Introduction to Limits of Acceptable Change

The purpose of this chapter is to provide a description of the Red River Gorge in the Daniel Boone National Forest (DBNF) and a history of the uses and conflicts that led to the need for a "Limits of Acceptable Change" process. Limits of Acceptable Change, or LAC, invites the public to work with Forest Service managers to balance recreational use with resource protection needs.

- 1.1 Project Area
- 1.2 Prehistoric Use
- 1.3 Historic Use
- 1.4 Visitor Impacts
- 1.5 Forest Plan Direction
- 1.6 Gorge Designations
- 1.7 Laws Affecting the Gorge
- 1.8 LAC Process Description
- 1.9 Public Involvement
- 1.10 Implementation

1.1 Project Area

The Red River Gorge area contains approximately 42,000 acres of national forest land in Menifee, Powell, and Wolfe Counties. (Figure 1) The Gorge contains some of the most beautiful and biologically diverse lands in Kentucky. In addition, the archaeological record of the Gorge dates back over 12,000 years.

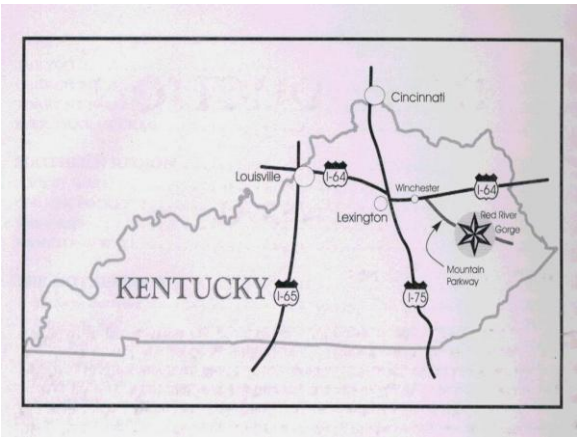


Figure 1 Red River Gorge

Approximately 42000 acres of National Forest land:

- 29,000 acres are within Geological Area (13,000 acres of it are Clifty Wilderness).
- 13,000 acres outside Geological Area (west of Tunnel Ridge Road & Indian Creek)National Forest land within these boundaries:
- US 460 to the north.
- KY 746 to the east.
- Natural Bridge State Resort Park and private land to the south (some south of Parkway).
- Hatton Ridge Road & private land to the west .

Open Roads:

- Approximately 22 miles of National Forest gravel roads within the Gorge.
- Approximately 2.4 miles of National Forest paved roads within the Gorge (Koomer & Sky Bridge).
- Approximately 18.4 miles of State paved roads within the Gorge (KY 77 & 715).

- Approximately 20 miles of Mountain Parkway & KY 15 between Slade & Pine Ridge exits.

Congressional Designations:

- Clifty Wilderness - 13,000 acres.
- National Wild & Scenic River-19.4 miles of Red River.

Trails:

- Approximately 67 miles of designated system trails.
- Approximately 195 miles of user developed.
- Approximately 1,400 dispersed campsites (475 in rockshelters).

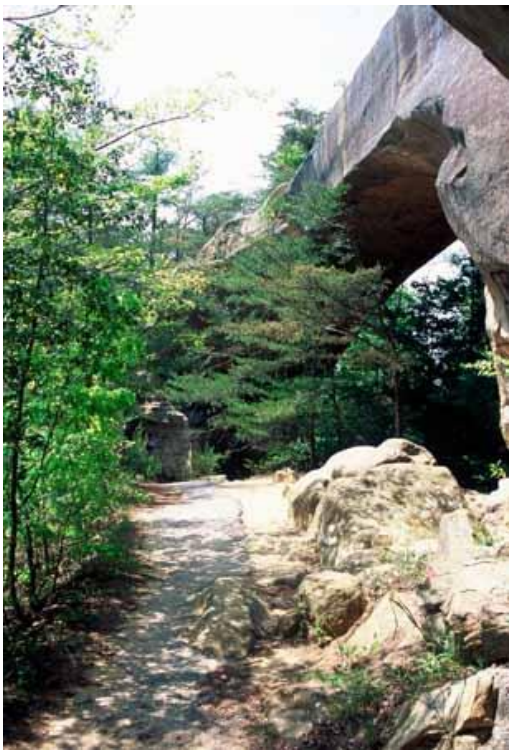


Figure 2 Official USFS Trail

Rock Climbing

- 72 crags containing over 700 individual routes (approximately 50% sport).

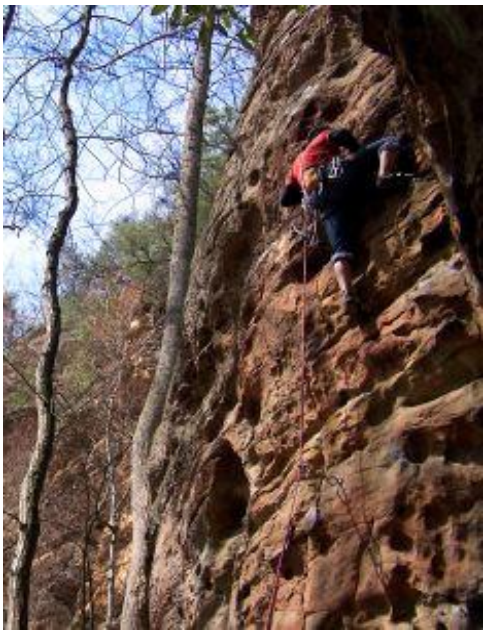


Figure 3 Technical Rock Climbing

Developed Facilities include:

- Koomer Ridge Campground, Gladie Education Center & Historic Site, Frenchburg Job Corp Center, 4 picnic areas, 2 boat launches, several trailheads.

Adjacent Influences include:

- Natural Bridge State Resort Park, private land inholdings (surrounded by NF), and nearby private land.

1.2 Prehistoric Use

The first people to come to the Red River Gorge probably arrived about 13,000 years ago when glaciers still covered much of the land to the north. Small bands of ice-age hunters, now called Paleoindians, followed herds of mastodons and wooly mammoths to Kentucky and utilized the abundant natural resources found here. The Paleoindian culture existed roughly from 13,000 to 7000 B.C.

From time to time, small groups of prehistoric people took up residence in the rockshelters of the Red River Gorge. (Figure 4) They hunted game, birds and fish and harvested acorns, nuts, wild fruit, fungi, and various plants for food and other useful items.

Figure 4 Rockshelter

Native Americans inhabited the Gorge area during the Archaic cultural period (7000 to 1000 B.C.) as well. About 3,000 years ago, these people started cultivating wild plants in small garden plots. Recent scientific excavations of rockshelters in the Red River Gorge and the surrounding areas uncovered seeds that showed evidence of early plant domestication. The dry, sandy soils in rockshelters of the Red River Gorge contain a wealth of information about the origins of agriculture in this area. (Figure 5)

Figure 5 Cultivated Seeds

The Red River Gorge was used nearly continuously through the Woodland Native American culture (1000 B.C. to 1000 A.D.) and the Fort Ancient culture (1000 A.D. to 1700 A.D.)

Archaeology provides insight into the lives of prehistoric people and glimpses of the Red River Gorge as it was when they lived here.

The dry, nitrate-rich soils of rockshelters in the Red River Gorge provide for excellent preservation of plant materials and other normally perishable artifacts. (Figure 6) The unique conditions that ensure

preservation of historic and prehistoric artifacts make this area extremely valuable for archaeological research. However, there is much to be discovered about the archaeological resources of the Red River Gorge.

