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**From:** Miller, Ann  
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Bears Ears Review 06 08 17.docx

Hey Ben,

There is still more work to be done on the BE paper but I have incorporated comments from both FS and BIA and left comments where further edits need to be made. I'd like to have some of my questions to FS answered before I incorporate some of their edits. I took most of BIA's changes, or at least left comments where I think we should consider making changes but don't have the language for them at the moment.

Regarding some trend info for the SE section... I did pull some Census data for 2000 and 2010-2015 in terms of population (total and AIAN pop.) and median HH income (total, white, and AIAN). The picture that I see emerging is that 2000-2015 saw a fall in the NA population (which is more or less offset by an increase in the white population, there aren't really other races out there). In that same time period, median HH income for both NA and whites rose but for NA they only rose from 2000-2010, and then fell from 2010-2015, whereas for whites they rose slightly from 2000-2010 and then rose a lot from 2010-2015. There are huge disparities in median incomes between the two races, with the white median income consistently at least double the NA median income. (Actually the median income of the whites in SJ county is only a few thousand less than the median income of the total state population, so the fact that the median income of SJ county is much lower than that of the state is really driven by the low median income of the NA HHs). This is just a long-winded way of saying that just presenting trend information for the county fails to address that there are two very distinct populations within the county who have had very different economic experiences, and likely have different economic opportunities. I think a case could be made that higher unemployment and lower median income in SJ county stem not from lack of economic development resulting from the presence of Federal land but from having a high population of people who historically have struggled economically. From some of the previous work PPA as done on NA issues, are there any statements we can make around this? Not to imply causation but to present information to support a correlation.

Anyways, I'm attaching the paper as it stands now. We can talk more about this tomorrow.

Ann

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# Bears Ears National Monument

Associated Economic Values and Contributions

*DRAFT*



Bears Ears  
National  
Monument

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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 Bears Ears National Monument (BENM) as well as to provide a brief economic profile of San Juan County.

## Background

The Bears Ears National Monument encompasses 1.35 million acres of land in San Juan County, UT and was established in 2016 for the purposes of protecting lands that contained cultural, prehistoric, historic, geologic, and scientific resources, including objects of archaeological significance, as well as providing access to outdoor recreation activities that serve a growing travel and tourism industry in the area. Prior to establishment of the Monument, all lands within the Monument boundaries were Federal lands managed by BLM (Monticello Field Office) and the USFS (Manti-La Sal National Forest), with the exception of over 100,000 acres of land owned by the State of Utah (managed by the Utah School and Institutional Trust Lands Administration (SITLA)) and smaller private parcels.<sup>1</sup> Economic activities occurring on SITLA land in the area are similar to those on adjacent Federal land, including visitation to prominent cultural resource sites and livestock grazing.<sup>2</sup> Of the BLM and Forest Service acreage, 57% was managed with some level of protective designation under the existing land use plans as Natural Areas, Areas of Critical Environmental Concern, and Special Recreation Management Areas; or as designated Wilderness Study Areas.

Proposals to protect land in the Bears Ears area date back over 80 years. More recently, in 2015, the “Inter-Tribal Coalition for Bears Ears” proposed establishing a 1.9 million acre national monument.<sup>3</sup> Utah Congressmen Rob Bishop and Jason Chaffetz proposed establishing two National Conservation Areas (NCAs) – Bears Ears and Indian Creek -- totaling 1.3 million acres as part of their Public Lands Initiative (PLI).<sup>4</sup>

### Bears Ears National Monument

Location: San Juan County, UT

Managing agencies: BLM, USFS

Adjacent cities/counties/reservations:

- Counties: San Juan County, UT
- Reservations: Navajo Nation
- Cities: Bluff, UT; Blanding, UT; Monticello, UT; Navajo Nation Reservation

<sup>1</sup> SITLA serves as fiduciary of Utah’s 3.4 million acres of trust lands, parcels of land held in trust to support 12 state institutions, primarily the K-12 public education system. SITLA is constitutionally mandated to generate revenue from trust lands to build and grow permanent endowments for these institutions, which were designated by Congress in 1894. Utah’s public school system is the largest beneficiary, holding 96% of all Utah trust lands.

