

United States
Department of
Agriculture

Forest
Service

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Proposed Action for 30-Day Comment

Clear Creek Analysis Area

**Potosi/Fredericktown Ranger District,
Mark Twain National Forest
Washington County, Missouri**



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SUMMARY

In addition to the proposed action (Alternative 2), the Forest Service also evaluated the following alternatives:

Alternative 1 – No Action

Alternative 3 – Prescribed Burns in addition to the proposed action

Alternative 4 – All Uneven-Aged Management

Alternative 5 – Restoration Only/Natural Disturbance Process

Based upon the effects of the alternatives, the responsible official will decide whether the proposed activities and alternatives are responsive to the issues, accomplish Mark Twain National Forest - Land and Resource Management Plan direction, which actions or alternatives to approve and implement, whether the information in this analysis is sufficient to implement the proposed activities, and meet the purpose and need as defined for this project, and if the activities can be implemented in a timely manner.

Introduction

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

Under NEPA, federal agencies must consider and analyze the environmental effects of agency actions and to disclose these effects to the public. In addition, regulations at 36 CFR 215.5 require the Forest Service to provide the public an opportunity to comment on projects implementing a land and resource management plan prior to a decision by a Responsible Official. An analysis of the proposed management program is ongoing and will be documented in an Environmental Assessment (EA) that is expected in 2004.

To obtain more information about this project, contact Thomas F. McGuire, Integrated Resource Analyst at (573) 438-5427.

This proposal will also soon be available on our website at <http://www.fs.fed.us/r9/marktwain/projects/project.htm>

Project Location and Background

The Mark Twain National Forest proposes an integrated set of activities to provide improvement of wildlife habitat and forest health through timber harvesting, prescribed burning, pond

maintenance, and road maintenance. The project area is located in T36N, R1E, Sections 1, 2, 11-14, 23, and 24 in Washington County and is within the Potosi/Fredericktown Ranger District, Mark Twain National Forest, Missouri. This action will lead the Clear Creek Analysis area toward the Desired Future Condition. The Forest Plan describes how we want the forest to look. The Forest Plan defines the Clear Creek Analysis Area as a 6.23 management area (MA), emphasizing motorized, semi-primitive dispersed recreation (page IV-175 to 184), included within the project area are 6.37 (MA), 8.12 (MA), and 9.1 (MA). The Forest Plan also provides guidelines for conserving biological diversity on National Forest lands.

The proposed action will provide stand composition that will reflect natural vegetative communities for the sites and successional stages and a natural appearing environment. Areas will produce low to moderate amounts of hardwood and softwood sawtimber and other wood products and a moderate diversity of wildlife will be present.

Available records indicate that a variety of commercial timber harvests were conducted from the 1980's and as recently as 1991. The most recent entry within the Clear Creek Analysis Area had clearcuts, preparatory treatments for uneven-aged management, and oak savanna development. Other activities including timber harvests in the vicinity of the Clear Creek Analysis Area project over the last 10 years include: pond development and maintenance, oak savanna development, road reconstruction, preparatory treatments

for uneven-aged management, overstory removal cuts, clearcuts, pine thinning and pre-commercial thinning. The analyses done for these projects did not reveal any significant effects from the proposed activities.

Forest-wide Direction and Goals

Forest-wide direction guides all natural resource management practices and established the management standards and guidelines for the Forest over the planning period. Management direction also includes the goals, (Land and Resource Management Plan, pages IV-1 to IV-4) objectives (Land and Resource Management Plan, pages IV-4 to IV-10), Forest-wide standards and guidelines (Land and Resource Management Plan, pages IV-11 to IV-86), management area prescriptions with their specific standards and guidelines (Land and Resource Management Plan, pages IV-87 to IV-234), and delineations of management areas.

The goals are concise statements describing a desired result to be achieved over the planning period, through implementing the Mark Twain National Forest - Land and Resource Management Plan. Multiple uses such as: recreation, wildlife, timber, transportation, fire, soil, water, and air management goals all apply to the Clear Creek Analysis Area Project.

Purpose & Need for Action

This Environmental Assessment is designed to inform the public of our proposal, alternatives, and effects, and to provide Potosi/Fredericktown District Ranger, the Deciding Official, with enough information to make an informed

decision for management in the Clear Creek Analysis Area. This Environmental Assessment discloses the direct, indirect, and cumulative effects of five alternatives for improvement of wildlife habitat, transportation, open woodland development, timber harvesting, and regeneration activities.

Desired Future Condition

The Mark Twain National Forest Land and Resource Management Plan (LRMP) allocated approximately 4030 Forest Service acres within the Clear Creek Analysis Area to Management Areas 6.2, 6.3, 8.1, and 9.1. These allocations identified desired future conditions and gave general management direction for each of the management areas found in the Clear Creek Analysis Area.

Management Prescription 6.2

Purposes of this Prescription:

- (1) To manage natural vegetative communities and their successional stages under limited investment.
- (2) To provide wildlife habitat diversity common to managed natural communities.
- (3) To provide dispersed recreation opportunities emphasizing Semi-Primitive Motorized ROS objectives.
- (4) To provide for low to moderate production of other resources such as timber products, fish and wildlife, and forage where they do not limit natural vegetative community management opportunities or dispersed semi-primitive recreation objectives.
- (5) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition

Management areas will normally be 2,500 acres or larger in size and managed to emphasize a semi-primitive motorized environment. Controlled motorized vehicular access for recreational activities will be permitted. System road network density will not exceed an average of one mile per square mile of National Forest System land. Road development will emphasize minimum standards.

