

# Big South Fork National River and Recreation Area and Obed Wild and Scenic River

FINAL NON-FEDERAL OIL AND GAS MANAGEMENT PLAN /  
ENVIRONMENTAL IMPACT STATEMENT

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**UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE  
FINAL NON-FEDERAL OIL AND GAS MANAGEMENT PLAN / ENVIRONMENTAL IMPACT  
STATEMENT**

**Big South Fork National River and Recreation Area / Obed Wild and Scenic River**

Lead Agency: National Park Service (NPS), U.S. Department of the Interior

This final *Oil and Gas Management Plan / Environmental Impact Statement* (plan/EIS) describes three alternatives (including a no-action alternative) for managing existing and anticipated oil and gas operations associated with the exercise of nonfederal oil and gas interests underlying Big South Fork National River and Recreation Area (NRRA) and Obed Wild and Scenic River (WSR). It describes the environment that would be affected by the alternatives and the environmental consequences of implementing these alternatives. The plan/EIS also responds to and incorporates the public or agency or other stakeholder comments received on the draft plan/EIS.

While the National Park Service (NPS) has comprehensive regulations governing nonfederal oil and gas development (referred to as the “9B regulations”), there is no comprehensive plan guiding oil and gas activities within the two parks. Operators may be uncertain of the requirements, and areas of the parks having special resource values may not be clearly identified to operators or the public. Existing and future oil and gas operations in the parks have the potential to impact resources and values. Because of the proximity of the two park units, and their similar attributes and issues relating to oil and gas operations, the NPS developed a plan/EIS for both parks together to assist in the effective regulation and management of non-federal oil and gas operations. Under alternative A (no action), the parks would continue to manage oil and gas operations using current staff and procedures, and would be somewhat limited in the ability to conduct inspections and monitoring of all operations on a regular basis. Compliance would be conducted on a case-by-case basis, and restrictions and protected areas identified in the current legal and policy requirements for each park unit (including the 9B regulations) would be applied to new operations. Plugging and reclamation activities would be guided by the 9B or state regulations. Under alternative B, the NPS would proactively pursue enforcement of the 9B regulations and plans of operations and provide clear communication with the public and operators about requirements. This would include increased inspections and monitoring, increased communications, and the use of a new management framework for efficiently completing compliance necessary for plugging and reclamation of wells. Alternative C (preferred alternative) would implement the same type of more proactive management described in alternative B, but would also designate “Special Management Areas” or SMAs to identify and protect those areas where park resources and values are particularly susceptible to adverse impacts from oil and gas development. The plan/EIS analyzes impacts of these alternatives in detail for geology and soils; water resources; floodplains, wetlands; vegetation, wildlife and aquatic species, federally listed threatened and endangered species, species of special concern; cultural resources; soundscapes, visitor use and experience; and park management and operations.

The draft plan/EIS was available for public and agency review and comment from June 17, 2011 to August 16, 2011. The draft plan/EIS was made available through the NPS Planning, Environment, and Public Comment (PEPC) website and through contacting the park Superintendent. Five public meetings were also held from July 18-22, 2011. A total of 24 correspondences were received, containing 98 comments. This final plan/EIS provides responses to substantive public comments (appendix N), incorporates those comments and suggested revisions as necessary, and provides copies of relevant comment correspondences. Once this document is released and a Notice of Availability (NOA) is published by the Environmental Protection Agency, a 30-day no-action period will follow. Following that, the alternative or actions constituting the approved plan will be documented in a record of decision that will be signed by the Regional Director of the NPS Southeast Region.

For further information, visit <http://parkplanning.nps.gov/biso> or contact:

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National Park Service  
U.S. Department of the Interior

Big South Fork National River and Recreation Area  
Obed Wild and Scenic River  
Kentucky and Tennessee

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## **Big South Fork National River and Recreation Area and Obed Wild and Scenic River**

# **FINAL NON-FEDERAL OIL AND GAS MANAGEMENT PLAN / ENVIRONMENTAL IMPACT STATEMENT**

**2012**



# **EXECUTIVE SUMMARY**

## **PURPOSE AND NEED FOR THIS PLAN**

Big South Fork National River and Recreation Area (NRRA) encompasses approximately 125,000 acres on the Cumberland Plateau in Tennessee and Kentucky, approximately 70 highway miles northwest of Knoxville, Tennessee. The Obed Wild and Scenic River (WSR) encompasses approximately 5,056 acres in Morgan and Cumberland Counties in Tennessee on the Cumberland Plateau, approximately 20 to 30 miles south and west of the Big South Fork NRRA.

The enabling legislation for the Big South Fork NRRA prohibits oil and gas extraction and development within the park's designated gorge area, but allows for development in the adjacent areas outside the gorge. Currently, there are more than 300 oil and gas wells within the Big South Fork NRRA, although no new wells have been drilled in the Big South Fork NRRA since about 1990. Active oil and gas production at Big South Fork NRRA occurs primarily in the south end of the unit, on both deferred properties (fee simple private property within the legislative boundary), as well as on property owned by the United States government. Wells with an "inactive" status are candidates to become either actively producing wells or plugged and abandoned wells. Within the Obed WSR, oil and gas exploration is limited, by deed restrictions, to directional drilling from outside the boundary. However, there are seven oil and gas wells in Obed WSR, including two plugged and abandoned wells. The plugged and abandoned wells may be in need of additional surface reclamation, and three of the five other wells may have leases that have expired, and would thus be required to be plugged and abandoned under state regulations. All of the operations inside the park unit are subject to existing rights.

At this time, while the National Park Service (NPS) has comprehensive regulations governing nonfederal oil and gas development in parks, the Service does not have a comprehensive plan guiding oil and gas activities within the parks and limited ability to proactively communicate and enforce applicable regulations. Operators may be uncertain of the requirements and areas of the parks having special resource values are not clearly identified to operators or the public. Existing and future oil and gas operations in the parks have the potential to impact resources and values. Because of the proximity of the two units, and their similar attributes and issues relating to oil and gas operations (such as similar geography and other natural resource conditions), the NPS decided to develop a Oil and Gas Management Plan / Environmental Impact Statement (plan/EIS) for both units together to aid in the effective regulation and management of non-federal oil and gas operations.

### **Purpose of and Need for the Plan**

The purpose of the plan/EIS for Big South Fork NRRA and Obed WSR is to analyze alternative approaches, clearly define a strategy, and provide guidance to ensure that activities undertaken by owners and operators of private oil and gas rights, as well as activities undertaken by the NPS, are conducted in a manner that protects the resources, visitor use and experience, and human health and safety in the park units. As noted, there are over 300 private oil and gas operations within Big South Fork NRRA and Obed WSR. Many of the past and existing oil and gas operations in these NPS units are adversely impacting resources and values, human health and safety, and visitor use and experience; most are not in compliance with federal and state regulations, most notably, the NPS 36 Code of Federal Regulations (CFR), Part 9 Subpart B (see appendix A). In addition, future oil and gas operations have the potential to damage park resources and values. The plan/EIS is needed to provide an efficient and effective strategy for park managers to ensure the units are protected for the enjoyment of future generations. There is also a need for park-specific guidance for the planning efforts of oil and gas owners and operators.



This is a programmatic management plan that establishes a general framework for managing oil and gas operations. By itself, it does not authorize any on-the-ground activities, but it does recognize existing operations. The reasonably foreseeable development scenario identified up to 25 wells that would be drilled in Big South Fork NRR and Obed WSR in the next 15 to 20 years, and up to 125 wells that could be amended or serviced to restore or improve production. The NPS will authorize specific projects by reviewing and approving operator-submitted plans of operations or special use permit applications. Before doing so, the NPS will conduct further analysis in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act of 1966, the Endangered Species Act of 1973, and other applicable federal laws.

## **PLANNING DIRECTION**

This plan/EIS was prepared with guidance provided through special mandates and direction. These include the NPS Organic Act, the parks' establishing legislations, the Service's 36 CFR 9B regulations regulating non-federal oil and gas development, park planning documents, and a variety of existing laws, regulations and policies. These "Current Legal and Policy Requirements" are described in chapter 1, chapter 2 and appendix B.

On May 31, 2006, the NPS published a Notice of Intent to Prepare an Oil and Gas Management Plan/Draft Environmental Impact Statement in the Federal Register. The publication of this notice was followed by the mailing of a Public Scoping brochure and four scoping open houses held in Jamestown, Tennessee on August 7, Huntsville, Tennessee on August 8, Oak Ridge, Tennessee on August 9, and Whitesville, Kentucky on August 10. The general public, as well as federal, state, and local government agencies, were invited to identify issues and submit comments regarding the proposed planning effort to the NPS. The planning process continued through 2009, and a draft plan was completed in 2011. A Notice of Availability for the draft plan/EIS was published by the NPS on June 15, 2011 and by the U.S. Environmental Protection Agency (EPA) on June 17, 2011. Following the release of the draft plan/EIS, a 60-day public comment period was open between June 17, 2011 and August 16, 2011, and five public meetings were held in July 2011 to present the plan, provide an opportunity to ask questions, and facilitate public involvement and community feedback. The consultation and coordination process is more fully described in chapter 5.

Based on internal and public scoping, the interdisciplinary team developed the following planning objectives and a list of resources and concerns to evaluate in this plan/EIS.

## **PLANNING OBJECTIVES**

### **GENERAL**

- Identify and protect resources from adverse impacts from oil and gas operations.
- Provide owners and operators of private oil and gas rights reasonable access for exploration, production, maintenance, and surface reclamation.



## **WATER RESOURCES**

- Protect and enhance water resources.

## **VEGETATION AND WILDLIFE, INCLUDING THREATENED AND ENDANGERED SPECIES**

- Protect species of management concern from adverse impacts from oil and gas operations. Protect critical habitat from adverse impacts from oil and gas operations.

## **VISITOR EXPERIENCE, CONFLICTS, AND SAFETY**

- Prevent, minimize, or mitigate conflicts between oil and gas operations and visitor use.
- Protect human health and safety from adverse impacts from oil and gas operations.

## **CULTURAL RESOURCES**

- Protect cultural resources, including those on, or eligible for listing on, the National Register of Historic Places, from adverse impacts from oil and gas operations.

## **PARK MANAGEMENT AND OPERATIONS**

- Provide pertinent guidance to operators to facilitate planning and compliance with NPS regulations.
- Establish an efficient process under NEPA for plugging wells and reclaiming well sites and access roads.

Resources and concerns evaluated in this plan/EIS include:

- Geology and Soils
- Water Resources
- Floodplains
- Wetlands
- Vegetation
- Wildlife and Aquatic Species
- Federally Listed Endangered and Threatened Species
- Species of Special Concern
- Soundscapes
- Cultural Resources
- Visitor Use and Experience
- Park Management and Operations

For each of the resources and concerns listed above, the interdisciplinary team identified the problems or benefits that might occur should oil and gas operations continue. Based on the evaluation of these

resources and concerns, and public input received during scoping, the planning team also identified Special Management Areas (SMAs) to protect park resources and values that are most susceptible to adverse impacts from oil and gas operations. The issues and SMAs were used in developing and evaluating alternatives. The issues are discussed in chapter 1. A description of the affected environment is in chapter 3.

## **PLAN ALTERNATIVES**

### **Forecast of Oil and Gas Activities**

The NPS developed a forecast of oil and gas activities that includes a reasonably foreseeable development (RFD) scenario for new development to project future oil and gas development in the parks and an estimate of future well plugging. The purpose of the forecast is to provide a reasonable basis for analyzing the potential effects of oil and gas related operations in the parks among the alternatives presented in this EIS. For Big South Fork NRRRA and Obed WSR, the forecast of oil and gas is primarily for plugging of existing wells, as opposed to new drilling and production.

For the RFD scenario, the U.S. Geological Survey (USGS) and the NPS worked together to estimate the remaining hydrocarbon resources in the parks and to develop a projection of the type and level of activities that could occur to develop these resources. The RFD drilling scenario presented in this plan is based on the collaborative work of the USGS and the NPS. Seismic and other proprietary data available only to oil and gas companies was not used in the preparation of the RFD scenario. It is possible that the well spacing may be different than is projected in the RFD scenario, the drilling success rate may deviate from the NPS projection, and it may take fewer or more wells to develop the oil and gas resources underlying the parks. Any of these factors could result in a different development scenario than is presented by the NPS in this plan/EIS.

When the NPS acquired lands for Big South Fork NRRRA, it inherited a legacy of inactive non-federal oil and gas wells, many without responsible parties. The 2001 well inventory (TDEC 2001) identified 59 inactive wells at Big South Fork NRRRA that were considered candidates for plugging, of which over half had no responsible parties. Of these, 54 wells have been or will be plugged and associated sites reclaimed within the next few years mainly using funding received through the American Recovery and Reinvestment Act and NPS funding administered through a cooperative agreement with Tennessee Department of Environment and Conservation. However, the NPS and operators are expected to identify additional inactive wells as plugging candidates in the future, and the forecast of oil and gas activity for this plan estimates that about 50 additional wells will need to be plugged over the life of this plan. Additional details about the forecast can be found in chapter 2 of the plan/EIS.

## **SUMMARY OF PLAN ALTERNATIVES**

Three alternatives are presented in chapter 2. These alternatives were developed to meet the stated objectives of this plan/EIS to a large degree and provide a reasonable range of options to manage exploration, drilling, production and transportation of nonfederal oil and gas within the parks. The alternatives are described below.

### **ALTERNATIVE A: NO ACTION**

Alternative A—No Action is required by NEPA and describes the continued management of oil and gas operations in the parks. The NPS would continue to work cooperatively with the state on regulations or enforcement, but would be somewhat limited in its ability to conduct inspections and monitoring of all

operations on a regular basis and would defer to the state to notify operators about compliance issues. Compliance for plans of operations related to management of current operations and for new drilling and/or exploration would be conducted on a case-by-case basis in both park units with currently available staff and funding sources. Restrictions and protected areas identified in the current legal and policy requirements (CLPRs) for each park unit (including the NPS 9B regulations) would be applied to new operations. Plugging and reclamation activities would be guided by the 9B or state regulations, as appropriate, and compliance for these operations would be conducted on a case-by-case basis in both park units.

### **ALTERNATIVE B: COMPREHENSIVE IMPLEMENTATION OF 9B REGULATIONS AND A NEW MANAGEMENT FRAMEWORK FOR PLUGGING AND RECLAMATION**

Under alternative B, the NPS would proactively pursue enforcement of the 9B regulations and plans of operations and provide clear communication with the public and operators about CLPRs, including the 9B regulations. For current operations, the NPS would continue to work cooperatively with the state on regulations or enforcement, but would conduct increased inspections and monitoring and identify sites that are found to be impacting, or threatening to impact, park resources beyond the operations area to bring these into compliance. New operations would be reviewed and permitted in accordance with the restrictions and protected areas described in the CLPRs, similar to alternative A. The park would use the oil and gas management planning process to proactively share information with the public about regulatory requirements, to seek out operators to ensure information is communicated clearly and effectively, and to focus staff resources on the implementation and compliance with the regulatory framework. Alternative B also includes a new management framework for efficiently completing compliance processes necessary for plugging and reclamation of wells, which would provide a method for evaluating the environmental compliance needs for future site-specific projects. Priority sites for plugging and reclamation would be identified using criteria developed for this plan/EIS.

### **ALTERNATIVE C: COMPREHENSIVE IMPLEMENTATION OF 9B REGULATIONS, NEW MANAGEMENT FRAMEWORK FOR PLUGGING AND RECLAMATION, AND ESTABLISHMENT OF SPECIAL MANAGEMENT AREAS (PREFERRED ALTERNATIVE)**

Alternative C would implement the same type of more proactive management described in alternative B, including additional inspections and monitoring of current operations to bring them into compliance, as well as the permitting of new operations. However, under alternative C, “Special Management Areas” or SMAs have been designated to identify and protect those areas where park resources and values are particularly susceptible to adverse impacts from oil and gas development. Specific protections afforded by these SMAs are presented in Table 2; and these operating stipulations would be applied in the designated SMAs to protect the resources and values of the park units unless other mitigation measures were specifically authorized in an approved plan of operations. Similar to alternative B, the park would use the oil and gas management planning process to proactively share information with the public about regulatory requirements, to seek out operators to ensure information is communicated clearly and effectively, and to focus staff resources on the implementation and compliance with the regulatory framework. Alternative C also includes the new management framework for plugging and reclamation of wells as described under alternative B; and the designated SMAs would be considered in setting priorities for plugging and reclamation.

Table ES.1 is a summary of protected areas per CLPRs and per SMAs (alternative C only) under each alternative.

**TABLE ES.1. PROTECTED AREAS INCLUDING SMAs AND OPERATING STIPULATIONS**

	<b>Alternative A: No Action</b>	<b>Alternative B: Comprehensive Implementation of 9B Regulations and a New Management Framework for Plugging and Reclamation</b>	<b>Alternative C: Comprehensive Implementation of 9B Regulations, a New Management Framework for Plugging and Reclamation, and Establishment of Special Management Areas (SMAs) (Preferred Alternative)</b>
Protected Areas Per CLPRs	<p><b>Big South Fork NRRRA Designated Gorge:</b></p> <ul style="list-style-type: none"> <li>• Exploration, drilling, and production prohibited</li> </ul> <p><b>Big South Fork NRRRA Long-term monitoring plots<sup>1</sup>:</b></p> <ul style="list-style-type: none"> <li>• Avoid impacts; address in plans of operations</li> </ul> <p><b>Obed WSR Deed Restrictions:</b></p> <ul style="list-style-type: none"> <li>• Some deed restrictions require No Surface Use prohibiting exploration, drilling, and production on federal lands<sup>1</sup></li> </ul> <p><b>Visitor Use, Administrative, and Other Use Areas with 500-foot Setback Per 9Bs:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production)</li> </ul> <p><b>Federally Listed Species and their Critical Habitats</b></p> <ul style="list-style-type: none"> <li>• Avoid impacts; address in plans of operations</li> </ul> <p><b>Waterways with 500-foot Setback Per 9Bs:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production)</li> </ul>	Same as alternative A.	Same as alternative A.

