

# western landscapes in the crossfire

URBAN GROWTH AND THE NATIONAL LANDSCAPE CONSERVATION SYSTEM



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### *Shaping the Future of the West*

The nonprofit Sonoran Institute inspires, informs and enables community decisions and policies that respect the land and people of western North America. Facing rapid change, communities in the West value their natural and cultural assets, which support resilient environmental and economic systems. Founded in 1990, the Sonoran Institute helps communities conserve and restore those assets and manage growth and change through collaboration, civil dialogue, sound information, practical solutions and big-picture thinking.

The Sonoran Institute contributes to a vision of a West with:

- ◆ Healthy landscapes—including native plants and wildlife, diverse habitat, open spaces, clean air and water—from northern Mexico to Western Canada.
- ◆ Vibrant communities where people embrace conservation to protect quality of life today and in the future.
- ◆ Resilient economies that support prosperous communities, diverse opportunities for residents, productive working landscapes, and stewardship of the natural world.

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## Preface

In March 2009, President Barack Obama signed into law an ambitious and far-reaching land protection initiative, the Omnibus Public Land Management Act. The Act includes a provision to permanently protect the 27 million-acre National Landscape Conservation System. Established in 2000 to protect the “crown jewels” of the public lands managed by the U.S. Bureau of Land Management, the Conservation System includes over 850 individual units located almost entirely in the West. This new system of conservation lands is home to many of the most wild, unspoiled and scenic landscapes in the nation.

The Sonoran Institute has long been an active advocate for protecting these BLM lands. Recognition and federal protection was a crucial first step. The next vital step will be for Congress to adequately fund the essential on-the-ground conservation planning and management efforts that must take place for these lands to be protected. As this report indicates, growth and development—among other challenges—in a rapidly changing West is a clear threat to many of the lands in the System, both in the short-term and over the long-term. We hope that the research and the stories included in this report underscore the need for providing additional funds to fully realize the potential of the National Landscape Conservation System and to truly protect these spectacular landscapes for future generations to enjoy.





## Acknowledgements

Many people contributed to this report. First, I want to acknowledge the excellent research by former Institute staff member Rebecca Carter. Her fine work serves as the foundation for the report. I am also grateful to Sarah Bates, of Missoula Montana, for transforming Rebecca's research into a readable and compelling report. John Shepard, of the Sonoran Institute, made many thoughtful and important contributions to the report and its recommendations. And, special thanks go to John Garder of The Wilderness Society for reviewing and commenting as the report was being developed and to several dedicated BLM staff members for information on the specific Conservation System areas described in this report.

Finally, thanks to Ian Wilson, our communications director, for facilitating the production of this report, which includes creative design work by Terry Moody and editing and proofing by Heather Emslie. Photographs for the report were graciously provided by Ian Wilson and the BLM. Mark Muro of the Brookings Institution provided permission to reprint the *Mountain Megas* map.

Luther Propst  
Executive Director  
Sonoran Institute  
June 2009



The BLM provides a unique opportunity to reconnect children and families as we begin the 21st Century. The BLM manages lands located throughout the contiguous United States and Alaska that are backyards to many rapidly growing, urbanizing communities like Denver, Colorado, Phoenix, Arizona and Las Vegas, Nevada. Subdivisions adjoin lands that provide a great opportunity for outdoor activities and recreation. These lands are the new playgrounds for burgeoning populations. Children and families discover and explore the great outdoors, often just minutes from their front door or school yard.

**U.S. Bureau of Land Management, 2008 Budget Justifications**

## Executive Summary

The National Landscape Conservation System encompasses a wide variety of protected areas managed by the U.S. Bureau of Land Management (BLM): 27 million acres comprising more than 850 areas designated as national monuments, national conservation areas and similar designations, national wild and scenic rivers, wilderness and wilderness study areas and national trails. While representing just one-tenth of BLM's total lands, the Conservation System receives about a third of all visitors to BLM's 258 million acres.

Secretary of the Interior Bruce Babbitt established a new baseline for protection for what he called the “crown jewels” of the BLM public lands when he launched the National Landscape Conservation System by administrative action in 2000. In March of 2009, President Obama signed the Omnibus Public Land Management Act of 2009, expanding the list of protected areas and providing permanent statutory protection for their resources.

This is an important step toward fulfilling the promise of the Conservation System, but most units are underfunded, understaffed, and thus vulnerable to vandalism, illegal off-highway driving and other resource destruction. This report provides an overview of the pressures facing protected Conservation System areas from nearby urban areas, focusing on the rapidly growing “megapolitan” areas around Phoenix and Las Vegas.

The report describes general population and economic trends in these areas in order to highlight the land development patterns and activities that spread beyond urban areas and impact the lands within the Conservation System. It describes the variety of urban impacts on protected areas, which are described in more detail in profiles of eight Conservation System areas.

The report finds that the impacts of population growth and urbanization present special challenges associated with encroaching development, increased casual day use, and conflicts and degradation associated with other uses that may no longer be compatible with the units' conservation purposes. In many instances, these challenges place the BLM at the vanguard of federal land management agencies seeking to preserve the integrity of natural landscapes that are experiencing profound changes. The report concludes with recommendations to address these challenges: a more robust and consistent investment in its resource protection and restoration, and better integration of planning efforts beyond unit boundaries—achieving the vision of protecting intact world-class landscapes.



## The National Landscape Conservation System

Total lands managed by BLM: 258 million acres

Lands within NLCS: 27 million acres (10 percent of total)

Funding for BLM in FY 2008: \$1.1 billion

Funding for Conservation System in FY 2008:  
\$55.3 million (5 percent of total)

Comparison with other protected units (all FY 2008 data):

- National Landscape Conservation System: \$2.13/acre
- National Wildlife Refuge System: \$4.57/acre
- National Park Service: \$32.89/acre

## Introduction

By signing the Omnibus Public Land Management Act of 2009, President Barack Obama authorized the first major new federal land conservation system in nearly 50 years. More than a century after the creation of our nation's national parks and national forests and nearly a half century since our national wilderness system was established, Congress and President Obama legally established the National Landscape Conservation System. The Conservation System brings together in one administrative system a wide variety of protected areas managed by the U.S. Bureau of Land Management (BLM): 27 million acres comprising more than 850 areas designated as national monuments, national conservation areas and similar designations, national wild and scenic rivers, wilderness and wilderness study areas and national trails. While representing just one-tenth of BLM's total lands, the Conservation System receives about a third of all visitors to BLM's 258 million acres.

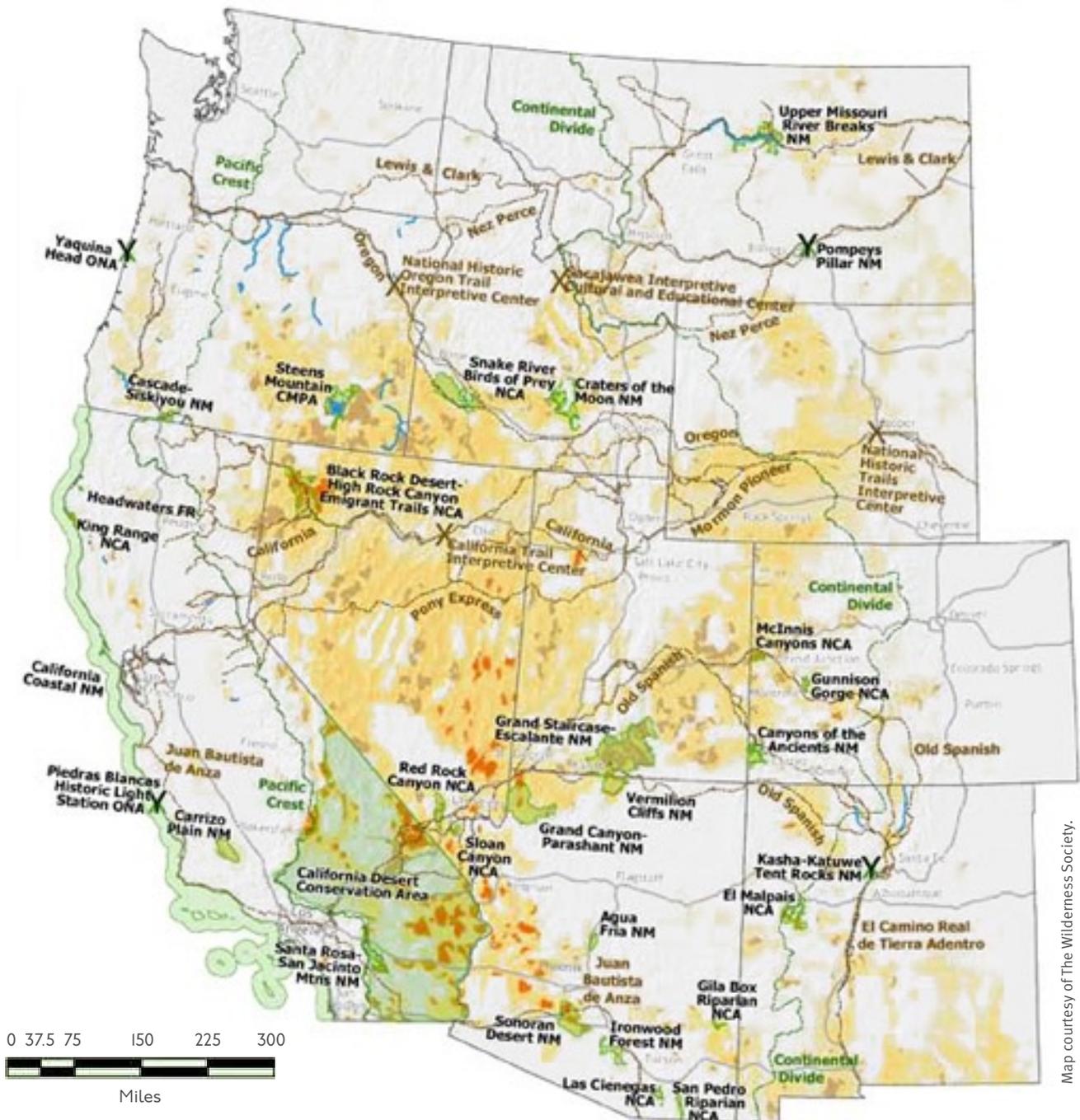
Unlike the BLM's overall multiple-use mission, the purpose of the Conservation System is to conserve, protect and restore these nationally significant landscapes, ensuring that future generations will benefit from their outstanding cultural, ecological and scientific values. These areas allow access to wild landscapes and a range of ways to enjoy them, including hunting, fishing, hiking, wildlife watching and more. As documented in two earlier Sonoran Institute reports, *Prosperity in the 21st Century West: The Role of Protected Public Lands* and *The National Landscape Conservation System's Contribution to Healthy Local Economies*, these protected lands benefit nearby communities, stimulating economic growth and providing highly desirable natural amenities that attract tourists, new residents and businesses. They also provide important ecosystem services, including flood mitigation, water filtration and carbon sequestration, as well as habitat for threatened and endangered species.

Conservation System lands and waters provide valuable opportunities for community members to cooperate with public resource managers through volunteer "Friends" groups, providing valuable public outreach, landscape restoration, and resource monitoring activities. Schoolchildren from nearby urban areas learn about their environment by visits to these areas, often led in exploration by volunteer docents.

Unfortunately, the great promise of the Conservation System is still unfulfilled. Despite increased visitation and public enthusiasm for protecting these public land "crown jewels," most units are underfunded, understaffed, and thus vulnerable to vandalism, illegal off-highway driving and other resource destruction.

# National Landscape Conservation System

## LANDSCAPES OF THE AMERICAN SPIRIT



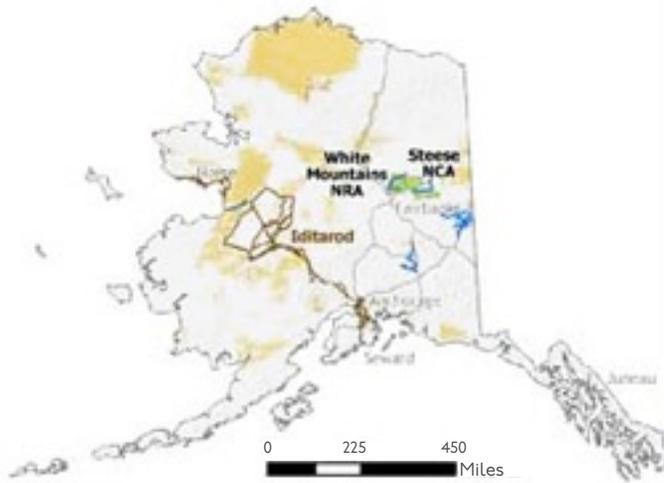
\* Alaska and Eastern States are not to this scale

\*\* The National Landscape Conservation System continues to grow as special areas are designated. Visit BLM's website periodically for updated information: [www.blm.gov](http://www.blm.gov). 05.09

This map does not include new areas added in the Omnibus Public Land Management Act of 2009.

**MISSION:**

To conserve, protect, and restore nationally significant landscapes recognized for their cultural, ecological, and scientific values for the American Public.



<b>Y</b>	National Monuments, National Conservation Areas, and similar designations
	National Historic Trail
	National Scenic Trail
	Wild and Scenic River
	BLM Administered Land
	BLM Wilderness
	BLM Wilderness Study Area
<b>X</b>	National Trail Visitor Center
	Interstate Highway



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## Growth and Change in the American West

The American West has led the nation in growth rates for decades, with Nevada and Arizona regularly topping lists of the fastest-growing states. Dominated by a dry landscape and vast expanses of public lands, the West draws newcomers to its “urban archipelagos” with a quality of life that includes abundant opportunities to enjoy the outdoors. Although the common perception of the West is of rural life, most westerners live in cities or in the expanding suburban and exurban fringes of major metropolitan areas.

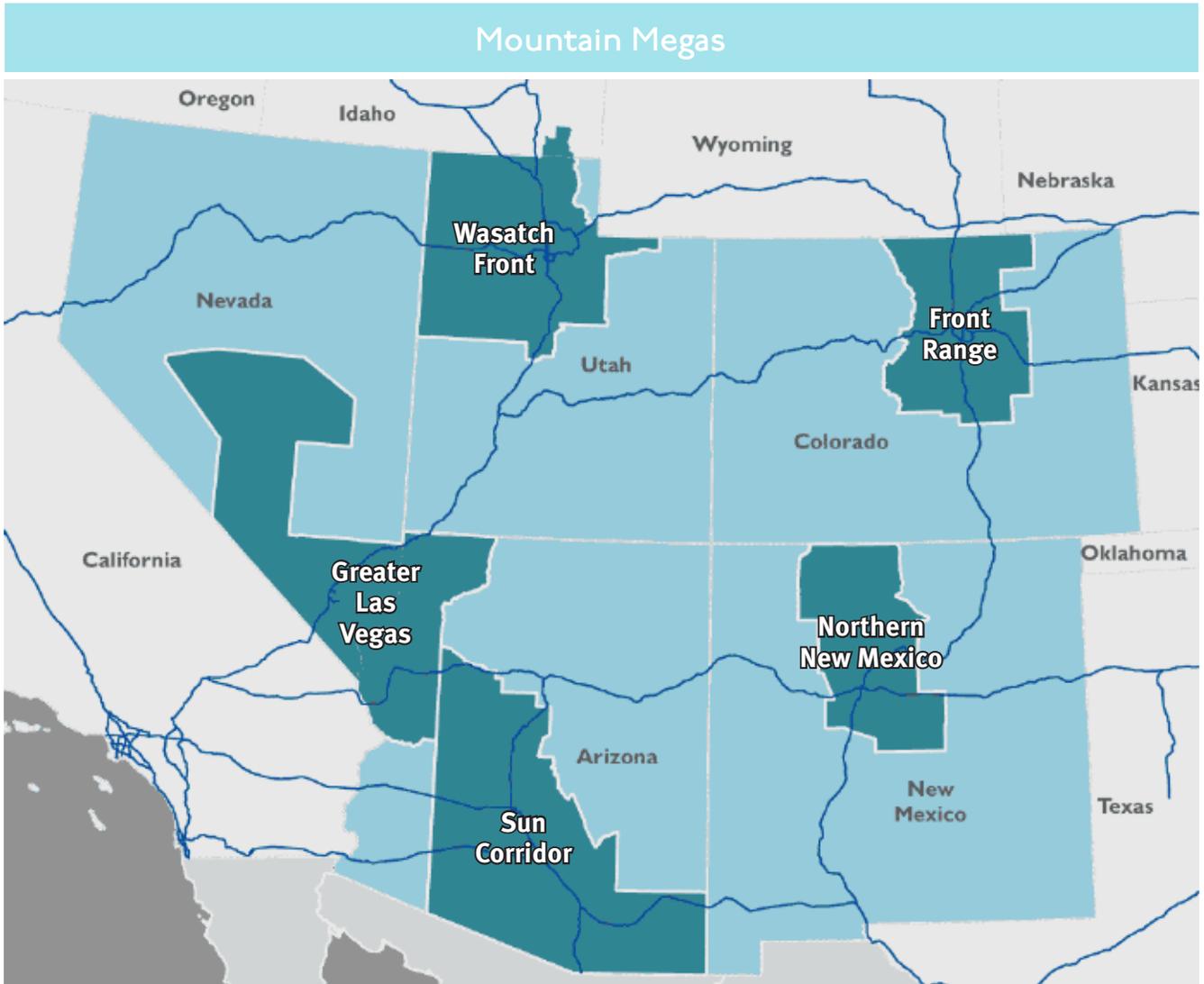
In recent years, demographers looking at national growth patterns have started referring to aggregations of growth centers as “megapolitans,” a phrase originated by Virginia Tech urban affairs and planning professor Robert E. Lang. A megapolitan is anchored by two cities that are 50-200 miles apart but linked economically, including overlapping commuting patterns. Typically, megapolitans are expected to include at least five million people by 2040. This concept is useful in identifying areas that serve as the country’s economic drivers and promoting a set of policies and investments in these areas to spur greater wealth and productivity in the U.S.

