

Appendix F

MONITORING AND IMPLEMENTATION FOR THE RED RIVER WILD AND SCENIC RIVER

MONITORING PROGRAM

INTRODUCTION

The Red River monitoring program has three purposes: to determine how well we are moving toward the desired future condition described in the Forest Plan (Chapter 3); to help us understand how management of the river corridor is affecting the Outstandingly Remarkable Values of the Red River; and to help identify the conditions needing corrective actions to protect and enhance river values. The water quality of the Red River and its outstandingly remarkable values identified in the Affected Environment of the Forest Plan EIS (Chapter 3) are the focus of this monitoring program.

This monitoring plan prescribes two scales of monitoring--monitoring of long-term trends and monitoring the effectiveness of specific activities. The accomplishment of any monitoring project is dependent upon budgets and national, regional, or local allocations of resources.

Long-term trend monitoring will focus on the outstandingly remarkable values, which the Plan is designed to protect and enhance. The purpose of this level of monitoring is to determine whether the resource conditions in the river corridor as a whole are improving, remaining the same, or declining over time.

The second scale focuses on project or activity level monitoring. At this scale, data is gathered and collated on the effectiveness of particular activities in attaining more specific resource conditions.

MONITORING GUIDANCE FOR THE RIVER VALUES

For water quality and each outstandingly remarkable value, this section provides general direction for what to monitor for long-term trends and for specific activities by identifying the broad monitoring objectives. Suggestions are also made for specific monitoring methods and frequency. These lists are suggestions and are not comprehensive. Monitoring techniques change and newer methods may often be both more accurate and more economical. Any methods that will adequately answer the monitoring questions may be used. Professional judgment will be used to determine monitoring frequency and methodology that is appropriate to the scope of the issues and environmental conditions.

This monitoring program incorporates data collection that is already in place or part of a continuing base program. These programs are noted in the following tables with a single asterisk (*). New monitoring activities must be funded through project-specific sources or by adding to an existing program. New monitoring activities are noted with a double asterisk (**). New monitoring activities will be added only if funding or other sources become available.

Water Quality

Monitoring Element	Purpose	Suggested Methodology and Frequency	Responsible Agency or Agencies
Long-term Trend Monitoring			
Critical water quality parameters (dissolved oxygen, pH, turbidity, temperature, suspended solids)	To determine trends resulting from management activities, or other changes within the river corridor *	See Forest Plan Monitoring.	USFS
Activity Level Monitoring			
Turbidity	To determine project effects on stream quality.*	See Forest Plan Monitoring.	USFS

Scenic, Geologic and Recreational Values

Monitoring Element	Purpose of Monitoring	Suggested Methodology and Frequency	Responsible Agency or Agencies
Quality of Recreational Experience	To determine whether users are enjoying a quality recreational experience.**	User surveys and informal interviews conducted periodically. Includes National Recreational User Survey done every five years.	USFS
Total Use Levels	To determine whether use levels are in conformance with ROS objectives.**	Gather recreation use data every five years or more often if observed use indicates. Methods could include pass counts, envelope counts, parking lot surveys, trail and road surveys with infra red or pneumatic counters.	USFS

Historic and Cultural Values

Monitoring Element	Purpose of Monitoring	Suggested Methodology and Frequency	Responsible Agency or Agencies
Cultural and Historic Sites	To determine the extent to which cultural sites are affected by management activities.*	See Forest Plan Monitoring	USFS

