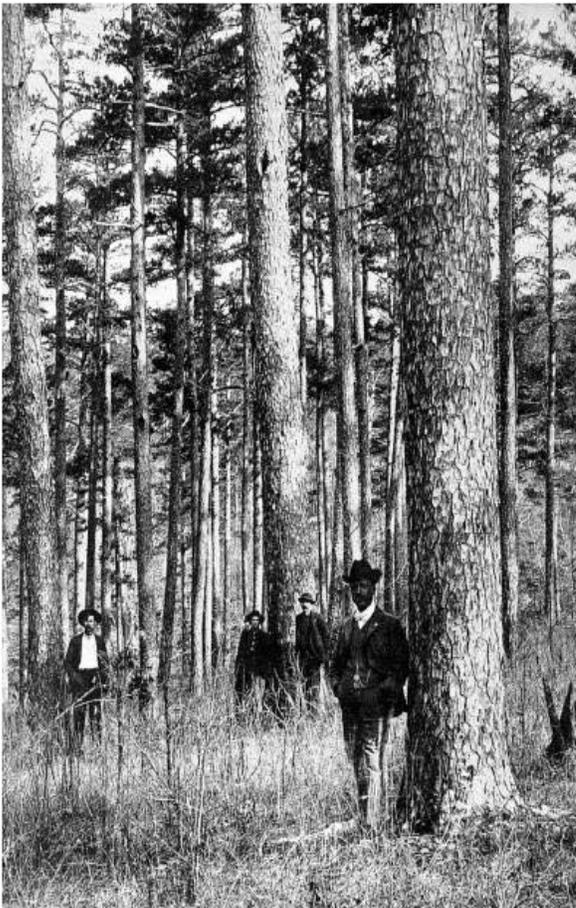


PROPOSAL FOR COLLABORATIVE FOREST LANDSCAPE RESTORATION PROGRAM

MISSOURI PINE-OAK WOODLANDS RESTORATION PROJECT (MOPWR)



MARK TWAIN NATIONAL FOREST

EASTERN REGION

MAY 5, 2010

1. PROPOSED TREATMENT

The Missouri Pine-Oak Woodlands Restoration (MoPWR) project lies within an area identified by numerous agencies and entities as one of the highest priority ecological restoration areas on the Ozark Plateau. The Mark Twain National Forest (MTNF) Land and Resource Management Plan (Forest Plan) placed it in a Management Area emphasizing restoration of natural biological communities. The Nature Conservancy (TNC) gave it high ranking in its Ozark Ecoregional Conservation Assessment. In Missouri, the area is within a highly ranked Conservation Opportunity Area (COA) identified in the State Comprehensive Wildlife Strategy (State Wildlife Action Plan) and as a Priority Forest Area in its soon-to-be-completed statewide Forest Resource Assessment and Strategy. The area is a high priority for conservation of national priority land birds of conservation concern by the Central Hardwoods Joint Venture.

In addition to its ecological significance, the area is the best opportunity in the forested area of Missouri for federal, state, non-governmental organizations, and private landowners to work together at a landscape scale. Federal and state agencies and TNC own and administer a large proportion of the project area and have complementary land management activities and desired conditions.

A multi-agency group of conservation leaders in Missouri delineated the Current River woodland landscape (See Section 10) as one of the highest priority conservation objectives in the state. This Collaborative Forest Landscape Restoration Program (CFLRP) proposal targets almost 90,000 acres of National Forest treatments nested within this high priority pine-oak woodland landscape.

Restoration activities are planned throughout the landscape as follows:

<i>Agency or Organization</i>	<i>Planned Treatment Acres</i>
Mark Twain National Forest (MTNF)	88,400
Missouri Department of Conservation (MDC)	15,500
The Nature Conservancy (TNC)	5,900
National Park Service (Ozark NSR)	5,300
Missouri Department of Natural Resources (DNR)	760
<i>total</i>	115,860

Restoration treatments are planned to improve the open pine-oak/bluestem terrestrial natural community by removing excess woody stems by mechanical and prescribed fire treatments. These restoration efforts will produce byproducts totaling over 120 million board feet of sawtimber and 850,000 tons of biomass.

National Forest System lands are strategically situated within the Current River Pinery and Cane Ridge Pinery management prescriptions 1.1 of the 2005 Forest Plan. These two management prescriptions target restoration of fire-adapted pine-bluestem woodlands to achieve Goal 1 of the Forest Plan; to restore terrestrial natural communities. Chapter 1 of the Forest Plan specifies

treatment objectives for the pine-bluestem woodlands within the Current River Hills Ecological Subsection (Nigh and Schroeder 2002).

The Goal – Restore A Globally Significant, Fire-adapted Ecosystem Resilient to Climate Change

The Current River Hills are home to an exceptional array of fire-adapted natural communities and rare species, as well as two nationally significant rivers. An astounding 17% of the vascular flora in the area attains a limit of their global range in the Ozarks, predominantly in the Current River and Central Plateau. Fed by some of the largest coldwater springs in North America, the Current River is home to 35 globally significant plants and animals. The Ozarks Ecoregional Conservation Assessment (OECA; Ozarks Ecoregional Assessment Team 2003) ranked the Current River the highest of 46 Missouri and Arkansas rivers. That assessment, along with the USDA Ozark Ouachita Highlands Assessment (1999e), recognizes the need to restore fire-adapted pine and oak woodland ecosystems.

Shortleaf pine-oak woodland ecosystems once dominated more than six million acres in the Ozark region of southern Missouri. It is situated in one of the Nation's most significant karst topographies. In the decades bracketing 1900, intensive lumbering activity removed most of the old growth pine. Subsequent land use associated with subsistence agriculture and open range grazing resulted in the loss of these once widespread pinelands, and their replacement by mixed hardwoods (Guyette et. al. 2007). Today, dense closed canopies of small diameter mixed oaks and pines have replaced the historic, open pine-bluestem parklands, increasing fuel buildups and suppressing wildlife and plant habitat. Barely 600,000 acres of shortleaf pine-oak woodland remain in scattered parcels. Shortleaf pine is now a minor component of the degraded woodlands. The Brown-Headed Nuthatch, Red-Cockaded Woodpecker, Bachman's Sparrow and Cream-Flowered Tick Trefoil (*Desmodium ochroleucum*) were historically associated with Missouri pinelands and are now locally extirpated mostly due to the loss of quality shortleaf pine/bluestem woodlands.

