

# An Assessment of Resource Management Planning in the National Landscape Conservation System

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**National Center for  
Conservation Science & Policy**



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## EXECUTIVE SUMMARY

In 2010, it will be 10 years since the inception of the National Landscape Conservation System (NLCS). The Conservation System encompasses areas rich in natural, cultural, scenic, geologic, and recreational resources that have been recognized through Presidential Proclamation or Congressional legislation for protection. With the creation of the Conservation System, the BLM has been given an opportunity to expand its conservation focus and manage lands for the protection of unique and diverse resources.

In 2005, the Wilderness Society and the World Resources Institute developed an approach to objectively measure condition and stewardship of the Conservation System. As a majority of final Resource Management Plans has been released only within the last 5 years, the National Center for Conservation Science and Policy took this opportunity to update the 2005 report with an assessment of conservation planning progress and approach. Over time and with regular assessments we expect that management of the Conservation System will shift, and the System will receive greater funding for conservation of the BLM's most scenic and significant lands and waters.

Our assessment revealed that most NLCS units are not being managed to explicitly protect the resources that were listed in the original Presidential Proclamation or Congressional legislation as the reason for designation. In fact, most NLCS units are being managed similarly to the majority of BLM lands, with focus on the agency's "multiple use" mandate under the Federal Lands Policy and Management Act (FLPMA) of 1976 rather than focus on protection of the ecological, cultural, geologic, and scientific resources identified in the proclamation or legislation for conservation. Only very few of the resources identified for conservation are comprehensively monitored for potential impacts. Adaptive management, an approach that leads to both an increased understanding of the system and improved management, was mentioned or defined in most RMPs, yet rarely prescribed in an effective manner.

Of the units we sampled, most of the Presidential Proclamations and laws creating those units state that grazing, oil and gas development, and/or commercial firewood harvest may continue in the units as long as these activities are compatible with conservation of specific resources unique to each unit. Most RMPs that we reviewed state this fact as reason for continued extractive use of the units. Yet the same RMPs fail to demonstrate that such extractive use does not negatively impact the resources that were identified for protection under the original proclamation or law delineating the unit. Without sound monitoring, the impacts of multiple use on resources slated for protection remain undocumented.

Because the primary purpose of the NLCS is to conserve, protect, and restore the exceptional scientific, cultural, natural, scenic, geologic, and recreational resources, we recommend that extractive or destructive use, including grazing, oil and gas development, timber or firewood harvest, mining, development of recreational facilities and roads, commercial development of cultural resources, and off-road travel on these units be

reconsidered. The Conservation System has an extremely small budget per acre of conservation lands. Much of this budget is currently spent on management for extractive use, including fencing, roads maintenance, restoration of vegetation and riparian areas, erosion control, and fire control. Many of the RMPs reflected an ongoing cycle of degradation and restoration that is not only damaging to natural ecosystems and cultural resources, but also leads to a drain of conservation funds.

We recommend that secondary activities that may have negative impacts on protected resources be greatly limited, if not curtailed, until their impacts can be documented and mitigated. Assessments similar to the one conducted on the Cascade-Siskiyou National Monument, which detailed the impacts of grazing to biological resources, will need to be carried out on most units to identify the threats to the resources under protection. This approach would incorporate sound scientific information with management strategies that would lead to long-term protection of the highly diverse and invaluable resources of the NLCS. A more cost-effective approach for some areas may be to focus extractive activities, including grazing, on BLM lands outside of the NLCS rather than inside the units.

By shifting the focus of NLCS management away from extractive use and towards conservation, the BLM will be better situated to fulfill the intent of Congress and the President in protecting these lands. We commend the BLM in their efforts thus far, and offer guidance and support as they take on the challenge of protecting, conserving, and restoring the diverse and unique resources of the NLCS.



Oak savannah on the Cascade-Siskiyou National Monument; Photo courtesy of the BLM

## BACKGROUND

**“The mission of the NLCS is to conserve, protect, and restore nationally significant landscapes for their outstanding cultural, ecological, and scientific values” – NLCS website**  
[http://www.blm.gov/wo/st/en/prog/blm\\_special\\_areas/NLCS.html](http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS.html)

In 2000 the National Landscape Conservation System (NLCS or “Conservation System”) was created to protect the “crown jewels” of the Bureau of Land Management’s (BLM) public lands. Lands included in the Conservation System encompass 27 million acres, or about 10% of the total land area managed by the BLM, primarily in western states but also extending to the East Coast. The Presidential or Congressional mandate to protect specified biological, cultural, and geologic resources within NLCS units represents a dramatic shift from the BLM’s focus on multiple use as the highest priority on the rest of its lands. The BLM has been provided a unique and challenging opportunity to expand its conservation focus and efforts.

The Conservation System is a network of National Conservation Areas, National Monuments, Wilderness Areas, a Forest Reserve, Wilderness Study Areas, Wild and Scenic Rivers, National Scenic and Historic Trails, Outstanding Natural Areas, and a Cooperative Management and Protection Area. The lands that make up the Conservation System represent areas of nationally significant biological diversity (Darst et al. 2009), contain sites rich in archaeological objects and structures, provide important strongholds for threatened and endangered species (Darst et al. 2009), include spectacular geologic formations and landscapes, and contain free flowing rivers and streams that are important for both recreation and aquatic resources. The importance of conserving these resources was recognized by Congress and/or the President, under the Antiquities Act (1906), the Federal Land Policy and Management Act (FLPMA; 1976), the Wild and Scenic Rivers Act (1968), and other Congressional actions, but their conservation will only be successful with sound planning that takes into consideration the long term impacts of the full suite of threats and uses. Threats to resources of the Conservation System of course vary throughout the system but generally include grazing by livestock (cattle and sheep), mining, oil and gas development, off-road travel (both legal and illegal), vandalism, invasive species, climate change, disease transmission from livestock (especially to bighorn sheep), and many others. Thus, scientifically sound management plans that include measures for sustaining in perpetuity the biological, cultural, and geologic resources of the NLCS units are crucial to the success of individual units and the Conservation System as a whole.

A 5-year anniversary report assessing the condition and stewardship of these lands (VanAsselt and Layke 2005), produced by The Wilderness Society and the World Resources Institute, found that some NLCS units were using best practices that could be replicated on other units, but that overall, stewardship was suffering from a lack of funding, staffing, and conservation-focused management. Van Asselt and Layke (2005)

assessed the performance of each of 15 sample units based on 5 major categories of condition and stewardship, but they were unable to assess performance on planning for resource conservation at the time. Most units did not have resource planning documents in place and were being managed on an interim basis. As the 10-year anniversary of the Conservation System nears, our specific objective was to assess whether Resource Management Plans (RMPs) were now in effect across the Conservation System and how the plans performed in 9 major categories of conservation planning.



Horseback riders in the Cascade-Siskiyou National Monument  
Photo by Henry Whitridge, courtesy of the BLM

## METHODS

In order to maintain continuity with the 2005 report, we reviewed RMPs for 14 out of the 15 NLCS units sampled by VanAsselt and Layke (2005). These units included National Monuments, National Conservation Areas, a Forest Reserve, and a Cooperative Management and Protection Area (listed in Table 2). They were chosen to represent geographic and ecosystem diversity within the Conservation System, in addition to two random selections. We reviewed these plans based on 9 categories of management effort (Table 1). Scores were given on a scale of 0-10 depending on how comprehensively each topic was discussed in the RMP as well as the expected efficacy or appropriateness of the prescribed management approach. A tenth category, wilderness review, proved to be difficult to assess because of a lawsuit between the Secretary of Interior and the State of Utah in 2003 that put a halt to the evaluation of wilderness quality lands for the purpose of determining whether to designate an area as a wilderness study area (WSA). This settlement resulted in a lack of comprehensive wilderness suitability assessments within many of the plans. Therefore, we did not include the wilderness scores in the overall ranking.