Stands of upland central hardwoods will dominate the landscape. Various species of oak will be the chief component, but a variety of other hardwood species will be present, as will mixed hardwood/shortleaf pine, shortleaf pine, eastern red- cedar and grasslands. Stand composition will reflect natural vegetative communities for the sites and their successional stages. Stand age and size will vary across the landscape so that a natural-appearing environment dominates. Openings created by even-aged management will be small in size. The amount of harvest per plan period will be limited but exceeds that found in semi-primitive non-motorized management areas.

Management Prescription 6.3

This prescription provides temporary management for a variety of areas that have potential for "special area" designation other than Wilderness.

These areas reflect public issues or management concerns for the protection of unusual environmental, recreational, cultural, and historical resources and for areas valuable for scientific or educational studies. Candidate areas for National River status are also included.

Purposes of this Prescription:

- (1) To provide temporary management direction for these areas until a designation or rejection decision is made.
- (2) To identify opportunities for low levels of resource outputs where they do not jeopardize the "special area's" potential for designation.
- (3) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

Candidates for Research Natural Areas, Natural History Areas, Cultural Resource Areas, and National Rivers are assigned to this management area until their classification is resolved.

Individual areas will vary in size but with the exception of candidates for National Rivers will normally be less than 100 acres. Plant and animal communities associated with these areas may be uncommon because of their limited occurrence on the total landscape. Vegetation management is directed by the need to retain the unique attributes of the candidate areas until a classification decision is made.

Management opportunities will vary on a case-by-case basis, but will always be based on the needs for protection of the area's integrity. Unless compatible with this protection, motorized use, facility development and management activities will not be permitted. If facility development is unavoidable it will be done to the minimum necessary to reach the objective and designed so as not to preclude the area's designation.

Interaction between users will vary from high to low. Public use may be constrained if it jeopardizes classification potential. These areas will not normally be available for mineral prospecting requiring surface disruption.

Candidates for National River status will be managed under the provisions for National Scenic River classification.

Management Prescription 8.1

This prescription describes a variety of designated "special areas" other than Wilderness. They exist for the protection of unusual environmental, recreational, cultural, or historical resources, and for scientific or educational studies. New areas may be added to this prescription as they are evaluated.

Purposes of this Prescription:

- (1) To protect areas of special scientific, biological, historical, geologic, scenic, recreational, and educational significance.
- (2) To provide low to moderate production of other resources such as timber products, fish and wildlife, recreation, and forage where they are compatible with "special area" objective.
- (3) To satisfy the management requirements of 36 CFR 219.27.

Desired Future Forest Condition:

These management areas contain exceptional ecological, geological or other features of scientific, educational, scenic, or historical values other than Wilderness that have already been officially classified. This management prescription will insure the continued protection of these unusual features of the landscape.

*Such areas include designated Experimental Forests, Research Natural Areas, Natural History Areas, Heritage Resource Areas, National Trails, National Rivers, and the Greer Spring Special Management Area. Individual areas could be any size but will normally be less than 100 acres with the exception of National Rivers, the Experimental

Forest, Lower Current River, and Greer Spring Special

Management Area. Many areas are only a few acres in size.

Plant and animal communities associated with these areas are often uncommon because they occur only in these limited portions of the total landscape.

Vegetation management will be directed by the specific management objective for each area. Unless compatible with area objectives, management activities, and facility development or motorized use will not be permitted. Interaction between users will vary from high to low, based on the area objectives. These areas will normally be protected from mineral prospecting requiring surface disruption.

Timber program outputs will be low. The Sinkin Experimental Forest may provide some timber outputs.

The Forest Plan also provides guidelines for conserving biological diversity on National Forest lands. Vertical diversity of plant and animal communities are maintained by managing for natural communities in varying stages of development. These stages, or habitat conditions, help provide diverse habitats and ecosystems necessary to sustain healthy populations of plants and animals.

Proposed Action

The action proposed during scoping by the Forest Service to meet the purpose and need is:

-Designate 344 acres of woodland habitat to be managed to provide old growth habitat.

-Maintain the health of the oak-hickory forest type and provide forest products by harvesting individual trees that are

dead or dying, perform sanitation cut of approximately 208 acres.

-Perpetuate the development of uneven-age conditions while providing forest products by implementing improvement cutting on approximately 40 acres.

-Maintain the health and vigor of individual shortleaf pine and provide forest products by thinning approximately 36 acres.

-Provide approximately 223 acres of semi-open habitat and permanent forage by developing a savanna through prescribed burning and thinning by felling. This activity may or may not provide forest products.

-Timber Stand Improvement on approximately 611 acres. Some of these acres are from stands that have been harvested in the last 10 – 20 years. The remainder is scheduled for stands proposed for harvest in this entry.

-Overstory Removal of approximately 35 acres. On some sites where there has been acceptable seedling regeneration, the removal of the remaining mature trees inhibiting stands' proper growth and development can be carried out.