<sup>2</sup> Different rules apply to grazing on SITLA land versus Federal land, such as allowing SITLA to post expiring permits on the agency’s website, establish 15 years as the maximum length for grazing permits, and set a fee of \$10/AUM when permits are assigned. The 2016 BLM grazing fee was \$2.11/AUM. The Forest Service grazing fee was \$2.11 per Head Month.

<sup>3</sup> The Inter-Tribal coalition consists of representatives from the Hopi Tribe, Navajo Nation, Ute Indian Tribe of the Uintah Ouray, Ute Mountain Ute Tribe, and Zuni Tribe.

<sup>4</sup> National Conservation Areas are designated by Congress. In contrast to the Inter-Tribal Coalition’s proposal, the PLI did not specify that all areas were to be withdrawn from future mineral development, places a restriction on decreasing grazing permits in one of the proposed NCAs, and places restrictions on Federal negotiations with the State of Utah for land exchanges for State-owned land within the proposed boundaries.

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A management plan for the Monument has not yet been drafted. Development of a management plan is anticipated to require 5-years and involve extensive public involvement.<sup>5</sup> The Presidential proclamation established the Bears Ears Commission, consisting of one elected official each from five different tribes (Hopi Tribe, Navajo Nation, Ute Mountain Ute Tribe, Ute Indian Tribe of the Uintah Ouray, and Zuni Tribe). The Commission is to work with the Federal government to provide guidance and recommendations on the development and on-going implementation of management plans. The Proclamation also requires a Monument Advisory Committee (MAC) be established according to the Federal Advisory Committee Act (FACA) regulations. In addition, DOI is seeking to enter into a MOU with the State of Utah to negotiate the exchange of state land within the Monument boundaries for other BLM land outside the Monument.<sup>6</sup>

### Public outreach prior to designation

A public meeting was held in Bluff, UT in July 2016. Over 1,500 individuals attended, including representatives from DOI, USDA, tribes, members of the Utah congressional delegation, and Utah state legislature. In addition, almost 600 written comments were submitted, the majority of which were in favor of the Monument designation.<sup>7</sup>

### Local Economy and Economic Impacts

San Juan County in southeastern Utah is home to roughly 5% of the State's population. In recent years, it has experienced higher levels of unemployment and lower levels of median household income in comparison to the State.

The population of the county has increased substantially over the past 20 years. Nearly half of the population of the county is Native American. The median household income of Native Americans in San Juan County is over 40% lower than that of the county (see Table 1).

The San Juan County economy is dependent upon recreation-based businesses and the accommodation and food services industry is the largest by employment in the county (see Figure 1).

Table 1. San Juan County and State of Utah Economic Snapshot

Measure	San Juan County, UT	Utah
Population, 2016 <sup>a</sup>	15,152	2,903,379
Native American % of population <sup>a</sup>	47.0%	1.1%
Unemployment rate, March 2017 <sup>b</sup>	7.0%	3.1%
Median Household Income, 2015 <sup>a</sup>	\$41,484	\$60,727
Native American Median Household Income, 2015 <sup>a</sup>	\$24,132	\$36,428

<sup>a</sup> U.S. Census Bureau, 2011-2015 American Community Survey

<sup>b</sup> <http://www.jobs.utah.gov/wi/pubs/une/season.html>

**Commented [MAW1]:** We might not want to say this. The pop. of SJ county increased 5% from 2000-2015, compared to a 30% increase in the same time period for the state.

**Commented [MAW2]:** Potentially add some info about NA economics here?

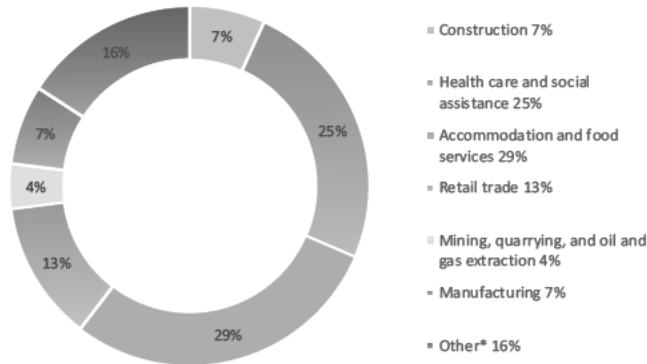
<sup>5</sup> Land management plans are developed in compliance with Federal Land Policy and Management Act (FLPMA) and NEPA regulations the National Forest Management Act (NFMA) and the Forest Service 2012 Planning Rule.