Strategic Placement of the Restoration Treatments

Analysis of the original pineland area, current woodland cover, and land ownership revealed that the best potential restoration areas of suitable size to ensure maximum long term viability were located notably within the Eleven Point and Poplar Bluff Ranger Districts of the Mark Twain National Forest (MTNF). The Nature Conservancy (TNC) and the MTNF delineated five potential pineland restoration areas on lands within the Eleven Point Ranger District that met minimum size and preserve design criteria (Heumann et al. 1999). These areas were evaluated using rapid ecological assessment techniques to derive a vegetation profile of composition, structure, and restoration potential. Based on the results, the Mark Twain National Forest selected the 10,831-acre Pineknot site as a shortleaf pine/bluestem restoration area in 2001. The 1986 Forest Plan was amended in 2003 to emphasize restoration and retention of large-diameter shortleaf pine and bluestem woodlands that resembled pre-European character. TNC established a series of permanent vegetation monitoring plots at the Pineknot site, and analyzed historic

vegetation as context for pine restoration work. TNC and MTNF continued a Challenge Cost Share Agreement to re-sample the Pineknott herbaceous vegetation monitoring plots in summer 2001 and 2005 following initial silvicultural and prescribed burn treatments. TNC concluded in a subsequent analysis (Heumann and Ladd 2006) that while initial treatments were improving desired conditions and increasing plant and animal diversity, such treatments were not sufficient to achieve overstory structure and desired basal area for open pine-oak woodlands, nor were these treatments achieving desired Fire Regime Condition Class (FRCC).

Project Implementation

In addition to the 2003 Pineknott Record of Decision, three more NEPA decisions were made in the past 5 years, authorizing almost 25,000 acres of restoration treatments of fire-adapted pine bluestem ecosystems within the proposed project area.

There have been significant restoration treatments already implemented in the project area.

In the past 6 months, we have completed thousands of acres of prescribed burning and mechanical treatments. Additional NEPA decisions are planned for 2014 to authorize another 65,000 acres of restoration treatments.

Principal partners have initiated restoration treatments on 28,700 acres of pine-oak woodlands within the project area. These treatments support the overall objective by contributing restoration management on a larger landscape outside areas under National Forest jurisdiction.

All future treatments (completed NEPA and planned NEPA) will include prescribed burning (69,000 acres), understory hardwood thinning, restoration thinning, some mastication, and ripping/reseeding of decommissioned roads. The MTNF will use a combination of stewardship contracts, timber sale contracts, non-commercial thinning contracts, and the work force to complete the vegetation treatments. The National Wild Turkey Federation has entered into a stewardship agreement to commence treatments in restoring pine-oak woodlands at Cane Ridge beginning in 2011. The MTNF is working on a second stewardship proposal to Region 9 with The Nature Conservancy and a local major mill operator.

Monitoring

The success of this restoration project will be monitored using a collaboratively developed adaptive management plan. This plan will identify management hypotheses that will be evaluated by on-the-ground monitoring and responses to be implemented if the management hypotheses are not supported. Management hypotheses are based on ongoing ecological and landscape modeling research by the Northern Research Station and other partners. We will summarize monitoring results annually.

The Mark Twain National Forest will continue working with TNC to resample over 100 permanent vegetation monitoring plots and enter the data results into FS Veg. This data includes increases in indicator plant species richness, changes in tree structure/density and basal area, Brown's fuels transects, and ground cover changes. The MTNF is tabulating silvicultural and prescribed burn treatments measured in acres treated toward restoration objective acres by ecological landscape. Acres counted include treatments coupled with prescribed burning that move toward desired FRCC conditions for the respective natural community. Success is measured in fuels treatment reductions as quantified in Brown's transects and increases in indices for plant species richness as quantified through Floristic Quality Assessment (Taft 1997) developed by TNC, MDC, DNR and NPS. The Mark Twain National Forest will work with the University of Missouri Extension Service and Missouri Department of Conservation documenting jobs created, skills gained, quantities and values of wood products, social acceptance and travel to the worksite.

2. ECOLOGICAL CONTEXT

Shortleaf pine-bluestem woodland is a distinct vegetation association that historically covered at least six million acres of the southern Missouri Ozarks. This woodland community had an open canopy dominated by shortleaf pine and a diverse herbaceous layer. Land survey records and historic records for the project area depict an open, park like landscape dominated by shortleaf pine reaching 30 to 40 inch diameter at breast height (dbh) and containing a dense herbaceous stratum historically dominated by grass (bluestems) and forbs species.

Shortleaf pine-bluestem is a fire-maintained community. Landfire's website places its potential natural vegetation group in fire regime group I, with frequent surface fires on a 3-4 year burn frequency interval. Old growth open pine-oak woodland with scattered large trees greater than 120 years formed the matrix. Fires of various intensities also created early and mid seral open structure of various patch sizes throughout this matrix. Historical frequent fires left obvious effects on the structure, openness, grass/forbs cover and age class distributions across the landscape. Shortleaf Pine /oak/blueberry/Little Bluestem Forest and a variety of mixed oak woodlands are interspersed within the shortleaf pine-bluestem woodland matrix.

NatureServe ranks shortleaf pine/bluestem woodland as critically imperiled. The Missouri Chapter of The Nature Conservancy considers restoration of this natural community its highest priority. Due largely to changes in fire regime, past logging of the once vast virgin pine stands, and nearly a century of open-range livestock overgrazing, shortleaf pine forests have undergone range wide decline in vigor and extent. Today, less than 600,000 acres of degraded, suppressed pine bluestem woodland remains in scattered fragments across the southern Missouri Ozarks. The risk of losing key ecosystem components remains high as the entire area is covered with dense second and third growth mixed hardwoods and scattered pine. Fire frequencies have departed from natural frequencies by several return intervals. These changes have left the entire region much different and unrecognizable from its historical pre-European condition. Equally significant to the ecosystem, over 300 herbaceous grasses and forbs were drastically reduced or eliminated. Dense shading and deep leaf litter fuels blanket much of the landscape, further suppressing and gradually eliminating seed and plant propagules.

LANDFIRE's potential natural vegetation description contains 49 scientific references for shortleaf pine/bluestem woodland (http://www.landfire.gov/zip/SC/R5PIBS_Aug08.pdf) ; NatureServe's description also contains numerous references. So important is the ecological significance of this region that the Ozark Highlands Pine-Oak Restoration Partnership formed in 2005 to promote restoration of shortleaf pine-oak woodlands.

When the project area is fully treated within the next ten years, the area will appear to be an open, park-like landscape dominated by mature and old growth shortleaf pine. Trees will be

spaced widely enough that the crowns do not touch and that spatial patterns for age classes, composition, vegetation structure and plant species richness approaches that which occurred at the time of early European settlement. Management area standards specify that the majority of the treated landscape will retain the largest and oldest shortleaf pine trees (and associated tree species). Once restored, most of the area will attain Fire Regime Condition Class (FRCC) I and II (the current majority is FRCC II and III) and characteristics of healthy, restored shortleaf pine and pine/oak woodland natural communities. Forest staff will continue emulating the historic fire regime by conducting prescribed burns on a 3 to 5 year interval. Increased light and reduction in fuels will allow a nearly complete cover of diverse grasses, sedges, and forbs to carpet beneath trees.