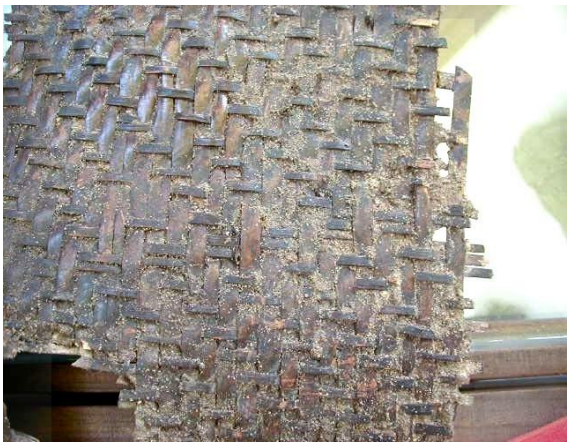


Figure 6 Woven mat found in rockshelter

In 2003, the Red River Gorge, Clifty Wilderness, and the Indian Creek area was designated a National Archaeological District and placed on the National Register of Historic Places.

1.3 Historical Use

Since the first European settlers were led by Daniel Boone into Kentucky in the late 1700's, the Gorge has been used for its resources. Mining for saltpeter was likely one of the first activities that occurred in the Gorge. By the mid 1800's mining became extensive. Evidence of niter mines still exists in some of the rockshelters in the Red River Gorge. Railroads and massive logging operations occurred in the late 1800's to around 1920. During the Great Depression of the 1930's, many landowners began to sell lands to the federal government to create what is today the Daniel Boone National Forest. In the 1960's, the Army Corp of Engineers proposed a dam on the Red River for flood control. Several groups formed to protest the dam, including the Kentucky chapter of the Sierra Club. A major event occurred in 1967 when Supreme Court Justice William O. Douglas led a hike along the Red River protesting the proposed dam. After several years of debate and opposition, the dam idea was abandoned.

1.4 Visitor Impacts

Impacts from recreation use can be found in the Red River Gorge. One of the most sensitive areas in the Gorge can be found in rockshelters. These areas often have significant heritage resources, habitat for endangered bats, and provide an ideal growing location for the threatened White-haired Goldenrod. During the LAC inventory, 658 rockshelters were found to have some impacts from recreational use. Over 2/3 of them had evidence of camping which has been illegal since 2000. Impacts found from camping include trampling of vegetation, scarification of soil from campfires, soot on the roof of rockshelters, graffiti, trash, and human waste.

Figure 7 Trash in rockshelter

To protect the sensitive resources in the Gorge, there are now over 50 woven wire fences installed in various rockshelter

locations to protect heritage resources and/or White-haired Goldenrod.

Figure 8 Fence around White haired Goldenrod

Another major visitor impact is the proliferation of user developed trails. The Gorge has 67 miles of official system trails, yet there are also 194 miles of unofficial user developed trails. Many of these user developed trails have problems related to erosion and muddy conditions due to the fact that they receive no maintenance.

Figure 9 Erosion on user-developed trail

1.5 Forest Plan Direction

The Land and Resource Management Plan provides management direction for the Daniel Boone National Forest. One of the objectives in the 2004 revised plan for the Red River Gorge area states that forest managers will use the Limits of Acceptable Change process to manage recreation use to mitigate unacceptable resource damage and crowding that can result from heavy recreational use.

The Plan details Desired Future Conditions for the Forest and for different areas called Prescription Areas (Rx). Prescription Areas are allocations of land with a similar emphasis (i.e. Wilderness, Clifflines). These areas can overlap. There are 21 Prescription Areas on the Forest. Many of these 21 Prescriptions can be found in the Red River Gorge area. However, there are four primary Prescription Areas found in the Red River Gorge area:

- Rx 1C – Cliffline Community
- Rx 1K – Habitat Diversity Emphasis
- Rx 2A – Clifty Wilderness
- Rx 3E – Red River Gorge Geological Area

1.6 Gorge Designations

There are several designations in the Red River Gorge. The LAC project area encompasses approximately 42,000 acres of National Forest land. Within those 42,000 acres are the following designations:

- National Archaeological District – 39,000 acres
- National Geological Area – 29,000 acres
- National Natural Landmark – 29,000 acres
- Clifty Wilderness – 13,000 acres
- Red Wild & Scenic River – 19 miles
- National Scenic Byway – 46 miles

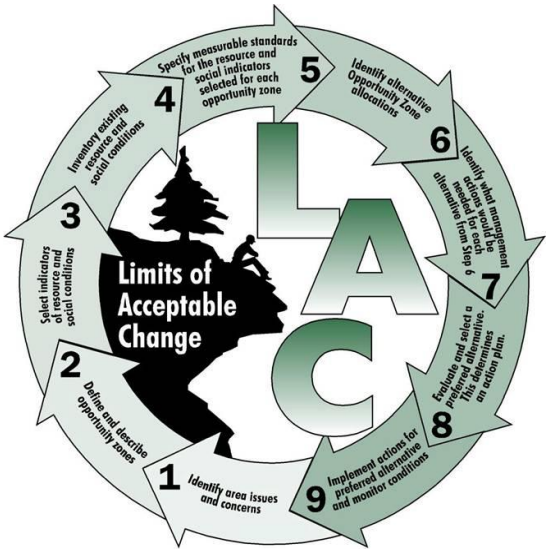
1.7 Laws Affecting the Gorge

There are multiple federal laws that apply to the Red River Gorge and the Daniel Boone National Forest (see Appendix 4 for a complete list). Some of the key laws are:

- Multiple-Use Sustained-Yield Act
- Wilderness Act
- National Historic Preservation Act
- Wild & Scenic Rivers Act
- National Environmental Policy Act
- Endangered Species Act
- National Forest Mgmt Act
- Archaeological Resources Protection Act

In addition to federal laws, there are also several Presidential Executive Orders, the Code of Federal Regulations, and Forest Supervisor Order's.

1.8 LAC Process Description



The first utilization of the Limits of Acceptable Change (LAC) planning process was in the mid to late 1980's for the Bob Marshall Wilderness Complex in Montana.

The Limits of Acceptable Change (LAC) system is a framework for establishing acceptable and appropriate resource and social conditions in recreation settings. The LAC has been developed in response to the need of managers for a means of coping with increasing demands on recreational areas in a visible, logical fashion. The LAC also represents a reformulation of the recreational carrying capacity concept, with the primary emphasis now on the conditions desired in the area rather than on how much use an area can tolerate.

The LAC is not a new idea. It is, however, the latest step in a continuing effort to improve wildland recreation management through definition of more explicit, measurable objectives.