Applying this frame to the rapidly growing areas in the Intermountain West, the Brookings Institution, in its report, *Mountain Megs: America’s Newest Metropolitan Places and a Federal Partnership to Help Them Prosper* (2008), characterized the following megapolitans in the Intermountain West (Map 1), each of which can attribute at least part of its growth to the close proximity of large urban areas to the recreational and scenic amenities of the National Landscape Conservation System:

- **Sun Corridor:** metropolitan Phoenix, Tucson and Prescott plus smaller urban areas in Cochise and Santa Cruz counties in Arizona
- **Greater Las Vegas:** metropolitan Las Vegas plus smaller and increasingly connected urban areas in Nye County, Nev., and Mohave County, Ariz.
- **Front Range:** Colorado’s I-25 corridor linking metropolitan Pueblo, Colorado Springs, Denver, Boulder, Fort Collins and Greeley

- **Wasatch Front:** Utah’s I-15 corridor connecting metropolitan Logan, Ogden, Provo and Salt Lake City plus smaller urban areas in Box Elder and Wasatch counties
- **Northern New Mexico:** metropolitan Albuquerque and Santa Fe plus smaller connected urban areas in Los Alamos and Rio Arriba counties

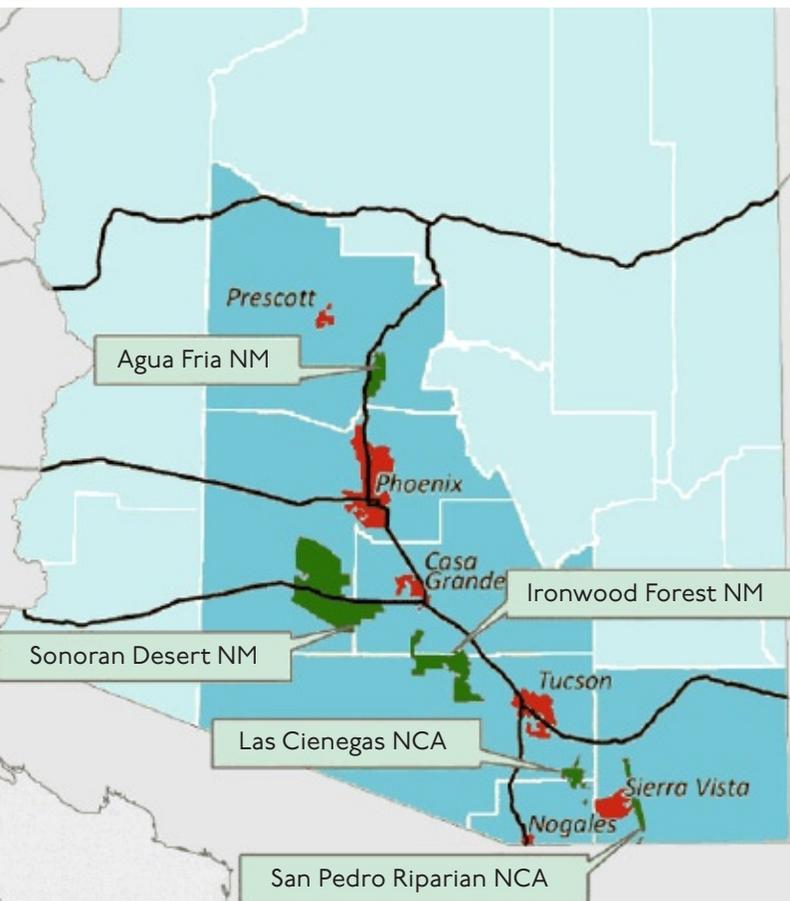
This report focuses on the growth and development in two of the Mountain Megs—the Sun Corridor and Greater Las Vegas. This section describes general population and economic trends in these areas in order to highlight the land development patterns and activities that spread beyond urban areas and impact the lands within the National Landscape Conservation System.



**Map 1** Map reproduced from *Mountain Megs* report, courtesy of the Brookings Institution.

Arizona's **Sun Corridor**—the rapidly growing megapolitan that stretches from the Arizona-Mexico border up to Prescott—is home to five exceptional and diverse examples of the National Landscape Conservation System. As shown on Map 2, these include Agua Fria, Sonoran Desert and Ironwood Forest national monuments (NM), and Las Cienegas and San Pedro Riparian national conservation areas (NCA).

## Sun Corridor Conservation System Areas



Map 2

Southern Nevada's booming **Las Vegas** is at the core of the fastest-growing megapolitan in the Intermountain West and the fourth-largest megapolitan in the country. This sprawling region impacts three Conservation System areas profiled here: Sloan Canyon NCA, Red Rock Canyon NCA, and Grand Canyon-Parashant NM (Map 3).

The two NCAs lie directly west of Las Vegas and south of Henderson, and are thus subject to the full brunt of the region's rapid population growth, much of which is occurring along the NCA boundaries. Unlike the protected areas in the Sun Corridor, these two NCAs owe their designation to a complex piece of negotiated legislation that allowed urban development of federal lands within the Las Vegas area in exchange for protection of several important areas on the urban fringes. Thus, these areas are in every sense of the word integrated with the patterns of growth and development in the Greater Las Vegas region.

By contrast, the Grand Canyon-Parashant NM is one of the largest and most remote areas of the National Landscape Conservation System. It is included here because regional growth pressures from Las Vegas, Washington County (Utah), and Mojave County (Arizona) are exerting indirect impacts that are likely to become more evident in the future. Several Washington County wilderness areas designated in the Omnibus Public Land Management Act of 2009 will receive similar recreation pressures, but are not profiled in this report.

## Population Trends

Intense population growth in both the Sun Corridor and Greater Las Vegas exerts increasing pressure on the region's land base—both private lands ripe for development, and public lands that provide recreation, habitat, and environmental services. In both cases, newcomers are drawn by warm temperatures, abundant leisure opportunities, and nearby natural amenities.

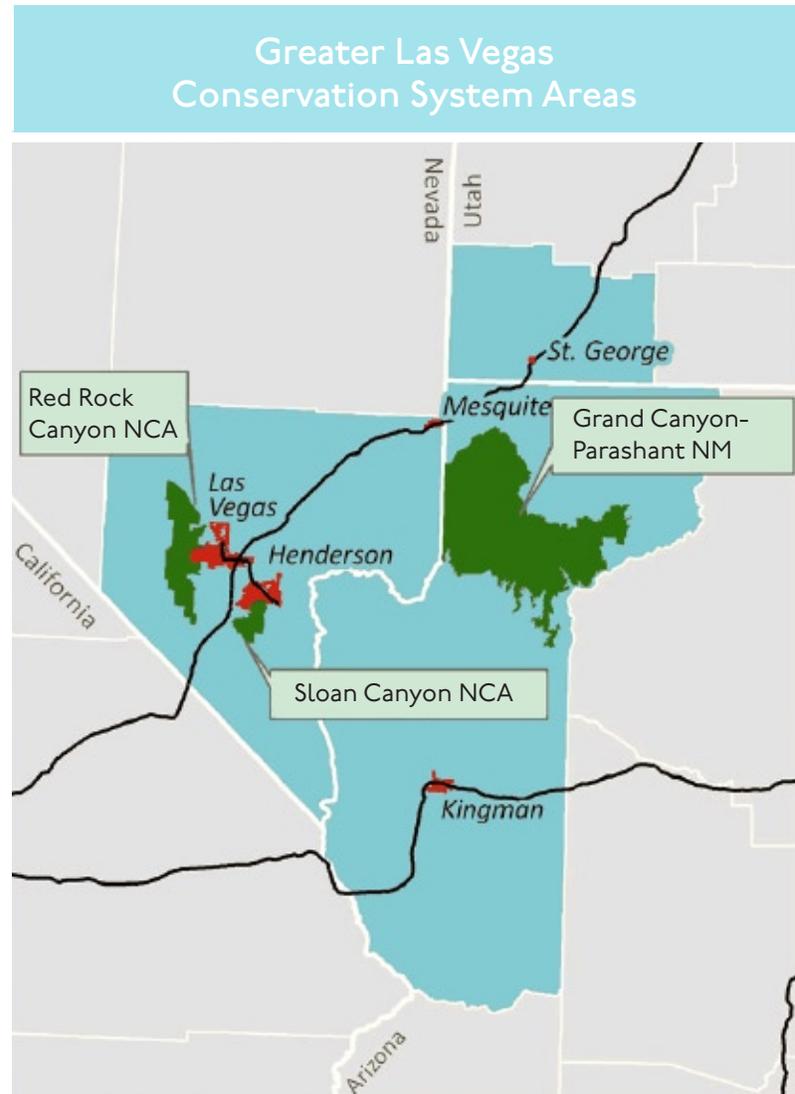
The American West has led the nation in growth rates for decades, with Nevada and Arizona regularly topping lists of the fastest-growing states.

The Sun Corridor added nearly 2.4 million new residents between 1990 and 2007—the largest absolute population gain of any of the megapolitans in the Intermountain West. Home to 5.5 million residents in 2007, the region’s population is projected to double in size by 2040. At present, 87 percent of Arizona’s population lives in the Sun Corridor.<sup>1</sup>

For its part, the Greater Las Vegas megapolitan is aptly characterized as “one of the newest and least expected urban spaces in the country.”<sup>2</sup> Today, the region is home to 2.1 million people—80 percent of Nevada’s population—with the urban population spilling well beyond Clark County’s borders. In the past decade, the Greater Las Vegas megapolitan’s population grew by nearly a third, five times faster than the national population growth rate.<sup>3</sup>

Both of these regions are experiencing changing age distributions as the aging of the Baby Boom generation combines with increased immigration of Latinos and other populations having higher birth rates than the general population. The number of workers is not growing as quickly as the number of older retired people and youth. As this trend continues, there will be changing needs for health care and other social services along with issues about paying for these services.

An aging population will influence demand for recreational activities, and may create additional challenges for public land managers. Greater personal mobility challenges may mean that the older population will demand greater accessibility to natural spaces like Conservation System areas, preferring motorized recreation to non-motorized activities. Managing motorized recreation and conflicts between different types of users is already a significant challenge for staff, and one that is likely to increase in the future. On the positive side, retirees make valuable contributions to Conservation System areas through volunteering and other activities.



Map 3

The current economic downturn has changed the short-term forecast for growth in both megapolitans. Although population estimates are disputed, it appears that Arizona’s growth rate as a whole dropped to 1.6 percent in 2008, less than half of what it was just two

The Sun Corridor added nearly 2.4 million new residents between 1990 and 2007—the largest absolute population gain of any of the megapolitans in the Intermountain West.

years before. For the time being, the net population increase is being driven by new births, not by people moving to the state.<sup>4</sup> For its part, Clark County, Nevada, saw a slight decline in population (0.5 percent) in 2008, but the state's Center for Business and Economic Research projects population increases to resume this year with annual growth rates between 1.5-2 percent.<sup>5</sup> The key point about population in these megapolitans is that they are typical of the overall region—epicenters of growth, linked inextricably to the quality of the natural environment.

### Economic Trends

Both the Sun Corridor and Greater Las Vegas represent the economic engines for their states' economies. The Sun Corridor is the source of over 90 percent of Arizona's gross product, while Greater Las Vegas provides 76 percent of the gross state product in Nevada.<sup>6</sup> In both cases, economic growth is tied strongly to the services and professional sectors, related to these regions' popularity for retirement, leisure travel, and lifestyle-related relocation.

Each of these megapolitans offers outstanding natural capital—that is, natural resources that are important to its economy and future. The natural amenities and abundant recreational opportunities provided by nearby Conservation System areas support this vital aspect of building a sustainable economy—one where economic growth and wealth generation are matched by continually enhanced natural and social capital.<sup>7</sup>

The current economic downturn hit the Sun Corridor and Greater Las Vegas especially hard, given these regions' heavy dependence on real estate development and the rapid expansion of home ownership that included many subprime mortgages.

Phoenix was “ground zero” in the downturn, with a housing surplus that may not be balanced out for years to come. The Arizona Department of Commerce

reports that job losses in 2008-09 will hit 47,500 in the state, with the majority of the impact in the Sun Corridor. Education and health services are expected to expand during this period, with a smaller increase expected in the mining sector as well.<sup>8</sup>

Recent economic turmoil has impacted the Greater Las Vegas region significantly. In its 2008 year-end reporting, the Nevada Center for Economic and Business Research reported an unemployment rate in Clark County of 7.9 percent (compared with a national figure at that point of 6.7 percent) and residential housing permits that were 87 percent lower than a year before (compared with a nationwide decline of 47 percent in new housing construction).<sup>9</sup>

Along with the decline in economic activity, unemployment in Las Vegas has risen dramatically. The construction industry has lost more than 20,000 jobs since its peak in June of 2006, declining by nearly 9,000 jobs in the last year alone. Housing price declines and mortgage foreclosures have hit Las Vegas especially hard. Median new home prices are down more than 18 percent over a year ago and median prices for existing homes have declined over 30 percent from the same time last year. As of November of 2008, Nevada had the highest rate of foreclosures in the country, with over 80 percent of the state's properties in foreclosure located in Clark County.

The current slowdown offers an opportunity for these booming megapolitans to reflect on future directions of growth and development. New federal funds aimed at stimulating the economy and encouraging development of renewable energy supplies will provide new incentives for development and may lead to a considerable increase in new construction—but should simultaneously be linked to choices for a more sustainable future. They should also take into account the potential impacts of all new development on nearby natural areas, including those within the National Landscape Conservation System. ■





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## Urban Growth Impacts Protected Areas

Land on the edges of protected landscapes is a particularly attractive place for homeowners, drawn by stunning views, peace and quiet, and ready access to recreational opportunities—and attractive to developers as well, given the higher premiums that lot sales can bring. Lots that border natural areas have been shown to sell for thousands of dollars more than similar lots without open space access.

Even when population growth and development occur far from the borders of protected areas, they may still have impacts that require careful management, particularly when these trends play out in the fragile desert environment of the Southwest.

This section begins by describing the range of these impacts on the profiled Conservation System areas in the Sun Corridor and Greater Las Vegas. It then summarizes the land development patterns in these regions, pointing out similarities and some unique challenges in each, and suggests some tools for managing the impacts of urban development on natural areas.

