

# RECREATION VISITOR SAFETY REPORT

USDA FOREST SERVICE

October 18, 2010

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## **INTRODUCTION**

On June 11, 2010, a flash flood on the Ouachita National Forest in Arkansas claimed the lives of 20 people camping in or near Albert Pike Recreation Area. In response to this tragic incident, the Forest Service has taken actions to address visitor safety at both the Albert Pike Recreation Area and at other developed recreation sites on National Forests and National Grasslands across the nation. This report documents the Forest Service's response to date. The report contains three parts: Incident at Albert Pike Recreation Area, Regional Assessments, and National Actions. The report also contains an appendix which provides additional responses to the USDA Review Report on the incident at Albert Pike Recreation Area.

### **Recreation on the National Forests and National Grasslands**

The National Forests and National Grasslands provide the greatest diversity of outdoor recreation opportunities in the world, connecting people with nature in an unmatched variety of settings and activities. People hike, cycle, ride horses, and drive off-highway vehicles. They picnic, camp, hunt, fish, and navigate waterways. They view wildlife and scenery and explore historic places. They glide through powder at world class alpine resorts and challenge themselves on primitive cross-country ski or over-snow vehicle routes.

In 2009, there were over 173 million recreational visits to National Forests and National Grasslands. Recreation visitors to the National Forest System contribute nearly \$14.5 billion annually to the economy of nearby communities. Visitor spending contributes to the economic vitality of National Forest System-dependent communities, sustaining an estimated 223,000 jobs in local communities.

All outdoor recreational activities on National Forest System lands, including activities at developed recreation sites, have inherent risks due to the natural setting in which they occur and, in many cases, the nature of the activity. Not all hazards can or should be mitigated at developed recreation sites. In general, the inherent risk at developed recreation sites decreases as the development scale increases. The Forest Service strives to provide information and manage settings so that recreationists can take informed actions. As a result of the incident on the Ouachita National Forest, the Forest Service undertook a rapid assessment of current management of developed recreation sites and identification of additional actions that may be appropriate to address visitor safety.

## **PART 1: INCIDENT AT ALBERT PIKE RECREATION AREA**

### **Background**

In the early morning hours of Friday, June 11, 2010, major flash flooding occurred on the Little Missouri River and its tributaries in the Ouachita Mountains of western Arkansas. The fast moving water killed 20 individuals who had been camping along these streams, including 17 who were camping at the Albert Pike Recreation Area. This developed recreation area contains 54 campsites, most of which are single-tent or vehicle campsites. Eight units have water and electricity for accommodating larger recreational vehicles. One of the four camping loops was closed for reconstruction at the time of the flash flood.

According to data from a U.S. Geological Survey (USGS) stream gauge several miles downstream from Albert Pike Recreation Area, the Little Missouri rose from 3.57 feet at 1:30 a.m. Friday morning to a peak of 23.39 feet at 5:45 a.m. This unusual event, by far the highest reading since this closest stream gauge was installed in 1988, was triggered by rainfall in the area of approximately 7.6 inches overnight. Although hydrological analyses of the flood are still incomplete, preliminary findings indicate this was at least a 500-year storm event.

### **Flood Response**

Search and rescue operations began before daylight on June 11, 2010. The Montgomery County Sheriff's Office notified emergency responders, including a Forest Service law enforcement officer who was en route by 3:37 a.m. A Forest Service Incident Command Team was later dispatched and worked with Pike and Montgomery County Sheriffs' Offices and Arkansas State Police to locate missing persons. The 20<sup>th</sup> victim was recovered on June 14, 2010. Other agencies assisting in the search, rescue, and recovery efforts were the Arkansas Game and Fish Commission, Pike County and Arkansas Coroners' Offices, Arkansas Forestry Commission, the National Guard, Pike and Montgomery County Offices of Emergency Management, Arkansas Department of Emergency Management, USGS, and numerous other local and State partners and dozens of volunteers. A local church played a central role in assisting survivors. On June 13, 2010, rescuers began to remove vehicles, debris, personal property, and hazards that had been left within the recreation area or had washed into the Little Missouri River.

