency, and capacity. If the new education building is constructed, then several of the functions can be relocated to the new building, providing new space for alternate uses. When a reconfiguration is proposed, staff will review all applicable legislation regarding the funding for the construction of the building and any subsequent additions to ensure that the proposed reconfiguration is in concert with these items. One possible new function that could be added within the existing Visitor Center is a space for travelling or temporary interpretive exhibits. By having this capability, the Park would be able to reach out to other organizations with these types of materials and have new or rotating exhibit materials displayed to provide additional materials for frequent visitors to enjoy and learn more about the bosque habitat and cultural resources of the area. Additionally, areas near the existing offices could be converted to provide for more office space for staff or storage areas for materials.

- Investigate reconfiguring the layout of the Visitor Center to improve the functionality of the space.

Friends Offices

The Friends currently employs a part-time volunteer coordinator and three additional part-time staff who are housed at the Friends office in the Wildlife Rescue Center. The new proposed Education Building will house many of the functions being performed by volunteers (e.g. delivery of educational programming), none of which will be performed at the Wildlife Rescue Center. Therefore, it is proposed that the Friends office be moved to the new education building in order to facilitate better communication among the volunteers and the Friends volunteer coordinator.

- Relocate the Friends office to the proposed education building.

Education Building**Need:**

Separate space for school groups and other organized educational programming is needed to appropriately serve all users of the Park without conflicts between user groups and activities. The current facilities are simply too small to accommodate both the boisterous school groups and more contemplative park visitors without impacting the experience for both. While the majority of educational activities occur outside at the ponds, in the gardens, and on the trails, indoor space is a critical need. The primary purpose of the building is to provide children with quiet space that is without distractions to orient them before the outdoor activities and to review what they have learned at the end of the day – in addition, the building would provide sufficient restrooms and a staging area as groups arrive and depart. The classroom space is also needed to accommodate adult lectures, teacher workshops, volunteer trainings, and summer youth camps that now use the Discovery Room, which was intended for interactive exhibits. Programs held over multiple days are particularly disruptive as they prevent the public from accessing the Discovery Room for as much as six months of the year.

Use:

The use of the building will be primarily for school groups during the weekday. Teacher workshops such as the “Bosque Education Guide” training workshops and the six-week long volunteer training class could utilize the building. Summer youth camps, including the two-week Junior Ranger programs and Nature Discovery classes would utilize the space during the summer months. Occasional evening adult lectures (currently held in the Visitor Center) that are open to the public would use the space as a lecture hall. A variety of research projects are conducted at the Park. Researchers and their volunteers often need indoor space to meet, prepare for field data collection, and process data collected. The space could also be used during festivals for special programs, including lectures and demonstrations. Finally, the building would provide offices for volunteers, who conduct a large portion of the educational programming for incoming school groups, as well as a sufficient number of restrooms to accommodate the large school groups.

Site Selection Criteria:

The presumption with all of the identified potential sites is that the building is indeed a needed facility to support the education component mission of the Park. This need was verified during the public meeting that took place in the fall of 2006 and reinforced during a subsequent public

meeting in 2007. The following criteria were used to identify the most suitable, preferred location of the proposed education building. Some of the following factors can be subjective, and the varying opinions and perspectives were carefully considered during the evaluation of each site.

- Access/Location – The building site should have ready access to existing roadway infrastructure, as well as provide for a logical and safe flow for school groups to be dropped off, organize into groups, provide orientation, depart into the Park for outdoor educational programming, return to the building for wrap-up discussion, and depart the Park. Additionally, reasonable proximity to the Visitor Center was seen as important. While it is beneficial to provide separation between the casual visitor and school groups, too much distance between these facilities would hamper the staff's ability to effectively manage the facility and provide overlapping support as needed.
- Parking – The preference is to use, to the greatest extent possible, existing parking facilities to accommodate the traffic to this building, including bus traffic, docent parking, ADA parking, and parking for evening events (e.g. lectures).
- Impact to Wildlife – Protection of wildlife and wildlife habitat is a primary objective of the Park. It is of the utmost importance to select a site that has the least impact on wildlife during construction and operation of the building.
- Impact to Other Users – The site of the building should provide a seamless interface with other park activities, such as the trail users that are accessing the bosque trails via the Candelaria trail access.
- Impact to Neighbors – It is desirable to minimize impacts to the neighbors during the construction and operation of the building. These impacts may include traffic, noise, views, security, and lighting. Measures can be taken during building design to minimize operational impact on the Park's neighbors, including, but not limited to, acoustic shielding of the building, security features, limit building height to preserve views, locate building to not obstruct views, and minimize night lighting to preserve, to the greatest extent possible, the night sky.
- Disturbance to Site – The preference is to use a site that has already been impacted by development to minimize damage to the ecosystem.
- Cost – As with all construction projects, cost is a major factor. The preference is to spend the bulk of the budget for this facility on providing an energy efficient structure that provides all of the functions necessary to meet programming needs, as well as revegetation of the site with landscaping, which is an integral part of the building project. The desire is also to minimize the amount of funding that is spent on constructing access and parking for the facility.
- Indirect Opportunities – Restoration of disturbed sites with native vegetation was seen as an important factor for site selection.
- Landowner Status/Administration – The land status of the Park is very complex, with the City owning the majority of the site. The desire is to identify the most streamlined opportunity for construction, operation, and maintenance of the building. The original land purchase used funding from the Land and Water Conservation Fund (LWCF), a federal program administered by the United States Department of the Interior, National