**TABLE ES.1. PROTECTED AREAS INCLUDING SMAS AND OPERATING STIPULATIONS**

	<b>Alternative A: No Action</b>	<b>Alternative B: Comprehensive Implementation of 9B Regulations and a New Management Framework for Plugging and Reclamation</b>	<b>Alternative C: Comprehensive Implementation of 9B Regulations, a New Management Framework for Plugging and Reclamation, and Establishment of Special Management Areas (SMAs) (Preferred Alternative)</b>
Special Management Areas <sup>2</sup>	Not applicable	Not applicable	<p><b><i>Big South Fork NRR</i></b>—the following would be protected as noted unless other mitigation that protects SMA resources and values is included and authorized in an approved plan of operations.</p> <p><b>Sensitive Geomorphic Feature SMA with 500-foot setback:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production)</li> </ul> <p><b>Cliff Edge SMA with 100-foot setback):</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production)</li> <li>• Drilling would only be allowed during dry periods</li> </ul> <p><b>Managed Field SMA with 100-foot setback:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production)</li> <li>• Setback only applies to drilling and production</li> </ul> <p><b>SMAs with Setbacks for Visitor Use/ Administrative Areas, and Trails:</b></p> <ul style="list-style-type: none"> <li>• Visitor Use and Administrative Areas: <ul style="list-style-type: none"> <li>– 500-foot setback for geophysical exploration</li> <li>– 1,500-foot setback for drilling and production</li> </ul> </li> <li>• Trails: <ul style="list-style-type: none"> <li>– 300 foot setback for all operations</li> </ul> </li> <li>• All: <ul style="list-style-type: none"> <li>– No Surface Use (exploration, drilling, and production) in SMA or setbacks</li> <li>– All operations would be limited during high visitor use or visitation periods (generally April through October)</li> <li>– Drilling would only be allowed during dry periods</li> </ul> </li> </ul>

**TABLE ES.1. PROTECTED AREAS INCLUDING SMAS AND OPERATING STIPULATIONS**

	<b>Alternative A: No Action</b>	<b>Alternative B: Comprehensive Implementation of 9B Regulations and a New Management Framework for Plugging and Reclamation</b>	<b>Alternative C: Comprehensive Implementation of 9B Regulations, a New Management Framework for Plugging and Reclamation, and Establishment of Special Management Areas (SMAs) (Preferred Alternative)</b>
Special Management Areas (continued)			<p><b>Cultural Landscapes and Cemetery SMA:</b></p> <ul style="list-style-type: none"> <li>• 100-foot setback from cemeteries for all operations</li> <li>• 1,500-foot setback from cultural landscapes for all operations</li> <li>• No Surface Use (exploration, drilling, and production) in SMA or setbacks</li> <li>• All operations would be limited during high visitor use or visitation periods (generally April through October)</li> <li>• Drilling would only be allowed during dry periods</li> </ul> <p><b>State Natural Area SMA:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production) would be allowed in state natural areas</li> </ul> <p><b>Special Scenery SMA<sup>1</sup>:</b></p> <ul style="list-style-type: none"> <li>• Geophysical exploration would be allowed at any time</li> <li>• Drilling activities limited during high visitor use periods (generally April through October)</li> <li>• Requires viewshed analysis for production activities. This would be a GIS analysis that would allow park managers to determine if the site lies within a viewshed that is visually sensitive to changes in the landscape. If so, the proposed location would become part of the Special Scenery SMA.</li> </ul> <p><b><u>Obed WSR</u></b></p> <p><b>Obed WSR SMA:</b></p> <ul style="list-style-type: none"> <li>• No Surface Use (exploration, drilling, and production) would be allowed on any of the federal property within the boundaries of the Obed WSR (per existing deed restriction)</li> </ul>

Operating stipulations may be modified if an operator can demonstrate that new technology or site-specific information (such as engineering, geological, biological, or other information or studies) would meet the goals of protecting resources, values, and uses in protected areas or SMAs. Setbacks for visitor use, administrative, and other use areas and waterways would be applied, unless other measures are specifically authorized by an approved plan of operations, as per 36 CFR 9.41(a). There may be surface use allowed if mitigations are approved in a plan of operations. However, while an approved plan of operations could relax or extend SMA restrictions, it would not supersede applicable statutes such as gorge restrictions and deed restrictions.

<sup>2</sup>The area covered by this protected area/SMA has not been mapped and would be determined on a case-by-case basis during scoping and preparation of a plan of operations for specific projects.

<sup>3</sup>Acreages are based on designated setbacks, which could vary depending upon how individual projects are implemented and may be modified to increased or decreased distances.

Under any alternative:

- The level of development theorized in the forecast of oil and gas activities summarized above, would be the same under all three alternatives.
- If a drilling operation is not permitted in a protected/SMA, the operator could directionally drill a well from a surface location outside the area, or the operator could commit to measures that would mitigate for impacts to the specific resources and values of the SMA. If these are approved and authorized in an approved plan of operations, operations could proceed within SMA boundaries.
- In all areas of the park, CLPRs would be applied and could result in the discovery of previously unknown, important cultural resources, species of special concern, and other resource areas in which No Surface Use, timing stipulations, and other mitigation measures could be applied. The term “Current Legal and Policy Requirements” as used in the description of alternatives means application of all pertinent federal and state laws, regulations, policies, and direction governing oil and gas operations conducted in the park. These include NPS regulations at 36 CFR 9B, which require operators to use technology and methods least damaging to park resources (i.e., performance standards and implementation strategies) while ensuring the protection of human health and safety. The CLPRs are described in “Appendix A: 9B Regulations and Application of the Regulations” and “Appendix B: Summary of Non-federal Oil and Gas Operations Legal and Policy Mandates.”

Alternative C is the NPS’s preferred alternative and is also the environmentally preferred alternative. Both alternatives B and C were developed to provide consistent oversight of oil and gas operations and ensure protection of park resources and values. The formal designation of SMAs and operating stipulations in alternative C would reduce the level of potential impact to resources and values particularly susceptible to adverse impacts from oil and gas operations. The implementation of a proactive and comprehensive oil and gas management plan under any of the action alternatives would provide more certainty to oil and gas operators and consistent application of CLPRs. The formal designation of SMAs and operating stipulations under alternative C would provide better assurance for the protection of park resources and values from potential impairment from nonfederal oil and gas operations.

## **ENVIRONMENTAL CONSEQUENCES**

The full impact analysis is in “Chapter 4: Environmental Consequences.” A complete summary of impacts of the alternatives can be found in chapter 2, “Table 10. Summary of Environmental Consequences.” Under all three alternatives, impacts from geophysical exploration and new drilling/production are similar because the limited level of exploration and new well development projected under each alternative would be the same as theorized under the forecast and RFD scenario. The key difference between the alternatives and their potential impacts is the impacts of existing operations, especially with regard to well plugging and site restoration, and where impacts could occur. Under alternative A, CLPRs would preclude new operations in protected areas unless otherwise approved in a plan of operations, but existing operations would continue to have adverse effects until operators were found through state or self reporting and brought into compliance with the regulations.

Under alternative B, impacts from new operations would be similar to those under alternative A, but existing operations would be brought under compliance sooner, and well plugging and reclamation would proceed more efficiently, resulting in benefits to resources. Alternative C would have similar effects but add another layer of protection for additional resource areas formally designated as SMAs, where the No Surface Use stipulations in these areas and designated offsets would reduce operations from occurring in an increasingly larger acreage of the park, unless additional mitigation measures to reduce impacts are



authorized in approved plans of operations. Alternative C would likely reduce operations in the greatest area of the park, and it is likely that some wells would be directionally drilled to develop hydrocarbons underlying the park and to avoid impacts.

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Appendix E: Road and Trail Classifications and Standards

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Appendix H: Summary of NPS *Management Policies 2006* Oil and Gas Operations Guidance

Appendix I: National Park Service Responsibilities - Oil and Hazardous Materials Emergency Response

Appendix J: Well Site Plugging and Reclamation Activities

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## Acronyms

ARD	Air Resources Division
ARRA	American Recovery and Reinvestment Act
ATV	all-terrain vehicle
BCF	billion cubic feet
BLM	Bureau of Land Management
BNGL	barrels of natural gas liquids
BO	barrels of oil
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CLPRs	current legal and policy requirements
CWA	Clean Water Act
dba	A-weighted decibel scale
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTE	full time employee
GMP	general management plan
LRMP	Land and Resource Management Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NPS	National Park Service
NRHP	National Register of Historic Places
NRRA	National River and Recreation Area
NVCS	National Vegetation Classification System
ONRW	Outstanding National Resource Water
ORV	off-road vehicle
plan/EIS	Oil and Gas Management Plan / Environmental Impact Statement
PSD	prevention of significant deterioration
PSRPA	Park System Resource Protection Act
RFD	reasonably foreseeable development

SMA	Special Management Area
SO <sub>2</sub>	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
TDEC	Tennessee Department of Environment and Conservation
TMDL	total maximum daily load
TWRA	Tennessee Wildlife Resources Agency
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WSR	Wild and Scenic River



# **Chapter 1: Purpose of and Need for Action**





# CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

## INTRODUCTION

This “Purpose of and Need for Action” chapter describes the reasons why the National Park Service (NPS) is taking action at this time. The NPS evaluated a range of alternatives for the management of non-federal oil and gas operations at Big South Fork National River and Recreation Area (NRRA) and Obed Wild and Scenic River (WSR) (the park units). Over 300 oil and gas wells exist within the Big South Fork NRRA, and another seven wells exist within the Obed WSR, which is located approximately 20 to 30 miles south and west of the Big South Fork NRRA (see figure 1). Because of the proximity of the two units, and their similar attributes and issues relating to oil and gas operations (such as similar geography and other natural resource conditions), the NPS decided to develop an Oil and Gas Management Plan / Environmental Impact Statement (plan/EIS) for both units together to aid in the effective regulation and management of non-federal oil and gas operations.

This plan/EIS presents and analyzes the potential impacts of three alternatives: current management (the no action alternative) and two action alternatives for managing non-federal oil and gas in these units. Upon conclusion of the plan/EIS and decision-making process, one of the alternatives would become the Non-Federal Oil and Gas Management Plan for the units and guide future actions for a period of 15 to 20 years.

This plan/EIS is mostly programmatic in nature, which means that the plan provides a framework for taking a range of actions, but that actions, particularly those relating to new oil and gas development, would require more site-specific analyses before they could be implemented. Plugging and reclamation activities would be reviewed using the new management framework (see “Chapter 2: Alternatives”), which would include ensuring that appropriate environmental compliance requirements are met before taking any action. For both new operations and plugging and reclamation, if additional analyses were required, environmental compliance, including an opportunity for public comments, would be completed.

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*Programmatic—  
following a plan,  
policy, or program.*

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## PURPOSE OF AND NEED FOR ACTION

As defined by NPS Director’s Order 12 Handbook: *Conservation Planning, Environmental Impact Analysis, and Decision Making* (section 2.2) (NPS 2001), the purpose of an action is a broad statement of goals and objectives that the NPS intends to fulfill by taking action. Need is defined as a discussion of existing conditions that need to be changed, problems that need to be remedied, decisions that need to be made, or policies or mandates that need to be implemented. Need is why action is being taken at this time. The following purpose and need statements were developed by the NPS for this plan/EIS with input from the public and other agencies. Additional information that supports the purpose and need is provided throughout the other sections of this chapter.

## PURPOSE OF THE PLAN

The purpose of the plan/EIS for Big South Fork NRRA and Obed WSR is to analyze alternative approaches, clearly define a strategy, and provide guidance for the next 15 to 20 years to ensure that activities undertaken by owners and operators of private oil and gas rights, as well as activities undertaken by the NPS, are conducted in a manner that protects the resources, visitor use and experience, and human health and safety in the park units.

## NEED FOR ACTION

There are over 300 private oil and gas operations within Big South Fork NRRRA and Obed WSR. Many of the past and existing oil and gas operations in these NPS units are adversely impacting resources and values, human health and safety, and visitor use and experience; most are not in compliance with federal and state regulations, most notably, the NPS 36 Code of Federal Regulations (CFR), Part 9 Subpart B (see appendix A). In addition, future oil and gas operations have the potential to damage park resources and values. The plan/EIS is needed to provide an efficient and effective strategy for park managers to ensure the units are protected for the enjoyment of future generations. There is also a need for park-specific guidance for the planning efforts of oil and gas owners and operators.

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*The plan/EIS is needed to provide an efficient and effective strategy for park managers to ensure the units are protected for the enjoyment of future generations. There is also a need for park-specific guidance for the planning efforts of oil and gas owners and operators.*

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## OBJECTIVES

Objectives are “what must be achieved to a large degree for the action to be considered a success” (Director’s Order 12 Handbook [NPS 2001]). All alternatives selected for detailed analysis must meet all objectives to a large degree, as well as resolve purpose and need for action. Objectives for managing oil and gas operations must be grounded in the enabling legislation, purpose, significance, and mission goals of Big South Fork NRRRA and Obed WSR, and must be compatible with direction and guidance provided by the general management plan (GMP) for these NPS units.

The following objectives related to the management of non-federal oil and gas operations at Big South Fork NRRRA and Obed WSR were developed with park staff:

### GENERAL

- Identify and protect resources from adverse impacts from oil and gas operations.
- Provide owners and operators of private oil and gas rights reasonable access for exploration, production, maintenance, and surface reclamation.

### WATER RESOURCES

- Protect and enhance water resources.

### VEGETATION AND WILDLIFE, INCLUDING LISTED SPECIES OF MANAGEMENT CONCERN (THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES)

- Protect species of management concern from adverse impacts from oil and gas operations.
- Protect critical habitat from adverse impacts from oil and gas operations.

### VISITOR EXPERIENCE, CONFLICTS, AND SAFETY

- Prevent, minimize, or mitigate conflicts between oil and gas operations and visitor use.
- Protect human health and safety from adverse impacts from oil and gas operations.

## CULTURAL RESOURCES

- Protect cultural resources, including those on, or eligible for listing on, the National Register of Historic Places, from adverse impacts from oil and gas operations.

## PARK MANAGEMENT AND OPERATIONS

- Provide pertinent guidance to operators to facilitate planning and compliance with NPS regulations.
- Establish an efficient process under the National Environmental Policy Act of 1969 (NEPA) for plugging wells and reclaiming well sites and access roads.

## PROJECT SITE LOCATION

### BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA

Big South Fork NRRRA encompasses approximately 125,000 acres of rugged terrain on the Cumberland Plateau in northeastern Tennessee and southeastern Kentucky, approximately 70 highway miles northwest of Knoxville, Tennessee (figure 1). The Big South Fork of the Cumberland River (Big South Fork River) begins within the unit at the confluence of the New River and Clear Fork, and flows northward for approximately 49 miles. It is a free-flowing river for approximately 37 of the 49 miles, until it reaches Lake Cumberland (formed by a dam on the river and managed by the U.S. Army Corps of Engineers). The average annual flow of the river (from a U.S. Geological Survey gauge station near Stearns, Kentucky) is 1,760 cubic feet per second (cfs); the maximum discharge recorded at this location was 93,200 cubic feet per second, while the minimum was 11 cfs.



Entrance sign at Big South Fork NRRRA.

The focal point of the Big South Fork NRRRA is the massive gorge, with its sheer bluffs at the gorge rim towering over wooded talus slopes and naturally fluctuating river (and its tributaries) below. The gorge, as defined by the enabling legislation, represents roughly one-half of the total acreage in Big South Fork NRRRA. The remaining acreage is considered the “adjacent area.” The landscape is dominated by upland and ravine forest communities, although a wide variety of specialized habitats are supported on floodplains, in protected coves and ravines, on moist, north-facing slopes, and on sandstone glades (sandstone caprock with dry, shallow soils). Several parcels of land within the boundaries of Big South Fork NRRRA are owned by private citizens, state agencies, and a non-profit organization. Fee-simple private properties within the legislative boundary of Big South Fork are commonly referred to as “deferred properties,” and are shown on figure 2.

## OBED WILD AND SCENIC RIVER

The Obed WSR is located in Morgan and Cumberland Counties in eastern Tennessee on the Cumberland Plateau (figure 1). The park encompasses approximately 5,056 acres and includes parts of the Obed River, Clear Creek, Daddy's Creek, and the Emory River (figure 3). Totalling more than 45 miles of surface waters, these rivers and creeks have cut rugged gorges with bluffs as high as 500 feet above the whitewater. The average annual flow of the river (from a U.S. Geological Survey gauge station on the Obed River near Lansing, Tennessee) is 983 cfs; the maximum discharge recorded at this location was 105,000 cfs, while the minimum was less than 1 cubic foot per second. Lands owned by non-profit organizations also occur within the boundaries of Obed WSR.

Water resources and riparian environments are the focal point of the Obed WSR. The quality of the water is considered to be among the best in Tennessee. The terrain of this NPS unit consists of flat to rolling uplands, deep river gorges, and a long line of cliffs. The landscape is dominated by upland and ravine forest communities, although riparian shrub communities, as well as vegetation associated with sandstone glades, cliffs, and rockhouses, are also supported.

## BACKGROUND

### BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA

The following statements are excerpts from the enabling legislation (Water Resources Development Act of 1974, Public Law (PL) 93-251, 108) and *Final General Management Plan and Environmental Impact Statement* (February 2005) (NPS 2005a) for the Big South Fork NRR.



View of the Big South Fork of the Cumberland River Gorge.

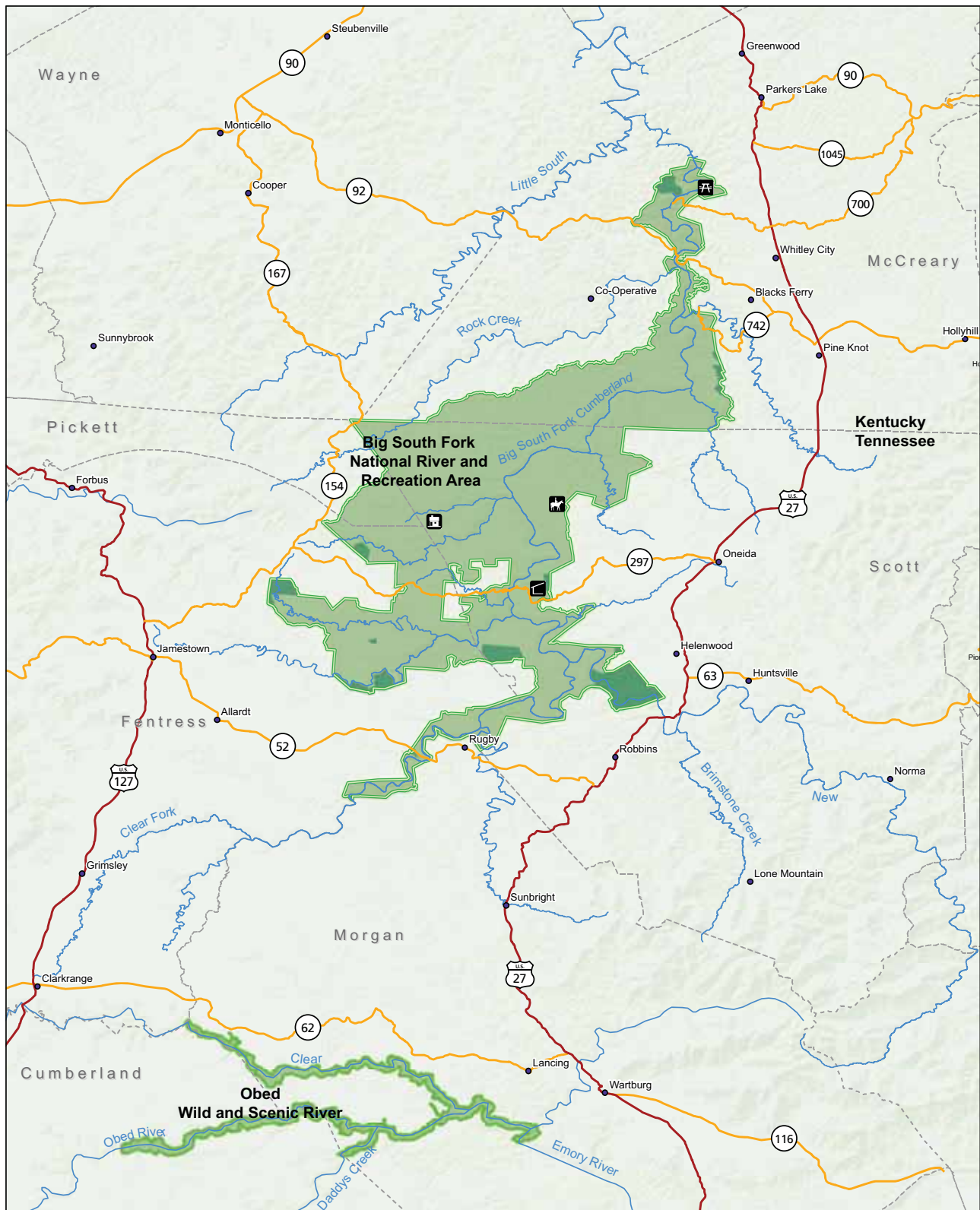
### Legislative Intent

The Water Resources Development Act of 1974 states that the Big South Fork NRR was created:

for the purposes of conserving and interpreting an area containing unique cultural, historic, geologic, fish and wildlife, archeologic, scenic, and recreational values, preserving as a natural, free-flowing stream the Big South Fork of the Cumberland River, major portions of its Clear Fork and New River stems, and portions of their various tributaries for the benefit and enjoyment of present and future generations, the preservation of the natural integrity of the scenic gorges and valleys, and the development of the area's potential for healthful recreation.