### **USDA Review**

On June 14, 2010, Secretary of Agriculture, Thomas J. Vilsack, directed that an inquiry be conducted into the flood events at Albert Pike Recreation Area. The purpose of the inquiry was to examine the events proceeding, during and immediately after the flood and to make recommendations based upon findings of fact. The USDA Review Report can be found at

[http://www.usda.gov/documents/Albert\\_Pike\\_Review\\_Team\\_Report\\_September\\_24\\_2010.pdf](http://www.usda.gov/documents/Albert_Pike_Review_Team_Report_September_24_2010.pdf)

The Forest Service Recreation Visitor Safety Report includes actions in Parts 1, 2, and 3 that are responsive to the USDA Review Report. Additional responses to the USDA Review Report are also located in Appendix A.

## **Moving Forward**

While the USDA review and area resource stabilization efforts were underway, the Southern Region initiated actions needed to address future management of Albert Pike Recreation Area. These efforts focused on three major areas, which are discussed in more detail in the following section:

- Interagency consultation to understand the nature of the flood event and assess potential flash flood warning systems.
- Deployment of a rapid assessment team to determine short-term management options for Albert Pike Recreation Area.
- Actions needed for a partial reopening of Albert Pike Recreation Area for day-use prior to Labor Day weekend and other safety measures needed in the vicinity of Albert Pike Recreation Area.

## **Interagency Consultation**

The Regional Forester, the Deputy Regional Forester, the Washington Office Director of Recreation, Heritage, and Volunteer Resources, two members of the Regional Office staff, the Ouachita National Forest Supervisor, and members of his staff met in Arkansas in early July with representatives of USGS and the National Weather Service. This trip included a briefing from USGS personnel on flash flood events and hydrological analysis, a site visit to observe a flash flood warning system in Hot Springs, Arkansas, and a discussion at Albert Pike Recreation Area. The trip enhanced understanding of the capabilities and limitations of flash flood warning systems, the challenges of predicting flash flood events, and the types of hydrological analysis that could be beneficial at Albert Pike Recreation Area.

Those meetings produced an agreement to conduct further hydrological work related to Albert Pike Recreation Area. An interagency agreement is being executed to conduct two hydrological studies funded by the Forest Service. This work will provide a detailed understanding of the hydraulics during the event and will be used to inform future management actions and decisions for Albert Pike Recreation Area. These studies are scheduled for completion in March 2012 and will supplement the flood assessment being prepared by USGS, which is scheduled for completion by the end of 2010.

Discussions also occurred with the National Weather Service regarding reestablishment of National Oceanic and Atmospheric Administration weather radio service at a tower in the vicinity of Albert Pike Recreation Area.

## **Rapid Assessment of Management Options for Albert Pike Recreation Area**

An interdisciplinary team from the Washington and Southern Regional Offices was deployed to Albert Pike Recreation Area in mid July to assess short-term options for management of the area. A primary objective was to determine the actions that needed to be taken before reopening the site. The interdisciplinary team also took a preliminary look at the possibility of restoring camping at Albert Pike Recreation Area.

The team determined that Loops A and B probably could be reopened for day-use only prior to Labor Day weekend. These loops were the least damaged and are adjacent to the swimming area. The team also concluded that day-use visitors were at less risk from flash flooding due to the higher level of

awareness during daylight hours, the likelihood of low visitor use during heavy rain, and the opportunity to access higher ground from Loops A and B in the event of a flash flood.

In the short term, the team did not foresee any safe way to restore camping at the heavily damaged sites in Loops C and D. Any decisions related to overnight use will require more extensive analysis than could occur this summer and fall while energy was being focused on reopening the area for day-use.