Park Service, which has regulatory consequences for most site improvements. LWCF specifically excludes some facilities on encumbered lands (e.g. educational facilities). If an educational facility were to be built on LWCF lands, a land conversion process must be undertaken.



Preferred Site:

Eight different sites were evaluated over a three-year period, according to the criteria above. Several sites were ruled out because they were either cost prohibitive or no longer available. Several others are feasible, but the disadvantages outweighed the positive aspects. The site deemed most appropriate overall is the lot next to the park entry and group shelter (Site C). The following are the advantages the site offers over the others:

- Land jurisdiction/administration is not an issue because the lot is owned by the State Parks Division.
- Central location is easily located by the public, equidistant to the Discovery Pond and the Visitor Center, and is a reasonable proximity for staff to provide support from the Visitor Center to the education facility (and vice versa).
- It is adjacent to the existing parking lot, and no new parking would be required, thus minimizing land disturbance. Minimal improvements to existing parking may be needed to accommodate ADA requirements for parking for the facility. This site would allow for the preservation of existing parking capacity.
- Security would be less of an issue as it is inside the park entry gate, not isolated from other use areas, and is visible from the street. It would not require any additional security gates or staff time to lock additional gates and ensure that all visitors have left the Park after business hours.
- Construction would provide the opportunity to beautify the entry to the Park by landscaping an already disturbed, mostly barren dirt lot, thus creating new wildlife habitat and not destroying any existing quality habitat.
- It is believed that noise and other impacts can all be successfully mitigated through careful design of the building. The site improvements provide benefits to the neighborhood by improving the appearance of the site's landscaping and by designing the building to fit with the aesthetic of the neighborhood. Additionally, construction at this location would warrant an additional fire hydrant, thus benefiting a currently underserved portion of the neighborhood with improved fire protection.
- The site is next to existing development, and has already been heavily disturbed by previous development. This clustering of development and structures helps protect the natural open space, and has the least impact to wildlife of any of the sites considered.
- This site would not create any conflict between recreational users accessing the bosque trail via Candelaria or maintenance access to the City's lift station via its easement on the unimproved portion of Candelaria Road.
- Due to the site's location near the existing entrance road and parking lot, funding can be spent on the structure and accompanying landscaping, not on construction of access roads and parking lots. The costs of extending utilities to the building would also be lower compared with other sites.
- Impact to wildlife at the proposed site is seen as minimal, since this site is adjacent to existing housing and currently supports minimal vegetation.

Building Features:

- Building footprint is approximately 5,550 square feet
- Three classrooms that convert to one larger multi-purpose room
- Restrooms
- Office space for volunteers
- Lobby for greeting and organizing school groups with space for exhibits on the walls
- Storage for education equipment and supplies
- Portal for additional staging area
- Improved group shelter with picnic tables, to replace existing shelter
- Passive solar design to take advantage of day lighting and solar gain
- Photovoltaic array fixed to roof to provide renewable energy
- Water harvesting to minimize water usage for landscaping and manage runoff
- Low profile, approximately that of a single family residence with a pitched roof
- Xeric landscaping with high efficiency irrigation that will create wildlife habitat and help shade the building during the summer

Proposed Operational Guidelines:

