



**NATIONAL
CONSERVATION
LANDS**



Berryessa Snow Mountain

National Monument



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U.S. Department of the Interior
Bureau of Land Management

Berryessa Snow Mountain

National Monument

Designating Authority

Designating Authority: Designated by presidential proclamation #9298 in accordance with Antiquities Act, section 320301 of title 54, United States Code.

Date of Designation: July 10, 2015

Managing Partners

The U.S. Department of Agriculture's Forest Service and The Department of the Interior's Bureau of Land Management (BLM) each manage the portion of these lands that are pursuant to their respective legal authorities. BLM manages federal lands at the southern portion while Forest Service manages federal lands to the north. The BLM and Forest Service work together to maximize opportunities, pursuant to applicable legal authorities, for shared resources, operational efficiency, and cooperation. The lands in and around Berryessa Snow Mountain National Monument (BSMNM) include state, county, local, and private ownership. BSMNM provides a framework that supports collaboration with federal, state, county, local, private and not-for-profit entities.

Additional Designations

The monument includes three designated wilderness areas along with Wild and Scenic River segments of Cache Creek. Areas of Critical Environmental Concern (ACEC) including the Knoxville, Indian Valley Brodiaea Research Natural Area, Cache Creek, Northern California Chaparral Research Area, and Cedar Roughs Natural Area were identified in the 2006 BLM Ukiah Field Office Resource Management Plan. Forest Service resource protections were identified in the 1995 Forest Service Land and Resource Management Plan and 2019 Management Baseline. Lands in the Cache Creek Natural Area are managed by BLM and the California Department of Fish and Wildlife (CDFW) in accordance with guidance from the 2004 Cache Creek Coordinated Resource Management Plan.

Site Description

The Berryessa region exhibits some of the most scenic and biologically diverse landscapes in California. BSMNM encompasses 330,780 acres that are rich with cultural significance and provide important habitat for plants and wildlife. To the north, Snow Mountain Wilderness offers scenic forested trails. Further south, the Cache Creek

Wilderness and Berryessa Peak offer educational and recreational activities. Native American cultural legacies are an important component of this landscape. The proclamation provides many examples of diverse and unique species, cultural sites, geologic features, water resources, educational and research opportunities.

Monument Offerings

BSMNM attracts visitors from larger population centers in the San Francisco Bay area and Sacramento. It also brings in visitors from the redwood, coastal, and wine country tourism routes. Recreational groups use the trails on both BLM and Forest Service managed lands. OHV and equestrian riders host events and provide important volunteer support. Other uses include wildlife viewing, hunting, fishing, swimming, kayaking, hang gliding, camping, and whitewater rafting.

Year Accomplishments

Even with the challenges of post-fire impacts, BLM and Forest Service worked with non-profit partners, schools, and state agencies to offer nineteen educational and outreach programs. New portal signs were installed, and the Forest Service Management Baseline for BSMNM is now available online. Lucerne became the first official BSMNM Gateway Community in 2019.

Future Priorities and Opportunities

The BSMNM Interagency Monument Management Team has identified several focus areas for future collaboration. They are Outdoor Recreation, Volunteer Projects, Partnership Opportunities, Research & Planning, Ecosystem Health, Educational Events, Community & Economic Development, and Public Outreach & Informational Products. Both agencies continue to foster existing partnerships and invite new opportunities.

Berryessa Snow Mountain

National Monument

Bureau of Land Management
Ukiah Field Office
2550 North State Street, Suite 2
Ukiah, CA 95482
Phone: 707-468-4000

Mendocino National Forest
Upper Lake Ranger District
10025 Elk Mountain Road
Upper Lake, CA 95482
Phone: 707-275-2361

Unit Manager: Rebecca Carr Wong

Web Address: <https://www.blm.gov/programs/national-conservation-lands/california/berryessa-snow-mountain-national-monument>

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1 Berryessa Snow Mountain Overview

Acreage

Total Acres in Unit	330,780
BLM Acres	133,576
Other Federal Acres	197,204 (Forest Service)
State Acres*	0
Private Acres*	0

*State and Private Acres are not part of the total unit acres listed above because the monument designation does not include public lands that are owned or managed by private, state, county, or municipal governments.

BLM Budget

Budget Title	Code	Funding
Monuments & Conservation Areas	1711	\$290,570
Wilderness Management	1210	\$ 33,975
Recreation & Visitor Services	1220	\$ 5,951
Other (BLM Executive Order Program)	1310	\$ 6,000
Other Federal (Forest Service)	1920	\$ 38,795
Total Budget		\$341,316

Current Areas of Focus

The highest priority work for both agencies in 2019 was to ensure public safety, resource preservation, and public access to public lands that were impacted by wildfires. Six wildland fires occurred within BSMNM in 2018, including the Mendocino Complex, reputed as the largest fire in California History. Together, these fires covered approximately 56% of BSMNM lands that are cooperatively managed by BLM and Forest Service. Most fire impacts within BSMNM were to lands that are managed by Forest Service, but BLM manages some of the lands and adjacent recreational areas that were impacted. Rehabilitation work within the burned areas will continue in 2020.



Figure 1. Aerial photo of Ranch Fire impacts before stabilization and rehabilitation efforts. Credit: BLM

BLM continued several resource inventory and data compilation efforts including cultural resource monitoring, transportation route inventory, proper functioning condition of riparian habitats monitoring and working with partner organizations to digitize and model resource information. BLM completed Visual Resource Inventory and Assessment for all lands within Berryessa Snow Mountain National Monument in 2019.

Forest Service addressed post-fire safety needs by conducting infrastructure repairs to roads, trails, and culverts. Post-fire resource surveys and data recovery projects conducted in 2019 will help to guide landscape restoration projects within BSMNM for many years. A renewed community interest in forest fuels reduction has set the stage for additional partnerships that focus on vegetation management, collaborative research, education, community, and workforce development.

Planning and NEPA

The enabling proclamation that established BSMNM directs Forest Service and BLM to manage the monument pursuant to their respective applicable authorities. The Forest Service and BLM are managed by separate governmental departments (US Department of Agriculture and US Department of the Interior), they have different directives, policies, and priorities. The agencies have worked together to create a strategy for managing this national monument that allows each agency to adhere to its particular planning requirements, enables both agencies to support the other throughout the process, provides for ongoing use and management of the monument, and strengthens public enjoyment and stewardship now and into the future.