### **Actions at Albert Pike Recreation Area**

Based on the findings of the interdisciplinary team, forest staff completed the actions needed to modify and reopen Loops A and B for day-use only (not overnight camping). These loops were reopened for day-use by Labor Day and will remain open until their seasonal closure in mid to late October. Key actions that occurred prior to reopening include:

- Installation of new signs and posters, including flash flood hazard notices, at Loops A and B and the swimming area.
- Improvement of signing and security of Loops C and D, which still have hazards on site and will remain closed to the public.
- Posting of signs indicating the highest past flood level according to USGS.
- Removal of flood debris and hazard trees from Loops A and B.
- Removal of all tent pads and removal or repair of all damaged picnic tables, fire rings, and other site features from Loops A and B.
- Clearing of the swimming area of large debris (the Arkansas Game and Fish Commission provided divers to help remove large underwater debris from the swimming area) and reinitiating swimming area water monitoring.
- Restoration of electricity and water to the restroom in Loop B, including completion of required water testing.
- Provision for additional Forest Service staff to be present at Albert Pike Recreation Area when it reopens to respond to visitor questions and handle a predicted rise in traffic and visitation.
- Implementation of an operating plan for the area.
- Implementation of a communications plan to inform the public about the reopening of Loops A and B for day-use and the overall status of the area.

### **Actions in the Area Around Albert Pike Recreation Area**

The following actions have occurred in the vicinity of Albert Pike Recreation Area:

- Reopening of 31 miles of roads, including segments of National Forest System Roads 73, 106, and 43 that had been damaged by flooding, on August 1<sup>st</sup>.
- Reopening of the 10.9-mile Little Missouri Trail and 8.1-mile Viles Branch Trail that had been damaged by flood waters and fallen trees, on August 6<sup>th</sup>.

### **Other Actions**

The following actions will be conducted in response to the flash flood at Albert Pike Recreation Area:

- Completion of the USGS flood assessment by the end of 2010.
- Completion of two USGS hydrological studies by March 2012.
- Completion of an assessment of long-term use of Albert Pike Recreation Area in fiscal year 2011.

- Continuation of discussions among family members affected by the tragedy, local community members, members of Congress, and the Forest Service to address requests for a memorial.
- Restoration by the National Weather Service of weather radio service at High Peak in October 2010.

## **PART 2: REGIONAL ASSESSMENTS**

In response to the tragic incident at Albert Pike Recreation Area and to address visitor safety throughout the National Forest System, Joel Holtrop, Deputy Chief for the National Forest System, issued a letter to the Regional Foresters on June 24, 2010, requesting them by July 30, 2010, to assess the hazards associated with developed recreation sites and to identify actions they have initiated or completed to address these hazards. It was recognized that not all hazards can be identified or eliminated. Additional guidance was provided by e-mail and conference calls. The assessments were expected to evaluate signage and other communication outreach materials regarding known unique or unusual hazards and to review standard operating procedures for emergencies, including evacuation plans. The Deputy Chief also requested the Regional Foresters to identify any recommendations for follow-up at the national level.

### **Approaches**

The Regional Foresters developed assessment approaches to the Washington Office letter and e-mail that were appropriate for the circumstances in their region. They engaged staff and specialists from a range of professional disciplines, including safety, to complete the assessment.

Several regions initiated a phased approach, with the first stage being the rapid assessment. All regions recognized that safety assessment is an ongoing effort, with future steps to include additional site-specific evaluations and implementation of mitigation or corrective actions, as appropriate.

### ***Types of Sites***

The Regions focused their assessments on developed recreation sites, both Forest Service and concessioner-operated. Developed recreation sites are characterized by moderate to extensive development that is commonly referred to as development scale 3, 4, or 5. They are designed and developed; they contain improvements that are provided partially or primarily for user comfort and convenience; and they have defined vehicular circulation. Sites reviewed included:

- Campgrounds.
- Day-use Sites.
- Public Recreation Use Cabins.
- Visitor Centers and Interpretive Sites.
- Wildlife Viewing Sites.

## ***Hazards***

While the risks associated with using developed recreation sites are generally low, there is potential for the presence of unique or unusual hazards that may not be readily apparent to facility users. Some of the hazards commonly identified included:

- Flooding and flash flooding (including reservoir or dam failures above recreation sites)
- Hazardous forest conditions due to declining forest health
- Wildfire
- Wildlife encounters (bears, mountain lions, alligators, and snakes)
- Landslides and rock fall
- Steep drop-offs, waterfalls, and cliffs

Several regions identified hazards that are unique to their geography or are emerging, including:

- Volcanic and seismic events
- Blue-green algae blooms
- Tsunamis
- Hantavirus
- Marijuana operations
- Illicit border crossings

## ***Risk Assessments***

Several regions conducted a systematic assessment and determined a risk rating based on the probability and severity of hazards at specific sites. The regional assessments also identified corrective actions or mitigation.

