



United States Department of Agriculture

# Berryessa Snow Mountain National Monument



Mendocino National Forest  
Management Baseline  
2019

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## Introduction

On July 10, 2015, President Barack Obama exercised his authority under the Antiquities Act to issue a Presidential Proclamation, establishing the 330,780-acre Berryessa Snow Mountain National Monument (Monument), which contains approximately 197,214 acres of Mendocino National Forest-managed lands and 133,566 acres of Bureau of Land Management (BLM)-managed lands. The Proclamation directs the Forest Service (FS) and BLM to protect and restore objects of scientific and historic interest (Objects of Interest), naming a variety of biological, geological, cultural, and historic resources, as well as areas of high scientific research value.

The Proclamation directs the Forest Service and the Bureau of Land Management to manage the Monument *pursuant to their respective applicable authorities*, meaning that lands administered by MNF are to be managed as part of the Mendocino National Forest (MNF) and lands administered by BLM shall be managed as a unit of the National Landscape Conservation System (NLCS).

The Proclamation further directs the Secretaries of the Interior and Agriculture to jointly prepare a shared management plan to provide broad-scale guidance for the management of public lands and resources within the Monument “for purposes of protecting and restoring” the Objects of Interest. Each agency has existing direction that already applies to lands now included in the Monument; the FS’s Mendocino National Forest Land and Resource Management Plan and BLM’s Ukiah Field Office Resource Management Plan.

Because FS and BLM are within 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 the 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. Forest Service policy requires FS to provide proper care and management of the objects of interest described in the presidential proclamation. Project-level decisions will be made separately, after additional detailed analysis and further public involvement. MNF has evaluated its LRMP and is documenting its findings in this Management Baseline.

The agencies have agreed that the foundational tasks necessary to ensure protection of Monument 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 (MNF) 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 into a Visitor Guide, and
4. To complete USFS agency-specific administrative changes needed to implement the Proclamation.

## Forest Service Management Baseline

To develop the Management Baseline, Forest Service planning team members evaluated the MNF's Land and Resource Management Plan (LRMP) and determined that Forest Goals, Standards and Guidelines (S&Gs), Management Prescriptions, and Supplemental Management Area Direction provide proper care and management of the Objects of Interest that are identified in the proclamation. Also included in the Management Baseline are the administrative changes to the existing MNF LRMP necessary to meet the intent of the proclamation, withdrawing Monument lands within the Forest from disposal, abolishing mineral entry, and mineral and geothermal leasing, subject to valid existing rights.

To see the Land and Resource Management Plan Standards and Guidelines, go to this web address: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd586835.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd586835.pdf).

The entire LRMP can be accessed at:

[https://www.fs.usda.gov/detailfull/mendocino/landmanagement/planning/?cid=fsbdev3\\_004518&width=full](https://www.fs.usda.gov/detailfull/mendocino/landmanagement/planning/?cid=fsbdev3_004518&width=full)

All current FS management direction applies to MNF lands within the Monument boundary unless it is determined to conflict with protecting and restoring the Objects of Interest or is explicitly excluded by the Proclamation.

## Objects of Scientific and Historic interest

Objects of Interest (fig. 1) from the Proclamation were organized into five broad themes. These themes are:

- Distinct cultures of indigenous peoples
- European exploration and settlement
- A dynamic geologic story / geologic landmarks and features
- Water resources
- Endemism, biodiversity and areas of research interest

Figure 1. Berryessa Snow Mountain National Monument Objects of Historic and Scientific Interest<sup>1</sup>

**1. Distinct Cultures of Indigenous Peoples**

- a. Material remains of ancient cultures and settlements
  - i. Mineral collection sites / quarries
    - 1. Flaked tools
    - 2. Projectile points
  - ii. Seasonal hunting and gathering camps
  - iii. Major villages
    - 1. Housepits
  - iv. Task sites for maintaining tools and processing food
    - 1. Grindstones
  - v. Shell and magnesite beads (trade goods)
  - vi. Pitted boulder petroglyphs
- b. Cache Creek Archaeological District \*
- c. Resources associated with traditional lifeways and culturally important places

**2. European Exploration and Settlement**

- a. Material remains of European exploration and settlement
  - i. 1860s-era Nye homestead Cabin
  - ii. Remnants of small sawmills, logging railroads
  - iii. Remains of resorts associated with hot springs and mineral springs

**3. A Dynamic Geologic Story**

- a. Caves
  - i. Cave habitat and associated species such as the Townsend's big-eared bat
- b. Serpentine soils
- c. Fossils
- d. Snow Mountain
- e. Bartlett Springs fault zone

**4. Water Resources**

- a. Surface water and groundwater resources
  - i. Ponds, streams and rivers
  - ii. Seeps, springs, hot springs, and sag ponds

**5. Endemism, biodiversity, and areas of research interest**

- a. Wildlife habitats and species
  - i. Riparian and aquatic habitat and associated species, including: birds, fish (including, historically, salmonids), amphibians, reptiles, insects, and mammals

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<sup>1</sup> An asterisk (\*) indicates objects that occur only on BLM lands, which are not addressed in this document. In addition, some adjustments were made to this list compared to what is in Appendix B to better organize and explain Forest Service management direction in the sections below.

Figure 1 (cont.). Objects of Interest

- ii. Terrestrial habitat and associated species, including birds, amphibians, reptiles, insects (including butterflies), and mammals
- b. Plant habitats, communities, and species
  - i. Serpentine endemic and serpentine-associated plant species/communities
  - ii. Riparian and aquatic habitat and associated plant species/communities
  - iii. Remnants of native grasslands
  - iv. Unusual plant assemblages of Goat Mountain
  - v. Snow Mountain high elevation "sky island" habitat
- c. Hale Ridge Research Natural Area

## Evaluation of Protections under Existing Forest Service Management Direction

In this section's tables, we explain how existing Forest Service management direction provides for the proper care and management of the Objects to be protected on the Mendocino National Forest, taking into consideration existing and potential threats and vulnerabilities. Forest Goals provide the broad, overall direction for the type and amount of goods and services that the Forest will provide in the future. They are phrased as desired conditions for a suite of twenty-three resource categories. All Forest Goals apply to all Forest Service lands within the Monument, and are consistent with protecting the Objects of Interest.

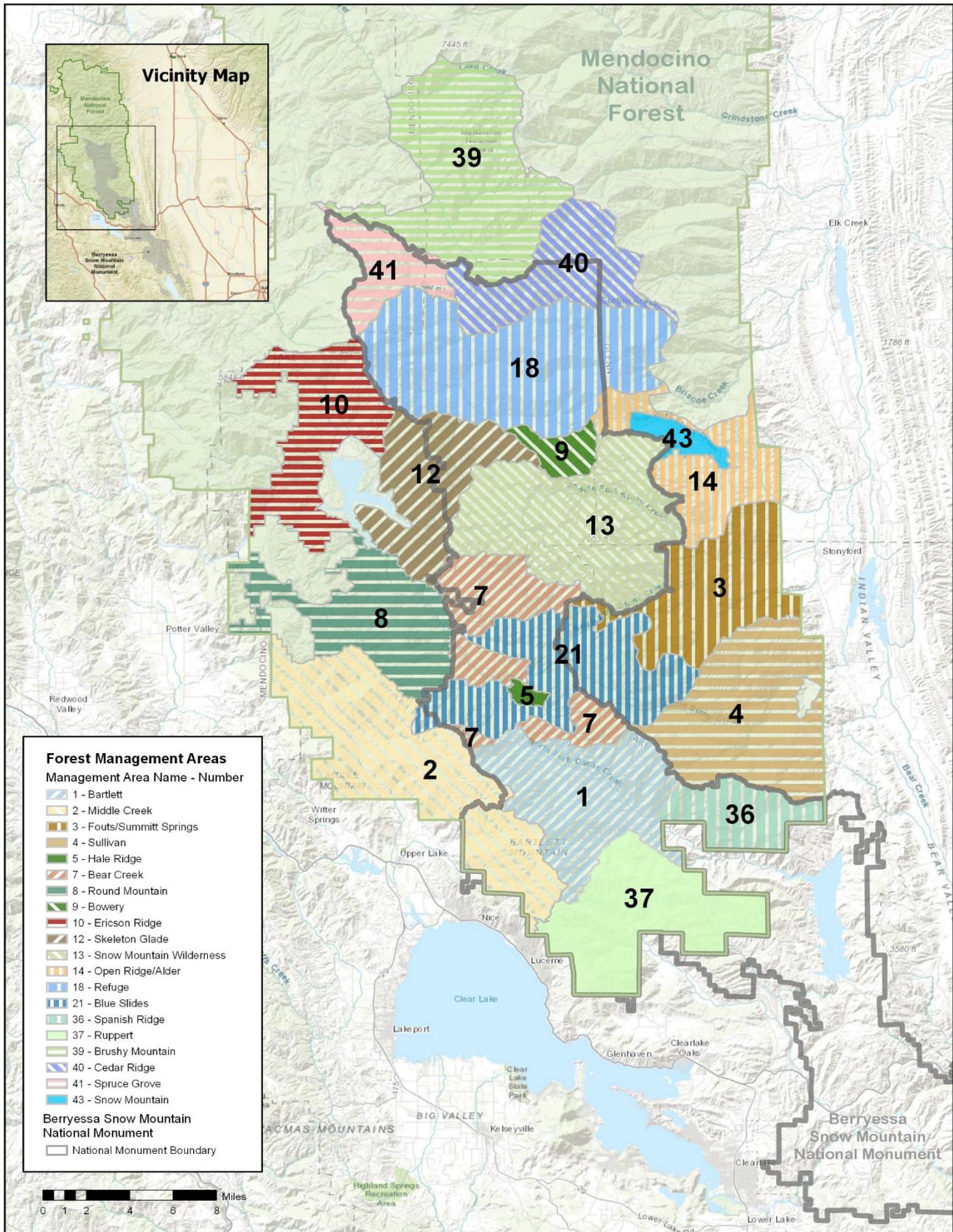
Standards and Guidelines (S&Gs) describe how Forest Goals will be achieved and set the minimum conditions that must be attained. The forest-wide S&Gs can be found at the following web address:

[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd586835.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd586835.pdf). All forest-wide S&Gs, except Minerals and Energy numbers 1 and 3-10, have been found to be consistent with, and contribute to, protecting the Objects of Interest. Administrative Change 2019-01 to the MNF LRMP removes these inconsistent S&Gs from FS-administered Monument lands. The remaining forest-wide S&Gs continue to apply to these lands.

