

ROCK CLIMBER PERSPECTIVES OF MANAGEMENT
ISSUES IN THE RED RIVER GORGE

A Thesis

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Introduction

The Red River Gorge is a display of red sandstone cliffs located in eastern Kentucky within the boundaries of the Daniel Boone National Forest. To arrive at the Gorge, one must drive the Mountain Parkway, designated in 2002 as a National Scenic Byway (Hutson, 2006). Along the way, the beauty of the Gorge is foreshadowed by the rolling hills and winding waterways constantly on view. Approaching the Slade, KY exit, an overwhelmingly large brown sign announces that you are entering the Red River Gorge.

The Gorge plays host to an impressive number of recreational activities that continually draw visitors. Anything from hiking and camping to hunting and fishing are available to the public. Most of these endeavors are available year round, although the peak season for the area is April through November (DBNF, 2005). One recreational activity that has made a permanent establishment for itself in the past 20 years, is rock climbing (2005).

Technical rock climbing is the ascension of a cliff face using the natural features of the rock, specific knowledge by the participant, and specially designed tools to establish points of safety along the climb. The most vital tools to the process are a climber's rope and harness. The harness is securely fastened about the waist and hips, and the rope is tied into the harness. This arrangement allows the climber to establish points of contact along the rock face while making progress up the wall, thereby preventing the possibility of hitting the ground if fall were to occur.

Two types of rock climbing are available to patrons in the Red River Gorge. The more popular form is called "sport" climbing. This requires the climber to clip their rope into permanently placed bolts as they proceed through the climb. The bolts are drilled

into the rock face at precise intervals to allow for the most protected climbing experience (Ellington, 2007). The bolting system allows for more speedy ascents and far more challenging moves like dynos, when all points of contact are removed from the rock, or heel-hooking, when the heel of the foot is placed on the rock. The motion of pointing the toe causes the climber's hips and torso to follow in the direction of the pull (Cox and Fulsaas, 2003). Sport climbing is more modern in its creation, and is continually growing in popularity among both newer climbers and those who are more experienced (Ellington, 2007).

The second form of climbing in the Gorge is traditional or "trad" climbing (Ellington, 2007). This involves placing removable protection from falls by the climber as they progress. Trad climbing requires a greater amount of gear investment by the climber and a far more intensive store of knowledge (Cox and Fulsaas, 2003). As this is often more of an initial commitment than people are willing to make, most climbers begin with sport. This is evidenced throughout the Gorge by the growing number of sport routes being currently established by a small contingency of climbers, in comparison to trad climb routes (Ellington, 2007).

The Gorge itself has gone through many land management processes to arrive at its current standing. National attention was first given to the Gorge in the 1960s when the Army Corps of Engineers proposed damming part of the river with the intention of providing flood protection to the area. This project was met with fervent opposition from groups like the Sierra Club and the Audubon Society. Their protests combined with a considerable local effort brought about the Gorge's first protective classification naming the upper portion of the river a State Wild River in 1973 (Hutson, 2006).

From there, the National Forest Service ran a study to find a potential designation of the entire river in the 1980s. This continued the residential interests in their progress, and added to the volume of visitors to the area, which had more than doubled throughout the initial dam controversy. The final result was the naming of the entire Red River within the Gorge as a National Wild and Scenic River in 1994 (Hutson, 2006).

Other protective acclaims given to the Gorge include a Wilderness designation being given to the Clifty Wilderness area in 1985, located in the southeast corner, prohibiting any motorized vehicles from entering the boundary. The most recent addition to the various protections of the Gorge has been the designation of the Red River Gorge Archeological District in 2003 in an effort to protect the historical resources that are abundant throughout the it (Hutson, 2006).

Even with the impressive collection of protective classifications given to the Gorge, the current regulations on rock climbing are quite few. The Forest Service has a short list of rules governing rock climbing which include:

- “No climbing or rappelling from Tunnel Ridge Road within 300 feet of Nada Tunnel.
- No climbing or rappelling from Sky Bridge, Gray’s Arch, or Chimney Top Rock overlook.
- No new fixed anchor installation without prior approval of the Stanton Ranger District.
- Limit climbing on Tower Rock or Eagles Peak to allow vegetation to recover. Limit climbing from April 1 to November 1: Haystack Rock, Courthouse Rock, and Hen’s Nest Rock to allow vegetation to recover” (DBNF, 2005).

However, the increasing volume of climbers, routes, and climbing areas, (known as crags), have caused a considerable amount of environmental impact on the land. The trails that lead to the crags are established, and in some cases are in higher number than is necessary. The rock faces that are bolted, or sport climbs, now have permanently drilled holes. The climbers themselves add to the litter and waste brought into the Gorge. And, quite visibly, there is an abundance of chalk that climbers use on their hands to increase their friction against the rock that has been left on the cliff faces (Eling, 2005). While some of these factors are potentially amendable, like trail maintenance and litter control, others are an undeniable reality of rock climbing, like chalk residue and bolting. Nevertheless, these issues all are manageable and have more recently come to the attention of the Forest Service (DBNF, 2005).

The solution that is currently being employed is the Limits of Acceptable Change (LAC) process (Eling, 2005). This method was initially developed in 1985 from an experiment conducted at the Intermountain Forest and Range Experiment Station (Hutson, 2006). The process involves nine steps that allow its methods to be molded to fit each particular location where it is implemented. The goal is to determine how much human-induced change is acceptable for a given area and to figure a set of regulations to help maintain the area for future use (DBNF, 2005).

The first step involves an overview of the issues and concerns that encompass the land in question and to identify any areas that may need special attention (Cole and McCool, 1998). Step two delineates “opportunity zones” within the Gorge. This “provides a qualitative description of the kinds of resource and social conditions acceptable for that class and the type of management activity considered appropriate”

(Eling, 2005). Once the opportunity zone has been figured, a set of conditions of acceptable change is determined for each zone.

The third step of the LAC process brings a quantitative aspect to the data by finding evidence of resource and social impacts like the number of trails in given area or the number of damaged trees within a campsite (McCool, 1996). The next step (four) is an overall inventory of the current conditions of the gorge, which involves totaling the quantitative data found in step three for the entire Gorge (Eling, 2005). This gives an overview of impacts combined with a social survey of visitors to find relative feelings of overcrowding and perspectives of managerial issues.

Step five uses data collected to determine “standards” for specific activities throughout the gorge. For example, Eling (2005) describes a situation where “Contact between different groups on a trail will not exceed four per day on at least 90 percent of the days.” These measures are made for each opportunity zone. Step six identifies alternative opportunity zones. The idea is to decide what the goal of each opportunity zone should be with respect to its resources and recreational potentials.

Step seven allocates the management decisions that will govern each area, while step eight recognizes alternative regulations that would also suit the area. Finally, step nine is to implement the agreed upon management actions and monitor their progress. This also involves making any changes that are deemed proper (Cole and Stankey, 1998).

The goal of this particular study is to determine the perspectives held by the climbing community in reference to management issues, specifically to assist the USFS in gaining the perspective of this constituent group to help with the Limits of Acceptable

Change (LAC) process currently being implemented, and future concerns. To achieve this goal, four main objectives were designed to focus the research. Those objectives are:

- 1) Determine who makes up the population of climbers at the Red River Gorge
- 2) Find a level of awareness, in reference to the LAC process, that is currently existent within the climbing community of the Red River Gorge.
- 3) Ascertain what restrictions on climbing in the Red River Gorge would be acceptable for the climbers, and which would not.
- 4) Find what level of participation, if any, climbers are willing to have in the LAC process.

