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To: [Bowman, Randal](#)
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Subject: Berryessa Snow Mountain NM
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Attachments: [Berryessa Snow Mountain Review 2017-07-20.docx](#)

Hi Randy,

Attached is a draft review for Berryessa Snow. I believe this is the last of the drafts that still needs to be sent to the bureaus for comment.

Thanks!

Ann

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Berryessa Snow Mountain National Monument

Economic Values and Economic Contributions

DRAFT



Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Berryessa Snow Mountain National Monument (BSMNM) as well as to provide a brief economic profile of Lake County.^{1, 2}

Background

BSMNM was established in July, 2015. The Proclamation designated “approximately 330,780 acres” and states that acreage is “the smallest area compatible with the proper care and management of the objects to be protected.” Prior to designation, the area was managed separately by the BLM (40%) and the USFS (60%) and both now manage this area cooperatively following designation. The area includes the Snow Mountain, Cache Creek and the Cedar Roughs Wilderness areas.

The BLM manages for multiple use within the Monument (hunting, fishing, recreation, grazing, and valid existing rights such as mining, 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 unique geology, watersheds, the Bartlet Springs fault zone, serpentine soils that host a vast array of botanical resources, some of the earliest prehistoric settlements in California and traditional gathering sites for Native American cultures, Cache Creek Archeological District, historic 1860’s Nye Cabin, and headwaters and waterways that harbor native fish, wildlife habitat and migration corridors. Overall, multiple-use activities are allowed in BSMNM that are compatible with the protection of resources and objects identified in the Presidential Proclamation. Multiple-use activities are subject to decisions made in current and future BLM resource management planning efforts which include public participation in the development of the National Monument Management plan. 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 (FLPMA) and the resources, objects and values identified in the Proclamation.

The establishment of BSMNM received support at the State, local and regional level. Counties and cities in the region passed resolutions of support. The community was engaged in the legislative proposals for the area and the eventual designation as a National Monument. BLM records reflecting the pre-designation community engagement efforts are limited because most of the sponsorship for this designation came from active non-profit organizations. This monument offers an example of landscape-level cooperative management by multiple federal agencies through use of a Service First Agreement.

¹ The BLM provided data used in this paper.

² Lake Co. has about 2/3 of total acreage. Source: Larson, E. (2017) Lake County News. Posted June 9, 2017. Accessed July 19, 2017. <https://www.lakeconews.com/index.php/news/142-local-government/51195-support-gathers-for-maintaining-berryessa-snow-mountain-national-monument-status->

Berryessa Snow Mountain National Monument

Location: Northern California

Managing agencies: BLM, USFS

Adjacent cities/counties/reservations:

- Counties: Lake County, CA (about 2/3 of BSMNM acreage). Also Colusa, Glenn, Mendocino, Napa, Solano, and Yolo
- Tribes: Elem Indian Colony of Pomo Indians
- Nearest City: Clearlake, CA

Resource Areas:

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

The lands in and around BSMNM include a patchwork of state, county, local, and private ownership. Establishment of BSMNM provides a framework for cooperative coordination, grant writing, and cost sharing opportunities with federal, state, county, local, private and not-for-profit entities.

BSMNM is in the process of development of a new plan for cooperative management by BLM and USFS. The BLM will begin the public scoping process in 2017. Three public meetings were hosted by the BLM and U. S. Forest Service (Mendocino National Forest) in the fall of 2016. No timeframe requirement was identified for the development of this management plan. The plan will be developed in consultation with tribal, state, and local governments.

Public outreach prior to designation

The establishment of BSMNM was the result of a grassroots effort of regional and community support for interagency protection and enjoyment of these lands. The not-for-profit organization Tuleyome (www.tuleyome.org) with offices based out of Woodland, CA led this effort with a website, community, and regional outreach efforts. More than 200 local businesses voiced support for monument designation.

Local Economy and Economic Impacts

Table 1 presents socio-economic metrics for Lake Counties and the state of California. The County contains roughly 0.2% of the State's population. The population of the county increased about 10% from 2000 to 2015.³ 3.2% of the population of the county is Native American. The median household income of Native Americans in Lake Counties is 92% of the median household income for the county's general population (see Table 1). The county has historically experienced higher levels of unemployment and lower levels of median household income in comparison to the State.