-Convert approximately 202 acres currently designated 9.1 Management Prescription (applies to lands not needed to meet projected demands for the next 50 years, or to lands that are currently uneconomical for resource investment), to 6.2 Management Prescription (motorized semi-primitive dispersed recreation).

-Clear Creek Fen was reanalyzed to determine if the fen was being buffered

properly; it was determined to properly buffer the fen; three stands would be removed from 8.1 designation (Special area) Compartment 126 Stands 38, 46, and 47, and two stands would be added, Compartment 126/Stand 42 and Compartment 127/Stand 8.

Decision Background

In 1992, the Forest Service adopted ecosystem management as the framework for use and care of the national forests and grasslands. Ecosystem management is found in the previous laws directing management, including the Organic Act, Multiple Use-Sustained Yield Act, National Environmental Policy Act, and National Forest Management Act. Ecosystem management is a means to achieve sustainable conditions and provide all the multiple uses for society, while retaining the aesthetic, historic and spiritual qualities of the land. The needs of people and environmental values are blended to allow National Forests to represent diverse, healthy, productive, and sustainable ecosystems.

The Mark Twain National Forest has developed an ecosystem analysis process to help determine how to manage Ozark ecosystems to meet the spirit and intent of ecosystem management as described above. This process starts with delineating and describing the ecological setting of an area, including watersheds and all parts of the ecological classification system. The ecological setting is looked at in the context of the "big picture" or landscape view, rather than as a distinct piece separate from everything else. The Council for Environmental Quality's Eleven Principles for Incorporating Consideration of Biodiversity into

NEPA Analysis, 1993, is also used to evaluate specific land areas as a part of larger ecosystem management. The process continues with descriptions of the natural communities, processes that create and maintain those communities, and existing and desired conditions defined in the Forest Plan. A comparison is made of existing and desired conditions, which leads to an identification of opportunities for action and limiting factors.

Role of the Forest Plan

The Forest Plan, approved in 1986, provides a programmatic framework regarding allocation of land and the measures necessary to protect National Forest resources. It describes how different areas of land should look and what resources should be provided from these lands now and in the future. The Forest Plan Final Environmental Impact Statement (FEIS) displays the forest-wide effects of activities such as timber harvest, wildlife habitat management, recreation management, and visual resource management. The site-specific effects of those practices are not a part of the Forest Plan FEIS.

More information can be found in *Overview of Forest Planning* on the Forest Service website www.fs.fed.us/forum/nepa

This analysis of the Clear Creek Analysis Area presents the site-specific effects of implementing the alternatives, including the proposed action, and is tiered to the Forest Plan FEIS. General discussions from the programmatic FEIS will be summarized and incorporated by reference in this document.

Forest Plan Goals

The Mark Twain National Forest Land and Resource Management Plan (Forest Plan) established goals and objectives to guide all natural resource management practices (page IV-1 to 5). The Clear Creek Analysis Area project is designed to meet the following Forest Plan goals:

Multiple Use Management Goals

- Develop a cost efficient multiple use program that responds to overall resource demand while effectively resolving or mitigating issues and concerns.
- Ensure changes in demand trends and local economies are recognized and the need for program adjustment adequately considered during the planning period.
- Integrate ecological management principles into Forest resource programs.
- Distribute programs geographically to make effective use of the diverse ecological capability found on the Forest.
- Provide a natural appearing environment that accommodates a variety of public use.
- Establish only those controls on users that are essential to meet management area objectives, to protect resources, and to provide for public health and safety.

Recreation Management Goals

- Implement the Recreation Opportunity Spectrum (ROS) as the primary system for characterizing, locating, and managing recreation opportunities.

-Recognize and manage unique natural environments so they will be perpetuated for future use and enjoyment.

-Implement a cultural resource management program that responds to legal requirements and intrinsic values in a cost efficient manner.

-Provide for recreation activities that emphasize dispersed use and are suited to large areas of public land.

-Implement the Visual Management System (VMS) to ensure a high quality visual resource.

Wildlife Management Goals

-Qualify, quantify, and provide habitat for indicator species.

-Manage habitat found on the Mark Twain National Forest to at least maintain viable populations of all existing native and desired non-native vertebrates.

-Provide a habitat management program that responds to the demand for both consumptive and non-consumptive fish and wildlife use.

-Provide for wildlife species requiring specialized habitat including those recognized by both Federal and State authorities as being threatened, endangered, rare, or sensitive.

-Provide for recovery of federally endangered and threatened species by following reasonable and prudent measures outlined in any biological opinion issued by USFWS as a result of formal consultation.

Timber Management Goals

-Provide a timber management program that perpetuates a healthy, well-stocked forest on lands suitable for timber production.

-Provide, in concert with privately owned resources, a timber management program that supports current and future local industry and economic interests.

-Provide a timber management program that meets projected demand for National Forest timber in the most cost efficient manner while complementing other resource objectives dependent on forested landscapes.

-Incorporate concepts for managing natural vegetative communities and their seral stages into established silvicultural regimes.

-Operate the timber management program to provide a positive cost-benefit ratio each year.

-Apply the uneven-aged management system on selected areas to determine the long-term feasibility of using this system for management on the Forest.

Transportation System Goals

-Schedule the development of the proposed transportation system which provides the minimum permanent road access and development standards while meeting resource management objectives.

-Provide for temporary access to complement the permanent road system for effective resource development.

-Close unnecessary roads.