With all of the activity pulsing through the Gorge currently, it is certainly important to find a compromise between the human impacts and the environmental resources that we all enjoy. While the management of the Gorge is enforced by one party, it is experienced by all who recreate throughout the forest. As rock climbing is growing in popularity and the community is establishing itself ever more, it is particularly vital for them to be actively involved.

The impact that climbing has on the natural environment of the Gorge is well known. The significance of climbers to the area as patrons, tourists, and consumers must also be recognized. If potential regulations may discourage climbers from continuing their visits to the Gorge, the economic impacts will be considerable. That only increases the importance that the process of making regulations that regard the climbers should absolutely involve the climbers.

Review of Literature

Prior studies on the Red River Gorge have focused mainly on the perspectives of permanent residents within the Gorge. Katie Hutson (2006), for example conducted interviews with Red River Gorge locals, as well as surveys with visitors, to better understand the interactions between the two groups. She found that the majority of residents (70%) felt there were problems with the management within the Gorge. However, her study was not designed to include visitor opinions on the same matter.

Alexander (2004) conducted a survey-based study in 2004 examining the relationships and use-patterns of both recreationalists and local residents in the Red River Gorge. While her study did not focus on a single group of recreational users, she found that most are neutral regarding their impact within the Gorge. This includes littering, trail use, group size, and interactions with management officials. Her study showed that while visitors appreciated their experience in the Gorge, they did not feel that their presence left permanent effects.

The environmental impacts caused by climbing are unavoidable (Carr, 2007). This study incorporated manual and measured impact of climbing in the Red River Gorge at 16 specific areas. Carr found that climbing causes little avoidable impact and compared the process to campsite formation.

This is an opinion that many members of the climbing community in the Gorge are likely to share. People seem to enjoy coming to the “Red” and climbing, but very likely do not feel that their particular visit leaves an impact. If climbers are made aware of their compounded impact as a recreational group, they will more likely feel more responsible for their actions, and therefore more connected to the area. This concept is

supported by the research done on the Theory of Planned Behavior (Aizen 1991, 2002) related to behavior change. When individuals feel responsibility for their actions, they are increasingly open to more behavioral suggestions. Helping climbers become aware of their compounded impact could bring about an increase in their motivation to work with the Forest Service during the LAC process.

As the climbers are substantial stakeholders in the Red River Gorge, their involvement in regulation decision-making is important. A stakeholder is considered “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984). As stated on the USFS Web site by Tim Eling, the LAC process will only be effective if there is stakeholder involvement throughout the entire length of the project (2005). As studied by Robson and Robson (1996), stakeholders, as groups rather than individuals, are very likely to care about their share, however are not necessarily actively engaged in its management. Despite this finding, if all stakeholders are involved in the process, the outcome will be better and satisfy more of the stakeholder groups (Yuksel et al., 1999).

Other studies have focused on similar land use issues in different locations. Climbing in the Red River Gorge can be compared to the controversy in Yellowstone National Park with the introduction of snowmobiling. Many feel that the snowmobilers are unnecessarily adding to the environmental degradation of the park and want specific regulations to be placed on the activity (Davenport, et al., 151). The research for this study went into the park and conducted surveys with the participants to learn their perspectives and motivations. What they found was that most snowmobilers were using the vehicles to better experience the park in winter, not to conduct extreme snowmobile

adventures. This was different from the more negative reputation the activity holds for most people.

Some people have a negative image of climbers within the Gorge. The Hutson study found that 10% of the residents interviewed had experienced problems dealing with climbers in particular, in addition to other recreational activity participants. This finding is important to consider as engagement in the LAC process is vital to the future of the Gorge as a whole, but also with the specific future of climbing. If more climbers become involved with the LAC process, then the potential for complications with rules later on could be significantly lessened. By getting involved now, their opinions will be known and taken into consideration. This will result in regulations designed for all stakeholders in the Gorge, as well as helping to establish a more positive image of climbers. By expressing their concerns and interests in the area by participating in the LAC process, and by obeying the agreed upon rules afterward, climbers will be able to bolster their reputations.

The impact climbing has on the natural environment of the Gorge is well known. The significance of climbers to the area as patrons, tourists, and consumers must also be recognized. If potential regulations may discourage climbers from continuing their visits to the Gorge, the economic impacts will be considerable. That only increases the importance that the process of making regulations that regard the climbers should absolutely involve the climbers.

Methods

To gather the vital data for this exploratory, descriptive study, I administered two assessment tools to the local and visiting climbing community. The main tool was a convenience survey that I gave directly to participants during two weekends in August 2007. Another method of evaluation was small group discussions of the current management issues, as well as future concerns. Two separate discussions were held on August 17, 2007 and September 24, 2007. These were initiated by myself and included three and four participants, respectively. Both methods were administered at Miguel's Pizza in Slade, Kentucky with permission from Miguel Ventura. A total of 200 climbers were surveyed. The participants in the discussion groups also completed the survey.

Both methods were designed to find the level awareness that is currently existent within the community, as well as interest in future conditions. It was also necessary to learn what level of participation, if any, climbers are willing to have in the LAC process. If participants are unaware of the LAC process, enough information was given to determine if it is a process they feel is appropriate for the Gorge, and if they would be comfortable to contribute.

With the surveys, scales were used to determine where climbers prefer to obtain food in the Gorge, what factors effect their decision to pick a crag, how they feel about current climbing regulations, what level of affinity they feel toward other recreational users, and to what degree they would be willing to participate in the LAC process. Other demographic information was collected as well. These surveys took around 10 minutes to complete.

I was also interested in climbers' feelings regarding the current restrictions and what particular changes they would and would not find appealing. Open-ended questions allowed participants the opportunity to include unique experiences that may affect their opinions. This information was gathered through the discussion groups. These discussions took 10 to 15 minutes to complete.

To develop these methods, I studied the surveys designed by Hutson (2006) and Alexander (2004). Each used a combination of scale and yes/no questions. I used their surveys as basic models for structure and technique. I also received permission from the USFS LAC coordinator in the Red River Gorge Tim Eling, to use some of the parameters he used in his surveys, on mine. For the interviews, I designed open-ended questions that would give me more insight into specific motivations and opinions held by climbers.

The quantitative information collected from these methods was entered manually into Microsoft Excel. The data were analyzed through basic descriptive statistics in order to obtain general trends. I used the program to find means, medians, standard deviations, and summations within the data and to find percentages of opinions. All qualitative data were stored with the Microsoft Word program.

Findings-

Objective 1: Determine who makes up the population of climbers at the Red River Gorge.

A climber is defined by the level at which they can climb. Figure 1 shows the levels at which climbers lead sport and trad.

