

# 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.

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## 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.

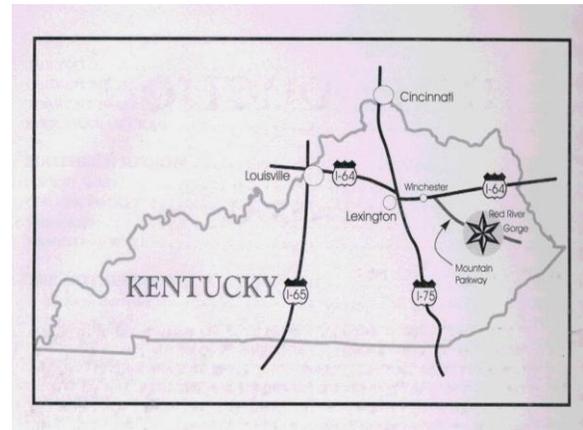


Figure 1 Red River Gorge

### 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).

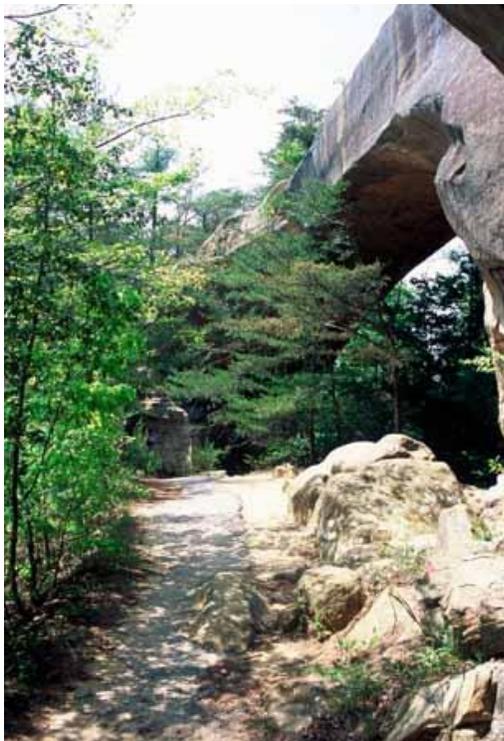
- Approximately 20 miles of Mountain Parkway & KY 15 between Slade & Pine Ridge exits.

**Congressional Designations:**

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

**Trails:**

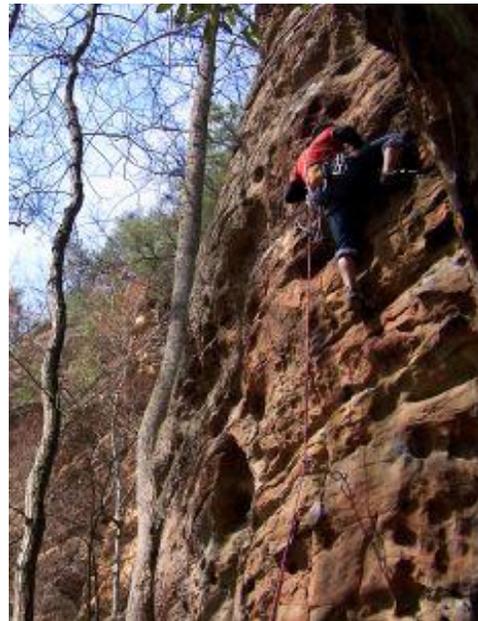
- Approximately 67 miles of designated system trails.
- Approximately 195 miles of user developed.
- Approximately 1,400 dispersed campsites (475 in rockshelters).



**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 woolly 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.