

SCOPING COMMENTS

**INCLUDING A SUSTAINABLE MULTIPLE USE
GRAZING ALTERNATIVE
for
Livestock Grazing Monument Management Plan Amendment
and Associated Environmental Impact Statement
for the Grand Staircase-Escalante National Monument, Utah**

**Grand Canyon Trust • The Wilderness Society
Great Old Broads for Wilderness
January 13, 2014**

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I. Introduction and Status of Grazing within Grand Staircase-Escalante National Monument

A. Introduction

President Clinton established the Grand Staircase-Escalante National Monument (“GSENM” or “Monument”) by issuing Presidential Proclamation No. 6920 in 1996 in order to protect the objects of interest as described in detail in the Proclamation. 61 Fed. Reg. 50225 (Sept. 18, 1996). The Proclamation required completion of a Monument Management Plan (MMP) in order to guide the protective management of Monument objects.

The MMP did not address livestock grazing management in a comprehensive manner and instead set forth a process for assessing conditions, making evaluations and determinations, and developing AMPs for allotments in the future. MMP, GRAZ-1, at 40-43. The MMP did not address broader guidance, goals and objectives for livestock grazing in the Monument and continued managing livestock grazing under Management Framework Plans for the allotments that had been prepared during the late 1970s and early 1980s. An MMP amendment and EIS are necessary to help guide the management of livestock grazing in the face of modern challenges including continued protection of designated Monument objects, conflicts with other uses, (especially increasing recreational use), and threats such as invasive species and climate change.

The following scoping comments constitute a proposal for how grazing may be best managed within GSENM to accomplish a scientifically, legally, and socially defensible balance between this traditional socioeconomic use of the Monument and protection of the Monument’s multiple biological, ecological, historic, and archaeological objects and values.

In this introduction we examine the applicable authorities governing and guiding grazing within GSENM; the current status and extent of grazing within GSENM; and the legal context for and social value of fully analyzing and publishing, alongside BLM alternatives, our Sustainable Multiple Use proposal for managing grazing within GSENM.

B. Grazing within GSENM: Applicable Authorities

The **Monument Proclamation** outlines the “extraordinary” vegetation within the Monument and then goes on to state that “[m]ost of the ecological communities contained in the monument have low resistance to, and slow recovery from, disturbance.” 61 Fed. Reg. 50225. In areas of the Monument where grazing is consistent with the values identified in the Proclamation, it should be done in a manner that conserves, protects, and restores the Monument’s “spectacular array of scientific and historic resources,” 61 Fed. Reg. 50225.

The Proclamation addressed livestock grazing with the following statement: “Nothing in this proclamation shall be deemed to affect existing permits or leases for, or levels of, livestock grazing on Federal lands within the monument; existing grazing uses shall continue to be governed by applicable laws and regulations other than this proclamation.” *Id.* The “applicable laws and regulations” that the Proclamation refers to include but are not limited to the Taylor Grazing Act, 43 U.S.C. §§ 315-315r; Federal Land Policy and Management Act, 43 U.S.C. §§ 1701-84; National Historic Preservation Act, 16 U.S.C. §§ 470-470w-6; Fundamentals of Rangeland Health and Standards, 43 C.F.R. § 4180.1; and the Omnibus Public Lands Management Act of 2009, 16 U.S.C. 7202.

The **Taylor Grazing Act** (“TGA”) governs grazing activities within the Monument. Under the TGA, a grazing permit is not a constitutionally protected property interest. *U. S. v. Fuller*, 409 U.S. 488 (1973). The BLM may regulate stocking levels, designate foraging locations, establish seasonal timing restraints, and impose related restrictions to protect range resources. The grazing privileges are subject to reasonable regulation to accomplish the Monument’s protective purposes. The Proclamation’s grazing provision viewed against the broader context of the TGA leads to the understanding that grazing is not a protected right but a privilege that may be regulated within the Monument in order to protect Monument resources.

The **Federal Land Policy and Management Act** (“FLPMA”), contains several provisions that are relevant to livestock grazing on the Monument. FLPMA’s multiple use provision requires the BLM to balance competing resource values to ensure that the public lands are managed in a manner “that will best meet the present and future needs of the American people,” 43 U.S.C. § 1702(c). *See, National Wildlife Federation v. BLM*, 140 IBLA 85 (1997). Because the Monument was created for the conservation of the Monument’s resources, the multiple use provision should be interpreted in light of the Monument’s conservation purpose. Furthermore, FLPMA contains an exception to the multiple use provision, stating that public lands are to be managed under the principles of multiple use except where “public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law.” *Id.* at § 1732. In the Monument Management Plan, BLM acknowledges that the Monument was created “to protect a spectacular array of scientific, historic, biological, paleontological, and archaeological objects.” MMP at 3. Because the GSENM was created for the specific purpose of protecting the Monument’s resources, the Monument should be managed according to that purpose.

Additionally, FLPMA directs the BLM to manage resources “without permanent impairment of the productivity of the land and the quality of the environment,” *id.* at § 1702(c), and “to prevent unnecessary or undue degradation of the lands,” *id.* at § 1732(b). FLPMA also mandates that the BLM adhere to its land use plans, “in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values.” *Id.* at §§ 1701(8), 1712. The proclamation, viewed in light of FLPMA’s mandates, encourages prioritizing preservation in managing the Monument.

The **Omnibus Public Land Management Act of 2009** (16 U.S.C. § 7202), established the National Landscape Conservation System (“National Conservation Lands”) to “conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations....” 16 U.S.C. § 7202(a). The Act requires that the National Conservation Lands be managed “in a manner that protects the values for which the components of the system were designated.” *Id.* at § 7202(c)(2).

Secretarial Order 3308 speaks to the management of the National Conservation Lands. The Order states in pertinent part that “[T]he BLM shall ensure that the components of the [National Conservation Lands] are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values.” The 15-Year Strategy for the Conservation Lands reinforces this by stating the “conservation, protection, and restoration of the [National Conservation Lands] values is the highest priority in [National Conservation Lands] planning and management, consistent with the designating legislation or presidential proclamation.” National Conservation Lands Strategy at 8.

The Order also requires that the National Conservation Lands “be managed as an integral part of the larger landscape, in collaboration with the neighboring land owner and surrounding

communities, to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change.” The Order goes on to require the incorporation of science into the decision-making process for the National Conservation Lands, stating, “[s]cience shall be integrated into management decisions concerning [National Conservation Lands] components in order to enhance land and resource stewardship and promote greater understanding of lands and resources through research and education.”

BLM recently issued manuals to implement policies for the National Conservation Lands. **BLM Manual 6220** addresses management of grazing within National Monuments and states:

1. Where consistent with the designating legislation or proclamation, livestock grazing may occur within Monuments and NCAs.
2. Grazing management practices will be implemented in a manner that protects Monument and NCA objects and values unless otherwise provided for in law.
3. The BLM will use Monuments and NCAs as a laboratory for innovative grazing techniques designed to better conserve, protect, and restore NLCS values, where consistent with the designating legislation or proclamation.

BLM Manual 6220, *National Monuments, National Conservation Areas, and Similar Designations* (July, 13 2012).

The **National Historic Preservation Act** (“NHPA”), states that “the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people.” 16 U.S.C. § 470. The BLM must “administer federally owned, administered, or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations.” *Id.* at § 470-1. NHPA requires the BLM to assume “responsibility for the preservation of historic properties which are owned or controlled by” the agency. *Id.* at § 470h-2. The Proclamation recognized the importance of the cultural resources in the Monument, stating that “[t]he cultural resources discovered so far in the monument are outstanding in their variety of cultural affiliation, type and distribution.” 61 Fed. Reg. 50225. Livestock grazing has the potential to impact archaeological and historic resources directly by trampling artifacts, pushing over standing structures, rubbing on rock art panels, and surface disturbance from construction of range facilities. The Proclamation’s grazing provision viewed against the backdrop of the NHPA leads to an interpretation favoring the preservation of cultural resources and limiting impacts to those resources from livestock grazing. *See, Great Old Broads for Wilderness v. Kempthorne*, 452 F. Supp. 2d 71, 87 (D.D.C. 2006) (remanding the Grazing Management Plan for Glen Canyon NRA in part because of the lack of analysis of impacts to cultural resources under the NHPA). In addition, any routes authorized for use for grazing or other purposes must have intensive (Class III) surveys completed pursuant to the NHPA, BLM policy (Instruction Memorandum No. 2012-067). *S. Utah Wilderness Alliance v. Burke*, Case No. 2:12CV257DAK (D. Utah Nov. 4, 2013)

The **Fundamentals of Rangeland Health and Standards and Guidelines**, 43 C.F.R. § 4180.1, also guide grazing management. These regulations established fundamentals of rangeland health and directed each state BLM director to develop state specific grazing standards. Overall, the BLM is required to “promote healthy sustainable rangeland ecosystems,” and ensure these ecosystem components are “properly functioning.” *Id.* at § 4100.0-2. Consequently, the BLM’s own regulations require the agency to balance grazing levels with the need to maintain functioning ecosystems.

The BLM **Utah Standards for Rangeland Health and Guidelines for Grazing Management** provide further guidance on implementing the Fundamentals of Rangeland Health. The standards provide measures and indicators of land health such as soil permeability and infiltration, properly functioning riparian areas, and maintenance of desired species. The guidelines provide methods for improving land health and achieving desired conditions on the ground. Standards and guidelines must be used in order to ultimately achieve the Fundamentals of Rangeland Health under BLM regulations. Decisions in this plan amendment should be made to facilitate the restoration of healthy sustainable rangeland ecosystems.

While rangeland health standards are an important tool, they do not specifically address impacts to all Monument objects and values from livestock grazing. In conducting an evaluation of the compatibility of grazing with protecting monument objects in the Cascade-Siskiyou National Monument, BLM contrasted the findings using rangeland health standards and using a test of compatibility with protection. *See, Determination of Compatibility of Current Livestock Grazing Practices with Protecting the Objects of Biological Interest in the Cascade-Siskiyou National Monument*, Table 1, p. 5 (available on-line at: <http://www.blm.gov/or/resources/recreation/csnm/csnm-grazing.php>). An examination of the approach used in the Cascade-Siskiyou National Monument will demonstrate the contrast between attaining rangeland health standards and a more detailed examination of impacts to Monument objects and values.

In making land use decisions, federal agencies have an obligation under NEPA to take a “hard look” at the environmental consequences of a proposed action, and the requisite analysis “must be appropriate to the action in question.” 42 U.S.C. § 4321 et seq.; *Metcalf v. Daley*, 214 F.3d 1135, 1151 (9th Cir. 2000); *Robertson v. Methow Valley Citizens Council*, *supra*. The impacts and effects of a proposed action, such as livestock grazing, that federal agencies are required to assess include: “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.” 40 C.F.R. § 1508.8.

Under the **Data Quality Act**, federal agencies are required to use information that is of high quality and that is objective, useful, and verifiable by others. *See*, Treasury and General Government Appropriations Act for Fiscal Year 2001, Pub.L.No. 106-554, § 515.

Agencies must also use “sound statistical and research” methods. **Presidential Memorandum on Scientific Integrity** (March 9, 2009) states that federal agencies must ensure “the highest level of integrity in all aspects of the executive branch's involvement with scientific and technological processes.” Following this mandate, the Office of Science and Technology Policy released a guidance memorandum on scientific integrity (2010) and the Department of Interior issued Manual 305 DM 3.

These documents provide directives for ensuring the highest level of scientific integrity in the Department of Interior as well as for redress for scientific or scholarly misconduct. BLM must guarantee that it will abide by the highest scientific and scholarly conduct in its preparation of the grazing EIS and plan amendment. *See also*, Secretarial Order 3308, § 4(d) (“Science shall be integrated into management decisions concerning NLCS components in order to enhance land and resource stewardship and promote greater understanding of lands and resources through research and education.”); 15-Year Strategy for the National Conservation Lands, Goals 1C and 1E(2) [BLM must “provide a scientific foundation for decision making” and “Use the best

available science to conduct capacity studies, establish specific, measurable, attainable, relevant, and time-specific (SMART) objectives (or similar), and develop monitoring plans for compatible uses to ensure the NLCS values are protected, consistent with the designating legislation or presidential proclamation. Use the monitoring results to adaptively manage the NLCS values.”]; National Landscape Conservation System Science Strategy (generally guides the study and use of science in National Conservation Lands); MMP, “Science and Research” at 44-46 (discussing the priority for research and applied science in the Monument).

Under **Secretarial Order 3289**, BLM is required to “consider and analyze potential climate change impacts when undertaking long range planning exercises ... (and) developing multi-year management plans.” Secretarial Order 3289 also provides authority for Landscape Conservation Cooperatives (LCC). These LCCs were established to bring together a variety of stakeholders to “develop landscape-level strategies for understanding and responding to climate change impacts.” BLM should call on the expertise of the Colorado Plateau LCC to come up with strategies to respond to climate change in the planning area. Specifically, BLM should request that the Colorado Plateau LCC help analyze vulnerability and provide scenario planning models to help the agency respond to the threats associated with global climate change from livestock grazing. One example of assessing vulnerability to climate change was recently done for the planning process for BLM Alaska’s NPR-A. *See*, Final NPR-A Integrated Activity Plan/EIS, Appendix C: [https://www.blm.gov/epl-front-office/projects/nepa/5251/41008/43158/Vol6 NPR-A Final IAP FEIS.pdf](https://www.blm.gov/epl-front-office/projects/nepa/5251/41008/43158/Vol6_NPR-A_Final_IAP_FEIS.pdf).

In addition, as part of BLM’s “Landscape Approach to Managing the Public Lands,” the agency has committed to completing Rapid Ecoregional Assessments (REA). *See*, Information Bulletin No. 2012-058. The Colorado Plateau REA should be used to assess baseline conditions and projections for climate change as it relates to livestock grazing.

Finally, the **National Landscape Conservation System** is particularly well-suited for leading the way in demonstrating landscape-level management. Secretarial Order 3308, which provides direction on the management of the National Landscape Conservation System, states that “[t]he NLCS components shall be managed as an integral part of the larger landscape, in collaboration with the neighboring land owners and surrounding communities, to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change.” In addition, the 15-Year Strategy for the National Landscape Conservation System provides further details on managing units within the context of the broader landscape, integrating science into decision-making and monitoring management to adapt to respond to additional stressors, such as climate change.

The BLM’s **Land Use Planning Handbook** (BLM 2005a) sets out certain factors for the agency to consider when making a determination of whether to make lands available to livestock grazing in land use plans pursuant to its regulations. 43 C.F.R. § 4310.2(a). These factors include:

1. Other uses for the land;
2. terrain characteristics;
3. soil, vegetation, and watershed characteristics;
4. the presence of undesirable vegetation, including significant invasive weed infestations; and
5. the presence of other resources that may require special management or protection, such as special status species, special recreation management areas (SRMAs), or ACECs.

BLM Land Use Planning Handbook H-1601-1, Appendix C at II(B), p. 14.

In the **Monument Management Plan**, BLM acknowledges that the Monument was created by the president “to protect a spectacular array of scientific, historic, biological, paleontological, and archaeological objects.” MMP at 3. Indeed, “[a]ll other considerations are secondary to that edict.” *Id.* Under FLPMA and BLM regulations, all management authorizations and actions must conform to the approved resource management plan for a resource area. 43 U.S.C. § 1732(a); 43 C.F.R. § 1610.5-3.

The Proclamation viewed against the backdrop of the Monument Management Plan presumes that BLM will manage grazing in such a manner that Monument values and objects will receive protection and will persist intact and healthy throughout the Monument.

The grazing EIS is being prepared to amend the Monument Management Plan (MMP) to incorporate livestock grazing management into the MMP. As recognized by BLM, the Monument Framework Plans developed in the 1970s and early 1980s are inadequate to address today’s land management challenges in the area, which include a heightened conservation mandate for the Monument as set forth in the Proclamation and in the establishment of and policies for the National Landscape Conservation System.

In 1999, BLM amended, following NEPA review, several parts of the Escalante MFP related to livestock grazing in order to improve protection of riparian areas and wildlife habitat and to reduce or eliminate recreation conflicts with grazing (USDI 1999b). Through this amendment, BLM closed four allotments (Escalante River, McGath Point, Saltwater Creek, and Steep Creek) and closed portions of other allotments that were located on the Escalante River (Big Bowns Bench, Deer Creek, and Phipps). The amendment also created grass banks for the remaining AUMs on the Phipps allotment that weren’t canceled due to the partial closure as well as the Little Bowns Bench allotment and the Wolverine pasture of the Deer Creek allotment. Reductions were also made for three other allotments (Moody, Wagon Box Mesa, and Big Horn). Other restrictions include:

- Authorized 750 AUMs on the Big Bowns Bench allotment with a season of November 1 to March 31.
- Horse Canyon to the part of the trail going onto Big Bowns Bench to the trail leaving Horse Canyon going onto King Bench would only be used as a holding pasture to gather livestock at the end of the grazing season.
- Grazing facilities that are no longer needed would be evaluated for historic or interpretive value and will be removed if they are found not to have those values.

Thus, there are a number of laws and regulations that govern livestock grazing other than the Proclamation itself, including guidance from the broader National Landscape Conservation System. BLM is required take into account all of these applicable authorities, along with the Proclamation, and govern livestock grazing within the Monument accordingly.

The **Glen Canyon National Recreation Area** (GCNRA) was established in 1972 “[i]n order to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto . . . and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area[.]” Glen Canyon Enabling Act, [16 U.S.C. § 460dd\(a\)](#). The GCNRA Enabling Act authorized BLM to administer grazing leases in GCNRA in accordance with “[t]he same policies [it] followed . . . in issuing and administering . . . grazing leases on other lands under its jurisdiction[.]” [16 U.S.C. § 460dd-5](#). However, the BLM’s authority to manage grazing in GCNRA was limited by the Secretary of the Interior’s obligation to “administer, protect, and

develop the recreation area” as provided in the National Park Service’s Organic Act. *Id.* This obligation includes managing units of the National Park System “by such means and measures as conform to [their] fundamental purpose. . . , which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” 16 U.S.C. § 1. *See also*, [Great Old Broads for Wilderness v. Kempthorne](#), 452 F. Supp. 2d 71, 73-74 (D.D.C. 2006).

The General Management Plan (GMP) for GCNRA was completed in 1979. The GMP did not include specific management for livestock grazing but instead proposed that a separate plan be developed with detailed descriptions of the existing range conditions and “[r]ecommendations for specific range improvement practices and devices, management activities, and maximum grazing intensities compatible with the purpose of the recreation area.” GMP at 180, emphasis added..

In 1999, a Grazing Management Plan for the GCNRA was adopted. The grazing plan was subsequently challenged on the sufficiency of its environmental analysis. [Great Old Broads for Wilderness v. Kempthorne](#), 452 F. Supp. 2d 71 (D.D.C. 2006). The court in this case found that NPS, in its EA for the grazing plan, had not adequately evaluated cumulative and other impacts such as impacts from recreation and impacts to cultural resources and remanded the plan for further analysis. *Id.* at 83-87. BLM and NPS must comply with this order in completing the grazing EIS/plan amendment.

In addition, NPS and BLM have a Memorandum of Understanding (“MOU”) from 1984 regarding the management of grazing within the GCNRA. This MOU sets up the working relationship between the agencies for grazing management in the GCNRA. Under the MOU, BLM is responsible for grazing administration and NPS is responsible for ensuring that proposed grazing activities are consistent with the purposes for which the area was established. More specifically, BLM must receive, in writing, a “Values and Purposes Determination” from the NPS Regional Director before it may authorize grazing or related activities stating that the proposed action will not lead to an impairment of GCNRA resources and values. NPS must provide BLM with terms and conditions to ensure compatibility with GCNRA’s values and purposes. This process was reiterated in interagency agreements entered into in 1993 and 1998 *Id.* at 74-75.