Individual RMPs and supporting documents (travel or implementation plans, if available, but not Environmental Impact Assessments) were reviewed from Jan-July 2009. Final documents released after the 1st<sup>th</sup> of August were not reviewed for this report. When draft RMPs were the most recent planning document available, they were reviewed under the assumption that the preferred alternative would be accepted and we ignored competing alternatives.



Desert candles on the Carrizo Plain National Monument  
Photo courtesy of the BLM

Table 1. Categories used to assess Resource Management Plans for 14 different NLCS units. The number of points assigned to each topic is listed in parentheses.

Category	Questions asked			Possible Points
<b>Plan status</b>	Is there a final RMP? Was it on time? (20)	Is there a final EIS? (10)	If there is not a final RMP, was there progress in the last 2 years? (10)	30
<b>Reason for designation</b>	Is the proclamation included in the RMP? (10)	Are the reasons for the proclamation stated clearly and prominently? (10)	Is monitoring for the resources described in the proclamation adequate? (10)	30
<b>Transportation</b>	Was transportation planning mentioned? (10)	Is a transportation plan included, with spatial analysis of roads? (20)	Are road closures discussed and identified? (10)	40
<b>Water quality</b>	Is water quality monitored? (10)	Are monitoring protocols or details provided? (10)	Are management approaches adaptive? (10)	30
<b>Wild and scenic rivers</b>	Was the unit assessed for potential wild and scenic river segments? (10)	Were segments recommended for designation as WSR? (10)		20
<b>Cultural resources</b>	Were cultural resources or areas for survey identified? (20)	Were the threats to cultural resources identified and discussed? (10)	Were specific management actions prescribed to address the threats? (10)	40
<b>Climate change</b>	Was climate change mentioned/considered and was the literature referenced (18)?	Was climate change's impact to the resources of interest discussed? (6)	Are prescribed management strategies suitable under climate change? (6)	30
<b>Budget</b>	Did the plan include a budget? (10)			10
<b>Implementation</b>	Were steps to implementation described? (10)	Was a schedule for implementation provided? (10)		20

## RESULTS & DISCUSSION

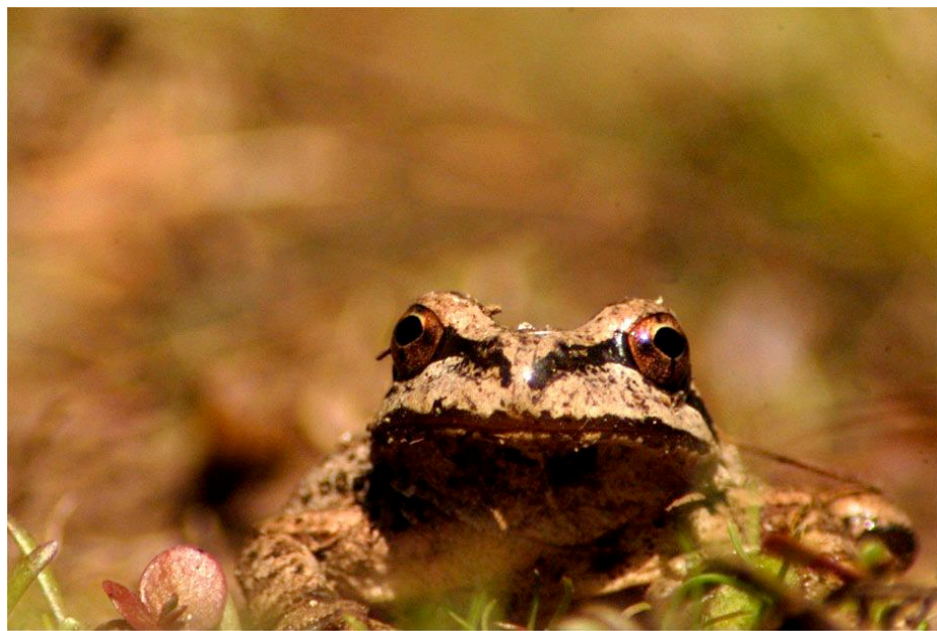
As expected, RMPs varied in their level of detail, focal subjects, level of subject expertise, transparency of prescribed actions, and extent of management interventions. Below we discuss the results of our assessment based on nine major topics.

### 1. Planning

**Finding 1: Most NLCS units are now being managed under Resource Management Plans that are specific to each unit and address the mandate to protect specific resources.**

For the 2005 assessment, only 5 final plans were available to review. By late summer, 2009, 14 of 15 units had released final plans (Table 2) and the remaining unit (Carrizo Plain National Monument) released a draft plan that we were able to review. While 14 of 15 plans were available for download online, one (Red Rock Canyon) was unavailable in electronic or hardcopy format. As a consequence, this plan was not reviewed for this report.

While many plans were behind schedule, it was heartening to find that most units are now being managed under updated RMPs specific to the unit and based on the requirements of the proclamation. The scores for planning status (Table 2) do not reflect the overall comprehensiveness of the plans or the appropriateness of management prescriptions, but simply reflect progress in releasing a final RMP.



Brown toad on the Cascade-Siskiyou National Monument  
Photo courtesy of the BLM

Table 2. Planning status for each of 14 sampled NLCS units. Units received 10 points each for a final EIS and a final RMP, and up to 10 points for timely release (within 4 years of the proclamation). Units without a final RMP received 0-10 points for progress.

NLCS unit	Planning status	Score
Agua Fria National Monument	2009 Final Plan	24/30
Canyons of the Ancients National Monument	2009 Final Plan	24/30
Carrizo Plain National Monument	2008 Draft plan – a previous plan (2003) was scrapped	8/30
Cascade-Siskiyou National Monument	2008 Final plan	24/30
El Malpais National Conservation Area	2001 Final plan	20/30
Grand Canyon-Parashant National Monument	2008 Final plan	25/30
Grand Staircase-Escalante National Monument	2000 Final plan 2008 Draft amendment and rangeland health EIS	28/30
Gunnison Gorge National Conservation Area	2004 Final plan	28/30
Headwaters Forest Reserve	2004 Final plan	30/30
Las Cienegas National Conservation Area	2003 Final plan	29/30
Santa Rosa & San Jacinto Mountains National Monument	2004 Final plan	26/30
Snake River Birds of Prey National Conservation Area	2008 Final plan	30/30
Steens Mountain Cooperative Management and Protection Area	2005 Final plan	29/30
Upper Missouri River Breaks National Monument	2008 Final plan	27/30
<b>Overall score</b>		<b>84%</b>

## 2. Conservation & Monitoring of Resources Identified in Each Proclamation and Congressional Legislation

**Finding 2: While NLCS units were designated to protect specific resources, threats to these resources continue, and comprehensive monitoring is rare. Specific monitoring and management action to reduce the threats to these resources is highly recommended.**

Units of the NLCS were designated by Congress or Presidential Proclamation based on unique qualities specified in each authorizing proclamation or legislation (Table 3). The BLM is required to manage NLCS units in a manner that does not degrade or threaten the resources for which the units were designated, but is also obligated to incorporate FLPMA's multiple use mandate. Although not necessarily inconsistent, these obligations can be difficult to reconcile.

Most plans, but not all, listed the reasons for designation (Table 3) and included a copy of the proclamation or legislation that created the unit as an appendix or pages in the RMP. Many structured their management guidance around the resources listed as reasons for designation (e.g., Headwaters Forest Reserve, Grand Staircase-Escalante, Snake River, and Upper Missouri River Breaks) but only one plan prescribes comprehensive monitoring of the unique resources that brought recognition and protection to the area (Headwaters Forest Reserve; Table 4).