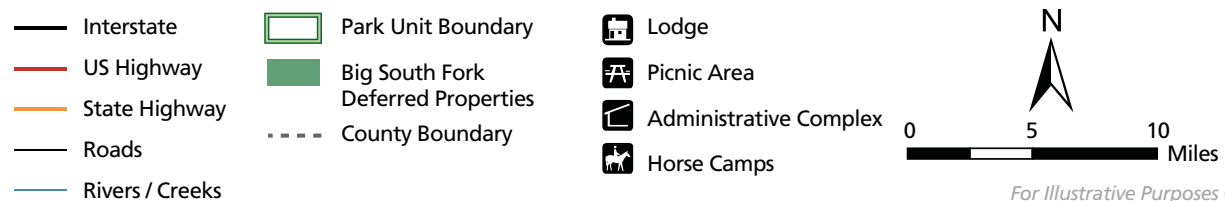
When enabling legislation for the Big South Fork NRR was passed in 1974 (under the Water Resources Development Act of 1974, PL 93-251; 16 United States Code (USC) 460ee), it contained two provisions relating to oil and gas activities within the NPS unit. At 16 USC 460ee (e)(2)(A), Congress stated, "Within the gorge area, no extraction of, or prospecting for minerals, petroleum products, or gas shall be permitted." However, recognizing the importance of oil and gas operations to the local economy, Congress stated (at 16 USC 460ee(e)(3)), "In adjacent areas...prospecting and drilling for petroleum products and natural gas shall be permitted in the adjacent area under such regulations as the Secretary [of the Army] or the Secretary of the Interior...may prescribe to minimize detrimental environmental impact, and such regulations shall provide among other things for an area limitation for each such operation, zones where operations will not be permitted, and safeguards to prevent air and water pollution."





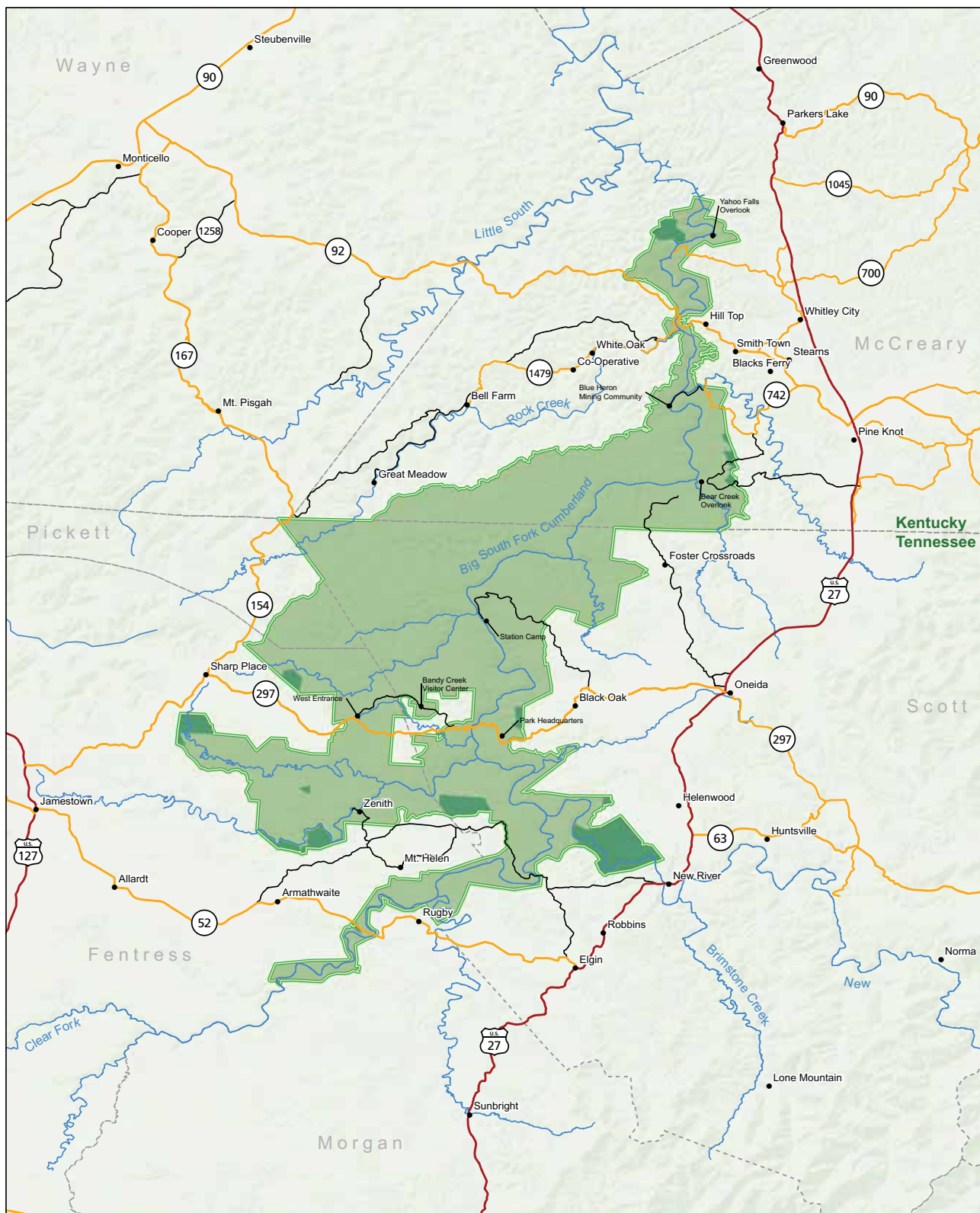
### Legend

**Figure 1. Big South Fork National River and Recreation Area and Obed Wild and Scenic River Vicinity Map**





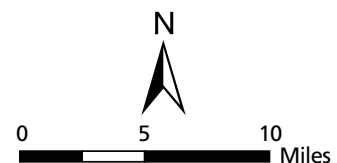




## Legend

Figure 2. Big South Fork National River and Recreation Area Park Map

- Interstate
- US Highway
- State Highway
- Roads
- Rivers / Creeks
- Park Unit Boundary
- Big South Fork Deferred Properties
- County Boundary



For Illustrative Purposes Only



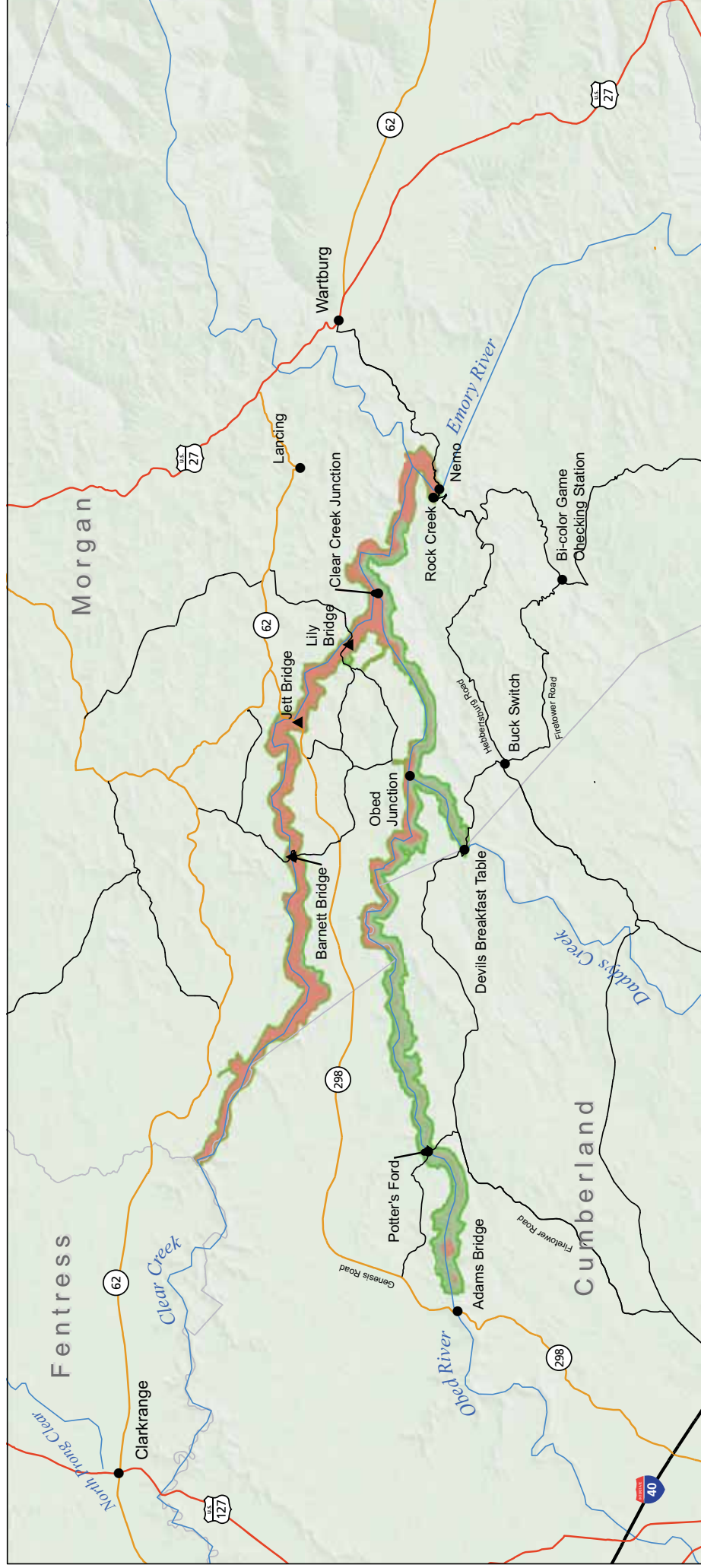


Figure 3. Obed Wild and Scenic River Park Map

- Interstate
- US Highway
- State Highway
- Roads
- Rivers / Creeks
- County Boundary
- ▭ Park Boundary
- ▭ Federal Land
- ▲ Bridge



For Illustrative Purposes Only



In addition, the enabling legislation for Big South Fork NRRRA states that there shall be interagency cooperation related to the protection of water quality:

...the Secretary of the Interior, after jurisdiction over the National Area has been transferred to him under subsection (b) of this subsection, shall consult and cooperate with other departments and agencies of the United States and the States of Tennessee and Kentucky in the development of measures and programs to protect and enhance water quality within the National Area and to insure that such programs for the protection and enhancement of water quality do not diminish other values that are to be protected under this section.

## **Purpose and Significance**

All units of the national park system were formed for a specific purpose, as well as to preserve significant resources or values for the enjoyment of future generations. The purpose and significance statements identify uses and values that individual NPS plans should support.

### **Purpose**

The purpose of Big South Fork NRRRA is stated clearly in its enabling legislation, and includes the following:

- to preserve and interpret the area's cultural, historic, archeological, geologic, fish and wildlife, scenic, and recreational values
- to preserve the free-flowing Big South Fork and portions of its tributaries
- to preserve the natural integrity of the gorge
- to provide healthful outdoor recreation for the enjoyment of the public and for the benefit of the regional economy

### **Significance**

The significance of the Big South Fork NRRRA is reflected in the following statements, as presented in the GMP (NPS 2005a) for the unit:

- Dramatic sandstone gorges, imposing bluff lines, some of the nation's largest water-crafted arches, and other notable geologic formations are found throughout the National Area.
- The Big South Fork is a free-flowing river system, flowing unhindered by water development projects except as it enters Lake Cumberland.
- The National Area contains a wide variety of habitats with associated flora and fauna of the Cumberland Plateau in a limited geographic area.
- Extremely large numbers and varieties of archeological, historic, and ethnographic resources, illustrating a long continuum of use, are found in the National Area, including farmsteads eligible for the National Register of Historic Places.

- National Area waters provide habitat for a world-class freshwater mussel assemblage and are an important refuge for many endangered mussel species. Few other river systems support this level of mussel diversity.
- The National Area provides a broad range of natural and cultural resource-based outdoor recreation and educational opportunities.

The Big South Fork River is also significant because it is considered a Tier III Outstanding National Resource Water under the Clean Water Act (CWA). This designation indicates that water quality must be maintained and protected and only short-term changes may be permitted. The Big South Fork River and associated habitats in the river channel support nine endangered species, seven aquatic species and two plants, and the main river and the major tributaries are designated critical habitat for four mussels.

## OBED WILD AND SCENIC RIVER

The following statements are excerpts taken from the Wild and Scenic Rivers Act, as well as the *Obed Wild and Scenic River Strategic Plan* (NPS 2005b).

### Legislative Intent

The Wild and Scenic River system was established to protect certain selected rivers of the United States, and their immediate environments, that possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. In recommending the park unit for inclusion in the National Wild and Scenic Rivers system, the Obed River Wild and Scenic River Study cites the associated rivers as possessing “truly outstanding and remarkable scenic, recreational, geological, and fish and wildlife values” (Bureau of Outdoor Recreation 1976).

Although there are no provisions related to oil and gas operations in the 1976 amendment to the Wild and Scenic Rivers Act that established the Obed WSR (16 USC 1274), the original act (PL 90-542, passed October 2, 1968) does discuss mining and mineral leasing laws. Section 9 of the Wild and Scenic Rivers Act provides for access to valid existing mineral rights “subject to such regulations as the Secretary of the Interior...may prescribe to effectuate the purposes of this Act,” but limits “right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior...” (§§ 9(a)(i) and 9(a)(ii)).

### Purpose

The purpose of this park service unit is to preserve and protect the Obed WSR system and the surrounding area in an essentially primitive condition, with unpolluted waters, for the benefit and enjoyment of present and future generations (NPS 2005b).

### Significance

The Obed WSR system is one of the last remaining wild rivers in the eastern United States where high stream gradients are intermingled with quiet, smooth flowing stretches. The system supports ecologically diverse flora and fauna including over two dozen state and federally listed endangered and threatened species, including designated critical habitat for two of the species. It is designated as a Tier III Outstanding Natural Resource Water under the CWA due to its superior water quality, which

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*Microhabitat— an extremely localized, small-scale environment, as a cliff ledge or rock overhang.*

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supports diverse aquatic and riparian ecosystems (NPS 2005b). The clifflines produce much of the microhabitat for threatened and endangered plants and animals, and they were the selected zones of occupation for prehistoric inhabitants. Today, these clifflines are used as a national destination for climbing and rappelling.

The rivers provide outstanding recreational, educational, and inspirational opportunities for visitors to experience a vestige of primitive America in a unique river gorge environment. Falling steeply off the Cumberland Plateau through pristine narrow and deep gorges, the Obed WSR system provides remarkable scenic vistas. The river gorge encompasses unique Cumberland Plateau geology, including a collection of dramatic sandstone gorges, rock shelters, waterfalls, continuous bluffs, and natural arches (NPS 2005b). The Obed WSR also preserves a number of important archeological sites.

## **OVERVIEW OF NON-FEDERAL OIL AND GAS MANAGEMENT IN THE NATIONAL PARK SERVICE**

Petroleum development in national park units most often occurs where entities other than the federal government own the rights to the oil and gas beneath the surface. Individuals, corporations, state or local governments, Indian tribes, or native corporations may own these “non-federal” rights (NPS 2006a). As of October 2006, approximately 712 non-federal oil and gas wells occurred within 13 national parks in 9 states, with more than 300 in Big South Fork NRR alone (NPS 2006b). In general, the NPS may permit mineral development in units of the national park system only where: (1) a private mineral right exists (e.g., rights owned by a private individual, corporation, or state) and development of such rights is not specifically prohibited by Congress; (2) actions would not impair park resources, values, or purposes; and (3) the conduct of such activity is performed in accordance with all applicable federal, state and local laws and regulations, and NPS policies (NPS 2006b).

Although these mineral rights fall under the protection of the 5th Amendment of the U.S. Constitution (“No person ... shall be deprived of ... property without due process of law; nor shall private property be taken for public use without just compensation”), the NPS nonetheless has the authority to regulate these rights to fulfill Congress’s mandate to leave park resources and values unimpaired for the enjoyment of future generations (16 USC 1). To protect park resources, the NPS promulgated regulations for non-federal oil and gas operations on December 8, 1978. The regulations, commonly known as the “9B regulations,” are found at 36 CFR 9B. The regulations are presented in appendix A of this plan/EIS.

## **OPERATORS HANDBOOK FOR NON-FEDERAL OIL AND GAS DEVELOPMENT IN UNITS OF THE NATIONAL PARK SYSTEM**

The NPS developed a handbook to assist operators of non-federal oil and gas in units of the national park system. Specifically, the handbook was developed to assist operators in understanding the 9B regulations, preparing a plan of operations or applications required by the 9B regulations, and conducting operations in a manner that protects park resources and values. The handbook is available on the web at [http://www2.nature.nps.gov/geology/oil\\_and\\_gas/op\\_handbook.cfm](http://www2.nature.nps.gov/geology/oil_and_gas/op_handbook.cfm), and provides an overview of the 9B regulations and permitting process, information requirements for each type of oil and gas operation (i.e., exploration, drilling, or production), and sections covering performance bonds, spill control, emergency preparedness plans, as well as operator liability.