<sup>6</sup> A May 2017 SITLA land auction included a 1,120 acre parcel within BENM, the Needles Outpost, which sold for \$2.5 million, or \$2,232 per acre (<https://trustlands.utah.gov/land-auction-earns-3-million-for-public-schools/>).

<sup>7</sup> Fast Facts and Q&A about the Bears Ears National Monument Designation, BLM.

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Figure 1. Percent of employment by use sector in San Juan County, 2015



\*Other includes agriculture/forestry; utilities; wholesale trade; finance and insurance; real estate; professional, scientific and technical services; admin and support services; waste management; educational services; arts and entertainment; and transportation and warehousing. Each of these represents less than 4% of total employment.

Information is provided below on two different types of economic information: “economic contributions,” and “economic values.” Both types of information are informative in decision making. Economic contributions track expenditures as they cycle through the local and regional economy, supporting employment and economic output (see Table 2). It is estimated that recreation activities in the BENM area supported about 460 jobs and provided about \$23 million in value added in FY 2016.

#### Definitions

**Value Added:** A measure of economic contributions; calculated as the difference between total output (sales) and the cost of any intermediate inputs.

**Economic Value:** The estimated net value, above any expenditures, that individuals place on goods and services; these are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

**Employment:** The total number of jobs supported by activities.

Economic values, in contrast to economic contributions, represent the net value, above and beyond any expenditures, that individuals place on goods and services. To the extent information is available some of these values are presented in Table 3. Economic values are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services. For commodities bought and sold in markets (e.g., oil, gas, etc.), the economic values are closely related to the market prices of the commodities. For goods and services such as recreation which are typically not bought and sold in markets the values are estimated based on visitor surveys which attempt to capture individual values above and beyond their direct expenditures.

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### *Activities and Resources Associated With Bears Ears National Monument*

Activities occurring at Bears Ears National Monument include recreation (camping, hiking, canyoneering, mountain biking, boating, rock climbing, hunting, ATV use), viewing ancestral Puebloan cultural sites, collection of materials for tribal ceremonial purposes, scientific and archaeological research, firewood collection and other non-commercial timber production, grazing and energy/non-energy mineral production with valid existing rights. Further details on these activities are provided below.

Table 2. Estimated Economic Contributions, 2016

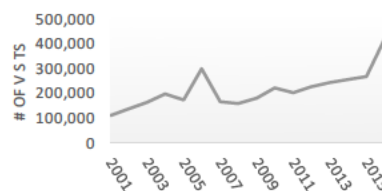
Activities	Value added (net additions to GDP), \$ millions	Employment supported (number of jobs)
Recreation	\$22.9	463
Non-energy Minerals	\$0.24	2
Grazing	Grazing value-added is not available	161
Cultural resources	Unquantifiable; some values would be included in recreation	Unquantifiable; some values would be included in recreation

- **Recreation:** Annual recreation visitation data for 2001-2016 is available for the BLM Monticello Field Office. About 60 percent of area formerly under the jurisdiction of the Field Office represents the area included in the Monument. This area receives the vast majority of recreation use. Recreation visits increased steadily from about 111,000 in 2001 to about 419,000 in 2016 (see Figure 2). Comparatively, visitation to National Monuments and NCAs that have tracked unit-level visitation since 2005 has grown at an average rate of about 5.4% per year. Prior to designation, BLM also tracked the number of visits to the Kane Gulch ranger station that served the southern end of the Monument. The number of visits to this ranger station in March and April of 2017 was more than 50% higher than the average visitation during the same months of the four previous years. Recreation activities provide the opportunity for economic activity to be generated from tourism for an indefinite period of time. 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 \$23 million in value added and 463 jobs. These contributions affect the regional and state economies.

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In addition, annual recreation visits to the Manti-La Sal National Forest, part of which is now within BENM boundaries, are estimated to number around 350,000. USFS does not have information on visits to specific areas within the National Forest, so it is not possible to determine visitation to the part of the forest that is now in BENM. However, it is likely that recreation visitation to the area that is now BENM exceeds what was captured by the BLM Monticello Field Office since there was likely additional visitation to

Figure 2. Recreation Visits to BLM Monticello Field Office, 2001-2016



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the included section of the Manti-La Sal National Forest. The estimates of economic contributions associated with recreation are based solely on the level of visitation to the BLM-managed land in 2016; these could be considered conservative estimates as they do not include the impacts of visitation to USFS-managed land.