The challenge is not one of how to prevent any human-induced change to the Gorge, but rather one of deciding how much change will be allowed to occur, where, and the actions needed to control it. The process requires deciding what kinds of conditions are acceptable, then prescribing actions to protect or achieve those conditions. If an area does not meet those acceptable conditions, then management actions must be taken to correct the situation. For example, if an area receives very heavy overnight camping that causes unacceptable damage to the resource, then the area may be closed and rehabilitated. The LAC process consists of nine steps:

Step 1…Identify area issues and concerns
Step 2…Define and describe opportunity zones
Step 3…Select indicators of resource and social conditions

Step 4…Inventory existing resource and social conditions
Step 5…Specify measurable standards for the resource and social indicators selected for each opportunity zone
Step 6…Identify Opportunity Zone allocations
Step 7…Identify management actions
Step 8…Evaluate and select a preferred alternative. This determines an action plan.
Step 9…Implement actions and monitor conditions

1.9 Public Involvement

The Daniel Boone National Forest began the Red River Gorge LAC process in May, 2004. There were four introductory meetings held across the region – one in northern Kentucky, two in Lexington, and one at Natural Bridge State Park. The actual LAC workshops began with the identification of issues for Step 1 in June, 2004. All meetings and workshops were open to all interested parties. Over the next 3 ½ years, there were 36 workshops, 6 informational meetings, 4 volunteer work days, and 3 field trips. Attendance varied from 12 to 180, but the average was approximately 25. People came and went throughout the 3 ½ years, but a core group of about 20 stayed through virtually the entire process. All workshops were designed to reach consensus before moving on to the next LAC step. The diverse group of citizens that came to the workshops achieved virtually 100% consensus. The only item that did not receive consensus was one management action from step 7 involving where to allow the designation of campsites.

1.10 Implementation

The consensus contained within this document provides a framework for how to best manage the Red River Gorge. The concept of opportunity zones and LAC standards allows a logical approach to balancing recreation use with protection of sensitive resources. Some areas may need management actions to be implemented in the short term, while other areas do not require any action at this time. The US Forest Service commits to implementing the findings as funding allows. Several management actions can be implemented immediately, while others will need to go through National Environmental Policy Act (NEPA) process. Although the RRG LAC process has had an unprecedented amount of public involvement and consensus, the process did not go completely through the National Environmental Policy Act (NEPA). There is no specific timeline on when various management actions will be implemented. However, a steady progress toward implementation is expected.

RESULTS STEP 1 - FINAL ISSUE STATEMENTS FROM JUNE 1 & 22, 2004 LAC WORKSHOPS

PROTECT/ PRESERVE RESOURCES	**MAINTAIN/EXPAND REC. OPPORTUNITIES**	**PERSONAL SAFETY**	**SCOPE OF ANALYSIS**
Protect resources----------→	--------while allowing recreation use.	Concern that too many people fall off cliffs.	Develop an aggressive non-negotiable plan for minimizing impacts to the RRG.
Reduce impacts from camping – noise, fire scares, trash.	Allow the freedom to access areas of RRG without a lot of hassles & restrictions.	Concern that some people feel threatened by other visitors.	Plan for the future - strive for longer term goals rather than minimal acceptable conditions.
Reduce impacts of litter & human waste.	Develop specific procedures for specific activities to minimize impact.	There is a need to assess impacts caused by ignorance vs those caused by intentional illegal activities. Assign blame correctly.	Use management that is science driven, result oriented, & rationally based with causal connection.
Address issue of user developed trails.	Preservation of existing rock climbing.	Hikers feel unsafe during hunting season.	
Develop a dynamic program to manage & protect cultural resources including during the LAC process.	Enhance auto touring & access for disabled & those unable to hike.	Minimize impacts from pets – noise, waste, safety of visitors.	
Restore RRG to a natural state.	Roads are in poor condition.		
Develop a mitigation plan to eliminate abuse that incrementally gets more restrictive.	There is a lack of info about natural, recreational, & cultural assets in areas outside the RRG.		**OTHER MANAGEMENT CONSIDERATIONS**
Many areas of RRG adversely affected by machine made noises.			Minimize adverse effects of use and management on local population.
Emphasize preservation of non-renewable resources.			Management's inability to enforce regulations.
Work towards "zero new degradation" from user activities.			Lack of management presence as it relates to: preservation of resources, personal safety, education.
Avoid displacing impacts to another area.			
Emphasize human powered recreation.			
Lack of education on user responsibility to protect resources.			
Protect rare species & biotic communities that are in fixed locations.			
Minimize impacts of pets.			
Concern over defacing of arches & other geological formations.			

12/16/08

RESULTS STEP 2 - OPPORTUNITY ZONES

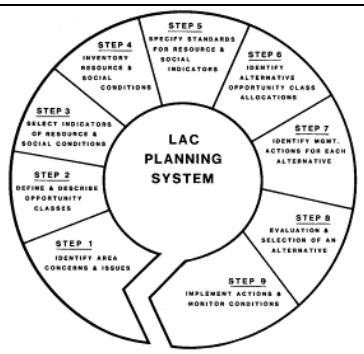
The following zones generally flow from low recreational use (Pristine Zone) to high recreational use (Concentrated Use Zone).

Opportunity Zone	Resource Condition	Social Condition	Managerial Condition
Pristine	Natural ecological processes are dominant. There are no developed maintained trails or roads. When recreational uses do occur, impacts are temporary and typically recover from year to year. Evidence of human activity is not readily apparent.	There is a high level of solitude and isolation. High opportunity for risk and challenge as self-reliance and outdoor skills are very important. Groups are small and there is a low probability of interaction with other humans.	Very low level of managerial presence. Emphasis is on off-site management. Visitor use of this area will not be prohibited neither will it be encouraged. Necessary rules, regulations, and information on Leave No Trace practices will be communicated to visitors outside of this area, such as at trailheads or other suitable locations. No signs or structures unless absolutely needed to protect resources.
Primitive	Natural ecological processes are dominant. There are no developed maintained trails or roads. Impacts from recreational use are generally temporary. Most impacts typically recover from year to year, although some may persist from year to year. Evidence of human activity is not readily apparent.	There is a moderate to high level of solitude and isolation. High opportunity for risk and challenge as self-reliance and outdoor skills are very important. Groups are small and there is a low probability of interaction with other humans.	Low level of managerial presence. Emphasis is generally on off-site management. Visitor use of this area will not be prohibited neither will it be encouraged. Necessary rules, regulations, and information on Leave No Trace practices will usually be communicated to visitors outside of this area, such as at trailheads or other suitable locations. No signs or structures unless absolutely needed to protect resources.
Semi-Primitive	Predominantly natural appearing environment. Network of low use developed trails and dispersed recreation use opportunities. Recreational use is apparent in this zone, with associated environmental impacts generally low. Impacts from recreational use often persist from year to year, but ecological and natural processes are only minimally affected.	Some opportunity for solitude but evidence of, and interaction with, other visitors occurs. Users have the opportunity for a high degree of interaction with the natural environment, though opportunities for risk and challenge are generally not high.	Moderate level of managerial presence. Moderate amount of on-site management. On-site management will generally be limited to occasional routine visitor contacts by FS personnel and/or volunteers, and directional signs at trail junctions. Necessary rules and regulations will be communicated to users off-site, except in person where violations are evident. Trails will be maintained to accommodate a relatively light amount of use. Signs and structures may be provided for resource protection reasons or visitor safety.