## **NON-FEDERAL OIL AND GAS DEVELOPMENT/MANAGEMENT AT BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA**

Oil and gas fields are located adjacent to and extend into the boundary of Big South Fork NRR, primarily in the southern portions of the park unit. See figures 4 and 5 for the locations of oil and gas wells within and adjacent to the park units. According to the Big South Fork NRR GMP, in 1994, 82% of Tennessee's total oil production, and 60% of its total gas production, came from counties within the watershed of the Big South Fork River (Scott, Fentress, Pickett, and Morgan counties) (NPS 2005a). In 2006, 50% of Tennessee's total oil production and 99% of its gas production came from the watershed counties. In 1992, there were 788 actively producing oil wells and 529 actively producing gas wells in this watershed (NPS 2005a). By 2006, there were 829 producing oil wells and 810 producing gas wells in this area (Spradlin, pers. comm., 2007).

The enabling legislation for the Big South Fork NRR prohibits oil and gas extraction and development within the designated gorge area, but allows for development in the adjacent areas outside the gorge. Currently, there are more than 300 oil and gas wells within the Big South Fork NRR (figure 4). The status of these wells has been classified into one of five categories, as follows:

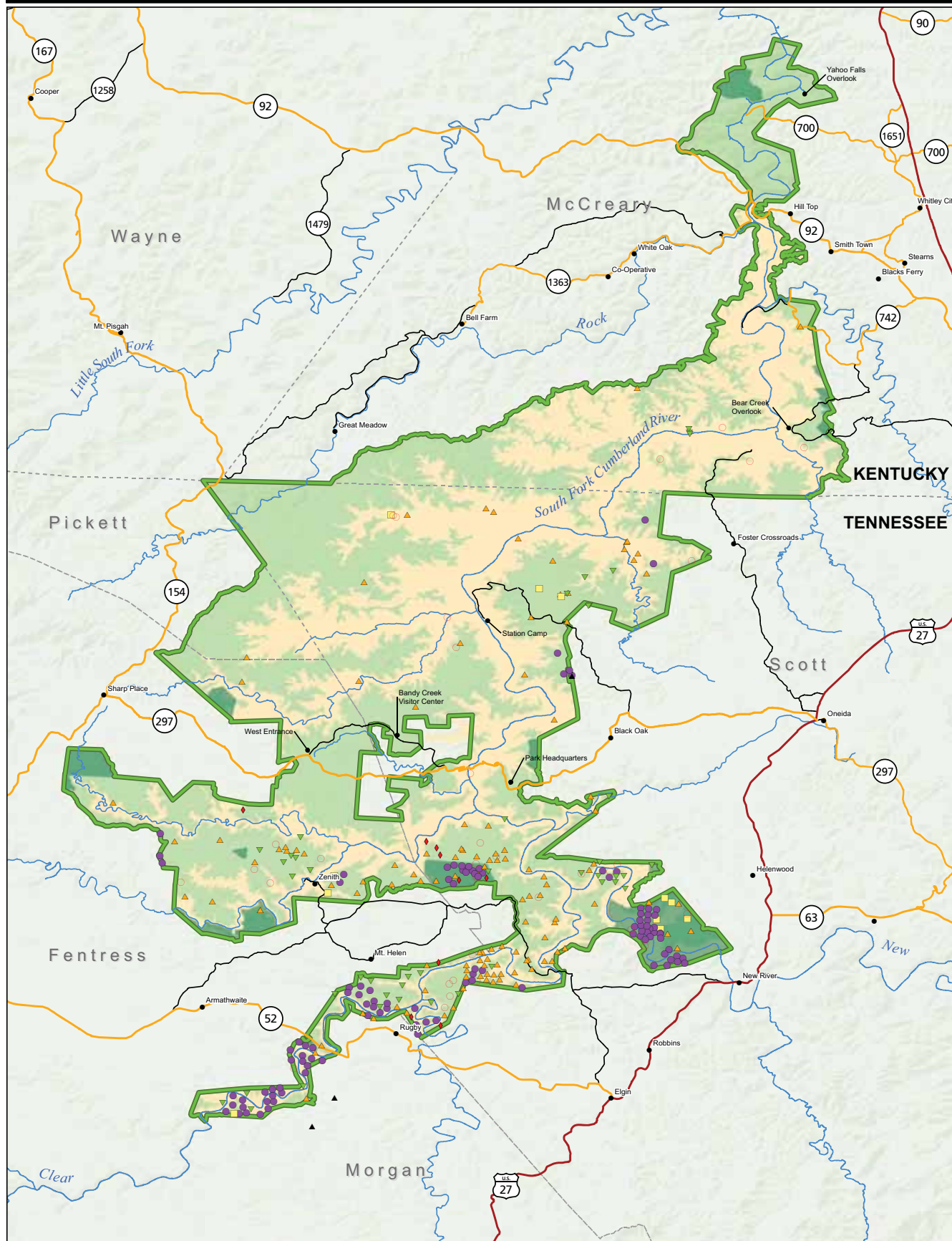
- **Active**—Actively producing wells. This includes wells that are mechanically capable of being produced and have documented production in the past 12 months.
- **Inactive wells**—Wells that have no documented production in the past 12 months, including wells that have been shut in.
- **Plugged**—Wells that have been permanently closed by placement of cement plugs. Includes abandoned wells.
- **Unknown**—Wells for which the NPS does not have sufficient information to verify the location or status.
- **Orphaned**—Wells that do not have a responsible party.

The 12-month timeframe for describing actively producing or inactive wells makes use of the State of Tennessee's requirement for operators to file annual production reports.

No new wells have been drilled in the Big South Fork NRR since about 1990. Active oil and gas production at Big South Fork NRR occurs primarily in the south end of the unit, on both deferred properties (fee simple private property within the legislative boundary), as well as on property owned by the United States government. This includes a large, underground natural gas storage operation located in the New River drainage, within one of the largest oil and gas fields in Tennessee (NPS 2005a). Wells with an "inactive" status are candidates to become either actively producing wells or plugged and abandoned wells. NPS records indicated approximately 50 to 60 inactive wells with no responsible party that occur on lands owned by the U.S. government. These wells were identified as candidates for plugging and were recently addressed in a separate action (NPS 2010a).

Some instances of land acquisition at Big South Fork NRR have resulted in the NPS managing oil and gas wells on lands where both the surface and mineral estate are federally owned but where the petroleum is produced according to an outstanding private lease right. The Bureau of Land Management (BLM) and the Bureau of Ocean Energy Management, Regulation and Enforcement, formerly known as the Minerals Management Service, are responsible for collecting any royalties due to the federal government, but are not authorized to issue new federal oil and gas leases. Also, the NPS has become the operator of record for two gas wells as the result of a court decision in a condemnation case.

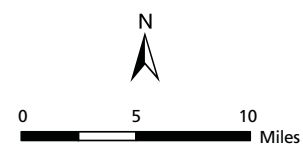




## Legend

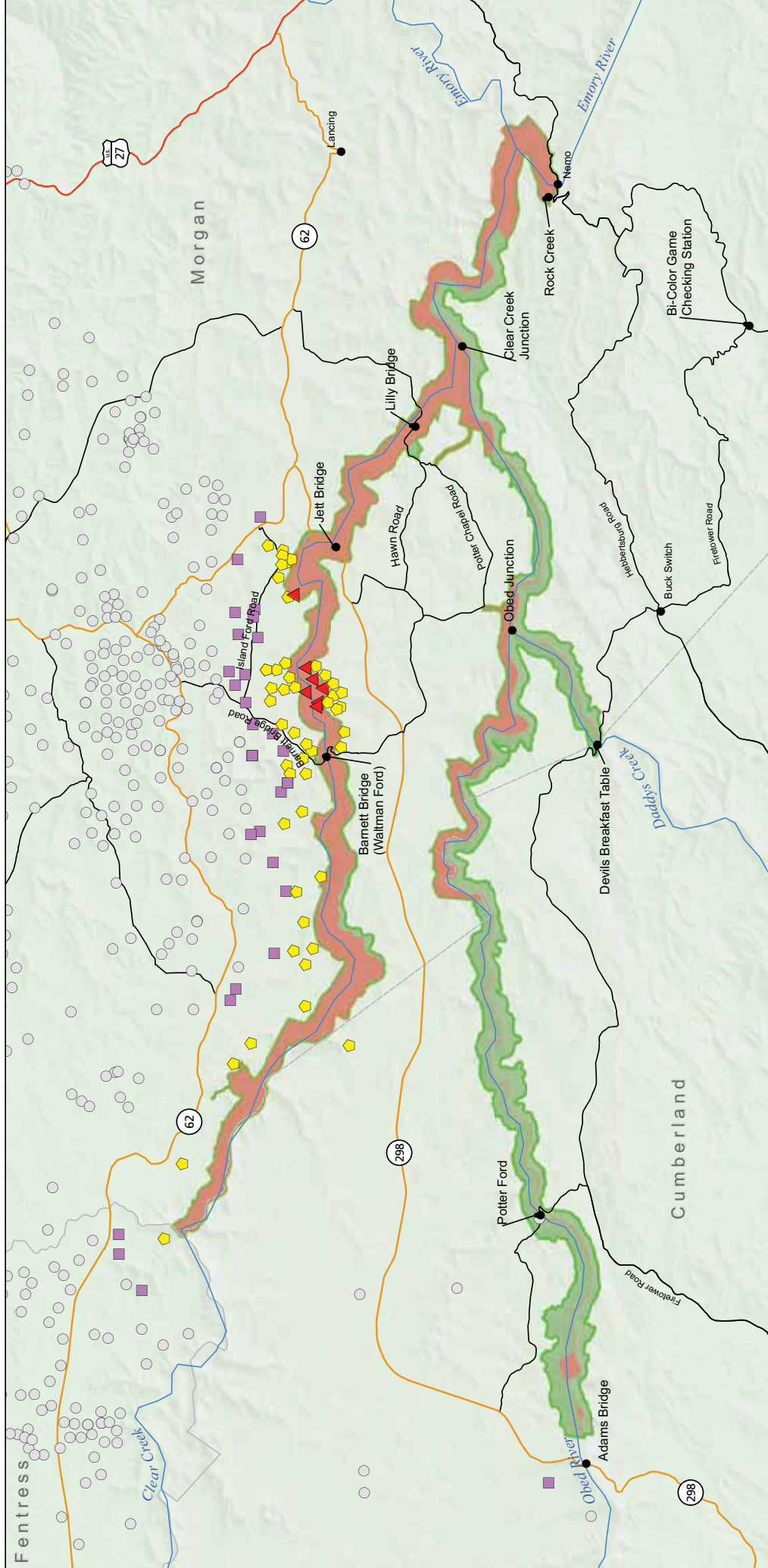
**Figure 4. Big South Fork National River and Recreation Area Wells**

U.S. Highway	Park Unit Boundary	Active	Orphaned
State Highway	Deferred Properties	Inactive	Production Equipment Only
Roads	Gorge	Plugged	Shut-In (Inactive)
Rivers / Streams	County Boundary	Unknown	



For Illustrative Purposes Only

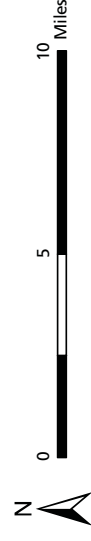




#### Legend

- US Highway
- State Highway
- Roads
- Rivers / Creeks
- County Boundary
- Park Unit Boundary
- Federal Land
- Inside OBRI
- > 1 Mile
- Within 1/2 Mile
- Within 1 Mile

Figure 5. Obed Wild and Scenic River Well Map



For Illustrative Purposes Only



## NON-FEDERAL OIL AND GAS DEVELOPMENT/MANAGEMENT AT OBED WILD AND SCENIC RIVER

The Obed WSR is located in an area where small accumulations of oil and gas occur at relatively shallow depths. According to the *Water Resources Management Plan* (NPS 1997) for this unit, in 1997 there were 944 oil and gas wells in the Emory River Basin. Although oil and gas exploration in the Obed WSR watershed has declined, there are approximately 71 oil and gas wells located within one mile of the Obed WSR; 44 of these are located less than a half-mile from the unit (figure 5).

Within the Obed WSR, oil and gas exploration is limited, by deed restrictions, to directional drilling from outside the boundary (NPS 1993). However, there are seven oil and gas wells in Obed WSR, including two plugged and abandoned wells. The plugged and abandoned wells may be in need of additional surface reclamation, and for one of the plugged and abandoned wells, only the wellpad is inside the park unit boundary. Three of the five other wells may have leases that have expired, and would thus be required to be plugged and abandoned under state regulations. Two of these five wells are actively producing. All of the operations inside the park unit are subject to existing rights. Existing or new operations inside the Obed WSR can only occur if the rights existed prior to acquisition of the surface estate. Otherwise, these mineral rights may only be exercised through directional drilling, per deed restrictions (NPS 1993), and as a result of the requirements in the 9B regulations (36 CFR 9.41) that call for a 500-foot setback from perennial, intermittent, or ephemeral watercourses.

In 2002, an oil spill and subsequent fire occurred during the exploratory drilling for a well located adjacent to the boundary of the Obed WSR (the Howard/White Unit No. 1 Oil Well). The *Howard/White Unit No. 1 Oil Spill Natural Resources Damage Assessment — Preassessment Phase Report* (NPS 2003a) and a *Damage Assessment Study Plan* (NPS 2004a) have been prepared to address impacts to natural resources within the Obed WSR as a result of the spill and fire. The *Natural Resources Damage Assessment — Preassessment Phase Report* was prepared after collecting ephemeral data that were necessary for determining the fate and effects of the spilled oil, reviewing the results and analyzing the data, compiling the administrative record, and determining that there was injury or potential injury to resources or services potentially affected. Based on the findings presented in these two documents, the Department of the Interior is proceeding with injury quantification and restoration planning to develop alternatives that would restore, replace, or acquire the equivalent of natural resources injured and/or natural resources lost as a result of this incident. The *Damage Assessment Study Plan* (NPS 2004a) outlines the plan to collect the data necessary to conduct an injury assessment in accordance with the Oil Pollution Act.

## SCOPING PROCESS AND PUBLIC PARTICIPATION

NEPA regulations require an “early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action (40 CFR 1501.7).” To determine the scope of issues to be analyzed in depth in this plan, meetings were conducted with park staff, the public, and other parties with an interest in this plan/EIS. As a result of this scoping effort (see chapter 5 for additional information), several issues were identified as requiring further analysis in this plan.

These issues represent existing concerns, as well as concerns that might arise during consideration and analysis of alternatives. The issues identified during internal and public scoping are presented below.



## ISSUES AND IMPACT TOPICS

According to section 2.6 of Director's Order 12, issues describe the relationships between actions and environmental resources (natural, cultural, and socioeconomic). They are usually problems caused by one of the alternatives considered, but can also include questions, concerns, or other relationships, including those that may have benefits. Issues were identified by the NPS through internal, public, and agency scoping. Agencies such as the U.S. Fish and Wildlife Service (USFWS), Kentucky Department for Natural Resources — Division of Oil and Gas Conservation, Tennessee Department of Environment and Conservation — divisions of Water Pollution Control and Natural Areas, as well as tribal entities and members of the public, have provided their input into these issues. A summary of the agency and public scoping activities is available in "Chapter 5: Consultation and Coordination."

Per section 2.9 of Director's Order 12, impact topics are derived from the issues, and should be specific based on the degree to which a resource may be affected. The impact topics derived from the list of issues are discussed in "Chapter 3: Affected Environment," of this plan/EIS. "Chapter 4: Environmental Consequences," examines the extent to which the resources associated with the impact topic would be affected by the actions of a particular alternative.

The following are the issues that have been identified for detailed analysis in this plan/EIS:

### Geology and Soils

- Oil and gas activities (including off-road vehicle use; seismic vibrators and detonation; and construction, maintenance, and use of roads, wellpads, production facilities, flowlines, and pipelines) could increase surface runoff; increase soil erosion, rutting, and compaction; and affect the permeability of soils (and other soil characteristics). Poorly maintained wellpads, roads, and other oil and gas operations are currently causing erosion, sedimentation, compaction, and loss of soil productivity.
- The release of hydrocarbons or other contaminating substances from vehicles, equipment, exploration and production operations, flowlines, pipelines, and/or accidental spills during transport could alter the soil's chemical and physical properties. Changes in soil properties could result from direct contact with contaminants or indirectly via runoff from contaminated areas. Poorly maintained wellpads, roads, and other oil and gas operations are currently causing soil contamination in localized areas.
- Use of truck-mounted drill rigs and water trucks could cause compaction and rutting of soils. Incorrect packing and detonation of shotholes can result in blowouts.
- Improperly sited, or poorly maintained or constructed, access roads or pads could result in slope instability or failure.
- Sensitive geomorphic features (such as rock shelters, arches, and chimneys) could be affected by oil and gas operations that involve ground disturbing activities.

### Water Resources

- Water quality could be adversely affected by the release of hydrocarbons, produced waters, and/or chemicals from vehicles and equipment, tank batteries, flowlines, and/or pipelines, during construction, exploration and production operations.
- Soil erosion and sedimentation in surface water could be increased by off-road vehicle use, removal or modification of vegetation, construction, and earth moving activities. These

activities could also alter surface or subsurface drainage patterns in the vicinity of operations, which could change streamflow characteristics.

- Oil and gas operations may create a demand for surface water use. Improperly plugged wells or improperly maintained drilling/production operations can lead to contamination of both surface water and groundwater. Both use and contamination of water by oil and gas operations may be in conflict with the demand for available drinking water by nearby towns.

### **Floodplains and Wetlands**

- The siting, maintenance, and use of roads, wellpads, production facilities, tank batteries, flowlines, and/or pipelines in floodplains or wetlands, or the release of hydrocarbons or other contaminants from these operations, would adversely affect floodplain and wetland functions, values and uses (including water quality); groundwater recharge or discharge; fish and wildlife habitat; maintenance of biodiversity; recreational opportunities; and natural beauty. For example, spills and leaks from the Howard/White Unit #1 have caused impacts (e.g., soil and water contamination or harm to vegetation) to floodplains and/or wetlands at Obed WSR.
- In some cases there may be no practicable alternative to locating roads, wellpads, production facilities, and flowlines and pipelines in or across floodplains or wetlands. These activities could potentially harm life; property; floodplain functions, values, and uses; and wetland functions and values (natural moderation of floods, sediment control, maintenance of water quality, groundwater recharge or discharge, habitat for fish and wildlife, maintenance of biodiversity, recreational opportunities, and natural beauty). For example, open drill holes and inactive wells occur in floodplains at Big South Fork NRR, and some access road crossings occur in the gorge and across upland wetlands. These actions may cause some adverse effects to floodplains or wetlands.
- Reclamation of oil and gas sites (including re-establishing natural contours, surface and subsurface water flow, and natural vegetation communities, as well as controlling non-native vegetation) could restore floodplain and wetland functions and values.

### **Vegetation, Wildlife and Aquatic Species, Federally Listed Threatened and Endangered Species, and Species of Special Concern (Rare or Unusual Vegetation, Unique or Important Wildlife or Wildlife Habitat, Unique or Important Fish or Fish Habitat, and Species of Special Concern or their Habitat)**

- Disturbances and removal of native vegetation associated with oil and gas operations, vehicle use, and surface reclamation could lead to the unintentional spread and establishment of non-native species.
- Operational impacts, disturbances or contamination from oil and gas activities could adversely affect riparian areas and sandstone glades that support rare vegetation and some state-listed species.
- The states of Tennessee and Kentucky have designated rare plant communities that could be adversely affected by oil and gas activities.
- Oil and gas activities (including off-road vehicle use; shothole drilling and detonation; and construction, maintenance, and use of roads, wellpads, production facilities, flowlines, and pipelines) could adversely affect wildlife or wildlife habitat. These activities could increase predation in open areas; increase edge effects and habitat fragmentation; directly harm or kill

wildlife; disrupt feeding, denning, or nesting; and increase public access and the associated potential for wildlife poaching.