## **Completed Regional Actions**

As a result of the rapid assessment, the regions completed additional corrective actions or mitigation. Examples of these actions are displayed below under the headings Policies and Procedures, Communications, Operation and Maintenance, and Emergency Response and Evacuation Plans.

### ***Policies and Procedures***

- Implemented a food storage order to prevent encounters with grizzly bears.

### ***Communications***

- Posted informational and warning signs on bulletin boards.
- Posted information on websites to provide more information about potential hazards.

### ***Operation and Maintenance***

- Removed additional hazard trees.
- Closed recreation sites until hazardous event was over.
- Converted sites from overnight to day-use.



### ***Emergency Response and Evacuation Plans***

- Updated emergency response and evacuation plans.
- Discussed existing and proposed plans with employees and campground hosts.

### **Planned Regional Actions**

Addressing visitor safety involves ongoing assessment and mitigation or corrective action, as appropriate. The regions identified actions that have been initiated or planned as a result of the rapid assessment. Examples of the types of actions the regions identified are described below.

#### ***Policies and Procedures***

- Updating of regional policy for identifying and managing hazards in developed recreation sites to enhance compliance and documentation.
- Working with forest staff to identify hazards and appropriate corrective actions in the developed site records in the Infrastructure database (Infra).
- Implementation of monitoring protocols.
- Review of environmental documents associated with construction or maintenance of campgrounds to determine whether the work was conducted in accordance with the environmental analysis.

#### ***Communication***

- Modification of the sign manual (EM 7100-15).
- Development and implementation of a visitor safety communications plan.
- Construction of new radio towers where radio reception is poor.
- Provision of weather radios to campground hosts.
- Inspection of bulletin boards to determine whether emergency information, including contact numbers, is posted and current.
- Posting of flood safety messages on bulletin boards.
- Inclusion of safety information in forest brochures.
- Arranging for the National Recreation Reservation Service (NRRS) to provide information or links to information on unique or unusual hazards and safety procedures at developed recreation sites.

#### ***Training***

- Conducting training on operation and maintenance at developed recreation sites, including hazard identification and appropriate mitigation or corrective actions, and working with concessioners to address hazards, as appropriate.
- Consulting with other Forest Service regions and other natural resource-based recreation providers on visitor safety.
- Conducting training on management of developed recreation sites, including hazard assessment and documentation.
- Providing information and training to campground hosts at Forest Service-operated developed recreation sites.

### ***Additional Assessments***

- Conducting an in-depth evaluation on developed recreation sites with flash flooding potential per the rapid assessment and implementing any further mitigation or corrective actions, as appropriate.
- Developing a regional risk management process for developed recreation sites.
- Completion of site-specific hazard assessments for developed recreation sites pursuant to the regional risk management process.
- Reviewing special use permits and working with concessioners to address hazards appropriately at developed recreation sites operated by concessioners.
- Completion of a comprehensive review of wildlife hazards at developed recreation sites.
- Completion of a site-specific hazard assessment during annual pre-season site inspections and recreation site condition surveys.

### ***Emergency Response and Evacuation Plans***

- Addressing the need for rapid exit from remote recreation sites accessed by narrow dirt roads.
- Improving emergency notification systems to facilitate timely evacuation.
- Improving response in the event of an emergency due to rare weather and geological events.
- Increasing public awareness of potential wildfire threats and evacuation plans.
- Updating “Southern Region Toolkit: Guide to Emergency Events and Supporting Documents.”
- Determining whether developed recreation sites located below dams have an evacuation plan provided by the dam operator.

## **Regional Recommendations to National Headquarters**

As part of the July 30th response, the regions identified the following recommendations for follow-up at the national level. They are displayed under the headings Policies and Procedures, Communications, and Training. These recommendations are addressed in Part 3, National Actions.