Opportunity Zone	Resource Condition	Social Condition	Managerial Condition
Roaded Natural	Characterized by natural landscapes modified to accommodate heavy use although setting will still be predominantly natural appearing. Network of moderate to heavily used developed trails and roads. Impacts from recreational use often persist from year to year. Various modes of travel may be present.	There is little opportunity for solitude or isolation from the sights and sounds of human use, though there is opportunity for a relatively high degree of interaction with the natural environment. Moderate to high probability of contact with other people. Large groups may be encountered. Opportunity for risk and challenge are generally not high. There is a greater opportunity for those with disabilities in this zone.	Moderate to high degree of USFS managerial presence and on-site regulation. There is moderate to high probability of visitors encountering FS personnel and/or volunteers. Signs and structures may be provided for resource protection, visitor safety, and visitor convenience reasons.
Concentrated Use	Characterized by natural landscapes obviously modified to accommodate heavy use. This area consists primarily of developed trailhead areas, but can include other areas of high visitation. These may include permanent facilities such as parking areas, toilet buildings, campsites, information boards, and roads. These areas may be hardened to withstand heavy visitor use. Recreational impacts persist from year to year.	There is little opportunity for solitude or isolation from the sights and sounds of human use. This zone contains areas of concentrated use resulting in a high probability of contacts with other visitors. There is little opportunity for risk and challenge. Self-reliance and outdoor skills are of little or no importance. There is a greater opportunity for those with disabilities in this zone.	Managerial presence is high. Signs are prevalent, especially on information boards and directional signs for trails. On-site visitor strategies are used for visitor education, safety and resource protection. These strategies may include education and interpretation. High probability of visitors seeing Forest Service management personnel/volunteers. Structures are provided for resource protection, visitor safety, and visitor convenience reasons.

Note: Originally, the LAC group had developed an opportunity zone called “Critcal Habitat Resource”. After much deliberation, the LAC group decided to drop this zone. The Tight Hollow area moved from Critical Habitat Resource zone to Pristine. The Sargent’s Branch Critical Habitat zone moved to Concentrated Use.

Limits of Acceptable Change Process



Results of Step 3 – Select Indicators of Resource and Social Conditions

(from workshops 1/18, 2/15, & 3/1 2005)

	RESOURCE INDICATOR
1	Proximity of protected resource to a system trail or user trail
2	Damage to vegetation/trees
3	Scouring of vegetation on rock cliffs
4	Illegal 4-wheeler use
5	Access roads/trails entering NF land from private property
6	User developed trails
7	Unimproved parking pull-offs
8	Graffiti
9	Illegal camping
10	Campfire scars
11	Size of impact area at campsites
12	Assessment of extent of recreation impact
13	Expansion potential of recreation impact areas
14	Density of climbing routes
15	Density of signs
16	Condition of system trails and user trails
17	Water access points
18	Stream crossings
19	Erosion along trails & recreation points

	SOCIAL INDICATOR
1	Human waste
2	Litter
3	Microtrash at campsites
4	Visitor use patterns
5	Climbing routes closed
6	System trails closed
7	# sustainable recreation sites
8	Quality of recreation experience
9	Overcrowded parking
10	Noise
11	Overnight use
12	Type of use – day vs overnight
13	Density of campsites
14	Search & Rescue
15	Personal safety
16	Effectiveness of signs
17	Criminal activity against people
18	Effects of recreation on local population
19	Overcrowding

RESULTS OF LAC STEP 4 RESOURCE INVENTORY

12/18/08

An inventory of all the recreation impact in the Red River Gorge was conducted during 2005 and 2006. This inventory covered 42,000 acres of National Forest land in Menifee, Powell, and Wolfe counties. The purpose of the inventory was to find out what sort of recreation features were in the Gorge, where they were located, and the extent of impact related to each. A baseline inventory now exists to compare with in the future.

CAMPSITES: 924 total

- These are user-created campsites that are not in rockshelters.
- Over 50% are within 300' of roads or system trails.
- 690 obvious impact (cc 2+) , 234 faint impact (cc 0 or 1)

ROCKSHELTERS: 658 total

- The inventory includes only those rockshelters that have some sort of recreation impact.
- Approximately 2/3 had evidence of camping.
- 381 obvious impact (cc 2+), 281 faint impact (cc 0 or 1)

DESTINATION POINTS: 281 total

- Destination points are vistas, water access areas, rappel sites, etc…
- Approximately 2/3 are vistas.
- 207 obvious impact (cc 2+), 74 faint impact (cc 0 or 1)

CLIMBING AREAS: 58 climbing areas & 245 climbsites (770 individual climbing routes)

- Climbing Area is an user-developed area for technical rock climbing activities (traditional, sport, & bouldering). Climb areas can have 1 or more individual routes.
- Climbsite is a staging area at the base of one or more climbing routes where recreational use has produced measurable impacts to the ground.
- 213 climbsites obvious impact (cc 2+), 32 climbsites faint impact (cc 0 or 1)

SYSTEM TRAILS: 67 miles total

- These are official USFS system trails that are maintained by the USFS (and volunteers). They have an official name and number.
- 16 miles with documented horse use, 9 miles with documented OHV use
- All 67 miles have obvious impact, cc 2+

USER TRAILS: 194 miles total

- These are user-created trails that are not official USFS trails. Some of these are old wagon roads or railroad grades from years ago. Some of these are more recent trails developed simply by people walking or riding over an area long enough to beat out a path. These user trails may go to climbing areas, overlooks, campsites, connect to private land or simply connect other trails.
- 30 mile with documented horse use, 40 miles with documented OHV use
- 134 miles obvious impact (cc 2+), 60 miles faint impact (cc 0 or 1)

Note: "cc" refers to condition class. Recreation impact to the ground is measured using a numerical scale of 0-5. A cc of 0 or 1 has minimal impact and is barely distinguishable. Generally, cc ratings of 2+ indicate obvious impact. A cc of 5 indicates heavy impact and active erosion.

FINAL STEP 5 RESOURCE STANDARDS

Last updated 12/18/08		5 OPPORTUNITY ZONES---------->				
RESOURCE INDICATORS (from Step 3)		**PRISTINE**	**PRIMITIVE**	**SEMI-PRIMITIVE**	**ROADED NATURAL**	**CONCENTRATED USE**
SYSTEM TRAILS	Condition Class	NA - no	NA - no trails	No > 4	No > 4	No > 4
	Density (per 1,000 acres)	Zero	Zero	No > 8 miles	No > 16 miles	No limit
	Evidence of Illegal Use - don't limit to ATV (per zone)	N/A - no trails	N/A - no trails	No > 2% of trails	No > 2% of trails	No > 2% of trails
	Muddy/Steep sections	NA - no	NA - no trails	No upward trend from 2006 baseline---->		
USER TRAILS	Condition Class	No > 0	No > 1	No > 4	No > 4	No > 4
	Density (per 1,000 acres)	Zero	No > 1 mile	No > 2 miles	No > 4 miles	No > 4 miles
	Evidence of Illegal Use – don't limit to ATV (per zone)	Zero	No > 2% of trails	No > 2% of trails	No > 2% of trails	No > 2% of trails
	Muddy/Steep sections	No upward trend from 2006 baseline---------->				
CAMPSITES	Condition Class (per campsite)	No > 0	No > 1	No > 4	No > 4	No > 4
	Density (per 1,000 acres)	No > 2	No > 4	No > 10	No > 30	See each area ✧
	Tree damage (per campsite)	Zero	Zero	No > 3	No > 5	No > 10
	Size (area of impact per campsite)	Zero	No > 300 sq ft	No > 600 sq ft	No > 800 sq ft	No > 1,000 sq ft
	# fire sites (per	Zero	Zero	No > 1	No > 1	No > 1
	Illegal Campsites (per zone)	No > 2% of sites	No > 5% of sites	No > 10% of sites	No > 15% of sites	No > 25% of sites
DESTINATION POINTS	Condition Class (per destination point)	No > 0	No > 1	No > 4	No > 4	No > 4
	Density (per 1,000 acres)	No > 1	No > 2	No > 5	No > 7	See each area ✧
	Tree damage (per destination point)	Zero	Zero	No > 1	No > 1	No > 1
	Size (area of impact per destination point)	Zero	No > 100 sq ft	No > 300 sq ft	No > 500 sq ft	No > 1000 sq ft
	# fire sites (per detsination point)	Zero	Zero	Zero	Zero	Zero
ROCK SHELTERS	Condition Class (per rockshelter)	No > 0	No > 0	No > 2	No > 2	No > 2
	Density (per 1,000 acres)	No > 2	No > 4	No > 10	No > 14	See each area ✧
	Tree damage (per rockshelter)	Zero	Zero	No >1	No > 1	No > 1
	Illegal Activity (fires in inventoried rockshelters per zone)	Zero	No > 0% of rockshelters	No > 5% of rockshelters	No > 10% of rockshelters	No > 15% of rockshelters
S	Condition Class (per climbsite)	No > 0	No > 1	No > 4	No > 4	No > 4