Soil, Water, and Air Management Goals

-Identify a program that ensures the maintenance of soil productivity and the achievement of water and air quality objectives.

Forest Plan Objectives

The Forest Plan management objectives quantify the goals above (page IV-5). The Clear Creek Analysis Area project is designed to achieve Forest Plan objectives in the following areas: semi-primitive motorized recreation, fish and wildlife use, fish and wildlife improvement, saw timber and fuel wood products, regeneration and intermediate cuts, and reforestation.

Decision To Be Made

One purpose of this proposal is to provide the Deciding Official with sufficient information and analysis to make an informed decision about management in Clear Creek Analysis Area. Given the current condition and Forest Plan direction, the Deciding Official must decide:

1. Whether or not to proceed with specific actions;
2. If so, what mitigations in addition to Forest Plan Standards and Guidelines may be needed;
3. Whether the effects of the specific actions are significant; and

4. Whether the specific actions are in compliance with other laws and policies governing the management of National Forest System Lands.

The decision is not one of land allocation, nor is the analysis intended to look at every possible combination of activities. The scope of the decision is confined to a reasonable range of alternatives that would meet the project purpose and need.

Formal Public Involvement

Public comments were used to help determine the significant issues and to formulate alternatives.

We invited the public to comment on the Clear Creek Analysis Area proposal by listing the project in the Schedule of Proposed Actions in October 1999. On November 14, 2001, we sent a letter inviting public comment. The project has been listed in our Schedule of Proposed Actions since 1999, which is updated every quarter. We received 67 letters/E-mails concerning the Clear Creek Analysis Area project. One phone call was made to clarify a suggested alternative and after discussing the alternative the individual stated that would address his needs.

All comments received were considered in the analysis process. The comments and their disposition are available in the project file.

Using the comments from the public, the interdisciplinary team developed a list of issues to address.

Issues

The Forest Service separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons regarding their categorization as non-significant may be found at in the project record.

As for significant issues, the Forest Service identified 5 topics raised during scoping. These issues include:

1. **Special Habitats:** Concerns were expressed about the management of fens (Clear Creek Fen in this area), and savannas in this project area.
Indicator/Measure: Whether or not special habitats will be developed, maintained, and enhanced. (Yes or No)
2. **Visual Quality:** Visual Quality Impacts from timber harvesting along Highway P are a concern.
Indicator/Measure: Miles of highway adjacent to harvested area.
3. **Stand Condition:** With the decline of oaks on the forest, particularly black and

scarlet oaks, what type of harvest will be done to improve the quality and health of stands in the analysis area?

Indicator/Measure: Planned harvest (Acres) in stands with condition class 1 (high risk) and 3 (low quality).

4. **Even-aged (EAM) versus Uneven-aged Management (UEAM):** Concerns were expressed that even-aged harvest methods are inappropriate for 6.23 MA. If timber harvesting occurs, it should be done solely by singletree selection, removing no more than 25% of trees in each stand.

Indicator/Measure: Acres of EAM versus UEAM.

5. **Transportation Needs:** Concerns were expressed about transportation needs in managed areas, access needs, road classification, road density requirements, and effects on species and the watershed.
Indicator/Measure: Miles of roads closed or added to system.

Relationship to Other Documents

A number of National Environmental Policy Act (NEPA) decisions have been made since June 1986 (the date in which the LRMP went into effect), which affected all or part of the Analysis Area. Some documents provided for site-specific implementation of the forest plan and some of the documents provided broader programmatic direction.

Site-Specific Projects

Management Area analysis was the first step in the Forest Plan implementation process. These analyses identified needs

and opportunities by management areas and were known as Step 2 Analysis. Previous NEPA documents were written for the same kinds of activities (timber harvesting, wildlife habitat restoration or maintenance, prescribed burning, and allotment management) in the same geographical area as this project. The analyses done in these documents did not reveal any significant effects from the proposed activities. Post activity monitoring has verified that the analyses were compliant with the NEPA document and the effects were displayed.

Site-Specific Environmental Analyses

These studies were completed on portions of the Crooked Creek Analysis Area:

- Missionary Ridge Project (403 acres, 1987)
- Clear Creek Project 204 acres uneven aged management, 1991)

Programmatic Documents

Mark Twain National Forest – Land and Resource Management Plan (LRMP) Final Environmental Impact Statement and Record of Decision (Mark Twain National Forest 6/86, as amended).

The Forest Plan is a programmatic document, which is required by the rules implementing the Forest and Rangeland Renewable Resource Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA). The purpose of the Forest Plan is to provide direction for the multiple

uses and the sustained yield of goods and services from National Forest System Lands (NFSL) in an environmentally sound manner.

The Forest Plan sets management direction for the Mark Twain National Forest through the establishment of short-term (10-15 years) and long-range goals and objectives through the year 2035. It prescribes the standards, practices, approximate timing and locations needed to achieve goals and objectives. The Plan prescribes the monitoring and evaluation needs necessary to ensure that direction is carried out, measures quality and quantity of actual operations against predicted outputs and effects, and forms the basis for implementing revisions. The Secretary of Agriculture shall not be considered to be in violation of subparagraph 6(f)(5)(A) of the Forest and Rangeland Renewable Resource Planning Act (RPA) of 1974 (16 USC 1604(f)(5)(A)) solely because more than 15 years have passed without revision of the plan for a unit of the NFS (FY2002 Interior Appropriations Bill, Section 327). Following the signing of these earlier documents, the Forest Plan has been amended to reflect new information concerning threatened, endangered, and sensitive species. This project analysis reflects those amendments and supplemental information reports to the Forest Plan.