C. Grazing within GSENM: Current Status

1. Current Allotment Status

Historic livestock grazing of cattle, sheep and horses began on the Monument in the 1860’s. Unregulated grazing of Monument lands continued until the passage of the TGA (1934). Livestock adjustments were made after forage surveys in the 1950’s and 60’s and in 1981 the season of use was established with more adjustments following the court ordered Kanab/Escalante Grazing Environmental Impact Statement (USDI 2008). Many of the allotments are low lying, arid ecosystems and are winter pastures. However, there are summer pastures and year round grazing on some allotments including Last Chance, South Fork and Vermilion allotments.

The **Monument** currently administers 77 active allotments within the planning area, which includes lands managed by Glen Canyon National Recreation Area (GCNRA), and the BLM

Kanab Field Office. There are approximately 76,000 active use AUMs and 106,000 total permitted use AUMs within the planning area. As of 2013, there are ten allotments within the Monument that officially are not grazed by livestock, and certain pastures within ten other allotments that are not grazed. Ungrazed allotments and pastures constitute 3.6% percent of the GSENM lands and 14% of the entire planning area when including closed areas within GCNRA. Most of GCNRA’s ungrazed areas are within the ~60,000 acre Escalante River Allotment (Fig. 1, Table 1). Fifteen of the twenty allotments within GSENM that are either ungrazed or include pastures that are ungrazed are in the northern portion of the Monument (Fig. 1). The Escalante River corridor is officially closed to livestock grazing within the Monument, due to a 1999 amendment to the Escalante Framework Plan. That decision closed Escalante River, McGath Point, Saltwater and Steep Creek Allotments. It also closed the Escalante River portions of Big Bowns Bench, Deer Creek, and Phipps Allotments while also closing Cottonwood Pasture of Deer Creek Allotment.¹ The 1999 land use plan decision created three forage reserves; Little Bowns Bench Allotment; Phipps Pasture of Phipps Allotment; and Wolverine Bench Pasture of Deer Creek Allotment.

The 1999 land use plan decision to reduce conflict between recreational activities and cattle within the Escalante River corridor by closing these allotments or pastures, represents the only closure of lands to livestock grazing since the Monument’s designation in 1996. The decision cancelled a total of 5,630 AUMs, the majority of which were in the Escalante River corridor and includes lands within GCNRA, while placing another 418 AUMs into grass banks. Thus, in total approximately 64,500 acres of land (only 3.6%) of the 1.8 million acre Monument are currently not allocated to livestock grazing; approximately 1.8 million acres and 96.4% of the Monument is allocated to livestock grazing.² Across the entire decision area (including GCNRA, Dixie National Forest, and Kanab Field Office) 2.27 million acres are currently allocated to livestock grazing while approximately 319,000 acres not allocated to livestock grazing.

Allotment	Pasture (if part of allotment is grazed)	Year Closed	Acres Not Grazed within GSENM³	Closure Process
Antone Flat ⁴	_____	N/A	15,048	Unknown
Willow Gulch	Lower Calf Creek	1964	674	Closed due to development of Calf Creek Campground
Harvey’s Fear	_____	1981	1,920	MFP ⁵ /Grazing EIS

¹ USDI, Bureau of Land Management. Escalante Management Framework Plan and Approved Amendment. (1999) at p. 3.

² This assessment omits No Man’s Mesa and South Pasture on Upper Paria Allotment as both allotments are within active grazing allotments. No Man’s Mesa has not been grazed by cattle, but was grazed by goats in 1927 and 1928.

³ Allotment acreage calculations were extracted from data provided by Eric Matranga (GSENM GIS Specialist) and refined by Stephanie Smith (Grand Canyon Trust GIS Program Manager)

⁴ Antone Flat was not closed through a land use plan decision, but it is currently ungrazed.

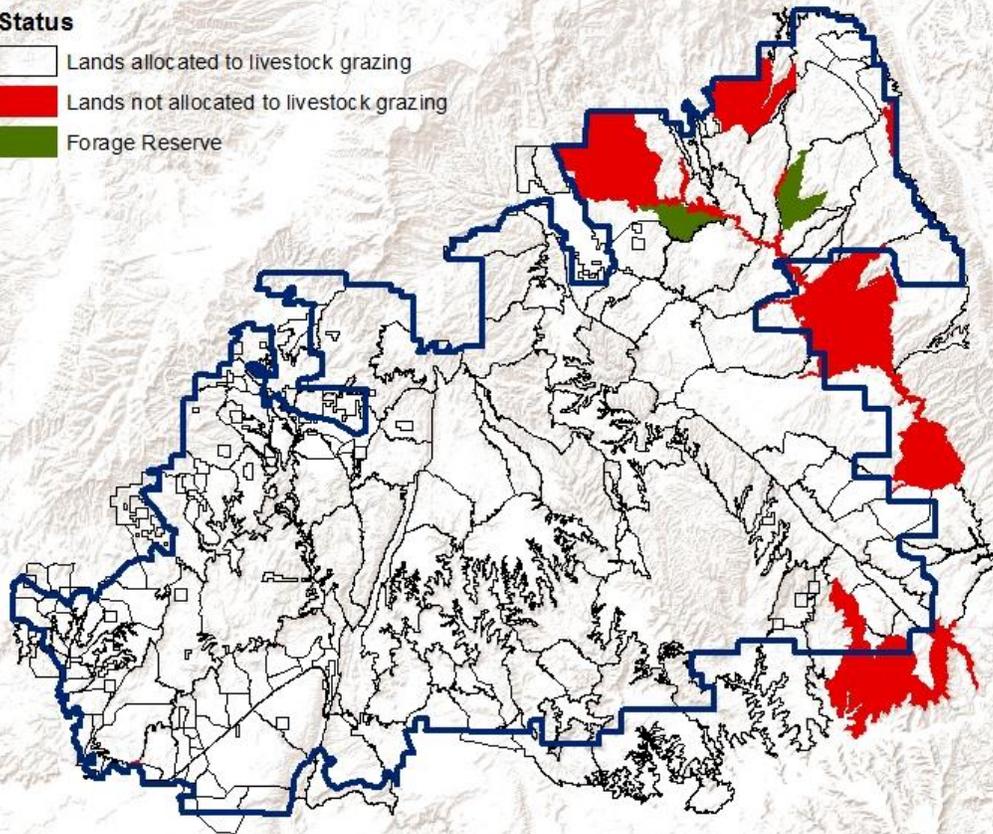
Muley Twist	_____	1981	2,258	MFP/Grazing EIS
Navajo Bench	_____	1981	162	MFP/Grazing EIS
Spencer Bench	_____	1981	5,241	MFP/Grazing EIS
Rock Creek	Dry Rock Creek, Middle Rock Creek	1981	378	MFP/Grazing EIS
Rattlesnake Bench	_____	1981	3,564	MFP/Grazing EIS
Escalante River	Silver Falls	1999	1,404	NEPA Decision
McGath Point	_____	1999	3,138	NEPA Decision
Saltwater Creek	_____	1999	12,063	NEPA Decision
Deer Creek	Cottonwood, River	1999	5,177	NEPA Decision
Big Bowns Bench	River, Horse Canyon	1999	923	NEPA Decision
Phipps	Upper, Lower River	1999	3,068	NEPA Decision
Steep Creek	_____	1999	7,550	NEPA Decision
Long Canyon	_____	Unknown	1,043	Unknown
Flag Point	_____	Unknown	322	Unknown
Total GSENM acres closed to livestock grazing	_____		63,936	
Total GSENM acres open to livestock grazing	_____		1,816,693	
Total GSENM acres	_____		1,880,629	

Ungrazed and Grazed Lands Within GSENM and Surrounding Allotments Administered by GSENM

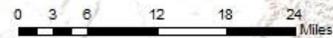
— GSENM Boundary

Status

- Lands allocated to livestock grazing
- Lands not allocated to livestock grazing
- Forage Reserve



1.82 million acres allocated to grazing within GSENM
 64,000 acres not allocated to grazing within GSENM
 2.27 million acres allocated to grazing with entire planning area
 319,00 acres not allocated to grazing within entire planning area
 96.4 Percent of lands allocated to grazing within GSENM
 86 Percent of lands allocated to grazing within entire planning area



Data sources: GSENM, Sean Stewart, Eric Matranga, Utah BLM GIS Data Portal

Map created by David deRoulhac

Fig. 1: Grazed and ungrazed lands administered by GSENM

2. Grazed and Ungrazed Vegetation Communities within GSENM

Most of the Monument and GCNRA exist within the Canyonlands ecological zone of the Colorado Plateau which contains the “highest concentration of endemic plant species of any region of the Intermountain West and the highest species richness of any ecoregion in Utah” (Fertig 2009). Approximately 18% of the Monument’s flora is endemic to the Colorado Plateau. The Monument includes parts of the “Dixie Corridor” (the Chocolate and Vermilion Cliffs, the Cockscomb north of Buckskin Mountains and areas near Lake Powell) which are a mixing ground for Colorado Plateau and Mojave desert floras that result in a high concentration of endemic species some of which are sensitive, threatened or endangered species and do not occur elsewhere within the Monument such as Welsh’s Milkweed (Fertig, 2009).

Major existing vegetation types (as opposed to potential vegetation) and their representations in both grazed and ungrazed lands within the Monument are listed below (see [Vegetation Representations in Grazed and Ungrazed Lands within Grand Staircase-Escalante National Monument](#) for a more comprehensive discussion of this).

Vegetation Type	Total Acres of Vegetation Types in GSENM	Acres of Vegetation Types in Ungrazed Allotments	Percent (%) Vegetation Types in Ungrazed Allotments	Percent (%) Vegetation Types in Grazed Allotments
Pinyon-Juniper Woodland	546,804	12,548	2.3	97.7
Pinyon-Juniper Shrubland	331,363	11,415	3.4	96.6
Big Sagebrush Shrubland	173,482	2,253	1.3	98.7
Blackbrush-Mormon-tea Shrubland	168,811	1,034	0.6	99.4
Inter-Mountain Basins Semi-Desert Shrub Steppe	40,277	104	0.3	99.7
Inter-Mountain Basins Semi-Desert Grassland	37,024	102	0.3	99.7
Inter-Mountain Basins Mat Saltbush Shrubland	20,573	27	0.1	99.9
Rocky Mountain Ponderosa Pine Woodland	12,365	12	0.1	99.9
Southern Colorado Plateau Sand	5,239	0	0.0	100.0

⁶ SGS National Gap Analysis Program. 2005. Southwest Regional GAP Analysis Project—Land Cover Descriptions. RS/GIS Laboratory, College of Natural Resources, Utah State University. The Southwest Regional GAP Analysis Project used land cover classes that were developed by NatureServe and represent actual land cover vegetation rather than potential vegetation cover.

Shrubland				
Riparian Woodland and Shrubland	5,118	1,504	29.4	70.6
Gambel Oak-Mixed Montane Shrubland	3,211	48	1.5	98.5
Montane Sagebrush Steppe	1,539	39	2.6	97.4
Mixed Conifer Forest and Woodland	198	0	0.0	100.0
Mogollon Chaparral	188	0	0.0	100.0
Dry-Mesic Mixed Conifer Forest and Woodland	146	4.2	2.9	97.1
Mixed Low Sagebrush Shrubland	62	0	0.0	100.0
Alpine-Montane Wet Meadow	47	0	0.0	100.0
Mountain Mahogany Woodland and Shrubland	22	0	0.0	100.0
Montane-Subalpine Grassland	11.1	0	0.0	100.0
Aspen Forest and Woodland	3.2	0	0.0	100.0
Subalpine-Montane Riparian Shrubland	1.3	0	0.0	100.0

Approximately **64,000 acres of land are officially not grazed** within the Monument. Of those 64,000 acres, approximately 52% (32,641 acres) are mixed bedrock and tableland (aka “slickrock”; Fig. 7), largely incapable of producing any livestock forage. Pinyon-juniper woodland and pinyon-juniper shrubland, which generally support little livestock forage, compose another 38% of allotment areas officially ungrazed.

GSENM Vegetation Type Representation in Ungrazed Allotments

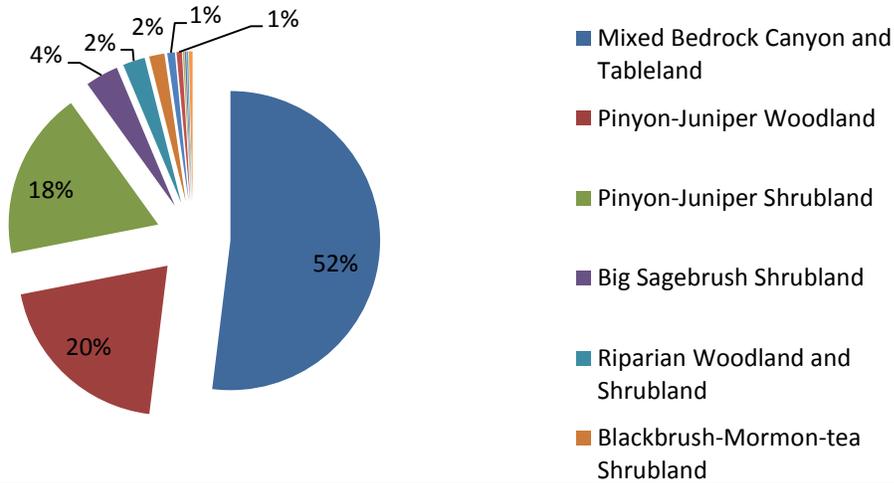


Fig. 2: Major vegetation types of ungrazed lands within GSENM.

The **three top vegetation types in ungrazed areas** (mixed bedrock and tableland, pinyon-juniper woodland and pinyon-juniper shrubland), each of them supporting minimal understory vegetation, constitute 90% of ungrazed lands.⁷ This leaves only 6,400 Monument acres of land not grazed (mostly riparian vegetation along the Escalante River) that contain understory vegetation, despite a broad suite of vegetation types distributed throughout the Monument, many of which host plant species endemic to the Monument and identified by the Proclamation and researchers as being ecologically significant. Eight vegetation types are located only (i.e., 100%) in grazed allotments (Table 2) and over 99 percent of six other vegetation types are in grazed allotments. These vegetation types may support endemic or uncommon species, but they are wholly within grazed allotments.

⁷ This is analogous to those areas where wilderness is limited to “rock and ice.”

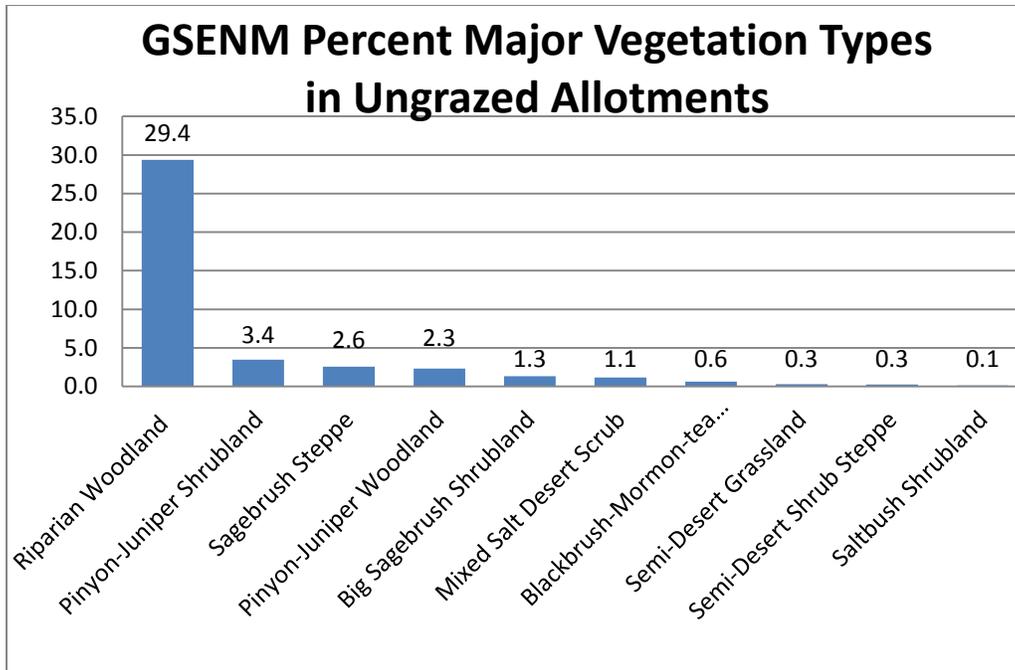


Fig. 3: Percent of major vegetation types within ungrazed allotments.

“Riparian woodland” is the vegetation type with the highest percent (29%) of acres not grazed due to the 1999 NEPA decisions to close allotments in the Escalante River corridor. Pinyon-juniper shrubland and sagebrush steppe rank second and third for vegetation representation on ungrazed lands at 3.4 percent and 2.6 percent, respectively. Only four vegetation types other than riparian woodland and shrubland have more than 1% of their occurrence on the Monument in ungrazed lands: pinyon-juniper shrubland (3.4%); sagebrush steppe (2.6%); pinyon-juniper woodland (2.3%); and big sagebrush shrubland (1.3%).

D. Assessments of GSENM Grazed Lands

In 2006, Rangeland Health Standard Determinations were made using Interpreting Indicators of Rangeland Health, Version 3 (Pellant, et al. 2000), Properly Functioning Condition (PFC) assessments, and trend and annual utilization data.

Over 630 upland **IIRH assessments** were conducted on GSENM allotments before 2006. IIRH assessments measure soil/site stability, hydrologic function and biotic integrity through 17 land health indicators and one optional biological soil crust indicator.

Separate from the IIRH assessments, approximately 500 riparian sites were assessed for **Proper Functioning Condition** across GSENM.

Since the 1960s, BLM has also been monitoring **trend data** through photo plots across the Monument. The 2008 DEIS (USDI 2008) described 21% of the allotments as having a downward trend, 35% a static trend (without indicating in which condition the site was static), and 35% an upward trend (USDI 2008).

The following briefly summarizes the status of various assessments within the Monument:

1. **Rangeland Health Determinations: 2006 and 2008.** The **2006 Rangeland Health Determination** (Wolf, 2006) found that 21 allotments were not meeting Rangeland Health Standards; that 19 of those 21 allotments were not meeting standards due to current livestock grazing practices, and that livestock grazing management changes were needed to put those allotments on a course towards meeting Rangeland Health Standards. The remaining two allotments were found to have been significantly impacted by grazing practices greater than 10 years old and were unable to properly recover. However, the determination stated that without changing the current grazing management practices, the two allotments would not achieve a trajectory toward meeting standards (BLM 2006 RLH Determination, 2006).

The **2008 Draft Environmental Impact Statement** (DEIS) did not discuss the 2006 determination results and identified only nine allotments (reduced from 21) as not meeting Rangeland Health Standards and requiring changes to livestock grazing management.