While the Conservation System was created to conserve and protect especially unique, abundant, diverse, and intact resources, the individual proclamations and laws often set up on-going conflicts by mandating incompatible activities such as natural resource extraction, grazing, or heavy recreational use. Few of the RMPs seemed to acknowledge these conflicts or prescribe sufficient management actions to reduce them. Without adequate monitoring, determining whether resources identified in the proclamations are being properly conserved or degraded is difficult, yet all plans except one failed to outline a comprehensive monitoring program.

While many RMPs provide guidance on extractive activities and grazing, they rarely addressed whether these activities are compatible with conservation or to what level they may need to be limited. The proclamation for the Cascade-Siskiyou National Monument, however, called for a study of the impacts of grazing on "objects of biological interest." Pursuant to the proclamation, if grazing was found incompatible with protecting these objects of biological interest, BLM must retire the allotments in the monument. This study in fact led to an incompatibility finding due to the severity of impacts to water quality. Subsequently, Congress set up a private buyout program for grazing leases in the monument in the Omnibus Public Lands Act (2009). Similar studies of the compatibility of grazing with resource protection will need to be carried out in the Sonoran Desert National Monument (not included in our sample) as mandated by proclamation. However, these two instances, where specific direction was explicit in the proclamation,

are the narrow exceptions to the general lack of discussion in RMPs on the compatibility of extractive uses and grazing with the units' conservation mandate.

The current approach to grazing in most NLCS units that we reviewed is to allow grazing throughout most of the area and to attempt to adhere to state or federal range health standards, when available. The problems with this approach are many. First, the approach leads to variation among units in the standards being applied, and some standards may be inadequate for conservation of the unique and diverse resources found in the NLCS. Also, it requires that range "health" is monitored (including erosion, riparian vegetation, and height of the vegetation), but not necessarily the impact of grazing on the resources unique to each NLCS unit (such as specific habitat for threatened and endangered species or specific riparian habitat structure). Because little monitoring is being carried out in the units we reviewed, ongoing damage may go unrecognized, leading to costly restoration efforts in the future and possibly irreversible impacts.

Grazing is not the only activity that may conflict with resource protection on NLCS lands. Collectively, the laws, proclamations and RMPs allow, in some locations and on some or all units, oil and gas development, off-road travel by motorized and mechanized vehicles, commercial and personal firewood and timber harvest, mining, planting of non-native species, stocking of non-native fish, motorized travel in wilderness areas to support livestock activities, development of cultural resources for tourism, and the development of new roads, parking areas, campgrounds, fences and other structures. Without proper monitoring of the unique and diverse resources identified for conservation, the activities listed above have a high likelihood of leading to the degradation and decline of said resources. In all cases, these activities are secondary to the conservation of resources identified in the proclamations (Table 3). Such activities should be curtailed, or continued only after a comprehensive investigation finds no negative impacts to resources intended for conservation.



Stabilized tower in Canyons of the Ancients National Monument. Photo courtesy of the BLM

Table 3. Resources identified for protection, or as the reason for designation, in the presidential proclamation or congressional act.

NLCS unit	State	Reasons for designation, based on presidential proclamation or congressional act
Agua Fria National Monument	AZ	Natural ecosystems, rare and protected species, Agua Fria river, cultural and historical artifacts, and canyon scenery
Canyons of the Ancients National Monument	CO	Natural ecosystems, rare and protected species, highest density of archaeological sites in the U.S., and complex rugged landscapes
Carrizo Plain National Monument	CA	Large remaining tract of native California grassland, rare and protected species, cultural and historic artifacts, San Andreas fault and associated landforms and fossils
Cascade-Siskiyou National Monument	OR	Diverse natural communities, rare and protected species, towering forests, Pilot Rock, plate tectonics and formations, and historic trail
El Malpais National Conservation Area	NM	Ecological, archaeological, cultural, scenic, geologic, and scientific resources, and wilderness character
Grand Canyon-Parashant National Monument	AZ	Natural ecosystem diversity, rare and protected species, especially rich and intact archaeological resources, canyon scenery, remoteness, fossils, and geologic formations
Grand Staircase-Escalante National Monument	UT	Biological diversity (both species and ecosystem), rare and protected species, relict woodlands and grasslands, cultural and historical resources, geological formations, including naturally burning coal seams, and remoteness
Gunnison Gorge National Conservation Area	CO	Wildlife habitat, scenic qualities, recreational opportunities, wilderness value, and multiple-use opportunities
Headwaters Forest Reserve	CA	Natural ecosystems, protected fish and wildlife species, scientific opportunities, and recreation
Las Cienegas National Conservation Area	AZ	Unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland, and riparian resources and values
Santa Rosa & San Jacinto Mountains National Monument	CA	Biological resources, archaeological sites, and scenery
Snake River Birds of Prey National Conservation Area	ID	Nesting birds-of-prey, cultural and historic resources
Steens Mountain Cooperative Management and Protection Area	OR	Long-term ecological health, rare and protected species, riparian areas, cultural, scenic, and geologic resources, and economic resources (grazing and recreation)
Upper Missouri River Breaks National Monument	MT	Rare gallery cottonwood forest, wild and scenic river, rare and protected species, historic resources, unchanged scenery, geologic formations

Table 4. Planning focus on resources identified for conservation in each proclamation. Each subject (column header) is worth up to 10 points for a possible total of 30.

NLCS unit	Was the proclamation included?	Does the RMP discuss the reasons for designation?	Is monitoring prescribed based on those resources?	Score
Agua Fria National Monument	10	8	4	22/30
Canyons of the Ancients National Monument	10	5	5	20/30
Carrizo Plain National Monument	10	10	7	27/30
Cascade-Siskiyou National Monument	10	10	9	29/30
El Malpais National Conservation Area	5	0	0	5/30
Grand Canyon-Parashant National Monument	10	5	4	19/30
Grand Staircase-Escalante National Monument	10	10	5	25/30
Gunnison Gorge National Conservation Area	10	0	0	10/30
Headwaters Forest Reserve	10	10	10	30/30
Las Cienegas National Conservation Area	10	5	8	23/30
Santa Rosa & San Jacinto Mountains National Monument	10	7	5	22/30
Snake River Birds of Prey National Conservation Area	10	10	5	25/30
Steens Mountain Cooperative Management and Protection Area	10	0	8	18/30
Upper Missouri River Breaks National Monument	10	10	2	22/30
<b>Overall score</b>				<b>71%</b>

### 3. Transportation

**Finding 3: Transportation planning is substantial and most RMPs call for road closures. Transportation plans could be improved by increasing attention to road density, proximity of roads to sensitive resources, off-road impacts, and the need for law enforcement.**

Transportation and roads have been identified as some of the most pressing and controversial issues in the NLCS units. Road densities in many of the units exceed those that have been found to adversely impact ecosystem processes and wildlife (1 mile/mile<sup>2</sup> is a biological threshold for species like big game, large carnivores, and salmonids; Trombulak and Frissell 2000). Roads require costly maintenance, degrade aquatic systems, act as a travel conduit for invasive species, and invite disturbance from people, including off-road travel and fire ignition (see Trombulak and Frissell 2000 for a review of the impacts). Planners must balance the need to reduce the impacts of roads on sensitive resources while maintaining sufficient access for recreation and other activities – a difficult task. We reviewed RMPs for inclusion of a transportation plan or other sufficient transportation planning. We assessed whether planners acknowledged the need for balance between access and resource protection, and whether they prescribed actions that would lead to reductions in road density (if needed), road impacts, and transportation conflicts.