Figure 1: Level of climbing difficulty (%)

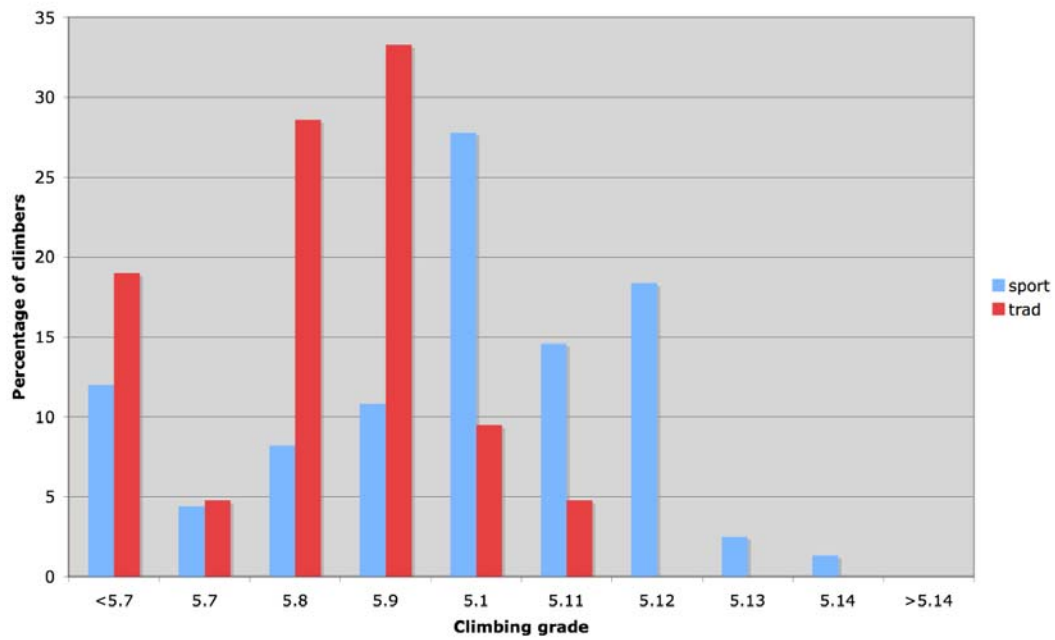
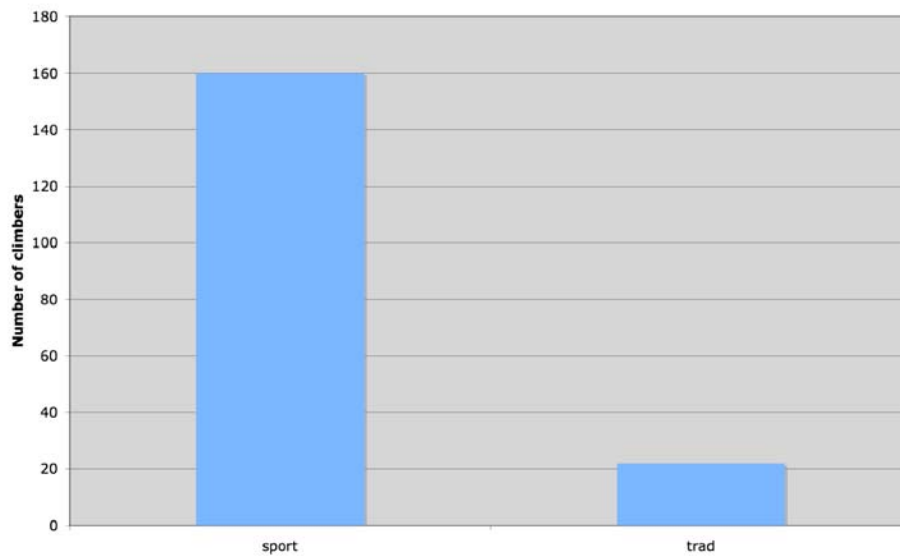


Figure 2: Climbing type preferences



Climbers usually express a preference for either the sport or traditional varieties of climbing. Figure 2 shows the frequency of their selection with 160 sport and 22 trad climbers responding. This information, along with that shown in figure 1 was used to obtain demographic data about the climbers in the Red River Gorge.

It is also important to know the extent of rock climbing’s impact on the Gorge by asking participants if they had ever set routes in the area, and if they have intentions to in the future. Most participants had no experience setting routes and showed no desire to do so in the future, see figures 3 and 4.

Figure 3: Set routes in RRG

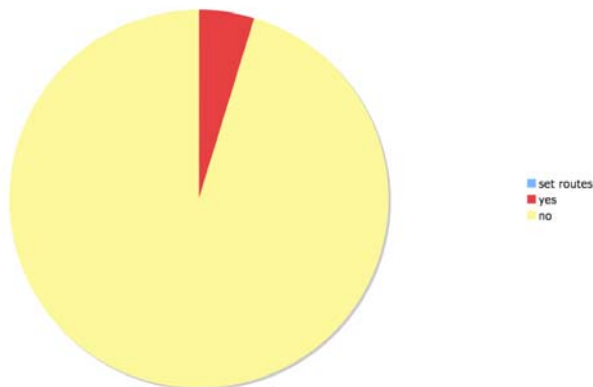
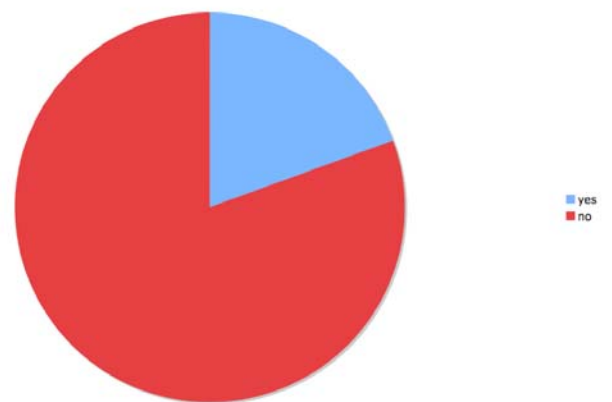


Figure 4: Plan to set routes in RRG



To add to the demographic data already gathered at the beginning of the survey, it was also asked how many people were included in each party, and how many cars they were driving. Tables 1 and 2 show this information. While the numbers show that most parties were small, the range of group size was great.

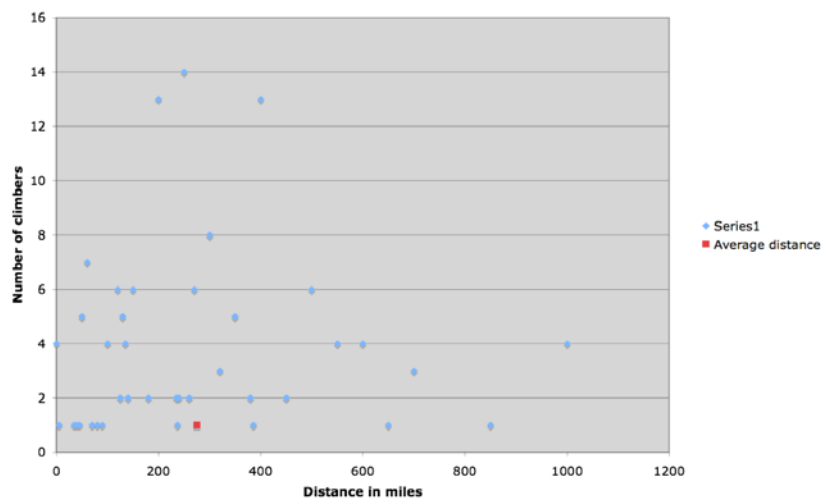
# of climbers in party	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	total
Table 1	13	50	55	27	15	7	0	0	0	3	4	1	0	1	1	177

# of cars in party	1	2	3	4	5	6	total
Table 2	121	52	10	2	2	1	188

In order to learn the full impact that this recreational population has in the Gorge, and also in coming to the Gorge, the participants were asked how far they had traveled in miles to arrive at their destination. The average distance was 275.35 miles, one way.