1. State Parks Division rules shall apply to the administration of the facility and its uses.
2. All uses must include an education component connected to the mission and purpose of the Park.
3. The building will be accessible for Park, neighborhood, and community uses consistent with the Park's mission, but Park uses will take precedence.
4. Uses and activities at the building that are not sponsored by the Park shall be limited and managed so as not to conflict with park management and park programs.
5. Group size limitations will be set based on capacity of the building and the existing parking.
6. Building uses will favor daytime activities. Evening or after-hours uses not sponsored by the park will be limited to a maximum of two per month.
7. Time-of-day restrictions shall apply to building uses. Evening events that are not Park-sponsored must end by 9:30 p.m. and must take place entirely within the building so as to minimize noise and light that might be disturbing to wildlife or to the park neighbors. Certain Park sponsored nighttime resource-based programs (for example full moon walks or astronomy programs) must end by 11:00 p.m. and do not need to take place entirely within the building.
8. Noise restrictions shall be enforced so that uses of the building do not unreasonably infringe on the Park and its surroundings. No amplified music will be permitted outside whatsoever. Overall noise, including noise from all sound producing devices, must be kept at a reasonable level. Any music in the building must end by 9:00 p.m.
9. All supplemental exterior nighttime lighting will be subject to the State Parks Division's approval and will be minimized in order to preserve the dark night sky and avert light spillover to adjacent properties.
10. Facility use agreements shall include language that encourages carpooling and taking mass transit to the Park, respecting City parking ordinances (such as a sign at the park exit reminding visitors not to speed through the neighborhood), encourages resource

conservation, and makes it clear that behavior disrespectful to the Park and neighborhood could result in forfeiture of deposits or Park and building use privileges.

11. The State Parks Division reserves the right to impose additional restrictions to limit impacts on Park resources and the neighborhood.
 12. After-hours events shall have administrative supervision or security, which includes but is not limited to unlocking and locking the gates and reasonable measures to ensure visitors' compliance with these use standards.
 13. Per New Mexico state law, the education building shall be a non-smoking facility and smoking within 15 feet of building entrances is prohibited.
- Build an education building with classrooms, restrooms, office space, and storage to serve school groups and educational programs.
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ACTION PLAN

Program Area	Task	Cost Estimate	Project Lead & Funding
Year 1			
Education	Increase number of education volunteers	\$1,000	Park
Resources	Develop management zone policies	\$0	Park, FO-DD
Resources	Develop vegetation management plan	\$8,000	FO-DD
Resources	Review and compile natural resource data	\$2,000	FO-DD, Park
Management	Develop a joint management plan for the special management areas	\$0	Park
Grounds	Survey property ownership and management area boundaries	\$10,000	FO-DD, TBD
Management	Modify the boundary line of the lease area between the Candelaria Farms and Wetlands	\$0	Park
Facilities	Replace fixtures in the Visitor Center restrooms	\$10,000	FO-DD, CIP
Facilities	Build an education building	\$1,500,000	FO-DD, CIP
Year 2			
Education	Interpretive trail signs	\$30,000	FO-DD, Park, AOB and Trails
Education	Develop self-guided tour materials	\$1,000	Park, PVT
Education	Work with partners to increase educational materials and teacher training opportunities	\$10,000	Park, FO-DD, AOB
Education	Develop wildlife education partnership program with Wildlife Rescue Center	\$0	Park, PVT
Management	Develop a management agreement for the 100 Acre Woods	\$4,000	Park, FO, AOB
Grounds	Replace all exterior park signs	\$35,000	FO-DD, CIP
Facilities	Improve accessibility of park facilities	\$75,000	FO-DD, CIP
Facilities	Improve the maintenance shop ventilation system	\$25,000	FO-DD, CIP
Facilities	Replace the phone system in the Visitor Center	\$25,000	Park, AOB

Facilities	Relocate the Friends offices to the proposed education building	\$10,000	Park, AOB
Year 3			
Education	Develop multi-lingual written materials	\$2,000	Park, PVT, AOB
Education	Working with partners, translate the BEG into Spanish	\$0	Park
Education	Create internet resources for schools	\$10,000	Park, TBD
Year 4			
Education	Upgrade Visitor Center exhibits	\$750,000	FO-DD, Park, CIP
Grounds	Replace fencing and gates	\$75,000	FO-DD, CIP
Grounds	Replace the Discovery Pond shelter	\$45,000	FO-DD, CIP
Grounds	Resurface the path to the visitor center	\$50,000	Park, AOB, Trails
Year 5			
Grounds	Construct a viewing blind overlooking the Candelaria Farms	\$70,000	FO-DD, CIP
Facilities	Refurbish the water columns in the Visitor Center	\$15,000	FO-DD, CIP
Grounds	Complete the parking lot with landscaping, picnic tables, and viewing blind	\$200,000	FO-DD, CIP
Facilities	Reconfigure the layout of the Visitor Center	\$100,000	FO-DD, CIP

Project Lead

The project lead is the entity that would be responsible for initiating and implementing the project. Support from others may be essential to project completion.