Forest managers address ecological adaptation by applying contemporary practical science and, in Missouri, over 30 years of field experience. This science and experience is captured in a set of detailed natural area management procedures manual developed by the Missouri Natural Areas Committee, which believes that the continued adaptation and resilience (to climate change, disease, human intervention) of Missouri biodiversity is best addressed through ecosystem restoration. Restoration and management of healthy natural communities generally require the emulation/maintenance of critical disturbance processes.

Collaborators hope to reestablish Bachman's sparrow and brown-headed nuthatch into the project area by the end of ten years, and the US Fish and Wildlife Service will assess the habitat feasibility of reintroducing red cockaded woodpecker as restoration progresses; these are species considered in need of immediate management attention by Partners in Flight, an international landbird conservation partnership (Rich et. al. 2004). Other target wildlife species potentially benefiting from these activities include:

Pine Warbler	Bewick's Wren*	Northern Bobwhite
Red-headed Woodpecker*	Prairie Warbler*	Eastern Towhee
Chuck-Will's-widow	Blue-winged Warbler	Orchard Oriole*
Great Crested Flycatcher	Summer Tanager	White-eyed Vireo*
Blue-gray Gnatcatcher*	Yellow-breasted Chat*	Eastern Wood-Pewee*
Brown Thrasher*	Field Sparrow*	Eastern Tiger Salamander
Western Glass Lizard	Red Bat	Indiana Bat
Pygmy rattlesnake	Copperhead	Ornate box turtle

*Denotes Partners in Flight "species in need of management attention" in the Central Hardwoods Bird Conservation Region

A major component of restoration activity will be the conversion and salvage of overabundant red oak to reduce the incidence of oak decline. Thinning and prescribed burning should reduce the likelihood of the spread of southern pine beetle. The most serious invasive species locally are sericea lespedeza and spotted knapweed. The Mark Twain National Forest should within one

year have a decision on a forestwide Non-native Invasive Species EA that provides a detailed, priority treatment strategy for these species. A major preventative maintenance approach is to stimulate recovery of native groundcover thereby increasing competition and resistance to invasives. Accelerating restoration of pine-oak woodlands across the landscape will make them more resilient. State and federal agencies are working with the Animal and Plant Inspection Service to monitor the currently expanding feral hog population in the region.

The project is situated on the Big Spring Karst recharge area characterized by the presence of caves, springs, sinkholes and losing streams. Most losing streams in the project area distribute 30% of their flow through permeable soil into groundwater and exiting springs along the Current River. Current studies show that, through mitigation measures, sedimentation due to increased vegetation activities and prescribed burning should be minimal. Soil change studies (Luckow 2000) on the Ouachita National Forest show that soil moisture capacity as well as increases in soil carbon occurred 15 years after achieving restoration of shortleaf pine bluestem woodlands. Restoration of deep rooted warm season grasses should improve soil moisture capacity thereby decreasing precipitation runoff and allowing for increased absorption yet slow release of rainwater into the subsurface aquifer. Restoration will likely reduce gravel entering the Current River, which may benefit the Current River watershed and improve habitat for the threatened Ozark hellbender.

The majority of roads needed for resource management activities and public access are in place. When needed, an existing non-system road may be used for temporary access, but would then be decommissioned when such activities are completed. The result of road decommissioning is restored hydrology, a reduction in soil erosion and sedimentation, and the growth of new vegetation where the road once existed. Road decommissioning may involve one or more of the following treatments: blocking access with earthen berms, rock berms, boulders, or slash piles; restoration of natural drainage features by removing culverts and re-contouring the area; scarification to remove the roadbed; re-vegetation by seeding, planting, or fertilizing; and signing to discourage motorized use of the road.

3. Collaboration

Mark Twain National Forest has many impressive long-standing collaborative partnerships with other federal, state and non-governmental conservation organizations. Three relevant examples of previous and current collaboration are: 1) The Mark Twain National Forest and Missouri Department of Conservation co-signed the Missouri Biodiversity Report (Nigh et al. 1992), which recognizes the need to restore fire-adapted pine-oak woodlands. 2) A vibrant 30-year collaborative partnership with the Missouri Natural Areas Committee that resulted in the formation of the ecological classification system and statewide conservation planning initiatives that form the ecological framework of the 2005 Land and Resource Management Plan for the Mark Twain National Forest. 3) Prioritization of conservation actions with the broad conservation community in Missouri while working together on the Comprehensive Wildlife Strategy (CWS) program that is part of the Missouri Department of Conservation.

One of the products of the CWS is a collaboratively developed framework of priority geographies called Conservation Opportunity Areas (COAs). These priority geographies are the very best that represent native species, important ecosystems and ecological processes, and present a reserve network for conserving wildlife diversity in each of Missouri's ecoregions. A primary strength of this Collaborative Forest Landscape Restoration Proposal (CFLR) is that it embraces the objectives of one of the highest priority COA's in the state, the Current River Hills COA. The primary objective of the Current River Hills COA is the restoration of the once expansive shortleaf pine-oak bluestem ecosystems that mantled the uplands surrounding the nationally significant Current River Watershed. The Current River Hills COA collaborative group (The Nature Conservancy, Ozark Regional Land Trust, Cave Research Foundation, Missouri Cave and Karst Conservancy, Central Hardwoods Joint Venture, USDA Forest Service, National Park Service, Missouri Department of Natural Resources, Missouri Department of Conservation) meets regularly to evaluate progress toward meeting COA landscape restoration objectives. Many of the partners representing the COA collaborative group are the same partners that developed this CFLR proposal.

In August 2009 (in advance of receiving specific CFLR requirements), conservation leaders representing Central Hardwoods Joint Venture, USFS, NRCS, USDI Fish and Wildlife Service, Missouri Department of Conservation, and Missouri Department of Natural Resources convened to prioritize the restoration of woodland landscape ecosystems in the Ozarks. This collaborative group developed a proposed project that identified core areas in the Current River Hills Conservation Opportunity Area as the top priority for restoration.