Figure 5 demonstrates this.

Figure 5: Distance traveled to RRG



To understand the full impact of driving a car the necessary distance to the Gorge, it was also asked of participants how many times a year they make this journey, and for how many years they have been coming. Figure 6 demonstrates the frequency of visits to the RRG by climbers, showing that the slight majority goes to visitors who come 4-10 times per year. Figure 7 shows the spread of years that climbers have been coming to the Gorge.

Figure 6: Frequency of visits

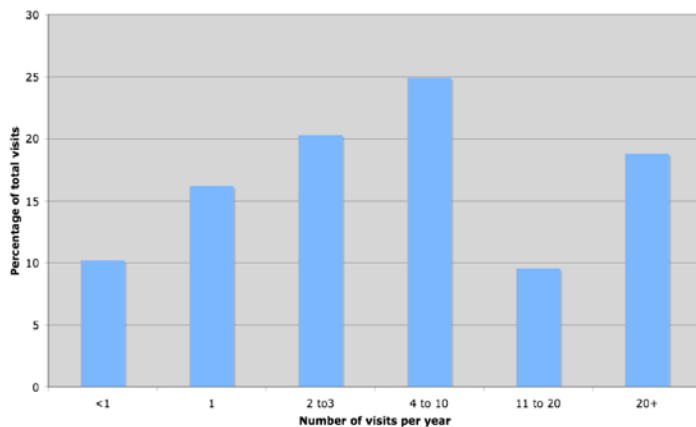
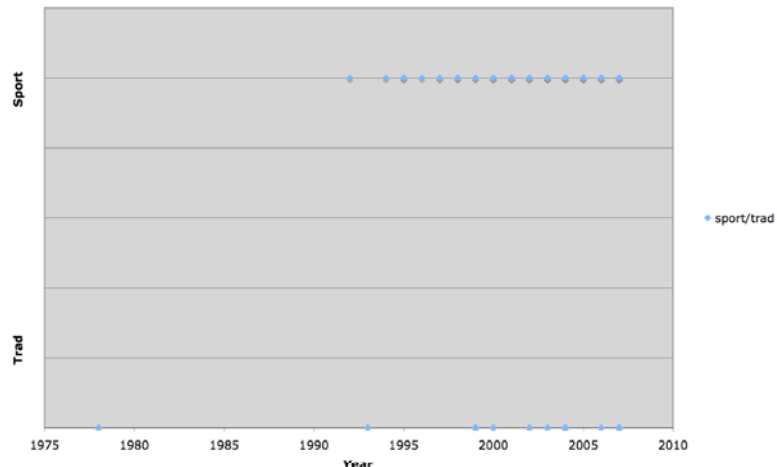


Figure 7: Started climbing in RRG



Once the climbers are at the Gorge, their impact is not limited to the crags. It was necessary to gain an understanding of where climbers spend their time away from the crag, and where they spend their money. As shown in figure 8, participants were asked whether they camped out or stayed in a motel while on their visit. Figure 9 shows the frequency of climbers who built campfires while in the Gorge.

Figure 8: Climber accommodations

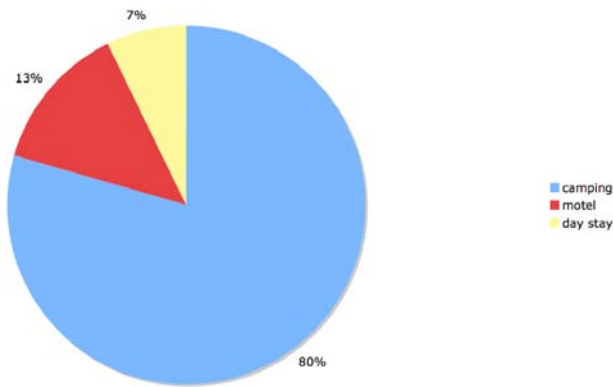
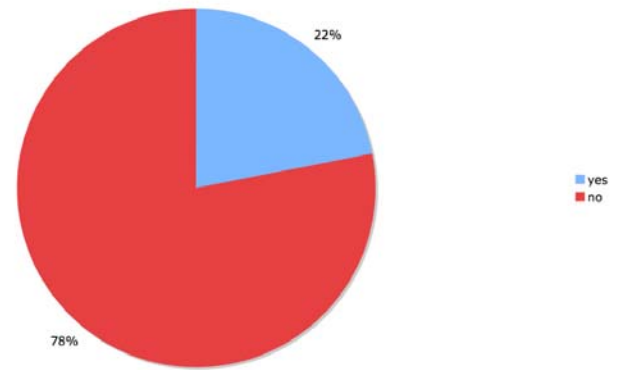
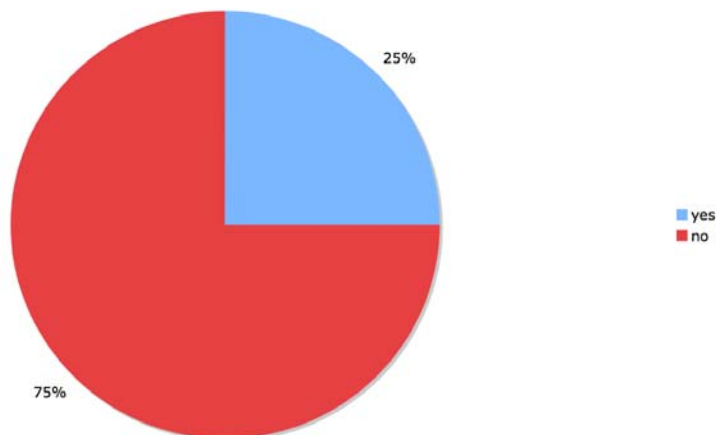


Figure 9: Building a campfire



To learn the spread of their impacts by participating in other recreational activities while staying in the RRG, climbers were asked about their plans. Figure 10 shows that 75 percent of the climbers surveyed came to the Gorge only to climb.

Figure 10: Participating in other rec activities



One thing that climbers will inevitably experience on their trip to the Gorge, is hunger. Participants were asked to rank on a scale of 1 (unlikely) through 8 (likely), where they chose to get their food. Table 3 shows the results of this question.

Food source	mean	median	SD
Miguels	3.5	8	3.181980515
BBQ at Torrent	2.75	2	0.530330086
Subway	2.7	1	1.202081528
Bring Food	2.9	8	3.606244584
Buy local	2.9	6	2.192031022
Other	2.3	2	0.212132034

Table 3.

The environmental impact that climbers have at the crags can be seen by the chalk on the walls, the approach trails, and the potential for litter to be left behind. The following figure 11 shows that most climbers use chalk to help them stick to the rock face despite the fact that it leaves white marks on the rock. Figure 12 shows that most climbers believe that the approach trails they use are well maintained. The majority of climbers did not notice any trash left behind at the crags they visited, as shown in figure 13.

Figure 11: Do you use chalk?