The Mark Twain National Forest Programmatic Biological Assessment (Mark Twain National Forest, September 1998) and Biological Opinion on the Impacts of Forest Management and Other Activities to the Gray bat, Bald Eagle, Indiana bat, and Mead's milkweed on the Mark

Twain National Forest, Missouri (U.S. Fish and Wildlife Service, June 1999)

Federal agencies are required to comply with provision of the Endangered Species Act (ESA) of 1973, as amended. This includes a requirement to consult with the U.S. Fish and Wildlife Service on projects, which may affect species federally listed as threatened or endangered (TE). These documents update the original consultation completed for the Forest Plan in 1985. They include species not originally consulted on and describe potential effects to federally listed species of activities that implement the Forest Plan. The Biological Opinion 1) determined that implementation of the Forest Plan would not jeopardize the existence of any of the species considered, 2) exempted the Forest Service from a specified amount of incidental take on three species, and 3) to minimize the impacts of incidental take on the MTNF. The Forest Plan was subsequently amended March 2000 to include the RPM/TC as standards and guidelines. A decision on the proposed amendment for management of Areas of Influence was signed on November 16, 2001.

This analysis is tiered to the following documents:

- The Mark Twain National Forest Land and Resource Management Plan Final Environmental Impact Statement and Record of Decision (6/86), as Amended, including all supplemental information reports.
- Mark Twain National Forest Programmatic Biological Assessment (Mark Twain National Forest, September 1998).

- Biological Opinion on the Impacts of Forest Management and Other Activities to the Gray bat, Bald eagle, Indiana bat, and Mead's milkweed on the Mark Twain National Forest, Missouri (U.S. Fish and Wildlife Service, June 1999).

- Forest Plan Supplemental Information Report dated December 6, 2000 and April 5, 2001 (Update concerning Chip Mills).

- Supplemental Information Report dated June 27, 2001 concerning 2000 Regional Forester's Sensitive Species (RFSS) List.

- Revised Forest Plan Supplemental Information Report on Salamanders, May 21, 2001.

- Oak Decline and Forest Health Final Environmental Impact Statement and Record of Decision (4/02).

The following documents are incorporated by reference:

- Ozark-Ouachita Highlands Assessment (December 1999)
- National Fire Management Plan (January 2001)

Alternatives, Including the Proposed Action

This chapter describes and compares the alternatives considered for the Clear Creek Analysis Area project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear

basis for choice among options by the decision maker and the public.

Alternatives

Alternative 1 No Action

This alternative provides a baseline (reference point) against which to describe the environmental effects of the action alternatives. This is a viable alternative and responds to the concerns of those who want no activities to take place. The option for future management in this area would not be foreclosed.

If Alternative 1 is selected, current and on-going management activities would continue, but no new management activities would be initiated. In addition, no new old growth would be designated, given that no project activities would be implemented. Changes, such as road maintenance, might occur through current management direction, natural processes, or other management decision in the future. Fire suppression would continue in the Clear Creek Analysis Area.

Under the No Action alternative, current management plans would continue to guide management of the project area. No new actions would be implemented to accomplish project goals.

Alternative 2 The Proposed Action

This is the proposed action scoped early in the process for comments and issues. This alternative is designed to meet the purpose and need identified by the interdisciplinary team during the analysis process. This alternative uses a mix of commercial harvest, non-commercial thinning, reforestation

treatments, and prescribed burning. A substantial number of acres are treated with commercial harvest. These harvests are designed to create stand conditions that best promote future sustainable forest communities. Firewood gatherers may be allowed in selected areas after harvesting operations are completed.

This alternative uses prescribed burning for various primary objectives, including site preparation for seedling development, restoration of open woodlands with native groundcovers such as sedges and forbs, and for reduction of hazardous fuels. These prescribed burning treatments would also improve wildlife habitat, for the short term, and in some cases, i.e. open woodlands, for the long term.

Reforestation activities are proposed to allow suitable light conditions to promote the development of desired tree seedlings, herbaceous vegetation, and shrubs. The amounts of treatment depend on the amount of even-aged and uneven-aged regeneration proposed. Timber stand improvement activities are proposed to guide stand development and to regulate species composition to those best suited for the site. Release potentially increases species richness on a site and is expected to improve tree species composition and stand vigor in the long term.

In addition, this alternative will reduce the risk of catastrophic fire across the project area by reducing the load and disrupting the continuity of fuel in stands identified as dense pine woodlands. In this situation, “catastrophic” is defined as substantial damage from wildfire to existing vegetation and developments.

Wildfire is considered an unplanned fire that burns organic soil, grasses and forbs, shrubs, trees, and associated fuels in the natural or modified state. This alternative responds to this need by using combinations of pine thinning and prescribed burning to: interrupt the fuel continuity, increase crown spacing, or both; reduce the available long-term fuel loads; and maintain stand health to delay tree mortality induced by crowding. Road reconstruction, conversion to system road, and temporary roads would be needed to access and facilitate treatments. At the same time, unneeded non-system roads would be decommissioned.