Park: Park Manager and staff

Regional: Regional staff, State Parks Division regional office in Aztec

SFO: State Parks Division Santa Fe Office

AD: Administration, Santa Fe Office, State Parks Division

FO: Field Operations, Santa Fe Office, State Parks Division

FO-DD: Design & Development, Santa Fe Office, State Parks Division

FO-BLE: Boating and Law Enforcement, Santa Fe Office, State Parks Division

Funding:

AOB: annual operating budget, State Parks Division

BOAT: Federal Recreational Boating Safety Grant Fund, Federal Sport Fish Restoration Boat Access Grant Fund, State Boat Excise Tax Fund, or State Motor Boat Fuel Tax Fund, State Boat

Registration Fund, all of which are administered primarily by State Parks Division or under cooperative agreement with the Department of Game and Fish.

CIP: Capital Improvement Program, administered by the State Parks Division Design and Development Bureau. CIP funds may be state, federal, or grant funds.

TBD: to be determined

Trails: Federal Recreation Trails Program (RTP) or other trails funding administered by State Parks Division

PVT: private sector, volunteers, grants, etc.

Abbreviations

ADA	Americans with Disabilities Act
AOB	Annual Operations Budget, State Parks Division
BEMP	Bosque Ecological Monitoring Program
CIP	Capital Improvement Plan, State Parks Division
DGF	New Mexico Department of Game and Fish
DOT	New Mexico Department of Transportation
EMNRD	New Mexico Energy, Mineral, and Natural Resources Department
FWS	U.S. Department of the Interior, Fish and Wildlife Service
FY	Fiscal Year
LEED	Leadership in Energy and Environmental Design, U.S. Green Building Council
LEO	Law Enforcement Officer
LWCF	Land and Water Conservation Fund
NM	New Mexico
NMRPTC	New Mexico Rare Plant Technical Council
NSRE	National Survey on Recreation and the Environment
PVT	Private sector, Volunteers, Friends Groups
RTP	Recreation Trails Program
SCORP	State Comprehensive Outdoor Recreation Plan
SHPO	New Mexico Department of Cultural Affairs, Historic Preservation Division Historic Preservation Office
SPD	State Parks Division, Energy, Minerals and Natural Resources Department
YCC	Youth Conservation Corps

References

City of Albuquerque. 1974. Citizen Perception Study or River of the Mind. By the Center for Environmental Research and Development, University of New Mexico as part of the 1973-1974 City Edges (Bosque) Study.

City of Albuquerque. 2004. Open Space Resource Management Plan for the Candelaria Farm Preserve.

City of Albuquerque. 1987. Rio Grande Valley State Park Management Plan.

City of Albuquerque and New Mexico State Park and Recreation Commission. 1979. Master Plan – Rio Grande Nature Center and Preserve. By Antoine Predock.

City of Albuquerque and New Mexico State Park and Recreation Division. 1983. Rio Grande Nature Center Management Plan.

Friends of the Rio Grande Nature Center. www.rgnc.org.

Friends of the Rio Grande Nature Center. 2009. Volunteer Training Manual. Albuquerque, N.M.

Middle Rio Grande Conservancy District. 2005. Bosque Landscape Alteration Strategy.

Morris, Letitia, Mary Steuver, Lisa Ellis, and Rebecca Tydings, eds. 2003. Bosque Education Guide. <http://www.nmnaturalhistory.org/BEG/index.html>.

New Mexico Department of Game and Fish, Biota Information System of New Mexico. <http://www.bison-m.org/index.aspx>.

New Mexico Rare Plant Technical Council. <http://nmrareplants.unm.edu/county.php>.

New Mexico State Park and Recreation Commission. 1969. Rio Grande Valley State Park, A Feasibility Study and Preliminary Plan for a Central New Mexico State Park along the Rio Grande. By Chambers and Campbell, Inc.

New Mexico State Parks Division. 2005. Rio Grande Nature Center State Park Management Plan.

Robert, Lisa. 2005. Middle Rio Grande Ecosystem Bosque Biological Management Plan - The First Decade: A Review & Update. Albuquerque, N.M.: Aurora Publishing LLC.

U.S. Census Bureau. <http://factfinder.census.gov>.

U.S. Fish and Wildlife Service, Endangered Species Program.
<http://www.fws.gov/southwest/es/EndangeredSpecies>.

U.S. Fish and Wildlife Service, Biological Interagency Team. 1993. Middle Rio Grande Ecosystem: Bosque Biological Management Plan. Albuquerque, N.M.

U.S. Fish and Wildlife Service. 2009. Birding in the United States: A Demographic and Economic Analysis, Addendum to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. http://library.fws.gov/Pubs/birding_natsurvey06.pdf.

Wildlife Rescue Inc. www.wrinm.org.