In the LRMP, the MNF is divided into 43 Management Areas (MA). There is specific management direction for each MA, plus selected Management Prescriptions (RX) that describe management practices and activities that are implemented within each MA. BSMNM overlaps 15 Management Areas (see Map 1). All management prescriptions and MA direction apply to the associated FS-administered lands within the monument, and have been found to be consistent with, and contribute to, protecting the Objects of Interest.

Reminder: the following tables apply only to MNF National Forest System lands within the monument. They do not address objects or management direction on BLM lands.

Map 1. MNF Management Areas entirely or partially within the Berryessa Snow Mountain National Monument.



## Distinct Cultures of Indigenous Peoples

The Proclamation states:

“Dense with cultural resources, the Berryessa Snow Mountain area contains a range of **ancient settlements** from **mineral collection sites** and **seasonal hunting and gathering camps** in the high country, to **major villages** with **subterranean, earth-covered round buildings** in the lowlands.” “... chert **quarries** where stone was gathered to make **tools**, **task sites** where **tools** were re-sharpened during hunting excursions, **food sites** where acorn and seeds were ground on large **grindstones**, and areas with pitted boulder **petroglyphs**.” “Obsidian, chert, and basalt provided important source material for tool production, such as **flaked tools** and **projectile points**. The inhabitants also processed and produced both **shell and magnesite beads**.”

Table 1. Material remains of ancient cultures and settlements

<b>Objects of Interest:</b>	Material remains of ancient cultures and settlements, including mineral collection sites/quarries used to make flaked tools and projectile points, seasonal hunting and gathering camps, major villages with housepits, task sites for maintaining tools and processing food (including grindstones), shell and magnesite beads (trade goods), and pitted boulder petroglyphs.
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Human disturbance (recreational use, looting, defacement, on-going road/trail conflicts, ground-disturbing management projects).</li> <li>• Natural processes (erosion, landslides, and compaction).</li> <li>• Wildfire and fire suppression activities.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• Heritage S&amp;G #2-3, #7 [p. IV-22-23]</li> <li>• Recreation S&amp;G #16 [p. IV-29]</li> <li>• Riparian and Aquatic Ecosystems #1 [p. IV-30-31] (Aquatic Conservation Strategy Objectives)</li> <li>• RX – 9 Wilderness #10, #17, #21, #34, #36, #47-49 [p. IV-72-74]</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• Antiquities Act</li> <li>• National Historic Preservation Act/36 CFR 800 regulations</li> <li>• Archaeological Resources Protection Act</li> <li>• Native American Graves Protection and Repatriation Act</li> <li>• E.O. 13007 (Indian Sacred Sites)</li> <li>• E.O. 11593 (Protection and Enhancement of the Cultural Environment)</li> <li>• American Indian Religious Freedom Act of 1978 (P.L. 95-341)</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>Standards and Guidelines in the MNF LRMP require heritage inventories and site evaluations wherever heritage resources could be affected by human use and management activities. All historic properties must be protected to insure the integrity of those values which could make them eligible for the National Register.</p> <p>FS direction further protects heritage resources through direction to abandon or eliminate trails where current use is causing soil erosion or adverse impacts to riparian and watershed resources, and to inventory and evaluate heritage resources prior to abandonment / elimination.</p>

	<p>Riparian &amp; Aquatic Ecosystems S&amp;Gs: Aquatic Conservation Strategy objectives (ACS) help protect cut banks and reduce erosion on terraces where heritage sites are usually located. The elimination of trails on heritage sites protects archaeological deposits from erosion and effects from trail maintenance activities.</p> <p>The LRMP also directs the FS to continue working with “knowledgeable individuals” who can assist in identifying sites of traditional importance that can therefore be managed and protected through avoidance.</p> <p>The National Historic Preservation Act (NHPA) and Executive Order 11593 mandate inventory prior to authorizing potentially ground disturbing activities on Federal land. Once identified, these sites can be protected through avoidance from ground disturbing activities.</p> <p>The Native American Graves Protection and Repatriation Act provides for the return and repatriation of burial items encountered on Federal lands to affiliated Tribes.</p> <p>The Region 5 Programmatic Agreement (as amended in 2018) provides an expedited review process for meeting Section 106 compliance under the NHPA and 36 CFR 800 regulations. For more information, see the Programmatic Agreements at <a href="http://shpo.nv.gov/uploads/documents/USFS - Region5 FINAL PA 2012.pdf">http://shpo.nv.gov/uploads/documents/USFS - Region5 FINAL PA 2012.pdf</a> and <a href="http://shpo.nv.gov/uploads/documents/USFS - Region 5 PA Amendment.pdf">http://shpo.nv.gov/uploads/documents/USFS - Region 5 PA Amendment.pdf</a>.</p> <p><b>Existing direction, including laws and regulations, provide for the proper care and management of prehistoric archaeological sites.</b></p>
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Table 2. Resources associated with traditional lifeways and culturally important places

<b>Objects of Interest:</b>	Resources associated with traditional lifeways and culturally important places.
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Access for cultural practitioners.</li> <li>• Vegetation management practices.</li> <li>• Wildfire.</li> <li>• Fire suppression activities.</li> <li>• Increased public use and access to tribal areas with important religious or spiritual importance.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• Fire &amp; Fuels S&amp;G #12 [p. IV-21]</li> <li>• Heritage S&amp;G #5 [p. IV-22]</li> <li>• Lands S&amp;G #6 [p. IV-23]</li> <li>• Timber &amp; Other Forest Products S&amp;G #12 [p. IV-39] (maintain awareness of cultural values of plants collected by Tribes)</li> <li>• Watershed &amp; Water Quality S&amp;G #1 [p. IV-40] (cooperate with Tribal agencies to meet ACS objectives*)</li> <li>• Wildlife &amp; Fish S&amp;G #26 [p. IV-49] (cooperate with tribes regarding impacts to native fish stocks)</li> <li>• RX9 – Wilderness #19 [p. IV-73]</li> </ul> <p><u>Other:</u></p>

	<ul style="list-style-type: none"> <li>• Farm Bill Authority</li> <li>• American Indian Religious Freedom Act</li> <li>• E.O. 13007 (Indian Sacred Sites)</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>MNF S&amp;Gs emphasize the coordination of Forest management practices with local Native Americans to ensure that such practices do not unduly impede access to traditional food, medicinal, and basketry resources located on the Forest. S&amp;Gs also encourage contact with knowledgeable Native Americans in an effort to identify and protect sites of traditional importance as provided under the American Indian Religious Freedom Act.</p> <p><b>Existing direction, including laws and regulations, are sufficient to protect resources associated with traditional lifeways and other culturally important places.</b></p>

### European Exploration and Settlement

The Proclamation states:

“From the mid to late 1800s, many *small sawmills* operated within the forests of the area. The restored 1860s-era *Nye homestead cabin* ... and *remnants of associated railroad logging* operations are tangible reminders of these historic uses. Around the turn of the 20<sup>th</sup> century, the mineral-laden waters and hot springs of the area attracted visitors to *resorts* and *spas* advertising their therapeutic benefits. *Remains of the foundations of the mineral spring resorts at Bartlett Springs* can be spotted by observant visitors today.”