This alternative would move the existing condition of the Forest towards the Desired Condition for wildlife habitat as outlined in the Forest Plan.

Silvicultural Methods (acres approximate):

221 acres of seed tree
165 acres of shelterwood
40 acres of uneven-aged management
244 acres of sanitation and thinning
35 acres of over-story removal

Reforestation and Timber Stand Improvement (Release) Activities (acres approximate):

386 acres of natural regeneration
368 acres of crop tree release
243 acres of release

Prescribed Fire Activities (acres approximate):

223 acres for restoring open woodlands

Transportation Activities (miles approximate):

3.1 miles of road maintenance
1.0 miles of reconstruction

0.6 miles of new system road
18 miles to decommission

Old Growth Designation (acres approximate):

344 acres for designation

Other Activities:

262 acres of fen designation
To allow harvest to occur in stands with oak decline, 202 acres of MP 9.1 will be converted to 6.2.

Alternative 3 Prescribed Burning in Addition to the Proposed Action

This alternative uses a mix of commercial harvest, non-commercial thinning, reforestation treatments, and prescribed burning to treat oak decline sites. A substantial number of acres are treated with commercial harvest; however, fewer acres are harvested than in Alternative 2. Firewood gatherers may be allowed in selected areas after salvage operations are completed.

Under this alternative, in addition to the actions proposed in alternative 2, there would be **663 acres** of hazardous fuels reduction.

This alternative also uses prescribed burning for various primary objectives, including site preparation for seedling development, restoration of open woodlands with native groundcovers such as sedges and forbs, and for reduction of hazardous fuels. Prescribed burning treatments, would also improve wildlife habitat, for the short term, and in some cases, i.e. open woodlands, for the long term

Road reconstruction, conversion to system road, and temporary roads would be needed to access and facilitate treatments. At the same time, unneeded non-system roads would be decommissioned.

This alternative would move the existing condition of some areas of the Forest towards the Desired Condition as outlined in the Forest Plan

Alternative 4 All Uneven Aged Management

This alternative uses a mix of commercial harvest, non-commercial thinning, reforestation treatments, and prescribed burning to treat oak decline sites. More acres are treated with uneven-aged management and fewer acres with even-aged management than Alternative 2. Firewood gatherers may be allowed in selected areas after salvage operations are completed.

Prescribed fire treatments and transportation activities are the same as in Alternative 2.

Fewer acres are proposed for reforestation in this alternative than Alternative 2. This alternative has the same number of acres of crop tree release as Alternative 2.

This alternative would move the existing condition of the Forest towards the Desired Condition as outlined in the Forest Plan

Road reconstruction, conversion to system road, and temporary roads would be needed to access and facilitate treatments. At the same time, unneeded

non-system roads would be decommissioned.

Silvicultural Methods (acres approximate):

705 acres of uneven aged

Reforestation and Timber Stand Improvement (Release) Activities (acres approximate):

-705 acres of natural regeneration

-368 acres of crop tree release

Prescribed Fire Activities (acres approximate):

223 acres of open woodland development (savanna)

663 acres of hazardous fuels reduction

Transportation Activities (miles approximate):

3.1 miles of road maintenance

1.0 miles of reconstruction

0.6 miles of new system road

18 miles to decommission

Old Growth Designation (acres approximate):

344 acres for designation

Other Activities:

262 acres of fen designation

To allow harvest to occur in stands with oak decline, 202 acres of MP 9.1 will be converted to 6.2.

Alternative 5 Restoration Only/Natural Disturbance Process

This alternative responds to the issue of improving forest health and vigor in the project area without the use of commercial harvests. This alternative allows stands to be treated mechanically to achieve stand conditions that would

favor regeneration and renewal, but without commercial harvest. Following mechanical treatment, several selected stands would be treated with prescribed fire to reduce hazardous fuels created through treatment. Firewood gatherers may be allowed in selected areas after mechanical operations are completed.

This alternative uses prescribed burning for various primary objectives, including site preparation for seedling development, restoration of open woodlands with native groundcovers such as sedges and forbs, and for reduction of hazardous fuels. The number of prescribed areas for burning to reduce hazardous fuels increases substantially over Alternative 2.

Reforestation treatments change substantially and are largely correlated with prescribed burning for site preparation. Timber stand improvement activities are slightly less than in Alternative 2.

Since there is no commercial activity, roads would not be reconstructed to access and facilitate harvest, but non-system roads would be decommissioned.

This alternative would move the existing condition of the Forest towards the Desired Future Condition of habitats as outlined in the Forest Plan, though at a slower rate.

This alternative was developed in response to public comment on the proposed action. Under this alternative, there would be:

Silvicultural Methods (acres approximate):

Cutting the same trees designated in previous alternatives would treat these stands

221 acres of heavy felling (would resemble seed tree treatment)

165 acres of moderate felling (would resemble shelterwood treatment)

Prescribed Fire Activities (acres approximate):

223 acres of open woodland development (savanna)

663 acres of hazardous fuels reduction

Transportation Activities (miles approximate):

3.1 miles of road maintenance

0.6 miles of new system road

18 miles to decommission

Old Growth Designation (acres approximate):

344 acres of new old growth designation

Other Activities:

262 acres of fen designation

To allow harvest to occur in stands with oak decline, 202 acres of MP 9.1 will be converted to 6.2.