### Urban Impacts on Protected Areas

Rapid urban growth can impact nearby natural areas in many ways. As outlined in Table 1 and detailed later in the report in relation to the particular Conservation System areas located in the Sun Corridor and Greater Las Vegas regions, these impacts include:

- Loss and fragmentation of wildlife habitat;
- Disruption to wildlife corridors—roads, walls, or fences block wildlife movements;
- More human-wildlife conflicts, including car-animal collisions, pet depredation and landscape damage;

Impacts on National Landscape Conservation System Areas in the Sun Corridor and Greater Las Vegas

	Agua Fria	Sonoran Desert	Ironwood Forest	Las Cienegas	San Pedro Riparian	Red Rock Canyon	Sloan Canyon	Grand Canyon-Parashant
Habitat loss	●							●
Corridor loss	●			●				●
Wildlife conflicts								
Illegal trails or OHV use		●	●			●	●	●
Invasive weeds								
User conflicts		●	●			●		
Air pollution		●						
Energy development								
Immigration/smuggling			●	●				
Cultural resource damage	●		●			●	●	●
Illegal shooting/vandalism	●		●					
Water loss	●	●		●	●			●
Trash dumping		●	●	●			●	

Table 1

- Overuse and degradation resulting from increased use of natural areas, including cutting of dense networks of “social trails” from backyards into protected areas for hiking, biking, horseback riding, or motorized use;
- Spread of invasive species, both from nearby housing developments and from seeds dispersed along roads and trails;
- Conflicts between users, especially between rising numbers of motorized and non-motorized recreationists;
- Air pollution, especially particulates (dust) generated by dispersed travel patterns and off-road recreation;
- Energy development, with the growing interest in open desert lands for utility-scale solar power generation facilities;
- Immigration and smuggling in border regions, linked to economic opportunities in urban areas, resulting in new roads cut across fragile desert lands, trash dumping, and frequent health emergencies and deaths from migrants traveling in the harsh landscape with little protection;
- Water shortages due to increased competition for limited streamflows and groundwater;
- Illegal trash dumping, including “wildcat” construction debris dumping;
- Vandalism and illegal target shooting, resulting in property and resource damage and safety risks.

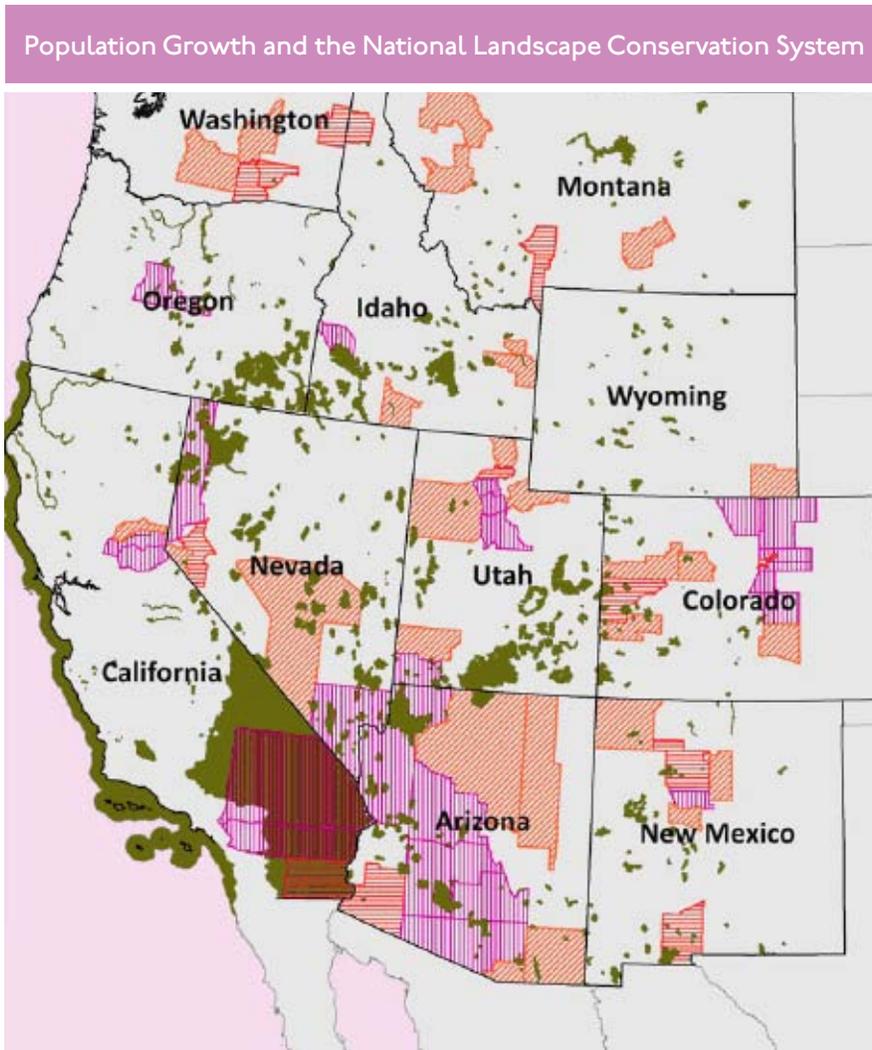
### Growth Patterns Matter

Both the Sun Corridor and Greater Las Vegas have been forced to grow densely, since large percentages of their total land area are off-limits to urban expansion due to federal or tribal ownership. Population density varies throughout these regions, ranging from dense

development in the urban core areas to more dispersed development farther from the cores. Much of the low-density development occurs near the boundaries of the National Landscape Conservation System areas (Map 4).

Sprawling, low-density development on the fringes of urban areas requires long commutes—leading to increased greenhouse gas emissions, time in traffic, and fiscal costs to municipalities—and reduced open space available for wildlife habitat. Roads and dispersed residential development also interfere with wildlife migration corridors and often result in wildlife-human conflicts.

Planning and development practices can minimize the impacts of nearby development on protected areas, preserve functional ecosystems, and minimize visual impacts. Many of these goals can be achieved through effective local ordinances and improved



**Map 4**

This map of the West illustrates Conservation System areas (in green, including wilderness and wilderness study areas) and the fastest-growing counties in the region. It shows that four of the six Sun Corridor counties (Yavapai, Maricopa, Pinal, and Pima) will each grow by more than 50,000 people between 2000 and 2011. New areas designated in the Omnibus Public Land Management Act of 2009 are not included in this map.

collaboration between developers, public land managers, city and county planners and other officials.

Moreover, integrated, modern rail systems can mitigate traffic and congestion woes in rapidly growing regions. Future development focused around commuter rail service and other public transportation options would preserve more of the valuable undeveloped landscape, reduce the area's contribution to global warming and protect air quality.

### Land Disposal Impacts Development

Both the Sun Corridor and Greater Las Vegas face land development scenarios dependent on the disposition of public lands—state trust lands in the Sun Corridor and federal public lands in Greater Las Vegas. In both cases, it will be essential for the BLM to work cooperatively with state and local officials, as well as federal partners, to help plan for these ownership changes so that the essential natural attributes of the landscapes are protected and growth proceeds in accord with a regional vision.

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## Federal Land Disposal in Greater Las Vegas

The large federal land estate surrounding Las Vegas has long been an issue in its development. After initial federal legislation in 1980 failed to adequately control land ownership transfers (and related sprawling growth) in the region, Congress enacted the Southern Nevada Public Land Management Act (SNPLMA) in 1998. This statute allows the BLM to sell public land within a specific boundary around Las Vegas, with the proceeds divided as follows:

- 85 percent to purchase environmentally sensitive lands, to develop a habitat conservation plan, for park and trail development and for administrative costs associated with land sales and exchanges;
- 10 percent to the Southern Nevada Water Authority for infrastructure development in Clark County; and
- 5 percent to the State of Nevada general education fund.

Subsequent legislation amended SNPLMA to move the disposal boundary and expand the area by 22,000 acres, designate approximately 450,000 acres of wilderness, and create the Sloan Canyon National Conservation Area.

As of September 2008, approximately 47,000 acres have been transferred out of federal ownership. Nearly 30 percent was auctioned for development, about 30 percent sold through direct sale (primarily federal land surrounded by private land plus land for affordable housing), approximately 25 percent was reserved for public purposes, 11 percent was conveyed through exchanges, and the remainder was land sold in the cooperative management area around McCarran Airport or under provisions of the Recreation and Public Purposes Act.

The pattern of widely dispersed development in lands opened up through the SNPLMA illustrates the need for a more coordinated approach to regional land-use planning. At the same time, pressures to expand the disposal boundary threaten the high-value resources within the protected Conservation System areas nearby.

Even when population growth and development occur far from the borders of protected areas, they may still have impacts that require careful management, particularly when these trends play out in the fragile desert environment of the Southwest.

### Regional Governance Offers a Bigger Picture

Land development trends link closely to governance structures. For example, across its 300,000 square miles, the Sun Corridor has five councils of government, six counties, 57 municipalities, and over 300 other governmental units, in addition to federal, state, and tribal government agencies with land management responsibilities.<sup>10</sup> No single entity coordinates growth and development over the region, despite an increasing recognition that these issues transcend existing jurisdictional boundaries. As the Morrison Institute for Public Policy stated succinctly in its report, *Megapolitan Arizona's Sun Corridor*:

The Sun Corridor is rapidly becoming a different entity, a new urban form for the 21<sup>st</sup> century. Merging is further along in economic and social reality than it is in regional governance. Regional decisions need to be made, yet the tradition of ultra-local governance throughout the Sun Corridor calls for new approaches. Without them, fundamental decisions are most likely to be reached in a piecemeal, haphazard manner, or worse, never made at all.

Greater Las Vegas offers the beginnings of a model of regional governance in the form of the Southern Nevada Water Authority, a coalition of seven member agencies formed in 1991 to address Southern Nevada's water needs on a regional basis.

In coming together as a regional entity, member agencies pooled their water rights and agreed to work cooperatively to plan for and secure supplies for the future. However, the agency focuses on meeting regional water demands without any consideration for the sustainability of growth projections upon which they rely.

Ideally, regional governance—or, at the least, regional initiatives to link local land and resource planning into a larger vision—would consider the interaction of the built environment and the natural landscape, including the Conservation System areas profiled here. As illustrated in the profiles that follow, more aggressive steps are necessary to ensure their ecological integrity and full implementation of their management objectives.

## State Trust Lands in the Sun Corridor

State trust lands, granted to new states to provide financial support for public education, provide income through sale and leasing of their natural resources as well as land sales for commercial and residential real estate. The Superstition Vistas Study Area encompasses nearly 270 square miles of undeveloped state trust land in Pinal County, on the eastern edge of the Phoenix metropolitan area—one of the largest pieces of land under single ownership in any metropolitan area, and likely to house over one million residents when it is eventually developed.

Efforts are now underway to reform Arizona's restrictive state trust land laws to enable sustainable development on these lands with large-scale planning. Such development should meet the housing needs of urban areas while maintaining the important ecosystem functions of open lands sandwiched between city and surrounding public lands. Successful reform could lead to land exchanges that would enlarge Las Cienegas National Conservation Area and provide buffers and linkages for other Conservation System areas.

### Impacts Cross Boundaries— and So Must Solutions

Many of the impacts summarized above and described in the following section illustrate the tough fit between landscape-scale conservation challenges and solutions based on more fragmented political jurisdictions. Invasive weeds, air pollution, and the proliferation of trails and off-highway vehicle use all require management approaches that transcend jurisdictional boundaries—addressing issues on a “problemshed” basis.

This is beginning to happen. In some instances, federal land managers provide input to local open space planning, cooperatively planning for trail systems that lead from city lands to Conservation System hiking areas. In other cases, local officials join with their federal partners to restore precious riparian areas and streamflows that provide both ecosystem services and regional economic benefits.

Working in “silos” defined by land ownership will not be sufficient to address the scale of issues facing Conservation System lands in the coming decades. Better and more cooperative relationships with state, local and tribal partners will be necessary to leverage the limited federal resources to meet large landscape-scale challenges, especially in protected areas located near expanding urban centers in the West. ■



# 24

## Profiles of Urban Impacts on Southwestern Conservation System Lands

The spectacular natural landscapes within the National Landscape Conservation System provide a scenic backdrop to many western communities, as well as a popular destination for recreation. Urban growth pressures occur throughout the Conservation System, but are especially intense in the rapidly growing Southwest.

This section provides snapshots of development pressures facing Conservation System areas in the Sun Corridor and Greater Las Vegas megapolitans, illustrating both the overall press of population on intact natural landscapes and examples of impacts that arise in particular areas due to local development and land use patterns.

The BLM managers face escalating challenges in balancing the many demands for these valuable landscapes.

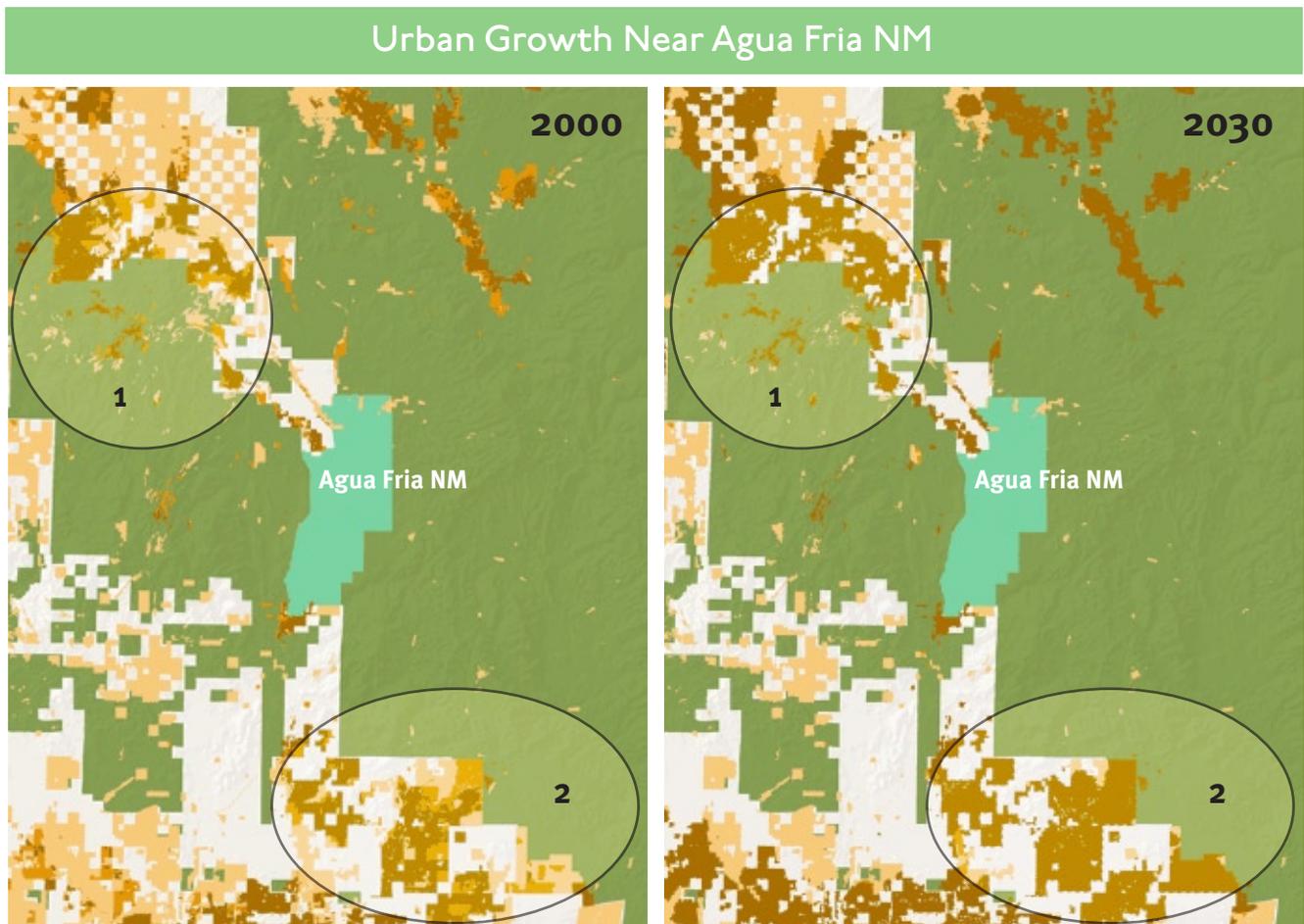
### Legend for Urban Growth Areas (Maps 5-12)

Housing—Census Data		Federal Lands		Selected NLCS Sites	
	Rural		Federal Lands		Selected NLCS Sites
	Med. Density Rural				
	Urban/Exurban				

## Agua Fria National Monument: Archaeological Treasure Trove

Agua Fria National Monument lies 40 miles north of Phoenix in Yavapai County, along Interstate 17 at the northern end of the Sun Corridor. In announcing its designation in January of 2000, President Clinton lauded the monument’s “extraordinary array of scientific and historic resources,” including “one of the most significant systems of late prehistoric sites in the American Southwest.”<sup>11</sup> Agua Fria draws scientists

and tourists seeking opportunities to view rock art, prehistoric agricultural systems and remnants of early Anglo-American settlement, as well as the natural beauty of windswept plateaus and desert canyons. While development is occurring on private lands at a few adjacent points along the monument’s northwestern corner and southern tip, most of the monument borders the Coconino National Forest.