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Last updated 12/18/08		5 OPPORTUNITY ZONES---------->				
RESOURCE INDICATORS (from Step 3)		**PRISTINE**	**PRIMITIVE**	**SEMI-PRIMITIVE**	**ROADED NATURAL**	**CONCENTRATED USE**
CLIMB AREAS & CLIMBSITE	Density (total climbsite impact in zone per 1,000 linear feet of cliffline)	Zero	No > 20 sq ft	No > 160 sq ft	No > 480 sq ft	No > 800 sq ft
	Tree damage (per climbsite)	Zero	Zero	No >3	No > 5	No > 10
	Size (area of imact per climbsite)	Zero	No > 500 sq ft	No > 1,000 sq ft	No > 2,000 sq ft	No > 3,000 sq ft
	# Fire Sites (per climbsite)	Zero	Zero	Zero	Zero	Zero
	Unauthorized Development (per zone)	Zero	No > 1	No > 2	No > 3	No > 4

Density standards are based on the total acreage of the entire zone. For example, campsite density is based on maximum number of campsites per 1,000 acres. The SP zone has a density standard of 10 campsites per 1,000 acres. All of SP zone contains 14,251 acres, thus there could be a maximum of 143 campsites in the entire SP zone (10 x 14.251). For climbing, the density is based on 1,000 linear feet of cliffline in the zone NOT ACRES.

✧ Density standards for campsites, destination points, and rockshelters in the concentrated use zone will be determined in the camping management plan (see each area).

Climb Definitions:

Climbing Area – A day use destination area for technical rock climbing activities (traditional climbing, sport climbing, bouldering).

Climbsite – A staging area at the base of one or more climbing routes where rock climbing activities have produced visible and measurable impacts to the ground.

Zero Climbing – A location where rock climbing activities occur but where no visible and measurable impacts the ground are apparent.

Unauthorized Development – Climbing development that has not received prior Forest Service authorization. (Note - Climbing that does not involve “development” does not require prior authorization.)

Note: Originally, the LAC group had developed an opportunity zone called “Critcal Habitat Resource”. After much deliberation, the LAC group decided to drop this zone. The Tight Hollow area moved from Critical Habitat Resource zone to Pristine. The Sargent’s Branch Critical Habitat zone moved to Concentrated Use.

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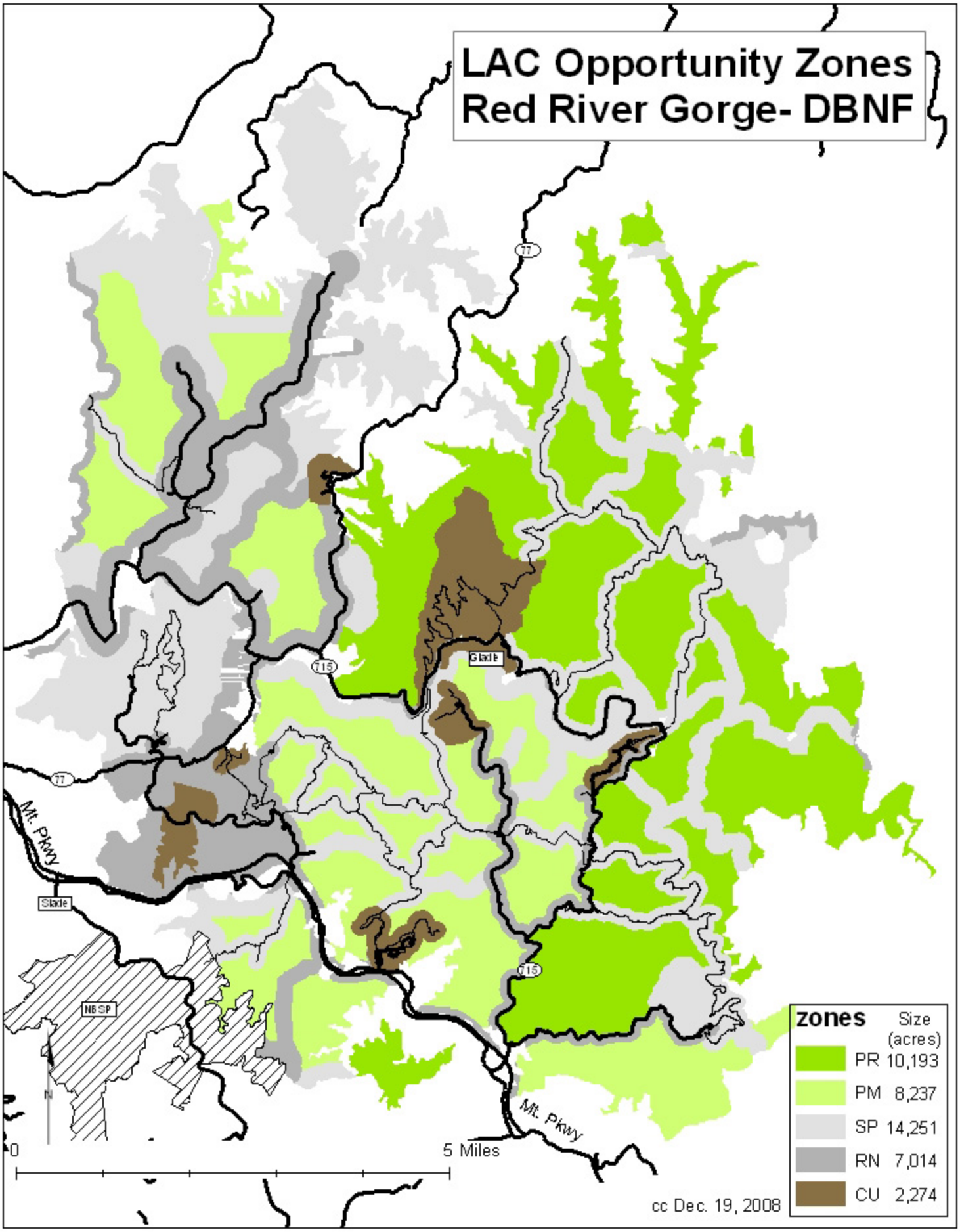
FINAL STEP 5 SOCIAL STANDARDS (12/18/08)