Botanical, Faunal and Aquatic Values

Monitoring Element	Purpose of Monitoring	Suggested Methodology and Frequency	Responsible Agency or Agencies
Long-term Trends			
Vegetative Condition	To determine changes in white-haired goldenrod sites.**	Annual surveys of known sites to determine status of populations	USFS
	To determine changes in amount and condition of riparian vegetation. **	Aerial photo comparisons; dispersed site survey comparisons over time--every five years	USFS
	To determine changes in upland vegetation*	Silvicultural stand examinations; aerial photo comparisons--every 10 years	USFS
Wildlife Populations	To determine changes in hibernating bat populations.**	Bi-annual	USFS and KDFWR
	To determine changes in populations of management indicator species. **	See Forest Plan Monitoring	USFS
Fish Habitat Conditions	To determine changes in fish habitat and hydrological features (pools, riffles, channel width/depth) **	Stream survey of Upper Red River using standard protocols, every 10 years at a minimum, or more frequent if major habitat changes occur.	USFS and KDFWR
Activity Level			
Vegetative Condition	To determine effects of management and restoration activities on the amount and condition of riparian vegetation**	Survey samples of road, trails and dispersed campsite closures.	USFS
Wildlife populations	To determine whether management indicator species and PETS species are in project area and whether species' use of area is protected**	Survey according to established protocols; pre-project to identify species using area and post-project to see if use changes.	USFS
Changes in channel morphology and hydrologic conditions	To determine the effectiveness of fish habitat projects (e.g., coarse woody debris and boulder placement.)**	Pre and post project cross-sectional sampling in project area. At five-year intervals stream survey specific to project objectives.	USFS and KDFWR
Fish populations	To determine the effectiveness of fish habitat projects**	Fish counts, snorkeling, electroshocking. Once every 5 years.	USFS and KDFWR

ACTIVITY MONITORING

Activity monitoring can be done at various intensities, but would generally involve four steps. The first is to collect relevant baseline data to determine what the condition is before undertaking activities. Much of this data may have already been collected. It provides the answer to the question, “What was the condition of the resource before any actions were taken?”

The second step is to verify that projects were carried out as planned. This second step is known as *implementation monitoring*. It should answer the question, “Were projects done in the manner intended?”

When we know baseline conditions, and have confirmed that projects took place as planned, we can then assess whether the results and effects were what we anticipated. This third step is *effectiveness monitoring*. It asks the questions, “What’s happening as a result of our activities: Were the activities effective in accomplishing the activity objectives? (Long-term monitoring determines if projects are successful in meeting overall plan goals.) Are the activities as a whole effective?” Although some individual projects may need effectiveness monitoring, generally effectiveness monitoring would be performed on a sampling basis, rather than project by project.

If projects are not achieving anticipated results, the next step is to re-examine the assumptions and logic that went into planning, design, and implementation. This fourth step, called *validation monitoring*, allows us to identify whether there is a need for change in overall direction in planning, designing or carrying out activities. Validation monitoring asks the question, “Is there anything we should do differently in managing the river corridor?” The answer may be as specific as changing an implementation technique or standard, or as broad as changing an overall goal for the river corridor. Validation monitoring is also applied at a broader scale, and is used to periodically reexamine the broader goals and objectives for the Red River Wild and Scenic River to verify whether they are still relevant and appropriate.

To summarize, the general sequence when monitoring any activity, or set of activities, is:

- 1) Collect relevant baseline data before the activity.
- 2) Do implementation monitoring to verify activities were carried out as designed.
- 3) Do effectiveness monitoring to assess results.
- 4) If results are different from those desired, conduct validation monitoring to assess whether a change in management direction is needed. Also, periodically assess direction and assumptions for the Red River Wild and Scenic River to evaluate whether they need to be changed.

SUGGESTED CONTENT OF ACTIVITY MONITORING

The project or activity file for each activity may contain:

- 1) Documentation showing the project’s consistency with the intent and direction of the Red River Wild and Scenic River goals and objectives. (This is provided in the environmental documents for the project).
- 2) An implementation checklist, to be completed by the time the project is done. The checklist will be based on standards and guidelines or other direction applicable to the project or activity.