Map 5

Agua Fria draws scientists and tourists seeking opportunities to view rock art, prehistoric agricultural systems and remnants of early Anglo-American settlement, as well as the natural beauty of windswept plateaus and desert canyons.

In 2007, the Arizona Department of Transportation initiated an engineering and environmental study to identify and evaluate alternatives for widening Interstate 17 between New River and Cordes Junction. This freeway is immediately adjacent to Agua Fria National Monument, and the widening project likely will impact monument resources, including drawing more water from the Agua Fria River for the rest area, damaging cultural resources, and obstructing wildlife migration corridors. The monument is likely to experience the impacts of increased visitation tied to regional population growth, particularly from the Prescott area to the northwest (area 1) and growth extending from Phoenix's northern edge (area 2).

The Prescott/Prescott Valley area is expected to nearly double in population from 2006 to 2030, from 78,743 to 140,868.<sup>12</sup> Along with expansion of the low-density urbanized area, this area is expected to grow denser by 2030, indicated by areas on Map 5 that change from orange in 2000 to brown in 2030.

Urbanization on Phoenix's northern edge is expected to increase in density rather than expand, as shown in the shift from orange to brown on Map 5.

But the impacts of population growth on protected areas go far beyond those that occur on their borders. Agua Fria National Monument's abundant cultural resources are vulnerable to purposeful

looting and incidental, recreation-related damage—both of which may increase with population growth.

According to the 2007 Agua Fria Manager's Report, the overall trend in the quality of Agua Fria's natural resources is improving, due largely to decreased grazing, and cultural resources are holding steady.<sup>13</sup>

Agua Fria received 34,830 visitors in FY 2007, and had a total budget of \$609,429, according to the manager's report. The monument had a total staff of four in 2007, including one ranger, although it was planning to hire an archeologist to fill a vacant position. It does not have a dedicated recreation planner due to lack of funds. The monument benefits from the voluntary contributions of an active Friends program, which helps

## Agua Fria National Monument

Established in 2000  
71,000 acres

### Key features:

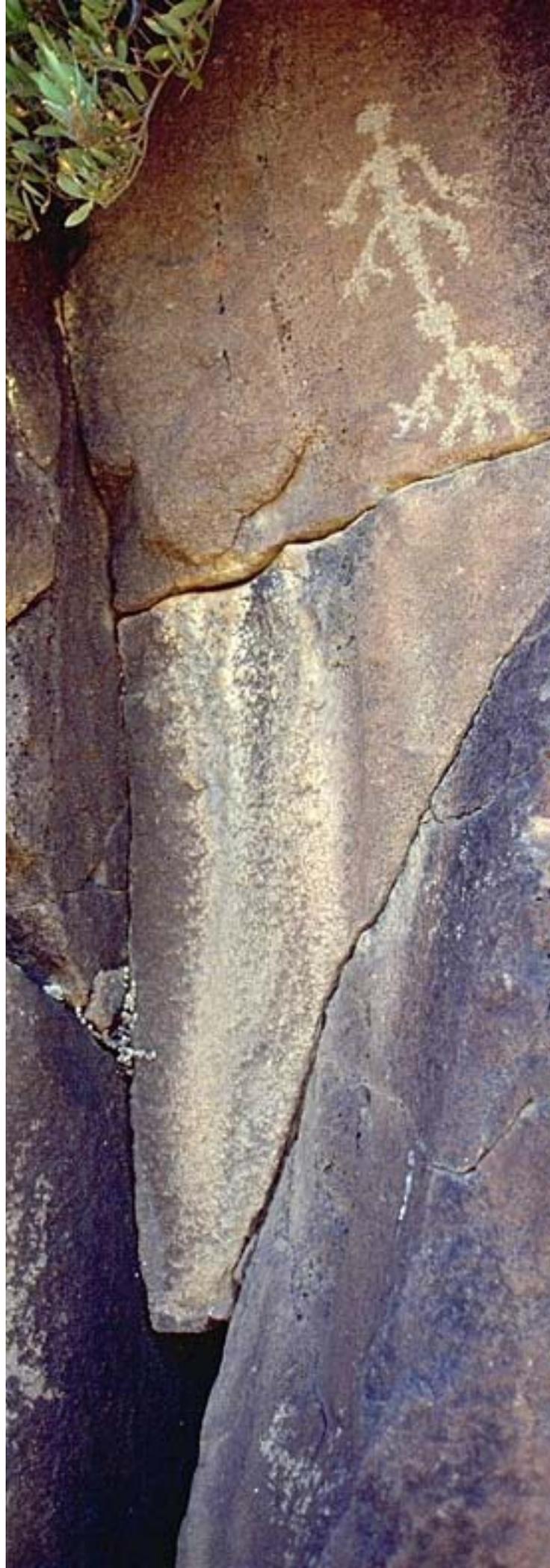
- Prehistoric settlement with over 450 archeological sites, including 100-room basalt pueblos, stone forts, extensive terraced agricultural fields, rock art
- Grassy, semi-desert mesa cut by cottonwood and willow-shaded Agua Fria River canyon
- Large mammals including pronghorn antelope, mule deer, white-tailed deer, elk, black bears, javelina and mountain lions, as well as small mammals, neotropical birds, fish, amphibians and reptiles
- Land considered important to Hopi and Yavapai (Apache) cultural history
- Nineteenth-century Basque sheep camps, historic mining ruins and evidence of military activities

conduct outreach to national groups and performs maintenance, interpretation and fundraising.<sup>14</sup>

Like many Conservation System areas, the monument is experiencing increasing levels of off-highway vehicle (OHV) use. This activity increased five-fold between 2000 and 2004, from 1,500 to 8,000 vehicles annually. In addition, target shooting rose dramatically after the Bureau of Reclamation and Maricopa County Parks closed the northern area of the nearby Lake Pleasant County Park to motorized vehicles to limit ongoing environmental damage.<sup>15</sup>

The trend in visitation has shifted from weekend campers to repeat day users, visiting weekly or more often. The BLM attributes this to nearby population growth and restrictions on activities allowed on other lands around the Phoenix metropolitan area.

Water is an issue for Agua Fria National Monument. The monument designation in 2000 included a reserved water right, which remains to be quantified through the state's water adjudication process. Population growth around and upstream of the monument brings increased groundwater pumping, potentially decreasing streamflow in the Agua Fria River.



## Sonoran Desert National Monument: Intact Ecosystem in Ocean of Urban Growth

When the Sonoran Desert National Monument was designated in 2001, the presidential proclamation celebrated the area as “a magnificent example of untrammeled Sonoran Desert landscape . . . a functioning desert ecosystem with an extraordinary array of biological, scientific, and historic resources.”<sup>16</sup>

At that point, the approximately 60 miles separating the monument from downtown Phoenix made it seem far removed from the city’s sprawling urban areas. Since then, in addition to growth in much of the Phoenix metropolitan area, “boomburbs” such as Buckeye and Goodyear have filled in acre after acre of desert with homes, schools and stores—and as Map 6 illustrates, there is much more to come.

Area 1 on Map 6 centers on the town of Buckeye, which in 2005 had a population of 32,735. By 2030, this community is expected to increase exponentially, to 419,146. The 9,470 housing units it included in 2005 will grow to 163,523.<sup>17</sup>

Area 2 identifies Goodyear, another rapidly growing boom-burb. The city’s 141,441 population in 2005 is projected to swell to 299,397 by 2030. This municipality will have to find space for 118,418 houses, compared to the 16,517 it contained in 2005.

Growth is also approaching the monument from the western side as the community of Gila Bend expands (area 3), although not on the same scale as Buckeye or Goodyear. Its 2005 population of 2,118 is expected to grow to 9,074 by 2030. This area is also the planned home of Solana, a major utility-scale solar electricity installation planned to be built directly to the west of the monument, forming a buffer between urbanized and protected areas.

Although it will remain less densely populated for the foreseeable future, the Casa Grande/Coolidge/Eloy area (shown as 4 on Map 6) is expected to nearly quadruple in population from 47,987 residents in 2006 to 192,793 by 2030.

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### Sonoran Desert National Monument

Established in 2001  
408,646 acres

#### Key features:

- Large contiguous areas of undisturbed open space in the midst of a rapidly urbanizing region
- Iconic Sonoran Desert vegetation such as saguaro cactus forests, palo verde trees, ironwood and mesquite woodlands and jumping cholla cactus
- Natural waterholes (tinajas) support mule deer, javelina, mountain lions, gray foxes and bobcats; 200 species of birds
- Evidence of prehistoric and historic human settlements

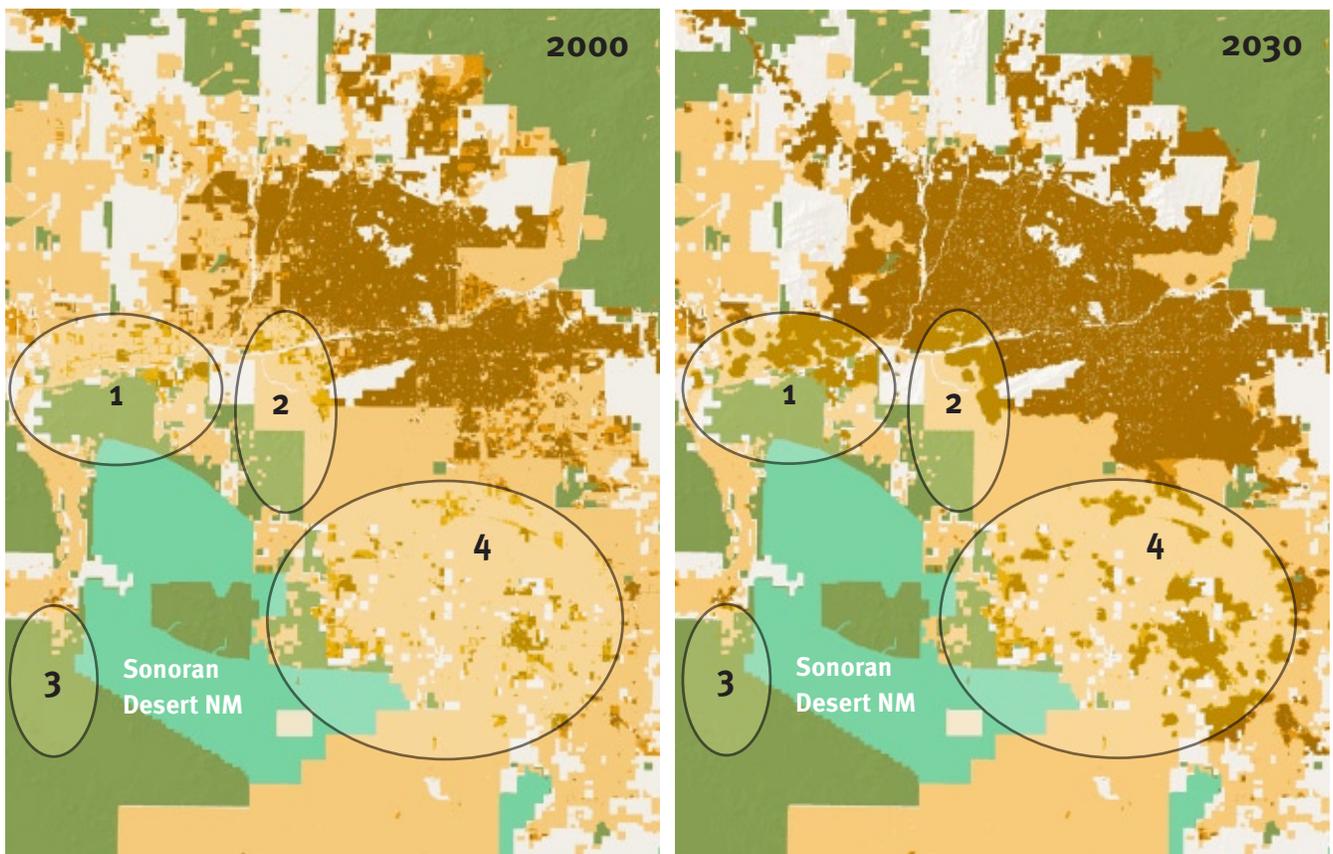


While much of the land within the city limits of these communities is currently natural open space, this will not be the case within a few decades. Residents in search of outdoor recreation will instead seek out protected areas, such as the Sonoran Desert National Monument.

The southern sides of the monument are not facing as much pressure directly from population growth,

since they border the Barry M. Goldwater Air Force Range and the Tohono O’odham Indian Reservation. The Sonoran Desert National Monument’s natural resources have been under increased stress in recent years, according to the 2007 manager’s report.<sup>18</sup> While growing populations in the area are the cause of some of these negative effects, resources also suffer from long-term drought and illegal immigrant-related activities such as cutting new roads and dumping trash.

### Urban Growth Near Sonoran Desert NM



Map 6

Approximately 35,000 people visited the monument in 2007, a substantial increase in recreational use, particularly over the past three years. The increased visitation is believed to be largely due to increased urbanization in the Phoenix area approaching the monument's boundaries.



Approximately 35,000 people visited the monument in 2007, a substantial increase in recreational use, particularly over the past three years. The increased visitation is believed to be largely due to increased urbanization in the Phoenix area approaching the monument's boundaries. Recreational use patterns have also changed over the past several years, with fewer weekend campers and more weekday use by people who live near the area. A rapid increase in motorized recreation, combined with long-term drought, challenge monument staff. Despite improved signage and other efforts to control off-road driving, resource damage forced the agency to close about 55,000 acres, or about 89 miles of vehicle routes, to all vehicle use in June 2008. For the next two to three years, the area will only be open to hikers and equestrians as the agency works to rehabilitate damaged areas.

The agency has stepped up efforts to monitor recreation impacts on the monument, including investigating how far the "urban effect" of development extends in the monument as urbanized areas draw closer to its boundaries. Air pollution changes related to urbanization are also being studied.

While visitation to the monument has increased in recent years, the annual base funds budgeted for its management have not—the base rate has stayed in the \$400,000-500,000 range. Including annual program and flexible funds, the total management budget for FY 2007 was \$763,500. Staffing has remained relatively static as well, although in 2007 a ranger who had left in 2004 was replaced, bringing the total number of rangers charged with patrolling the nearly half-million acre monument to two, and the total staff to five. The monument continues to rely on a single recreation planner.

## Ironwood Forest National Monument: Ancient Desert Trees

The proclamation establishing the Ironwood Forest National Monument described the area as offering “a quintessential view of the Sonoran Desert with ancient legume and cactus forests.” The monument includes the Sonoran Desert’s highest concentration of ironwood trees, which can live at least 800 years and “provide roosting sites for hawks and owls, forage for desert bighorn sheep, protection for saguaro against freezing, burrows for tortoises, flowers for native bees, dense canopy for nesting of white-winged doves and other birds, and protection against sunburn for night blooming cereus.”<sup>19</sup>

The Ironwood Forest National Monument lies between Arizona’s two largest cities, Phoenix and Tucson, and receives visitors from both urban areas. A substantial portion of the growth pressure it is receiving is from Casa Grande and Marana—two cities that were barely on the map 20 years ago.