- Releases of produced waters (brine) generated by oil and gas operations can create salt licks, which may affect the behavior of large mammals such as black bear (*Ursus americanus*) and elk (*Cervus canadensis*).
- Noise from oil and gas operations could adversely affect important wildlife, such as migratory birds.
- Oil spills into the rivers of the Big South Fork NRR and Obed WSR could adversely impact unique, essential, or important fish or fish habitat, including habitat for host fish that are important in the life cycle of special status mussels found in both NPS units.
- Ongoing oil and gas operations, as well as future oil and gas operations, could adversely affect species of special concern or their habitat, including species federally listed under the Endangered Species Act. Where there is the potential for adverse effects on a species or its habitat, mitigation would be required by the NPS, in consultation with the USFWS and the appropriate state wildlife agencies. Even with these protective measures in place, there is the potential for an incidental take of a federally listed species.
- Changes in hydrologic regime and sedimentation from oil and gas operations could adversely affect the habitats for aquatic species of special concern.
- Brine or hydrocarbon contamination, occurring either on-site or during transportation, has the potential to adversely affect species of special concern or their habitats.
- Reclamation of oil and gas sites could re-establish native vegetation communities and/or drainage patterns that support species of special concern.

### **Cultural Resources (Archeological Resources, Prehistoric/Historic Resources, Cultural Landscapes, and Ethnographic Resources)**

- Seismic lines, roads, flowlines, collection lines, and pipeline rights-of-way could increase access to unknown and undiscovered archeological or prehistoric/historic resources, and result in illegal activities such as vandalism, artifact collection, and excavation.
- Ground disturbing activities during seismic exploration, including detonation of seismic explosives; the construction, rehabilitation, and/or use of roads, wellpads, production facilities, tank batteries, and flowlines and pipelines; and containment or cleanup of leaks and spills could alter the distribution of, disturb, or destroy surface or buried archeological materials, and alter the condition of archeological or prehistoric/historic resources.
- Leaks and spills of hydrocarbons or other hazardous and contaminating substances from vehicles and equipment along access roads or from well sites, production sites, or flowlines and pipelines could damage or destroy archeological or prehistoric/historic resources.
- Nine cultural landscapes may be adversely impacted by oil and gas operations.
- Odors, sounds, and visual intrusions from oil and gas operations may adversely affect cultural landscapes and the quality of use of these areas.
- One site, Gun Rock, located at the south end of Big South Fork NRR, is a local landmark important to the residents of the area. This rock, which has been carved with depictions of various guns over the years, is located near two gas wells. The presence of the gas wells provides access to Gun Rock, which could result in illegal activities such as vandalism.



## Soundscapes and Visitor Use and Experience

- Oil and gas operations could pose a threat to human health and safety from a number of sources, including the use of roads by commercial vehicles (particularly vehicles with less maneuverability and visibility); hazardous equipment at wells and production facilities; flowline or pipeline failure; and release of gases from wells (hydrogen sulfide). The spill or release of hydrocarbons or other contaminants could be inhaled, absorbed, or ingested by humans. In addition, people have been known to open the valves on gas wells and light them for a source of heat.
- Oil and gas operations could adversely affect air quality, alter scenic resources, increase background sound levels, and adversely affect water quality. These effects could limit or preclude visitor uses and experiences in certain areas of the park units and create conflicts between recreational users and operators.
- Safety issues arise with oil well pump jacks that are accessible to the public and are started/stopped by an automatic timer.
- Introduced noise from well drilling, compressor stations, well servicing, pump jacks, construction and earth-moving activities, and truck traffic can adversely affect natural soundscapes.

## Park Management and Operations

- Additional full-time employees would be required to successfully implement the oil and gas management plan.
- The Special Management Areas (SMAs) proposed as part of some alternatives would create an additional consideration for park management during other planning efforts (e.g., GMP planning, Resource Stewardship planning).

## ISSUES DISMISSED FROM FURTHER CONSIDERATION

Issues that are not relevant to this plan/EIS (such as those related to resources that do not occur in the park, or would not be affected by actions proposed in the plan/EIS) were eliminated from further consideration by the planning team. In addition, in some instances park staff considered potential issues for certain resource areas, but because the anticipated impacts were negligible or minor, these topics were also dismissed from further analysis. These issues, and the rationale for dismissing them, include the following:

- **Air Quality**—Congress passed the Clean Air Act in 1970, establishing national policy for preserving, protecting, and enhancing air quality. Also under the Act, Congress mandates the federal land manager to “protect air-quality related values,” including visibility, flora, fauna, surface water, ecosystems, and historic resources. It further directs the land manager to “assume an aggressive role in protecting the air quality values of land areas under his jurisdiction... In cases of doubt the land manager should err on the side of protecting the air quality-related values for future generations.”

Both Big South Fork NRRRA and Obed WSR are designated Class II air quality areas under the Clean Air Act. Air quality in Class II areas is protected by allowing only limited increases (i.e., allowable increments) over baseline concentrations of pollution for sulfur dioxide, nitrogen dioxide, and particulate matter, provided that National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency (EPA), are

not exceeded. Both Big South Fork NRRRA and Obed WSR are located in the Tennessee River Valley-Cumberland Mountains Air Quality Control Region, which is currently in attainment of the NAAQS, but ozone levels are of concern in both parks.

Given the programmatic nature of this plan, the exact locations of future operations are unknown. Therefore, a quantitative screening analysis of impacts was undertaken to determine if air quality impacts would exceed minor levels and if the topic of air quality would be carried forward for further analysis. The NPS Air Resources Division (ARD) has issued guidance for determining the appropriate level of air quality analysis necessary for the proposed action, with appropriate screening levels (NPS 2010c). The screening-level emissions inventory conducted for this plan assumed that the reasonably foreseeable oil and gas activities would occur in a similar distribution as compared to locations of existing activities. All future assumptions were based on the reasonably foreseeable development (RFD) scenario as described in chapter 4 and used throughout the impact analysis.

The screening calculations indicated that expected emissions would be considered minor ( $>50$  and  $<100$  tpy of any pollutant) under the current ARD guidance. Also, all open casing and leaking wells would be eliminated as a result of a current project to plug leaking wells, and similar reductions would occur as other wells are plugged in the future. In addition, all operations under the proposed plan would comply with the recommended mitigation measures contained in appendix B. Since the actions expected under this plan would have a minor or less impact and site-specific mitigations would be included in any plan of operations, air quality was not further analyzed in this EIS.

A detailed description of the air quality background of the parks and the screening analysis can be found in appendix C.

- **Streamflow Characteristics**—Although oil spills and erosion/sedimentation from oil and gas operations could have an effect on streamflow characteristics, the planning team agreed that effects would likely be localized and negligible since spills would be contained and neither sediment entering streams nor releases from sites would be of a volume that would measurably affect water quantity such as stream volume and flow of materials entering streams.
- **Marine/Estuarine Resources**—These resources do not occur at Big South Fork NRRRA or Obed WSR.
- **Land Use**—Although oil and gas operations could result in a conversion of some land uses (e.g., the conversion of forested areas to openings associated with a well road and wellpad), these uses would be consistent with the legislative provisions for both NPS units. Another concern was the potential for increased directional drilling from outside the park units, and the potential to affect neighboring land use and private land values surrounding the park units. Land values were addressed in the socioeconomic evaluation discussed later in this section, and any directional drilling outside the park unit boundary would be consistent with similar land uses in the area. Other land use conflicts (e.g., potential noise impacts near visitor use areas) would be mitigated and effects would be negligible, or the impacts would be discussed and analyzed as part of another impact topic, which are summarized in a separate evaluation in “Chapter 4: Environmental Consequences.” Therefore, land use was dismissed from further consideration as an impact topic in this plan/EIS.
- **Unique Ecosystems, Biosphere Reserves, and World Heritage Sites**—There are no Biosphere Reserves or World Heritage Sites within Big South Fork NRRRA or Obed WSR. Although the NPS units protect unique ecosystems (including free-flowing rivers) that support habitat for many species of management concern, impacts to these ecosystems would

be discussed and analyzed as part of another impact topic, such as analyzing impacts to species of management concern or their habitats. The alternatives do have the potential to affect those outstandingly remarkable values that were identified in establishing Obed WSR as part of the Wild and Scenic Rivers system. The issues related to natural resources and visitor use and experience described above capture these potential impacts, which are summarized in a separate evaluation in “Chapter 4: Environmental Consequences.”

- **Museum Collections**—The Big South Fork NRRRA preserves the fifth largest museum collection in the Southeast Region; however, oil and gas operations would not affect this collection.
- **Socioeconomics**—During internal scoping, the planning team was concerned with the potential effects that implementation of an oil and gas management plan at Big South Fork NRRRA and Obed WSR could have on local and regional socioeconomics. In addition to more general concerns about socioeconomics, the planning team sought to address the potential for impacts on local mineral owners and operators and associated businesses that could result from the comprehensive enforcement of federal and state regulatory requirements and other operating stipulations for oil and gas exploration or development in the park units.

The analysis conducted to determine the potential for impacts to socioeconomics is presented in appendix D. Based on the analysis, which was conducted separately for Big South Fork NRRRA and Obed WSR, the planning team concluded that potential adverse impacts to socioeconomics from implementation of this plan/EIS would be long-term and negligible; therefore, this impact topic could be eliminated from further analysis.

In addition, this plan/EIS should alleviate the potential for delays and associated increases in planning time and costs that come with an operator’s uncertainty regarding applicable legal and policy requirements and mitigation measures. Enforcement of standards, including those for spill prevention and containment as well as roads, would minimize the risk of serious or extensive spills during drilling, production, and transportation that could temporarily affect tourism and the related economy. As a result, implementing the plan could have some long-term beneficial effects.

- **Environmental Justice**—*Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Guidelines for implementing this executive order under NEPA are provided by the Council on Environmental Quality (CEQ) (CEQ 1997).

According to the EPA, environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. The goal of this “fair treatment” is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts (USEPA 1998).

Evaluating whether a proposed action has the potential to have disproportionately high and adverse impacts on minority and/or low income populations typically involves the following:

(1) identifying any potential high and adverse environmental or human health impacts; (2) identifying any minority or low income communities within the potential high and adverse impact areas; and (3) examining the spatial distribution of any minority or low income communities to determine if they would be disproportionately affected by these impacts.

As noted in tables 2 and 3 of appendix D (pages D-2 and D-3), McCreary County, Kentucky, potentially contains low-income populations. McCreary County, Kentucky, is located in the northeastern portion of Big South Fork NRR. Low-income populations could possibly be adversely affected by changes in water resources or soundscapes. However, given the programmatic nature of the plan/EIS, the exact locations of oil and gas operations associated with the reasonably foreseeable development scenario and the forecast of oil and gas activities are unknown. The degree of impacts to water resources and soundscapes would be driven by the types and locations of drilling and other oil and gas operations, as well as the mitigation measures to reduce impacts. In general, the locations of the oil and gas fields and activities are in the southern part of Big South Fork NRR. As site-specific plans of operation and associated NEPA compliance documents are developed, they will consider potential impacts to low income and minority populations. Additionally, once the well locations have been identified, a more detailed analysis of these populations (e.g., at the Census Block level) could be completed.

Past and future oil and gas activity within and outside of Big South Fork NRR would continue to cumulatively adversely affect water resources and soundscapes in the area. However, all of the alternatives have been described as contributing minimally to overall adverse cumulative impacts. Additionally, the action alternatives would contribute fewer impacts to the overall adverse cumulative impacts when compared to the no-action alternative due to increased monitoring and inspections, enforcement of applicable standards for plugging and abandoning existing wells, the institution of mitigation measures, proactive management and enforcement, and expedited well plugging. The SMA restrictions under alternative C would provide more consistent protection of water resources located in and downstream from the SMAs. Therefore, if there are any expected water resources impacts to adjacent populations, there would be fewer adverse water quality effects to these populations under alternatives B and C when compared to alternative A. Similarly, noise impacts to adjacent populations and natural soundscapes would be mitigated through the application of appropriate control technology required as a part of the standard operating permit process and would be reduced under alternative C by the distances included in SMA setbacks.

Based on the above information and analysis, the NPS does not anticipate that any impacts from oil and gas operations would result in disproportionately high or adverse impacts on low-income populations or communities in the area, and additional analysis would be conducted during NEPA review of future plans of operation to assess any potential impacts. Therefore, environmental justice was eliminated as an impact topic for this EIS.

- **Energy Requirements and Conservation Potential**—Typically, this topic is meant to address construction and maintenance of dwellings or structures for public use, which this plan will not address. However, the plan will have a negligible beneficial effect on energy requirements and conservation potential, both because of the anticipated number of wells that will be plugged, as well as the overall low number of new oil and gas operations that could be developed.
- **Wilderness**—In accordance with NPS *Management Policies 2006* section 6.2.1, the NPS has conducted a wilderness eligibility assessment of all lands within Big South Fork NRR to determine which areas, if any, meet the criteria for designation as wilderness. Using the NPS'

governing criteria of eligibility, the assessment found that assessed lands in the park: (1) Are not predominantly roadless and undeveloped; (2) are not greater than 5,000 acres in size or of sufficient size as to make practicable their preservation and use in an unimpaired condition; and (3) do not meet the wilderness character criteria listed in the Wilderness Act and NPS *Management Policies 2006*. Based on these findings, the NPS has made a preliminary determination that none of the lands within Big South Fork NRRRA warrant further study for possible inclusion in the national wilderness preservation system. This determination will become final when a Notice of non-eligibility is published in the Federal Register, which is expected to take place in the near future. Given this pending determination of non-eligibility, wilderness character has been dismissed as an impact topic in this document.

- **Wild and Scenic Rivers**—This issue is specific to the Obed WSR, but also applies to Big South Fork NRRRA. While the latter is not an officially-designated Wild and Scenic River, the Big South Fork park enabling legislation mimics the Wild and Scenic River designation and requires that impacts as stated under Section "f" of the legislation are addressed. The Wild and Scenic Rivers Act requires, among other things, that outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. Section 7 of the Act is specific to water resources projects; no water resources projects will occur in the Obed WSR or Big South Fork NRRRA under this plan. Section 9 of the Act limits mineral extraction activities, subject to valid existing rights. Section 10 of the Act requires that the Obed WSR and Big South Fork NRRRA be administered to protect and enhance the values—scenic, recreational, geological, and fish and wildlife—which caused it to be included in the Wild and Scenic River system. These values, called “outstandingly remarkable values,” are inherently included as part of the following impact topics described in chapter 3 and 4: visitor use and experience, geology and soils, water resources, and wildlife and aquatic species. Accordingly, wild and scenic rivers was not included as a separate impact topic.
- **Global Warming**—Climate change is perhaps the most far-reaching and irreversible threat the National Park System has ever faced (NPCA 2007). Climate change in this context refers to a suite of changes occurring in the earth’s atmospheric, hydrologic, and oceanic systems. These changes, including increased global air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level, provide unequivocal evidence that the climate system is warming (IPCC 2007). While the warming trend, commonly referred to as global warming, is discernible over the entire past century and a half, recent decades have exhibited an accelerated warming rate with eleven of the last 12 years ranking among the 12 warmest years on record. Most of the observed temperature increase can be attributed to human activities that contribute heat trapping gases to the atmosphere (IPCC 2007). These “greenhouse gases”, particularly carbon dioxide from the burning of fossil fuels, cause Earth’s atmosphere to act like a blanket and trap the sun’s heat. While the insulating effect (or greenhouse effect) of our atmosphere is important to living systems, the rapid increase in greenhouse gases since the mid 19th century has turned the thermostat up higher than what our systems are adapted to.

While climate change is a global phenomenon, it manifests itself differently in different places. One of the most dramatic effects of global warming is the impact on extreme weather events. A disrupted climate could affect natural and cultural resources, and is likely to interfere with public use and enjoyment of the park units. Although many places in the world have already observed and recorded changes that can be attributed to climate change, the impacts to Big South Fork NRRRA and Obed WSR have not been specifically determined and the actual implications within the lifespan of this plan are unknown. The Intergovernmental



Panel on Climate Change affirms that climate change is occurring; however, it is unknown as to the rate and severity of impacts at the park units.

This plan evaluates climate change in two ways. First, the park has considered the contribution of this plan's actions to greenhouse gases emissions and because the plan proposes to plug and reclaim far more wells under all alternatives than will be drilled, this plan will have a net beneficial impact on greenhouse gas emissions when compared to the baseline under alternative A. Consequently, the impact of this plan on greenhouse gas contribution and associated climate change has been deemed negligible, and that aspect of climate change is being dismissed. Second, the effects of climate change on park resources are addressed in chapter 3 under the "Vegetation" impact topic.

## **RELATED LAWS, POLICIES, PLANS, AND CONSTRAINTS**

### **GUIDING LAWS AND POLICIES**

#### **NPS Organic Act**

By enacting the NPS Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of the Interior and the NPS to promote and regulate the units "to conserve the scenery and the natural and historic objects and wild life therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations" (16 USC 1). The Redwood National Park Expansion Act of 1978 reiterates this mandate by stating that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress" (16 USC 1a-1). Congress further authorized the Secretary of the Interior to "make and publish such rules and regulations as he may deem necessary or proper for the use of the parks..." (16 USC 3).

The Organic Act and its amendments afford the NPS latitude when making resource decisions. Because conservation remains predominant, the NPS seeks to avoid or to minimize adverse impacts on park resources and values. While some actions and activities can cause impacts, the Organic Act prohibits actions that impair park resources unless a law directly and specifically allows for such actions (16 USC 1a-1). An action constitutes an impairment when its effects "harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS 2006c, section 1.4.4). To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts" (NPS 2006c, section 1.4.4; see discussion in "Impairment of National Park Resources," below).

Because park units vary based on enabling legislation, natural resources, cultural resources, and missions, management activities appropriate for each unit and for areas within each unit vary as well. An action appropriate in one unit could impair resources in another unit. Thus, this plan/EIS will analyze the context, duration, and intensity of impacts related to oil and gas operations within Big South Fork NRR and Obed WSR, which will inform the non-impairment determination for the selected alternative to be appended to the record of decision, pursuant to the NPS Guidance for Non-Impairment Determinations and the NPS NEPA Process.

## IMPAIRMENT OF NATIONAL PARK RESOURCES

In addition to determining the environmental consequences of implementing the preferred and other alternatives, *NPS Management Policies 2006* (section 1.4) requires analysis of management actions to determine whether or not proposed actions would impair a park's resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park. That discretion is limited by the statutory requirement that the NPS must leave resources and values unimpaired unless a particular law directly and specifically provides otherwise.