Table 3. Material remains of European exploration and settlement

<b>Objects of Interest:</b>	Material remains of European exploration and settlement, including the 1860s-era Nye homestead cabin, remnants of small sawmills and logging railroads, and remnants of resorts associated with hot springs and mineral springs.
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Human disturbance (recreational use, looting, vandalism).</li> <li>• Natural weathering and deterioration.</li> <li>• Wildfire and fire-suppression activities.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• Fire &amp; Fuels S&amp;G #8 [p. IV-21]</li> <li>• Heritage S&amp;G #2-3, #7 [p. IV-22-23]</li> <li>• Recreation S&amp;G #16 [p. IV-29]</li> <li>• RX 9 – Wilderness #10, #18, #21, #47-49 [p. IV-72-74]</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• The Antiquities Act</li> <li>• The National Historic Preservation Act</li> <li>• The Archaeological Resources Protection Act</li> <li>• The Native American Graves Protection and Repatriation Act</li> <li>• E.O. 13007 (Indian Sacred Sites)</li> <li>• E.O. 11593 (Protection and Enhancement of the Cultural Environment)</li> </ul>

<p><b>How Existing Direction Protects Objects of Interest:</b></p>	<p>Standards and Guidelines in the MNF LRMP, as well as NHPA and EO 11593, require heritage inventories and site evaluations wherever heritage resources could be affected by human use and management activities, in order to insure the integrity of those values that could make them eligible for the National Register. Knowing the location of the resources is essential to providing appropriate protection.</p> <p><b>Existing direction, including laws and regulations, are sufficient to protect historic sites.</b></p>
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Figure 2. Nye Cabin



### A Dynamic Geologic Story

The Proclamation states:

*“A relic of ancient times, scientists theorize that **Snow Mountain** formed as an underwater mountain during the Jurassic Period, 145-199 million years ago. Much of the region is prone to landslides due to weak and pervasively fractured rock, resulting in a diverse topography, including **sag ponds** and **springs**, with important values for wildlife and plants. The seismically active **Bartlett Springs fault zone** has remarkable features including **hot springs** and **geologic outliers** with marine invertebrate **fossils** dating to the Cretaceous Period and Cenozoic Era. The area has two important tension-crack **caves**, likely also created by landslides. These are classified as “significant” under the Federal Cave Resources Protection Act of 1988 and provide habitat for the Townsend’s big-eared bat [a Forest Service Sensitive species].”*

*“The Berryessa Snow Mountain area is notable for its significant concentration of **serpentine soils** arising from frequent seismic activity and influence from ancient oceans.” “**Serpentine outcrops** in the area have been the subject of a great deal of botanical, ecological, and evolutionary research, and hold promise for future scientific explorations.”*

Table 4. Caves

<p><b>Objects of Interest:</b></p>	<p>Caves, including cave habitat and associated species such as the Townsend’s big-eared bat.</p>
<p><b>Vulnerabilities:</b></p>	<ul style="list-style-type: none"> <li>• Changes in groundwater quality and quantity that would alter cave humidity and temperatures.</li> </ul>

	<ul style="list-style-type: none"> <li>Noise from recreation may disturb bats and other cave associated wildlife.</li> <li>Vandalism and unintended damage by humans.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>Wildlife &amp; Fish S&amp;G #8 [p. IV-45]</li> <li>Recreation S&amp;G #2-3, #5, #7, #16 [p. IV-28-29]</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>Federal Cave Resources Protection Act of 1988</li> <li>36 CFR 261.9i</li> <li>36 CFR 290</li> <li>Forest Service Manual 2880</li> <li>See wildlife habitats and species table for additional laws, regulations, and policies.</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>Wildlife &amp; Fish #8 Standards and Guidelines require inventories of caves for bats, restrict activities around caves with bats, and protect caves from any activity that could change cave temperatures or drainage patterns.</p> <p>Recreation #2, #3, #5, #7 and #16 require that lands are suitable for recreation use, that recreation is consistent with management objectives, and that OHV use is monitored for any resource conflicts so those conflicts can be resolved.</p> <p>The Federal Caves Resources Protection Act and Code of Federal Regulations protect caves that have been designated as “Significant” from alteration under penalty of the law; under the law, all caves in a Monument can be nominated for significance and thus protected. Recreation is managed to protect caves. A cave with known Townsend’s big-eared bats is gated to help prevent disturbance by humans.</p> <p>Forest Service Manual 2880 requires that geologic resources (including caves) be analyzed for project-related effects as part of the NEPA process.</p> <p><b>Existing direction, including laws and regulations, provide for the proper care and management to protect cave resources, including cave habitats and species.</b></p>

Table 5. Serpentine soils

<b>Objects of Interest:</b>	Serpentine soils
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>Human-caused disturbances including mass wasting, erosion, and compaction.</li> <li>High severity wildfire may damage soil structure, and could cause hydrophobicity, thereby increasing erosion.</li> <li>Fertilization.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>Forest Goal for Soils &amp; Geology: Maintain or improve long-term soil productivity and slope stability. [p. IV-3]</li> <li>Facilities and Transportation S&amp;G #8 [p. IV-19]</li> <li>Soils &amp; Geology S&amp;G #1-5 [p. IV-33]</li> <li>Recreation S&amp;G #2-3, #5, #7, #16 [p. IV-28, IV-29]</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	Facilities and Transportation #8 S&G require minimizing concentration of water from roads to prevent erosion of soils below roads (such as serpentine soils).

	<p>Soils &amp; Geology #1-5 Standards and Guidelines require that soil impacts are mitigated through project design to comply with LRMP Standards and Guidelines; prescribed fires are managed to protect soils from hydrophobicity and depletion of the organic layer; and fertilization is specifically avoided for serpentine soils to preserve and protect dependent plants; erosion control plans are required of site disturbing projects to retain soil resources; and unstable areas, which are common in areas with serpentine soils, are protected from ground disturbing activities.</p> <p>Recreation #2, #3, #5, #7 and #16 require that lands are suitable for recreation use, that recreation is consistent with management objectives, and that OHV use is monitored for any resource conflicts and that those conflicts can be resolved by closures or other methods.</p> <p><b>Existing direction provides for the proper care and management to protect serpentine soil.</b></p>
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Table 6. Fossils

<b>Objects of Interest:</b>	Fossils
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Unintended or intended physical destruction of resources by humans, including purposeful removal without permit.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• None</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• Paleontological Resources Preservation Act of 2009</li> <li>• 36 CFR 261.9(b)</li> <li>• 36 CFR 291.12(a)(1)</li> <li>• Forest Service Manual 2880</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>Invertebrate fossils occur throughout the monument. There are no known vertebrate fossils in the National Forest System-managed Monument. The LRMP does not address fossil resources in its Standards and Guidelines and there are no management areas in the Monument that directly address fossil resources. However, the Paleontological Resources Preservation Act (PRPA) of 2009 and 36 CFR 291 specifically prohibits unauthorized removal of any paleontological resource (fossils) from Forest Service-managed National Monuments. The PRPA of 2009 and 36 CFR 291 thus protects fossil resources in the monument. Furthermore, Forest Service Manual 2880 requires that geologic resources (including fossils) be analyzed for project-related effects as part of the NEPA process.</p> <p><b>Existing direction, including laws and regulations, provide for the proper care and management to protect fossil resources.</b></p>

Table 7. Snow Mountain

<b>Objects of Interest:</b>	Snow Mountain
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Geologic Objects of Interest within the Snow Mountain geologic area have vulnerabilities as described under caves, fossils, and serpentine Soils.</li> <li>• Unauthorized collection, sampling, and damage to minerals and rocks (including geologic features) that may have scientific value and geologic heritage.</li> </ul>

<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• See direction listed under caves, fossils, and serpentine soils.</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• See laws, regulations, and policies listed under caves, fossils, and serpentine soils.</li> <li>• 36 CFR 261.9(b)</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>This geologic area includes previously addressed resources in this table including fossil, serpentine soil, and cave resources. The geologic area is chiefly designated as Wilderness which confers further protections under the Wilderness Act.</p> <p>Geologic resources such as minerals and rocks that make up this geologic area that may be of scientific interest are protected by monument status and by Forest Service regulations 36 CFR 261.9(b) from unauthorized collection or damage.</p> <p><b>Existing direction, including laws and regulations, provide for the proper care and management to protect Snow Mountain.</b></p>

Table 8. Bartlett Springs fault zone

<b>Objects of Interest:</b>	Bartlett Springs fault zone
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Geologic Objects of Interest within the Bartlett Springs Fault Zone geologic area have vulnerabilities as described under Caves, Fossils, and Serpentine Soils.</li> <li>• This fault zone has hot springs, which can have fragile geologic features. It is unknown if any hot springs are on NFS public lands.</li> <li>• Unauthorized collection, sampling, and damage to minerals and rocks (including geologic features) that may have scientific value and geologic heritage.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• See direction listed under caves, fossils, and serpentine soils.</li> <li>• Management Area #1 (Bartlett) Direction Paragraph 5 [IV-84]</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• See laws, regulations, and policies listed under caves, fossils, and serpentine soils.</li> <li>• 36 CFR 261.9(b)</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>This geologic area includes previously addressed resources in this table including fossil, serpentine soil, and cave resources. Geologic resources such as minerals and rocks that make up this geologic area that may be of scientific interest are protected by monument status and Forest Service regulations 36 CFR 261.9(b) from unauthorized collection or damage.</p> <p>Management direction for Management Area #1 (Bartlett) requires evaluation of impacts on mineral waters for activities in vicinity of Bartlett Springs.</p> <p><b>Existing direction, including laws and regulations, provide for the proper care and management to protect the Bartlett Springs Fault Zone.</b></p>

Figure 3. Inside a crevice cave on the Monument



## Water Resources

The Proclamation states:

*“Berryessa's waters are a crucial element of this landscape and a vital link to the water supply for millions of people.*