The monument can expect increasing growth pressures from urbanizing areas to the north and east. To the north, in Pinal County, the Casa Grande/Coolidge/Eloy area (shown as 1 on Map 7) is projected to increase in population from 47,987 residents in 2006 to 192,793 by 2030. While most of the growth in this area is somewhat removed from the monument, it is likely to become a more sought-after recreation destination as other natural areas become unavailable.<sup>20</sup>

Of potentially greater impact is the growth of Marana, in Pima County, along the monument’s eastern border

(2 on Map 7). Marana has been one of the fastest-growing cities in Arizona in recent years, and its population is expected to more than triple in the coming decades, from 29,802 in 2006 to 89,761 by 2030.

A significant portion of the new houses and commercial space required to house the growing population will be built along the monument’s eastern boundary: 2,000 houses are projected to be built adjoining the monument in 2008, and 5,000 homes in the next few years, according to the 2007 manager’s report.<sup>21</sup> In addition,

### Ironwood Forest National Monument

Established in 2000  
129,022 acres

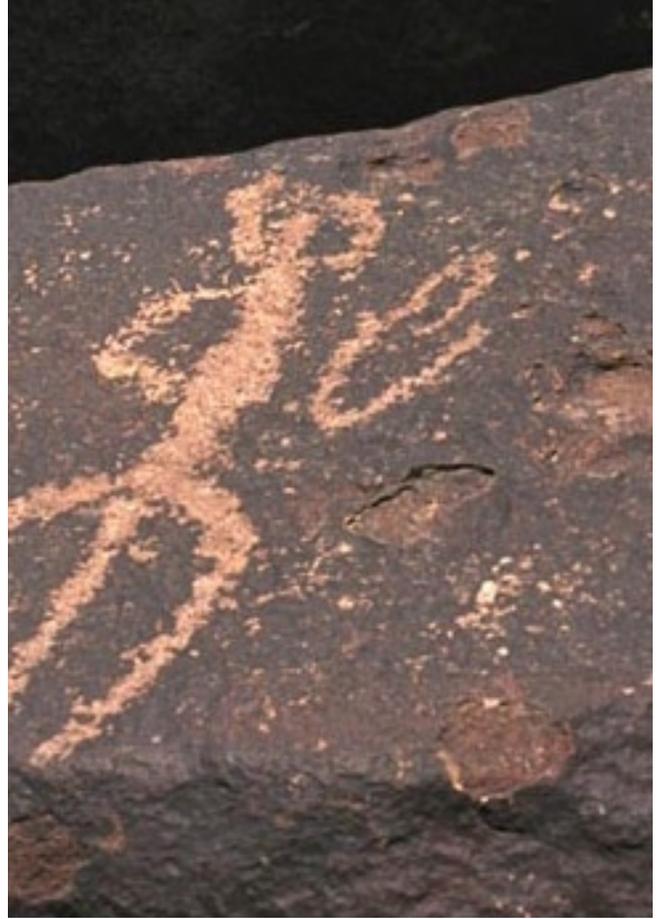
#### Key features:

- Old growth ironwood trees; some over 800 years old
- Over 200 prehistoric Hohokam archeological sites
- Petroglyphs and pictographs
- Remains of Spanish Mission of Santa Ana del Chiquiburitac

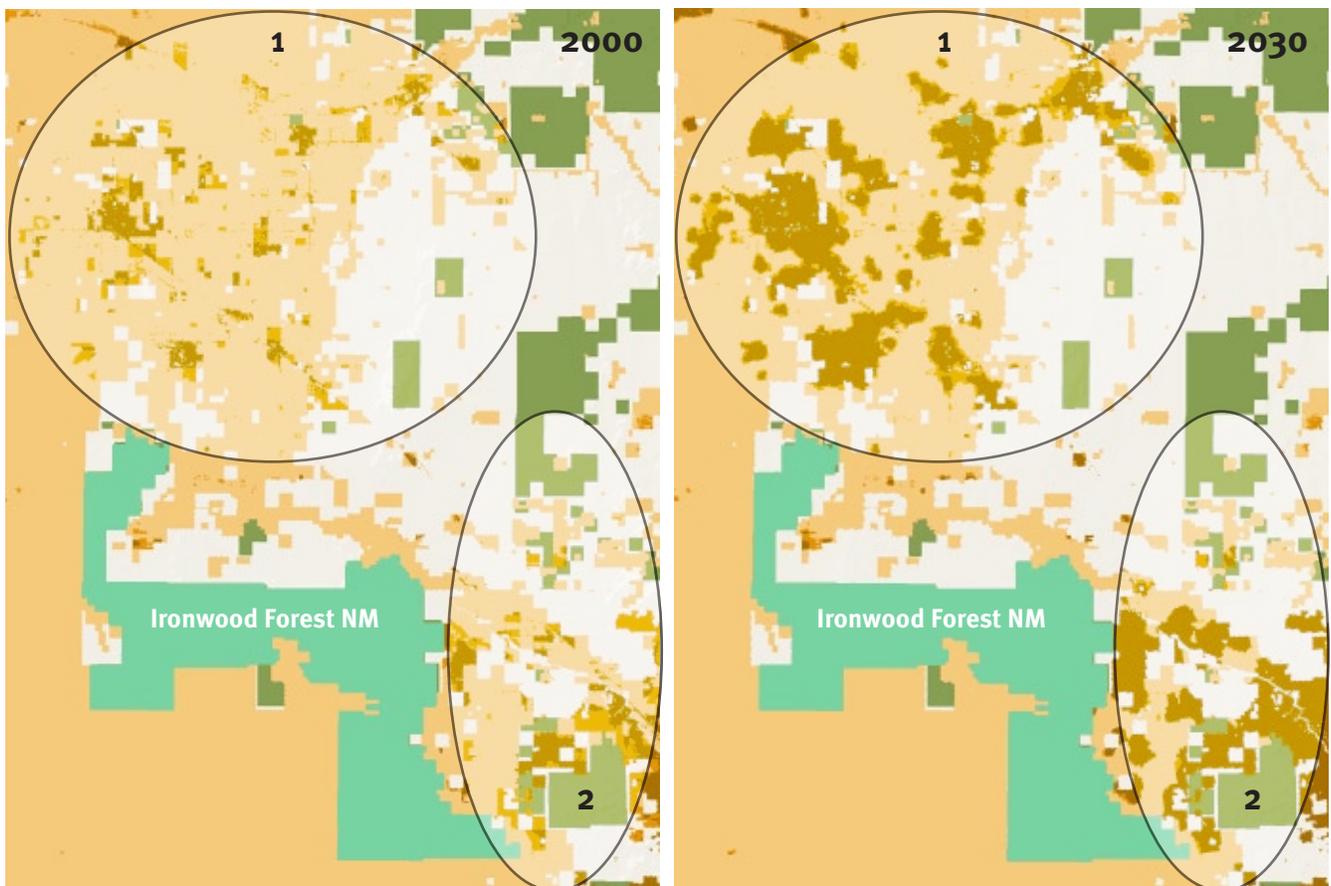
the monument contains large inholdings of private land that may be very attractive for development.

Although its southern and eastern borders are protected from urban growth by the Tohono O’odham Indian Reservation, undocumented immigrant and illegal drug

smuggling activity from these areas is a serious concern. When border officials pursue suspects, they frequently travel cross-country, creating “roads” where none existed before. As described by the Friends of Ironwood Forest: “This cycle creates a threatening and sometimes dangerous situation for recreational users who may be out hiking, hunting, camping, and enjoying the [monument]. A tremendous trash issue is created wherever undocumented immigrants travel through the desert discarding clothing, water bottles, food packaging and backpacks as they travel.”<sup>22</sup> Additionally, the fragile desert environment requires a long time to recover from such disturbance.



### Urban Growth Near Ironwood Forest NM



Map 7

The Ironwood Forest National Monument lies between Arizona's two largest cities, Phoenix and Tucson, and receives visitors from both urban areas.

Three immigrants were murdered and two injured in an attack on monument lands in 2007, and many die each year from heat-related illnesses. The 2007 monument manager's report notes that these border-related issues require much of the staff's time and effort, and that volunteer efforts are of great assistance in cleaning up trash and remediating damage. The 2007 monument manager's report also notes that annual maintenance work on the Ironwood Forest National Monument is not adequate, due in part to a lack of funding and staff. The monument received an estimated 12,000-15,000 visitors in 2007, few of whom are likely to have direct contact with monument staff since the nearest BLM office is nearly two hours away, and there is little ranger coverage.

User-caused negative impacts to its resources over the past five years include target shooting, illegal immigration, theft of prehistoric petroglyph boulders, vandalism of 1,500 year-old Hohokam sites, and "wildcat dumping" of construction and landscaping debris on monument lands.

The total budget for monument management in FY 2007 was \$718,735, including \$559,635 in base funding and \$159,000 in flexible funding for labor and operations. This allowed the monument to employ a half-time manager, a ranger, a planner, a natural resources specialist and a shared recreation planner. A second ranger was added in 2008 to replace a position vacant since 2006.

The Friends of Ironwood Forest organized in 2006 to supplement the BLM's limited staffing. This group's programs include targeted conservation service projects, educating the public and monument visitors about the natural and cultural resources, seeking out strategic partnerships with other organizations, and advocating protection of the monument.<sup>23</sup>





## Las Cienegas National Conservation Area: Sky Islands and Desert Rivers

Las Cienegas National Conservation Area (NCA) is located in southeastern Arizona, at the southern end of the Sun Corridor. Its 42,000 acres include parts of both Santa Cruz and Pima counties, and the city of Tucson is approximately 30 miles to the northwest of the NCA. Congress designated the NCA in 2000, expressing its intent to protect a bi-national wildlife corridor between mountain ranges to the north and south, while ensuring that grazing, hunting and other uses would continue.<sup>24</sup>

Las Cienegas can expect to see little new urbanization directly on its borders, although the area to the southwest of the NCA, including the towns of Sonoita and Patagonia, where most visitors enter, is expected to increase from 3,108 residents in 2006 to 4,665 by 2030.<sup>25</sup>

However, growth issues from farther away, particularly Tucson's sprawl, are likely to have an impact on the area. Growth from the Benson/St. David area (2 on Map 8) is also an issue. In combination with long-term drought and climate change, the area's increasing water demands may deplete the groundwater that sustains Las Cienegas's rare desert wetlands.

The Interstate 19 corridor (area 1 on Map 8), which stretches south from Tucson to the Mexican border, is expected to grow and become denser in the coming decades, and Las Cienegas may become a more

attractive recreation option to these residents, as well as those from Tucson and other areas.

The total budget for Las Cienegas NCA in 2007

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### Las Cienegas National Conservation Area

Established in 2000

42,000 acres

#### Key features:

- Headwaters streamflow; rare desert wetlands
- Two proposed wild and scenic river stretches
- Intact native grasslands and oak woodlands
- 33 plant and animal species of special concern or endangered; 230 species of birds
- Large mammals include white-tailed and mule deer, pronghorn antelope and mountain lions
- Cultural resources include prehistoric sites, historic travel routes, historic ranch house, mines and mining towns

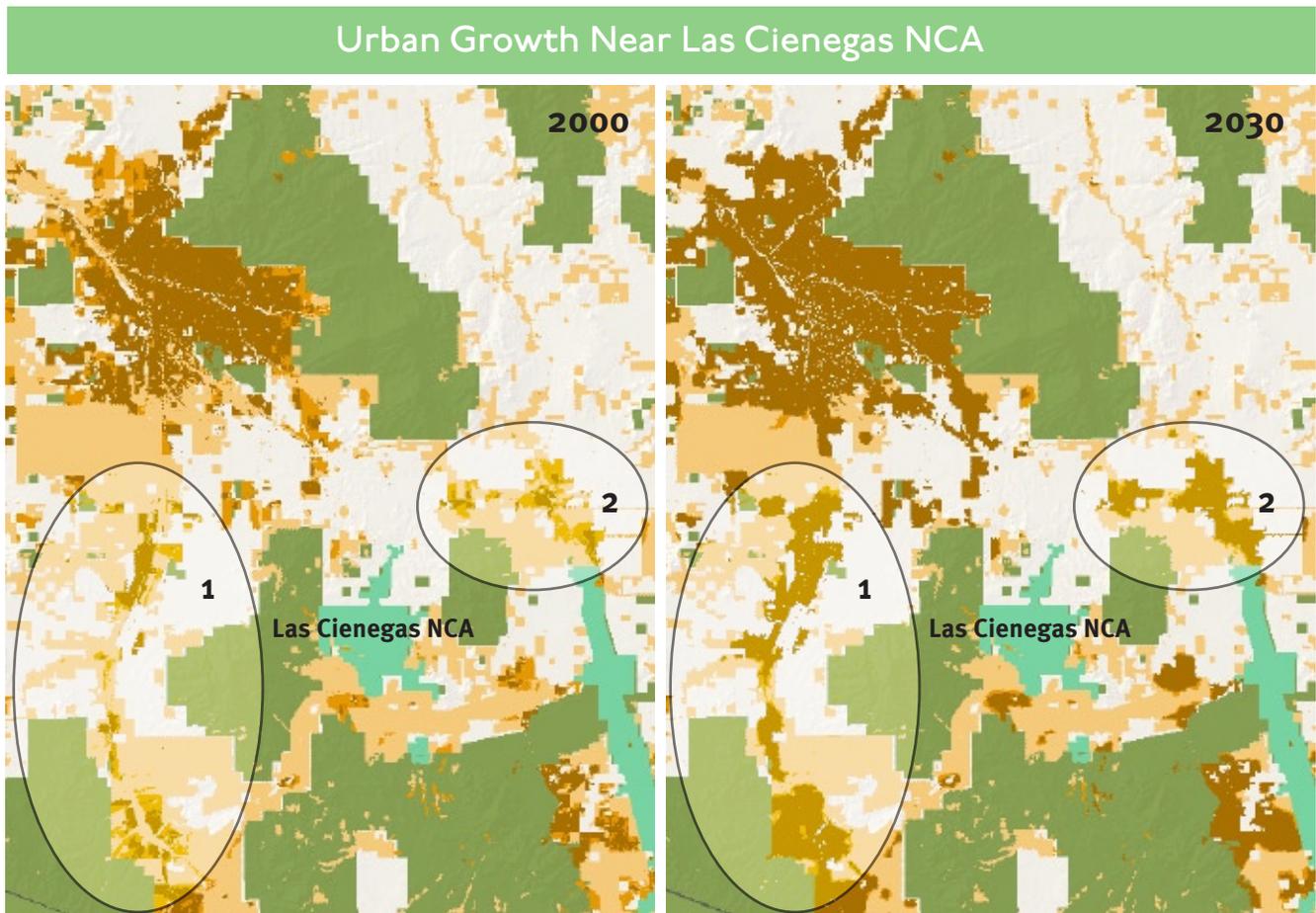
was \$1,749,198.<sup>26</sup> Las Cienegas has three full-time staff and a half-time manager, and receives other staff support from the Tucson field office. The 2007 Las Cienegas NCA manager's report estimates that approximately 16,111 people visited the area in 2007, which is actually somewhat less than the 20,119 who visited in 2006, largely because two large public events held in 2006 were not repeated in 2007.

Similar to most other Conservation System areas in the Sun Corridor, undocumented immigrant

and illegal drug trafficking present a management challenge to Las Cienegas. Approximately 900 undocumented immigrants were arrested and 2,500 pounds of drugs were seized in the NCA in 2007. The 2007 NCA manager's report notes that a loss of operations funding will decrease their already minimal field presence, and that increasing workload and loss of staff and funding are challenges.

Opportunities to fulfill the landscape-scale conservation objectives of Las Cienegas include protection of the Loving J Ranch, a 185-acre property adjacent to the

NCA that occupies a prime location in the Las Cienegas Creek watershed and wildlife corridor between mountain ranges. BLM needs \$550,000 to acquire a conservation easement from the owners, who have expressed an interest in pursuing this transaction. The project is supported by local groups, including the Arizona Zoological Society, the Cienega Watershed Partnership and the Rincon Institute. The 2007 NCA manager's report notes that a loss of operations funding will decrease their already minimal field presence, and that increasing workload and loss of staff and funding are challenges.