The agencies have agreed that the foundational tasks necessary to ensure the protection of BSMNM resources, objects, and values are:

1. To explicitly identify the resources, objects, and values within the monument.
2. For each agency to evaluate its existing management direction to determine if it allows for effective protection of the objects of historic and scientific interest (Forest Service and BLM) and resources, objects, and values (BLM).
3. To identify and compile the information needed to assure day-to-day continuity of public use and infrastructure support, including descriptions of monument activities, information resources, and public opportunities.
4. To complete Forest Service agency-specific administrative changes needed to implement the proclamation.

Based on this strategy, an interdisciplinary team of resource and technical specialists from Forest Service compiled a Management Baseline report for lands within BSMNM that the Forest Service manages. This management baseline includes an evaluation of the Mendocino National Forest Land and Resource Management Plan to identify and

provide the Forest Service administrative change required for proper care and management of the objects of interest identified in the proclamation that established BSMNM. It also provides a list of resources, objects and values developed through interagency collaboration of interdisciplinary teams of resource staff from both the Forest Service and BLM. Forest Service project-level decisions will continue to be made on a case-by-case basis, after additional detailed analysis and public involvement. All current Forest Service management direction applies to Forest Service lands within the BSMNM boundary unless it is determined to conflict with protecting and restoring the objects of interest or is explicitly excluded by the proclamation.

Staffing

Approximately 40% of BSMNM lands are managed by the BLM Ukiah Field Office and 60% of BSMNM lands are managed by the Forest Service (38% by the Upper Lake and Covelo Ranger Districts and 22% by the Grindstone Ranger District). An Interagency Monument Management Team meets regularly to guide the operational management of BSMNM. The monument has one full-time permanent staff member who is funded jointly by the BLM and Forest Service through a Service First Agreement. BLM employs this position and Forest Service funds approximately 40% of associated employment costs plus project-specific costs for supplies, interns, and contracts. Federal employees from both agencies who supported federal land management before the monument designation in 2015, continue to provide shared resource and management services. BLM funds provided through the National Monuments and National Conservation Areas program support the remaining salary and associated employment costs for the Monument Manager, interns, project-specific costs, and support the salaries of Ukiah Field Office staff when they work on BSMNM lands.

Project and staff funding requests are evaluated on a case-by-case basis by each agency. In 2019, one intern was provided through the Hispanic Access Foundation (HAF) Resource Assistant program. This program works under an agreement between the Forest Service and HAF. Costs for the intern were shared by the BLM Ukiah Field Office, Forest Service, and the BLM Executive Order Program. This Resource Assistant worked side by side with the Monument Manager, Forest Service Archeologists, BLM seasonal Park Rangers, and other shared agency staff to develop career skills and support the accomplishments outlined in this report.

2 Programs and Accomplishments

General Accomplishments

Due to the impacts of several wildland fires throughout this region, access to some recreational areas were restricted until road repairs and other safety hazards could be addressed. While BLM managed lands within BSMNM were open to the public soon after the fires, most lands within the Forest Service managed portion of BSMNM were temporarily closed to allow for infrastructure repairs and habitat restoration. In addition to post-fire Burned Area Emergency Response (BAER) efforts, local groups provided volunteer support to restore safe access to public lands within BSMNM.

Visitor use tracking numbers provide an estimate of visitor use on BLM lands but do not include visitor counts on Forest Service lands, nor do they include info station contacts during the closure of lands within Mendocino National Forest. Mendocino Complex fires included the Ranch Fire and River Fire, which began on July 28 and were not fully contained until October 19, 2018. While most Forest Service managed lands within BSMNM are now open to the public, Forest Service closure order 08-19-03 will remain in effect for some recreational facilities in 2020. Forest Service continues to evaluate conditions and works to reduce hazards to provide more access to burned areas.

In 2019, extensive work was conducted to rehabilitate burned infrastructure within BSMNM. This included road work along Forest Road M10 used to access BSMNM, road maintenance along the Mendocino OHV Corridor for Forest Route 17N07, hazard tree removal at campgrounds and along roadways. Culvert and OHV barrier replacement was also conducted by forest staff, volunteers, contractors, and Konocti Conservation Camp crews.



Figure 2. North of the Indian Creek Bridge. Credit: BLM

General Accomplishments Table

Non-Recruitment Data						
	Number of BLM Visitors	BLM & MNF Education Participants	BLM & MNF Interpretative Participants	BLM & MNF Visitor Center/Contact Station Visits	Public Outreach Event Contacts	
TOTALS	322,633	186	550	1466	9808	219,200

Education, Outreach, and Interpretation

Information and activities were provided by Forest Service at an Earth Day festival hosted by the Habematolel Pomo of Upper Lake. BLM provided fire safety information at the Lake County Fair. The BSMNM Monument Manager participated in Tuleyome's annual Nature and You lecture series hosted by the Woodland Public Library. A BSMNM booth at the Salmon Festival in Winters, CA also provided information about monument events, recreational opportunities, and children's activities.



Figure 3. Monument Manager presenting at the Woodland Public Library. Credit: Tuleyome.

Several outdoor excursions were hosted by non-profit partners. These guided activities provided public opportunities to learn about BSMNM resources, while providing a safe and ecologically friendly experience. Examples include hiking along the Judge Davis Trail in the Cache Creek Wilderness, hiking along Annie's Trail in the Stebbins Cold Canyon area, kayaking up Pope Creek to view the Cedar Roughs Wilderness, and

supporting community group hiking and camping excursions. Special thanks go to our nonprofit partners Tuleyome, Boy Scouts of America, Girl Scouts of America, Bureau of Reclamation at Lake Berryessa, Napa County ParkRx, and many others for making these opportunities available.



Figure 4. School children learning about cultural resources and fire management practices. Credit: BLM.

More than 100 fourth and fifth-grade students from the Lower Lake and Burns Valley elementary schools participated in interactive field trips to the Cache Creek Natural Area. A partnership with BLM, Tuleyome, CDFW, and Forest Service provided students with educational activities and a hike in the Cache Creek Wilderness. Four educational stations provided information and activities related to cultural resources, native plants, fire ecology, and wildlife habitat.