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's GMP or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

Impairment findings are not necessary for visitor experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, etc., because impairment findings relate back to park resources and values. Pursuant to the *NPS Guidance for Non-Impairment Determinations and the NPS NEPA Process*, a non-impairment determination for the selected alternative will be appended to the ROD.

### NPS Management Policies 2006

The *NPS Management Policies 2006* (NPS 2006c) provide the overall foundation, set the framework, and provide direction for management decisions within the NPS. Management policies cover park system planning, land protection, natural resource management, cultural resource management, wilderness preservation and management, interpretation and education, use of the parks, park facilities, and commercial visitor services. The policies guide NPS staff to manage national park system units consistently and professionally to achieve the Congressional mandate of the national park system (NPS 2006c). Adherence to NPS policy is mandatory, unless specifically waived or modified by the Secretary of the Interior, the Assistant Secretary of the Interior, or the Director of the NPS.

## **Non-Federal Oil and Gas Rights Regulations, 36 CFR 9B**

The 36 CFR 9B regulations (see appendix A) govern oil and gas activities that are associated with the exploration and development of non-federal oil and gas rights located within park boundaries where access is on, across, or through federally owned or controlled lands or waters. The legal authority for the 9B regulations stems first from the Property Clause (Art. IV, 3 (2)) and the Commerce Clause (Art. I, 8 (3)) of the U.S. Constitution, and then from the general language contained in sections 1 and 3 of the NPS Organic Act, in which Congress has given the NPS, through the Secretary of the Interior, authority to pass rules and regulations necessary or proper for the use of park units.

Congress's power over federally owned lands is without limitations, and extends to conduct that occurs on or off federal land that affects federal lands. Courts have consistently upheld Congress's broad delegation of authority to federal land management agencies under the Property Clause in a variety of contexts. See *Kleppe v. New Mexico*, 426 U.S. 526 (1976); *Stupak-Thrall v. United States*, 70 F.3d 881 (6th Cir. 1995) (upholding Forest Service's authority to regulate privately held surface rights to a lake within a wilderness area); *Duncan Energy Co. v. Forest Service*, 50 F.3d 584 (8th Cir. 1995) (upholding Forest Service's authority to regulate activities related to private mineral rights underlying national forests); *United States v. Vogler*, 859 F.2d 638 (9th Cir. 1988) (upholding NPS regulation of access to a private mining claim in a park); *Free Enterprise Canoe Renter's Assoc. v. Watt*, 711 F.2d 852 (8th Cir. 1983) (upholding NPS regulations requiring permit for canoe rental businesses located outside park); *Minnesota v. Block*, 660 F.2d 1240 (8th Cir. 1981) (upholding Forest Service regulation of snowmobile activities on state land).

A copy of these regulations is provided in appendix A, which also describes the application of the 36 CFR 9B regulations.

## **National Environmental Policy Act of 1969, as Amended**

NEPA §102(2)(c) requires that an EIS be prepared for proposed major federal actions that may significantly affect the quality of the human environment.

### **Director's Order 12: Conservation, Planning, Environmental Impact Analysis, and Decision-making**

NPS Director's Order 12 (NPS 2011) and its accompanying handbook (NPS 2001) lay the groundwork for how the NPS complies with NEPA. Director's Order 12 and the handbook set forth a planning process for incorporating scientific and technical information and for establishing an administrative record for NPS projects.

Director's Order 12 follows the CEQ regulations and requires that impacts to park resources be analyzed in terms of their context, duration, and intensity. It is crucial for the public and decision-makers to understand the implications of those impacts in the short- and long-term, cumulatively, and within context, based on an understanding and interpretation by resource professionals and specialists. Global Warming Executive Order and Policies

*Executive Order 13423*—Issued on January 24, 2007 by President George W. Bush, it requires federal agencies to “conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.” It includes requirements for the reduction of greenhouse gases and other energy and water conservation measures. The order requires agencies to



reduce greenhouse gas emissions by 3% annually through the end of fiscal year 2015, or 30% by the end of fiscal year 2015, relative to the baseline of the agency’s energy use in fiscal year 2003.

*Executive Order 13514*—The new executive order, signed on October 5 2009, requires agencies to measure, manage, and reduce greenhouse gas emissions toward agency-defined targets. The order also requires agencies to meet a number of energy, water, and waste reduction targets, including:

- 30% reduction in vehicle fleet petroleum use by 2020;
- 26% improvement in water efficiency by 2020;
- 50% recycling and waste diversion by 2015;
- 95% of all applicable contracts will meet sustainability requirements; and
- Implementation of the 2030 net-zero-energy building requirement.

The order institutes a framework for reporting and accountability regarding each agency’s sustainability performance starting in 2011.

*Department of the Interior (DOI) Secretarial Order 3226*—Issued on January 19, 2001, the order ensures that climate change impacts are taken into account in connection with Departmental planning and decision making.

*DOI Secretarial Order 3289*—On September 14, 2009, Secretary of the Interior Ken Salazar signed Secretarial Order No. 3289, which establishes as priorities the development of environmentally responsible renewable energy on our nation’s public lands, and the protection of “our country’s water, land, fish and wildlife, and cultural heritage and tribal lands and resources from the dramatic effects of climate change that are already occurring – from the Arctic to the Everglades.” In addition, the secretarial order establishes a framework through which Interior bureaus will coordinate climate change science and resource management strategies to address climate change. The newly established framework consists of: a Climate Change Response Council to coordinate DOI’s response to the impacts of climate change; eight DOI regional Climate Change Response Centers to synthesize climate change impact data; and a network of Landscape Conservation Cooperatives to engage DOI and federal agencies, local and state partners, and the public to craft practical, landscape-level strategies for managing climate change impacts within the eight regions.

*NPS Management Policies 2006*—Section 4.7.2 states that “Parks containing significant natural resources will gather and maintain baseline climatological data for reference.” Management Policies also state that “The Service will use all available authorities to protect park resources and values from potentially harmful activities...NPS managers must always seek ways to avoid, or minimize to the greatest degree possible, adverse impacts on park resources and values.”

Section 9.1.7 requires the NPS to interpret for the public the overall resource protection benefits from the efficient use of energy, and to actively educate and motivate park personnel and visitors to use sustainable practices in conserving energy.

## **Statutory Provisions for Recovery of Damages**

The NPS is responsible under the 1916 NPS Organic Act and a variety of other statutes (see *NPS Management Policies 2006*) for the management, protection, and conservation of park resources and values in a manner that will leave them unimpaired for the enjoyment of future generations. Among these statutes, there are four that specifically allow the NPS to recover civil damages and agency costs from any

person who destroys, causes the loss of, or injures any park system resource: (1) The Comprehensive Environmental Response, Compensation and Liability Act as amended, 42 USC 9601 et seq.; (2) The Oil Pollution Act, 33 USC 2701-2761; (3) The Federal Water Pollution Control Act or CWA, 32 USC 1251-1387; and (4) the Park System Resource Protection Act (PSRPA), 16 USC 19jj. The damages recovered are then used to restore, replace, or acquire the equivalent of the resources that were lost or injured.

The NPS authority under these four statutes is derived from the delegated authority of the Secretary of the Interior. The first three statutes authorize the NPS to act as trustee for natural resources injured as a result of releases of hazardous substances or discharges, or threats of discharge of oil affecting the national park system. The Secretary's authority as trustee under these three statutes covers natural resources and natural resource services belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the Department of the Interior. This authority may be a shared authority. Trusteeship for some resources may overlap with other DOI bureaus, other federal agencies, and states or federally recognized tribes. It is the policy of the Department of the Interior to exercise, as appropriate, its natural resource trusteeship to the fullest extent authorized by law and seek recovery of damages for injury to trust resources in order to accomplish restoration of the resource.

The fourth statute (PSRPA) provides the NPS its own separate authority to collect damages for injury to park resources, which is not restricted to injury to natural resources caused by oil spills or hazardous substance releases. It allows the NPS to seek recovery of damages for injury to any park system resource resulting from any incident caused by a person or instrumentality. PSRPA imposes strict liability (i.e., without fault) on individuals who cause injury to park system resources, and allows the NPS to recover and retain compensation through settlements and/or litigation to protect and restore injured park system resources. In addition, this law allows the NPS to recover its costs for actions taken in responding to incidents that cause injury to park system resources, and actions taken to abate or minimize the imminent risk of injury to park system resources caused by the incident.

### **Tennessee Statutory Provisions on the Reversion of Mineral Rights Due to Non-Use (TN Code 66-5-108, 67-5-804, 809)**

In Tennessee, mineral interests must be "used" during any 20-year period or the rights to the minerals may be relinquished to the surface owners (Tennessee Code Annotated, §66-5-108). There are a number of ways a mineral interest may be considered "used" under Tennessee law. The most apparent use is that there are actually minerals being produced under the interest. But such an interest will also be considered "in use" if: (1) there are operations involving the injection, withdrawal, storage, or disposal of water, gas, or other fluid substances; (2) when rentals or royalties are being paid to the owner for the purposes of delaying or enjoying the use of such rights; or (3) when such activities are carried out on a tract where the interest in question may be "unitized or pooled for production purposes"; or (4) payment of taxes on the right by the possessor, subject to certain caveats (Tennessee Code Annotated, §66-5-108(b)(3)). Tax payments must be coupled with the owner's identification and claim of mineral interests at the county level. A statement of claim is a simple affidavit, signed by the mineral rights owner, that contains information on the right and declaration as to his or her interest in it. If a mineral rights owner fails to pay taxes and/or file a timely statement of claim the ownership of the subsurface rights would be relinquished to the surface owners.

Where the mineral estate is not being "used" as defined by Tennessee law, the mineral estate may revert back to the surface owner. The NPS will evaluate mineral estate ownership and the potential for reversion before approving a plan of operations. In addition, the NPS will evaluate the potential for reversion before undertaking restoration and reclamation activities, including when reversion occurs under the authority of 16 USC 19jj. If a mineral interest is acquired by the NPS through this process, the previous owner can no longer use the mineral. In relation to Big South Fork NRR and Obed WSR, if owners of mineral rights

beneath federally owned lands in Tennessee do not use these interests or file a statement of claim, their rights would be forfeited to the NPS.

### Tennessee and Kentucky Well Spacing Requirements

Chapter 1040-2-4 of the Rules of the Tennessee State Oil and Gas Board Statewide Order No. 2 requires 10- to 160-acre spacing and 330- to 1,320-foot setbacks from property lines. Title 805, Chapter 1, Sections 100 and 130 of the Kentucky Administrative Regulations require approximately 3- to 574-acre spacing, as well as 400 to 1,000 feet between wells, and 200 to 500 feet from mineral boundaries.

### Other Legislation, Compliance, and Policies

Table 1 lists many, but not all, of the other legal and policy mandates governing non-federal oil and gas operations, and the resources and values afforded protection under these statutes, regulations, executive orders, and policies. Many of the legal and policy mandates listed in the following table are summarized in appendix B.

**TABLE 1. LEGAL AND POLICY MANDATES PERTAINING TO NON-FEDERAL OIL AND GAS OPERATIONS**

Authorities	Resources and Values Afforded Protection
<b>National Park Service Statutes and Applicable Regulations</b>	
National Park System General Authorities Act, 16 USC 1a-1 et seq.	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
NPS Omnibus Management Act of 1998, 16 USC 5901 et seq.	Any living or non-living resource
NPS Non-federal Oil and Gas Rights regulations – 36 CFR 9B	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, threatened and endangered species, and visitor use and experience
Park System Resource Protection Act, 16 USC 19jj	Any living or non-living resource that is located within the boundaries of a unit of the national park system, except for resources owned by a non-federal entity
<b>Other Applicable Federal Laws and Regulations</b>	
American Indian Religious Freedom Act, as amended, 42 USC 1996 – 1996a; 43 CFR 7	Cultural and historic resources
Antiquities Act of 1906, 16 USC 431-433; 43 CFR 3	Cultural, historic, archeological, paleontological resources
Archeological Resources Protection Act of 1979, 16 USC 470aa – 470mm; 18 CFR 1312; 36 CFR 296; 43 CFR 7	Archeological resources
Clean Air Act, as amended, 42 USC 7401-7671q; 40 CFR 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR 23	Air resources
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 USC 9601-9675; 40 CFR 279, 300, 302, 307, 355, and 373	Human health and welfare and the environment
Endangered Species Act of 1973, as amended, 16 USC 1531-1544; 36 CFR 13; 50 CFR 10, 17, 23, 81, 217, 222, 225, 402, and 450	Plant and animal species or subspecies and their habitat, which have been listed as threatened or endangered by the USFWS or the National Marine Fisheries Service

**TABLE 1. LEGAL AND POLICY MANDATES PERTAINING TO NON-FEDERAL OIL AND GAS OPERATIONS**

<b>Authorities</b>	<b>Resources and Values Afforded Protection</b>
Farmland Protection Policy Act, 7 USC 4201- 4209, 7 CFR 658	Prime and unique farmland and soils
Federal Insecticide, Fungicide, and Rodenticide Act, as amended (commonly referred to as Federal Environmental Pesticide Control Act of 1972), 7 USC 136 et. seq.; 40 CFR 152-180, except Part 157	Human health and safety and the environment
Federal Land Policy and Management Act of 1976, 43 USC 1701 et seq.; 43 CFR 2200 for land exchanges and 43 CFR 1700-9000 for all other BLM activities	Federal lands and resources administered by the BLM
Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 USC 1251 et seq.; 33 CFR 320-330; 40 CFR 110, 112, 116, 117, 122, and 230-232	Water resources, wetlands, and waters of the United States
Fish and Wildlife Coordination Act, 16 USC 661-666c	Water resources, fish, and wildlife
Historic Sites, Buildings, and Antiquities Act (Historic Sites Act of 1935), 16 USC 461-467; 18 CFR 6; 36 CFR 1, 62, 63, and 65	Historic sites, buildings, and objects
Lacey Act, as amended, 16 USC 3371 et seq.; 15 CFR 904; 50 CFR 10, 11, 12, 14, and 300	Fish, wildlife, and vegetation
Migratory Bird Treaty Act as amended, 16 USC 703-712; 50 CFR 10, 12, 20, and 21	Migratory birds
National Environmental Policy Act of 1969, 42 USC 4321 et seq.; 40 CFR 1500-1508	Human environment (cultural and historic resources, natural resources, biodiversity, human health and safety, socioeconomic environment, and visitor use and experience)
National Historic Preservation Act of 1966, as amended, 16 USC 470 et seq.; 36 CFR 18, 60, 63, 78, 79, and 800	Cultural and historic properties listed in or determined to be eligible for listing in the National Register of Historic Places
Native American Graves Protection and Repatriation Act, 25 USC 3001-3013; 43 CFR 10	Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony
Noise Control Act of 1972, 42 USC 4901-4918; 40 CFR 211	Human health and welfare
Oil Pollution Act, 33 USC 2701-2762; 15 CFR 990; 30 CFR 253; 33 CFR 135 and 150; 40 CFR 112	Water resources and natural resources
Pipeline Safety Act of 1992, 49 USC 60101 et seq.; 49 CFR 190-199	Human health and safety and the environment
Resource Conservation and Recovery Act, 42 USC 6901 et. seq.; 40 CFR 240-282; 49 CFR 171-179	Natural resources and human health and safety
Rivers and Harbors Act of 1899, as amended, 33 USC 401 et. seq.; 33 CFR 114, 115, 116, 320-325, and 333	Shorelines and navigable waterways, tidal waters, and wetlands
Safe Drinking Water Act of 1974, 42 USC 300f et seq.; 40 CFR 141-148	Human health and water resources
Wild and Scenic Rivers Act of 1968, 16 USC 1271 et seq.; 36 CFR 297	Water resources, recreational values, geologic resources, fish and wildlife, historic, and cultural and other similar values

**TABLE 1. LEGAL AND POLICY MANDATES PERTAINING TO NON-FEDERAL OIL AND GAS OPERATIONS**

<b>Authorities</b>	<b>Resources and Values Afforded Protection</b>
Enabling Act for Big South Fork National River and Recreation Area (Water Resources Act of 1974) 16 USC 460ee	Cultural, historic, geologic, fish, wildlife, and archeological resources; scenic and recreational values
Enabling Act for Obed Wild and Scenic River, PL 90-542, 16 USC 1274	Rivers, geologic, fish and wildlife, historic, cultural resources; recreational and scenic values
<b>Executive Orders</b>	
Executive Order No. 11593 – Protection and Enhancement of the Cultural Environment, 36 Fed. Reg. 8921 (1971), 3 CFR 1971 Comp., 36 CFR 60, 61, 63, and 800	Cultural resources
Executive Order No. 11644 – Use of Off-Road Vehicles on the Public Lands, 37 Fed Reg. 2877 (1972) reprinted in 42 USC 4321, as amended by Executive Order No. 11989 (1977), 42 Fed. Reg. 26959; Executive Order No. 12608 (1987), 21, 52 Fed. Reg. 34617	Natural and cultural resources; aesthetic and scenic values
Executive Order No. 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977), 3 CFR 121 Comp., as amended by Executive Order No. 12148 (1979), 44 Fed. Reg. 43239, 3 CFR 1979 Comp., p. 412	Floodplains, human health, safety, and welfare
Executive Order No. 11990 – Protection of Wetlands, 42 Fed. Reg. 26961 (1977), 3 CFR 121	Wetlands
Executive Order No. 12088 – Federal Compliance with Pollution Control Standards, 43 Fed. Reg. 47707 (1978); as amended by Executive Order No. 12580 – Superfund Implementation, 52 Fed. Reg. 2923 (1987)	Natural resources, human health and safety
Executive Order No. 12630 – Governmental Actions and Interference with Constitutionally Protected Property Rights, 53 Fed. Reg. 8859 (1988)	Private property rights, public funds
Executive Order No. 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, amended by Executive Order No. 12948, 60 Fed. Reg. 6379 (1995)	Human health and safety
Executive Order No. 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)	Native Americans' sacred sites
Executive Order No. 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999), as amended by Executive Order 13286, 68 Fed. Reg. 10619 (2003)	Vegetation and wildlife
Executive Order No. 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001)	Migratory birds
Executive Order No. 13212 – Actions to Expedite Energy-Related Projects, 66 Fed. Reg. 28357 (2001), as amended by Executive Order No. 13302, 68 Fed. Reg. 27429 (2003)	Production, transmission, and conservation of energy
Executive Order No. 13352 – Facilitation of Cooperative Conservation, 69 Fed. Reg. 52989 (2004)	Natural resources, property rights, and public health and safety