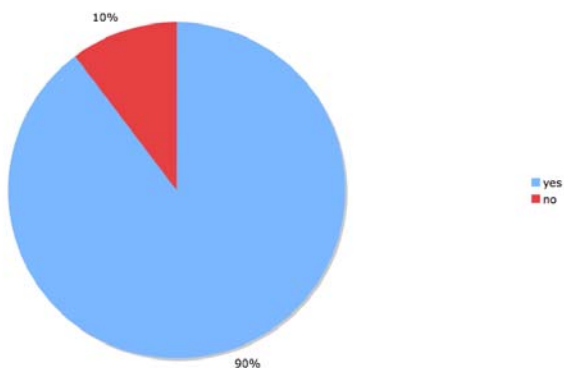


Figure 12: Current trails well maintained?

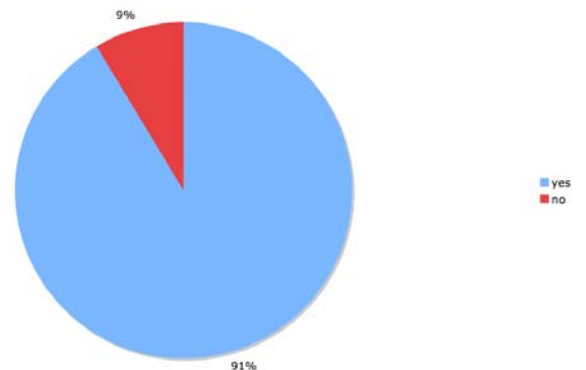
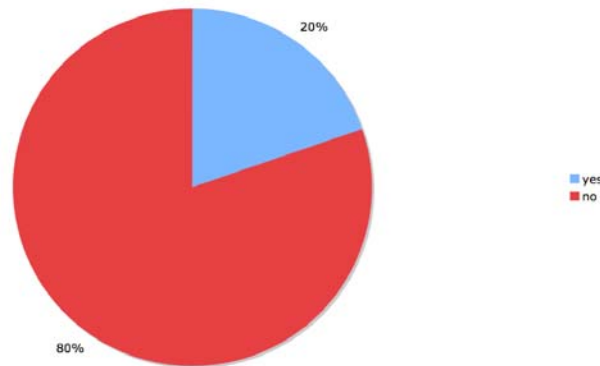


Figure 13: Did climbers notice trash at crags?



There are many crags that dot the cliff lines throughout the RRG. This allows climbers to have extensive choices in where they spend the day. The better understand what motivates climbers to choose particular crags over others, they were asked to rate the degree to which they picked the crag they climbed at on the day they filled out the survey. Table 4 shows the results of this question.

Degree to which choose crag	mean	median	SD
Personal climbing ability	1.9	6	2.899137803
Partner's climbing ability	3.3	7	2.61629509
Route particularly wanted to climb	2.9	6	2.192031022

Table 4.

The RRG is uniquely formed in that many crags are located quite closely to others. This allows climbers to drive to more than one crag a day with relative ease. The

following table 5 shows the average number of crags participants visited, depending on

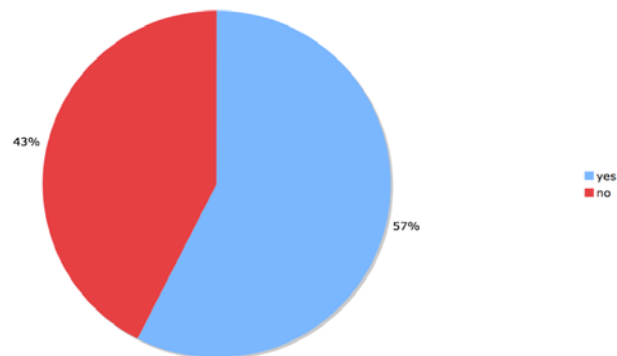
How many crags visited?	Sport climbers	Trad climbers
Average	1.57	1.74

whether they climbed sport or traditional on that particular day.

Table 5.

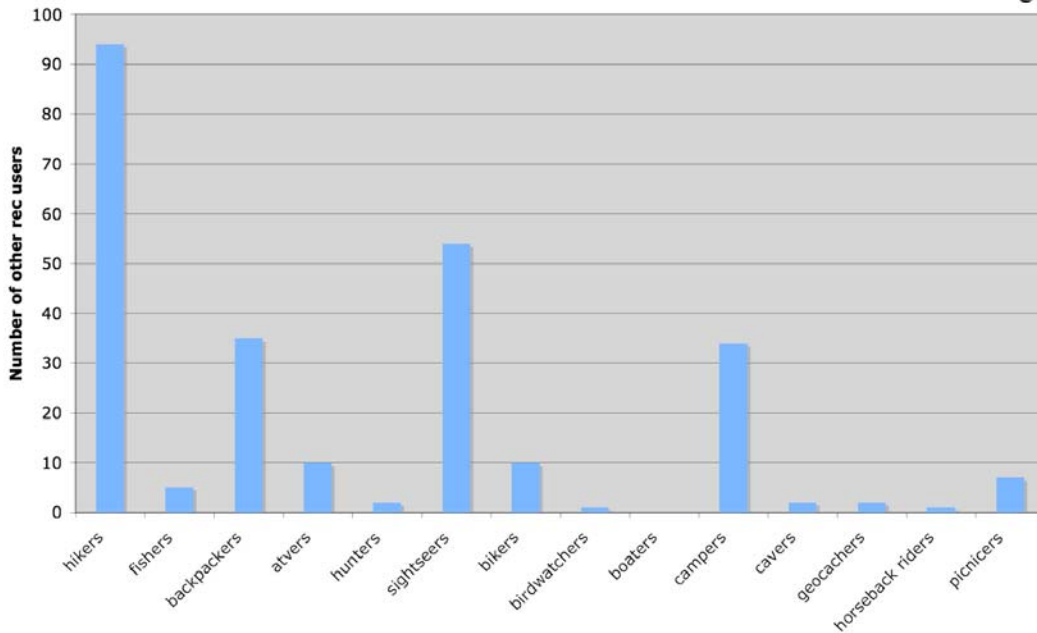
In addition to the impact at particular crags, one strong indicator is how popular the area is with climbers. Participants were asked if there were crags that they visited more frequently than others. Figure 14 shows that the majority of climbers do have spots that they visit more often than others.

Figure 14: Are there crags climbers frequent more than others?



The LAC process is looking at the impacts of all recreational activities in the RRG, not just rock climbing. It is not unlikely for the areas of different recreations to overlap. Climbers were asked to report whether or not they observed other recreational users while climbing. Figure 15 shows the number of other recreational users noticed by climbers on the day of their survey participation.

Figure 15: Other rec users observed by climbers



As all visitors to the Gorge will interact with each other, it is important to understand what kind of attitudes they have toward one another. The climbers who filled out this survey were asked to rank their affinity toward all the others types of recreational users in the Gorge. They ranked the different groups from 1 (strongly dislike) to 8 (strongly like). Table 6 shows the results of this ranking.

