

To: Fisher, Timothy[tjfisher@blm.gov]; Rachel Wootton[rwootton@blm.gov]
Cc: Butts, Sally[sbutts@blm.gov]; Nikki Moore[nmoore@blm.gov]; Karen McKinley[kmckinley@blm.gov]; Sheldon (Mark) Wimmer[mwimmer@blm.gov]; Brandon Boshell[bboshell@blm.gov]; Wayne Monger[dmonger@blm.gov]; Claire Crow[ccrow@blm.gov]; Darrell Tersey[dtersey@blm.gov]; Michael Johnson[mdjohnso@blm.gov]
From: Mahoney, Kenneth
Sent: 2017-07-20T20:51:45-04:00
Importance: Normal
Subject: Re: National Monument Review - Draft Economic Reports - Quick Review
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[GrandCanyonParashant_07_10_17_MW km.docx](#)
[IFNM_07_10_17_economic_analysis_TFO-commentsPAM_1_mj km new pic and more.docx](#)
[Sonoran_07_16_17_wm_mj km comments new pic.docx](#)
[VermilionCliffs_7_11_17_bb km new pic.docx](#)

Rachel and Tim,
Please find attached the draft economic reports with comments in track changes for the four Arizona national monuments. Thank you for the opportunity to review the draft reports. Contact me if you have any questions about the comments and edits.

Ken Mahoney <> Program Lead:
National Monuments <> National Conservation Areas
Wilderness <> Wild & Scenic Rivers
Arizona State Office <> Bureau of Land Management
602 417 9238 <> kmahoney@blm.gov

On Wed, Jul 12, 2017 at 8:32 AM, Butts, Sally <sbutts@blm.gov> wrote:

Hi All,

We have been given the opportunity to do a quick review of the draft Department of Interior economic reports for the eight BLM managed or co-managed National Monuments currently under review. The draft reports are for:

- ☐ Grand Canyon-Parashant
- ☐ Grand Staircase-Escalante
- ☐ Sonoran Desert
- ☐ Ironwood Forest
- ☐ Canyons of the Ancients
- ☐ Carrizo Plain

- ☐ Mojave Trails
- ☐ Vermilion Cliffs

If you would like to provide comments, please compile your state's comments in track changes within the attached reports and provide them on or before **Close of Business Thursday, July 20th**. Please email your state's comments to Rachel Wootton (rwootton@blm.gov) with a copy to me (sbutts@blm.gov) and Nikki Moore (nmoore@blm.gov) as soon as you have completed your comments, so that we can get them reviewed by the deadline and submitted back to the Secretary's office. The comments are due back to the Secretary's office by Friday, July 21st.

We have blocked out Tuesday afternoon, July 18, from 4-5pm EST to answer any questions you may have. The conference line and passcode for the meeting are:

- ☐ Conference Line: (b) (5) CIP
- ☐ Passcode: (b) (5) CIP

Thank you so much for all the time and energy you and your staff have put in to make sure that we are providing DOI with the information they need. Please contact me with any questions.

Sally

--

Sally R. Butts, J.D., Acting Division Chief
National Conservation Lands
Bureau of Land Management
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Office 202-912-7170; Cell 202-695-5889; Fax 202-245-0050; sbutts@blm.gov

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Sonoran Desert National Monument

Economic Values and Economic Contributions

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Introduction

The purpose of this paper is to provide an overview of the economic values and economic contributions of the activities and resources associated with Sonoran Desert National Monument (SDNM or the Monument). The SDNM is located in Maricopa and Pinal counties in Arizona. Population centers adjacent to the planning area include metropolitan Phoenix and the communities of Ajo, Goodyear, Buckeye, Gila Bend, Mobile, Casa Grande, and Maricopa. For context, this paper provides a brief economic profile of Maricopa and Pinal counties as well as Pima County.

Sonoran Desert National Monument,
Arizona

Location: Maricopa and Pinal counties, AZ

Managing agencies: BLM

Adjacent cities/counties/reservations:

Pima County, AZ

Resources and Uses:

☒ Recreation ☐ Energy ☐ Minerals
☒ Grazing ☐ Timber ☒ Scientific Discovery
☒ Tribal Resources ☒ Cultural Resources

Background

The SDNM was established by President Clinton on January 17, 2001 (Proclamation 7397) and is managed by the Bureau of Land Management (BLM). The Monument encompasses 496,400 acres including 486,400 acres of BLM-administered land, 3,900 acres of Arizona State Trust lands, and 6,100 acres of private land. There are three Wilderness Areas with the Monument totaling 158,516 acres, about 33% of the SDNM. The BLM manages 461,000 acres of federal mineral estate. Therefore, there are a few parcels (25,800 acres) within the Monument where the surface is owned by the United States and the subsurface is owned by a non-federal entity. As stated in the Proclamation and reiterated in the Lower Sonoran-Sonoran Desert National Monument Proposed Resource Management Plan / Final Environmental Impact Statement (PRMP/FEIS), the SDNM was designated to protect “a magnificent example of untrammeled Sonoran desert landscape” with an “extraordinary array of biological, scientific, and historic resources”. To protect objects within the Monument, the Proclamation directed the following management:

- Prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes and prepare a transportation plan that addresses action to protect identified objects (such as road closures or travel restrictions). See further discussion regarding allowed motorized and mechanized vehicle use under “Recreation” on page 5.
- Withdraw from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws including location, entry, and patent under the mining laws and mineral and geothermal leasing.
- Continue to issue and administer grazing leases and permits within the Monument with the exception of the permits south of Interstate Highway 8 which shall not be renewed at the end of their current terms; and provided further, grazing on Federal lands north of Interstate 8 shall be allowed to continue to the extent that the BLM determines that grazing is compatible with the objects identified in this proclamation.
- The Proclamation also states that the establishment of the monument is subject to valid existing rights.

The SDNM Resource Management Plan (RMP) was approved in 2012. The plan put in place management that reflected the requirements of the Proclamation along with management that was responsive to issues identified by the public, stakeholders, and BLM specialists and managers during the scoping period and applicable federal and state laws, regulations, and BLM policies.

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A Resource Management Plan Amendment (RMPA) is currently in progress to address recreational target shooting in response to a court decision. The draft RMPA/EIS was issued in December 2016. Discussed in further detail below, the decisions in the approved RMP related to livestock grazing are currently being litigated.

The SDNM is situated primarily in Maricopa County (440,600 acres) with a much smaller portions of the Monument extending into Pinal County (55,800). Population centers adjacent to the Monument include metropolitan Phoenix and the communities of Ajo, Goodyear, Buckeye, Gila Bend, Mobile, Casa Grande, and Maricopa. The southwest boundary of the Monument is shared with the Barry M. Goldwater Air Force Range.¹

Public Outreach Prior to Designation

The Dryland Institute's 2001 report titled "Biological Resources of the Sonoran Desert National Monument, Arizona" provides a useful overview of the historical advocacy in support of designating the SDNM. The document points the re-conveyance of the about 75,000 acres of land from the Department of Defense to the BLM in 2000 as a motivating factor for advocates proposing the designation of the now SDNM. Former Department of Interior Secretary Babbitt toured the area in late 2000. Based on information in historical articles, it appears that Secretary Babbitt did meet with both advocates and opponents of the designation prior to making his recommendation for designation to President Clinton. However, the details of those meetings and any public meetings or hearings are not readily available.

Local Economy and Economic Impacts

Table 1 summarizes some key demographic and economic indicators for Maricopa County, Pinal County, and the State of Arizona. Maricopa County contains just over 60 percent of the population in the State of Arizona most residing in the Phoenix metropolitan area. Since 1990, the County has grown proportionally more than the State as a well (89% compared to 81%). Although Pinal County has significantly less population, accounting for around 6 percent of the State's population, the County's population growth since 1990 has been well above the State's rate (235%). The current unemployment rate in both counties is 3.9 percent and below the State's rate. A substantial portion of the Pinal County workforce are employed in jobs outside the County. This observation is reflected in the ratio of jobs to population (23%

¹ The Proclamation also directed the BLM to continue existing management practices in the area adjacent to the Barry M. Goldwater Air Force Range (the Sand Tanks Mountains area of the SDNM commonly known as "Area A"). This area was previously controlled and managed by the U.S. Air Force and re-conveyed to the BLM from the Department of Defense by the National Defense Authorization Act for Fiscal Year 2000. The approved RMP designated the area as a Special Management Area and stated that access to the area would continue to require the Barry M. Goldwater Air Force Range entry and public safety permit (for the BLM, these are managed as Individual Special Recreation Permits).