		5 OPPORTUNITY ZONES (from Step 2)				
12/18/2008	SOCIAL INDICATORS (Step 3):	PRISTINE	PRIMITIVE	SEMI-PRIMITIVE	ROADED NATURAL	CONCENTRATED USE
MOBILITY - (system trails, user trails, rivers)	1) Trash	No #'s. Employ visitor feedback and 80/80 rule---------->				
	2) # People Encountered	No #'s. Employ visitor feedback and 80/80 rule---------->				
	3) Max Group Size	6 (off trail only)	NA	10 (on trail wilderness)	NA	NA
	4) Effectiveness of signs	NA	NA	Employ visitor feedback. 80/80 rule----->		
STATIONARY - OVERNIGHT USE (campsites)	1) Trash	15% micro	15% micro	20% some	20% some	20% some
	2) Max # People/Campsite	See note below✧				
	3) Distance to System Trail	NA bc no system trails	NA bc no system trails	See note below✧		
	4) Proximity to each other	See note below✧				
	5) Human Waste	0	0	2%	2%	2%
DESTINATION AREAS - DAY USE (dest. pts, rock shelters, climb areas)	1) Trash	15% micro	15% micro	20% some	20% some	20% some
	2) Max # People Encountered (per area)	5	8	No number, subject to visitor feedback and 80/80 rule		
	3) Climbing Bolts	No new	No new visible, allow as authorized	Allowed as authorized, subject to visitor feedback and 80/80 rule		
	4) Chalk	No persistent, subject visitor feedback & 80/80		Allowed as authorized, subject to visitor feedback and 80/80 rule		
	5) Graffiti	No new	No new	No new	No new	No new
	6) Human Waste	0	0	2%	2%	2%
QUALITY OF RECREATION EXPERIENCE	1) Parking and Adequate Facilities	Determine baseline #'s - how many parkiing spaces and how olften full? Employ visitor feedback to determine if a problem.				
	2) Recreation Outfitter/Guide Permits	Apply all LAC resource and social standards to recreation outfitter guides				
	3) Noise from other Recreationists	Determine baseline #'s by employing visitor feedback (is this a problem?). Upward trend of visitors perceiving this as problem triggers management				
SAFETY AND WELFARE	1) Personal Safety	Determine baseline #'s - how many incidents per year? Upward trend in visitors perceiving this as problem triggers management actio				
	2) Criminal Activity	Determine baseline #'s - how many incidents per year? Upward trend i visitors perceiving this as problem triggers management action.				
	3) Search & Rescue	Determine baseline #'s - how many incidents per year? Upward trend i visitors perceiving this as problem triggers management action.				

80/80 RULE: By employing some sort of participant visitor feedback mechanism relative to recreational activity (comme cards, websites, visitor surveys, etc…), we may be able to determine perceptions about some of the above indicators and standards. If 80% of the particpants are satisfied 80% of the time, then there is no need to modify or change a particular social indicator or standard. For example, there is no number standard for trash along trails (littering is illegal, what we are asking is at what point does visitor dissatisfaction get so great as to trigger a management action). If, through the use of a visitor participation system, we find out that less than 80% of the visitors are satisifed with the amount of trash observed along trails then some sort of management action should be employed to get that visitor satisfaction number up to 80%. There will be a need to flush out a survey to address all questions - similar to campsite criteria.

✧ **These camping social standards** will need to be defined with development of camping management plan to addres where to designate sites & where to allow dispersed camping. Forest Supervisor will also make final decision on management action concerning minimum distance from system trails for designated campsites. See Step 7 for more

Note: Originally, the LAC group had developed an opportunity zone called "Critcal Habitat Resource". After much deliberation, the LAC group decided to drop this zone. The Tight Hollow area moved from Critical Habitat Resource zone to Pristine. The Sargent's Branch Critical Habitat zone moved to Concentrated Use.


LAC Opportunity Zones
Red River Gorge- DBNF
77
715
Slade
Mt. Pkwy
NBSP
N
0
5 Miles
zones
Size (acres)
PR 10,193
PM 8,237
SP 14,251
RN 7,014
CU 2,274
cc Dec. 19, 2008

RESULTS OF STEP 7 MANAGEMENT ACTIONS

12/19/08

Listed below are management actions that will be taken if and when conditions are found that do not meet standards. In some cases, current conditions already don't meet standards. Think of this list as a toolbox of management actions for the manager to select. Generally, management strategies that are least intrusive will be implemented first. If actions taken are not effective, then managers will implement more intrusive or restrictive measures. Generally, no legal activity should be restricted due to illegal activity. An area closure should not be first choice if lack of funds - other avenues should be pursued first such as recruiting volunteers & other sources of funding. There will be closures when density standard exceeded or sensitive resources impacted.

SYSTEM TRAILS
Condition Class
• Relocation of poor sections (i.e cc is exceeded)
• Increase volunteer trail maintenance (adopt-a-trail, etc…)
• Harden trails with appropriate materials for zone
• Wet season closure for horses and bikes
Density (per 1,000 acres)
• Develop trails management plan to help with closing user trails, developing new system trails, design, etc…
• Do not add more system trail miles than allowed by LAC density standards
Illegal Use
• Increase education efforts about types of use permitted and trash removal
• Increase Forest Service presence on trails by increasing volunteers, SCA, and other groups or organizations
• Advertise more effectively where OHV use is permitted. Work with OHV vendors to disseminate information
• Install signs at trailheads indicating allowable uses
• Increase targeted enforcement to ticket illegal users
• Install physical barriers to block illegal use
Muddy/Steep Sections
• Identify problem sections and work to mitigate if possible
• Relocate problem sections
Other
• Designate identified system trails as open to horse and bike after site-specific NEPA analysis (analyze in conjunction with broad evaluation of 6 identified horse loops). Provide adequate parking for horse trailers.
• Analyze adding more system trail miles in SP, RN, and CU zones (SP zones are considered flexible when analyzing potential new system trails). Most new system trails involve an already developed user trail.
• Analysis of potential new system trails must follow FS trail policies (restrictions on steep grades, riparian areas, wilderness, private lands, use of roads, NEPA, etc…)
• Analyze feasibility of implementing a trail pass for horseback riding and mountain biking with revenues back to trail maintenance.
• Tight Hollow will have no formal development.
• Establish maximum group size of 10 in Clifty Wilderness (Forest Supervisor Order)
• Designate which system trails are open to horse and bicycle (Forest Supervisor Order)
• Consider developing separate trails if conflicts between users develops into a major problem
• Develop visitor feedback mechanism to monitor social standards (80/80 rule)
• Continue and expand trail blazing and directional signing

USER TRAILS
Condition Class
• Close and rehabilitate user trails that are causing unacceptable impact (i.e cc is exceeded).
• Transplant vegetation and install native barriers to minimize erosion
Density (per 1,000 acres)
• Develop trails management plan to help with closing user trails, developing new system trails, design, etc…
• Install signs indicating end of system trails to minimize creation of user trails
• Increase education efforts to encourage staying on system trails
• Use signage: to educate visitors, to direct to proper trails, to explain restoration
• Close and rehabilitate user trails to reach standard
• Consider relocation of trail if only reason to close is to avoid sensitive site (must still keep mileage below standards)
• Close parking pull-offs that direct use to user trails where use is not desired (boulders, guard-rails, signs)
• Implement "parking in designated areas only" along roads (similar to Tunnel Ridge Road)
Illegal Use
• Increase education efforts about which trails are official system trails and types of use permitted
• Increase targeted enforcement to ticket illegal users
• Increase Forest Service presence on trails by increasing volunteers, SCA, and other groups or organizations
• Install physical barriers to block illegal use
Muddy/Steep Sections
• Close and rehabilitate user trails that are causing unacceptable impact
Other
• Analyze designating certain user trails as system trails in appropriate zones (must follow NEPA procedures & meet USFS trail standards). May need to relocate.