**TABLE 1. LEGAL AND POLICY MANDATES PERTAINING TO NON-FEDERAL OIL AND GAS OPERATIONS**

<b>Authorities</b>	<b>Resources and Values Afforded Protection</b>
<b>Federal Policies, Guidelines, and Procedures</b>	
NPS <i>Management Policies 2006</i> (NPS 2006c)	All resources including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
Department of the Interior, Departmental Manual, 516 DM 1 -15, NEPA policies (2005)	All resources including cultural resources, historic resources, natural resources, and human health and safety
Department of the Interior, Departmental Manual, 517 DM 1, Pesticides (1981)	Human health and safety and the environment
Department of the Interior, Departmental Manual, 519 DM 1 - 2, Protection of the Cultural Environment (1994)	Archeological, prehistoric resources, historic resources, Native American human remains, and cultural objects
Department of the Interior, Departmental Manual, 520 DM 1, Protection of the Natural Environment – Floodplain Management and Wetlands Protection Procedures (2001)	Floodplains and wetlands
Department of the Interior, Onshore Oil and Gas Order Number 2, Section III, Drilling Abandonment Requirements, 53 Fed. Reg. 46,810 – 46,811 (1988)	Human health and safety
NPS Director's Order 12 – Conservation Planning, Environmental Impact Analysis, and Decision Making (NPS 2011) and Handbook (NPS 2001)	All resources including natural resources, cultural resources, human health and safety, socioeconomic environment, and visitor use
NPS Director's Order 28 – Cultural Resource Management (NPS 1998c)	Cultural, historic, and ethnographic resources
NPS Director's Order 28A – Archeology (NPS 2004c)	Archeological resources
NPS Director's Order 47 – Soundscape Preservation and Noise Management (NPS 2000)	Natural soundscapes
NPS Director's Order and Reference Manual 53 – Special Park Uses (NPS 2005e)	All resources, including air resources, cultural and historic resources, natural resources, biological diversity, human health and safety, endangered and threatened species, visitor use and experience, and visual resources
NPS Reference Manual 77 – Natural Resources Management (NPS n.d.b)	Natural resources
NPS Director's Order and Procedural Manual 77-1, Wetland Protection (NPS 2002b)	Wetlands
NPS Director's Order and Procedural Manual 77-2, Floodplain Management (NPS 2003d)	Floodplains
Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, 48 Fed. Reg. 44716 (NPS 1983), also published as appendix F of NPS Director's Order 28, Cultural Resource Management	Cultural and historic resources
Government-to-Government Relations with Native American Tribal Governments, Presidential Memorandum (April 29, 1994)	Native Americans – tribal rights and interests



**TABLE 1. LEGAL AND POLICY MANDATES PERTAINING TO NON-FEDERAL OIL AND GAS OPERATIONS**

<b>Authorities</b>	<b>Resources and Values Afforded Protection</b>
<b>Selected Kentucky and Tennessee Laws and Regulations</b>	
TN Code, Title 60, Oil and Gas (2006)	Permitting and operations – public health and safety
TN Code, Title 68, Health and Safety and Environmental Protection (2006)	Permitting and operations – all resources, public health and safety
TN Code, Title 70, Wildlife Resources (2006)	Plants and wildlife
KY Rev. Stat. Title 28, Mines and Minerals (2005) Title 805 040 – 170	Permitting and operations – public health and safety
KY Rev. Stat. Title 12, Conservation and State Development (2005)	All resources, public health and safety

Both state and federal law govern the conduct of oil and gas operations at Big South Fork NRRA and Obed WSR. The states of Kentucky and Tennessee have such laws, which are listed below and summarized in appendix B. However, to the extent that state laws conflict with the federal statutory and regulatory requirements governing the exercise of non-federal oil and gas rights at the park units, the state law must yield to federal requirements.

## **RELATIONSHIP TO PLANNING DOCUMENTS FOR BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA**

The following plans for Big South Fork NRRA were considered in the development of this plan/EIS.

### **Big South Fork National River and Recreation Area Final General Management Plan/Environmental Impact Statement (2005)**

The purpose of the GMP for Big South Fork NRRA is to provide a clearly defined direction for resource protection and visitor use at the park unit for a period of 15 to 20 years (NPS 2005a). Through the GMP planning process, the NPS reiterated the need for an oil and gas management program, to include developing an oil and gas management plan, completing plans of operations, plugging inactive wells, and reclaiming disturbed lands. Aspects of the plan that relate to oil and gas management are summarized below (for more detail, refer to the GMP (NPS 2005a)).

#### **Management Zones**

The GMP delineates several management zones within the park and outlines the desired resource conditions and setting, desired visitor experience, and the kinds/levels of management appropriate in each zone. Oil and gas development is recognized as an allowable activity per the enabling legislation of Big South Fork NRRA in the GMP. While identifying which zones are appropriate for oil and gas operations in the GMP, the NPS acknowledged the potential resource and visitor use conflicts associated with these legitimate operations.

The Natural Environment Recreation Zone, the Sensitive Resource Protection Zone, and the All-Terrain Vehicle Planning Area are the three zones in which the GMP identified the potential for oil and gas activities (NPS 1995a). The general application of these zones and their desired conditions are summarized in table 2. For additional details and maps, refer to the GMP (NPS 2005a).

**TABLE 2. GENERAL MANAGEMENT PLAN ZONES FOR BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA**

<b>Zone/Planning Area</b>	<b>General Application</b>	<b>Desired Resource Conditions and Setting</b>
Natural Environmental Recreation	This covers most of the park unit and is applied to natural landscape areas suitable for and capable of sustaining dispersed recreation. It includes a variety of environments from ridges to valleys and is typically forested.	Natural processes would be protected within this zone. A predominantly natural condition would be readily apparent to the visitor and would allow natural succession into mature forest. Some areas may be managed to promote certain vegetation types, such as native grasses.
Sensitive Resource Protection	This zone includes natural and cultural areas and features particularly vulnerable or sensitive to damage or deterioration by natural causes or human disturbance, including sensitive resources that have been previously impacted. Specific resource types (such as cliff edges, rock shelters, and threatened or endangered species) that are included within this unit are addressed individually.	Resources in this zone would reflect natural processes and would be carefully protected from unnatural degradation. Cultural resources would reflect specific management objectives or desired treatments. Tolerance for degradation due to human interaction is extremely low.
All-Terrain Vehicle Planning Area	Not really a zone, the GMP designates the All-Terrain Vehicle Planning Area in two locations near Darrow Ridge where specifically designated all-terrain vehicle trails would be considered. Initial trail selection would be considered experimental, with expansion or elimination considered after evaluation.	Because this planning area is a use-oriented overlay on the Natural Environment Recreation Zone, the desired resource conditions would remain the same as described above for that zone. The GMP also acknowledges the need for further planning to address the conflicts between this potential experimental area and oil and gas operations.

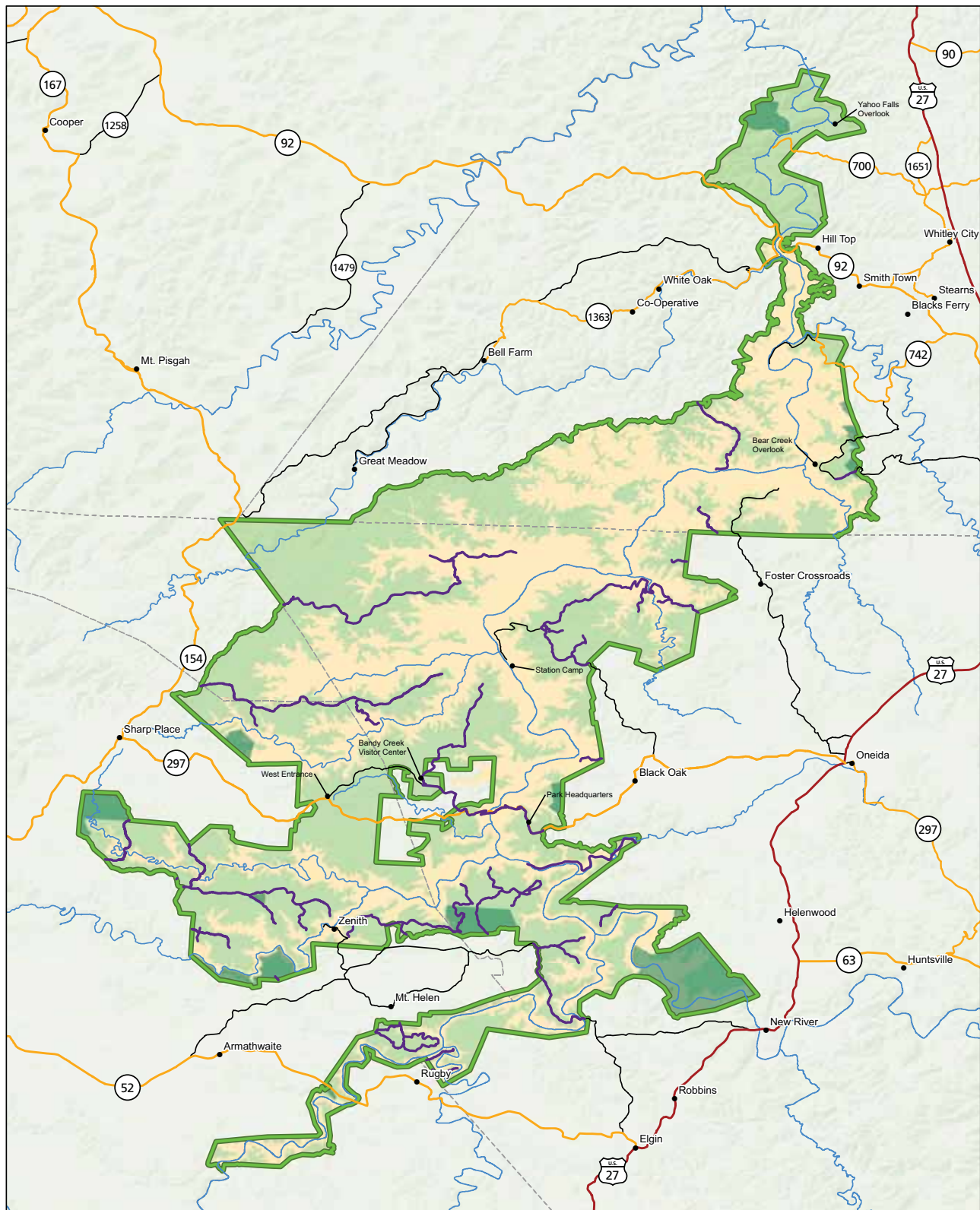
Source: NPS 2005a.

### Road and Trail Classifications and Standards

While the GMP outlines road and trail classifications and standards (see appendix E) that were incorporated into the plugging and reclamation standards discussed in chapter 2, the classification and application of standards to any roads associated with current or new operations would ultimately be determined during preparation of operation plans.

While this plan/EIS for Big South Fork NRRRA addresses the specifics of road standards for non-federal oil and gas operations (see chapter 2), the NPS did address the use of oil and gas roads for recreational purposes in the GMP for the park unit. Currently, many oil and gas access routes are being used as routes by off-highway vehicles and horses where the public has access, creating safety, maintenance, and resource concerns. To address these issues, the NPS identified some recreational routes suitable for public use, as well as access to oil and gas operations, as part of the official roads and trails system at Big South Fork NRRRA (see figure 6). These roads are discussed further in the “Road Standards” section of chapter 2, as well as in appendix E.

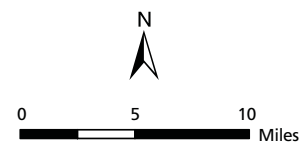




## Legend

**Figure 6. Roads and Trails with Recreational Uses that Provide Oil and Gas Access**

- U.S. Highway
- State Highway
- Roads
- Rivers / Streams
- County Boundary
- Park Unit Boundary
- Deferred Properties
- Gorge
- Oil and Gas Access Road



*For Illustrative Purposes Only*



### **Big South Fork National River and Recreation Area Resource Management Plan (1996)**

The Resource Management Plan for Big South Fork NRRA identifies the present status of natural and cultural resources of the park at the time the plan was prepared (NPS 1996), as well as an overview of the resource management programs and needs.

The second highest priority identified for the natural resources management program in the Resource Management Plan is the minerals management program. The Resource Management Plan calls for plan and permit reviews, monitoring of mineral activities, site reclamation work, data maintenance, coordination with various agencies, and investigations of oil spills and other unusual or highly detrimental disturbances. Funding and staff levels were assessed and considered inadequate, especially in light of increased oil and gas activity (NPS 1996).

The Resource Management Plan also identifies goals and issues associated with resource management, including the following that are relevant to oil and gas management:

- developing an action plan and priority list for oil and gas drilling impacts on groundwater
- implementing plugging and reclamation, especially in the gorge
- implementing the 9B regulations
- reviewing all operations in the adjacent area for compliance with the 9B regulations
- determining mineral ownership in the adjacent area and identifying all mineral sites in the gorge
- reviewing plans of operations
- monitoring and ensuring compliance of operations
- setting minimally acceptable standards for oil and gas operations
- conducting a study of cumulative impacts of mineral operations

Many of these goals and issues have been adopted in the range of alternatives in the Big South Fork NRRA and Obed WSR plan/EIS.

### **Big South Fork National River and Recreation Area Water Resources Management Plan (1997)**

The Water Resources Management Plan addresses water quality and quantity issues, and their monitoring and management. The purpose of the plan is to assist Big South Fork NRRA managers in making decisions and establishing priorities for the protection, use, conservation, and management of the waters and water-related resources of the park unit. The plan evaluates the existing conditions of water resources, identifies water resources issues, and guides future management decisions (NPS 1997).

The impacts of oil and gas operations on the water resources of Big South Fork NRRA are identified as one of the issues in the Water Resources Management Plan. Several general objectives that relate to oil and gas activities have been identified in this plan for water resources management, including objectives related to maintaining free-flowing conditions, restoring or maintaining natural aquatic, wetland, and riparian environments, and maintaining and restoring a high level of water quality. In addition, specific objectives for oil and gas include:

- mitigating impacts of past oil and gas activities to both surface water and groundwater
- ensuring that oil and gas exploration and development are accomplished with minimal impact or risk to both surface water and groundwater (NPS 1997)

### **Big South Fork National River and Recreation Area Fire Management Plan (2006)**

The purpose of this plan is to provide details of the actions that will be taken by Big South Fork NRRA in meeting the fire management goals established for the area. While recognizing oil and gas operations as facilities to be protected, the Fire Management Plan also identifies the presence of wells and their associated equipment (such as storage tanks and pipelines) as a concern (NPS 2006e). As a result, the goals and objectives of this plan identify activities relating to oil and gas operations.

For example, the plan calls for preventing wildland fires from igniting oil and gas facilities. It recommends using mechanical means in combination with prescribed fire to reduce hazard fuel accumulations around oil and gas well facilities and aid in fire suppression activities by reducing fire intensity and severity. However, prescribed fire treatment areas would not be designated in areas of the park where there is high potential for fires that may adversely impact oil and gas facilities. The plan also recommends that NPS staff work with petroleum producers to develop and maintain defensible space<sup>1</sup> around well heads and storage tanks and mark feeder and other pipelines at or below the surface (NPS 2006e).

### **Big South Fork National River and Recreation Area Land Protection Plan Update (1998)**

The NPS prepares land protection plans to determine what land or interest in land should be in public ownership and the available means of protection other than acquisition. These plans inform landowners of NPS intentions for buying or protecting land by other means, and help managers identify priorities. They also identify opportunities to work with state government agencies, landowners, and the private sector to protect park units (NPS 1998a).

The Land Protection Plan for Big South Fork NRRA addresses privately owned lands or other interests within the authorized boundary, as well as external conditions with the potential to impact land protection within the park unit. This includes the presence of oil and gas operations, which are identified in the plan as potentially incompatible uses when poorly regulated (NPS 1998a). While these operations have the potential to impact the resources of Big South Fork NRRA, the Land Protection Plan recognizes that, with adequate staff, proper enforcement of the 9B and state regulations, cooperation with the states of Tennessee and Kentucky, and adherence to prohibitions in the enabling legislation, impacts to park resources can be minimized while providing access to non-federal oil and gas rights. However, the Land Protection Plan identifies private oil and gas rights-of-way (for pipelines) and outstanding mineral rights as the last two priorities for protecting the resources of Big South Fork NRRA. The plan also addresses third-party minerals, or mineral interests under tracts where neither the surface nor subsurface rights have been acquired (NPS 1998a).

In the case of rights-of-way, the plan recommends acquisition and relocation of pipelines out of the park unit. For long-term protection of Big South Fork NRRA, the plan ultimately recommends that outstanding mineral rights should be acquired along with the surface rights when doing so is financially possible and

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<sup>1</sup>. Defined as an area, either natural or manmade, where material (such as flammable brush, vegetation, or other fuels) that could cause a fire to spread, has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and resources or lives at risk (National Fire Plan 2004).

advantageous to the government. The plan also identifies the need for closely monitoring and regulating mineral extraction activities to ensure resources are protected (NPS 1998a).

### **Big South Fork National River and Recreation Area Business Plan, Fiscal Year 2004 (2005)**

The purpose of business planning in the NPS is to improve the abilities of parks to more clearly communicate their financial status with principal stakeholders. The business planning process is undertaken to accomplish three main tasks. First, it provides the park with a synopsis of its funding history. Second, it presents a clear, detailed picture of the state of current park operations and funding. Finally, it outlines park priorities and funding strategies (NPS 2005c).

The Business Plan for the Big South Fork NRRRA is designed to identify and document the capabilities and priorities of the park unit. The key findings described in the plan show a gap between current funding of the park's operations and the funds necessary to fulfill the goals and mission of the park. One of the most important challenges the park faces is funding for the oil and gas management program. This business management plan identifies the need for developing a comprehensive approach to managing minerals at Big South Fork NRRRA, including an oil and gas program. Through the planning process, recreation area staff also determined that an environmental protection specialist and program manager are needed to oversee the oil and gas program (NPS 2005c).

### **Big South Fork National River and Recreation Area Fields Management Plan (2006)**

Big South Fork NRRRA contains 102 field units, totaling approximately 740 acres. Although this represents a very small part (less than 1%) of the park, fields are important components of its natural and cultural landscape. The long-term objectives for this plan are to (1) restore disturbed lands to natural conditions, (2) enhance habitat for game and non-game wildlife, (3) preserve cultural landscapes, and (4) enhance recreational opportunities (NPS 2006d).

The Fields Management Plan identifies desired resource conditions and the kinds/levels of visitor use for each of the fields in the park, depending on the GMP zone in which they fall (e.g., Natural Environment Recreation Zone, Cultural Spaces, First- or Second-Order Development and Visitor Use Zones). The plan also identifies specific vegetation conditions for each field (e.g., native warm season grasses, tall fescue (*Lolium arundinaceum*) mix, turfgrass, grassy woodland, and forest). The desired conditions, uses in each field, and whether or not they are included in designated cultural landscapes were all taken into account when developing the management prescriptions for each field. Although the fields management plan does not specifically address oil and gas operations, the oil and gas management plan has taken into consideration the objectives of this plan and desired conditions for the fields. Additionally, fields are protected as a SMA in alternative C.