- 3) A monitoring strategy for the project, including:
 - a) A list of elements of the project that are important to monitor in light of planning issues identified for the project. Include specific descriptions of what *implementation monitoring* and, if appropriate, *effectiveness* monitoring that is needed and how it would be done. Monitoring may range from informal observations like “walk-through”, to quantified statistical sampling. For implementation monitoring, methods should answer the question, “Were the project plans followed?” For effectiveness monitoring, methods should answer the question, “ Was the management activity *effective* in accomplishing the stated objectives?” In the case of routine projects, effectiveness monitoring should be done on a sampling basis.
 - b) A description of what additional baseline data, if any, would be collected to accomplish this monitoring.
 - c) A schedule for completion of the monitoring activities. In many instances it may be possible to coordinate implementation and effectiveness monitoring activities.

When the project has been completed, monitoring should be done as directed in the project file and within the time frames specified. As a minimum, monitoring documentation should include a short narrative assessing to what extent implementation was completed as planned. If implementation was not as expected and/or the project was not effective in achieving the desired results, follow-up measures would be prescribed at this time.

IMPLEMENTATION PRIORITIES

INTRODUCTION

The Red Wild and Scenic River lays within a designated Wilderness and the Red River Gorge National Natural Landmark and Geological Area, which have provided, and continue to provide, much protection from adverse impacts. However, there are actions within the designated corridor that could be taken to further protect or enhance the Red River from possible adverse impacts. This section describes the process for implementing probable actions that would most likely be needed to achieve the desired future condition as described in the Forest Plan EIS. Probable actions are called “probable” because their actual accomplishment is dependent upon budgetary and resource allocation limitations. These probable actions are grouped according to the outstandingly remarkable values the action was intended to protect or enhance.

In the following section, the probable actions have been categorized and, where possible, relative priorities of actions have been developed within those categories. Individual categories of action have been identified according to water quality and the outstandingly remarkable values and do not necessarily reflect a priority of action of one category over another, nor do they reflect a relative priority of one outstandingly remarkable value over another. Additionally, funds and resources will affect the order in which certain projects are undertaken. For instance, a fishery project, which may be funded by a state or private partner, may be accomplished before a project to rehabilitate dispersed campsites, a project which may be funded solely with funds allocated through our agency.

Before any site-specific actions are implemented, they may require additional analysis and decision making pursuant to the National Environmental Policy Act (NEPA). No site-specific analysis is

presented here. It should also be noted that this list of probable actions may not be comprehensive, nor does it represent all possibilities of proposals that could occur. As the river corridor changes due to changes in use or disturbances such as flooding or wildland fires, new actions may be needed to protect or enhance the outstandingly remarkable values.

ACTION PRIORITIES

These actions would be carried out within the Wild and Scenic River corridor for the protection or enhancement of the Red River's free-flowing condition, water quality and outstandingly remarkable values. There are also some actions to be implemented that may be outside the corridor. [Also, see actions in Upper Red River Hydrologic Condition Analysis (Walker 2001b)].

WATER QUALITY

Categories of Action:

- 1) Actions that would reduce or eliminate active sources of stream sedimentation and improve stream bank stability consistent with the natural changes in the river system.
- 2) Actions that would alter in stream dynamics of depositions and scouring to move closer to natural system dynamics.
- 3) Actions that would reduce or eliminate active sources of chemical pollution.

Category	Actions	River Segment in Order of Priority
1	<ul style="list-style-type: none"> • Close and rehabilitate undesignated parking and camping within, or affecting, the riparian area. • Partner with the State to upgrade roadsides and culverts. • Rehabilitate eroding roadside embankments that are negatively affecting water quality. • Close user developed roads and trails that are judged to be adversely affecting water quality. • Improve canoe launch sites (near Hwy 746, Hwy 715, Sheltopee Trace National Recreation Trail) through hardening, retaining walls and/or revegetation. 	<ul style="list-style-type: none"> • Recreational, Wild (camping) • Recreational • Recreational • Wild (trails), Recreational • Wild, Recreational
2	<ul style="list-style-type: none"> • Coarse woody debris placement (see #1 of Botanical and Aquatic Values) 	<ul style="list-style-type: none"> • Recreational
3	<ul style="list-style-type: none"> • Inventory and plug abandoned oil wells. • Inventory locations of trash dumping sites. Partner with private and governmental groups to clean up trash within the river and riparian area. 	<ul style="list-style-type: none"> • Wild, Recreational