### ***Policies and Procedures***

- Compiling all health and safety direction pertaining to the management of hazards at developed recreation sites in Forest Service Manual (FSM) 2330.
- Revising directives related to hazard identification, documentation, and mitigation.
- Expanding the list of tasks in Infra and the national quality standards for safety and security at developed recreation sites, specifically, the standard, “high-risk conditions do not exist in developed recreation sites,” and stating that if that standard is not met, immediate action is needed or the site should be closed.
- Clarifying the actions needed to determine whether developed recreation sites are being managed in accordance with applicable standards and the documentation requirements in Infra.

### ***Communications***

- Developing a drop-down menu in the NRRS of warnings regarding hazards at developed recreation sites.
- Developing a national list of available health and safety posters and brochures that address hazards at developed recreation sites.

- Considering the role of the national headquarters with regarding the visitor safety communications plan the Southern Region is developing.
- Evaluating flash flood warning systems and their potential applicability to developed recreation sites.
- Reviewing information being provided to visitors at the recreation.gov website.

### ***Training***

- Developing and conducting training on public safety at developed recreation sites.

## **Evaluation of Regional Assessments**

The regional assessments, coupled with assessment of the incident at Albert Pike Recreation Area, demonstrate the complexity of providing quality, safe outdoor recreation opportunities in largely natural settings. The diversity of hazards identified underscores that all outdoor recreational activities on National Forest System lands, including activities at developed recreation sites, have inherent risks due to the character of the activities and the natural setting in which they occur.

The regional assessments reveal considerable variation in mitigation or corrective actions already completed as well as those planned or being considered for implementation. The regional assessments also show variation in the capacity to implement identified actions.

The regions made a number of recommendations for follow-up by the national headquarters. Visitor safety is a fundamental aspect of a quality outdoor recreation program. Given the importance of recreation to local economies, public health, and quality of life, visitor safety merits a national approach.

## **PART 3: NATIONAL ACTIONS**

Addressing visitor safety programmatically requires an integrated approach: a combination of actions at the local, regional, and national levels. An integrated approach to visitor safety includes appropriate communications and signing; excellence in environmental analysis and decision-making and site selection, planning, design, and operation and maintenance; and collaboration with other agencies, organizations, local communities, and the public. All require involvement of skilled recreation and other professionals and proper training and oversight of staff and volunteers. To achieve these aims, the following actions will be taken at the national level:

### ***Accountability, Oversight, and Monitoring***

- Further integration of public safety into the role of the National Leadership Council.
- Monitoring of implementation of actions in this report and issuance of periodic reports on those actions.
- Implementation of a national strategy for recreation program oversight and monitoring, including visitor safety.

### ***Policies and Procedures***

- Revision of the following national directives to address visitor safety more effectively:
  - Publicly Provided Recreation Opportunities (FSM 2330)
  - Sign and Poster Guidelines (EM 7100-15 and FSM 7160)
  - Privately Owned Recreation Opportunities (FSM 2340)
  - Watershed Protection and Management (FSM 2520)
  - Senior, Youth and Volunteer Programs (FSM 1800)
  - Safety and Health Program (FSM 6700)
- Improving guidance on emergency response and evacuation plans, exercises, and staffing and post-incident actions.
- Providing guidance on addressing visitor safety during environmental analysis and decision-making and during and after implementation of decisions.

### ***Communications***

- Implementation of a comprehensive visitor safety communications strategy, including signing, websites, brochures, and radio transmissions, to provide visitors information they need to make decisions about their recreational activities.
- Integration of visitor safety into development of a long-term strategy for the Forest Service's radio system.
- Evaluation of and development of guidance on early warning systems and their applicability to developed recreation sites.

### ***Training***

- Expansion of training on visitor safety for employees and volunteers, including campground hosts.
- Utilization of ReLink, an interactive recreation program website, and other tools to share information on visitor safety with employees, volunteers, and partners.