The woodland ecosystem identified by this collaborative group, and targeted in this CFLR proposal, is also a focus area for pine-oak woodland restoration within the Central Hardwoods Bird Conservation Region (BCR), one of sixty-seven large ecoregions delineated by the North

American Bird Conservation Initiative in an effort to coordinate bird conservation activities by multiple partners across North America. The Central Hardwoods Joint Venture (CHJV), a BCR-wide association of state and federal land management agencies and non-governmental organizations, has an on-going partnership with the USDA Forest Service's Northern Research Station to develop model-based decision support tools that predict bird species population responses to landscape-scale habitat restoration, as well as certain threats such as urban sprawl and climate change. The CFLP project would impact enough land to come close to the CHJV's population and habitat objectives for the entire 74 million acre BCR, as well as increase significant acreages of habitat for the other species in need of management attention as noted in the Ecological Context section above. The CFLR proposal area also coincides with The Nature Conservancy's highest priority Ozark watershed that contains 35 globally significant plants and animals and contains the majority of TNC's priority Big Spring Karst groundwater recharge area.

The Northern Research Station and University of Missouri are developing model based forecasts of how Ozark landscapes are likely to change under different climates, natural disturbance regimes, and landscape management options with funding for climate change research from Forest Service Research and Development. This presents a unique opportunity to develop rigorous management hypotheses to be evaluated in the proposed adaptive management framework. Furthermore, these partners are also evaluating habitat needs for the brown-headed nuthatch, a high concern species currently limited to more southern pine woodlands and savannas, to determine if conditions in the Ozarks are predicted to improve under some climate and management scenarios for this species. Other species such as the endangered red-cockaded woodpeckers could also be assessed using this approach. If future conditions are likely suitable for these species, management techniques such as facilitated dispersal or translocation might be considered to help them adapt to climate change.

The area encompassed by the CFLR proposal contains lands owned and managed by Missouri Department of Conservation, Missouri Department of Natural Resources, The Nature Conservancy, National Park Service and private conservation organizations in addition to the USDA Forest Service. Many restoration treatments have been implemented on this landscape by these partners, and many more are planned to move this important ecosystem to its desired condition and accomplish the goal of restoring this significant natural community. An educational component of this restoration activity will be accomplished by establishing a web page to describe the long term goals of the vegetation treatments in the area as well as providing current monitoring information. This web page will likely be linked with multiple web sites of the partners.

As the CFLR proposal was being developed, a meeting was convened (April 7, 2010) with the conservation partners to discuss the proposal in detail and identify potential contributions of the partners. The optimism among these conservation leaders was extremely high due to the potential for significant acceleration of the restoration of these woodland landscapes. This collaborative activity resulted in specific contributions for the CFLR proposal narratives and

landscape strategy including timber product utilization information, other partner management activity, and commitments to multiparty monitoring.

Top agency administrators from a variety of state and federal agencies committed their support to the project. These include the National Park Service – Ozark National Scenic Riverways, US Fish and Wildlife Service, Natural Resources Conservation Service, US Geological Survey, Missouri Department of Natural Resources, Central Hardwoods Joint Venture Management Board, and The Nature Conservancy.

http://www.chjv.org/CHJV_Pine_Restoration_Proposal_hidden.html

4 WILDFIRE

The MoPWR project will be beneficial to wildfire issues in Missouri by improving fire regime condition class across a broad area and by restoring a fire disturbance regime of frequent and low severity fires.

Fire management on the Mark Twain National Forest focuses on two aspects - using fire to meet resource and land management goals; and all activities required to protect life, property, and natural resources from fire. Management direction in the 2005 Forest Plan is to use prescribed fire to restore ecosystems, maintain healthy forests, provide wildlife habitat, and reduce hazardous fuels; and to use a proactive approach to fire and fuels management to improve and maintain forest health and reduce the intensity of wildland fires (Mark Twain National Forest Fire Management Plan 2010).

The pine-bluestem woodland ecosystem of the proposed project area is a fire adapted system that relies heavily on fire related disturbances to maintain openness and vegetative structure. Typical fires that occurred in this system were characteristically low-severity surface fires burning through the grasses/forbs fuel bed, while reducing the hardwoods in the understory. Years of fire suppression and intensive land use practices prior to National Forest establishment, have converted the system from relatively open pine/hardwood into a closed pine and mixed hardwood forest system, where the fuel bed is now composed of leaf litter and downed woody debris rather than grasses and forbs.

The natural historic fire regime for the proposed area is Fire Regime Condition Class I, (FRCC) which is a low severity surface fire regime where fires occur every 0 to 35 years. The changes in vegetative structure, species, and fire occurrences due to fire exclusion have driven our condition class to FRCC3 like most landscapes in the Eastern U.S. Recent data extracted from the LandFire website place 80% of the proposed area in FRCC3 and the other 20% in FRCC2. Over the past 25 years, projects in the proposed area have focused on thinning overstocked trees and prescribed burning to reduce the leaf and pine needle layer that inhibits growth of a grass and forbs ground cover that is historically typical of the area. These activities are designed to move from FRCC 3 or 2 toward FRCC 1, increasing species diversity and reestablishing the natural fire regime. This project would complement past efforts and speed the transition to a more natural state.

With current fuels and characteristic weather conditions in the Ozarks, wildfires are primarily surface fires that make short runs in the flashy light fuels (leaf litter, needles, and 1 hrs), and create high intensity behavior in pockets of heavier fuel, such as downed woody debris or logging slash, on even moderate fire weather days. Wildfires on the Mark Twain National Forest are normally low intensity fires that are usually suppressed in one operational period. Over 20 years, the Forest has averaged 193 wildfires per year, burning about 5900 acres annually. Approximately 99% of these fires are human-caused ignitions. Most wildfires are less than 100 acres and most burn at Fire Intensity Level (FIL) 1 corresponding to flame heights between 0 and 2 feet (Mark Twain National Forest Fire Management Plan 2010).

During heightened fire danger days or drought conditions, this landscape can have high intensity wildfires which can result in negative impacts to resources, particularly in areas with high fuel accumulation. The environmental effects of such fires can include root damage, altered soil properties, and increased soil erosion in the watershed. In very rare cases, wildfires with uncharacteristic behavior (such as crown fires)

can occur, especially during severe drought years that occur every 20-30 years. Effects on the public may include loss of resources (i.e., timber, fields), loss of homes and outbuildings, and air quality issues.

The risk of occurrence of uncharacteristic wildfire can be curtailed by management activities like prescribed fire and thinning treatments that address fuel conditions and improve stand structure. Prescribed fire will be used as a tool to control undesirable woody understory, increase the volume and diversity of ground flora and reduce heavy accumulation of down dead fuels (National Wildfire Coordinating Group 1989). By reducing the down dead fuels through prescribed fire, fuel amounts are decreased and continuous fuels are separated. If wildfires would occur after these treatments, the resulting fire behavior would be lower intensity and spread potential.