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in Pinal County compared to 53% for the State) and BEA personal income data that shows a significant net inflow of income. This pattern is likely attributable to the close proximity of Phoenix and Tucson to the County.

Non-labor income (income from dividends, interest, and rent and transfer payments) as a source of total income has increased for both counties between 2000 and 2015 (accounting for 39% in Maricopa and 42% in Pinal in 2015 compared to about 40% for the State as a whole).

The racial and ethnic composition of Maricopa and Pinal counties are generally similar and comparable to the State as a whole. Overall, the percentage of non-Hispanic Whites is around 55 percent and about a third of the population identifies as Hispanic. Pinal County's proportion of Native American population is slightly higher than the State (4.7% compared to 4%) whereas Maricopa County's proportion is lower (1.6%).

Pima County accounts for about 15 percent of the State's population, making it the second most populated county in the State. A majority of the County residents live in the Tucson area. Pima County grew at a slower rate than the State since 1990 (50% compared to 81%).

Table 1. Maricopa and Pinal Counties and State of Arizona Economic Snapshot

Measure	Maricopa, AZ	Pinal, AZ	Arizona
Population, 2016 ^a	4,018,143	389,772	6,641,928
Native American % of population ^a	1.9%	5.3%	4.4%
Employment, December 2016 ^c	2,431,731	90,119	3,542,969
Unemployment rate, March 2017 ^b	3.9%	3.9%	5.0%
Median Household Income, 2015 ^a	\$54,229	\$49,477	\$50,255

^a U.S. Census Bureau, 2011–2015 American Community Survey

^b https://laborstats.az.gov/sites/default/files/documents/files/emp_report.pdf

^c U.S. Bureau of Economic Analysis (BEA), Regional Economic Accounts, Table CA25N.

The USDA Economic Research Service's (ERS) county-level typology codes indicate that all three counties are “non-specialized” indicating a diversity of industries driving their economies. That said, based on 2015 BEA data for both counties, the proportion of jobs in the government sector in Pinal and Pima counties exceeds the State (17.6% in Pima and 22.6 in Pinal compared to 12.5% for the State). Maricopa County employment is heavily driven by service-related sectors with about 80 percent of jobs in those industries (compared to 76% in the State and 63% in Pinal County). Pinal County employs relatively more in the natural resource-related industries including farming (3.4%) and mining (1.8%). Together these two industries account for 5.2% of jobs (8.1% of earnings) compared to 1.5% of jobs (1.6% of earnings) in the State as a whole. Pima County has a relatively higher proportion of jobs in the health care and social assistance sector.

As noted above, the Phoenix metropolitan area and the communities of Ajo, Goodyear, Buckeye, Gila Bend, Mobile, Casa Grande, and Maricopa provide access to and could be affected by management decisions on the Monument.

The communities near the Monument include Goodyear, Buckeye, Gila Bend, and Mobile, all in Maricopa County, as well as Maricopa and Casa Grande in Pinal and Ajo in Pima. Several of these communities have growth at a rapid pace in the last couple of decades. For example, Maricopa city has grown from around 1,500 in 2000 to almost 50,000 today. Gila Bend and Ajo have had stable, if not contracting, population since 2000. As noted in the FEIS, four O'odham-speaking groups reside on reservations near the boundaries of the SDNM: the Ak Chin Indian Community, Gila River Indian

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Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation.

In the years following monument designation (2001-2015), the communities in Maricopa and Pinal Counties neighboring the SDNM experienced strong growth, continuing previous growth trends.

Population grew by 36%. Jobs grew by 29%. Real personal income grew by 44%. Real per capita income grew by 6%.³ The designation of the Monument appears to have not impacted economic growth in any negative manner.

Table 2. Estimated Economic Contributions, 2016

Activities	Economic output (\$millions)	Value added (net additions to GDP, \$millions)	Employment supported (number of jobs)
Recreation*	\$4.3	\$2.6	46
Grazing	\$0.6	Grazing value-added is not available	<20

*Source: BLM data (visits represent 5-year average).

Activities and Resources Associated With SDNM

Activities taking place on and resources within the SDNM include:

- Recreation:** The most common recreational activities on SDNM include hiking, hunting, camping and OHV travel on designated routes. Six trailheads provide access to four established hiking trails within designated wilderness areas. The Anza National Historic Trail passes through the SDNM, providing recreational experiences along this historical resource. At the time of designation, visits to the Monument fluctuated around 15 to 20 thousand. Visits generally grew until a temporary vehicle closure in a portion of SDNM was implemented due to resource damage in 2008 causing visitation numbers to drop in FY2009. Visitation levels have steadily increased since then, especially in the past few years from around 26,000 visits in fiscal year (FY) 2013 to over 51,000 in FY2016. Estimated expenditures in local gateway regions in FY2016 was \$2.4M. These expenditures support a total of 46 jobs, \$1.6M in labor income, \$2.6M in value added, and \$4.3M in economic output in local gateway economies surrounding the Monument. Using an average consumer surplus value for the area of \$54.19 per recreational visit, the estimated economic value (net benefits) generated in FY2016 was \$2.8M.²

The Proclamation's prohibition of all motorized and mechanized vehicle use off road was implemented through travel management decisions during the planning process. The basic approach for implementing this prohibition was to identify areas of the Monument as open, limited, or closed to motorized and mechanical use. Then the BLM reviewed existing routes within areas designated as limited and, based on input from interested stakeholders, determined the type of travel, if any, that would be permitted on existing routes and under what conditions. A SDNM Travel Management Plan was completed as part of the 2012 RMP process in 2012. During that evaluation: 632 miles were evaluated, of which 411 miles were designated available for public use (open). This information is located on in the FONSI (Attachment 4) of the 2012 Sonoran Desert National Monument Record of Decision and Approved Resource Management Plan. No motorized or mechanical travel would be permitted off existing routes designated for motorized or mechanical travel, except for emergencies. Section 2.3 of the Approved RMP describes these decisions in detail.

² Recreation unit value is a survey-based value for general recreation for the Intermountain region from the USGS Benefit Transfer Toolkit <https://my.usgs.gov/benefit-transfer/>. Economic value is the net benefit to recreational users (total benefits minus total costs).

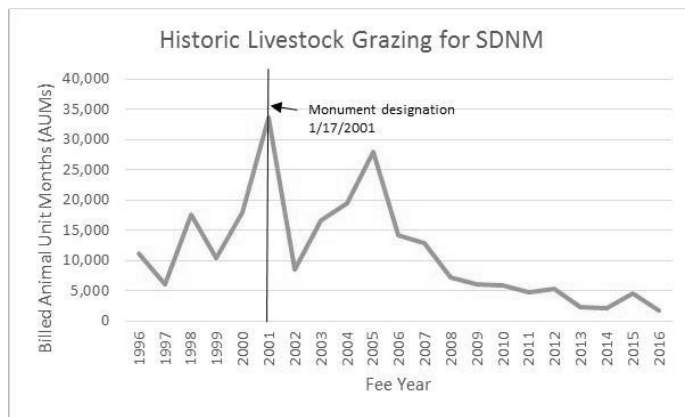
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While not addressed in the Proclamation, the issue of recreational target shooting activity is a highly controversial activity and is currently allowed with the Monument. However, as noted above, the BLM is evaluating recreational target shooting in a RMPA is currently in progress to address recreation target shoot in response to a court decision. The draft RMPA/EIS was issued in December 2016. The BLM's Preferred Alternative would allow recreational target shooting on the Desert Back Country Recreation Management Zone (approximately 433,600 acres).