*Around the turn of the 20th century, the **mineral-laden waters and hot springs** of the area attracted visitors to resorts and spas advertising their therapeutic benefits. Remains of the foundations of the mineral spring resorts at Bartlett Springs can be spotted by observant visitors today.*

*Much of the region is prone to landslides due to weak and pervasively fractured rock, resulting in a diverse topography, including **sag ponds and springs**, with important values for wildlife and plants. The seismically active Bartlett Springs fault zone has remarkable features including **hot springs** and geologic outliers with marine invertebrate fossils dating to the Cretaceous Period and Cenozoic Era.*

*The Berryessa Snow Mountain area's wide variety of elevations, **many streams, ponds, and rivers** as well as diverse plant communities provide excellent habitat for fish, wildlife, and amphibians. The **streams and creeks***

*in the Berryessa Snow Mountain area have served as centers for scientific research on hydrology and riparian ecosystems for decades. The riparian habitat linking the Sacramento River, Putah Creek, and Cache Creek provides a home for native birds such as the spotted sandpiper and the rare tricolored blackbird.*

*Waterways in the area harbor several native fish, including Pacific lamprey, western brook lamprey, rainbow trout, California roach, Sacramento pike minnow, speckled dace, hardhead minnow, Clear Lake hitch, Sacramento sucker, and prickly and riffle sculpins. The area also provides historic habitat for coastal chinook salmon, Northern California steelhead, and California Central Valley steelhead.*

*Ponds and seeps throughout the area provide rare aquatic habitat for important plants like eelgrass pondweed, few-flowered navarretia, marsh checkerbloom, and Boggs Lake hedge-hyssop. This aquatic habitat is also home to amphibious species like the foothill yellow-legged frog, California red-legged frog, California newt, Pacific tree frog, western toad, and the northwestern pond turtle.”*

Table 9. Surface water and groundwater resources

<b>Objects of Interest:</b>	Surface water and groundwater resources, including ponds, streams, rivers, seeps, springs, hot springs, and sag ponds.
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Changes in water temperature due to climate or riparian vegetation alteration.</li> <li>• High severity fire that leads to erosion and heavy sedimentation into water bodies.</li> <li>• Pollutants such as heavy metals and agricultural chemicals.</li> <li>• Climate change and variability that can alter runoff and flow.</li> <li>• Water diversions and groundwater withdrawal for human use.</li> <li>• Alterations to stream channels and pond and lake bottoms that alter habitat and hydrologic conditions.</li> <li>• Soil erosion and sedimentation from land and road development and use, timber cutting and vegetation management projects, OHV use and livestock grazing.</li> <li>• Activities that alter precipitation infiltration such as paving and compacting soils.</li> <li>• Threats to surface water and groundwater are currently common and widespread in the Monument.</li> </ul>
<b>Existing Direction:</b>	<p><b>MNF LRMP:</b></p> <ul style="list-style-type: none"> <li>• Facilities &amp; Transportation S&amp;G #4-11, #13, #15 [p. IV-18-20]</li> <li>• Fire &amp; Fuels S&amp;G #3, #5 [p. IV-20-21]</li> <li>• Forest Health S&amp;G #3 [p. IV-22]</li> <li>• Lands S&amp;G #2-3, #12, #14 [IV-23-24]</li> <li>• Minerals &amp; Energy S&amp;G #6 [p. IV-25]</li> <li>• Range S&amp;G #2, #6, #8, #10, #14 [p. IV-26, 28]</li> <li>• Recreation S&amp;G #16-17 [p. IV-29-30]</li> <li>• Riparian and Aquatic Ecosystems S&amp;G #1-3 [p. IV-30]</li> <li>• Soils and Geology S&amp;G #3 [p. IV-33]</li> <li>• Watershed &amp; Water Quality #1-2 [p. IV-40]</li> </ul> <p><b>Other:</b></p> <ul style="list-style-type: none"> <li>• Clean Water Act</li> <li>• California Porter-Cologne Water Quality Control Act</li> </ul>
<b>How Existing Direction Protects</b>	LRMP S&Gs are consistent with Northwest Forest Plan’s (NWFP) Aquatic Conservation Strategy (ACS) objectives (see NWFP Standards & Guidelines document on website at <a href="https://www.blm.gov/or/plans/nwfpnepa/FSEIS-1994/NWFPtitl.htm">https://www.blm.gov/or/plans/nwfpnepa/FSEIS-1994/NWFPtitl.htm</a> ). As a result, the

<p><b>Objects of Interest:</b></p>	<p>LRMP S&amp;Gs protect the distribution, diversity, connectivity, physical components, water quality, sediment regimes, instream flows, flow timing and seasonality and the species and associated habitats of all aquatic features across the Forest landscape.</p> <p>The Clean Water Act (as amended 1972, 1978 and 1987) seeks to reduce all types of water pollution from all sources. The act allows the EPA and state agencies to develop Basin Plans that include determinations of the impairment of streams and rivers by pollutants, standards for improving water quality and reducing pollutants and the responsibilities of agencies, authorities and landowners in improving water quality. The Forest Service uses a total of 43 Best Management Practices (BMPs) to reduce erosion and sedimentation in association with Forest projects and other activities that could impact water quality. For details on the BMP program, visit: <a href="https://www.fs.fed.us/naturalresources/watershed/bmp.shtml">https://www.fs.fed.us/naturalresources/watershed/bmp.shtml</a>.</p> <p>The Porter-Cologne Act created the state water boards that oversee provisions to protect water quality in all surface waters of the state. The existing Standards and Guidelines ensure compliance with state requirements.</p> <p>Existing S&amp;Gs and BMPs ensure that Forest projects and actions provide proper care and management for aquatic features within the Monument in adherence with the Proclamation and ACS objectives, and that all Forest actions and projects do not adversely impact aquatic resources in the Monument. The S&amp;Gs also provide direction and guidance for watershed restoration and rehabilitation actions and projects if such projects are undertaken on the Monument in the future.</p> <p><b>Existing direction, including law and regulations, is sufficient for the protection of rivers, streams, ponds and groundwater resources.</b></p>
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Endemism, biodiversity and areas of research interest

The Proclamation states:

*Serpentine soils lack common plant nutrients and contain high levels of heavy metals that are toxic many plants. The vegetation that does occur on these soils has developed special adaptations to the harsh conditions, resulting in **plant species “that are unique and endemic to this region.”** The Proclamation names a number of native plant species as examples of species that occur only on serpentine, as well as those that may be found on both serpentine and non-serpentine soils. An outstanding example of vegetation adapted to serpentine is the **3,000-acre stand of Sargent cypress** found in the Cedar Roughs Wilderness Area.*

*Exceptional **riparian areas** within the monument support additional plant diversity and provide habitat for native birds, including one of the largest over-wintering bald eagle populations in California. **Aquatic habitat** supports many native fish species (including, historically, salmonids), as well as aquatic plants, amphibians, and invertebrates (insects and mollusks).*

***Remnants of native grassland prairies** can be found throughout the Monument, in moist meadows, arid serpentine outcrops, oak woodlands, and coniferous forest. The proclamation named two examples of native grass species that were once much more common in the monument area: creeping wildrye and meadow barley.*

**Unusual plant assemblages** on Goat Mountain provide habitat for one of the most **diverse butterfly regions** in California. Snow Mountain, an ecological “sky island” provides important **high-elevation habitat** for plants and animals that occur nowhere else in the Monument.

The monument’s **diverse** landscape provides **habitat** for both iconic and common California native animals, including neo-tropical migratory birds, raptors, mammals, reptiles, amphibians, fish, mollusks, and insects.

Table 10. Wildlife habitats and species

<p><b>Objects of Interest:</b></p>	<p>Riparian and aquatic habitat and associated species, including birds (e.g., spotted sandpiper, tri-colored blackbird, bald eagle, and neotropical migrants), fish (including, historically, salmonids), amphibians, (e.g., foothill yellow-legged frog, California red-legged frog, California newt, Pacific tree frog, western toad, and northwestern pond turtle invertebrates), reptiles (e.g., western aquatic garter snake), insects (e.g., elderberry long-horned beetle, butterflies, skippers, dragonflies, and damselflies), and mammals.</p> <p>Terrestrial habitat and associated species, including birds, amphibians, reptiles, insects (including butterflies), and mammals associated with grassland, oak woodland, pine and mixed-conifer forest, and chaparral.</p>
<p><b>Vulnerabilities:</b></p>	<ul style="list-style-type: none"> <li>• Air pollution (e.g., smoke)</li> <li>• Habitat loss and degradation</li> <li>• Interactions with utility lines and facilities</li> <li>• Insects and disease affecting habitat</li> <li>• Invasive species competition or predation</li> <li>• Reduced water quality</li> <li>• Reduced soil productivity</li> <li>• Human disturbance</li> <li>• Migration corridor barriers or impediments</li> <li>• Large scale disturbance by fire, wind, insects, or disease</li> <li>• Instream flow reductions</li> <li>• Instream migration barriers or impediments</li> <li>• Ground disturbing erosion and instability</li> <li>• Reduced species composition and genetic diversity</li> <li>• Reduced riparian and floodplain connectivity</li> <li>• Impaired stream channel condition, including sedimentation</li> <li>• Non-native fish stocking</li> <li>• Reduced botanical diversity</li> </ul>
<p><b>Existing Direction:</b></p>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• Forest Goal for Wildlife: Maintain or improve the diversity and quality of habitat needed to support viable populations of all native ... wildlife and fish species ... [p. IV-4]</li> <li>• Air Quality S&amp;G #1-2 [p.IV-17]</li> <li>• Diversity S&amp;G #1-3 [p. IV-17-18]</li> <li>• Facilities &amp; Transportation S&amp;G #3-13, #15-17 [p. IV-18-20]</li> <li>• Fire &amp; Fuels S&amp;G #3-7, #9, #12 [p. IV-20-21]</li> <li>• Forest Health S&amp;G #1-3, #5 [p. IV-22]</li> <li>• Lands S&amp;G #2-3, #6, #10-14 [p. IV-23-24]</li> <li>• Range S&amp;G #1-3, #5-8, #12, #14-15 [p. IV-26-28]</li> </ul>