Mitigation Measures Common to All Alternatives

Heritage Resources:

CR1 Site Avoidance: Archaeological, historic, and architectural sites which are eligible for inclusion in the National Register of Historic Places, as well as sites whose National Register significance has not been evaluated, will be avoided and protected from all project activities. Avoidance of cultural

resources will be understood to require the retention of such properties in place and their protection from effects resulting from the undertaking (Memorandum of Understanding between the Mark Twain National Forest and the Missouri State Historic Preservation Officer, June, 1995). Effects will be avoided by (1) re-routing, around sites as necessary, those roads for which reconstruction and reconditioning is proposed, and (2) establishing buffer zones around those sites in areas where harvest activities will take place. Roads will by-pass sites at a sufficient distance and buffer zones will be of sufficient size to ensure that the integrity of the characteristics and values which contribute to, or may potentially contribute to, the properties' significance will not be affected.

CR2 Discovery of Cultural Resources During Project Implementation: Pursuant to the provisions found in 36 CFR 800.11, should any previously unrecorded cultural resources be discovered during project implementation, activities that may be adversely affecting that resource will be stopped immediately; the resource will be evaluated by a professional archaeologist; and consultation will be initiated with the Missouri State Historic Preservation Officer (SHPO), as well as with the Advisory Council on Historic Preservation, if required, to determine appropriate actions for protecting the resource and for mitigating the adverse effects on the resource. Project activities will not be resumed until the resource is adequately protected and agreed-upon mitigation measures are implemented with SHPO approval.

CR3 Site Evaluation and Other Mitigation Measures: If it is not feasible

to completely avoid an archaeological site, then the following steps, will be taken: (1) In consultation with the Missouri State Historic Preservation Officer, the sites will be evaluated against National Register of Historic Places significance criteria (36 CFR 60.6 and FSM 2363.21b) to determine if the site is eligible for, or potentially eligible for, inclusion in the National Register of Historic Places. (2) In consultation with the Missouri State Historic Preservation Officer and the Advisory Council on Historic Preservation, mitigation measures will be developed which will lessen, or minimize, the adverse effects on the site(s), so that a finding of No Adverse Effect results. (3) The agreed-upon mitigation actions will be implemented prior to initiation of project activities that have the potential to adversely affect the sites.

Air Quality:

A1 Prescribed burning will be completed during weather conditions that facilitate smoke dispersal. The public will be informed of the planned burning days. Prescribed burns will follow an approved burning plan designed to consider smoke effects and future desired conditions, and signed by the District Ranger. (Forest Plan, p. IV-76)

Soil Resources:

SW1 Main skid trails will be located on the ground and approved by Forest Service personnel prior to harvest operations, avoiding layouts that concentrate runoff into draws, ephemeral drainages, sinkholes or watercourses.

SW2 Proper grade and water control structures will be constructed and maintained on skid trails. Roads will not drain directly onto skid trails.

SW3 When logging is complete, pull additional slash onto skid trails.

SW4 Suspend skidding during wet periods, when excessive rutting and churning of the soil begins, or when runoff from skid trails is turbid and no longer infiltrates within a short distance from the skid trail.

SW5 Prescribed burn units should have as little mechanical disturbance to the soil before and just after burning as possible. Equipment will not use stream channels as "roads." Cross streams with equipment in locations that would create the least impact on stream banks.

SW6 All fireline will be seeded with a cover crop of winter wheat, annual rye, or oats and will be fertilized with fertilizer immediately after construction (fall-spring) or as soon afterwards as will give the best chance of germination. Waterbars will be constructed as needed to minimize water movement along firelines.

SW7 There will be a no-cut zone of at least 50 feet from the edge of any sinkhole.

SW8 Trees anchoring the banks of any distinct channel, even if not a stream requiring a buffer zone, will not be cut unless they are a species that is known to "sprout" from a cut tree's roots. This includes channels that are the result of road drainage ditches.

Water Quality:

SW9 Water quality will be protected by establishing filter strips for perennial water courses (and intermittent ones as needed). Activities prohibited in filter strips include:

Operation of wheel or crawler-type vehicles except for occasional use to remove trees that cannot be winched out, or for fire suppression;

Use limited to dry seasons or when ground is frozen except on slopes less than 3%;

Permanent and temporary roads except at designated crossings;

Mechanical site preparation, log landings, and prescribed burning that would expose more than 20 percent of the soil (Forest Plan, pp. IV-44 to 47). Water resources and associated plants, wildlife, and visual conditions (springs, spring branches, seeps, fens, wetlands, and riparian areas) will be protected. Within a minimum of 100 feet, modify treatments as needed to protect the resource (Forest Plan, pp. IV-17, 18, 47, and 52-55).

Visual Quality:

VS1- Slash adjacent to all roads where timber harvest activity is occurring would be reduced and scattered to lie within 36" for the near seen area up to a maximum distance of 300'.

"In areas having a Visual Quality Objective of Retention and Partial Retention, the negative visual impacts will be mitigated concurrently with or immediately after each phase or activity. Mitigating measures will be completed for each cutting unit or project area before beginning activities in the next sequential block or project area in the same corridor/view shed. The total

lapsed time from initiation of activities to completion of obligations specified by a contract or a project prescription shall not exceed one year for any single cutting unit or project area. Emphasis will be placed on completing all work within these areas in a systematic manner within the shortest practical time." (Page IV-31 Forest Plan).