- **Energy:** There is no potential for coal resources within the Monument. The potential for oil & gas is low, except in the Vekol Basin in the southeast part of the Monument, where the potential is moderate. The potential for geothermal resources is generally moderate throughout the Monument, similar to the rest of the region south and west of Phoenix. However, there is no recorded production of leasable minerals from within the Monument area. The region has high potential for solar energy development. Opportunities for wind energy or biomass are minimal. Prior to the approved SDNM RMP there were three 1-mile wide utility corridors that crossed BLM-administered lands within the Monument. The approved RMP designated the entire Monument as an exclusion area. This decision prohibits utility scale solar energy development and the designation multiuse utility corridors (including new transmission infrastructure or pipelines). The Proclamation withdrew the Monument from location, entry, and patent under mining laws, subject to valid existing rights.
- **Non-Energy Minerals:** Potential for locatable minerals within the Monument area is considered low to moderate. Areas with moderate potential occur in mountainous terrain, a large portion of this terrain is within the three Wilderness areas. The southern portion of the SDNM has one area outside designated wilderness with high potential for porphyry copper and one very small area with high potential for gold. Potential for salable minerals exists throughout the Monument including potential for sand and gravel and crushed stone resources. These resources are not as desirable as similar resources located closer to population centers outside the Monument. Costs to transport salable minerals produced within the Monument area to nearby population centers would be greater than transportation costs associated with mines outside the Monument and closer to population centers. However, within the Monument, along Interstate 8, there are three authorized material site rights-of-way issued to the Federal Highway Administration, for the purpose of supplying construction materials to aid federal highway projects. The material sites are sand and gravel pits that are intermittently used to supply highway maintenance projects on Interstate 8. Information on non-energy minerals resource in the FEIS was limited, but it was noted there were no existing locatable minerals rights in the SDNM as all previous mining claims had lapsed. Nor were there any existing mineral leases, mineral materials sales, or free use permits in the SDNM.
- **Grazing:** As explained in the FEIS, in Arizona, BLM grazing allotments are classified as perennial, ephemeral, or perennial-ephemeral. Perennial means the allotment consistently produces enough forage to support a livestock operation year-round and has an established forage limit; whereas, the permitted use on ephemeral allotments and allotments with ephemeral forage, is based on vegetation production and determined by the BLM prior to authorizing use. Prior to Monument designation there were 16,433 perennial active AUMs. Responsive to the Proclamation, as permits expired in areas south of Interstate 8, they were not renewed reducing the perennial active AUMs to 8,703 on SDNM by early 2009. However, ephemeral use continued to be authorized. The approved RMP further reduced perennial active AUMs within the Monument to 3,114 by closing areas not meeting rangeland health standards but also continued allocating grazing allotments as perennial-ephemeral, or ephemeral (north of Interstate 8). These livestock grazing decisions were challenged and are currently still being litigated. However, the decision was stayed which prevented the BLM from

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renewing permits until the litigation is resolved. Currently there are 776 perennial-ephemeral active AUMs. The figure below shows billed AUMs from 1996 through 2016.



The number of billed AUMs varies widely from year to year and in many cases exceeds the amount of perennial active AUMs authorized in a given year due to ephemeral use. Since Monument designation the amount of billed use has trended down, as expected given the direction in the Proclamation, decisions made in the approved RMP, and current litigation stay.

Based on 5-year average of recent billed AUMs (3,283), livestock grazing on the Monument has supported approximately 17 paid and unpaid (i.e., family labor) jobs annually resulting in approximate \$166,000 in labor income and generating about \$630,000 in total economic output. This level of economic contribution could change in the long run after litigation has been resolved. There is a potential for an increase in labor due to the highly variable and ephemeral nature of low desert grazing. During wet years, more jobs might be created to work cattle within SDNM.

- **Timber:** Commercial timber resources are generally not available within the SDNM.
- **Resource values:** Monument designation is intended to protect scientific and historic objects. In general, these objects are valued by society but those values are not bought or sold in the marketplace and therefore difficult to quantify. Below is a brief overview of the objects identified in Proclamation that the designation is intended to protect⁴:
 - **Scientific Investigation:** The SDNM contains ecological, biological, and physical resources of scientific interest. Not only does this largely undeveloped area provide important open space, wilderness opportunities, and a valuable visual landscape in the midst of a rapidly urbanizing area, it also represents a functioning desert ecosystem with a diversity of plant and animal species. The ecological diversity of the Sonoran Desert, including a diversity of flora and fauna associated with rare woodlands assemblages, palo verde-mixed cacti, creosote-bursage, desert washes, and rare desert grasslands vegetation communities. As noted in the

⁴ In addition to the Proclamation, Chapter 1 of the FEIS (Section 1.4.2 and Table 1-3: Sonoran Desert National Monument Objects) provides a more detailed description of these objects and their significance.

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Proclamation, “the saguaro cactus forests within the Monument are a national treasure, rivaling those within the Saguaro National Park.”

- **Cultural Resources:** The SDNM contains cultural landscape that appears largely unchanged, with a rich history that spans at least 10,000 years, from the Archaic to modern day. It contains sites representative of the time periods from the Archaic through the modern day, including villages, camps, Ak-Chin farming sites, rock art, lithic scatters, homesteads, and historic ranches, as well as economically important trade and travel routes.
- **Tribal Resources:** Although not explicitly discussed in the Proclamation, several tribes have traditional cultural affiliations with the SDNM. As stated above, four O’odham-speaking groups reside on reservations near the boundaries of the SDNM. The SDNM is used by tribes as an area for gathering seasonal traditional food.

Land Management Tradeoffs

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Ironwood Forest National Monument

Economic Values and Economic Contributions

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Introduction

The purpose of this paper is to provide an overview of the economic values and economic contributions of the activities and resources associated with Ironwood Forest National Monument (IFNM or the Monument). The IFNM is located in Pinal and Pima counties, Arizona, approximately 80 miles south of Phoenix and 25 miles northwest of Tucson, Arizona. For context, this paper provides a brief economic profile of Pinal and Pima counties.

Background

The IFNM was established by President Clinton on June 9, 2000 (Proclamation 7320) and is managed by the Bureau of Land Management (BLM). The Monument encompasses 188,628 acres including 129,358 acres of BLM-administered land, 54,741 acres of Arizona State Trust lands, 632 acres of Pima County lands, 299 acres of U.S. Department of Defense lands, and 3,589 acres of private land.¹ In addition, there are areas within the IFNM where Federal minerals underlie State Trust land (approximately 14,680 acres) or private land (approximately 3,220 acres); this is considered split estate. The IFNM Proposed Resource Management Plan / Final Environmental Impact Statement (PRMP/FEIS) summarizes the purpose of the Monument designation “to protect objects of scientific interest within the monument, including the drought-adapted vegetation of the Sonoran Desert, geological resources such as Ragged Top Mountain, and abundant archaeological resources.” To protect objects within the Monument, the Proclamation directed the following management:

- Prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes and prepare a transportation plan that addresses action to protect identified objects (such as road closures or travel restrictions).
- Withdraw from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws including location, entry, and patent under the mining laws and mineral and geothermal leasing.
- Continue to issue and administer grazing leases and permits within the Monument.

The Proclamation also states that the establishment of the monument is subject to valid existing rights.

The IFNM Management Plan was approved in 2013. The plan reflects the requirements of the Proclamation as well as being responsive to issues identified by the public, stakeholders, and BLM specialists and managers during the scoping period and applicable federal and state laws, regulations, and BLM policies.

The IFNM is situated primarily in Pima County with portions of the Monument extending north into Pinal County. Eloy and Marana were identified in the FEIS as communities most likely affected by

Ironwood Forest National Monument,
Arizona

Location: Pinal and Pima counties, AZ

Managing agencies: BLM

Adjacent cities/counties/reservations:

City of Eloy, Town of Marana, Tohono
O’odham Nation

Resources and Uses:

- ☒ Recreation ☐ Energy ☐ Minerals
☒ Grazing ☐ Timber ☒ Scientific Discovery
☒ Tribal Resources ☒ Cultural Resources

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¹ Acquisitions from willing sellers of private land within the Monument boundary added 358 acres of patented mining claims to protect endangered species habitat in 2014 and 602 acres to protect scenic views and vegetation in 2016, bringing the BLM-administered acres from 128,398 at monument designation to 129,358.