Map 8

## San Pedro Riparian National Conservation Area: Birders' Paradise

The San Pedro Riparian NCA is located in southeastern Arizona, at the southern end of the Sun Corridor, in Cochise County. The city of Tucson lies approximately 60 miles to the northwest. The 58,000-acre conservation area encompasses a 40-mile stretch of one of America's most endangered rivers, the last free-flowing river in Arizona.

Congress designated this area for protection in 1988, far earlier than the other Conservation System areas profiled in this report. As described in a 2005 Sonoran Institute report on the economic value of protected areas, the San Pedro Riparian NCA plays a role in making Cochise County an attractive place to live for military and other retirees by adding to the quality of life and available volunteer and recreational opportunities.<sup>27</sup>

The San Pedro Riparian NCA faces urbanization on its northern end by growth in the Benson/St. David area (area 2 on Map 9). This area is expected to grow from 11,968 in 2006 to 14,940 by 2030.<sup>28</sup>

As shown in area 3 on Map 9, encroachment is also expected at the NCA's southern end, as the Sierra Vista area, including the towns of Huachuca City, Whetstone, and Tombstone, is projected to grow from 70,288 in 2006 to 102,196 in 2030. The Bisbee/Naco area, in the southeastern corner of the state, will also grow, from 11,112 in 2006 to 14,050 in 2030.

The San Pedro Riparian NCA received an estimated 175,000 visitors in 2007, by far the highest number of any Conservation System area in the Sun Corridor. Correspondingly, the 2007 management budget was also the highest among the areas included in this report, at \$2,045,127. Its reputation as a world-class migratory bird flyway means that the area likely receives more non-local visitors than the other Conservation System areas.<sup>29</sup>

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### San Pedro Riparian National Conservation Area

Established in 1988  
58,000 acres

#### Key features:

- Rare perennial streamflow
- 350 species of birds—nearly half of all bird species found in North America
- Over 80 species of mammals
- More than 40 species of amphibians and reptiles
- Remnants of prehistoric mammoth hunts
- Evidence of early Spanish and American settlements

The staff of eight permanent employees includes a recreation planner and two quarter-time rangers. The larger number of staff allows for more visitor contact; staff members conduct interpretive walks and also give presentations to schools and community organizations. The NCA benefits from services provided

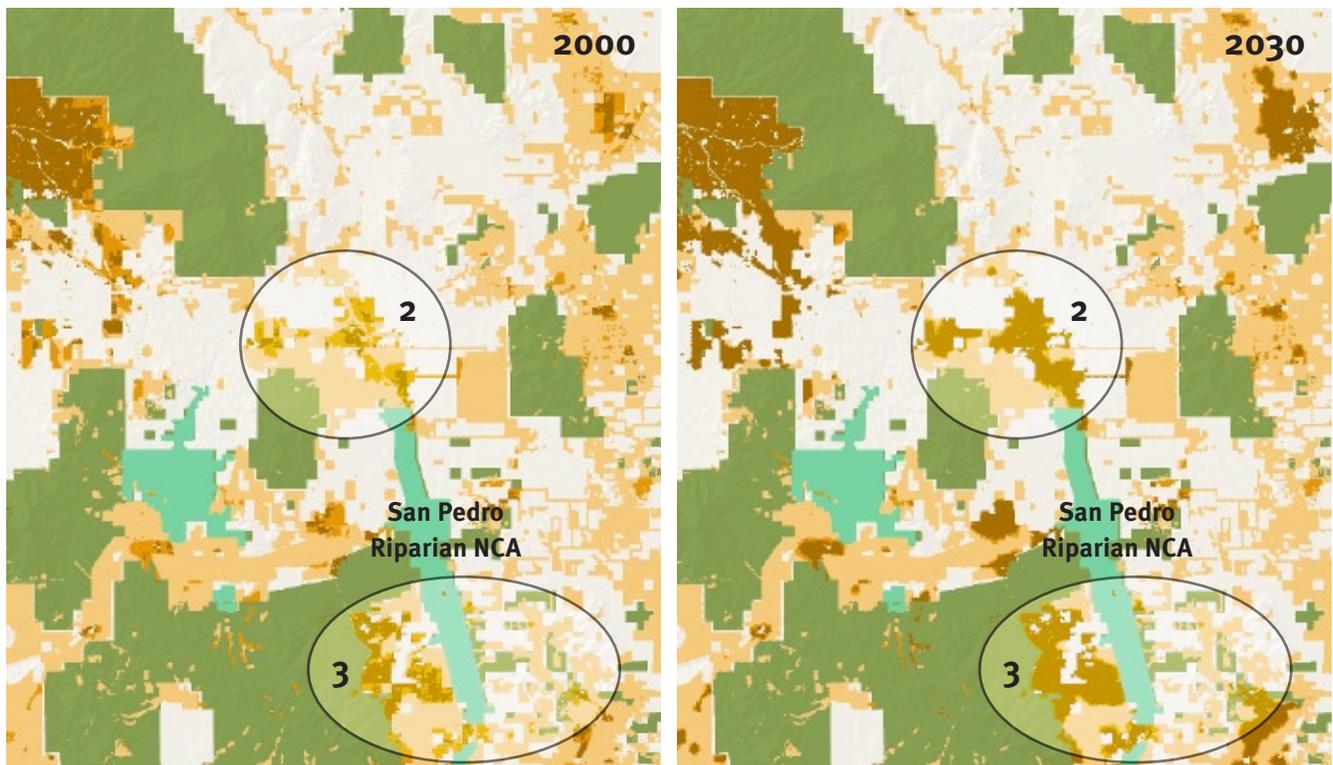
by the Friends of the San Pedro River, which provides visitor contact as well as assistance with maintenance, restoration and other needs. The Friends group provided over 10,000 hours of visitor labor in its second year of operation, ending in the fall of 2008.<sup>30</sup>

Each year the Friends group sponsors a month-long docent training session and, each Friday during the school year, the Friends provide docent-led walks for schoolchildren bused to the San Pedro House. The Friends group encourages the schools to participate in this program by offering funds to offset fuel costs.

Despite being better funded and staffed than many other Conservation System areas, the San Pedro Riparian NCA still faces significant management challenges. Managers report problems from inconsistent funding and staffing.

Protecting and restoring the highly valued San Pedro River was the major reason for the NCA's establishment, and remains its primary objective. However, the NCA has a long way to go until this goal is accomplished. Sprawl and groundwater pumping, in combination with long-term drought, have caused stretches of the river to go dry in recent years and led to its designation by American Rivers in 2002 as one of America's most endangered rivers.<sup>31</sup>

### Urban Growth Near San Pedro Riparian NCA



Map 9

The BLM is part of the Upper San Pedro Partnership, a consortium of federal, state and local agencies and organizations formed in 1998 to assist in meeting the long-term water needs of the San Pedro Riparian NCA and of the area residents. Federal legislation in 2004 mandated reporting on the partnership's progress toward its goal of restoring and maintaining the sustainable yield of the regional aquifer by September 30, 2011.<sup>32</sup>

According to the 2007 manager's report, out of 27 miles of river recently assessed, none meet the "properly functioning" standard, and 10 miles were documented as "nonfunctioning," while 17 are considered to be "functioning at risk."

The report also notes that a lack of staff and funding makes it difficult to properly maintain trailheads and recreation areas within the NCA.



## Red Rock Canyon National Conservation Area: Petrified Dunes Invite Explorers

Red Rock Canyon NCA is located in the Mojave Desert just 17 miles west of the Las Vegas Strip. In 1967, the Secretary of the Interior designated Red Rock Canyon Recreation Lands to be managed by BLM's Las Vegas District for public enjoyment. Congress enacted legislation to establish the NCA in November 1990,<sup>33</sup> and its boundaries have been expanded by ensuing acts of Congress in 1994 and 1998. Today the NCA covers approximately 196,000 acres.

Nevada's first designated NCA includes sandstone cliffs, limestone mountains and open desert. A popular 13-mile-long scenic drive offers visitors stunning vistas and over 30 miles of hiking trails. The NCA also includes world-class rock climbing, as well as trails for mountain biking and horseback riding.

The Toiyabe National Forest forms part of the NCA's western border, but its eastern edge is contiguous with the city of Las Vegas (area 1). Its visitation has increased along with the swelling population of Las Vegas, which is predicted to grow from approximately two million people today to over three million in 2015. Map 10 shows the juxtaposition of urban growth and the Red Rock Canyon NCA. The NCA experienced widespread fires in 2005-06, requiring substantial work to restore native plants and prevent erosion. The NCA manager reported in 2007 that the area's ecological resources are generally improving, with a substantial benefit from extensive

volunteer contributions.<sup>34</sup> Management emphasis is shifting from a focus on site-specific cultural heritage resources to a broader landscape focus.

The toughest issue is the sheer press of visitors. When the BLM initiated its planning process for the NCA in 1992, the

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### Red Rock Canyon National Conservation Area

Established in 1990  
196,890 acres

#### Key features:

- Perennial water supply, supporting species of over 100 birds and 45 mammals
- Herd of wild, free-roaming burros originally introduced by Spanish
- Petrified sand dunes, huge cliffs and deep ravines
- Endangered desert tortoises and desert bighorn sheep
- Cultural resources, including prehistoric petroglyphs and pictographs, and a portion of the Old Spanish Trail
- Spectacular multi-colored sandstone cliffs

total population of Las Vegas and the entire Clark County was less than 750,000, and visitation to Red Rock Canyon NCA was several hundred thousand a year. The FY 2007 manager's report estimates visitation in excess of 1.7 million people annually, and Las Vegas has grown to over two million people. Accordingly, the report acknowledges the need for new planning "to ensure we can continue to meet the expectations of the community for quality, unconfined recreation opportunities and continue to maintain the unique values of the Red Rock Canyon NCA."



Red Rock Canyon: View of Red Wall from a Distance

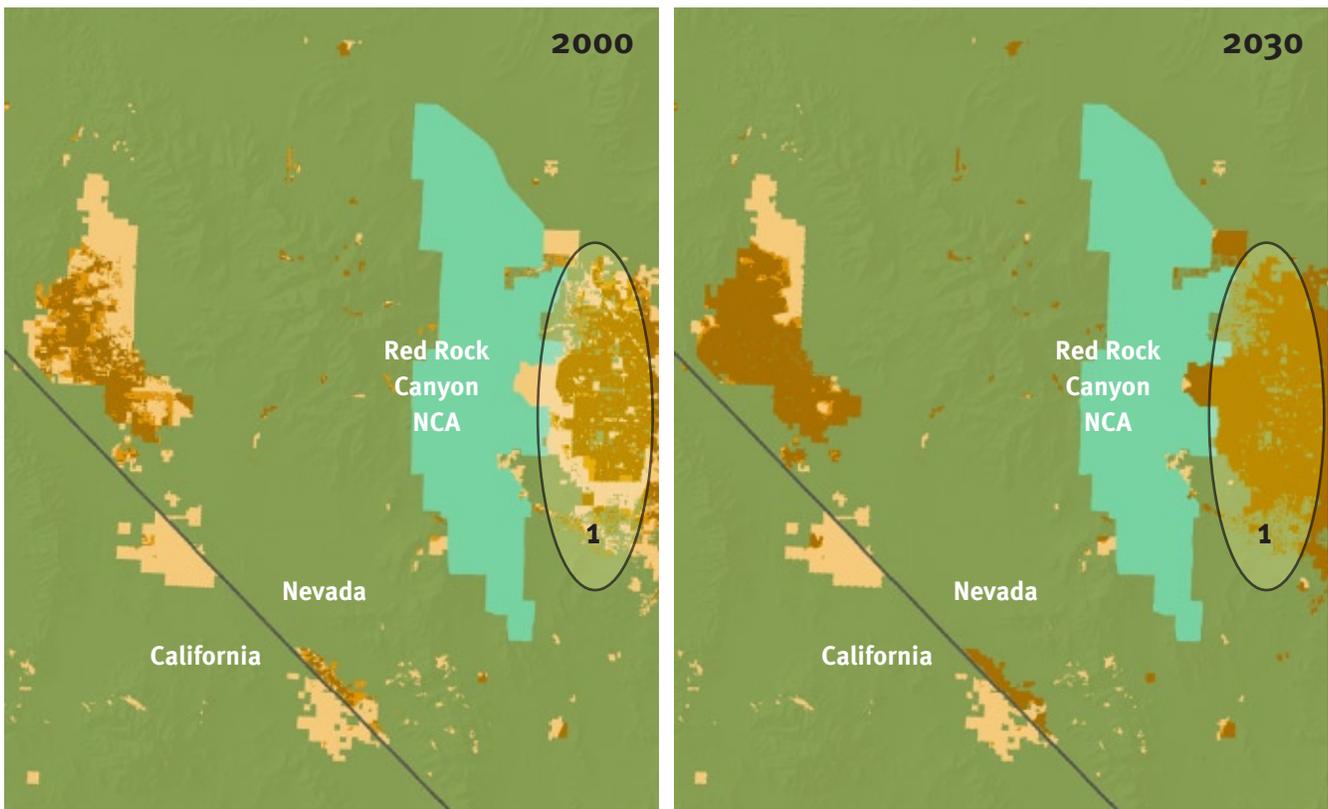
The manager’s report assesses the NCA’s physical infrastructure as inadequate to accommodate current visitation levels. Funds available from the Southern Nevada Public Land Management Act will support a new visitor center (projected to open in 2009 or 2010) and resurfacing of the scenic drive. Additionally, partnerships with other organizations are providing funds for new trailheads, vehicle barriers and interpretive signs.

The Friends of Red Rock Canyon, established in 1984, was the nation’s first formal partnership between volunteers and the BLM. The group provides substantial volunteer labor, interpretive services and supplemental fundraising.<sup>35</sup> The NCA manager’s report estimates that Friends members contribute the equivalent of seven to ten

full-time employees working exclusively for the benefit of Red Rock Canyon NCA. The Red Rock Canyon Interpretive Association, founded in 1988 and currently employing 50 full- and part-time staff, provides materials and services to promote understanding and appreciation of the NCA’s natural history, cultural history and scientific resources.<sup>36</sup>

This supplemental assistance is essential to the NCA’s management. Much of the area’s operations and management budget is funded from entrance fees and bookstore sales, all collected by members of the Interpretive Association. Total expenditures for Red Rock Canyon NCA are just over \$1.9 million, but the Congressional allocation in FY 2007 was just \$138,000.