### **Mussel Reintroduction at Big South Fork National River and Recreation Area (2003)**

In 2003, the Big South Fork NRRRA completed an Environmental Assessment for the restoration of freshwater mussel ecological function and biodiversity to the free-flowing reach of the Big South Fork River of the park unit, as well as to further the recovery of federally endangered mussels. Of the 297 mussel species known in the United States, more than 90% occur in the southeast. Currently, 26 species remain in the National Area including 6 that are federally protected: the Cumberland elktoe (*Alasmidonta atropurpurea*), Cumberland combshell (*Epioblasma brevidens*), Cumberland bean (*Villosa trabalis*), oyster mussel (*Epioblasma capsaeformis*), tan riffleshell (*Epioblasma walkeri*), and little-wing pearlymussel (*Pegias fabula*). Although the decline is considerable, recent mussel surveys indicate that the river is slowly recovering. In addition, opportunities currently exist to begin recovering the mussel



fauna in the Big South Fork and assist in the recovery of several federally endangered mussels, including four in addition to those that occur there now (NPS 2003b).

Restoration efforts from the plan include maintaining current efforts that protect and conserve existing mussel populations, augmenting existing federally listed and non-listed mussel populations with juveniles raised from adults collected within the Big South Fork, reintroducing federally listed and non-listed mussel species that were historically reported from the river using adults and juveniles raised from individuals collected outside the river, and monitoring the progress of the project (NPS 2003b). While the Environmental Assessment recognizes oil and gas operations as a potential source of erosion, sedimentation, and other water quality impacts, none of these operations occur near river shoals where mussels would be released. New oil and gas operations are not allowed in the gorge, which protects mussel habitat in the park unit (NPS 2003b). Activities associated with plugging wells in the gorge could have impacts to these mussels and/or their habitat, and would require measures to minimize the potential effects.

## **RELATIONSHIP TO PLANNING DOCUMENTS FOR OBED WILD AND SCENIC RIVER**

The following plans for the Obed WSR need to be considered in the development of this plan.

### **Obed Wild and Scenic River General Management Plan (1995)**

The GMP for Obed WSR was prepared to provide for the protection of the park unit values and address resource management, as well as visitor use. The plan established a management zone system representing area specific applications of management objectives, a resource management strategy that addresses the complexity of issues both inside and outside the boundaries of the park unit, enhanced and expanded visitor oriented programs and facilities to provide opportunities to experience the values of the park unit, and boundary expansion (NPS 1995a).

Although none of the management objectives or zones specifically address oil and gas operations, they guide overall management of the Obed WSR and have been considered in preparing this oil and gas management plan. The resource management strategy does address oil and gas operations, and includes provisions for stabilizing and revegetating inactive oil and gas sites to protect water quality. Visual intrusions and noise from oil and gas development were also identified as issues for maintaining the character of the landscape at Obed WSR. The GMP encourages cooperation with surrounding landowners to implement measures to address impacts from activities on lands surrounding the park unit (NPS 1995a).

### **Obed Wild and Scenic River Water Resources Management Plan (1998)**

This water resources management plan was developed as an action plan to support the decision-making processes related to the protection, conservation, use, and management of the Obed WSR water resources. It is designed to identify and analyze water resource-related issues where the current level of information is minimal or insufficient to meet the management goals and objectives of the National Park (NPS 1998b).

This plan describes general objectives tiered from the GMP for the Obed WSR, but also specifically addresses oil and gas operations. The plan identifies these operations as major land disturbances and uses within and outside the park unit, noting that chemical and petroleum by-products of the production process from active operations, and leakage from inactive wells, could impact water quality. As a result, recommendations are made to monitor and mitigate the impacts of oil and gas operations. As active oil and gas operations both inside and outside Obed WSR pose a threat to the water resources of the park

unit, this program requires the NPS to work closely with the oil and gas operators during all exploration, drilling, and production operations to provide an early warning monitoring network of the local water resources (NPS 1998b).

### **Obed Wild and Scenic River Resource Management Plan (1993)**

This plan outlines the present status and baseline information for the natural and cultural resources at the Obed WSR. It gives an overview of the management programs associated with these resources as well as the needs of these programs. The plan recognizes the impacts of oil and gas operations on natural and cultural resources (such as water quality impacts, erosion and sedimentation, and impacts to archeological sites from oil and gas exploration, especially road building), and considers them a priority for management (NPS 1993).

### **Obed Wild and Scenic River Strategic Plan (2005)**

The Strategic Plan for Obed WSR provides mission, purpose, and significance statements for the park unit, based on the legislative intent of the Organic Act and other pertinent legislation that established the park unit. The plan identifies goals for achieving the overall mission of the Obed WSR, as well as appropriate goals that apply to the entire NPS. Although this plan does not specifically address goals for oil and gas management, it does identify the purpose and significance of the park unit, which were considered in developing alternatives. In addition, oil spills from surrounding drilling and production operations are identified as threats to achieving the goals of the plan (NPS 2005b).

### **Obed Wild and Scenic River Land Protection Plan, 1986 Update (1986)**

As described previously for the Big South Fork NRR, the NPS prepares land protection plans to determine what land or interest in land should be in public ownership and the available means of protection other than acquisition (see previous discussion for more details about why the NPS prepares these plans).

The land protection plan for Obed WSR identifies mineral extraction as an incompatible use on wild, scenic, and recreational lands. The plan also recognizes oil and gas as an external issue for protecting the resource and recreational values of the park unit as a result of sedimentation from clearing and construction for oil and gas operations, the use of contaminating substances that can affect water quality, and the potential for oil spills (NPS 1986).

The land protection plan identifies the protection of lands where oil and gas extraction occurs as a priority for protecting resource and scenic values at Obed WSR. Recognizing the right to access these minerals, the plan recommended obtaining easements on any tracts that overlie private mineral rights, requiring that any oil and gas be extracted from locations outside the boundary of the park unit, prohibiting activities that would adversely affect the natural and cultural resources or scenic values, and allowing limited NPS access and use (NPS 1986).

## **OTHER FEDERAL AGENCY PLANS, POLICIES, AND ACTIONS**

### **U.S. FOREST SERVICE**

#### **Daniel Boone National Forest**

The Daniel Boone National Forest encompasses over 2,000,000 acres, about one-third of which (nearly 700,000 acres) is federally owned and managed by the U.S. Forest Service (USFS) (USFS 2004a). The

national forest boundary totally encompasses the Big South Fork NRRA within Kentucky, although many areas immediately adjacent to the national area are privately owned. Lands administered by the USFS are situated along the western edge of the park unit in Kentucky and also along the eastern side, north of Highway 92. This area is in the Stearns Ranger District and offers campgrounds and trails for recreation, in addition to its other uses of timber, wildlife, and water (NPS 2005a).

**Oil and Gas Operations.** Mineral extraction occurs throughout the national forest, primarily for coal and natural gas. Of the 179 wells drilled within Daniel Boone National Forest since 1985, only 5 have been for oil (142 were for gas, 13 for oil and gas, and 18 were dry) (USFS 2004b). Minerals underlying national forest system land may be federally owned, “reserved” by the previous surface owners, or “outstanding” in third parties. A total of 110 wells currently occur on USFS lands (USFS 2005). Currently, there are 65 federal oil and gas leases issued on the Daniel Boone National Forest covering approximately 58,988 acres with 42 actively producing wells (USFS 2004b). A total of 47 inactive oil wells have been plugged and abandoned on the forest in the past 3 years, 32 by the EPA, and 15 by the Kentucky Department of Mines and Minerals (USFS 2005).

The Stearns Ranger district was rated as having moderate oil and gas potential in the RFD scenario prepared for the USFS by the. The RFD scenario is a model or projection of anticipated oil and gas exploration and development (leasing, exploration, development, production, and abandonment) in a defined area for a specific time (usually 10 years). The RFD scenario predicts that, in the next 10 years, 4 wells will be drilled on the Daniel Boone National Forest to recover federally owned minerals, while 12 wells are likely to be drilled for private minerals (USFS 2004b). These developments are likely to occur in the Stearns and Redbird Ranger Districts of the national forest (USFS 2004b).

### **Land and Resource Management Plan (2004)**

The 2004 Land and Resource Management Plan (LRMP) was developed to guide coordination of multiple uses (such as outdoor recreation, minerals extraction, timber operations, watersheds, fish and wildlife, and wilderness) and promote sustained yields of products and services on the Daniel Boone National Forest. As a framework for decision-making, the LRMP does not commit the USFS to any specific project or local action. It describes the general management direction, and incorporates an adaptive approach to resource management where managers will be able to continually appraise results, review assumptions, and adjust management direction in the light of knowledge gained from monitoring. The plan sets up a framework of desired conditions with goals, objectives, and standards for the entire national forest, as well as specific prescription areas (USFS 2004a).

### **Prescriptions for Oil and Gas Operations in the Land and Resource Management Plan**

The desired conditions for the entire Daniel Boone National Forest recognize that oil and gas operations will continue. As a result, specific operating standards were developed that apply to oil and gas operations forest-wide, such as requiring approved operating/reclamation plans and appropriate state and federal permits before the activity begins, no surface occupancy stipulations<sup>2</sup> within 200 feet of caves during development of federally owned oil and gas, no drilling into cave voids where federal leasing is authorized, and the requirement for controlled-use stipulations<sup>3</sup> in specific stream environments (USFS 2004a).

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<sup>2</sup>. The LRMP defines no surface use as “a mineral leasing stipulation that prohibits occupancy or disturbance on all or part of the land surface to protect special values or uses” (USFS 2004a).

<sup>3</sup>. Controlled surface use stipulation is defined in the LRMP as a “minerals leasing stipulation that refers to the special operational constraints that may modify a lessee’s rights when resource values have been identified. Allowed use and occupancy (unless restricted by another stipulation) with identified resource values requiring special operational constraints that may modify the lease rights” (USFS 2004a).



The specific prescription areas identified in the plan are also subject to the no surface use or controlled surface use stipulations. These areas range from general designations, such as Cliffline Community and Riparian Corridor, to more site-specific features, such as wilderness areas and proposed wild and scenic rivers (USFS 2004a).

## **U.S. FISH AND WILDLIFE SERVICE**

### **Threatened and Endangered Species Recovery Plans and Critical Habitat**

There are six recovery plans in place for ten species that have been listed as threatened or endangered under the Endangered Species Act that occur at Big South Fork NRRA or Obed WSR. They include two plants, three fish, and five mussels. Each of these plans identifies risks to the species and objectives for recovery, as summarized below. The plans also provide background information on each species and specific recovery criteria.

New River, Clear Fork, and North White Oak, along with other tributaries and the main stem of the Big South Fork, are listed as designated critical habitat for listed mussel species and should be afforded protection (NPS 2009j). Critical habitat for all listed mussels consists of permanent, flowing stream reaches with a flow regime and water quality necessary for normal behavior, growth, and survival of all life stages of the mussels and their host fish; geomorphically stable stream and river channels and banks; stable substrates; and fish hosts with adequate living, foraging and spawning areas for them. The critical habitat for the spotfin chub in Cumberland County is the Obed River upstream to I-40, Clear Creek upstream to I-40, and Daddys Creek upstream to US Highway 127.

#### **Virginia spiraea (*Spiraea virginiana* Britton) Recovery Plan (1992)**

This recovery plan addresses the threatened Virginia spiraea, a plant that occurs in riverine areas of both the Big South Fork NRRA and Obed WSR. The plan identifies impoundments, road-building, poor watershed management, and uncontrolled development of rivers as human-caused threats to this species. The recovery strategy, objectives, and tasks emphasize preserving current populations and potential habitat, knowledge of environmental factors and tolerances that affect survival and reproduction, and maintaining a collection of these plants in an appropriate facility (USFWS 1992).

#### **Recovery Plan for Cumberland Rosemary (*Conradina verticillata*) (1996)**

Cumberland rosemary is a shrub listed as threatened, that occurs in riverine environments of both Big South Fork NRRA and Obed WSR. The recovery plan lists the creation of reservoirs as the greatest threat to this species, while other concerns include poaching for personal or commercial use, destruction of habitat by recreational activities, and deterioration of water quality as a result of coal mining and oil and gas operations. The recovery strategy and outline of recovery tasks emphasize preserving current populations and potential habitat, searching for new populations, knowledge of the species' biology, maintaining a collection of these plants in an appropriate facility, monitoring, and public education (USFWS 1996).

#### **Duskytail Darter (*Etheostoma (Catonotus) percunurum*) Recovery Plan (1994)**

The duskytail darter, listed as endangered, inhabits large creeks and moderately large rivers, including the portion of the Big South Fork River that occurs in the park unit in Scott County, Tennessee. Impoundments, degradation of habitat (especially from siltation), runoff from coal mines, poor land-use practices, road building, and waste discharges (including toxic materials), are all identified as threats to this species. The plan outlines recovery actions, including preserving present populations and habitat,

expanding searches for presently unknown populations or habitat suitable for reintroduction, reestablishing populations, and monitoring (USFWS 1994).

**Recovery Plan for Cumberland Elktoe (*Alasmidonta atropurpurea*), Oyster Mussel (*Epioblasma capsaeformis*), Cumberland Combshell (*Epioblasma brevidens*), Purple Bean (*Villosa perpurpurea*), and Rough Rabbitsfoot (*Auadrula cylindrica strigillata*) (2004)**

This plan covers five mussel species listed as endangered that occur in free-flowing rivers and streams. Impoundments, channelization, pollution, and sedimentation all account for elimination of these species from much of their historical range. Coal mining, gravel mining, reduced water quality below dams, developmental activities, water withdrawal, and the introduction of non-native species are all human-related actions that cause localized impacts to the mussels. The highest priority for recovery is preservation of existing populations and occupied habitats, and ensuring that each population is viable. Reestablishing populations, research into the life history and ecological requirements, and programs to raise more mussels in hatcheries are all part of the recovery strategy for these species (USFWS 2004).

**Recovery Plan for Spotfin Chub (*Hybopsis monacha*) (1983)**

The spotfin chub, listed as threatened, is known to inhabit the Emory River system within the Obed WSR. The species recovery plan recognizes that the spotfin chub, now known as *Cyprinella monacha*, has reached the threatened status due to impoundments, channelization, pollution, turbidity or siltation, temperature change, inter-specific competition, and possibly overcollecting within their habitat. As a result from coal mining on the Cumberland Plateau, siltation is the main detriment causing habitat loss within the Emory River system. The plan outlines recovery strategies, including preserving present populations and habitats, continuing to utilize present legislation and regulations to protect the threatened species, determining essential ecological elements of the species' habitat, continuing to study detrimental impacts on the species, and cooperating with local, state, and federal agencies to utilize their authority to protect the species and its river habitat (USFWS 1983).

**Blackside Dace Recovery Plan (*Phoxinus cumberlandensis*) (1988)**

The blackside dace (*Phoxinus cumberlandensis*), which was listed as a threatened species in June 1987, inhabits the Big South Fork River and many of its associated streams within the Big South Fork NRR. The primary threats to the blackside dace are siltation and acid mine drainage associated with strip mining, followed by logging, road construction, agriculture, human development, and naturally low streamflows. The recovery outline emphasizes that utilization of existing legislation and regulations to protect this species is paramount to reestablishing its population, as well as coordinating with cooperating agencies to identify and protect critical populations and habitat, developing information and education programs for the public, determining threats to the species and implementing management where needed, and searching for additional populations and/or habitat suitable for reintroduction efforts (USFWS 1988).

**2010 Memorandum of Understanding**

On April 12, 2010, a memorandum of understanding (MOU) between the NPS and the USFWS was issued that stated the two agencies mutual interests and responsibilities in the conservation and management of America's natural resources. The MOU stated that both parties agree that migratory birds are important components of biological diversity. Further, the parties agreed that it is important to (1) focus on bird populations; (2) focus on habitat restoration where actions can benefit specific ecosystems and the migratory birds dependent upon them; (3) focus on reducing the effects of climate change on migratory birds and their habitats; and (4) recognize that actions that may provide long-term

benefits to migratory bird populations as a whole may result in short-term negative impacts on individual birds.

## **APPLICABILITY OF THE PLAN**

### **BOUNDARY MODIFICATION AND FACILITY CONSTRUCTION**

If additional lands or waters are added to the Big South Fork NRR or Obed WSR in the future, or new facilities are constructed within the park units, management of these areas would be guided by the oil and gas management plan. Several parcels of land within the boundaries of Big South Fork NRR and Obed WSR are owned by private citizens, state agencies and non-profits (see figure 2, deferred properties). The 9B regulations, as well as this plan, will be applicable if and when the federal government acquires any of these lands. However, the acquisition of new lands outside of the current legislated boundary would require an amendment to the GMP for the park units, and depending on the application of the GMP zones or prescriptions in these new areas, there may be a need to revise this plan/EIS.

### **CHANGES IN RESPONSE TO DYNAMIC ENVIRONMENTAL PROCESSES**

Big South Fork NRR and Obed WSR are subject to dynamic changes from environmental, climatic, and geologic processes. Storms and other extreme events could change the configuration of resources. If these or other changes were to occur, the provisions outlined in this plan/EIS for the resources in these specific areas would still apply.

### **CURRENT NON-FEDERAL OIL AND GAS OPERATIONS**

Current legal and policy requirements, performance standards, operating stipulations, and mitigation measures presented in this plan would also apply to previously approved non-federal oil and gas operations in Big South Fork NRR and Obed WSR. Modifications may be necessary for operations that are not in compliance with the requirements of this plan. In addition, all ongoing non-federal oil and gas operations in SMAs would be evaluated to ensure the protection of the resources and values in these areas.

### **EXEMPTIONS FROM THE PLAN**

The designation of protected areas, which is a component of all three alternatives, and the proposal in alternative C to designate SMAs and apply operating stipulations are not intended to result in a taking of private property rights. Regulations at 36 CFR Part 9, Subpart B (9B regulations), were written to encourage technological innovation (§9.37(a)(1)). If an operator can demonstrate that a particular technology could reduce the potential for impact on resources in the park units, the operator may be exempted from specific operating stipulations described in this plan. All requests for an exemption must be presented in a plan of operations and must describe how replacing the plan requirements with a technological innovation would protect park resources and values. Approval of an exemption would be documented in the accompanying NEPA document (Environmental Assessment/Finding of No Significant Impact or Environmental Impact Statement/Record of Decision) for a proposed plan of operations. Therefore, in the event an operator cannot explore for or develop nonfederal oil and gas from a surface location outside of an SMA with the “No Surface Use” stipulation, the NPS will work with the operator, and in consultation with other state and federal agencies as required under applicable laws and regulations, to develop reasonable mitigation measures so as to allow the proposed operations surface use within the SMA. However, if the NPS determines the proposed mineral development would impair park resources, values, or purposes, or does not meet approval standards under applicable NPS regulations and

cannot be sufficiently modified to meet those standards, the NPS will seek to extinguish the associated mineral right through acquisition, unless otherwise directed by Congress.

## **FUTURE MODIFICATIONS TO THE PLAN**

New or revised regulations, policies, and approved planning documents may be implemented in the future to protect park resources and values, avoid conflicts with visitor use and enjoyment, and provide for human health and safety. These changes may require updating and supplementing the information presented in this plan. A determination as to whether such supplementation is required would be made based on guidance provided in: 40 CFR 1502.9(c); NPS NEPA Director's Order 12, specifically Section 4.7 which addresses supplements to draft and final EISs; and a consideration of the factors described Question 32 of the CEQ "Forty Most Asked Questions for NEPA," which refers to substantial changes in a proposed action.