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management of the Monument. In addition, the Tohono O'odham Nation borders the the IFNM along the south and west.

Public Outreach Prior to Designation

The designation of the Monument evolved out of efforts by the Pima County Board of Supervisors. These efforts culminated in the *Proposal in Support of the Ironwood Preserve* that provided a discussion “for the need for the federal government to afford special protection for the Ironwood forest found in the Ragged Top and Silverbell Mountains. The proposal also included a copy of Resolution 2000-63 stating that the Pima County Board of Supervisors

“Requests that the United States of America through the Secretary of the Department of the Interior, consistent with the Sonoran Desert Conservation Plan, work cooperatively with Pima County to establish the Ragged Top and Silverbell Ironwood Preserve in the Silverbell Mountains.”

This proposal and resolution were delivered to former Secretary of the Interior Babbitt in March 2000. No public meetings were convened prior to the designation.

Table 1. Pima and Pinal Counties and State of Arizona Economic Snapshot

Local Economy and Economic

Impacts

Table 1 summarizes some key demographic and economic indicators for Pima County, Pinal County, and the State of Arizona. Pima County accounts for about 15 percent of the State's population, making it the second most populated county in the State. A majority of the County residents live in the Tucson area. Pima County grew at a slower rate than the State since 1990 (50% compared to 81%). Although Pinal County is a more rural county, accounting for around 6 percent of the State's population, the County's population has grown at a significant rate since 1990 (235%). The unemployment rate in both counties is below the State's rate. A substantial portion of the Pinal County workforce are employed in jobs outside the County. This observation is reflected in the ratio of jobs to population (23% in Pinal County compared to 53% for the State) and BEA personal income data that shows a significant net inflow of income. This pattern is likely attributable to the close proximity of Phoenix (Maricopa County) and Tucson to the County. The USDA Economic Research Service's (ERS) county-level typology codes indicate that both Pima and Pinal counties are “non-specialized” indicating a diversity of industries driving their economies. That said, based on 2015 BEA data for both counties, the proportion of jobs in the government sectors exceeds the State (17.6% in Pima and 22.6 in Pinal compared to 12.5% for the State). Pima County has a relatively higher proportion of jobs in the health care and social assistance sector. Pinal County employees relatively more in the natural resource-related industries including farming (3.4%) and mining (1.8%). Together these two industries account for 5.2% of jobs (8.1% of earnings) compared to 1.5% of jobs (1.6% of earnings) in the State as a whole.

Measure	Pima, AZ	Pinal, AZ	Arizona
Population, 2016 ^a	998,537	389,772	6,641,928
Native American % of population ^a	3.3%	5.3%	4.4%
Employment, December 2016 ^c	500,592	90,119	3,542,969
Unemployment rate, March 2017 ^b	4.2%	3.9%	5.0%
Median Household Income, 2015 ^a	\$46,162	\$49,477	\$50,255

^a U.S. Census Bureau, 2011 2015 American Community Survey

^b https://laborstats.az.gov/sites/default/files/documents/files/emp_report.pdf

^c U.S. Bureau of Economic Analysis (BEA), Regional Economic Accounts, Table CA25N.

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Non-labor income (income from dividends, interest, and rent and transfer payments) as a source of total income has increased for both counties between 2000 and 2015 (accounting for 46% in Pima and 42% in Pinal in 2015 compared to about 40% for the State as a whole).

The racial and ethnic composition of Pima and Pinal counties are similar and comparable to the State as a whole. Generally, the percentage of non-Hispanic Whites is around 55 percent and about a third of the population identifies as Hispanic. Pinal County's proportion of Native American population is slightly higher than Pima County and the State.

As noted above, the City of Eloy (in Pinal County), Town of Marana (in Pima County), and the Tohono O'odham Nation were identified in the FEIS as communities most likely affected by management of the Monument. The City of Eloy has a population around 17,200 of which approximately 6,500 represents the resident prison population.² Eloy is located north of the IFNM and provides easy access via Interstate 10. Eloy is historically an agricultural community and continues to have an agriculture component to its economy. However, given the location of Eloy at the crossroads of interstates 8 and 10 and along the growth corridor midway between Phoenix and Tucson, the City has attracted other industries (manufacturing and service related).³ Also between Phoenix and Tucson, the Town of Marana has a population of about 44,000 and is located east of the IFNM. Marana's recently completed Economic Development Strategy describes the town has having a manufacturing and tourism based economy and a "bedroom" community for the greater Tucson area.⁴ The strategy recommends the Town target the information technology, advanced business services, manufacturing, and transportation, logistics, and distribution sectors for future economic development and diversification.

In the years following monument designation (2001-2015), the communities in Pima County neighboring the IFNM experienced strong growth, continuing previous growth trends. Population grew by 18%. Real personal income grew by 28%. Jobs grew by 15%. Real per capita income grew by 9%.⁵ The designation of the Monument appears to have not impacted economic growth in any negative manner. The BLM regularly consults with five Native American tribes who claim ancestral and/or traditional interest in the lands and resources of the Monument. These five federally recognized Tribes are: the Hopi Tribe, Pascua Yaqui Tribe, Tohono O'odham Nation, White Mountain Apache Tribe, and the Yavapai-Apache Nation. The Monument shares a border with the Tohono O'odham Nation, which results in more direct effects to this tribe, relative to other tribal nations with interests in the area. The Tohono O'odham Nation uses areas of the Monument to continue traditional cultural practices, and has a long and well documented history of concern with the cultural and natural resources of the Monument.

Activities and Resources Associated With IFNM

Activities taking place on and resources within the IFNM include:

- **Recreation:** Popular recreation activities in the IFNM include hiking, viewing wildlife and scenery, OHV use on designated roads or primitive roads, photography, camping, and hunting. A 2004 study conducted by the University of Arizona found that approximately 12,000 to 15,000 people visited the IFNM, primarily in the cooler months of November to April, with most of the use occurring on weekends. Recreation use has trended upward since the designation. The average number of visits to the IFNM over the last five fiscal years were estimated to be approximately

² Arizona Office of Employment and Population Statistics.

³ See <http://www.accessarizona.org/business-item/city-of-eloy/> and <http://www.ci.eloy.az.us/280/About-Eloy>.

⁴ See <http://www.maranaaz.gov/economic-development/>.

⁵ U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, DC; U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, DC.

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40,600⁶ resulting in \$2.4M annual expenditures in local gateway regions, on average. These expenditures support a total of 36 jobs, \$1.25M in labor income, \$2.1M in value added, and \$3.4M in economic output in local gateway economies surrounding the Monument. The average consumer surplus value for the area is \$54.19 per recreational visit, resulting in an estimated \$2.2M of economic value (net benefits) generated in 2016.⁷

Table 2. Estimated Economic Contributions, 2016

Activities	Economic output (\$millions)	Value added (net additions to GDP, \$millions)	Employment supported (number of jobs)
Recreation*	\$2.0	\$1.5	27
Grazing	\$1.6	Grazing value-added is not available	38

*Source: BLM data (visits represent 5-year average).

The Proclamation's prohibition of all motorized and mechanized vehicle use off road was implemented through travel management decisions during the planning process. The basic approach for implementing this prohibition was to identify areas of the

Monument as open, limited, or closed to motorized and mechanical use.⁸ Then the BLM reviewed existing routes within areas designated as limited and; based on input from interested stakeholders, determined the type of travel, if any, that would be permitted on then existing routes and under what conditions. No motorized or mechanical travel would be permitted off existing routes designated for motorized or mechanical travel, except for emergencies. The final decisions reduced the number of miles of routes available for motorized and mechanical vehicle use (including bicycles) but continued to allow this travel on 124 miles of routes and on an additional 118 miles for mechanical use and administrative purposes. While not addressed in the Proclamation, the BLM did close the Monument to recreational target shooting activity in the approved management plan. The issue of recreational target shooting activity was a highly controversial component of the planning process.