SCENIC, GEOLOGIC AND RECREATIONAL VALUES

Categories of Action:

- 1) Actions that would protect public health and safety.
- 2) Actions that would add to, or improve existing sites or site access to respond to resource needs.
- 3) Actions that would perpetuate desired long-term scenic quality.

Category	Actions	Segment in Order of Priority
1	<ul style="list-style-type: none"> • Work with upstream cities and State to improve sewage input problems if they arise. • Reduce potential chemical input from trash dumping and abandoned oil wells (see #3 Water Quality). 	<ul style="list-style-type: none"> • Wild, Recreational • Wild, Recreational
2	<ul style="list-style-type: none"> • Dispersed sites (see #1 Water Quality) • User developed trails (see #1 Water Quality) • Canoe Launch Sites (see #1 Water Quality) • Designate dispersed camping sites in the recreational portion of the river. • Improve signage at canoe launch sites and trail access points to inform public of proper etiquette in corridor. • Maintain existing level of limited parking and access to river corridor to minimize over-crowding and protect sensitive resources. 	<ul style="list-style-type: none"> • Wild, Recreational • Wild, Recreational • Recreational, Wild • Recreational, Wild • Recreational, Wild • Wild, Recreational
3	<ul style="list-style-type: none"> • Screen the Gladie Cultural-Environmental Learning Center from view of river boaters. • Work with Red River Gorge Climber’s Coalition to minimize possible visual impacts of climbing (chalk, bolts) as viewed from the Red River. 	<ul style="list-style-type: none"> • Recreational • Wild, Recreational

HISTORIC AND CULTURAL VALUES

Categories of Action:

- 1) Actions that would ensure protection of heritage resources with recreational use management or other project activities.
- 2) Actions that would further scientific knowledge or public education of heritage resources.

Category	Actions	Segment in Order of Priority
1	<ul style="list-style-type: none"> • Inventory/data recovery will occur as part of site-specific projects. • Recreational use found to be damaging sites would require the sites to be closed or damage mitigated. • Increase backcountry ranger patrols. 	<ul style="list-style-type: none"> • Recreational, Wild N/A • Wild, Recreational • Wild, Recreational
2	<ul style="list-style-type: none"> • Historic and Cultural importance of Red River Gorge will be highlighted through interpretive materials and activities at Gladie Visitor Center and at designated recreation sites and/or trailheads. 	<ul style="list-style-type: none"> • Recreational, Wild

BOTANICAL AND AQUATIC VALUES

Categories of Action:

- 1) Actions that would restore in-stream habitat conditions where the condition has been most altered from natural conditions.
- 2) Long-term actions that would protect and enhance riparian habitat and prevent negative impacts to PETS species.
- 3) Actions that would inhibit, or prevent non-native species from entering, or expanding, their range in the river corridor.

Category	Actions	Segment in Order of Priority
1	<ul style="list-style-type: none"> • Concentrate efforts to add coarse woody debris (LWD) in tributaries, not in the main stem of Red River (inventory LWD in lower Gladie Creek) 	<ul style="list-style-type: none"> • Recreational
2	<ul style="list-style-type: none"> • Undesignated parking and camping (See #1 of Water Quality) 	<ul style="list-style-type: none"> • Recreational, Wild (camping)
3	<ul style="list-style-type: none"> • Control non-native invasive species • Remove invasive vegetation 	<ul style="list-style-type: none"> • Recreational, Wild • Recreational, Wild



Wake robin, a native wildflower, thrives in the mesic forests of eastern Kentucky.