	<ul style="list-style-type: none"> <li>• Recreation S&amp;G #1, #3, #5, #7, #10-11, #14-17 [p. IV-28-30]</li> <li>• Riparian &amp; Aquatic Ecosystems S&amp;G #1-3 [p. IV-30-33]</li> <li>• Soils &amp; Geology S&amp;G #1-5 [p. IV-33]</li> <li>• Timber &amp; Other Forest Products S&amp;G #1-12 [p. IV-35]</li> <li>• Watershed &amp; Water Quality S&amp;G #1 [p. IV-40-41]</li> <li>• Wildlife &amp; Fish #1-27 [p. IV-42-49]</li> <li>• RX 1 – Wildlife Emphasis [p. IV-56]</li> <li>• RX 2 – Range Emphasis [p. IV-57]</li> <li>• RX 3 – Chaparral Management [p. IV-58]</li> <li>• RX 4 – Minimal Management [p. IV-59]</li> <li>• RX 6 – Late Successional Reserves [p. IV-62-67]</li> <li>• RX – 7 Timber Modified [p. IV-69-70]</li> <li>• RX – 9 Wilderness [p. IV-72-75]</li> </ul> <p><u>Other:</u></p> <ul style="list-style-type: none"> <li>• Clean Air Act</li> <li>• Clean Water Act</li> <li>• Federal Endangered Species Act (FESA)</li> <li>• California Endangered Species Act (CESA)</li> <li>• Migratory Bird Treaty Act</li> <li>• Eagle Protection Act</li> <li>• Executive Order 11988</li> <li>• Executive Order 13751</li> <li>• Fish and Game Codes 1801, 3513, 3505, 3503.5, 1602, and 3511</li> </ul>
<p><b>How Existing Direction Protects Objects of Interest:</b></p>	<p>Air Quality S&amp;Gs #1 and #2 provide direction for maintaining air quality during activities (e.g., prescribed burning) that protects all wildlife species from air pollution related impacts; Limited Operating Periods provide direction for scheduling project implementation to protect the Northern Spotted Owl nesting period, which secondarily benefits concurrent sensitive life stages of other species.</p> <p>Diversity S&amp;Gs #1 and #2 provide direction for maintaining minimum amounts of various vegetation types that support the habitat needs for a wide-range of wildlife species, including those identified in the Proclamation; and for maintaining genetic integrity of locally adapted stock (seeds or plants) for vegetation projects that provide native habitat for wildlife species. Diversity S&amp;G #3 provides direction for maintaining hardwood, snag, and coarse woody debris that support the habitat needs for wildlife and fish species dependent on these habitat elements.</p> <p>Fire &amp; Fuels S&amp;G #12 provides direction that all fire and fuels management activities protect vegetative communities, and associated wildlife species, from habitat loss and degradation by using site-specific considerations during prescribed burning.</p> <p>Lands S&amp;G #10 provides direction that any new utility lines be placed in existing rights of way or areas approved through environmental analysis and that utility facilities are consistent with multiple use in the area, which is intended to protect wildlife species from interactions with utility lines and facilities and from habitat loss and degradation.</p>

RX 1 – Wildlife Emphasis provides direction that forest activities in designated prescription areas protect wildlife species from habitat loss and degradation, reduced water quality, human disturbance, and migration corridor barriers or impediments and to maintain or increase habitat capability for MIS and the associated species they represent.

RX 2 – Range Emphasis provides direction that range activities in designated prescription areas protect wildlife species from habitat loss and degradation and reduced water quality.

RX 3 – Chaparral Management provides direction that forest activities in designated prescription areas protect wildlife species from habitat loss and degradation and reduced botanical (and associated wildlife) diversity.

RX 4 – Minimal Management provides direction that forest activities in designated prescription areas protect wildlife species from habitat loss and degradation including from insects and disease.

RX 6 – Late Successional Reserves provides direction that forest activities in late successional reserves protect wildlife species from habitat loss and degradation; large scale disturbance by fire, wind, insects, or disease; and reduced botanical diversity by managing according to NWFP Standards and Guidelines.

RX 7 – Timber Modified provides direction that timber activities in designated prescription areas meet both timber and non-timber objectives and protect wildlife species from habitat loss and degradation; reduced water quality; human disturbance; and migration corridor barriers or impediments.

RX 9 – Wilderness provides direction that forest activities in the Snow Mountain Wilderness area protect wildlife species from habitat loss and degradation; reduced water quality; human disturbance; and large scale disturbance by fire, wind, insects, or disease. Management Area #27 also provides direction to coordinate with the California Department of Fish and Wildlife (CDFW) to reduce or eliminate adverse impacts to anadromous fish from over-fishing and poaching

S&G Forest Health S&Gs #1-2 and #5 provide direction that an integrated pest management (IPM) approach be applied to all activities that influence vegetation, and associated wildlife species, and that treatment methods (cultural, biological, and chemical) will be selected on a project by project basis through environmental analysis of effects to wildlife and fish species.

Lands S&G #11 provides direction that any FERC actions in an area would provide protections for resources (e.g., aquatic and riparian resources from habitat loss and degradation, instream flow reductions; reduced water quality, and instream migration barriers or impediments); no FERC projects are currently located within the monument boundary and are unlikely to be proposed.

Range S&Gs #1-3, #5, #7-8, #12, and #15 provide direction that range activities minimize wildlife and fish habitat loss and degradation and are compatible with resource objectives.

Recreation S&Gs #1, #3, #5, #7, #10-11, and #14 provide direction that wildlife and fish resource conflicts be minimized during recreational activities (e.g., OHV use) and manage vegetation around recreation sites with consideration of insects and disease affecting habitats and late-successional and riparian reserve objectives.

Soils & Geology S&Gs #1-2, and #5 provide direction that forest activities protect soil resources from erosion and instability from ground disturbing activities, which in turn protects associated habitats and associated wildlife and fish species.

Timber & Other Forest Products S&Gs #3-6 and #12 provide direction that timber activities protect late successional habitats, and associated wildlife and fish species, from habitat loss and degradation, and reduced species composition and genetic diversity.

Wildlife & Fish S&G #1-2, and #17 provides direction that sensitive animal species do not become listed due to forest activities; provide medium to high habitat for management indicator species (MIS)\* and the associated species they represent; and coordinate with other agencies to improve habitat for all wildlife species. Wildlife & Fish S&G #3-10 and #15-16 provide species-specific guidance for peregrine falcon, bald eagle, osprey, goshawk, northern spotted owl, bats, red-legged frog, mollusks and arthropods, and deer. Wildlife & Fish S&Gs #11-14 provide direction for maintaining hardwood, snag, and coarse woody debris that support the habitat needs for wildlife and fish species dependent on these habitat elements.

Laws and Regulations – These are laws that are most relevant to protecting wildlife resources within BSMNM. It is not intended to be comprehensive.

#### Federal Endangered Species Act (ESA)

The (ESA) regulates a wide range of activities affecting plants and animals designated as endangered or threatened.

#### California Endangered Species Act (CESA)

CESA parallels the federal Endangered Species Act and allows the Fish and Game Commission to designate species, including plants, as threatened or endangered. CESA makes it illegal to import, export, “take”, possess, purchase, sell, or attempt to do any of those actions to species that are designated as threatened, endangered, or candidates for listing, unless permitted by the California Department of Fish and Wildlife.

#### The Migratory Bird Treaty Act

This Act provides protection for migratory birds. Under the Act, it is unlawful to take, import, export, possess, buy, sell, purchase, or barter any migratory bird. Feathers or other parts, nests, eggs, and products made from migratory birds are also covered by the Act. Take is defined as pursuing, hunting, shooting, poisoning, wounding, killing, capturing, trapping, or collecting.