As expected, attention to roads and conflicts with roads varied greatly among the RMPs (Table 5). While almost all the plans dedicated a chapter or section to roads specifically, many did not discuss the impacts of roads to resources or plan for road closures. Some plans described a decision-making process to guide road classification and closure, but did not identify which roads would be closed under such a process (Agua Fria, Canyons of the Ancients, Snake River) and did not address road densities or patterns on the landscape. Some other plans provided maps with open roads and stated that any roads not on the map were to be closed (Grand Staircase-Escalante, Santa Rosa/San Jacinto). This approach was difficult to assess as we could not tell how many miles of road were to be closed, revegetated, or recontoured. The Gunnison Gorge RMP appeared to have especially high road density in addition to a high potential for road conflicts and impacts, yet very little discussion of roads was provided and seasonal closures seemed insufficient to protect sensitive resources such as Gunnison Sage Grouse and rare plants. One of the most thorough roads assessments, including a discussion of the impacts of roads, analysis of road density, and identification of roads for closure, was found in the Cascade-Siskiyou National Monument RMP. Of interest is the fact that this relatively thorough roads assessment also has been found inadequate to protect monument resources, and has been contested by conservation groups. Thus, a thorough assessment of roads may be insufficient to protect important resources if lacking in sufficient management action.

Only two of the 14 RMPs reviewed allowed off-road travel by OHVs (Gunnison Gorge National Conservation Area and Snake River Birds-of-Prey National Conservation Area); Snake River's RMP called for restricting OHV travel to only designated roads within a

year. Most other plans allowed some level of OHV use, but only on designated roads, with just a few allowing travel also on designated trails. Gunnison Gorge National Conservation Area was the only plan where certain areas were designated for long term cross-country OHV use. Unfortunately, the off-road OHV area is also recognized by the Colorado Natural Heritage Program as a Potential Conservation Area (PCA) due to the presence of rare plant species and vegetation communities. Additionally, it supports numerous protected wildlife species. The threat of off-road travel to rare plant communities was not adequately addressed in the RMP. Similarly, the threat of illegal off-road travel by OHVs on other NLCS units was rarely addressed and the need for monitoring and law enforcement rarely mentioned. The Gunnison Gorge RMP did include mention of the need for monitoring of the sensitive resources in the off-road OHV area in order to assess whether damage is occurring and the need for restoration. Rather than restoring degraded ecosystems, however, preventing such damage by restricting OHV travel may be less costly and more effective at maintaining important species. We recommend that off-road OHV travel be limited to BLM lands outside the NLCS.

Many of the RMPs that we reviewed had some of the components of a thorough transportation plan, but not all. A thorough transportation plan would include (1) a systematic analysis to identify roads for closure that includes a road density assessment based on ecological thresholds (see DellaSala 2000 for an example), as well as consideration for location specific issues such as erosion and protected species habitat, (2) ranking of roads for recontouring in addition to revegetation based on the specific ecological impacts of the road, (3) monitoring of resource damage from off-road travel, whether legal or illegal, and (4) increases in law enforcement and road closures to prevent resource damage from off-road travel and other road impacts such as increased fire ignition.



Snowmobiles on the Cascade-Siskiyou National Monument  
Photo Courtesy of the BLM

Table 5. Transportation planning assessment. Each topic (column headings) is worth up to 10 points, for a total possible score of 40 points.

NLCS unit	Was transportation mentioned?	Was there a complete section on transportation?	Were roads well mapped?	Road closures?	Score
Agua Fria National Monument	10	5	4	4	23/40
Canyons of the Ancients National Monument	10	5	5	5	25/40
Carrizo Plain National Monument	10	8	8	4	30/40
Cascade-Siskiyou National Monument	10	10	10	5	35/40
El Malpais National Conservation Area	10	8	10	8	30/40
Grand Canyon-Parashant National Monument	10	5	10	3	30/40
Grand Staircase-Escalante National Monument	10	4	5	2	21/40
Gunnison Gorge National Conservation Area	5	4	8	3	20/40
Headwaters Forest Reserve	10	10	10	10	40/40
Las Cienegas National Conservation Area	10	5	10	4	21/40
Santa Rosa & San Jacinto Mountains National Monument	10	10	10	6	36/40
Snake River Birds of Prey National Conservation Area	10	3	0	3	16/40
Steens Mountain Cooperative Management and Protection Area	10	8	5	2	25/40
Upper Missouri River Breaks National Monument	10	8	8	5	31/40
<b>Overall score</b>					<b>66%</b>

## 4. Water Quality

**Finding 4: Unless collaborating with the state due to non-compliance with the Clean Water Act or state standards, most NLCS units do not monitor water quality. Due to the potential for many activities on and upstream of NLCS units to impact water quality, water quality monitoring is highly recommended.**

A majority of the NLCS units sampled contain rivers, springs, or lakes and these resources often contribute to the richness of the biota or recreational value of the area. Very few RMPs, however, discuss water quality or contain provisions to monitor water quality, unless they have river or stream reaches that have been identified under the Clean Water Act (CWA) as out of compliance. Water quality monitoring may indeed occur on individual units, even if such monitoring is not listed in the RMP. A few plans discussed water quality in a manner that implied that it had been monitored in the past (e.g. Cascade-Siskiyou, Snake River), either by the state or the BLM, yet details about the monitoring effort and whether it was ongoing were not provided. While the state is required by law to identify segments out of compliance with the CWA and to develop monitoring plans and Total Maximum Daily Limits (TMDLs) for those, NLCS managers could take a more proactive approach by monitoring water quality and adapting their management approach accordingly, thereby preventing the need to be monitored by the state under the CWA. Poor scores on water quality monitoring reflect a failure to cover this topic in the RMP, but not necessarily a failure to monitor water quality.

Based on the results of the study of impacts of grazing on water quality and other resources on the Cascade-Siskiyou National Monument, we recommend that other units conduct similar analyses (see DellaSala and Barr 2007 for a review) and consider retiring grazing to protect the resources identified in the proclamations, unless they can demonstrate compatibility.

Many NLCS units discussed water quantity and flow. As flow is diminished, water quality can also be affected due to higher temperatures. While some of the Presidential Proclamations or Congressional legislation provided water rights (e.g., Cascade-Siskiyou National Monument and Agua Fria National Monument), others did not, and a few plans suggested pursuing water rights to ensure long term flows for recreation and aquatic resources. More units may want to consider pursuing water rights, especially when agriculture and housing sectors are expanding upstream. In addition, climate change threatens to reduce water availability, thereby increasing competition among local water users.

Table 6. Water quality monitoring assessment. Each topic (column header) is worth up to 10 points, for a total possible of 30 points. Total possible points were adjusted for units without many water resources to monitor.