Table 3. Allotments Described as Not Meeting Rangeland Health Standards	
<p style="text-align: center;">2006 Determination: 21 Allotments Not Meeting Rangeland Health Standards:</p> <p><i>Circle Cliffs, Cottonwood, Coyote, First Point, Forty Mile Ridge, Headwaters, Hells Bellows, Lake, Last Chance, Lower Cattle, Nipple Bench, Swallow Park, Collet, Death Hollow, Ford Well, Mollies Nipple, Rock Creek Mud-Holes, Soda, School Section, Upper Paria, Vermilion</i></p>	<p>1,206,303 Acres not meeting RLH Standards</p>
<p style="text-align: center;">2008 Draft EIS: 9 Allotments Not Meeting Rangeland Health Standards:</p> <p><i>Collet, Death Hollow, Ford Well, Mollies Nipple, Rock Creek Mud-Holes, Soda, School Section, Upper Paria, Vermilion</i></p>	<p>306,353 Acres not meeting RLH standards</p>

The **2006 Rangeland Health Determination** (Wolf 2006) identified approximately 1.2 million acres of GSENM that were not meeting Rangeland Health Standards and the 2008 Draft Rangeland Health EIS identified approximately 306,000 acres that were not meeting Rangeland Health Standards due to livestock grazing.

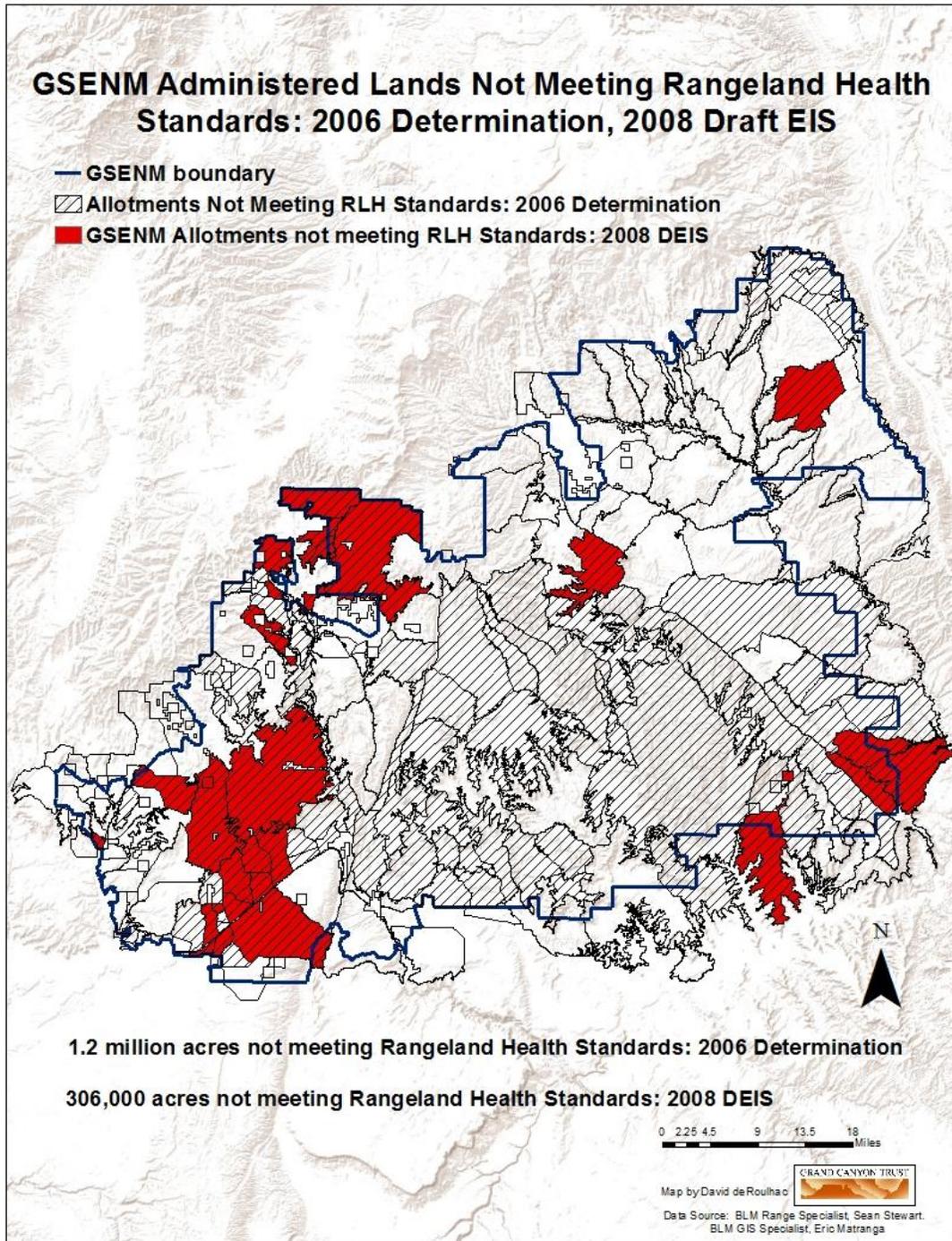


Fig. 4: Allotments not meeting Rangeland Health Standards per 2006 GSENM Rangeland Health Determination and 2008 Draft Rangeland Health EIS

2. **Proper Functioning Condition** assessments were conducted on the Monument on 140 springs and 444 miles of streams in both lentic (still water) or lotic (streams and moving water) systems prior to the 2008 Draft Rangeland Health EIS. Riparian areas make up less than 1% of the Monument’s vegetation, but they represent the greatest concentration of plant and wildlife species diversity in the Monument.

3. **Springs and Seeps.** The 2008 Draft EIS indicated that **32 of 140 GSENM springs and seeps (22.9%)** were **Functioning at Risk** with a downward trend or were **Non-Functioning**. Functioning at Risk is described as a hydrologic system that “will possess some or even most of the elements in the definition, but have at least one attribute/process...that gives it a “high probability of degradation with wind action, wave action, and overland flow event(s)”

“Properly functioning” conditions of springs and creeks:

- Dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby, reducing erosion and improving water quality
- Filter sediment and aid floodplain development
- Improve flood-water retention and ground-water recharge
- Develop root masses that stabilize islands and shoreline features against cutting action
- Restrict water percolation (NRST 2003)

Lentic or Lotic Site	# of Sites Non-Functioning	# of sites Functioning at Risk	# of Sites Properly Functioning
Lentic (still fresh water)	25	71	48
Lotic (rapidly moving fresh water)	50	144	155
Percent of Sites	15.2	43.6	41.2

The 2008 *Draft Rangeland Health EIS* cited “lack of water” and a “lack of vegetative cover to protect and armor soils” as the primary reasons for why sites failed to meet PFC standards (BLM, 2008).

4. **Biological Soil Crusts.** Biological soil crusts pose a particular challenge for grazing management within the Monument, as they can easily be destroyed by trampling, e.g., by cattle, and yet they (1) provide essential ecosystem services, including holding soil in place in arid areas (see Part IV. Rationale); and (2) are listed as a Monument value to be protected in the Proclamation.

The status of biological soil crusts (BSC) in the Monument as a whole has not been systematically assessed, but Matthew Bowker and others (2008), developed models that predict where conservation values for BSCs are high in the Monument based on BSC biodiversity, BSC function and on a combination of those two descriptors. The study found higher levels of potential biodiversity and function as well as higher probability of degradation and thus higher conservation priority in areas of Kaiparowits Plateau, the lower benches in the vicinity of Lake Powell, lands in the area of Hole-in-the-Rock Road, and near the Paria River.

These conservation value models incorporated a variety of data sets including validated models developed by Bowker and others (2006), which predicted the percent of available habitat for different cover types of BSC (moss, lichen and dark and light cyanobacteria) across the Monument. The biological soil crust models were successful at predicting moss, lichen and dark cyanobacteria cover types, but were less successful at predicting available habitat for light cyanobacteria types (due to susceptibility to drought and occurrence of drought at the time of the study).

BLM IIRH assessments (Pellant, et al. 2000) undertaken primarily between 2000 and 2006 in the Monument, often noted the presence or absence of BSC, and the Trust is undertaking an effort to link these data with predicted available habitat (Bowker et al., 2006).

- 5. Colorado Plateau Rapid Ecoregional Assessment (REA).** A Rapid Ecoregional Assessment was completed for the Colorado Plateau in May of 2012. REAs are meant to be a decision support tool to managers in the BLM’s effort to move towards landscape-level management. The BLM identified livestock grazing as a change agent but did not include it in the analysis due to a lack of consistent data. Nonetheless, they include a variety of datasets that can be utilized for land-use planning decisions in the Monument.

The REA identified change agents stressors and associated threats to conservation elements other than grazing. Native plant communities identified as conservation elements in the Colorado Plateau REA, are listed in Table 5 and have a high potential for being impacted by livestock grazing within the Monument.

ECOLOGICAL SYSTEM	% OF ECOREGION	SPECIES (Common Name)	SCIENTIFIC NAME
Colorado Plateau Pinyon-Juniper Woodland	20.4%	Pinyon Pine	<i>Pinus edulis</i>
Inter-Mountain Basins Big Sagebrush Shrubland	9.1%	Wyoming Big Sagebrush	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>
Inter-Mountain Basins Montane Sagebrush Steppe	3.9%	Mountain Sagebrush	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Colorado Plateau Mixed Bedrock Canyon and Tableland	10.6%	Littleleaf Mountain Mahogany	<i>Cercocarpus intricatus</i>
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	4.5%	Gambel Oak	<i>Quercus gambelii</i>
Colorado Plateau Pinyon-Juniper Shrubland	6.3%	Utah Juniper	<i>Juniperus osteosperma</i>
Colorado Plateau	6.3%	Blackbrush	<i>Coleogyne</i>

Blackbrush-Mormon- Tea Shrubland			<i>ramosissima</i>
Inter-Mountain Basins Mixed Salt Desert Scrub	5.4%	Shadscale	<i>Atriplex confertifolia</i>
TOTAL AREA		66.5%	

(Source: USDI 2012)

Some of the most useful data sets pertaining to livestock grazing management are those that describe terrestrial ecosystem intactness, concentration of conservation elements, and concentration of imperiled and special status species. Figure 5 identifies potential cover of late successional biological soil crusts across GSENM.

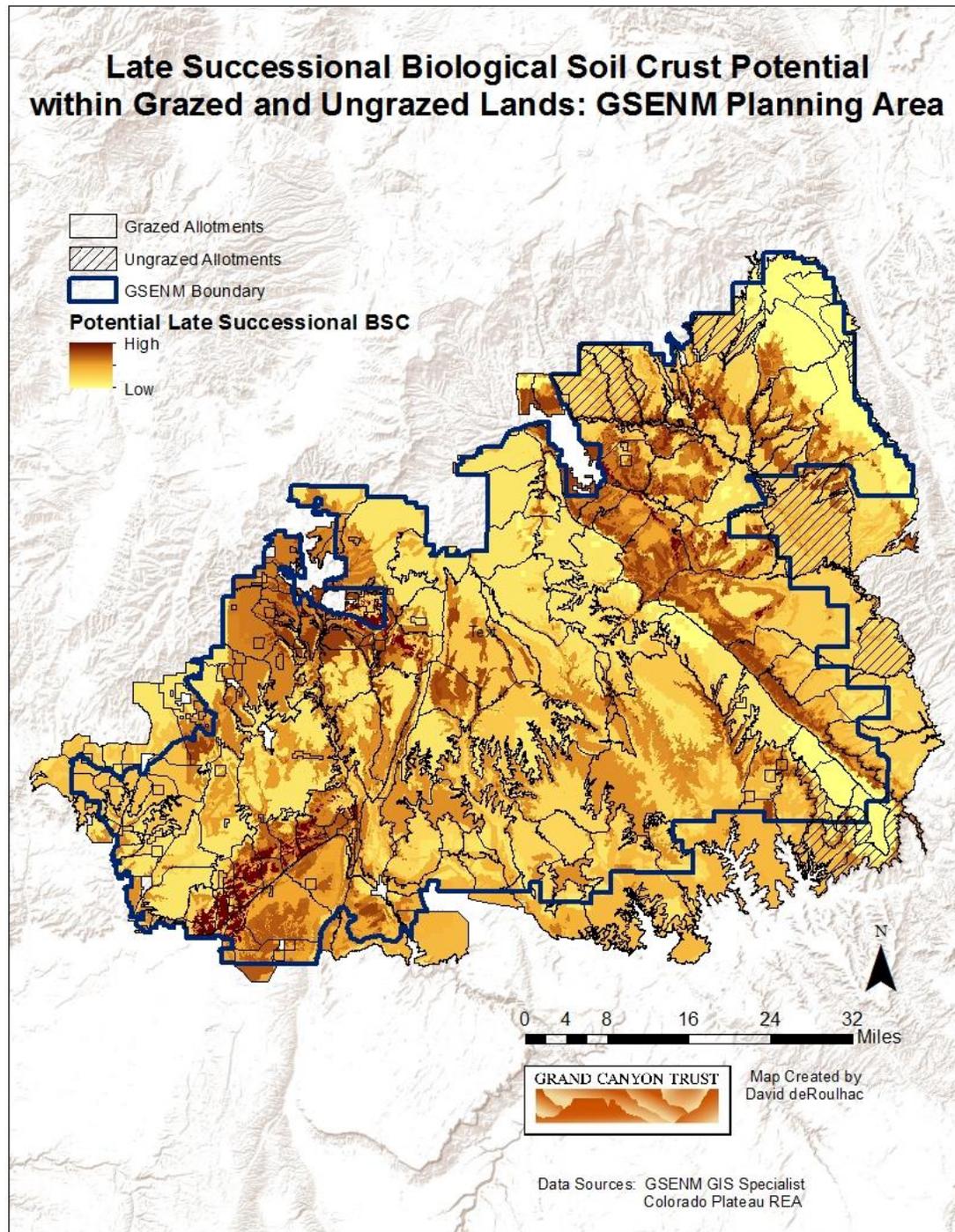


Fig. 5: Potential late successional biological soil crust within GSENM-administered allotments

Due to the fact that the Colorado Plateau REA did not assess livestock grazing as a stressor in the analysis, the new Monument grazing plan amendment process is a critical opportunity to integrate livestock grazing data with REA analysis to help guide and inform the grazing plan amendment. REA datasets can be useful when applying criteria for developing diverse grazing arrangements, protecting riparian systems, biological soil crusts, and reducing erosion. For instance, a large percentage of areas with high

potential for late successional biological soil crusts are within grazed GSENM/GCNRA lands (Fig. 5).

4. **Assessment, Inventory and Monitoring.** A 2005 directive from the Office of Management and Budget required BLM to develop a strategy, Assessment, Inventory and Monitoring (AIM), to create a consistent framework for monitoring across BLM-managed lands. AIM's objective of collecting and organizing data with a statistically valid method, is meant to enable the use of such data across various programs and approaches. AIM uses a variety of monitoring methods and geospatial data to collect trends of landscape conditions. The **AIM Monitoring Strategy** sets out five important goals:
 1. Determine the status, condition, and trend of priority resources and key ecosystem components and processes.
 2. Determine the location, amount, and spatial pattern of priority resources, key ecosystem components and processes, disturbances, and other changes on the landscape.
 3. Provide a conceptual understanding of key ecosystem components, processes, and sustainability concepts that should be incorporated into land use plans, National Environmental Policy Act (NEPA) documents, cumulative effects analyses, etc.
 4. Generate quantitative and spatial data to address goals 1 and 2 and to contribute to existing land health assessment and evaluation processes at multiple scales of inquiry.
 5. Generate quantitative and spatial data that are necessary to defensibly determine if management actions (e.g., land treatments) are moving resources toward desired states, conditions, or specific resource objectives identified in planning or related documents or legal mandates (USDI 2011).

Goal two of the AIM Monitoring Strategy, listed above, is to identify and describe key resources, ecosystem components, processes and disturbances. Livestock grazing in GSENM represents the singular, most prolific disturbance to soils, upland native plant communities and riparian areas. If ungrazed areas are present for comparison, AIM can be an important tool for quantifying livestock disturbances to Monument objects identified within the GSENM Proclamation, conservation elements described by REAs and important "resources, key ecosystem components and processes" outlined by AIM.

5. **Ecological Site Descriptions.** AIM and REA use Ecological Site Descriptions (ESDs) that have been developed by the Natural Resource Conservation Service (NRCS) as reference conditions for unique ecosystem types based largely on soil type and climate (i.e. precipitation, elevation). ESDs identify a variety of data including soil type, climate, precipitation, state and transition models and the conditions expected for the site. Whether an ESD reference site is a grazed site or ungrazed site is not always discernable through the ESD, especially in the case of older ESDs. As well, ESD reference sites may be many miles away from the Monument.

The AIM Monitoring Strategy (at p. 7) states that new efforts are forthcoming to identify "current and reference condition based on land potential at broader scales using a combination of field and remote sensing data." ESDs, remote sensing and field-based monitoring are important tools for identifying reference conditions and quantifying land health at the landscape scale. However, without the addition of field-based monitoring of ungrazed sites within the Monument, the land-use planning process is missing a crucial tool for understanding both the impacts of livestock grazing in the Monument, and the potential for movement of damaged Monument areas toward reference conditions if ungrazed.

6. Initial Analysis of Change in Vegetation Productivity for the Grand Staircase Escalante National Monument, 1986-2011. The Trust recently completed a study of vegetation production change within GSENM using data averages of two ten year periods: 1986-1995 and 2002-2011 (Hoglander and Rivas 2014). The study utilized LANDSAT Thematic data that measured net primary vegetation productivity and represented the data through the Normalized Difference Vegetation Index (NDVI). The study found that 80 of 103 GSENM-administered allotments showed a decrease in vegetation productivity. Sagebrush dominated, riparian vegetation, pinyon-juniper woodland vegetation, grassland dominated, desert scrub, deciduous shrubland and areas currently characterized as sparsely vegetated decreased, with pinyon-juniper woodlands and grasslands showing the greatest decreases. Vegetation productivity increases were for riparian woodland vegetation (which may reflect Russian Olive invasion), mixed conifer vegetation, introduced vegetation, developed areas, and aspen or maple dominated areas.

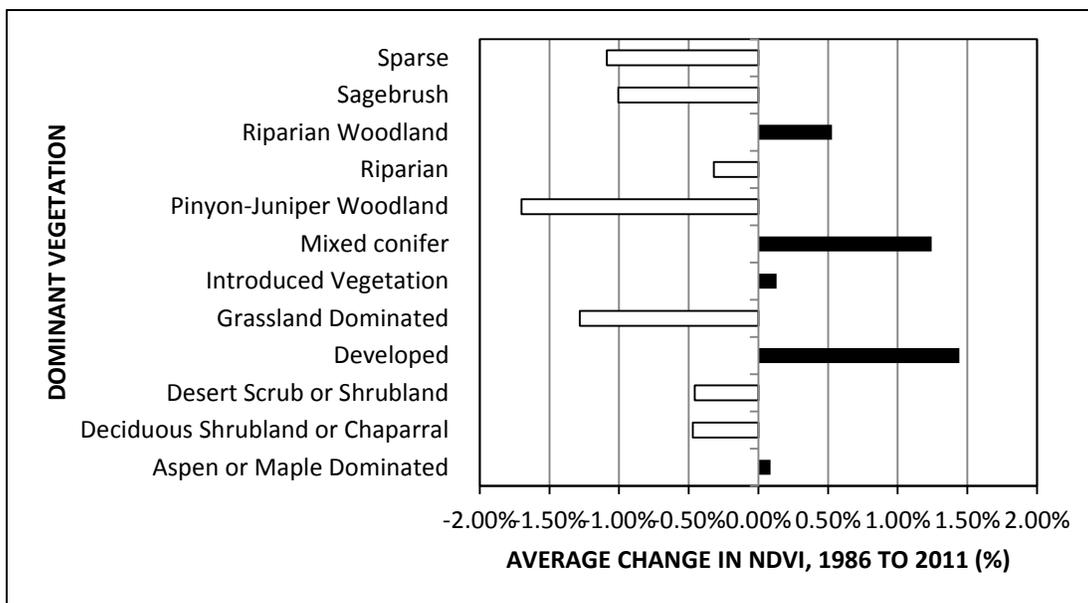


Fig. 6: Net change in vegetation productivity within GSENM between 1986-2011 (Hoglander and Rivas 2014).