In order to change from FRCC2 toward FRCC1 (which is the ultimate goal), project areas in FRCC2 would need a timber treatment to reduce the basal area to the prescribed openness. This would be followed with two prescribed fires: first a low intensity burn to reduce the fuels created from thinning; and second, a higher intensity burn to reduce the undesirable woody species. The fires should create a mosaic pattern typical of high quality natural community sites.

To change from FRCC3 toward FRCC1 will take considerably more intensive treatment. The project areas in FRCC3 will need a relatively heavy thinning and understory reduction to reach desired stand structure. The prescribed fires would need to be relatively low intensity until fuel levels and continuity are low enough not to cause damage to the overstory trees with a higher intensity prescribed fire (National Wildfire Coordinating Group 1989). Three burn cycles after the stand structure objectives are met should move the condition class towards FRCC2 or FRCC1. Periodic low-intensity fires, herbicides, or both are necessary to control the relentless encroachment of hardwoods and improve growth of the pines (Wildland Fire in Ecosystems 2000)

Anticipated wildfire behavior on the restored landscape would be low intensity fire burning through grasses and fine dead fuels, with somewhat higher rates of spread when the surface fuel layer are converted from forest litter to grasses. Annual or biennial dormant season burns on the landscape would remove available dead fuels in the grass type preventing spread potential and lowering fire intensity.

Management response to wildfires that occur on the restored landscape in the Mark Twain National Forest protection boundary would adhere to the guidelines set in the 2005 LMP and current MTNF Fire management Plan. Management response to wildfires that occur within the proposed project area will include all options from monitor to active suppression and control. Pre-established prescribed fire firelines may be used as wildfire suppression firelines when conditions are appropriate. This could reduce the cost of suppression in these areas by reducing the amount of time and equipment needed for individual wildfires, although it may also result in increased wildfire size as indirect, rather than direct, attack would be used.

Currently, there are no Community Wildfire Protection Plans (CWPP) in place within the proposed project area. However, four counties associated with the project area are receiving Title III funds under the Secure Rural Schools and Community Self-Determination Act. They are developing plans for the use of these funds including FIREWISE and CWPPs.

5. Utilization

There are approximately 126,000 acres of National Forest System land within the CFLR landscape. Restoration treatments are planned to utilize an estimated 118.5 million board feet of sawtimber, and over 850,000 tons of biomass, which includes small roundwood and trees less than 5 inches DBH.

An established market exists for sawtimber (trees 11 inches DBH or greater.) Sawtimber can be removed with commercial timber sales. The market for small roundwood (trees from 5 inches up to 10 inches DBH) in the area has historically been poor to non-existent. However, a few mills have been utilizing small roundwood down to about 8 inches DBH for post and pallet material. If markets can be developed, small diameter material less than 8 inches DBH could be removed commercially. This would include topwood, small roundwood less than 8 inches DBH, and trees too small (2 to 5 inches DBH) to be categorized as small roundwood. Salvage material of sawtimber size but too deteriorated to be used for sawtimber may also be suitable for biomass products.

Potential uses of the small roundwood and topwood that do not presently have viable markets (8 inches or less DBH) include clean chips for pulp mills; dirty chips to fuel biomass generators and heating systems; dirty chips to provide heating for dry kilns at lumber mills; material for charcoal plants; and material for the manufacture of wood pellets. Dirty chips, which include bark, leaves, and small diameter material, may be produced by on-site chipping. Clean chips are produced from logs that have been debarked, and are used for high quality pulp products.

The present value of sawtimber is \$33.00 per MBF for pine and \$105.00 per MBF for hardwood. Currently the value of small roundwood for both hardwood and pine ranges from \$1.00 to \$7.00 per CCF (there are approximately 3 green tons per CCF). Presently there is not a viable market for the small “biomass” products from 2 inches to 8 inches DBH on the Mark Twain NF. In the early stages, before markets can be developed, this material may need to be cut and left on site to reach restoration goals. The approximate cost of cutting the material and leaving it on site is \$100.00 per acre.

The potential value of this small diameter material would be determined by several factors, including: which product the material was actually used for; logging costs; and transportations costs. Any value that could be obtained from the currently unmarketable biomass products could be used to help offset treatment costs. One benefit of this project would be to “prime the pump” by making available large numbers of small diameter trees in a concentrated area over a short time period and by partially subsidizing the current cost of moving these trees from “the stump to the markets”. Other activities are potentially stimulating biomass utilization in this area. Three schools in the area have recently received grants for biomass heating systems, and a proposed 32 megawatt biomass generator near Perryville, MO is planned to come online in 2012.

Mills in the area have begun using waste products from their operations as biomass to generate heat for their kilns and dryers. A pellet mill now operating near Seymour, MO initially used mill wastes as its primary raw material. However, now they are also purchasing material from local loggers and chipping and pulverizing it. Requested studies on the feasibility of starting another pellet mill in the area have shown favorable results.

Charcoal plants in the area historically used sawdust and wood waste generated by local mills for their raw material. The mills were anxious to be rid of their piles of sawdust, and the charcoal companies usually obtained it for little or nothing, mostly just paying the cost of fuel to haul it to them. However, they may soon be required to purchase this material in order to obtain it. Already, some of them are also buying slabs and chips from local sawmills for a percentage of their raw material.

Some of the mills in the area generate clean chips from some of their waste products. They are able to sell these chips to a pulp mill 110 miles away in Wickliffe, KY

At present, transportation costs in addition to logging and chipping costs preclude chips as an economically feasible primary product. However, there may be an opportunity to promote this market by providing a subsidy to allow chip providers to realize a profit. A profitable on-site chipping operation could utilize the presently non-merchantable biomass in small diameter trees, and help us meet restoration goals.

This project will provide additional raw materials to an existing forest products market. The increased availability of biomass products from treatments associated with restoration work will provide an economic boost to the fledgling biomass markets in the area, helping to maintain or increase local economies and job markets. It could also stimulate development of new markets and products.

6. INVESTMENTS

As the largest public landowner in the CFLR landscape, the Mark Twain National Forest (MTNF) has a large investment in the project area. In fiscal year 2010, the Mark Twain spent over \$1,000,000 on restoration work, including over 13,000 acres of prescribed burning. The Pineknott Woodland Restoration Project (Pineknott), a collaborative effort that began in the early 2000s, was the MTNF's first attempt at landscape-scale restoration in the project area. Since the Final EIS and Record of Decision were issued in 2003, thousands of acres and many hours have been devoted to implementing and monitoring restoration work.