Figure 5. Public information booth in Bok Kai Festival. Credit: Forest Service

An Asian American Heritage Collaborative partnership also fostered public outreach, including information about BSMNM, at several events this year. This collaborative hosted an information booth at the Bok Kai Festival, a bus tour of heritage sites for educators, and participated in the 139th Chinese New Year's Day Celebration in San Francisco. Forest Service shared a booth with BLM to provide information about federal employment opportunities, BSMNM, outdoor recreation, career opportunities, wildfire safety, and Chinese heritage sites on public lands.

Fish and Wildlife

BSMNM works closely with state, federal, and nonprofit organizations to manage wildlife habitats and support educational programming. Wildlife studies and habitat monitoring was conducted to gain important information about the Tule Elk and a BLM Sensitive Species known as the Foothill Yellow-Legged Frog. BLM monitoring of waterway Proper Function and Condition Assessments (PFC) continued. Federal agency staff also continued to work with partners to enhance access to public lands within the Indian Valley, Knoxville, and Cache Creek Natural Areas. More detailed information is provided in later sections of this report regarding wildlife studies and partner-driven volunteer projects that were hosted by the Rocky Mountain Elk Foundation, CDFW, and Tuleyome.

Grazing

Grazing within the monument continues in accordance with BLM and Forest Service permitting processes. Fires from the previous year impacted range conditions for several allotments located on both BLM and Forest Service managed lands. A total of six Animal Unit Months (AUM) were grazed on federal agency lands within BSMNM. Both agencies filled vacant staff positions to manage their grazing programs in 2019 and worked with grazing permittees to allow for rangeland recovery of these impacted areas.

There are five grazing allotments on BLM lands, and each has one permit assigned to it. The Jericho Valley (335 AUM) and Rocky Ridge (120 AUM) allotments were not active, allowing vegetation to recover after recent fires. The Cement Creek (84 AUM) allotment was also inactive this year. Only the BLM Maxwell Creek (6 AUM) allotment was active within this national monument in 2019. Salt Lick Canyon (6 AUM) was not used.

On Forest Service lands, the Elk Mountain and Middle Creek allotments were also not active, to allow for resource protection after the Ranch Fire. Post-fire monitoring was conducted on these allotments in 2019. The Open Ridge Allotment was billed in 2019, but the pasture that was grazed for that bill was outside the BSMNM Boundary. Forest Service allotments for Snow Mountain, Little Stony, and Anderson Ridge are still vacant.

Grazing Allotments within Berryessa Snow Mountain National Monument			
Allotment Name	Acres within BSMNM	Status	Federal Management Unit
Rocky Ridge	1,492	Nonuse	BLM Ukiah Field Office
Jericho Valley	4,433	Nonuse	BLM Ukiah Field Office
Maxwell Creek	466	Active	BLM Ukiah Field Office
Cement Creek	1,695	Inactive	BLM Ukiah Field Office
Salt Lick Canyon	85	Nonuse	BLM Ukiah Field Office
Elk Mountain	8,269	Nonuse	Forest Service
Middle Creek	7,990	Nonuse	Forest Service
Open Ridge	15,116	Active	Forest Service
Snow Mountain	20,973	Vacant	Forest Service
Little Stony	6,560	Vacant	Forest Service
Anderson Ridge	19,496	Vacant	Forest Service

Partnerships

Lake County has officially recognized Lucerne as a Gateway Community to BSMNM. We look forward to working with the community of Lucerne in the upcoming year to promote this designation. More than half of the lands within BSMNM are located within Lake County and we are working with several groups to enhance partnership opportunities.



Figure 6. National Monument and Lake County welcome signs. Credit: BLM

Collaboration with more than 40 groups, enable us to support community-based outreach and to focus on the programs and projects that are highly valued by those communities. Continued work with not-for-profit groups such as Tuleyome (<http://www.tuleyome.org/>) provides rich, educational, and outdoor opportunities. Volunteers and partners help federal agencies support the maintenance of iconic trail systems within BSMNM. For example, the University of California (UC) at Davis Natural Preserve System (<https://naturalreserves.ucdavis.edu/>) is another key partner who supports training, maintenance, and safe use of trail systems that cross lands managed by multiple federal, state, and private entities. The UC Davis Natural Preserve system worked cooperatively with BLM to provide volunteer training and work opportunities at the McLaughlin Preserve and at Stebbins Cold Canyon.



Figure 7. BLM, Forest Service, Tuleyome staff and volunteers. Credit: Tuleyome

BLM continued to collaborate with the Pepperwood Preserve on the Mayacamas to Berryessa Connectivity partnership. This partnership is focused on maintaining wildlife habitat connectivity corridors in California's coastal ranges. Partnerships with the Rocky Mountain Elk Foundation and the Whitetail Deer Foundation continued in 2019. Their support for wildlife habitat management and volunteer efforts to enhance public accessibility is greatly appreciated.



Figure 8. BLM Ukiah Field Office Mendocino Complex Fire public meeting. Credit: BLM



Figure 9. BLM Archeologist, Monument Manager, and Forest Service Coach. Credit: Don Amador

The BLM hosted a public meeting in Ukiah to talk about fire impacts to BLM managed lands during the Mendocino Complex and other recent fire events. Discussions focused on the emergency fire closures, resource protection, infrastructural repair needs, and recreational OHV use. Many OHV community members expressed a desire to help federal agencies repair damaged infrastructure. Most of these infrastructural repairs were conducted outside of BSMNM lands, but good work was also done with

OHV volunteers at Deer Valley Campground and other areas that provide recreational facilities and access to BSMNM. BLM and Forest Service staff participated in Motorcycle Safety Foundation dirt bike certification training. This training was offered as part of the annual Ranger Ride organized by OHV partners and hosted at the BLM managed Shasta-Chappie OHV Area. More information about this event is available at <http://quietwarriorracing.blogspot.com/2019/04/agency-leads-get-dirt-bike-training-at.html>.

Enhanced coordination with the Bureau of Reclamation staff who manage Lake Berryessa also led to new collaboration opportunities in Napa County. Information about the cross-promotional opportunities with Napa County ParkRx can be found online at <https://parksrx.com/napa-county-parkrx/>.