II. The Sustainable Grazing Alternative: Background

A. NEPA and Consideration of Alternatives

The BLM is developing this GSENM grazing EIS in accordance with National Environmental Policy Act (NEPA) regulations. Section 1507.2(d) of these regulations requires federal agencies to “Study, develop, and describe alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”

Perceived and/or real conflicts are unresolved concerning current livestock grazing management within GSENM and protection of “... a spectacular array of scientific, historic,

biological, paleontological, and archaeological objects” described in the GSENM Proclamation. Hence the need to study, develop, and describe alternatives for resolving such conflicts.

The Sustainable Grazing Alternative (Part III of these scoping comments) is submitted for publication and detailed analysis in the GSENM Draft and Final EIS for grazing management within the GSENM and GCNRA. As noted in Section 1502.14 (“Alternatives including the proposed action”) of NEPA regulations, an Environmental Impact Statement (EIS) should “Rigorously explore and objectively evaluate all reasonable alternatives,” and “Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.” In fact, the regulations require the inclusion of “reasonable alternatives not within the jurisdiction of the lead agency.”

As noted in Section 1502.14, the EIS:

...should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.

This analysis and public review of alternatives is described in Section 1502.14 as “the heart of the environmental impact statement.”

The Sustainable Grazing Alternative we offer in these scoping comments is reasonable, within the scope of the purpose and need, based in science, and within the jurisdiction of the BLM to implement. In Section IV of our scoping comments, we provide the legal, social, and scientific rationale for the various elements of the Sustainable Grazing Alternative.

Nothing in the NEPA regulations prevents detailed analysis or adoption of parts or all of an alternative submitted early in a NEPA process by a non-agency entity. The 2003 EIS for a new Hells Canyon National Recreation Area Comprehensive Management Plan fully considered (and eventually adopted major elements of) a Native Ecosystem Alternative (Alternative N) submitted by the Hells Canyon CMP Task Force, a coalition of non-governmental organizations, individuals, and two Tribes. The EIS also fully analyzed an alternative (Alternative W) that had been submitted by the Wallowa County Commission. While the Wallowa-Whitman National Forest did not alter either alternative in any manner, the agency did contact the Task Force to ask for clarification of certain phrases and allowed the Task Force to alter the wording of two elements to render them legal within Forest Service regulations.

Similarly, the 2007 *Final Environmental Impact Statement for the Reissuance of Term Grazing Permits on Eight Cattle Allotments, Beaver Mountain Tushar Range, Beaver Ranger District, Fishlake National Forest; and Millard, Piute, Garfield, Beaver, and Iron Counties* fully analyzed, without altering, an alternative (Sustainable Multiple Use Alternative) submitted by seven non-governmental organizations (Three Forests Coalition). The Fishlake National Forest asked for clarifications of the meaning of certain elements, and allowed the Three Forests Coalition to reword its fire section in standard Forest Service terminology.

In 2012, Judge Marcia Krieger of the U.S. District Court in Colorado set aside a resource management plan for oil and gas development in the Roan Plateau that had been approved

by BLM in 2007. Her Opinion was based on failure of the BLM to consider an alternative that had been submitted in a 2005 letter by the non-governmental group, Rock the Earth. Judge Krieger wrote in her Opinion in *Colorado Environmental Coalition, et al v. Salazar*⁸:

Contrary to the BLM's position at oral argument that the Community Alternative was a 'moving target' that was 'not clearly defined' so as to permit meaningful analysis, the Court finds that the April 8, 2005 letter from Rock the Earth sets forth the general contours of the (or at least 'a') Community Alternative in sufficient detail so as to permit meaningful analysis of that alternative by the BLM. The Court further finds that the Community Alternative, at least as described in Rock the Earth's letter, was indeed a distinct and concrete 'alternative' to the other courses of action being contemplated by the BLM.

This (and other court rulings) indicates that the BLM is able to analyze in detail and present to the public the Sustainable Grazing Alternative.

A 1972 case, *Calvert Cliffs Coordinating Committee, Inc. v. Atomic Energy Commission*, 404 U.S. 942 (1972) was a non-governmental organization's challenge to AEC's NEPA procedures. In its ruling for Calvert Cliffs Coordinating Committee, the Court noted:

NEPA requires that [all Federal agencies] must – to the *fullest* extent possible under its other statutory obligations – consider alternatives to its actions which would reduce environmental damage.

We believe the Sustainable Grazing Alternative, while allowing for continued livestock grazing in portions of the GSENM and GCNRA, would reduce environmental damage associated with current grazing management. Moreover, we expect that the Sustainable Grazing Alternative will be, to quote Judge Krieger, a "distinct and concrete 'alternative' to the other courses of action being contemplated by the BLM."

As yet, we are unable to place the Sustainable Grazing Alternative in the precise format the BLM will use to present other alternatives because we have only the scoping notice with its purpose and need and general issues to be addressed. However, we have numbered the various elements of the Sustainable Grazing Alternative in such a manner that the elements could be moved around into a format allowing for comparative analysis with BLM Alternatives once we see the format BLM is using.

Just as the BLM will develop alternatives the agency believes are integrated and comprehensive, so we have done. We therefore explicitly request that the Sustainable Grazing Alternative be presented unaltered to the public alongside BLM and any other alternatives. Placing other elements into this alternative, deleting particular elements, or rewording certain elements without our permission could compromise the integrity, reasonableness, feasibility, scientific basis, environmental consequences, and/or social acceptability of the Sustainable Grazing Alternative.

That said, if BLM finds particular phrases or elements in the Sustainable Grazing Alternative unclear or, for reasons currently unknown to us, not legally possible, we request that BLM notify us and give us the opportunity to clarify the wording, or alter an element so as to bring it into legal possibility.

⁸ Civil Action No. 08-cv-01460-MSK-KLM

B. Six Fundamental Assumptions of the Sustainable Grazing Alternative

The Sustainable Grazing Alternative is based on six assumptions that are rooted in BLM policy (see Section IV - Rationale):

1. Native species diversity should not be depleted and ecosystem functions should not be degraded due to domestic livestock grazing. Ecosystem functions include timing and duration of water flow, water quality, water quantity, soil stability, nutrient cycling and pollination.
2. Livestock grazing simultaneously meets Bureau of Land Management (BLM) regulations and policies and protects Monument values and objects identified within GSENM Proclamation.
3. Best available science is used to inform management of grazed and non-grazed areas
4. A diversity of interested publics, including permittees, are encouraged to discuss options for grazing management where native biodiversity and/or ecosystem functions have been degraded.
5. A diversity of grazing arrangements, i.e., a mixture of conventional grazing; collaborative grazing experiments for time, timing and intensity of grazing; temporary rest; long-term non-use; and non-grazed areas will best provide for essential reference areas, grazing management improvements, restoration and/or protection of native biodiversity and ecosystem functions, and resilience in the face of climate change.
6. A number and variety of sizes of ungrazed areas is essential to:
 - (a) demonstrate the ecological potential of GSENM/GCNRA ecosystems and plant communities;
 - (b) understand impacts of livestock management practices;
 - (c) understand the potential rate of recovery where native species diversity or ecosystem functions have been depleted or degraded;
 - (d) distinguish climate impacts (e.g., drought) from livestock grazing impacts;
 - (e) protect particular values, species, or Monument objects that are adversely affected by or incompatible with livestock grazing; and/or
 - (f) allow for possible restoration of species diversity and/or ecological processes that have been compromised by livestock grazing.

III. SUSTAINABLE GRAZING ALTERNATIVE

A. GOALS

1. **GOAL 1 Watersheds** are in, or are making significant, measurable progress toward, properly functioning physical and biological condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.
2. **GOAL 2 Native plant communities** are healthy, diverse, and productive, or are making significant, measurable progress toward such conditions.
3. **GOAL 3 Ecological processes**, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant, measurable progress toward their attainment, in order to support healthy biotic populations and communities.
4. **GOAL 4 Riparian and wetland areas** exhibit, or are making significant, measurable progress toward exhibiting potential native vegetation diversity, density, age structure composition, and cover. Stream channel morphology and functions are appropriate to soil type, climate and landform.
5. **GOAL 5 Soils** exhibit, or are making significant, measurable progress toward permeability and infiltration rates that sustain potential site productivity or improve site productivity, considering the soil type, climate, and landform.
6. **GOAL 6 Habitats** are supporting, or are making significant, measurable progress toward supporting their full complement of GSENM/GCNRA native species and are exhibiting conditions expected to provide for recovery (“conservation”) of Federal threatened and endangered species or Federal proposed or candidate threatened or endangered and other special status species.

B. OBJECTIVES

1. **Objective 1. Native Plant Communities**
 - 1.1. Native plant communities reflect approximately 80% of the native plant diversity, density, age classes, and productivity of relevant ungrazed reference sites (i.e., GSENM or GCNRA sites which are of similar potential to support the native diversity and have been ungrazed by domestic ungulates for ten years).
 - 1.2. Native plant communities support (at 80% of reference sites based on appropriate quantitative measures) GSENM-specific values identified within the GSENM Proclamation, including:
 - 1.2.1. Plant species endemic to GSENM or the Colorado Plateau
 - 1.2.2. Rock crevice and canyon bottom native vegetation
 - 1.2.3. Dunal pockets that hold unique plant species adapted to shifting sands
 - 1.2.4. Plants highly adapted to saline areas
 - 1.2.5. Relict plant communities

- 1.3. Native species reoccupy habitat niches and voids caused by disturbances at 80% the rate of reoccupation in recovery reference sites (i.e., similarly disturbed sites recently excluded from grazing) based on appropriate quantitative measures.
- 1.4. Native plant communities support the following, at levels of at least 80% of relevant ungrazed reference areas:
 - 1.4.1. Pollinator diversity, with pollinators often dependent on a particular species, genus, or plant family.
 - 1.4.2. Cover, nesting, calving, and/or food habitat for native declining, uncommon, and endemic vertebrate animals.
 - 1.4.3. Diversity of native aquatic biota.
 - 1.4.4. Diversity of soil invertebrates.
- 1.5. Habitats are connected at a level to enhance populations of native species, including pollinators, based on estimated connectivity requirements using best available science.

2. Objective 2. Riparian and Wetland Areas.

- 2.1. Streambank vegetation, at 80% of reference riparian areas,:
 - 2.1.1. consists of, or shows an independently measurable trend toward, native species with root masses capable of withstanding high streamflow events;
 - 2.1.2. maintains cover adequate to protect stream banks and dissipate streamflow energy associated with high water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.
- 2.2. Riparian vegetation reflects, at 80% of reference riparian areas, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, and large woody debris when site potential allows; and provides food, cover and other habitat needs for dependent animal species.
- 2.3. At 80% of reference riparian areas, point bars are revegetating and lateral stream movement is associated with natural sinuosity; channel width, depth, pool frequency and roughness appropriate to landscape position.
- 2.4. An active floodplain is present.

3. Objective 3. Soils

- 3.1. Ground cover (including litter) is maintained at 80% of a relevant (e.g., similar soil, vegetation type, precipitation) GSENM ungrazed site in order to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, retard soil moisture loss by evaporation, and provide appropriate biological soil crust ecosystem functions (hydrology and nutrient cycling).
- 3.2. Biological soil crusts (aka cryptobiotic soils) which are critical for soil stability and nutrient availability are protected from trampling and other physical disturbance within at least 60% of their predicted available habitat within GSENM; and within 80% of GCNRA predicted available habitat.
- 3.3. Indicators of excessive erosion such as rills, soil pedestals, mass wasting, and actively eroding gullies and headcuts are within 80% of appropriate, identified reference sites.

4. **Objective 4. Water Quality Standards.** The GSENM is in compliance with water quality standards established by the State of Utah (R.317-2) and the Federal Clean Water and Safe Drinking Water Acts. Activities on BLM Lands will fully support the designated beneficial uses described in the Utah Water Quality standards (R.317-2) for surface and groundwater as indicated by:

- 4.1. Water quality parameters, including but not limited to nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and algae meet standards
 - 4.2. Macroinvertebrate community diversity and composition meet standards and are within 80% of relevant reference stream reaches.
 - 4.3. Fine sediments do not exceed 80% of an equivalent ungrazed reference stream.
5. **Objective 5. Habitats of Species of Concern**, including native, threatened, endangered, proposed and special status-species, are sufficient to ensure reproductive capability and recovery.
- 5.1. Habitats are, or are making significant progress toward, being restored or maintained for conservation (i.e., recovery) of Federal threatened, endangered, proposed, candidate or other special status species. “Significant progress toward restoration of habitat” for such species is demonstrated by maintaining progress at a rate that is 80% that of relevant ungrazed recovery reference areas.

C. MANAGEMENT ACTIONS

1. **Public Transparency and Engagement**

- 1.1. Prior to allotment permit renewal, allotment management plan development, or vegetation projects for conditions impacted by livestock grazing, notice will be provided for a public tour to obtain comment and provide input.
- 1.2. Prior to a Decision Notice, all Environmental Assessments (EAs) will provide for public comment on the alternatives and their analyses.
- 1.3. Annual plans of use.
 - 1.3.1. A map and annual plan of use for each allotment (with pastures) will be posted prior to livestock seasonal entry on the allotment.
 - 1.3.2. Annual plans of use for the previous two years will be displayed on the website.
- 1.4. Mid-season adjustments of the annual permit will be posted as a revised annual permit.
- 1.5. Pre-annual permit meetings. When requested by a member of the public, BLM will participate in a pre-annual permit meeting to discuss problems observed/documented on the allotment the previous year, and proposed solutions to those problems. Such meetings will be available to the permittee and other members of the public.
- 1.6. Collaborations. GSENM will encourage the establishment of independent, multi-stakeholder, consensus collaborations that include representatives of all relevant stakeholders, for purposes of advising BLM on increasing the sustainability of grazing and diverse grazing arrangements on GSENM/GCNRA. BLM staff may participate as resources for these consensus collaborations, which would be convened or co-convened by non-BLM entities.
- 1.7. Interested publics will be encouraged to participate in and contribute to on-ground implementation and monitoring of grazing experiments developed by interested public, permittees and BLM personnel.

2. **Interested publics**, including permittees, are encouraged to engage with the BLM to discuss and propose management options:

- 2.1. Where native diversity, density, age class structure, and/or productivity are less than 80% of the potential native diversity of relevant ungrazed reference sites, or do not support values identified within the GSENM Proclamation (Objective 1.2) or are not reoccupying habitat niches and voids caused by disturbances;
 - 2.2. where native vegetation support for wildlife (Objective 1.4) is less than 80% of relevant ungrazed reference areas or stream reaches, permittees and interested public are encouraged to engage with the BLM to discuss options to achieve such support;
 - 2.3. where ground cover is less than 80% of a relevant ungrazed site or indicators of excessive erosion are present (Objective 3.1);
 - 2.4. when less than 60% of GSENM biological soil crust predicted habitat is protected from trampling (Objective 3.2);
 - 2.5. where native riparian or wetland plant diversity, density, age class structure, and/or productivity are less than 80% of the potential native diversity of relevant riparian or wetland reference sites, or desired stream dynamics (Objective 2.1.2) are not present or a potential floodplain is not active;
 - 2.6. where water quality standards are not being met or parameters are not being maintained within 80% of relevant reference stream reaches (Objective 4); and/or
 - 2.7. where significant, measurable progress is not being made toward restoring habitat for Federal threatened or endangered species, or candidate or proposed threatened or endangered species, or other special status species (Objective 5).
3. **A Diversity of Grazing Arrangements** will be encouraged within GSENM, including such arrangements as:
- 3.1. Collaborative grazing experiments
 - 3.2. Multiple allotments combined into a single system
 - 3.3. Range improvements
 - 3.4. Changing kind and class of livestock (within existing limitations)
 - 3.5. Rest-rotation systems
 - 3.6. Deferred rotation systems
 - 3.7. On-off systems
 - 3.8. Grass banks/forage reserve areas
 - 3.9. Reduced use areas
 - 3.10. Suspended use areas
 - 3.11. Non-use areas
 - 3.12. Closed areas
4. **Time, Timing and Intensity** of livestock grazing will be adaptively managed to insure that Goals and Objectives are met.
5. **Utilization.**
- 5.1. A 30% utilization standard, both for riparian and upland areas will be instituted, one pasture a year for each allotment until all pastures in each allotment have a 30% utilization limit.
 - 5.2. Utilization limits of 25% will be operative within all pastures during a drought year using the [Standardized Precipitation Index](#) of the National Drought Mitigation Center.
6. **Allotment Action Plans.** When monitoring of indicators shows an allotment or pasture is failing to meet or move towards Objectives, plans will be drawn up for meeting or moving towards Objectives. The plans must be based on evidence that the proposed activities or management have resulted in movement toward the particular Objectives in other settings

- and must include methods for measuring whether conditions are improving under the action plan.
- 6.1. If movement toward Objectives is not being observed/measured, further conversations will be in order, and adjustments to the action plan will be made.
 7. **Annual Use Plans.** Each annual use plan will reflect the best estimate that the number of days authorized and other instructions will result in Objectives being met or moved toward.
 - 7.1. Staggered seasonal use. At a minimum, there will be six weeks between the beginning of seasonal use of a particular allotment or pasture one year and when the season of use begins the following year. If this is not possible in a particular area, the area will be rested every other year.
 - 7.2. Pasture movement within annual permits. Gathering of livestock will commence prior to the end date of the use of a pasture or area such that all livestock will have been moved and stragglers found by the off date.
 8. **Passive and Active Vegetation Treatments.** Vegetation treatments will:
 - 8.1. Have the objective of restoring or supporting potential native vegetation and ecosystem processes;
 - 8.2. Address underlying causes of the problematic conditions prompting vegetation treatments;
 - 8.2.1. When livestock and/or wild ungulate grazing have contributed to the problematic conditions being treated, grazing will be managed to avoid return of the problematic conditions.
 - 8.3. Utilize native seeds or seedlings only, of local genetic stock whenever possible;
 - 8.4. Include measurable Desired Outcomes and the methods that will be used to monitor outcomes when compared to outcomes in a portion of the treated area that is not grazed.
 - 8.5. Be detailed in project-level plans and NEPA analyses, which provide for public comment on a full range of reasonable alternatives.
 - 8.6. Use a variety of measures to protect planted and naturally regenerated seedlings from the effects of trampling, browsing, and girdling by livestock and wildlife. Such measures will typically include temporary suspension of grazing, and may include fencing, tubing, netting, and/or animal repellants; and
 - 8.7. Mimic natural processes to the degree possible, including, but not limited to succession and use of prescribed fire.
 9. **Wild Ungulates and Vegetation Treatments.** Where applicable, initiate communication with the Utah Division of Wildlife Resources and/or Arizona Game and Fish Dept. to provide for protection of vegetation treatment
 10. **Revegetation** (including maintenance) of sites formerly seeded to exotic species will utilize native species only.
 11. **Riders.** A pre-season plan and daily log will be filled for documentation of physical presence of a rider with the rider's livestock 5 out of every 7 days throughout the season of use of the allotment
 12. **Fencing to Meet Objectives.**
 - 12.1. If fencing is necessary to meet any Objective the permittee will construct and maintain the fencing unless BLM is required to do so by an existing authorization.