The National Park Service manages the Ozark National Scenic Riverways and spends approximately \$675,000 annually on fire management and fire effects vegetation monitoring activities in the project area. The following excerpt is from their [website](#) “Apart from suppressing wildland fires, setting and monitoring controlled burns, or prescribed fires, is an essential part of fire activities in the Riverways. The National Park Service uses prescribed fires to reap the benefits of fire without threatening valuable forestland with catastrophic wildfire. These prescribed burns prove beneficial to several types of plants and animals found in the Riverways. The burns can help germinate seeds of the shortleaf pine, the only pine native to Missouri. Another very important benefit of prescribed burns is that of fuel reduction. By reducing the amount of thick, heavy, and dead underbrush, the Park Service can reduce the threat of large, dangerous wildfires at a later date.”

Three of the seven Missouri schools approved for “Fuels for Schools” grants, funded through The American Recovery and Reinvestment Act (ARRA) are within 30 miles of the landscape. Eminence School (\$350,000) is within the project area; Mountain View/Birch Tree School (\$850,000) is ten miles from the project boundary; South Reynolds county school (Ellington - \$970,000) is 30 miles away. These schools will install and operate boiler systems that use woody biomass from local forest land to heat and/or cool their facilities.

MDC manages the 22,000-acre Peck Ranch Conservation Area within the landscape. Located immediately adjacent to National Forest System lands, Peck Ranch is actively managed for ecosystem restoration by thinning, understory treatments, and applying prescribed fire. Annually, MDC invests over \$165,000 toward this restoration work. In addition to the on-the-ground management activities, MDC also does Outreach and Education, private land assistance, Human Dimensions, and research activities.

As required by the 2008 Farm Bill and by the USFS-State and Private Forestry Program, all states are required to prepare a Statewide Forest Resource Assessment and Strategy by June 2010 in order to continue to receive Cooperative Forestry Assistance Act funds. The purpose of Missouri's Forest Resource Assessment and Strategy (FRAS) is to ensure that limited funds are utilized on prioritized issues and landscapes where they will make the greatest impact toward sustainability of Missouri's forest and woodland resources, and to recruit additional partnerships and funding needed for this cause. While Missouri's FRAS has not yet been approved, it has been completely drafted and no major changes are anticipated. The MoPWR project is located entirely within three Priority Forest Landscapes identified in FRAS – Current River Hills, Black River Ozark Border, and St. Francois Knobs. MOPWR significantly

advances FRAS objectives at both the landscape level and statewide level. MoPWR directly advances at least 15 key strategies identified in FRAS and indirectly benefits several other FRAS strategies.

The Nature Conservancy (TNC) actively invests approximately \$280,500 a year in the project area. TNC conducts prescribed burns on around 2,500 acres of TNC and other private land. They conduct ecological monitoring, invasive species control, land stewardship, and habitat improvement work within the landscape. TNC invests in conservation easements, landowner outreach, and forestry services.

Currently, there are over 300 sawmills or timber facilities within 100 miles of MoPWR. Sixty-nine of those mills are in northern Arkansas; the rest are in southern Missouri. In recent years, two separate entities have procured favorable chip mill feasibility studies within or near MoPWR. Clearly, the area has the capability to develop or enhance existing timber products facilities to accommodate the volume of wood products associated with MoPWR.

Restoration capacity will be greatly enhanced by several efforts in or near MoPWR Project. Successful restoration depends, in part, upon reducing the number of stems per acre to allow development of the ground flora. Once the biomass industry ramps up in the area, more businesses will have the capability of removing small round wood and will lower the cost while increasing the capability of successful restoration work.

MoPWR is estimated to yield approximately 118 million board feet of sawtimber and 850,000 tons of biomass over a ten-year period with a net value of \$9.3 million and \$1.7 million respectively. In addition, MoPWR will invest over \$1.7 million in forest management each year. These added products and investments will support over 160 new jobs and have annual economic impact of over \$5.7 million in the Missouri Ozarks. These numbers include not only the direct effect of jobs in the primary wood processing industry (such as logging and sawmill operations) but also indirect and “induced” effects in the secondary wood products industry (such as cabinet shops, log cabs, paperboard manufacturing and so on) and in the economy as a whole as a result of the increased employment opportunities. Results are based on data collected by the US Bureau of Economic Analysis, the US Bureau of Labor Statistics, the US Department of Agriculture, and the Missouri Department of Conservation (MDC) in 2005 and 2006, and compiled by the Minnesota IMPLAN Group and MDC.

MDC, University Extension Service, and the Mark Twain NF are working closely with Missouri Forest Products Association to further restoration capacity in the area. We are hosting a field trip with wood producers to discuss product marketability and convey our vision of restoration work that needs to be completed. The collaborators are planning a demonstration project to show how implementation can be accomplished, beginning with harvesting, loading, transporting, and concluding with processing at a local mill. The [Twin Pines Conservation Education Center](#), operated by Missouri Conservation Department, is within the landscape, providing an excellent opportunity for field trips, training, and interpretation.

Other local training opportunities abound. Mingo Job Corps and the University of Missouri’s Forestry School summer camp are nearby. Three Rivers Community College in Poplar Bluff offers an associate’s degree in forestry. All three utilize their proximity to National Forest System lands for chainsaw certification and prescribed burning and wildfire qualifications.