- **Energy:** In general, the scope, magnitude, and timing of energy and minerals activities are closely related to supply and demand conditions in world markets and the market prices of mineral commodities. To date, energy development on the Monument has been limited.
  - **Coal.** There have been no coal developments in the Monument area. Furthermore, there is very little, if any, prospectively valuable coal within the Monument boundaries, based on the energy and mineral resource assessment conducted for BENM. Potential for prospectively valuable coal, as surveyed by the USGS, lies almost entirely to the east of the Monument.
  - **Oil and gas.**
    - USGS assessments indicate a high level of potential for oil and gas within the Monument boundaries, however there are currently no producing oil and gas wells within the Monument.<sup>8</sup> The upper northeast panhandle of BENM lies within the boundaries of the Moab Master Leasing Plan and portions of the southeastern and southcentral areas of the Monument were included in a proposed San Juan Master Leasing Plan. Approximately 63,600 acres within the proposed San Juan Master Leasing Plan area have been nominated for leasing since 2014. All of these lease nominations were deferred due to existing land use plan decisions and potential adverse impacts on cultural resources.
    - There are currently 25 existing federal oil and gas leases that are partially or wholly contained within the Monument boundaries on BLM-managed lands, with lease authorizations spanning the period from 1972 to 2012. Valid existing rights are protected under the proclamation, so development on these existing leases could occur if development is found to be economic. Currently, there are no authorized or pending applications for permit to drill (APDs) associated with these leases. No oil and gas wells have been drilled on existing leases since 1993 and all wells within Monument boundaries have been plugged. Of the 250 wells that have been drilled since 1920, only three wells have produced economical quantities of oil and gas. The last producing well was drilled in 1984 and ceased production in 1992.
- **Non-fuel minerals.**
  - **Sand and gravel.** There is one commercial minerals materials mining site within Monument boundaries on BLM-managed land that produces sand and gravel. The permit for this site was renewed in March, 2016 for a 10-year period. Production is limited to a

**Commented [MAW4]:** BIA commented that this statement is misleading given how few productive wells have existed on the lands. USGS themselves warned that even if a survey indicates high potential, it is not possible to determine where exactly the resources may lie. I think we should insert a sentence that describes that USGS caveat.

<sup>8</sup> The Monument area is within a USGS Energy Assessment Unit (AU) and has historic uranium mining activity (the Monument is within 2 conv. AUs and 1 cont. AU, Paradox Basin Province (315 MMBO, 999 BCF, 18 MMBNGL) <https://pubs.usgs.gov/fs/2012/3031/>.

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maximum of 200,000 cubic yards over the life of the 10-year permit, and designation of the Monument does not affect the limits on production.<sup>9</sup>

- **Potash.** While USGS surveys have assessed potential for potash in the northeastern panhandle of BENM (an area within the boundaries of the Moab Master Leasing Plan prior to designation), no sites in this area were identified as Potash Leasing Areas in the most recent Moab Master Leasing Plan (2016). BLM has denied all potash prospecting permit applications received from 2008 to 2015, primarily because they were inconsistent with protection of multiple resource values use (such as natural or cultural use) in the area.<sup>10</sup>
- **Uranium.** While there are no active mining operations on USFS-managed land, there are 78 active unpatented mining claims for uranium. There are no mining claims for uranium on BLM-managed land. The uranium ore in the Manti-La Sal National Forest is low grade, affecting the ability of the local industry to compete economically on the world market.<sup>11</sup> Uranium prices are volatile and, though currently higher than historical prices, have been trending downward since peaking in 2008.<sup>12</sup>
- **Timber.** Laws, regulations, and policies followed by USFS or BLM in issuing and administering the timber program before the Proclamation continue to apply. Timber harvest activities such as non-commercial Christmas tree cutting and collection of wood for posts and firewood are allowed by permit on both BLM and USFS-managed land. For BLM-managed lands, no information is available on the level of magnitude of these activities strictly within Monument boundaries, however within the boundaries of the Monticello Field Office the total estimated value of harvested firewood, wooded posts, and Christmas trees was about \$12,000 in FY 2016. In addition to selling permits for Christmas trees, firewood, and wood for posts, there were about 736,000 cubic feet of forest products produced within the USFS-managed land within the Monument boundaries between 2012 and 2015. The Monument proclamation allows for the continuation of all pre-designation timber activities.