Climber's affinity toward other rec users	mean	median	SD	Summated scale
hikers	2.9	7	2.899137803	6.75
fishers	2.9	6	2.192031022	6.06
backpackers	3.25	7	2.651650429	6.89
atvers	2.8	2	0.565685425	2.98
hunters	2.8	3	0.141421356	3.72
siteseers	3.3	6	1.909188309	5.68
bikers	2.9	6	2.192031022	5.89
birdwatchers	2.9	6	2.192031022	6.16
boaters	2.9	5	1.48492424	5.22
campers	2.9	6	2.192031022	5.15
cavers	2.9	7	2.899137803	6.44
geocachers	3.2	6	1.979898987	5.72
horseback riders	2.8	5	1.555634919	5.23
picnicers	2.9	6	2.192031022	5.77

Some specific relationships were analyzed with the collected data to gain an understanding of the connections within the information in the surveys. First, the ranking of what level of motivation one’s personal climbing ability played into crag choice was analyzed against sport versus trad climbers. Table 7 shows that sport climbers are more likely to choose a crag based on their personal climbing ability than trad climbers.

Personal climbing ability	Sport climbers	Trad Climbers
Average on 1-8 scale	6.30	5.42

Table 7.

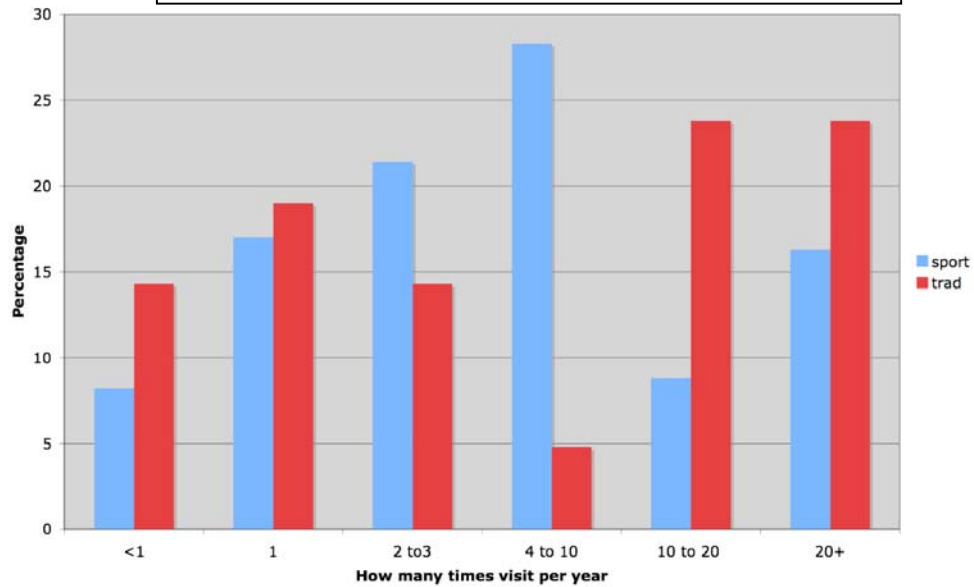
Another relationship that was specifically studied was the effect of how long climbers have been coming to the Gorge would have on whether they frequent a particular crag more than another. Table 8 shows that, for the most part, the longer a person has been coming to the Gorge, the more likely they are to have a preference of crags.

Year started climbing in RRG	1995	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Frequent certain crags over others-Sport	50% yes	100% yes	100% yes	100% yes	85.7% yes	85.7% yes	85.7% yes	90% yes	72.7% yes	70% yes	61.9% yes	27.7% yes
	50% no				14.3% no	14.3% no	14.3% no	10% no	27.3% no	30% no	38.1% no	72.3% no
Frequent certain crags over others-Trad				100% yes	100% yes		100% yes	100% yes	25% yes		100% yes	40% yes
									75% no			60% no

Table 8.

The impact of sport climbing and traditional climbing is not consistent throughout the Gorge. Because of this, the relationship can be analyzed from many angles. One approach that was taken during this study was whether the preference to type of climbing affected how often a person climbed. Figure 17 shows these results.

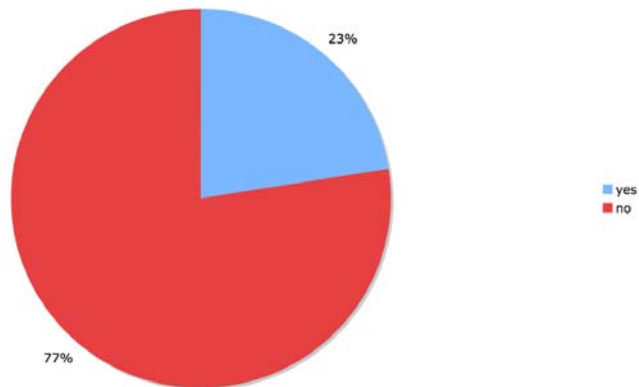
Figure 17: Percentage of how often climbers visit RRG



Objective 2: Find a level of awareness, in reference to the LAC process, that is currently existent within the climbing community of the Red River Gorge.

As an important stakeholder in the Gorge, it was necessary to ask the participants to comment on their knowledge and awareness of the LAC process. Figure 18 shows the frequency of climbers surveyed that have or have not heard of the LAC process.

Figure 18: Have climbers heard of LAC?



If the climbers responded that they had heard of the LAC process, they were asked if they had participated by attending meetings and contacting the authorities conducting the study. Figures 19 and 20 show the frequencies of these responses.

Figure 19: Of "yes", meeting participants

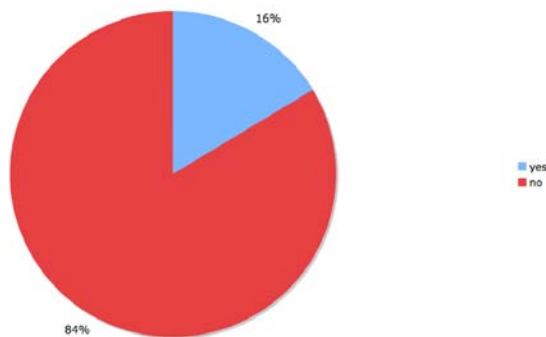
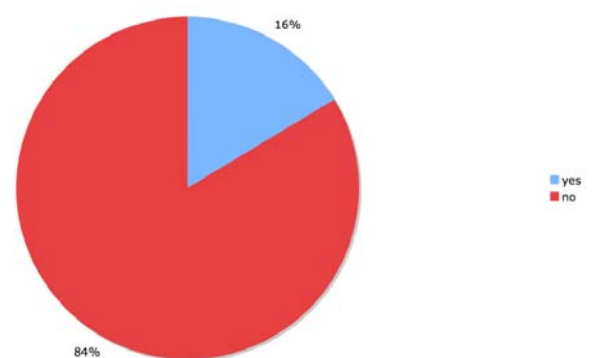


Figure 20: Of "yes", contacted authorities



In the discussion groups, two out of seven people had heard of the LAC process, but none had participated.

Objective 3: Ascertain what restrictions on climbing in the Red River Gorge would be acceptable for the climbers, and which would not.