### ***Assessments***

- Development of a toolkit for assessing unique or unusual hazards, including flooding and flash flooding, at developed recreation sites.
- Initiating additional national assessments of visitor safety at developed recreation sites.
- Integration of management of developed recreation sites into agency efforts to reduce hazardous fuels and wildfire risk.

### ***Partnerships***

- Enhancing the ability to address visitor safety through partnerships with organizations, local and state law enforcement and emergency response organizations, and other federal agencies, such as the National Weather Service.
- Participation in the interagency recreation safety group.

## CONCLUSION

The June 11, 2010, incident in and near Albert Pike Recreation Area was a tragedy, resulting in the loss of 20 lives and many injuries to recreation visitors to the Ouachita National Forest in Arkansas. The incident prompted an examination of not only that site, but of visitor safety and implications for recreation management across the National Forest System, along with a commitment to strive for improvement in those areas. The Regions noted the value of the rapid assessment and the importance of addressing visitor safety, as demonstrated by the following comments:

This assessment of public safety was a positive and important learning experience, and has ushered in renewed attention to these important responsibilities. Follow-up actions are planned and underway at Forests and the Region.

Because visitor safety is part of our core business, I have been deliberate in emphasizing that the July 30, 2010, reply due is not a conclusive event. Understanding that visitor safety is an emphasis for us every day, we will continue to assess hazards and implement best practices to eliminate and reduce harm in developed recreation areas.

The Forest Service recognizes the rapid assessment is not a one-time event, but rather part of an ongoing effort to evaluate developed recreation sites and to take appropriate actions to address visitor safety at those sites.

The challenge of addressing visitor safety at developed recreation sites in a natural setting involves appropriate site selection and design, operation and maintenance, and monitoring. The incident at Albert Pike Recreation Area and the subsequent assessments have provided a foundation for more effectively addressing these objectives at a national level. However, it is not possible to eliminate all hazards and risks associated with recreating on National Forest System lands. All outdoor recreational activities on National Forest System lands, including activities at developed recreation sites, have inherent risks due to the natural setting in which they occur and, in many cases the nature of the activity.

To meet this challenge, the Deputy Chief for the National Forest System, through the Director of Recreation, Heritage, and Volunteer Resources, will develop an action plan responsive to this safety report and the recommendations in the USDA Review Report, by November 30, 2010, and oversee accomplishment of the actions identified in this report. The Forest Service is taking these actions in memory of all those who died in the tragedy in and near Albert Pike Recreation Area and for the benefit of all those who seek the bounty of recreation experiences throughout the National Forest System.

## **APPENDIX A – RESPONSE TO USDA REVIEW REPORT**

On June 14, 2010, Secretary of Agriculture, Thomas J. Vilsack, directed that an inquiry be conducted into the flood events at Albert Pike Recreation Area. The purpose of the inquiry was to examine the events proceeding, during and immediately after the flood and to make recommendations based upon findings of fact. The Forest Service has reviewed the USDA Review Report which is located at [http://www.usda.gov/documents/Albert\\_Pike\\_Review\\_Team\\_Report\\_September\\_24\\_2010.pdf](http://www.usda.gov/documents/Albert_Pike_Review_Team_Report_September_24_2010.pdf). While many of the items identified in the USDA Review Report have been addressed in Parts 1, 2, and 3 of the Forest Service Recreation Visitor Safety Report, the Forest Service is providing the following additional responses to the USDA Review Report. The Forest Service will continue to supplement its efforts to address visitor safety with additional review and consideration of the recommendations in the USDA Review Report. The Forest Service will also conduct an administrative review of employees' actions associated with the incident at Albert Pike Recreation Area.

### **Response to USDA Review Report - Section III. FINDINGS**

The Findings in the USDA Review Report provide important information in helping to understand the circumstances surrounding the flash flood incident at Albert Pike Recreation Area. Actions have already been taken to address the lessons learned, including actions identified in Parts 1, 2, and 3 of the Recreation Visitor Safety Report. The findings from the USDA Review Report (items A through I) are displayed below with the Forest Service response following.

#### **USDA Finding**

- A. Anomalies in the NEPA process and procedures used to arrive at the Decision Notice may have prevented a full consideration of the facts and opinions of the inter-disciplinary team assembled to support the campground project.