CAMPSITES
Condition Class (per campsite)
• Close & rehabilitate campsites that are on terrain creating unacceptable erosion (i.e cc is exceeded).
• Transplant vegetation and install native barriers to minimize erosion
Density (per 1,000 acres)
• Develop camping mgmt plan to help with closing sites, designating sites, design, etc… LAC task force has agreed to a camping strategy that includes a combination of designated sites and non-designated sites.
• Close and rehabilitate campsites to reach standard
• Increase education efforts to encourage camping on sites already impacted or designated (not creating new)
• Designate campsites along road corridors (could be within 300' of roads or first 300' of trails from road).
• Consider walk-in campgrounds for designated camping areas along roads
• Develop camping access trails to designated sites (any minimum distance camping order does not apply to these access trails)
• Designate campsites along system trails away from roads. These designated campsites could be within 300' of system trails. A camping management strategy should be developed to specify guidelines for designating campsites. (Forest Supervisor made decision since no consensus from LAC group)
• Maintain designated campsites so that they remain desirable to visitors (avoid creation of new sites)
• Make camping regulations consistent across all of LAC area (include left side TR Road & Indian Creek with Geological Area)
• Use signage: to educate visitors, to direct to proper campsites, to explain restoration
• Designate some parking areas as day use only (Whistling Arch, Angel Windows, Sky Bridge, Chimney Top)
• Close parking pull-offs that direct use to campsites where use is not desired (boulders, guard-rails, signs)
• Implement "parking in designated areas only" along roads (similar to Tunnel Ridge Road)
• If campsite proliferation and impacts continue, consider implementing a rationing permit system
Tree Damage (per campsite)
• Increase LNT education efforts specific to tree damage (nails, axes, size wood for fires, etc…)
• Consider lantern posts at designated sites near roads
• If impacts to trees continue, ban axes & saws
Size (per campsite)
• Designate group camping areas outside wilderness in RN and CU zones
• Install barriers such as rocks or logs to minimize campsite sprawl
• Construct sidehill campsites to minimize expansion
 # Fire Sites (per campsite)
• Dismantle and scatter if > 1 fire ring at campsite
• Increase LNT education on proper fire use
• Anchor rock fire rings in ground to prevent fire rings from moving
• Install metal fire grates at designated sites
• If impacts from campfires continue, ban fires in certain areas of RRG
Illegal Campsites (per zone)
• Close and rehabilitate campsites to reach standard
• Increase targeted enforcement to ticket illegal users
• Increase Forest Service presence on trails by increasing volunteers, SCA, and other groups or organizations
Other
• Place all camping rules & LNT messages on camping permit hang tag (only 100' rule now)
• Update Forest Supervisor Order for camping regulations
• Establish maximum group size at designated campsites
• Increase LNT education on trash removal and human waste management

DESTINATION POINTS
Condition Class (per destination point)
• Increase education about the importance of not defacing natural arches and other exposed rock
• Close and rehabilitate destination points that are on terrain creating unacceptable erosion (i.e cc is exceeded).
• Transplant vegetation and install native barriers to minimize erosion
• Harden and use zone appropriate techniques
Density (per 1,000 acres)
• Evaluate reason why location is a destination point and base management actions on desirability of maintaining vs taking action to discourage use
• Close and rehabilitate destination points in zones where prohibited (i.e. pristine), then others proportionally
• When desirable to maintain a destination point, evaluate upgrading with system trail access
• When it is determined to not maintain a destination point, remove user trail access & discourage use
• Use signage: to educate visitors, to direct to proper destination points, to explain restoration
Tree Damage (per destination point)
• Increase LNT education efforts specific to tree damage (nails, axes)
• If impacts to trees continue, ban axes & saws
Size (per destination point)
• Install barriers such as rocks or logs to minimize destination point sprawl
 # Fire Sites (per destination point)
• Dismantle and scatter all fire rings at destination points
Other
• Prohibit camping at certain vista destination points at top of cliff (safety reasons)
• Increase education about cliffline dangers (literature, video, Gladie Center)
• Consider alcohol bans if needed for safety
• Develop visitor feedback mechanism to monitor social standards (80/80 rule)
• Increase LNT education on trash removal and human waste management

ROCKSHELTERS
Condition Class (per rockshelter)
• Increase education efforts about importance of rockshelters: cultural resources, biological resources, etc…
• Remove all fire rings unless specifically permitted
• Remove any abandoned equipment or trash in rockshelters
• When other management actions are not effective, evaluate the feasibility of site hardening, installation of permanent fencing to mitigate impacts and protect the site.
• Increase education about the importance of not defacing exposed rock
Density (per 1,000 acres)
• Based on degree of impact & cultural & biological significance prioritize Rock Shelters for management actions: discourage use, targeted enforcement to ticket illegal users/uses, and mitigation of previous fire impacts, etc..
• Follow USFS/SHPO/ACHP Memorandum of Agreement requirements when analyzing management and archaeological investigation priorities and implementing management actions. Heritage Mgmt Strategy.
• Use signage: to educate visitors, to direct to proper trails, to explain restoration
• Increase Forest Service presence by increasing volunteers, SCA, and other groups or organizations
• Increase education about importance of rockshelters (literature, video, Gladie Center)
• Close and rehabilitate rockshelters in zones to reach standards
• Evaluate converting select rock shelters to designated campsites. Where a rock shelter has been converted to a designated campsite, apply campsite standards. Consider higher fees & reservation system.
• Continue to post signage and install temporary fencing to protect sites that are deemed significant.
Tree Damage (per rockshelter)
• Increase LNT education efforts specific to tree damage (nails, axes, size wood for fires, etc…)
• If impacts to trees continue, ban axes & saws
Illegal Activity (campfires)
• Consider a monitoring program with volunteers (similar to Kaibab NF) (must have training)
Other
• Evaluate the feasibility of converting selected rock shelters into interpretive areas. Must be accessible by system trail.
• Develop visitor feedback mechanism to monitor social standards (80/80 rule)
• Improve professional informative and interpretive signage about importance of rockshelters
• Increase LNT education on trash removal and human waste management