<sup>9</sup> Supply and demand conditions determine how much is produced annually within the overall limit on overall production. BLM receives a royalty of \$1.08 per cubic yard (\$0.66 per ton) of mineral production. The national average price for sand and gravel used in construction was \$8.80/metric ton ([https://minerals.usgs.gov/minerals/pubs/commodity/sand\\_&\\_gravel/construction/mcs-2017-sandc.pdf](https://minerals.usgs.gov/minerals/pubs/commodity/sand_&_gravel/construction/mcs-2017-sandc.pdf))

<sup>10</sup> Potash production depends largely on market forces. U.S. consumption of potash was down in 2016 owing to a drop in agricultural use in the first half of the year and lower industrial usage, primarily in oil well-drilling mud additives. The world potash market in 2016 was marked by weak demand in the first half of the year, mainly in China and India, the largest consumers of potash. This excess supply resulted in lower prices, and reduced production. The average price of potash in 2016 was \$360 per ton.

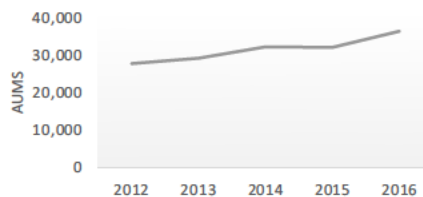
<sup>11</sup> Manti-La Sal National Forest Land and Resource Management Plan, 1986.

<sup>12</sup> <https://www.eia.gov/uranium/marketing/>.

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- Forage.** Laws, regulations, and policies followed by USFS or BLM in issuing and administering the timber program before the Proclamation continue to apply. Grazing is permitted on both BLM and USFS-managed lands within the Monument boundaries; no grazing permits were bought out upon designation of the Monument. The allotments that are wholly or partially contained within the boundaries of BENM include 50,469 permitted Animal Unit Month (AUMs)<sup>13</sup> on BLM-managed land and 11,078 AUMs permitted on USFS-managed land. The Monument proclamation allows for the continuation of all pre-designation grazing activities, including maintenance of stock watering facilities. Figure 3 shows the number of AUMs billed by BLM annually over 2012-2016. In 2016, there were about 36,400 billed AUMs on BLM-managed land and about 7,400 billed head months (HMs)<sup>14</sup> on USFS-managed land; on average, billed AUMs/HMs represent about 60-70% of permitted AUMs/HMs.

Figure 3. BLM AUMs Billed, 2012-2016



**Deleted:** Information on billed AUMs on USFS-managed land is not currently available.

- Cultural and historic resources.** Indigenous communities may utilize natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited or no substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs.

According to the Utah State Historic Preservation Office, as of Feb. 6, 2017, there are 8,480 recorded archaeological sites and four archaeological districts within BENM. The following archaeological districts are either completely within or partially within BENM: Butler Wash, Grand Gulch, Natural Bridges, and the Salt Creek Archaeological District. More than 70 percent of these sites are prehistoric (pre-dating the 1800s). These prehistoric sites include pottery and stone tool (lithic) scatters, the remains of cooking features (hearths), storage features such as adobe granaries and subsurface stone lined granaries, prehistoric roads, petroglyphs, pictographs and cliff dwellings. The remaining sites are historic and include debris scatters, roads, fences, and uranium and vanadium mines from World War II and the Cold War. The total percentage of the BLM-managed portion of BENM that has been surveyed for cultural resources is 9.2 percent.

In addition the USFS-managed portion of BENM includes 2,725 known cultural sites and features an area containing over 2,027 Puebloan sites, most of which are *Pueblo I*. The *Pueblo I* culture is limited to only a few locations and the USFS-managed portion of BENM contains the only high elevation communities of this era. These sites include hunting camps and blinds, ceremonial

<sup>13</sup> 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>.

<sup>14</sup> AUMs and HMs are treated as equivalent measures for fee purposes.