#### **Forest Service Response**

There is no policy prohibiting a District Ranger from writing an Environmental Assessment (EA). There are indications in the EA that the District Ranger did consider previous flooding history for the area. The EA mentioned occasional flooding and it was described as the reason for elevating some of the campsites in Loop C. The EA indicated that the realignment of these sites would help eliminate the safety hazard to sites prone to annual flooding.

#### **USDA Finding**

- B. Anomalous methods were used to determine the 100-year flood elevation for Loop D.

#### **Forest Service Response**

The Bankfull Evaluation method used for determining the 100 year flood elevation for Loop D is an accepted method for planning purposes associated with NEPA. There are multiple acceptable methods for determining flood plains, and professional judgment is used to select the appropriate method for any given circumstances. It appears there have been some miscommunications surrounding this concern. After further review, the agency has verified the actions of the hydrologist were not in conflict with agency directives.

**USDA Finding**

- C. The Ouachita National Forest failed to post flood hazard warning signs and notices at the Albert Pike Campground even though there was an established record of flooding at the Albert Pike Recreation Area and Forest Service guidelines called for the posting of such signs.

**Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

**USDA Finding**

- D. The Ouachita National Forest failed to correct known communications problems at the Albert Pike Recreation Area.

**Forest Service Response**

Lack of radio and cell phone coverage did affect communications related to the incident at Albert Pike Recreation Area. However, the report indicates that there was a telephone landline to the volunteer campground host site and that the host used this telephone line to call the Montgomery County Sheriff's Office. The Sheriff's Office utilized their communications system to dispatch emergency personnel. The Forest Service uses agreements with other agencies to provide for assistance and to supplement agency communication systems.

**USDA Finding**

- E. The Volunteer Hosts at the Albert Pike Campground were not adequately trained or prepared for an emergency situation, including a flash flood.

**Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

**USDA Finding**

- F. Forest Service Employees in Region 8 and on the Ouachita National Forest do not have adequate knowledge of Forest Service directives and policies related to flood hazards and mitigation requirements.

**Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

**USDA Finding**

- G. The Forest Service failed to develop a contingency plan or other mitigation steps to deal with a major flooding event at the Albert Pike Campground.

**Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

### **USDA Finding**

- H. Given the unprecedented magnitude of the flash flood on June, 11, 2010, it is unclear whether any effort by the Forest Service to mitigate the disaster would have made a significant difference in preventing the tragic loss of life that occurred as a result of the flood.

### **Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

### **USDA Finding**

- I. The emergency response effort by Forest Service and Forest Service Law Enforcement personnel was at times valiant and effective, particularly in view of the treacherous conditions these first responders encountered.

### **Forest Service Response**

The Forest Service acknowledges this finding and has no further comment.

## **Response to USDA Review Report - Section V. Recommendations**

The following information responds to Section V. Recommendations in the USDA Review Report. The response encompasses the individual findings that were enumerated within each of the identified categories A through F.

### **A. Signing**

The USDA Review Report recommends assessing all Forest Service recreation areas for flash flooding potential and then properly posting signs as needed. The national assessment of hazards associated with developed recreation sites directed by the Deputy Chief in June was the first step in accomplishing this task. In addition, the national actions described in Part 3 of this Recreation Visitor Safety Report include implementation of a comprehensive safety communications strategy, which will include signing as well as other forms of communication, such as websites, radio communications, and brochures. While increased focus on signing at developed recreation sites is appropriate, communicating safety information to users at dispersed campsites or areas open to camping across millions of acres of National Forest System lands prone to flooding and other hazards would be more effectively handled through other methods. Part of the comprehensive safety communications strategy will be clarifying the safety communication needs of the wide diversity of sites and recreation opportunities offered by the agency.

At Albert Pike Recreation Area, determining the best way to memorialize the tragedy will involve collaboration with families, local community support groups, members of Congress and Forest Service staff. The Forest Service response will support family and community-driven efforts to remember those who died and those who served others, while also interpreting an event that was significant to Arkansas and the surrounding region.