Figure 10. Volunteers in the Stebbins Cold Canyon area. Credit: Tuleyome

After the Mendocino Complex Ranch Fire, several partners expressed an interest in further collaboration. A BLM Fire Mitigation and Education Specialist met with the City of Spring Valley to provide information about conducting risk assessments for their Fire Wise Program. Forest Service and FireScape Mendocino hosted workshops and educational opportunities. Information about these workshops can be found online at <http://mendocinofirescape.blogspot.com/2019/12/firescape-mendocino-workshop-highlights.html>.



Figure 11. Fire and Fuels Management Workshop in Willows. Credit: FireScape Mendocino

Forest Service hosted a public scoping meeting in Lucerne for the North Shore Restoration Project. This project lies entirely within BSMNM and includes 40,000 acres of land that burned during the Mendocino Complex Fires. These lands are within the Wildland-Urban Interface of communities along the north and east shores of Clear Lake. The main goal of this project is to foster desired future conditions, which provide for a resilient landscape that restores the ecological integrity and connectivity of habitat by promoting a mix of composition, structure, and functional processes. Forest Service partnered with FireScape Mendocino and the Forest Service Pacific Northwest Research Station in reaching out to these communities regarding the North Shore Restoration Project. We also collaborated with UC Davis, New Paradigm College, Scotts Valley Band of Pomo, Robinson Rancheria Pomo, the USDA Natural Resource Conservation Service Lakeport office, and Clear Lake Environmental Resource Center. Together these partners are assisting with project design and pursuing funds for project implementation. The North Shore Restoration Project is part of a larger collaborative effort between several of these partners to increase local workforce capacity in forestry and natural resources and support economic sustainability at local and regional levels.



Figure 12. North Shore Restoration Project meeting. Credits: Don Amador (left) and Forest Service (right)

Partnerships between the Forest Service, BLM, the Chinese Historical Society of America, 1882 Foundation and other nonprofit organizations identified new historical connections to the landscape of BSMNM in 2019. This Asian American Heritage Collaborative has been collecting information about Asian heritage sites on public lands. Archival records indicate that the construction of Bartlett Springs Road, which provides access to BSMNM from Route 20 between Nice and Lucerne, was one of these sites. More information about the unique construction history of Bartlett Springs Road is available at <https://exploreapaheritage.com/index.php/sites/bartlett-springs-road/>.



Figure 13. Federal Agency staff at an informational booth. Credit: BLM

Another strong partnership that continued in 2019 was the resource assistant internship program, supported by the BLM and Forest Service through an agreement with HAF. This program provides training and on the job experience. This year's intern provided staffing support for educational outreach coordination, web app development, archeological survey, volunteer administration, visitor contact reporting, and other administrative duties. He developed three missions for an Agents of Discovery App, an outreach tool that provides place-based educational activities for youth on public lands.



Figure 14. Planting juncus and sedge along Middle Creek cut banks. Credit: Forest Service

Some partnerships extended beyond the BSMNM boundaries but were located along major access points to BSMNM. Examples include restoration projects and volunteer workdays at Cowboy Camp, Deer Valley, and Middle Creek. In March of 2019, Forest Service resumed its collaboration with the Habematolel Pomo of Upper Lake to restore habitat at Middle Creek, an important spawning stream for the Clear Lake Hitch. Forest Service and Tribal staff planted approximately 500 juncus and 200 sedge plugs. These plantings will help stabilize cut banks along the creek, reestablish native plant populations used for traditional cultural practices, and enhance wildlife habitat.

Recreation and Visitor Services

BSMNM includes a diverse landscape and numerous recreational opportunities. The monument does not operate a visitor center but instead provides maps and information about BSMNM in local communities, at the BLM Ukiah Field Office, Forest Service Upper Lake Ranger District, Forest Service Covelo Ranger District, Forest Service Supervisors Office/Grindstone Ranger District, and Forest Service Stonyford Work Center.

Some of the most popular recreational areas are listed here.

- **BLM Cache Creek Natural Area** provides access to the Cache Creek Wilderness and adjacent areas within BSMNM. Hiking trails include the Redbud Trail (7 miles), Judge Davis Trail (5.5 miles), the Perkins Creek Ridge Trail (5 miles), Blue Ridge Trail (8.5 miles), Fiske Creek Trail (4 miles), and Frog Pond Trail (5 miles). Hiking, horseback riding, rafting, picnicking, wildlife viewing, and hunting are popular here. Cache Creek is home to a free-roaming herd of tule elk that can be seen seeking out water and shade at Cache Creek in summer. Bald eagles nest in this area during the winter and guided hikes are offered to view these seasonal animals.

- **BLM Indian Valley and Walker Ridge** are in the eastern portion of Lake County, just north of Hwy 20. Indian Valley Reservoir and Blue Oaks Campground provide public recreational opportunities for fishing, boating, camping, and other day uses. Walker Ridge Road traverses the top of Walker Ridge and offers views of the reservoir and surrounding areas. This graded gravel road provides access to the reservoir and to monument lands managed by the BLM and Forest Service.
- **BLM Cedar Roughs Wilderness** offers hiking, hunting, primitive camping, and wildlife viewing. It protects an impressive stand of McNab Cyprus trees and Oaks. Cedar Roughs Wilderness can be accessed on foot or by boat. Partner-led river trips up Pope Creek offer a unique way to view this wilderness.



Figure 15. View of the Cedar Roughs Wilderness from Pope Creek. Credit: BLM

- **BLM Knoxville Management Area** consists of 17,700 acres of steep rolling hills, with the vegetation ranging from scattered hardwoods and grasses to dense chaparral brush. The protected serpentine barrens in this area allow for unique plant communities that are found nowhere else. OHV riding, camping, swimming, and hunting are popular here. The North Staging Area provides bathroom and parking for recreationists. Hunting Creek Campground offers bathroom and camping.
- **BLM Berryessa Peak and Stebbins Cold Canyon** include Berryessa Peak and scattered tracts of BLM managed lands in the vicinity of Stebbins Cold Canyon. Located so close to Sacramento, Winters, and Davis, the trails in this area get a lot of use. Hiking trails offer iconic overlooks, camping, and other undeveloped recreational opportunities. Federally managed lands are open to the public but some of the popular access routes traverse lands that are not federally managed.
- **Forest Service Penny Pines, Deer Valley & Middle Creek Areas** offer exceptional mountain overlooks, forested hikes, rivers, wildlife habitat, trails, and camping. Camping, OHV facilities, and day use areas are available within ten miles west of BSMNM including facilities at Deer Valley, Middle Creek, Penny Pines, and at five campgrounds near Lake Pillsbury.