#### The Eagle Protection Act

Bald Eagle protection began in 1940 with the passage of the Eagle Protection Act. Later amended to include the Golden Eagle, the Act makes it unlawful to import, export, take, sell, purchase, or barter any Bald Eagle or Golden Eagle, their parts, products, nests, or

	<p>eggs. "Take" includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing the eagles.</p> <p>Clean Water Act (CWA) The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Executive Order 13751 – Safeguarding the Nation from the Impacts of Invasive Species Directs agencies to take actions to continue coordinated Federal prevention and control efforts related to invasive species.</p> <p>Fish and Game Code 1801 Section 1801 of the Fish and Game Code establishes state policy regarding wildlife resources as follows: "It is hereby declared to be the policy of the state to encourage the preservation, conservation, and maintenance of wildlife resources under the jurisdiction and influence of the state. View the policy and objectives at this website: <a href="https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear/Fish-and-Game-Code#311731071--1801-policies-and-objectives">https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear/Fish-and-Game-Code#311731071--1801-policies-and-objectives</a></p> <p>Fish and Game Code 3505 It is unlawful to take, sell, or purchase any ... egret, osprey ... or any part of such a bird.</p> <p>Fish and Game Code 3503.5 It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.</p> <p>Fish and Game Code 1602 1602. (a) An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of four criteria and associated subdivisions are met.</p> <p><b>Existing direction, including law and regulations, is sufficient to protect riparian, aquatic, and terrestrial-related wildlife resources.</b></p>
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Table 11. Plant habitats, communities, and species

<b>Objects of Interest:</b>	Plant habitats, communities, and species of interest, including serpentine endemic and serpentine-associated plant species/communities, riparian and aquatic habitat and associated plant species/communities, remnants of native grasslands, unusual plant assemblages of Goat Mountain, and plant species of the Snow Mountain high elevation "sky island" habitat.
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Invasive plant species</li> <li>• Herbicides and fertilizers</li> <li>• Loss of pollinators</li> <li>• Trampling and crushing</li> <li>• Herbivory by wildlife and livestock</li> </ul>

	<ul style="list-style-type: none"> <li>• Poaching</li> <li>• Climate change</li> <li>• Changing fire frequency, severity, and season</li> <li>• Fire suppression activities</li> <li>• Serpentine plant communities are particularly threatened by non-native annual grasses and inadequate fire frequency</li> <li>• Changes to instream flow volume, intensity, and season</li> <li>• Stream bank alteration, including loss of herbaceous or organic cover</li> <li>• Changes to water temperature and quality</li> <li>• Native grasslands are particularly sensitive to invasive species, inadequate fire frequency, and chronic over-utilization by wildlife and livestock</li> </ul>
<b>Existing Direction:</b>	<u>MNF LRMP:</u> <ul style="list-style-type: none"> <li>• TES Plants S&amp;G #5 [p. IV-34]</li> <li>• Forest Health S&amp;G #1-3 [p.IV-22]</li> <li>• Fire &amp; Fuels S&amp;G #3-7, #9, #12 [p. IV-20-21]</li> <li>• Diversity S&amp;G #1-3 [p. IV-18]</li> <li>• Range S&amp;G #3, #6, #10, #14 [p. IV-26, 28]</li> <li>• Lands S&amp;G #2-3, #6, #12-14 [p. IV-23-24]</li> <li>• Facilities &amp; Transportation S&amp;G #13 [p. IV-20]</li> <li>• Riparian &amp; Aquatic S&amp;G #1d, f-i [p.IV-30-31]</li> <li>• Wilderness S&amp;G #3 [p. IV-72]</li> <li>• RX 3 – Chaparral Management [p. IV-58]</li> <li>• RX 7 – Timber Modified [p. IV- 69-70]</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>The Forest Service is directed to incorporate site-specific requirements to maintain botanical diversity into all relevant projects, to use IPM to manage invasive species, to manage prescribed fire to benefit plant communities, reduce the impacts of fire suppression to habitat, maintain local genotypes, manage grazing and logging to provide for rare and endemic species, and to maintain instream flows to maintain or restore riparian resources. The flexibility to modify management actions to protect botanical diversity and specific vegetation types is an essential strategy for managing the impacts of climate change.</p> <p>Meadows and grasslands will be managed to maintain their size and characteristics. Methods such as prescribed fire and treatment/removal of non-native species will prevent encroachment of species that would change the extent or species composition of these areas.</p> <p>Activities in riparian areas, including fuels treatments, fire suppression, and herbicide use, must meet (or not impair) Aquatic Conservation Strategy (ACS) objectives. If riparian areas are damaged by wild- or prescribed fire, a rehabilitation plan will be developed to attain ACS objectives.</p> <p>Grassland remnants will be managed to maintain their size and characteristics, including prescribed fire and removal of non-native species. These areas will be surrounded by buffer zones that will be managed for native plant communities and wildlife.</p> <p>Areas like Goat Mountain and Snow Mountain are included in these broader protections for botanical diversity and plant communities. The wilderness designation of Snow</p>

	<p>Mountain does not provide additional protections or guidance for plant communities, except that fire-dependent species may benefit from allowing unplanned ignitions to burn naturally.</p> <p><b>Existing direction is sufficient to protect Botanical Objects of Interest.</b></p>
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Table 12. Hale Ridge Research Natural Area

<b>Objects of Interest:</b>	Hale Ridge Research Natural Area
<b>Vulnerabilities:</b>	<ul style="list-style-type: none"> <li>• Invasive plant species</li> <li>• Loss of pollinators</li> <li>• Climate change</li> <li>• Changing fire frequency, severity, and season.</li> <li>• Fire suppression activities.</li> </ul>
<b>Existing Direction:</b>	<p><u>MNF LRMP:</u></p> <ul style="list-style-type: none"> <li>• Research Natural Areas S&amp;G #8 [p. IV-78]</li> </ul>
<b>How Existing Direction Protects Objects of Interest:</b>	<p>Management in Research Natural Areas will protect habitat for all species of plants present in their natural conditions.</p> <p><b>Existing direction is sufficient to protect the Hale Ridge RNA Botanical Objects of Interest.</b></p>

# Administrative Change 2019-01

## Land and Resource Management Plan

### Mendocino National Forest

#### Background

This Administrative Change is being made to the Mendocino National Forest's Land and Resource Management Plan (LRMP) in order to update Management Area Direction for thirteen of the Forest's Management Areas that are entirely or partially within the boundaries of the Berryessa Snow Mountain National Monument, which was established on July 10, 2015 by *Presidential Proclamation # 9298 – Establishment of the Berryessa Snow Mountain National Monument*.

As described in the 2012 Planning Rule (36 CFR 219.13(c)), administrative changes are any changes to a plan that are not a plan amendment or revision, and include bringing a plan into conformance with new statutory or regulatory requirements. Administrative Change MNF-2019-01 brings the MNF LRMP into compliance with Presidential Proclamation #9298. No National Environmental Policy Act analysis or decision documents are required to support this administrative change, as the changes in management direction are compelled by the higher authority of the Proclamation. A Management Area map is available on p. 8.

#### Management Direction

With this Administrative Change, the following additional Supplemental Management Area Direction is inserted on page IV-81 of the 1995 LRMP:

For purposes of protecting and restoring the historic and scientific Objects of Interest that make up the National Monument, Presidential Proclamation #9298 withdraws all federal lands within the monument boundary in Management Areas 01, 02, 07, 09, 12, 14, 18, 21, 36, 37, 39, 40, and 41 from future

- *entry, location, selection, sale, or other disposition under the public land laws or laws applicable to the U.S. Forest Service;*
- *location, entry, and patent under the mining laws;*
- *and disposition under all laws relating to mineral and geothermal leasing, other than by exchange that facilitates the remediation, monitoring, or reclamation of historic mining operations under applicable law or otherwise furthers the protective purposes of the monument.*

#### **The withdrawals do not affect or revoke any valid existing rights.**

All other existing Management Area direction continues to apply within the boundaries of the National Monument, to the extent that it doesn't conflict with protecting and restoring the historic and scientific Objects of Interest described in the proclamation.

*USDA is an equal opportunity provider, employer and lender.*

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## Appendix A: Presidential Proclamation 9298

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

### A PROCLAMATION

The Berryessa Snow Mountain area is the heart of northern California's wild Inner Coast Range. Once covered by ocean waters, it is a landscape shaped by geologic forces of staggering power overlain with bountiful but fragile biodiversity. Anchored in the north by Snow Mountain's remote forests and in the south by scenic Berryessa Mountain, this area stretches through unbroken wildlands and important wildlife corridors, a mosaic of native grasslands, picturesque oak woodlands, rare wetlands, and wild chaparral.

Home to the headwaters of the Eel River, and the Stony, Cache, and Putah creeks, Berryessa's waters are a crucial element of this landscape and a vital link to the water supply for millions of people. This dramatic and diverse landscape is a biological hotspot providing refuge for rare plant and animal species and showcasing the human history of north-central California.

Native Americans have inhabited these lands for at least the last 11,000 years. Many tribes, including the Yuki, Nomlaki, Patwin, Pomo, Huchnom, Wappo, and Lake Miwok, and Wintum all played a role in the history of this region, one of the most linguistically diverse in California.

The region's abundant natural resources helped to shape these distinct cultures. Early inhabitants subsisted upon protein-rich acorns in addition to seed and nut crops cultivated through traditional burning practices. Obsidian, chert, and basalt provided important source material for tool production, such as flaked tools and projectile points. The inhabitants also processed and produced both shell and magnesite beads, which they traded with other tribes.