- 12.2. All fences and other annual permit infrastructure must be maintained and functional prior to livestock entry for the season

13. Non-native and/or Invasive Plant Species

- 13.1. Passive restoration and non-chemical methods will be the first priority for preventing the introduction, establishment and spread of exotic, invasive plant species.
- 13.2. If herbicides are deemed essential, least-use of herbicides will be accomplished using Integrated Vegetation Management principles, including reducing or eliminating stressors contributing to the introduction, establishment and/or spread of exotic, invasive plant species.

14. **Water Trough/ Watering Pond Non-native, invasive plant species** The permittee(s) will manually maintain an area free of all invasive, exotic plant species within 100 feet radius of a watering trough or watering pond.

15. Gates

- 15.1. Exclosures with gated openings accessible to livestock will be locked, with GSENM/GCNRA providing a key to the permittee; and retaining another key for as-needed use by public members who wish to access the site for non-grazing purposes.
- 15.2. Gate signs. A sign on any gate through which the public passes will indicate the current dates of livestock in the unit (e.g., allotment, riparian pasture) on either side of the fence and direction to keep the gate closed during those times the livestock should be in one of the two adjacent units.

16. **Fire**. Grazing will be suspended from post-fire areas for at least two years or until the majority of native plant species in the area have seeded, whichever is longer.

17. **Roads for Livestock Management**. Maintain roads and trails essential for facilitating livestock grazing in a manner that minimizes the effects on landscape hydrology (avoid concentrating overland flow, prevent sediment transport, and minimize compaction to maintain infiltration capacity).

D. ALLOWABLE USES

1. **Availability and Unavailability for Livestock Use**. Designation of allotments as available or unavailable for livestock grazing is provisional. Areas that are deemed “available” at one time may become “unavailable” depending on site conditions. Conversely, areas that are currently “unavailable” to livestock grazing due to resource concerns may become “available” if conditions are significantly improved and grazing practices are predicted, on the basis of scientific evidence, to retain the improved resource conditions.
 - 1.1. Criteria used to identify GSENM areas that will be grazed by livestock
 - 1.1.1. Areas currently grazed that meet Objectives or are measurably moving toward such Objectives in relation to ungrazed reference areas, using independently verifiable methods; and
 - 1.1.2. the permittee(s) wish to continue livestock grazing on the allotment/pasture; or
 - 1.1.3. another permittee obtains the permit and continues to meet or move toward Objectives.
 - 1.2. Criteria that identify GSENM areas that will not be grazed by livestock

- 1.2.1. Areas closed to livestock grazing via a Record of Decision supported by NEPA analysis and documentation.
- 1.2.2. Areas in suspended use.
- 1.2.3. Areas that are not meeting or significantly and measurably moving toward Objectives in relation to ungrazed reference areas.
- 1.3. Criteria that identify GSENM areas that may be set aside for other uses
 - 1.3.1. Areas that are particularly difficult to graze on a geographic (e.g., remoteness), productivity, and/or environmental (e.g., lack of water sources or forage production) basis.
 - 1.3.2. Areas voluntarily relinquished or otherwise available for retirement and containing any of the following or combinations of the following:
 - 1.3.2.1. Areas that would serve as valuable reference areas
 - 1.3.2.2. Vegetation types that are either not represented or are underrepresented in currently ungrazed GSENM areas.
 - 1.3.2.3. Monument objects that are not compatible with or are damaged and impacted by livestock grazing (e.g., biological soil crust, rare and scattered riparian areas, declining native plant or wildlife species)
 - 1.3.2.4. Significant cultural resources.
 - 1.3.2.5. Significant opportunities to conserve or restore historical, cultural, soil health, biological soil crust, fish, wildlife, riparian, vegetation and/or water quality objectives of the Monument Management Plan.
 - 1.3.2.6. Riparian areas, springs and hanging gardens that have potential to be impacted or are currently impacted by livestock grazing.
 - 1.3.2.7. Moderate to high recreation values that are compromised by livestock grazing
 - 1.3.2.8. Populations or habitat for threatened, endangered species; candidate or proposed threatened or endangered species; and special status species, or their habitat (e.g., Southwest willow flycatcher, sage grouse, desert bighorn sheep, Mexican spotted owl).

- 2. **Reduced Use or Non-use.** A permittee request for multi-year non-use or partial use will be granted for conservation or recovery outcomes that can be objectively documented and measured. An approved monitoring plan and schedule will be part of the application.
- 3. **Voluntary Relinquishment.** Upon receiving any request for voluntary relinquishment of permitted livestock grazing, the Authorized Officer will re-evaluate whether livestock grazing is in the best interest of achieving Objectives and protecting Monument values and objects, utilizing the above criteria and consider amending the MMP to allocate forage for a different purpose pursuant to Instruction Memorandum No. 2013-184.

E. MONITORING

- 1. **Protocols for Measuring Indicators of Objectives.** Within one year of the Record of Decision, BLM will designate, with interested public/permittee input, the methods BLM will use to measure Indicators that Objectives are being met
 - 1.1. BLM monitoring methods will be posted on the GSENM website, including methods used to measure
 - 1.1.1. Meeting or moving toward Objectives
 - 1.1.2. Existing long-term trend transects GSENM/GCNRA
 - 1.1.3. IIRH points or transects, PFC assessment points or stream reaches, AIM points

- 1.1.4. Effectiveness of treatments at reaching both individual project and Monument-wide Desired Outcomes
- 1.1.5. Any other methods used systematically by the BLM within GSENM/GCNRA

2. **Reference Areas.** Reference areas exist or are established for all Objectives in order to demonstrate potential for Objectives to be met, and/or potential rate of change toward meeting Objectives. Reference areas are established across GSENM that represent the full range of ecosystem and plant community types (both riparian and upland) including sites that have received exotic vegetation treatments. A reference area, with the exception of recovery reference areas (see 2.4 below) consists of a site that has not been grazed or accessible to livestock for at least ten years.
 - 2.1. Establishment of reference areas. Where local reference areas are preferable but do not exist, designate local areas to attain future reference area status (i.e., at least ten years of non-use by livestock). In the interim, use a more distant, reference site that has not been grazed for at least ten years.
 - 2.2. Reference area size. Prioritize establishment of larger, landscape-scale reference areas whenever feasible, in order to allow for recovery and/or protection of ecosystem functions, a patchwork of habitats, species diversity, and other elements not easily documented within small reference areas.
 - 2.3. Permanent range cages. At least two permanent range cages (at least 16' X 16') are maintained in each grazed pasture, in representative areas frequently used by livestock.
 - 2.4. Recovery reference areas are areas where livestock grazing has ceased, but which have not been ungrazed for ten years. Enclosures of various sizes can begin to provide immediate benefits for comparison with sites on which livestock are being adaptively or experimentally managed for recovery toward particular Objectives. Recovery on the grazed sites (particularly for such physical features as ground cover, sheet erosion, and streambank protection; or for seedhead production) can be compared with the recently-ungrazed sites for comparative rates and types of recovery.
3. **Utilization Cages.** For purposes of quantitatively measuring utilization, utilization cages must have been in place for two years (rather than one) in order to more accurately depict expected production.
4. **80%.** Objectives generally will be considered to have been met when monitoring documents the Indicators are at least 80% (e.g., of soil cover, willow density, native plant species richness) of those in reference areas of the same ecological site (e.g., soil type, precipitation, elevation, slope as relevant). Such reference areas may consist of exclosures, ungrazed pastures/allotments, permanent range cages, or ungrazed recovery reference areas. Conditions below 80% of the reference site(s) are appropriate subjects for problem-solving among the BLM, permittees and interested public.
5. **Independent Monitoring.** Upon objective documentation of on-ground indications that Objectives are not being met, any member of the public can arrange for a meeting with BLM staff to discuss and propose solutions to the problem(s). A written record of evidence of the problem(s), solutions considered, and commitments by BLM, interested public, and/or permittees will be retained in the file(s) of the relevant allotment(s).
 - 5.1. Objective, repeatable data gathered independently (e.g., use of BLM monitoring methods or methods in Appendix 9 of the 2012 *Final Report and Consensus Recommendations* of the Collaborative Group on Sustainable Grazing for National

Forests in Southern Utah) is required in problem-solving meetings. All such meetings are open to the permittees and other interested publics.

6. **Social/Economic Indicators** will be used to monitor the social and economic sustainability of GSENM grazing, including both the economic and cultural values of livestock grazing, and the social value of participation in public lands grazing management decisionmaking by publics interested in public lands grazing and/or ecosystem services provided by public lands. Social/economic Indicators are best developed via consensus among BLM, GSENM, GCNRA personnel; permittees; and interested publics.
- 6.1. Social/economic Indicators may include the following, which were published in the [Report and Consensus Recommendations of the Collaborative on Sustainable Grazing for National Forests in Southern Utah](#) (2012):
 - 6.1.1. Investment in grazing practices. Dollar value of time, capital and other investments (e.g., short and long-term infrastructure, monitoring, land improvement projects) related to grazing management changes on GSENM-GCNRA/ allotment by:
 - 6.1.1.1. Permittees,
 - 6.1.1.2. BLM, and
 - 6.1.1.3. Other entities
 - 6.1.2. Total pounds of meat production/acre/allotment (5-10 year average)
 - 6.1.3. Opportunities to participate in livestock grazing programs within GSENM
 - 6.1.3.1. For permittees: Number of individual permits and Animal Unit Months (AUMs) per permittee
 - 6.1.3.1.1. Permitted AUMS by month
 - 6.1.3.1.2. Grazing use reported by month
 - 6.1.3.2. For other entities: Identification of programs and partners engaged in grazing management arrangements, e.g.:
 - 6.1.3.2.1. Utah Division of Wildlife Resources (UDWR)
 - 6.1.3.2.2. Conservation organizations
 - 6.1.3.2.3. Utah Dept. of Agriculture's Grazing Improvement Program (GIP)
 - 6.1.3.2.4. Watershed Restoration Initiative (WRI)
 - 6.1.3.2.5. Natural Resources Conservation Service(NRCS)
 - 6.1.4. Diversity of grazing management arrangements
 - 6.1.4.1. Number and acreage by year of diverse grazing management arrangements, including but not limited to:
 - 6.1.4.1.1. Multiple allotments combined into a single system
 - 6.1.4.1.2. Range improvements
 - 6.1.4.1.3. Changing kind and class of livestock
 - 6.1.4.1.4. Rest-rotation systems
 - 6.1.4.1.5. Deferred rotation systems
 - 6.1.4.1.6. On-off systems
 - 6.1.4.1.7. Reduced use
 - 6.1.4.1.8. Suspended use
 - 6.1.4.1.9. Non-use
 - 6.1.4.1.10. Closed areas
 - 6.1.4.1.11. Grass banks
 - 6.1.5. Public involvement that reflects a broad range of societal values:
 - 6.1.5.1. Basis of (NEPA) administrative appeals or formal objections of GSENM grazing management decisions.

- 6.1.5.2. The number of GSENM/GCNRA grazing decisions made annually that have participation from multiple interests (BLM, permittee and others). Count to be broken down by these four decision types:
 - 6.1.5.3. National Environmental Policy Act (NEPA) analysis leading to decisions on grazing systems
 - 6.1.5.4. Allotment Management Plan (AMP) revisions
 - 6.1.5.5. Permit revisions
 - 6.1.5.6. Annual monitoring (collection of data, report out of the findings, and discussions about the results and implications for future management)
- 6.1.6. Community/County-level economic impact of public lands grazing
 - 6.1.6.1. Average expenditures per “cow unit” (1 cow/year) per county by ranchers who use public land. *[This indicator would likely respond only to large-scale changes in grazing management on GSENM and GCNRA.]*

IV. Ecological and Social Rationale for the Sustainable Grazing Alternative

A. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: ASSUMPTIONS

1. Native species diversity should not be depleted and ecosystem functions should not be degraded due to domestic livestock grazing.

See, Secretarial Order 3308, 4(b) (“The NLCS components shall be managed...to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change”); 15-Year Strategy for the National Conservation Lands, Goal 2A(2) (“Maintain or increase habitat connectivity with other important habitat areas to provide for sustainable populations of native species”); *see generally*, MMP, “Vegetation” at 22-23 (expressing a priority for the use of native species in the GSENM as well as for the control of noxious and invasive species).

2. Livestock grazing simultaneously meets Bureau of Land Management (BLM) regulations and policies and protects Monument values and objects identified within GSENM Proclamation.

See, Proclamation 6920 (the purpose of the Monument is to protect the objects of interest laid out in the Proclamation); FLPMA (BLM lands must be managed “without permanent impairment of the productivity of the land and the quality of the environment,” *id.* at § 1702(c), and “to prevent unnecessary or undue degradation of the lands,” *id.* at § 1732(b)). FLPMA also mandates that the BLM adhere to its land use plans, “in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values.” *Id.* at §§ 1701(8), 1712); Secretarial Order 3308, 4(a) (“The BLM shall ensure that the components of the NLCS are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values.”); BLM Manuals 6100 and 6220 (providing direction for the management of the National Conservation Lands and National Monuments); MMP (BLM’s land use plan that guides the management of the Monument); 15-Year Strategy for the National Conservation Lands (provides long-term direction for the National Conservation Lands).

3. Best available science is used to inform management of grazed and non-grazed areas

See, Data Quality Act, Pub.L.No. 106-554, § 515 (federal agencies are required to use information that is of high quality and that is objective, useful, and verifiable by others, and “sound statistical and research” methods must be used.”); Presidential Memorandum on Scientific Integrity (March 9, 2009) (federal agencies must ensure “the highest level of integrity in all aspects of the executive branch’s involvement with scientific and technological processes.”); Office of Science and Technology Policy 2010 guidance memorandum on scientific integrity and the resulting Department of Interior Manual 305 DM 3 (providing direction for the highest level of scientific integrity in the Department of Interior as well as for redress for scientific or scholarly misconduct). *See also*, Secretarial Order 3308, § 4(d) (“Science shall be integrated into management decisions concerning NLCS components in order to enhance land and resource stewardship and promote greater understanding of lands and resources through research

and education.”); 15-Year Strategy for the National Conservation Lands, Goals 1C and 1E(2) (BLM must “provide a scientific foundation for decision making” and “Use the best available science to conduct capacity studies, establish specific, measurable, attainable, relevant, and time-specific (SMART) objectives (or similar), and develop monitoring plans for compatible uses to ensure the NLCS values are protected, consistent with the designating legislation or presidential proclamation. Use the monitoring results to adaptively manage the NLCS values.”); National Landscape Conservation System Science Strategy (generally guides the study and use of science in National Conservation Lands); MMP, “Science and Research” at 44-46 (discussing the priority for research and applied science in the Monument).

4. A diversity of interested publics are encouraged to discuss options for grazing management where native biodiversity and/or ecosystem functions have been degraded.

Secretarial Order 3308, 4(f) (“The NLCS shall recognize the importance of a diversity of viewpoints when considering management options”); Department of Interior Manual 305 DM 3 (providing rules for interacting and communicating scientific findings and research to the public); 15-Year Strategy for the National Conservation Lands, Goals 1B(4), 1C(4), 1D(1), 1E(1) and 2B (engaging partners on assessment, inventorying and monitoring, promoting a better understanding of the importance and value of science, and engaging stakeholders in planning to “identify existing and potential uses that are compatible with the designating legislation or presidential proclamation”).

5. A diversity of grazing arrangements, i.e., a mixture of conventional grazing; collaborative grazing experiments for time, timing and intensity of grazing; temporary rest; long-term non-use; and non-grazed areas will best provide for essential reference areas, grazing management improvements, restoration and/or protection of native biodiversity and ecosystem functions, and resilience in the face of climate change.

See, Secretarial Order 3308, 4(b) (“The NLCS components shall be managed as an integral part of the larger landscape, in collaboration with the neighboring land owners and surrounding communities, to maintain biodiversity, and promote ecological connectivity and resilience in the face of climate change.”); BLM Manual 6100, 1.6(K)(3) and BLM Manual 6220, 1.6(I)(3) (“The BLM will use Monuments and NCAs as a laboratory for innovative grazing techniques designed to better conserve, protect, and restore NLCS values, where consistent with the designating legislation or proclamation.”); MMP, GRAZ-1 at 40-42 (describing the process for assessing and developing allotment management plans and allowing for a variety of arrangements including grass banks and further scientific study); 15-Year Strategy for the National Conservation Lands, Goal 1D (“Use the NLCS as an outdoor laboratory and demonstration center for new and innovative management and business processes that aid in the conservation, protection, and restoration of NLCS areas”).

6. A number and variety of sizes of ungrazed areas are essential to
 - (a) demonstrate the ecological potential of GSENM/GCNRA ecosystems and plant communities;
 - (b) understand impacts of livestock management practices;
 - (c) understand the potential rate of recovery where native species diversity and/or ecosystem functions have been depleted or degraded;
 - (d) distinguish climate impacts (e.g., drought) from livestock grazing impacts;

- (e) protect particular values, species, or Monument objects that are adversely affected by or incompatible with livestock grazing; and/or
- (f) allow for possible restoration of species diversity and/or ecological processes that have been compromised by livestock grazing.

The BLM defines ecological reference areas as “lands that best represent the potential of a specific ecological site in both physical function and biological health” (BLM 2001). Given the myriad impacts that have been documented to occur with certain livestock management practices in arid and semi-arid lands in western U.S., it is not possible to know the ecological potential of GSENM/GCNRA ecosystems or plant communities without areas that are not being grazed by livestock. The BLM relies on Ecological Site Descriptions [ESDs] for an estimate of potential vegetation on a site, but the reference site used for a particular ESD can be distant and differ, e.g., in precipitation. This was an issue in a 2013 Department of Interior Hearings Order regarding the Duck Creek allotment in the BLM Salt Lake Field Office (WWP v. BLM 2013). There, two ecological sites from Wyoming were selected to represent site potential of two soil types in the Duck Creek allotment in Rich County UT, though one of the Wyoming sites was in a lower precipitation zone, thereby perhaps underestimating vegetation that could be on the Utah site if it were healthy (WWP v. BLM 2013, at pp. 75-80).

While ESDs may be a helpful indicator of vegetation that once could be expected on a particular soil type, greater accuracy and relevancy will likely best be obtained by local ungrazed areas. For instance, drought may be more severe locally than that experienced when vegetation was characterized at the ESD reference site, and yet drought impacts can be hard to separate from livestock impacts. This makes a local site, subject to precisely the same drought without livestock grazing, the most relevant comparator.

Similarly, if the potential rate of recovery from degraded conditions is at issue, it is best to exclude a local, similarly-degraded area from grazing and compare rates of recovery. It is hard to argue, for instance, with the comparative composition and density of vegetation inside and outside are visible from Google Earth at the Lower Cattle Allotment enclosure (i.e., a small, local “reference”; Fig. 7).



Fig. 7 Lower Cattle Enclosure; NAD83 469931E 4153820N. 3/06/2013.

Depending on the particular question, different sizes of non-grazed areas will be needed or will suffice (see Rationale F.4).

B. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: GOALS

The six Goals of the Sustainable Grazing Alternative are based on the BLM Fundamentals of Rangeland Health (43CFR §4180.1)

1. **GOAL 1 Watersheds** are in, or are making significant, measurable progress toward, properly functioning physical and biological condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.

Goal 1 is the BLM Fundamentals of Rangeland Health Goal for Watersheds except for addition of the word “measurable,” because the public needs to be able to know that claims of progress toward watershed health, can be reviewed or documented by them.

This goal also meets Guideline 1(b) of BLM Utah’s Guidelines for Grazing Management as well as the Riparian Objective of the GSENM Management Plan.