- **Forest Service Letts Lake & Stoney Creek Areas** are located to the east of Berryessa Snow Mountain National Monument. These areas host sixteen Forest Service campgrounds within ten miles of the monument boundary. Campgrounds are clustered near Letts Lake, along Stoney Creek, and near trailheads that provide access to the Snow Mountain Wilderness.
- **Forest Service Snow Mountain Wilderness** offers exceptional hiking and equestrian opportunities within Mendocino National Forest. Overnight camping may be found at the Lower Nye, West Crocket, Summit Springs, and Bear Creek campgrounds. A network of trails provides access to stunning views, forested areas, waterfalls, and recreational opportunities.

This year, the BLM issued Special Recreation Permits for two equestrian events that border BSMNM within the Cache Creek Natural Area. Equestrian routes for the Cache Creek Ridge Ride and North American Trail Ride Conference overlooked a wilderness area within BSMNM. Permits were also issued for commercial services provided by White Water Adventure, and KIKA Worldwide Outfitters. Letters of agreement were provided for activities hosted by Nueva Vida and Tuleyome. Inventory of existing routes and their condition continued in 2019. This inventory will provide information needed to better manage recreational resources and update public outreach materials.

Volunteers

The Recreation, Volunteerism and Stewardship Workshops hosted in May of 2018 identified several avenues for furthering partnership, collaboration, and volunteer efforts. Workshop action plans were interrupted by multiple fire events. The 2018 fires impacted roads, bridges, water culverts, trails, and other infrastructure that provides safe recreational access. Excepting one National Public Lands Day event on BLM lands,



Figure 16. Upper Lake District Ranch Fire OHV Recovery Volunteer Day. Credit: Forest Service
most volunteer projects in 2019 focused on rehabilitating fire impacted infrastructure.

As the Mendocino Complex fires died down, BLM hosted a Volunteer Chainsaw Certification Class to prepare dedicated volunteers for the upcoming work. Both agencies maintain good working relationships with local OHV groups and rely on their volunteer support. Volunteers replaced burned trail delineators, replaced signs, and helped clean up campgrounds. In June, a Ranch Fire OHV Recovery Volunteer Day was hosted on the Upper Lake District. Volunteers repaired the peeler pole barrier system that prevents riders from shortcutting trail 7 to road 16N01. They also replaced approximately 100 feet of burned, low impact barriers and a plastic culvert. Volunteers replaced segments of burned barriers at Deer Valley Campground as well.



Figure 17. OHV volunteers installing peeler pole barriers. Credit: Forest Service

On the Upper Lake district, volunteers also conducted OHV Trail Recon Surveys, brushed trails, and provided campground facilities repairs. Just outside of the monument, Forest Service hosted an OHV volunteer week for 32 volunteers at Stoneyford which included rehabilitation of campgrounds in the Letts Lake area that many enjoy when recreating in and around BSMNM. Volunteers replaced more than 80 yards of burned barriers at the Mill Valley Campground plus trail work and sign replacement. On BLM managed lands, an AmeriCorps Crew helped to restore roadside drainage and install OHV barriers along Walker Ridge Road, a primary access route for recreation at Indian Valley.

The Northern California Consortium (NCC) hosted four Youth Conservation Corp (YCC) crews to work on Forest Service managed lands. These crews completed conservation and restoration projects and received professional development and environmental awareness training. They assisted with recreation areas, fire management, hydrology, botany, and archeology. This program was dedicated to personal development and hosted a three-night environmental education camping trip for the crews. Their work included pulling noxious weeds, painting picnic tables, and installing barriers within the Snow Mountain Wilderness.



Figure 18. AmeriCorps Crew doing roadside work in the Pawnee Fire burned area. Credit: BLM

The BLM acquired a 946-acre parcel from the Rocky Mountain Elk Foundation in 1997. This land was acquired to provide public access to lands within the Cache Creek Natural Area of BSMNM. In 2018, volunteers from the Rocky Mountain Elk Foundation rehabilitated the Indian Creek Bridge to provide pedestrian access to BSMNM lands south of Indian Valley Reservoir. Volunteers did a wonderful job and this bridge was highlighted as a success story at the Recreation, Volunteerism and Stewardship Workshops. Less than one year later, firefighters used this bridge to shuttle heavy equipment for the Pawnee Fire, causing new damage to the new railing and wooden treads. A BLM wildlife biologist held a volunteer day with the Rocky Mountain Elk Foundation to repair the bridge again in 2019. The Indian Creek Bridge continues to provide access to this popular hunting site. Volunteers also helped to removed derelict fencing to enhance tule elk habitat.



Figure 19. National Public Lands Day volunteers at Cowboy Camp. Credit: BLM

Hiking and equestrian groups also helped restore trail access. Tuleyome hosted several volunteer days to restore safe public access to the Berryessa Peak Trail after the 2018 County Fire impacted it. Volunteers at the 2019 National Public Lands Day event also helped plant trees and treat invasive plants at Cowboy Camp, one of the BLM's primary access points for recreational equestrian uses.



Figure 20. Site stewardship training at the UC Davis McLaughlin Natural Preserve. Credit: BLM

As the fiscal year drew to a close, BLM partnered with the California Archeological Site Stewardship Program (CASSP) and the UC Davis McLaughlin Natural Preserve to provide volunteer resource stewardship training. Students, staff, and volunteers from BLM, BOR Lake Berryessa, and Forest Service participated in a two-day class to enhance their observation and site documentation skills. BLM archaeology and law enforcement staff provided in-class and field training. More information about this program is available at <http://www.cassp.org/about.html>.