VS2- All harvest areas would be laid out on the ground in a manner that would reflect natural lines and be visually subordinate to the characteristic landscape.

Wildlife:

WL1: Even-aged harvests (clearcut, seedtree, shelterwood) – Retain a minimum of 15 sq. ft. of basal area (in clearcut and seedtree harvests) and a minimum of 25 sq. ft. of basal area (in shelterwood harvests) of reserve trees grouped or retained around large snags, large live trees, den trees, and within intermittent drainages to minimize potential for windthrow and provide thermal protection of suitable Indiana bat roost trees. Leave larger, long-lived trees (white oak, post oak, pine or hickory) where an opportunity exists. Uneven-age harvests (group selection with improvement cutting) - The longer lived trees (white oak, post oak, hickory, and pine) will be featured leave trees with diameter distribution. Snags and dens from the red oaks will be left, if available, to meet standards and guidelines.

WL2: In all even-aged harvests (clearcut, seedtree, and shelterwood), reserve trees should be left in groups of at least 5 or more trees wherever

possible. Snags should not be left standing alone within the cut area, but should be surrounded by several live trees.

WL3: In all harvest areas retain shagbark hickory, shellbark hickory, and lightning struck trees $\geq 9''$ dbh. Retain, as available and to the maximum extent possible and logistically practical, any existing dead trees $\geq 20''$ dbh and any tree $\geq 26''$ dbh unless a human safety hazard. Also, retain dead or dying trees $\geq 9''$ dbh with at least 10% exfoliating/defoliating bark, and most den/cull trees.

WL4: There will be no cutting of sycamore trees with diameters of 12" dbh or greater, or any hollow sycamore trees.

WL5: If bald eagle night roosts are discovered at any time during the course of activities, designating a protective buffer around the roost as will protect them shown in the Forest Plan.

WL6: If Indiana bat maternity or summer male roosts are discovered at any time during the course of activities, they will be protected from disturbance and the FWS will be immediately consulted.

Vegetation:

VG1 To prevent introduction of exotic species, only native grasses will be used in revegetating areas of exposed soil.

Land lines:

LL1 Management activities near or adjacent to unmarked property

boundaries will be applied in a manner that does not create a false or misleading property line (Forest Plan, p. IV-80). Survey of affected boundaries will be a priority.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 1. Activity Comparison Table

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
<u>Silvicultural Method</u>	Acres	Acres	Acres	Acres	Acres
Seed tree	0	221	221	0	0
Shelterwood	0	165	165	0	0
Thin	0	36	36	0	0
Sanitation	0	208	208	0	0
Uneven Aged	0	40	40	705	0
Overstory Removal	0	35	35	0	0
<u>Reforestation</u>	Acres	Acres	Acres	Acres	Acres
Natural Regeneration	0	386	386	705	0
<u>Timber Stand Improvement</u>	Acres	Acres	Acres	Acres	Acres
Release	0	243	243	0	0
Crop Tree Release	0	368	368	368	0
<u>Prescribed Fire</u>	Acres	Acres	Acres	Acres	Acres
Open woodland development (Savanna)	0	223	223	223	223
Hazardous fuels reduction	0	0	663	663	663
<u>Road Reconstruction</u>	Miles	Miles	Miles	Miles	Miles
	0	1.0	1.0	1.0	0
<u>Old Growth Designation</u>	Acres	Acres	Acres	Acres	Acres
New Acres Designated	0	344	344	344	344
<u>Fen Designation</u>	Acres	Acres	Acres	Acres	Acres
	0	262	262	262	262
<u>9.1 Removal</u>	Acres	Acres	Acres	Acres	Acres
	0	202	202	202	202
<u>Noncommercial Treatment</u>	Acres	Acres	Acres	Acres	Acres
Heavy Felling(seed tree)	0	0	0	0	221
Moderate Felling(shelterwood)	0	0	0	0	165

Table 2. Issues

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Issue 1: Special Habitats Measure: Whether or not special habitats will be developed, maintained, and enhanced.	No	Yes	Yes	Yes	Yes
Issue 2: Visual Quality Measure: Miles of highway adjacent to harvested area.	Miles 0	Miles 0.5	Miles 0.5	Miles 0.5	Miles 0
Issue 3: Stand Condition: Measure: Planned acres (ac) in high risk or low quality stands.	Acres 0	Acres High Risk 313 ac Low Quality 333 ac	Acres High Risk 313 ac Low Quality 333 ac	Acres High Risk 313 ac Low Quality 333 ac	Acres High Risk 245 ac Low Quality 141 ac
Issue 4: EAM versus UEAM: Measure: Acres (ac) of EAM versus UEAM.	Acres 0	Acres EAM 665 UEAM 40	Acres EAM 665 UEAM 40	Acres EAM 0 UEAM 705	Acres EAM 386 UEAM 0
Issue 5: Transportation Needs: Measure: Miles of roads closed or added to system.	Miles Closed 0 Added 0	Miles Closed 18 Added 0.6	Miles Closed 18 Added 0.6	Miles Closed 18 Added 0.6	Miles Closed 18 Added 0.6

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