2. **GOAL 2 Native plant communities** are healthy, diverse, and productive, or are making significant, measurable progress toward such conditions.

Goal 2 is the means by which, as stated in the Monument Management Plan, “...the Monument will be managed to achieve a natural range of native plant associations” (MMP at p. 22) and that vegetation restoration will be used to “...restore and promote a natural range of native plant associations” (MMP at p. 26).

The intent of Goal 2 is to meet Standard 3 of BLM’s Utah Rangeland Health Standards:

Standard 3. Desired species, including native, threatened, endangered, and special status-species, are maintained at a level appropriate for the site and species involved.

As indicated by:

a) Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival

...

c) Native species reoccupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of normative species.

As noted above, the Monument Management Plan calls for the maintenance of native species.

3. **GOAL 3 Ecological processes**, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant, measurable progress toward their attainment, in order to support healthy biotic populations and communities.

Goal 3 is the BLM Fundamentals of Rangeland Health goal for Ecological processes except for addition of the word “measurable,” as in Goal 1.

4. **GOAL 4 Riparian and wetland areas** exhibit, or are making significant, measurable progress toward exhibiting potential native vegetation diversity, density, age structure composition, and cover. Stream channel morphology and functions are appropriate to soil type, climate and landform.

Goal 4 meets the Riparian Objective of the GSENM Management Plan whereby riparian areas will be managed “to maintain or restore them to properly functioning conditions and to ensure that stream channel morphology and functions are appropriate to the local soil type, climate, and landform (MMP at p. 20).

Goal 4 also meets Standard 2 of BLM’s Utah Rangeland Health Standards:

Standard 2. Riparian and wetland areas are in properly functioning condition. Stream channel morphology and functions are appropriate to soil type, climate and landform.

As indicated by:

- a) Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events. Vegetative cover adequate to protect stream banks and dissipate streamflow energy associated with high water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.
 - b) Vegetation reflecting: Desired Plant Community, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover and other habitat needs for dependent animal species.
 - c) Revegetating point bars; lateral stream movement associated with natural sinuosity; channel width, depth, pool frequency and roughness appropriate to landscape position.
 - d) Active floodplain.
5. **GOAL 5 Soils** exhibit, or are making significant, measurable progress toward permeability and infiltration rates that sustain potential site productivity or improve site productivity, considering the soil type, climate, and landform.

Goal 5 fulfills Standard 1 of BLM’s Utah Rangeland Health Standards:

Standard 1. Upland soils exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate, and landform.

As indicated by:

- a) Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.
 - b) The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies.
 - c) The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community (DPC), where identified in a land use plan, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological conditions
6. **GOAL 6 Habitats** are supporting, or are making significant, measurable progress toward supporting their full complement of GSENM/GCNRA native species and are exhibiting conditions expected to provide for recovery (“conservation”) of Federal threatened and endangered species or Federal proposed or candidate threatened or endangered and other special status species.

Goal 6 expands the BLM Fundamentals of Rangeland Health goal for Habitat by adding:

- a) the word “measurable,” as in Goals 1 and 3; and
- b) supporting the “full complement of GSENM/GCNRA native species”

C. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: **OBJECTIVES**

1. **Grazed areas at 80% of ungrazed areas**

There is no way to know how closely the six Goals are being met without a comparison to ungrazed areas. The GSENM needs ungrazed areas of sufficient size, number, and ecological site diversity such that the comparisons are local and directly comparable (see F.2-4. below). However, “making significant, measurable progress,” can be compared to recently-established ungrazed sites (e.g., exclosures) within areas for which such progress is needed (see F.5. below).

The intent of the 80% threshold is to trigger discussions and problem-solving, not to replace other measures BLM may wish to use for standards (see Management Action C2.1 above, and D.8 in Rationale)

Why 80%? The choice of a yardstick, or trigger, is necessarily a social as well as scientific choice, as is the selection of Goals. However, BLM has set the six Goals above and thus a trigger needs to be selected for acceptable proximity to or progress toward those goals.

To set the trigger lower than 80%, for instance 75%, would simply amount to an admission that livestock grazing cannot be managed without impacting various conditions (e.g., native plant diversity, bare soil, biological soil crust cover) by more than 20%. For instance, that livestock grazing necessarily reduces infiltration of soils by more than 20% compared to ungrazed soils. Or that the diversity of native plant communities is necessarily reduced by more than 20% simply by having livestock graze the area.

How would 80% be measured? There are myriad elements that comprise healthy watersheds, permeable soils, habitat for diverse native species, etc. Not everything can be monitored, but certain indicators can be selected for particular settings and to answer particular questions. The simplest objective measures of 80% can be selected and used.

In some cases 80% will be approximated qualitatively; in others, quantitative measures will be used. It will be important, however, to engage interested publics, including permittees, in which ecological elements will be monitored, and by what methods. To the degree that qualitative (“ocular”) measurements are made, regular, documented quality-checking with a quantitative measure would be important.

If triggers are not set, what is considered “diverse,” or “healthy,” or “permeable,” or “significant progress” enters the world of diverse opinion (e.g. “Looks good enough to me”) rather than an objective determination. No business would set goals without measuring whether those business goals are being met or not. The commercial use of GSENM (public lands) is a business and necessarily must be objectively accountable to GSENM Goals and the public.

- Habitat for pollinator diversity.** Objective 1.4.1 Native plant communities support the following, at levels of at least 80% of relevant ungrazed reference areas: Pollinator diversity, with pollinators often dependent on a particular species ,genus, or plant family.

Why is support for pollinator diversity included? Pollinators, wildlife that include bees, bumblebees, wasps, butterflies, moths, hummingbirds, and bats, are the sole means by which particular plant species reproduce. (Some plants e.g., grasses are wind-pollinated, some, e.g., dandelions, can self-pollinate). Some plant species or genera are pollinated by only particular pollinator species; others are pollinated by more than one pollinator species. If the flowers of flowering plants dependent upon pollinators for pollination are not present on the plants (e.g., have been consumed by ungulates) at the time the plant’s pollinator (or pollinators) is available, that plant cannot reproduce that year. Similarly, if the plants that a particular pollinator depends upon for nesting, larval stages, or pollen/nectar are not present, that pollinator cannot reproduce in the area. Some pollinators are able to travel large distances searching for plants; but some specialized pollinators will not cross relatively small patches of unsuitable habitat. Thus, the conservation of native pollinators is not easily achieved by small areas of suitable habitat.

For instance, a two-year study in northwestern Utah (Wilson, et al. 2009) found low similarity between bee species in various plots, indicating that “dune conservation strategies that preserve ‘representative’ portions of dune systems may be insufficient to protect bees and the pollination services they provide.” This has implications for size of ungrazed areas when used to understand the protection of pollinator diversity.

However, the potential diversity of bees and other pollinators is extremely high on the Colorado Plateau. In a 1997 Science Symposium regarding, Griswold, et al. (1997) reported on a 15-year study of bee species in Utah’s San Rafael Desert. More species (333) were recorded than in all of New England. They found one-third of the species specialized on a particular plant family or genus. They reported, “Limited sampling in the Grand Staircase-Escalante National Monument suggests it to be equally diverse, but distinctive; nearly half of the Monument’s bees are not present in the San Rafael Desert.”

There are methods of sampling for abundance and diversity of pollinators and these methods can range from individual species identification (requiring identification by specialists) to simpler methods of recording groups of pollinators, e.g., bumblebee, honeybee, native bee, butterfly) along a transect. A study (O’Brien, et al. 2011) in California via the mentored citizen science Fourth of July Butterfly Count, censused all butterfly species for 32 years at Willow Slough in Yolo County. The number of species observed

declined by 39% during the 32 years, but statistically, the decline was not detected until year 13. This illustrates two points: (1) once-a-year sampling, if rigorously done is a useful monitoring tool for pollinators; and(2) declines can happen silently, unnoticed, in the absence of monitoring. The authors attribute the decline to broad patterns of land use and habitat continuity.

In the absence of tracking pollinators in some systematic manner, GSENM has no idea of the degree to which pollinator diversity is being lost through livestock consumption of forbs or loss of native plant diversity. Pollinators, however, are a wildlife group that can be key to retention of native plant diversity and vice-versa.

The Xerces Society for invertebrate conservation, for instance, notes at their site, www.xerces.org/pollinator-conservation-managing-habitat/

Consider timing, duration and intensity

A diverse pollinator population requires adequate nectar and pollen sources from early spring to early fall, which makes seasonal timing a key consideration for an effective grazing plan. Management should be adjusted to maintain the majority of the floral resources throughout the seasons. Also, grazing should be avoided when butterfly larvae or adults are active, as it can result in direct mortality. Grazing periods should be short to allow for adequate recovery of the habitat. Herd sizes should be moderate to light

3. **Habitat for declining animals.** Objective 1.4.2. Native plant communities support the following, at levels of at least 80% of relevant ungrazed reference areas: Cover, nesting, calving, and/or food habitat for native declining vertebrate animals.

Why is support of “declining” species and not just Threatened, Endangered, and Sensitive Species included? If native wildlife species are declining in abundance due directly or indirectly to livestock grazing, and particularly if they are uncommon already, they can eventually become sensitive, threatened or endangered species.

4. **Connectivity to enhance native species.** Objective 1.5 Habitats are connected at a level to enhance populations of native species, including pollinators, based on estimated connectivity requirements using best available science.

A study of state wildlife action plans’ consideration of connectivity and linkages for wildlife movement (Lacher and Wilkerson 2013) suggests the following best practices:

...collect ecologically meaningful background data, foster broad collaboration, increase specificity of data and goals, include adaptive management, account for climate change, and incorporate socio-related information.

While GSENM does not have resources to establish connectivity requirements for all species, collaboration with Utah Division of Wildlife Resources and other wildlife biologists, and use of best available science can contribute to consideration of connectivity as livestock grazing is adaptively managed for time, timing, and intensity; and when considering particular areas for uses other than livestock.

5. **Biological crust protected on at least 60% predicted habitat in GSENM; 80% in GCNRA.** Objective 3.2. Biological soil crusts which are critical for soil stability and nutrient

availability are protected from trampling and other physical disturbance within at least 60% of their predicted available habitat within GSENM; and within 80% of GCNRA predicted available habitat.

It is important to have a measurable desired condition for retention and recovery of biological soil crusts (BSC) within GSENM and GCNRA. The Sustainable Grazing Alternative selects the Objective of 60% of GSENM and 80% of GCNRA suitable habitat for BSC to be areas in which dispersed disruption/trampling will not be reducing biological soil crusts or preventing their regeneration. The difference in the two goals is a socio-political-legal one, not a scientific one.

The Organic Act for the National Park Service has an explicit direction to leave natural objects “unimpaired.” Section 1.4.5 i.e., (“What Constitutes Impairment of Park Resources and Values”) of the National Park Service *Management Policies* (2006) says the impairment that is prohibited:

[I]s an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including

the opportunities that otherwise would be present for the enjoyment of those resources and values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

...An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- *Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park,*
- *Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or*
- *Identified in the park's general management plan or other relevant NPS planning documents as being of significance.*

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. [Emphases added.]

As livestock grazing will continue within the GCNRA, at least in some places, for the near future, a goal of 80% of predicted available habitat for BSC should be protected from the dispersed trampling that is characteristic of cattle grazing.

Livestock grazing will continue within GSENM, at least in some places. However, the Monument Management Plan explicitly mandates the protection of crusts in that management activities are to prevent or minimize negative impacts on their function, health, and distribution (USDI 1999a). Further, in light of the key ecological role that BSC plays for ecological integrity of GSENM (see below); its Proclamation identification as an object/value to be protected; the BLM Fundamentals of

Rangeland Health Goal for Watersheds; and the UT BLM Standard for Soils, the Sustainable Grazing Alternative identifies a need for protection of BSC from trampling in at least 60% of its predicted suitable habitat within the GSENM. It does not currently have that protection, and opportunities to move toward that Goal should be welcomed (see e.g., C3 and D1-3 in the Alternative).

Biological soil crusts (BSCs), primarily composed of moss, lichen, cyanobacteria, and/or green and brown algae, are an indicator of ecosystem function in arid systems (Bowker et al., 2008). BSCs support and conduct important ecological processes. They:

1. fix carbon and nitrogen in soils;
2. reduce erosion, stabilize soils and trap sediment in erosive environments;
3. reduce water runoff and overland flows while increasing water retention and infiltration; and
4. contribute to nutrient cycling through consumption and contribution while also containing key decomposers (fungi, bacteria, archea and microfauna).

BSCs are key to prevention of soil erosion in GSENM/GCNRA, and the importance is well-stated by Bowker, et al. (2008):

Soil erosion and subsequent degradation has been a contributor to societal collapse in the past and is one of the major expressions of desertification in arid regions. . . . Our results [referring to research results in the paper] suggest that, holding the intensity of erosive forces constant, the acceleration or reduction of soil erosion in arid landscapes will primarily be an outcome of management practices. This is because the factor which is most influential to soil erosion, BSC development, is also among the most manageable, implying that water erosion in drylands has a solution.

An Introduction to Biological Soil Crusts at www.soilcrust.org (sponsored by U.S. Geological Survey) describes the challenge biological soil crusts face in GSENM/GCNRA from livestock grazing and recreation:

Crusts are well adapted to severe growing conditions, but poorly adapted to compressional disturbances. Domestic livestock grazing, and more recently, recreational activities (hiking, biking, and off-road driving) and military activities place a heavy toll on the integrity of the crusts. Disruption of the crusts brings decreased organism diversity, soil nutrients, stability, and organic matter.

There are certain conditions under which biological crusts are more or less vulnerable, e.g., as NRCS notes:

Biological crusts that are in areas of low rainfall, are on coarse textured soils with low stability, and are in areas with a large amount of bare ground are most susceptible to frequent disturbances and have the longest recovery times. Biological crusts of all types are least susceptible to disturbance when the soil is frozen or is covered with snow. Biological crusts on sandy soils are less susceptible to disturbance when the soils are wet or moist, and the ones on clayey soils are less susceptible when the soils are dry. Trampling or

grazing when the soil surface is very wet or ponded should be avoided because it can displace and bury the biological crust. [Emphasis added.]

GSENM is an area of low rainfall, includes coarse textured soils with low stability, and contains a large amount of bare ground – those conditions in which biological crusts “are most susceptible to frequent disturbances and have the longest recovery times.” In GSENM, crusts are most likely to be found on gypsiferous soils, limestone-derived soils, non-calcareous sandy soils, and siliceous sandy soils (Bowker, et al. 2006; and personal communication, Matthew Bowker with David deRoulhac, 2013).

Loss of BSCs has long-term impacts. Neff and others (2005) found that grazed areas that had been rested 30 years contained significantly less silt (38-43%) and up to 51% less Magnesium, Sodium, Potassium, Phosphorous and Manganese compared with never before grazed areas. The authors concluded this was likely due to wind erosion that had followed disturbances caused by livestock grazing. The grazed sites also experienced a 60-70% Carbon and Nitrogen reduction in surface soils, elements critical to nutrient cycling and ecological processes.

Given the easily-observed cattle grazing impacts to BSCs in GSENM (see, e.g., the photographic essay of GSENM biological crusts in grazed and less- or non-grazed areas at www.vanishingdesert.com) the importance of BSCs to arid ecosystem health and processes, the scientific literature surrounding the critical roles BSCs play for ecological integrity and soil retention within arid areas such as the GSENM, and the GSENM Proclamation’s listing of “fragile cryptobiotic crusts” as a GSENM object/value to be protected, we would suggest that large areas of suitable BSC habitat must remain ungrazed by cattle.

D. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: MANAGEMENT ACTIONS

1. **Public Tours.** Mgt Action 1.1 Prior to allotment permit renewal, allotment management plan development, or vegetation projects for conditions impacted by livestock grazing, notice will be provided for a public tour to obtain comment and provide input.

There is no better way to approach significant management decisions than by on-ground tours of the area with interested publics. That is where BLM can hear the various perspectives and information diverse entities bring, people with diverse perspectives can look at the same piece of ground together and share with each other what they’re seeing, and creative problem-solving takes place. If additional conversations take place at locations away from the site, the participants can remind each other about what they were seeing. It’s a means by which the BLM can convey and learn scientific information in a concrete, visual way. It is such an efficient way of communicating and solving problems.

Public tours provide an efficient means by which Secretarial Order 3308, 4(f) can be fulfilled: “The NLCS shall recognize the importance of a diversity of viewpoints when considering management options.”

2. **EA Alternatives Public Comment.** Mgt. Action 1.2 Prior to a Decision Notice, all Environmental Assessments (EAs) will provide for public comment on the alternatives and their analyses.

As with Environmental Impact Statements (EISs), EAs should consider all reasonable alternatives, and generally, only 3 or 4 alternatives are likely to have been developed. During the scoping period, an interested public may suggest an alternative that is reasonable, distinct from alternatives the agency is proposing, and provides for environmental benefits. Unless the BLM provides for public comment on the EA prior to its Decision, including all the alternatives and comparative assessment of the environmental consequences of the alternatives, the public is unable to indicate their thoughts on the alternatives and/or the scientific integrity of the comparative analyses of the alternatives. Moreover, even if the agency wishes to adopt all or part of the alternative that was submitted during the scoping period, it is prevented from doing so if the adoption of that alternative or parts of the alternative has not been presented to the public for comment. Thus, a comment period on an EA (or a Draft EA) prior to a Decision is essential for providing a clear basis for choice among options by the decisionmaker and the public” (40CFR 1502.14).

3. **Posting of Annual Plans of Use and Maps.** Mgt. Action 1.3.1 and 1.3.2 A map and annual plan of use for each allotment (with pastures) will be posted prior to livestock seasonal entry on the allotment. Annual plans of use for the previous two years will be displayed on the website.

The posting of annual plans of use helps the public understand whether the grazing they are seeing on the Monument is that which has been planned and approved by the BLM.

The posting of annual plans of use for two years, as, e.g., the Dixie and Fishlake National Forests do, helps the public understand whether livestock grazing is changing time, timing, and/or intensity in different years; and allows the public to see whether maintenance requirements one year were completed.

This is an effective means by which the 15-Year Strategy for the National Conservation Lands, Goals 1B(4), 1C(4), 1D(1), 1E(1) and 2B can be met, i.e., engaging partners on assessment, inventorying and monitoring.

4. **Posting of Mid-season Adjustments** Mgt. Action 1.4 of the annual plan of use will be posted as a revised annual permit.

Posting of mid-season adjustments in annual plans of use avoids mis-communications with the public regarding BLM approved uses for the season.

5. **Pre-annual Plans of Use Meetings.** Mgt. Action 1.5 When requested by a member of the public, BLM will participate in a pre-annual permit meeting to discuss problems observed/documented on the allotment the previous year, and proposed solutions to those problems. Such meetings will be available to the permittee and other members of the public.

During the winters of 2012 and 2013, Grand Canyon Trust has requested (and been granted) meetings with Forest Service District Rangers and Range Specialists regarding problematic conditions (or improvements) the Trust had observed, documented, and reported the previous season. The Trust has left the decision up to the District Ranger as to whether they will invite the relevant permittees to participate or not; some do and others don't. (The Trust

and other interested publics are not permitted at the Annual Operating Instruction meetings between the FS and permittees, which is why the Trust initiated these “pre-AOI” meetings.) These meetings have been productive, and most of the AOIs (the FS equivalent of BLM annual use plans) that have been the subject of discussion have been improved as a result. In several cases, the results have been a plan to follow up with a field visits the following season, or joint monitoring.