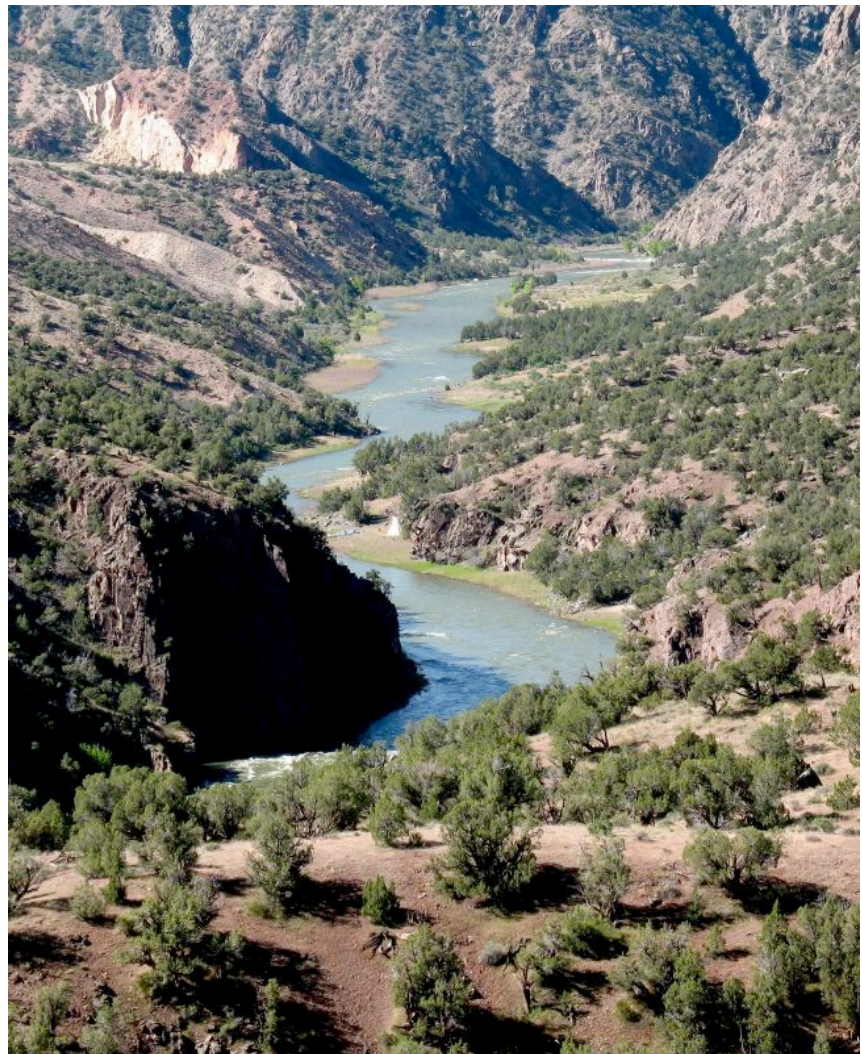
NLCS unit	Is water quality monitoring prescribed?	Are details provided (where, what, when)?	Is an adaptive mgmt strategy prescribed?	Score
Agua Fria National Monument	8	2	2	12/30
Canyons of the Ancients National Monument	5	0	5	10/30
Carrizo Plain National Monument	5	5	0	10/20
Cascade-Siskiyou National Monument	10	10	8	28/30
El Malpais National Conservation Area	2	0	0	2/30
Grand Canyon-Parashant National Monument	0	0	0	0/30
Grand Staircase-Escalante National Monument	10	10	10	30/30
Gunnison Gorge National Conservation Area	2	2	2	6/30
Headwaters Forest Reserve	1	0	0	1/30
Las Cienegas National Conservation Area	3	2	0	5/30
Santa Rosa & San Jacinto Mountains National Monument	8	0	3	11/30
Snake River Birds of Prey National Conservation Area	8	2	2	12/30
Steens Mountain Cooperative Management and Protection Area	9	8	5	22/30
Upper Missouri River Breaks National Monument	8	0	5	13/30
<b>Overall score</b>				<b>40%</b>

## 5. Wild and Scenic Rivers Eligibility Assessment

**Finding 5: Most plans do not actively support new designations of Wild and Scenic River areas in their unit. Reasons are varied, but issues with private landowners, cost, and restrictions on grazing are some that were given.**

Section 5(d)(1) of the Wild and Scenic Rivers Act of 1968 directs all federal agencies to consider the potential for national wild, scenic and recreational river areas in all planning for the use and development of water and related land resources. Thus, BLM generally conducts wild and scenic river reviews during land-use planning. We assessed whether rivers were assessed for wild and scenic qualities in the RMPs that we reviewed and if progress was being made in nominating eligible river segments for Congressional designation.

Most, but not all, RMPs included an assessment of eligibility of stream and river segments in the Wild and Scenic Rivers program (Table 7). Of those that completed an assessment, many did not support the nomination of eligible segments, although reasons for not supporting their nomination were rarely provided (some exceptions include Headwaters and Steens Mountain RMPs, which contained explanations for their lack of support for nomination of some or all eligible reaches).



Gunnison Gorge National Conservation Area  
Photo courtesy of the BLM

Table 7. Wild and Scenic River eligibility assessment results. Scores were given based on whether segments were reviewed for eligibility (0-10 points) and whether nomination of eligible sections was supported in the RMP (0-10 points), for a total of 20 points.

NLCS unit	Review, eligibility, and recommendation?	Score
Agua Fria National Monument	Eligible segments identified, nomination of all generally supported	15/20
Canyons of the Ancients National Monument	Eligible segments identified, none recommended for nomination	10/20
Carrizo Plain National Monument	All segments were found to be ineligible	10/10
Cascade-Siskiyou National Monument	None	0/20
El Malpais National Conservation Area	None	0/20
Grand Canyon-Parashant National Monument	None	0/20
Grand Staircase-Escalante National Monument	Eligible segments identified, nomination of all generally supported	15/20
Gunnison Gorge National Conservation Area	Eligible segments identified, none recommended for nomination	10/20
Headwaters Forest Reserve	Eligible segments identified, nomination of some <u>actively</u> supported	20/20
Las Cienegas National Conservation Area	Eligible segments identified, nomination of all <u>actively</u> supported	20/20
Santa Rosa & San Jacinto Mountains National Monument	Eligible segments in one area identified, none recommended for nomination	7/20
Snake River Birds of Prey National Conservation Area	Eligible segments identified, none recommended for nomination	10/20
Steens Mountain Cooperative Management and Protection Area	Eligible segments identified, none recommended for nomination	10/20
Upper Missouri River Breaks National Monument	No additional eligible segments identified, Upper Missouri already WSR, but other streams may need to be assessed	5/20
<b>Overall score</b>		<b>49%</b>

## 6. Cultural Resources

**Finding 6: Planning related to cultural resources is extensive, with numerous plans for development for tourism and collaboration with Tribes. Increased proactive planning to prevent damage is recommended.**

Of all the land agencies, the BLM manages the largest and most scientifically important body of cultural resources (VanAsselt and Layke 2006). Cultural resources (including prehistoric and historic trails, sites, structures, and artifacts, as well as culturally-important plants, animals, and localities) were included in the proclamations for all but two of the units that we sampled (Headwaters and Gunnison Gorge); those two units also have cultural resources to manage, even though they were not included as reasons for designation.

While most plans prescribed some level of inventory and monitoring for cultural resources, few openly discussed the threats to cultural resources or how to manage those threats (Table 8). Multiple plans recommended that they monitor cultural resources and only take action if resources become damaged. Because cultural resources cannot recover from damage in the same way that natural resources may be able to, this approach seems especially risky and will surely lead to permanent damage and loss of items that are important to Native Americans, scientists, and the public as already is occurring on many of the Monuments in the southwest. Proactive management that identifies threats to cultural resources and protects these resources from such threats prior to damage taking place will likely save time and money. Some proactive measures would be to close roads and trails that bring visitors too close to sensitive resources, increase law enforcement, increase fines, install barriers, or move important resources to a protected environment. All these measures depend on comprehensive surveys to document where culturally-important resources are located in each unit.

Many of the RMPs include extensive planning for expanding recreational opportunities, including new roads, campgrounds, trailheads, trails, parking lots, pull-out areas, and restrooms (especially El Malpais). Canyons of the Ancients National Monument allows oil and gas leasing and development over much of the Monument, even though this area represents some of the densest concentrations of cultural artifacts in the nation. As planning for development moves forward, comprehensive EISs that assess the potential impacts to cultural resources will need to be completed. At this stage in the planning process, however, it seems that the potential for impacts to cultural resources is not being sufficiently considered when development goals and strategies are being formulated. Many of the activities prescribed in the RMPs seem incompatible with conservation of resources, including both natural and cultural resources. Because EISs are prepared on a project-by-project basis, the collective impact of development on cultural resources may not be realized until the damage occurs. Forethought and planning for conservation are needed to preserve these irreplaceable resources.