## **B. Safety Zone and D. Early Warning Systems**

The USDA Review Report includes recommendations regarding the establishment of safety zones at Albert Pike Recreation Area, as well as the establishment of an early warning system for flash flooding in the area. The agency recognizes there is widespread interest in flash flood warning systems for Albert Pike Recreation Area. As discussed in Part 1 of this report, there have been discussions with the U.S. Geological Survey (USGS) and the National Weather Service to gather information about weather forecasting and flash flood warning systems. There are also ongoing hydrological studies to better inform the agency about flooding risks at Albert Pike Recreation Area.

The agency has not yet made any conclusions regarding installation of a flash flood warning system at Albert Pike Recreation Area. The agency will not restore any overnight use in the area until safety concerns can be adequately addressed. Preliminary discussions have surfaced many important considerations that must be addressed as part of those deliberations. For example, any flash flood warning system must be highly reliable, provide adequate lead time for response, include one or more mechanisms to effectively alert visitors (including those with disabilities), and it must minimize false alarms or else its ability to prompt evacuations will diminish over time. These are very difficult criteria to meet at a location such as Albert Pike Recreation Area. The critical nature of a warning system decision necessitates very careful analysis. The agency will continue to explore warning system options.

A careful and professional site inventory and analysis should be completed as an overall strategy to ensure safety. Utilization of an early warning system to ensure safety should be considered in the context of such an integrated approach. The establishment of safety zones at Albert Pike Recreation Area is an important consideration in determining future management of the site. The agency will complete an assessment of long term use at Albert Pike Recreation Area during fiscal year 2011. Part of that assessment will include careful consideration of the flash flood risk and the effectiveness of safety zones in helping to mitigate that risk.

## **C. Communications**

The USDA Review Report highlights how additional communications channels might have contributed positively to the incident at Albert Pike Recreation Area. Local forest officials began working with the National Oceanic and Atmospheric Administration (NOAA) shortly after the event to encourage efforts to gain NOAA radio coverage in the area. The National Weather Service is currently working on engineering requirements to relocate the Mt. Ida NOAA weather radio station. This will allow expanded services to nearby counties. Relocation is expected to be completed in October, 2010. In addition, the Forest Service is acquiring two additional base stations to enhance Forest Service radio coverage of the Albert Pike Recreation Area.

The USDA Review Report also addresses the role that volunteer campground hosts can serve as a conduit of information for campers. In many circumstances they can play an effective role, but they should not be relied upon as a fail-safe method for dispersing critical safety information. There are many campgrounds that do not have campground hosts, and even when a campground has a host, there are many times when the host is not on site or hazardous conditions make it unsafe for the campground host to communicate with visitors.

The agency will continue to explore options for improving communications available for campground hosts. The desire is to reduce the dependency on volunteers or staff as much as possible since they may not always be available to distribute information when severe weather strikes. Increasing visitor awareness and developing other forms of communication will facilitate well informed decisions on the part of visitors in dealing with the inherent risks of outdoor activities.

#### **D. Early Warning Systems**

See recommendation B. Safety Zones.

#### **E. Training**

Training needs are addressed in several recommendations by the USDA review. In the Southern Region, staff from every National Forest met with campground hosts to assure they were aware of safety hazards and response procedures. The actions described in Part 3 of this report also identify the intent to expand training on visitor safety for both volunteers and employees, including law enforcement, on a nationwide basis.

#### **F. Policy/Procedure**

The USDA Review Report includes several recommendations related to improving the environmental analysis process in order to better incorporate visitor safety. Prior to the incident at Albert Pike Recreation Area, the agency had initiated an effort to improve the monitoring of projects for proper implementation in accordance with decision documents and will continue this effort expeditiously.

Also, as described in Part 3, the agency intends to implement a national strategy for recreation program oversight and monitoring, which includes visitor safety. This will encompass some of the policy and procedure recommendations as well, such as those related to signing consistency, safety inspections, and project implementation.

The USDA Review Report also includes other various recommendations regarding changes in policy and procedures. The agency will be individually reviewing these to determine ways to better incorporate visitor safety into agency operations.