6. **Collaborations.** Mgt. Action 1.6 GSENM will encourage the establishment of independent, multi-stakeholder, consensus collaborations that include representatives of all relevant stakeholders, for purposes of making recommendations to BLM regarding increasing the sustainability of grazing and diverse grazing arrangements on GSENM/GCNRA. BLM staff may participate as resources for these consensus collaborations, which would be convened or co-convened by non-BLM entities.

As we are all aware, the process of developing a consensus collaboration among diverse stakeholders regarding the development of the GSENM grazing management plan was cut short mid-2013 when the exodus of a Garfield County Commission representative precipitated the dissolution of the collaboration before its first meeting. The Trust (and many others within the BLM and the public) will continue to encourage the formation of consensus collaborations convened by non-agency entities, for the purpose of problem-solving, mutual understanding, and support of the BLM.

Since 2007, successful consensus collaborations have been problem-solving and making recommendations to the National Forests in Utah relating to livestock and wild ungulate grazing (i.e., Tushar Allotments Collaboration, Utah Forests Restoration Working Group, Collaboration on Sustainable Livestock Grazing, and Monroe Mountain Working Group). While the BLM would not be leading such collaborations, signals from the BLM that they would welcome initiation of such collaborations regarding grazing management within GSENM and GCNRA would be helpful.

7. **Public Participation in Monitoring of Experiments.** Mgt. Action 1.7 Interested publics will be encouraged to participate in and contribute to on-ground implementation and monitoring of grazing experiments developed by interested public, permittees and BLM personnel.

BLM regulations at 43 CFR 4100.0-5 define an “Interested Public” as “An individual, group or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific allotments or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.”

8. **Public Participation in Proposing Management Options** Mgt. Action 2.when grazed conditions are <80% ungrazed conditions.

The Sustainable Grazing Alternative establishes the general threshold of acceptable livestock impairment or depletion of ecosystem processes or native species to be 80%. While the BLM would continue to use particular standards and guidelines to insure livestock grazing meets or moves toward such a threshold, the threshold would help interested publics engage with the BLM regarding more severe impacts of livestock grazing at particular sites. As will be noted in many scoping comments for this EIS, many in the public feel that there are

unacceptable impacts on the Monument by livestock grazing. This threshold will help guide the public in knowing what impacts the BLM is accepting within this Monument.

9. **A Diversity of Grazing Arrangements.** Mgt Action 3. A diversity of grazing arrangements will be encouraged within GSENM.

One of the consensus agreements of the Collaboration on Sustainable Grazing was that a diversity of grazing arrangements, including areas for reference, collaborative grazing experiments, conventional grazing, grass banks, non-use and closed allotments, provides for both ecological and social stability of livestock grazing. See IV.A.5 above for support for this Management Action within BLM, GSENM, and NLCS direction.

10. **Time, Timing and Intensity.** Mgt. Action 4. Time, timing, and intensity of livestock grazing will be adaptively managed to insure that Goals and Objectives are met.

Altering timing, time, and/or intensity is the fundamental means by which livestock grazing can be managed. See pp. 12-13 of (Collaboration 2012).

11. **30% Utilization standard.** Mgt. Action 5.1 A 30% utilization standard, both for riparian and upland areas will be instituted, one pasture a year for each allotment until all pastures in each allotment have a 30% utilization limit.

The unpublished review of published literature by John Carter (2013) provides evidence for 30% utilization. The literature cited in the review reveals not only ecological benefits and benefits post-drought, but also economic feasibility for the rancher.

The *Tushar Allotments Collaboration Final Report* (Straube 2009) described the process whereby the two allotments that were the subject of the two-year, multi-stakeholder, multi-agency collaboration on the Fishlake National Forest, would move from 60% to 30% utilization, one pasture a year, until all pastures were at 30% utilization (with one pasture being rested each year). Long-term trend transects read in 2008 were read again in 2013. While the final report has not yet been compiled, every transect is slightly up in cover and plant diversity (personal communication Reggie Swenson, Beaver Ranger District Range Specialist, Fishlake NF). The Trust re-read two aspen browse transects inside and outside a permanent range cage, and aspen in the outside transect was increasing in height, including above browse height, and decreasing in browse percent. Aspen in this area was not experiencing recruitment prior to the percent utilization reduction.

Anyone who has observed sites where graminoids have been grazed to 50% or 60% is aware that only ground-hugging flowers (if any) remain; nearly all seedheads are gone; there is inadequate hiding cover for small wildlife and birds; sagebrush understory is depleted; bare ground is increased within sagebrush communities; riparian banks are trampled; and aspen, cottonwood, and willow sprouts are nearly all browsed. Conversely, personal observations (e.g., by Mary O'Brien, one of the authors of these scoping comments) of sites where utilization has been 30% result in at least scattered palatable ("forage") plants ungrazed; some seedheads; and less browse of aspen.

12. **25% Utilization During Drought.** Mgt. Action 5.2. Utilization limits of 25% will be operative within all pastures during a drought year using the [Standardized Precipitation Index](#) of the National Drought Mitigation Center.

Drought stresses every species within the low-elevation, arid Monument. While cattle graze after or during a season of drought, they are subsidized by troughs of water, but the plants are not, setting up the ability for livestock to exacerbate the drought for the plant species. For instance, the USDA U.S. Drought Monitor for January 7, 2014 shows GSENM as being in a region of “Do - Abnormally Dry,” just east of southwestern Utah which is “D1 – Moderate Drought.”

A reduction of utilization to 25% reduces the exacerbation of drought by livestock grazing.

13. **Allotment Action Plans.** Mgt. Action 6. When monitoring of indicators shows an allotment or pasture is failing to meet or move towards Objectives, plans will be drawn up for meeting or moving towards Objectives. The plans must be based on evidence that the proposed activities or management have resulted in movement toward the particular Objectives in other settings and must include methods for measuring whether conditions are improving under the action plan. If movement toward Objectives is not being observed/measured, further conversations will be in order, and adjustments to the action plan will be made.

Allotment Action Plans are in order for allotments that are failing to meet or move toward Objectives. They offer the opportunity to the permittee(s) to indicate what actions they believe they could take to improve conditions, based on evidence that such management has resulted in improvement elsewhere.

Interested publics may be interested in offering suggestions and support for the plan, including monitoring with and for the permittee(s).

14. **Annual Use Plans.** Mgt. Action 7. Each annual use plan will reflect the best estimate that the number of days authorized and other instructions will result in Objectives being met or moved toward.

When the BLM prepares an Annual Use Plan (and posts it on the GSENM website), it should represent the Range Specialist’s best understanding of the time, timing, intensity, and distribution of cattle that will result in Objectives being met or moved toward. It is unreasonable to approve a Use Plan which relies solely on the permittee to judge when and where over-use is occurring.

15. **Staggered Seasonal Use.** Mgt. Action 7.1. At a minimum, there will be six weeks between the beginning of seasonal use of a particular allotment or pasture one year and when the season of use begins the following year. If this is not possible in a particular area, the area will be rested every other year.

When a pasture is grazed at or nearly the same time every year, any species growing at that time, or maturing seeds, or scattering seeds, will likely be under particular pressure and may be extirpated from the site over time. As noted by the Sustainable Grazing Collaboration in its *Consensus Report and Recommendations* (at p. 12):

The TIMING of grazing is also a key grazing management principle. This refers to when (what stage of plant growth) livestock graze in a specific area. . . Timing is important for both ecological and social/economic reasons. Managing the timing of grazing so pastures and individual plants have ample time to re-grow can improve plant health and plant community health. In addition, the date that

livestock arrive at a pasture can influence what plants the animals eat and may impact recreation or other resource uses in certain areas at specific times.

16. **Pasture Movement within Annual Use Plans.** Gathering of livestock will commence prior to the end date of the use of a pasture or area such that all livestock will have been moved and stragglers found by the off date.

If livestock time and timing have been planned, the plan should be carried out, unless the time is shortened due to over-use.

18. **Passive and Active Vegetation Treatments.** Mgt. Action 8.

The Federal Land Policy and Management Act of October 21, 1976 (“FLPMA”, 43 USC 1701) declares that the public land be managed in a manner that would: a) protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water, and archaeological values; b) preserve and protect certain public lands in their natural condition; c) provide food and habitat for fish and wildlife and domestic animals.

Many native communities throughout the GSENM and GCNRA are in a condition, structure and composition that deviate from their potential “natural” state. Restoration of landscape succession/disturbance regimes is the foundation of the strategy to manage long-term climate change and drought risk to terrestrial, aquatic, and riparian ecosystems. Restoration will help conserve scarce habitats in the short term, while expanding these habitats in the long-term.

Restoration need not be active; it may simply involve relief from the stress of livestock grazing. Perhaps the most dramatic example of passive restoration is the 160-acre land (“South Hollow”) of Dennis Bramble, a retired U of Utah Biology professor. The land is not far from GSENM. It is in the Escalante River Watershed, north of Canaan Peak, south of Hwy 12, w. of Escalante, surrounded by grazed Dixie NF land. In 29 years of passive restoration only, the 160 acres, which had previously been grazed, planted to crested wheatgrass, subjected to sagebrush removal (which then became rabbitbrush) and partly burned, has now become a highly diverse, productive site, with extraordinary contrast between it and the surrounding Dixie NF grazed land.

19. **Objective of Veg Treatments.** Mgt. Action 8.1. Vegetation treatments will have the objective of restoring or supporting potential native vegetation and ecosystem processes.

As directed within the Monument Management Plan, GSENM vegetation treatments should be directed toward restoration and recovery of native plants. At p. 22, the MMP notes, “...the Monument will be managed to achieve a natural range of native plant associations.”

Methods of native vegetation restoration need to be selected carefully. For instance, Evangelista, et al. (2004) note that mechanical seeding of native species post-fire in GSENM not only further reduces biological soil crust, but prevents regeneration of the crusts.

20. **Veg Treatments Address Underlying Causes.** Mgt. Action 8.2. Vegetation treatments will address underlying causes of the problematic conditions prompting vegetation treatments When livestock and/or wild ungulate grazing have contributed to the

problematic conditions being treated, grazing will be managed to avoid return of the problematic conditions.

The multi-stakeholder, multi-agency Utah Forest Restoration Working Group (UFRWG 2010) described four steps in the decision process for restoration of aspen. The same steps are applicable for restoration treatments within GSENM:

- Step 1. Assess the condition of aspen [or any other vegetation type' in the landscape/area
- Step 2. Rely on site-specific data to target the underlying cause(s) of the problematic condition(s)
- Step 3. Select Response Option(s) relevant to the particular stand type, underlying causes of the problematic condition(s), and landscape context
- Step 4. Monitor [Emphases added.]

If a vegetation treatment is being undertaken to “restore” sagebrush understory, for instance, the first question that must be asked is what has caused or contributed to depletion of the sagebrush understory. Local sagebrush areas not grazed by livestock are key to being able to answer this question, but the Monument at this time appears to have almost no sagebrush landscapes that are not being heavily grazed. It is extremely important to establish, as soon as possible, a series of ungrazed sagebrush areas for understanding the potential of sagebrush understory to recover in the absence of grazing. It is certainly recovering native grass and forb understory on the South Hollow property of Dennis Bramble, mentioned above at D.18.

- 21. **Native Seedings/seedlings Only.** Mgt. Actions 8.3 and 10. Utilize native seeds or seedlings only, of local genetic stock whenever possible. Revegetation (including maintenance) of sites formerly seeded

The Monument Management Plan (USDI 199a) directs that native seeds be used in revegetation projects and if non-native seeds are necessary to restore native plants (e.g., in an emergency or where non-native invasive species would prevent the native species recovery) the non-native seeds will be only those of short-lived, nurse crop species. This is essential.

- 22. **Measurable Desired Outcomes for Veg Treatments.** Mgt. Action 8.4. Include measurable Desired Outcomes and the methods that will be used to monitor outcomes when compared to outcomes in a portion of the treated area that is not grazed.

This should need no explanation. Restoration projects throughout the nation suffer from lack of (1) measurable Desired Outcomes; and (2) monitoring to determine if Desired Outcomes have been met.

- 23. **Veg Treatments under NEPA.** Mgt. Action 8.5. Be detailed in project-level plans and NEPA analyses, which provide for public comment on a full range of reasonable alternatives.

See D.2 above.

24. **Riders.** Mgt. Action 11.A pre-season plan and daily log will be filled for documentation of physical presence of a rider with the rider's livestock 5 out of every 7 days throughout the season of use of the allotment

In the absence of active riding, livestock will preferentially and excessively use preferred (e.g., mesic, flat) portions of the allotment; may exceed utilization limits; may trespass into neighboring allotments; and may otherwise violate the annual plan of use. Broken fences and other livestock infrastructure may become non-functional.

25. **Fencing to Meet Objectives.** Mgt. Action 12.1 If fencing is necessary to meet any Objective the permittee will construct and maintain the fencing unless BLM is required to do so by an existing authorization.

It is difficult to reason that fences exclusively required for a private business be constructed and maintained with public funds.

26. **Fencing Maintenance Prior to Livestock Entry.** Mgt. Action 12.2 All fences and other annual permit infrastructure must be maintained and functional prior to livestock entry for the season.

This needs no explanation.

27. **Passive Restoration of Native Species.** Mgt. Action 13.1 Passive restoration and non-chemical methods will be the first priority for preventing the introduction, establishment and spread of exotic, invasive plant species.

Passive restoration (i.e., removal of stressors and surface-disturbing activities) may not be sufficient at a given site in order to restore native species, but it should be the first priority.

28. **Least Use of Herbicides.** Mgt. Action 13.2. If herbicides are deemed essential, least-use of herbicides will be accomplished using Integrated Vegetation Management principles, including reducing or eliminating stressors contributing to the introduction, establishment and/or spread of exotic, invasive plant species.

Again, this needs no explanation. The use of toxic chemicals should not be used to mitigate for livestock facilitation of the introduction, establishment, and/or spread of exotic, invasive plant species.

29. **Water Trough/ Watering Pond Non-native, invasive plant species .** Mgt. Action 14. The permittee(s) will manually maintain an area free of all invasive, exotic plant species within 100 feet radius of a watering trough or watering pond.

The heavy use by livestock within 100 feet of watering troughs or watering ponds often (if not always) facilitates the introduction and establishment of invasive, exotic plant species. It is reasonable that the livestock permittee(s) must maintain the area free of exotic and invasive plant species and must do so without mechanical disturbance or the use of chemical herbicides.

30. **Exclosure Gates Locked.** Mgt. Action 15.1 Exclosures with gated openings accessible to livestock will be locked, with GSENM/GCNR providing a key to the permittee; and

retaining another key for as-needed use by public members who wish to access the site for non-grazing purposes.

Management Action 15.1 ensures that gates are not inadvertently left open by visitors.

31. **Allotment/Pasture Gate Signs.** Mgt. Action 15.2 A sign on any gate through which the public passes will indicate the current dates of livestock in the unit (e.g., allotment, riparian pasture) on either side of the fence and direction to keep the gate closed during those times the livestock should be in one of the two adjacent units.

Management Action 15.2 helps the public assist the permittee(s) with maintaining their annual use plan and avoiding unauthorized or trespass use by their cattle.

32. **Fire.** Mgt. Action 16. Grazing will be suspended from post-fire areas for at least two years or until the majority of native plant species in the area have seeded, whichever is longer.

There is extensive scientific literature regarding the likelihood that fire will increase the spread of cheatgrass or other invasive, exotic species, and that biological crusts are adversely impacted by fire. T

33. **Roads for Livestock Management.** Mgt. Action 17. Maintain roads and trails essential for facilitating livestock grazing in a manner that minimizes the effects on landscape hydrology (e.g., avoid concentrating overland flow, prevent sediment transport, and minimize compaction to maintain infiltration capacity).

This needs no explanation.

E. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: **ALLOWABLE USES**

1. **Availability and Unavailability for Livestock Use.** Allowable Uses 1. Designation of allotments as available or unavailable for livestock grazing is provisional. Areas that are deemed “available” at one time may become “unavailable” depending on site conditions. Conversely, areas that are currently “unavailable” to livestock grazing due to resource concerns may become “available” if conditions are significantly improved and grazing practices are predicted, on the basis of scientific evidence, to retain the improved resource conditions.

BLM determines whether lands are available for livestock grazing in land use plans. 43 C.F.R. § 4310.2(a). The regulations do not provide any additional guidance on how BLM will allocate lands as available. However, the regulations leave room for BLM to determine how lands will be made available or unavailable for grazing. The *BLM Land Use Planning Handbook H-1601-1* states that BLM will fulfill this obligation by considering the following factors (Appendix C-II, p. 14):

1. Other uses for the land;
2. terrain characteristics;
3. soil, vegetation, and watershed characteristics;
4. the presence of undesirable vegetation, including significant invasive weed infestations; and
5. the presence of other resources that may require special management or protection, such as special status species, special recreation management areas (SRMAs), or ACECs.

By considering these factors, BLM can come to the conclusion that lands should be available for grazing, available with certain conditions attached or unavailable for grazing. However, rather than just determining that lands will be “available” or “unavailable” in the land use plan, BLM has the discretion to allocate lands as available for grazing but with varying degrees of availability or even unavailable for grazing depending on the factors set out in the Handbook as well as other factors that may be present.

One example of BLM taking a broader approach to livestock grazing in an RMP than just the available/unavailable dichotomy is found in the 2005 Upper Deschutes RMP in eastern Oregon, which allows for grazing permit retirement via a “grazing matrix” (at page 80) The matrix is further discussed in the appendices and the full document is available online (BLM 2005b). The Clarno Allotment and the Lynch Allotment have been retired in recent years using the matrix (personal communication, Oregon Natural Desert Association).

A second example is the 2010 [Carrizo Plain National Monument RMP](#) in California. In the Carrizo Plain RMP, BLM set out the following three categories: (1) “Available for livestock grazing,” (2) “Available for livestock grazing, but only for the purpose of vegetation management,” and (3) “Unavailable for any livestock grazing.” Carrizo RMP at II-56. This approach shows that BLM can and should utilize a range of options for livestock grazing when planning at the landscape level in order to achieve the most appropriate management regime for the planning area.

2. **Reduced Use or Non-use.** Allowable Uses 2. A permittee request for multi-year non-use or partial use will be granted for conservation or recovery outcomes that can be objectively documented and measured. An approved monitoring plan and schedule will be part of the application.

All efforts by permittees to conserve and restore native species, protect archaeological or other cultural resources, or allow ecosystem functions to regain integrity should be welcomed by the BLM and GSENM. Conservation or recovery outcomes should be predicted, and monitoring should be required for determining whether predicted outcomes are met.

3. **Voluntary Relinquishment.** Allowable Uses 3. Upon receiving any request for voluntary relinquishment of permitted livestock grazing, the Authorized Officer will re-evaluate whether livestock grazing is in the best interest of achieving Objectives and protecting Monument values and objects, utilizing the above criteria [at III.D.1] and consider amending the MMP to allocate forage for a different purpose pursuant to Instruction Memorandum No. 2013-184.

Voluntary relinquishment is the most promising means by which large ungrazed areas can be obtained within the Monument for a balance between grazing and protection of Monument values and objects; for reference areas; for recovery of depleted native communities; for recovery of biological soil crusts; or any other ecological or social benefits.

F. RATIONALE: SUSTAINABLE GRAZING ALTERNATIVE: **MONITORING**

1. **Protocols for Measuring Indicators of Objectives.** Monitoring 1. Within one year of the Record of Decision, BLM will designate, with interested public/permittee input, the methods BLM will use to measure Indicators that Objectives are being met. BLM monitoring

methods will be posted on the GSENM website, including methods being used to measure Indicators that Objectives are being met.