7. FUNDING ESTIMATE

FY2010	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2010 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2010 Funding Type	Dollars/Value Planned
FY 2010 Funding for Implementation	\$1,985,000
FY 2010 Funding for Monitoring	125,000
1. USFS Appropriated Funds	954,000
2. USFS Permanent & Trust Funds	104,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	
6. Other (specify)	
FY 2010 Total (total of 1-6 above for matching CFLRP request)	1,055,000
FY 2010 CFLRP request (must be equal to or less than above total)	1,055,000
Funding off NFS lands associated with proposal in FY 2010 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2010 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2011	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2011 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2011 Funding Type	Dollars/Value Planned
FY 2011 Funding for Implementation	2,005,000
FY 2011 Funding for Monitoring	\$122,000
1. USFS Appropriated Funds	833,000
2. USFS Permanent & Trust Funds	\$231,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	
6. Other (specify)	
FY 2011 Total (total of 1-6 above for matching CFLRP request)	1,064,000
FY 2011 CFLRP request (must be equal to or less than above total)	1,063,000
Funding off NFS lands associated with proposal in FY 2011 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2011 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2012	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2012 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2012 Funding Type	Dollars/Value Planned
FY 2012 Funding for Implementation	\$2,067,000
FY 2012 Funding for Monitoring	\$119,000
1. USFS Appropriated Funds	1,093,000
2. USFS Permanent & Trust Funds	
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	
6. Other (specify)	
FY 2012 Total (total of 1-6 above for matching CFLRP request)	1,093,000
FY 2012 CFLRP request (must be equal to or less than above total)	1,093,000
Funding off NFS lands associated with proposal in FY 2012 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2012 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2013	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2013 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2013 Funding Type	Dollars/Value Planned
FY 2013 Funding for Implementation	\$1,697,000
FY 2013 Funding for Monitoring	\$10,000
1. USFS Appropriated Funds	854,000
2. USFS Permanent & Trust Funds	
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	
6. Other (specify)	
FY 2013 Total (total of 1-6 above for matching CFLRP request)	854,000
FY 2013 CFLRP request (must be equal to or less than above total)	854,000
Funding off NFS lands associated with proposal in FY 2013 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2013 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2014	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2014 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2014 Funding Type	Dollars/Value Planned
FY 2014 Funding for Implementation	\$2,142,000
FY 2014 Funding for Monitoring	\$16,500
1. USFS Appropriated Funds	807,000
2. USFS Permanent & Trust Funds	264,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	
6. Other (specify)	
FY 2014 Total (total of 1-6 above for matching CFLRP request)	1,071,000
FY 2014 CFLRP request (must be equal to or less than above total)	1,071,000
Funding off NFS lands associated with proposal in FY 2014 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2014 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2015	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2015 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2015 Funding Type	Dollars/Value Planned
FY 2015 Funding for Implementation	\$2,370,000
FY 2015 Funding for Monitoring	\$68,000
1. USFS Appropriated Funds	\$366,049
2. USFS Permanent & Trust Funds	368,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	485,000
6. Other (specify)	
FY 2015 Total (total of 1-6 above for matching CFLRP request)	1,219,000
FY 2015 CFLRP request (must be equal to or less than above total)	1,219,000
Funding off NFS lands associated with proposal in FY 2015 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2015 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2016	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2016 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2016 Funding Type	Dollars/Value Planned
FY 2016 Funding for Implementation	\$2,292,000
FY 2016 Funding for Monitoring	\$24,000
1. USFS Appropriated Funds	319,000
2. USFS Permanent & Trust Funds	476,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	485,000
6. Other (specify)	
FY 2016 Total (total of 1-6 above for matching CFLRP request)	1,308,000
FY 2016 CFLRP request (must be equal to or less than above total)	1,008,000
Funding off NFS lands associated with proposal in FY 2016 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2016 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2017	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2017 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2017 Funding Type	Dollars/Value Planned
FY 2017 Funding for Implementation	\$2,799,000
FY 2017 Funding for Monitoring	\$120,000
1. USFS Appropriated Funds	500,000
2. USFS Permanent & Trust Funds	
3. Partnership Funds	683,000
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	485,000
6. Other (specify)	
FY 2017 Total (total of 1-6 above for matching CFLRP request)	1,668,000
FY 2017 CFLRP request (must be equal to or less than above total)	1,159,500
Funding off NFS lands associated with proposal in FY 2017 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2017 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2018	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2018 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2018 Funding Type	Dollars/Value Planned
FY 2018 Funding for Implementation	\$1,724,000
FY 2018 Funding for Monitoring	\$177,000
1. USFS Appropriated Funds	\$257,500
2. USFS Permanent & Trust Funds	208,000
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	485,000
6. Other (specify)	
FY 2018 Total (total of 1-6 above for matching CFLRP request)	950,500
FY 2018 CFLRP request (must be equal to or less than above total)	950,500
Funding off NFS lands associated with proposal in FY 2018 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2018 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

FY2019	
Funds to be used on NFS lands for ecological restoration treatments and monitoring that would be available in FY 2019 to match funding from the Collaborative Forested Landscape Restoration Fund	
Fiscal Year 2019 Funding Type	Dollars/Value Planned
FY 2019 Funding for Implementation	\$1,516,000
FY 2019 Funding for Monitoring	\$0
1. USFS Appropriated Funds	273,000
2. USFS Permanent & Trust Funds	
3. Partnership Funds	
4. Partnership In-Kind Services Value	
5. Estimated Forest Product Value	485,000
6. Other (specify)	
FY 2019 Total (total of 1-6 above for matching CFLRP request)	758,000
FY 2019 CFLRP request (must be equal to or less than above total)	758,000
Funding off NFS lands associated with proposal in FY 2019 (does not count toward funding match from the Collaborative Forested Landscape Restoration Fund)	
Fiscal Year 2019 Funding Type	Dollars Planned
USDI BLM Funds	\$0
USDI (other) Funds – Ozark National Scenic Riverways (NSR)	\$675,000
Other Public Funding – MDC & MDNR	\$184,000
Private Funding – The Nature Conservancy	\$280,500

8. Funding Plan

The Eastern Region will support the MTNF's MoPWR project by providing an additional \$3,000,000 for the first three years. These additional funds are required to fulfill NEPA documentation for projects to be implemented in FY2015 through 2019, and to provide additional staffing to apply an accelerated implementation schedule, and do not count as matching funds under CFLRP.

CFLRP funds for FY 2010 will be obligated in FY2010 for IDIQ contracts already in place to accomplish work on the ground, including thinning of overstocked stands, creating permanent monitoring plots, and establishing boundary lines necessary for timber sales. CFRLP funds for FY2011 will be utilized for timber sale contract preparation, administration, and stewardship proposals, as well as similar activities as FY2010, in the MoPWR project.

An impressive monitoring strategy will be implemented for the MoPWR project. The multiparty collaborative group has expanded their existing monitoring plan for 15 years to meet the requirements of CFLRP. The Mark Twain National Forest will continue working with TNC to resample over 100 permanent vegetation monitoring plots. Additionally, they will team with the University of Missouri Extension and Missouri Department of Conservation documenting jobs created, skills gained, quantities and values of wood products, social acceptance, and travel to the worksite. Northern Research Station and the University of Missouri will use the MoPWR project for developing models associated with habitat needs and climate change.

The Mark Twain National Forest receives approximately \$9.5 million dollars annually in appropriated funding and trust fund authorizations typically utilized for planning, implementing and monitoring of vegetation management and prescribed burning. The Regional Forester has been using regional funds for planning, implementation and monitoring in the MoPWR project area for over five years. The Regional Forester expects to continue funding the Mark Twain National Forest at levels similar to the past, exclusive of CFLR funds. In addition, the Regional Forester will be providing additional support for out-year planning efforts to insure that the entire 10 year program of work is completed consistent with the schedule of work submitted with this proposal.

9. USDI Funding & 10. Other Funding

No USDI or other funds are planned for expenditure on National Forest System lands. Therefore, these sections are not applicable to this project.