Figure 21. Volunteer field training in the Knoxville Management Area. Credit: BLM

3 Science

Science

The monument does not have a science plan but has been collecting baseline data useful for ongoing management and future planning efforts. Several partners have expressed support for the development of a science plan and a willingness to participate in this effort. In the meantime, partner-driven research projects have been customized to include strategic resource assessments. These assessments are designed to assist land managers with the daily challenges associated with protecting the resources, objects, and values that BSMNM was established to manage.



Figure 22. Tule Elk observed on a wildlife camera. Credit: CDFW

Tule Elk Surveys within BSMNM

BLM, Forest Service, and non-profit partners provided support for the monitoring of Tule Elk habitat and population studies that are being conducted by CDFW and UC Davis. CDFW used telemetry collars to track tule elk (*Cervus canadensis nannodes*) throughout Colusa and Lake Counties. They also established transects throughout the monument to obtain genetic information on individual animals. This analysis helps wildlife biologists determine how individual animals are related to one another. Genetic information combined with images from game cameras helps us understand how herds interact in this partially burned landscape. The study will help managers determine where introductions should take place to increase genetic diversity between herds and ultimately help us to ensure the survivability of tule elk populations in the future.

North Shore Restoration Project

The North Shore Restoration Project will address post-fire rehabilitation needs within BSMNM lands managed by the Forest Service. We are working with communities and partners to develop strategies that will reduce post-fire fuel loading, prevent the build-up of excessive fuel loads, protect areas of unburned vegetation, reduce wildfire risk, and improve resiliency to future wildfires both within and outside the Ranch Fire footprint. To accomplish this, we are working with several partners, including UC Davis Department of Environmental Science and Policy, and the Forest Service Pacific Northwest Research Station. The studies and work that these partners provide will help land managers select vegetation management methods that provide the most fire resilient landscape possible in a wildland urban interface for the communities of Nice, Lucerne, Upper Lake, and Clearlake Oaks.

Research opportunities associated with the North Shore Restoration project include a post-fire treatment effectiveness study being conducted by Research Fire Ecologist Morris Johnson of the Forest Service Pacific Northwest Research Station and the University of Washington. 432 pretreatment monitoring plots were identified during the summer of 2019. A master's student from UC Davis is also working with us to help inform the reforestation strategy. The goal of this work is to provide land managers with quantitative data about woody fuel dynamics, salvage logging effects, and potential reburn severity. A Land-facet approach is being proposed to help guide restoration and connectivity planning.



Figure 23. Pretreatment survey plots for the Northwest Research Station study. Credit: Forest Service

4 Resources, Objects, Values and Stressors

The establishment of Berryessa Snow Mountain National Monument has provided an opportunity for the BLM and Forest Service to pool resources when appropriate and facilitate shared accomplishments on behalf of both agencies and partners. BLM and Forest Service follow the annual reporting procedures established by each of their respective agencies. Accomplishments for the entire monument are also included in many of the preceding sections of this report. The heading of each table indicates which agency and what resources are represented in cases where management data collection methods differ from one agency to another.

Cultural Legacies

This landscape and the resources within it retain deep cultural significance for many communities. Natural resources within BSMNM continue to support traditional lifeways for many Native Americans. Traditional ecological knowledge contributes important information for our understanding and management of these lands.

Despite a small percentage of archeological survey coverage, hundreds of prehistoric villages, seasonal camps, historic homestead cabins, and evidence of historic industries have been identified. The Cache Creek National Register District alone contains 31 contributing prehistoric resources. This area was dense with sites in the middle to late Emergent Period. It also retains evidence of several Paleo-Indian sites dating to the Pleistocene-Holocene transition.

Historic-era sites include logging roads, abandoned mercury mines, and nineteenth-century homesteads. Highlights include the Epperson Toll Road which traverses BSMNM lands and was used to access Bartlett Springs during the late 1800s. Bartlett Springs Road now provides access to BSMNM lands and is located within a few miles from the towns of Lucerne and Nice. Research conducted by a BLM intern this year added to our understanding of these historical resources.

The Knoxville area was heavily prospected and mined for the mercury bearing ore cinnabar during the late 1800s. Walker Ridge was also heavily prospected especially during the mid-20th century for mercury bearing ore. Though most prospects were unsuccessful, these abandoned sites have a fascinating history. The discreet terraces in riparian corridors were a source of fodder and perennial water supply for nineteenth-century grazing and farming.

BLM & Forest Service Cultural Legacies Status and Trend Table

Status of Resource, Object, or Value	Trend
18% of all lands within BSMNM have been inventoried for cultural resources. BLM condition assessments showed less than 3% overall decline this year from factors like site integrity, erosion, and fire suppression activities.	Survey coverage has increased, and the overall BLM cultural site conditions trend is stable. There is no substantial change in the recorded condition of cultural resources within the monument's BLM managed lands since its establishment in 2015.

BLM & Forest Service Cultural Legacies Inventory, Assessment, Monitoring Table

Acres in Unit	Acres Inventoried	Acres Possessing Object	Acres Monitored
330,780	59,760	626	530

Stressors Affecting Cultural Legacies

More than 300 cultural resource surveys have been sponsored by the BLM and Forest Service. Most cultural resource surveys are driven by project requirements to comply with section 106 of the National Historic Preservation Act. The most common stressors for cultural resource protection are erosion, unauthorized OHV impacts, artifact collection, fire, and animal burrowing. This year, fire suppression activities from 2018 were also identified as a stressor by both agencies. The slight decrease in overall cultural site condition on BLM lands is attributed to fire suppression efforts and erosion. With so many large fires, dozers were unable to avoid some cultural resource impacts. Post-fire cultural site monitoring of these sites included detailed documentation.

Most work on Forest Service land was related to Ranch Fire suppression activities and BAER assessments of archaeological properties. An archaeological survey was accomplished related to hazard tree abatement and restoration within the Ranch Fire footprint. Twelve sites were test excavated to assess for adverse effects related to fire suppression dozer activities. Sites were scattered throughout the perimeter of the Ranch Fire footprint.



Figure 24. Archeologists testing a burned site and a partially rehabbed dozer line. Credit: Forest Service

BAER work associated with the fire necessitated replacing burned barriers protecting archaeological sites. Most barriers were associated with OHV trails on Forest Service lands. A total of 35 sites were compromised due to burned barriers, leaving them vulnerable to un-authorized OHV use. Barriers were constructed of wood, pole and cable barriers, buck and pole fencing, and boulders. The image below shows boulders being placed in areas that were once protected by wooden barriers.