It is important that the BLM be transparent about the methods it is using to determine whether Objectives are being met or moved toward. The public and scientists can then more easily build off the BLM methods and data to ask other questions, e.g., about pollinators, or habitat for ground-nesting birds. It is a simple step to post a link to the methods being used.

- 2. Reference Areas for Objectives.** Monitoring 2. Reference areas exist or are established for all Objectives in order to demonstrate potential for Objectives to be met, and/or potential rate of movement toward meeting Objectives. Reference areas are established across GSENM that represent the full range of ecosystem and plant community types (both riparian and upland) including sites that have received exotic vegetation treatments. A reference area, with the exception of recovery reference areas (see III.E. 2.4) consists of a site that has not been grazed or accessible to livestock for at least ten years

With such a large percentage of the major vegetation types and native plant communities in grazed areas (deRoulhac 2013b), there is almost no opportunity for observing and documenting land health conditions in comparable, ungrazed GSENM lands. The great percentage of native ecosystems existing primarily within grazed lands highlights the need to establish reference areas against which the attainment or movement toward Objectives can be measured or observed. Such reference sites can be extraordinarily valuable for people with diverse perceptions and perspectives to gain a shared sense of what is and what is possible.

Reference areas do not need to be “pristine”, or “never grazed,” In fact for certain questions, e.g., “How quickly can this area regain plant cover while being grazed?”, a reference site may be needed that is similarly lacking in plant cover from recent grazing, so that comparative rates of plant cover can be compared.

Of course, careful grazing management may result in better conditions for certain species or ecosystem functions or sites than in the associated ungrazed reference area. They may result in moving toward the relevant Objectives more quickly than the ungrazed reference area. The important point is to compare livestock grazing management with ungrazed areas.

- 3. Establishment of Reference Areas.** Monitoring 2.1. Where local reference areas are preferable but do not exist, designate local areas to attain future reference area status (i.e., at least ten years of non-use by livestock). In the interim, use a more distant, reference site that has not been grazed for at least ten years.

The more distant the reference site, the more skepticism will be expressed if the distant, ungrazed site is compared to a GSENM grazed site. However, the Monument currently sorely lacks ungrazed areas at all (deRoulhac 2013b) or even local exclosures (deRoulhac 2013a). Therefore, more distant sites (e.g., ESD reference sites, ungrazed private inholdings, largely inaccessible areas) can be used while newly-established ungrazed areas become ten years older or more.

- 4. Reference Area Size.** Monitoring 2.2. Prioritize establishment of larger, landscape-scale reference areas whenever feasible, in order to allow for recovery and/or protection of ecosystem functions, a patchwork of habitats, species diversity, and other elements not easily documented within small reference areas.

Depending on the question(s) being asked, smaller or larger reference areas will suffice or be needed, and shorter or longer times since being last grazed will be needed. For instance, if questions are being asked about recovery of potential biodiversity, a reference area of pasture, allotment, or subwatershed size may be needed, as a small site will not support diverse soils, microhabitats, aspects, pollinators, ecosystem functions, or other elements that would contribute to biodiversity recovery. On the other hand, if an Objective at a particular site is to reduce bare ground through changed grazing management, a smaller, ungrazed reference site may suffice. A large reference area can contain many small reference sites useful for a particular question, but the reverse is not true.

In a detailed study comparing a grazed GSENM mesa top (Guenther, et al. 2004) with the relict, non-grazed No Man's Mesa, the researchers found that at a square meter scale grazing microsite disturbance increased species (exotic plus native) richness in this pinyon-juniper habitats, but “. . .there is a homogenization of species richness at the landscape (6000 sq m and 1 ha) scale, which is the scale with which managers are most concerned.”

5. **Permanent range cages.** Monitoring 2.3. At least two permanent range cages (at least 16' X 16') are maintained in each grazed pasture, in representative areas frequently used by livestock.

Utilization cages are annually or frequently moved, precluding understanding of production that takes place not only during the first year post-grazing, but the second, or fifth, or tenth. (An interesting analogy is what happens 2 minutes, 24 hours, 2 weeks, 1 year, 5 years, etc. after quitting smoking: Google “What Happens When You Quit Smoking Timeline.”

Given that 77 allotments currently are administered by BLM on GSENM and GCNRA, the size of permanent range cages may be small (at least 16' X 16'). However, their number (at least two in each grazed pasture) gains in providing direct, local comparability, particularly for such elements as ground cover, potential production, or which plants are selectively grazed. Range cages provide a comparison with the annually-moved utilization cages, which generally record only the production that is possible the first growing season after having been grazed.

Small, permanent range cages cannot indicate the potential for any feature that requires large-scale conditions (e.g., ground nesting bird habitat/use; sheet erosion).

If a larger, representative reference area exists within the pasture, additional small permanent range cages might not be needed.

6. **Recovery reference areas.** Monitoring 2.4. Recovery reference areas are areas where livestock grazing is not occurring, but which have not been ungrazed for ten years. Exclosures of various sizes can begin to provide immediate benefits for comparison with sites on which livestock are being adaptively or experimentally managed for recovery toward particular Objectives. Recovery on the grazed sites (particularly for such physical features as ground cover, sheet erosion, and streambank protection; or for seedhead production) can be compared with the recently-ungrazed sites for comparative rates and types of recovery.

Recovery reference areas will most effectively be established within the area where livestock are being managed for recovery toward particular Objectives, and at the approximate time when the changed management for recovery is being undertaken. This facilitates direct comparison of the rate and nature of recovery between the grazed area and the reference area.

7. **Utilization Cages.** Monitoring 3. For purposes of quantitatively measuring utilization, utilization cages must have been in place for two years (rather than one) in order to more accurately depict expected production.

The plant production that occurs the first year after grazing (e.g., if root reserves have been depleted; if little photosynthetic material was available during growing season) does not necessarily represent what is sustainable. It is important to at least see what plants produce a second growing season after having been grazed perhaps for many years in a row and perhaps heavily.

If half of the utilization cages are moved each year, that will, after the first two years, allow for comparing utilization to two-year ungrazed plants.

8. **Public Engagement: Grazed Conditions Below 80%.** Monitoring 4. Conditions below 80% of the reference site(s) are appropriate subjects for problem-solving among the BLM, permittees and interested public.

While the BLM may use its standard monitoring for purposes of annual grazing, the threshold of 80% is useful for conversations about degradation, and what grazing management changes might bring a pasture or riparian reach or allotment closer to BLM Fundamentals of Rangeland Health and Utah BLM Guidelines for Grazing Management, and the Monument Management Plan mandates.

9. **Independent Monitoring.** Monitoring 5. Upon objective documentation of on-ground indications that Objectives are not being met, any member of the public can arrange for a meeting with BLM staff to discuss and propose solutions to the problem(s). A written record of evidence of the problem(s), solutions considered, and commitments by BLM, interested public, and/or permittees will be retained in the file(s) of the relevant allotment(s). Objective, repeatable data gathered independently (e.g., use of BLM monitoring methods or methods in Appendix 9 of the 2012 *Final Report and Consensus Recommendations* of the Collaborative Group on Sustainable Grazing for National Forests in Southern Utah) is required in problem-solving meetings. All such meetings are open to the permittees and other interested publics.

There are myriad scientific and monitoring questions and objective methods for attempting to answer those questions and BLM should welcome all objective assessments and monitoring of grazed and ungrazed lands within GSENM/GCNRA. Nothing is to be gained by limiting attention to monitoring only those elements of grazing management BLM is coordinating across Field Offices or states. Thus the Collaborative Group on Sustainable Grazing identified over 80 methods that can be used by permittees, interested publics, and/or the Forest Service to objectively identify problems or progress within grazing management.

For instance, aerial imagery is not being currently used extensively within the Monument, but Harris and Asner (2003) used remotely sensed hyperspectral imagery to detect long-term rangeland deterioration (grazing gradients) related to proximity to a water source in Mollies Nipple Allotment. Similarly, the Trust (Hoglander and Rivas 2014) used the Normalized Difference Vegetation Index (NDVI) and LANDSAT aerial data which resulted in detecting a decrease in vegetation productivity in Mollies Nipple (and in 80% of GSENM

acres) between 1986 and 2011. Such independent research and observations can signal interest in discussing and problem-solving around conditions within GSENM.

It is important that within the grazing management plan the BLM explicitly welcome objective, independent information and conversations with interested publics (including permittees) regarding grazing management on this national monument. All members of the GSENM community (visitors, hikers, plant and wildlife advocates and aficionados, photographers, permittees) are adversely affected when livestock grazing is not managed in a sustainable manner. All interested publics must be encouraged to positively contribute to the attainment of the Fundamentals of Rangeland Health, the Monument Management Plan mandates, protections envisioned within the Proclamation, and Utah Guidelines for Range Management.

10. **Social/Economic Indicators.** Monitoring 6. Social/economic indicators will be used to monitor the social and economic sustainability of GSENM grazing, including both the economic and cultural values of livestock grazing, and the social value of participation in public lands grazing management decisionmaking by publics interested in public lands grazing and/or ecosystem services provided by public lands. Social/economic Indicators are best developed via consensus among BLM, GSENM, GCNRA personnel; permittees; and interested publics.

The [Report and Consensus Recommendations of the Collaborative on Sustainable Grazing for National Forests in Southern Utah](#) (2012) lists a variety of social and economic indicators of sustainable grazing. These were agreed upon, with consensus, by a diverse group of participants. This is important, because too often social and economic indicators focus almost exclusively on the culture of ranching and input/output measures of cost and profit for the permittees and whatever role their purchases are playing in the local community, as if other purchases and multipliers would not be present with a balance of grazed and ungrazed areas within the Monument.

It is important to emphasize that social values related to grazing management extend far beyond the “custom and culture” of private permittees and communities immediately surrounding GSENM/GCNRA. The values of all users of GSENM/GCNRA, all interested publics, all researchers need to be considered. As noted within the Headwaters Economics Reports (2013a and 2013b), economic interests other than the local ranching culture are invested in GSENM/GCNRA. As well, these are national public lands, and undue attention to “local custom and culture” could undermine provisions for other values elsewhere in the nation.

11. **Social Indicator: Public involvement** Monitoring 6.1.5. Public involvement that reflects a broad range of societal values: Basis and number of (NEPA) administrative appeals or formal objections of GSENM grazing management decisions, including National Environmental Policy Act (NEPA) analysis leading to decisions on grazing systems’ Allotment Management Plan (AMP) revisions; Permit revisions; and Annual monitoring (collection of data, report out of the findings, and discussions about the results and implications for future management)

It is notable that the Collaborative on Sustainable Grazing (Collaborative 2012) recommended, by consensus, that monitoring should include monitoring of the Forest, by District and year, the degree to which public involvement is present in grazing management decisionmaking processes, given that agency grazing management decisions affect their uses

of and the values they find in their public lands. Again, this is a visible, objective means of extending beyond exclusive consideration of a “local custom and culture.”

V. Particularly Significant Issues and Public Process Considerations

A. Climate Change

Climate change is of extraordinary significance for GSENM/GCNRA. As Schwinning et al (2008) note in their synthesis article, “Sensitivity of the Colorado Plateau to change: climate, ecosystems, and society”:

Vegetation patterns on the Colorado Plateau not only follow climatic drivers but also reflect a dominant human impact on the landscape through grazing over the past two centuries [citation]. Even today, Colorado Plateau ecosystems are changing as humans increase use of the most remote regions and invasive species continue to replace native vegetation, altering both fire regimes and the nitrogen (N) and carbon (C) cycles. [In this article] we describe the sensitivity of this ecological community to change and suggest that, due to its unique location, it may be among the most sensitive of ecosystems to past and current drivers of global change.

Beschta, et al. (2012) is a recent literature review of the multiple ways livestock grazing can exacerbate the features of climate change that are predicted in the West. The EIS will need to consider these, as so many are easily observable within GSENM under current grazing management. The authors conclude:

Federal and state land management agencies should seek and make wide use of opportunities to reduce significant ungulate impacts in order to facilitate ecosystem recovery and improve resiliency. Such actions represent the most effective and extensive means for helping maintain or improve the ecological integrity of western landscapes and for the continued provision of valuable ecosystem services during a changing climate.

B. Biological Soil Crust

Biological soil crusts play a particularly crucial role in the development of a GSENM grazing management plan. They are a key component of ecological integrity due to their stabilization of a variety of arid-area soils prone to erosion and water runoff, and their support of important ecological processes (e.g., nutrient cycling) They are an object identified by the Proclamation to be protected. They are highly vulnerable to being broken and diminished through trampling by cattle.

Thus the question of what proportion and where biological soil crusts should be protected arises for both ecological integrity under BLM policies and conformance with the Proclamation.

Protection for biological soil crusts in ungrazed areas may provide protection for additional objects and values within the Monument. For instance, endemic plant species, hotspots of biodiversity, and unique plant assemblages are scattered throughout the Monument rather than being located in particular “hotspots” that contain all of them (Stohlgren, et al. 2005). In fact, Stohlgren and others write,

Preserving primary and secondary hotspots of richness, endemism, and uniqueness, with greater effective population sizes of more species and greater connectedness among them, would require actively protecting 74% or more of the Monument, and possibly adjacent lands.

Tracking, mapping, and understanding trends among so many plant species is difficult. However, if 60% of the suitable habitat for biological soil crusts is protected from trampling, then associated or adjacent areas that may contain endemic plant species, hotspots of richness, and unique plant assemblages may often be protected as well.

Thus, biological soil crust should be considered a particularly relevant indicator of ecosystem function within GSENM (Bowker et al. 2008).

C. Scientific integrity of conclusions/statements

The NEPA regulation on methodology and scientific accuracy (40 CFR 1502.24) will be central for this EIS because trust among many interested publics is low, after the earlier, decade-long, failed effort to develop a GSENM grazing management plan. In particular, as NEPA regulation 1502.24 states:

They [in this case the BLM] shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement.

“Conclusions” refers to conclusory statements. If language is used carefully and conclusory statements are backed by evidence, data (e.g., GSENM field monitoring), and/or scientific studies available for review by the public, greater trust will be garnered. Also, it’s legally required!

D. Consideration of scientific evidence submitted by commenters

It will be important for the BLM to consider all relevant scientific information that is provided by commenters. While the Trust is sending a complete copy of each reference cited, some commenters may not. Just as the BLM does not print all studies cited in its Draft or Final EIS, so a commenter need not send a complete copy of each reference cited for it to be considered in analysis of alternatives and in the Environmental Consequences section of the Draft and Final EIS.

If a scientific literature review is cited (e.g., Beschta, et al., 2012; Fleischner 1994), that literature review itself cites numerous scientific studies. While the BLM certainly is not under the obligation to read each reference cited in a literature review, the information that is in the literature review should be considered scientific information to be considered in the EIS, unless the BLM finds that the cited references do not support a commenter's conclusion.

Similarly, an unpublished literature review, such as Carter (2013), may extensively reference published, peer-reviewed scientific literature, which are to be judged for the scientific support they offer for the commenter's conclusions.

It will be important to consider the overall balance of scientific evidence. For instance, for every 99 or so climate scientists who report on global warming due to anthropogenic increases in greenhouse gases, there may be one who is a "climate skeptic" scientist. It is important to avoid giving undue credence to the one piece of literature you find that doubts the predicted increased temperatures and precipitation variability within the region of GSENM/GCNRA.

Similarly, there is overwhelming evidence in the scientific literature documenting the vulnerability of biological soil crust to compression, e.g., by cattle or ORVs or walkers. The fact that there are certain conditions in which biological crusts are less vulnerable (e.g., under snow when frozen), does not offset the reality that throughout most of GSENM, over most of the year, crusts are vulnerable to being broken wherever they are accessible to cattle.

E. Economic Comparison of Alternatives

When/if the EIS compares alternatives for their economic impacts, it will be important to distinguish between private costs and benefits and public costs and benefits. That is, who is paying for what aspects of grazing management, e.g., fencing, piping, water troughs, monitoring, administration? Who is receiving money from grazing on the Monument? What are public benefits? What are public costs?

When the Fishlake National Forest used a narrow input-output method for comparing alternatives for grazing management on eight cattle allotments on the Fishlake NF, the EIS was appealed on economic analysis grounds. An Appeal Resolution regarding the inadequacy of the EIS economics analysis resulted in the Trust working a year with the USFS Washington Office Economist to agree jointly on guidelines (Trust 2008) for comparing grazing alternatives within an EIS. These guidelines include consideration of natural resources costs/benefits and unquantified economic costs. The BLM IM 2013-131, "Guidance on Estimating Nonmarket Values" provides some direction for including nonmarket values in the economics analysis.

Data and information from the 2013 Headwaters Economics report on the economics of the Utah counties surrounding GSENM, i.e., *A Profile of Agriculture: The Utah Counties Adjoining Grand Staircase-Escalante National Monument; Garfield County UT, Kane County UT* will be important to incorporate in the EIS (Headwaters 2013b). A second report (Headwaters 2013a) is similar but includes Coconino County in Arizona, and thus provides additional data. The Bureau of Land Management and Forest Service have made significant financial and intellectual contributions to the operation and content of the

Economic Profile System-Human Dimensions Toolkit that automatically generated the reports from publicly accessible and referenced information.

It will be important to accurately represent the data in these (and all) reports. For instance, in 2011 (the most recent year for which data were available in Spring 2013 when the Headwaters report was compiled), Garfield County had 8.11% farm employment as the percent of all Garfield County employment (Headwaters 2013a at p. 1). However this does not distinguish between part-time and full-time employment. As for farm earnings as a percent of all Garfield County earnings, Garfield County had -2.8%, i.e., less was earned than was spent on farm operations.

Ecosystem services valuation will be important as well in the economics analysis, e.g., the economics services when biological soil crust's ability to prevent blowing sand and dust, and to prevent erosion is foregone by livestock grazing. See a USGS pilot project to value ecosystem services on the San Pedro River (Bagstad et al. 2012). Using ecosystem services valuation tools, Bagstad et al. quantified gains or losses of ecosystem services under three categories of scenarios: urban growth, mesquite management, and water augmentation. The BLM could quantify gains or losses of various ecosystem services under the various alternatives being assessed in the EIS. In the case of the Sustainable Grazing Alternative, an assessment might be made assuming one-half of the Monument was not grazed by livestock. Currently 96.4% is grazed, but the Sustainable Grazing Alternative allows for increases in non-grazed areas through voluntary relinquishment of term permits and designation of some allotments and/or pastures for other uses that do not involve livestock grazing.

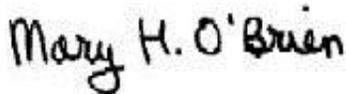
Closer to home, a 2011 report by Mark Buckley of ECO Northwest, "The Economic Value of Beaver Ecosystem Services: Escalante River Basin, Utah" described a method by which the ecosystem services of beaver dams in the Escalante River Watershed (including GSENM) can be economically valued.

VI. Conclusion

We thank you for consideration of these scoping comments for a Grand Staircase-Escalante National Monument grazing plan EIS. We look forward to participating throughout the EIS process and to continue to observe conditions throughout GSENM and GCNRA, and offer suggestions for how livestock grazing can best be balanced with the protection of all living communities and the values of all people who visit and love Grand Staircase-Escalante National Monument and Glen Canyon National Recreation Area. Please let us know if you have any questions.

Again, we request that the Sustainable Grazing Alternative, Section III within these comments, be retained as a cohesive proposal for consideration by BLM and all interested publics, alongside other alternatives.

Sincerely,



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