Dense with cultural resources, the Berryessa Snow Mountain area contains a range of ancient settlements from mineral collection sites, and seasonal hunting and gathering camps in the high country, to major villages with subterranean, earth-covered round buildings in the lowlands. In addition to trade routes winding through the hills and mountains, the area is rich with sites that tell the story of early Native peoples: chert quarries where stone was gathered to make tools, task sites where tools were re-sharpened during hunting excursions, food sites where acorn and seeds were ground on large grindstones, and areas with pitted boulder petroglyphs where individuals illustrated their life experiences. The Cache Creek Archeological District, designated on the National Register of Historic Places, illustrates the area's archeological importance.

In the early 19th century, both Spanish and Mexican expeditions explored the region, as did fur trappers for the Hudson Bay Company. These explorers and trappers were often just brief visitors to this landscape, but their explorations and documentation opened the region to further European-American settlement by providing information about conditions, resources, and geography. This later settlement began during the 1840s gold

rush. Farming in the region was limited due to the difficult terrain and soils, while cattle and sheep ranching were much more profitable.

From the mid to late 1800s, many small sawmills operated within the forests of the area. The restored 1860s-era Nye homestead cabin, the historic Prather Mill, and remnants of associated railroad logging operations are tangible reminders of these historic uses. Around the turn of the 20th century, the mineral-laden waters and hot springs of the area attracted visitors to resorts and spas advertising their therapeutic benefits. Remains of the foundations of the mineral spring resorts at Bartlett Springs can be spotted by observant visitors today.

Native populations were displaced by the European-American settlement and development of the region in the early to mid-1800s. Many traditional hunting and gathering grounds were converted to grazing and logging and new diseases brought into the area spread to the Native people, greatly impacting the local Native populations and pushing them off of their homelands. Nevertheless, the region's landscape and resources retain deep cultural significance for modern Native communities, including roughly two dozen federally recognized tribes.

The Berryessa Snow Mountain area tells a dynamic geologic story. A relic of ancient times, scientists theorize that Snow Mountain formed as an underwater mountain during the Jurassic Period, 145-199 million years ago. Much of the region is prone to landslides due to weak and pervasively fractured rock, resulting in a diverse topography, including sag ponds and springs, with important values for wildlife and plants. The seismically active Bartlett Springs fault zone has remarkable features including hot springs and geologic outliers with marine invertebrate fossils dating to the Cretaceous Period and Cenozoic Era. The area has two important tension-crack caves, likely also created by landslides. These are classified as significant under the Federal Cave Resources Protection Act of 1988 and provide habitat for the Townsend's big-eared bat.

Rising from near sea-level in the south to over 7,000 feet in the mountainous north, and stretching across 100 miles and dozens of ecosystems, the area's species richness is among the highest in California. This internationally recognized biodiversity hotspot is located at the juncture between California's Klamath, North Coast, and Sacramento Vallejo ecoregions and provides vital habitat and migration corridors for diverse wildlife, including several endemic plant and animal species.

The Berryessa Snow Mountain area is notable for its significant concentration of serpentine soils arising from frequent seismic activity and influence from ancient oceans. Serpentine, California's State rock, is formed from the clashing, subduction, and rising of massive geologic forces, and can be found in significant quantity in the area. These soils lack the nutrients most plants need and often contain heavy metals toxic to many plants, resulting in plants that are unique and endemic to this region. Serpentine outcrops in the area have been the subject of a great deal of botanical, ecological, and evolutionary research, and hold promise for future scientific explorations. Many serpentine plants are listed as rare, sensitive, or threatened under Federal or State law. Examples are: the endemic bent-flowered fiddleneck and brittlescale, the Brewer's jewelflower, Purdy's fringed onion, musk brush, serpentine sunflower, bare monkeyflower, Indian Valley brodiaea, Red Mountain catchfly, and Snow Mountain buckwheat, along with numerous other herbs such as the Lake County stonecrop, coastal bluff morning glory, Cobb Mountain lupine, Contra Costa goldfields, and Napa western flax. There are also plant

species that are near-endemics and almost entirely restricted to serpentine soils, such as MacNab cypress, leather oak, swamp larkspur, and Purdy's fritillary.

The Berryessa Snow Mountain area is replete with wild and unique landscapes and climatic micro-regions. These include Cedar Roughs, an important refuge for black bear and a 3,000-acre stand of endemic Sargent's cypress trees. Cache Creek, a California Wild and Scenic River, provides an exceptional, intact riparian habitat and one of the largest wintering populations of bald eagles in the State. Remnants of the grassland prairies that once covered much of interior California still exist at Upper Cache Creek, where there are stands of native grasses with creeping wild rye and meadow barley, and some smaller relict patches of upland bunchgrass.

The 6,000-foot Goat Mountain is home to highly unusual plant assemblages that have created one of the most diverse butterfly regions in California. The Hale Ridge Research Natural Area hosts an important stand of knobcone pine. The ecological sky island of the 7,000-foot Snow Mountain serves as important habitat to a number of key plant and animal species.

The headwaters of the Bear Creek Watershed are a particularly excellent example of the area's serpentinite-based endemism and biodiversity with over 450 plant species, including a magnificent array of wildflowers, along with cypress, manzanita, and willow. Nearly half of California's 108 species of dragonfly and damselfly are found here, as well as 16 reptiles and amphibians, 6 rare insects, and 80 species of butterflies. This area has been an important focus of scientific studies on climate change, including studies of range shifts and isolated populations of species during Pleistocene changes in climate, and on post-fire succession.

The Berryessa Snow Mountain area's wide variety of elevations, many streams, ponds, and rivers as well as diverse plant communities provide excellent habitat for fish, wildlife, and amphibians. The streams and creeks in the Berryessa Snow Mountain area have served as centers for scientific research on hydrology and riparian ecosystems for decades. The riparian habitat linking the Sacramento River, Putah Creek, and Cache Creek provides a home for native birds such as the spotted sandpiper and the rare tricolored blackbird.

Waterways in the area harbor several native fish, including Pacific lamprey, western brook lamprey, rainbow trout, California roach, Sacramento pikeminnow, speckled dace, hardhead minnow, Clear Lake hitch, Sacramento sucker, and prickly and riffle sculpins. The area also provides historic habitat for coastal chinook salmon, Northern California steelhead, and California Central Valley steelhead.

Ponds and seeps throughout the area provide rare aquatic habitat for important plants like eelgrass pondweed, few-flowered navarretia, marsh checkerbloom, and Boggs Lake hedge-hyssop. This aquatic habitat is also home to amphibious species like the foothill yellow-legged frog, California red-legged frog, California newt, Pacific tree frog, western toad, and the northwestern pond turtle.

Numerous reptiles live in the Berryessa Snow Mountain area, including the St. Helena mountain king snake, western fence lizard, western skink, western whiptail, alligator lizard, gopher snake, common king snake,

rubber boa, common garter snake, western terrestrial garter snake, western aquatic garter snake, and the northern Pacific rattlesnake.

Many large and small mammals co-exist in this diverse landscape, such as Tule elk, bobcats, mountain lions, black bears, mule deer, beaver, river otter, Pacific fishers, American badgers, Humboldt martens, and the San Joaquin pocket mouse. Most of the animal species in the area have special State or Federal status as sensitive, at-risk or threatened.

Raptors such as burrowing owls, prairie falcon, peregrine falcon, northern goshawk, and bald and golden eagles live and hunt throughout the upland areas. The Berryessa Snow Mountain area also serves as an important migratory corridor for neotropical birds and is home to a plethora of bat and insect species, including the threatened valley elderberry longhorn beetle and the vulnerable pallid bat, western sulphur butterfly, gray marble butterfly, Muir's hairstreak, and Lindsay's skipper.

The protection of the Berryessa Snow Mountain area will preserve its prehistoric and historic legacy and maintain its diverse array of scientific resources, ensuring that the prehistoric, historic, and scientific values remain for the benefit of all Americans. Today, the area is important for ranching and also provides outdoor recreation opportunities, including hunting, fishing, hiking, mountain biking, and horseback riding to a burgeoning population center.

WHEREAS, section 320301 of title 54, United States Code (known as the "Antiquities Act"), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Federal Government to be national monuments, and to reserve as a part thereof parcels of land, the limits of which shall be confined to the smallest area compatible with the proper care and management of the Objects to be protected;

WHEREAS, it is in the public interest to preserve the Objects of scientific and historic interest on the lands of the Berryessa Snow Mountain area;

NOW, THEREFORE, I, BARACK OBAMA, President of the United States of America, by the authority vested in me by section 320301 of title 54, United States Code, hereby proclaim the Objects identified above that are situated upon lands and interests in lands owned or controlled by the Federal Government to be the Berryessa Snow Mountain National Monument (monument) and, for the purpose of protecting those objects, reserve as part thereof all lands and interests in lands owned or controlled by the Federal Government within the boundaries described on the accompanying map, which is attached to and forms a part of this proclamation. These reserved Federal lands and interests in lands encompass approximately 330,780 acres. The boundaries described on the accompanying map are confined to the smallest area compatible with the proper care and management of the Objects to be protected.

All Federal lands and interests in lands within the boundaries described on the accompanying map are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws or laws applicable to the U.S. Forest Service, from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that facilitates the remediation, monitoring, or reclamation of historic mining operations under applicable law or otherwise furthers the protective purposes of the monument.