CLIMBING AREAS & CLIMBSITES
Condition Class (per climbsite)
• Transplant vegetation and install native barriers to minimize erosion
• Evaluate feasibility of implementing climbsite modifications to mitigate impacts (use native materials first)
• Evaluate feasibility of establishing new climbing areas to spread out impacts (follow Forest Plan standard).
• When other mgmt actions are not effective, evaluate installing fencing (except in Clifty Wilderness).
• When other mgmt actions are not effective, evaluate site hardening (native materials in Clifty Wilderness).
• Close and rehabilitate climbsites that are on terrain creating unacceptable erosion (i.e cc is exceeded)
Density (per 1,000 linear feet of cliffline)
• Develop a Climbing Management Plan that includes new route development guidelines in existing areas, procedures for new climb areas, trail access, route maintenance.
• Appropriate communication means are developed. Could be post signage at trailheads and at climbing areas about cliffline camping and fire prohibitions. Explain that this is an LAC area.
• Develop & install educational signs at trailhead & climb areas
• Encourage climbing specific Leave No Trace education programs to be conducted in Red River Gorge
• Renegotiate/Update Memorandum of Understanding between the USFS and the Red River Gorge Climbers' Coalition to include results of LAC process
• Process applications for new climbing development per Forest Plan standards & LAC standards
Tree Damage (per climbsite)
• Increase LNT education efforts specific to tree damage (nails, axes, size wood for fires, etc…)
• If impacts to trees continue, ban axes & saws
Size (per climbsite)
• Evaluate feasibility of implementing climbsite modifications to minimize expansion (use native materials first).
• Evaluate the feasibility of constructing a trail downhill from the climbsite to discourage people to hike through climbsite.
• Establish new climbs of the same grade (difficulty) to spread out use.
 # Fire Sites (per climbsite)
• Remove fire rings from climbing areas and mitigate previous fire impacts.
• Work with climbers on reporting illegal use (camping/fires/looting).
Unauthorized Development (per zone)
• Close unauthorized development when LAC standard exceeded.
Other
• Evaluate user trails that access climb areas and consider upgrade to system trail
• Encourage use of chalk that blends with color of rock
• Encourage use of fixed anchors that blend with rock
• Establish Forest Supervisor Order for no new fixed anchors in Clifty Wilderness (per Forest Plan)
• Develop visitor feedback mechanism to monitor social standards (80/80 rule)
• Increase LNT education on trash removal and human waste management

LAC STEP 8 – EVALUATION AND SELECTION OF A PREFERRED ALTERNATIVE

The LAC group reached consensus that they wanted to move forward with Alternative 2 – Equal Emphasis on Balanced Recreation Use with Protection of Resources. The consensus was that this alternative strengthens recreational opportunities while adding additional environmental protection to other areas.

The key components of LAC that guide future actions are the delineation of the 5 opportunity zones throughout the RRG and the various LAC standards that go with those zones. There needs to be a mechanism through which the US Forest Service can utilize the opportunity zones and LAC standards to implement future management actions. The opportunity zones can be thought of as Forest Plan Prescription Areas and the LAC standards as Forest Plan Goals and Objectives.

A NEPA document can be prepared that analyzes two main alternatives – implement the findings of the RRG LAC process (including the zones and standards) or do not implement. These findings could be amended into the Forest Plan or left as a stand alone NEPA document.

See Strategy for Implementing Red River Gorge LAC for further explanation.

LAC STEP 9 – IMPLEMENT ACTION & MONITOR CONDITIONS

Implementation of some management actions can be relatively easy such as increasing education about Leave No Trace ethics or obliterating illegal campsites. Other actions will be more complex and time consuming such as relocating user trails out of poor locations, designating new system trails, designating trails open to equestrians, designating campsites, and developing a climbing management plan.

Certain management actions can begin immediately in 2009:

- **Employing Student Conservation Association (SCA) backcountry rangers to increase Leave No Trace (LNT) education, obliterate illegal campsites, and remove trash.** Funding has been obtained to hire SCA backcountry rangers during the 2009 field season.
- **Implement the new DBNF Interpretive and Conservation Education Plan**. Through staff at the Gladie Center, an increase in education efforts aimed at reducing impacts from visitors will occur. Specifically, impacts to be addressed through education include those areas where LAC standards have been exceeded. These include, but are not limited to, campsite proliferation, improper disposal of human waste, and damage to trees at campsites.

Other LAC management actions will require National Environmental Policy Act (NEPA) analysis and documentation.

- Instead of doing a large NEPA document to cover a wide variety of management actions, the DBNF has decided to implement LAC projects on a piece meal approach. Small NEPA documents will be prepared to implement management actions.
- **The first NEPA project will be to propose designating campsites along Tunnel Ridge Road**.

Other high priority management actions include:

- **Continue to propose designating campsites** throughout Red River Gorge in order to meet LAC standards for campsite density as well as legality. The next priority area after Tunnel Ridge Road, should be Indian Creek Road. Most campsites along Indian Creek are within 300' of the roads, so there is a need for officially designated campsites. Thereafter, priority areas should be Chimney Top Road, Rock Bridge Road, and campsites along system trails.
- **Propose the establishment of designated parking areas** along roads in the RRG such as in place now along Tunnel Ridge Road. Parking will be limited to those designated areas and enforced with a Forest Supervisors Order. Priority will be Chimney Top Road.
- **Propose a re-aligned system trail network** in RRG. Nearly 200 miles of user-developed trails were documented in the RRG during the LAC inventory. Some of these user trails are so heavily used that permanent closure is highly unlikely. LAC addressed these issues by zoning certain corridors as Semi-Primitive to allow the possibility of future system trails. In nearly every case, a proposed system trail already has a documented user trail. There are three main categories for re-aligned system trails:
  1) hiking trails (such as Indian Stairway, Eagle Peak, Swift camp Creek extension)
  2) climbing access trails (similar to existing system climbing access trails to Miltary Wall & Left Flank)
  3) system trails open to equestrian use (LAC identified 6 loops to propose for equestrian use)
- **Finish proposed action to reduce impacts at Military Wall** climbing area. Military Wall is the most popular climbing area in the RRG and has the largest amount of area exceeding LAC standards. An NEPA analysis was begun on this project in 2004. Military Wall will become the blueprint for work at other climbing areas in the RRG.

Develop specific Management Plans to help guide LAC implementation:

- **Camping strategy** – this will help give guidance to where and how to designate official campsites.
- **Climbing management plan** – this will help guide management of climbing in the RRG. This document will go into detail about how climbers can apply for permission to develop new climbing routes, the relationship between USFS and Red River Gorge Climbers Coalition, how sensitive resources will be protected at climbing areas etc….
- **Visitor feedback mechanism** – step 6 of LAC lists a variety of social standards. Many of these standards refer to developing a way to learn and monitor visitor satisfaction with social indicators.

Amend or create new Forest Supervisor Orders:

- The existing order on no camping within 300' of roads and system trails currently applies only to the Geological Area boundary. This needs to be expanded to the boundaries of LAC (include west side of Tunnel Ridge Road and Indian Creek area). The wording also needs to be amended to allow designated sites within 300' (assuming For Sup concurs).
- The existing order on no camping within 100' of base of cliffs or in rockshelters currently applies only to the Geological Area boundary. This needs to be expanded to the boundaries of LAC (include west side of Tunnel Ridge Road and Indian Creek area). The wording also needs to be amended to allow designated sites within the 100'.
- There needs to be a new Forest Supervisor Order to require a permit prior to the development of any new cliffline recreation areas (climbing, rappelling, bouldering) that include: permanent installation of safety devices such as bolts; construction of access trails; or clearing of vegetation. This requirement is a standard in the Forest Plan.
- There needs to be a new Forest Supervisor Order to prohibit new rock climbing routes in Clifty Wilderness with fixed anchors. This prohibition is a standard in the Forest Plan.
- There needs to be a new Forest Supervisor Order that will detail proper management of newly designated campsites (ie visitors must camp within certain boundaries, maintain campfire in official metal fire rings,
- There needs to be a new Forest Supervisor Order to designate certain system trails open to equestrian use (after these trails meet FS trail standards) within the LAC area. The order needs to restrict horses to those trails open to equestrian use. This prohibition is a standard in the Forest Plan.
- There needs to be a new Forest Supervisor Order to limit parking to designated parking areas along other roads within LAC area (already established for Tunnel Ridge Road). This can be implemented after official parking areas have been identified.