- **Energy:** Based on information in the FEIS, there is no production of oil and gas within the IFNM and no oil and gas has been discovered; however, the area is rated as having moderate potential. There is no production or potential for coal in the Monument. There are no official "Known Geothermal Resource Areas" and there are no significant geothermal energy resources currently in use within the Monument. However, Avra Valley, located in the eastern portion of the Monument, has been identified as having potential for the development of geothermal resources. The region including the IFNM area have been identified as having a high-potential for solar energy development.⁹ Potential for wind energy development in the region, including the IFNM, is considered low. The Monument contains rights-of-way for energy transmission infrastructure and gas pipelines, totally 76.1 miles. The designation withdrew the Monument from location, entry, and patent under mining laws, subject to valid existing rights. Furthermore, the approved Resource Management Plan (RMP) allocated all BLM-managed lands within the IFNM as an exclusion area. This decision effectively prohibits new land use authorizations within the IFNM (including new transmission infrastructure, pipelines, or solar development); existing right-of-way authorizations would be allowed to continue and may be renewed in accordance with 43 CFR 2800, which regards rights-of-way under FLPMA. In the event

⁶ Data from BLM's Recreation Management Information System.

⁷ Recreation unit value is a survey-based value for general recreation for the Intermountain region from the USGS Benefit Transfer Toolkit <https://my.usgs.gov/benefit-transfer/>. Economic value is the net benefit to recreational users (total benefits minus total costs).

⁸ No areas were designated as "open", the monument lands were designated "limited" or "closed."

⁹ FEIS/PRMP

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that a land use authorization was required by law, mitigation could be required to ensure protection of monument objects.

- Non-Energy Minerals:** The FEIS indicated that there is one known salt (sodium) deposit near the Monument and potential of deposits within the Monument. However, there is no production or leases for sodium production within the IFNM. At the time of designation there were 225 mining claims (associated with locatable minerals) within the Monument boundary but no active mines. The Silver Bell copper mine operates on adjacent private lands. No production information is available. The FEIS indicated that one industrial-grade limestone property is located within the Monument, but off of BLM-managed lands and has not been commercially developed. At the time of the FEIS, there were four salable mineral (mineral material) pit permits within the Monument, only one of which was active. The Red Hills Pit produced crushed granite and other decorative landscape rock and was closed prior to designation. There are two mineral material quarries on adjacent private lands. The designation withdrew the Monument from location, entry, and patent under mining laws, subject to valid existing rights.
- Grazing:** The BLM issues and administers grazing leases within the Monument. The Proclamation states that livestock grazing would not be altered by the designation of the Monument. At the time of the FEIS (based on 2004 data), the BLM administered leases on 11 grazing allotments. The leases authorize 7,849 Animal Unit Months (AUMs), primarily associated with cattle operations. The figure below shows permitted and billed AUMs from 1995 through 2016.

Figure 1. Historic Livestock Grazing, IFNM

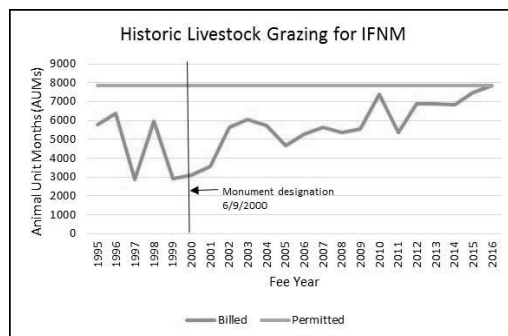


Figure 1 shows that permitted AUMs have remained the same over the 22 year period. Billed use (which approximates actual use) has fluctuated over time, but have generally trended upward since the designation of the Monument. Various reasons, in any given year, affect the number of AUMs used by permittees such as drought conditions, market forces, and fluctuations in individual permittee livestock operations. Based on 5-year average of recent billed AUMs (7,187), livestock grazing on the Monument has supported approximately 38 paid and unpaid (i.e., family labor) jobs annually resulting in approximate \$376 thousand in labor income and generating about \$1.4 million in total economic output.

- Timber:** Timber resources are not present within the IFNM.

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- **Resource values:** Monument designation is intended to protect biological and geological resources, and archaeological sites/objects of scientific interest. In general, these objects are valued by society but those values are not bought or sold in the marketplace and therefore difficult to quantify. Below is a brief overview of the objects identified in Proclamation that the designation is intended to protect¹⁰:
 - **Scientific Investigation:** The IFNM contains biological and geological resources of scientific interest. Drought-adapted and unique vegetation is prevalent throughout the Monument. In particular, Ironwoods, which can live in excess of 800 years, generate a chain of influences on associated understory plants, affecting their dispersal, germination, establishment, and rates of growth as well as support a range of animal species in a variety of ways.
 - **Cultural Resources:** The area holds abundant rock art sites and other archaeological objects of scientific interest. Humans have inhabited the area for more than 10,000 years. As noted in the FEIS, sites of the Formative era (650 A.D. to 1400 A.D.) dominate the regional archaeological record especially sites associated with a culture known as the Hohokam.
 - **Tribal Resources:** Although not explicitly discussed in the Proclamation, five Native American tribes claim ancestral and/or traditional interest in the lands and resources of the Monument. In particular, the Tohono O'odham Nation, which shares a boundary with the Monument and has an expressed interest in indigenous plant resources, access for tribal members, the protection and preservation of archaeological and historical O'odham sites, and coordinated resources management on the Monument.

Land Management Tradeoffs

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¹⁰ In addition to the Proclamation, Chapter 1 of the FEIS (Table 1-2: Protection of Objects Within the IFNM) provides a more detailed description of these objects and their significance.

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Grand Canyon-Parashant National Monument

Economic Values and Economic Contributions

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Introduction

The purpose of this paper is to provide an overview of the economic values and economic contributions of the activities and resources associated with Grand Canyon-Parashant National Monument (GCPNM or the Monument). The GCPNM is located entirely within Mohave County in northwest Arizona, bordering Nevada to the west and near the southern border of Utah. With the Grand Canyon along the south perimeter, the GCPNM can only be accessed through rough, unpaved roads from the north, west, and northeast. For context, this paper provides a brief economic profile of the surrounding area, focused on Mohave County, Arizona and supplemented with basic and relevant information for Clark County, Nevada; Washington County, Utah; and Coconino County, Arizona.

Grand Canyon Parashant National Monument, Arizona

Location: Mohave County, AZ

Managing agencies: NPS, BLM

Adjacent cities/counties/reservations:

- Clark County, Nevada to the west;
- Washington County, Utah to the north;
- Coconino County, Arizona to the east

Resources and Uses:

- ☒ Recreation ☐ Energy ☐ Minerals
☒ Grazing ☐ Timber ☒ Scientific Discovery
☒ Tribal Resources ☒ Cultural / Paleo Resources

Background

The GCPNM was established by President Clinton on January 11, 2000 (Proclamation 7265) and is jointly managed by the National Park Service (NPS) and the Bureau of Land Management (BLM) under a Service First Agreement. The Monument consists of 1,048,321 acres including 808,744 acres of BLM-administered land, 208,447 acres of NPS-administered land, 23,205 acres of Arizona State Trust lands, and 7,920 acres of private land. NPS-administered lands within the monument are part of the Lake Mead National Recreation Area legislated unit, established by Congress in 1964. There are four Wilderness Areas located on the Monument, accounting for just over 93,000 acres. The Foundation Document for the GCPNM summarizes the purpose of the Monument to: “protect undeveloped, wild, and remote northwestern Arizona landscapes and their resources, while providing opportunities for solitude, primitive recreation, scientific research, and historic and traditional uses.”¹ To protect objects within the Monument, the Proclamation directed the following management:

- Prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.
- Withdraw from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws including mineral and geothermal leasing.
- Only permit the sale of vegetative material if part of an authorized science-based ecological restoration project.
- Continue to issue and administer grazing leases within the portion of the Monument within the Lake Mead National Recreation Area as well as the remaining portion of the Monument.