Table 8. Level of attention to the management and conservation of cultural resources in each RMP. The overall score was weighted for those units with few cultural resources.

NLCS unit	Identification of cultural resources (1-10 points)	Planned survey (1-10)	Were threats identified? (1-10)	Level of detail provided for management actions (1-10)	Score
Agua Fria National Monument	8	7	7	8	30/40
Canyons of the Ancients National Monument	5	10	5	10	30/40
Carrizo Plain National Monument	10	10	10	10	40/40
Cascade-Siskiyou National Monument	3	2	NA	NA	5/5
El Malpais National Conservation Area	8	10	5	5	28/40
Grand Canyon-Parashant National Monument	2	2	0	5	9/40
Grand Staircase-Escalante National Monument	0	5	0	5	10/40
Gunnison Gorge National Conservation Area	7	5	7	7	26/40
Headwaters Forest Reserve	5	5	5	5	20/20
Las Cienegas National Conservation Area	10	10	0	10	30/40
Santa Rosa & San Jacinto Mountains National Monument	8	8	8	8	32/40
Snake River Birds of Prey National Conservation Area	0	6	0	5	11/40
Steens Mountain Cooperative Management and Protection Area	8	8	0	5	21/40
Upper Missouri River Breaks National Monument	5	2	0	5	12/40
<b>Overall score</b>					<b>60%</b>

## 7. Climate Change

**Finding 7: The “2010 Tackling Climate Impacts” initiative proposed by the Obama Administration to incorporate climate change in the planning and implementation process is timely and greatly needed. Both climate change mitigation and adaptation will need to be carefully incorporated into every discussion, decision, and management action, based on the best available science.**

The administration recently proposed a budget of \$15 million specifically dedicated to climate change adaptation planning and implementation. They will use this funding to “initiate or continue efforts to develop and implement strategies to help native plant and animal communities adapt to climate change and related stressors.” Some focal areas will be protection of intact habitats, migration routes, and corridors, protection of important ecological functions and services, reducing stressors from at-risk natural communities, and investing in seed collection for restoration projects. About half the funding will be targeted to projects and activities that encompass NLCS units – a welcome infusion of effort and funds for conservation.

Only one RMP mentioned climate change (Carrizo Plain National Monument). This RMP scored 25/30 points for mentioning climate change, referencing climate change literature in the RMP, discussing local climate change trends, identifying specific climate change impacts to resources being managed in the National Monument, and prescribing management actions and approaches that are effective under climate change. Headwaters Forest Reserve also received points (8 points), even though their plan did not mention climate change; most if not all of the management actions prescribed in the Headwaters RMP are appropriate measures to take when considering climate change. For example, the Headwaters RMP details measures to increase stream complexity and decrease sediment inputs to streams from roads. Both actions are expected to increase the resilience of protected aquatic species to climate change. The RMP also describes a monitoring strategy that pre-identifies specific changes or “triggers” that indicate a need for a change in management actions. Such a strategy is likely to allow a quick response and flexibility when major changes to wildlife or wildlife habitat occur due to climate change. Steens Mountain Cooperative Management and Protection Area also prescribed management that is likely to increase the resilience of natural ecosystems to climate change (5 points). They recommended protecting cold water inputs to streams and reintroducing beavers to restore wetlands and riparian areas. All other RMPs scored 0 points on climate change planning, for an overall average of 9%. Obviously, this is an issue where much improvement is needed.

The planning process for many of the RMPs began prior to when climate change incorporation into planning documents was becoming widespread, so it is understandable that they do not include climate change in their assessments. As climate change will surely impact the success of prescribed management actions, planning for climate change needs to quickly go forward. Unfortunately, other agency planning documents that were recently released purposefully decline to consider climate change in the decision making

process with the reasoning that the future is too uncertain and the impacts of a single project are not able to be linked to larger, global impacts. We argue that climate change is highly likely – far more likely, in fact, than continuation of historical patterns on which our current management approaches are based. By not considering climate change in long-term planning documents the agency is increasing the chances of failed management strategies.

The Carrizo Plain RMP included a substantial section on climate change that reviewed modeling projections and included a discussion of the impacts of climate change on sensitive resources. Outside of this section, however, climate change was ignored. Because climate change will have impacts on all resources and all actions, as well as synergistic impacts that cause other stressors (grazing, erosion, invasive species, etc.) to become more severe, climate change needs to be considered in each and every discussion and recommendation throughout each plan, rather than in a separate section or chapter. For example, in a section on water quality and stream flow, in addition to discussing upstream agriculture and population growth, each plan would need to include a discussion of projections for precipitation and evaporation under climate change, as well as how climate change will interact with population growth and agricultural needs.

BLM resource management plans, whether for NLCS units or other BLM planning units, will need to include a full discussion of both climate change mitigation and adaptation. Climate change mitigation can be maximized on BLM lands by limiting greenhouse gas emissions from motorized activities, new and existing structures, grazing, and oil and gas exploration, drilling, and transportation. RMPs will need to include a discussion of whether these activities are compatible with overall goals of the DOI to reduce greenhouse gas emissions and adjust actions and policies accordingly. Similarly, policies that increase biological sequestration of carbon in naturally occurring vegetation will also need to be discussed and considered in the planning process.

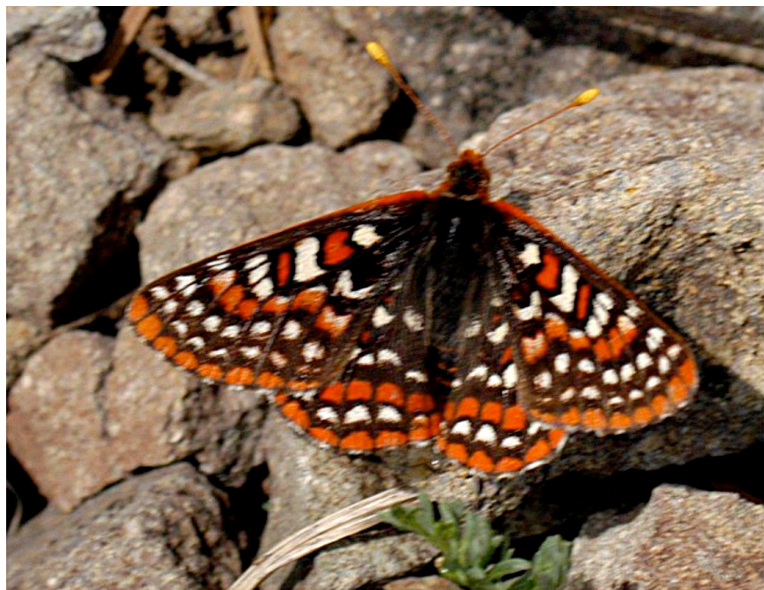
In addition to mitigation measures, BLM planning documents will need to discuss and prescribe adaptation (or preparation) measures. Climate change adaptation consists of increasing the likelihood that resources will be sustained over the long term, even as climate change progresses. This can be done by increasing both the resilience (ability to recover after disturbance) and resistance (ability to withstand disturbance or change) of important resources on BLM lands. Planners will need to carefully review the most relevant climate change science available for their region in order to identify likely local impacts to specific resources and areas. Planners will also need to consider reducing stressors, such as grazing, to sensitive and unique resources to increase the probability that they will be able to persist under climate change. This may need to take precedence over new developments (campgrounds, oil and gas, new roads, etc.) in NLCS units in order to honor the mandate to protect resources.