Figure 25. Excavator placing boulders to protect resources. Credit: Forest Service

Soils & Geology

BSMNM exhibits stunning geologic features, unique habitats, and reveals a story of plate tectonics that engages visitors like no other. The steep mountains and valleys, shaped by numerous fault zones, supply endless views within this impressive landscape. Near vertical cuts expose stratigraphic layers and expose volcanic rocks that formed during the Great Valley and Franciscan Complex.

Caves and serpentine rich soils provide unique habitats that sustain a vast diversity of plants and animals. Soils formed from serpentinite rocks contain materials, such as chromium, cobalt, and nickel, which are harmful to many plants. The combination of soils and specialized plants that rely on this habitat provide a unique setting for research, education, and visitor enjoyment.

There are many facets to the management of soil and geological resources within BSMNM and not all of them are included in the tables below. The following table represents information about serpentine soils, because these unique soils and the rare plants that are found in serpentine habitats are an important component of habitat management on BLM lands.

BLM Soils & Geology Status and Trend Table

Status of Resource, Object, or Value	Trend
Fair Serpentine soils are very sensitive to disturbance. Fire, fire suppression activities, and off-trail use were sources of soil disturbance.	Stable Mostly stable. Post-fire monitoring and response is helping to reduce the potential for additional disturbance.

BLM Soils & Geology Inventory, Assessment and Monitoring Table

Serpentine Soil Acres in Unit	Acres Inventoried	Acres Possessing Serpentine Soils	BLM Landslides Monitored
330,780	330,780	84,765	2

Stressors Affecting Soils & Geology

Soils were impacted by recent fires and fire suppression activity. Vegetation, duff, and root systems help to stabilize soils and provide infiltration. After a high-intensity fire, there is less vegetative surface cover and rain hits the surface directly, creating the potential for runoff and sediment loss. Fine soil sediments can then enter the waterways, clouding water and transporting sediments and nutrients to waterbodies. When this occurs on a large scale, it can affect the nutrient levels in soils and affect water quality.

Fires can also be a causation factor for landslides. In 2019, two landslide areas were monitored in post-fire impacted areas. A landslide near Indian Valley Reservoir was monitored by Lake and Yolo County after the Pawnee Fire of 2018 to determine if this slide was still stable. BLM also made repairs to a section of the Redbud Trail that was damaged by a landslide. That landslide was located within lands that burned during the Rocky Fire of 2015. Examination determined that soil type and slope were more prominent factors than fire for causing that slide. BLM repaired the trail and continues to monitor prospective slide areas along popular recreational trails.

Serpentine soils were also impacted during suppression activities where the top layer of soil was scraped bare by bulldozers. Recovery of serpentine soils, and the sensitive plant species they support, will be slow within the burn perimeter but there will be long term impacts in suppression areas that may need additional support to recover. Recreational OHV use on unauthorized trails, especially within the Indian Valley area will continue to degrade serpentine soils. While other popular OHV areas were closed due to the Mendocino Complex fires, recreational use in Indian Valley increased. Both agencies worked together to address this concern. Forest Service law enforcement officers helped BLM patrol the area and provide public information. BLM utilized an AmeriCorps crew to replace burned signs and OHV barriers. BLM also obtained boulders to place at key resource protection areas. Recreational OHV volunteers helped replace burned trail infrastructure on Forest Service lands.

Water & Hydrological Resources

Resource monitoring and post-fire infrastructural repairs were conducted this year. BLM processed 71 water rights and processed water quality samples in accordance with 30 water quality monitoring parameters. BLM conducted Proper Functioning Condition Assessments (PFC) in the Cache Creek Wilderness along Cache and Rocky Creeks. BLM also worked with the Blue Ribbon Committee for Rehabilitation of Clear Lake, Yolo County Flood Control, UC Merced, and others to support post-fire rehabilitation efforts.

The Great Basin Institute conducted surveys within BSMNM lands this year. This begins the first of a three-year effort to collect condition and trend information about BLM streams and rivers throughout the contiguous western U.S. Approximately 300 reaches will be sampled between 2019 and 2021. This Western Rivers and Streams Assessment (WRSA) seeks to generate quantitative condition estimates from which regional and national aquatic priorities can be established and future conditions compared. The WRSA will provide statistically valid estimates of the chemical, physical, and biological conditions of streams and rivers managed by the BLM. The WRSA is a component of the BLM's Assessment, Inventory, and Monitoring (AIM) strategy designed to standardize aquatic data collection and facilitate science-based decision making.



Figure 26. North Fork of Cache Creek 2018 pre-fire (left) and 2019 post-fire (right). Credit: BLM

Infrastructure such as roads, culverts, and bridges are often impacted by fires, and may be plugged, overtopped or washed away more frequently than under pre-fire conditions. Concern for the care of this infrastructure was addressed by road engineers as part of the Ranch Fire BAER analysis. Watersheds were assessed to address increased runoff, debris, sediment transport, and channeling of drainage paths within burned watersheds.

Treatments such as ditch armoring, ditch reinforcement, outsloping, and vegetation clearing were conducted throughout the burned area to provide adequate drainage features. Within BSMNM, 91 dip drainage features and 36 waterbars were installed on Forest Service roadways in the Upper Lake district alone this year. These treatments enable roads to handle the anticipated increase in overland flow and debris.

BLM Water & Hydrology Status and Trend Table

Status of Resource, Object, or Value	Trend
<p>Fair</p> <p>A temporary increase of sedimentation from burned areas, and abandoned mercury mines pose negative impacts to Cache Creek and Harley Gulch.</p>	<p>Stable</p> <p>Impacts from fire burned landscapes are dissipating. Abandoned mine land reclamation efforts are ongoing.</p>

BLM Water & Hydrology Resources Inventory, Assessment, and Monitoring Table

Acres in Unit	PFC Miles Inventoried	Miles Possessing Object	PFC Miles Monitored
330,780	35 miles	93 miles	12 miles

Stressors Affecting Water & Hydrological Resources

The impacts of frequent fires, illicit marijuana cultivation, unauthorized off-trail OHV use, and water pollution from residual mine waste are threats to the ecological integrity of hydrologic resources. Hydrologic resources were impacted by wildland fires in 2018, including the Mendocino Complex, Pawnee, County, Snell, and Cache fires. Community and agency efforts have made great strides to monitor and reduce post-fire effects on water and hydrological resources.