The economy in Lake County has firms in twenty sectors. Health care and social assistance is the largest sector by employment (see Figure 1), accounting for about 25% of total employment in the county.⁴

Table 1. Lake County and State of California Economic Snapshot

Measure	Lake County	State of California
Population, 2015 ^a	64,158	38,421,464
Native American % of population, 2010 ^d	3.2	1.0
Employment, December 2016 ^{b,c}	27,247	17,982,086
Unemployment rate, April 2016 ^{b,c}	6.7	5.5
Median Household Income, 2015 ^a	35,578	61,818
Native American Median Household Income, 2015 ^e	32,750	45,490

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

^b State data: <https://data.bls.gov/timeseries/LASST0600000000000003>

^c County data: <https://www.bls.gov/web/metro/laucntycur14.txt>

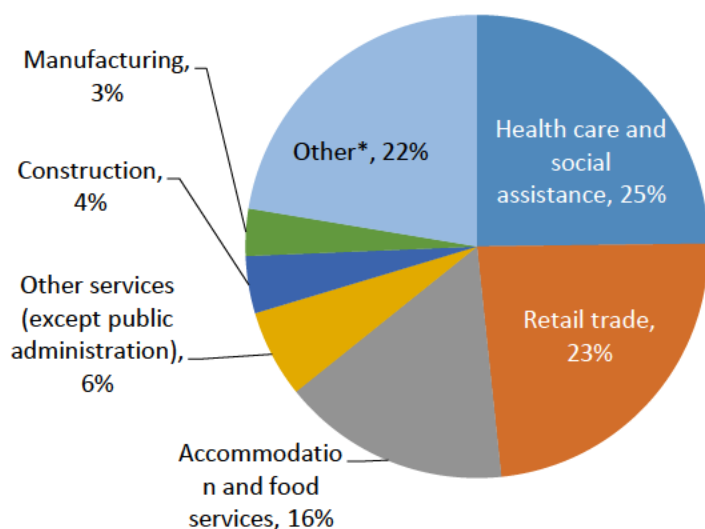
^d U.S. Census Bureau, American Fact Finder
<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

^e 2011-2015 American Community Survey (B19013)

³ Population (2000) 58,309; (2015) 64,158

⁴ U.S. Census Bureau County Business Patterns, 2015.

Figure 1. Percent of employment by sector in Lake County, 2015



* Other includes Administrative and support and waste management and remediation services; Agriculture, forestry, fishing and hunting; Arts, entertainment, and recreation; Educational services; Finance and insurance; Industries not classified; Information; Management of companies and enterprises; Mining, quarrying, and oil and gas extraction; Professional, scientific, and technical services; Real estate and rental and leasing; Transportation and warehousing; Utilities; and Wholesale trade. Each of these represents less than 3% of total employment. Source: 2015 County Business Patterns, U.S. Census Bureau.

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. Table 2 provides estimates of the economic contribution of activities associated with BSMNM.

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. It is not appropriate to sum values for economic contributions and economic values because they represent different metrics. To the extent information is available some economic values are presented in Table 3 along with information on the timing and drivers of future activity. 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. The economic value in FY 2016 associated with recreation is estimated to be about \$30 million.

Table 2. BSMNM Estimated Economic Contributions, 2016

Activities and Resources Associated With BSMNM

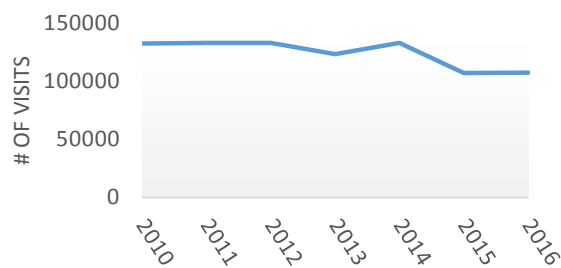
Details on the activities occurring at BSMNM are provided below.

- **Recreation:** Recreation opportunities at BSMNM include hiking, camping, backpacking, hunting,

fishing, mountain biking, and horseback riding. The Mendocino National Forest hosts a world-class off-highway vehicle trail system, part of which is in the Monument. The Monument also offers opportunities for kayaking in what is the closest whitewater river available to Sacramento and the San Francisco Bay area, as well as hang gliding launch points.

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. These contributions affect the regional and state economies. Recreation activities based on visitation to BLM-managed land are estimated to contribute about \$5.8 million in value added (net economic contributions) and support around 95 jobs.⁵

Figure 2. Recreation Visits to BSMNM, 2010-2016



In addition, in 2015/2016, three major wildfires were followed by heavy rains and landslides after the designation of BSMNM. The Wragg Fire, Rocky Fire, Jerusalem Fire each impacted the recreational use areas closing trails access for major portions of the season. The Rocky Fire impacted much of the Cache Creek Wilderness, one of the highest used hiking and equestrian areas within BLM managed lands. The Jerusalem Fire impacted uses in the Knoxville OHV area, and the Wragg Fire impacted hiking trails at Coldwater Canyon, within the preserve that is located just south of BSMNM. These wildland fire emergencies likely reduced annual visitation numbers at BSMNM. In contrast, the number of Special Recreation Permits (SRP) issued in the BSMNM saw a significant 60% increase since designation.