Many publications outline basic or regional approaches to climate change adaptation (California Natural Resources Agency 2009, Olson et al. 2009, Doppelt et al. 2008, Millar et al. 2007, Hulme 2005, Hansen et al. 2003, Pew Center on Global Climate Change, no date) that can be followed by the BLM as they incorporate climate change

adaptation into their planning documents. Such publications provide general guiding principles of adaptation, but they do not provide information specific to the area of each NLCS unit. A thorough literature search to uncover scientific studies of the impacts of climate change on specific regions will need to be conducted, in addition to consultation with scientists and managers in the area. Workshops or meetings will need to be held to bring experts together to develop management actions that will help to (1) increase resilience and resistance of diverse and unique resources in NLCS units, (2) reduce the impacts of other activities that may be exacerbated by climate change, (3) reduce the release of greenhouse gases from activities on each unit, and (4) develop adaptive management approaches that incorporate the collection of new and robust data with flexibility in management response. This last step will be especially important for increasing the understanding of climate change impacts to the diverse and unique resources that each unit is mandated to conserve.



Carrizo Plain National Monument. Photo courtesy of the BLM.



Edith's Checkerspot Butterfly. Photo by Hans Stroo, courtesy of the BLM.

## 8. Budgets

**Finding 8: Most RMPs do not include budget details. Prioritizing management actions and linking them to budgetary needs are recommended.**

Only one RMP included a budget. Headwaters Forest Reserve RMP received 10/10 points for their budget, while Grand Staircase-Escalante received one point for voicing the need for including the price of native seed in their budget for revegetation. Otherwise, the plans gave little consideration to budget needs or limitations (overall average score was 8%).

Because budgets were not considered in the plans, the feasibility of carrying out proposed actions was not transparent. The BLM receives one third of the funding that the Fish and Wildlife Service receives for management of their lands, on a per acre basis, and about one tenth the amount that the National Park Service receives. With such bare bones funding, even an especially good management plan has little efficacy; many prescribed actions are never carried out due to funding constraints. Funding for conservation could be freed up considerably by reducing the prevalence of extractive activities on NLCS lands, thereby reducing the money spent on restoration activities, fencing, road building and maintenance, etc.

The El Malpais RMP provides a good example of prioritization of individual management actions. By prioritizing individual actions, the budgeting process would be more streamlined and transparent. By tying budgets and prioritization in with implementation steps and schedules, planners would be able to clearly delineate management goals and actions for set intervals, as well as determine funding needs. With regular implementation monitoring, as many RMPs called for, the likelihood of meeting those goals and improving the condition of resources would increase.



Cliff dwellings in the Canyons of the Ancients National Monument  
Photo courtesy of the BLM

## 9. Implementation

**Finding 9: Most plans do not describe steps to implementation, although many discuss the need for an implementation plan. Timely (within 1 year of an RMP) release of an implementation plan is crucial to the effectiveness of the RMP.**

Steps and schedules for implementation of the actions prescribed in the RMPs were scarce in the RMPs that we reviewed (Table 9). Multiple plans discussed that implementation planning is a separate step from resource management planning, and will therefore be carried out at a later date. While we agree that specific actions that require additional planning and NEPA will need to go through a separate process prior to implementation, a general schedule for prioritizing actions and laying out the time frame that is optimal would be quite helpful in the RMPs. Also, most plans did not clearly identify which actions were implementation actions and which ones would need additional planning prior to implementation (those that did, to some extent, include Santa Rosa and San Jacinto Mountains, Gunnison Gorge, and El Malpais). Details on implementation could be combined with a prioritization effort that also would guide budgeting (see #8).



Wildflowers on the Carrizo Plain National Monument. Photos courtesy of the BLM.

Table 9. Implementation planning assessment. NLCS units received up to 10 points for providing details about the steps they will take to implement the actions prescribed in the RMP, and an additional 0-10 points for including a schedule of those steps or a schedule that shows when certain actions will be begun or completed.

NLCS unit	Are the steps to implementation clearly outlined?	Is there a schedule?	Score
Agua Fria National Monument	0	0	0/20
Canyons of the Ancients National Monument	0	0	0/20
Carrizo Plain National Monument	0	0	0/20
Cascade-Siskiyou National Monument	2	5	7/20
El Malpais National Conservation Area	5	0	5/20
Grand Canyon-Parashant National Monument	0	0	0/20
Grand Staircase-Escalante National Monument	5	1	6/20
Gunnison Gorge National Conservation Area	4	2	6/20
Headwaters Forest Reserve	10	0	10/20
Las Cienegas National Conservation Area	2	2	4/20
Santa Rosa & San Jacinto Mountains National Monument	8	0	8/20
Snake River Birds of Prey National Conservation Area	5	3	8/20
Steens Mountain Cooperative Management and Protection Area	0	0	0/20
Upper Missouri River Breaks National Monument	5	0	5/20
<b>Overall score</b>			<b>21%</b>

### The “No More Wilderness” Settlement

The Department of Interior under Secretary Bruce Babbitt began a wilderness inventory of non-WSA lands in Utah in 1996 under section 201 of FLPMA. The State of Utah sued to challenge the inventory as illegal and in 2003, entered into a settlement with the Secretary of the Interior (Gale Norton) that resulted in the suspension of review of these lands and revoked the authority to identify and create new WSAs during the land use planning process. This has been dubbed the “No More Wilderness” settlement.

As a result, none of the studied RMPs propose designation of new WSAs. While some RMPs did identify and consider protection of wilderness characteristics, most did not perform adequate inventories or include sufficiently protective management, due to the lack of guidance on protecting wilderness values beyond the directives to not designate new WSAs. Without adequate identification and protective management of wilderness qualities in these RMPs, the wilderness characteristics that help to define these landscapes will inevitably suffer.

## CONCLUSIONS

Overall, the RMPs scored poorly, with an average score of only 53% of the total possible points. The categories that the plans scored lowest on included budgeting (8%), climate change (9%), implementation planning (21%), and water quality (40%). The categories that they scored highest on included planning status (84%) and transportation planning (72%), although these scores are still considered low for a system that represents the BLM’s “crown jewels.” Because we focused on issues of conservation, we did not score the RMPs on a multitude of topics that they likely would have scored well on, including recreation planning, fire planning and management, and/or hunting access. Instead, our scores reflect the performance of NLCS units in management for conservation of natural and cultural resources.

There are many ways the BLM could improve the conservation focus of their planning efforts (Table 11). A few major themes stood out during our review of the RMPs. If the BLM were to address these themes, they would be substantially closer to providing comprehensive planning and protection for the diverse and unique resources found in the Conservation System.

## Proactive Management to Prevent Damage

We noticed a vicious cycle occurring in the management of many NLCS units. As managers work to accommodate extractive use, including grazing, while also maintaining resources identified for conservation, there appears to be a continual need for restoration in response to continual resource degradation. Many of the RMPs that we reviewed communicated a reluctance to regulate user or lessee activities or to limit the activities allowable on these valuable public lands. For example, the RMP for El Malpais National Conservation Area determined that some areas were suitable for wilderness designation, but that they preferred to preserve “freedom from regulation.” Similar language was found in other plans. A reluctance to limit activities likely contributes to insufficient proactive management action to address the many threats to protected resources on the units. Because of the new conservation status of these areas, management will necessarily need to become more restrictive if cultural, biological, and geologic resources are to be protected.