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sites, granaries, stone quarries, villages and residences, agricultural systems, kilns, rock art, and shrines, as well as protohistoric sweat lodges and hogans. Only 15 to 20 percent of the USFS-managed portion of BENM has been surveyed for cultural resources. Activities currently undertaken by tribal members include hunting, fishing, gathering, wood cutting, and the collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.

#### *Multiple Use, Tradeoffs among Permitted Activities, and Types of Economic Information*

This section presents some information to help understand land management tradeoffs. The designation of the monument has closed lands to certain types of development so within the context of the Monument Designation, some tradeoffs are not relevant.

Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. Table 3 provides a summary of activities and economic values and information on the timing and drivers of future activity levels. In general, market supply and demand conditions drive energy and minerals activity; societal preferences and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited substitutes and thus tradeoffs are typically limited.

Planning for permitted uses on National Monuments will involve trade-offs among different activities on the land area being managed so as to allow permitted activities that do not impair monument objects. In some cases, certain areas of the Monument may be appropriate for more than one use, and the trade-offs must be considered and management decisions may be made that prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future.

In considering the trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely assuming the resources required for recreation remain intact and of sufficient quality for the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities. Grazing could also continue indefinitely as long as the forage resource is sustainably managed and remains consistent with the protection of monument objects. Timber harvest may also continue indefinitely as long as the timber resource is sustainably managed. The stream of costs and benefits associated with some other non-renewable resources would be finite, however (assuming these activities were consistent with the designation). For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long as the resource is economically feasible to produce.

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Table 3. Summary of Activities and Economic Values, FY 2016

Activities	Level of annual activity	Unit Value	Timing	Drivers of current and future levels of activity
Recreation	530,892 visitor days (FY 2016, <i>BLM only, data not available for USFS</i> )	\$54.19/visitor day <sup>a</sup>	Visitation could continue indefinitely if landscape resources remain intact and of sufficient quality.	Societal preferences for outdoor recreation; disposable income; changing individual preferences for work and leisure time
Oil, gas, coal production	Little or none to date, see "Oil and gas" section for more information	FY 2016 average prices <sup>b</sup> : crude oil (WTI): \$41.34/bbl natural gas: \$2.29/mcf coal (subbituminous): \$12.08/ton	Development of energy and non energy minerals is subject to market forces (worldwide supply and demand, prices). Mineral extraction is non renewable and occurs only as long as the resource is economically feasible to produce.	Market prices of energy commodities affect both supply and demand.
Non energy Minerals	34,813 tons <sup>c</sup> of sand and gravel (average of 2011-2015 production)	National average price for sand and gravel (2016): \$8.80/ton <sup>d</sup>		Market prices of non energy commodities affect both supply and demand. Mineral production is limited to 200,000 cubic yards over a 10 year period per the existing resource management plan.
Grazing	56,402 AUMs (2016, <i>BLM only, data not available for USFS</i> )	2016 grazing fee: \$2.11/AUM	Grazing could continue indefinitely if forage resources are managed sustainably.	Market prices for cattle and sheep and resource protection needs and range conditions (due to drought, fire, etc.) can affect AUMs permitted and billed.
Cultural resources	Indigenous communities often use natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited or no substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs. BENM contains substantial cultural resources that have not been fully surveyed. Tribes use the sacred sites within BENM for hunting, fishing, gathering, wood cutting, and for collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.			
Benefits of nature	Services provided by nature underpin all sectors of a local economy. As many of these services are not sold in markets, we have limited information on their prices or values. Specific benefits related to BENM include protection of crucial habitats for deer, elk, desert bighorn sheep, pronghorn, and endemic plant species that inhabit rare habitat types such as hanging gardens.			

<sup>a</sup> 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/><sup>b</sup> All prices are from EIA.gov<sup>c</sup> Reported average production of 21,396 cubic yards converted to tons using a conversion factor of 1.63 cu yds/ton.<sup>d</sup> USGS Mineral Commodity Survey [https://minerals.usgs.gov/minerals/pubs/commodity/sand\\_&\\_gravel/construction/mcs-2017-sandc.pdf](https://minerals.usgs.gov/minerals/pubs/commodity/sand_&_gravel/construction/mcs-2017-sandc.pdf)

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