The Proclamation also states that the establishment of the monument is subject to valid existing rights.

The GCPNM boundary occupies approximately 12% of the area of Mohave County. Communities in Clark County, Nevada; Washington County, Utah; and Coconino County, Arizona also serve as access points to the Monument and are therefore connected economically and socially to the Monument.

¹ DOI. 2016. Foundation Document, Grand Canyon-Parashant National Monument. As stated in document, “The purpose statement identifies the specific reason(s) for establishment of the monument. The purpose statement for Grand Canyon-Parashant National Monument was drafted through a careful analysis of its enabling presidential proclamation and the legislative history that influenced its development.

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Individuals from the Hopi, Southern Paiute, Hualapai, Havasupai, and Navajo tribes continue visiting sites, gathering, and using resources in the Planning Area.²

Public Outreach Prior to Designation

In November 1998, former Department of Interior Secretary Babbitt went to Northern Arizona and began a dialogue that included two more visits, two large public meetings, and more than 59 other meetings with concerned local governments, tribes and other groups regarding the future of these lands.³

A December 21, 1999 briefing paper for the Secretary described the position of interested parties as follows: "Legislation was introduced in August 1999 by Senator Kyl (S. 1560) and Congressman Stump (H.R. 2795) proposing a National Conservation Area designation for the region. Stump's bill would actually lower protections in existing law. No hearings have been held on Kyl's legislation. Environmental groups have expressed support for the monument designation, most notably, The Grand Canyon Trust. The Arizona Strip Grazing Board has expressed general opposition to further designation, but stated that if a proposal is pursued, they would like to work with those making the designation to ensure grazing activities continue. Private land owners, recreationists and mining interests have expressed concerns over possible restrictions and changes to past agreements, but desire to participate in the process."

Local Economy and Economic Impacts

Table 1 summarizes some key demographic and economic indicators for Mohave County, Arizona and the State as a whole. While the County accounts for just 3 percent of the State's population, the percent increase since 1990 was larger than the State (118% compared to 81%). The unemployment rate in Mohave County is higher than the State and a substantial portion of the Mohave County workforce are employed in jobs outside the County. This observation is reflected in the ratio of jobs to population (33% in Mohave County compared to 53% for the State) and BEA personal income data that shows a net inflow of income. Furthermore, the median household income in Mohave County was 77% of the State average in 2015. The demographics of Mohave County consists of a relatively higher percentage of non-Hispanic Whites compared to the State (78% compared to 57.5%) and, as shown in Table 1, a relatively small percentage of Native Americans. The USDA Economic Research Service's (ERS) county-level typology codes indicate that Mohave County is a recreation-dependent county. That classification is supported, in part, by the relatively higher percentage of jobs recreation/tourism related sectors (e.g., retail trade and accommodation and food services) in Mohave County in 2015 as reported by the BEA. The proportions of jobs in Mohave County associated with other natural resource related sectors are relatively low (0.9%,

Table 1. Mohave County and State of Arizona Economic Snapshot

Measure	Mohave County, AZ	Arizona
Population, 2016 ^a	203,362	6,641,928
Native American % of population ^a	2.1%	4.4%
Employment, December 2016 ^c	67,304	3,542,969
Unemployment rate, March 2017 ^b	5.5%	3.1%
Median Household Income, 2015 ^a	\$38,488	\$50,255

^a U.S. Census Bureau, 2011-2015 American Community Survey

^b <https://laborstats.az.gov/sites/default/files/documents/files/emp-report.pdf>

^c U.S. Bureau of Economic Analysis (BEA), Regional Economic Accounts. Table CA25N.

² BLM and NPS. 2007. The Proposed Resource Management Plan/FEIS for the Arizona Strip Field Office, the Vermilion Cliffs National Monument, and the BLM Portion of Grand Canyon-Parashant National Monument, and a Proposed General Management Plan/Final EIS for the NPS Portion of the Canyon-Parashant National Monument.

³ White House Press Release.

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0.2%, 0.4% for the Farm, Forestry, fishing, & ag. and Mining sectors; respectively) and are comparable to the State as a whole.

Non-labor income (income from dividends, interest, and rent and transfer payments) has become an increasingly large source of total income within the County, reaching over 52 percent of all income as of 2015 (compared to about 40% for the State as a whole). A relatively high proportion of this non-labor income is associated with age-related transfer payments (Social Security and Medicare) which is reflective of the relatively older population in the County compared to the State as a whole.

As noted above, communities in Clark County, Nevada; Washington County, Utah; and Coconino County, Arizona are common access points for the Monument. Coconino County has a population around 135,000 with half of the population living in Flagstaff. Much of the County does not provide easy access to the Monument. The Town of Fredonia (population around 1,300) represents the main access point to the Monument from the County and bills itself as “the gateway to the North Rim of the Grand Canyon.”⁴ Washington County, Utah has a population around 155,000 with half of the population living in St. George. The County is classified by ERS as recreation dependent. St. George, an access point for the GCPNM, has been a tourist destination since the 1960s and provides access to a number of other National Parks and Monuments.⁵ Clark County, Nevada has a population of around 2.1 million with the vast majority of the population living in the greater Las Vegas area. The closest communities in the County to the Monument are Mesquite (population of about 17,000) and Bunkerville (population of about 1,000). Mesquite is a “growing resort destination”⁶ providing local activities (such as golf and casinos) and access to a range of publically managed lands. Information on the primary economic drivers for Bunkerville are not readily available.

In the years following monument designation (2001-2015), the communities in Mohave County, Arizona and Washington County, Utah neighboring the VCNM experienced strong growth, continuing previous growth trends. Population grew by 41%. Jobs grew by 42%. Real personal income grew by 59%. Real per capita income grew by 12%.⁷ The designation of the Monument appears to have not impacted economic growth in any negative manner.

Activities and Resources

Associated With GCPNM

Activities taking place on and resources within the GCFNM include:

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⁴ See <http://www.fredoniaaz.net/>.

⁵ See <https://www.sgcity.org/aboutstgeorge/>.

⁶ See <https://www.visitmesquite.com/about/>.

⁷ U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, DC; U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, DC.

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- Recreation:** As described in the Final Environment Impact Statement (FEIS) associated with the GCPNM Resource Management Plan, GCPNM's remote, open, sparsely developed area and engaging scenery provides a wide array of dispersed recreation opportunities for moderately regulated recreation. Exploration, driving for pleasure, hiking, backpacking, camping, picnicking, big and small game hunting, and wildlife observation are the most common activity types. Motorized or mechanized vehicle, small aircraft, walking, or equestrian are typical modes of travel. Approximately 30,000 visits to the GCPNM resulted in \$1.8M in expenditures in local gateway regions in 2016. These expenditures supported a total of 27 jobs, \$0.9 million in labor income, \$1.5 million in value added, and \$2.6 million in economic output in local gateway economies surrounding the Monument. The total consumer surplus associated with recreation at the GCPNM in 2016 was estimated to be \$2.4M. This estimate is based on average consumer surplus values and participation counts for camping, big game hunting, other hunting, mountain biking, hiking, off highway vehicle, and general recreation.⁷ The Proclamation's prohibition of all motorized and mechanized vehicle use off road was implemented through travel management decisions during the planning process. In general, the BLM considered motorized and mechanical use on existing routes to be consistent with the Proclamation. The BLM, based on input from interested stakeholders, classified existing routes open, closed, or administrative. The analysis in Final Environmental Impact Statement (FEIS) concluded that routes identified for closure would have negligible impact on recreational OHV use and the businesses in nearby communities that cater to those users.
- Energy:** The FEIS identified moderate potential for oil and gas and geothermal resources and no potential associated with coal, although the level of certainty associated with these ratings varies. Furthermore, the ratings were associated with the Planning Area as a whole so the potential within the GCPNM may differ. There are no active energy-related mineral production and no existing energy related right-of-way developments (including renewable developments) within the Monument. Given the remote setting and limited access, there has been very little interest in energy resources in recent decades. The designation withdrew the Monument from location, entry, and patent under mining laws, subject to valid existing rights.