11. MAPS

Map 1 – Vicinity Map

http://www.chjv.org/images/Map_1_MoPWR_vicinity_map.pdf

Map 2 – Prescribed Fire Map

http://www.chjv.org/images/Map_2_MoPWR_Rx_fire.pdf

Map 3A – Treatment Proposal

http://www.chjv.org/images/Map_3A_%20MoPWR_Treatment_Proposal.pdf

Map 3B – Treatment Proposal (cont)

http://www.chjv.org/images/Map_3B_MoPWR_Treatment_Proposal.pdf

12. LANDSCAPE STRATEGY

THE VISION: A RESTORED SHORTLEAF PINE-OAK BLUESTEM WOODLAND LANDSCAPE

The Collaborative Forest Landscape Restoration Program provides an exciting opportunity for the Mark Twain National Forest to obtain the additional funding necessary to accelerate restoration activities in a priority landscape. In conjunction with our collaborators, we have the potential to realize landscape restoration on 115,000 acres of fire-adapted shortleaf pine bluestem and mixed pine oak woodland restoration. These activities could spark emergence of Missouri's small diameter woody biomass industry within the next 10 to 15 years and provide an economic lift to rural communities.

The collaborative group (Mark Twain National Forest and other state, federal and private organizations) have previously initiated landscape restoration on their respective lands on 45,000 acres within the Current River Woodland Landscape. The Mark Twain National Forest has already planned to treat an additional 26,000 acres, including 53 million board feet of sawtimber, 285,000 tons biomass and 41,000 acres of prescribed burn treatments in the next 5 years. If CFLRP funds are approved, those planned treatments can be accelerated, and additional treatment can be implemented. Those additional treatments would include another 62,000 acres of mechanical treatments and 23,000 acres of prescribed burning, producing 67 million board feet of sawtimber and 571,000 tons of biomass.

Implementation Strategy

The restoration treatments targeted in the MoPWR proposal currently fall in a wide range in the planning cycle. Treatments planned for fiscal years (FY) 2011-2014 are from approved NEPA decisions. These are referred to as "Existing Planned" in the tables. Implementation of these treatments can be planned with a greater degree of confidence. However, some flexibility must be factored in because the sequence of treatments in many stands requires a commercial harvest to take place first, followed by a non-commercial treatment, and then prescribed fire. It is sometimes difficult to predict the rate at which a commercial harvest via a timber sale contract will be carried out. Years 2015-2019 are referred to as "Future Planned" activities because these future proposed treatments are not currently approved by a NEPA decision and are subject to change during the environmental analysis process. We relied on our Geographic Information System (GIS) and local knowledge of the landscape to estimate restoration activity levels for those future activities. Our planning strategy is to complete all needed NEPA analyses by 2014 using contracted or detailed interdisciplinary team (ID Team). There is extensive work to

complete before we can obtain our National Historic Preservation Act and Endangered Species Act clearances, which are necessary prior to final NEPA decision.

In the preparation of this proposal, the Forest, in cooperation with collaborators, is strategically looking at creative ways of accelerating contracting efforts that effectively accomplish “Existing Planned” activities within the next four years. In order to accomplish accelerated restoration treatments, the Forest would require additional resources, such as sale prep foresters and contracting specialist, and more concerted efforts toward collaboration and marketing with local timber industry, trade representatives and potential stewardship partners. The Forest, with sufficient institutional capacity can seek out creative, flexible, and innovative ways to assist industry and partners in accomplishing restoration efforts. These efforts could include the following:

1. Seek markets and willing investors for small diameter products and biomass.
2. Find creative incentives that allow contractors, and/or purchasers to remove biomass economically.
3. Find market-driven means of reducing the cost of non-commercial restoration treatments.

Existing Planned Restoration Treatments – Since 2005, slightly over 26,000 acres of mechanical and prescribed fire activities have been approved through EA level decisions. In this proposal, we refer to those NEPA-approved activities as “Existing Planned.” Attachment 1 (<http://www.chjv.org/images/Attachment_1_Future_Planned_Treatments.pdf>) provides a detailed listing of those treatments for fiscal years 2011-2015.

Future Planned Restoration Treatments– The best available information and experience was used to determine the amount of restoration activities that should and/or could be accomplished to meet the landscape objectives. Several assumptions have been made in constructing this proposal. Attachment 2 displays the future planned activities by planning units (Attachment 2 <http://www.chjv.org/images/Attachment_2_Future_Planned_Treatments.pdf>). The assumptions are:

1. Timber volumes are available and are relatively uniform across the landscape.
2. Biomass markets will develop, allowing commercial sale of biomass product.
3. Timber sales will be sold, executed, and closed within 2 to 3 year timeframe.
4. Additional NEPA decision(s) will be completed within four years.

The amount of treatments identified within the proposal area represents a workload that is outside our current capacity to accomplish.

Restoration Activities	Mechanical Treatments (ac)	Rx Fire (ac)	Sawtimber Volume Estimate (board feet)	Biomass Estimate (tons)
Existing Planned	26,000	41,000	53,000,000	286,000
Future Planned	62,000	23,000	67,000,000	571,000
Totals	88,000	64,000	120,000,000	857,000

Cost of Implementation	Value of Byproducts Produced	Value of Landscape Restoration
\$20,371,988	\$12,697,087	PRICELESS!

CONCLUSION

The MoPWR proposal is designed to restore pine-oak woodlands on a landscape scale to an area of great ecological significance. In addition, the proposal is designed to leverage contributions from other federal, state, and non-governmental organizations. The implementation of this proposal will also move the area towards the desired Fire Regime Condition Class, improve the biodiversity and resilience of the ecosystem, and at the same time boost the local economy, produce wood products, and work towards jumpstarting a new industry with potential to positively affect climate change and reduce our dependency on foreign oil.

KEY WEBSITE LINKS:

MoPWR proposal website http://www.chjv.org/CHJV_Pine_Restoration_Proposal_hidden.html

Mark Twain National Forest Land and Resource Management Plan (Forest Plan)
http://www.fs.fed.us/r9/forests/marktwain/projects/forest_plan/

Central Hardwoods Joint Venture: http://www.chjv.org/CHJV_Strategic_Plan.html

Missouri Comprehensive Wildlife Strategy: <http://mdc.mo.gov/nathis/cws/coa/>

Current River Opportunity Area: <http://mdc4.mdc.mo.gov/Documents/17994.pdf>

Missouri Natural Areas System: <http://mdc.mo.gov/nathis/naturalareas/natdir/>

Ecological Significance of Missouri’s Shortleaf Pine-Oak natural communities:

http://www.natureserve.org/explorer/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=assoc_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=689963&paging=home&save=true&startIndex=41&nextStartI (Critically imperiled)

http://www.natureserve.org/explorer/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=assoc_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=684130&paging=home&save=true&startIndex=61&nextStartI (Vulnerable)