### Urban Growth Near Red Rock Canyon NCA



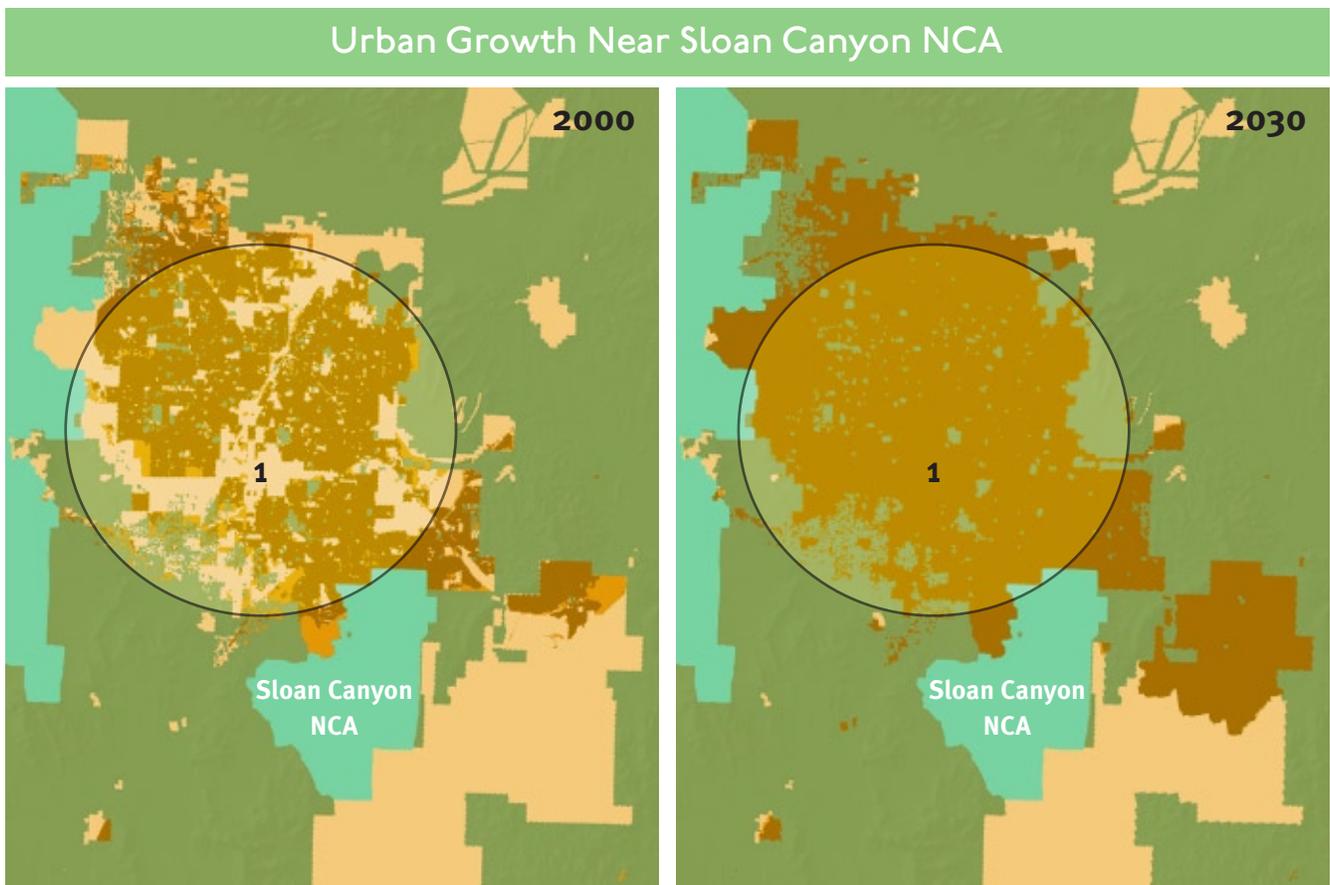
Map 10

## Sloan Canyon National Conservation Area: Urban Backdrop, Rock Art Showcase

Sloan Canyon is located immediately adjacent to the city of Henderson, defining that city's skyline and providing hiking, biking and equestrian access through a recently expanded trail system. Created in 2002 as part of the Clark County Conservation of Public Land and Natural Resources Act,<sup>37</sup> the central feature of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in Southern Nevada. Archeologists believe the more than 300 rock art panels

with 1,700 individual design elements were created by native cultures from the Archaic to historic eras.

Map 11 shows that Sloan Canyon NCA directly abuts urban city limits. Eventually, its western and northern edges will fill with residential housing, schools, parks and businesses. This most urban of NCAs will thus face the most direct pressures from casual, dispersed local access as well as continued visitation from residents living throughout the Greater Las Vegas region (area 1) and beyond.



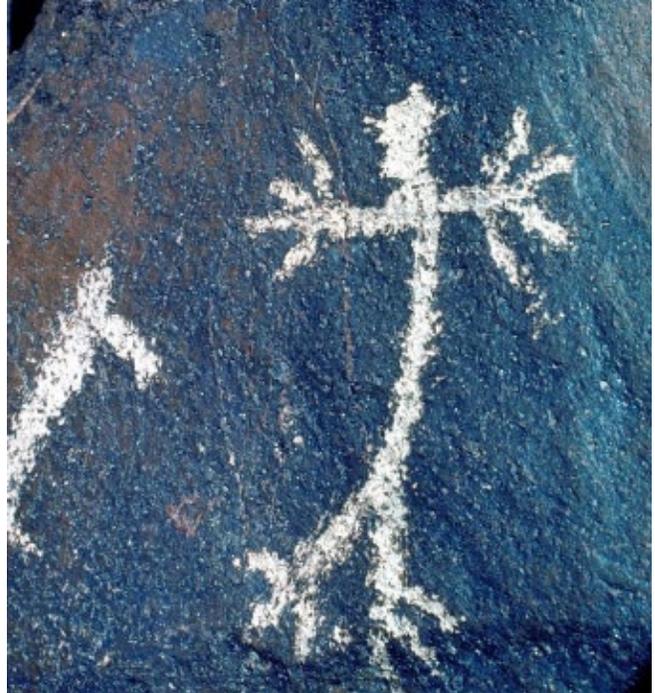
Map 11

The BLM's FY 2007 manager's report assesses resource conditions throughout the NCA as stable, but that the northeast corner experiences a great deal of unauthorized off-highway vehicle use and trash dumping.<sup>38</sup> Agency personnel join with volunteers several times a year to remove debris. The Sloan Canyon Petroglyph Site is especially vulnerable to damage. The BLM reports that the site is generally in good condition, but that increased visitation has resulted in erosion and vandalism.

The city of Henderson worked cooperatively with the BLM in developing an open space and trails plan that requires developers to incorporate natural areas around the Sloan Canyon NCA boundary. If done properly and adequately enforced, this plan could help reduce illegal uses and protect the natural environment. As the manager's report concluded, the plan "created, in a sense, a transition area between residential areas and the boundaries for the Sloan Canyon." This is the sort of effective buffer that can help alleviate the immediate proximity of urban and natural protected areas.

The FY 2007 manager's report did not include estimated visitation. The NCA's resource management plan calls for construction of a visitor center focused on interpretation of the area's cultural resource sites, which may be located on lands adjacent to the NCA in cooperation with the city of Henderson.

Another construction project described in the report has generated opposition from environmentalists. Federal legislation in 2004 authorized construction of a heliport adjacent to the Sloan Canyon NCA. The Sloan Canyon and



Red Rock Canyon NCAs will receive one dollar for each helicopter tour passenger on the flights to the Hualapai Indian Reservation (Grand Canyon) in Arizona. Several groups, including the Friends of Sloan Canyon, object to the level of traffic and noise that this heliport will impose on visitors to the NCA and its wildlife.<sup>39</sup> Ninety round trip flights per day are planned over the NCA at a substantially lower height than flights over residential areas.

Sloan Canyon NCA's funding is derived from the Southern Nevada Public Land Management Act, described in the text box on page 21. A parcel of land within the SNPLMA disposal boundary was auctioned off and the funds set aside in an interest-bearing account (generating approximately \$2.4 million/year) to support the NCA. The total budget for Sloan Canyon NCA was \$1.7 million in FY 2006, all derived from this account. According to the manager's report, the intention is to avoid using any appropriated funds for the NCA's operation and maintenance.

## Sloan Canyon National Conservation Area

Established in 2002

48,439 acres

### Key features:

- Sloan Canyon Petroglyph Site, one of the most significant cultural resources in Southern Nevada (300 panels of rock art)
- Native American sacred sites ranging from Archaic to historic eras
- Endangered desert tortoise and bighorn sheep
- Elevations ranging from dry lake beds to 5,000-foot-tall volcanic peaks

## Grand Canyon-Parashant National Monument: Vast Geological Showcase

Unlike other Conservation System areas profiled in this report, the Grand Canyon-Parashant NM is managed jointly by the Bureau of Land Management and the National Park Service (NPS). It borders Grand Canyon National Park to the south, Nevada to the west, and is bounded by the BLM's Arizona Strip multiple-use region on the east and north. Although the monument is located in Arizona, the nearest community is St. George, Utah, 30 miles to the northeast.

The monument is located at the junction of three physiographic provinces: the Colorado Plateau, Mohave Desert

and Great Basin, resulting in a great diversity of habitats and animal life. The vast monument provides outstanding opportunities for remote, solitary exploration, with no paved roads or services and only two designated trails.

Unlike Red Rock Canyon and Sloan Canyon NCAs, which are located immediately adjacent to rapidly growing Greater Las Vegas (area 1 on Map 12), this monument is closer to the growth corridor anchored by St. George, in Washington County, Utah (area 2). This rapidly urbanizing area is often noted as a growth “hot spot” in the West, as the county’s population



growth rate exceeded 33 percent between 2000 and 2006. Washington County's population has increased by almost four times since 1980 and almost doubled in size during each of the past three decades (1970-2000).

Based upon the Governor's Office of Planning and Budget's 2005 Baseline Population Projections Data Set, Washington County's population will increase to 178,926 by 2012 and reach 410,840 in 2035. This represents a population increase from the 2005 population of almost 54,000 people by 2012 and 285,830 people by 2035.<sup>40</sup> According to an analysis prepared for the citizen group Vision Dixie, "the major components of the economic engine driving the local economy include retirement living, tourism and recreation, and migration primarily from the northern part of [Utah] and from the State of California." The region's mild winters, access to public lands (Zion National Park lies within a half-hour drive of St. George), and relatively low housing prices have drawn retirees and urban escapees to the golf course-studded Virgin River valley.

Visitation over such a large and undeveloped area as the Grand Canyon-Parashant NM is difficult to track. The BLM estimates that approximately 44,820 people visited the monument in 2007. Many stopped by the Interagency Information Center in St. George, Utah, the primary point of contact for the monument, which reported 13,420 visitors in 2007.<sup>41</sup>

The FY 2007 manager's report indicated a base budget of BLM funding of \$994,739, plus \$2,111,993 in one-year flexible funding, for a total of \$3,106,732 from the BLM. Due to the joint management arrangement with the NPS, the monument budget included an additional \$834,000 in NPS base funding and \$143,600 in flexible funding from the NPS, for an overall total monument budget in that year of \$4,084,332. Additional funds for fire suppression work, fuels reduction, and administrative

## Grand Canyon-Parashant National Monument

Established in 2000

1,014,000 acres

### Key features:

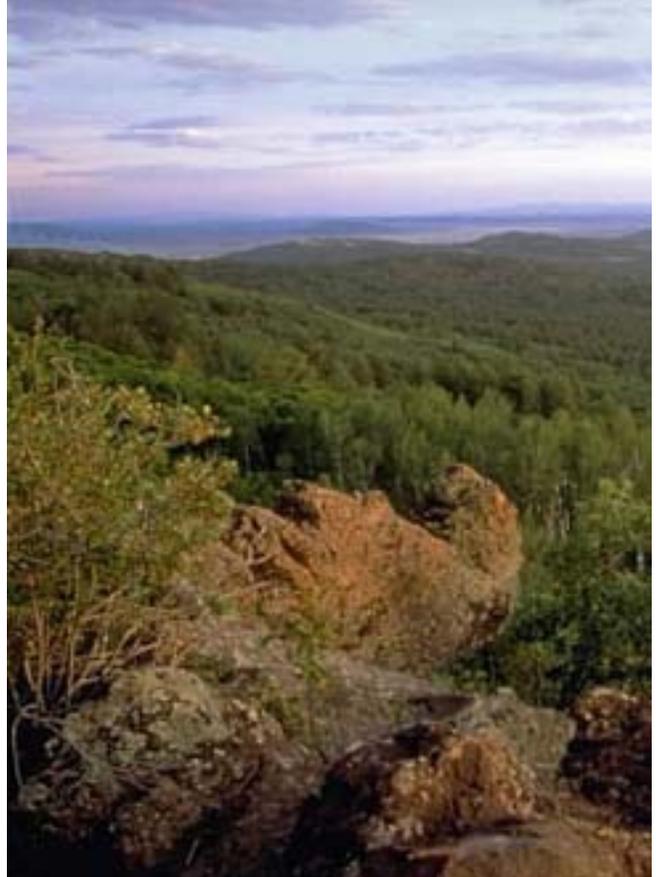
- Over 5,000-foot elevation change, creating wide range of habitats and biological diversity
- More than 200 plant species, 115 bird species and 49 mammal species
- Prime mule deer hunting opportunities
- Endangered California condors and desert tortoises
- Abundant fossils from ancient seas
- Prehistoric quarries, campsites, watchtowers and burial sites
- Historic ranch structures from early settlers

support come from the Arizona Strip District Office of the BLM and the Lake Mead National Recreation Office.

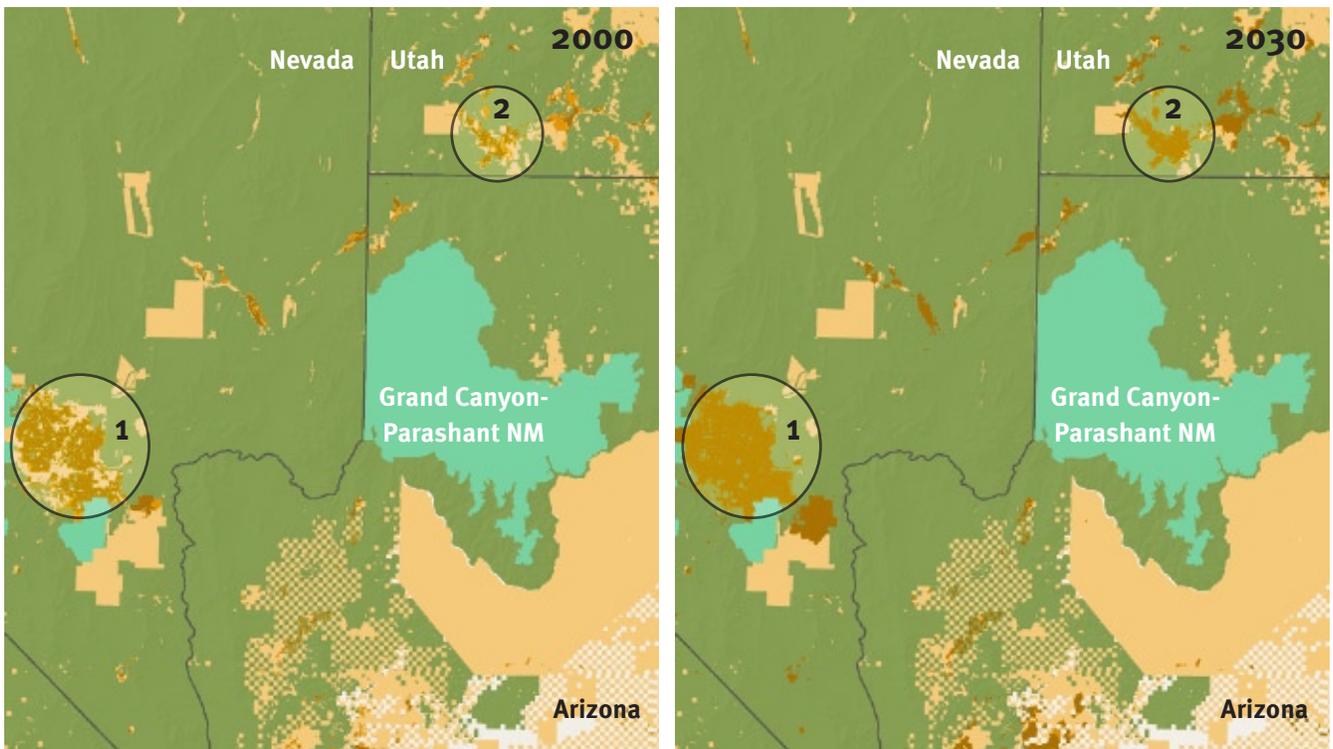
Grand Canyon-Parashant NM is the subject of a lawsuit filed recently by conservationists who claim that the BLM's management plans for this and the neighboring Vermilion Cliffs National Monument fail to comply with the mandates of the Presidential proclamation that established them. According to the lawsuit, the plans illegally ignore the impacts of wildlife habitat fragmentation and

increased off-road vehicle use caused by more than 1,700 newly designated routes across the Arizona Strip, and could lead to vandalism of cultural resources, ecosystem degradation and encroachment on lands proposed for wilderness designation by the Arizona Wilderness Coalition.

Monument managers also face challenges in seeking to restore Pakoon Springs, an important source of water and riparian habitat on the monument. The BLM is \$500,000 short of the necessary funds to restore natural channel configuration and restore native vegetation.<sup>42</sup> ■



### Urban Growth Near Grand Canyon-Parashant NM



Map 12

## Recommendations to Fulfill the Conservation System Vision

### Management Challenges

The BLM acknowledges the mounting effects of population growth and urbanization on the lands it manages. The agency's 2007 Performance and Accountability Report notes that 40 percent of BLM-managed lands in the West are now located within a day's drive of the region's 16 major urban centers.<sup>43</sup> The agency's 2008 budget justifications<sup>44</sup> add that:

- An estimated 22 million people reside within 25 miles of BLM lands;
- An estimated 58 million annual visitors, combined with an increase in use of all-terrain and off-highway vehicles, visit BLM lands every year; and
- 4,100 nearby communities rely on critical watersheds that include BLM lands.