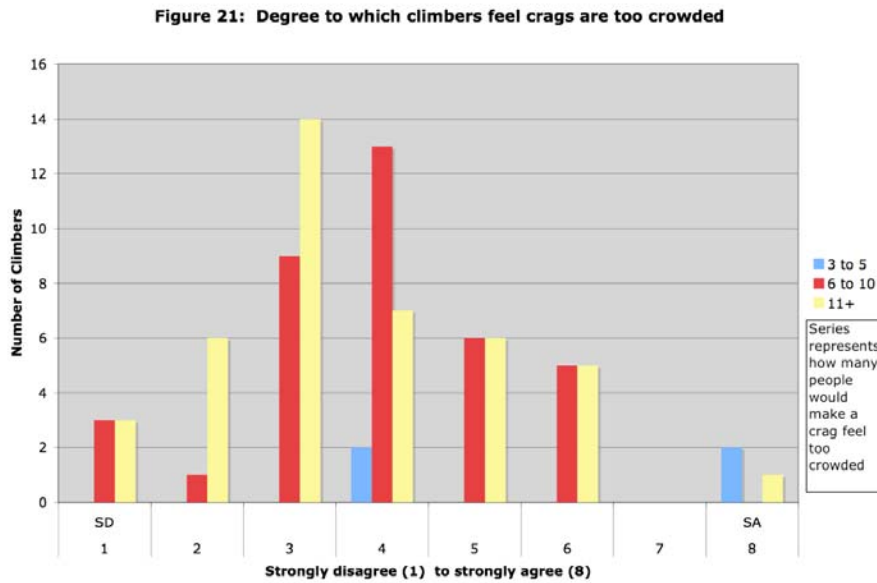
The current regulations on rock climbing in the Red River Gorge on US Forest Service land are very open-ended, and those established rules rarely affect climbers in most areas. That being said, the LAC process will most likely add to the current list.

Climbers were asked to rank the degree to which they agree with statements about current and potential future regulations. Results are shown in table 9.

Table 9		mean	median	SD	Summated scale
current regulations are appropriate		2.7	6	2.333452378	5.65
Crags are going up everywhere		2.9	2	0.636396103	6.41
Healthy amount of crag development		2.6	6	2.404163056	5.46
Climbers feel hindered		2.7	3	0.212132034	5.99
Crags are too crowded		2.8	4	0.848528137	5.38
Climbers rarely see anyone		2.8	3	0.141421356	2.87
Climbers support limit on number of people at a crag		2.9	1	1.343502884	2.35

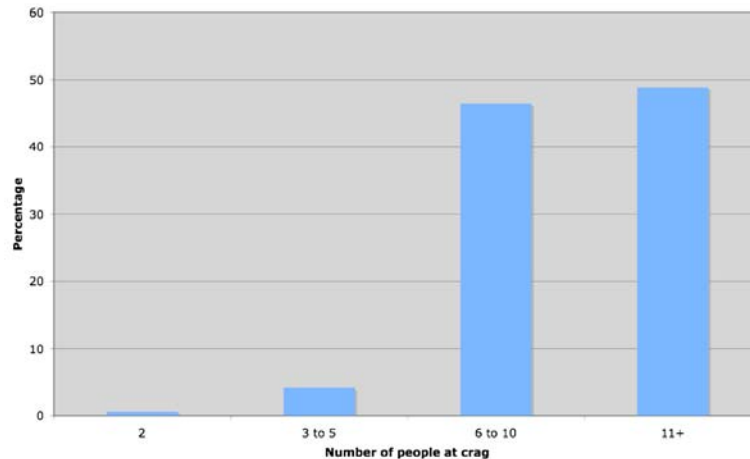
Because putting a limit on how many people will be allowed at a crag at a certain time is a likely method to control impact in the RRG, it was important to study the degree to which climbers feel crowded at the crags. The first of these comparisons is between the particular number that people expressed as when they would feel crowded and how

much people agreed with the statement “The crags are too crowded.” Figure 21 shows these results.



One of the most controversial issues being discussed throughout this Process is when there are too many people at a crag at one time. To put a number on this, climbers were asked to report the number of people at a crag which would make them feel crowded. Figure 22 shows the frequency at which participants feel crowded.

Figure 22: When climbers feel crags are too crowded (in percentage)



One comparison made was between the particular number of people that was expressed as when participants would feel crowded and which crag they chose frequent more than others. Table 10 shows these results.

Crag choice	# of people at crag at which climbers feel crowded	3-5	6-10	11+
Roadside		3.1%	42.4%	54.5%
Left Flank		5%	55%	40%
Fortress			71.4%	28.6%
Pistol Ridge			33%	66%
Courthouse Rock		100%		
Pebble Beach		100%		
Torrent Falls		25%	50%	25%
Muir Valley		7.7%	49.9%	42.2
PMRP			100%	
Phantasia			60%	40%
Military Wall			57.7%	42.3%
Motherlode		6.7%	20%	73.3%
Coal Bank			100%	
Sore Heel			100%	
Drive By			50%	50%
Bob Marley				100%
Purgatory				100%
Zoo			33%	66%
Purple Valley			100%	
Southern Region		14.3%	14.3%	71.4%
Surf		100%		
Darkside				100%
Gold Coast				100%

Table 10.

In the discussion groups, climbers offered a lack of opinions about current climbing restrictions. But in thinking of climbing rules for the future, they expressed the

desire to design and enforce their own, without the USFS. Also expressed was the desire to keep little to no restrictions within the Red River Gorge.

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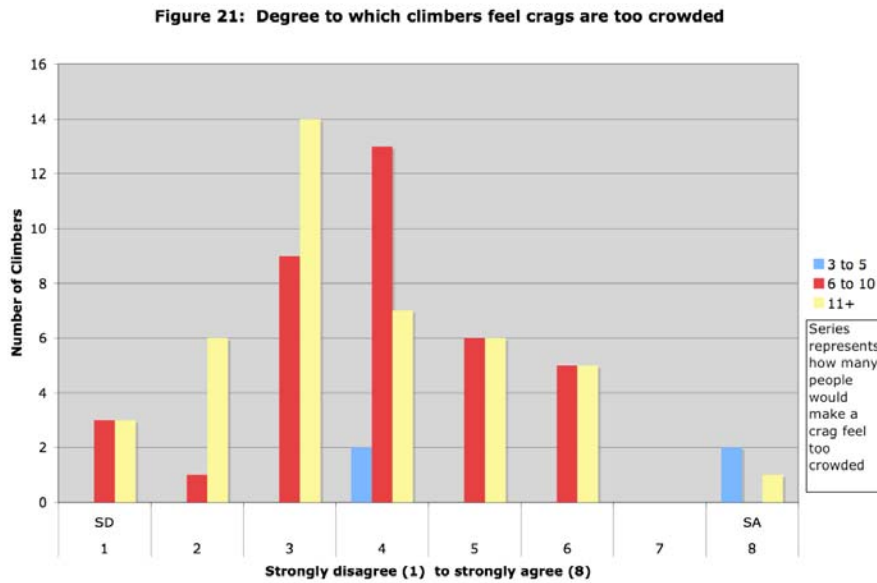
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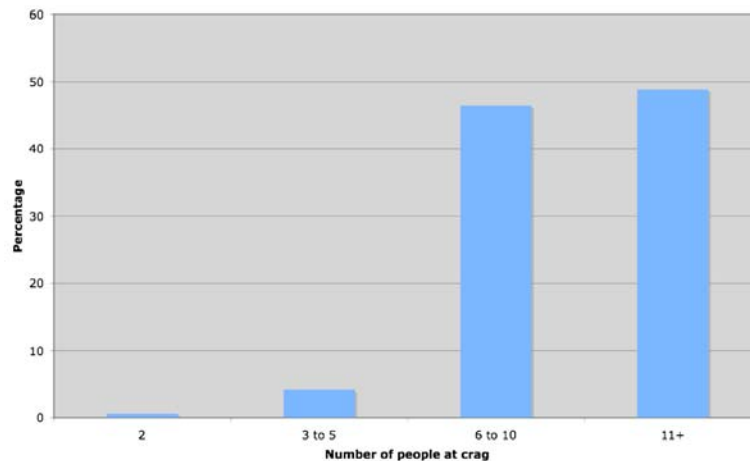
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desire to design and enforce their own, without the USFS. Also expressed was the desire to keep little to no restrictions within the Red River Gorge.