A common approach among many plans was to wait until damage was detected before taking action, often leading to costly restoration measures. In the plan for Steens Mountain National Monument, for example, managers were waiting for Total Maximum Daily Loads (TMDLs) to be set by the state for waterways that are out of compliance with the CWA before identifying actions to improve water quality. A proactive approach would include monitoring that would detect downward trends in water quality before the waterway becomes out of compliance with the CWA.

Most of the plans recommended areas for restoration due to past grazing impacts. Restoration can be time consuming and expensive, and often involves fencing, seeding, stream bank reinforcement, and other activities. Rather than allowing resources to become degraded and then conducting costly

Table 10. Overall scores for resource management and planning of the 14 sampled NLCS units.

NLCS unit	Points	Percent
Agua Fria National Monument	126/250	50
Canyons of the Ancients National Monument	119/250	48
Carrizo Plain National Monument	150/220	68
Cascade-Siskiyou National Monument	128/215	60
El Malpais National Conservation Area	96/250	38
Grand Canyon-Parashant National Monument	81/250	32
Grand Staircase-Escalante National Monument	136/250	54
Gunnison Gorge National Conservation Area	106/250	42
Headwaters Forest Reserve	169/230	74
Las Cienegas National Conservation Area	140/250	56
Santa Rosa & San Jacinto Mountains National Monument	142/240	59
Snake River Birds of Prey National Conservation Area	112/250	45
Steens Mountain Cooperative Management and Protection Area	130/250	52
Upper Missouri River Breaks National Monument	115/240	48
<b>Average</b>	<b>125/243</b>	<b>52</b>

restoration activities, more care to prevent damage will need to be taken in the future, especially because many types of damage can be irreversible. Because the Conservation System receives little funding compared to conservation lands managed by other agencies, curtailing grazing and oil and gas development on these lands may be the only affordable approach to conserving the resources identified for protection, especially if the costs of fencing, water diversions and structures, conducting range assessments, maintaining roads, erosion control, and restoration of damaged upland and wetland habitats are all accounted for.

## **Conflicts between protection of resources and multiple use**

Most RMPs contained a statement about their mandate under FLPMA to manage for multiple use, and most proclamations or legislation creating the units allowed for continued grazing. Some also called for continued oil and gas leasing and development, commercial or personal harvest of wood, mining, or recreational development. What is not often stated in the RMPs is that these actions are all secondary to the primary purpose of each unit in protecting a host of diverse and unique resources. Most plans paid far more attention to managing the secondary activities than to managing the resources that they are mandated to protect above all else.

One fact that seems to go unrecognized is that units of the NLCS are not required to allow extractive activities to fulfill the multiple use mandate under FLPMA. The units already allow biological conservation, recreation (both motorized and non-motorized), scientific inquiry, and solitude – these constitute “multiple use”. Additional uses, such as grazing and oil and gas development, should only be allowed after sufficient study to show that they are compatible with protection of important biological, scenic, cultural, geologic, and scientific resources.

One potential approach to reducing conflicts between extractive multiple use activities and resources to be protected is to buy out some, most, or all of the existing leases and permits. The RMP for Headwaters Forest Reserve, for example, states that because the development of privately held mineral leases on the Reserve is incompatible with the goals of the plan, they will try to acquire the mineral rights. Similarly, a private organization provided funding to buy grazing rights on the Cascade-Siskiyou National Monument, allowing all but one grazing permit to be retired. Few other RMPs mention this option, but it is one that should be pursued more seriously on many units, especially those that spend significant proportions of their budgets supporting extractive activities and grazing, and restoring ongoing damage to natural and cultural resources. The Carrizo Plain RMP suggests relinquishing grazing permits as they are retired, rather than reissuing them. This approach may take longer to reduce grazing pressures, but could be more politically acceptable.

## Adaptive Management Application and Planning

Most plans mentioned adaptive management and provided a brief description of what it entails, but few prescribed a rigorous adaptive management approach. Adaptive management is a powerful tool that increases understanding of the system while also providing data on current trends, impacts, and efficacy of management actions. Rigorous adaptive management approaches, with extensive monitoring and data collection, would allow for scientifically supported levels of activity that do not threaten the long-term viability of protected resources.

Adaptive management relies on data collection and monitoring for detecting trends and making long term decisions about resource management. Some of the RMPs that we reviewed included information on monitoring strategies and specific monitoring actions, but most plans revealed that little monitoring was occurring on the unit. Monitoring in an adaptive management protocol would allow for scientifically supported management approaches to be prescribed and would prevent unforeseen loss of important resources. As climate change progresses, understanding trajectories and interactions will become increasingly vital to maintaining important resources.

In closing, we commend then BLM for taking on the challenge of protecting, conserving, and restoring the significant and important cultural, biological, scenic, geologic, and recreational resources available on their lands. We also commend them for the endless hours spent preparing Resource Management Plans and Travel Plans for expansive areas of land with limited, yet dedicated staff. Our intent with this report is to support the BLM in their new role as conservators of diverse and abundant resources on NLCS lands. By offering our recommendations and support for the Conservation System, we strive to influence the management of these lands in such a way that the intent of the Presidential Proclamations and Congressional designations are fully honored.



CO<sub>2</sub> well in Canyons of the Ancients National Monument. Photo courtesy of the BLM.

Table 11. Recommended management strategies and actions to improve conservation planning in the NLCS.

Topic	Recommendations for improvement
Preparation of planning documents	Documents should be updated in 2010 to take climate change into consideration. Climate change will need to be considered in every decision and action, rather than limited to a separate section of the document. Both mitigation and adaptation will need to be addressed.
Honoring the proclamations	The resources identified in the proclamations should be described in detail, as well as threats to each resource and management prescriptions specific to each. The impacts of extractive activities, grazing, and recreation will need to be assessed to determine their compatibility with conservation. Some activities should be limited until the impacts can be assessed. Comprehensive monitoring of the resources identified in the proclamations will need to be incorporated into each plan with detailed descriptions of monitoring protocol.
Transportation	We recommend a systematic approach to road closures that incorporates road density analysis and reduces roads to less than 1 mile/ mile <sup>2</sup> , also incorporating information specific to individual roads on erosion, cost of maintenance, impacts to sensitive species habitat, and proximity to other sensitive sites that could be damaged.
Water quality	Water quality monitoring should be standardized across NLCS units and should be a priority in areas with livestock grazing, oil and gas development, off-road vehicles, or other developments and disturbances.
Wild and Scenic Rivers	Action should be taken on stream and river segments that were identified as eligible for WSR designation. Unless there are valid reasons otherwise, these sites should be nominated for protection.
Wilderness review	Many areas that were under review for wilderness are now unprotected due to the lawsuit and settlement with the Secretary of Interior. These areas are now vulnerable to disturbance, especially due to the multiple use focus of the BLM. We recommend that areas that were previously managed to retain wilderness characteristics continue under such management to retain some areas in a more resilient state. These areas will be especially important under climate change in providing strongholds for fish and wildlife as well as valuable ecosystem services. Congress should consider a new wilderness review period.
Cultural resources	Once cultural resources are degraded, they often cannot be restored. Therefore, we recommend comprehensive surveys for cultural resources, identification of threats to specific resources, and proactive measures to reduce those threats prior to damage and degradation taking place. Areas with high densities of cultural resources should be provided with greater law enforcement.
Climate change	Planners will need to review the most recent climate change science specific to their area in order to determine what the impacts may be to the resources protected in each unit. Once these impacts are considered, each discussion, section, and management action will need to have climate change considerations included in order to prevent insufficient or inappropriate actions.
Budgeting	Budgeting and budget discussions should be included in each RMP, along with prioritization of specific management actions.
Implementation	Detailed implementation plans that include schedules for action will need to be included with the RMPs or as a separate item that is released in conjunction or immediately after.

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