The National Landscape Conservation System areas highlighted in this report illustrate these westwide trends of increasing numbers of people seeking to live near and recreate in public lands. In the Sun Corridor, for example, the public lands within BLM Phoenix District (including the Agua Fria and Sonoran Desert national monuments), are the BLM's most intensely urbanized and are home to 77 percent of Arizona's residents.<sup>45</sup>

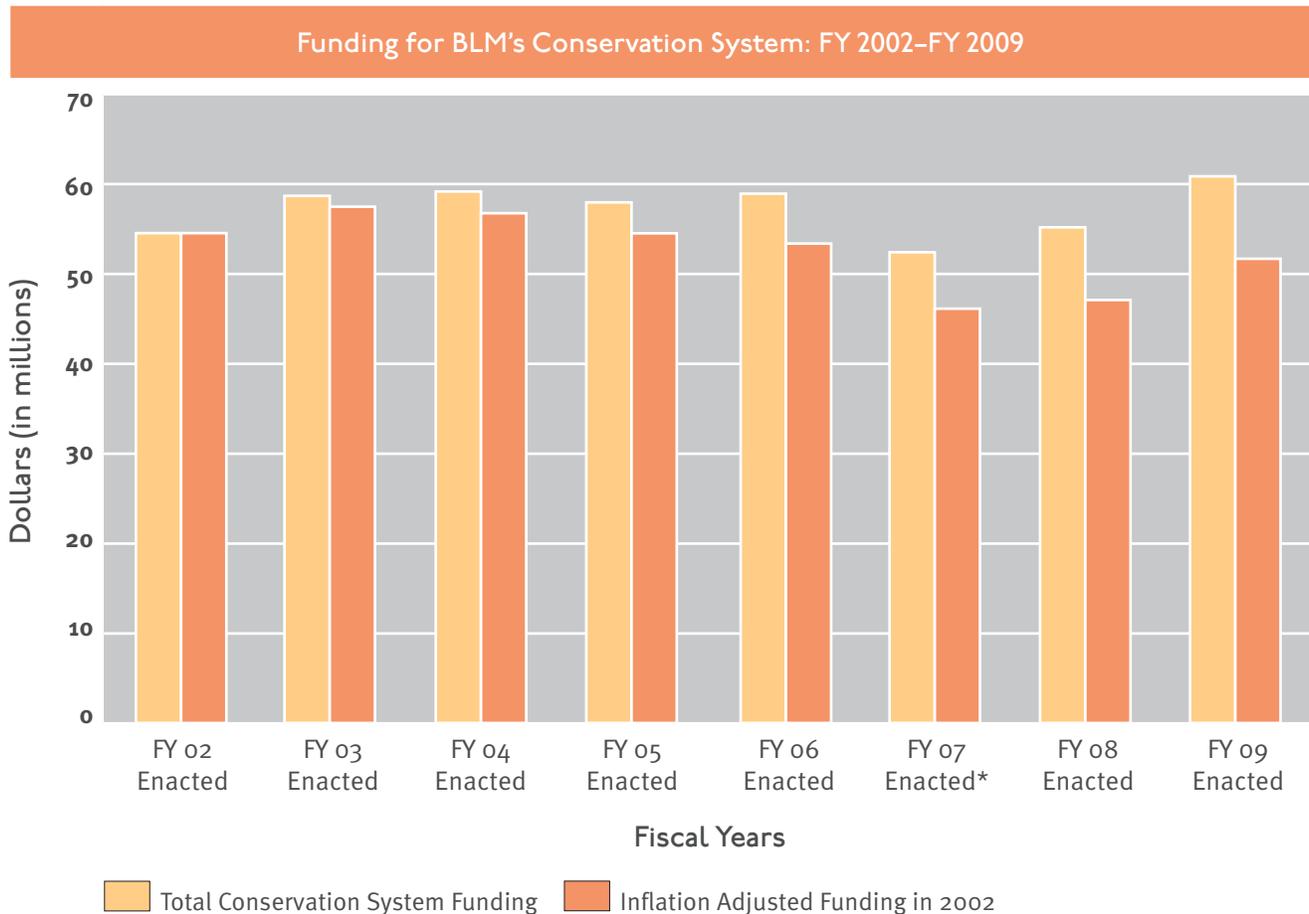
In areas such as those highlighted in this report, visitation and pressures on Conservation System lands have accelerated in recent years. New protected areas have been added to the System, yet, as illustrated in Table 2, funding for the Conservation System has not kept up. For example, in FY 2007, if the System had received proportionate funding from the BLM's land management accounts, it would have received approximately \$98 million<sup>46</sup>; instead, it received just \$52.5 million, or barely \$2 per acre.\*

One of the most immediate needs is better accounting for Conservation System funding and expenditures. According to the BLM's 2008 Budget Justifications, non-Wilderness Conservation System units are funded through 47 of BLM's 143 programs. Wilderness and Wilderness Study Areas (WSA) are funded

through the Wilderness Management programs. In its FY 2008 Omnibus Appropriations bill report, Congress directed the BLM to clarify its budgeting process for the Conservation System. The agency responded in relation to national monuments and national conservation areas, but the accounting practice does not yet extend to all categories of units within the Conservation System. As Table 3 illustrates, budget allocations for individual Conservation System areas profiled in this report vary widely, but in most cases are insufficient to meet their diverse and growing needs.

Auxiliary nonprofit organizations (“Friends” groups) provide invaluable assistance, both in raising additional funds and in direct in-kind services. Between 2006 and 2007, Conservation System volunteerism (in non-Wilderness/WSA units) increased from 256,846 hours to 276,313 hours, an increase of 8 percent. According to an analysis conducted by The Wilderness Society, the estimated cost to taxpayers was roughly 93 cents per hour of work; numerous estimates value volunteer labor at closer to \$20 per hour. Total Conservation System volunteer hours in 2007 were more than 300,000. These groups also provide a valuable connection to community members, effectively linking urban residents to their neighboring public lands.

Table 2



Source: BLM, appropriations bills and Consumer Price Index (graph developed by John Garder, The Wilderness Society)

As the West’s population grows increasingly urban, and as parents and schools seek new opportunities to remedy the so-called “nature deficit disorder,” these natural landscapes will prove increasingly valuable and should be treated accordingly.

The Wilderness Society (using data from the BLM) estimated donations of volunteer labor alone in 2007 (not counting other in-kind donations) as valuing nearly \$6 million, which is the equivalent of more than 10 percent of the Conservation System’s operating budget that year. In-kind monetary donations further assist overburdened and under-resourced managers. Far more volunteer resources could be accommodated with additional funding for staff to coordinate volunteers and engage in community outreach.

Table 3 also illustrates the disparate funding sources for the Conservation System areas profiled in this report. Sloan Canyon NCA receives substantial support from an interest-bearing account derived from land

sales authorized by the Southern Nevada Public Land Management Act (SNPLMA). Red Rock Canyon NCA supplements its appropriation with visitor fees, which totaled nearly \$1.6 million in FY 2007. Grand Canyon-Parashant NM shares management authority and receives a major funding contribution from the NPS.

Monitoring visitor use and planning for future recreation needs have presented challenges to the BLM, largely because these areas are generally undeveloped and the recreation is dispersed. The agency began compiling comprehensive data for many Conservation System areas on an annual basis in 2006. The agency is now piloting a version of the National

Visitor Use and Funding for Arizona-Nevada Areas: FY 2007							
Unit Name	Size (acres)	2007 visitation <sup>1</sup>	FY 2007 allocation	\$/acre	\$/visitor	Supplemental support <sup>2</sup>	Fees collected (\$)
Agua Fria NM	71,000	34,830	609,429	8.58	17.49	109,940	0
Sonoran Desert NM	486,600	35,000	763,500	1.57	21.81	265,780	0
Ironwood Forest NM	129,020	15,000	718,735	5.57	47.92	205,494	400
Las Cienegas NCA	42,000	16,111	1,749,198	41.65	135.57	222,032	1,035
San Pedro Riparian NCA	58,000	175,000	2,045,127	35.26	11.69	3,218,416	4,145
Red Rock Canyon NCA	198,000	1,700,000	138,000 <sup>3</sup>	0.70	0.08	630,000	1,440,000
Sloan Canyon NCA	48,438	n/a	10,000	0.21	n/a	2,400,000 <sup>4</sup>	0
GC-Parashant NM	1,050,963	44,820	3,106,732	2.96	69.32	104,000 977,600 <sup>5</sup>	10,471

Table 3

<sup>1</sup> Visitation and budget allocation figures for all Arizona areas from National Landscape Conservation System annual reports, FY 2007. Budget figures include base and flexible funding reported for FY 2007.

<sup>2</sup> Unless otherwise indicated, these figures represent contributed funds (e.g. from Friends groups) and in-kind support.

<sup>3</sup> Budget figures for Conservation System areas in Nevada are the FY 2007 Congressional allocation. See additional funding notes.

<sup>4</sup> Revenues from interest-bearing account derived from SNPLMA land sales.

<sup>5</sup> Funds from National Park Service under shared administration arrangement.

Visitor Use Monitoring (NVUM) methodology, which has been widely used by the Forest Service.<sup>47</sup>

Until more complete visitor and recreational-use monitoring systems are in place, such data will remain non-uniform and of varying degrees of quality across various BLM management units. Given the lack of infrastructure in most of these areas, counting visitors to Conservation System areas may remain a difficult task. Where available, each of the areas featured in this report includes visitor data from the 2007 managers' reports. Without more complete baseline data, accurately predicting future visitor numbers and demand for specific types of recreation is challenging. Methodologies used by other agencies such as the NPS may not accurately reflect the degree of local visitation, since Conservation System areas typically receive more use by local residents compared to visitors who travel long distances to visit well-known, iconic locations such as Yellowstone or Yosemite national parks.

Along with increased visitation and more frequent casual use by nearby residents, the Conservation System lands experience vandalism and looting of cultural and paleontological sites, smuggling, undocumented immigration, unsafe firearm discharge, illegal off-highway vehicle use and trash dumping. This requires a greater law enforcement and field staff presence than the BLM is currently able to provide. The problems highlighted in this report are reinforced by recent contact with a sampling of BLM managers, one of whom complained that current staff members are "self-destructing" from work overload.<sup>48</sup>

As is true throughout the BLM land system, many of the Conservation System units are contending with dilapidated structures that threaten visitor safety, vandalized signs, and other neglected infrastructure. A 2007 analysis by the U.S. Department of the Interior Office of the Inspector General estimated the cost of addressing deferred Interior property, plant, and equipment repair and maintenance needs at \$9.6 to \$17.3 billion.<sup>49</sup> The BLM does not provide data about deferred

maintenance for the Conservation System, but examples appear in each of the areas profiled in this report.

In many areas, the boundaries of Conservation System units should be enlarged to meet the fundamental purpose of landscape-level protection. Federal funding for land acquisition comes from the Land and Water Conservation Fund (LWCF) and the Federal Land Transaction Facilitation Act (FLTFA). In recent years, reduced funding for the LWCF has pushed the BLM toward reliance on the FLTFA, which uses funds generated by the sales of other parcels of federal land to acquire inholdings or adjacent tracts with high resource value. In the last few years, this program has successfully funded nearly \$34.5 million in land acquisition projects, protecting over 9,000 acres of western lands.<sup>50</sup>

The U.S. Department of the Interior established the National Landscape Conservation System to recognize and protect outstanding legacy landscapes—invaluable ecological remnants of the American West. Their integrity for the enjoyment of future generations will depend on the BLM's interest and ability to follow through on the lofty goals expressed in the congressional designations and presidential proclamations that established each of these protected areas. They are not intended to become high-volume tourism destinations, but—in the words of a retired BLM manager who remains active in public land management policies—should "remain places of serendipitous discovery, adventure, and enjoyment."<sup>51</sup>

The following recommendations reflect the need to better equip BLM managers to do the job they are charged with—maintaining and restoring the "crown jewels" of the BLM's land system, while providing opportunities for diverse and meaningful public enjoyment of their resources. As the West's population grows increasingly urban, and as parents and schools seek new opportunities to remedy the so-called "nature deficit disorder,"<sup>52</sup> these natural landscapes will prove increasingly valuable and should be treated accordingly.

## Recommendations

With the signing of the Omnibus Public Land Management Act of 2009, the National Landscape Conservation System is enshrined as a permanent feature of America's array of public lands. Granted permanent protection, the system now deserves greater recognition and resources as a permanent part of our nation's legacy.

### 1 Staff and Resources

Because several of the monuments and conservation areas explored in this report are falling behind on even routine maintenance due to shortages of staff and funding, management resources should first be made sufficient to handle current needs. But if the Conservation System areas are to continue to be functioning ecosystems that provide outdoor recreational opportunities, enhance quality of life, and supply invaluable ecosystem services to rapidly urbanizing regions, it is essential that management staff and funding are increased to keep pace with population growth and more complex management challenges. The most recent estimated average of less than one ranger for every 200,000 acres,<sup>53</sup> is demonstrably inadequate. Productive partnerships with volunteer groups can extend and leverage limited agency resources, but do not replace the need for trained professional enforcement and management staff. The \$75 million requested by conservation groups for FY 2010 for the Conservation System will provide needed funding for project backlogs and management priorities. However, a more comprehensive needs assessment is required to determine adequate levels of staffing and resources for the System.





2

## Budgeting Clarity and Accountability

It is currently difficult to track funding trends for the Conservation System over time. The current budget structure limits budgetary accountability and discourages program integration, coordination and partnerships with non-governmental organizations. The BLM budget should include an Activity Account for the Conservation System with four Subactivity Accounts (National Monument/NCA; Wilderness/WSA; Rivers; and Trails). The BLM should be required to apply funds directed by the Administration and Congress towards the Conservation System to the intended purposes.

3

## Protection for Adjacent Lands

As this report demonstrates, much of the land around existing Conservation System areas that is currently open space will be filled with new development in the coming decades, threatening the resources within these protected areas and compromising their large-scale ecosystem functions. To address this threat, adjacent public lands with high conservation values should be formally protected from development, starting with those included in the Omnibus Public Land Management Act of 2009. Additional landscape protection should be pursued through purchase, exchange, and acquisition of conservation easements to fulfill landscape conservation objectives.

4

## Improved Land Use Planning

Currently Conservation System planning does not adequately consider the likely impacts of projected population growth and regional land use and transportation plans. Updates of management plans should involve a more rigorous review of local comprehensive land use plans and policies, and efforts should be made to coordinate planning efforts that advance both Conservation System management and local land use goals. Joint work on a community trails system around the Sloan Canyon NCA is a good example of working on land use planning issues of mutual concern.

## 5 Development Design

Conservation System managers should work with local governments and others to develop design guidelines that will minimize the impact of urbanization, provide buffers to open space and preserve wildlife corridors. They also should support efforts of adjacent landowners and developers to voluntarily integrate design features that achieve similar goals. However, engaging in both land use planning and development design issues requires skills and expertise that most Conservation System staff do not have. System units in rapidly urbanizing areas should receive funding to hire one or more dedicated staff persons to work on external planning and design issues that impact their units. Many of the growth-related challenges to Conservation System areas originate outside the protected areas. As the challenges posed to public land managers by population growth and urbanization become more complex, effective partnerships with other agencies, nonprofit organizations, Friends groups and municipalities will become critical. The time and resources that the Conservation System staff devotes to fostering these relationships should be recognized and rewarded. Such efforts would be advanced by a System-wide small grants program or a carefully targeted cost-share program. Modest funding can effectively leverage tremendous volunteer efforts.

## 6 Improved Monitoring and Enforcement

Stepping up efforts to monitor resource conditions and visitor use and impacts on Conservation System areas will help the BLM to avoid seemingly minor management issues becoming major problems. Immediate action is needed to prevent further damage to protected landscapes from illegal and uncontrolled activities such as off-highway vehicle use, vandalism of cultural sites and trash dumping. ■





## Footnotes

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Page 45, Courtesy of The Wilderness Society, *Grand Canyon-Parashant National Monument*

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*Shaping the Future of the West*

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**June 2009**