Discussion

Summary of Research

This research study of rock climber perspectives of management issues in the Red River Gorge was investigated through the use of a survey of rock climbers at Miguel's Pizza on the weekends of August 11-12 and 17-19, 2007, and discussion interview questions on August 18 and September 24, 2007.

The conclusions gathered from this study will be provided to the US Forest Service to aid their LAC process. This study's objectives were framed in order to provide the most accurate information available to the LAC researchers. Those objectives are:

- 1) Determine who makes up the population of climbers at the Red River Gorge
- 2) Find a level of awareness, in reference to the LAC process, that is currently existent within the climbing community of the Red River Gorge.
- 3) Ascertain what restrictions on climbing in the Red River Gorge would be acceptable for the climbers, and which would not.
- 4) Find what level of participation, if any, climbers are willing to have in the LAC process.

Each objective will be discussed separately in the following section.

Objective 1-Determine who makes up the population of climbers at the Red River Gorge.

The population of climbers that was found during this study showed an overwhelming preference to sport climbing over traditional. Sport climbers showed an

average level of skill at 5.10 rated climbs. Trad climbers were lower, at 5.9. It was also found that most climbers do not participate in setting new routes in the Gorge.

However, the majority of climbers are visitors to the Gorge. Most come between 4 and 10 times a year and drive an average of 275.35 miles to reach the Gorge. When they make the journey, there are usually three people in a group sharing one car.

Sarah Alexander (2006) found similar numbers in her survey of recreational users in the Gorge. While her study did not look specifically at rock climbers, those she gathered information from showed a preference to sport climbing over traditional and usually came in groups of three participants.

It has been observed over the past decade that sport climbing is growing in popularity in the Red River Gorge. While traditional climbs have claimed the majority of routes in the Gorge since its beginning, just recently, in the past two years, the number of sport routes has grown to match it (Hammon, 2007).

The current regulations for setting routes require permission from the USFS. However, this process is lengthy and cumbersome for the route-setter, and since its establishment in the mid-1990s, only four routes have been approved. Many route-setters ignore the process altogether. If the USFS wants climbers to keep them informed of routes going up, then they need to make the permission process easier and quicker to maneuver.

Some participants expressed a willingness to take on additional actions to minimize their environmental impact. As volunteered information on the surveys, some wrote that they clean up crags when litter is found, whether or not they know of its origin. This shows a caretaking sentiment from the climber constituents for the areas they use. If

more effort was made on the side of the USFS to reach these climbers and inform them of the LAC process, they will be well-received.

For the future, it may be beneficial to research what the effects of the permanent bolts are environmentally. With sport climbing growing in popularity, it would aid in keeping regulations environmentally and user friendly.

Objective 2-Find a level of awareness, in reference to the LAC process, that is currently existent within the climbing community of the Red River Gorge.

The Limits of Acceptable Change process that is being conducted by the US Forest Service in the Red River Gorge began in summer 2004 (Eling, 2005). They are finally reaching the concluding stages of the investigation. Despite this fact, many (77%, see Figure 17) of the rock climbers surveyed in the Gorge were unaware of the activity.

A study conducted in Texas used the LAC model to determine attitudes of recreational users toward development and perceived change (Ahn, etal, 2002). The research showed that people were more likely to approve changes if they were kept informed of progress and invited to participate. The LAC process is designed to do just that.

While the population found in the Red River Gorge showed that most of climbers are visitors, and this may account for why so many were unaware of LAC activities, their reactions to restrictions approved through the LAC process may be strong. As climbers may be exposed to new rules without prior knowledge of the LAC, these may not go over very easily.

It may be in the better interest of the USFS to improve their promotion of the LAC process, so that the level of awareness among climbers can grow. This would allow for access to more information and any restrictions deemed necessary through the LAC process will not be quite so surprising.

Additional research like that of Ahn and his colleagues could promote the ease of implementation for restrictions in future LAC studies.

Objective 3- Ascertain what restrictions on climbing in the Red River Gorge would be acceptable for the climbers, and which would not.

The overwhelming conclusion found in the data of this study showed that climbers would not support putting a limit on the number of people allowed in one area at one time. However, this particular strategy is frequently used by the USFS in attempt to curb the amount of human impact in a given area (Carr, 2007).

Many climbers stated that they felt the current restrictions are appropriate. While some expressed an interest in devising rules for the climbing community themselves and enforcing them, this would only be possible on land owned by climbing organizations or private land where the owners agreed with the climbers. The USFS is still responsible for managing the public lands.

In practice, climbers could make cooperating with the USFS difficult if they feel limited by any new rules. If the USFS made more of an effort to inform climbers, and other recreational users, of the LAC process then it would increase the number of climbers involved. That, in turn, would encourage cooperation in rule-setting and the

agendas of both groups. When stakeholders are informed and involved, they feel more satisfied and the process is more successful (Robson and Robson, 1996).

Research that follows the LAC-implemented restrictions would give a great insight into how other processes could be conducted in the future.

Objective 4- Find what level of participation, if any, climbers are willing to have in the LAC process.

This study also aimed to find the level of participation that climbers are willing to have in the LAC process. Unfortunately, as most climbers were visitors, they lamented the fact that their participation had to be limited. On a scale of 1 (not willing) through 8 (very willing), climbers expressed their attendance at meetings to be 3.46, attendance at workshops to be 3.37, email participation at 4.78, and volunteering with LAC researchers to be 3.63.

More people might be apt to participate if they felt their efforts were vital to the process. While the LAC study can be conducted without public participation, it is more effective and thorough with it. As expressed in a study by Cole and Stankey (1998), one of the core elements of the LAC process is the collaboration between the researchers and the stakeholders of the area.

By improving awareness among climbers, the policy making process will become easier and less adjustments will be needed after the initial implementation. Further research by following this LAC model in the Red River Gorge will act to improve the LAC in other places.

Recommendations

As vital stakeholders in the Red River Gorge, climbers should be included in the LAC process to help ensure the success of the project (Yuksel et al, 1999). As shown in data from this report, 77 percent of climbers surveyed were unaware of the LAC. It can be concluded that if stakeholders are unaware of an organization's projects, they cannot be involved. That increases the need for information to get to the concerned parties.

As the average distance traveled by rock climbers to the Gorge is 275 miles, it can be concluded that most climbers are not local residents, but visitors. In the past, to increase stakeholder involvement, the USFS has determined where visitors are coming from and held informational meetings in those locations of origin (Tiles, 2002). My study did not determine from where climbers were coming. However, my experience in approaching climbers was extremely positive. By finding where in the Red River Gorge climbers are congregating either during the day, or afterward, simply approaching them with informational pamphlets could be successful.

As shown by my data, most climbers come to Miguel's Pizza after climbing to eat, and some to sleep as well. This is an excellent location to approach climbers where they are relaxed and open to discussion.

Another method of interaction could be to recruit volunteers that are not paid employees of the USFS to approach climbers at crags and campsites. In addition to posted information at trail heads and rest areas, information could easily be distributed.

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