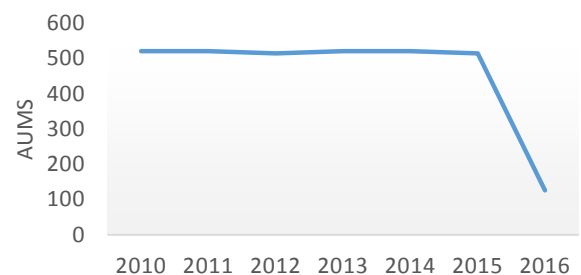
- **Energy.** There are no oil wells, no gas wells, no coal developments, and no commercial renewable energy operations in BSMNM. There is no energy production within BSMNM. No applications for new power transmission infrastructure have been submitted within the BSMNM boundaries. In general, the scope, magnitude, and timing of energy and minerals activities are closely related to supply and demand conditions in world markets and the market prices of

⁵ BLM data.

mineral commodities. Local or regional cost considerations related to infrastructure, transportation, etc. also may play a role in defining the supply conditions.

- **Non -fuel minerals.** There are seven locatable mineral mining claims (six mill sites and one lode claim) located within BSMNM. They are all owned by Homestake Mining Company and none of these claims are commercially active. There are no mineral developments or process facilities adjacent to, or may be impacted by BSMNM.
- **Timber.** There is no active commercial timber program in-place for the BLM-Ukiah Field Office. Commercial timber production within BSMNM is limited to those lands that are managed by the U.S. Forest Service, Mendocino National Forest.
- **Forage.** The Monument proclamation allows for the continuation of all pre-designation grazing activities, including maintenance of stock watering facilities. There are five allotments wholly contained within the BSMNM. These allotments include 552 permitted Animal Unit Months (AUMs). Of the 552 permitted AUMs, 342 contained within two separate allotments have not been utilized since monument designation due to catastrophic wildfire and drought. For this year, there were only 126 billed AUMs in 2016 (see *Figure 3*). Prior to this, there was an average of 519 billed AUMs per year since 2010. One allotment totaling 84 AUMs has not been utilized since 2005.
- **Rights of Way.** There are few lands and realty actions that have been implemented or proposed within the BSMNM boundaries. According to the LR2000 Database System, during the period from 1968-2012, only 26 road right of ways, five road/federal highway actions, nine communication sites, and eight water/irrigation right of ways were processed. Currently, only one road safety amendment with the California Department of Transportation is currently being processed and one communications site transfer is being processed within BSMNM.
- **Cultural, archeological, 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. 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.

Figure 3. BLM AUMs Billed, 2010-2016



568 cultural resources have been identified within BSMNM, but only 142 of these sites were identified on BLM public lands. The total extent of sites is most likely larger with only 17.5%

(BLM 10%, USFS 25%) having been surveyed. Through tribal consultation, the BLM areas such as Knoxville's Cement Creek contain unidentified paleo-Indian sites, as does the Cache Creek Natural Area. Identified prehistoric sites include lithic scatters, sites with house-pits and dance-house depressions, chert, magnesite, and basalt quarries. Historic-era sites consist of numerous homesteads, mercury mining operations, cinnabar prospects, and stone livestock corrals.

The National Register of Historic (NRHP) listed Cache Creek Archaeological District (Solari 1997) contains paleo-Indian to ethnographic Pomo and Patwin sites. These sites provide evidence for some of the earliest known sites in California (and beyond) as well as evidence of contact and enculturation when Euro-American cultures moved into the region. The Monument (USFS & BLM portions) includes seven distinct Native cultures. Prehistoric trade routes and the artifacts that moved over these trails help to tie the cultures together.

Land Management Tradeoffs

This section presents some information to help understand land management tradeoffs. Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. However, tradeoffs and decision making are often subject to constraints, such as Monument designations. 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 or no substitutes. A particularly challenging component of any tradeoff analysis is estimating the nonmarket values associated with BSMNM resources, particularly the nonmarket values associated with cultural and scientific resources.

Planning for permitted resource use on National Monuments will involve trade-offs among different activities on the land area being managed in order to allow permitted activities that are compatible with monument objects. Once designated, National Monuments continue to be managed under the multiple use mandate outlined in the Federal Land Policy and Management Act of 1976. In some cases, certain areas of the Monument may be appropriate for more than one use. After the careful consideration of tradeoffs, management decisions in those cases may 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. These decisions are based upon whether a use is compatible with the designation. Factors that could inform these tradeoffs include demand for the good or activity, prices, costs, 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. Trust responsibilities and treaty rights should also be considerations.

In considering any 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 individuals to remain interested in the activity. Likewise, the values associated with the natural and cultural resources could continue indefinitely provided they are not degraded by other activities (and

assuming preferences do not change). 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.

(b) (5) DPP [Redacted text block]

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