Table 2. Estimated Economic Contributions, 2016

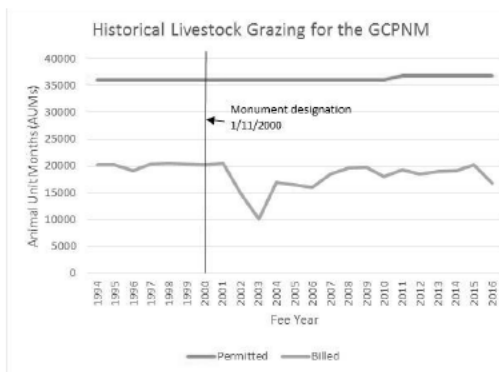
Activities	Economic output (\$millions)	Value added (net additions to GDP), \$ millions	Employment supported (number of jobs)
Recreation*	\$2.6	\$1.5	27
Grazing	\$3.7	Grazing value-added is not available	100

*Source: BLM data.

⁷ Recreation unit value is a survey-based value for general recreation for the Intermountain region from the USGS Benefit Transfer Toolkit <https://my.usgs.gov/benefit-transfer/>. Economic value is the net benefit to recreational users (total benefits minus total costs).

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- Non-Energy Minerals:** The FEIS identified moderate potential for sodium and high potential for metallic minerals, uranium, gypsum, and mineral materials (such as sand, stone, gravel, pumicite, and clay). Again, the ratings were associated with the Planning Area as a whole so the potential within the GCPNM may differ. The FEIS describes historical mining within the Monument associated primarily with copper and residual amounts of the other metals and hardrock minerals as well as uranium ore exploration. These activities occurred in the 1910s through 1980s. There are no active mining claims in the Monument. Given the remote setting and limited access, there has been very little interest in non-energy mineral resources in recent decades. The designation withdrew the Monument from location, entry, and patent under mining laws, subject to valid existing rights.
- Grazing:** The BLM issues and administers grazing leases on both BLM and NPS administered lands within the Monument. The Proclamation states that management with respect to livestock grazing would not be altered by the designation of the Monument. At the time of the FEIS (based on 2004 data), the BLM administered 28 grazing allotments and managed them in cooperation with 25 permittees throughout the Monument. The permits authorized 38,000 Animal Unit Months (AUMs), primarily associated with cattle operations. Figure 1 shows permitted and billed AUMs from 1994 through 2016.



The figures shows that permitted AUMs have remained relatively stable over the 23 year period. Billed use (which approximates actual use) has fluctuated over time and ranging from a low of 28 percent to a high of 57 percent of the permitted AUMs. Various reasons, in any given year, affect the number of AUMs used by permittees such as drought conditions, market forces, and fluctuations in individual permittee livestock operations. Based on the 5-year average of recent annually billed AUMs (18,758), livestock grazing on the Monument has supported approximately 100 paid and unpaid (i.e., family labor) jobs annually resulting in approximate \$980 thousand in labor income and generating about \$3.7 million in total economic output.

Timber: Upon designation, the BLM and NPS were directed to only permit the sale of vegetative material if part of an authorized science-based ecological restoration project. The FEIS describes the limited opportunities and interest in commercial use of woodland products from within the Monument. No commercial activity associated with timber has been reported in the Monument area since the 1960s. The remote nature of the Monument and the relatively small and spread out acreage of ponderosa pine (compared to the nearby Kaibab National Forest) makes timber harvest on the Monument challenging from an economic standpoint.

- Resource values:** Monument designation is intended to protect scientific and historic objects. In general, these objects are valued by society but those values are not bought or sold in the marketplace

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and therefore difficult to quantify. Below is a brief overview of the objects identified in Proclamation that the designation is intended to protect⁸:

- **Scientific Investigation:** Scientific research and opportunities associated with the ponderosa pine ecosystem in the Mt. Trumbull area and ecological research opportunities made possible by the vast, remote, and unspoiled landscapes.
- **Cultural (Historic and Archaeological) and Paleontological Resources:** Undisturbed archaeological evidence, displaying the long and rich human history spanning more than 12,000 years. Historic resources, including evidence of early European exploration, Mormon settlements, historic ranches, sawmills, and old mining sites. Abundant fossil record.
- **Cultural Tribal Resources:** Individuals from the Hopi, Southern Paiute, Hualapai, and Havasupai tribes continue visiting sites, gathering, and using resources in the Monument.
- **Recreation:** The value of recreation opportunities and experience extend beyond the economic activity supported by visitors to the Monument. The Monument provides iconic western viewsheds in a setting known for its solitude, natural soundscapes, internationally recognized night skies, and wilderness values.

Land Management Tradeoffs

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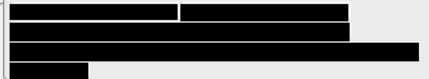
⁸ In addition to the Proclamation, Chapter 1 of the FEIS provides a more detailed description of these objects and their significance.

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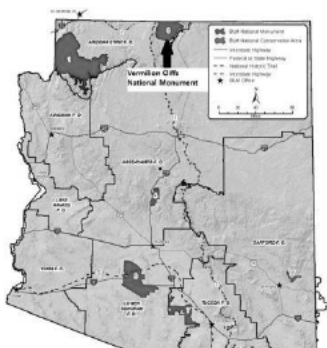
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Vermilion Cliffs National Monument

Economic Values and Economic Contributions

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Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Vermilion Cliffs National Monument (VCNM or the Monument) as well as to provide a brief economic profile of Coconino County.

Background

Vermilion Cliffs National Monument was established by Presidential Proclamation 7374 on November 9, 2000 consisting of 293,000 acres. Prior to designation, the area was managed by the Bureau of Land Management (BLM) and continues to be following designation. The Proclamation designated “approximately 293,000 acres” and states that acreage is “the smallest area compatible with the proper care and management of the objects to be protected.” The BLM manages for multiple use within the Monument (hunting, recreation, and grazing, etc.), while protecting the vast array of historic and scientific resources identified in the Proclamation and providing opportunities for scientific study of those resources. The resources identified in the Proclamation include:

- Geology - Sandstone slick rock, rolling plateaus, and brilliant cliffs with arches, amphitheaters, and massive walls.
- Cultural and Historic Resources - Archaeological evidence displaying a long and rich human history spanning more than 12,000 years. Historic resources, including evidence of early European exploration, ranches, homesteads, mines, and roads.
- Wilderness - The Paria Canyon-Vermilion Cliffs Wilderness is a remote and unspoiled landscape with limited travel corridors along the Utah-Arizona border. A majority of the wilderness lies within Vermilion Cliffs National Monument.
- Vegetation - Cold desert flora and warm desert grassland.
- Wildlife - California condor, bighorn sheep, mountain lion, pronghorn antelope, raptors and desert stream fishes.
- Paria River - The Paria River and widely scattered ephemeral water sources and springs.

Overall, multiple use activities compatible with the protection of resources and objects identified in the Presidential Proclamation are allowed in Vermilion Cliffs National Monument. Multiple use activities are subject to decisions made in current and future BLM resource management planning efforts, which include public participation. National Monuments and other conservation areas managed by the BLM continue to allow for multiple uses according to the Federal Land Policy and Management Act.

Vermilion Cliffs National Monument,
Arizona

Location: Coconino County, Arizona

Managing agency: BLM

Adjacent cities/counties/public lands:

Kaibab National Forest, Glen Canyon

National Recreation Area, Grand Staircase

Escalante National Monument, other BLM lands

Resource Areas:

☒ Recreation ☐ Energy ☐ Minerals

☒ Grazing ☐ Timber ☒ Scientific Discovery

☒ Tribal Cultural

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Public outreach prior to designation

The Secretary of the Interior met with the public in meetings and in the field prior to VCNM designation. Public outreach was conducted during the summer of 2000 with various participants. It included meetings with affected ranchers, community leaders, the Page Chamber of Commerce and business owners in the Marble Canyon and Jacob Lake Areas.