The establishment of the monument is subject to valid existing rights. If the Federal Government acquires any lands or interests in lands not owned or controlled by the Federal Government within the boundaries of the monument, such lands and interests in lands shall be reserved as a part of the monument, and objects identified above that are situated upon those lands and interests in lands shall be part of the monument, upon acquisition of ownership or control by the Federal Government.

The Secretary of Agriculture and the Secretary of the Interior (Secretaries) shall manage the monument through the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM), pursuant to their respective applicable legal authorities, to implement the purposes of this proclamation. The USFS shall manage that portion of the monument within the boundaries of the National Forest System (NFS), and BLM shall manage the remainder of the monument. The lands administered by USFS shall be managed as part of the Mendocino National Forest. The lands administered by BLM shall be managed as a unit of the National Landscape Conservation System, pursuant to applicable legal authorities.

For purposes of protecting and restoring the Objects identified above, the Secretaries shall jointly prepare a management plan for the monument and shall promulgate such regulations for its management as deemed appropriate. In developing any management plans and any management rules and regulations governing NFS lands within the monument, the Secretary of Agriculture, through USFS, shall consult with the Secretary of the Interior through BLM. The Secretaries shall provide for public involvement in the development of the management plan including, but not limited to, consultation with tribal, State, and local governments. In the development and implementation of the management plan, the Secretaries shall maximize opportunities, pursuant to applicable legal authorities, for shared resources, operational efficiency, and cooperation.

In managing the monument, the Secretaries may authorize activities or uses related to remediation, monitoring, and reclamation of mining sites and to provide for the beneficial public use of water associated with reclamation of such sites, consistent with the care and management of the Objects identified above.

Except for emergency or authorized administrative purposes, motorized and mechanized vehicle use in the monument shall be allowed only on roads and trails designated for such use, consistent with the care and management of the Objects identified above.

Nothing in this proclamation shall be deemed to enlarge or diminish the rights of any Indian tribe. The Secretaries shall, to the maximum extent permitted by law and in consultation with Indian tribes, ensure the protection of Indian sacred sites and traditional cultural properties in the monument and provide access by

members of Indian tribes for traditional cultural and customary uses, consistent with the American Indian Religious Freedom Act (42 U.S.C. 1996) and Executive Order 13007 of May 24, 1996 (Indian Sacred Sites).

Laws, regulations, and policies followed by USFS or BLM in issuing and administering grazing permits or leases on lands under their jurisdiction shall continue to apply with regard to the lands in the monument, consistent with the care and management of the Objects identified above.

Nothing in this proclamation shall be construed to alter the valid existing water rights of any party, including the United States. This proclamation does not reserve water as a matter of Federal law.

Nothing in this proclamation shall preclude low level overflights of military aircraft, the designation of new units of special use airspace, the use or establishment of military flight training routes over the lands reserved by this proclamation, or related military uses, consistent with the care and management of the Objects to be protected.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of California, including its jurisdiction and authority with respect to fish and wildlife management.

Nothing in this proclamation shall be construed to alter the authority or responsibility of any party with respect to emergency response activities within the monument, including wildland fire response.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of the monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this tenth day of July, in the year of our Lord two thousand fifteen, and of the Independence of the United States of America the two hundred and fortieth.

BARACK OBAMA

## Appendix B: Resources, Objects, and Values of Berryessa Snow Mountain National Monument

### Introduction

National Monuments that are designated by the President of the United States, as authorized by the Antiquities Act of 1906, are reservations of federal lands that have been set aside to ensure the proper care and management of pre-historic, historic, and scientific “objects of interest” that occur on those lands. Presidential Proclamation #9298 establishes the Berryessa Snow Mountain National Monument (BSMNM) and describes the objects to be protected and restored. The Proclamation directs that lands administered by the United States Forest Service shall be managed by as part of the Mendocino National Forest, while lands administered by the Bureau of Land Management shall be managed as a unit of the agency’s National Landscape Conservation System. Each agency must adhere to its own regulations and policies.

Since BSMNM is cooperatively managed by two federal agencies, an inter-agency interdisciplinary Team (IDT) was formed to jointly identify objects of interest, as described in the Proclamation. They also identified important resources and values of the monument, as required for units of the BLM’s National Landscape Conservation System. The following table presents the resources, objects and values of the monument.

# Berryessa Snow Mountain National Monument



## Resources, Objects and Values

### Objects of Historic and Scientific Interest

1. Distinct Cultures of Indigenous Peoples
  - a. Material remains of ancient cultures and settlements
    - i. Mineral collection sites / quarries
      1. Flaked tools
      2. Projectile points
    - ii. Seasonal hunting and gathering camps
    - iii. Major villages
      1. Housepits
    - iv. Task sites for maintaining tools and processing food
      1. Grindstones
    - v. Shell and magnesite beads (trade goods)
    - vi. Pitted boulder petroglyphs
  - b. Cache Creek Archaeological District
  - c. Resources associated with traditional lifeways and culturally important places
2. European Exploration and Settlement
  - a. Material remains of European exploration and settlement
    - i. 1860s-era Nye homestead Cabin
    - ii. Remnants of small sawmills, logging railroads
    - iii. Remains of resorts associated with hot springs and mineral springs
3. A Dynamic Geologic Story
  - a. Geologic Landmarks and Features
    - i. Caves
    - ii. Serpentine soils
    - iii. Fossils
    - iv. Snow Mountain
    - v. Bartlett Springs Fault Zone

4. Surface water and groundwater resources
  - a. Crucial Element
    - i. Ponds, streams and rivers
    - ii. Seeps, springs, hot springs, and sag ponds
  
5. Endemism, biodiversity, and areas of research interest
  - a. Serpentine endemic and serpentine-associated plant species/communities
    - i. Many federal and state-listed rare, threatened, or endangered plant species
    - ii. Bear Creek headwaters
  - b. Riparian habitat
    - i. Riparian-dependent bird species
    - ii. Cache Creek over-wintering population of bald eagles
  - c. Aquatic habitat and associated species
    - i. Streams, ponds, and rivers
      1. Native fish, including salmonids
    - ii. Ponds and seeps
      1. Aquatic plants, amphibians, and invertebrates
    - iii. Caves
      1. Townsend's big-eared bat
  - d. Remnants of native grasslands
    - i. Bear Creek headwaters
  - e. Unusual plant assemblages of Goat Mountain
  - f. Butterfly diversity at Goat Mountain
  - g. Plant and animal species of the Snow Mountain 7000-ft. elevation "sky island" habitat
  - h. Terrestrial Habitat - topographic and vegetation mosaic
    - i. A variety of mammals, reptiles, raptors, neotropical birds, and insect species
  - i. Research sites
    - i. Hale Ridge Natural Research Area, among others

# Berryessa Snow Mountain National Monument



## Resources and Values

1. Cultural Legacies
  - a. The Monument's landscape and resources retain deep cultural significance for modern Native communities.
  - b. The Monument's landscape and resources continue to support traditional lifeways for modern Native communities.
  - c. Traditional Ecological Knowledge
  - d. Ranching, logging, and mining family history and legacies
2. Geologic Landmarks and Features
  - a. Study and interpretation of geologic features and geologic influence on the National Monument's natural and cultural landscapes.
  - b. Unique landscapes and climatic micro-regions
  - c. Historic and pre-historic cultural significance and lore
  - d. Unique plant communities
3. Water Resources
  - a. Biological corridors
  - b. Ground-water dependent ecosystems
  - c. Resilience to climate change impacts
4. Endemism, Biodiversity, and Areas of Research Interest
  - a. Complex mosaic of native grasslands, picturesque oak woodlands, rare wetlands and wild chaparral
  - b. Essential habitat for native plants, fish, birds, reptiles, amphibians, and insects.
  - c. Biological corridors
  - d. Unique plant communities
  - e. Botanical, ecological and evolutionary research
  - f. Ecological Research, including past studies of climate change, range shifts and isolated species during Pleistocene changes in climate and post-fire succession.

## Appendix C: Abbreviations

### Abbreviations used in the Management Baseline

ACS	Aquatic Conservation Strategy
BLM	Bureau of Land Management
BSMNM	Berryessa Snow Mountain National Monument
CDFW	California Department of Fish & Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
EO	Executive Order
FERC	Federal Energy Regulatory Commission
FCRPA	Federal Cave Resources Protection Act
FESA	Federal Endangered Species Act
FSM	Forest Service Manual
IDT	Interdisciplinary Team
IPM	Integrated Pest Management
LOP	Limited Operating Period
LRMP	Mendocino National Forest's Land and Resource Management Plan
MA	Management Area
MIS	Management Indicator Species
MNF	Mendocino National Forest
Monument	Berryessa Snow Mountain National Monument
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFS	National Forest System
NSO	Northern Spotted Owl
NWFP	Northwest Forest Plan
Objects of Interest	Objects of scientific and historic interest named in the Proclamation
OHV	Off-Highway Vehicle
PL	Public Law
Plan	Monument Management Plan
PRPA	Paleontological Resources Preservation Act
Proclamation	Presidential Proclamation #9298, establishing the Berryessa Snow Mountain National Monument
RMP	Ukiah Field Office's Resource Management Plan (BLM)
RNA	Research Natural Area
RX	Prescription
S&Gs	Standard & Guidelines
SHPO	State Historic Preservation Office
TCP	Traditional Cultural Properties