Several abandoned mercury mines are located on BLM lands that are not located within the BSMNM boundary. Some of these mines are situated within watersheds that flow through national monument lands. Abandoned mercury mines have been impacting Harley Gulch, Bear, Sulpher, and Cache Creek for over 100 years, transporting and depositing mine waste. This year BLM implemented the second phase of remedial actions at the Rathburn Mine, located to the east of BSMNM, to prevent sedimentation and potential mine wastes from entering the Bear Creek watershed. Continued monitoring and remedial actions will reduce soil erosion and improve water quality in the watersheds that support the biological diversity of BSMNM.

Biodiversity & Research

BSMNM exhibits some of the most scenic and biologically diverse landscapes in California. Serpentine soils host several species that are endemic to this region. Each year, BLM and Forest Service monitor the status of key species within their respective management areas of BSMNM. This year, a BLM Sensitive Species of frog was monitored in BSMNM to determine extant population locations. Some of these Foothill yellow-legged frogs (*Rana boylei*) were tested for chytrid fungus, a deadly fungus that is killing off populations of amphibians worldwide. Chytrid has been found in Lake County and Mendocino County. Testing did not identify this fungus on any of the swabbed frogs. Wildlife Biologists also assisted CDFW conduct monitoring and collect samples for genetic analysis of Tule Elk populations within BSMNM.

Populations of the Adobe Lily (*Fritilaria pluriflora*) a BLM Sensitive Species were inventoried within BSMNM. This species thrives in open oak savannah on serpentine derived soils. Populations were found primarily within the Cache Creek Natural Area. However, large populations of nonnative Ravenna grass (*Saccharum ravennae*) were also identified during PFC surveys conducted along Cache Creek. In the past, these grass populations had been successfully treated with the help of non-profit partners. The 2019 surveys identified a need to renew that practice again in upcoming years.



Figure 28. Blacktail Deer fawn following a doe with burned vegetation in the background. Credit: CDFW



Figure 27. Foothill yellow-legged frog at Kilpepper Creek. Credit: BLM

BLM Biodiversity & Research Status and Trend Table

Status of Resource, Object, or Value	Trend
Good/Fair	Stable
Habitat is recovering from recent fires as landscape rehabilitation efforts continue.	Mostly stable but has the potential to decline in areas heavily impacted by fire and fire suppression activities.

BLM Biodiversity & Research Inventory, Assessment, and Monitoring Table

Acres in Unit	Sensitive Species Acres Inventoried	Acres Possessing Object	Sensitive Species Acres Monitored
330,780	3,200	14,706	5,000

Stressors Affecting Biodiversity & Research

Threats to ecological integrity are similar to those for Water and Hydrologic Resources with a few additional considerations. Non-native and invasive weeds also pose a threat to biodiversity. Invasive species pose an increasing threat to endemic plant species. Invasive weeds spread to new areas of BSMNM when seeds are carried by vehicles, recreational uses, and firefighting equipment. Some of the more invasive weed species do well in recently burned areas and outcompete native plant species.

BSMNM is visited by thousands of people every year and some of those visitors inadvertently impact fragile serpentine ecosystems and other resources that BSMNM is mandated to protect. Undesignated routes and unauthorized OHV use impact sensitive serpentine ecosystems. The serpentine ecosystems are slow to recover because they have limited soil nutrient levels. We continue to collect information and research that provides the basis for successful protection and management of the unique and abundant biodiversity within BSMNM.



Figure 29. Adobe Lily (*Fritilaria pluriflora*) within the Cache Creek Management Area. Credit: BLM

5 Summary of Performance Measure

Most of the resources, objects, and values within Berryessa Snow Mountain National Monument are stable. Recent fire events caused a temporary decline in resource status, but resources are stabilizing as soils and plant communities recover.

Resources, Objects, and Values BLM Status Summary Table		
Resource, Object, or Value	Status	Trend
Cultural Legacies	18% of BSMNM has been surveyed to inventory for cultural resources.	Stable
Soils & Geology	Fair status, soils sensitive to disturbance are being monitored.	Stable
Water & Hydrological Resources	Fair status due to a temporary increase of sedimentation.	Stable
Biodiversity & Research	Good/Fair status as endemic plant species recover from fire impacts.	Stable



Figure 30. Sonoma State University archaeology program working in the Cache Creek Natural Area. Credit: BLM

6

Manager's Letter

This year, we worked together to address the impacts from recent fires and further clarify the shared interagency vision for this national monument. Through combined agency and partnership efforts, this year's accomplishments supported public land management and local communities. We were able to draw from a pool of shared resources and expertise to address the needs of lands that are regularly impacted by fires. The work that volunteer groups provided was truly inspiring! This work rehabilitated burned infrastructure and enhanced access to public lands.

Berryessa Snow Mountain National Monument has received a lot of public input and we encourage our stakeholders to continue this dialog. In 2019, we reviewed this input and identified eight focus areas to guide interagency efforts toward a shared vision. The Interagency Monument Management Team identified Outdoor Recreation, Volunteer Projects, Partnership Opportunities, Ecosystem Health, Community & Economic Development, Research & Planning, Educational Events, and Public Outreach & Informational Products as topics to focus our combined land management efforts. By working together, we will continue to provide responsible management of the resources, objects, and values for which this national monument was established. Many agencies and organizations are already making significant contributions toward a shared vision for Berryessa Snow Mountain National Monument. We look forward to working with each of you to strengthen these partnerships and provide even more opportunities in upcoming years.

Sincerely,

Rebecca Carr Wong

Rebecca Carr Wong, Monument Manager
Berryessa Snow Mountain National Monument



Berryessa Snow Mountain

National Monument



**NATIONAL
CONSERVATION
LANDS**

Bureau of Land Management
Ukiah Field Office
2550 North State Street, Suite 2
Ukiah, CA 95482
Phone: 707-468-4000



Mendocino National Forest
Upper Lake Ranger District
10025 Elk Mountain Road
Upper Lake, CA 95482
Phone: 707-275-2361

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