Local Economy and Economic Impacts

Coconino County makes up around two percent of Arizona's population. Approximately 27 percent of the county population is Native American. Current unemployment rates and median household income are similar to the values for Arizona as a whole (Table 1). The accommodation and food services industry is the largest by employment in Coconino County, accounting for 26 percent of county employment (Figure 1). Other industries that make up more than 10 percent of total employment include retail trade, health care and social assistance, and manufacturing.

Table 1. Economic Profile for Coconino County

Measure	Coconino County, AZ	Arizona
Population, 2015	136,701	6,641,928
Unemployment rate, April 2017 ^a	4.9%	5.0%
Median Household Income (2015) ^b	\$50,234	\$50,255

^a<https://laborstats.az.gov/sites/default/files/documents/files/emp-report.pdf>

^bhttps://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_DP03&src=pt

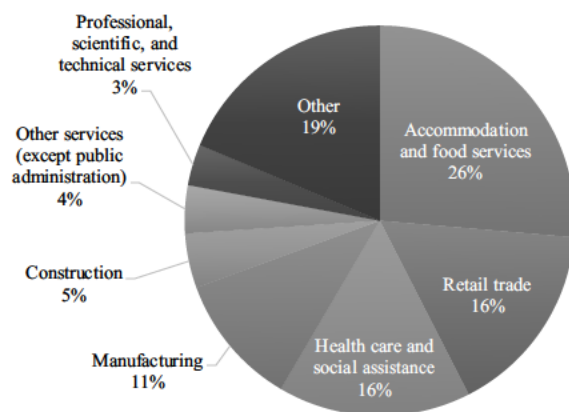


Figure 1. Percent employment by sector in Coconino County, 2015

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“Other” includes industries classified as Arts, entertainment, and recreation, Transportation and warehousing, Administrative and support and waste management and remediation services, Wholesale trade, Finance and insurance, Real estate and rental and leasing, Information, Educational services, Management of companies and enterprises, Utilities, Agriculture, forestry, fishing and hunting, Mining, quarrying, and oil and gas extraction, and Industries not classified, each of which represents less than 3% of employment.

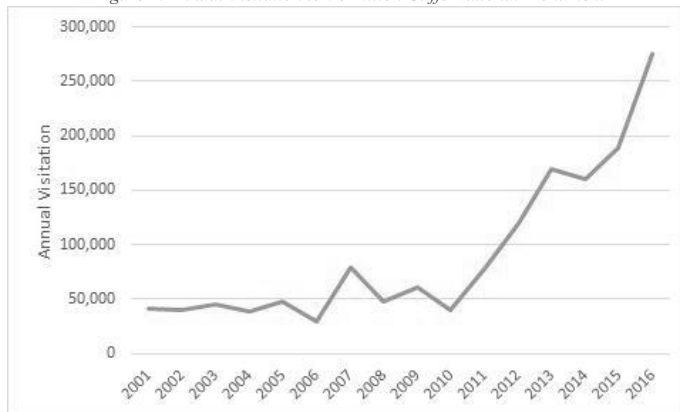
In the years following monument designation (2001-2015), the communities in Coconino County neighboring the VCNM experienced strong growth, continuing previous growth trends. Population grew by 18%. Jobs grew by 25%. Real personal income grew by 45%. Real per capita income grew by 24%.¹ The designation of the Monument appears to have not impacted economic growth in any negative manner.

Activities and Resources Associated with Vermilion Cliffs National Monument

Activities taking place on Vermilion Cliffs National Monument lands include recreation, grazing, and cultural/archaeological exploration. Further detail on these activities is listed below:

- Recreation:** Visitation at Vermilion Cliffs National Monument has increased since designation, rising from 41,884 visits in 2001 to 275,845 visits in 2016 (*Figure 2*). Recreation activities provide the opportunity for economic activity to be generated from tourism for an indefinite period of time. Recreational visitors spend money at local businesses, and that spending can lead to economic contributions that affect regional and state economy. The economic contributions occur annually, and in cases where visitation increases over time, recreation generates additional activity each year. The net economic contributions associated with recreation in 2016 are estimated to be about \$14 million in value added and 246 jobs.

Figure 2. Annual Visitation to Vermilion Cliffs National Monument



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¹ U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, DC; U.S. Department of Commerce. 2017. Census Bureau, County Business Patterns, Washington, DC.

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- **Energy:** There are no renewable resources or known coal, oil and gas resources within the Monument.
- **Non-Energy Minerals:** No production of locatable minerals has occurred. Active mining claims are subject to valid existing rights. An estimated 1,000 cubic yards per year of gravel is used from existing material sites by the BLM for road maintenance. No new permits or sales contracts were issued.
- **Grazing:**
 - Grazing is allowed within Vermilion Cliffs National Monument. In 2001, there were 29,313 permitted Animal Unit Months (AUMs).² Today, there are 28,773 permitted AUMs. Grazing use levels vary from year to year depending on factors such as drought. Total AUMs billed were 5,138 in 2016, with an average of 8,456 AUMs billed annually since 2001.³ *Figure 3* shows the number of AUMs permitted and billed annually from 2001 through 2016. Billed AUMs represent an average of 29% of permitted AUMs over the period.

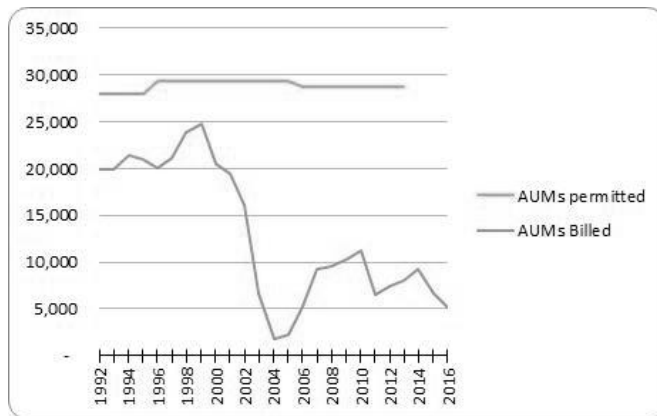
Range conditions and management decisions led to the decrease in billed AUMs after 2002. A severe drought in 2002 had lasting impacts on rangeland conditions, as well as on the ranching operations in the area. Many operators voluntarily reduced the number of cattle grazed and sold off cattle during the drought. In addition, four allotments were purchased by an individual and subsequently transferred over the years (late 1990s and early 2000s) to the Grand Canyon Trust through the North Rim Ranch. The North Rim Ranch's current management approach is not to run at full authorized AUM numbers. This also contributes to the lower numbers of billed AUMs on these four allotments.

Figure 3. AUMs Permitted and Billed on Vermilion Cliffs National Monument

² BLM measures an AUM as the amount of forage needed to sustain one cow and her calf, one domestic horse, or 5 sheep or goats for one month. <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing/fees-and-distribution>.

³ The total billed AUMs reported do not exclusively fall within the monument, because the allotment boundaries encompass both Vermilion Cliffs NM and Arizona Strip Field Office lands.

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- Timber:** There is no annual timber production of the pinyon pine and juniper community. Personal use fuelwood cutting of pinyon pine and juniper trees was permitted prior to the RMP and ROD being implemented in January 29, 2008, seven years post-monument designation. Following a decision in the RMP and ROD, the monument is closed to the sale of vegetative products; however, the gathering of dead and downed wood for campsite use is authorized in areas where campfires are allowed. The quantity of personal use fuelwood removed prior to the signing of the RMP and ROD is unknown.
- Cultural/Scientific:** VCNM provides for the collection of pinyon pine seeds (pine nuts) for non-commercial, personal use. Personal use quantities of items necessary for traditional, religious, or ceremonial purposes, such as herbals, medicines or traditional use items are also allowed. All cultural sites are generally allocated to Scientific Use, other than the few Public Use sites (five and Sun Valley Mine). 350 sites have been recorded in VCNM from 2000 to the present.

Land Management Tradeoffs

(b) (5) DPP

[REDACTED]

[REDACTED]

[REDACTED]

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(b) (5) DPP



(b) (5) DPP

